MINUTES
TOWN OF AMHERST
AMHERST PLANNING BOARD MEETING
January 13, 2022
6:30 PM

The Planning Board meeting on January 13, 2022 will be held via Zoom. **The public will have an opportunity to view and participate in the meeting live.**
The Public may view and participate via video or audio call in - Join the Zoom Meeting at 6:30 pm:
Zoom Meeting Computer/Visuals Link: https://us02web.zoom.us/j/82924114812?pwd=M3hPNWpFYmJGanlwZzZOVmx5UEtYZz09

Call-In Instructions:
1-646-558-8656
Meeting ID: 829 2411 4812
Password: 337275

Note to Callers: Your phone number will display to the public, to conceal your number enter *67 before you enter the phone number above.

Participation Instructions: To comment during a public meeting, participants must "raise their hand" to be recognized for speaking. Call-in participants must dial *9 and participants using the Zoom application must click the "raise hand" button.

Residents and other members of the public are encouraged to provide comments or questions in writing, by email, or by telephone to the Planning Department prior to the meeting. Questions and comments must be received by January 12, 2022 to be forwarded to Planning Board members in time for the meeting. Comments and questions may be sent to:

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

OR

Email:
acarrato@amherst.ny.us
Phone:(716) 631-7051
Fax: (716) 631-7153

The Planning Board will hold a public work session at 6:00 PM via Zoom.

This meeting is being video recorded.

The plans and documents that are available below for each Planning Board hearing item were submitted by the project applicant and are intended to provide general information about the proposal.

The official, complete sets of submittal documents and materials that provide more detailed information about the projects are available in the Planning Department, which is located in Amherst Town Hall, 5583 Main Street, Williamsville, NY 14221. Hours are 9 am to 5 pm, Monday through Friday. If you have any questions, please contact the Planning Department at (716) 631-7051.
Revised plans are submitted on an ongoing basis throughout the review process to address comments on the project. Every effort will be made to post the most recent version of the plans and application materials in a timely manner.

ROLL CALL

Attendee Name	Organization	Title	Status	Arrived
Robert J. Gilmour	Town of Amherst	Chair	Remote	
Michael Chmiel	Town of Amherst	Board Member	Absent	
Stephanie S. Gelber	Town of Amherst	Board Member	Absent	
Harbinder Gill	Town of Amherst	Board Member	Remote	
Dal Giuliani	Town of Amherst	Board Member	Remote	
Brittany Lee Penberthy	Town of Amherst	Board Member	Remote	
Joseph P. Raffaele Jr.	Town of Amherst	Board Member	Absent	
Dan Howard	Town of Amherst	Planning Director	Remote	
Daniel J. Ulatowski	Town of Amherst	Assistant Planning Director/ZEO	Remote	
Scott Marshall	Town of Amherst	Principal Planner	Remote	
Roberta Rappoccio	Town of Amherst	Associate Planner	Remote	
Thomas J. Voigt	Town of Amherst	Assistant Planner	Remote	
Gary Palumbo	Town of Amherst	Associate Planner	Remote	
Amy Carrato	Town of Amherst	Sr. Clerk Typist	Remote	
Bryan Fadel	Town of Amherst	Sr. Clerk TYpist	Remote	
Jacqualine Berger	Town of Amherst	Councilmember	Remote	
Ann Demopoulos	Town of Amherst	Deputy Town Attorney	Remote	

Note: There will be no public hearing or opportunity to speak for the projects listed under the Unfinished Business section of this agenda.

Please note the following time limits for speakers at Planning Board hearings:

- **Presentation by Petitioner: 15 minutes**
- **Rebuttal by neighborhood/resident spokesperson: 15 minutes**
- **Individual speakers: 3 minutes**

PUBLIC HEARINGS

SITE PLANS & RELIEF FROM CONDITIONS OF SITE PLANS

None

1. PROPOSED SAWYER'S LANDING MIXED USE DEVELOPMENT, SP-2021-05
Property located at 1081 North French Road (portion) (NCD) (Muir Woods Site A)
Sawyer's Landing LLC, Petitioner

May 20, 2021

No comments were heard on this proposal. The Petitioner requested an adjournment. Mr. Giuliani moved to adjourn. The motion was seconded by Mr. Chmiel and carried. Ayes 7, Noes 0.

June 24, 2021

No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Penberthy moved to adjourn and remove from the agenda until such time as the petitioner requests placement on a future agenda. The motion was seconded by Mr. Gill and carried. Ayes 6, Noes 0, Absent 1 (Gelber).

January 13, 2022

No comments were heard on this proposal. The Petitioner requested an adjournment. Mr Giuliani moved to adjourn until the February Planning Board meeting. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Dal Giuliani, Board Member	
SECONDER:	Harbinder Gill, Board Member	
AYES:	Gilmour, Gill, Giuliani, Penberthy	
ABSENT:	Chmiel, Gelber, Raffaele Jr.	

2. PROPOSED SOLAR FARM - SITE LAYOUT CHANGES, SP-2020-14A
Property located at 595 Schoelles Road
Amherst Community Solar LLC, Petitioner

Proposed amendments to the originally approved site plan include modifications to the fence layout at the northwest corner, installation of a temporary stone access road, relocation of equipment pads from the north side to the west side of the compound within the fenced area, and elimination of proposed central culvert crossing to accommodate the change in array configuration. The project is a 15± acre solar energy development consisting of a maximum of 13,260 solar panels that will be post mounted in a southerly orientation with a potential output of 3.5 - 4 mw of energy. A 75 ft. paved access driveway will be located at the west end of the frontage along Schoelles Road. A 6 ft. tall, black vinyl coated chain link fence and high impact screening will be required on all four sides of the solar array enclosure and adjacent property lines. An additional agricultural use will be included in the project to be determined at a later date.

Jason Burford, Greenman-Pedersen, Inc. represented the petitioner, explained the proposal and was available to answer questions from the Board. Jeff Palumbo, Barclay Damon, and Steve Ramsaur, Amherst Community Solar , were also present.

In response to the Board's questions, Mr. Burford stated the base of the temporary road will remain but vegetation will grow over it.

Gabrielle Heim, 620 Schoelles Road, spoke regarding landscaping and Ann Taylor, 553 Schoelles Road, spoke regarding drainage concerns.

No further comments were heard on this proposal.

No further comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Giuliani moved to approve the Negative Declaration. The motion was seconded by Ms. Penberthy and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

Following the approval of the Negative Declaration, Mr. Giuliani moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Gilmour, Gill, Giuliani, Penberthy
ABSENT:	Chmiel, Gelber, Raffaele Jr.

3. PROPOSED OFFICE BUILDING AND ROADWAY, SP-2021-23
Property located at 2190 & 2220 Wehrle Drive
Acquest Wehrle LLC, Petitioner

Proposed in the northwest portion of the subject area a secured compound containing an 84,375 sq. ft. three-story office building, a 24,750 single story garage / maintenance / storage building, a 72,072 sq. ft. two-story parking garage and a one-story security booth are proposed along with 228 parking spaces (including those in the parking ramp) and having site access via a proposed 1,750± lineal foot roadway. Secondary emergency access to the site is proposed via a gated vehicular access to the Limestone Office Park building located at 17-20 Limestone Drive off of Main Street. The proposed public cul-de-sac roadway, public utilities and stormwater facilities are located on the eastern portion of the site and are intended to serve full build out of the entire development of the 2190 & 2200 Wehrle Drive parcels. Plans additionally show a possible future building which is not part of the current request in the southwest portion of the subject parcel.

Jason Utzig, C & S Engineers, represented the petitioner, explained the proposal and was available to answer questions from the Board. Michael Huntress, Acquest Wehrle LLC, was also present.

In response to the Board's questions, Mr. Utzig stated the clouds drawn on the plans indicate revisions that have been made, he doesn't have the distance of the green space and eastern boundary of the site with him, the roadway was developed in accordance with Town Code, the Fire Chiefs' comments have been addressed and submitted, and the roadway was designed to be public. Mr. Huntress stated the project is speculative and they would like a shovel ready site, the national development level shows a need for vehicle storage for potential users, and he is open to conditions on an approval of presenting uses to the Planning Department, Fire Chiefs' and ATSB comments.

Bruce Wisbaum spoke regarding concerns of the proposal. Mr. Huntress stated he will discuss with Mr. Wisbaum.

No further comments were heard on this proposal.

Following discussion, Mr. Giuliani moved to adjourn the proposal. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Dal Giuliani, Board Member	
SECONDER:	Harbinder Gill, Board Member	
AYES:	Gilmour, Gill, Giuliani, Penberthy	
ABSENT:	Chmiel, Gelber, Raffaele Jr.	

4. PROPOSED THE WELL BUFFALO CHURCH - BUILDING EXPANSION, SP-1988-21B
Property located at 995 Dodge Road
The Well Buffalo, Petitioner

A proposed 13,960 s.f. single-story 29-foot addition to theWELLbuffalo church consisting of a 500-seat sanctuary, offices, activity space, associated parking expansion, landscaping, a 900 s.f. 1-story garage and ancillary site improvements.

Corey A. Auerbach, Esq., Barclay Damon, represented the petitioner, explained the proposal and was available to answer questions from the Board.

In response to the Board's questions, Mr. Auerbach stated the exterior materials proposed meet the requirements of Town Code other than the corrugated metal siding, the petitioner added 8 feet of brick from original design which did not include any, there are limited options in a prefabricated building, the height of the porte-cochère is to meet Fire regulations, the closest neighbor and congregation supports the design, the building is not outwardly facing and sits in the middle of an 8-acre site,

No further comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Gill moved to adjourn decision on the proposal. The motion was seconded by Mr. Giuliani and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Harbinder Gill, Board Member	
SECONDER:	Dal Giuliani, Board Member	
AYES:	Gilmour, Gill, Giuliani, Penberthy	
ABSENT:	Chmiel, Gelber, Raffaele Jr.	

5. PROPOSED THE PRESERVE AT MUIR WOODS PHASE IV, SP-2021-24
Property located at 520 Campbell Boulevard (NCD)
Ciminelli Muir Woods, Petitioner

No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Penberthey moved to adjourn until the February Planning Board meeting. The motion was seconded by Mr. Giuliani and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Brittany Lee Penberthy, Board Member	
SECONDER:	Dal Giuliani, Board Member	
AYES:	Gilmour, Gill, Giuliani, Penberthy	
ABSENT:	Chmiel, Gelber, Raffaele Jr.	

SUBDIVISIONS & RELIEF FROM CONDITIONS OF SUBDIVISIONS

None

6. PROPOSED SKETCH PLAN FOR 18-LOT SUBDIVISION, SUB-2021-01_SK
Property located at 166 Klein Road
Regency Builders LLC, Petitioner

August 19, 2021

No comments were heard on this proposal. The Petitioner requested an adjournment. Mr. Giuliani moved to adjourn and remove from the agenda until such time as the Petitioner requests placement on a future agenda. The motion was seconded by Mr. Chmiel and carried. Ayes 7, Noes 0.

January 13, 2022

No comments were heard on this proposal. The Petitioner requested an adjournment. Mr. Giuliani moved to adjourn until the February Planning Board meeting. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Dal Giuliani, Board Member	
SECONDER:	Harbinder Gill, Board Member	
AYES:	Gilmour, Gill, Giuliani, Penberthy	
ABSENT:	Chmiel, Gelber, Raffaele Jr.	

REZONING & RELIEF FROM CONDITIONS OF REZONINGS

None

7. REQUEST TO REZONE 3.93± ACRES OF LAND FROM GB TO SC-3, Z-2021-10
Property located at 100 Maple Road
Aria Buf Maple LLC, Petitioner

The purpose of this rezoning request is to allow the petitioner to convert existing extended stay hotel into 112 apartments for lease. The rezoning request was a condition of the Zoning Board of Appeals Use Variance decision.

Peter Sorgi, Esq., Hopkins Sorgi & McCarthy, represented the petitioner, explained the proposal and was available to answer questions from the Board.

No further comments were heard on this proposal.

Following later discussion, Mr. Giuliani moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Gilmour, Gill, Giuliani, Penberthy
ABSENT:	Chmiel, Gelber, Raffaele Jr.

MISCELLANEOUS

8. PROPOSED LOCAL LAW TO AMEND THE ZONING ORDINANCE: AMENDMENTS TO CHAPTER 203, PART 5A MIXED USE DISTRICTS, ZTA-2021-02
Town of Amherst, Petitioner

The draft local law is an amendment to the Town Zoning Ordinance which amends the text of the recently adopted Mixed-Use regulations. The amendments are necessary based on challenges experienced by the Planning Department with the application of the regulations and practical difficulties which may be encountered for land owners during redevelopment. The initial changes include, the ability to permit new buildings and additions without a required second functional story, allowing for decorative architectural elements up to 48" above the roof height, permitting pole signs within the center and corridor zoning districts and prohibiting such signs within the traditional infill districts, increased door entrance spacing in the village frontage type, flexibility in the block perimeter requirement when existing conditions present practical difficulties and permitting drive up ATM machines as an accessory use within the shallow corridor district. Subsequent draft changes to the Mixed-Use regulations are anticipated in the future after the Planning Department has consulted with its Code consultant.

Daniel Ulatowski, Assistant Planning Director, represented the petitioner, explained the proposal and was available to answer questions from the Board.

In response to the Board's questions, Mr. Ulatowski stated requiring 10% of parking spaces to be equipped with electronic vehicle charging stations is too excessive, requiring 1% of parking spaces to be equipped with electronic vehicle charging stations is more realistic and accurate based on usage.

No further comments were heard on this proposal.

Following discussion, Mr. Giuliani moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Gilmour, Gill, Giuliani, Penberthy
ABSENT:	Chmiel, Gelber, Raffaele Jr.

OTHER COMMUNICATIONS

None

All public hearings are completed and closed at the termination of public discussion for each agenda item unless otherwise specified by the Chair.

UNFINISHED BUSINESS

Note: All public hearings have been completed. There will be no public hearings for items listed under this section.

SITE PLANS & RELIEF FROM CONDITIONS OF SITE PLANS

None

SUBDIVISIONS & RELIEF FROM CONDITIONS OF SUBDIVISIONS

None

REZONING & RELIEF FROM CONDITIONS OF REZONINGS

None

MISCELLANEOUS

9. PROPOSED SIDEWALK WAIVER REQUEST, SWW-2021-07
Property located at 4224-4256 Ridge Lea Road
Benderson Development Company LLC, Petitioner

Mr. Giuliani moved to approve the request based on the resolution. The motion was seconded by Ms. Penberthy and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

Following discussion and the addition of conditions the motion was amended.

Ms. Penberthy moved to approve the request as amended. The motion was seconded by Mr. Giuliani and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Brittany Lee Penberthy, Board Member
SECONDER:	Dal Giuliani, Board Member
AYES:	Gilmour, Gill, Giuliani, Penberthy
ABSENT:	Chmiel, Gelber, Raffaele Jr.

10. VIRTUAL MEETINGS RESOLUTION

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Gilmour, Gill, Giuliani, Penberthy
ABSENT:	Chmiel, Gelber, Raffaele Jr.

OTHER COMMUNICATIONS

None

DIRECTOR'S REPORT

MINUTES APPROVAL

November 18, 2021
Ms. Penberthy moved to approve the minutes. The motion was seconded by Mr. Giuliani and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ADJOURNMENT

The Planning Board meeting of January 13, 2022 was adjourned at 8:29 pm.

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Bryan Fadel
Initiator: Dan Howard
Sponsors:
DOC ID: 23057

TABLED

PLANNING BOARD ITEM (ID # 23057)

Proposed Sawyer's Landing Mixed Use Development, Sp-2021-05

Property located at 1081 North French Road (portion) (NCD) (Muir Woods Site A)
Sawyer's Landing LLC, Petitioner

May 20, 2021

No comments were heard on this proposal. The Petitioner requested an adjournment. Mr. Giuliani moved to adjourn. The motion was seconded by Mr. Chmiel and carried. Ayes 7, Noes 0.

June 24, 2021

No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Penberthy moved to adjourn and remove from the agenda until such time as the petitioner requests placement on a future agenda. The motion was seconded by Mr. Gill and carried. Ayes 6, Noes 0, Absent 1 (Gelber).

January 13, 2022

No comments were heard on this proposal. The Petitioner requested an adjournment. Mr Giuliani moved to adjourn until the February Planning Board meeting. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

HISTORY:

05/20/21	**Planning Board**	**ADJOURNED**	**Next: 01/13/22**
06/24/21	**Planning Board**	**ADJOURNED**	**Next: 08/19/21**

ATTACHMENTS:

- SP-2021-05_application_052021 (PDF)
- SP-2021-05_drawings_052021 (PDF)
- SP-2021-05_Draft_Resolution_052021 (PDF)
- SP-2021-05_application_061721 (PDF)
- SP-2021-05_drawings_061721 (PDF)
- SP-2021-05_adjournment_052021 (PDF)
- SP-2021-05_adjournment_062421 (PDF)
- SP-2021-05_application_011322 (PDF)
- SP-2021-05_drawings_011322 (PDF)
- SP-2021-05_draft resolution_011322 (PDF)
- SP-2021-05_adjournment_011322 (PDF)

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Dal Giuliani, Board Member	
SECONDER:	Harbinder Gill, Board Member	
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy	
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.	

Application for Site Plan Approval 1021 North French Road [Including Subdivision of Project Site] - Proposed Mixed-Use Project - Site "A" of Muir Woods Property
Applicant: Sawyers Landing LLC

Prepared By: Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 510-4338
E-mail: shopkins@hsr-legal.com

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: SP-2021-05 **Acreage** 17.42 **Fee $** 13,315.00

Address Verified by Assessor's Office
VERIFIED BY DATE

Site Plan Review

		Fill In Applicable Fees
1 acre or less	$1,250.00	$1,250.00
Each Additional acre or fraction thereof	$ 650.00/acre	$11,050.00
Amendments to Site Plans	$1,200.00	
Request for Relief of / or Change to Conditions of Site Plan Approval	$1,200.00	
Request for Extension of Site Plan Approval	$ 450.00	
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	
5-10 Acres	$ 750.00	
>10 Acres	$1,000.00	$1,000.00
Affidavit Fee for Public Hearing	$ 15.00	$15.00
	TOTAL FEE:	$ 13,315.00

Materials Received by Planning Department
RECEIVED BY DATE

RECEIVED FEB 22 2021 TOWN OF AMHERST PLANNING DEPT.

Materials Accepted by Town Clerk & Fee Paid
ACCEPTED BY DATE

To Be Completed By Applicant

Petitioner: Name: Sawyers Landing LLC c/o Sean W. Hopkins, Esq.

Address: 5500 Main Street, Suite 343

Williamsville, New York 14221

city state zip code

Phone: 510-4338 Fax: _____ E Mail: shopkins@hsr-legal.com

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Name: Christopher Wood, P.E.

Address: Carmina Wood Morris DPC

483 Main Street, Suite 600

Buffalo (city) New York (state) 14203 (zip code)

Phone: 842-3165 [Ext. 103] Fax: 842-0263

E Mail: cwood@cwm-ae.com

Project Location (must be verified by Town Assessor's Office):

Address: Portion of 1081 North French Road

SBL No(s): 40.08-3-13.1/A

Project Name: Proposed Mixed-Use Project

Project Description:

See attached Exhibit "2" for Project Description. The layout of the proposed mixed-use project to be located on the New Community District - General Commercial ("NCD-GC") zoned property at 1081 North French Road as depicted on the Overall Site Plan [Drawing C-100] prepared by Carmina Wood Morris DPC. A reduced size copy of the Overall Site Plan is provided at Exhibit "3". and a reduced size copy of the Site Plan [Drawing C-101] is provided at Exhibit "4". The proposed mixed-use project includes the subdivision of the 17.42 acre Project Site into 52 parcels as depicted on the Parcel Map [Drawing C-102] prepared by Carmina Wood Morris DPC. A reduced size copy of the Parcel Map [Drawing C-102] is provided at Exhibit "5".

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

Not Applicable.

Gross Floor Area (non-residential):	0 existing	30,000 sq. ft. proposed	30,000 sq. ft. total
Number of Residential Units:	0 existing	206 proposed	206 total
Number of Parking Spaces:	0 existing	505 proposed	505 total

Acreage of Parcel: 17.42 Acres

Frontage on Public Roads: The proposed parcel will have approximately 1,120 ft. on Dodge Road and approximately 120 ft. of frontage on Sweet Home Road.

Existing Zoning District(s) NCD-GC

[Note: A completed Part 1 of the Full Environmental Assessment Form prepared pursuant to the State Environmental Quality Review Act ("SEQRA") is attached as Exhibit "1" of this Site Plan Application.]

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Exhibit 1 – Part 1 of the Full Environmental Assessment Form prepared pursuant to the State Environmental Quality Review Act ("SEQRA") with attached Page 5[a] and Attachments "A" and "B"

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Full Environmental Assessment Form Part 1 - Project and Setting

Prepared By: Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 716.510-4338
E-mail: shopkins@hsr-legal.com

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Proposed Mixed-Use Project - Site A of Muir Woods		
Project Location (describe, and attach a general location map): Portion of 1081 North French Road - Town of Amherst - Erie County		
Brief Description of Proposed Action (include purpose or need): The proposed action consists of a request for Site Plan Approval [including the subdivision of the Project Site] for a mixed use project consisting of 2 four story mixed-use buildings [15,000 sq. ft of commercial space and 50 units per building], 47 two-family town homes on individual lots and 2 single-story apartment buildings [6 units per building] along with all related site improvements depicted on the fully engineered plans prepared by Carmina Wood Morris DPC. A reduced size copy of the Overall Site Plan [Drawing C-100] is provided at Exhibit "3". The action has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed driveway connections to Dodge Road, access aisles, parking spaces, driveways, wetland impacts, lighting, landscaping, on-site storm water management improvements, sanitary sewer and water lines and connections and all other required utility improvements. The project purpose is to develop Site "A" of overall Muir Woods Project Site as a mixed-use project. The proposed mixed-use project is a Type I action pursuant to SEQRA and the Town Board issued an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") on October 19, 2020 to allow mixed-use development of the Project Site. On October 19, 2020, the Town Board also adopted a resolution to amend the Town's Comprehensive to designate the Project Site as appropriate for mixed-use.		
Name of Applicant/Sponsor: Sawyers Landing LLC c/o Sean Hopkins, Esq.	Telephone: 716.510-4338 E-Mail: shopkins@hsr-legal.com	
Address: 5500 Main Street, Suite 343		
City/PO: Williamsville, NY	State: NY	Zip Code: 14221
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor): Ciminelli Muir Woods, LLC c/o Adam Faeth, Esq.	Telephone: 716.631-8000 E-Mail: afaeth@ciminelli.com	
Address: 50 Fountain Plaza, Suite 500		
City/PO: Buffalo	State: NY	Zip Code: 14202

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Sewage Works Corporation and PIPs	To be determined
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Planning Board - Site Plan Approval [includes Subdivision Approval - 52 lots]	February 22, 2021
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Building Department - Building Permits; Amherst IDA [PILOT, etc.]	To be determined
e. County agencies ☑Yes ☐No	ECPDW - Highway Work Permit; ECWA - Water; ECHD - Sewer and Water	To be determined
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC - Amended Wetland Permit; DSCA Approval, Sewage Work Corp. & SPDES Permit	Amended Wetland Permit issued on 12/24/20; To be determined.
h. Federal agencies ☑Yes ☐No	USACE - Amended Wetland Permit [Pending]	July 1, 2020

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

NYS Heritage Areas:West Erie Canal Corridor [Note: The project will not have any impacts on the West Erie Canal Corridor.]

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Site "A" of the Muir Woods property is zoned New Community District - Neighborhood District ("NCD-ND") pursuant to the Town of Amherst Zoning Map.

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police Department

c. Which fire protection and emergency medical services serve the project site?
Volunteer Fire Department

d. What parks serve the project site?
Various Town Parks including Nature View Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?Mixed-use project consisting of 2 four-story buildings with 15,000 sq. ft. of 1st floor commercial space and 50 apartments per building; 47 two-family townhomes; and two six-unit single-story apartment buildings.

b. a. Total acreage of the site of the proposed action? 28.47 acres
b. Total acreage to be physically disturbed? 17.0 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 326 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % Units:

d. Is the proposed action a subdivision, or does it include a subdivision? ☑ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
The 45 two-family townhome buildings will consist of individual lots and mixed-use buildings may consist of separate parcels.
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? 52 [47 lots for the two-family townhomes]
iv. Minimum and maximum proposed lot sizes? Minimum 3300 sf Maximum 6.81 Acres

e. Will the proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: ____ months
ii. If Yes:
- Total number of phases anticipated 3-4
- Anticipated commencement date of phase 1 (including demolition) Fall month 2021 year
- Anticipated completion date of final phase July month 2024 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:
The infrastructure necessary for each phase will be installed to ensure compliance with applicable technical standards including those for stormwater management.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

f. Does the project include new residential uses? ☑ Yes ☐ No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase		20		50
At completion of all phases		47		112

The build-out of the residential components will be based on market conditions.

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No
If Yes, There will be 15,000 sq. ft. of commercial space in each of the two 4-story mixed-use buildings.
i. Total number of structures 2
ii. Dimensions (in feet) of largest proposed structure: 55' height; 80' width; and 225' length
iii. Approximate extent of building space to be heated or cooled: 30,000 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑ Yes ☐ No
If Yes,
i. Purpose of the impoundment: Storm water management
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☑ Other specify: Storm water runoff from impervious surfaces.
iii. If other than water, identify the type of impounded/contained liquids and their source.
N/A
iv. Approximate size of the proposed impoundment. Volume: ____ million gallons; surface area: 1.5 acres
v. Dimensions of the proposed dam or impounding structure: N/A height; ____ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):
Impoundment area is an excavation consisting of earth fill.

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No
If Yes:
i. What is the purpose of the excavation or dredging?
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No
If yes, describe.
v. What is the total area to be dredged or excavated? ____ acres
vi. What is the maximum area to be worked at any one time? ____ acres
vii. What would be the maximum depth of excavation or dredging? ____ feet
viii. Will the excavation require blasting? ☐ Yes ☐ No
ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑ Yes ☐ No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of of the NYSDEC Freshwater Wetlands (reduction of .55 acres).

[The New York State Department of Environmental Conservation issued an Amended Wetland Permit on December 24, 2020. A copy of the Amended Wetland Permit is provided at Exhibit "8".]

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☑No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☑No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑Yes ☐No
If Yes:

i. Total anticipated water usage/demand per day: 50,820 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑Yes ☐No
If Yes:

- Name of district or service area: ECWA Consolidated Water District
- Does the existing public water supply have capacity to serve the proposal? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No
- Do existing lines serve the project site? ☑Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☑No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑Yes ☐No
If Yes:

i. Total anticipated liquid waste generation per day: 50,820 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used: Tonawanda Creek Wastewater Treatment Plant
- Name of district: Town of Amherst Consolidated Sanitary Sewer District
- Does the existing wastewater treatment plant have capacity to serve the project? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

- Do existing sewer lines serve the project site? ☑Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☑No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 8.0 acres (impervious surface)

_____ Square feet or 28.47 acres (parcel size)

ii. Describe types of new point sources. Parking lots and roof tops

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be conveyed into the on-site stormwater management system to be installed per the applicable stringent stormwater quality and quantity standards of the NYS Department of Environmental Conservation ("NYSDEC")

- If to surface waters, identify receiving water bodies or wetlands: NYSDEC & Federal wetlands on the east portion of the Project Site.
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No A Traffic Impact Study was prepared by SRF Associates DPC dated August 3, 2020 and 4 copies have been submitted with the Site Plan Application dated February 22, 2020.

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

To be determined

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

National Grid

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7:00 to 7:00
- Saturday: 8:00 to 6:00
- Sunday: As needed
- Holidays: Not Applicable

ii. During Operations:

- Monday - Friday: 8:00 to 11:00
- Saturday: 8:00 to 11:00
- Sunday: 8:00 to 10:00
- Holidays: 8:00 to 10:00

The hours of operation during "During Operations" as listed above apply to the first floor commercial space in the two mixed-use buildings. The hours are estimates since the tenants that will lease the first floor commercial space including both office and retail tenants have not yet been identified.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Construction activities will include the use of construction equipment during daytime hours that will exceed ambient background noise levels. The construction related noise impacts are a temporary unavoidable impact.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe:

n. Will the proposed action **have outdoor lighting?** ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Lighting will be installed in compliance with the lighting standards contained in the Town of Amherst Zoning Code. There will not be any lighting spillover onto contiguous properties.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☑ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

Potential use of lawn fertilizer and pesticides on maintained portions of property in accordance with applicable standards for application and use of lawn fertilizer and pesticides.

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☑ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: 2 tons per week (unit of time)
- Operation : 2 tons per week (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: wood and metal waste may be recycled by the contract at their discretion
- Operation: Town of Amherst recycling program will be followed

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: approved NYSDEC landfill via contractor or private disposal company
- Operation: approved NYSDEC landfill via private disposal company

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☑ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Wetlands

ii. If mix of uses, generally describe:

There are mixture of uses in the vicinity of the Project Site including residential uses to the north in the Bucyrus Heights Subdivision, an elementary school, apartments and office buildings on Sweet Home Road and permanent open space to the east of Site "A".

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	8.0	+ 8.0
• Forested	12.17	1.87	-10.3
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	16.3	10.2	- 6.1
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: Greenspace, Landscaping, Pond	0	8.4	+8.4

The categories as listed above include the large wetland area subject to the jurisdiction of both the NYSDEC and USACE consisting of approximately 9.81 acres that was previously approved for development by the Town Board that will consist of Permanent Open Space to be donated to the Town of Amherst.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑Yes ☐No
If Yes,
i. Identify Facilities:
1. Heritage Heights Elementary School (Sweet Home School District- 2545 Sweet Home Road); 2. Creative Play Learning Center (Private Day Care Facility- 647 Dodge Road); and 3. Four Seasons Child Care & Preschool (Private Day Care Facility- 1639 North French Road).

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____

iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☐No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____
_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? >5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

Getzville silt loam	94 %
Swormville clay loam	6 %
	%

d. What is the average depth to the water table on the project site? Average: >5 feet

e. Drainage status of project site soils:
☐ Well Drained: _____ % of site
☐ Moderately Well Drained: _____ % of site
☑ Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____ % of site
☐ 15% or greater: _____ % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No
ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters, NYS Wetland Approximate Size NYS Wetland (in a...
- Wetland No. (if regulated by DEC) TE-33

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No
If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:
i. Name of aquifer: _____

The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of NYSDEC Freshwater Wetlands (reduction of .55 acres). A copy of the Amended Wetland Permit issued by the New York State Department of Environmental Conservation authorizing the impacts to the NYSDEC Freshwater Wetlands and the regulated 100 ft. Adjacent Area to accommodate the proposed mixed-use project on Site A of the Muir Woods property is provided at Attachment "A" of this Part 1 of the Full Environmental Assessment Form.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

m. Identify the predominant wildlife species that occupy or use the project site:
Typical suburban species

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No

If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑Yes ☐No

If Yes:
i. Species and listing:
Spiny Softshell - The Project Sponsor does not believe that Spiny Softshell is present on Site A of the Muir Woods property.

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: Eligible property:Heritage Heights Elementary School

iii. Brief description of attributes on which listing is based:

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

[Ccopy of the No Impact Determination letter issued by the NYSOPRP dated October 10, 2001 is provided at Attachment "B".]

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s):

ii. Basis for identification:

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource:

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.):

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation:

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

Documentation evaluating potential adverse environmental impacts pursuant to the State Environmental Quality Review Act ("SEQRA") including the fully engineered plans prepared by Carmina Wood Morris DPC have been submitted with the Site Plan Application.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name: Sawyers Landing LLC Date: February 22, 2021

Signature _____ Title Attorney for Project Sponsor

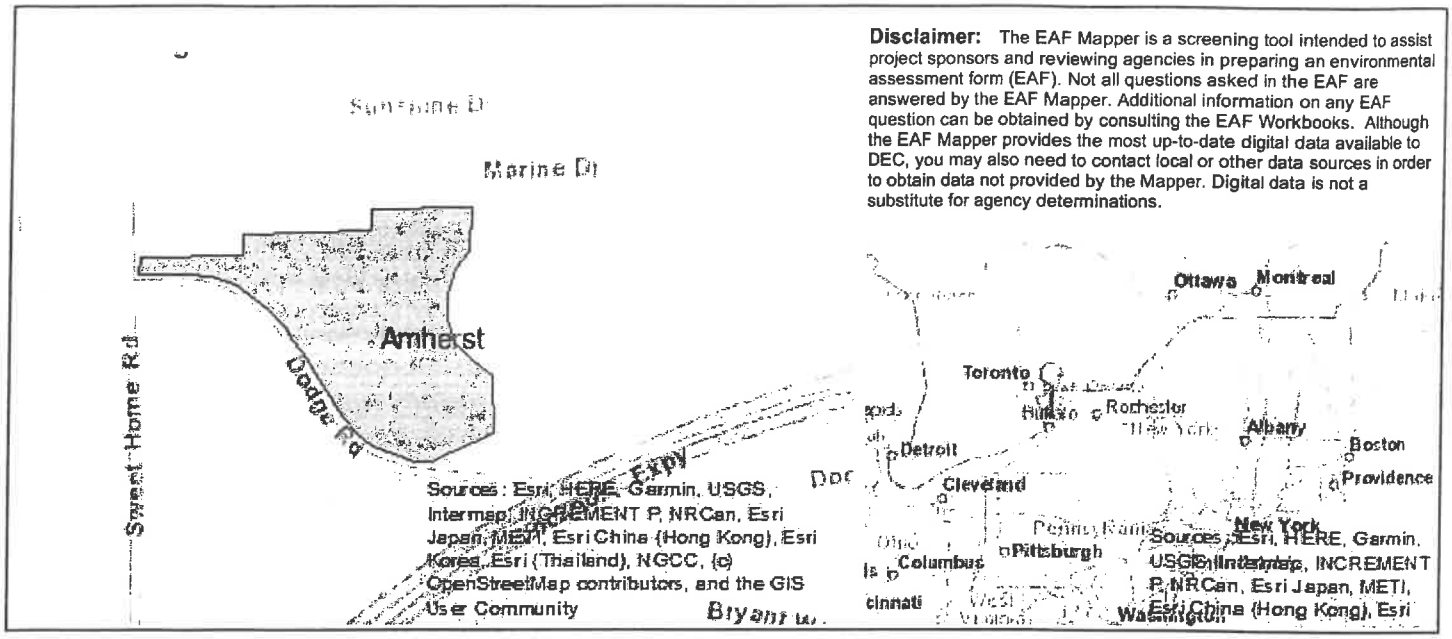
Sean W. Hopkins, Esq.

PRINT FORM

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

EAF Mapper Summary Report

Thursday, June 18, 2020 8:50 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):34.6
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	TE-33
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	Yes
E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:Heritage Heights Elementary School
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TOWN OF AMHERST ATTACHMENT
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
Proposed Mixed-Use Project - Portion of 1081 North French Road

1. For each applicable category of proposed new structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Getzville Silt Loam	Severe	Severe	Severe	Severe	Moderate
Swormville Clay Loam	Severe	Severe	Severe	Severe	Severe

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   _____ Geotechnical report attached _____ Not applicable

   [Note: 3 copies of the Geotechnical Report that has been ordered for the relevant portion of 1081 North French Road to be developed as a mixed-use project will be submitted to the Planning Department. A comprehensive Geotechnical Report for the entire overall Muir Woods Property was previously submitted.

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ■ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ■ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? ☐ Yes ■ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   X Not Applicable

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ■ Yes No

   Describe A student housing community is proposed on property to the east of the Project Site commonly referred to as Site "B" of Muir Woods.

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 106
   Source: Traffic Impact Study prepared by SRF Associates DPC dated August 3, 2020. 3 copies of the Traffic Impact Study have been submitted with the Site Plan Application.
8. Will blasting occur during construction? ☐ Yes ■ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ■ Yes ☐ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    50,820 average flow 203,280 peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? Yes ■ No
    [There are not any buildings located on the Project Site.]

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Attachment "A" of Part 1 of Full Environmental Assessment Form - Amended Wetland Permit Issued by the New York State Separtment of Environmental Conservation dated December 24, 2020

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT

Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. Relationship of this Permit to Other Department Orders and Determinations Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. Applications For Permit Renewals, Modifications or Transfers The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. Submission of Renewal Application The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. Permit Modifications, Suspensions and Revocations by the Department The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. Permit Transfer Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Attachment "B" of Part 1 of Full Environmental Assessment Form - No Impact Determination Letter Issued by Ruth Pierpont, Director, New York State Office of Parks, Recreation and Historic Preservation, dated October 10, 2001

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE
Bernadette Castro
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 2 – Description of the Proposed Mixed-Use Project on a Portion of 1081 North French Road [Site "A" of the Muir Woods Property]

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

EXHIBIT 2 OF SITE PLAN APPLICATION

DESCRIPTION OF PROPOSED MIXED-USE PROJECT TO BE LOCATION ON A PORTION OF 1081 NORTH FRENCH ROAD [SITE "A" OF MUIR WOODS PROPERTY]

The proposed project consists of a mixed-use project on a portion of 1081 North French Road [Site "A" of Muir Woods Property] (the "Project Site"). The Project Site is properly zoned for the proposed mixed-use project. The mixed-use project consists of 2 four-story mixed-use buildings [15,000 sq. ft. of 1st floor commercial space and 50 units per building], 47 two-family town homes on individual lots, and 2 single-story apartment buildings [6 units per building] along with all related site improvements depicted on the fully engineered plans prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC submitted with this Site Plan Application. A reduced size copy of the Overall Site Plan [Drawing C-100] is provided at Exhibit "3". The Elevation Plans as prepared by Sutton Architecture PLLC are provided at Exhibit "8". The fully engineered plans for the mixed-use project consist of the following:

- Cover Sheet;
- Topographic Survey;
- Boundary Survey;
- Demolition & Erosion Control Plan [Drawing C-001];
- Demolition & Erosion Control Details Plan [Drawing C-002];
- Overall Site Plan [Drawing C-100];
- Site Plan [Drawing C-101];
- Parcel Map [Drawing C-102];
- Site Details Plan [Drawing C-103];
- Site Details Plan [Drawing C-104];
- Grading Plan [Drawing C-200];
- Storm Drainage Plan [Drawing C-300];
- Storm Drainage Details Plan [Drawing C-301];

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

- Storm Drainage Plan [Drawing C-302];
- Storm Drainage Details Plan [Drawing C-303];
- Storm Drainage Details Plan [Drawing C-304];
- Utility Plan [Drawing C-400];
- Sanitary Sewer Details Plan [Drawing C-401];
- Sanitary Sewer Details Plan [Drawing C-402];
- Sanitary Sewer General Notes Plan [Drawing C-403];
- Sanitary Sewer Testing Notes Plan [Drawing C-404];
- Water Details Plan [Drawing C-405];
- Water Details & Notes Plan [Drawing C-407];
- Insulated Enclosure Detail Plan [Drawing C-408]; and
- Landscape Plan as Prepared by Robert Walter, RLA [Drawing L-100]

For purposes of the review process, the proposed mixed-use project has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed driveway connections to Dodge Road, access aisles, parking spaces, driveways, wetland impacts, lighting, landscaping, on-site storm water management improvements, sanitary sewer and water lines and connections and all other required utility improvements.[1] The project purpose is to develop Site "A" of overall Muir Woods Project Site as an innovative mixed-use project on property that has been designated for development for several decades. The proposed mixed-use project is a Type I action pursuant to SEQRA. The Town Board issued an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") on October 19, 2020 to allow mixed-use development of the Project Site.[2]

[1] A completed Part 1 of the Full Environmental Assessment Form with attached Page 5[a] and Attachments "A" and "B" is provided at Exhibit "1".

[2] A copy Resolution 2020-791 as adopted by the Town of Amherst Town Board on October 19, 2020 for the purpose of Issuing an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") for allowing mixed-use development on the Project Site is provided at Exhibit "9".

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Additionally, on October 19, 2020, the Town Board also adopted a resolution to amend the Town's Comprehensive to designate the Project Site as appropriate for mixed-use.[3]

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

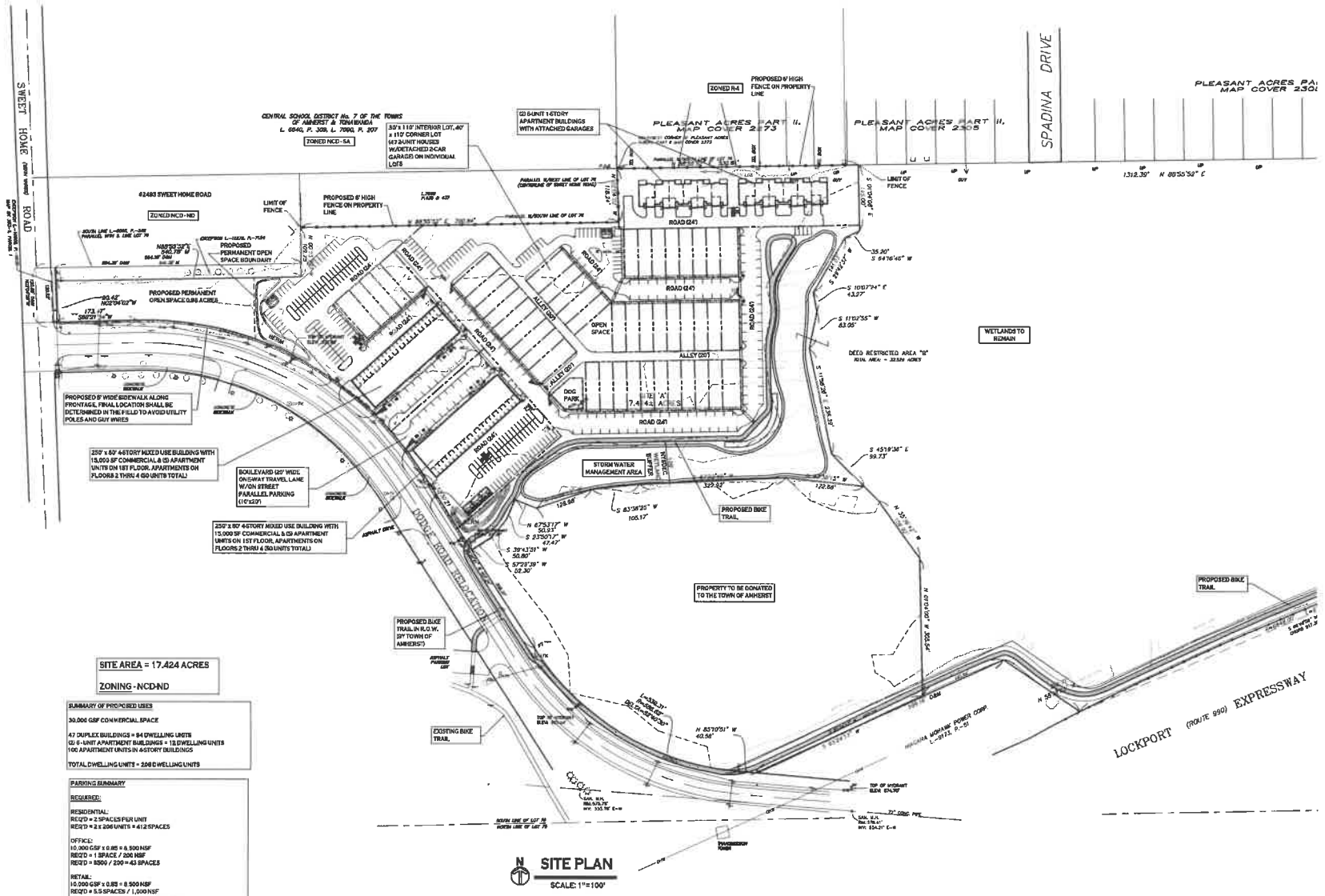
[3] A copy of Resolution 2020-792 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the purpose of approving an Amendment to the Town of Amherst Comprehensive Plan to accommodate mixed-use development on the Project Site is provided at Exhibit "10".

Exhibit 3 – Reduced Size Copy of Overall Site Plan [Drawing C-100] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 section 7209 of the New York State Education Law for any person, unless acting under the direction of a licensed professional engineer or licensed architect, to alter this drawing. If altered by other than the engineer or architect, the alteration must bear his or her seal, signature and the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



Carmina Wood Morris DPC
497 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0283

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

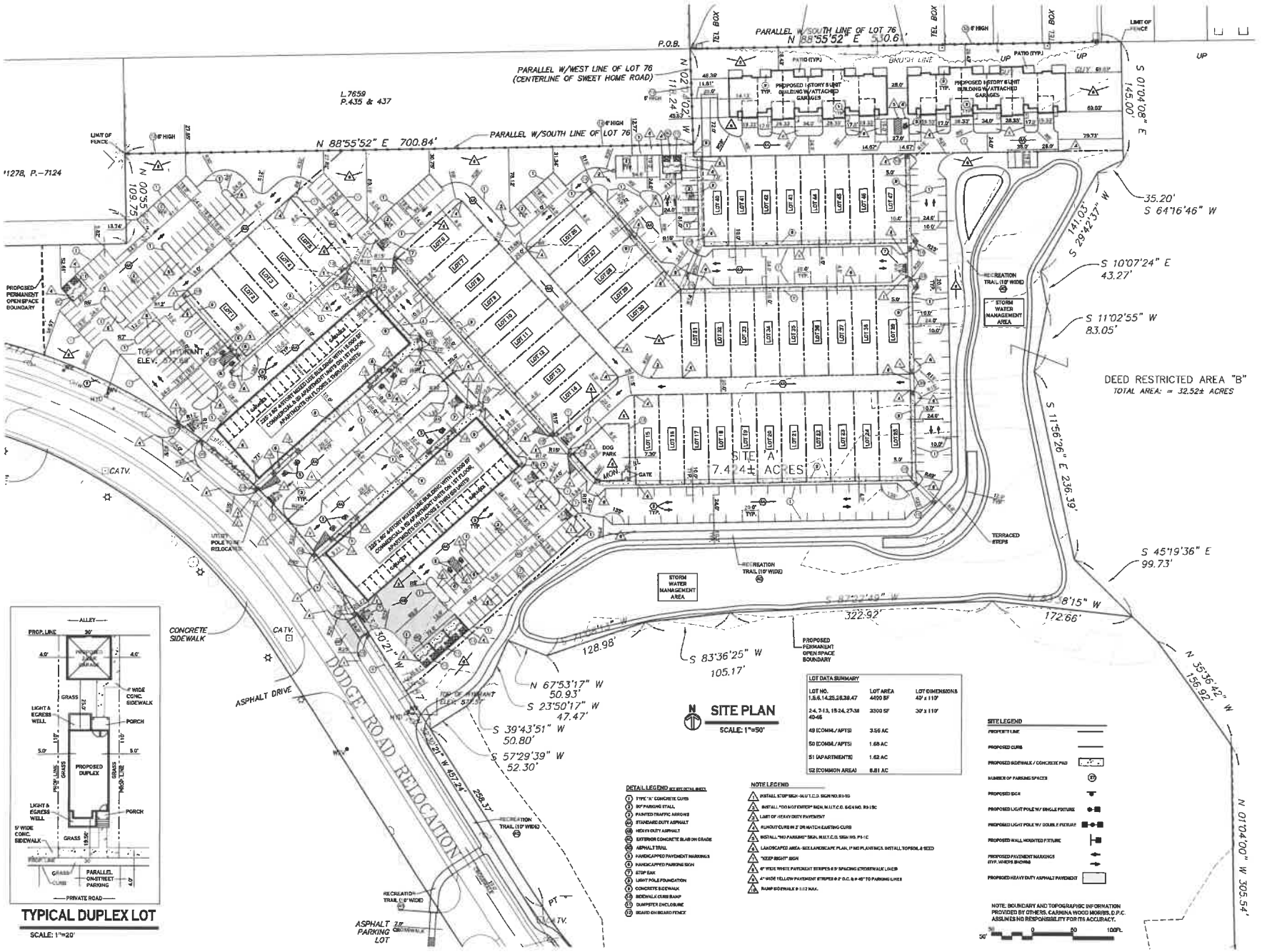
DRAWING NAME:
Overall Site Plan

DRAWING NO.
C-100
Project no.: 21.011

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 4 – Reduced Size Copy of Site Plan [Drawing C-101] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris, D.P.C. is prohibited. WARNING: It is violation of article 145 section 7209 and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.
© Carmina Wood Morris DPC

Carmina Wood Morris
487 Main Street, Suite 500
Buffalo, New York 14203
P 716.842.2185
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

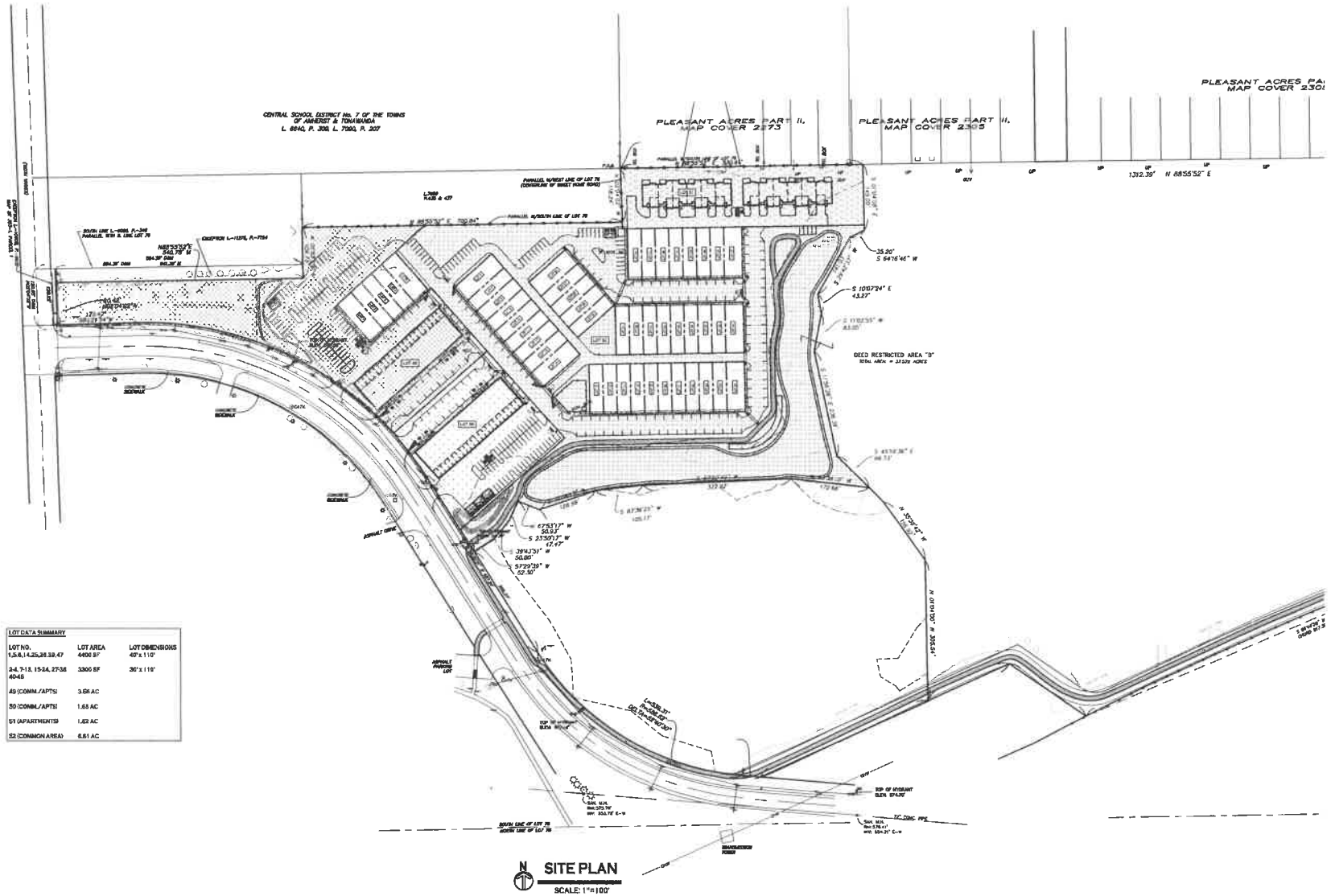
DRAWING NAME:
Site Plan

DRAWING NO.
C-101
Project no.: 21.011

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 5 – Reduced Size Copy of Parcel Map [Drawing C-102] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



LOT DATA SUMMARY		
LOT NO. 1,5,6,14,25,26,39,47	LOT AREA 4400 SF	LOT DIMENSIONS 40' x 110'
2-4, 7-13, 15-24, 27-38, 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.65 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.51 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 0 100 200FT.

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 section 7209-b and 7321 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter any drawings. If altered such P.A., P.E. or L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York, 14203
P 716.842.3148
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

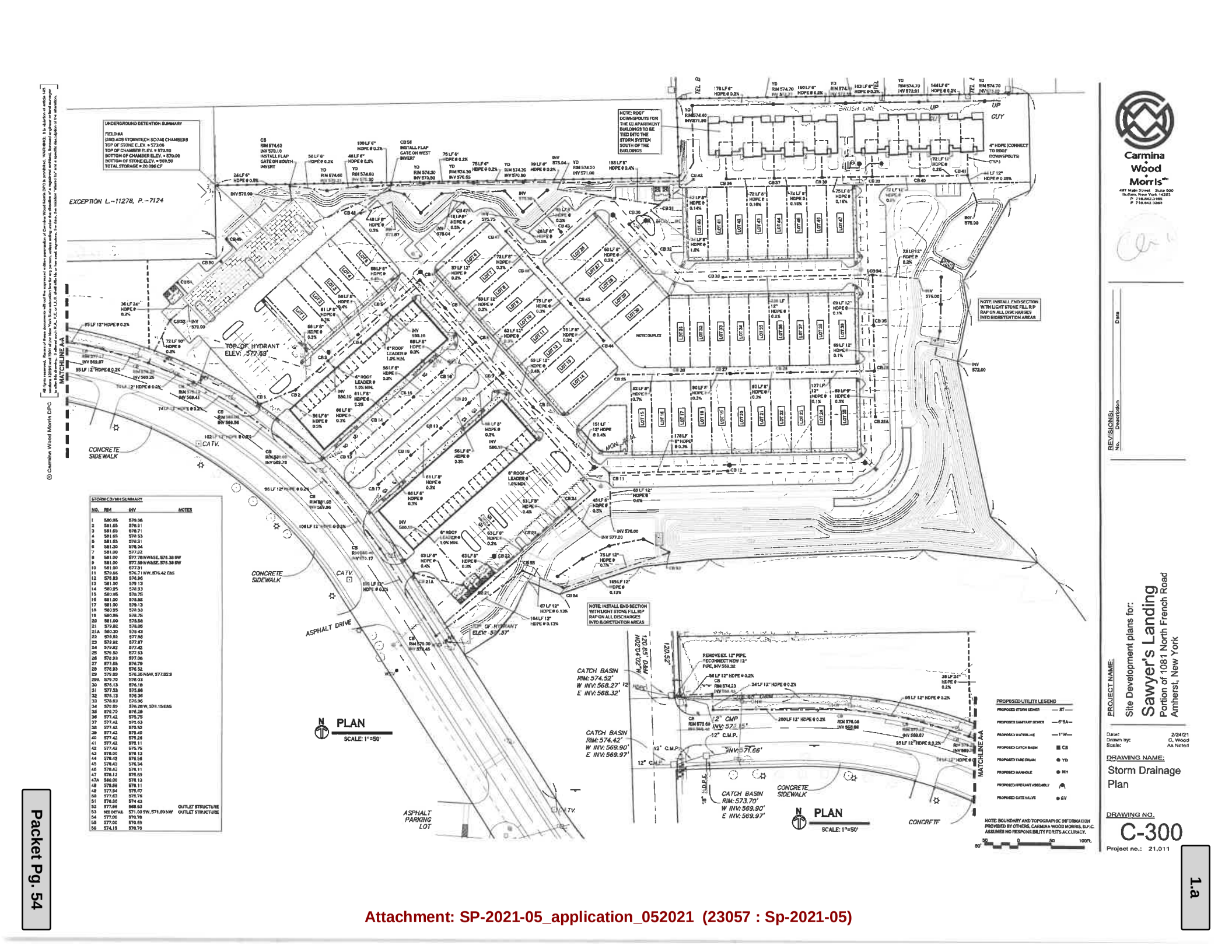
DRAWING NAME:
Parcel Map

DRAWING NO.
C-102

Project no.: 21.011

Exhibit 6 – Reduced Size Copy of Storm Drainage Plan [Drawing C-300] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

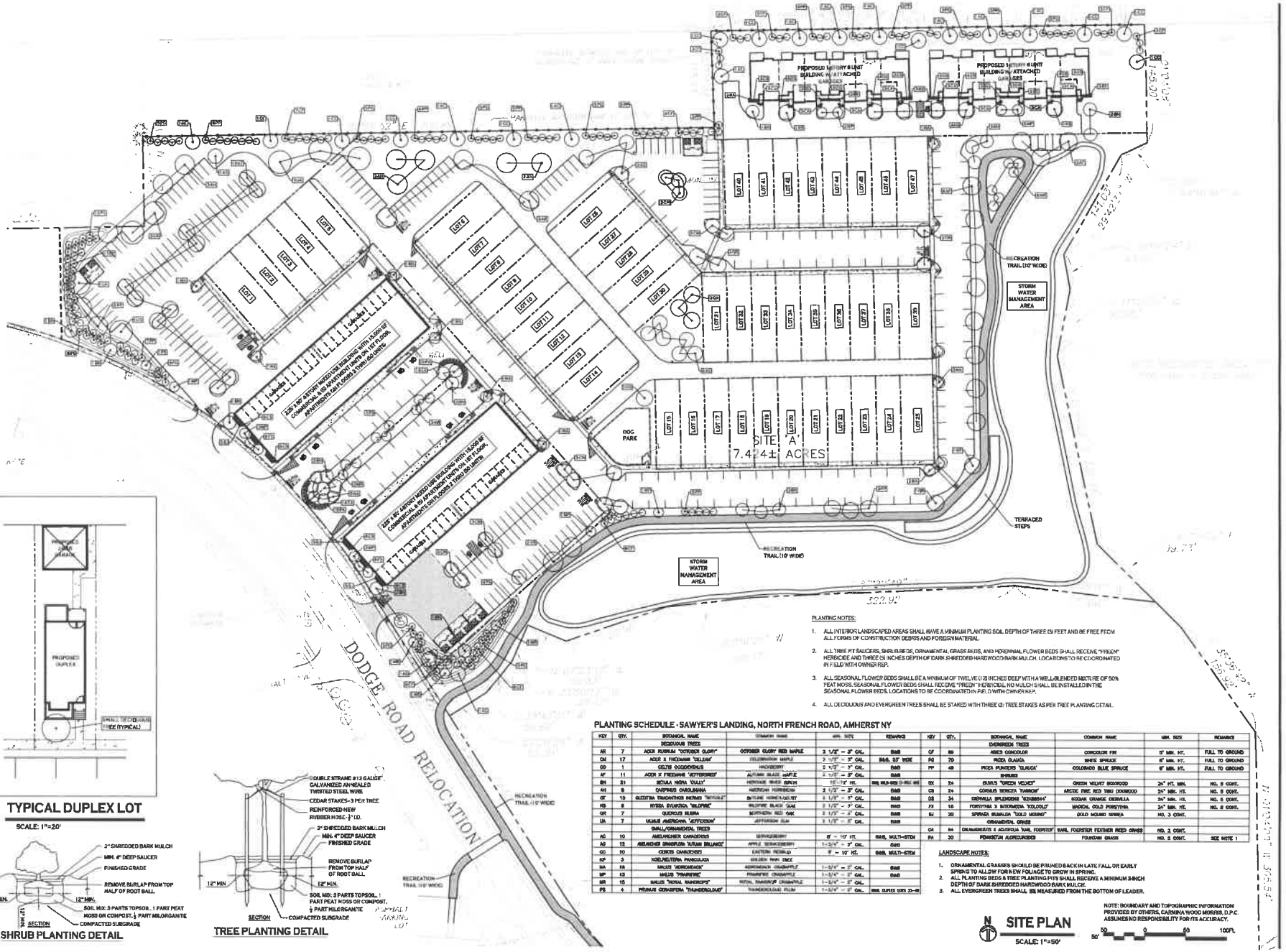


© Carmina Wood Morris DPC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 7 – Reduced Size Copy of Landscape Plan [Drawing L-100] as Prepared by Robert Walter, Registered Landscape Architect

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND HERENNIAL FLOWER BEDS SHALL RECEIVE "PRIEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PRIEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X FREEMANII 'CELZAM'	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 12' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
KF	11	ACER X FREEMANII 'KEFREEDOM'	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
GH	21	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER'	HONEYLOCUST	10'-12' HT.	B&B, MULTI-STEM
NH	9	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
QR	10	GLEDITSIA TRIACANTHOS INERMIS 'SKYLINE'	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
NS	6	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	12	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1-3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	16	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1-3/4" – 2" CAL.	B&B
MP	12	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1-3/4" – 2" CAL.	B&B
MR	15	MALUS 'ROYAL RAINDROPS'	ROYAL RAINDROPS CRABAPPLE	1-3/4" – 2" CAL.	
PS	4	PRUNUS SERRASFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1-3/4" – 2" CAL.	B&B, SUPER VARS 25-45
		EVERGREEN TREES			
CF	80	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	70	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	48	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	24	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD	24" MIN. MIN.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DIERVILLA SPLENDENS 'G2X86544'	KODIAN ORANGE DIERVILLA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	20	SPIRAEA JAPONICA 'GOLD MOUND'	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	84	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 3 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

N

SITE PLAN

SCALE: 1"=50'

50' 0 50' 100'FT.

TYPICAL DUPLEX LOT

SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

© Carmina Wood Morris DPC
All rights reserved. Re-use of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 section 7209-2 and 7209 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor, to alter this drawing. If altered each FILE, P.E. or L.S. shall affix his or her seal, signature, the item, the nature thereof and a specific description of the alteration.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0251

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Landscape Plan

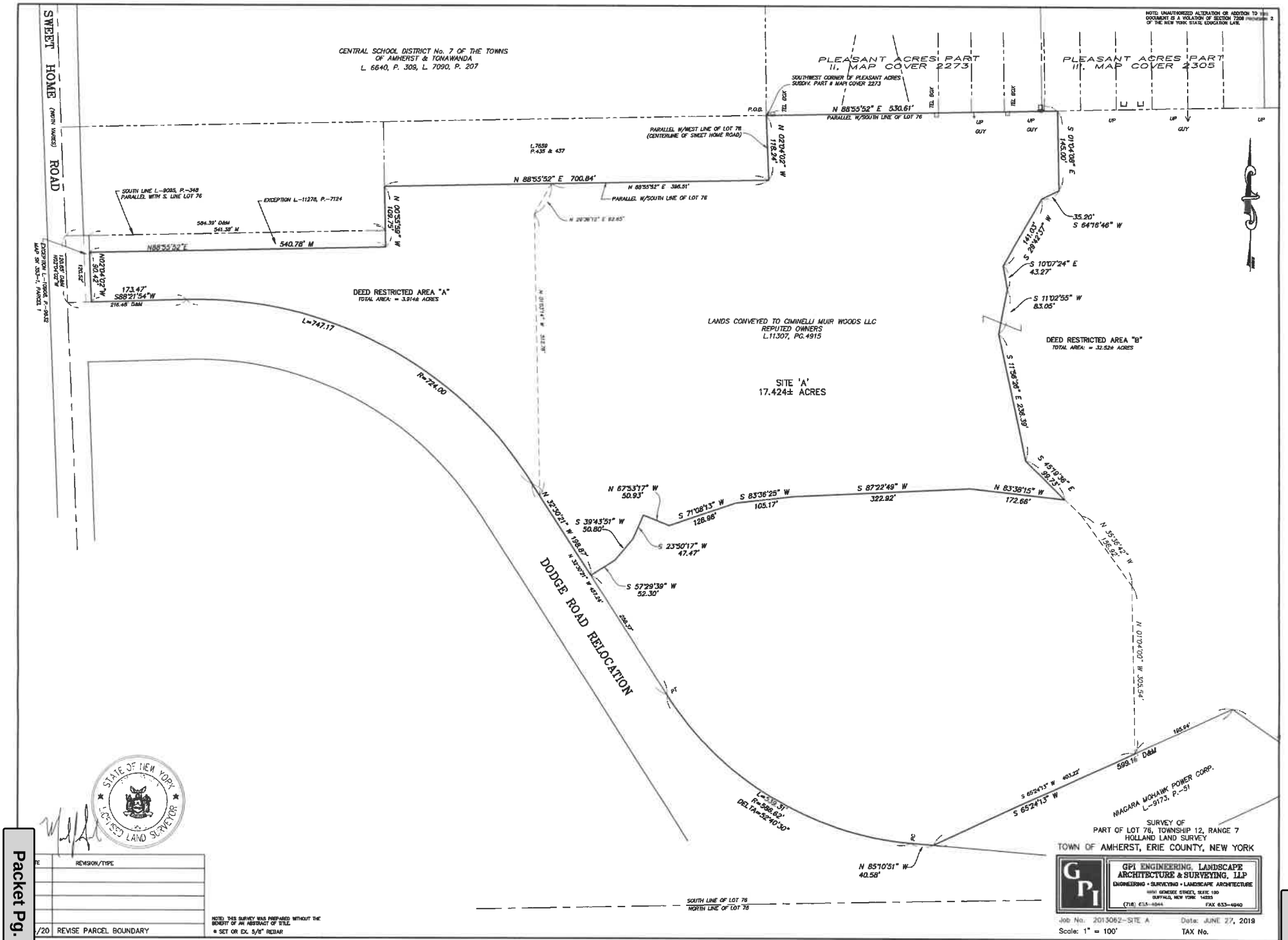
DRAWING NO.
L-100

Project no.: 21.011

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 6 – Reduced Size Copy of Storm Drainage Plan [Drawing C-300] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

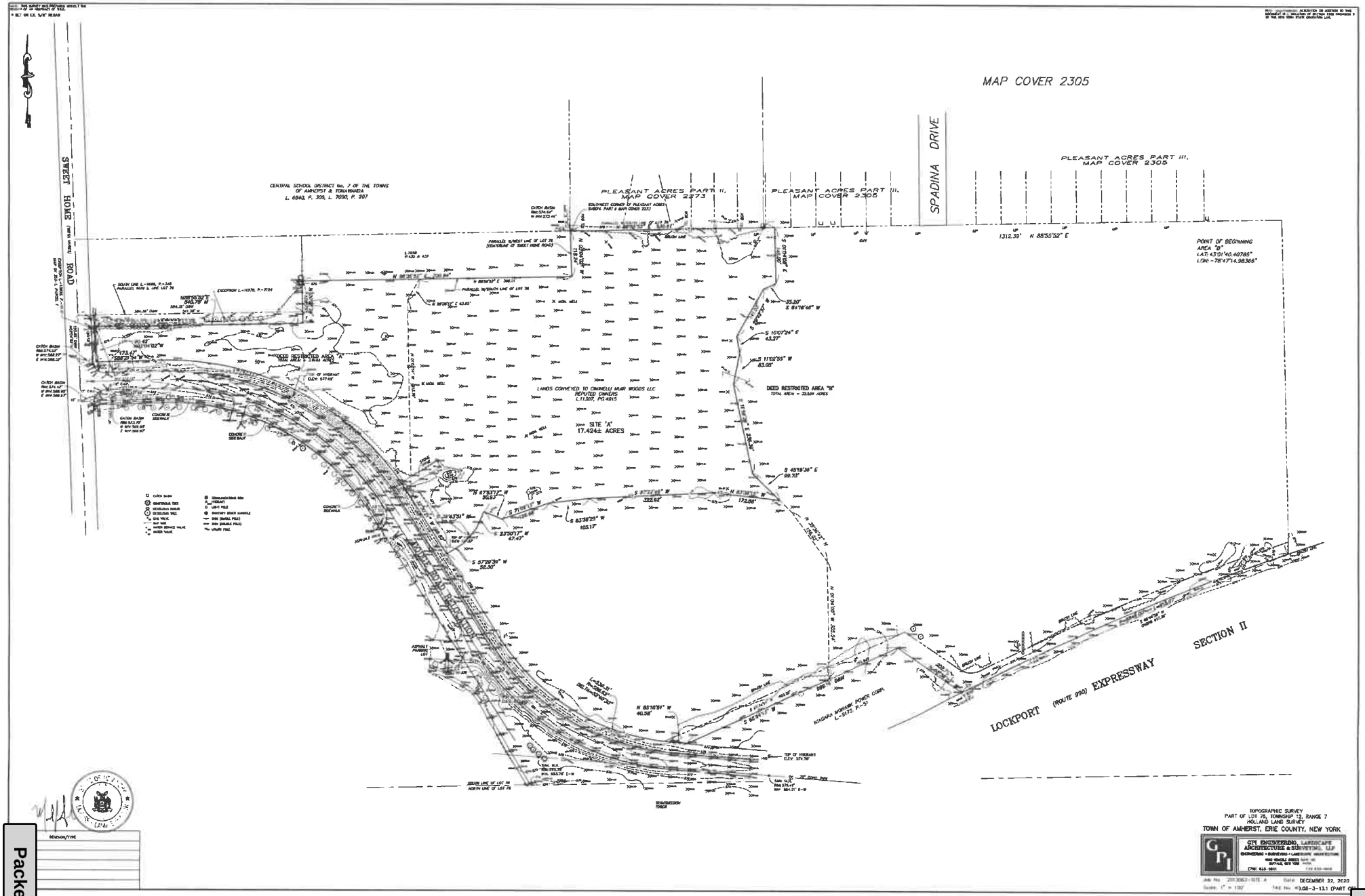
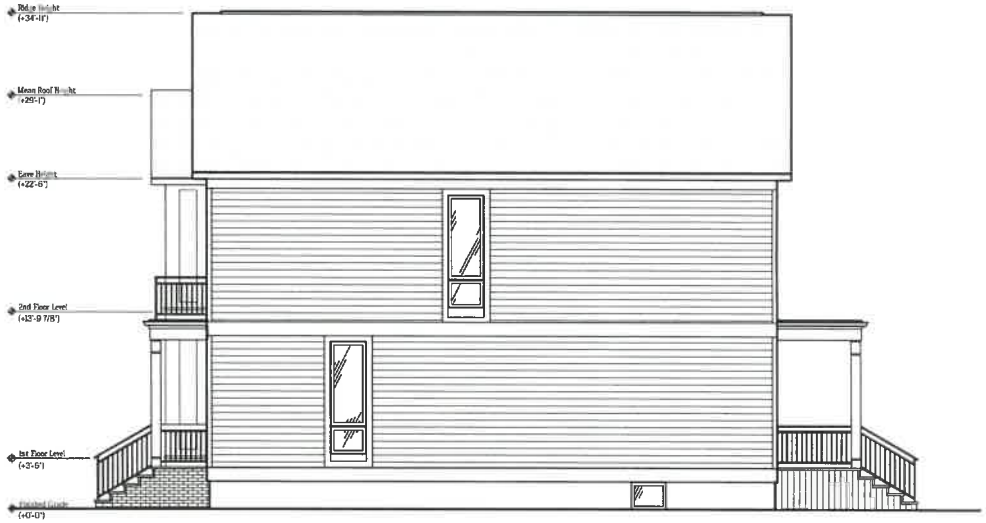

MAP COVER 2305
SPADINA DRIVE
PLEASANT ACRES PART II, MAP COVER 2273
PLEASANT ACRES PART III, MAP COVER 2305
PLEASANT ACRES PART III, MAP COVER 2305
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA L. 6840, P. 309, L. 7090, P. 207
SWEET HOME ROAD
SITE 'A' 17.424± ACRES
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, Pg.4915
DEED RESTRICTED AREA "A" TOTAL AREA = 2.844 ACRES
DEED RESTRICTED AREA "B" TOTAL AREA = 32.529 ACRES
POINT OF BEGINNING AREA 79+ LAT: 43°01'40.40785" LON: -78°47'14.98386"
LOCKPORT (ROUTE 990) EXPRESSWAY
SECTION II
NIAGARA MOHAWK POWER CORP. L.-9173, P.-51
TOPOGRAPHIC SURVEY
PART OF LOT 78, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
DECEMBER 22, 2020

Exhibit 8 – 11" x 17" Size Copies of Elevation Plans for Two-Family Townhomes on Individual Lots, Six-Unit Single-Story Buildings and Four-Story Mixed Use Buildings as Prepared by Sutton Architecture PLLC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



Front Elevation



Right Elevation

1/4" = 1'-0"



Rear Elevation

1/4" = 1'-0"



Left Elevation

1/4" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
Two Family

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



South Elevation

1/8" = 1'-0"



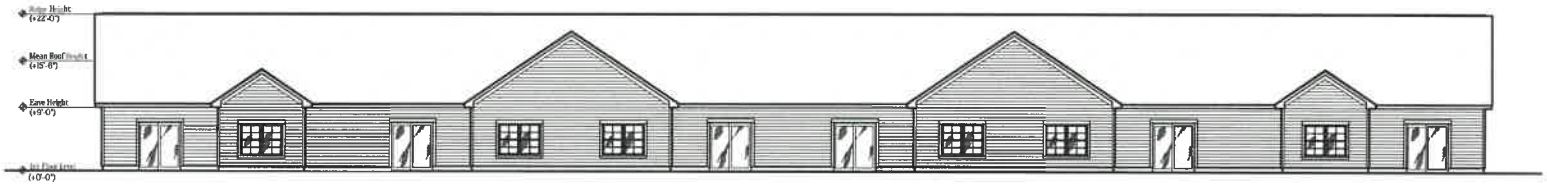
East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"



North Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
6 Unit Multifamily

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



North Elevation

1/8" = 1'-0"



South Elevation

1/8" = 1'-0"

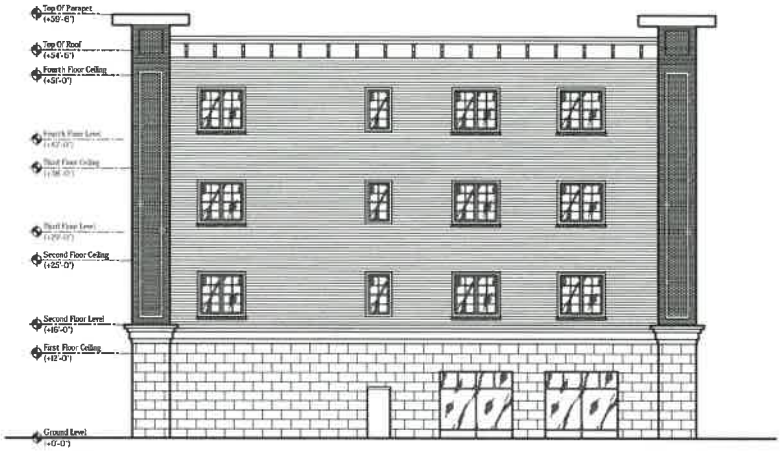
SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-832-7158

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"

SD SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing

4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY

2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 9 – Resolution 2020-791 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the Purpose of Issuing an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") for Mixed-Use Development on 1081 North French Road [Site "A" of Muir Woods Property]

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 10/19/20 07:00 PM
Department: Town Clerk
Initiated by: **Kathleen Cooper**
Co-Sponsored by:

DOC ID: 22383 **RESOLUTION 2020-791** **ROLL CALL VOTE (ADOPTED)**

Amendment to the SEQR Findings Statement for "Muir Woods - Site A" (1081 N. French Road)

Amendment to the SEQR Findings Statement for
"Muir Woods - Site A"
[1081 North French Road (NCD); Z-2002-09C]

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, that the requirements of SEQR have been completed, and be it further

RESOLVED, that pursuant to NYS Town Law Section 272-a, the Town Board concurs with the findings of the Planning Board as stated in their resolution of August 20, 2020 to amend the "Development Program" within the SEQR Findings Statement approved by the Town Board on August 5, 2020 to permit "Site A" located at the western end of the overall Muir Woods site located at 1081 North French Road (NCD) to be developed as a mixed-use residential/commercial project instead of flex office/R&D buildings.

RESOLVED, that Ciminelli Muir Woods, LLC has offered to donate to the Town approximately 43 acres of Permanent Open Space located between Site "A" and Site "B" of the Overall Muir Wood Property as depicted on a plan prepared by Greenman-Pedersen Consulting Engineers Inc. dated October 13, 2020;

RESOLVED, the approximately 43 acres of Permanent Open Space includes a portion of the Muir Woods Project with frontage on Dodge Road and is also contiguous to the southern boundary of a portion of the Bucyrus Heights Subdivision and the approximately 43 acres of Permanent Open Space includes extensive existing vegetation and also includes wetlands subject to the jurisdiction of the United States Army Corps of Engineers ("USACE") and wetlands and regulated 100 ft. adjacent areas subject to the jurisdiction of the New York State Department of Environmental Conservation ("NYSDEC"); and

RESOLVED, the Town Board hereby finds as follows: i.) Acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site is consistent with the Conceptual Land Use Plan for the Town contained at Figure 6 of the adopted Bicentennial Comprehensive Plan that designates this acreage as "Recreation, Open Space & Gateways"; and, ii.) Acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site as described herein will result in benefits to the Town and its residents including homeowners in the Bucyrus Heights Subdivision.

RESOLVED, the Town Board has evaluated the potential adverse environmental impacts associated with the acquisition of the 43 acres of Permanent Open Space and determined that such acquisition will not result in any potentially significant adverse environmental impacts.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

RESOLVED, that the Town Board hereby authorizes the acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site as described herein via a donation from Ciminelli Muir Woods, LLC subject to the following terms and conditions:

1. The adoption of this resolution by the Town Board for the purpose of acquiring the Permanent Open Space described herein does not include the Town Board designating the Permanent Open Space as "parkland". The Town Board shall adopt a separate resolution in the future if it determines designating the Permanent Open Space as "parkland" is appropriate.

2. Ciminelli Muir Woods, LLC, its successors and assigns, shall retain an easement with respect to the approximately 43 acres of Permanent Open Space for the purpose of completing required wetland mitigation and wetland mitigation monitoring in accordance with the terms and conditions contained in wetland permits issued by the USACE and the NYSDEC. Upon the USACE and the NYSDEC determining that the required wetland mitigation has been completed to their satisfaction and the expiration of the monitoring period, the easement shall terminate.

3. Prior to the recording of a deed from Ciminelli Muir Woods, LLC to the Town of Amherst for the purpose of conveying ownership of the Permanent Open Space as described herein, a Declaration of Restrictive Covenants shall be recorded at the Erie County Clerk's Office for the restricting the use of the approximately 43 acres of Permanent Open Space in accordance with the terms and conditions of wetland permits issued by the USACE and the NYSDEC and also for the purpose of prohibiting future development of the approximately 43 acres of Permanent Open Space.

4. Ciminelli Muir Woods, LLC shall be responsible for the expenses associated with the preparation of a survey and an Abstract of Title for the Permanent Open Space as described herein and the recording fees for the deed to be recorded at the Erie County Clerk's Office.

5. The documentation required to effectuate the transfer of the Permanent Open Space as described herein and to comply with the above conditions shall be subject to review and approval by the Town Attorney's Office.

6. The Supervisor is authorized to execute any documentation required to effectuate the acquisition of the 43 acres of Permanent Open Space in accordance with the terms and conditions contained in this resolution.

10/06/2020

A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was opened at 7:51 PM.

Sean W. Hopkins, Esq., presented for both resolution #791 and #792 and answered questions from the Board.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

There were no speakers from the public, therefore Supervisor Kulpa moved to adjourn the public hearing and set a Decision Date for October 19th. The motion was seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was adjourned at 8:13 PM.

10/19/2020

A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was opened at 7:18 PM.

Sean W. Hopkins, Esq., presented under Res #792.

There were no speakers from the public, therefore Supervisor Kulpa moved to close the public hearing, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was closed at 7:20 PM.

A motion to adopt the amended SEQR Findings Statement was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved via Roll Call vote 4-1 (nay, Bucki).

RESULT:	**ROLL CALL VOTE (ADOPTED) [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 10 – Resolution 2020-792 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the Purpose of Approving an Amendment to the Town of Amherst Comprehensive Plan

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 10/19/20 07:00 PM
Department: Town Clerk
Initiated by: **Kathleen Cooper**
Co-Sponsored by:

DOC ID: 22366 **RESOLUTION 2020-792** **ROLL CALL VOTE (ADOPTED)**

Amendment to the Comprehensive Plan for "Muir Woods - Site A" (1081 N. French Road)

Amendment to the Comprehensive Plan for
"Muir Woods - Site A"
[1081 North French Road (NCD); BCPA-2020-02]

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, that the requirements of SEQR have been completed, and be it further

RESOLVED, that pursuant to NYS Town Law Section 272-a and Section 11.6 of the Town Comprehensive Plan, the Town Board concurs with the findings of the Planning Board as stated in their resolution of August 20, 2020 to amend the Conceptual Land Use Plan (Figure 6) and the University Focal Planning Area (Figure 21) of the Comprehensive Plan for "Muir Woods - Site A" located at 1081 North French Road (NCD) to permit mixed-use residential/commercial use on Site A.

For additional information (copy & paste link):
https://share.amherst.ny.us:443/docman/doc_files_list.php?hash=uaaidrb0hpn0mkelzsugvr62

10/06/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was opened at 7:51 PM.

Sean W. Hopkins, Esq., presented for both resolution #791 and #792 and answered questions from the Board.

There were no speakers from the public, therefore Supervisor Kulpa moved to adjourn the public hearing and set a Decision Date for October 19th. The motion was seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was adjourned at 8:13 PM.

10/19/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was opened at 7:07 PM.

Sean W. Hopkins, Esq., presented.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

There were no speakers from the public, therefore Supervisor Kulpa moved to close the public hearing, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was closed at 7:18 PM.

A motion to approve the Negative Declaration was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved 4-1 (nay, Bucki). A motion to adopt the resolution was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved via Roll Call vote 4-1 (nay, Bucki).

RESULT:	**ROLL CALL VOTE (ADOPTED) [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

HSM

February 26, 2021

Ellen Kost, AICP, Assistant Planning Director
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

Re: Proposed Mixed Use Project - Site A of Muir Woods [SP-2021-05]
Portion of 1081 North French Road – Town of Amherst
File No. 10024.12

Dear Ellen:

Attached as Exhibit "1" is a copy of the Amended Wetland Permit [LRB-2001-00067] issued by the United States Army Corps of Engineers ("USACE") on February 25, 2021 authorizing impacts to 6.089 acres of federal wetlands [reduction of 6.921 acres of previously authorized impacts to federal wetlands] in order to accommodate the mixed-use development of Site "A" of the Muir Woods Property in accordance with the project layout depicted on the Concept Site Plan prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC attached as Sheet 1 of 3.

Please feel free to call me at 510-4338 or via e-mail if you have any questions regarding this letter or the Amended Wetland Permit issued by the USACE on February 25, 2021 or the status of the pending request for Major Site Plan Approval for the proposed mixed-use project.

Thank you for your continued cooperation.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: Adam Faeth, Esq., Ciminelli Real Estate Corporation [Via e-mail and mail]
William Severyn, Severyn Development Inc. [Via e-mail and mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]
Scott J. Livingstone, Earth Dimensions, Inc. [Via e-mail]
Jody Celeste, Earth Dimensions, Inc. [Via e-mail]

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 1 – Amended Wetland Permit Issued by the United States Army Corps of Engineers dated February 25, 2021

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

February 25, 2021

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Mr. Adam Faeth
Development Manager
Ciminelli Muir Woods LLC
350 Essjay Road Suite 101
Williamsville, NY 14221

Dear Mr. Faeth:

This is in reply to your submittal dated July 20, 2020 in which you requested a modification of Department of the Army Permit No. LRB-2001-00067. The project is located on a 326-acre parcel in the Town of Amherst, Erie County, New York. Specifically, you seek authorization to change the proposed use of an area identified as Site A from research and development and flex office space to a mixed-use commercial and residential development. This includes two 4-story mixed-use buildings, two-family townhouses, 6-unit apartment buildings, and a recreational trail to connect Site A with Site B. Wetland impacts have been reduced from 13.01 acres to 6.089 acres in Site A. A reduction of 6.921 acres. In addition, because of the reconfigured project including the significant reduction of wetland impacts, you have requested that the requirement of off-site compensatory mitigation be removed. Lastly, you have requested that 134 acres of the overall Muir Woods site located northeast of Site B, is donated to the Town of Amherst. This area will remain as open space in perpetuity. Permit compliance with mitigation requirements will remain as it currently is on the 134-acre site as a responsibility of Ciminelli Muir Woods LLC.

A Public Notice was published and coordinated with agencies and adjacent property owners using standard procedures. No comments were received as a result of the Public Notice. Based upon our evaluation, I concluded your request will not result in any unacceptable environmental or navigational impacts. Therefore, I am modifying Department of the Army permit No. LRB-2001-00067 to reflect the changes outlined in your request and identified on the attached drawings. All other terms and conditions of Permit No. LRB-2001-00067 remain in full force and effect.

Sheets 1, 2, and 3 of 3 are hereby made part of Permit No. LRB-2001-00067. Sheet 1 of 3 of this modification is an update to Sheets 2, 3, and 5 of 6 of the original permit. Sheet 2 and 3 of 3 of this modification are updates to Sheet 5 of 6 of the original permit. In addition, the following Special Conditions No. 6 and 8 of Permit No. LRB-2001-00067 are modified so that they no

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

longer include the requirement of off-site compensatory mitigation, as indicated below with the original and the following modified condition:

1. Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 17.83 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site, and 27.37 acres of wetland off-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site and off-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

   Modified Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 10.91 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

2. Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan, and the Proposed Off-Site Wetland Mitigation Plan dated November 16, 2009. The stated mitigation plans are hereby incorporated into and made part of the permit as Attachments 1 and 2. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

   Modified Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan dated November 16, 2009. The stated on-site mitigation plan is hereby incorporated into and made part of the permit as Attachments 1. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Questions pertaining to this matter should be directed to Martin Crosson at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207 or by E-mail at: martin.h.crosson@usace.army.mil

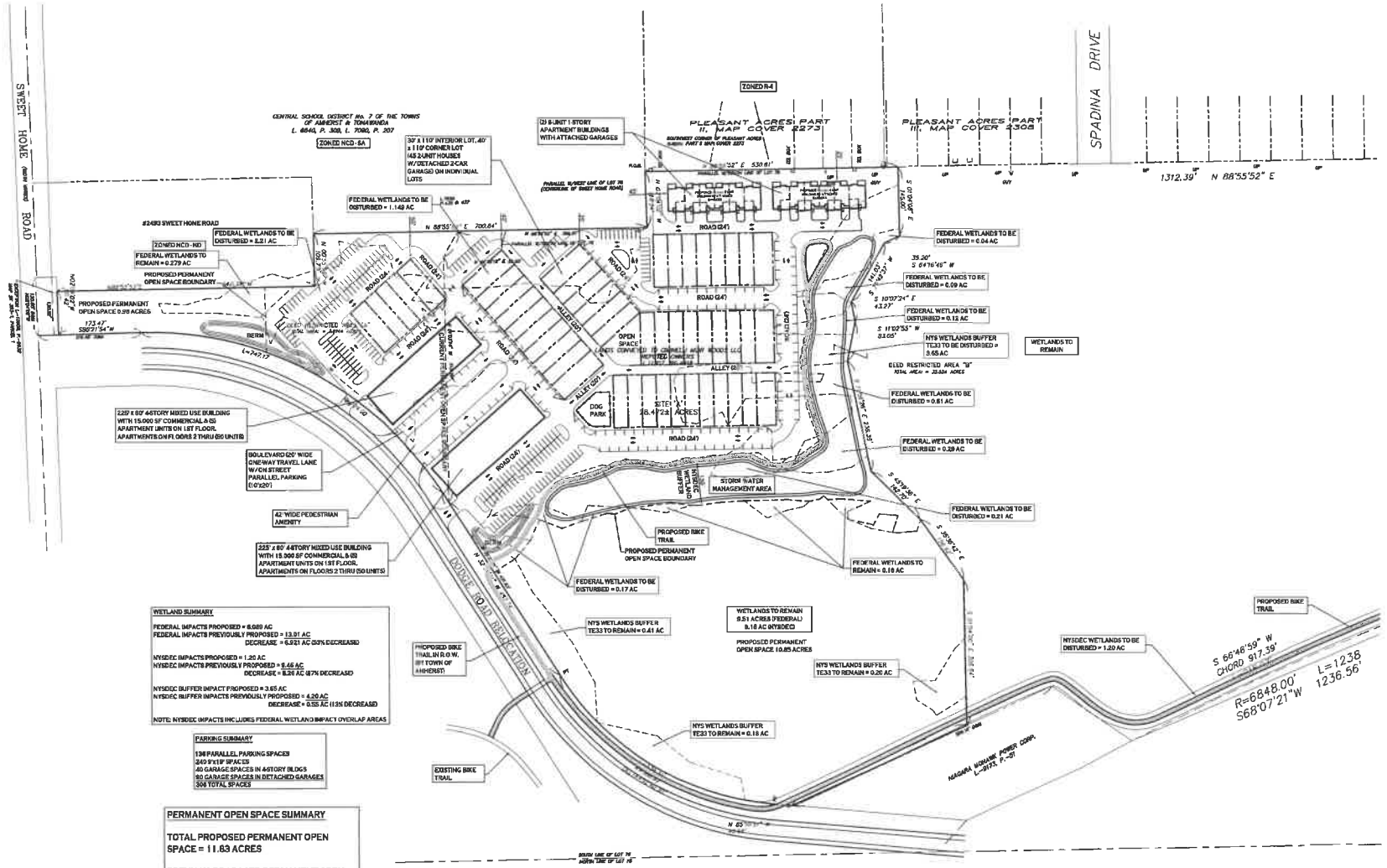
BY AUTHORITY OF THE SECRETARY OF THE ARMY

Steven V. Metivier

For: Mark Scalabrino
Acting Chief, Regulatory Branch

Enclosures

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



N SITE PLAN
SCALE: 1"=100'

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 1 of 3

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200FT.

© Carmina Wood Morris DPC All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 sections 7209(2) and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

Carmina Wood Morris
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0061

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 7/1/20
Drawn by: C. Wood
Scale: As Noted

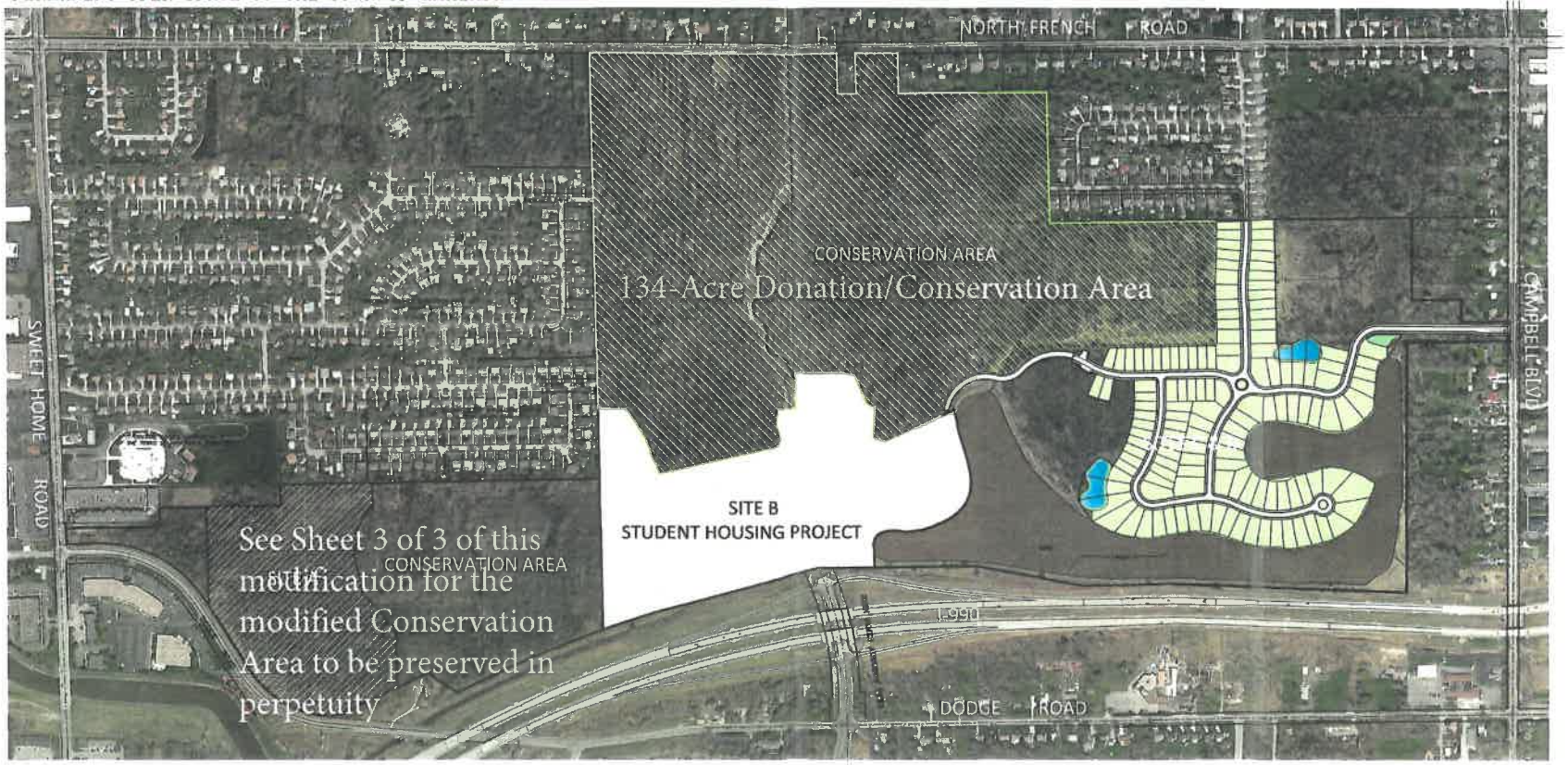
DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100
Project no.: 19.192

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

MUIR WOODS OVERALL PROJECT AREA

PROPOSED DONATION OF APPROXIMATELY 134 ACRES OF
PERMANENT OPEN SPACE TO THE TOWN OF AMHERST

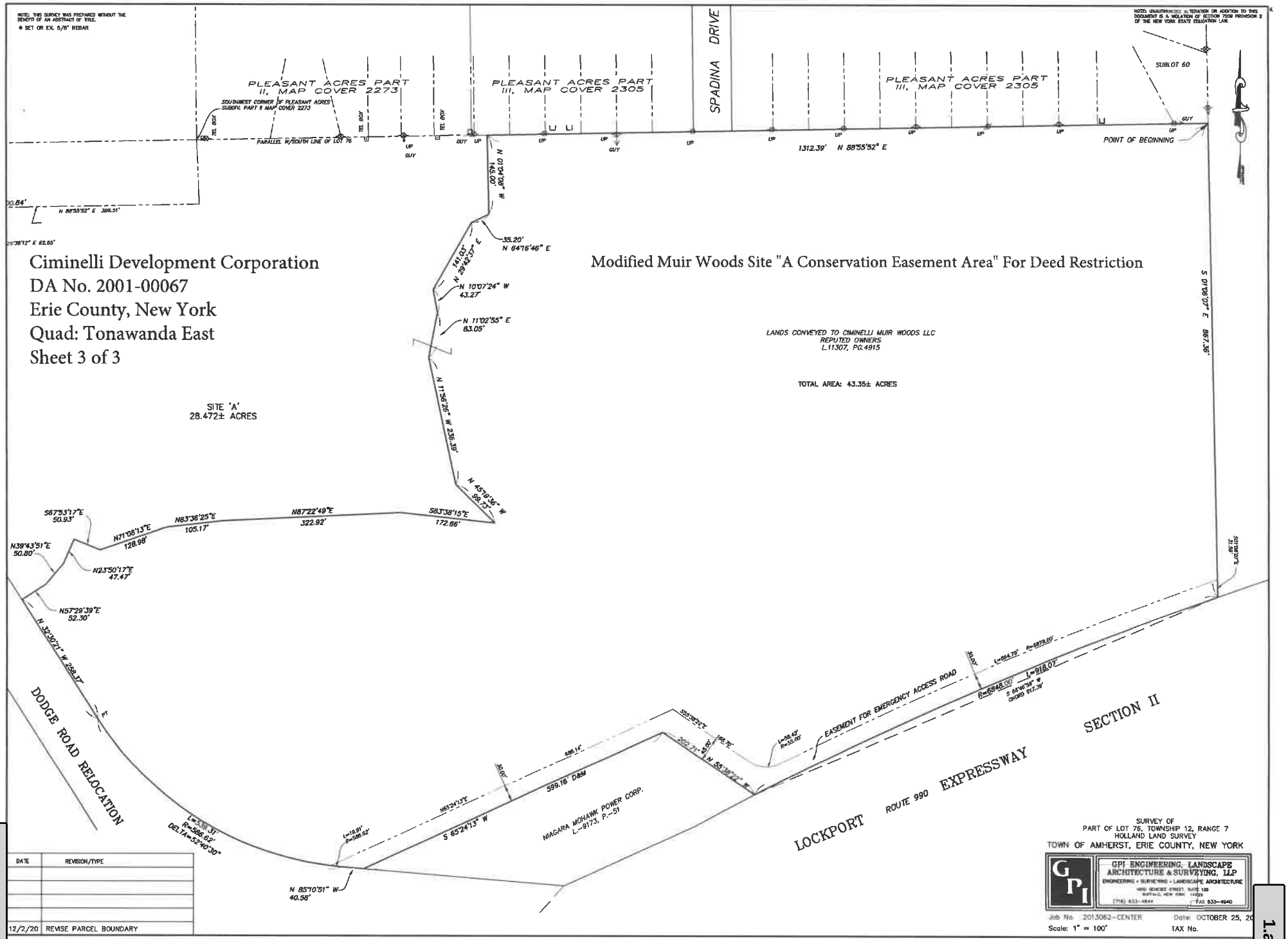


CONSERVATION AREA TO BE DONATED

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 2 of 3

GPI GREENMAN-PEDERSEN, INC. CONSULTING ENGINEERS ENGINEERING • SURVEYING • PLANNING

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

HSM

December 26, 2020

Ellen Kost, AICP, Assistant Planning Director
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

Re: Proposed Mixed Use Project - Site A of Muir Woods [Z-2002-09C & BCPA-2020-02]
Portion of 1081 North French Road
Applicant/Project Sponsor: Ciminelli Real Estate Corporation
File No. 10024.12

Dear Ellen:

Attached as Exhibit "1" is a copy of the Amended Wetland Permit [Permit No. 9-1422-00398/0001] issued by the New York State Department of Environmental Conservation ("NYSDEC") on December 24, 2020 authorizing the impacts to NYSDEC Freshwater Wetlands and the associated regulated 100 ft. Adjacent Area in order to accommodate the mixed-use development of Site "A" of the Muir Woods Property in accordance with the project layout depicted on the Concept Site Plan prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC.

Attached as Exhibit "2" is a copy of the Public Notice of the United States Army Corps of Engineers ("USACE") dated December 21, 2020. The comment period on the pending requested Amended Wetland Permit being sought from the USACE expires on January 11, 2021. The Project Sponsor anticipates receiving an Amended Wetland Permit from the USACE by the end of January.

Please feel free to call me at 510-4338 or via e-mail if you have any questions regarding this letter or the Amended Wetland Permit issued by the NYSDEC on December 24, 2020 or the status of the mixed-use project.

Thank you for your continued cooperation.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: Adam Faeth, Esq., Ciminelli Real Estate Corporation [Via e-mail and mail]
William Severyn, Severyn Development Inc. [Via e-mail and mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Scott J. Livingstone, Earth Dimensions, Inc. [Via e-mail]
Jody Celeste, Earth Dimensions, Inc. [Via e-mail]

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 1 – Amended Wetland Permit Issued by the NYS Department of Environmental Conservation dated December 24, 2020

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7165 I F: (716) 851-7168
www.dec.ny.gov

December 24, 2020

Mr. Adam Faeth
Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Muir Woods Development – "Site A"
Permit Transmittal Letter
Permit No. 9-1422-00398/00001

Dear Mr. Faeth:

Enclosed is your permit which was issued in accordance with applicable provisions of the Environmental Conservation Law. The permit is valid for only that project, activity or operation expressly authorized. If modifications are desired after permit issuance, you must submit the proposed revisions and receive written approval from the Permit Administrator prior to initiating any change. If the Department determines that the modification represents a material change in the scope of the authorized project, activity, operation or permit conditions, you will be required to submit a new application for permit.

Please review all permit conditions carefully. In particular, identify your initial responsibilities under this permit in order to assure timely action if required. Since failure to comply precisely with permit conditions may be treated as a violation of the environmental conservation law, you are requested to provide a copy of the permit to the project contractor, facility operator, and other persons directly responsible for permit implementation (if any).

If you have any questions, please contact this office at the above address.

Respectfully,
David S. Denk
Regional Permit Administrator

Enclosure
ecc: NYSDEC Law Enforcement
Maureen Brady, NYSDEC Office of General Counsel
Mr. Chuck Rosenburg, NYSDEC Division of Fish and Wildlife
Mr. Martin Crossen, USACOE
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Exhibit 2 – Public Notice as Published by the United States Army Corps of Engineers dated December 21, 2020

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Public Notice

U.S. Army Corps
of Engineers
Buffalo District
CELRB-TDR

Applicant: Ciminelli Real Estate Corporation

Published: December 21, 2020
Expires: January 11, 2021

Application No: 2001-00067 (2020 Site A Modification)
Section: New York

All written comments should reference the above Application No. and be addressed to:
Attn: Martin Crosson
U.S. Army Corps of Engineers, Buffalo District
1776 Niagara Street
Buffalo, NY 14207

THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.

Application for Permit Modification under Authority of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (33 U.S.C. 1344).

APPLICANT: Ciminelli Real Estate Corporation/Ciminelli Muir Woods, LLC ("Ciminelli"). Ciminelli has requested a modification to an existing permit described below.

WATERWAY & LOCATION: approximately 98 acres of Federal wetlands, a 32 acre lake and approximately 4.4 acres of tributaries have been previously identified as jurisdictional on the 326 acre parcel permitted for development known as "Muir Woods". The permitted project is located in the Town of Amherst, County of Erie and State of New York.

LATITUDE & LONGITUDE: Latitude North: 43°01'46"
Longitude West: -78°46'33"

EXISTING CONDITIONS: On May 14, 2012 a permit was issued to Ciminelli for placement of fill into 17.83 acres of Federal wetland and 1.29 acres of federally regulated tributaries for the multi-use development known as "Muir Woods". The current jurisdictional determination remains valid until the existing permit expiration date of November 30, 2024.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

PROPOSED MODIFICATION: Ciminelli proposes to modify the existing permit to change the proposed use of the area identified as Site A of the "Muir Woods" site. Under the existing permit, Site A was to consist of research and development and flex office space. The applicant is currently proposing to change the previously proposed use of Site A to a mixed-use commercial and residential development. The concept plan for the proposed project includes two 4-story mixed-use buildings, in addition to two-family townhouses and 6-unit apartment buildings. Also in association with the proposed changes, a new recreational bike/walking trail that will enter Site A from the southeast connection with Site B ultimately connecting to the rest of the on-site trail system and the Town's recreational trail that connects to the North Campus of the University of Buffalo and the Ellicott Creek Trailway system. The applicant has indicated these modifications are necessary due to changes in economic conditions in the real estate market, and also due to their consideration of input from the Town of Amherst municipal boards and the local public.

PROJECT PURPOSE
Basic: Construction of a multi-use development.
Overall: Modification of an existing permitted Ciminelli construction project by changing the proposed use of Site A of the Muir Woods site to the planned development from Research and Development and flex office space to mixed-use commercial and residential development with associated amenities on Site A due to market changes and consideration of the Town of Amherst municipal boards and local public input.

Water Dependency Determination: As with the existing permit, this newly proposed modification resulting in changes in project purpose and use within Site A, impacts to waters of the US have been determined to not be water dependent. Therefore, alternatives that do not require impacts to US waters are presumed to exist. The applicant adequately demonstrated that US waters have been avoided and minimized to the greatest extent practicable. As a result, wetland impacts have been reduced from the currently permitted 13.010 acres to 6.089 in Site A.

Mitigation: The currently permitted wetland impact in Site A is 13.010 acres. The new proposed impact to Site A wetlands are 6.089 acres resulting in a reduction in wetland impacts by 6.921 acres. As a result of the decrease in wetland impacts in Site A, the previously approved off-site mitigation consisting of creation of 27.37 acres of wetland habitat in the Town of Newstead has been proposed to be removed as a permit requirement. The previously approved and currently permitted on-site mitigation for Site A consisting of creation of approximately 10.47 acres of wetland remains unchanged. In addition, the increase in avoided wetland area and the reduction in developed area proposed in Site A results in an increase to the amount of wetland area to be preserved on-site as permanent open space from 3.91 acres to 11.83 acres.

Location and details of the above described work are shown on the attached maps and drawings.

Comments or questions pertaining to the work described in this notice should reference the Application Number and be directed to the attention of Martin Crosson, who can be contacted at the above address, by calling (716) 879-4346, or by e-mail at: martin.h.crosson@usace.army.mil. A lack of response will be interpreted as meaning that there is no objection to the work as proposed.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Comments submitted in response to this notice will be fully considered during the public interest review for this permit application. All written comments will be made a part of the administrative record which is available to the public under the Freedom of Information Act. The Administrative Record, or portions thereof, may also be posted on a Corps of Engineers internet web site. Due to resource limitations, this office will normally not acknowledge the receipt of comments or respond to individual letters of comment.

Any individual may request a public hearing by submitting their written request, stating the specific reasons for holding a hearing, in the same manner and time period as other comments.

Pursuant to Section 106 of the National Historic Preservation Act, this proposed modification to Site A does not constitute an action that requires additional consultation with the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP). In a letter dated September 10, 2009 NYSOPRHP indicated the proposed project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places. The proposed modification does not change the previously considered permit area or determination.

Pursuant to Section 7 of the Endangered Species Act (16 U.S.C. 1531), the Corps of Engineers has concluded consultation with the USFWS to evaluate potential impacts to the northern long-eared bat (NLEB). The Corps has previously determined that the project may affect the NLEB, but that the scope of the work falls within the parameters of the 4(d) Rule. Therefore, consultation has concluded. The existing permit for the project included the entire Site A area. This proposed modification does not constitute an action that requires further coordination or consideration under the Endangered Species Act (16 U.S.C. 1531).

Pursuant to Section 401(d) of the Clean Water Act, A Water Quality Certification will be issued or waived for this proposed project modification by the State of New.

Public hearings for the purposes of the Corps permit program will be held when the District Commander determines he can obtain additional information, not available in written comments, that will aid him in the decision-making process for this application. A Corps hearing is not a source of information for the general public, nor a forum for the resolution of issues or conflicting points of view (witnesses are not sworn, and cross examination is prohibited). Hearings will not be held to obtain information on issues unrelated to the work requiring a permit, such as property ownership, neighbor disputes, or the behavior or actions of the public or applicant on upland property not regulated by the Department of the Army. Information obtained from a public hearing is given no greater weight than that obtained from written comments. Therefore, you should not fail to make timely written comments because a hearing might be held.

The decision to approve or deny this permit modification request will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

be relevant to the proposal will be considered including the cumulative effects thereof; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

SIGNED

Diane C. Kozlowski
Chief, Regulatory Branch

NOTICE TO POSTMASTER: It is requested that this notice be posted continuously and conspicuously for 20 days from the date of issuance.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Traffic Impact Study

for the proposed

Muir Woods - Site A
Proposed Mixed-Use Project
1081 North French Road

Town of Amherst
Erie County, New York
August 3, 2020

Project No. 40027

Prepared For:

Ciminelli Real Estate Corporation
350 Essjay Road
Williamsville, New York 14221

Prepared By:

SRF Associates
www.srfa.net
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TABLE OF CONTENTS

LIST OF TABLES i
LIST OF FIGURES ii
LIST OF APPENDICES ii
LIST OF REFERENCES ii
EXECUTIVE SUMMARY iii

I. INTRODUCTION 1
II. LOCATION 1
III. EXISTING HIGHWAY SYSTEM 1
IV. EXISTING TRAFFIC CONDITIONS 2
A. Peak Intervals for Analysis 2
B. Existing Traffic Volume Data 2
C. Field Observations 2
D. Existing Crash History Analysis 2
V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH 3
VI. PROPOSED DEVELOPMENT 3
A. Description 3
B. Site Traffic Generation 3
C. Site Traffic Distribution 4
VII. FULL DEVELOPMENT VOLUMES 4
VIII. CAPACITY ANALYSIS 5
IX. CONCLUSIONS 7
X. FIGURES 7

LIST OF TABLES

TABLE I EXISTING HIGHWAY SYSTEM 1
TABLE II SITE GENERATED TRIPS 4
TABLE III CAPACITY ANALYSIS RESULTS 6

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

LIST OF FIGURES

FIGURE 1 SITE LOCATION & STUDY AREA
FIGURE 2 LANE GEOMETRY & AVERAGE DAILY TRAFFIC
FIGURE 3 PEAK HOUR VOLUMES – 2020 ADJUSTED BASE VOLUMES
FIGURE 4 PEAK HOUR VOLUMES – 2022 BACKGROUND CONDITIONS
FIGURE 5 CONCEPT SITE PLAN
FIGURE 6 TRIP DISTRIBUTION
FIGURE 7 SITE GENERATED TRIPS
FIGURE 8 PEAK HOUR VOLUMES – FULL DEVELOPMENT CONDITIONS

LIST OF APPENDICES

A1. COLLECTED TRAFFIC VOLUME DATA
A2. MISCELLANEOUS TRAFFIC DATA AND CALCULATIONS
A3. LOS CRITERIA/DEFINITIONS
A4. LEVEL OF SERVICE CALCULATIONS – 2020 ADJUSTED BASE CONDITIONS
A5. LEVEL OF SERVICE CALCULATIONS – 2022 BACKGROUND CONDITIONS
A6. LEVEL OF SERVICE CALCULATIONS – FULL DEVELOPMENT CONDITIONS

LIST OF REFERENCES

1. Highway Capacity Manual, Sixth Edition. Transportation Research Board. National Research Council, Washington, DC. 2016.
2. New York State Department of Transportation (NYSDOT) Traffic Data Viewer. 2020. Retrieved from https://www.dot.ny.gov/tdv.
3. Trip Generation, Tenth Edition. Institute of Transportation Engineers. Washington, DC. 2017.
4. Traffic Impact Study for Submittal to Town of Amherst The Hub Amherst. Kimley-Horn of New York, P.C. 2017.
5. Traffic Impact Study for Access Modification Report For Break in Access Application For Northerly Extension of John James Audubon Parkway As A Town of Amherst Roadway. GPI Engineering. 2020.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to identify and evaluate the potential traffic impacts associated with the proposed development of Site "A" of the overall Muir Woods Property as a mixed-use project. Site "A" of the Muir Woods Property consists of approximately 28.47 acres located 1081 North French Road in the Town of Amherst, Erie County, New York ("Project Site"). The Applicant is seeking to amend the Amended Findings Statement issued by the Town of Amherst Town Board ("Town Board") pursuant to the State Environmental Quality Review Act ("SEQRA") on August 5, 2019 to accommodate a change of the previously proposed use of the Project Site as 237,000 sq. ft. of flex office and R&D space to a mixed-use project as described in this report and depicted on the Concept Site Plan prepared by Carmina Wood Morris DPC.

The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified and mitigating measures, if any, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes existing base traffic conditions, projects background traffic flow including area growth and/or additional traffic resulting from new development in the area, and determines the traffic operations that would result the full development of the proposed mixed-use project.

The Project Site consists of vacant land and is located along the north side of Dodge Road, west of Interstate 990, in the Town of Amherst, Erie County, New York. Surrounding the proposed development is residential development and Heritage Heights Elementary School to the north, vacant land to the east, offices to the south, and a medical plaza to the west. Land uses in the vicinity of the Project Site include residential, office, medical, and educational uses. The study area consists of the following intersections:

- Dodge Road/Sweet Home Road
- Dodge Road/ North Forest Road

Access to the Project Site will be provided via three proposed driveways connecting to Dodge Road as follows: one full access driveway located at the southerly/easterly end of the Project Site, one full access driveway located at the northerly/westerly end of the Project Site, and a driveway separated by a 42 ft. wide median which has been designed to be a pedestrian amenity area (i.e. one driveway is enter-only and the other is exit only).

Construction of the proposed mixed-use project is anticipated to be completed within two years. Town of Amherst officials were contacted to discuss projects within the study area that are under construction and/or approved. Three projects were identified that are either under construction, approved for construction, or completed after data was collected in 2017: The Hub Amherst at 2949 North Forest Road, a student housing community on Site "B" of the overall Muir Woods Property, and a mixed-use building at 315 Campbell Boulevard.

Traffic related to full build out of The Hub Development was used to develop the 2020 base traffic volumes. Additional traffic related to the proposed student housing community on Site "B" of the Muir Woods Property has been added to the base traffic volumes at the study area intersections. To account for normal increases in background traffic growth including the mixed-use building 315 Campbell @ Dodge, as well as any other unforeseen developments in the project study area, a growth rate of 1% per year has been applied to the base traffic volumes. This growth rate is

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

based upon historical traffic growth derived from NYSDOT traffic volume data for the area as well as consideration of the approved projects previously mentioned.

CONCLUSIONS & RECOMMENDATIONS

This study evaluates the potential traffic impacts resulting from the Muir Woods Site A Development. This study also provides the Town of Amherst and other governmental agencies with detailed information providing a hard look at potential traffic impacts for the purpose of the environmental review of the proposed mixed-use project pursuant to the State Environmental Quality Review Act ("SEQRA").

Based upon the analyses, the results indicate that the proposed mixed-use project will not have significant adverse traffic impacts on the existing roadway network. The following sets forth conclusions based upon the results of the analyses:

1. The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM peak hour and 106 entering/82 exiting vehicle trips during the PM peak hour.

2. The proposed mixed-use project will not result in any potentially significant adverse traffic impacts to the study area intersections. No mitigation is warranted at the study area intersections as a result of the proposed mixed-use project.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

I. INTRODUCTION

The purpose of this report is to identify the potential traffic impacts associated with the proposed Muir Woods Site A Development in the Town of Amherst, Erie County, New York. The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified and mitigating measures, if any, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes 2020 existing base traffic conditions, projects background traffic flow including area growth and/or additional traffic resulting from new development in the area, and determines the traffic operations that would result from full development of the proposed project.

II. LOCATION

The proposed mixed-use project is located along the north side of Dodge Road, west of Interstate 990, in the Town of Amherst, Erie County, New York. The site is currently vacant. Surrounding the proposed development is residential development and Heritage Heights Elementary School to the north, vacant land to the east, offices to the south, and a medical plaza to the west. Land uses in the vicinity of the project site include residential, office, medical, and educational uses. The study area consists of the following existing intersections:

- Dodge Road/Sweet Home Road
- Dodge Road/ North Forest Road

The site location and study area are shown in **Figure 1** (all figures are included at the end of the report).

III. EXISTING HIGHWAY SYSTEM

The following information outlined in **Table I** provides a description of the existing roadway network within the project study area.

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY	ROUTE[1]	FUNC. CLASS[2]	JURIS.[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. AADT[6]	AADT SOURCE[7]
Dodge Road (from Sweet Home Road to Campbell Road)	CR 45	Minor Arterial	ECDPW	40	2	Two-way/ East-West	7,058	NYSDOT (2016)
Sweet Home Road (from N Ellicott Road to Commerce Drive)	CR 301	Minor Arterial	ECDPW	45	4	Two-way/ North-South	22,713	NYSDOT (2016)
Sweet Home Road (from Commerce Drive to N French Road)	CR 301	Minor Arterial	ECDPW	45	4	Two-way/ North-South	16,008	NYSDOT (2016)

Notes:

1. "CR" = County Route.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

2. State Functional Classification of Roadway: Urban.
3. Jurisdiction: "ECDPW" = Erie County Department of Public Works.
4. Posted or Statewide Limit in Miles per Hour (MPH).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated Annual Average Daily Traffic (AADT) in Vehicles per Day (vpd).
7. "NYSDOT" = New York Department of Transportation. Source (Year). Obtained volumes represent the most recent available data.

Figure 2 illustrates the lane geometry at each of the study intersections and the AADT/ADT volumes on the study roadways.

IV. EXISTING TRAFFIC CONDITIONS

A. Peak Intervals for Analysis

Given the functional characteristics of the land uses proposed for the Project Site (residential, office and retail), the peak hours selected for analysis are the weekday commuter AM and PM peaks. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. Existing Traffic Volume Data

Historical weekday commuter AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak hour volumes were obtained from the Greater Buffalo Niagara Regional Transportation Council (GRBNRTC) and the Traffic Impact Statement for The Hub Amherst at the study area intersections, as noted in *Section II*, on Tuesday February 28, 2017 and Monday, July 17, 2017. The peak hour traffic periods generally occurred between 7:30-8:30 AM and 4:45-5:45 PM at the study intersections. Given the current traffic situation due to business restrictions resulting from COVID-19, it is not possible to collect more current traffic data.

All turning movement count data was collected on a typical weekday. The traffic volumes were reviewed to confirm the accuracy and relative balance of the collective traffic counts. Traffic volumes were adjusted to reflect 2020 traffic conditions by adding traffic associated with any developments (e.g. The Hub residential development) that have been constructed or are currently under construction since the data collection in 2017. The 2020 weekday AM and PM peak hour base volumes used for analysis purposes in this study are reflected in **Figure 3**.

C. Field Observations

Signal timing information was obtained by the Town of Amherst at the signalized intersection within the study area to determine peak hour phasing plans and phase durations during each interval.

D. Existing Crash History Analysis

Crash data has been requested from local agencies and an analysis will be provided once all data is received.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of the proposed mixed-use project is anticipated to be completed within two years. Town of Amherst officials were contacted to discuss projects within the study area that are under construction and/or approved. Three projects were identified that are either under construction, approved for construction, or completed after data was collected in 2017: The Hub Amherst at 2949 North Forest Road, a student housing project on Site "B" of the Muir Woods Property , and a mixed-use building at 315 Campbell Boulevard.

Traffic related to full build out of The Hub Development was used to develop the 2020 base traffic volumes. Additional traffic related to the proposed student housing project on Site "B" of the Muir Woods Property has been added to the base traffic volumes at the study area intersections. To account for normal increases in background traffic growth including the mixed-use building 315 Campbell Boulevard, as well as any other unforeseen developments in the project study area, a growth rate of one percent (1%) per year has been applied to the base traffic volumes. This growth rate is based upon historical traffic growth derived from NYSDOT traffic volume data for the area as well as consideration of the approved projects previously mentioned. The 2022 background traffic volumes are depicted in **Figure 4** for the build out time period.

VI. PROPOSED DEVELOPMENT

A. Description

The proposed mixed-use project will construct:

- (45) 2-unit attached townhomes
- (2) 6-unit 1-story apartment buildings
- (2) 4-story mixed-use buildings with (12) commercial units and (5) apartment units on the 1st floor; apartments on floors 2-4 (50 units total)

An estimated 1,875 square feet (SF) per commercial tenant for the 12 commercial units. Of the 12 units, it is estimated that 8 units will consist of retail use and 4 units will consist of general office space. Access to the Project Site will be provided via three proposed driveways connecting to Dodge Road as follows: one full access driveway located at the southerly/easterly end of the site, one full access driveway located at the northerly/westerly end of the site, and a one-way couple separated by a 42 ft wide pedestrian amenity area (i.e. one driveway is enter-only and the other is exit only).

B. Site Traffic Generation

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation, 10th Edition is used as a reference for this information. Data published by the ITE is the nationally accepted standard for generating trips for new uses. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of adjacent street traffic, in this case, the weekday AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis. All trip generation information has been included in the appendix.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Table II summarizes the volume of projected site trips during the weekday AM and PM peak hours.

TABLE II
SITE GENERATED TRIPS

DESCRIPTION	ITE LUC	SIZE/ UNITS	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Houses w/ 2- Car Detached Garage	210	90 units	17	50	56	33
1-Story Apartments	220	12 units	1	5	6	3
4-Story Apartment Units	221	100 units	9	25	27	17
General Office Building	710	15,000 SF	14	2	2	14
Variety/Retail Store	814	15,000 SF	6	3	15	15
		Total Site Trips	***47***	***85***	***106***	***82***

Notes:
1. "ITE LUC" = ITE Land Use Code.

The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM weekday peak hour and 106 entering/82 exiting vehicle trips during the PM weekday peak hour.

C. Site Traffic Distribution

The cumulative effect of site traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drive serving the Project Site.

The proposed arrival/departure distribution of traffic to be generated at this site is considered a function of several parameters, including the following:

- Employment centers in the local area and region;
- Population centers in the local area and region;
- Proximity and access to Interstate 990;
- Proximity to the North Campus of the University at Buffalo;
- Site access drive locations and internal roadway circulation;
- Existing highway network;
- Existing traffic patterns; and
- Existing traffic conditions and controls

Based on these parameters, **Figure 6** shows the anticipated trip distribution patterns for the proposed development. **Figure 7** illustrates the peak hour of site-generated traffic based on those percentages for the proposed development.

VII. FULL DEVELOPMENT VOLUMES

The projected design hour traffic volumes were developed for the weekday AM and PM peak hours by combining the future background traffic conditions (Figure 4), and projected site generated for the proposed development (Figure 7) to yield the total traffic conditions expected under full development conditions. **Figure 8** illustrate the total weekday AM and PM peak hour

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

volumes anticipated for the proposed mixed-use project under full development conditions respectively.

VIII. CAPACITY ANALYSIS

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis typically focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the best conditions and LOS "F" the worst. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendix.

The standard procedure for capacity analysis of signalized and un-signalized intersections is outlined in the Highway Capacity Manual (HCM 2016) published by the Transportation Research Board. Traffic analysis software, Synchro 10, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service (LOS) based on the HCM as an indicator of how well intersections operate.

Existing base and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The future traffic conditions generated by the proposed development under Phase I and full build out were analyzed to assess the operations of the intersections in the study area. Capacity results for existing, background, and full development conditions are listed in **Table III**. The discussion following the table summarizes capacity conditions. All capacity analysis calculations are included in the Appendices.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TABLE III: CAPACITY ANALYSIS RESULTS

INTERSECTION	2020 BASE CONDITIONS				2022 BACKGROUND CONDITIONS				FULL BUILD CONDITIONS			
	AM		PM		AM		PM		AM		PM	
Sweet Home Road / Commerce Drive/Dodge Road (S)												
EB left - Commerce Road	D	40.5	C	30.3	D	41.1	C	30.9	D	41.1	C	32.1
EB thru/right - Commerce Drive	B	14.2	E	77.7	B	14.3	F	88.5	B	15.0	F	100.2
WB left- Dodge Road	C	27.7	F	191.3	C	28.0	F	*	C	29.3	F	*
WB thru/right - Dodge Road	E	76.4	B	19.3	F	86.8	B	19.9	F	106.8	C	22.9
NB left - Sweet Home Road	C	31.5	C	32.4	C	33.3	C	34.3	C	33.3	C	34.8
NB thru/right - Sweet Home Road	C	20.9	B	18.8	C	21.0	B	19.2	C	21.2	C	20.5
SB left - Sweet Home Road	B	17.6	B	10.1	B	19.0	B	10.3	C	21.2	B	11.9
SB thru/right - Sweet Home Road	C	30.0	C	32.2	C	30.8	C	33.8	C	30.7	C	33.7
Overall LOS	***C***	***34.0***	***D***	***37.6***	***D***	***36.3***	***D***	***40.3***	***D***	***40.4***	***D***	***47.7***
Dodge Road / Proposed North Driveway (U)												
SEB thru/left - Dodge Road	N/A				N/A				A	8.3	A	8.5
SWB - Proposed North Driveway									B	14.9	B	14.9
Dodge Road / Proposed Middle Exit Only Driveway (U)												
SWB - Proposed Middle Exit Only Driveway	N/A				N/A				B	13.3	B	13.4
Dodge Road / Proposed South Driveway (U)												
SEB thru/left - Dodge Road	N/A				N/A				A	8.2	A	8.5
SWB - Proposed South Driveway									C	16.2	C	16.1
Dodge Road / North ForestRoad (U)												
WB thru/left - Dodge Road	A	9.2	A	8.3	A	9.3	A	8.4	A	9.5	A	8.6
NB - North Forest Road	D	27.5	D	28.6	D	31.1	E	35.9	E	39.6	F	59.6

NOTES:

1. A(2.8) = Level of Service (Delay in seconds per vehicle)
2. (U) = Unsignalized
3. N/A = Approach does not exist and/or was not analyzed during this condition
4. F(*) = Delay greater than 200 seconds per vehicle

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Sweet Home Rd/Commerce Drive-Dodge Road

All approaches operate at LOS "D" or better during the AM and PM peak hours under all conditions with the exception of the westbound through/right turn movement which operates at LOS "F" under background and future conditions during the AM peak hour; in addition the westbound left turn and the eastbound through/right turn movements also operate at LOS "F" under background conditions during the PM peak hour. The southbound left turn movement is projected to change from LOS "B" to "C" between background and full development conditions during the AM peak hour. No other changes in LOS are projected as a result of the development. The existing traffic signal is fully actuated and will automatically adjust, within the set parameters, to accommodate the additional traffic. No mitigation is warranted or recommended at this intersection as a result of the proposed development.

Dodge Road/Proposed Driveways

All of the proposed driveways are projected to operate at LOS "C" or better during both peak hours under full development conditions.

Dodge Road/North Forest Road

All approaches operate at LOS "D" or better during the AM peak hour under the existing base and background conditions. During the PM peak hour, the northbound approach operates at LOS "E" under background conditions. Under full development conditions, the northbound approach is projected to operate at LOS "E" during the AM peak hour and LOS "F" with delays on the order of 59.6 seconds per vehicle during the PM peak hour. The development will add 7(16) northbound left turns during the AM(PM) peak hours. The traffic volumes that are exiting northbound North Forest Road are relatively small and a traffic signal is not warranted at this location. No mitigation is warranted or recommended at this intersection as a result of the proposed development.

IX. CONCLUSIONS

This study evaluates the potential traffic impacts resulting from the Muir Woods Site A Development. This study also provides the Town of Amherst and other governmental agencies with detailed information providing a hard look at potential traffic impacts for the purpose of the environmental review of the proposed mixed-use project pursuant to the State Environmental Quality Review Act ("SEQRA").

Based upon the analyses, the results indicate that the proposed mixed-use project will not have significant adverse traffic impacts on the existing roadway network. The following sets forth conclusions based upon the results of the analyses:

1. The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM peak hour and 106 entering/82 exiting vehicle trips during the PM peak hour.

2. The proposed mixed-use project will not result in any potentially significant adverse traffic impacts to the study area intersections. No mitigation is warranted at the study area intersections as a result of the proposed mixed-use project.

X. FIGURES

Figures 1 through 8 are included on the following pages.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

FIGURE 1 - SITE LOCATION AND STUDY AREA



Legend

- Study Intersection
- Proposed Driveway
- Site Location
- Study Area

PROPOSED MUIR WOODS SITE A DEVELOPMENT

TOWN OF AMHERST, NY

0 250 500 1000

Feet

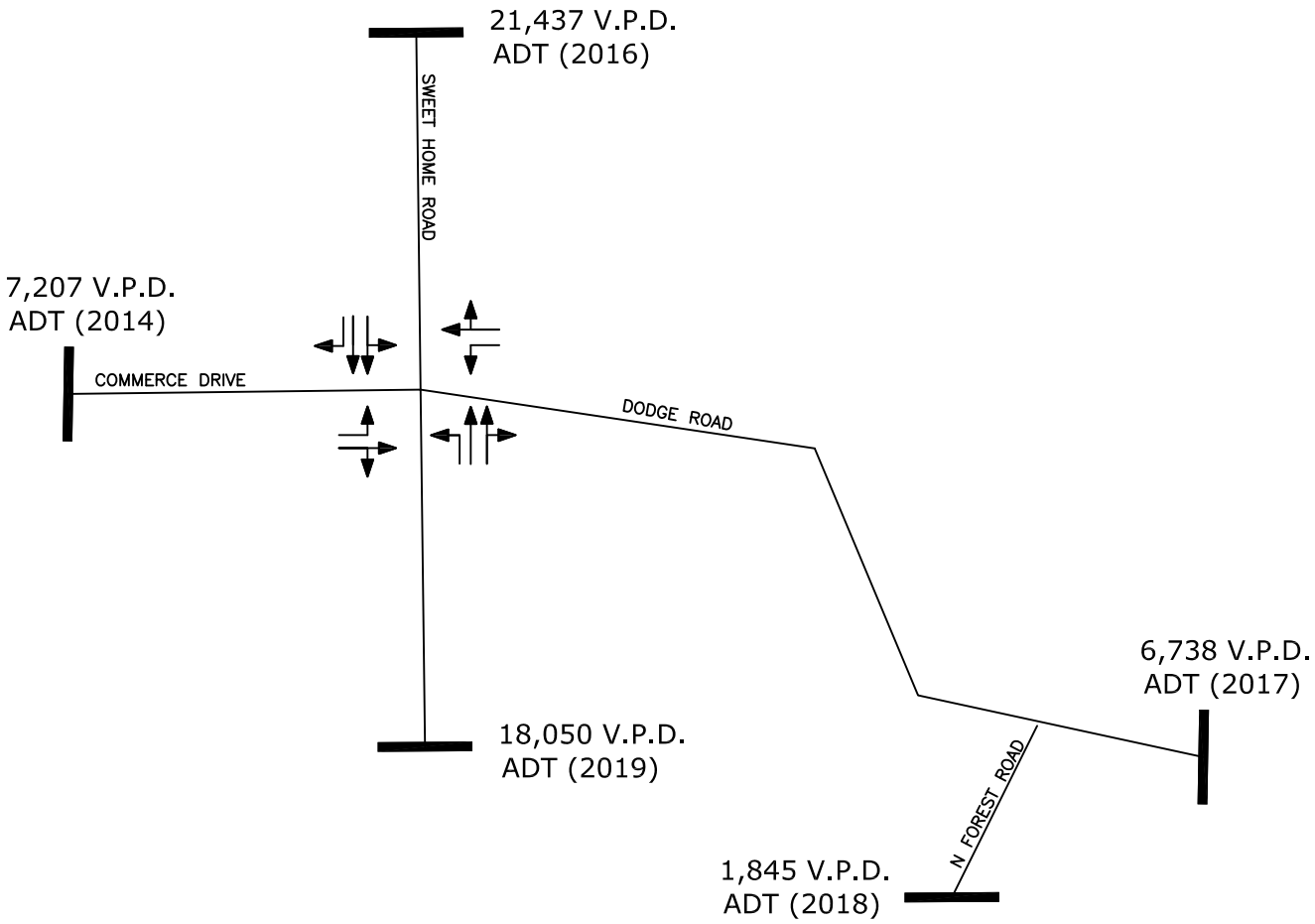
N

SRF ASSOCIATES

www.srfa.net

Transportation

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



NOTES:
1. All counts by NYSDOT
2. V.P.D. = Vehicles per Day

PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

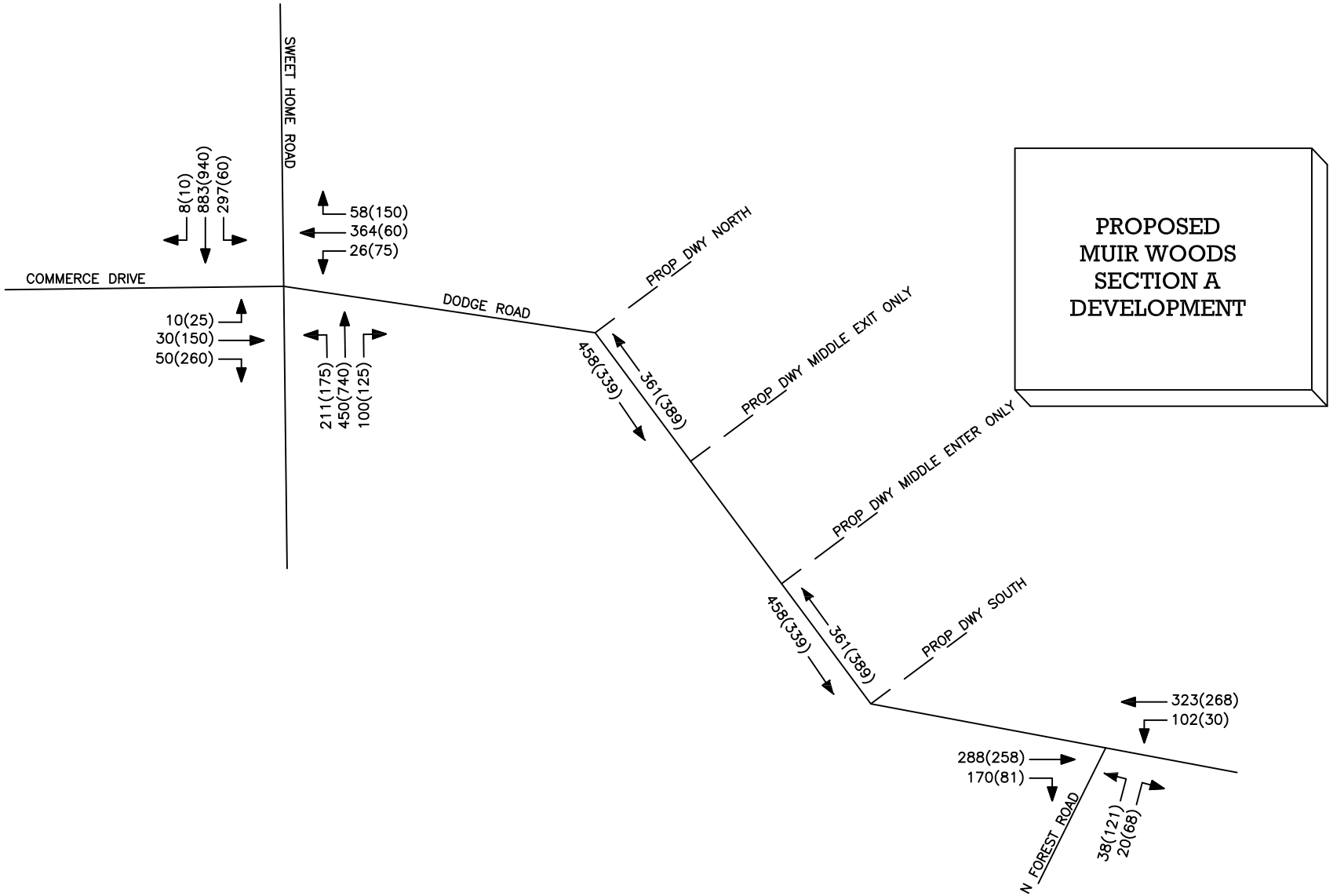
FIGURE 2

LANE GEOMETRY &
AVERAGE DAILY TRAFFIC

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 3

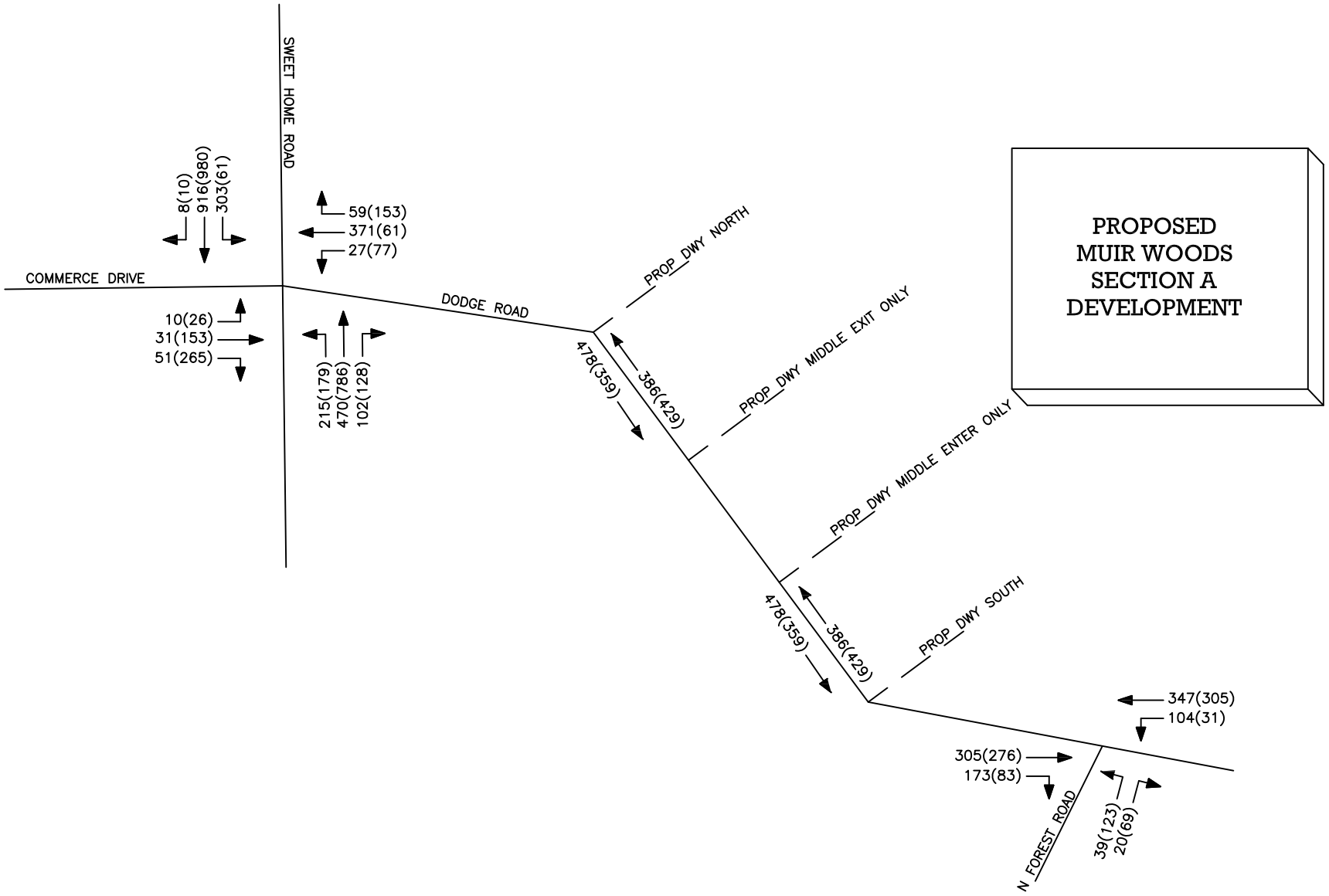
PEAK HOUR VOLUMES
2020 BASE CONDITIONS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design

N
NOT TO SCALE

FIGURE 4

PEAK HOUR VOLUMES
2022 BACKGROUND CONDITIONS

PROPOSED MUIR WOODS SITE A,

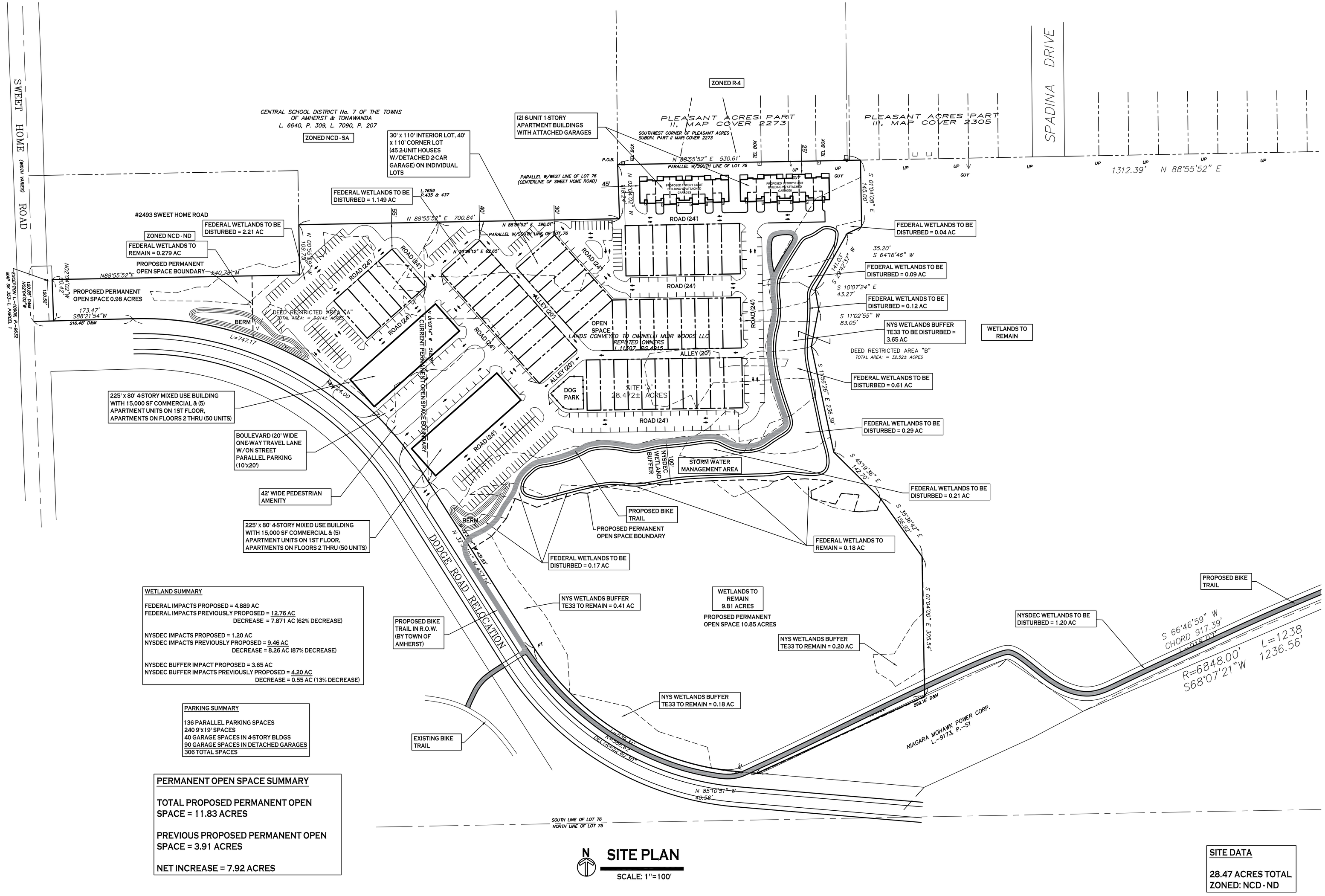
KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.



SITE PLAN

SCALE: 1"=100'

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 4.889 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 12.76 AC
DECREASE = 7.871 AC (62% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

PARKING SUMMARY

136 PARALLEL PARKING SPACES
240 9'x19' SPACES
40 GARAGE SPACES IN 4-STORY BLDGS
90 GARAGE SPACES IN DETACHED GARAGES
306 TOTAL SPACES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 11.83 ACRES

PREVIOUS PROPOSED PERMANENT OPEN SPACE = 3.91 ACRES

NET INCREASE = 7.92 ACRES

SITE DATA

28.47 ACRES TOTAL
ZONED: NCD - ND

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

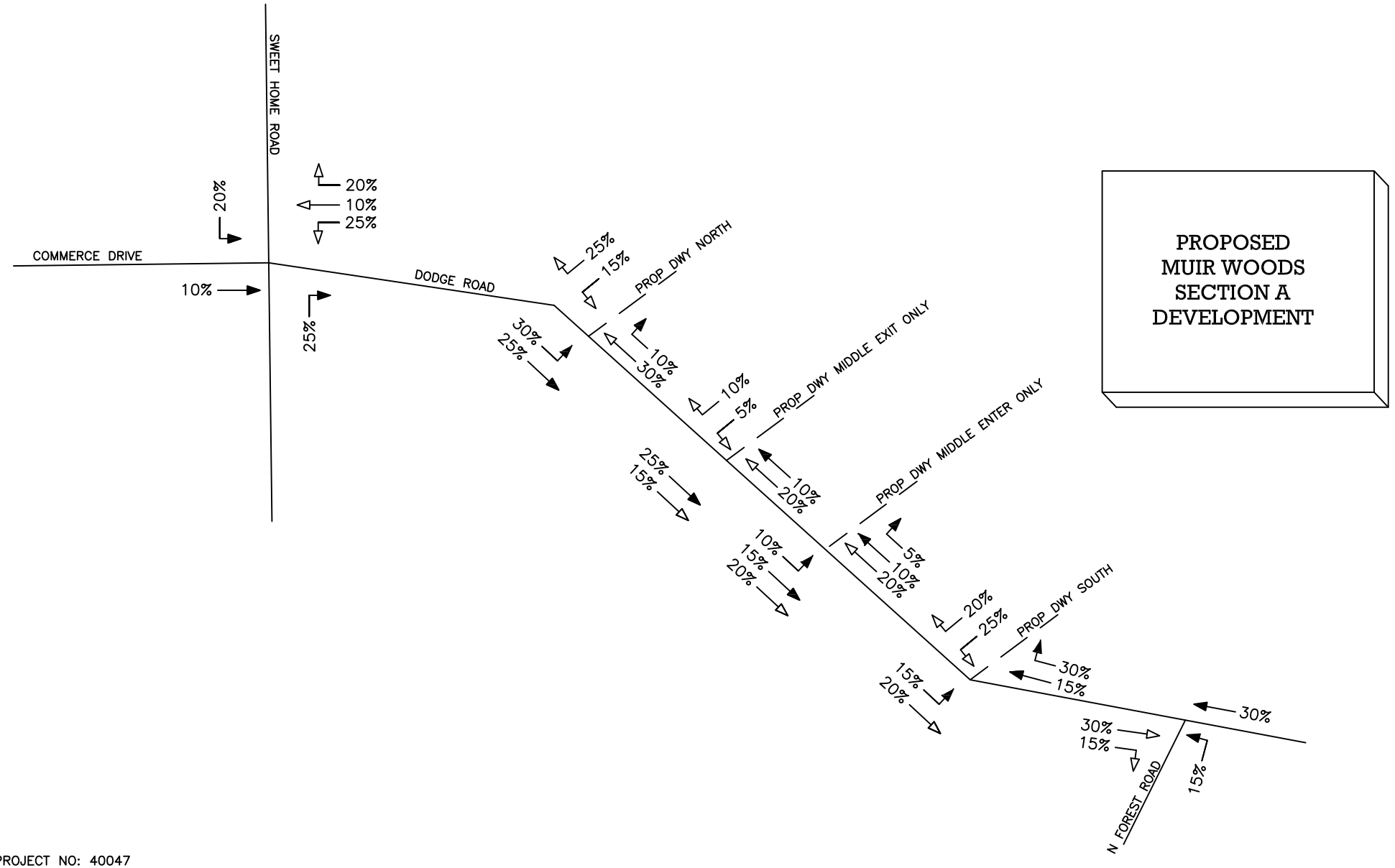
PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 7/1/20
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100

Project no.: 19.192



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 6

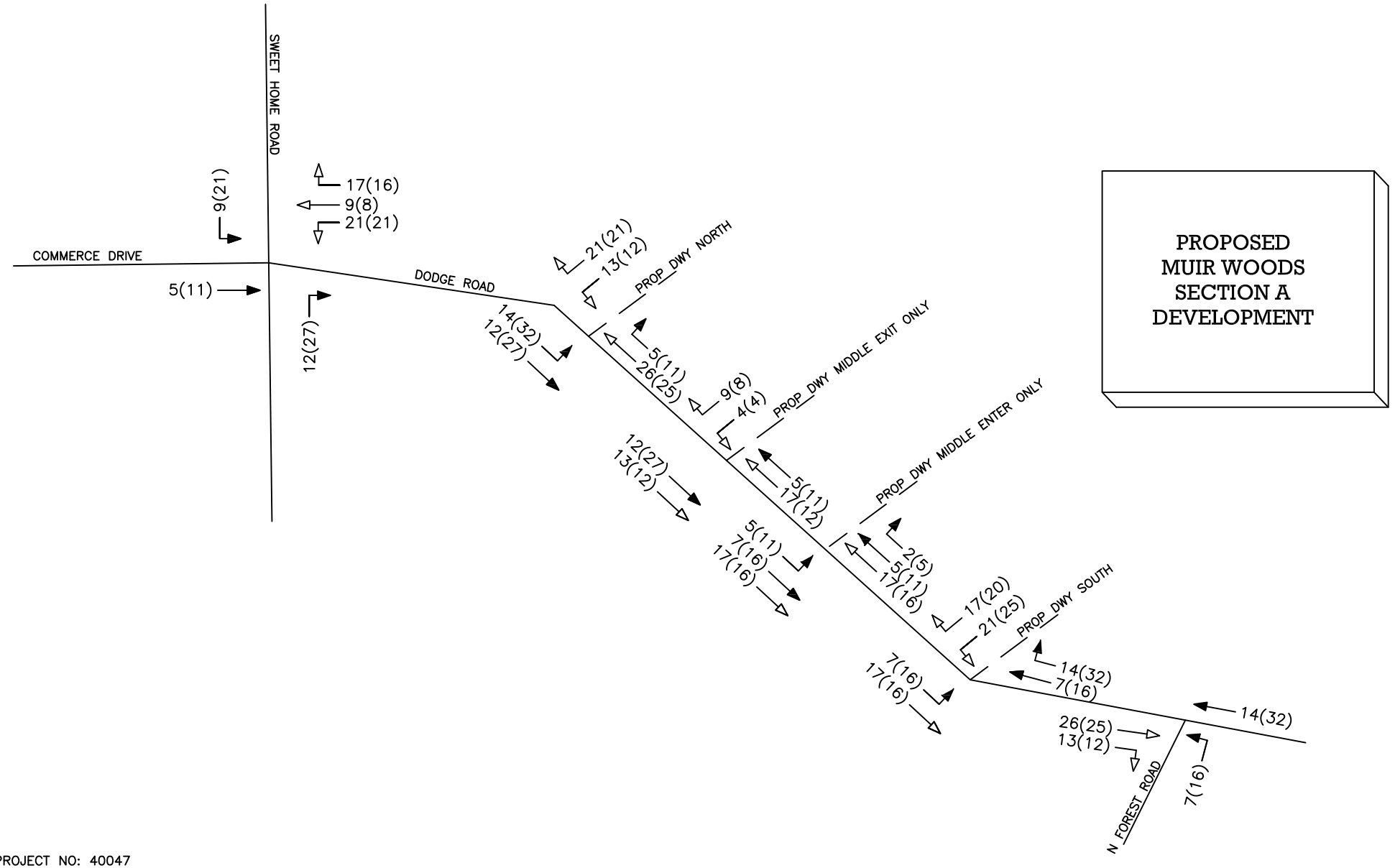
TRIP DISTRIBUTION

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
ENTERING TRIPS →
EXITING TRIPS →

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 7

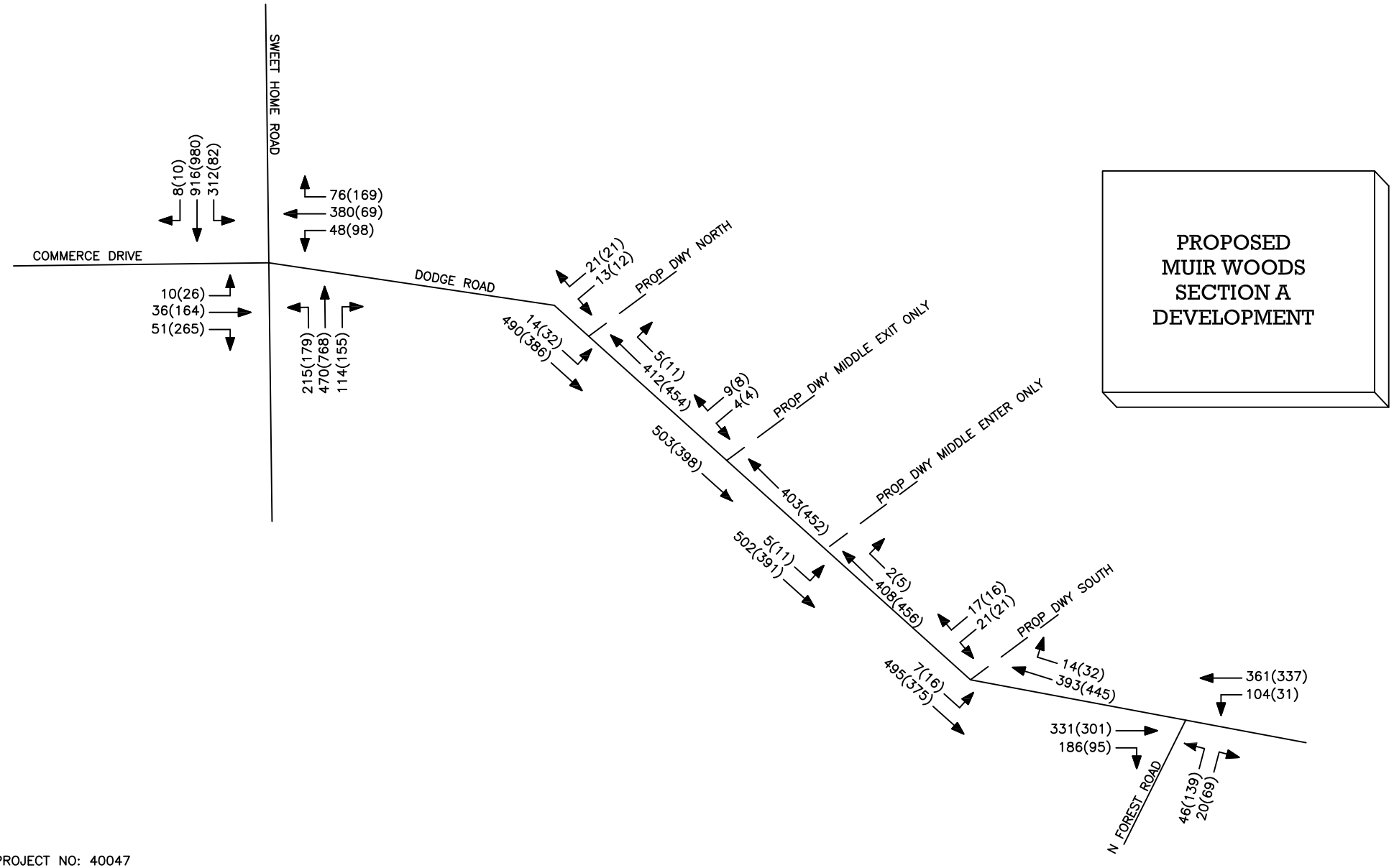
SITE GENERATED TRIPS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
ENTERING TRIPS →
EXITING TRIPS →

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 8

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

APPENDICES

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

A1

Collected Traffic Volume Data

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 1

Turning Movement Data

Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	Int. Total
7:00 AM	32	3	0	0	35	2	12	0	0	14	21	30	0	0	51	100
7:15 AM	51	5	0	0	56	1	8	0	0	9	23	37	0	0	60	125
7:30 AM	77	15	0	0	92	4	10	0	0	14	54	55	0	0	109	215
7:45 AM	101	41	0	0	142	5	5	0	0	10	53	85	0	0	138	290
Hourly Total	261	64	0	0	325	12	35	0	0	47	151	207	0	0	358	730
8:00 AM	83	19	0	0	102	2	5	0	0	7	37	53	0	0	90	199
8:15 AM	59	25	0	0	84	6	14	0	0	20	24	59	0	0	83	187
8:30 AM	37	10	0	0	47	3	12	0	0	15	32	45	0	0	77	139
8:45 AM	44	14	0	0	58	4	14	0	1	18	26	50	0	0	76	152
Hourly Total	223	68	0	0	291	15	45	0	1	60	119	207	0	0	326	677
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	56	8	0	0	64	35	35	0	0	70	20	37	0	0	57	191
4:15 PM	51	2	0	0	53	13	30	0	0	43	16	44	0	0	60	156
4:30 PM	58	5	0	0	63	16	34	0	0	50	19	51	0	0	70	183
4:45 PM	45	5	0	0	50	7	25	0	0	32	18	61	0	0	79	161
Hourly Total	210	20	0	0	230	71	124	0	0	195	73	193	0	0	266	691
5:00 PM	84	6	0	0	90	32	38	0	0	70	22	86	0	0	108	268
5:15 PM	78	11	0	0	89	10	22	0	0	32	19	55	0	0	74	195
5:30 PM	39	3	0	0	42	4	23	0	0	27	11	67	0	0	78	147
5:45 PM	53	3	0	0	56	3	17	0	0	20	15	37	0	0	52	128
Hourly Total	254	23	0	0	277	49	100	0	0	149	67	245	0	0	312	738
6:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	949	175	0	0	1124	147	304	0	1	451	410	852	0	0	1262	2837
Approach %	84.4	15.6	0.0	-	-	32.6	67.4	0.0	-	-	32.5	67.5	0.0	-	-	-
Total %	33.5	6.2	0.0	-	39.6	5.2	10.7	0.0	-	15.9	14.5	30.0	0.0	-	44.5	-
Lights	936	175	0	-	1111	144	303	0	-	447	408	841	0	-	1249	2807
% Lights	98.6	100.0	-	-	98.8	98.0	99.7	-	-	99.1	99.5	98.7	-	-	99.0	98.9
Buses	8	0	0	-	8	3	1	0	-	4	2	8	0	-	10	22
% Buses	0.8	0.0	-	-	0.7	2.0	0.3	-	-	0.9	0.5	0.9	-	-	0.8	0.8
Trucks	5	0	0	-	5	0	0	0	-	0	0	3	0	-	3	8
% Trucks	0.5	0.0	-	-	0.4	0.0	0.0	-	-	0.0	0.0	0.4	-	-	0.2	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

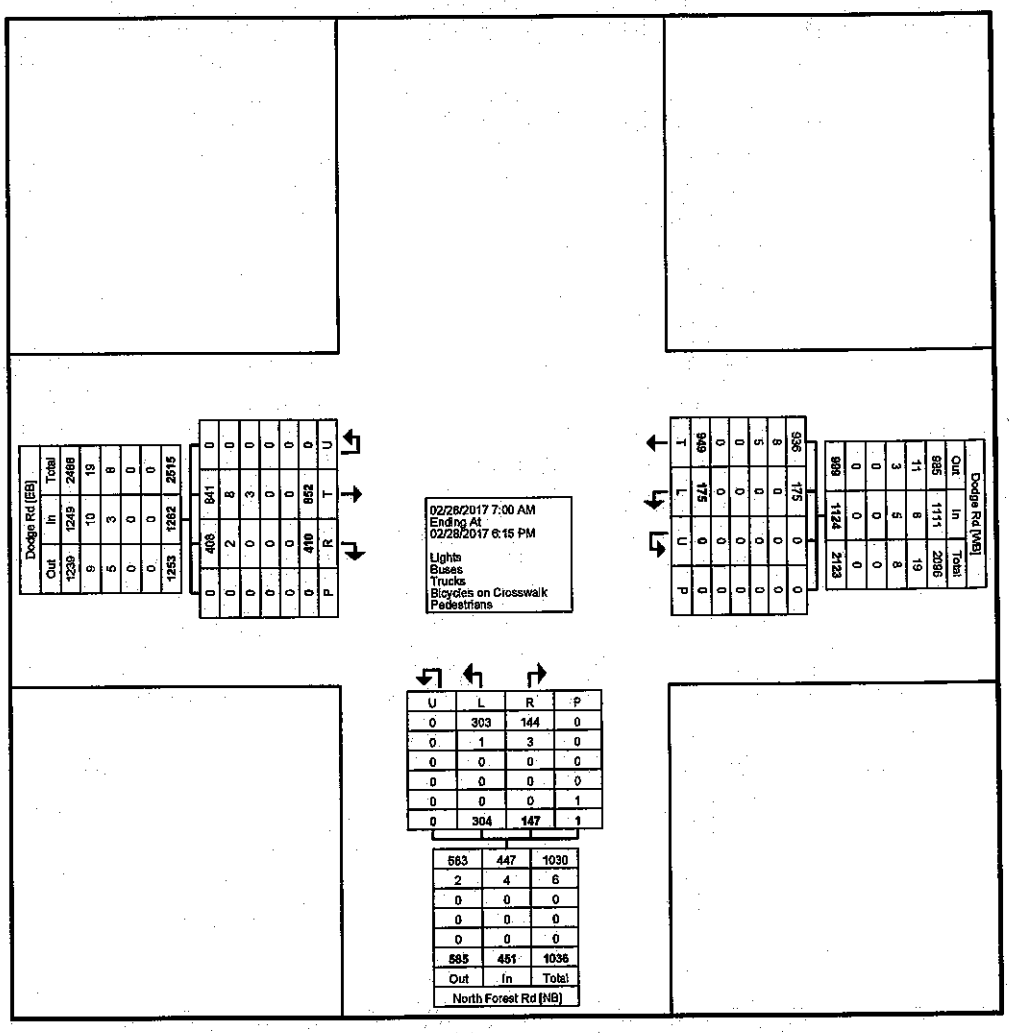
TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 2



Dodge Rd (EB)		
Out	In	Total
1239	1249	2488
9	10	19
5	3	8
0	0	0
0	0	0
1253	1262	2515

U	T	R	P
0	841	408	0
0	8	2	0
0	3	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	852	410	0
0	8	2	0

T	L	U	P
849	175	0	0
0	0	0	0
5	0	0	0
8	0	0	0
936	175	0	0

Dodge Rd (WB)		
Out	In	Total
885	1111	1996
11	8	19
3	5	8
0	0	0
989	1124	2123

U	L	R	P
0	303	144	0
0	1	3	0
0	0	0	0
0	0	0	0
0	0	0	1
0	304	147	1

583	447	1030
2	4	6
0	0	0
0	0	0
0	0	0
585	451	1036
Out	In	Total
North Forest Rd (NB)		

Turning Movement Data Plot

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

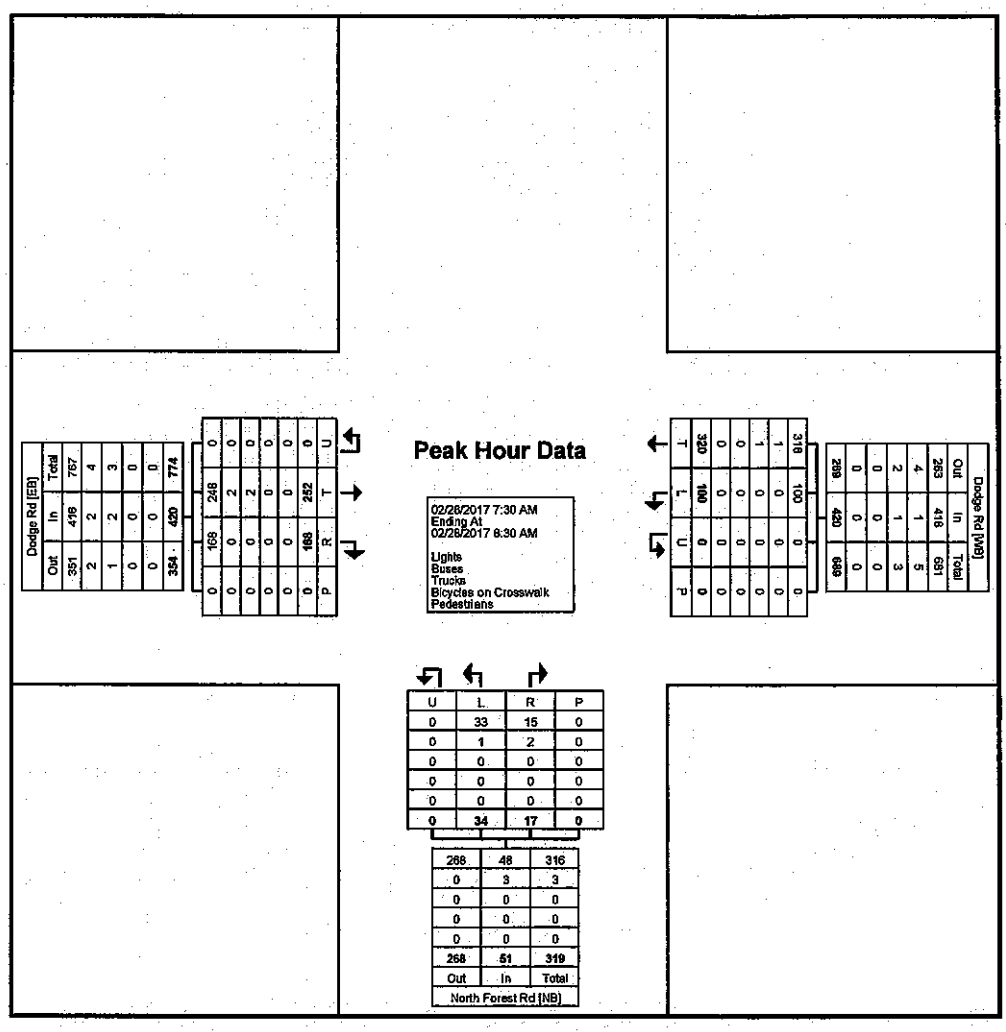
Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:30 AM	77	15	0	0	92	4	10	0	0	14	54	55	0	0	109	215
7:45 AM	101	41	0	0	142	5	5	0	0	10	53	85	0	0	138	290
8:00 AM	83	19	0	0	102	2	5	0	0	7	37	53	0	0	90	199
8:15 AM	59	25	0	0	84	6	14	0	0	20	24	59	0	0	83	187
Total	320	100	0	0	420	17	34	0	0	51	168	252	0	0	420	891
Approach %	76.2	23.8	0.0	-	-	33.3	66.7	0.0	-	-	40.0	60.0	0.0	-	-	-
Total %	35.9	11.2	0.0	-	47.1	1.9	3.8	0.0	-	5.7	18.9	28.3	0.0	-	47.1	-
PHF	0.792	0.610	0.000	-	0.739	0.708	0.607	0.000	-	0.638	0.778	0.741	0.000	-	0.761	0.768
Lights	318	100	0	-	418	15	33	0	-	48	168	248	0	-	416	882
% Lights	99.4	100.0	-	-	99.5	88.2	97.1	-	-	94.1	100.0	98.4	-	-	99.0	99.0
Buses	1	0	0	-	1	2	1	0	-	3	0	2	0	-	2	6
% Buses	0.3	0.0	-	-	0.2	11.8	2.9	-	-	5.9	0.0	0.8	-	-	0.5	0.7
Trucks	1	0	0	-	1	0	0	0	-	0	0	2	0	-	2	3
% Trucks	0.3	0.0	-	-	0.2	0.0	0.0	-	-	0.0	0.0	0.8	-	-	0.5	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 4



Turning Movement Peak Hour Data Plot (7:30 AM)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017

Turning Movement Peak Hour Data (4:30 PM)

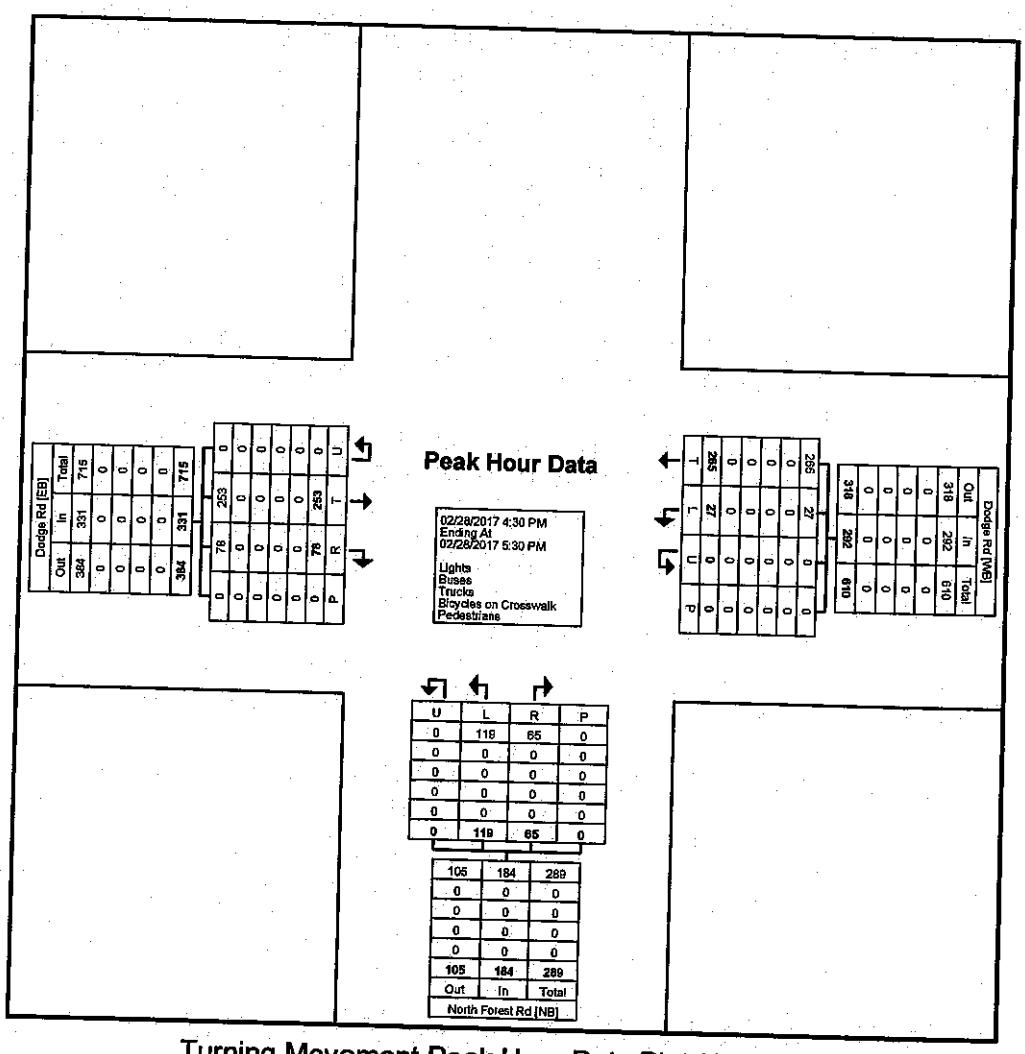
Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
4:30 PM	58	5	0	0	63	16	34	0	0	50	19	51	0	0	70	183
4:45 PM	45	5	0	0	50	7	25	0	0	32	18	61	0	0	79	161
5:00 PM	84	6	0	0	90	32	38	0	0	70	22	86	0	0	108	268
5:15 PM	78	11	0	0	89	10	22	0	0	32	19	55	0	0	74	195
Total	265	27	0	0	292	65	119	0	0	184	78	253	0	0	331	807
Approach %	90.8	9.2	0.0	-	-	35.3	64.7	0.0	-	-	23.6	76.4	0.0	-	-	-
Total %	32.8	3.3	0.0	-	36.2	8.1	14.7	0.0	-	22.8	9.7	31.4	0.0	-	41.0	-
PHF	0.789	0.614	0.000	-	0.811	0.508	0.783	0.000	-	0.657	0.886	0.735	0.000	-	0.766	0.753
Lights	265	27	0	-	292	65	119	0	-	184	78	253	0	-	331	807
% Lights	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 6



Turning Movement Peak Hour Data Plot (4:30 PM)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TIS - THE HUB - 2949 N. FOREST
KIMLEY-HORN, 3/2017

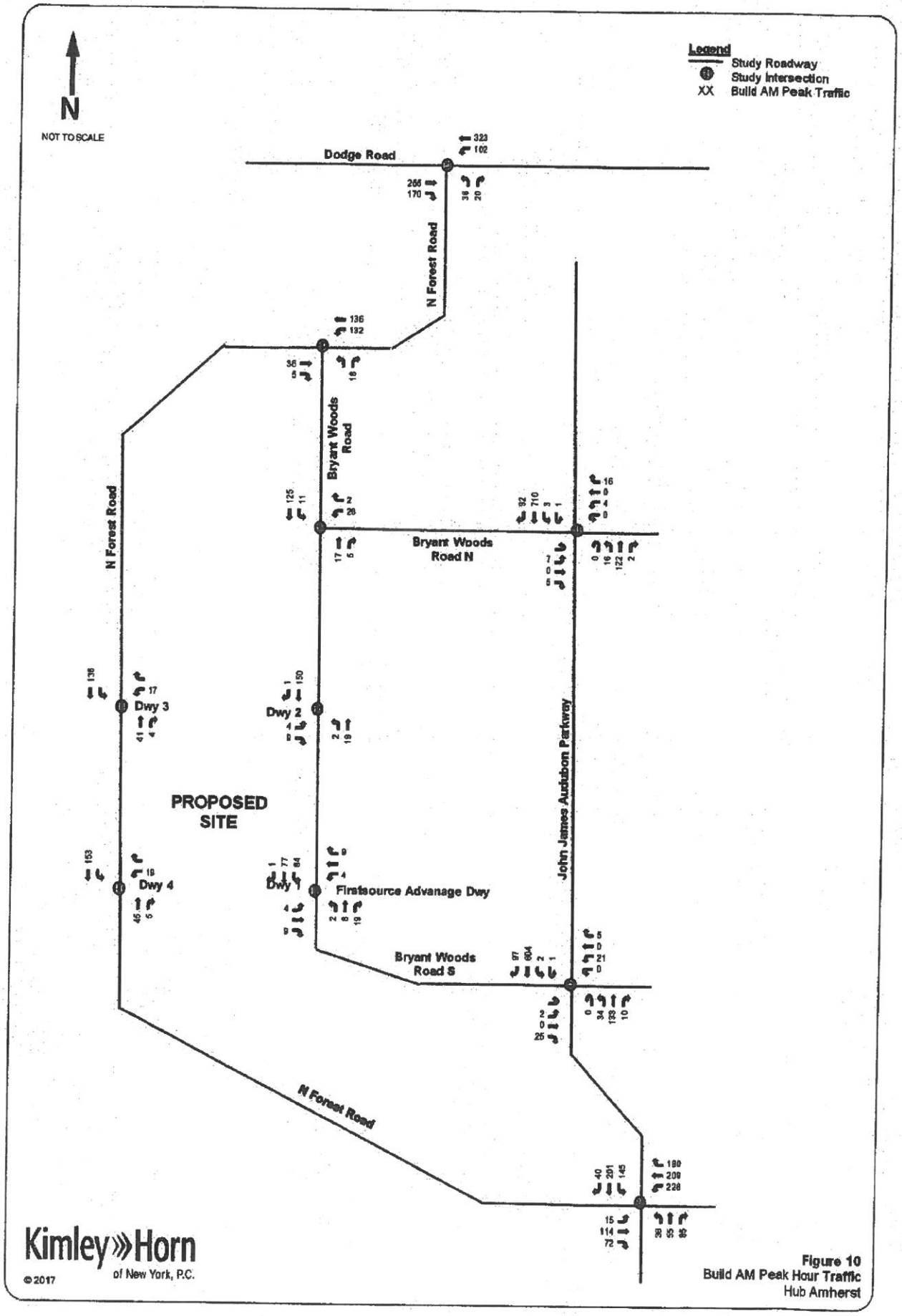


Figure 10
Build AM Peak Hour Traffic
Hub Amherst

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

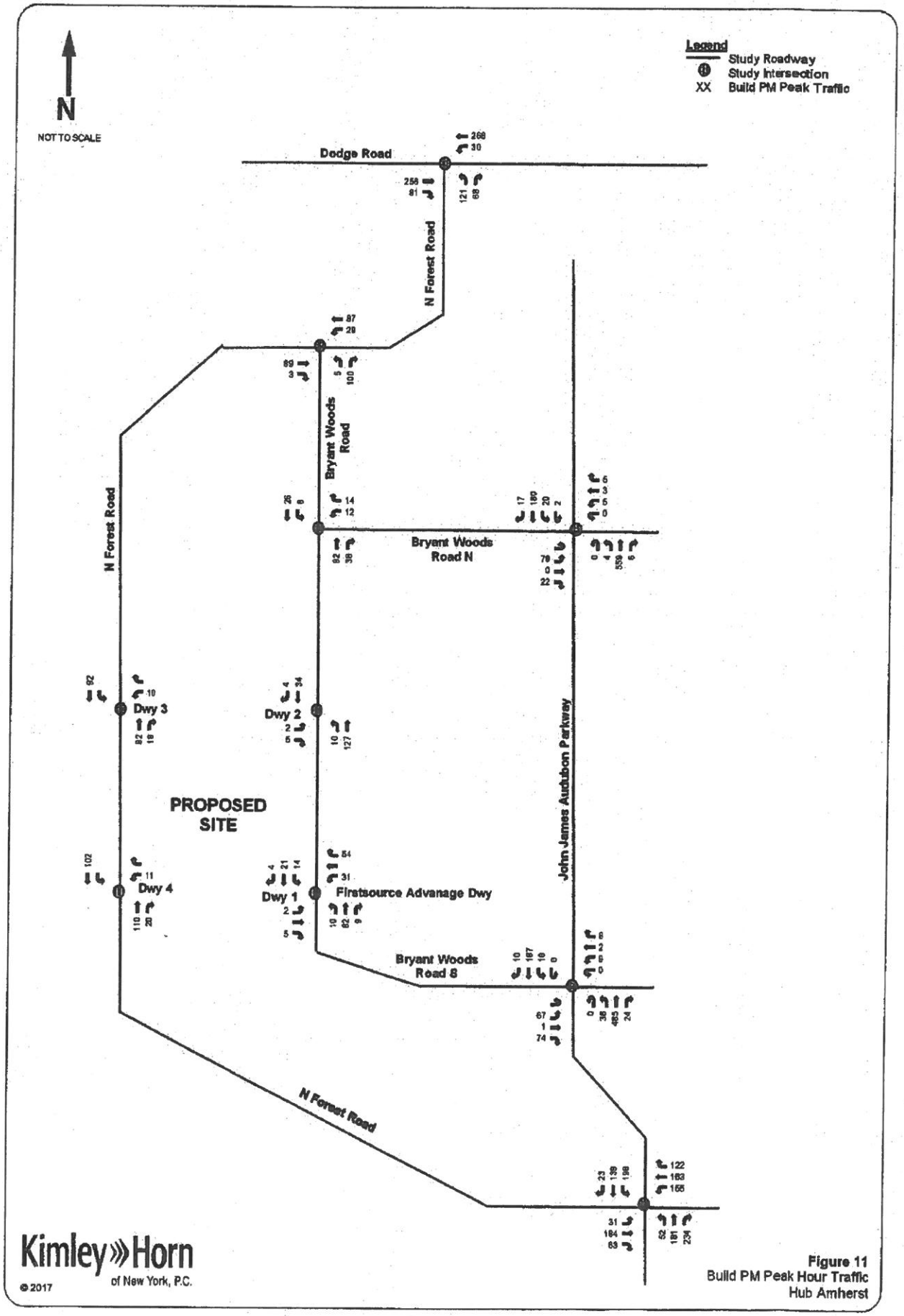


Figure 11
Build PM Peak Hour Traffic
Hub Amherst

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Peak Hour Data for Intersection

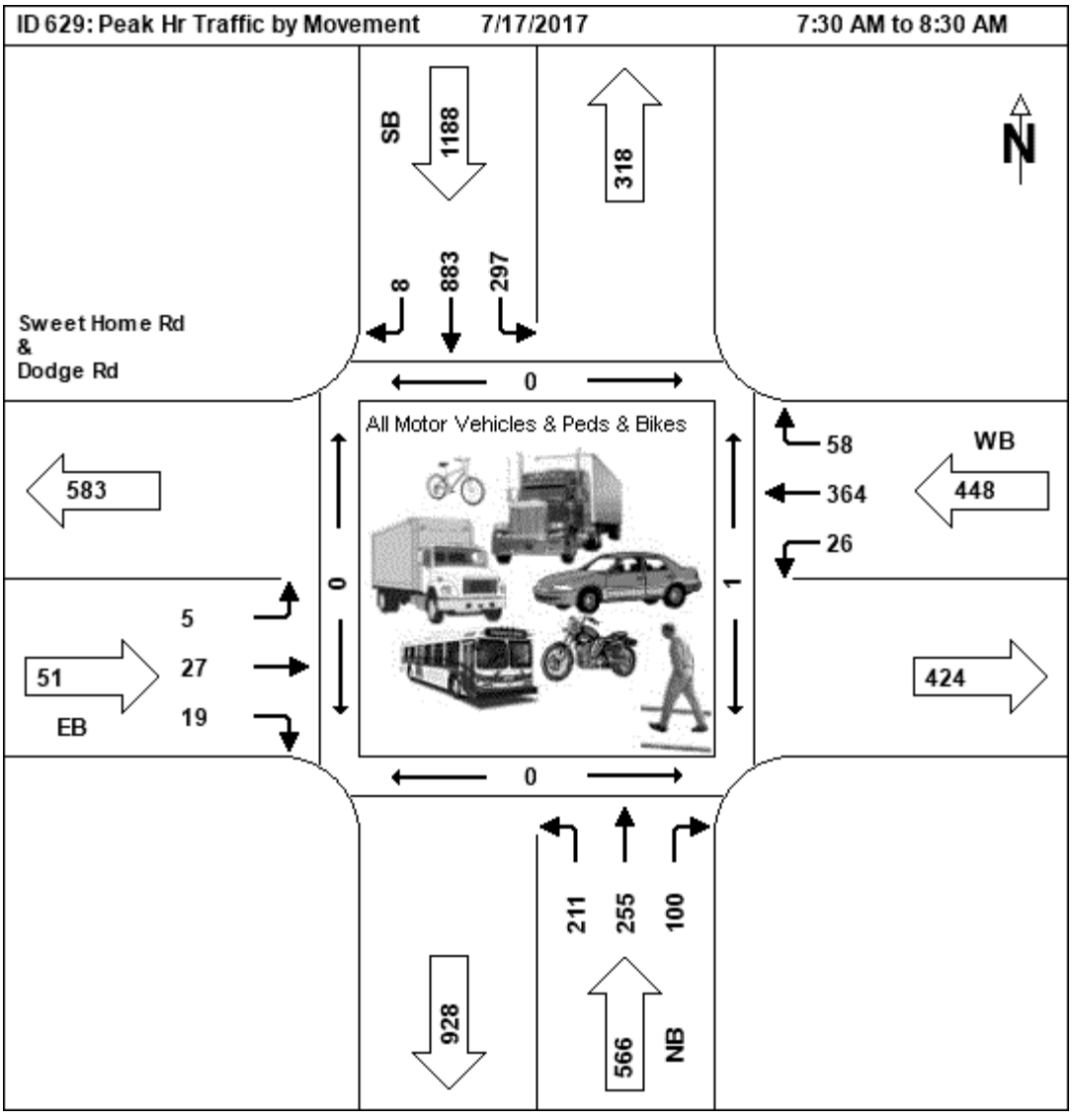
Int ID: 629
Community: Amherst
Road 1: Sweet Home Rd
Road 2: Dodge Rd
Corridor: NA
Road 3: Commerce Dr
Road 4:

|<< < > >>| 1-2 of 2

AM Peak Hour
07/17/2017

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:30 AM	65	54	17	1	136	3	14	4	0	21	60	290	2	0	352	3	97	11	0	111	620
7:45 AM	50	69	31	0	150	0	3	0	0	3	75	196	0	0	271	6	120	8	0	134	558
8:00 AM	49	66	25	0	140	1	5	4	0	10	66	175	2	0	243	10	72	22	0	104	497
8:15 AM	47	66	27	0	140	1	5	11	0	17	96	222	4	0	322	7	75	17	0	99	578
Total	211	255	100	1	566	5	27	19	0	51	297	883	8	0	1188	26	364	58	0	448	2253
PHF	0.81	0.92	0.81		0.94	0.42	0.48	0.43		0.61	0.77	0.76	0.50		0.84	0.65	0.76	0.66		0.84	
HV %	6	4	6			60	0	32			1	3	0			12	1	2			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



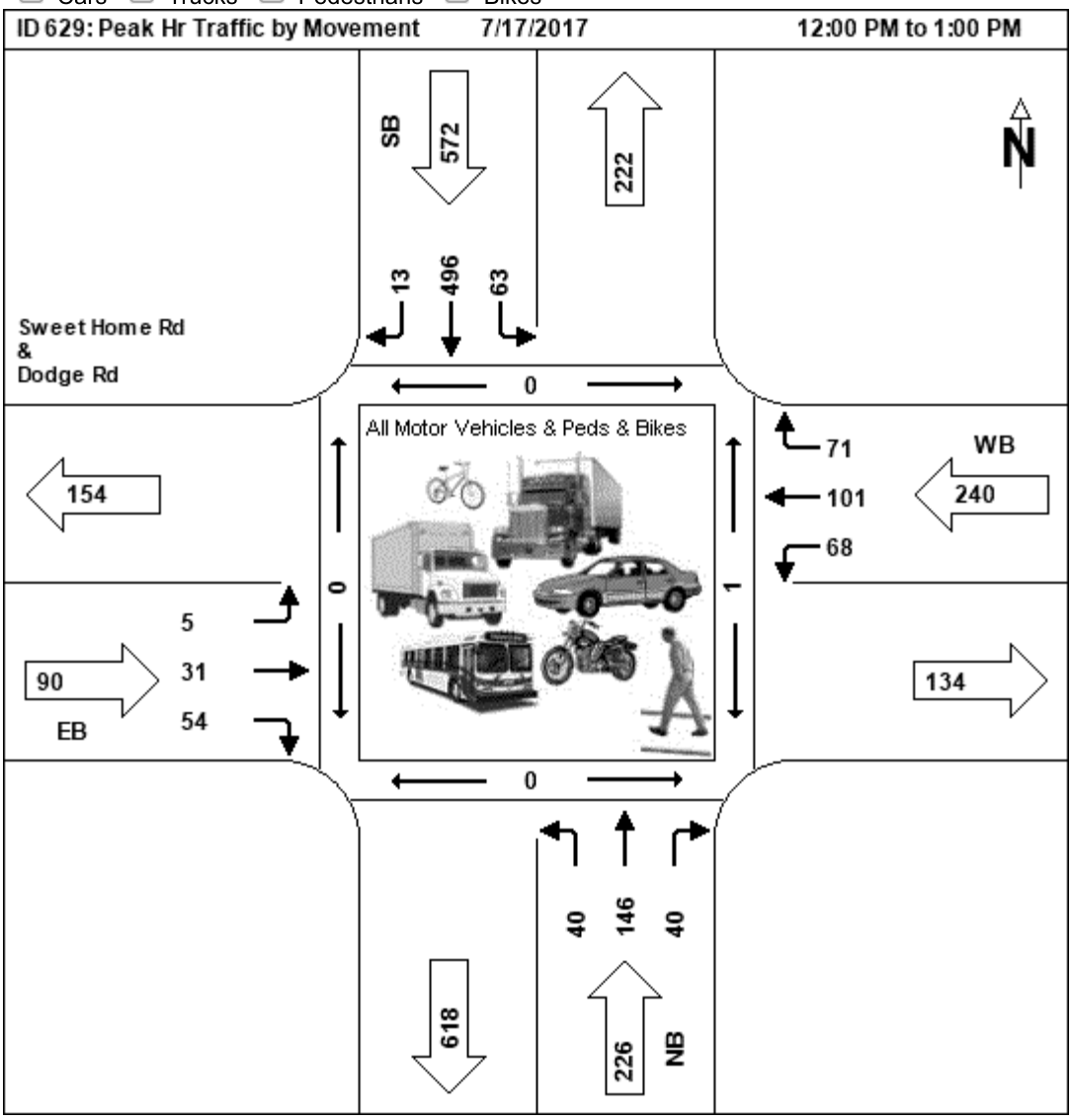
Midday Peak Hour
07/17/2017

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

12:00 PM	6	34	11	1	51	0	6	12	0	18	20	127	4	0	151	26	19	26	0	71	291
12:15 PM	10	15	4	0	29	5	16	13	0	34	17	110	2	0	129	12	23	26	0	61	253
12:30 PM	3	34	10	0	47	0	5	14	0	19	19	120	3	0	142	11	24	11	0	46	254
12:45 PM	21	63	15	0	99	0	4	15	0	19	7	139	4	0	150	19	35	8	0	62	330
Total	40	146	40	1	226	5	31	54	0	90	63	496	13	0	572	68	101	71	0	240	1128
PHF	0.48	0.58	0.67		0.57	0.25	0.48	0.90		0.66	0.79	0.89	0.81		0.95	0.65	0.72	0.68		0.85	
HV %	13	8	5			20	3	4			2	2	0			1	0	1			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

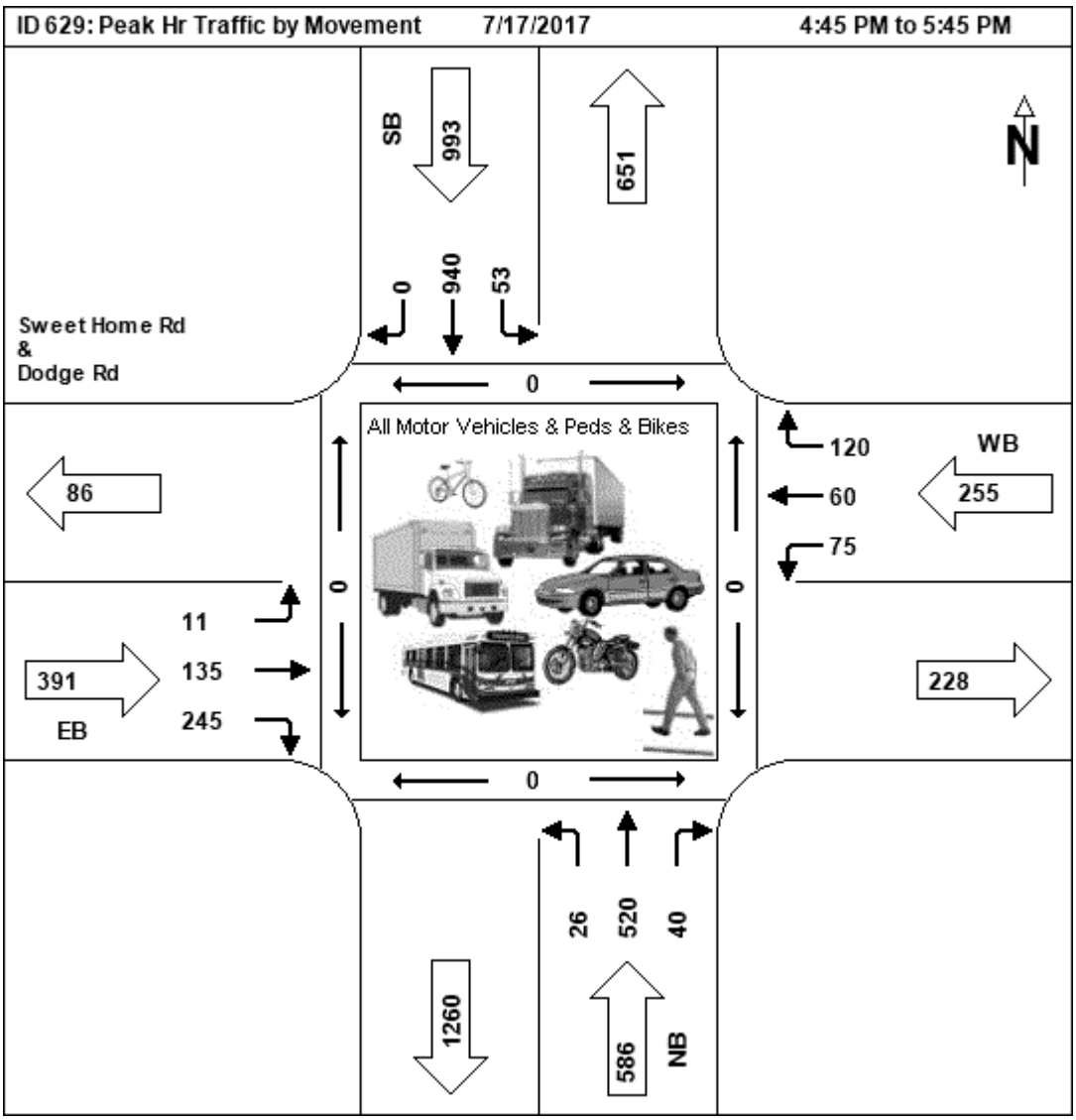


PM Peak Hour
07/17/2017

	NB					EB					SB					WB					
Start Time	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Int Total
4:45 PM	8	132	12	0	152	2	28	51	0	81	24	190	0	0	214	30	22	21	0	73	520
5:00 PM	5	119	6	0	130	4	51	116	0	171	10	258	0	0	268	20	22	50	0	92	661
5:15 PM	7	149	10	0	166	4	27	34	0	65	14	266	0	0	280	18	10	21	0	49	560
5:30 PM	6	119	12	0	137	1	27	44	0	72	5	226	0	0	231	7	6	28	0	41	481
Total	26	519	40	0	585	11	133	245	0	389	53	940	0	0	993	75	60	120	0	255	2222
PHF	0.81	0.87	0.83		0.88	0.69	0.65	0.53		0.57	0.55	0.88			0.89	0.63	0.68	0.60		0.69	
HV %	12	1	5			18	2	1			0	1				0	2	1			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

A2

Miscellaneous Traffic Data and Calculations

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **531020**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
DIRECTION: Northbound FACTOR GROUP: 30 REC. SERIAL #: W699 FUNC. CLASS: 16 TOWN: **AMHERST**
STATE DIR CODE: 6 WK OF YR: 16 PLACEMENT: .57m S of Bryant Woods S NHS: no LION#:
DATE OF COUNT: 04/19/2015 @ REF MARKER: JURIS: Village BIN:
NOTES LANE 1: North ADDL DATA: Class Speed CC Stn: RR CROSSING:
COUNT TYPE: VEHICLES BATCH ID: DOT-SJWR5Cww17a CARS HPMS SAMPLE: 3010446
COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS PROCESSED BY: ORG CODE: DOT INITIALS: SJW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
8	W																											
9	T																											
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M	**2**	**0**	**0**	**0**	**1**	**4**	**12**	**48**	**64**	**42**	**59**	**47**	**74**	**74**	**68**	**100**	**94**	**82**	**63**	**32**	**41**	**20**	**17**	**11**	955	100	15
21	T	**3**	**0**	**1**	**0**	**0**	**1**	**11**	**48**	**43**	**39**	**47**	**66**	**77**	**69**	**81**	**114**	**96**	**98**	**72**	**37**	**40**	**22**	**13**	**8**	986	114	15
22	W	**5**	**1**	**1**	**2**	**2**	**1**	**12**	**48**	**55**	**42**	**46**	**58**	**81**	**59**	**79**	**97**	**98**	**82**	**56**	**47**	**35**	**27**	**23**				
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																								ADT
4	**0**	**1**	**1**	**1**	**1**	**12**	**48**	**54**	**41**	**51**	**57**	**77**	**67**	**76**	**104**	**96**	**87**	**64**	**39**	**39**	**23**	**18**	**10**	**971**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
3	71	2	65	104	11%	1.000	1.047	**AADT 927**

ROAD #: **CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
STATION: **531020** STATE DIR CODE: **6** PLACEMENT: **.57m S of Bryant Woods S** **DATE OF COUNT: 04/19/2015**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **531020**

New York State Department of Transportation
Traffic Count Hourly Report

ROAD #: **CR CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: W805 FUNC. CLASS: 16 TOWN: **AMHERST**
STATE DIR CODE: 7 WK OF YR: 16 PLACEMENT: .57m S of Bryant Woods S NHS: no LION#:
DATE OF COUNT: 04/19/2015 @ REF MARKER: JURIS: Village BIN:
NOTES LANE 1: South ADDL DATA: Class Speed CC Stn: RR CROSSING:
COUNT TYPE: VEHICLES BATCH ID: DOT-SJWR5Cww17a CLASS HPMS SAMPLE: 3010446
COUNT TAKEN BY: ORG CODE: TTG INITIALS: dks PROCESSED BY: ORG CODE: DOT INITIALS: SJW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
8	W																											
9	T																											
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M	**1**	**1**	**1**	**1**	**1**	**11**	**42**	**77**	**104**	**51**	**48**	**44**	**53**	**52**	**71**	**69**	**104**	**79**	**50**	**23**	**18**	**13**	**12**	**3**	929	104	8
21	T	**1**	**1**	**2**	**0**	**0**	**12**	**42**	**84**	**91**	**53**	**56**	**55**	**67**	**63**	**60**	**56**	**85**	**97**	**44**	**28**	**15**	**10**	**7**	**9**	938	97	17
22	W	**1**	**1**	**1**	**2**	**1**	**13**	**41**	**72**	**87**	**57**	**51**	**55**	**63**	**51**	**54**	**66**	**79**	**96**	**56**	**31**	**16**	**15**	**12**				
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
1	**1**	**2**	**1**	**0**	**12**	**42**	**78**	**94**	**54**	**52**	**51**	**61**	**55**	**62**	**64**	**89**	**91**	**50**	**27**	**16**	**13**	**10**	**6**	**932**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
3	71	2	65	94	10%	1.000	1.047	**AADT 890**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **534232**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Eastbound FACTOR GROUP: 30
STATE DIR CODE: 6 WK OF YR: 32
DATE OF COUNT: 08/07/2017
NOTES LANE 1: EB 1 Lane - 40 mph

COUNT TAKEN BY: ORG CODE: MBN INITIALS: APV

FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD**
REC. SERIAL #: Y110 FUNC. CLASS: 16
PLACEMENT: 450 FEET EAST OF AUDUBON PK NHS: no
@ REF MARKER: JURIS: Village
ADDL DATA: Class Speed CC Stn:
COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R05c32aMBN0000-2017

PROCESSED BY: ORG CODE: DOT INITIALS: CW

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M																		472	223	157	142	81	43	41			
8	T	23	10	6	6	4	17	55	207	272	174	158	216	271	230	243	301	447	457	249	168	165	116	61	41	3897	457	17
9	W	27	14	6	7	3	13	69	195	244	172	177	212	283	268	250	319	412	437	234	185	162	133	51	37	3910	437	17
10	T	18	10	7	5	6	8	60	158	204	154	182	202	301	264	267	326	438	436	228	158	152	114	66	46	3810	438	16
11	F	27	8	13	8	6	16	64	172																			
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

24	10	8	6	5	14	62	183	240	167	172	210	285	254	253	315	432	450	234	167	155	111	55	41	ADT 3853

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
4	87	4	87	450	12%	1.000	1.100	**AADT 3503**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Westbound FACTOR GROUP: 30
STATE DIR CODE: 7 WK OF YR: 32
DATE OF COUNT: 08/07/2017
NOTES LANE 1: WB 1 Lane - 40 mph

COUNT TAKEN BY: ORG CODE: MBN INITIALS: APV

FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD**
REC. SERIAL #: Y110 FUNC. CLASS: 16
PLACEMENT: 450 FEET EAST OF AUDUBON PK NHS: no
@ REF MARKER: JURIS: Village
ADDL DATA: Class Speed CC Stn:
COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R05c32aMBN0000-2017

PROCESSED BY: ORG CODE: DOT INITIALS: CW

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M																		250	150	104	92	61	38	18			
8	T	**17**	**5**	**2**	**7**	**8**	**27**	**124**	**380**	**419**	**243**	**185**	**169**	**293**	**250**	**231**	**233**	**211**	**287**	**189**	**121**	**109**	**66**	**54**	**17**	3647	419	8
9	W	**9**	**5**	**6**	**6**	**13**	**22**	**125**	**348**	**424**	**225**	**194**	**200**	**202**	**243**	**280**	**212**	**234**	**268**	**206**	**133**	**102**	**68**	**59**	**15**	3599	424	8
10	T	**16**	**3**	**1**	**7**	**9**	**31**	**120**	**335**	**390**	**219**	**208**	**208**	**208**	**243**	**285**	**225**	**252**	**261**	**187**	**127**	**106**	**68**	**50**	**26**	3585	390	8
11	F	**11**	**5**	**5**	**3**	**11**	**27**	**111**	**302**																			
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
13	**4**	**4**	**6**	**10**	**27**	**120**	**341**	**411**	**229**	**196**	**192**	**234**	**245**	**265**	**223**	**232**	**266**	**183**	**121**	**102**	**66**	**50**	**19**	**3559**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	87	5	87	411	12%	1.000	1.100

ESTIMATED

AADT
3235

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

1.a

STATION: **534822**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 23
DATE OF COUNT: 06/03/2019
NOTES LANE 0: North

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **COMMERCE DRIVE**
REC. SERIAL #: W807
PLACEMENT: 151' N of Sunshine Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: DOT INITIALS: JH

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V23aTTG5196HPMS SAMPLE:

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																**774**	**1037**	**1082**	**627**	**443**	**469**	**345**	**209**	**140**			
4	T	**69**	**39**	**23**	**11**	**18**	**46**	**199**	**447**	**506**	**431**	**399**	**484**	**556**	**524**	**607**	**754**	**1009**	**977**	**661**	**468**	**428**	**347**	**201**	**141**	9345	1009	16
5	W	**83**	**50**	**29**	**19**	**27**	**43**	**207**	**467**	**509**	**430**	**409**	**541**	**597**	**521**	**671**	**841**	**1058**	**958**	**630**	**444**	**451**	**358**	**195**	**135**	9673	1058	16
6	T	**89**	**37**	**19**	**18**	**19**	**69**	**186**	**466**	**515**	**474**	**403**	**509**	**563**	**563**	**658**	**825**	**1015**	**1079**	**699**	**549**	**498**	**378**	**235**				
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																											
25	T																											
26	W																											
27	T																											
28	F																											
29	S																											
30	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
79	**41**	**24**	**16**	**21**	**52**	**194**	**454**	**503**	**439**	**399**	**504**	**565**	**529**	**637**	**788**	**1017**	**1011**	**645**	**470**	**456**	**352**	**207**	**137**	**9540**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	80	4	80	1017	11%	0.987	1.113

ESTIMATED (one way)

AADT
8571

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **COMMERCE DRIVE** TO: **N FRENCH RD** COUNTY: **Erie**
STATION: **534822** STATE DIR CODE: **1** PLACEMENT: **151' N of Sunshine Dr** **DATE OF COUNT: 06/03/2019**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 23
DATE OF COUNT: 06/03/2019
NOTES LANE 0: South

FROM: **COMMERCE DRIVE**
REC. SERIAL #: R314
PLACEMENT: 151' N of Sunshine Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V23aTTG5196HPMS SAMPLE:

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS
PROCESSED BY: ORG CODE: DOT INITIALS: JH

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																**699**	**811**	**832**	**567**	**382**	**321**	**258**	**169**	**84**			
4	T	**43**	**33**	**20**	**20**	**51**	**171**	**524**	**1071**	**994**	**566**	**536**	**553**	**542**	**550**	**618**	**636**	**794**	**850**	**622**	**297**	**303**	**219**	**180**	**95**	10288	1071	7
5	W	**55**	**29**	**17**	**25**	**42**	**175**	**509**	**1093**	**1076**	**641**	**534**	**616**	**658**	**581**	**586**	**741**	**804**	**788**	**592**	**379**	**319**	**248**	**132**	**88**	10728	1093	7
6	T	**51**	**28**	**12**	**19**	**45**	**168**	**510**	**1095**	**978**	**632**	**570**	**657**	**697**	**639**	**635**	**714**	**823**	**897**	**616**	**377**	**315**	**308**	**189**				
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																											
25	T																											
26	W																											
27	T																											
28	F																											
29	S																											
30	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
49	**30**	**16**	**21**	**45**	**169**	**507**	**1072**	**1003**	**605**	**540**	**601**	**624**	**582**	**605**	**689**	**797**	**831**	**591**	**354**	**310**	**255**	**166**	**88**	**10550**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	80	4	80	1072	10%	0.987	1.113

ESTIMATED (one way)

AADT
9479

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **536335**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 15
DATE OF COUNT: 04/06/2020
NOTES LANE 1: North
NOTES LANE 2: North
COUNT TAKEN BY: ORG CODE: TTG INITIALS: JB

FROM: **N ELLICOTT RD**
REC. SERIAL #: W796
PLACEMENT: 605ft N of N Ellicott Creek
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: CPA

TO: **COMMERCE DRIVE**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05C15cTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN: 3367090
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M															**393**	**465**	**479**	**413**	**323**	**216**	**173**	**102**	**83**	**53**			
7	T	**35**	**23**	**26**	**24**	**22**	**64**	**243**	**301**	**262**	**259**	**316**	**328**	**380**	**389**	**430**	**478**	**462**	**403**	**294**	**237**	**166**	**120**	**81**	**65**	5408	478	15
8	W	**30**	**26**	**25**	**16**	**18**	**87**	**235**	**303**	**264**	**225**	**242**	**286**	**320**	**329**	**353**	**467**	**400**	**397**	**318**	**242**	**183**	**135**	**90**	**75**	5066	467	15
9	T	**40**	**22**	**24**	**22**	**23**	**78**	**231**	**270**	**258**	**239**	**266**	**294**	**346**	**309**	**418**	**419**	**477**	**421**	**284**	**231**	**146**	**114**	**96**	**72**	5100	477	16
10	F	**44**	**29**	**25**	**26**	**19**	**53**	**164**	**213**	**248**	**199**																	
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																								ADT
37	**25**	**25**	**22**	**20**	**70**	**218**	**272**	**258**	**230**	**275**	**303**	**349**	**342**	**398**	**457**	**454**	**408**	**305**	**232**	**167**	**118**	**88**	**66**	**5139**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	92	5	92	457	9%	1.000	1.054

ESTIMATED

AADT
4876

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**
STATION: **536335** STATE DIR CODE: **1** PLACEMENT: **605ft N of N Ellicott Creek** **DATE OF COUNT: 04/06/2020**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**

DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: JH88 FUNC. CLASS: 16 TOWN:

STATE DIR CODE: 2 WK OF YR: 15 PLACEMENT: 605ft N of N Ellicott Creek NHS: no LION#:

DATE OF COUNT: 04/06/2020 @ REF MARKER: JURIS: Village BIN: 3367090

NOTES LANE 1: South ADDL DATA: Class Speed CC Stn: RR CROSSING:

NOTES LANE 2: South COUNT TYPE: VEHICLES BATCH ID: DOT-R05C15cTTG5196 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: JB PROCESSED BY: ORG CODE: DOT INITIALS: CPA

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M															**404**	**497**	**481**	**434**	**284**	**212**	**129**	**97**	**72**	**69**			
7	T	**31**	**29**	**9**	**16**	**27**	**86**	**208**	**320**	**270**	**294**	**276**	**331**	**371**	**388**	**428**	**472**	**470**	**384**	**262**	**229**	**133**	**86**	**70**	**82**	5272	472	15
8	W	**35**	**21**	**15**	**15**	**28**	**88**	**220**	**300**	**264**	**272**	**320**	**266**	**314**	**227**	**248**	**298**	**282**	**248**	**187**	**129**	**97**	**70**	**44**	**58**	4046	320	10
9	T	**25**	**17**	**11**	**12**	**17**	**52**	**122**	**173**	**154**	**137**	**186**	**198**	**222**	**212**	**224**	**308**	**256**	**281**	**165**	**153**	**91**	**74**	**41**	**48**	3179	308	15
10	F	**25**	**9**	**13**	**13**	**20**	**38**	**116**	**194**	**135**	**149**																	
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
29	**19**	**12**	**14**	**23**	**66**	**166**	**247**	**206**	**213**	**261**	**265**	**302**	**276**	**326**	**394**	**372**	**337**	**224**	**181**	**112**	**82**	**57**	**64**	**4248**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	92	5	92	394	9%	1.000	1.054

ESTIMATED

AADT

4030

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **534822**

New York State Department of Transportation
Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 28
DATE OF COUNT: 07/05/2016
NOTES LANE 0: NB 2 lane - 45 mph

COUNT TAKEN BY: ORG CODE: CSE INITIALS: CDM

FROM: **COMMERCE DRIVE**
REC. SERIAL #: 1867
PLACEMENT: 525 ft N of Bucyrus Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: MBN INITIALS: AHL

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05MBN-28-5-July-6-2016

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	F																											
2	S																											
3	S																											
4	M																											
5	T											397	468	580	510	566	692	905	889	578	443	430	359	229	159			
6	W	73	44	20	17	22	45	168	374	471	384	409	448	529	483	557	696	887	1021	711	498	442	371	225	192	9087	1021	17
7	T	96	51	22	20	21	60	154	375	494	367	368	439	526	522	602	639	856	931	582	459	434	361	270	167	8816	931	17
8	F	105	57	27	25	36	53	138	358	407																		
9	S																											
10	S																											
11	M																											
12	T																											
13	W																											
14	T																											
15	F																											
16	S																											
17	S																											
18	M																											
19	T																											
20	W																											
21	T																											
22	F																											
23	S																											
24	S																											
25	M																											
26	T																											
27	W																											
28	T																											
29	F																											
30	S																											
31	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
91	51	23	21	26	53	153	369	457	376	391	452	545	505	575	676	883	947	624	467	435	364	241	173	8898

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	71	4	71	947	11%	1.000	1.093

ESTIMATED (one way)

AADT
8141

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **COMMERCE DRIVE** TO: **N FRENCH RD** COUNTY: **Erie**
STATION: **534822** STATE DIR CODE: **1** PLACEMENT: **525 ft N of Bucyrus Dr** **DATE OF COUNT: 07/05/2016**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **534822**

New York State Department of Transportation
Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 28
DATE OF COUNT: 07/05/2016
NOTES LANE 0: SB 2 lane - 45 mph

COUNT TAKEN BY: ORG CODE: CSE INITIALS: CDM

FROM: **COMMERCE DRIVE**
REC. SERIAL #: 1867
PLACEMENT: 525 ft N of Bucyrus Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: MBN INITIALS: AHL

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05MBN-28-5-July-6-2016

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	F																											
2	S																											
3	S																											
4	M																											
5	T											470	454	539	500	503	502	618	686	463	376	257	240	176	126			
6	W	56	33	9	16	32	135	372	705	742	499	460	444	525	530	497	544	627	705	507	365	306	289	206	108	8712	742	8
7	T	60	32	19	17	33	124	387	685	746	501	501	484	551	523	521	558	629	700	497	385	286	255	203	103	8800	746	8
8	F	65	31	30	28	35	111	354	655	571																		
9	S																											
10	S																											
11	M																											
12	T																											
13	W																											
14	T																											
15	F																											
16	S																											
17	S																											
18	M																											
19	T																											
20	W																											
21	T																											
22	F																											
23	S																											
24	S																											
25	M																											
26	T																											
27	W																											
28	T																											
29	F																											
30	S																											
31	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
60	32	19	20	33	123	371	682	686	500	477	461	538	518	507	535	625	697	489	375	283	261	195	112	8599

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	71	4	71	697	8%	1.000	1.093

ESTIMATED (one way)

AADT
7867

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **COMMERCE DRIVE** TO: **N FRENCH RD** COUNTY: **Erie**
STATION: **534822** STATE DIR CODE: **2** PLACEMENT: **525 ft N of Bucyrus Dr** **DATE OF COUNT: 07/05/2016**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **534232**

New York State Department of Transportation
Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Eastbound FACTOR GROUP: 30
STATE DIR CODE: 6 WK OF YR: 46
DATE OF COUNT: 11/07/2016
NOTES LANE 1: One Lane EB - 35 MPH

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **SWEET HOME RD**
REC. SERIAL #: EZ53
PLACEMENT: 850' E of Audubon Pkwy
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: R05 INITIALS: RPJ

TO: **NY 270 CAMPBELL BLVD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V46aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M															**269**	**339**	**457**		**259**	**156**		**60**	**53**	**27**			
8	T	**37**	**11**	**6**	**3**	**4**	**20**												**482**	**264**	**153**	**114**	**75**	**55**	**30**			
9	W	**16**	**11**	**5**	**6**	**6**	**19**	**47**	**184**	**175**	**128**	**138**	**211**	**256**	**193**	**233**	**330**	**484**	**513**	**212**	**143**	**134**	**76**	**61**	**45**	3626	513	17
10	T	**16**	**7**	**2**	**6**	**5**	**17**	**53**	**204**	**170**	**144**	**152**	**213**	**250**	**220**	**268**	**365**	**466**	**447**	**226**	**159**	**141**	**94**	**62**	**43**	3730	466	16
11	F	**30**																										
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
25	**10**	**4**	**5**	**5**	**19**	**49**	**191**	**170**	**134**	**143**	**209**	**250**	**203**	**254**	**341**	**463**	**475**	**237**	**151**	**128**	**75**	**57**	**36**	**3634**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	70	5	70	475	13%	0.987	1.017

ESTIMATED

AADT
3573

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Westbound FACTOR GROUP: 30
STATE DIR CODE: 7 WK OF YR: 46
DATE OF COUNT: 11/07/2016
NOTES LANE 1: One Lane WB - 35 MPH

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **SWEET HOME RD**
REC. SERIAL #: EZ96
PLACEMENT: 850' E of Audubon Pkwy
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: R05 INITIALS: RPJ

TO: **NY 270 CAMPBELL BLVD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V46aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	AM 12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	PM 12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M															233	227	267		162	127		54	33	19			
8	T	**9**	**6**	**2**	**10**	**9**	**34**												**329**	**165**	**105**	**91**	**48**	**40**	**21**			
9	W	**7**	**7**	**2**	**14**	**7**	**38**	**138**	**416**	**453**	**239**	**188**	**168**	**207**	**226**	**250**	**227**	**241**	**275**	**178**	**103**	**81**	**63**	**43**	**14**	3585	453	8
10	T	**10**	**5**	**1**	**9**	**14**	**37**	**144**	**421**	**469**	**222**	**187**	**175**	**209**	**212**	**227**	**213**	**250**	**254**	**178**	**120**	**70**	**64**	**38**	**16**	3545	469	8
11	F	**9**																										
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
9	**6**	**2**	**11**	**10**	**36**	**139**	**413**	**455**	**227**	**186**	**170**	**205**	**216**	**234**	**219**	**250**	**282**	**169**	**113**	**80**	**56**	**38**	**18**	**3544**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
5	70	5	70	455	13%	0.987	1.017	**AADT 3485**

ROAD #: **CR45** ROAD NAME: **DODGE RD** FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD** COUNTY: **Erie**
STATION: **534232** STATE DIR CODE: **7** PLACEMENT: **850' E of Audubon Pkwy** **DATE OF COUNT: 11/07/2016**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: 535024

New York State Department of Transportation
Roadway Traffic Count Hourly Report

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	3, 7	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 East 1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**82**	**77**	**96**	**81**	**42**	**34**	**28**	**12**	452		
9/22, Mon	**13**	**7**	**4**	**3**	**28**	**66**	**336**	**761**	**730**	**393**	**330**	**457**	**486**	**431**	**429**	**673**	**855**	**684**	**321**	**185**	**154**	**82**	**34**	**35**	7497	855	16-17
9/23, Tue	**28**	**5**	**45**	**6**	**36**	**69**	**347**	**783**	**739**	**414**	**319**	**330**	**491**	**397**	**374**	**650**	**842**	**707**	**351**	**226**	**137**	**72**	**35**	**28**	7431	842	16-17
9/24, Wed	**24**	**14**	**42**	**6**	**31**	**61**	**351**	**761**	**721**	**414**	**288**	**355**	**467**	**408**	**447**	**646**	**785**	**759**	**322**	**215**	**127**	**88**	**39**	**36**	7407	785	16-17
9/25, Thu	**22**	**11**	**37**	**8**	**27**	**77**	**336**																		518		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	25	**10**	**41**	**7**	**31**	**69**	**343**	**768**	**730**	**407**	**312**	**381**	**481**	**412**	**417**	**656**	**827**	**717**	**331**	**209**	**139**	**81**	**36**	**33**	7463		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day
4	87	3	73	827	11.1	578	14.2	431	12.7

ESTIMATED AADT		
Roadway	East	West
7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Department of Transportation

EB Traffic Count Hourly Report

STATION: 535024

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	3	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 East	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**39**	**33**	**38**	**49**	**21**	**12**	**10**	**5**	207		
9/22, Mon	**5**	**1**	**2**	**1**	**9**	**26**	**65**	**334**	**289**	**185**	**176**	**304**	**261**	**213**	**214**	**406**	**583**	**509**	**192**	**123**	**78**	**31**	**13**	**21**	4041	583	16-17
9/23, Tue	**22**	**4**	**41**	**1**	**14**	**25**	**74**	**351**	**315**	**193**	**149**	**186**	**266**	**208**	**179**	**402**	**602**	**534**	**213**	**132**	**68**	**31**	**11**	**16**	4037	602	16-17
9/24, Wed	**20**	**12**	**39**	**1**	**13**	**20**	**80**	**354**	**292**	**192**	**147**	**199**	**258**	**203**	**224**	**402**	**550**	**577**	**179**	**132**	**67**	**40**	**18**	**20**	4039	577	17-18
9/25, Thu	**17**	**7**	**34**	**2**	**10**	**32**	**72**																		174		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	20	**8**	**38**	**1**	**12**	**26**	**73**	**346**	**299**	**190**	**157**	**230**	**262**	**208**	**206**	**403**	**578**	**540**	**195**	**129**	**71**	**34**	**14**	**19**	4058		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
4	87	3	73	827	11.1	578	14.2	431	12.7	7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: 535024

New York State Department of Transportation
WB Traffic Count Hourly Report

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	7	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**43**	**44**	**58**	**32**	**21**	**22**	**18**	**7**	245		
9/22, Mon	**8**	**6**	**2**	**2**	**19**	**40**	**271**	**427**	**441**	**208**	**154**	**153**	**225**	**218**	**215**	**267**	**272**	**175**	**129**	**62**	**76**	**51**	**21**	**14**	3456	441	08-09
9/23, Tue	**6**	**1**	**4**	**5**	**22**	**44**	**273**	**432**	**424**	**221**	**170**	**144**	**225**	**189**	**195**	**248**	**240**	**173**	**138**	**94**	**69**	**41**	**24**	**12**	3394	432	07-08
9/24, Wed	**4**	**2**	**3**	**5**	**18**	**41**	**271**	**407**	**429**	**222**	**141**	**156**	**209**	**205**	**223**	**244**	**235**	**182**	**143**	**83**	**60**	**48**	**21**	**16**	3368	429	08-09
9/25, Thu	**5**	**4**	**3**	**6**	**17**	**45**	**264**																		344		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	5	**2**	**3**	**5**	**19**	**43**	**270**	**422**	**431**	**217**	**155**	**151**	**220**	**204**	**211**	**253**	**249**	**177**	**137**	**80**	**68**	**47**	**22**	**14**	3405		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
4	87	3	73	827	11.1	578	14.2	431	12.7	7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 44
DATE OF COUNT: 10/24/2016
NOTES LANE 1: North
NOTES LANE 2: North
COUNT TAKEN BY: ORG CODE: TTG INITIALS: JM

FROM: **N ELLICOTT RD**
REC. SERIAL #: GC47
PLACEMENT: 654ft N of N Ellicott Creek
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: SJW

TO: **COMMERCE DRIVE**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05C44aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN: 3367090
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																											
4	T																											
5	W																											
6	T																											
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																				**551**	**457**	**315**	**218**	**155**			
25	T	**95**	**35**	**29**	**38**	**46**	**131**	**528**	**977**	**1072**	**621**	**470**	**562**	**659**	**616**	**761**	**837**	**1028**	**1036**	**714**	**520**	**461**	**360**	**232**	**156**	11984	1072	8
26	W	**87**	**42**	**14**	**36**	**41**	**120**	**507**	**931**	**1085**	**628**	**527**	**554**	**618**	**722**	**758**	**852**	**1058**	**1061**	**744**	**555**	**425**	**426**	**251**	**161**	12203	1085	8
27	T	**93**	**37**	**25**	**42**	**40**	**142**	**488**	**951**	**1036**	**600**	**492**	**506**	**588**	**599**	**693**	**862**	**982**	**1040**	**630**	**540**	**454**	**365**	**282**	**188**	11675	1040	17
28	F	**98**	**56**	**37**	**43**	**40**	**111**	**446**	**959**	**988**	**626**																	
29	S																											
30	S																											
31	M																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
93	**42**	**26**	**40**	**42**	**126**	**492**	**954**	**1045**	**619**	**496**	**541**	**622**	**646**	**737**	**850**	**1023**	**1046**	**696**	**542**	**449**	**366**	**246**	**165**	**11904**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	87	4	87	1046	9%	1.000	1.074

ESTIMATED

AADT
11084

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**
STATION: **536335** STATE DIR CODE: **1** PLACEMENT: **654ft N of N Ellicott Creek** **DATE OF COUNT: 10/24/2016**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STATION: **536335**

New York State Department of Transportation
Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**
DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: L442 FUNC. CLASS: 16 TOWN:
STATE DIR CODE: 2 WK OF YR: 44 PLACEMENT: 654ft N of N Ellicott Creek NHS: no LION#:
DATE OF COUNT: 10/24/2016 @ REF MARKER: JURIS: Village BIN: 3367090
NOTES LANE 1: South ADDL DATA: Class Speed CC Stn: RR CROSSING:
NOTES LANE 2: South COUNT TYPE: VEHICLES BATCH ID: DOT-R05C44aTTG5196 HPMS SAMPLE:
COUNT TAKEN BY: ORG CODE: TTG INITIALS: MJ PROCESSED BY: ORG CODE: DOT INITIALS: SJW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																											
4	T																											
5	W																											
6	T																											
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																				**399**	**311**	**182**	**134**	**102**			
25	T	**69**	**25**	**16**	**24**	**51**	**179**	**474**	**943**	**769**	**596**	**571**	**643**	**718**	**609**	**625**	**1000**	**1321**	**1416**	**779**	**448**	**300**	**211**	**146**	**121**	12054	1416	17
26	W	**57**	**23**	**24**	**40**	**51**	**179**	**485**	**1005**	**901**	**661**	**630**	**647**	**771**	**713**	**752**	**1206**	**1380**	**1346**	**870**	**459**	**302**	**274**	**166**	**118**	13060	1380	16
27	T	**83**	**42**	**20**	**29**	**70**	**156**	**527**	**1040**	**912**	**650**	**572**	**592**	**808**	**663**	**688**	**983**	**1331**	**1307**	**742**	**489**	**337**	**227**	**167**	**125**	12560	1331	16
28	F	**58**	**43**	**18**	**35**	**45**	**162**	**447**	**952**	**841**	**664**																	
29	S																											
30	S																											
31	M																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
67	**33**	**20**	**32**	**54**	**169**	**483**	**985**	**856**	**643**	**591**	**627**	**766**	**662**	**688**	**1063**	**1344**	**1356**	**797**	**449**	**312**	**224**	**153**	**116**	**12490**

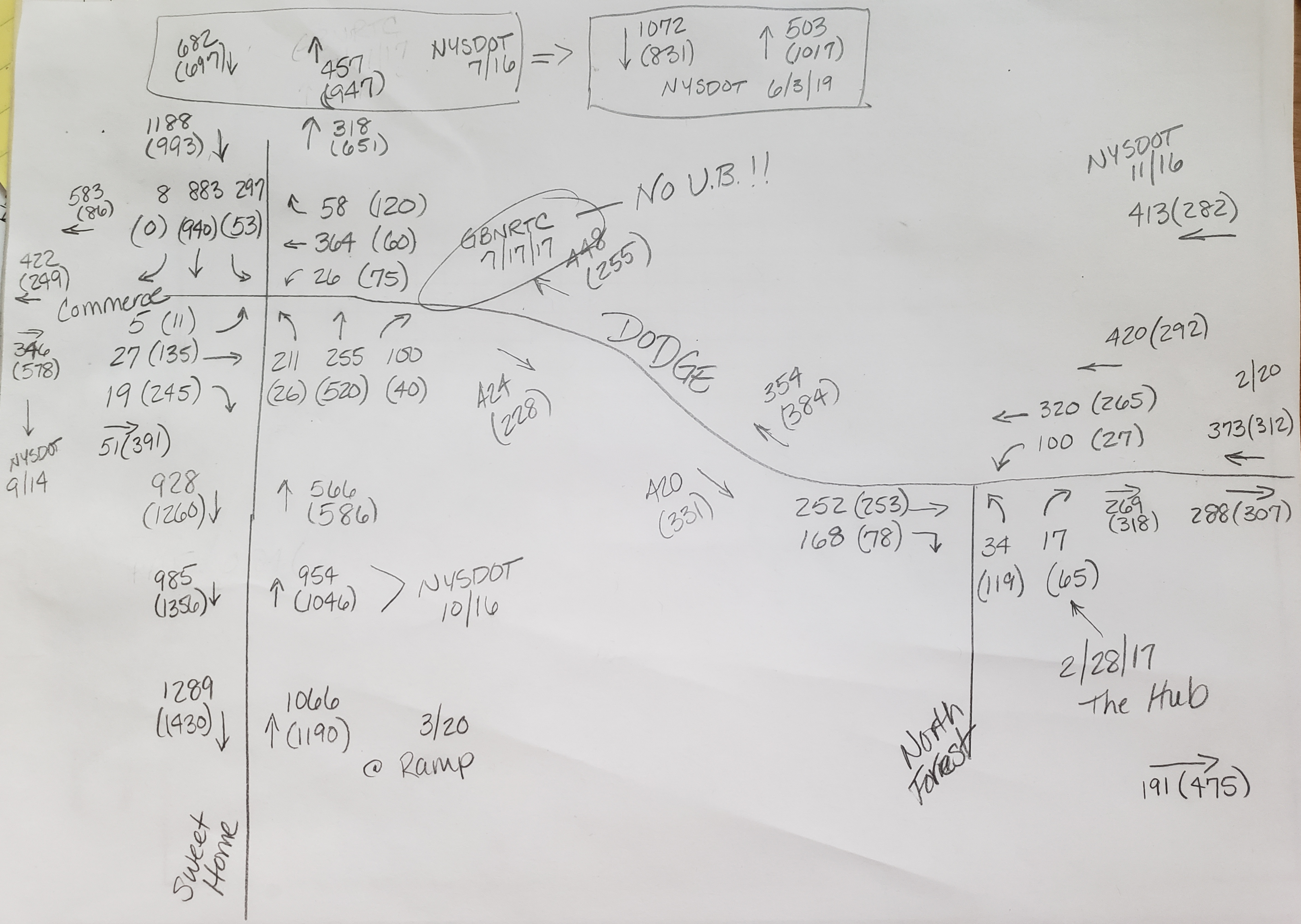
DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	87	4	87	1356	11%	1.000	1.074

ESTIMATED

AADT
11629

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**
STATION: **536335** STATE DIR CODE: **2** PLACEMENT: **654ft N of N Ellicott Creek** **DATE OF COUNT: 10/24/2016**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



682 (697)
457 (947)
NYSDOT 7/16
1072 (831)
503 (1017)
NYSDOT 6/3/19
1188 (993)
318 (651)
583 (86)
8 883 297
(0) (940) (53)
58 (120)
364 (60)
26 (75)
GBNRTC 7/17/17
NO U.B.!!
448 (255)
NYSDOT 11/16
413 (282)
422 (249)
Commerce
5 (11)
27 (135)
19 (245)
346 (578)
211 255 100
(26) (520) (40)
DODGE
424 (228)
354 (384)
420 (292)
2/20
320 (265)
100 (27)
373 (312)
51 (391)
NYSDOT 9/14
928 (1260)
566 (586)
420 (331)
252 (253)
168 (78)
34 (119)
17 (65)
269 (318)
288 (307)
985 (1356)
954 (1046)
NYSDOT 10/16
2/28/17
The Hub
1289 (1430)
1066 (1190)
3/20
@ Ramp
North Forest
191 (475)
Sweet Home

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

Muir Woods Site A, Town of Amherst, NY
Documentation of Ambient Traffic Volume Growth

Roadway	Segment starts at	Segment end at	2004	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Growth
North Forest Road	1.0 N of NY263/Turtle Creek Apt DWY	Dodge Road								2,189			1,809		1,825	1,845		-2.81%
Dodge Road	Sweet Home Road	NY270 Campbell Road					6,363			5,440				7,058	6,738			0.72%
Sweet Home Road	Commerce Drive	North French Road			16,280				16,606		15,052			16,008			18,050	0.86%
Sweet Home Road	N Ellicott Road	Commerce Drive	23,552		21,115			21,021						21,437				-0.78%
Commerce Drive	Woodbridge Road	Sweet Home Road										7,027						

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

PROJECT DETAILS

Project Name:	Muir Woods	Type of Project:	
Project No:		City:	
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Amy Dake	Clients Name:	
Date:	6/22/2020	ZIP/Postal Code:	
State/Province:		No. of Scenarios:	2
Analysis Region:			

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	AM Peak Hour	5	1	0		47	85	132
Scenario - 2	PM Peak Hour	5	1	0		106	82	181

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Scenario - 1

Scenario Name: AM Peak Hour

User Group:

Dev. phase: 1

No. of Years to Project Traffic : 0

Analyst Note:

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	90	Weekday, Peak Hour of Adjacent Street Traffic,	Average	17	50	67
Data Source: Trip Gen Manual, 10th Ed +					0.74	25%	75%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	12	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	1	5	6
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.95Ln(X) - 0.51	23%	77%	
221 - Multifamily Housing (Mid-Rise) [Private]	General Urban/Suburban	Dwelling Units	100	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	9	25	34
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.98Ln(X) - 0.98	26%	74%	
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street Traffic,	Average	14	2	17
Data Source: Trip Gen Manual, 10th Ed +					1.16	86%	14%	
875 - Department Store	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street	Average	6	3	9
Data Source: Trip Gen Manual, 10th Ed +					0.58	64%	36%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	25	75
220 - Multifamily Housing (Low-Rise)	100	100	1	1	23	77
221 - Multifamily Housing (Mid-Rise) [Private]	100	100	1	1	26	74
710 - General Office Building	100	100	1	1	86	14
875 - Department Store	100	100	1	1	64	36

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	17	50	0	0	17	50
	67		0		67	
220 - Multifamily Housing (Low-Rise)	1	5	0	0	1	5
	6		0		6	
221 - Multifamily Housing (Mid-Rise) [Private]	9	25	0	0	9	25
	34		0		34	
710 - General Office Building	15	2	0	0	14	2
	17		0		17	
875 - Department Store	6	3	0	0	6	3
	9		0		9	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	17	50	67
220 - Multifamily Housing (Low-Rise)	1	5	6

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

221 - Multifamily Housing (Mid-Rise) [Private]	9	25	34
710 - General Office Building	14	2	17
875 - Department Store	6	3	9

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	47	85	132
External Vehicle Trips	47	85	132
New Vehicle Trips	47	85	132

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Scenario - 2

Scenario Name: PM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	90	Weekday, Peak Hour of Adjacent Street Traffic,	Average	56	33	89
Data Source: Trip Gen Manual, 10th Ed +					0.99	63%	37%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	12	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	6	3	9
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.89Ln(X) - 0.02	63%	37%	
221 - Multifamily Housing (Mid-Rise)	General Urban/Suburban	Dwelling Units	100	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	27	17	44
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.96Ln(X) - 0.63	61%	39%	
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street Traffic,	Average	2	14	17
Data Source: Trip Gen Manual, 10th Ed +					1.15	16%	84%	
875 - Department Store [Private]	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street	Average	15	15	30
Data Source: Trip Gen Manual, 10th Ed +					1.95	50%	50%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37
220 - Multifamily Housing (Low-Rise)	100	100	1	1	63	37
221 - Multifamily Housing (Mid-Rise)	100	100	1	1	61	39
710 - General Office Building	100	100	1	1	16	84
875 - Department Store [Private]	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	56	33	0	0	56	33
	89		0		89	
220 - Multifamily Housing (Low-Rise)	6	3	0	0	6	3
	9		0		9	
221 - Multifamily Housing (Mid-Rise)	27	17	0	0	27	17
	44		0		44	
710 - General Office Building	3	14	0	0	2	14
	17		0		17	
875 - Department Store [Private]	15	15	0	0	15	15
	30		0		30	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	56	33	89
220 - Multifamily Housing (Low-Rise)	6	3	9

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

221 - Multifamily Housing (Mid-Rise)	27	17	44
710 - General Office Building	2	14	17
875 - Department Store [Private]	15	15	30

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	106	82	188
External Vehicle Trips	106	82	188
New Vehicle Trips	106	82	188

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

PROPOSED MUIR WOODS SECTION A
TOWN OF AMHERST, NY
AM PEAK

Fig 3 Fig 4 Fig 6 Fig 7 Fig 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2020 Existing Volume	2022 Bkgd Vol 1.00%	Muir Woods Site B	2022 Bkgrd Volume	Proposed Muir Woods Section A Enter Dist. %	Exit Dist. %	Trips IN 47	Trips OUT 85	Total Site Trips	FULL Build Volumes
1	Sweet Home Road Dodge Road/Commerce Drive										
	SR	8	8		8						8
	ST	883	901	15	916						916
	SL	297	303		303	20%		9		9	312
	WR	58	59		59		20%		17	17	76
	WT	364	371		371		10%		9	9	380
	WL	26	27		27		25%		21	21	48
	NR	100	102		102	25%		12		12	114
	NT	450	459	11	470						470
	NL	211	215		215						215
	ER	50	51		51						51
	ET	30	31		31	10%		5		5	36
	EL	10	10		10						10
2	Dodge Road Proposed North Driveway										
	SR						25%		21	21	21
	ST										
	SL						15%		13	13	13
	WR					10%		5		5	5
	WT	361	368	18	386		30%		26	26	412
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	25%		12		12	490
	EL					30%		14		14	14
3	Dodge Road Proposed Middle Out Driveway										
	SR						10%		9	9	9
	ST										
	SL						5%		4	4	4
	WR										
	WT	361	368	18	386	10%	15%	5	13	17	403
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	25%	15%	12	13	25	503
	EL										
4	Dodge Road Proposed Middle In Driveway										
	SR										
	ST										
	SL										
	WR					5%		2		2	2
	WT	361	368	18	386	10%	20%	5	17	22	408
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	15%	20%	7	17	24	502
	EL					10%		5		5	5
5	Dodge Road Proposed South Driveway										
	SR						20%		17	17	17
	ST										
	SL						25%		21	21	21
	WR					30%		14		14	14
	WT	361	368	18	386	15%		7		7	393
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478		20%		17	17	495
	EL					15%		7		7	7
6	Dodge Road North Forest Road										
	SR										
	ST										
	SL										
	WR										
	WT	323	329	18	347	30%		14		14	361
	WL	102	104		104						104
	NR	20	20		20						20
	NT										
	NL	38	39		39	15%		7		7	46
	ER	170	173		173		15%		13	13	186
	ET	288	294	11	305		30%		26	26	331
	EL										

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

PROPOSED MUIR WOODS SECTION A
TOWN OF AMHERST, NY
PM PEAK

Fig 3 Fig 4 Fig 6 Fig 7 Fig 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2020 Existing Volume	2022 Bkgd Vol 1.00%	Muir Woods Site B	2022 Bkgrd Volume	Proposed Muir Woods Section A Enter Dist. %	Proposed Muir Woods Section A Exit Dist. %	Proposed Muir Woods Section A Trips IN 106	Proposed Muir Woods Section A Trips OUT 82	Total Site Trips	FULL Build Volumes
1	Sweet Home Road Dodge Road/Commerce Drive										
	SR	10	10		10						10
	ST	940	959	21	980						980
	SL	60	61		61	20%		21		21	82
	WR	150	153		153		20%		16	16	169
	WT	60	61		61		10%		8	8	69
	WL	75	77		77		25%		21	21	98
	NR	125	128		128	25%		27		27	155
	NT	740	755	13	768						768
	NL	175	179		179						179
	ER	260	265		265						265
	ET	150	153		153	10%		11		11	164
	EL	25	26		26						26
2	Dodge Road Proposed North Driveway										
	SR						25%		21	21	21
	ST										
	SL						15%		12	12	12
	WR					10%		11		11	11
	WT	389	397	32	429		30%		25	25	454
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	25%		27		27	386
	EL					30%		32		32	32
3	Dodge Road Proposed Middle Out Driveway										
	SR						10%		8	8	8
	ST										
	SL						5%		4	4	4
	WR										
	WT	389	397	32	429	10%	15%	11	12	23	452
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	25%	15%	27	12	39	398
	EL										
4	Dodge Road Proposed Middle In Driveway										
	SR										
	ST										
	SL										
	WR					5%		5		5	5
	WT	389	397	32	429	10%	20%	11	16	27	456
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	15%	20%	16	16	32	391
	EL					10%		11		11	11
5	Dodge Road Proposed South Driveway										
	SR						20%		16	16	16
	ST										
	SL						25%		21	21	21
	WR					30%		32		32	32
	WT	389	397	32	429	15%		16		16	445
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359		20%		16	16	375
	EL					15%		16		16	16
6	Dodge Road North Forest Road										
	SR										
	ST										
	SL										
	WR										
	WT	268	273	32	305	30%		32		32	337
	WL	30	31		31						31
	NR	68	69		69						69
	NT										
	NL	121	123		123	15%		16		16	139
	ER	81	83		83		15%		12	12	95
	ET	258	263	13	276		30%		25	25	301
	EL										

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

SWEET HOME/DODGE/COMMERCE

Phase Times (next/2/2/2, next/2/2/7/6) E/W									
	1	2	3	4	5	6 SB	7	8	
Movement	SBL	NB			NBL	[redacted]		[redacted]	
Minimum Green	10	40	0	0	10	40	0	15	0 - 255 sec.
Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Yellow	3.2	4.3	0.0	0.0	3.2	4.3	0.0	3.9	0.0 - 25.5 sec.
Red Clearance	1.1	1.4	0.0	0.0	1.1	1.4	0.0	1.8	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	20	45	0	0	20	45	0	30	0 - 255 sec
Max 2	0	0	0	0	0	0	0	0	0 - 255 sec
Walk	0	7	0	0	0	7	0	7	0 - 255 sec
Ped Clear	0	15	0	0	0	15	0	15	0 - 255 sec
Seconds Per Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	0	0	0	0	0	0	0	0 - 255 sec
Time to Reduce	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Gap	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0 - 25.5 sec.
Max Variable Initial	0	0	0	0	0	0	0	0	0 - 255 sec
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Other Controller Functions (next/2/2/9)									
Phase -->	1	2	3	4	5	6	7	8	
Inhibit Simultaneous Gap Out									X = On
Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage							
Red Revert (+2seconds)	0.0	0 - 25.5 sec.							
Auto Ped Clear		X = On							
Flashing Don't Walk Thru Yellow		X = On							
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec.							
Change Sequence	X	X = On (After a download with a power on - off cycle)							
Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

A3

Level of Service:
Criteria and Definitions

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

A4

Level of Service Calculations: Existing Conditions

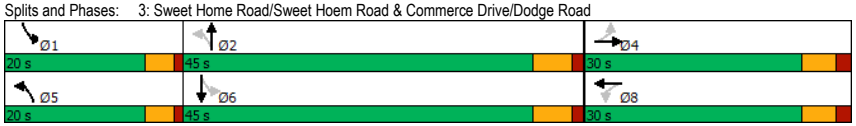
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	30	50	26	364	58	211	450	100	297	883	8
Future Volume (vph)	10	30	50	26	364	58	211	450	100	297	883	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.906			0.979			0.973			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1434	0	1612	1839	0	1703	3366	0	1787	3502	0
Flt Permitted	0.163			0.693			0.117			0.308		
Satd. Flow (perm)	194	1434	0	1176	1839	0	210	3366	0	579	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			8			34			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	37	62	32	449	72	260	556	123	367	1090	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	99	0	32	521	0	260	679	0	367	1100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		49.5	34.2		49.0	34.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.56	0.39		0.56	0.39	
v/c Ratio	0.23	0.22		0.10	1.01		0.74	0.51		0.72	0.82	
Control Delay	40.5	14.2		27.7	76.4		31.5	20.9		17.6	30.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.5	14.2		27.7	76.4		31.5	20.9		17.6	30.0	
LOS	D	B		C	E		C	C		B	C	
Approach Delay		17.0			73.5			23.8			26.9	
Approach LOS		B			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 88.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	288	170	102	323	38	20
Future Volume (vph)	288	170	102	323	38	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950				0.953	
Flt Protected				0.988	0.968	
Satd. Flow (prot)	1783	0	0	1863	1753	0
Flt Permitted				0.988	0.968	
Satd. Flow (perm)	1783	0	0	1863	1753	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	374	221	132	419	49	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	595	0	0	551	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	288	170	102	323	38	20
Future Vol, veh/h	288	170	102	323	38	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	374	221	132	419	49	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	595	0	1168	485
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	683	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	991	-	216	586
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	991	-	178	586
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	417	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	27.5
HCM LOS			D

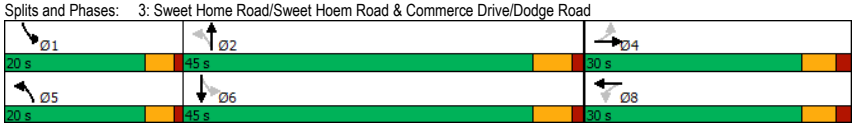
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	991	-
HCM Lane V/C Ratio	0.322	-	-	0.134	-
HCM Control Delay (s)	27.5	-	-	9.2	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	150	260	75	60	150	175	740	125	60	940	10
Future Volume (vph)	25	150	260	75	60	150	175	740	125	60	940	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.905			0.893			0.978			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1696	0	1805	1675	0	1612	3476	0	1805	3567	0
Flt Permitted	0.435			0.164			0.095			0.188		
Satd. Flow (perm)	700	1696	0	312	1675	0	161	3476	0	357	3567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			127			24			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	33	197	342	99	79	197	230	974	164	79	1237	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	539	0	99	276	0	230	1138	0	79	1250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		55.8	45.4		45.0	36.6	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.50		0.50	0.41	
v/c Ratio	0.17	1.03		1.18	0.51		0.73	0.65		0.27	0.86	
Control Delay	30.3	77.7		191.3	19.3		32.4	18.8		10.1	32.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.3	77.7		191.3	19.3		32.4	18.8		10.1	32.2	
LOS	C	E		F	B		C	B		B	C	
Approach Delay		75.0			64.7			21.1			30.9	
Approach LOS		E			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 90.3			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 37.6		Intersection LOS: D	
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	258	81	30	268	121	68
Future Volume (vph)	258	81	30	268	121	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968				0.951	
Flt Protected				0.995	0.969	
Satd. Flow (prot)	1839	0	0	1890	1751	0
Flt Permitted				0.995	0.969	
Satd. Flow (perm)	1839	0	0	1890	1751	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	344	108	40	357	161	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	452	0	0	397	252	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	258	81	30	268	121	68
Future Vol, veh/h	258	81	30	268	121	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	344	108	40	357	161	91

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	452	0	835	398
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	437	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1119	-	340	656
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1119	-	325	656
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	626	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	28.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	397	-	-	1119	-
HCM Lane V/C Ratio	0.635	-	-	0.036	-
HCM Control Delay (s)	28.6	-	-	8.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	4.2	-	-	0.1	-

A5

Level of Service Calculations: Background Conditions

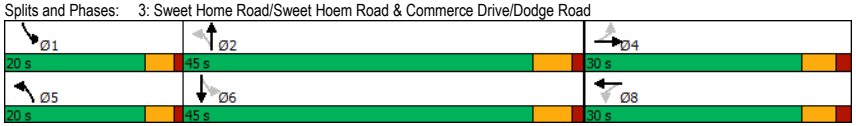
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	31	51	27	371	59	215	470	102	303	916	8
Future Volume (vph)	10	31	51	27	371	59	215	470	102	303	916	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.906			0.979			0.973			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1435	0	1612	1839	0	1703	3366	0	1787	3502	0
Flt Permitted	0.163			0.692			0.112			0.298		
Satd. Flow (perm)	194	1435	0	1174	1839	0	201	3366	0	561	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			8			33			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	38	63	33	458	73	265	580	126	374	1131	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	101	0	33	531	0	265	706	0	374	1141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		51.2	35.6		50.2	35.1	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.57	0.40		0.56	0.39	
v/c Ratio	0.23	0.23		0.10	1.05		0.75	0.52		0.75	0.83	
Control Delay	41.1	14.3		28.0	86.8		33.3	21.0		19.0	30.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	14.3		28.0	86.8		33.3	21.0		19.0	30.8	
LOS	D	B		C	F		C	C		B	C	
Approach Delay		17.1			83.4			24.3			27.9	
Approach LOS		B			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 36.3		Intersection LOS: D	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	305	173	104	347	39	20
Future Volume (vph)	305	173	104	347	39	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951				0.954	
Flt Protected				0.989	0.968	
Satd. Flow (prot)	1784	0	0	1865	1755	0
Flt Permitted				0.989	0.968	
Satd. Flow (perm)	1784	0	0	1865	1755	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	396	225	135	451	51	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	0	586	77	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.0%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	305	173	104	347	39	20
Future Vol, veh/h	305	173	104	347	39	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	396	225	135	451	51	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	621	0	1230	509
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	721	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	969	-	198	568
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	485	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	969	-	161	568
Mov Cap-2 Maneuver	-	-	-	-	161	-
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	395	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	31.1
HCM LOS			D

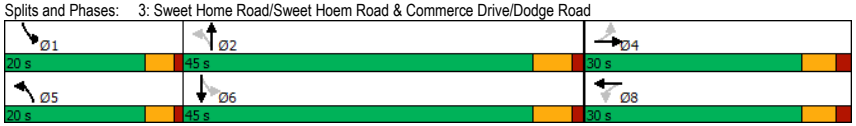
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	213	-	-	969	-
HCM Lane V/C Ratio	0.36	-	-	0.139	-
HCM Control Delay (s)	31.1	-	-	9.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	153	265	77	61	153	179	768	128	61	980	10
Future Volume (vph)	26	153	265	77	61	153	179	768	128	61	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.905			0.893			0.979			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1696	0	1805	1675	0	1612	3480	0	1805	3571	0
Flt Permitted	0.421			0.164			0.093			0.174		
Satd. Flow (perm)	678	1696	0	312	1675	0	158	3480	0	331	3571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			128			24			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	34	201	349	101	80	201	236	1011	168	80	1289	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	550	0	101	281	0	236	1179	0	80	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		57.2	46.6		46.2	37.7	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.51		0.50	0.41	
v/c Ratio	0.19	1.07		1.23	0.52		0.75	0.66		0.29	0.89	
Control Delay	30.9	88.5		206.8	19.9		34.3	19.2		10.3	33.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.9	88.5		206.8	19.9		34.3	19.2		10.3	33.8	
LOS	C	F		F	B		C	B		B	C	
Approach Delay		85.1			69.3			21.7			32.5	
Approach LOS		F			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 91.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	276	83	31	305	123	69
Future Volume (vph)	276	83	31	305	123	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969				0.951	
Flt Protected				0.995	0.969	
Satd. Flow (prot)	1841	0	0	1890	1751	0
Flt Permitted				0.995	0.969	
Satd. Flow (perm)	1841	0	0	1890	1751	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	368	111	41	407	164	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	479	0	0	448	256	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	8.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	276	83	31	305	123	69
Future Vol, veh/h	276	83	31	305	123	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	368	111	41	407	164	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	479	0	913	424
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1094	-	306	634
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1094	-	291	634
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	591	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	35.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	-	-	1094	-
HCM Lane V/C Ratio	0.709	-	-	0.038	-
HCM Control Delay (s)	35.9	-	-	8.4	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	5.2	-	-	0.1	-

A6

Level of Service Calculations: Full Build Conditions

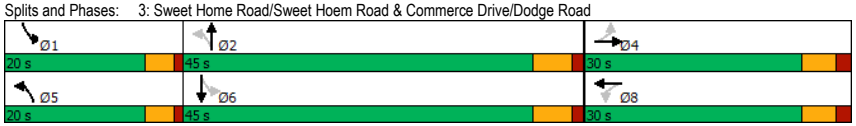
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	36	51	48	380	76	215	470	114	312	916	8
Future Volume (vph)	10	36	51	48	380	76	215	470	114	312	916	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		150	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.912			0.975			0.971			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1458	0	1612	1831	0	1703	3358	0	1787	3502	0
Flt Permitted	0.163			0.688			0.113			0.285		
Satd. Flow (perm)	194	1458	0	1167	1831	0	203	3358	0	536	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			10			38			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	44	63	59	469	94	265	580	141	385	1131	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	107	0	59	563	0	265	721	0	385	1141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		50.8	35.3		50.5	35.1	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.57	0.39		0.56	0.39	
v/c Ratio	0.23	0.24		0.18	1.11		0.75	0.54		0.77	0.83	
Control Delay	41.1	15.0		29.3	106.8		33.3	21.2		21.2	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	15.0		29.3	106.8		33.3	21.2		21.2	30.7	
LOS	D	B		C	F		C	C		C	C	
Approach Delay		17.7			99.5			24.5			28.3	
Approach LOS		B			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 40.4		Intersection LOS: D	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	331	186	104	361	46	20
Future Volume (vph)	331	186	104	361	46	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951				0.959	
Flt Protected				0.989	0.966	
Satd. Flow (prot)	1784	0	0	1865	1760	0
Flt Permitted				0.989	0.966	
Satd. Flow (perm)	1784	0	0	1865	1760	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	430	242	135	469	60	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	672	0	0	604	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	186	104	361	46	20
Future Vol, veh/h	331	186	104	361	46	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	430	242	135	469	60	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	672	0	1290	551
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	928	-	182	538
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	476	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	928	-	146	538
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	382	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	39.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	187	-	-	928	-
HCM Lane V/C Ratio	0.458	-	-	0.146	-
HCM Control Delay (s)	39.6	-	-	9.5	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.5	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	14	490	412	5	13	21
Future Volume (vph)	14	490	412	5	13	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.916	
Flt Protected		0.999			0.981	
Satd. Flow (prot)	0	1861	1861	0	1674	0
Flt Permitted		0.999			0.981	
Satd. Flow (perm)	0	1861	1861	0	1674	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	235		405	
Travel Time (s)		5.5	5.3		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	533	448	5	14	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	548	453	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	14	490	412	5	13	21
Future Vol, veh/h	14	490	412	5	13	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	533	448	5	14	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	453	0	-	0	1014	451
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	563	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1108	-	-	-	264	608
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1108	-	-	-	259	608
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	570	-

Approach	SE	NW	SW
HCM Control Delay, s	0.2	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)	-	-	1108	-	401
HCM Lane V/C Ratio	-	-	0.014	-	0.092
HCM Control Delay (s)	-	-	8.3	0	14.9
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	503	403	0	4	9
Future Volume (vph)	0	503	403	0	4	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.904	
Flt Protected					0.986	
Satd. Flow (prot)	0	1863	1863	0	1660	0
Flt Permitted					0.986	
Satd. Flow (perm)	0	1863	1863	0	1660	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		235	240		378	
Travel Time (s)		5.3	5.5		8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	547	438	0	4	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	547	438	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	503	403	0	4	9
Future Vol, veh/h	0	503	403	0	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	547	438	0	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	985	438
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	547	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	275	619
Stage 1	0	-	-	0	651	-
Stage 2	0	-	-	0	580	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	275	619
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	580	-

Approach	SE	NW	SW
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NWT	SETSWLn1
Capacity (veh/h)	-	- 447
HCM Lane V/C Ratio	-	- 0.032
HCM Control Delay (s)	-	- 13.3
HCM Lane LOS	-	- B
HCM 95th %tile Q(veh)	-	- 0.1

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	5	502	408	2	0	0
Future Volume (vph)	5	502	408	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected						
Satd. Flow (prot)	0	1863	1861	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1863	1861	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	291		382	
Travel Time (s)		5.5	6.6		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	546	443	2	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	551	445	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	7	495	393	14	21	17
Future Volume (vph)	7	495	393	14	21	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.941	
Flt Protected		0.999			0.973	
Satd. Flow (prot)	0	1861	1853	0	1706	0
Flt Permitted		0.999			0.973	
Satd. Flow (perm)	0	1861	1853	0	1706	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		291	117		311	
Travel Time (s)		6.6	2.7		7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	538	427	15	23	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	546	442	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	7	495	393	14	21	17
Future Vol, veh/h	7	495	393	14	21	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	538	427	15	23	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	442	0	-	0	989	435
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	554	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1118	-	-	-	274	621
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1118	-	-	-	271	621
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	575	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	16.2
HCM LOS			C

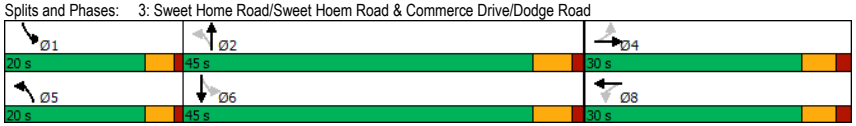
Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1118	-	362
HCM Lane V/C Ratio	-	-	0.007	-	0.114
HCM Control Delay (s)	-	-	8.2	0	16.2
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	164	265	98	69	169	179	768	155	82	980	10
Future Volume (vph)	26	164	265	98	69	169	179	768	155	82	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		150	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.907			0.894			0.975			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1700	0	1805	1677	0	1612	3462	0	1805	3571	0
Flt Permitted	0.369			0.164			0.093			0.153		
Satd. Flow (perm)	594	1700	0	312	1677	0	158	3462	0	291	3571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		82			124			30			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	34	216	349	129	91	222	236	1011	204	108	1289	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	565	0	129	313	0	236	1215	0	108	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		57.1	45.8		47.0	37.7	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.50		0.51	0.41	
v/c Ratio	0.22	1.10		1.57	0.58		0.75	0.70		0.39	0.88	
Control Delay	32.1	100.2		333.9	22.9		34.8	20.5		11.9	33.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.1	100.2		333.9	22.9		34.8	20.5		11.9	33.7	
LOS	C	F		F	C		C	C		B	C	
Approach Delay		96.4			113.7			22.8			32.0	
Approach LOS		F			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 91.5			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 47.7		Intersection LOS: D	
Intersection Capacity Utilization 85.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	301	95	31	337	139	69
Future Volume (vph)	301	95	31	337	139	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968				0.955	
Flt Protected				0.996	0.968	
Satd. Flow (prot)	1839	0	0	1892	1756	0
Flt Permitted				0.996	0.968	
Satd. Flow (perm)	1839	0	0	1892	1756	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	401	127	41	449	185	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	528	0	0	490	277	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	13

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	301	95	31	337	139	69
Future Vol, veh/h	301	95	31	337	139	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	401	127	41	449	185	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	528	0	996	465
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1049	-	273	602
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	594	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1049	-	259	602
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	59.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	-	-	1049	-
HCM Lane V/C Ratio	0.869	-	-	0.039	-
HCM Control Delay (s)	59.6	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	7.9	-	-	0.1	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	32	386	454	11	12	21
Future Volume (vph)	32	386	454	11	12	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.914	
Flt Protected		0.996			0.982	
Satd. Flow (prot)	0	1855	1857	0	1672	0
Flt Permitted		0.996			0.982	
Satd. Flow (perm)	0	1855	1857	0	1672	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	235		405	
Travel Time (s)		5.5	5.3		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	420	493	12	13	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	455	505	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	32	386	454	11	12	21
Future Vol, veh/h	32	386	454	11	12	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	420	493	12	13	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	505	0	-	0	989	499
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	490	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1060	-	-	-	274	572
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1060	-	-	-	262	572
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	616	-

Approach	SE	NW	SW
HCM Control Delay, s	0.7	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1
Capacity (veh/h)	-	-	1060	- 400
HCM Lane V/C Ratio	-	-	0.033	- 0.09
HCM Control Delay (s)	-	-	8.5	0 14.9
HCM Lane LOS	-	-	A	A B
HCM 95th %tile Q(veh)	-	-	0.1	- 0.3

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		Y	
Traffic Volume (vph)	0	398	452	0	4	8
Future Volume (vph)	0	398	452	0	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.907	
Flt Protected					0.985	
Satd. Flow (prot)	0	1863	1863	0	1664	0
Flt Permitted					0.985	
Satd. Flow (perm)	0	1863	1863	0	1664	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		235	240		378	
Travel Time (s)		5.3	5.5		8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	433	491	0	4	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	433	491	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		Y	
Traffic Vol, veh/h	0	398	452	0	4	8
Future Vol, veh/h	0	398	452	0	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	433	491	0	4	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	924	491
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	433	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	299	578
Stage 1	0	-	-	0	615	-
Stage 2	0	-	-	0	654	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	299	578
Mov Cap-2 Maneuver	-	-	-	-	299	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	654	-

Approach	SE	NW	SW
HCM Control Delay, s	0	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NWT	SETSWLn1
Capacity (veh/h)	-	- 441
HCM Lane V/C Ratio	-	- 0.03
HCM Control Delay (s)	-	- 13.4
HCM Lane LOS	-	- B
HCM 95th %tile Q(veh)	-	- 0.1

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	11	391	456	5	0	0
Future Volume (vph)	11	391	456	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected		0.999				
Satd. Flow (prot)	0	1861	1861	0	0	0
Flt Permitted		0.999				
Satd. Flow (perm)	0	1861	1861	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	291		382	
Travel Time (s)		5.5	6.6		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	425	496	5	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	437	501	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.8%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	16	375	445	32	21	16
Future Volume (vph)	16	375	445	32	21	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991		0.943	
Flt Protected		0.998			0.972	
Satd. Flow (prot)	0	1859	1846	0	1707	0
Flt Permitted		0.998			0.972	
Satd. Flow (perm)	0	1859	1846	0	1707	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		291	117		311	
Travel Time (s)		6.6	2.7		7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	408	484	35	23	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	425	519	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	16	375	445	32	21	16
Future Vol, veh/h	16	375	445	32	21	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	408	484	35	23	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	944	502
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1047	-	-	-	291	569
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1047	-	-	-	285	569
Mov Cap-2 Maneuver	-	-	-	-	285	-
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	648	-

Approach	SE	NW	SW
HCM Control Delay, s	0.3	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1047	-	363
HCM Lane V/C Ratio	-	-	0.017	-	0.111
HCM Control Delay (s)	-	-	8.5	0	16.1
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4

Packet P

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

STORMWATER POLLUTION PREVENTION PLAN for CONSTRUCTION ACTIVITIES

Sawyer's Landing

Dodge & Sweet Home Road
Town of Amherst, Erie County, New York

Prepared for

Sawyer's Landing LLC

c/o Severyn Development
43 Central Ave Suite #300
Lancaster, NY 14086

Prepared by

Carmina Wood Morris, D.P.C.

487 Main Street, Suite 500
Buffalo, NY 14203

Telephone: (716) 842-3165
Fax: (716) 842-0263

February 2021



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Table of Contents

Section 101 - Scope

Section 102 - Project Name and Location

Section 103 - Operator's Name and Address

Section 104 - Project Description

Section 105 - Runoff Coefficient, Soils and Rainfall Information

Section 106 - Name of Receiving Waters

Section 107 - Indian Country Lands

Section 108 - Endangered or Threatened Species

Section 109 - Critical Habitat

Section 110 - Historic Places

Section 111 - Wetlands and/or Other Surface Waters

Section 112 - Erosion and Sediment Controls

- **Section 112.1** - Stabilization Practices
- **Section 112.2** - Structural Practices
- **Section 112.3** - Sequence of Major Activities
- **Section 112.4** - Storm Water Management

Section 113 - Other Controls

Section 114 - Compliance with Federal, State and Local Regulations

Section 115 - Inspection and Maintenance Procedures

Section 116 - Inspection and Maintenance Report Forms

Section 117 - Other Record-Keeping Requirements

Section 118 - Spill Prevention Control and Countermeasures (SPCC) Plan

- **Section 118.1** - Materials Covered
- **Section 118.2** - Material Management Practices
- **Section 118.3** - Spill Prevention and Response Procedures

Section 119 - Control of Non-Storm Water Discharges

Section 120 – Storm Water Control Facility Maintenance

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Table of Contents (con't)

Appendix A Site Location Map

Appendix B NYSDEC Notice of Intent (NOI)

Appendix C MS4 SWPPP Acceptance Form

Appendix D NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001

Appendix E Forms

- Contractor's Certification
- Owner/Operator Certification
- SWPPP Preparer Certification

Appendix F NYSDEC Notice of Termination (NOT)

Appendix G Construction Documents

Appendix H Soils Information

Appendix I NYSHPO Information

Appendix J Standard Erosion Control Details

Appendix K Wetland Permits

Appendix L NYSDEC Letter of Acknowledgement

Appendix M 5 Acre Disturbance Letter

Appendix N Engineer's Report

Appendix O NYSDEC Stormwater Management Inspection Lists

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

101 SCOPE

A. **PURPOSE:** Sawyer's Landing LLC (SL) has placed an emphasis on following the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction Activity governing storm water discharges during construction, and in accordance with erosion control practices. The Contractor's participation in this program is mandatory and its non-compliance is subject to various remedies, including without limitation, monetary set-offs, withholding payments; reimbursement for costs, expenses (including reasonable attorney's fees), fines and civil penalties incurred by SL; and/or liquidated damages. This section provides a descriptive explanation of SL's Storm Water Pollution Prevention Program and required Contractor participation.

The Engineer of record for this project certifies that this SWPPP meets the requirements and is in compliance with the New York State Stormwater Management Design Manual and latest NYSDEC Phase II stormwater regulation requirements.

B. **SPDES General Permit for Stormwater Discharges from Construction Activity:** Regulations promulgated by the NYSDEC to regulate the discharge of storm water from construction activities on sites where more than one (1) acre of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities for New York State. In order to use the General Permit, a Notice of Intent (NOI) form must be completed and electronically submitted to the NYSDEC at least 5 business days prior to any earth-disturbing activities (this time frame may increase to 60 business days if a full review of the SWPPP is determined necessary by the NYSDEC) and a Storm Water Pollution Prevention Plan (SWPPP) for the site must be prepared and followed during the construction activities. Once a copy of the SPDES permit is received from NYSDEC after filing, it will be included in Appendix L of this report.

Approval from a regulated, traditional land use control MS4:

1. An **owner or operator** of a construction activity that is <u>not</u> subject to the requirements of a regulated, traditional land use control MS4 must first develop a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the NYSDEC.

2. An **owner or operator** of a construction activity that is subject to the requirements of a regulated, traditional land use control MS4 must first

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

develop a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the MS4 prior to submitting the NOI to the NYSDEC. The **owner or operator** shall have the "MS4 SWPPP Acceptance" form signed by the principal executive officer or ranking elected official from the regulated, traditional land use control MS4, or by a duly authorized representative of that person, and then submit that form along with the NOI to the address referenced under "Notice of Intent (NOI) Submittal".

C. **RESPONSIBILITIES OF THE CONTRACTOR:** The Contractor shall manage the discharge of storm water from the site in accordance with the NYSDEC General Permit for Construction Activities conditions and the following provisions of this section. The Operator shall be responsible for conducting the storm water management practices in accordance with the permit. The Contractor shall be responsible for providing **qualified inspector**s to conduct the inspections required by the SWPPP. The Contractor shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the Contractor's failure to comply with the permit provisions. It shall be the responsibility of the Contractor to make any changes to the SWPPP necessary when the Contractor or any of his subcontractors elects to use borrow or fill or material storage sites, either contiguous to or remote from the construction site, when such sites are used solely for this construction site. Such sites are considered to be part of the construction site covered by the permit and this SWPPP. Off-site borrow, fill, or material storage sites which are used for multiple construction projects are not subject to this requirement, unless specifically required by state or local jurisdictional entity regulations. The Contractor should consider this requirement in negotiating with earthwork subcontractors, since the choice of an off-site borrow, fill, or material storage site may impact their duty to implement, make changes to, and perform inspections required by the SWPPP for the site.

D. **NOTICE OF INTENT:** The Operator has petitioned the NYSDEC for coverage under the storm water discharges during construction at this site to be covered by the SPDES General Permit for Construction Activity for the State of New York. A Notice of Intent (NOI) for coverage under this permit has been filed by the Operator. The SWPPP must be prepared prior to submittal of the NOI form. The Operator will require the Contractor to be a co-permittee with the Operator. The Contractor will be required to post the NOI at the construction site along with any building permits.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

E. **CONTRACTOR CERTIFICATION & TRAINING:** Proof of Training/Certification of the Contractor's Designated individual shall be kept on site at all times.

F. **REQUIREMENTS FOR THE GENERAL CONTRACTOR AND SUBCONTRACTOR(S):** The General Contractor and Subcontractor(s) shall sign the "Contractor's Certification Statement" (located in the Appendix of this report) verifying they have been instructed on how to comply with and fully understand the requirements of the SPDES General Permit for Construction Activity for the State of New York and the SWPPP. These certifications must be signed, by a responsible corporate officer or other party meeting the "Signatory Requirements" of the SPDES General Permit, on behalf of each entity, prior to the beginning of any construction activities.

G. **STORM WATER POLLUTION PREVENTION PROGRAM LOCATION REQUIREMENTS:** The SWPPP is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the project, shall be readily available upon request by the Operator's personnel or NYSDEC or any other agency with regulatory authority over storm water issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. A sign or other notice must be posted near the main entrance of the construction site which contains a completed NOI, the location of the SWPPP and the name and phone number of a contact person responsible for scheduling SWPPP viewing times, and any other state specific requirements.

H. **INSPECTIONS AND RECORD-KEEPING:**

A. **General Construction Site Inspection and Maintenance Requirements**

1. The **owner or operator** must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. **Owner or operator Maintenance Inspection Requirements**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

1. The **owner or operator** shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the **owner or operator** can stop conducting the maintenance inspections. The **owner or operator** shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of the General Permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the **owner or operator** can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. **Qualified inspector Inspection Requirements**

The **owner or operator** shall have a **qualified inspector** conduct site inspections in conformance with the following requirements:

Note: The **trained contractor** identified in Part III.A.6 of the General Permit **cannot** conduct the **qualified inspector** site inspections unless they meet the **qualified inspector** qualifications included in Appendix A of the General Permit. In order to perform these inspections, the trained contractor would have to be a:

- Licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- Someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity.

1. A **qualified inspector** shall conduct site inspections for all construction activities identified in Tables 1 and 2 of Appendix B of the General Permit, with the exception of:

   a. The construction of a single family residential subdivision with 25% or less impervious cover at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C of the General Permit and not directly discharging to one of the 303(d) segments listed in Appendix E of the General Permit;

   b. The construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E of the General Permit;

   c. Construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

   d. Construction activities located in the watersheds identified in Appendix D of the General Permit that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the **qualified inspector** shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the **qualified inspector** shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the **owner or operator** has received authorization in accordance with Part II.C.3 of the General Permit to **disturb greater than five (5) acres** of soil at any one time, the **qualified inspector**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been **temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas**, the **qualified inspector** shall conduct a site inspection at least once every thirty (30) calendar days. The **owner or operator** shall notify the Regional Office stormwater contact person (see contact information in Appendix F of the General Permit) or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4 (provided the MS4 is not the **owner or operator** of the construction activity) in writing prior to reducing the frequency of inspections.

d. For construction sites where **soil disturbance activities have been shut down with partial project completion**, the **qualified inspector** can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The **owner or operator** shall notify the Regional Office stormwater contact person or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4 (provided the MS4 is not the **owner or operator** of the construction activity). in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the **owner or operator** shall have the **qualified inspector** perform a final inspection and certify that all disturbed areas have achieved final stabilization, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The **owner or operator** shall then submit the completed NOT form to the address in Part II.A.1 of the General Permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

3. At a minimum, the **qualified inspector** shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

4. The **qualified inspector** shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

   a. Date and time of inspection;

   b. Name and title of person(s) performing inspection;

   c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

   d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

   e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody;

   f. Identification of all erosion and sediment control practices that need repair or maintenance;

   g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

   h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and

k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The **qualified inspector** shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The **qualified inspector** shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The **qualified inspector** shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the **qualified inspector** shall notify the **owner or operator** and appropriate contractor or subcontractor identified in Part III.A.6. of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the **qualified inspector**. Pursuant to Part II.C.2 of the General Permit, the inspection reports shall be maintained on site with the SWPPP.

Record Retention - The **owner or operator** shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves final stabilization. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

l. **SWPPP MODIFICATIONS:** The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

to be a dynamic working guide that is to be kept current and amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants or when the plan proves to be ineffective in eliminating or significantly minimizing pollutant discharges. The Contractor's failure to modify or report deficiencies to the Operator will result in the Contractor being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

J. **FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE:** A site can be considered finally stabilized when all soil disturbing activities have been completed and a uniform perennial vegetative cover with a density of **85%** for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established and the facility no longer discharges storm water associated with construction activities and a Notice of Termination (NOT) form filed by the Operator(s) with the NYSDEC. The Operator's Project Manager must complete the NOT. The NOT must be signed by the signatory (or equivalent position) on the NOI and subsequently submitted to the appropriate agency. The Operator's Project Manager must provide a completed copy of the NOT to the Contractor for inclusion in the SWPPP, which will then be optically scanned into the final SWPPP document as required. This filing terminates coverage under the General Permit and terminates the Contractor's responsibility to implement the SWPPP, but the requirements of the SWPPP, including periodic inspections, must be continued until the NOT is filed. The **owner or operator** shall also have the **qualified inspector** perform a final site inspection prior to signing and submitting the NOT to the Department. The local MS4/Stormwater Management Officer must also sign the NOT and may require a final site inspection to be completed prior to. Final payment and/or the release of retainage will be withheld until all provisions of the SWPPP have been submitted, completed and accepted by the Operator.

102 PROJECT NAME AND LOCATION

Sawyer's Landing

Dodge Road

Town of Amherst, County of Erie, New York

Easting: 190681.1

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Northing: 4770798.8

Estimated Area of Site ≈ 17.4 acres

Estimated Area to be disturbed by Construction Activities ≈ 16.4 acres

A general location map is included as Appendix A.

103 OPERATOR'S NAME AND ADDRESS

Sawyer's Landing LLC

c/o Severyn Development

43 Central Avenue

Lancaster, NY 14086

Contact Person: William Severyn

Telephone: 716–818-0207

104 PROJECT DESCRIPTION

This project is a development of a 17.4 acre site located on the north side of Dodge Road, west of Sweet Home Road in the Town of Amherst. Both Dodge Road and Sweet Home Road are Erie County roads. Proposed is the construction of a mixed use development to include (2) 4-story buildings with a total of 30,000 sf of commercial and 100 apartments, (47) duplex lots and (2) 1-story apartment buildings with a total of 12 units. A bike trail will be constructed on site, this trail will connect to the existing Town of Amherst bike trail on the south side of Dodge Road. The approximately 1 acre westerly portion will remain undisturbed and be deed restricted as permanent open space. The site is currently undeveloped consisting of woods and overgrown brush/grass. NYSDEC and Federal wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The proposed site development area to be disturbed for this project is approximately 16.4 acres.

Soil disturbing activities will include:

A. Construction of temporary construction exit points

B. Clearing & grubbing of the site within disturbance limits

C. Installation of detention basins, bioretention areas including topsoil & seed

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

D. Installation of storm sewer pipes and inlets

E. Construction of utilities

F. Construction of curb and parking lot

G. Final grading & landscaping

H. Construction of building

This project is owned by Sawyer's Landing LLC and will be developed by the same. The work area consists of approximately 16.4 acres for which erosion and sediment controls have been developed and fully addressed in this written plan and the Erosion and Sediment Control Plans. See the construction documents for additional details.

105 RUNOFF COEFFICIENT, SOILS, AND RAINFALL INFORMATION

The initial runoff curve number for the pre-construction site is "CN" = 78. The post-construction runoff curve number for the site will be "CN" = 91. The site is 17.4 acres of which approximately 16.4 acres will be disturbed by construction activities.

See soils information located in Appendix H.

The site is in Erie County, which receives an average of approximately 45 inches rainfall annually with the highest amounts of rainfall received in the months of May thru September. Annual snow for this area is approximately 120 inches.

106 WATERS

The runoff generated from this site will discharge to the storm system on Dodge Road which is tributary to Ellicott Creek.

107 INDIAN COUNTRY LANDS

This project is not located on Indian Lands.

108 ENDANGERED AND THREATENED SPECIES

No endangered or threatened species have been determined to be on the site.

109 CRITICAL HABITAT

See section 108 above.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

110 HISTORIC PLACES

The assessed property is shown on the NYSHPO map as an archeologically sensitive area. A NYSHPO "no effect" letter is included in Appendix I.

111 WETLANDS AND/OR OTHER SURFACE WATERS

Federal and NYSDEC wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The USACOE and NYSDEC wetland permits are included in Appendix K of this report.

112 EROSION AND SEDIMENT CONTROLS

112.1 STABILIZATION PRACTICES

Stabilization practices for this site include:

A. Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed.

B. Use of stabilization method for all slopes with a slope greater than 1V:3H.

C. Permanent seeding and planting of all unpaved areas using the hydromulching grass seeding technique.

D. Mulching exposed areas.

E. Vegetation preservation in undisturbed areas.

F. Frequent watering to minimize wind erosion during construction.

a. **For sites where 5 acres or more are disturbed at any one time**: In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the New York Standards and Specifications for Erosion and Sediment Control.

b. The **owner or operator** shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

c. The **owner or operator** shall install any additional measures needed to protect water quality.

112.2 STRUCTURAL PRACTICES

Structural practices for this site include:

A. Inlet protection using a method detailed in the Construction Documents.

B. Perimeter protection using temporary silt fence/silt sock or silt sock.

C. Outlet protection using rip-rap stone and end sections.

D. Stabilized Construction Entrance.

E. Temporary stone wash off areas.

F. Storm sewer, curb/gutter.

G. Sediment traps and basins.

112.3 SEQUENCE OF MAJOR ACTIVITIES

The Contractor will be responsible for implementing the following erosion control and storm water management control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor. The order of activities will be as follows:

A. Construct temporary construction exits at locations shown on the Demolition & Erosion Control Plan Sheet.

B. Install perimeter silt fence/silt socks/silt sock in the locations shown on the Demolition & Erosion Control Plan Sheet.

C. Clear & Grub site.

D. Installation of detention basin to act as sediment basin.

E. Commence site grading.

F. If less than 5 acres of the site have been disturbed and construction activity has ceased for more than 14 days, temporarily seed and water to stabilize this area. If more than 5 acres of the site have been disturbed and construction activity has ceased for more than 7 days, temporarily seed and water to stabilize this area.

G. Installation of proposed utilities.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

H. Install base material as required for pavement/buildings.

I. Finalize pavement subgrade preparation.

J. Construction of buildings.

K. Construct all curb, drainage inlets, storm sewer pipes and storm sewer manholes, as shown on the plans. Install temporary inlet protection at the locations of all inlets.

L. Dust control.

L. Remove inlet protection around inlets and manholes no more than 48 hours prior to placing stabilized base course.

N. Carry out final grading and seeding and planting.

O. Install bioretention areas (do not install bioretention soil or underdrains until surrounding area is stabilized).

P. Clean storm system following construction, clean detention basin of any silt and return to design grades.

Q. Remove silt fencing/silt sock only after all paving is complete and exposed surfaces are stabilized.

R. Remove temporary construction exits only prior to pavement construction in these areas.

Note: Sediment control storage during construction (traps & basins) during construction shall be 134 cy per acre of disturbance per NYSDEC requirements.

112.4 STORM WATER MANAGEMENT

The existing site is generally flat and slopes west with portions sloping east. The portion that slopes west settles in a low area and once the capacity of that area is exceeded, sheet flow continues towards Sweet Home Road and is collected by an existing 12" pipe on the north side of Dodge Road. This pipe flows to the Erie County system on Sweet Home Road. The portion that flows east flows to the offsite wetlands.

Currently Dodge Road does not have a drainage system. A series of catch basins and pipes will be installed in the green area on the north side of Dodge Road to collect the road drainage. The west portion of this system will connect to the existing closed drainage system on Sweet Home Road. The east portion will discharge to the Ellicott Creek diversion channel using and existing discharge point. This new system will also convey the proposed discharge from the site as described below.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

The proposed onsite storm sewer system consists of smooth interior and perforated HDPE pipes connected by a series of catch basins, manholes and yard drains. The site is split into a storm water management area on the east and west sides.

West Side

The west side of the site has (2) bioretention areas which portions of the westerly area will discharge to. These bioretention areas along with the remainder of the west portion of the site will discharge to the underground detention area. Note that the yard drains installed along the north property line discharge to the underground detention area. An outlet structure in the SW portion of this area will control runoff to at or below existing runoff flow rates. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Sweet Home Road system.

Underground Detention Summary

(286) ADS Stormtech SC-740 chambers
Top of stone elev. = 573.00
Top of chamber elev. = 572.50
Bottom of chamber elev. = 570.00
Bottom of stone elev. = 569.50
Total storage = 18,574 CF

Event	Ex. Discharge	Pro. Discharge	Elev.
1 yr	0.87 cfs	0.33 cfs	570.29
2 yr	1.34 cfs	0.68 cfs	570.46
5 yr	2.14 cfs	1.05 cfs	570.79
10 yr	2.94 cfs	1.28 cfs	571.13
25 yr	4.34 cfs	1.61 cfs	571.73
50 yr	5.69 cfs	3.61 cfs	572.23
100 yr	7.33 cfs	4.83 cfs	572.92

East Side

The east side of the site has a bioretention area and wet detention pond which this portion of the site discharges to. The NE portion of the site discharges to a forebay which spills into the main micropool portion of the wet detention basin. The SE portion of the site discharges to the bioretention area which also spills into the main micropool portion of the site. An outlet control structure is located in

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

the SE portion of the micropool and controls the discharge from this storm water management area. Spillways are also located on the east portion of the micropool which will discharge to the existing wetlands to the east in order to not cut off all flow from this site into this area. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Ellicott Creek diversion channel.

The bioretention areas and wet detention pond for the project area are sized to provide 100% of the required Runoff Reduction Volume (RRv) and Water Quality Volume (WQv) treatment for the overall site in accordance with Chapter 4 of the NYSDEC Stormwater design manual. The soils in the vicinity of the bioretention areas are mainly USDA hydrologic group 'D' and therefore the system will be installed with underdrains per NYSDEC requirements. The bioretention areas will consist of 6" and 8" perforated HDPE underdrains in 12" of drainage gravel, followed by filter fabric and 18" minimum of planting soil. Overflow yard drains will be installed to allow 6" maximum temporary ponding for RRv treatment. The east bioretention area (area #3) spills into the wet detention pond and the underdrain pipe ties together with the pond discharge and flows to Dodge Road. The east bioretention areas (areas #1 & #2) have a catch basin to act as the spillway and this catch basin and the underdrain pipes discharge to the underground detention area.

Storm Water Management Area Summary

Forebay
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 569.00

Micropool
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 563.00

Overall Storm Water Summary

WQv Provided = 152,678 cf (pond)
WQv Provided = 6,948 cf (bioretention)
WQv Provided = 159,626 cf (total)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Bioretention Area Summary:

Area	Rim Elev.	Bottom Elev.	Area
1	574.50	574.00	2,300 sf
2	574.50	574.00	2,600 sf
3	575.50	575.00	11,000 sf
		Total Provided =	15,900 sf

Water Quality Summary:
WQv req'd = 28,804 cf (0.661 ac-ft)
RRv min. req'd = 5,518 cf (0.127 ac-ft)
RRv provided = 8,662 cf (0.199 ac-ft)
WQv provided = 159,626 cf (3.665 ac-ft)
Total RRv + WQv provided = 8,662 cf + 159,626 cf = 168,287 cf (3.868 ac-ft)

Detention: Comparison of the existing 1-year vs. the proposed 1-year runoff
Comparison of the existing 10-year vs. the proposed 10-year runoff
Comparison of the existing 100-year vs. the proposed 100-year runoff

Storm pipes: 10-year storm

Refer to the engineer's report in Appendix N for additional details.

113 OTHER CONTROLS

113.1 OFF-SITE VEHICLE TRACKING

A stabilized construction exit will be provided to help reduce vehicle tracking of sediments. Existing paved areas will remain as long as possible and will be used for vehicle wash areas and to further aid in the reduction of vehicle tracking of sediments. The paved streets adjacent to the site entrance shall be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material to/from the construction site will be covered with a tarpaulin. The job site superintendent will be responsible for seeing that these procedures are followed.

113.2 EXCAVATION SPOIL MATERIALS

Excavation spoil materials are generated during the excavation of the development's building and utilities installation. These materials must be properly managed to prevent them from contributing to storm water discharges. The materials generated from the development of this project will be hauled off-site or stockpiled for re-use in designated areas which will have temporary erosion &

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

sediment control measures installed. Any removal from site will be done under the necessary permits required by the local governing agencies.

113.3 DUST CONTROL

Minimizing wind erosion and controlling dust will be accomplished by one or more of the following methods:

A. Frequent watering of excavation and fill areas.

B. Providing gravel or paving at entrance/exit drives, parking areas and transit paths.

113.4 WASTE DISPOSAL

If needed, all waste materials will be collected and stored in securely lidded metal dumpsters rented from an approved waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpsters. The dumpsters will be emptied when full and then hauled to a NYSDEC approved landfill for proper disposal. No construction waste will be buried on-site. All personnel will be instructed regarding the correct procedures for waste disposal.

113.5 SANITARY WASTE

If needed, portable toilet units or field offices with toilet facilities connected to the municipal sanitary sewer will be used for sanitary purposes. All portable toilet units will be emptied a minimum of once per week by a licensed portable facility provided in compliance with local and state regulations.

113.6 CONCRETE WASTE FROM CONCRETE TRUCKS

A. Emptying of excess unhardened concrete and/or washout from concrete delivery trucks will be allowed on the job site, but in either (1) specifically designated diked areas which have been prepared to prevent contact between concrete and/or washout and storm water which will be discharged from the site or (2) in locations where waste concrete will be poured into forms to make rip-rap or other useful concrete products.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

B. Hardened waste concrete from the designated diked areas described above will be disposed of in accordance with applicable local and state regulations with regards to disposal of construction debris.

113.7 HAZARDOUS SUBSTANCES & HAZARDOUS WASTE

A. All hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job superintendent, who will also be responsible for seeing these practices are followed. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such products are stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

B. The contractor will implement the Spill Prevention Control and Countermeasures (SPCC) Plan found within this SWPPP and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials of hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge shall be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job superintendent to properly train all personnel in the use of the SPCC plan.

C. Any spills of hazardous materials which are in excess of the Reportable Quantities as defined by the EPA regulations shall be immediately reported to the EPA National Response Center at 1-100-424-1102. From SWPPP-9 "Reportable Quantity Release Form" must be filled out.

D. In order to minimize the potential for a spill of hazardous materials to come in contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals,

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on the job site.

3. A spill control and containment kit (containing for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

4. All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

5. All products will be stored in and used from the original container with the original product label.

6. All products will be used in strict compliance with instructions on the product label.

7. The disposal of excess or used products will be in strict compliance with instructions on the product label.

113.8 CONTAMINATED SOILS

A. Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

B. The job site superintendent will be responsible for seeing that these procedures are followed.

114 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The Contractor will obtain copies of any and all local and state regulations which are applicable to storm water management, erosion control, and

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

pollution minimization at this job site and will comply fully with such regulations. The Contractor will submit written evidence of such compliance if requested by the Operator or any agent of a regulatory body. The Contractor will comply with all conditions of the SPDES General Permit for Construction Activity for the State of New York, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the job site and allowing regulatory personnel access to the job site and to records in order to determine compliance.

The SWPPP for this site development project requires regulated MS4 approval from the Town of Amherst. All changes to the SWPPP must be approved by the Town of Amherst prior to applying changes to the SWPPP in the field.

115 INSPECTION AND MAINTENANCE PROCEDURES

The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

1. All control measures will be inspected by the owner/operator at least weekly and shall continue until the site complies with the Final Stabilization section of this document (See Section 116).

2. All control measures will be inspected by a Qualified Professional at least weekly and shall continue until the site complies with the Final Stabilization section of this document (See Section 116).

3. All measures will be maintained in good working order; if repairs or other measures are found to be necessary, they will be initiated within 24 hours of report.

4. Built up sediment will be removed from silt fence/silt sock when it has reached one-third the height of the fence.

5. Silt fence/silt socks will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.

6. Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.

7. A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

8. The job site superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.

9. Personnel selected for the inspection and maintenance responsibilities will receive training from the job site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept on site with the SWPPP.

10. Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

11. Report to the NYSDEC within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event. The following events require 24 hour reporting: a) any unanticipated bypass which exceeds any effluent limitation in the permit, b) any upset which exceeds any effluent limitation in the permit, and c) a violation of a maximum daily discharge limitation for any of the pollutants listed by the NYSDEC in the permit to be reported within 24 hours. The written submission must contain a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times, and if the non-compliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance.

12. Releases of hazardous substances or oil in excess of reportable quantities (as established under 40 CFR 110, 40 CFR 117 or 40 CFR 302) must be reported.

Upon completion of construction, the property owner is responsible for ensuring that the stormwater facilities are regularly inspected and maintained. Maintenance and inspection procedures are as follows.

1. On a quarterly basis and following significant rainfall events or snow-melts, perform the following:

    - Inspect catch basins, storm manholes, yard drains, storm piping and stormwater pond for debris and accumulation of sediment.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

- Remove and properly dispose of any collected debris and sediment in accordance with applicable state, federal and local regulations.
- Flush piping with water if necessary to remove accumulated sediment.
- Bioretention areas shall be maintained per the NYSDEC Maintenance and Management Checklist included in this SWPPP.
- Check all stone outfall structures for erosion and re-stone if necessary to prevent further erosion.
- Inspect grassed/landscaped areas for un-vegetated areas or areas with less than 85% healthy stand of grass and reseed and mulch as necessary. Water daily if reseeded in July and August.
- A record of all inspections should be kept.

2. Maintain all lawn areas by regular mowing, including the grassed slopes of the stormwater pond and any grass swales. Any eroded areas shall be regarded, seeded and mulched immediately.

116 INSPECTION AND MAINTENANCE REPORT FORMS

Once installation of any required or optional erosion control device or measure has been implemented, inspections shall be performed by a Qualified Professional at least once every seven (7) calendar days. For construction sites where soil disturbance activities are on-going and the **owner or operator** has received authorization in accordance with Part II.C.3 of the General Permit to disturb greater than five (5) acres of soil at any one time, the **qualified inspector** shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days. The owner and contractor shall obtain from the MS4 an approval for disturbing more than five-acres at any given time. For construction sites where active construction has been suspended, inspection frequency under the general permit can be reduced to once every 30 days, provided temporary stabilization measures have been applied to all disturbed areas. The forms found in this SWPPP shall be used by the inspectors to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the Operator's Engineer, and the Operator for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the permittee for five years following the final stabilization of the site.

117 OTHER RECORD-KEEPING REQUIREMENTS

The Contractor shall keep the following records related to construction activities at the site:

- Dates when major grading activities occur and the areas which were graded
- Dates and details concerning the installation of structural controls
- Dates when construction activities cease in an area
- Dates when an areas is stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of hazardous materials
- Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

118 SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

118.1 MATERIALS COVERED

The following materials or substances are expected to be present onsite during construction:

- Concrete/Additives/Wastes
- Cleaning solvents
- Sanitary wastes
- Detergents
- Petroleum based products
- Paints/Solvents
- Pesticides
- Solid and construction wastes
- Acids

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

- Fertilizers
- Soil stabilization additives

118.2 MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The job site superintendent will be responsible for ensuring that these procedures are followed.

A. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

1. An effort will be made to store only enough products required to do the job.
2. All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
3. Products will be kept in their original containers with the original manufacturer's label in legible condition.
4. Substances will not be mixed with one another unless recommended by the manufacturer.
5. Whenever possible, all of a product will be used up before disposing of the container.
6. Manufacturer's recommendations for proper use and disposal will be followed.
7. The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

1. Products will be kept in original containers with the original labels in legible condition.

2. Original labels and material safety data sheets (MSDS's) will be procured and used for each material.

3. If surplus product must be disposed of, manufacturer's or local/state/federal recommended methods for proper disposal will be followed.

4. A spill control and containment kit (containing for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

5. All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

C. Hazardous Waste

All hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed.

D. Product Specific Practices

The following product specific practices will be followed on the job site.

1. Petroleum Products

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on a plan by the contractor once the locations have been determined.

2. Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

3. Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Concrete Wastes

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or wash out and storm water which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

The hardened residue from the concrete wash out diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

as deemed appropriate by the Contractor. The job site superintendent will be responsible for seeing that these procedures are followed.

All concrete wash out areas will be located in an area where the likelihood of the area contributing to storm water discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to storm water discharges. The location of concrete wash out area(s) must be identified on a plan by the contractor once the locations have been determined. In addition, a standard detail on the construction of the concrete wash out shall be included on this plan.

E. Solid and Construction Wastes

All waste materials will be collected and stored in an appropriately covered container and/or securely lidded metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in New York and the Town of Amherst. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of twice per week or more often if necessary, and the trash will be hauled to a landfill approved by the NYSDEC. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges. The location of waste dumpsters and roll-off containers must be identified on a plan by the contractor once the locations have been determined.

F. Sanitary Wastes

Portable toilet units or field offices with toilet facilities connected to the municipal sanitary sewer will be used for sanitary purposes. All portable

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

toilet units will be emptied a minimum of once per week by a licensed portable facility provided in compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges. The location of sanitary waste units must be identified on a plan by the contractor once the locations have been determined.

G. Contaminated Soils

Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations.

118.3 SPILL PREVENTION AND RESPONSE PROCEDURES

The Contractor will train all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job site superintendent to properly train all personnel in spill prevention and clean up procedures.

A. In order to minimize the potential for a spill of hazardous materials to come into contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on the job site.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

B. In the event of a spill, the following procedures should be followed

1. All spills will be cleaned up immediately after discovery.

2. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.

3. The project manager and the Engineer of Record will be notified immediately.

   Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. Spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 110, 40 CFR 117, and 40 CFR 302) must be immediately reported to the EPA National Response Center, telephone 1-100-424-1102. From SWPPP-9 "Reportable Quantity Release Form" must be filled out.

4. If the spill exceeds a Reportable Quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The plans must identify measures to prevent the recurrence of such releases and to respond to such releases.

C. The job site superintendent will be the spill prevention and response coordinator. He will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

of these personnel will be posted in the material storage area and in the office trailer onsite.

119 CONTROL OF NON-STORM WATER DISCHARGES

Certain types of discharges are allowable under the NYSDEC SPDES General Permit for Construction Activity for the State of New York, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this SWPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. The following allowable non-storm water discharges which may occur at the job site include:

A. Discharges from firefighting activities.

B. Fire hydrant flushings (see note below)

C. Waters used to wash vehicles or control dust in order to minimize offsite sediment tracking.

D. Routine external building washdown which does not use detergents.

E. Pavement wash waters where spills or leaks of hazardous materials have not occurred or detergents have not been used.

F. Air conditioning condensate.

G. Springs or other uncontaminated groundwater, including dewatering ground water infiltration.

H. Foundation or footing drains where no contamination with process materials such as solvents is present.

Note: The Contractor shall discharge any super-chlorinated water from water distribution pipe disinfection activities into sanitary sewer system.

120 STORM WATER CONTROL FACILITY MAINTENANCE

Upon completion of construction, SL shall be responsible for maintenance of the storm sewer system and all ponds, bioretention areas, etc. per a Stormwater Maintenance Agreement to the Town of Amherst that shall be filed with the County of Erie.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

The frequency of inspections for the bioretention areas shall match the frequencies listed on the "Bioretention Operation, Maintenance and Management Inspection Checklist" in Appendix O of the SWPPP.

The proposed catch basins, as per section 115, shall be inspected 4 times per year for removal of floatable debris. Any silt buildup over 6" in depth shall be removed and disposed of properly off-site.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix A

Site Location Map

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stormwater Interactive Map



The coordinates of the point you clicked on are:

UTM 18	**Easting:**	190681.063	**Northing:**	4770798.806
Longitude/Latitude	**Longitude:**	-78.796	**Latitude:**	43.027

The approximate address of the point you clicked on is:
26-42 Dodge Rd, Getzville, New York, 14068

County: Erie
Town: Amherst
USGS Quad: TONAWANDA EAST

DEC Administrative Boundaries

Region 9:
(Western New York) Allegany, Chautauqua, Cattaraugus, Erie, Niagara and Wyoming counties. For more information visit http://www.dec.ny.gov/about/617.html.

Regulated MS4s

UA 2000: 11350
Standard: Buffalo
Municipality: AMHERST
SWIS: 142200
Regulated: Automatic

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix B

NYSDEC Notice of Intent (NOI)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Sawyer's Landing LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Severyn

Owner/Operator Contact Person First Name
Will

Owner/Operator Mailing Address
43 Central Ave

City
Lancaster

State
NY

Zip
14086 -

Phone (Owner/Operator)
716 - 912 - 0969

Fax (Owner/Operator)
___ - ___ - ____

Email (Owner/Operator)
williamseverynny@gmail.com

FED TAX ID
__ - _____ (not required for individuals)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

6401089828

Project Site Information

Project/Site Name
Sawyer's Landing

Street Address (NOT P.O. BOX)
Dodge Road

Side of Street
● North ○ South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Amherst

State NY | Zip 14228 - | County Erie | DEC Region 9

Name of Nearest Cross Street
Sweet Home Road

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
○ North ○ South ● East ○ West

Tax Map Numbers
Section-Block-Parcel
40.08-3-13.1

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
-7 8796
Ex. -73.749

Y Coordinates (Northing)
43027
Ex. 42.652

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

4107089829

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
● FOREST	○ SINGLE FAMILY HOME
○ PASTURE/OPEN LAND	○ SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	● OTHER

Number of Lots:

Mixed use

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
17.4	16.4	0.0	8.0

5. Do you plan to disturb more than 5 acres of soil at any one time? ● Yes ○ No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	100 %

7. Is this a phased project? ○ Yes ● No

8. Enter the planned start and end dates of the disturbance activities.

Start Date: 7/1/2021 – End Date: 7/1/2022

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

8600089821

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Ellicott Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ● Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ Yes ● No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ Yes ● No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ Yes ● No
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ Yes ● No
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ Yes ● No

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

6403089820

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Erie County

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

0251089825

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Carmina Wood Morris DPC

Contact Name (Last, Space, First)
Wood Christopher

Mailing Address
487 Main St

City
Buffalo

State Zip
NY 14127-

Phone
716-842-3165

Fax
716-842-0263

Email
cwood@cwm-ae.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name
Christopher

MI

Last Name
Wood

Signature

Date
03 / 03 / 2021

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

0005089822

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ● Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

0182089828

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ● **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

0.661 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

7738089822

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
RR Techniques (Area Reduction)			
● Conservation of Natural Areas (RR-1)	1.0	and/or	0.0
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
○ Tree Planting/Tree Pit (RR-3)		and/or	
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			
● Bioretention (F-5)	4.0		3.0
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
○ Wet Pond (P-2)			
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
● Pocket Pond (P-5)	3.0		4.0
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

0762089822

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other [ ]	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.199 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ● **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.127 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

1766089827

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

3.664 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). 3.863

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

0.42 **acre-feet**

CPv Provided

0.42 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

4.34 **CFS**

Post-development

3.63 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

7.33 **CFS**

Post-development

4.38 **CFS**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

1310089822

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Sawyer's Landing LLC

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

4285089826

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ● Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP NYR
- ○ Other
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ● Yes ○ No
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● Yes ○ No
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● Yes ○ No

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

3547089826

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name: Will

MI:

Print Last Name: Severyn

Owner/Operator Signature: William T Severyn

Date: 03/03/2021

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix C

MS4 SWPPP Acceptance Form

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Sawyer's Landing LLC
2. Contact Person:	Will Severyn
3. Street Address:	43 Central Ave
4. City/State/Zip:	Lancaster, NY 14086
II. Project Site Information	
5. Project/Site Name:	Sawyer's Landing
6. Street Address:	Dodge Road
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix D

NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS 1
A. Permit Application 1
B. Effluent Limitations Applicable to Discharges from Construction Activities 1
C. Post-construction Stormwater Management Practice Requirements 4
D. Maintaining Water Quality 8
E. Eligibility Under This General Permit 9
F. Activities Which Are Ineligible for Coverage Under This General Permit 9
Part II. PERMIT COVERAGE 12
A. How to Obtain Coverage 12
B. Notice of Intent (NOI) Submittal 13
C. Permit Authorization 13
D. General Requirements For Owners or Operators With Permit Coverage 15
E. Permit Coverage for Discharges Authorized Under GP-0-15-002 17
F. Change of Owner or Operator 17
Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) 18
A. General SWPPP Requirements 18
B. Required SWPPP Contents 20
C. Required SWPPP Components by Project Type 24
Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS 24
A. General Construction Site Inspection and Maintenance Requirements 24
B. Contractor Maintenance Inspection Requirements 24
C. Qualified Inspector Inspection Requirements 25
Part V. TERMINATION OF PERMIT COVERAGE 29
A. Termination of Permit Coverage 29
Part VI. REPORTING AND RETENTION RECORDS 31
A. Record Retention 31
B. Addresses 31
Part VII. STANDARD PERMIT CONDITIONS 31
A. Duty to Comply 31
B. Continuation of the Expired General Permit 32
C. Enforcement 32
D. Need to Halt or Reduce Activity Not a Defense 32
E. Duty to Mitigate 33
F. Duty to Provide Information 33
G. Other Information 33
H. Signatory Requirements 33
I. Property Rights 35
J. Severability 35

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

K. Requirement to Obtain Coverage Under an Alternative Permit 35
L. Proper Operation and Maintenance 36
M. Inspection and Entry 36
N. Permit Actions 37
O. Definitions 37
P. Re-Opener Clause 37
Q. Penalties for Falsification of Forms and Reports 37
R. Other Permits 38
APPENDIX A – Acronyms and Definitions 39
Acronyms 39
Definitions 40
APPENDIX B – Required SWPPP Components by Project Type 48
Table 1 48
Table 2 50
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal 52
APPENDIX D – Watersheds with Lower Disturbance Threshold 58
APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s) 59
APPENDIX F – List of NYS DEC Regional Offices 65

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* ("SWPPP") the reason(s) for the

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards.* At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharges* are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges* from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

   a. Background information about the scope of the project, including the location, type and size of project

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities*" and "*Larger Common Plan of Development or Sale*" *also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

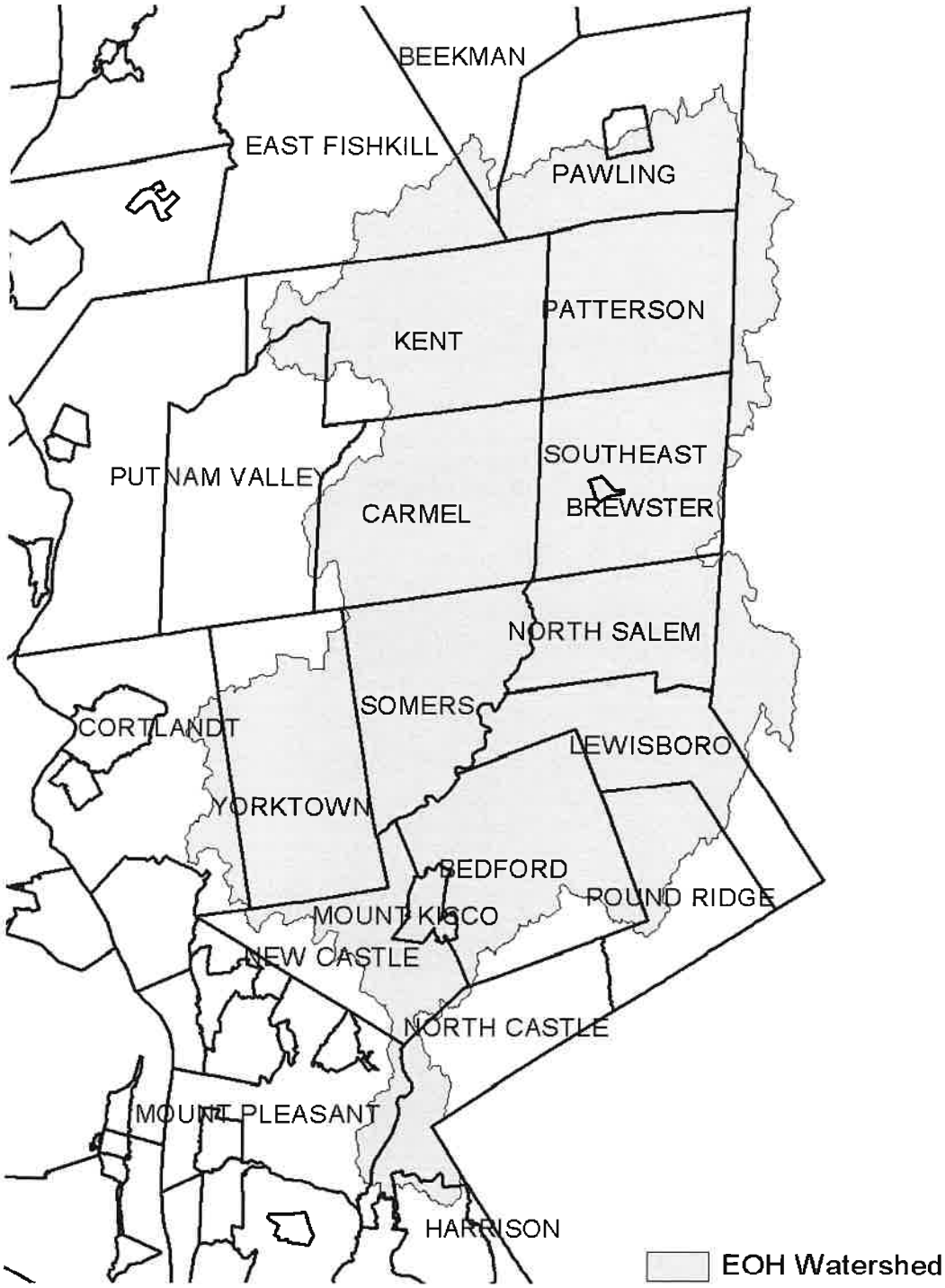
Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix C

Figure 1 - New York City Watershed East of the Hudson



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Figure 2 - Onondaga Lake Watershed



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

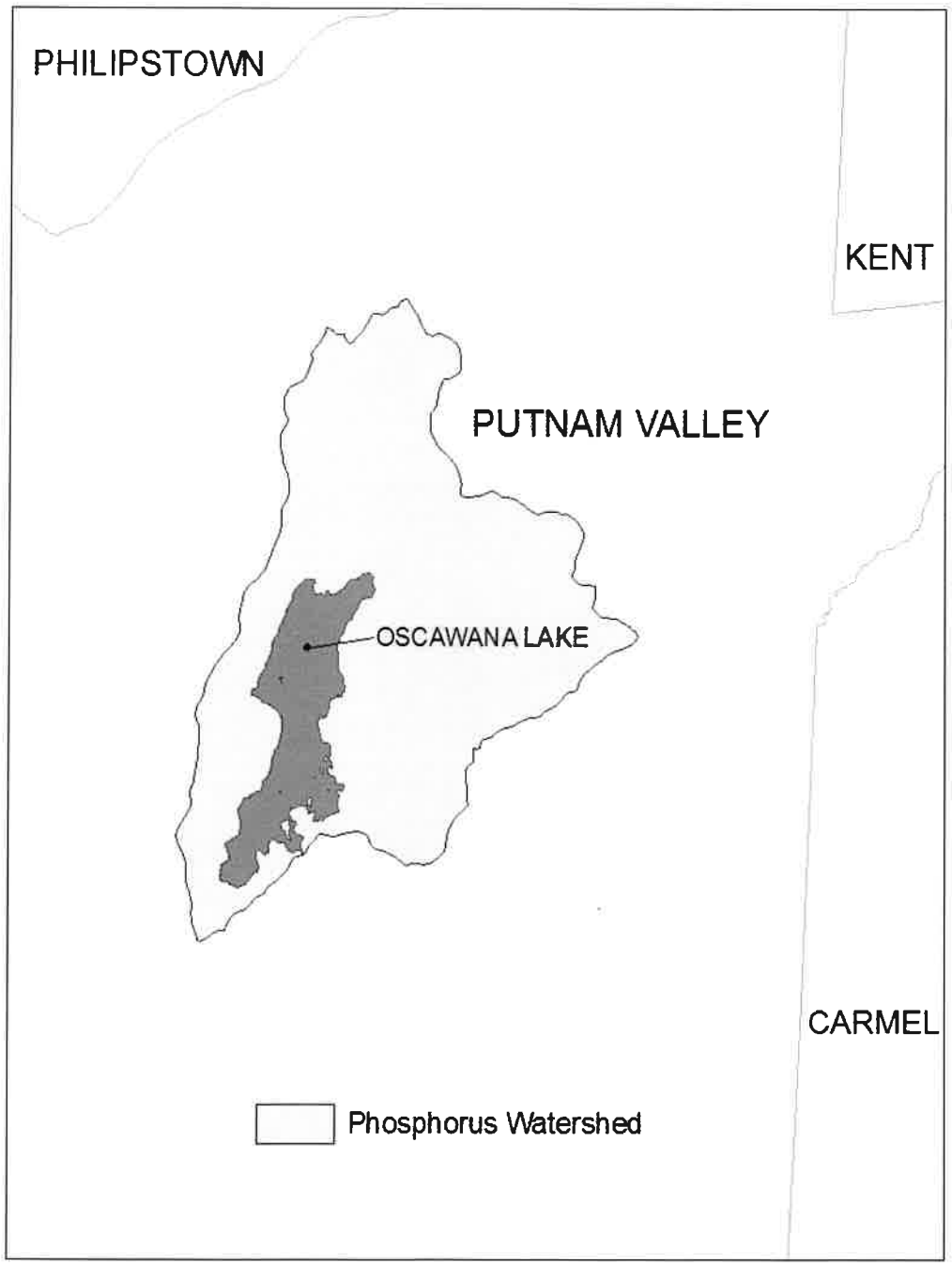
Appendix C

Figure 3 - Greenwood Lake Watershed



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

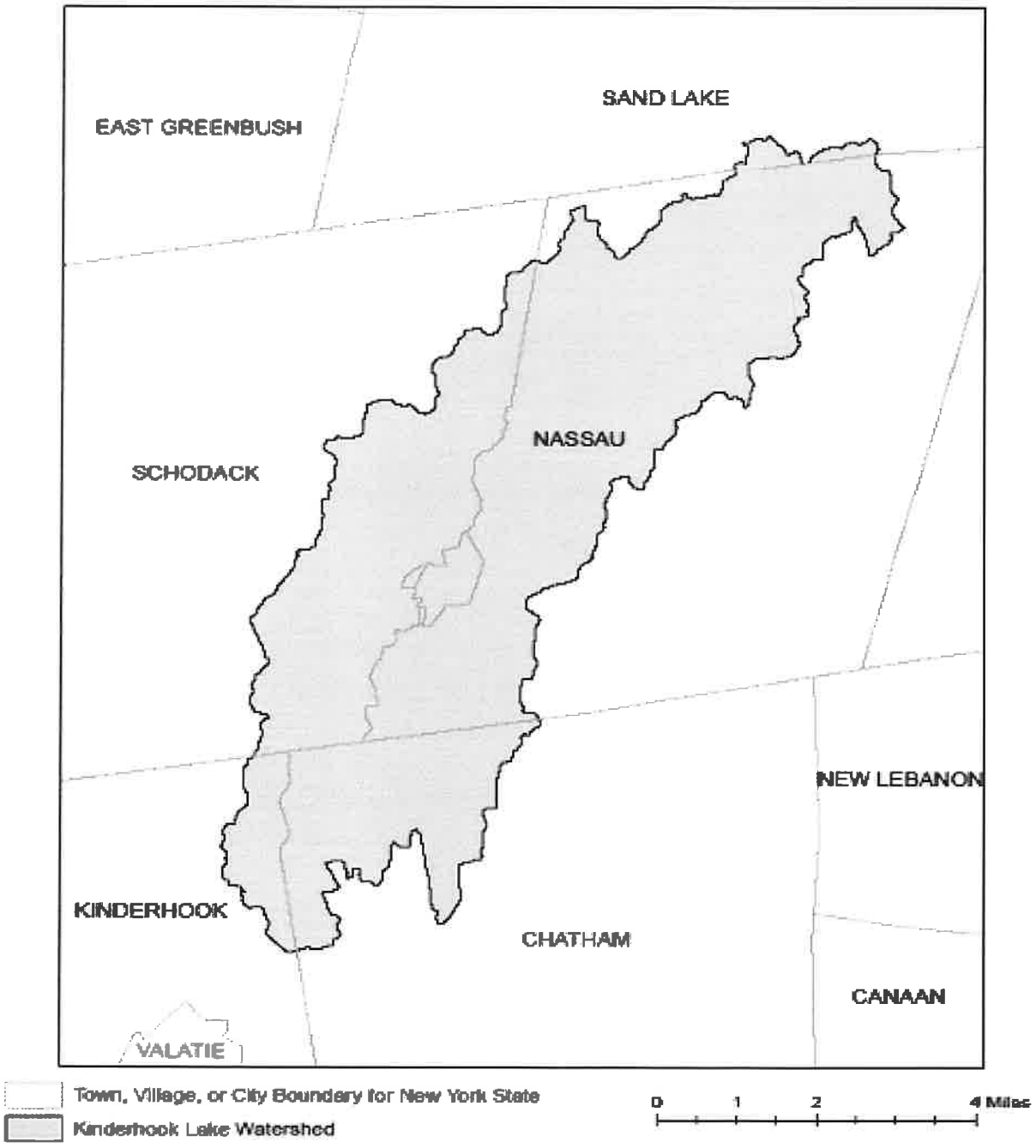
Figure 4 - Oscawana Lake Watershed



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix C

Figure 5 - Kinderhook Lake Watershed



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	Division of Environmental Permits (DEP) Permit Administrators	Division of Water (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix E

Forms

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

STORM WATER POLLUTION PREVENTION PLAN
CONTRACTOR'S CERTIFICATION STATEMENT

Sawyer's Landing

CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge storm water. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Note: The contractor shall have at least one NYSDEC trained individual onsite at all times when earthwork and other SWPPP associated work is being performed from each contractor(s) and subcontractor(s). Each contractor(s) and subcontractor(s) shall provide copies of these individuals' certifications to the Town of Amherst.

Name: _____
(Print)

Signature: _____

Title: _____

Company Name: _____

Address: _____

Telephone Number: _____

Date: _____

Scope of Services: _____

Trained Individual(s) Responsible for Implementation: _____

This form must be signed by a responsible corporate officer or other party meeting the "Signatory Requirements" of the NYSDEC SPDES General Permit

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

Sawyer's Landing

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

Sawyer's Landing LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Christopher		Wood
First name	MI	Last Name

Signature

3/3/21
Date

Revised: January 2020

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: Sawyer's Landing

eNOI Submission Number: _____

eNOI Submitted by: ☐ Owner/Operator ☑ SWPPP Preparer ☐ Other

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

William T Severyn

Signature

3/3/21

Date

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix F

NYSDEC Notice of Termination (NOT)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued	
VII. Qualified Inspector Certification - Final Stabilization:	
I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix G

Construction Documents

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-631-7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-631-7051

LAND SURVEYOR
NAME/TITLE:
COMPANY/DEPT: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
ADDRESS: 4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
TELEPHONE 716-633-4844

UTILITIES

NATURAL GAS
COMPANY/DEPT: NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-857-7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203
TELEPHONE 716-840-8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK
TELEPHONE 716-558-8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214
TELEPHONE 716-236-2738

WATER
COMPANY/DEPT: ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
TELEPHONE 716-684-1510

DIG SAFELY NEW YORK
TELEPHONE 1-800-962-7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086

TELEPHONE 716 818-0207

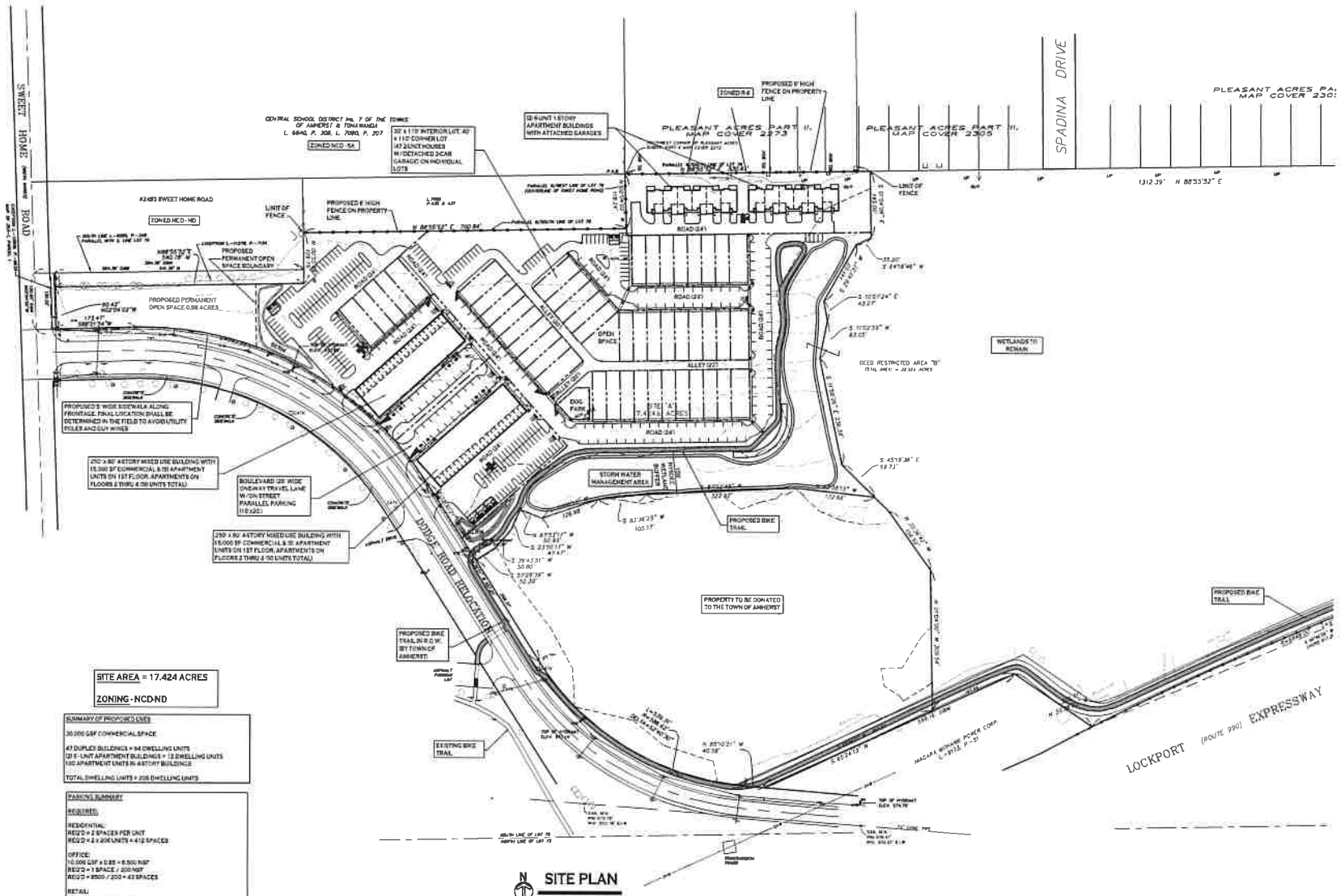
ENGINEER

Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

FEBRUARY 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C-001	DEMOLITION & EROSION CONTROL PLAN
C-002	DEMOLITION & EROSION CONTROL DETAILS
C-100	OVERALL SITE PLAN
C-101	SITE PLAN
C-102	PARCEL MAP
C-103	SITE DETAILS
C-104	SITE DETAILS
C-200	GRADING PLAN
C-300	STORM DRAINAGE PLAN
C-301	STORM DRAINAGE DETAILS
C-302	STORM DRAINAGE DETAILS
C-303	STORM DRAINAGE DETAILS
C-400	UTILITY PLAN
C-401	SANITARY SEWER DETAILS
C-402	SANITARY SEWER DETAILS
C-403	SANITARY SEWER GENERAL NOTES
C-404	SANITARY SEWER TESTING NOTES
C-405	WATER DETAILS
C-406	WATER DETAILS
C-407	WATER DETAILS & NOTES
C-408	INSULATED ENCLOSURE DETAIL
L-100	LANDSCAPE PLAN

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



© Carmina Wood Morris DPC

Carmina Wood Morris
487 Main Street - Suite 300
Buffalo, New York 14203
P. 716.842.2185
F. 716.842.0761

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

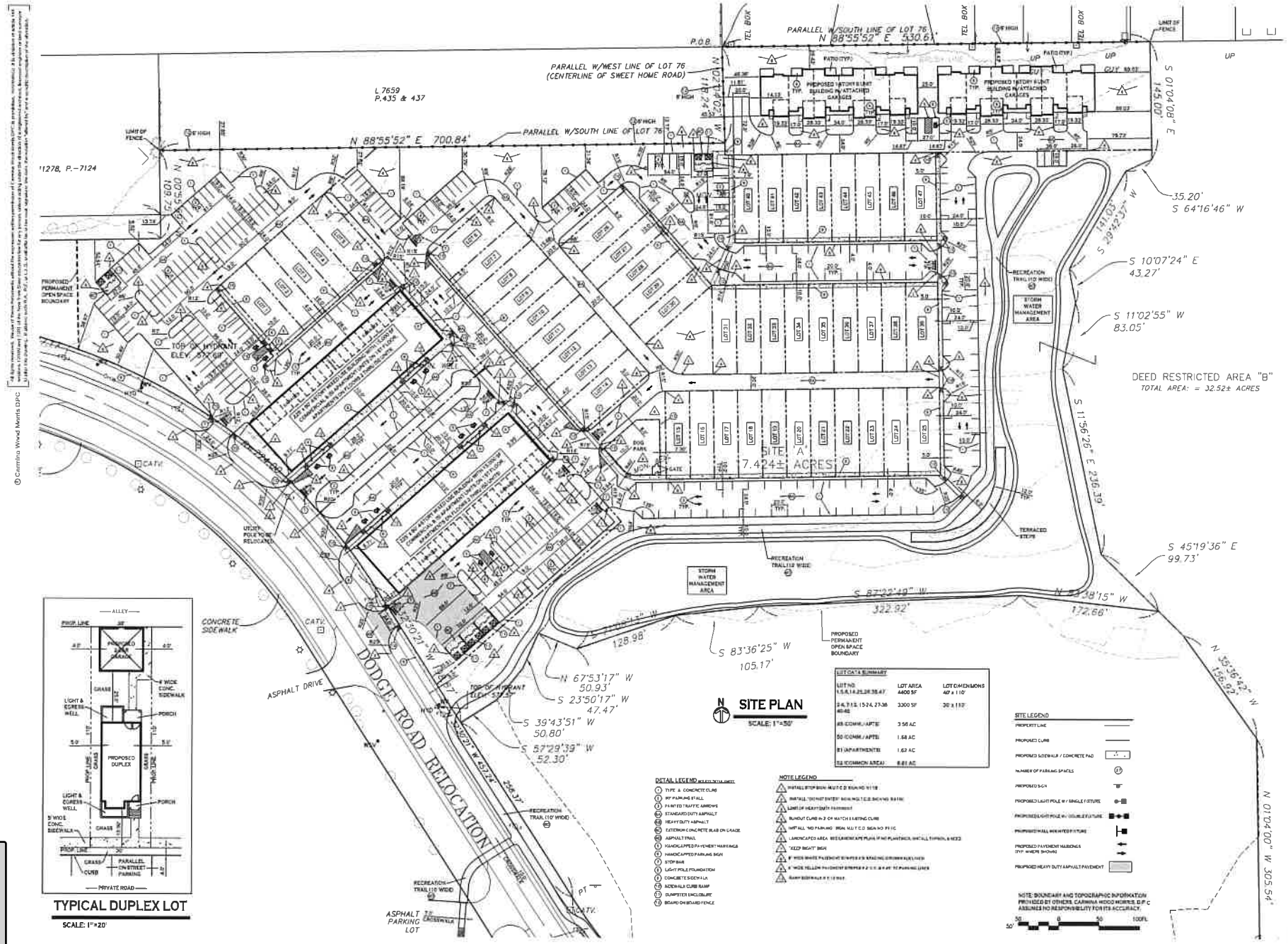
Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Overall Site Plan

DRAWING NO.
C-100

Project no.: 21.011

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



TYPICAL DUPLEX LOT
SCALE: 1"=20'

SITE PLAN
SCALE: 1"=50'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1-5, 8, 14, 21, 28, 35, 47	4400 SF	40' x 110'
6-7, 9-13, 15-24, 27-36, 48-46	3300 SF	30' x 110'
48 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.58 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	8.81 AC	

DETAIL LEGEND
1. TYPE 'A' CONCRETE CURB
2. 90° PARKING STALL
3. PAINTED TRAFFIC ARROWS
4. STANDARD DUTY ASPHALT
5. HEAVY DUTY ASPHALT
6. EXTERIOR CONCRETE SLAB ON GRADE
7. ASPHALT TRAIL
8. HANDICAPPED PAVEMENT MARKINGS
9. HANDICAPPED PARKING SIGN
10. STOP BAR
11. LIGHT POLE FOUNDATION
12. CONCRETE SIDEWALK
13. SIDEWALK CURB RAMP
14. DUMPSTER ENCLOSURE
15. BOARD ON BOARD FENCE

NOTE LEGEND

SITE LEGEND
PROPERTY LINE
PROPOSED CURB
PROPOSED SIDEWALK / CONCRETE PAD
NUMBER OF PARKING SPACES
PROPOSED SIGN
PROPOSED LIGHT POLE W/ SINGLE FIXTURE
PROPOSED LIGHT POLE W/ DOUBLE FIXTURE
PROPOSED WALL MOUNTED FIXTURE
PROPOSED PAVEMENT MARKINGS (TYP. WHERE SHOWN)
PROPOSED HEAVY DUTY ASPHALT PAVEMENT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50 0 50 100FT

© Carmina Wood Morris DPC

Carmina Wood Morris

487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.2185
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

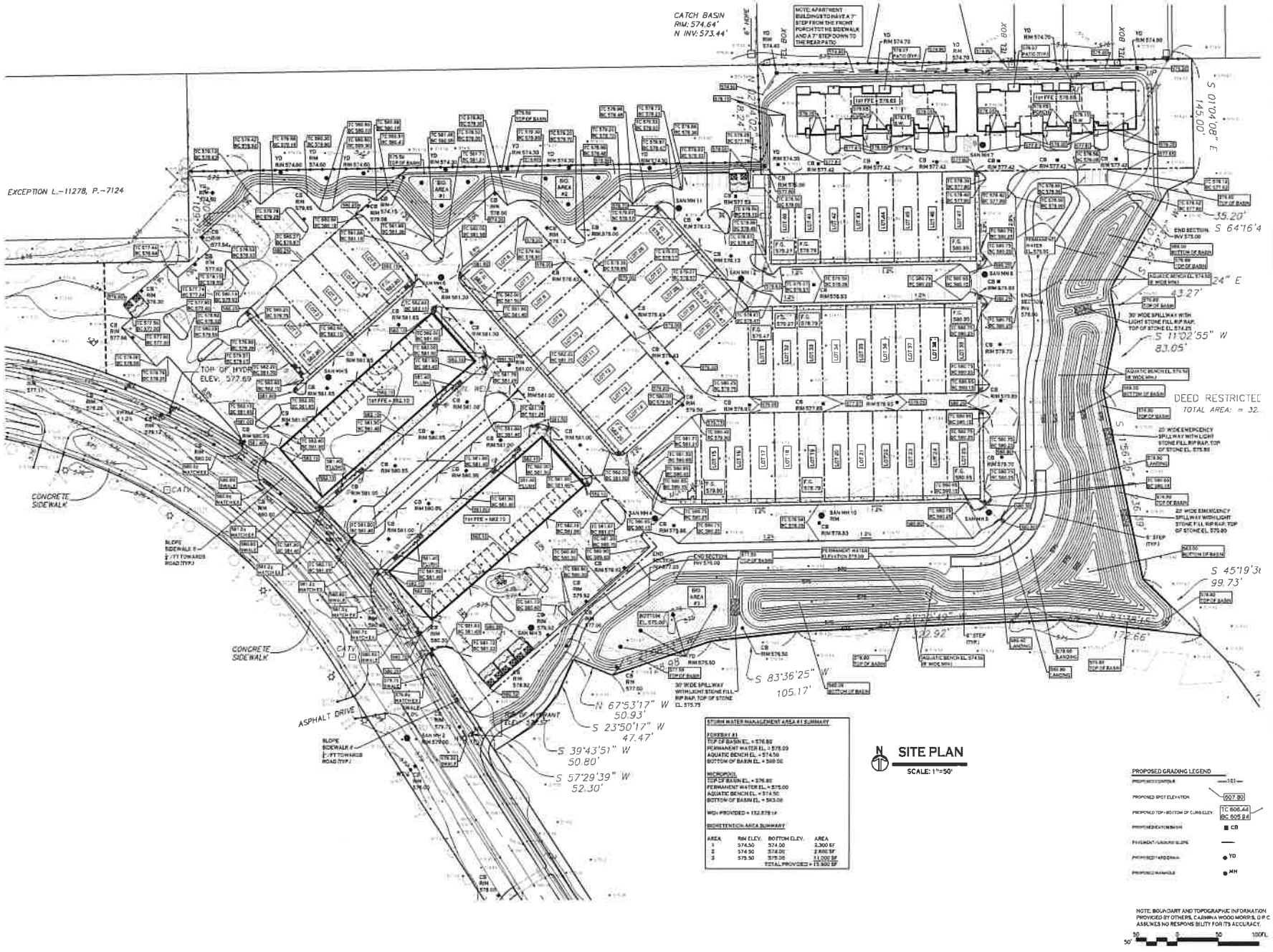
Date: 3/24/21
Drawn by: C. Wood
Scale: As Plotted

DRAWING NAME:
Site Plan

DRAWING NO.
C-101

Project no.: 21.01

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



Carmina Wood Morris
487 Main Street - Suite 500
Buffalo, New York 14203
P 716.842.3185
F 716.842.0961

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

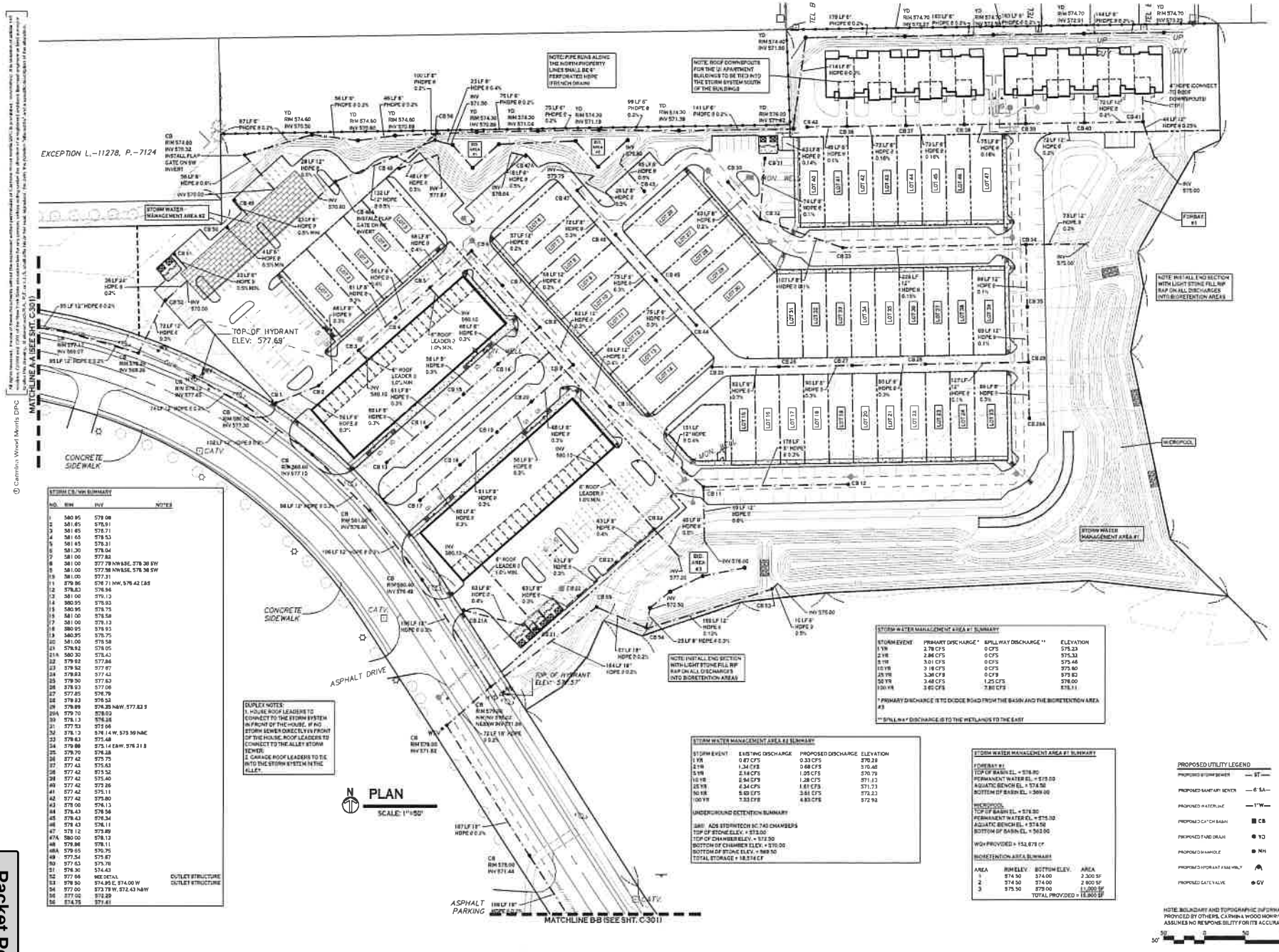
Date: 3/3/21
Drawn by: C. Wood
Scale: As noted

DRAWING NAME:
Grading Plan

DRAWING NO.
C-200

Project no.: 21.011

© Carmina Wood Morris, DPC



Carmina Wood Morris DPC

Carmina Wood Morris DPC
487 Main Street - Suite 500
Buffalo, New York 14203
P 716.842.3186
F 716.842.0761

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

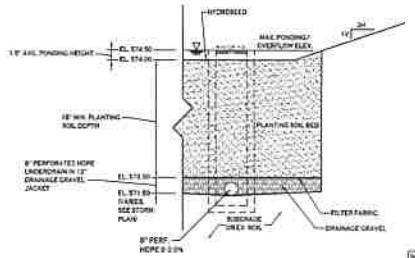
DRAWING NAME:
Storm Drainage Plan

DRAWING NO.
C-300

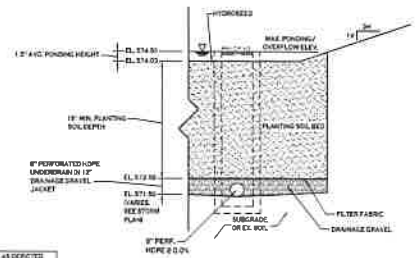
Project no.: 21.011

Packet Pg. 322

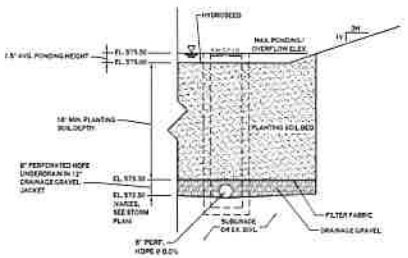
1.a



BIORETENTION AREA #1



BIORETENTION AREA #2



BIORETENTION AREA #3

NOTE: AS DEPICTED TYPICAL ON ALL BIORETENTION AREAS, PROPOSED GRADE IN BIORETENTION AREAS IS SET 6" ABOVE EXISTING GRADE ELEVATIONS ARE TO BE SET 6" ABOVE PROPOSED GRADE IN BIORETENTION AREAS.

BIORETENTION AREA - TYPICAL SECTIONS

NOT TO SCALE

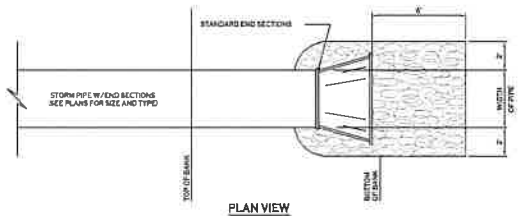
NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 140 N OR APPROVED EQUIVALENT.
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43, NO. 57, SIZE 0.25" TO 0.75".
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 55% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR SL WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

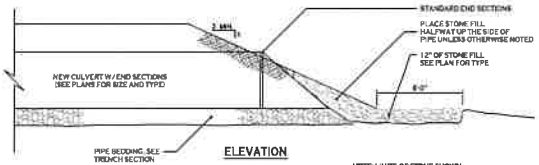
CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHERUS: 75 LBS PER ACRE MIN
POTASSIUM: 85 LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CREEPING BENTGRASS	AGROSTIS STOLONIFERA	33.0
TUFTED HAIRGRASS	POA TRIVIALIS	17.0
MEADOW FOXTAIL	ALOPECURUS PRATENSIS	11.0
SWAMP TIMOTHY	MUHLENBERGIA	4.5
DEERTONGUE	PANICUM CLANDESTINUM	4.5



PLAN VIEW

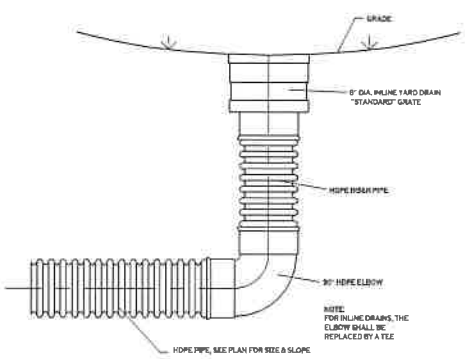


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS. PLAN MAY INDICATE GREATER LIMITS

TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

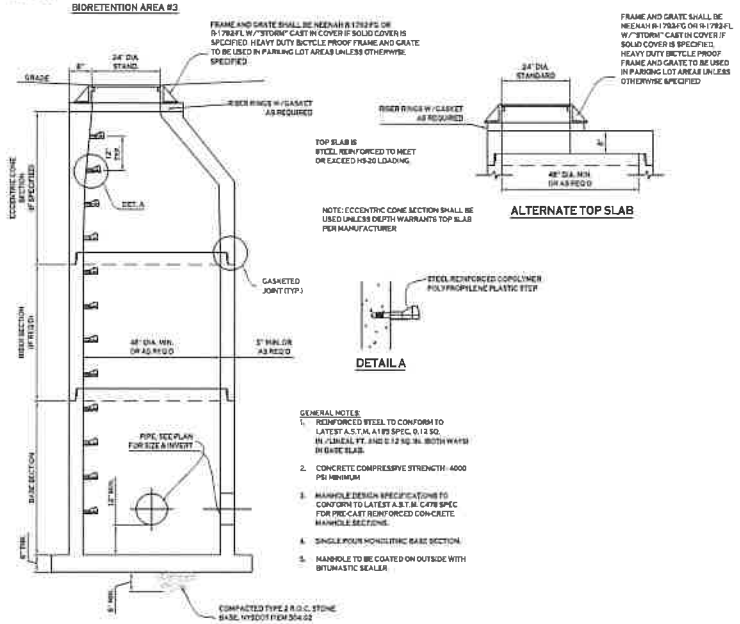
NOT TO SCALE



NOTE: FOR INLINE DRAINS, THE ELBOW SHALL BE REPLACED BY A TEE

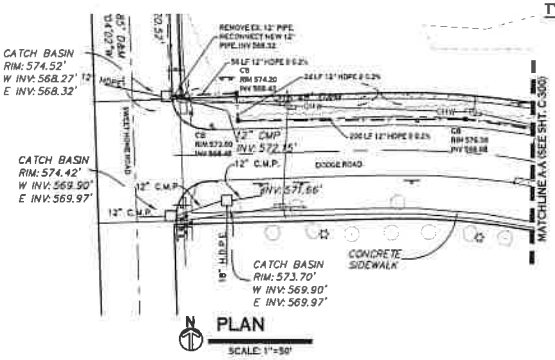
NOTE: SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



TYPICAL STORM MANHOLE DETAIL

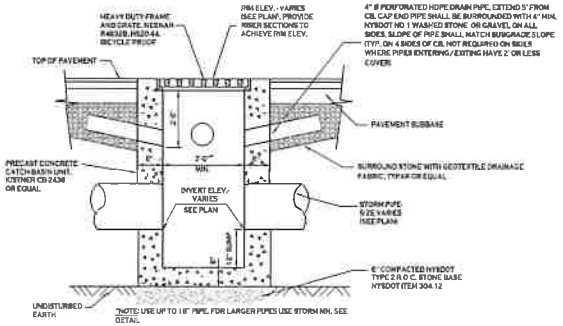
NOT TO SCALE



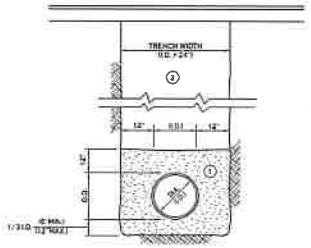
N PLAN

SCALE: 1"=50'





TYPICAL PRECAST CATCH BASIN
NOT TO SCALE



NOTES:
A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.
C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.
D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT | 1995 EDITION)

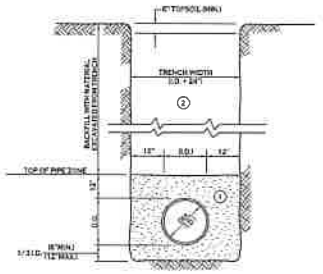
1. NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703.02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

2. TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYDOT SECTION 304.2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (2)

STORM SEWER TRENCH SECTION IN PAVED AREAS
NOT TO SCALE



NOTES:
A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.
C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.
D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

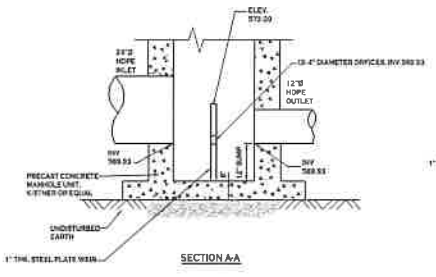
PIPE BEDDING MATERIAL (NYSDOT | 1995 EDITION)

1. NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703.02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

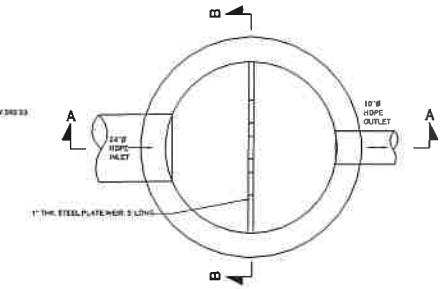
2. BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 6" LIFTS.

STORM SEWER TRENCH SECTION IN UNPAVED AREAS
NOT TO SCALE



SECTION A-A

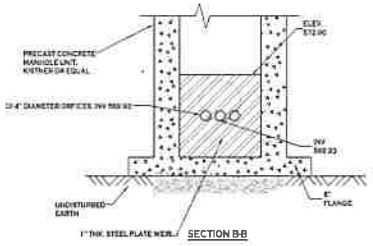
NOTES:
1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED



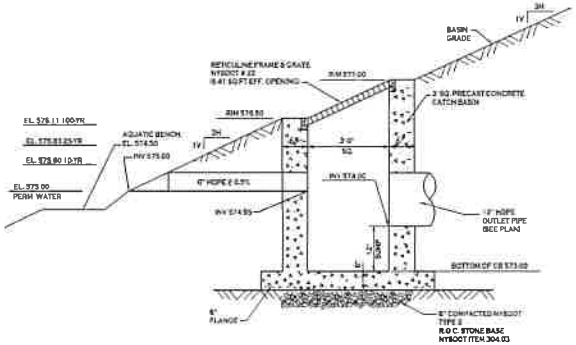
PLAN

*NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52
NOT TO SCALE



SECTION B-B



DETENTION BASIN OUTLET STRUCTURE - CB 53
N.T.S.

© Carmina Wood Morris DPC

Carmina Wood Morris DPC

444 Main Street, Suite 300
Buffalo, New York 14203
P: 716.842.1085
F: 716.842.0287

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

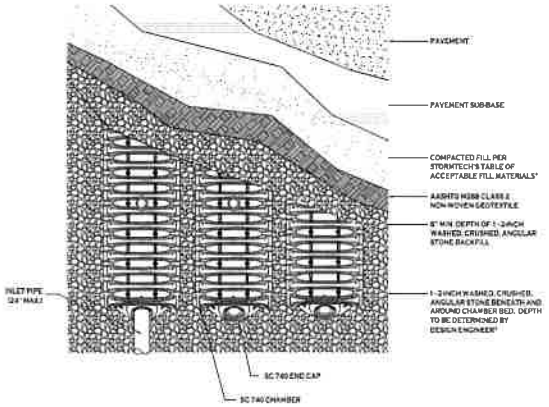
DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-302

Project no.: 21,011

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC



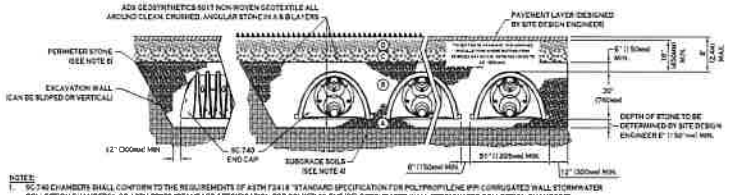
STORMTECH SC-740 CHAMBER SYSTEM PLAN VIEW DETAIL

NOT TO SCALE

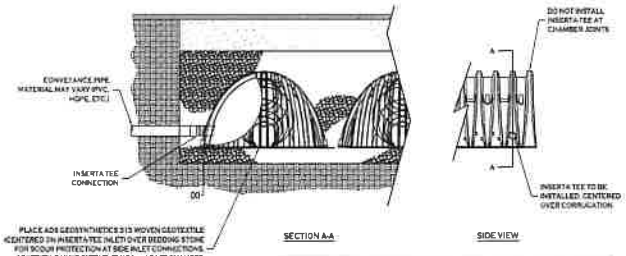
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1]: A-1, A-2-4, A-3 OR AASHTO M43[1]: 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,500 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1]: 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1]: 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[4]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43 STONE)".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION



NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)

INSERTA TEE FITTINGS AVAILABLE FOR SOR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON

INSERTA TEE DETAIL

NOT TO SCALE

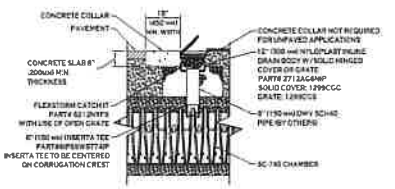
INSPECTION AND MAINTENANCE
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
A. INSPECTION PORTS (IF PRESENT)
A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
B. ALL ISOLATOR ROWS
B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
○ MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
○ FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 rad) OR MORE IS PREFERRED
B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

Carmina Wood Morris
487 Main Street Suite 500
Buffalo, New York 14203
P: 716.842.3180
F: 716.842.0293

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

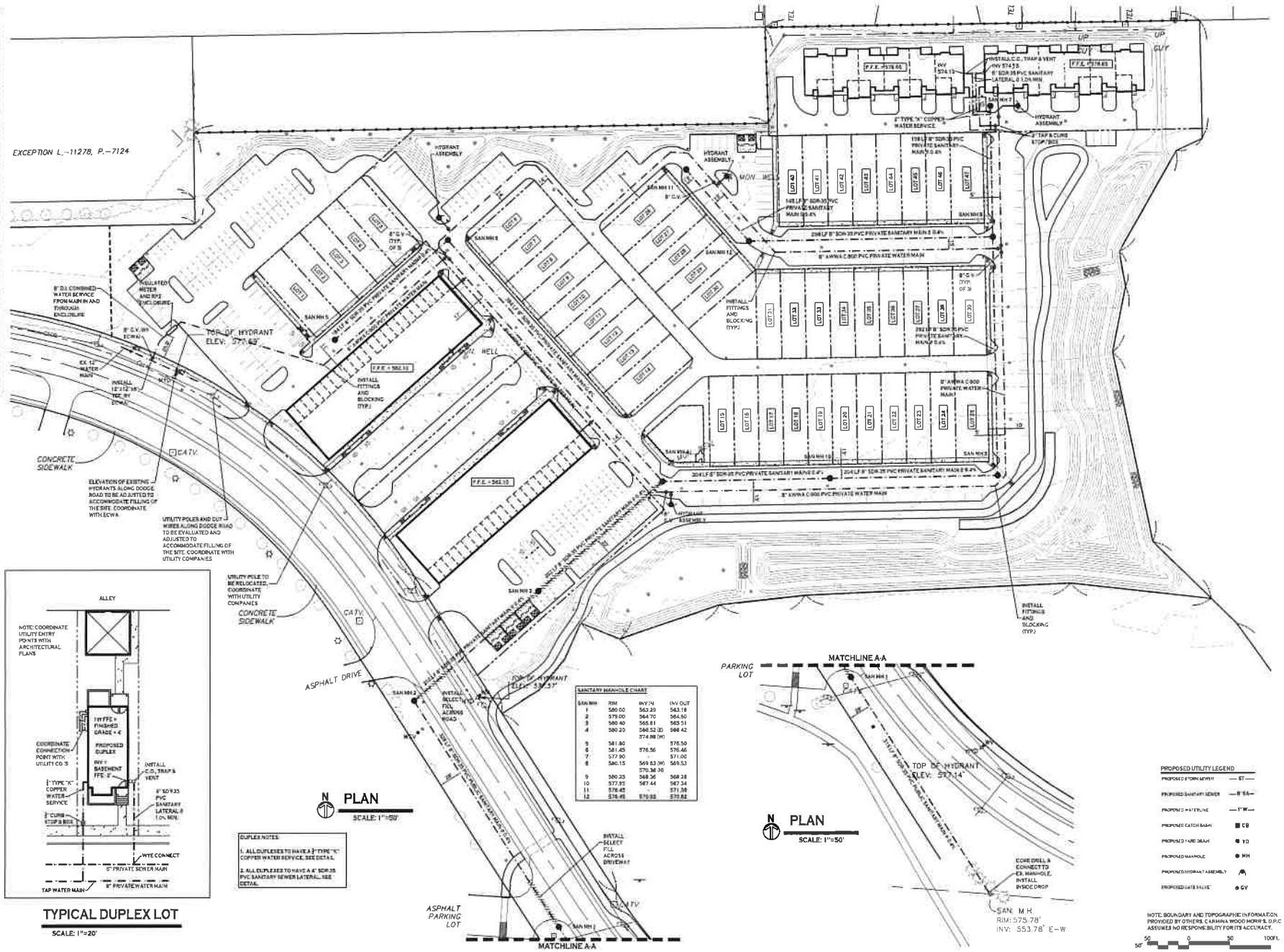
Date: 2/15/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-303

Project no: 21,011

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



© Carmina Wood Morris DPC

Carmina Wood Morris DPC

REVISIONS:
No. Description Date

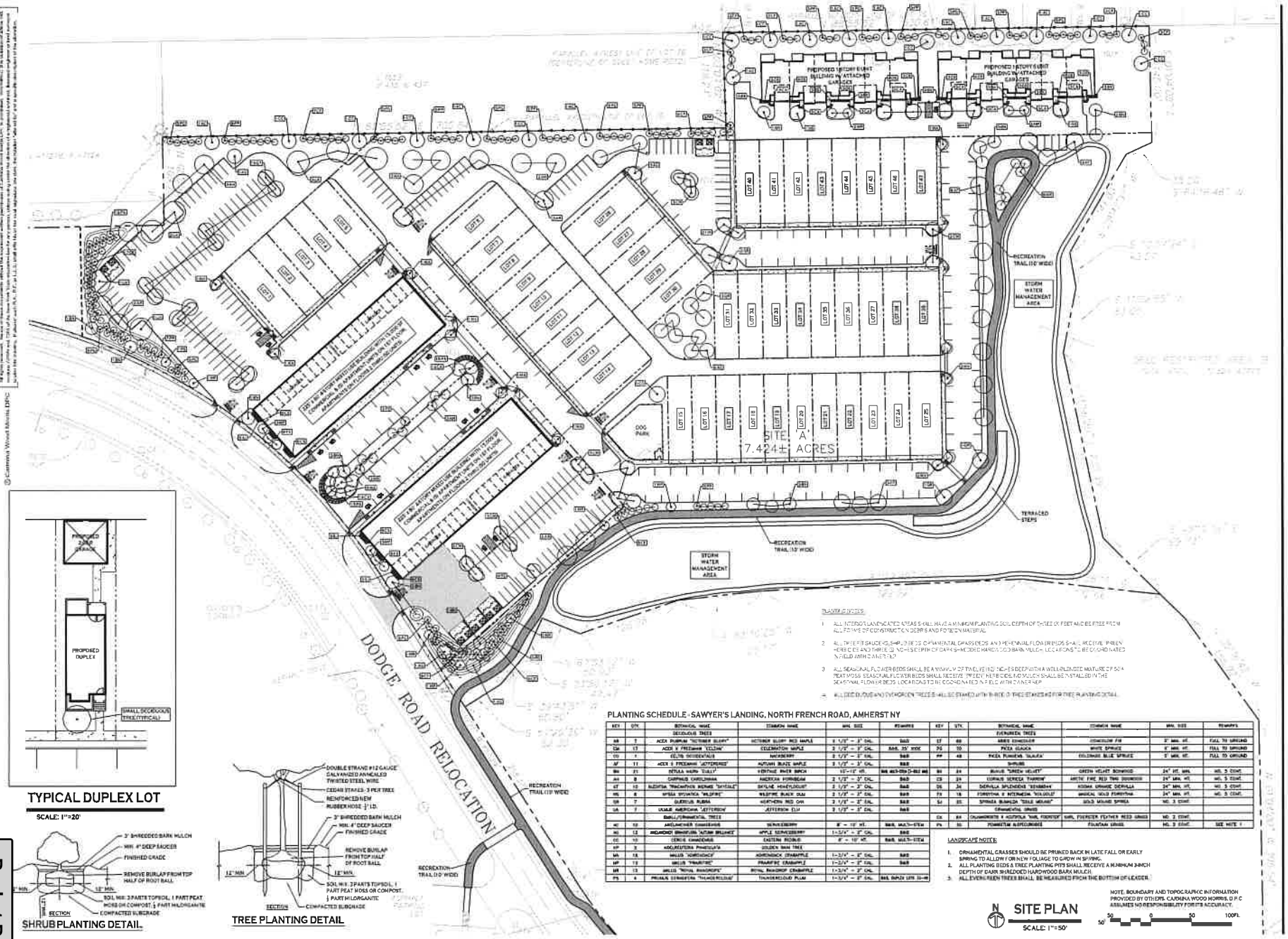
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Utility Plan

DRAWING NO.
C-400

Project no.: 21,011



PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PITS AND SHRUB BEDS, ORNAMENTAL GRASS BEDS AND PERENNIAL FLOWER BEDS SHALL RECEIVE PRE-EMERGENT HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE CLEARLY DELINEATED IN FIELD WITH CAMERON.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE PRE-EMERGENT HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH CAMERON.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AND FOR TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X FREEMANII 'CELZAM'	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII 'AUTUMN BLAZE'	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA 'DURA-1'	HERITAGE RIVER BIRCH	10'-12' HT.	B&B, MULTI-STEM
AA	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	10	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
WS	8	MYRICA SYRIANICA 'WILDFIRE'	WILDFIRE BLACK OLIVE	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		EARLY ORNAMENTAL TREES			
AC	12	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
MS	13	MALUS X 'SPRINZAM'	APPLE SERVICEBERRY	1-3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	18	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1-3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1-3/4" – 2" CAL.	B&B
MR	13	MALUS 'ROYAL RAINDROPS'	ROYAL RAINDROP CRABAPPLE	1-3/4" – 2" CAL.	
PS	4	PRUNUS SERRULATA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1-3/4" – 2" CAL.	B&B, SIMILAR LOTS 33-46
		EVERGREEN TREES			
AB	69	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	10	PICEA GLAUCA	WHITE SPRUCE	6' MIN. HT.	FULL TO GROUND
PP	48	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BM	24	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD	24" HT. MIN.	MO. 3 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	MO. 3 CONT.
DS	24	DIERVILLA SPLENDENS 'SEIBERT4'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	MO. 3 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'BOUCLE'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	MO. 3 CONT.
SJ	35	SPIRAEA JAPONICA 'GOLD MOUND'	GOLD MOUND SPIREA	MO. 3 CONT.	
		ORNAMENTAL GRASS			
CK	84	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	MO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	MO. 3 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR IT'S ACCURACY.

N SITE PLAN
SCALE: 1"=50'

50 0 50 100FT.

TYPICAL DUPLEX LOT
SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

Carmina Wood Morris DPC
487 Main Street - Suite 500
Buffalo, New York 14203
P 716.842.3181
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Landscape Plan

DRAWING NO.
L-100
Project no.: 21.011

© Carmina Wood Morris, DPC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix H

Soils Information

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Soil Map—Erie County, New York



Map Scale: 1:3,590 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 20, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2019—Oct 10, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ge	Getzville silt loam	27.2	87.5%
Ld	Lamson mucky very fine sandy loam	1.8	5.7%
Sw	Swormville clay loam	2.1	6.8%
Totals for Area of Interest		**31.1**	**100.0%**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix I

SHPO Information

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643

Bernadette Castro
Commissioner

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

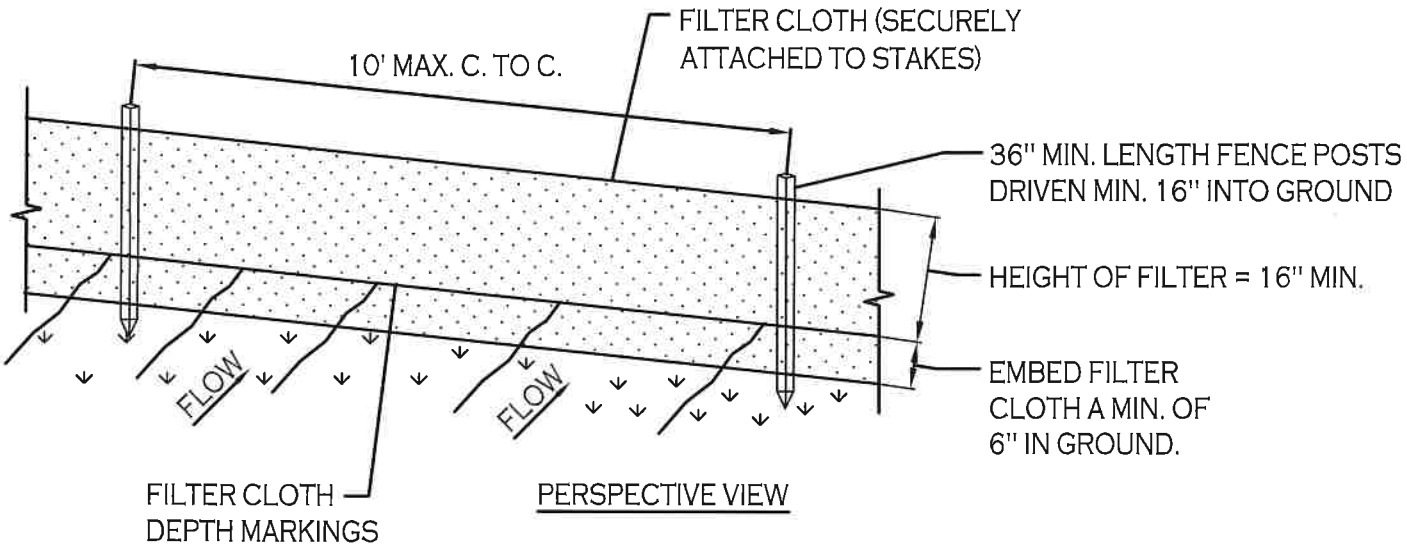
An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

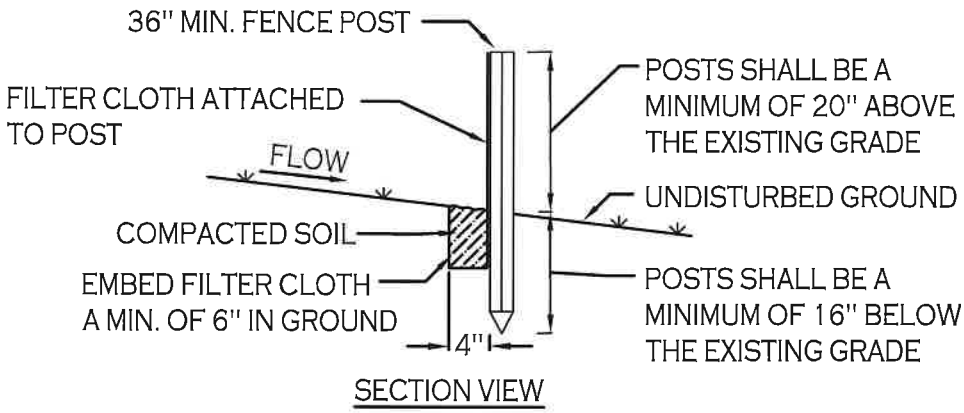
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix J

Standard Erosion Control Details

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)





CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.

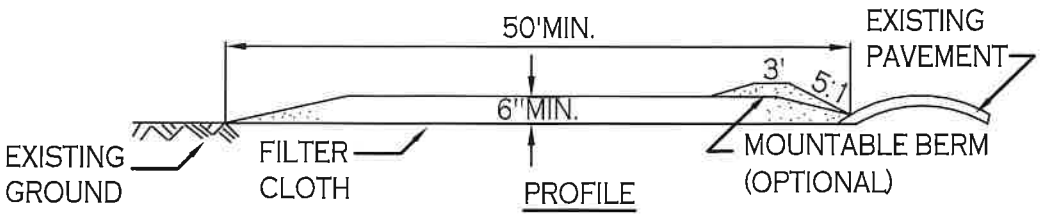
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.

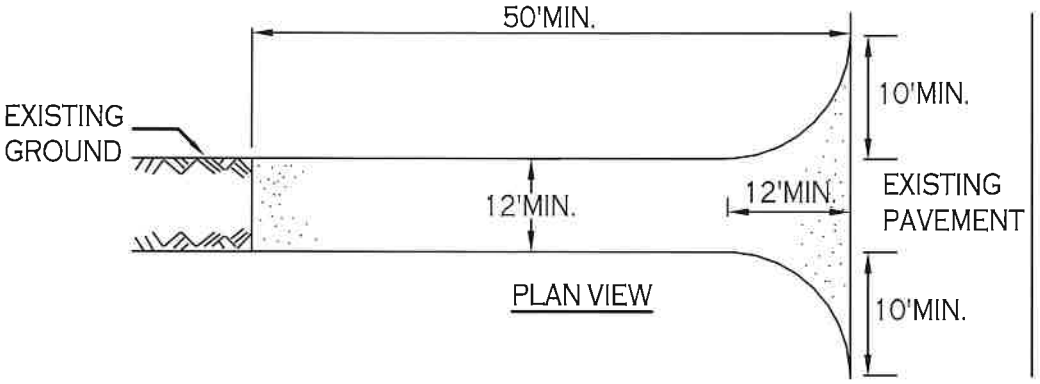
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)





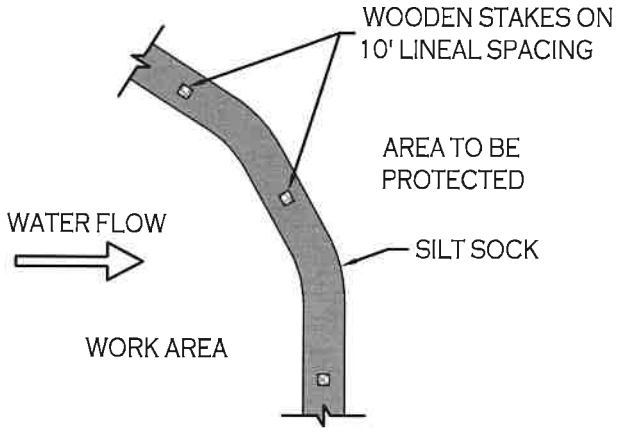
CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

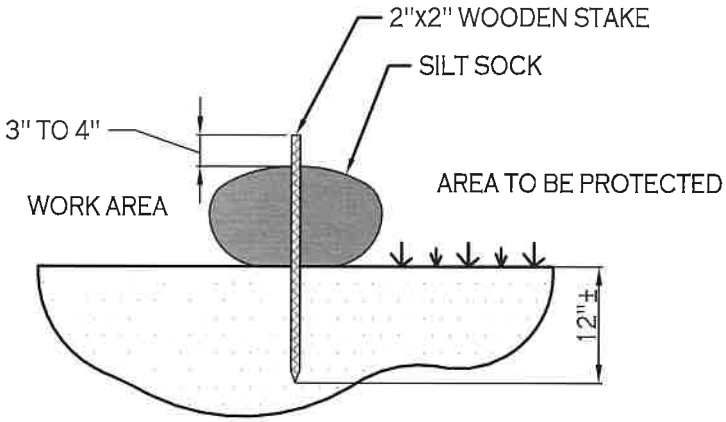
STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



PLAN VIEW



SECTION VIEW

NOTES:

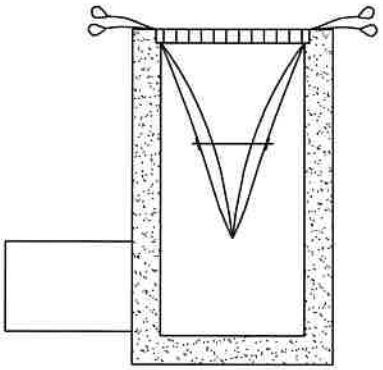
CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED $\frac{1}{2}$ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

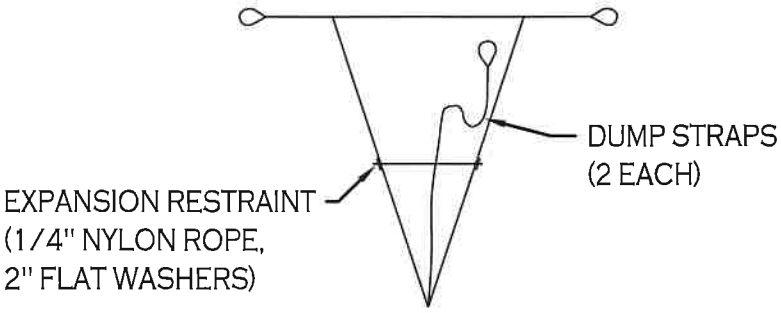
SILT SOCK DETAIL

NOT TO SCALE

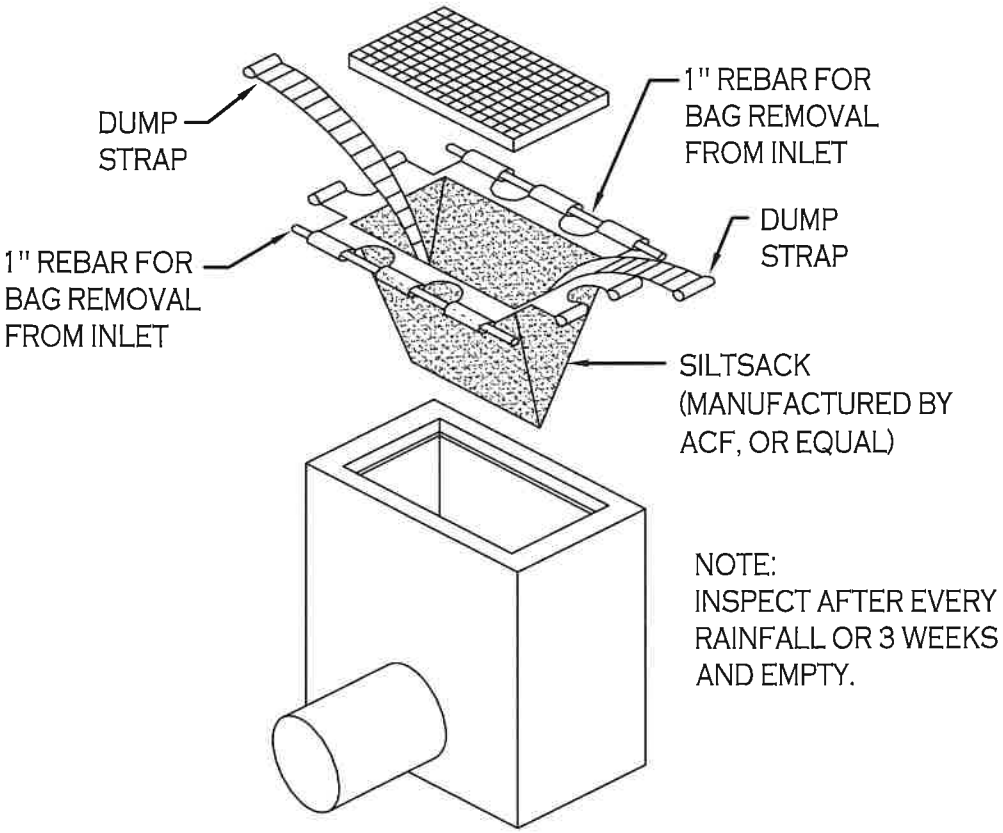
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



INSTALLATION DETAIL



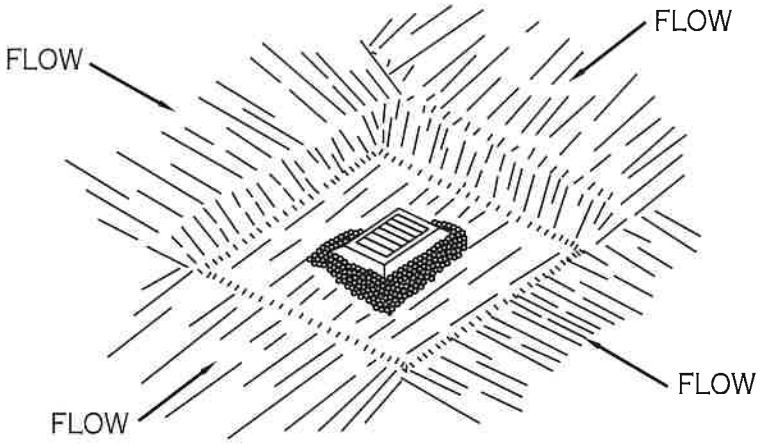
BAG DETAIL

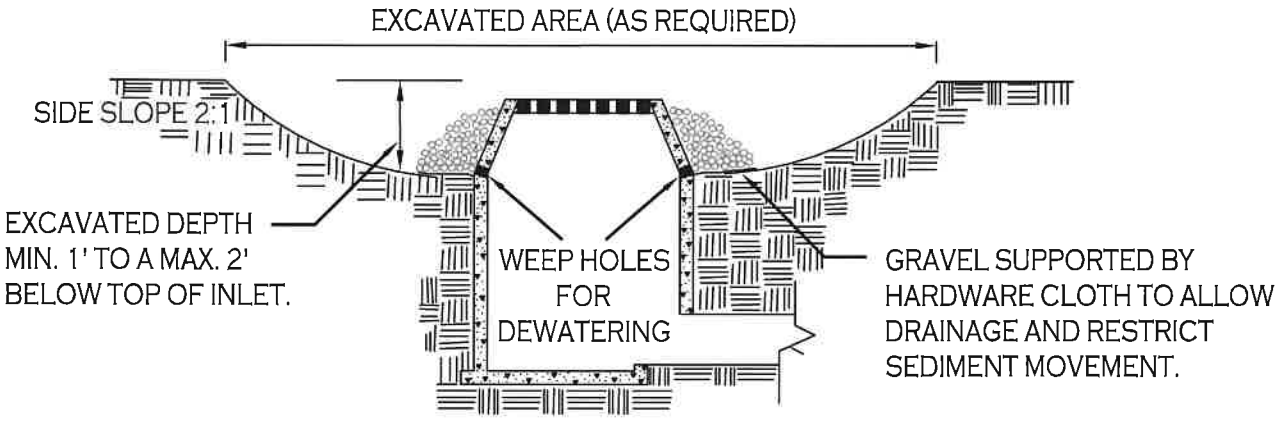


SILT SACK DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)





CONSTRUCTION SPECIFICATIONS

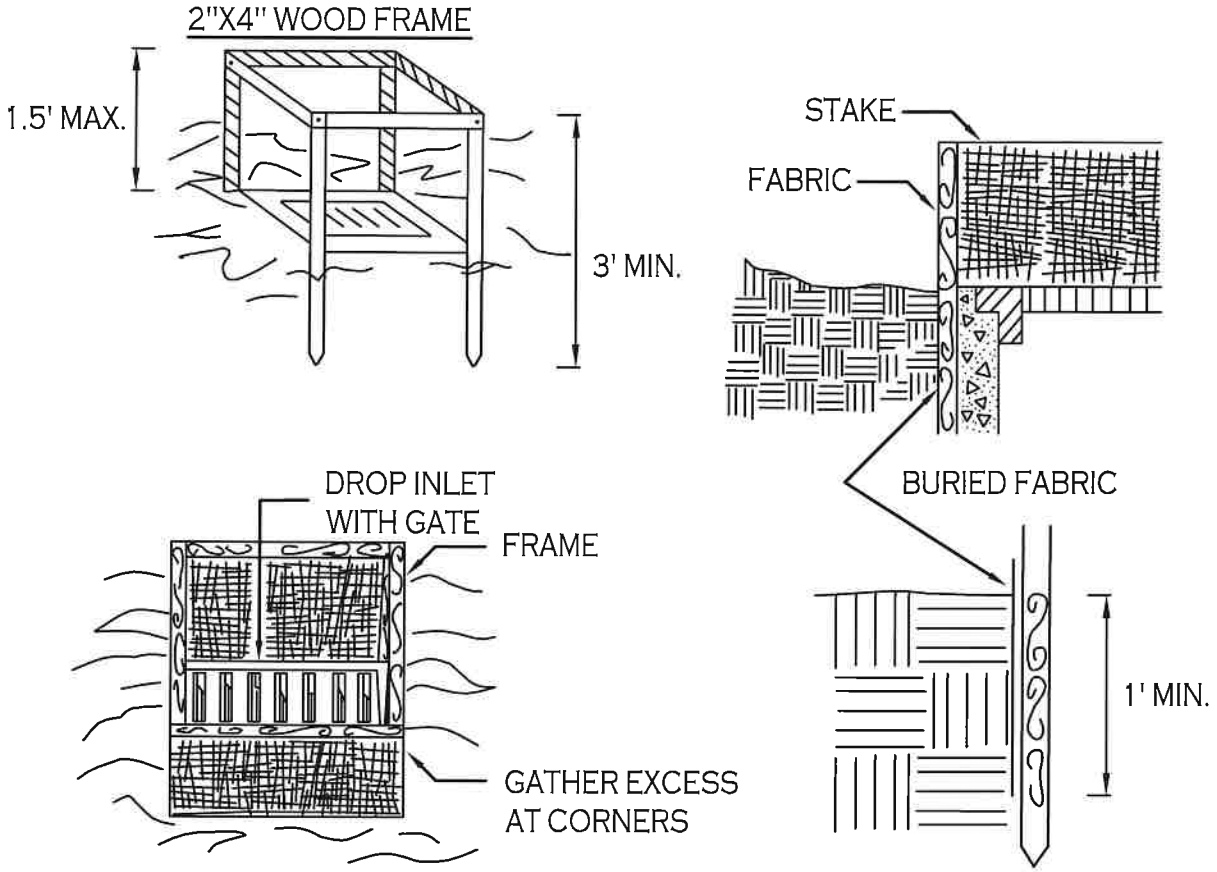
1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.

2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.

3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.

4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.

5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.

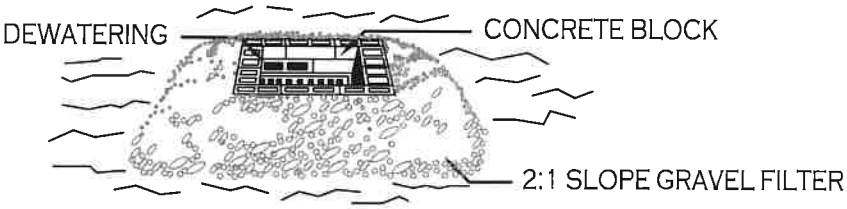
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

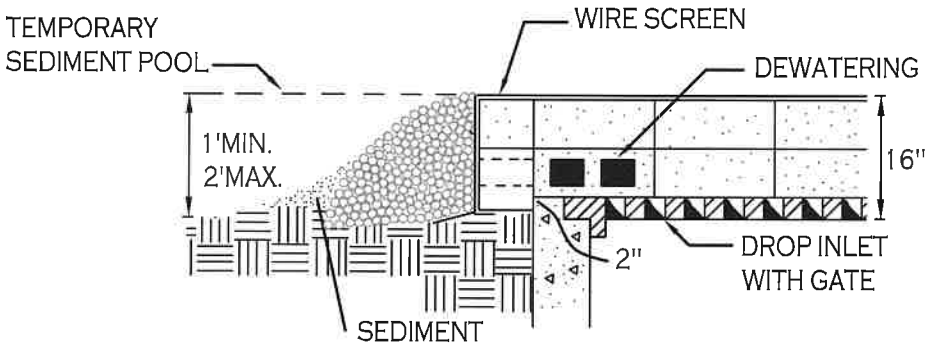
INLET PROTECTION DETAIL 2

NOT TO SCALE

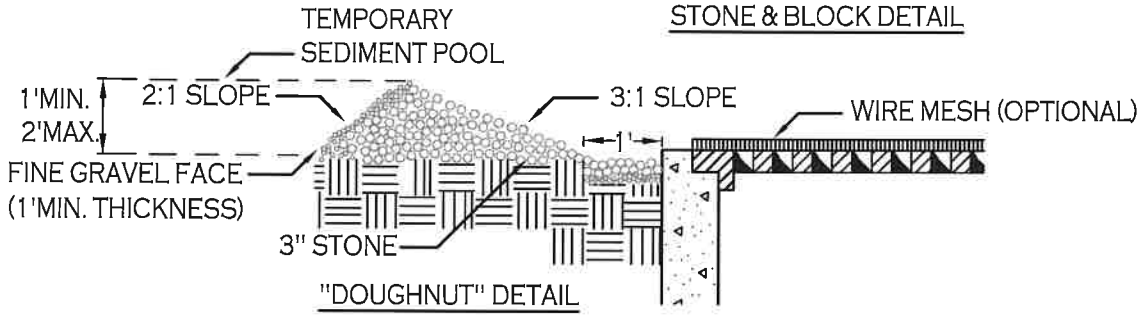
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



STONE & BLOCK PLAN VIEW



STONE & BLOCK DETAIL



"DOUGHNUT" DETAIL

CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.

2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.

3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.

4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

NOT TO SCALE

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix K

Wetland Permits

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7165 I F: (716) 851-7168
www.dec.ny.gov

December 24, 2020

Mr. Adam Faeth
Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Muir Woods Development – "Site A"
Permit Transmittal Letter
Permit No. 9-1422-00398/00001

Dear Mr. Faeth:

Enclosed is your permit which was issued in accordance with applicable provisions of the Environmental Conservation Law. The permit is valid for only that project, activity or operation expressly authorized. If modifications are desired after permit issuance, you must submit the proposed revisions and receive written approval from the Permit Administrator prior to initiating any change. If the Department determines that the modification represents a material change in the scope of the authorized project, activity, operation or permit conditions, you will be required to submit a new application for permit.

Please review all permit conditions carefully. In particular, identify your initial responsibilities under this permit in order to assure timely action if required. Since failure to comply precisely with permit conditions may be treated as a violation of the environmental conservation law, you are requested to provide a copy of the permit to the project contractor, facility operator, and other persons directly responsible for permit implementation (if any).

If you have any questions, please contact this office at the above address.

Respectfully,
David S. Denk
Regional Permit Administrator

Enclosure
ecc: NYSDEC Law Enforcement
Maureen Brady, NYSDEC Office of General Counsel
Mr. Chuck Rosenburg, NYSDEC Division of Fish and Wildlife
Mr. Martin Crossen, USACOE
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

February 25, 2021

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Mr. Adam Faeth
Development Manager
Ciminelli Muir Woods LLC
350 Essjay Road Suite 101
Williamsville, NY 14221

Dear Mr. Faeth:

This is in reply to your submittal dated July 20, 2020 in which you requested a modification of Department of the Army Permit No. LRB-2001-00067. The project is located on a 326-acre parcel in the Town of Amherst, Erie County, New York. Specifically, you seek authorization to change the proposed use of an area identified as Site A from research and development and flex office space to a mixed-use commercial and residential development. This includes two 4-story mixed-use buildings, two-family townhouses, 6-unit apartment buildings, and a recreational trail to connect Site A with Site B. Wetland impacts have been reduced from 13.01 acres to 6.089 acres in Site A. A reduction of 6.921 acres. In addition, because of the reconfigured project including the significant reduction of wetland impacts, you have requested that the requirement of off-site compensatory mitigation be removed. Lastly, you have requested that 134 acres of the overall Muir Woods site located northeast of Site B, is donated to the Town of Amherst. This area will remain as open space in perpetuity. Permit compliance with mitigation requirements will remain as it currently is on the 134-acre site as a responsibility of Ciminelli Muir Woods LLC.

A Public Notice was published and coordinated with agencies and adjacent property owners using standard procedures. No comments were received as a result of the Public Notice. Based upon our evaluation, I concluded your request will not result in any unacceptable environmental or navigational impacts. Therefore, I am modifying Department of the Army permit No. LRB-2001-00067 to reflect the changes outlined in your request and identified on the attached drawings. All other terms and conditions of Permit No. LRB-2001-00067 remain in full force and effect.

Sheets 1, 2, and 3 of 3 are hereby made part of Permit No. LRB-2001-00067. Sheet 1 of 3 of this modification is an update to Sheets 2, 3, and 5 of 6 of the original permit. Sheet 2 and 3 of 3 of this modification are updates to Sheet 5 of 6 of the original permit. In addition, the following Special Conditions No. 6 and 8 of Permit No. LRB-2001-00067 are modified so that they no

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

longer include the requirement of off-site compensatory mitigation, as indicated below with the original and the following modified condition:

1. Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 17.83 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site, and 27.37 acres of wetland off-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site and off-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

   Modified Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 10.91 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

2. Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan, and the Proposed Off-Site Wetland Mitigation Plan dated November 16, 2009. The stated mitigation plans are hereby incorporated into and made part of the permit as Attachments 1 and 2. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

   Modified Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan dated November 16, 2009. The stated on-site mitigation plan is hereby incorporated into and made part of the permit as Attachments 1. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Questions pertaining to this matter should be directed to Martin Crosson at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207 or by E-mail at: martin.h.crosson@usace.army.mil

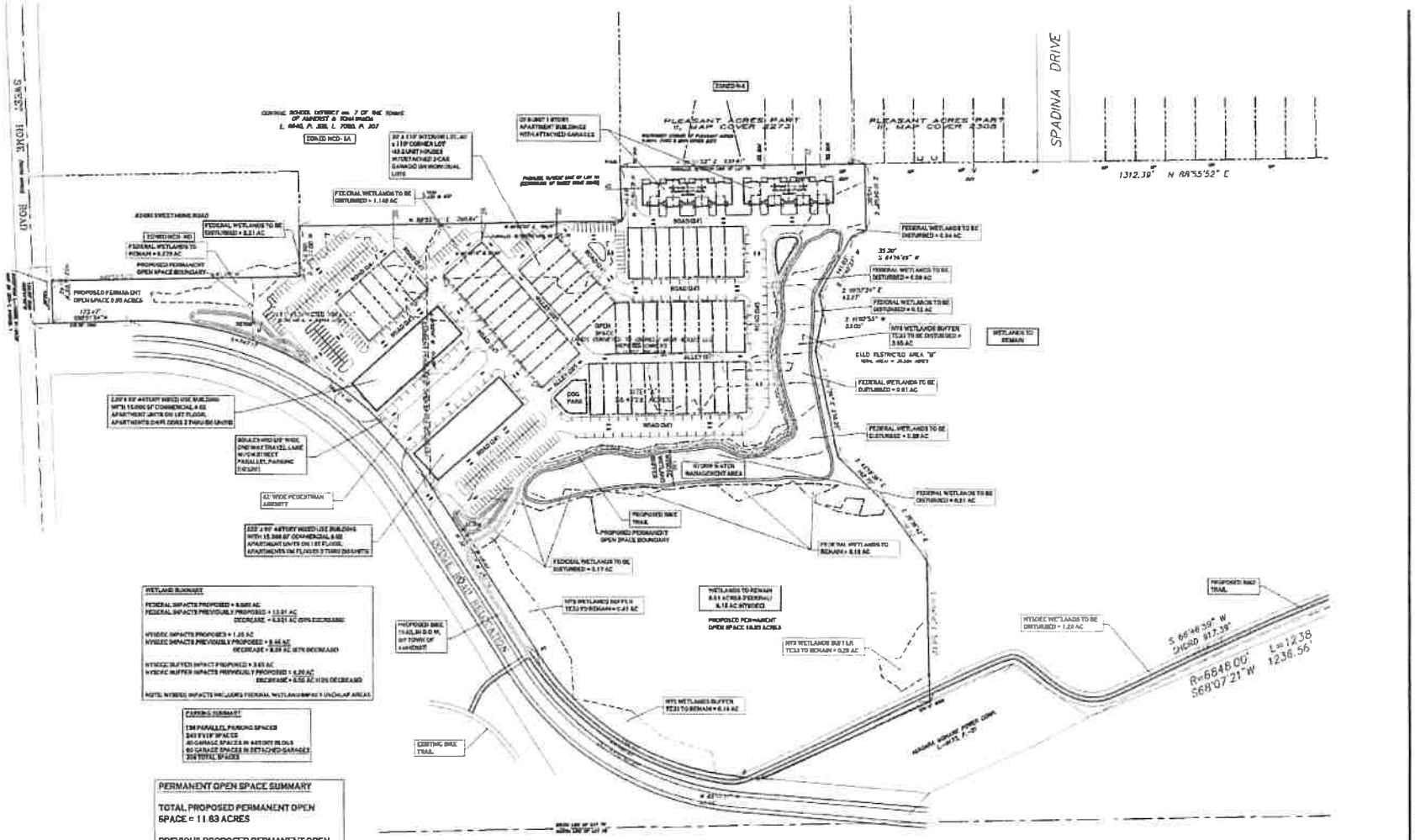
BY AUTHORITY OF THE SECRETARY OF THE ARMY

Steven V. Metivier

For: Mark Scalabrino
Acting Chief, Regulatory Branch

Enclosures

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



N SITE PLAN
SCALE: 1"=100'

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 1 of 3

Camina Wood Morris

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 1/1/20
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Concept Site Plan

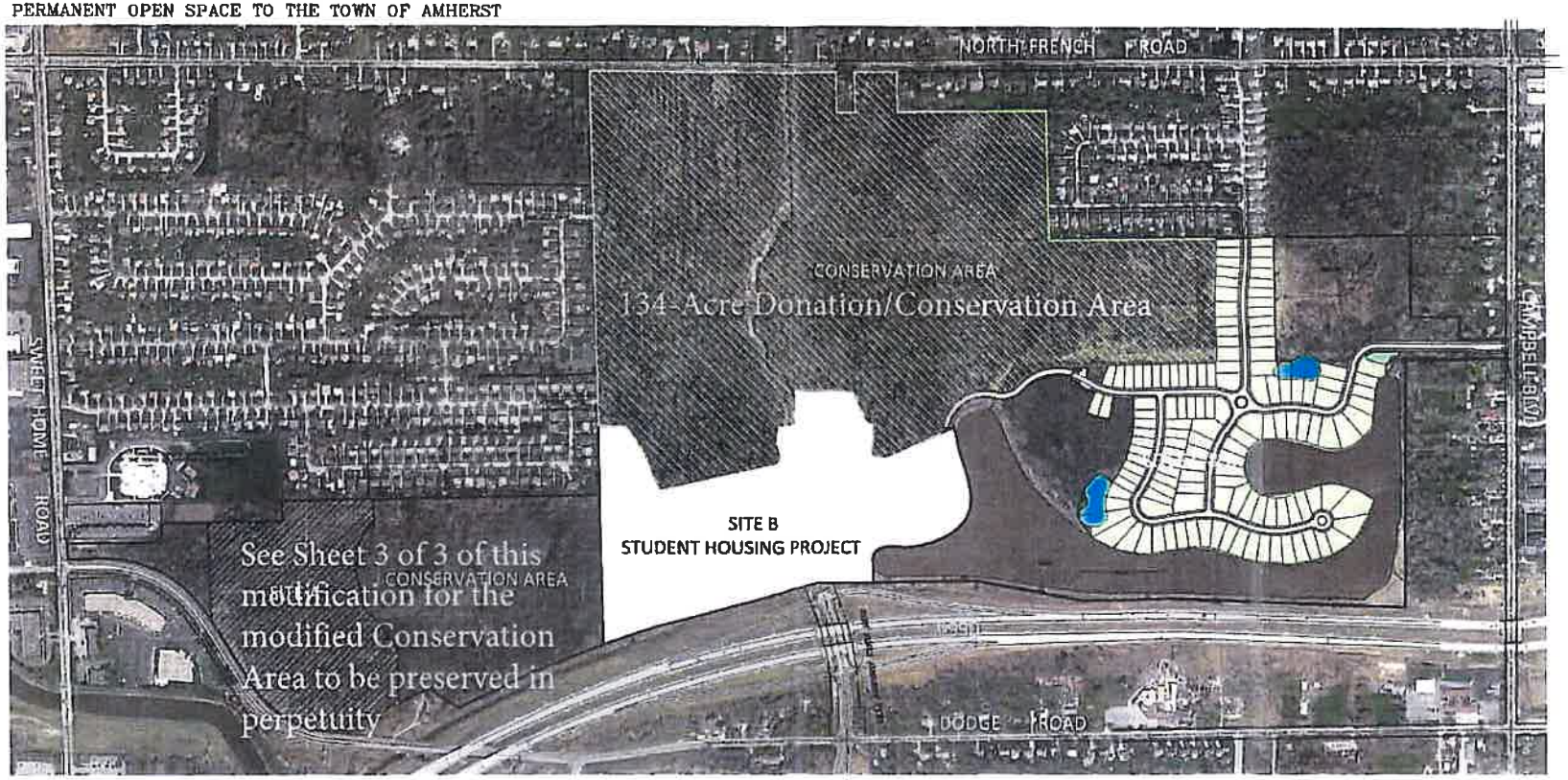
DRAWING NO.
C-100
Project no.: 19.192

© Camina Wood Morris D.P.C.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

MUIR WOODS OVERALL PROJECT AREA

PROPOSED DONATION OF APPROXIMATELY 134 ACRES OF PERMANENT OPEN SPACE TO THE TOWN OF AMHERST

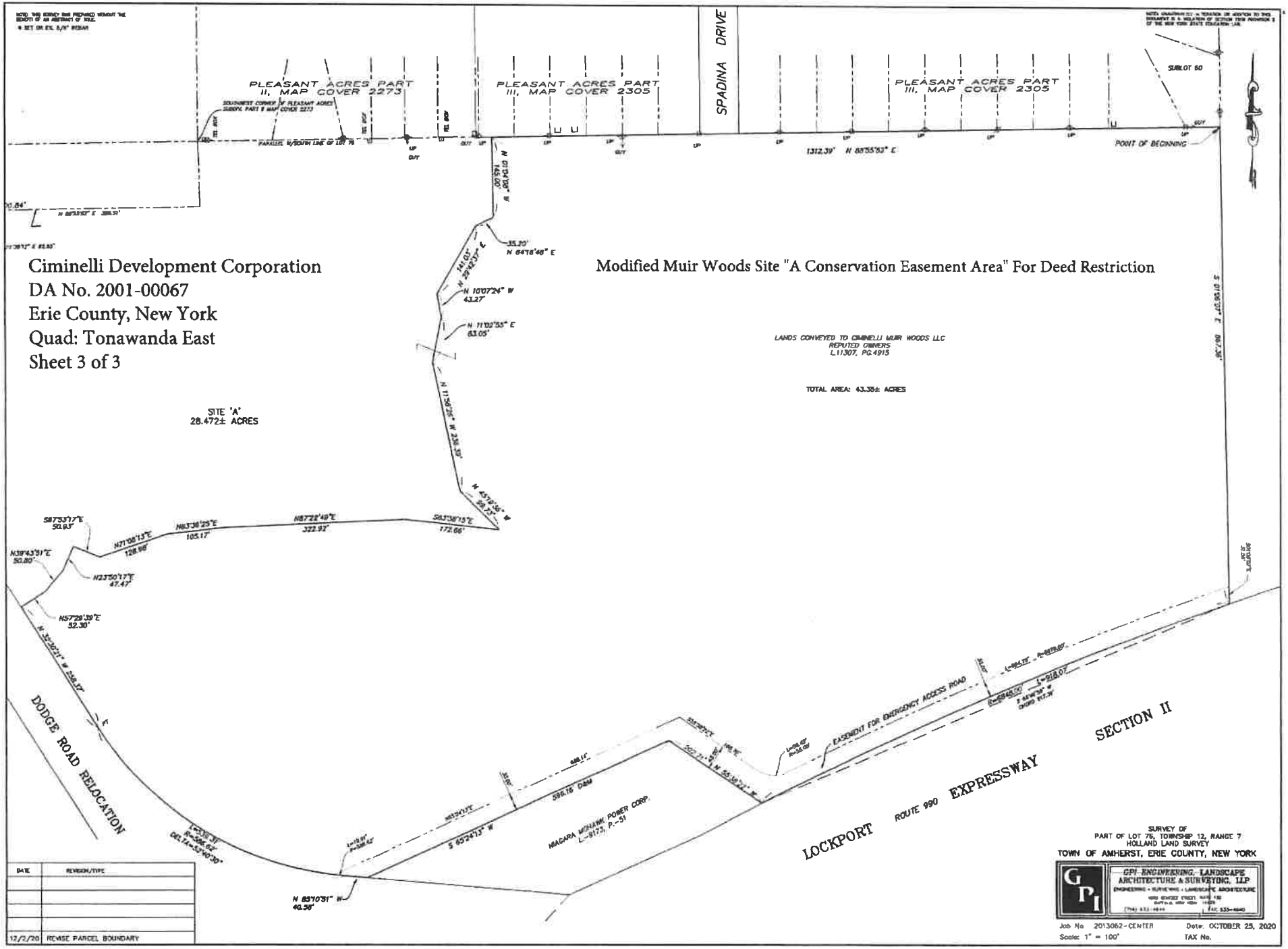


CONSERVATION AREA TO BE DONATED

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 2 of 3

GPI

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix L

NYSDEC Letter of Acknowledgement

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix M

5 Acre Disturbance Letter

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

March 4, 2021

Vaishali Reberholt, PE, CPESC
Town of Amherst Engineering Department
1100 North Forest Road
Amherst, NY 14221

Re: **Sawyer's Landing**
Amherst, NY

Dear Vaishali:

This letter shall serve as our request to have a total of 5 acres disturbed at one time at the above site. Per the NYSDEC General Permit, our site inspections will increase to 2 times per week when 5 acres is reached and will continue until the time the total disturbance is under 5 acres.

If you have any questions regarding the above, please feel free to contact me at 842-3165 [Ext 103] or via e-mail at cwood@cwm-ae.com.

Sincerely,
Carmina Wood Morris, D.P.C.

Christopher Wood, PE

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix N

Engineer's Report

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

ENGINEER'S REPORT

for

Sawyer's Landing

Dodge & Sweet Home Road
Town of Amherst, Erie County, New York

Prepared for

Sawyer's Landing LLC

c/o Severyn Development
43 Central Ave Suite #300
Lancaster, NY 14086

Prepared by

Carmina Wood Morris, D.P.C.

487 Main Street, Suite 500
Buffalo, NY 14203

Telephone: (716) 842-3165
Fax: (716) 842-0263

February 2021



Table of Contents

Written Engineer's Report

Section 1 - Location & Description
Section 2 - Water Service
Section 3 - Sanitary Sewer Service
Section 4 - Storm Sewer Service

Appendices

Appendix A Sanitary Sewer and Water Demand Calculations

Appendix B Storm Sewer System Drainage Calculations

- Existing Runoff
- Proposed Runoff – East
- Proposed Runoff - West
- Green Infrastructure & Water Quality Calculations

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Section 1 - Location & Description

This project is a development of a 17.4 acre site located on the north side of Dodge Road, west of Sweet Home Road in the Town of Amherst. Both Dodge Road and Sweet Home Road are Erie County roads. Proposed is the construction of a mixed use development to include (2) 4-story buildings with a total of 30,000 sf of commercial and 100 apartments, (47) duplex lots and (2) 1-story apartment buildings with a total of 12 units. A bike trail will be constructed on site, this trail will connect to the existing Town of Amherst bike trail on the south side of Dodge Road. The approximately 1 acre westerly portion will remain undisturbed and be deed restricted as permanent open space. The site is currently undeveloped consisting of woods and overgrown brush/grass. NYSDEC and Federal wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The proposed site development area to be disturbed for this project is approximately 16.4 acres.

Section 2 - Water Service

A new 8" D.I. combined service will be tapped off the existing 24" D.I.P. ECWA water main along the north side of Dodge Road. Following the tap, the 8" D.I. service will continue north into the site where it will enter into a Hot-Box enclosure. Within the Hot-Box enclosure an 8" meter (by ECWA) and an 8" Watts 957 RPZ will be installed. The service will exit the Hot-Box enclosure and then transition into 8" AWWA C-900 PVC. The service will run throughout the site to provide both domestic and fire service to the proposed buildings. Heat & light for testing will be provided in the area of the meter & RPZ to prevent freezing. Drainage due to testing or failure will be to the exterior through a drain, drainage will be away from the enclosure. The owner will be responsible for keeping the drainage ports clear of snow and debris. A total of 4 (four) proposed fire hydrants shall be installed around the site to provide fire protection coverage. There are no existing water services to this site, and therefor none to be killed/abandoned per ECWA requirements.

Domestic Summary:

Peak Operating Demand:	140.6 gpm
Water Main:	24" on Dodge Road
Static Pressure:	105 psi (per ECWA, 98 psi residual)
Friction Loss:	0.0 psi
Loss through meter/RPZ:	13.0 psi
Elevation Loss:	0.0 psi
Pressure after RPZ & Meter:	92 psi
Pressure at 4th floor:	77 psi

Repairs to all devices will be made during off hours, dual backflow preventers are not required. The site is not located in a 100-year flood plain. Disinfection of the

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

water service following installation will be continuous feed, according to AWWA C-651, latest revision.

Section 3 - Sanitary Sewer Service

The proposed sanitary sewer service will connect to the existing 60" sanitary sewer (peanut line) located on the south side of Dodge Road. In order to connect to this sewer, a public sewer extension along the south side of Dodge Road will be required. This public extension will consist of a total of 643 LF of 8" SDR-35 PVC at a minimum slope of 0.4%.

The proposed private on site sewer mains will consist of 8" SDR-35 PVC at a minimum slope of 0.4%. Each of the proposed commercial buildings and apartment buildings will have a 6" SDR-35 PVC sanitary sewer lateral at a minimum slope of 1.0% tied into the private main. The duplex units will have a 4" SDR-35 PVC sanitary sewer lateral at a minimum slope of 1.0% tied into the private main. The 8" private main will tie into the proposed public extension on the south side of Dodge Road across from the SE portion of the project site.

A downstream sanitary sewer capacity analysis (DSCA) is required to be prepared for the site given the flows will exceed 2,500 gpd. This report is included in Appendix A.

Design Parameters

Housing: use 110/gpd/bedroom
Q = 412 bedrooms x 110 gpd/bed = 45,320 gpd

Commercial: use 0.1 gpd/sf
Q = 20,000 sf x 0.1 gpd/sf = 2,000 gpd

use 15 gpd/employee
Q = 20 employees x 15 gpd/emp = 300 gpd

Restaurant: use 35 gpd/seat
Q = 100 seats x 35 gpd/seat = 3,500 gpd

Total = 51,120 gpd (average)

using a 3.97 PF (see appendix A for calc)

Total = 51,120 x 3.97 = 202,908 gpd = 140.91 gpm = 0.314 cfs

The hydraulic loading rates per "Design Standard for Wastewater Treatment Works" 2014, NYSDEC. See attached Sanitary Sewer & Water Calculations for additional information.

I/I Mitigation:

Peak Flow = 140.91 gpm

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

4:1 offset = 140.91 x 4 = 563.63 gpm
Mitigation Credit = $250/gpm
I/I Mitigation = 563.63 gpm x $250/gpm = $140,908.66
Refer to Appendix A for additional information.

Section 4 - Storm Sewer Service

The existing site is generally flat and slopes west with portions sloping east. The portion that slopes west settles in a low area and once the capacity of that area is exceeded, sheet flow continues towards Sweet Home Road and is collected by an existing 12" pipe on the north side of Dodge Road. This pipe flows to the Erie County system on Sweet Home Road. The portion that flows east flows to the offsite wetlands.

Currently Dodge Road does not have a drainage system. A series of catch basins and pipes will be installed in the green area on the north side of Dodge Road to collect the road drainage. The west portion of this system will connect to the existing closed drainage system on Sweet Home Road. The east portion will discharge to the Ellicott Creek diversion channel using and existing discharge point. This new system will also convey the proposed discharge from the site as described below.

The proposed onsite storm sewer system consists of smooth interior and perforated HDPE pipes connected by a series of catch basins, manholes and yard drains. The site is split into a storm water management area on the east and west sides.

West Side

The west side of the site has (2) bioretention areas which portions of the westerly area will discharge to. These bioretention areas along with the remainder of the west portion of the site will discharge to the underground detention area. Note that the yard drains installed along the north property line discharge to the underground detention area. An outlet structure in the SW portion of this area will control runoff to at or below existing runoff flow rates. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Sweet Home Road system.

Underground Detention Summary

(286) ADS Stormtech SC-740 chambers
Top of stone elev. = 573.00
Top of chamber elev. = 572.50
Bottom of chamber elev. = 570.00
Bottom of stone elev. = 569.50
Total storage = 18,574 CF

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Sawyer's Landing
3/4/2021
4 of 5

Event	Ex. Discharge	Pro. Discharge	Elev.
1 yr	0.87 cfs	0.33 cfs	570.29
2 yr	1.34 cfs	0.68 cfs	570.46
5 yr	2.14 cfs	1.05 cfs	570.79
10 yr	2.94 cfs	1.28 cfs	571.13
25 yr	4.34 cfs	1.61 cfs	571.73
50 yr	5.69 cfs	3.61 cfs	572.23
100 yr	7.33 cfs	4.83 cfs	572.92

East Side

The east side of the site has a bioretention area and wet detention pond which this portion of the site discharges to. The NE portion of the site discharges to a forebay which spills into the main micropool portion of the wet detention basin. The SE portion of the site discharges to the bioretention area which also spills into the main micropool portion of the site. An outlet control structure is located in the SE portion of the micropool and controls the discharge from this storm water management area. Spillways are also located on the east portion of the micropool which will discharge to the existing wetlands to the east in order to not cut off all flow from this site into this area. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Ellicott Creek diversion channel.

The bioretention areas and wet detention pond for the project area are sized to provide 100% of the required Runoff Reduction Volume (RRv) and Water Quality Volume (WQv) treatment for the overall site in accordance with Chapter 4 of the NYSDEC Stormwater design manual. The soils in the vicinity of the bioretention areas are mainly USDA hydrologic group 'D' and therefore the system will be installed with underdrains per NYSDEC requirements. The bioretention areas will consist of 6" and 8" perforated HDPE underdrains in 12" of drainage gravel, followed by filter fabric and 18" minimum of planting soil. Overflow yard drains will be installed to allow 6" maximum temporary ponding for RRv treatment. The east bioretention area (area #3) spills into the wet detention pond and the underdrain pipe ties together with the pond discharge and flows to Dodge Road. The east bioretention areas (areas #1 & #2) have a catch basin to act as the spillway and this catch basin and the underdrain pipes discharge to the underground detention area.

Storm Water Management Area Summary

Forebay
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 569.00

Micropool
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 563.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Sawyer's Landing
3/4/2021
5 of 5

Overall Storm Water Summary

WQv Provided = 152,678 cf (pond)
WQv Provided = 6,948 cf (bioretention)
WQv Provided = 159,626 cf (total)

Bioretention Area Summary:

Area	Rim Elev.	Bottom Elev.	Area
1	574.50	574.00	2,300 sf
2	574.50	574.00	2,600 sf
3	575.50	575.00	11,000 sf
		Total Provided =	15,900 sf

Water Quality Summary:
WQv req'd = 28,804 cf (0.661 ac-ft)
RRv min. req'd = 5,518 cf (0.127 ac-ft)
RRv provided = 8,662 cf (0.199 ac-ft)
WQv provided = 159,626 cf (3.665 ac-ft)
Total RRv + WQv provided = 8,662 cf + 159,626 cf = 168,287 cf (3.868 ac-ft)

Detention: Comparison of the existing 1-year vs. the proposed 1-year runoff
Comparison of the existing 10-year vs. the proposed 10-year runoff
Comparison of the existing 100-year vs. the proposed 100-year runoff

Storm pipes: 10-year storm

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix A

Sanitary Sewer and Water Demand Calculations

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 21.011 Date: 2/19/2021
Project Name: Sawyer's Landing
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer Demand Calcs
Sheet: 1 of 1

1.a

Sanitary Sewage Demand Calculations:

West - Mixed Use Buildings							
0.1 gal/d/sf	x	20,000	sf	=	2,000	gpd	*use 0.1 gallons per day per square foot
35.0 gal/d/seat	x	100	seats	=	3,500	gpd	*use 35 gallons per day per seat (fast food)
15 gal/d/employee	x	20	employees	=	300	gpd	*use 15 gallons per day per employee
West - Apartments							
220 gal/d/unit	x	100	units	=	22,000	gpd	*use 220 gallons per day per 2-bedroom unit
North - Apartments and Duplex Buildings							
220 gal/d/unit	x	94	units	=	20,680	gpd	*use 220 gallons per day per 2-bedroom unit
220 gal/d/unit	x	12	units	=	2,640	gpd	*use 220 gallons per day per 2-bedroom unit
Total Site Sanitary Demand:				=	51,120	gpd	
				=	0.051	MGD	
Find Peak Sanitary Demand:				=	0.079	cfs	

Peaking Factor based on Population:
Total demand: 51,120 gpd / 100 gpcd = 511 per capita

Population (P) = 511 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 3.97

Peak Sanitary Demand	=	51,120	x	3.97	=	202,908	gpd
					=	0.203	MGD
					=	0.314	cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow	=	202,908	gpd	=	140.91	gpm
4:1 offset flow per NYSDEC requirements	=	140.9	x 4	=	563.63	gpm req'd
Mitigation Credit	=	$250	/ gpm			
Mitigation Agreement Amount	=	**$140,908.66**				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 21.011 Date: 2/19/2021
Project Name: Sawyer's Landing
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer & Water Demand Calcs
Sheet: 2 of 2

Water Demand Calculations (domestic):

Site

51,120 gpd x 1.1 = 56,232 gpd *use 110% of sewage demand

*use 1.8 peaking factor and assume a 12 hour day

56,232 gpm x 1day/12hr x 1hr/60min = 78.10 gpm

78.10 gpm x 1.8 = 140.58 gpm Q_{peak}

Headlosses:

Q_{peak} = 140.58 gpm
Pipe = 8 inch Ductile Iron C = 140
Length = 20 LF (approx. distance from tap to RPZ)

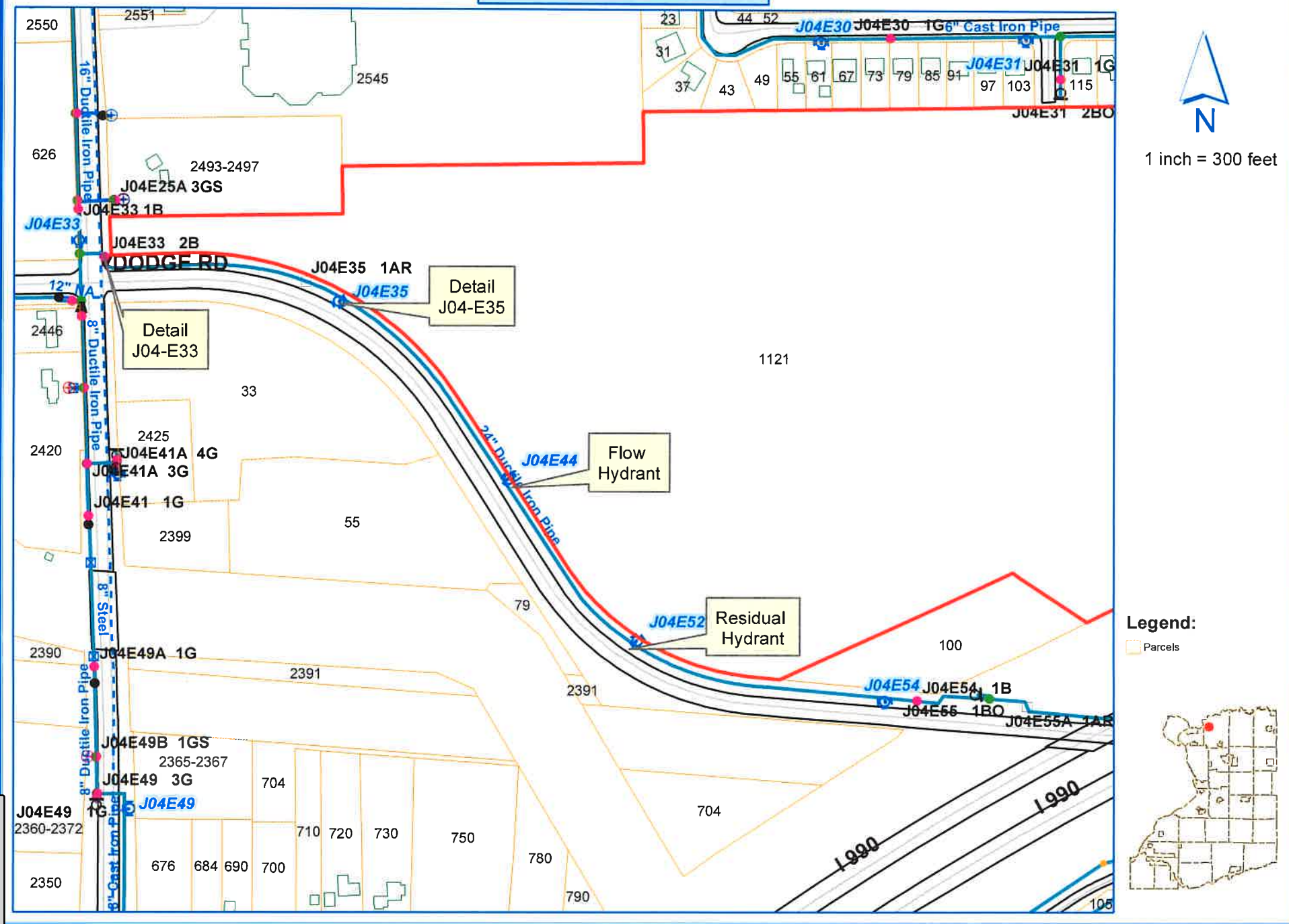
$$H_L = \frac{10.44\, L\, Q^{1.85}}{C^{1.85}\, D^{4.866}} = \frac{10.44(20)(21.51)^{1.85}}{(140)^{1.85}\,(6)^{4.866}} = 0.01 \text{ ft} = 0.00 \text{ psi}$$

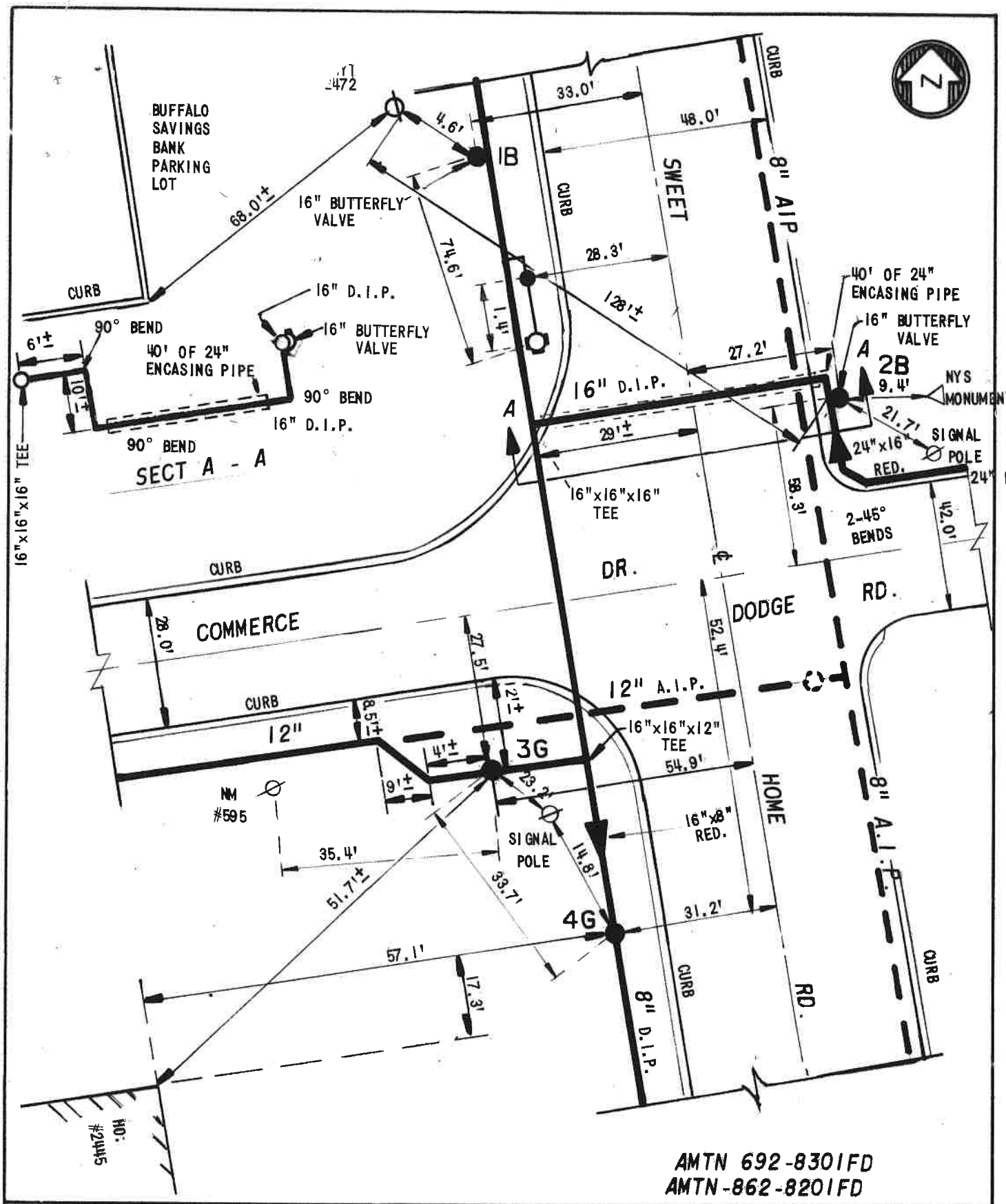
Δ elev = 0 ft = 0.00 psi
Loss through meter = 1 psi
Loss through RPZ = 12 psi
Total Losses = 13.0 psi
Static Pressure = 105 psi (per ECWA - residual pressure 98 psi)
Residual Pressure Following RPZ = 105 - 13.0 = 92.0 psi (available after rpz & meter)

Residual Pressure 30" above 4th Floor
Δ elev = 35 ft = 15.16 psi
Residual Pressure 30" above 4th Floor = 76.8 psi

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

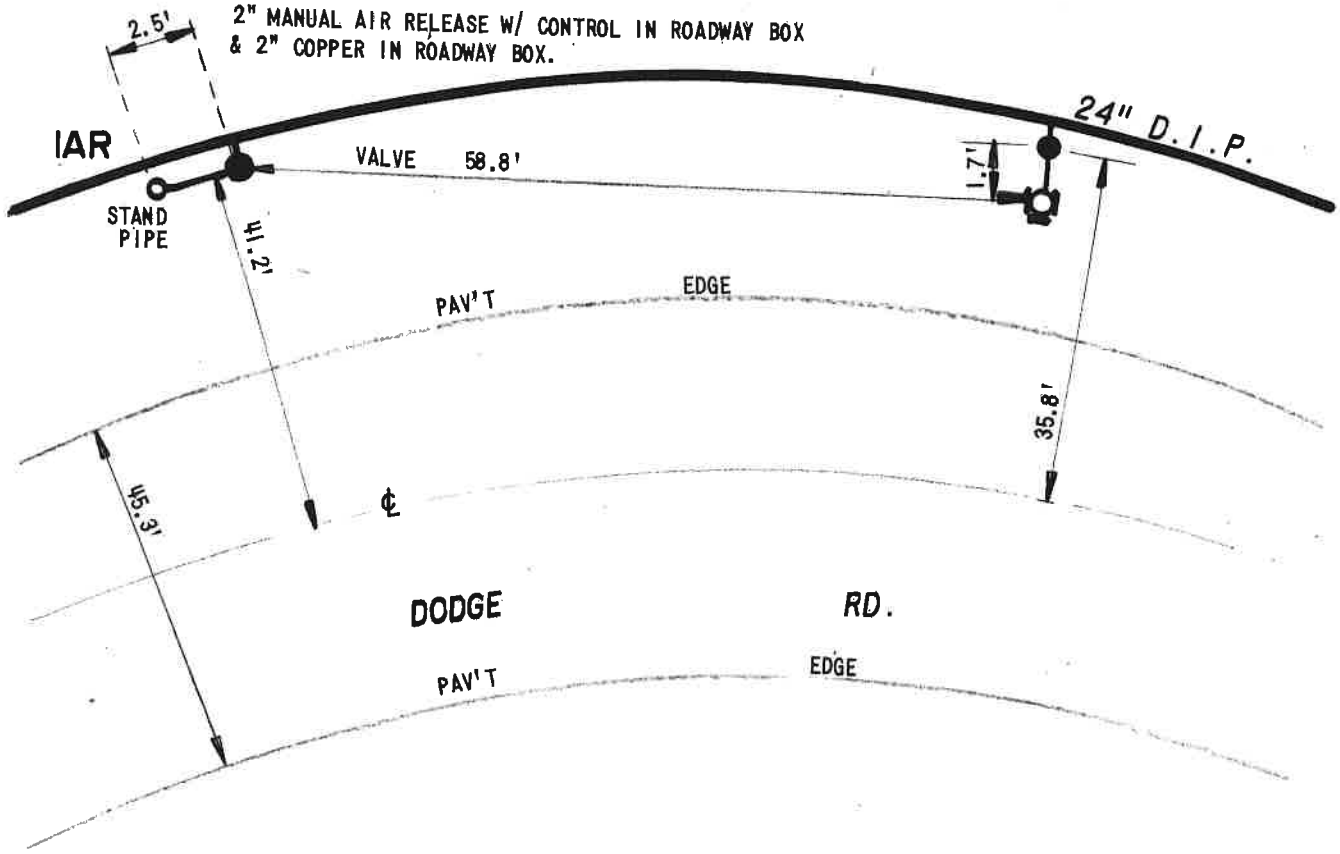
1121 Dodge Rd., AMTN





ERIE COUNTY WATER AUTHORITY, BUFFALO, NEW YORK	REVISED DR. BY: RLS DATE: 6-30-06 NOT TO SCALE	TOWN OF AMHERST W.D 15C	J04-E33 DETAIL SHEET NO.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)



AMTN-692-8301-FD

SHEET 1

ERIE COUNTY WATER AUTHORITY, BUFFALO, NEW YORK	REVISED DR. BY: RLS DATE: 6-30-06 NOT TO SCALE	TOWN OF AMHERST W.D. 15C	J04-E35 DETAIL SHEET NO.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

AMHERST
Size of Main/Branch: 24"/6" Fire District: 22028 GETZVILLE FD 11 Water District: 315 AMHERST DISTRICT 15C

Performed By: JRS & DPZ

Comments: HYDRANT FLOW TEST REQUESTED BY BILL GROFF
PRATT & HUTH, PHONE: 633-4844, FAX: 633-4940

Dischrge Coef: .90 Elvtn Usgs(ft): Static(psi): 105 Residual(psi): 98 Required Residual Pressure(psi): 20
Gallons Used..: 7,680 Total Flow(gpm): 2,558 Flow at Reqd Resid Pressure: 9,850

Flow Hydrants:

C	Flow Hyd	Flow Hydrant Address	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
_	J04 E44	DODGE RD	24"/6"	1:	2.50	58.0	1,279	
		2ND HYD E/O SWEET HOME RD		2:	2.50	58.0	1,279	
				3:			Tot Flow:	2,558

Bottom

I=Flow Hydrant Inquiry
ENTER=Continue F3=Exit F6=Maintain Test F7=Test Hydrant Inquiry F15=Print Test Information

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Downstream Sewer Capacity Analysis

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Muir Woods Site

Sweet Home & Dodge Road, Amherst New York

Downstream Sewer Capacity Analysis Report

Project Description

This new site development project will consist of the construction of apartment buildings, duplexes, office, restaurant, and retail space. Construction will also include on-site utility, landscaping improvements, and associated roads and parking. The overall acreage of the site is 28.47 acres. The site is located at Sweet Home Road and Dodge Road on a western portion of parcel 40.08-3-13.1 in the Town of Amherst.

The proposed sewer for this project will tie into the existing 60" RCP Peanut line along Dodge Road. Sewage will then be conveyed west and then eventually north through the 84" West Side Interceptor to the Town of Amherst Wastewater Treatment Facility #16.

Node 1 – Dodge Road (60"):

Existing Peak Flow measured (wet weather event)	=	40.602 cfs (21.851 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	40.939 cfs

Theoretical capacity of existing 60" RCP pipe @ 0.07% = 81.366 cfs

Conclusion: The proposed peak flow is less than the capacity of the 60" pipe, therefore there is sufficient capacity. At no time during the monitoring did the flow depth exceed the pipe diameter at Node 1 of the downstream monitoring points during the rain events monitored.

Node 2 – North Ellicott Creek Rd (60")

Existing Peak Flow measured (wet weather event)	=	99.524 cfs (53.561 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	99.861 cfs

Theoretical capacity of existing 60" pipe = 82.873 cfs (44.60 mgd)

Conclusion: Current flows the day following the 1.21" rainfall event exceeded the capacity of the existing 60" sewer pipe, but at no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole. In addition, Sanitary Sewer Overflow (SSD) did not occur. I/I mitigation shall be required for the contribution proposed for this project.

Notes:

Pipe slopes, sizes and materials provided by Town of Amherst Engineering Department Sewer Maintenance Division

* Converted from measurements in TECSmith report dated 8/12/20

** See Sanitary Sewage Demand Calculations

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Node 3 – Sweet Home (66")

Existing Peak Flow measured (overall)	=	69.058 cfs (39.601 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	69.395 cfs

Capacity of existing 66" pipe = 106.657 cfs (57.40 mgd)

Conclusion: The proposed peak flow is less than the capacity of the 66" pipe, therefore there is sufficient capacity. At no time during the monitoring did the flow depth exceed the pipe diameter at Node 3 of the downstream monitoring points during the rain events monitored.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Notes:

Pipe slopes, sizes and materials provided by Town of Amherst Engineering Department Sewer Maintenance Division

* Converted from measurements in TECSmith report dated 8/12/20

** See Sanitary Sewage Demand Calculations

Location Map

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Muir Woods Site - Sweet Home and Dodge Rd



8/18/2020, 8:51:26 AM

Parcels

Municipal Boundaries

1:9,028

0 300 600 1,200 ft

0 90 180 360 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, :GIS .gov

Sanitary Demand Calculations

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 19.192 Date: 8/24/2020
Project Name: Muir Woods
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer Demand Calcs
Sheet: 1 of 1

1.a

Sanitary Sewage Demand Calculations:

West - Mixed Use Buildings							
0.1 gal/d/sf	x	15,000	sf	=	1,500	gpd	*use 0.1 gallons per day per square foot
35.0 gal/d/seat	x	200	seats	=	7,000	gpd	*use 35 gallons per day per seat (fast food)
15 gal/d/employee	x	20	employees	=	300	gpd	*use 15 gallons per day per employee
West - Apartments							
220 gal/d/unit	x	110	units	=	24,200	gpd	*use 220 gallons per day per 2-bedroom unit
North - Apartments and Duplex Buildings							
220 gal/d/unit	x	90	units	=	19,800	gpd	*use 220 gallons per day per 2-bedroom unit
220 gal/d/unit	x	12	units	=	2,640	gpd	*use 220 gallons per day per 2-bedroom unit

Total Site Sanitary Demand: = 55,440 gpd
= 0.055 MGD
Find Peak Sanitary Demand: = 0.086 cfs

Peaking Factor based on Population:
Total demand: 55,440 gpd / 100 gpcd = 554 per capita

Population (P) = 554 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 3.95

Peak Sanitary Demand = 55,440 x 3.95 = 219,029 gpd
= 0.219 MGD
= 0.339 cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow = 219,029 gpd = 152.10 gpm

4:1 offset flow per NYSDEC requirements = 152.1 x 4 = 608.41 gpm req'd

Mitigation Credit = $250 / gpm

Mitigation Agreement Amount = $152,103.30

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TECSmith Monitoring Report

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Date	Node 1			Node 2			Node 3			Rain:
	Dodge Rd 60" (60")			North Ellicott Creek Rd. (60")			Sweethome 66 (66")			
	FLOW (GAL x 1,000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1,000)	PEAK FLOW (MDG)	PEAK LEVEL (IN)	FLOW (GAL x 1	PEAK FLOW (MDG)	PEAK LEVEL (IN)	(inches)
7/8/2020	4186.283	8.161	14.473	7265.409	8.598	16.319	4800986323.2	8.025	19.770	0
7/9/2020	6195.964	8.253	14.556	7387.504	8.661	16.273	6645115872.8	8.044	19.590	0
7/10/2020	6231.790	8.143	14.521	7625.321	9.362	16.873	6667623530.3	8.079	19.790	0
7/11/2020	10033.769	21.851	39.526	20780.607	53.561	76.701	10540796680.3	28.096	66.000	1.21
7/12/2020	9184.078	14.374	22.474	11292.759	17.205	23.420	9306202243.7	13.750	25.810	0
7/13/2020	7070.585	9.115	15.714	11243.925	29.525	33.420	7609650153.8	9.108	20.730	0.47
7/14/2020	6974.494	9.101	15.869	9685.896	13.288	20.168	7274548275.2	9.280	20.720	0
7/15/2020	6591.385	8.845	15.512	8174.879	9.503	17.013	6975378581.5	8.831	20.460	0
7/16/2020	9916.241	20.532	27.213	18886.012	44.070	43.892	12067803314.2	39.601	32.990	0.86
7/17/2020	10096.644	16.639	23.493	12451.728	18.137	24.043	10307997546.4	14.224	26.250	0.03
7/18/2020	8256.593	10.757	17.307	9766.538	11.556	18.960	8664937727.1	10.772	22.350	0
7/19/2020	7589.558	11.382	18.060	10166.964	17.245	24.128	8331695207.5	24.048	23.030	0.21
7/20/2020	7269.757	9.235	16.144	8853.911	10.160	18.118	7730113857.4	9.669	20.890	0
7/21/2020	6681.658	8.895	15.365	8179.097	9.991	17.880	1603593925.8	9.197	20.330	0
7/22/2020	8633.887	15.390	22.402	15950.443	42.105	43.300	16326027301.0	29.736	27.790	0.42
7/23/2020	7327.211	9.216	16.027	9664.310	11.130	18.508	6916249204.1	19.172	20.800	0
7/24/2020	6764.464	8.779	15.317	8434.117	9.760	17.405	8296938032.2	15.723	20.360	0
7/25/2020	6426.122	8.861	15.407	8159.333	9.969	17.608	6871634377.4	12.359	20.320	0
7/26/2020	6409.255	8.667	15.297	8027.060	9.774	17.372	6816880470.0	9.106	20.360	0
7/27/2020	6487.339	8.269	15.107	7871.954	9.244	16.902	6854655651.9	8.336	20.100	0.03
7/28/2020	6298.427	8.016	14.780	7696.223	9.134	16.757	6692447010.5	8.080	19.740	0.01
7/29/2020	8340.302	16.584	23.592	12134.192	36.728	39.530	9170179156.5	20.222	29.310	0.18
7/30/2020	6969.955	8.785	15.769	8383.294	9.650	17.268	7523641190.2	9.272	20.460	0
7/31/2020	6450.443	8.415	15.050	7762.583	9.287	16.964	7145517425.5	9.079	20.020	0
8/1/2020	6190.340	8.162	14.979	7900.808	9.762	17.305	6954528215.3	13.188	20.010	0
8/2/2020	7093.727	10.270	17.033	9801.968	15.922	22.240	7827565960.7	17.585	22.270	0.29
8/3/2020	6767.967	8.538	15.346	8117.853	9.663	17.172	7374180322.3	9.104	20.460	0
8/4/2020	6796.062	10.365	17.180	8920.731	24.649	28.896	7717920498.0	19.489	24.920	0.9
8/5/2020	4464.403	13.072	20.203	5583.196	26.407	31.097	3896577334.0	14.011	25.600	0
---	---	---	---	---	---	---	---	---	---	4.61

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Date: August 12, 2020

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: Muir Woods Capacity Analysis

Christopher Wood
487 Main Street, Suite 600
Buffalo, New York 14203
P: (716) 842-3165
F: (716) 842-0263

Project Name: Muir Woods Capacity Analysis

Flow Monitoring Period: July 8, 2020 to August 5, 2020

Rain Events (> 0.5-inches) Monitored: July 11 (1.21"), July 16 (0.86"), and August (0.90")

Number of Monitoring Nodes: Three (3) downstream manholes

Node Locations and Descriptions:

- Node 1 Dodge Rd 60" (60")
- Node 2 North Ellicott Creek Rd. (60")
- Node 3 Sweethome 66 (66")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below)

- At no time did the flow depth exceed pipe diameter at Node 1 and Node3 of the downstream monitoring points during the rain events monitored.
- One time the flow depth exceed pipe diameter at Node 2 of the downstream monitoring points during the rain events monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

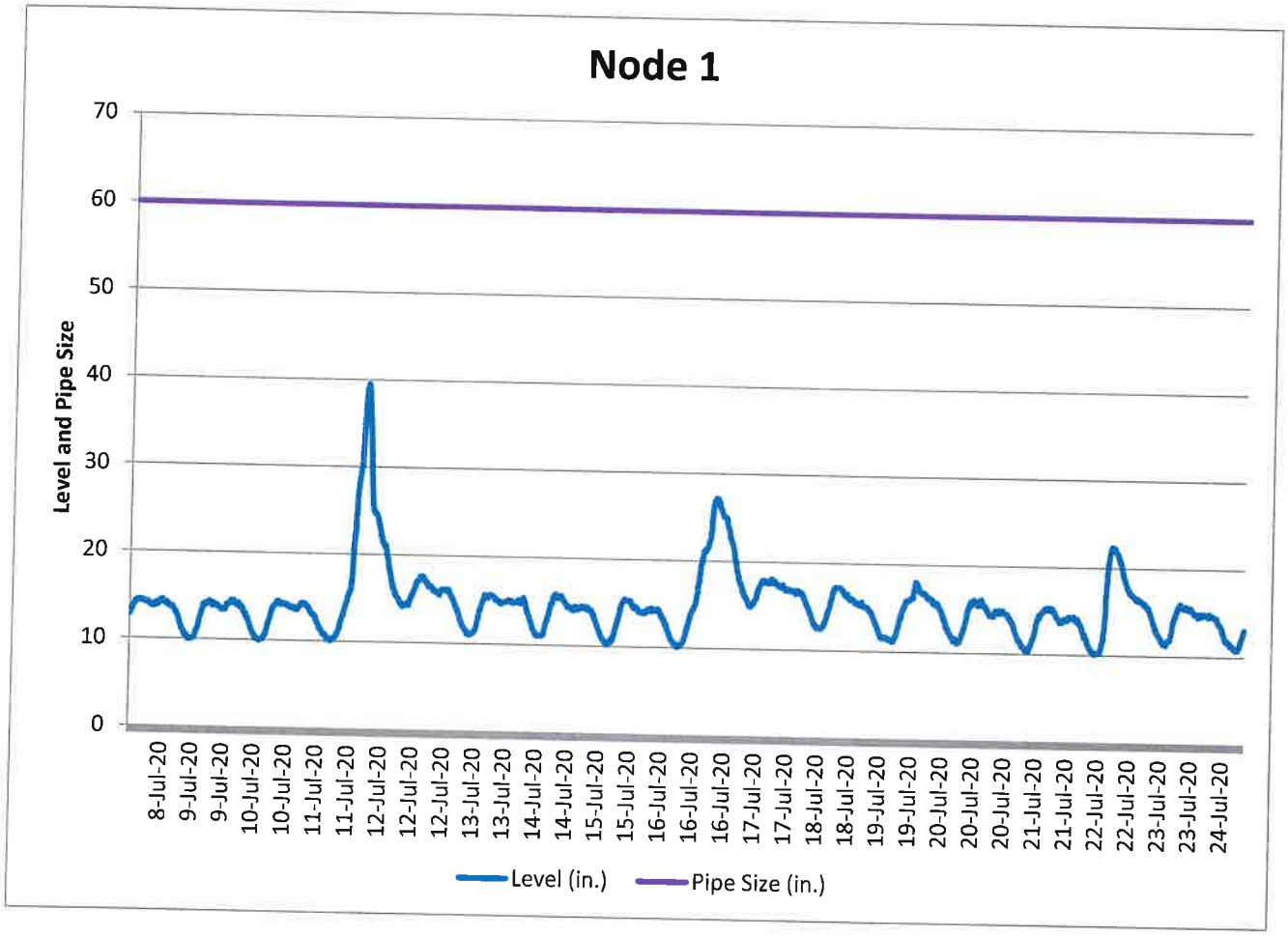
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 1.

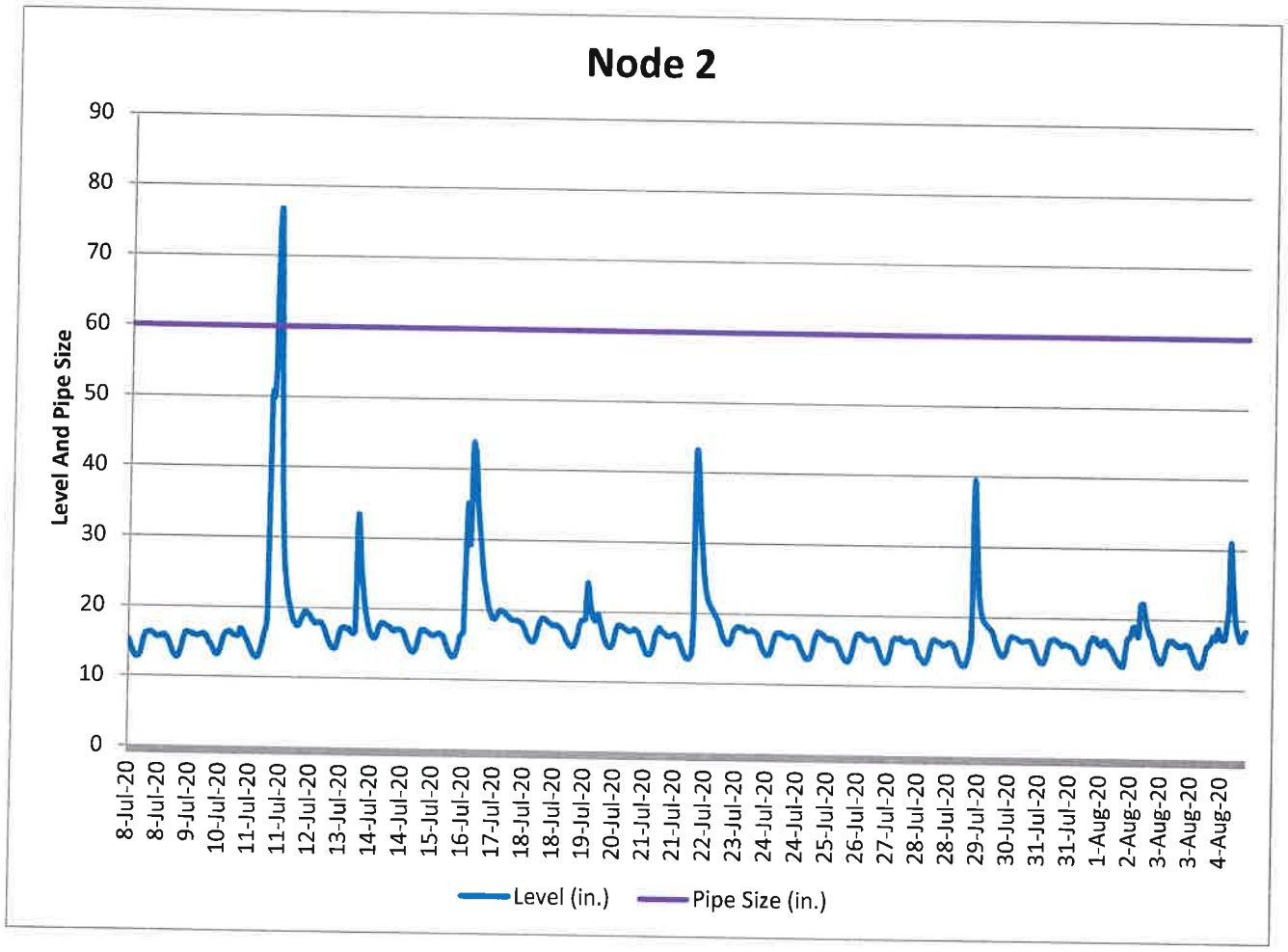


Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

- One time during the monitoring period did depth of flow exceed pipe diameter at Node 2.

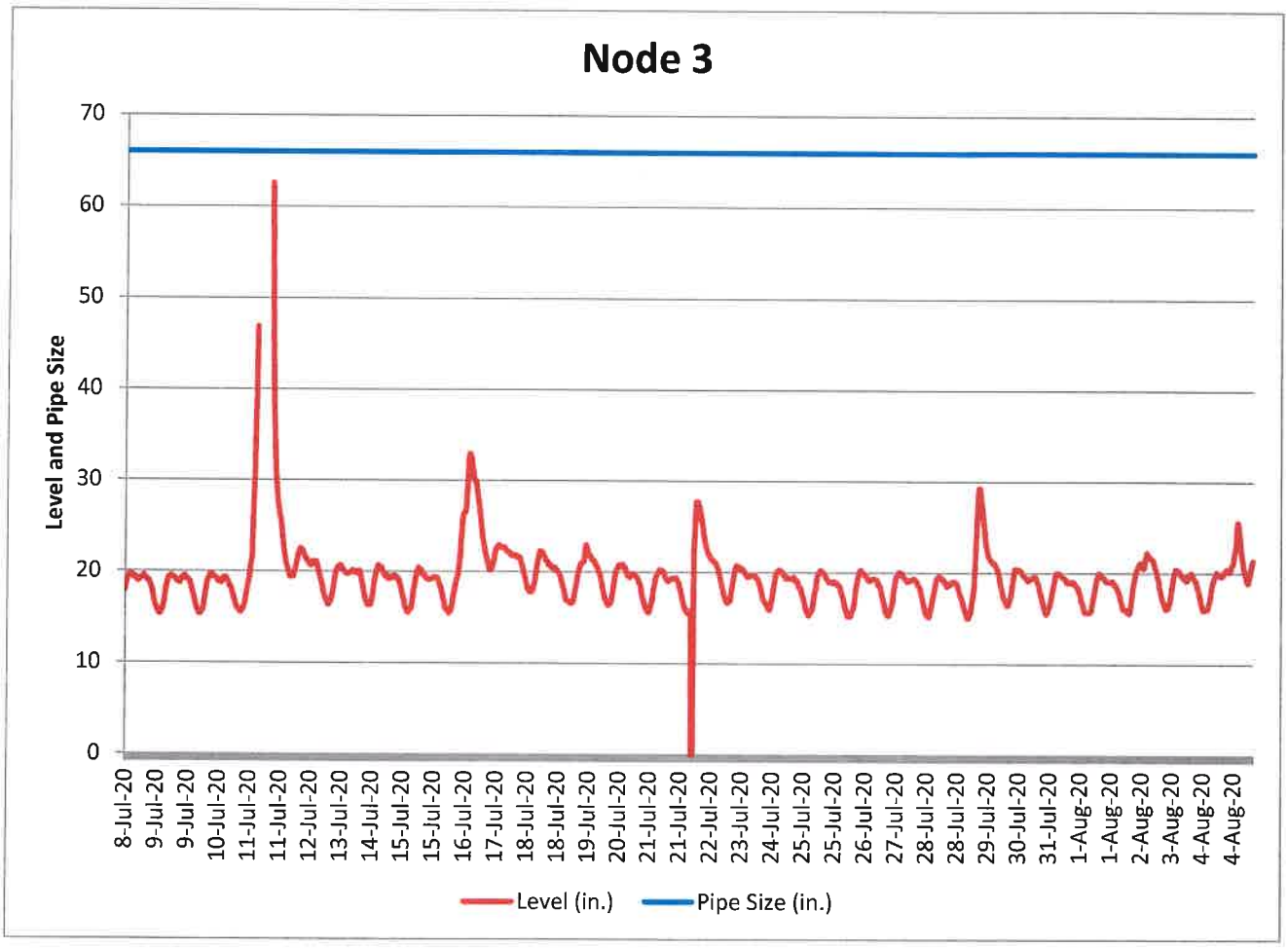


Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 3.



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

(T) Amherst Engineering Department Sewer Maintenance Division
Downstream Routing Map

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER

AMHERST PEANUT LINE & WEST SIDE INTERCEPTOR

460 Dodge Road - Proposed 26 Unit Apartment Building - Amherst Consolidated Sewer District

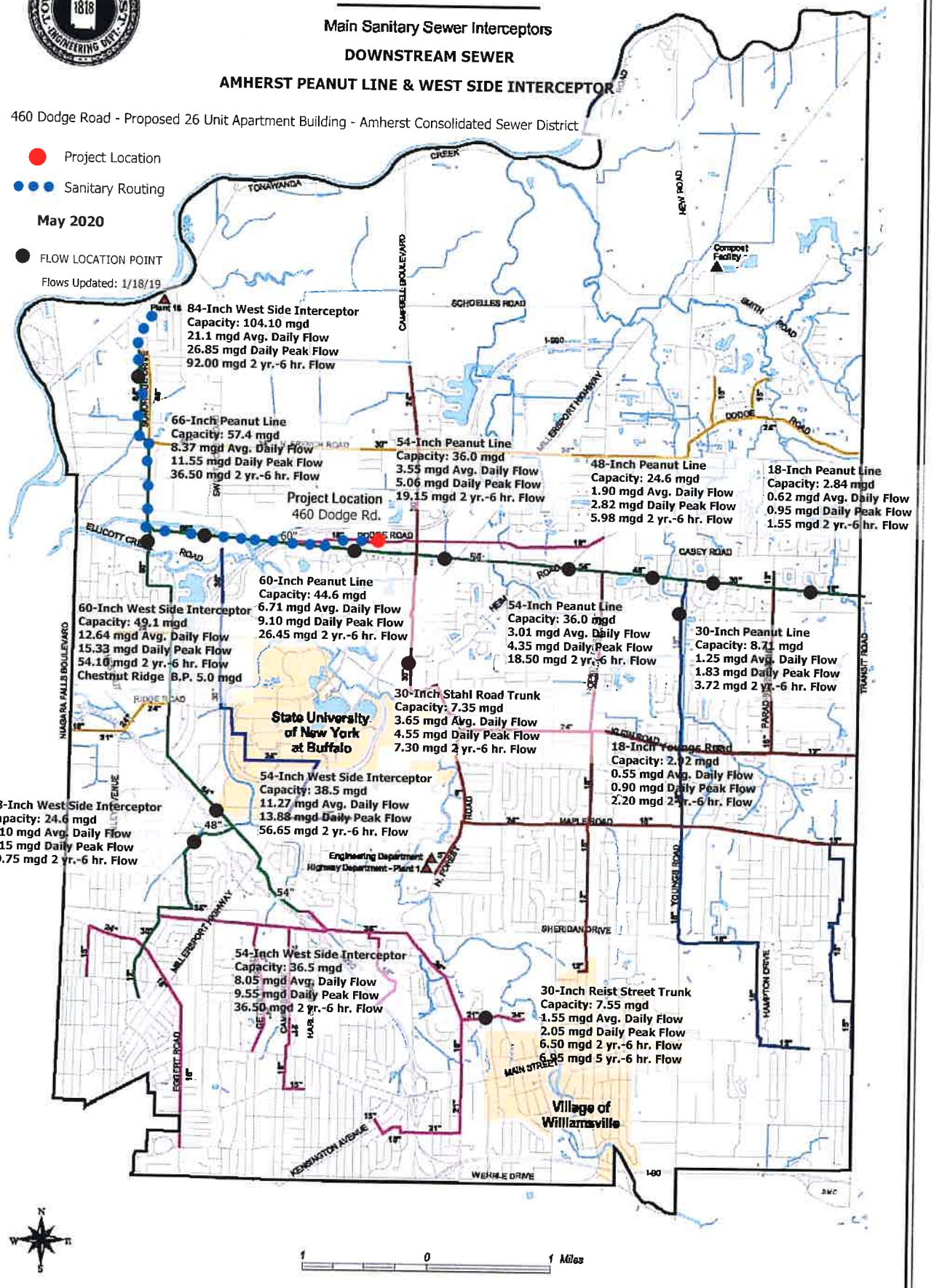
Project Location

Sanitary Routing

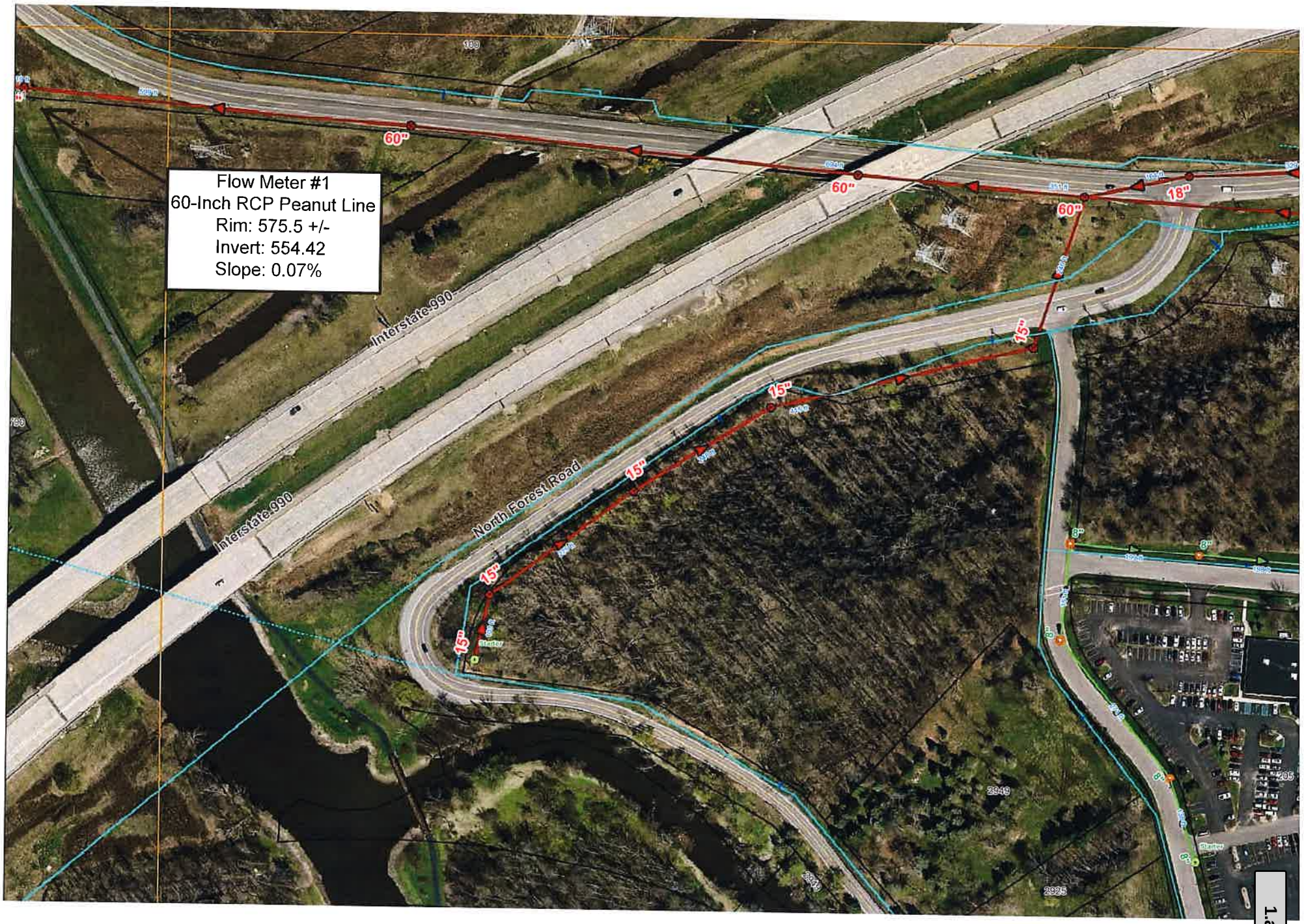
May 2020

FLOW LOCATION POINT

Flows Updated: 1/18/19



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)


Flow Meter #1
60-Inch RCP Peanut Line
Rim: 575.5 +/-
Invert: 554.42
Slope: 0.07%
Interstate 990
Interstate 990
North Forest Road
60"
60"
60"
18"
15"
15"
15"
15"
15"



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Flow Meter #3


Sweet Home Rd
Reznicki & Company, LLP
Timothy M Brown CPA PLLC
Buffalo Vet Center
Dr. Ronald A. Cooke, MD
Ashley's Garden

Appendix B

Storm Sewer System Drainage Calculations

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Existing Runoff

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

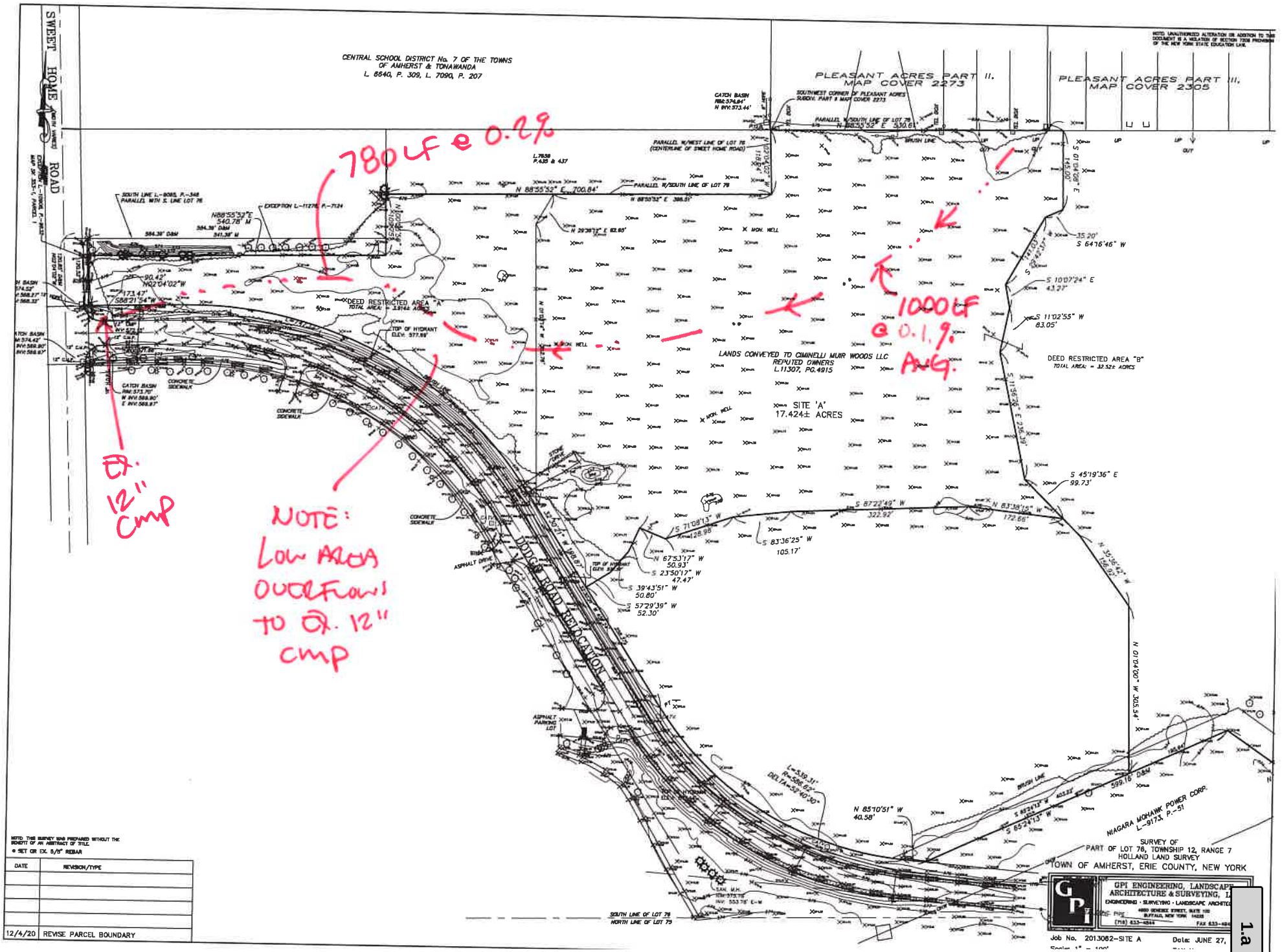


Existing

Subcat Reach Pond Link

Routing Diagram for 21.011 Existing
Prepared by Hewlett-Packard Company, Printed 3/1/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)


780 LF @ 0.2%
1000 LF @ 0.1% AVG.
EX. 12" CMP
NOTE: LOW AREA OVERFLOWS TO EX. 12" CMP
SWEET HOME ROAD
DODGE ROAD RELOCATION
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 8640, P. 309, L. 7090, P. 207
PLEASANT ACRES PART II. MAP COVER 2273
PLEASANT ACRES PART III. MAP COVER 2305
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, PG.4915
SITE 'A' 17.424± ACRES
DEED RESTRICTED AREA "A" TOTAL AREA: = 3.8144 ACRES
DEED RESTRICTED AREA "B" TOTAL AREA: = 32.52± ACRES
NIAGARA MOHAWK POWER CORP. L.-9173, P.-51
SURVEY OF PART OF LOT 78, TOWNSHIP 12, RANGE 7 HOLLAND LAND SURVEY TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, L
Job No. 2013082-SITE A
Date: JUNE 27,
DATE | REVISION/TYPE
12/4/20 | REVISE PARCEL BOUNDARY

Events for Subcatchment 1S: Existing

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	0.87	0.578	0.41
2-Year	1.34	0.851	0.60
5-Year	2.14	1.304	0.92
10-Year	2.94	1.752	1.24
25-Year	4.34	2.527	1.78
50-Year	5.69	3.272	2.31
100-Year	**7.33**	**4.181**	**2.95**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.830	77	Brush, Fair, HSG D (1S)
12.170	79	Woods, Fair, HSG D (1S)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
17.000	HSG D	1S
0.000	Other	

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	4.830	0.000	4.830	Brush, Fair	1S
0.000	0.000	0.000	12.170	0.000	12.170	Woods, Fair	1S

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

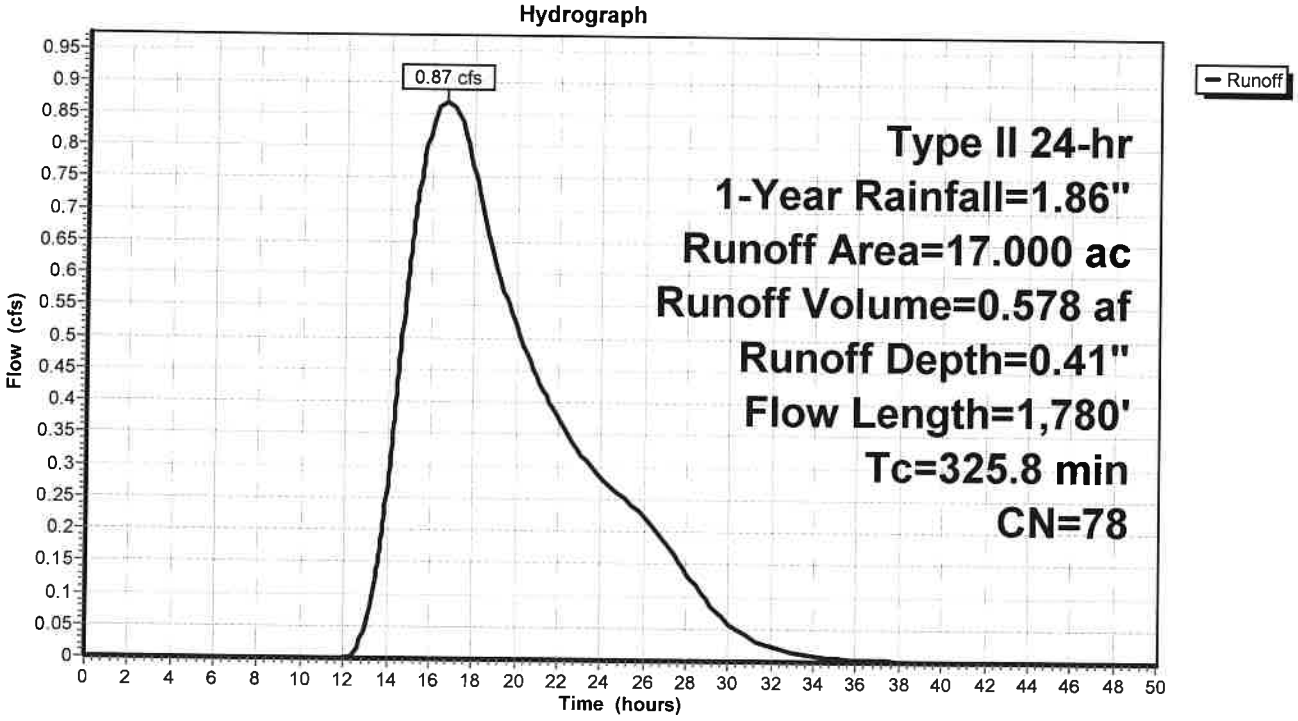
Runoff = 0.87 cfs @ 16.65 hrs, Volume= 0.578 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

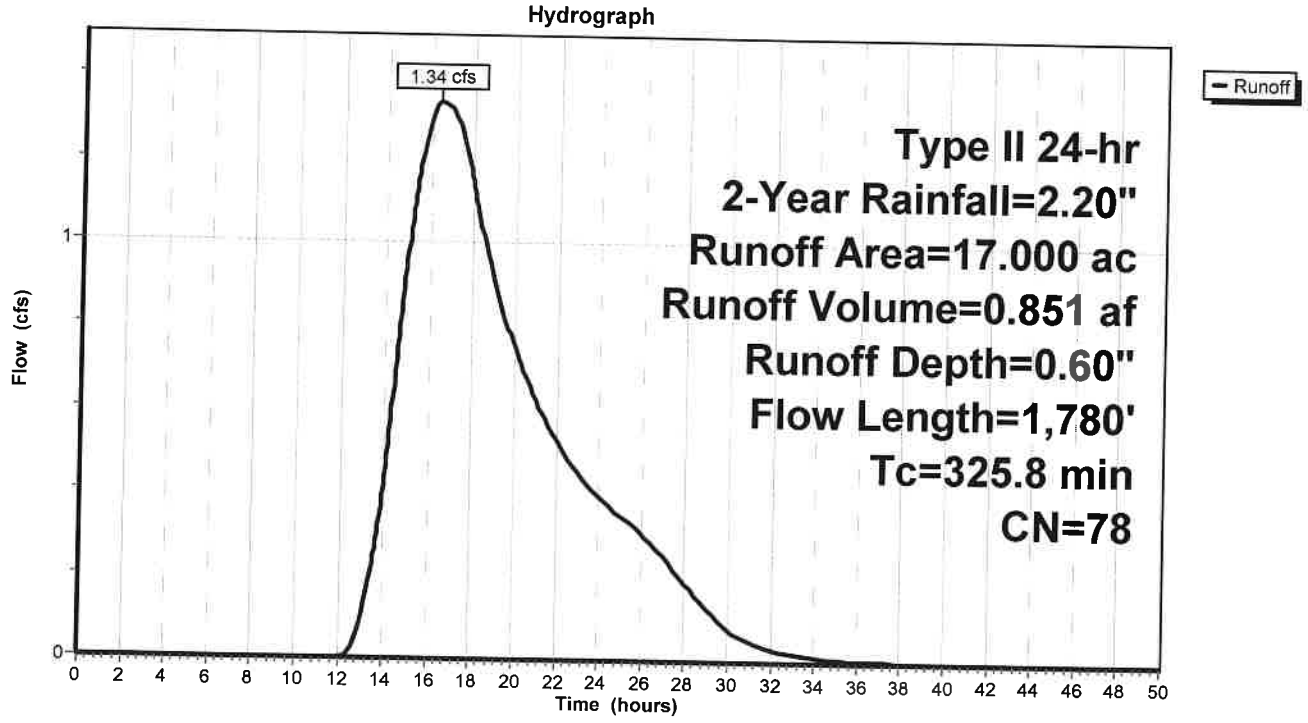
Runoff = 1.34 cfs @ 16.35 hrs, Volume= 0.851 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

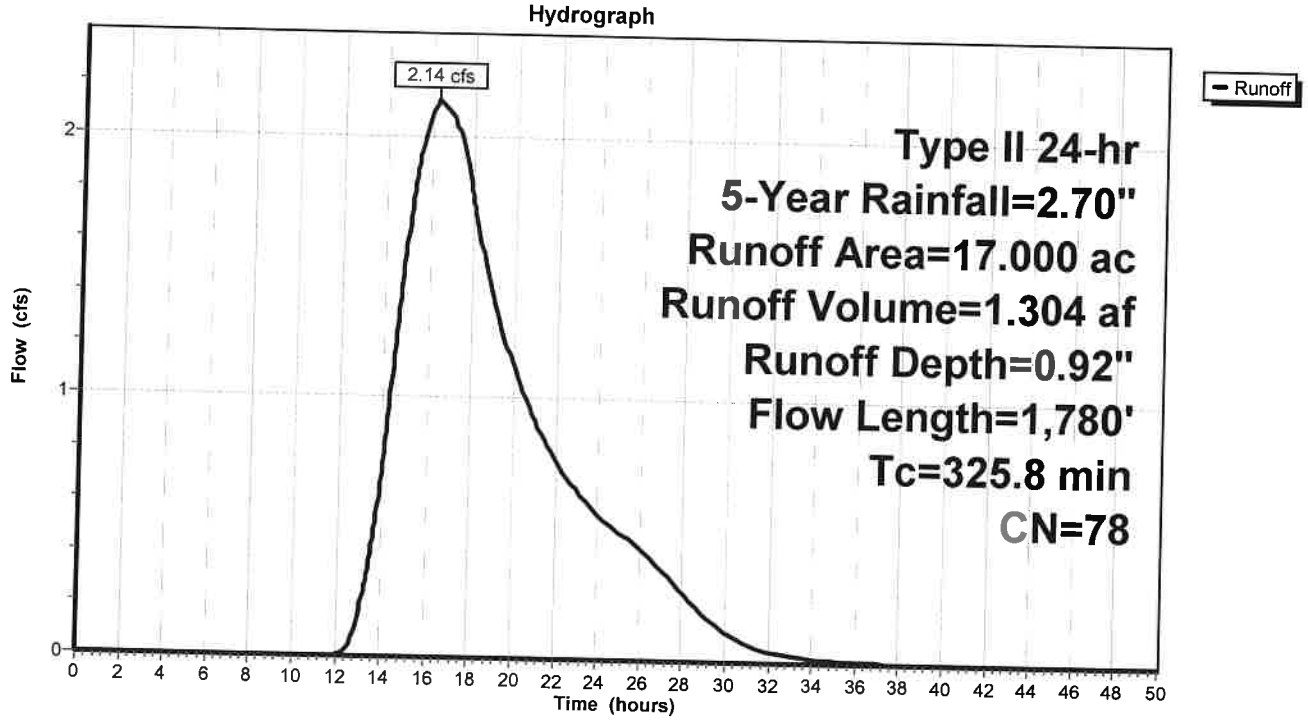
Runoff = 2.14 cfs @ 16.31 hrs, Volume= 1.304 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

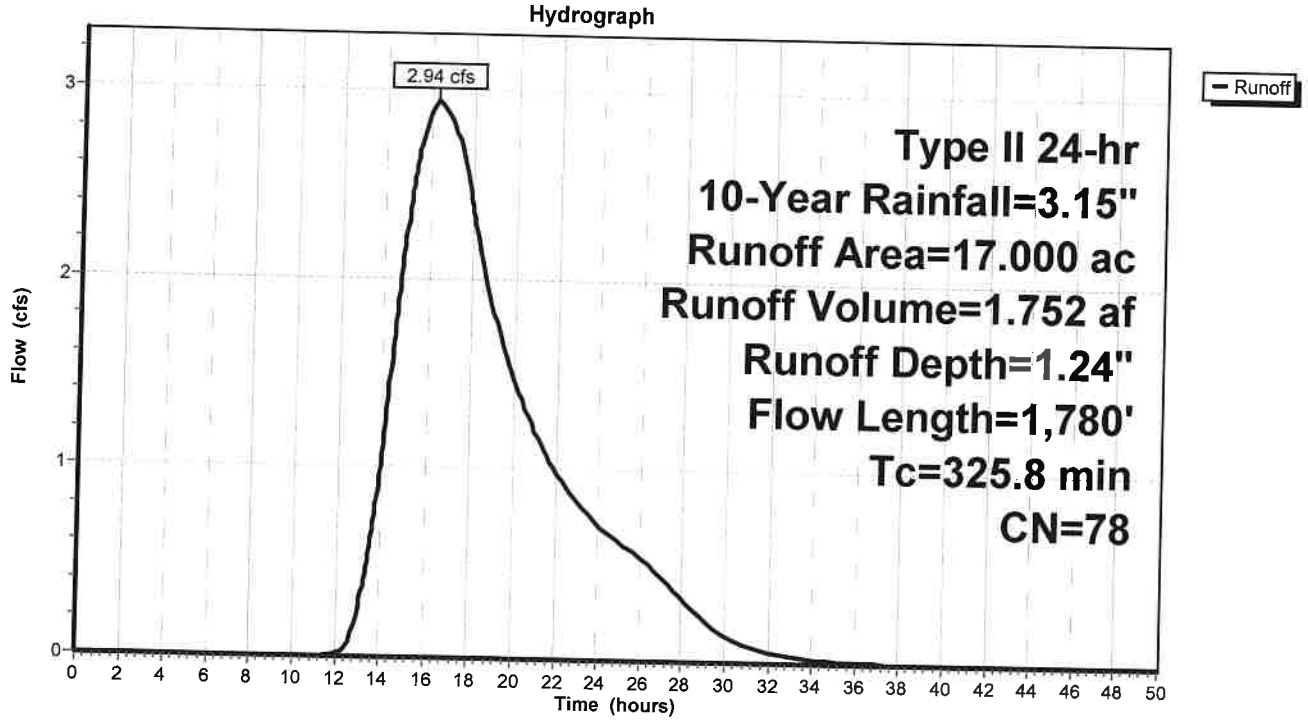
Runoff = 2.94 cfs @ 16.31 hrs, Volume= 1.752 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

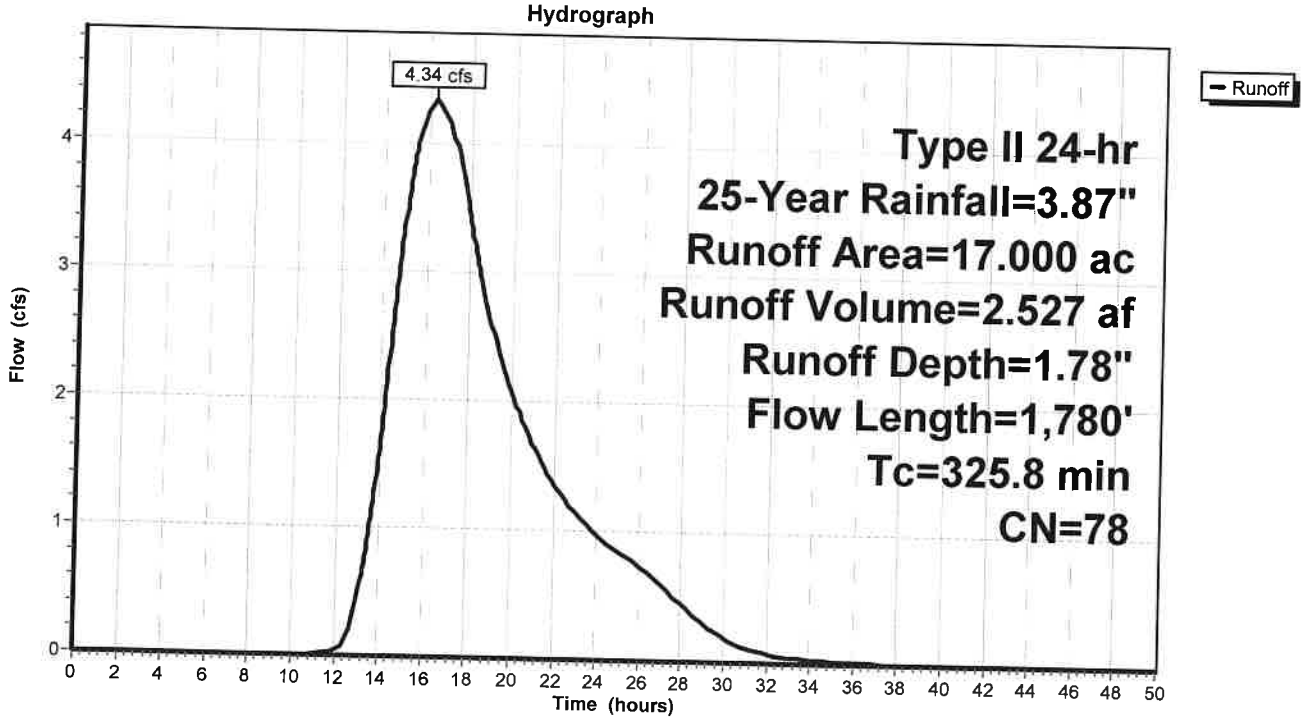
Runoff = 4.34 cfs @ 16.30 hrs, Volume= 2.527 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

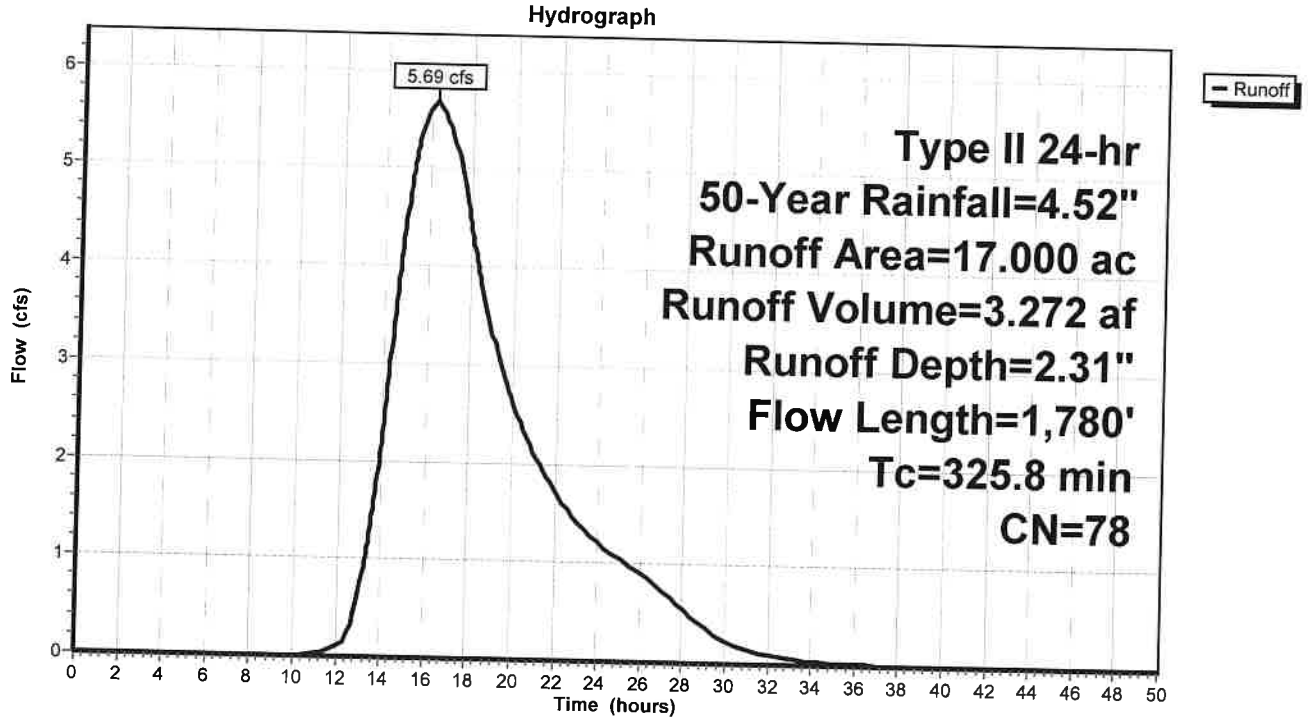
Runoff = 5.69 cfs @ 16.29 hrs, Volume= 3.272 af, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

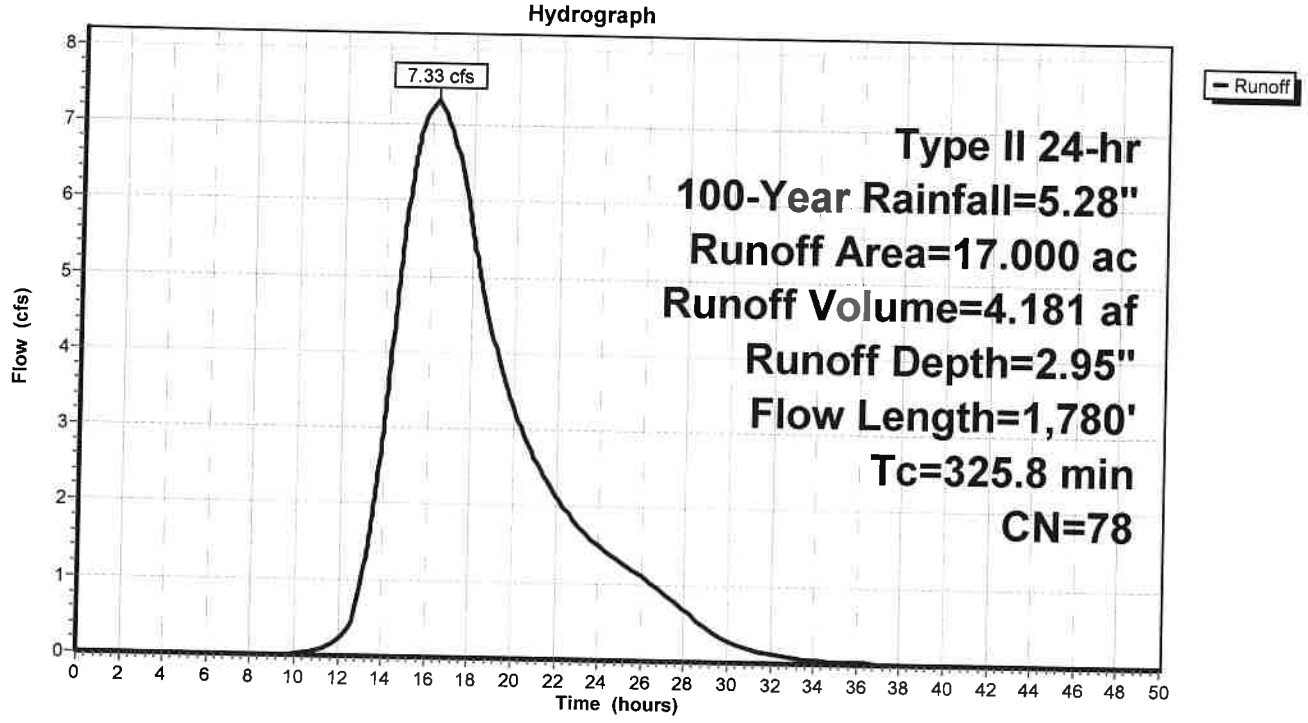
Runoff = 7.33 cfs @ 16.29 hrs, Volume= 4.181 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



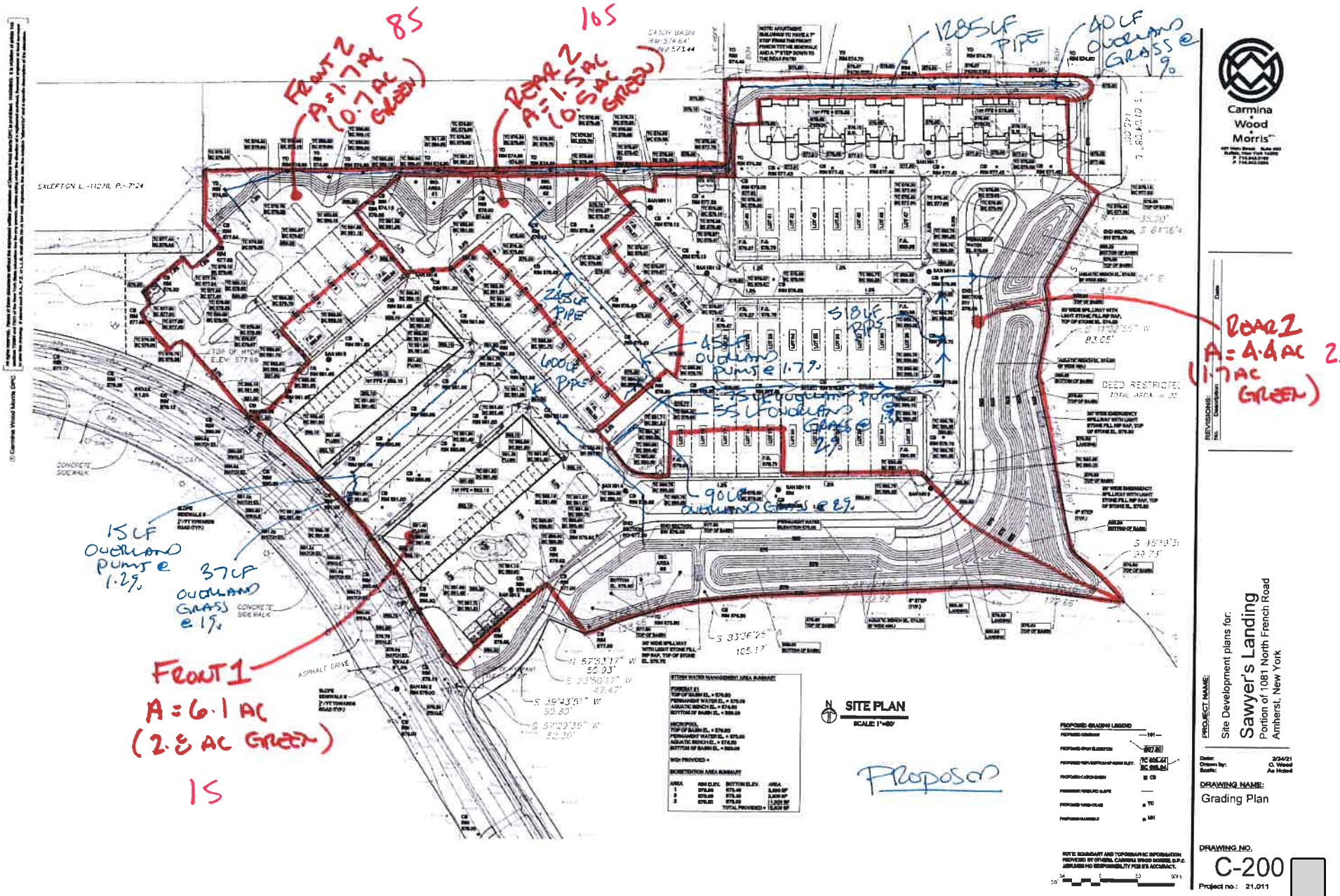
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

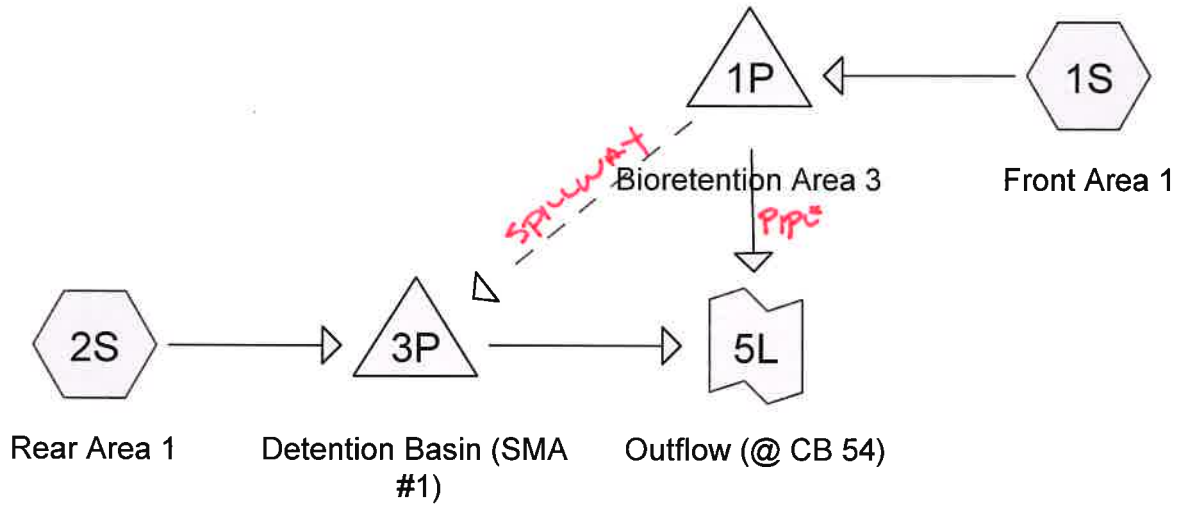
Proposed Runoff

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Proposed Runoff - East

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)


FRONT 2
A=1.7AC
(0.7AC GREEN)
85
REAR 2
A=1.5AC
(0.5AC GREEN)
105
120 LF PIPE
40 LF OVERLAND GRASS e 9%
REAR 2
A=4.4AC
(1.7AC GREEN)
245 LF PIPE
600 LF PIPE
45 LF OVERLAND PUMP e 1.7%
55 LF PIPE
55 LF OVERLAND PUMP e 2%
55 LF OVERLAND GRASS e 2%
90 LF OVERLAND GRASS e 2%
15 LF OVERLAND PUMP e 1.2%
37 LF OVERLAND GRASS e 1%
FRONT 1
A=6.1AC
(2.5AC GREEN)
15
SITE PLAN
SCALE: 1"=80'
Proposed
Carmina Wood Morris
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York
DRAWING NAME:
Grading Plan
DRAWING NO.
C-200
Project no.: 21.011



Subcat Reach Pond Link

Routing Diagram for 21.011 Proposed
Prepared by Hewlett-Packard Company, Printed 3/4/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Events for Link 5L: Outflow (@ CB 54)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-Year	2.78	2.78	**0.00**
2-Year	2.86	2.86	0.00
5-Year	3.01	3.01	0.00
10-Year	3.16	3.16	0.00
25-Year	3.36	3.36	0.00
50-Year	3.48	3.48	0.00
100-Year	**3.60**	**3.60**	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Events for Pond 3P: Detention Basin (SMA #1)

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	6.05	0.10	0.10	0.00	575.23	13,685
2-Year	12.29	0.18	0.18	0.00	575.32	19,129
5-Year	20.08	0.33	0.33	0.00	575.46	28,218
10-Year	26.01	0.47	0.47	0.00	575.60	37,117
25-Year	34.94	0.64	0.64	0.00	575.83	51,964
50-Year	42.93	1.97	0.72	1.25	576.00	62,935
100-Year	**52.24**	**8.57**	**0.78**	**7.80**	**576.11**	**70,722**

TO DUDLEE RD

TO WETLANDS

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Events for Pond 1P: Bioretention Area 3

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	8.17	4.38	2.74	1.63	575.82	7,520
2-Year	10.57	8.19	2.79	5.41	575.91	8,359
5-Year	14.18	12.91	2.83	10.09	575.99	9,153
10-Year	17.46	16.45	2.85	13.60	576.04	9,672
25-Year	22.74	21.73	2.89	18.84	576.11	10,375
50-Year	27.50	26.43	2.91	23.52	576.17	10,954
100-Year	**33.05**	**31.92**	**2.94**	**28.98**	**576.23**	**11,585**

↑ TO DOUGE RD

↑ TO BASIN

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.500	80	>75% Grass cover, Good, HSG D (1S, 2S)
3.200	98	Paved parking, HSG D (1S, 2S)
2.800	98	Roofs, HSG D (1S, 2S)
10.500	**90**	**TOTAL AREA**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
10.500	HSG D	1S, 2S
0.000	Other	
10.500		**TOTAL AREA**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	4.500	0.000	4.500	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.000	3.200	0.000	3.200	Paved parking	1S, 2S
0.000	0.000	0.000	2.800	0.000	2.800	Roofs	1S, 2S
0.000	**0.000**	**0.000**	**10.500**	**0.000**	**10.500**	**TOTAL AREA**	

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=0.98"
Flow Length=652' Tc=13.3 min CN=90 Runoff=8.17 cfs 0.496 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.04"
Flow Length=683' Tc=14.4 min CN=91 Runoff=6.05 cfs 0.382 af

Pond 1P: Bioretention Area 3 Peak Elev=575.82' Storage=7,520 cf Inflow=8.17 cfs 0.496 af
Primary=2.74 cfs 0.475 af Secondary=1.63 cfs 0.021 af Outflow=4.38 cfs 0.496 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.23' Storage=13,685 cf Inflow=6.05 cfs 0.403 af
Primary=0.10 cfs 0.249 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.249 af

Link 5L: Outflow (@ CB 54) Inflow=2.78 cfs 0.724 af
Primary=2.78 cfs 0.724 af

Total Runoff Area = 10.500 ac Runoff Volume = 0.878 af Average Runoff Depth = 1.00"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

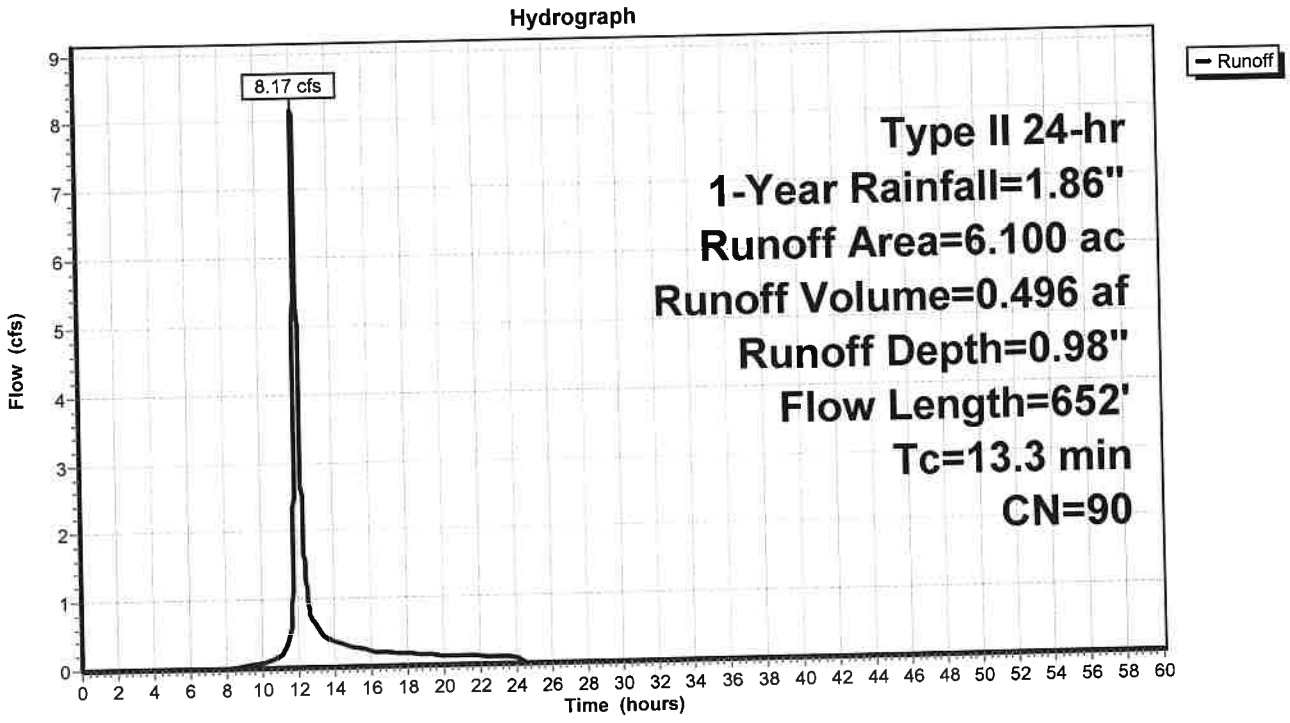
Runoff = 8.17 cfs @ 12.05 hrs, Volume= 0.496 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.02
10.00	0.34	0.01	0.07
11.00	0.44	0.03	0.20
12.00	1.23	0.48	**7.23**
13.00	1.44	0.63	**0.63**
14.00	1.53	0.70	0.37
15.00	1.59	0.75	0.29
16.00	1.64	0.79	0.23
17.00	1.68	0.83	0.20
18.00	1.71	0.85	0.17
19.00	1.74	0.88	0.15
20.00	1.77	0.90	0.13
21.00	1.79	0.92	0.12
22.00	1.82	0.94	0.12
23.00	1.84	0.96	0.11
24.00	**1.86**	**0.98**	0.11
25.00	1.86	0.98	0.00
26.00	1.86	0.98	0.00
27.00	1.86	0.98	0.00
28.00	1.86	0.98	0.00
29.00	1.86	0.98	0.00
30.00	1.86	0.98	0.00
31.00	1.86	0.98	0.00
32.00	1.86	0.98	0.00
33.00	1.86	0.98	0.00
34.00	1.86	0.98	0.00
35.00	1.86	0.98	0.00
36.00	1.86	0.98	0.00
37.00	1.86	0.98	0.00
38.00	1.86	0.98	0.00
39.00	1.86	0.98	0.00
40.00	1.86	0.98	0.00
41.00	1.86	0.98	0.00
42.00	1.86	0.98	0.00
43.00	1.86	0.98	0.00
44.00	1.86	0.98	0.00
45.00	1.86	0.98	0.00
46.00	1.86	0.98	0.00
47.00	1.86	0.98	0.00
48.00	1.86	0.98	0.00
49.00	1.86	0.98	0.00
50.00	1.86	0.98	0.00
51.00	1.86	0.98	0.00
52.00	1.86	0.98	0.00
53.00	1.86	0.98	0.00
54.00	1.86	0.98	0.00
55.00	1.86	0.98	0.00
56.00	1.86	0.98	0.00
57.00	1.86	0.98	0.00
58.00	1.86	0.98	0.00
59.00	1.86	0.98	0.00
60.00	1.86	0.98	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

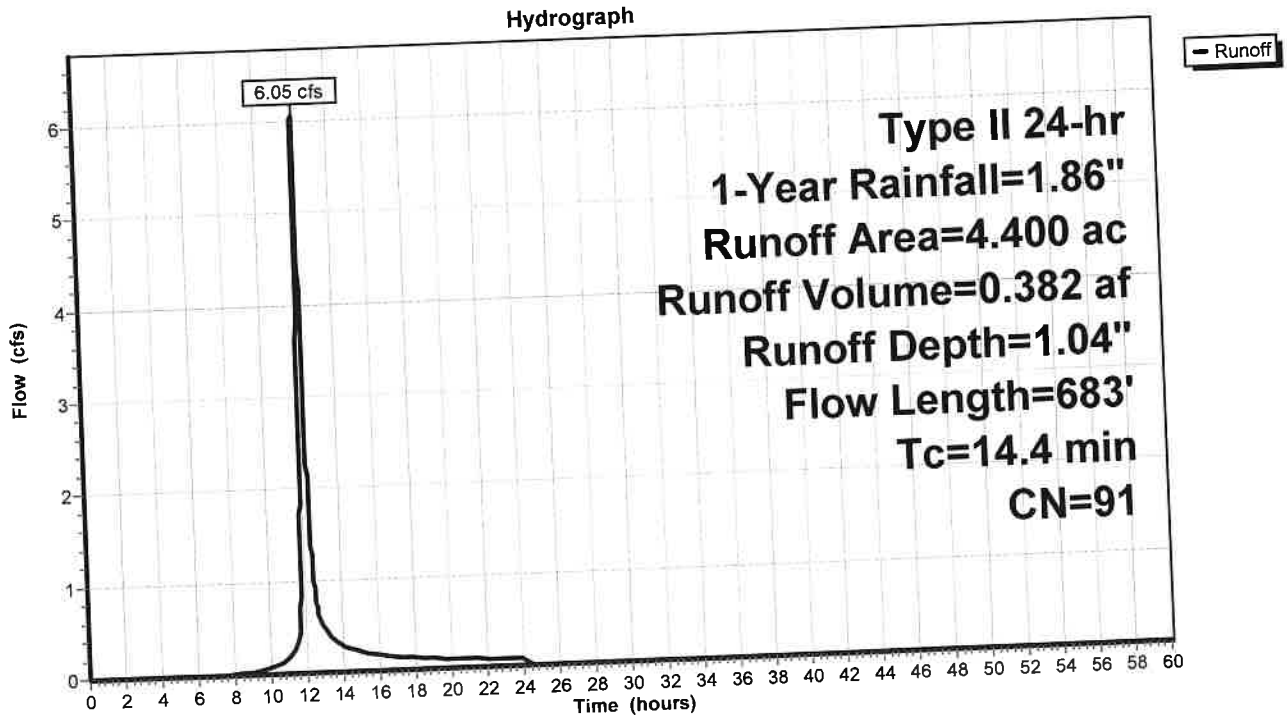
Runoff = 6.05 cfs @ 12.06 hrs, Volume= 0.382 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.01
9.00	0.27	0.01	0.03
10.00	0.34	0.02	0.06
11.00	0.44	0.05	0.17
12.00	1.23	0.53	**5.18**
13.00	1.44	0.69	**0.48**
14.00	1.53	0.76	0.28
15.00	1.59	0.81	0.21
16.00	1.64	0.85	0.17
17.00	1.68	0.89	0.15
18.00	1.71	0.92	0.13
19.00	1.74	0.94	0.11
20.00	1.77	0.97	0.10
21.00	1.79	0.99	0.09
22.00	1.82	1.01	0.09
23.00	1.84	1.02	0.08
24.00	**1.86**	**1.04**	0.08
25.00	1.86	1.04	0.00
26.00	1.86	1.04	0.00
27.00	1.86	1.04	0.00
28.00	1.86	1.04	0.00
29.00	1.86	1.04	0.00
30.00	1.86	1.04	0.00
31.00	1.86	1.04	0.00
32.00	1.86	1.04	0.00
33.00	1.86	1.04	0.00
34.00	1.86	1.04	0.00
35.00	1.86	1.04	0.00
36.00	1.86	1.04	0.00
37.00	1.86	1.04	0.00
38.00	1.86	1.04	0.00
39.00	1.86	1.04	0.00
40.00	1.86	1.04	0.00
41.00	1.86	1.04	0.00
42.00	1.86	1.04	0.00
43.00	1.86	1.04	0.00
44.00	1.86	1.04	0.00
45.00	1.86	1.04	0.00
46.00	1.86	1.04	0.00
47.00	1.86	1.04	0.00
48.00	1.86	1.04	0.00
49.00	1.86	1.04	0.00
50.00	1.86	1.04	0.00
51.00	1.86	1.04	0.00
52.00	1.86	1.04	0.00
53.00	1.86	1.04	0.00
54.00	1.86	1.04	0.00
55.00	1.86	1.04	0.00
56.00	1.86	1.04	0.00
57.00	1.86	1.04	0.00
58.00	1.86	1.04	0.00
59.00	1.86	1.04	0.00
60.00	1.86	1.04	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area =	6.100 ac,	54.10% Impervious,	Inflow Depth =	0.98"	for 1-Year event
Inflow =	8.17 cfs @	12.05 hrs,	Volume=	0.496 af	
Outflow =	4.38 cfs @	12.19 hrs,	Volume=	0.496 af,	Atten= 46%, Lag= 8.2 min
Primary =	2.74 cfs @	12.19 hrs,	Volume=	0.475 af	
Secondary =	1.63 cfs @	12.19 hrs,	Volume=	0.021 af	

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.82' @ 12.19 hrs Surf.Area= 9,695 sf Storage= 7,520 cf

Plug-Flow detention time= 319.4 min calculated for 0.496 af (100% of inflow)
Center-of-Mass det. time= 319.4 min (1,152.7 - 833.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

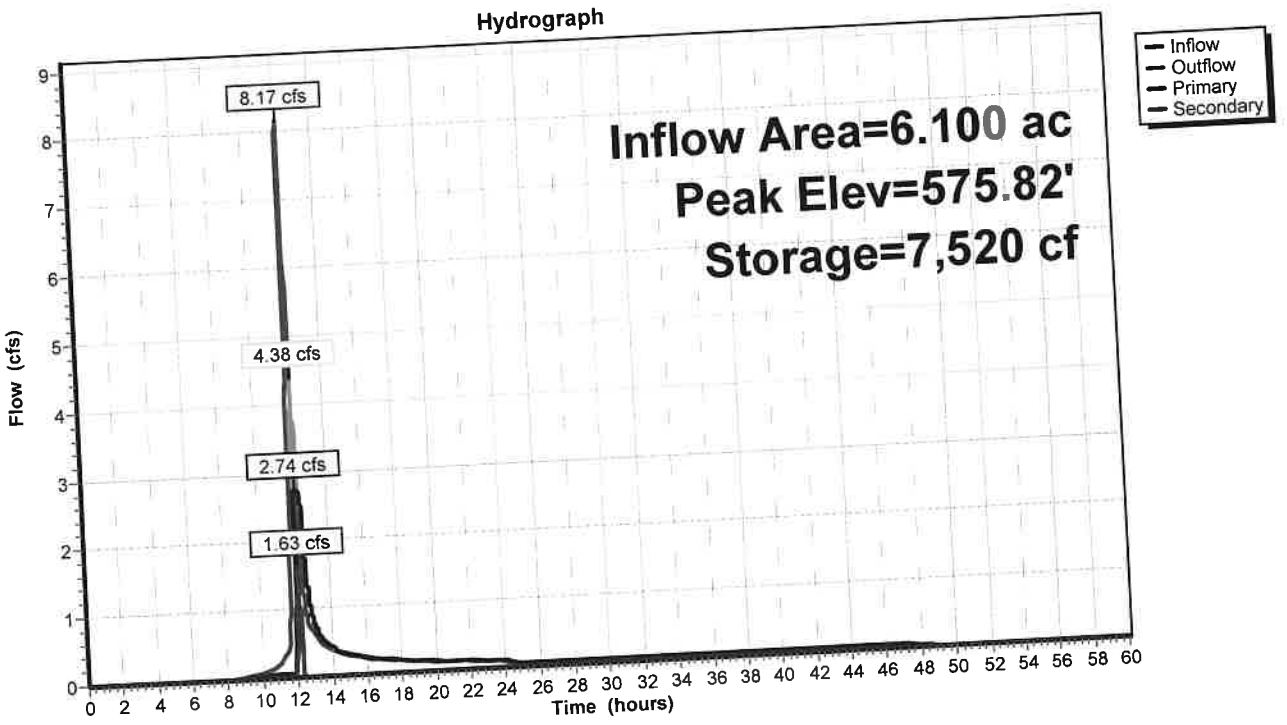
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.74 cfs @ 12.19 hrs HW=575.82' (Free Discharge)
↑—**1=8" pipe** (Barrel Controls 2.74 cfs @ 7.86 fps)
↑—**2=Grate** (Passes < 3.80 cfs potential flow)
└—**3=Exfiltration** (Passes < 0.06 cfs potential flow)

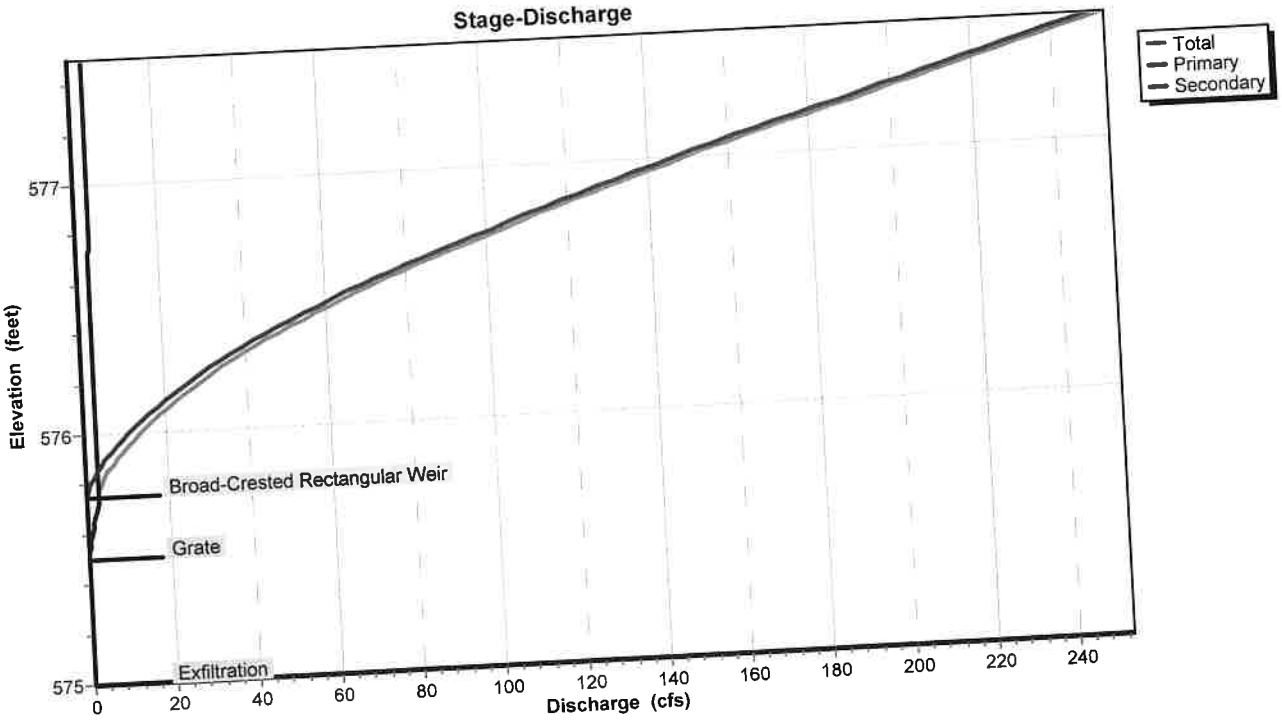
Secondary OutFlow Max=1.62 cfs @ 12.19 hrs HW=575.82' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 1.62 cfs @ 0.77 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

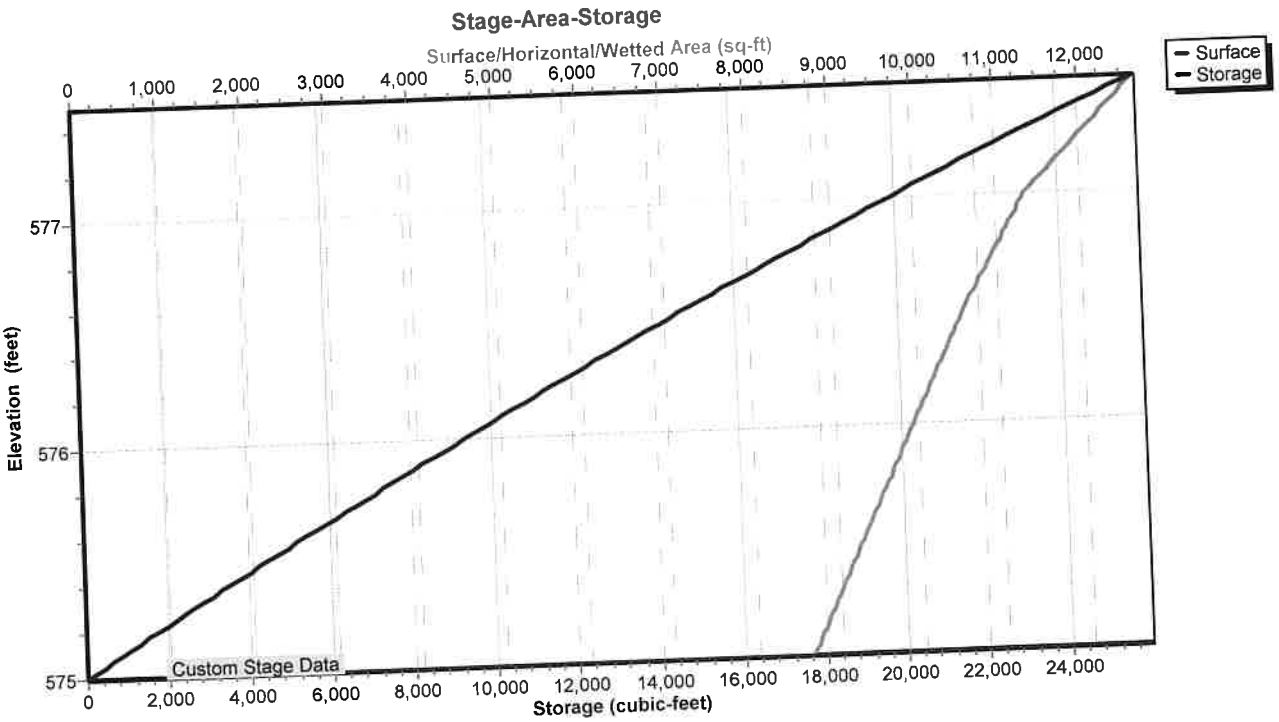


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.00	0	575.00	0.00	0.00	0.00
10.00	0.07	121	575.01	0.03	0.03	0.00
12.00	**7.23**	**4,533**	**575.51**	**0.08**	**0.08**	**0.00**
14.00	**0.37**	**5,004**	**575.56**	**0.42**	**0.42**	**0.00**
16.00	0.23	4,812	575.54	0.25	0.25	0.00
18.00	0.17	4,735	575.53	0.18	0.18	0.00
20.00	0.13	4,666	575.52	0.14	0.14	0.00
22.00	0.12	4,618	575.51	0.12	0.12	0.00
24.00	0.11	4,598	575.51	0.11	0.11	0.00
26.00	0.00	4,207	575.47	0.06	0.06	0.00
28.00	0.00	3,812	575.43	0.05	0.05	0.00
30.00	0.00	3,420	575.38	0.05	0.05	0.00
32.00	0.00	3,031	575.34	0.05	0.05	0.00
34.00	0.00	2,646	575.30	0.05	0.05	0.00
36.00	0.00	2,264	575.26	0.05	0.05	0.00
38.00	0.00	1,885	575.21	0.05	0.05	0.00
40.00	0.00	1,510	575.17	0.05	0.05	0.00
42.00	0.00	1,138	575.13	0.05	0.05	0.00
44.00	0.00	769	575.09	0.05	0.05	0.00
46.00	0.00	404	575.05	0.05	0.05	0.00
48.00	0.00	96	575.01	0.02	0.02	0.00
50.00	0.00	18	575.00	0.00	0.00	0.00
52.00	0.00	3	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 1.10" for 1-Year event
Inflow = 6.05 cfs @ 12.06 hrs, Volume= 0.403 af
Outflow = 0.10 cfs @ 19.66 hrs, Volume= 0.249 af, Atten= 98%, Lag= 455.7 min
Primary = 0.10 cfs @ 19.66 hrs, Volume= 0.249 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.23' @ 19.66 hrs Surf.Area= 60,952 sf Storage= 13,685 cf

Plug-Flow detention time= 1,134.7 min calculated for 0.249 af (62% of inflow)
Center-of-Mass det. time= 1,028.3 min (1,852.6 - 824.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

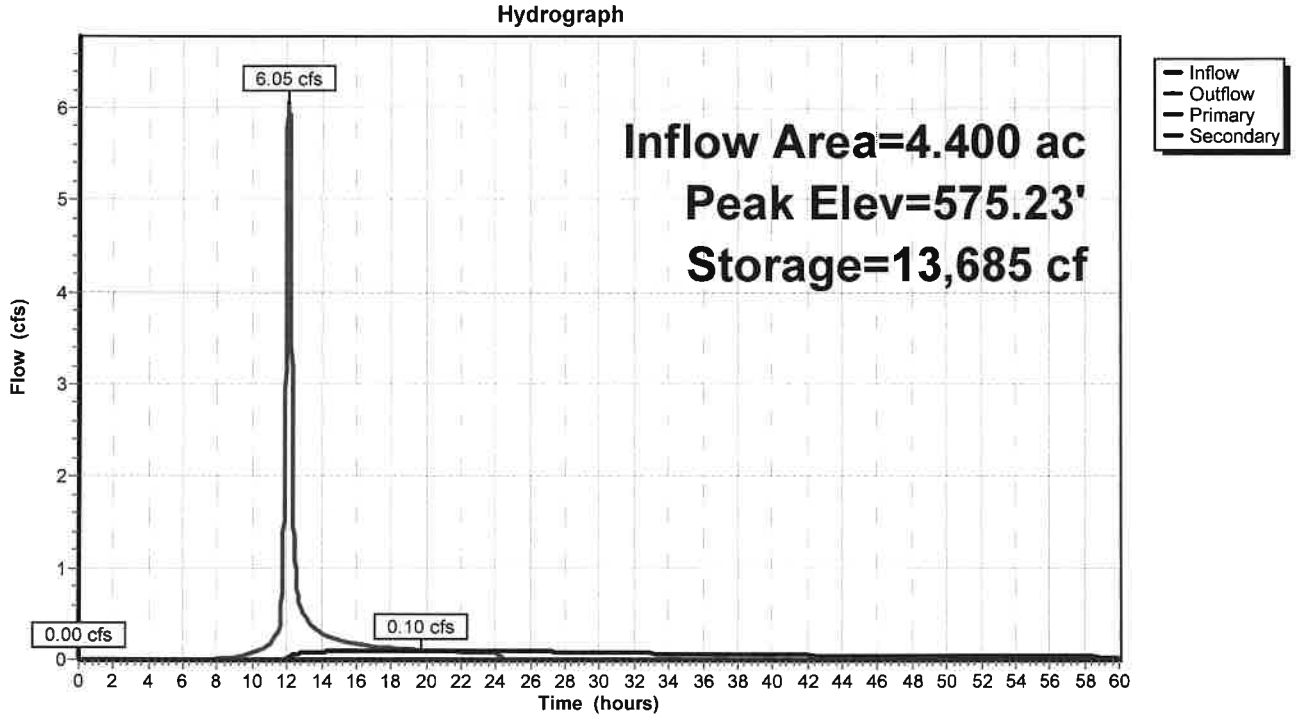
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.10 cfs @ 19.66 hrs HW=575.23' (Free Discharge)
↑**1=12" outlet pipe** (Passes 0.10 cfs of 1.85 cfs potential flow)
↑**2=low flow outlet pipe** (Barrel Controls 0.10 cfs @ 1.70 fps)
3=Grate (Controls 0.00 cfs)

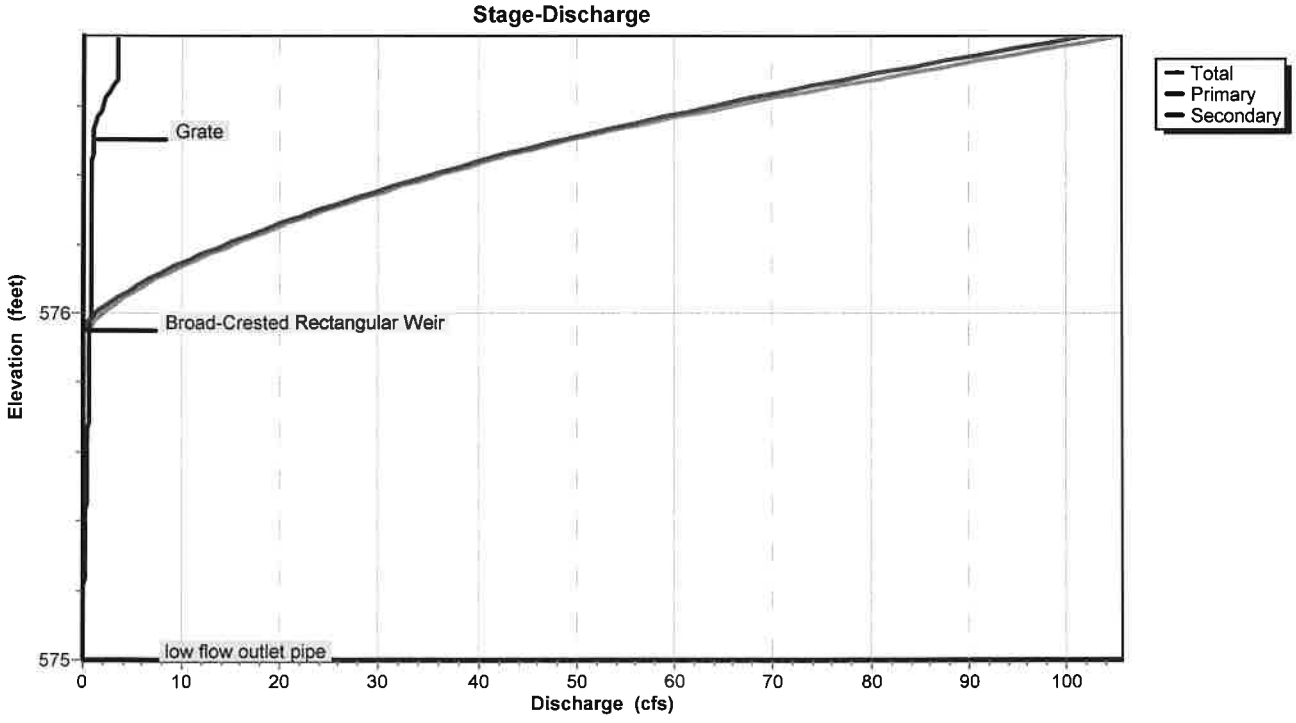
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

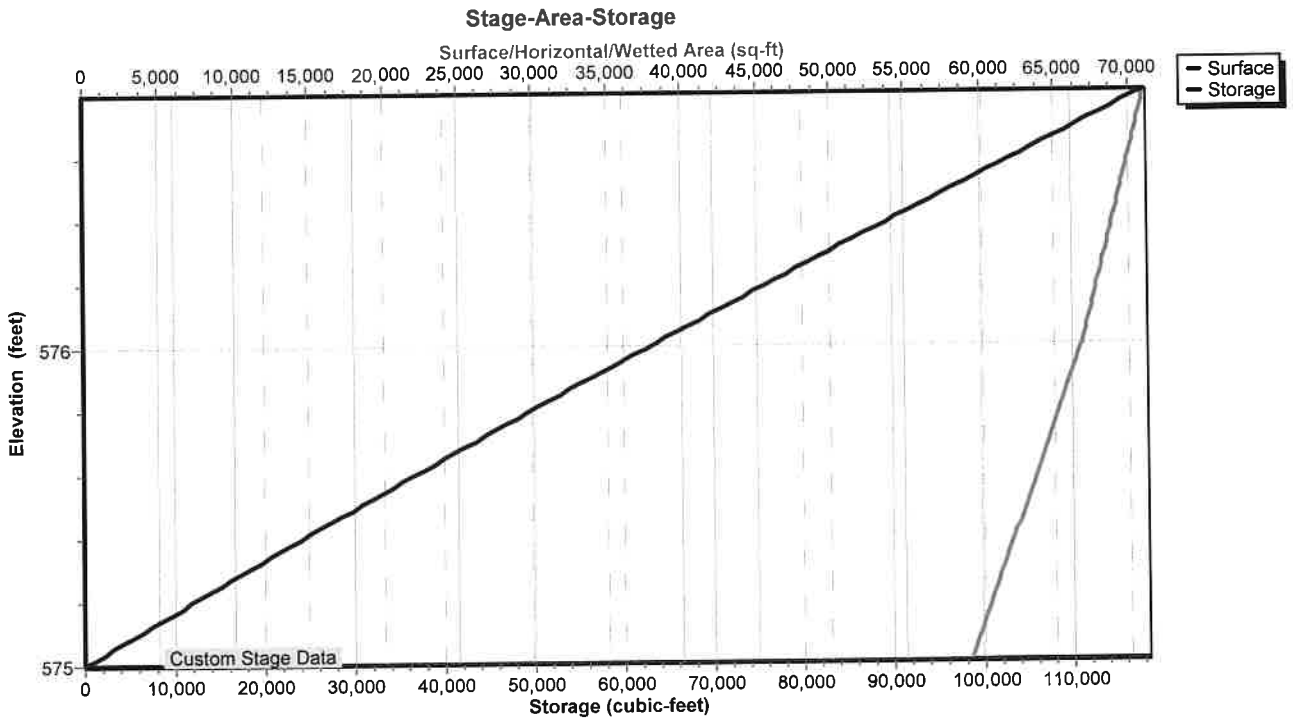


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.01	5	575.00	0.00	0.00	0.00
10.00	0.06	218	575.00	0.00	0.00	0.00
12.00	**5.18**	3,798	575.06	0.01	0.01	0.00
14.00	**0.28**	12,350	575.21	0.08	0.08	0.00
16.00	0.17	13,252	575.22	0.10	0.10	0.00
18.00	0.13	**13,599**	**575.23**	**0.10**	**0.10**	0.00
20.00	0.10	**13,682**	**575.23**	**0.10**	**0.10**	0.00
22.00	0.09	13,599	575.23	0.10	0.10	0.00
24.00	0.08	13,477	575.22	0.10	0.10	0.00
26.00	0.00	12,859	575.21	0.09	0.09	0.00
28.00	0.00	12,236	575.20	0.08	0.08	0.00
30.00	0.00	11,664	575.19	0.08	0.08	0.00
32.00	0.00	11,139	575.19	0.07	0.07	0.00
34.00	0.00	10,655	575.18	0.06	0.06	0.00
36.00	0.00	10,207	575.17	0.06	0.06	0.00
38.00	0.00	9,792	575.16	0.06	0.06	0.00
40.00	0.00	9,408	575.16	0.05	0.05	0.00
42.00	0.00	9,050	575.15	0.05	0.05	0.00
44.00	0.00	8,716	575.15	0.04	0.04	0.00
46.00	0.00	8,404	575.14	0.04	0.04	0.00
48.00	0.00	8,113	575.14	0.04	0.04	0.00
50.00	0.00	7,839	575.13	0.04	0.04	0.00
52.00	0.00	7,582	575.13	0.03	0.03	0.00
54.00	0.00	7,341	575.12	0.03	0.03	0.00
56.00	0.00	7,114	575.12	0.03	0.03	0.00
58.00	0.00	6,899	575.12	0.03	0.03	0.00
60.00	0.00	6,696	575.11	0.03	0.03	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

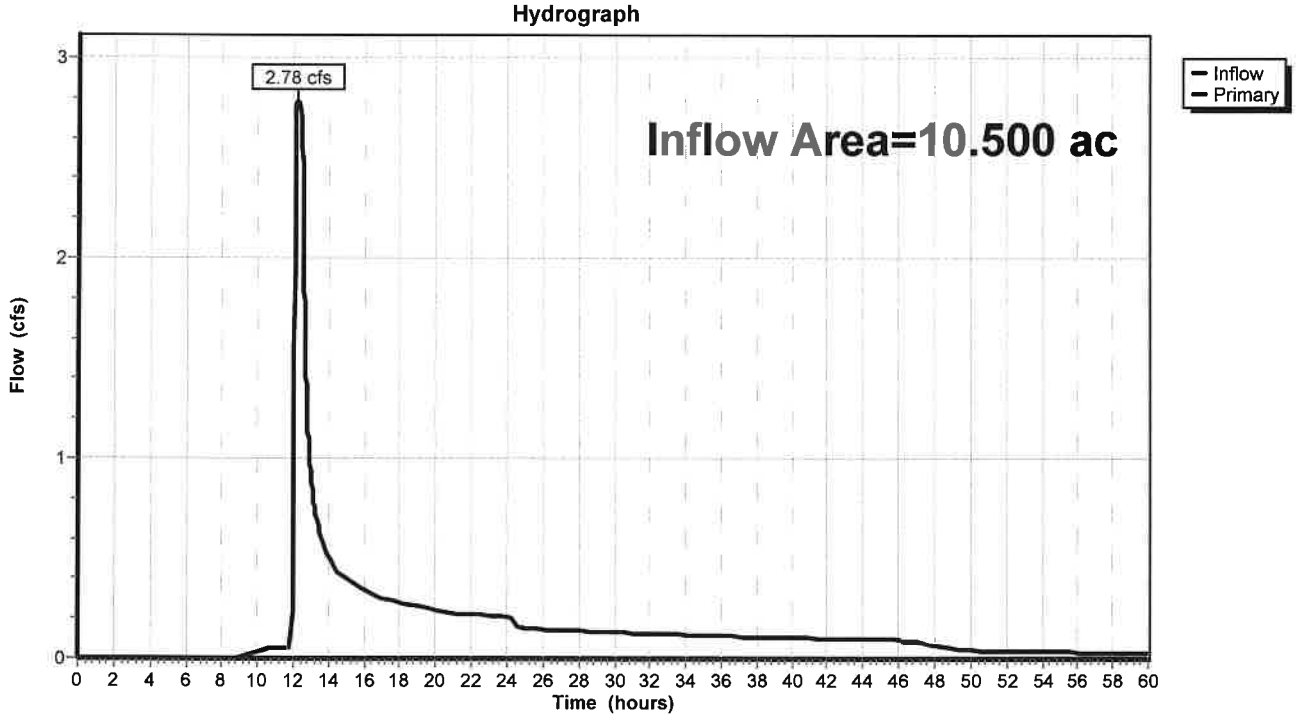
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 0.83" for 1-Year event
Inflow = 2.78 cfs @ 12.22 hrs, Volume= 0.724 af
Primary = 2.78 cfs @ 12.22 hrs, Volume= 0.724 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.04	0.00	0.04
1.00	0.00	0.00	0.00	53.00	0.03	0.00	0.03
2.00	0.00	0.00	0.00	54.00	0.03	0.00	0.03
3.00	0.00	0.00	0.00	55.00	0.03	0.00	0.03
4.00	0.00	0.00	0.00	56.00	0.03	0.00	0.03
5.00	0.00	0.00	0.00	57.00	0.03	0.00	0.03
6.00	0.00	0.00	0.00	58.00	0.03	0.00	0.03
7.00	0.00	0.00	0.00	59.00	0.03	0.00	0.03
8.00	0.00	0.00	0.00	60.00	0.03	0.00	0.03
9.00	0.01	0.00	0.01				
10.00	0.03	0.00	0.03				
11.00	0.05	0.00	0.05				
12.00	**0.09**	0.00	**0.09**				
13.00	**0.91**	0.00	**0.91**				
14.00	0.51	0.00	0.51				
15.00	0.40	0.00	0.40				
16.00	0.34	0.00	0.34				
17.00	0.30	0.00	0.30				
18.00	0.28	0.00	0.28				
19.00	0.26	0.00	0.26				
20.00	0.24	0.00	0.24				
21.00	0.23	0.00	0.23				
22.00	0.22	0.00	0.22				
23.00	0.21	0.00	0.21				
24.00	0.21	0.00	0.21				
25.00	0.15	0.00	0.15				
26.00	0.15	0.00	0.15				
27.00	0.14	0.00	0.14				
28.00	0.14	0.00	0.14				
29.00	0.13	0.00	0.13				
30.00	0.13	0.00	0.13				
31.00	0.13	0.00	0.13				
32.00	0.12	0.00	0.12				
33.00	0.12	0.00	0.12				
34.00	0.12	0.00	0.12				
35.00	0.12	0.00	0.12				
36.00	0.11	0.00	0.11				
37.00	0.11	0.00	0.11				
38.00	0.11	0.00	0.11				
39.00	0.11	0.00	0.11				
40.00	0.10	0.00	0.10				
41.00	0.10	0.00	0.10				
42.00	0.10	0.00	0.10				
43.00	0.10	0.00	0.10				
44.00	0.10	0.00	0.10				
45.00	0.09	0.00	0.09				
46.00	0.09	0.00	0.09				
47.00	0.09	0.00	0.09				
48.00	0.06	0.00	0.06				
49.00	0.05	0.00	0.05				
50.00	0.04	0.00	0.04				
51.00	0.04	0.00	0.04				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=1.27"
Flow Length=652' Tc=13.3 min CN=90 Runoff=10.57 cfs 0.644 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.34"
Flow Length=683' Tc=14.4 min CN=91 Runoff=7.75 cfs 0.491 af

Pond 1P: Bioretention Area 3 Peak Elev=575.91' Storage=8,359 cf Inflow=10.57 cfs 0.644 af
Primary=2.79 cfs 0.556 af Secondary=5.41 cfs 0.088 af Outflow=8.19 cfs 0.644 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.32' Storage=19,128 cf Inflow=12.29 cfs 0.579 af
Primary=0.18 cfs 0.400 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.400 af

Link 5L: Outflow (@ CB 54) Inflow=2.86 cfs 0.956 af
Primary=2.86 cfs 0.956 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.135 af Average Runoff Depth = 1.30"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

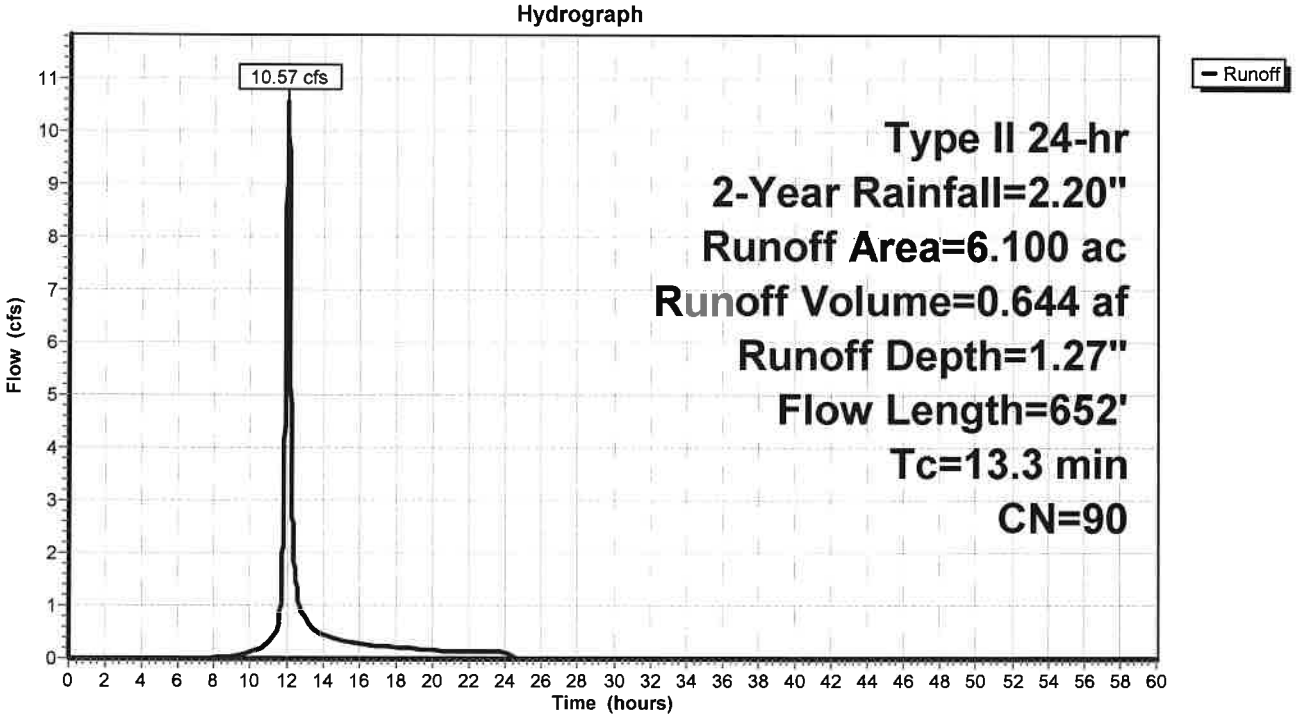
Runoff = 10.57 cfs @ 12.05 hrs, Volume= 0.644 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.02
9.00	0.32	0.01	0.06
10.00	0.40	0.02	0.12
11.00	0.52	0.06	0.30
12.00	1.46	0.65	**9.45**
13.00	1.70	0.84	**0.79**
14.00	1.80	0.93	0.46
15.00	1.88	0.99	0.36
16.00	1.94	1.04	0.28
17.00	1.98	1.08	0.24
18.00	2.03	1.12	0.21
19.00	2.06	1.15	0.19
20.00	2.09	1.17	0.16
21.00	2.12	1.20	0.15
22.00	2.15	1.22	0.14
23.00	2.18	1.24	0.14
24.00	**2.20**	**1.27**	0.13
25.00	2.20	1.27	0.00
26.00	2.20	1.27	0.00
27.00	2.20	1.27	0.00
28.00	2.20	1.27	0.00
29.00	2.20	1.27	0.00
30.00	2.20	1.27	0.00
31.00	2.20	1.27	0.00
32.00	2.20	1.27	0.00
33.00	2.20	1.27	0.00
34.00	2.20	1.27	0.00
35.00	2.20	1.27	0.00
36.00	2.20	1.27	0.00
37.00	2.20	1.27	0.00
38.00	2.20	1.27	0.00
39.00	2.20	1.27	0.00
40.00	2.20	1.27	0.00
41.00	2.20	1.27	0.00
42.00	2.20	1.27	0.00
43.00	2.20	1.27	0.00
44.00	2.20	1.27	0.00
45.00	2.20	1.27	0.00
46.00	2.20	1.27	0.00
47.00	2.20	1.27	0.00
48.00	2.20	1.27	0.00
49.00	2.20	1.27	0.00
50.00	2.20	1.27	0.00
51.00	2.20	1.27	0.00
52.00	2.20	1.27	0.00
53.00	2.20	1.27	0.00
54.00	2.20	1.27	0.00
55.00	2.20	1.27	0.00
56.00	2.20	1.27	0.00
57.00	2.20	1.27	0.00
58.00	2.20	1.27	0.00
59.00	2.20	1.27	0.00
60.00	2.20	1.27	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

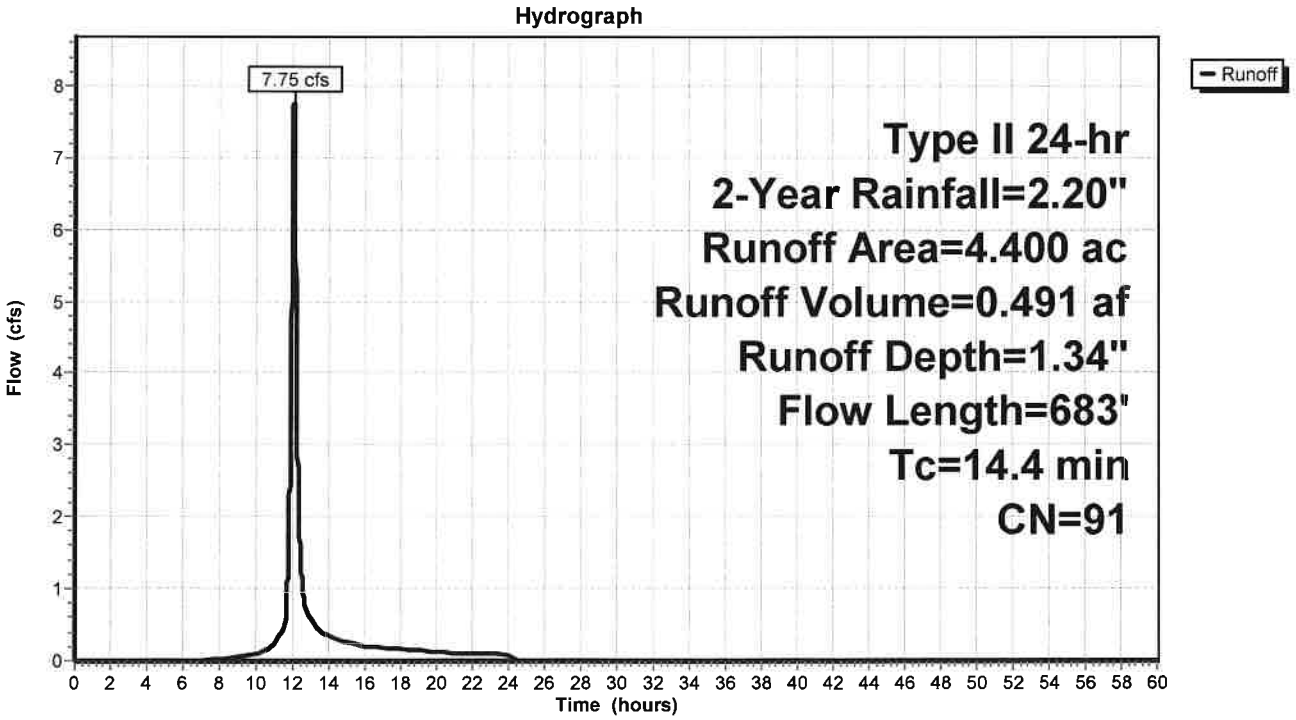
Runoff = 7.75 cfs @ 12.06 hrs, Volume= 0.491 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.02
9.00	0.32	0.01	0.06
10.00	0.40	0.03	0.10
11.00	0.52	0.08	0.25
12.00	1.46	0.71	**6.69**
13.00	1.70	0.90	**0.60**
14.00	1.80	0.99	0.35
15.00	1.88	1.06	0.27
16.00	1.94	1.11	0.21
17.00	1.98	1.15	0.18
18.00	2.03	1.19	0.16
19.00	2.06	1.22	0.14
20.00	2.09	1.25	0.12
21.00	2.12	1.27	0.11
22.00	2.15	1.30	0.10
23.00	2.18	1.32	0.10
24.00	**2.20**	**1.34**	0.10
25.00	2.20	1.34	0.00
26.00	2.20	1.34	0.00
27.00	2.20	1.34	0.00
28.00	2.20	1.34	0.00
29.00	2.20	1.34	0.00
30.00	2.20	1.34	0.00
31.00	2.20	1.34	0.00
32.00	2.20	1.34	0.00
33.00	2.20	1.34	0.00
34.00	2.20	1.34	0.00
35.00	2.20	1.34	0.00
36.00	2.20	1.34	0.00
37.00	2.20	1.34	0.00
38.00	2.20	1.34	0.00
39.00	2.20	1.34	0.00
40.00	2.20	1.34	0.00
41.00	2.20	1.34	0.00
42.00	2.20	1.34	0.00
43.00	2.20	1.34	0.00
44.00	2.20	1.34	0.00
45.00	2.20	1.34	0.00
46.00	2.20	1.34	0.00
47.00	2.20	1.34	0.00
48.00	2.20	1.34	0.00
49.00	2.20	1.34	0.00
50.00	2.20	1.34	0.00
51.00	2.20	1.34	0.00
52.00	2.20	1.34	0.00
53.00	2.20	1.34	0.00
54.00	2.20	1.34	0.00
55.00	2.20	1.34	0.00
56.00	2.20	1.34	0.00
57.00	2.20	1.34	0.00
58.00	2.20	1.34	0.00
59.00	2.20	1.34	0.00
60.00	2.20	1.34	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 10.57 cfs @ 12.05 hrs, Volume= 0.644 af
Outflow = 8.19 cfs @ 12.13 hrs, Volume= 0.644 af, Atten= 22%, Lag= 4.9 min
Primary = 2.79 cfs @ 12.13 hrs, Volume= 0.556 af
Secondary = 5.41 cfs @ 12.13 hrs, Volume= 0.088 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.91' @ 12.13 hrs Surf.Area= 9,805 sf Storage= 8,359 cf

Plug-Flow detention time= 252.3 min calculated for 0.644 af (100% of inflow)
Center-of-Mass det. time= 252.2 min (1,078.1 - 825.9)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

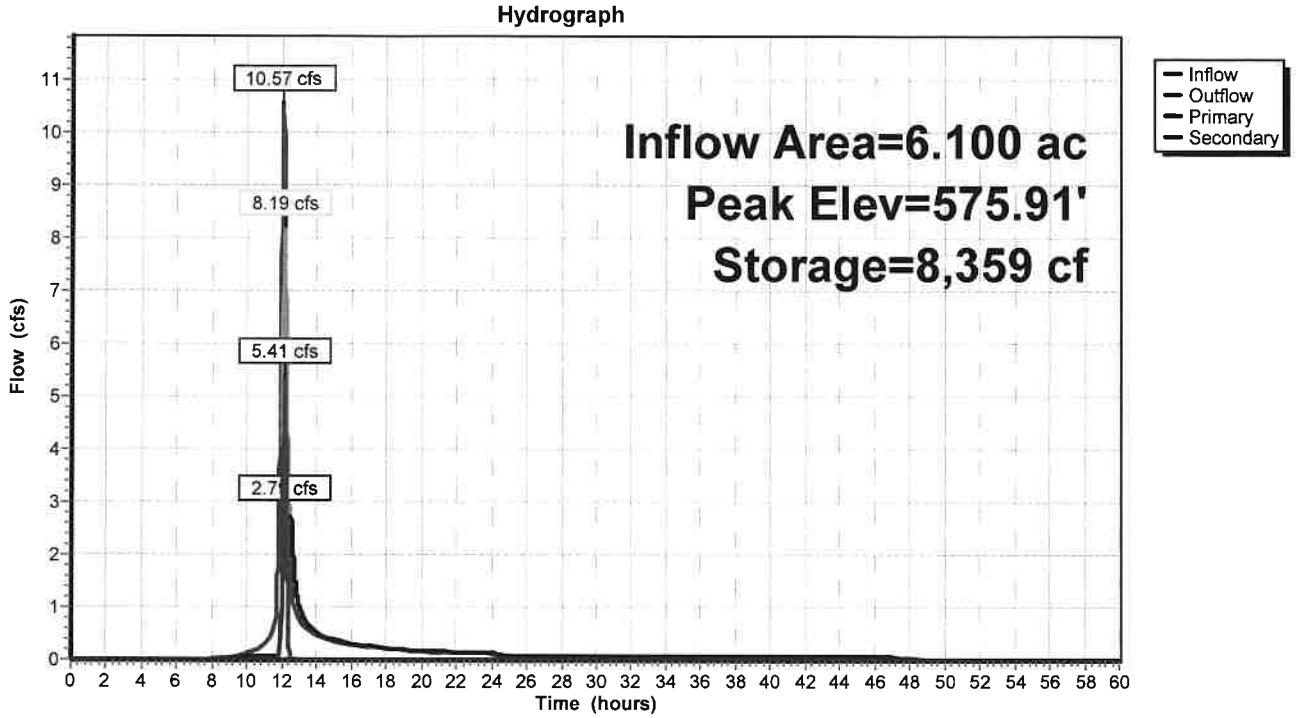
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.79 cfs @ 12.13 hrs HW=575.91' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.79 cfs @ 7.98 fps)
└**2=Grate** (Passes < 4.28 cfs potential flow)
└**3=Exfiltration** (Passes < 0.06 cfs potential flow)

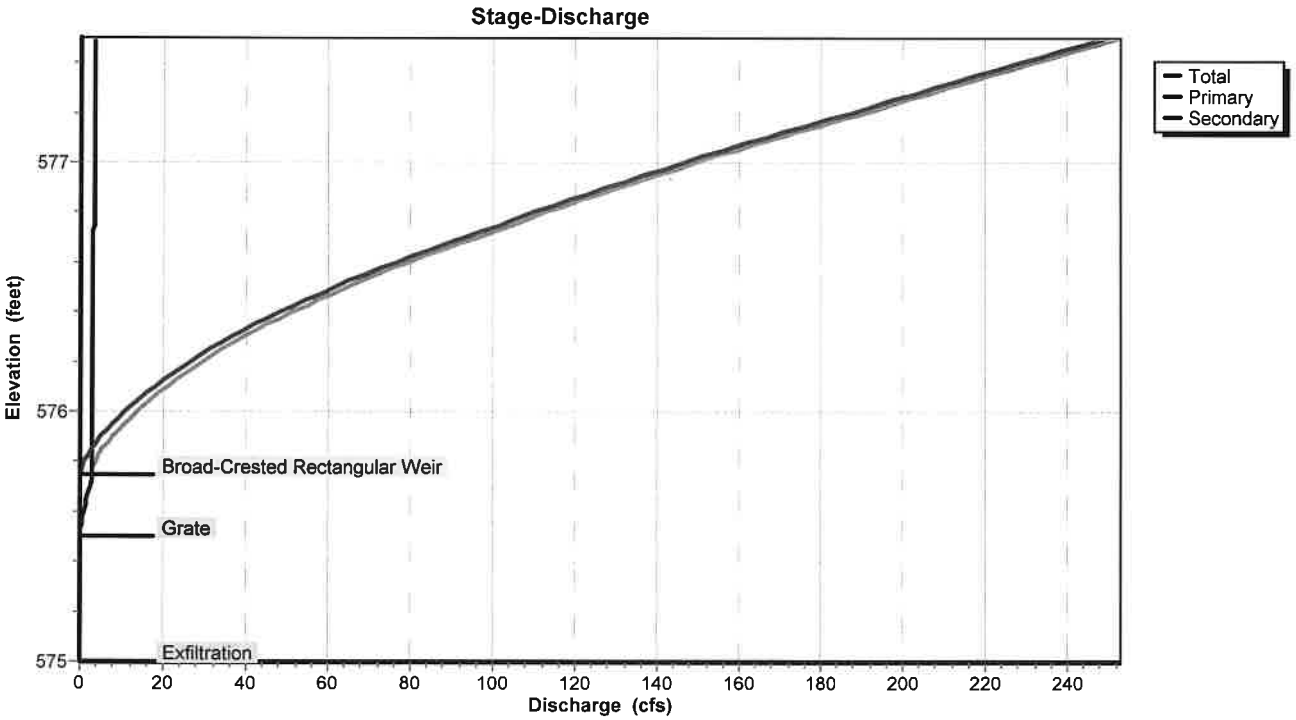
Secondary OutFlow Max=5.39 cfs @ 12.13 hrs HW=575.91' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 5.39 cfs @ 1.15 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

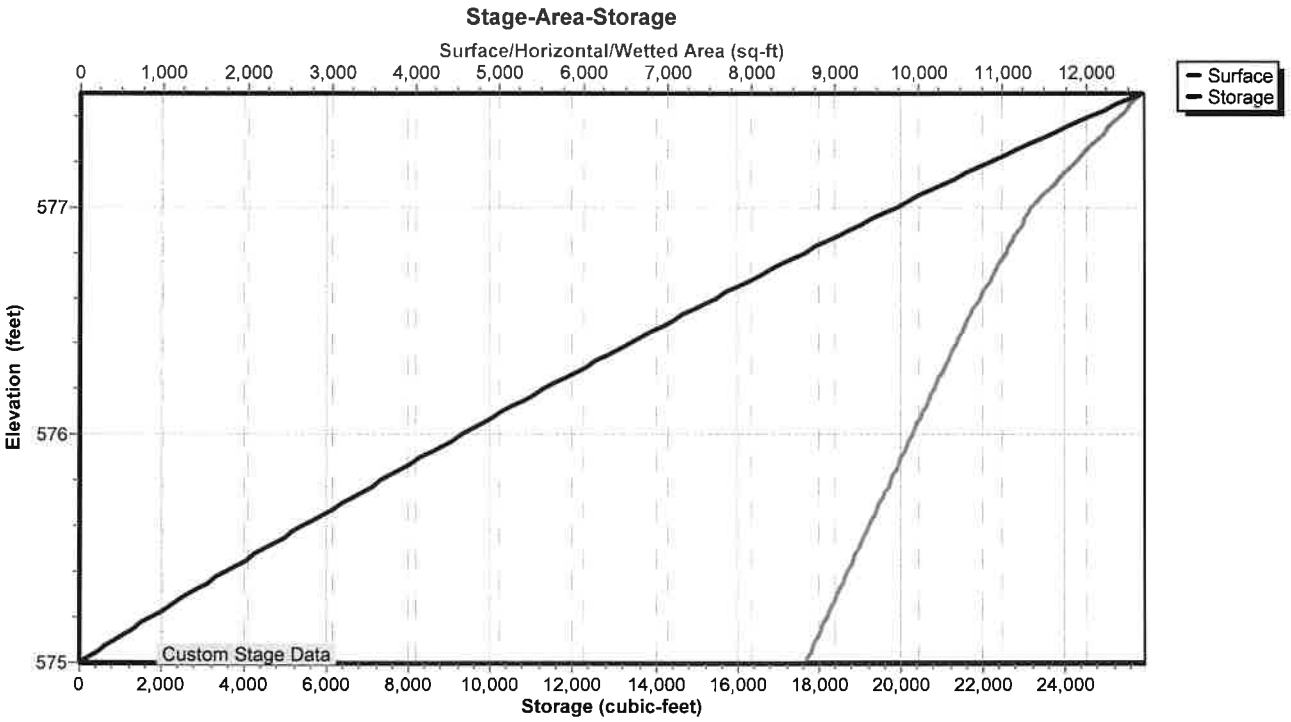


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.02	17	575.00	0.00	0.00	0.00
10.00	0.12	257	575.03	0.05	0.05	0.00
12.00	**9.45**	**6,253**	**575.69**	**2.30**	**2.30**	**0.00**
14.00	**0.46**	**5,096**	**575.57**	**0.52**	**0.52**	**0.00**
16.00	0.28	4,881	575.54	0.30	0.30	0.00
18.00	0.21	4,786	575.53	0.22	0.22	0.00
20.00	0.16	4,719	575.53	0.17	0.17	0.00
22.00	0.14	4,676	575.52	0.15	0.15	0.00
24.00	0.13	4,652	575.52	0.13	0.13	0.00
26.00	0.00	4,232	575.47	0.06	0.06	0.00
28.00	0.00	3,836	575.43	0.05	0.05	0.00
30.00	0.00	3,444	575.39	0.05	0.05	0.00
32.00	0.00	3,055	575.34	0.05	0.05	0.00
34.00	0.00	2,670	575.30	0.05	0.05	0.00
36.00	0.00	2,287	575.26	0.05	0.05	0.00
38.00	0.00	1,909	575.22	0.05	0.05	0.00
40.00	0.00	1,533	575.18	0.05	0.05	0.00
42.00	0.00	1,161	575.13	0.05	0.05	0.00
44.00	0.00	792	575.09	0.05	0.05	0.00
46.00	0.00	426	575.05	0.05	0.05	0.00
48.00	0.00	107	575.01	0.02	0.02	0.00
50.00	0.00	20	575.00	0.00	0.00	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 1.58" for 2-Year event
Inflow = 12.29 cfs @ 12.11 hrs, Volume= 0.579 af
Outflow = 0.18 cfs @ 17.01 hrs, Volume= 0.400 af, Atten= 99%, Lag= 293.7 min
Primary = 0.18 cfs @ 17.01 hrs, Volume= 0.400 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.32' @ 17.01 hrs Surf.Area= 61,630 sf Storage= 19,128 cf

Plug-Flow detention time= 1,051.7 min calculated for 0.400 af (69% of inflow)
Center-of-Mass det. time= 962.0 min (1,770.2 - 808.1)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

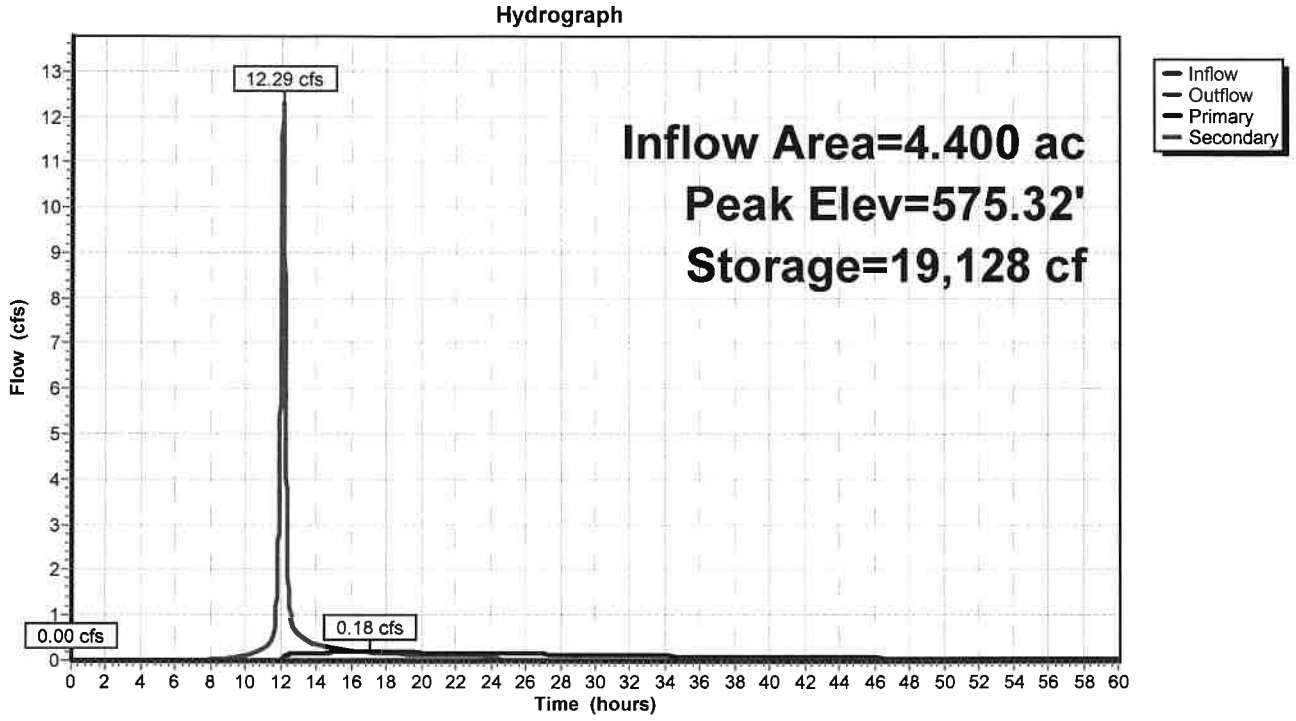
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.18 cfs @ 17.01 hrs HW=575.32' (Free Discharge)
└─**1=12" outlet pipe** (Passes 0.18 cfs of 1.87 cfs potential flow)
  ├─**2=low flow outlet pipe** (Barrel Controls 0.18 cfs @ 1.95 fps)
  └─**3=Grate** (Controls 0.00 cfs)

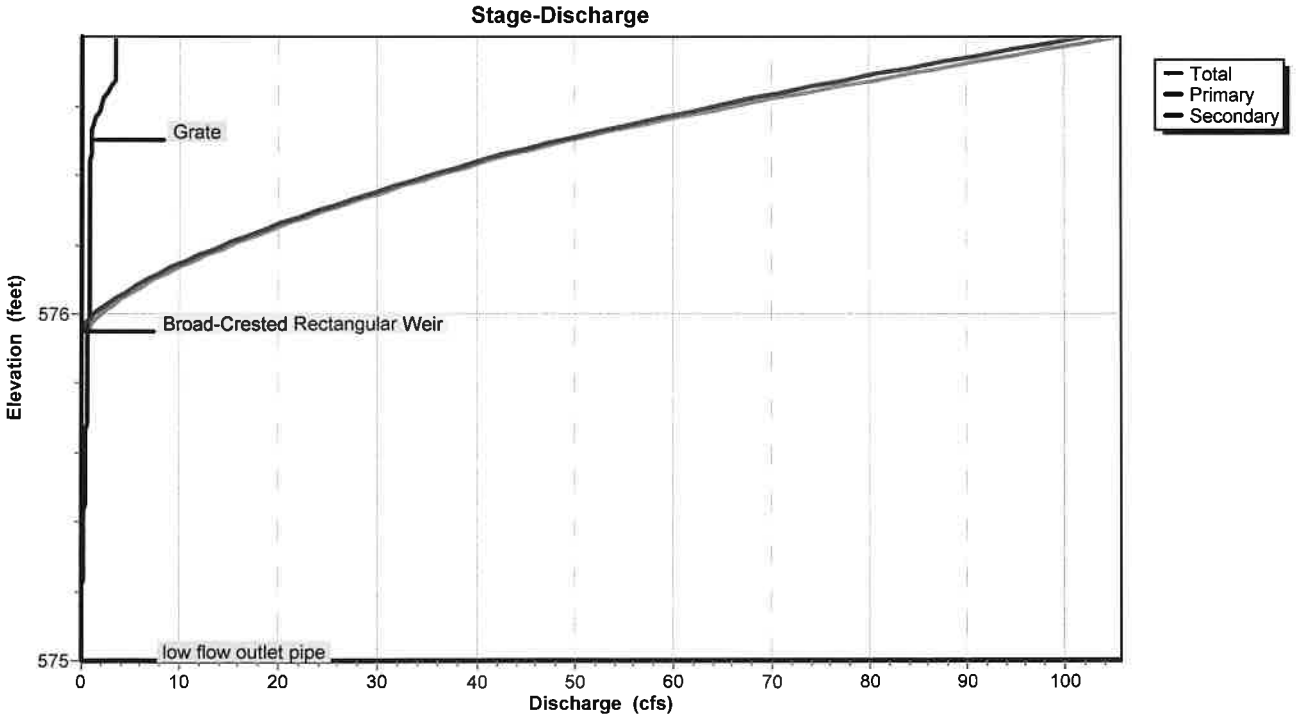
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

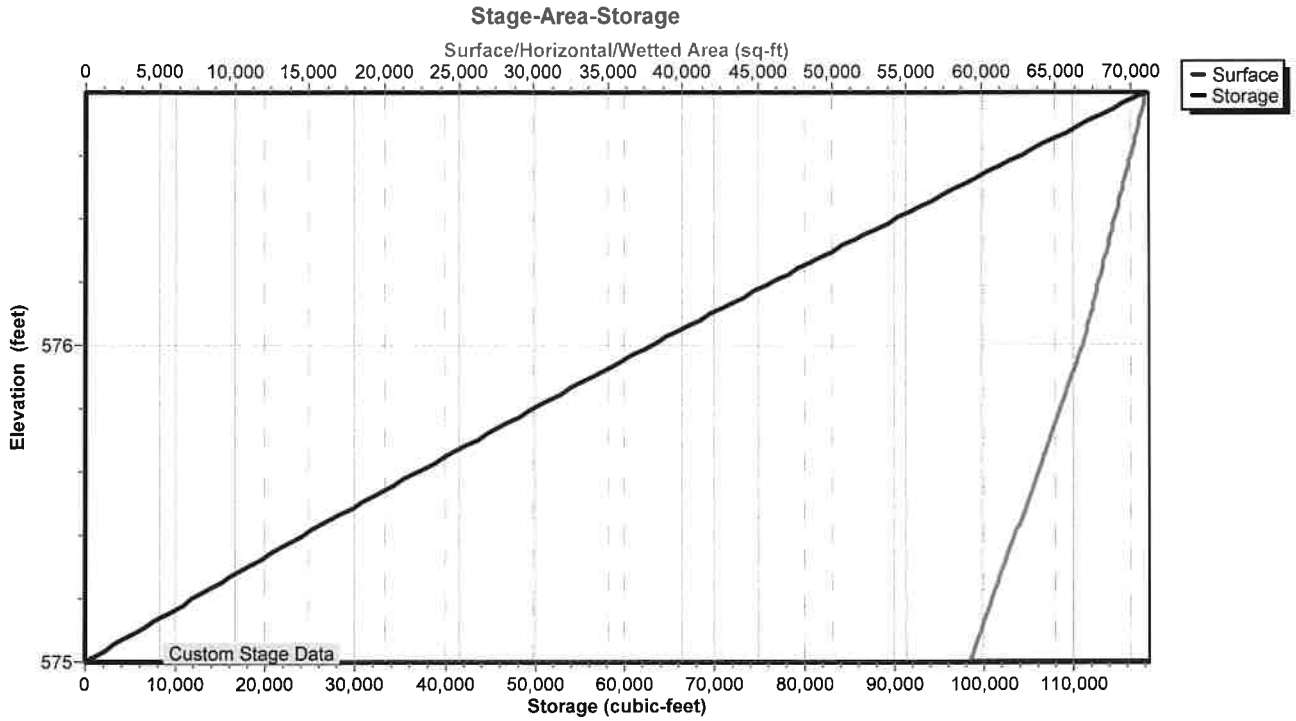


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.02	48	575.00	0.00	0.00	0.00
10.00	0.10	451	575.01	0.00	0.00	0.00
12.00	**6.69**	5,327	575.09	0.02	0.02	0.00
14.00	**0.35**	18,425	575.31	0.17	0.17	0.00
16.00	0.21	**19,087**	**575.32**	**0.18**	**0.18**	0.00
18.00	0.16	**19,093**	**575.32**	**0.18**	**0.18**	0.00
20.00	0.12	18,812	575.31	0.17	0.17	0.00
22.00	0.10	18,367	575.30	0.17	0.17	0.00
24.00	0.10	17,912	575.30	0.16	0.16	0.00
26.00	0.00	16,886	575.28	0.15	0.15	0.00
28.00	0.00	15,893	575.26	0.13	0.13	0.00
30.00	0.00	14,996	575.25	0.12	0.12	0.00
32.00	0.00	14,184	575.24	0.11	0.11	0.00
34.00	0.00	13,445	575.22	0.10	0.10	0.00
36.00	0.00	12,772	575.21	0.09	0.09	0.00
38.00	0.00	12,156	575.20	0.08	0.08	0.00
40.00	0.00	11,591	575.19	0.08	0.08	0.00
42.00	0.00	11,071	575.18	0.07	0.07	0.00
44.00	0.00	10,592	575.18	0.06	0.06	0.00
46.00	0.00	10,149	575.17	0.06	0.06	0.00
48.00	0.00	9,739	575.16	0.05	0.05	0.00
50.00	0.00	9,358	575.16	0.05	0.05	0.00
52.00	0.00	9,003	575.15	0.05	0.05	0.00
54.00	0.00	8,673	575.15	0.04	0.04	0.00
56.00	0.00	8,364	575.14	0.04	0.04	0.00
58.00	0.00	8,075	575.14	0.04	0.04	0.00
60.00	0.00	7,803	575.13	0.04	0.04	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

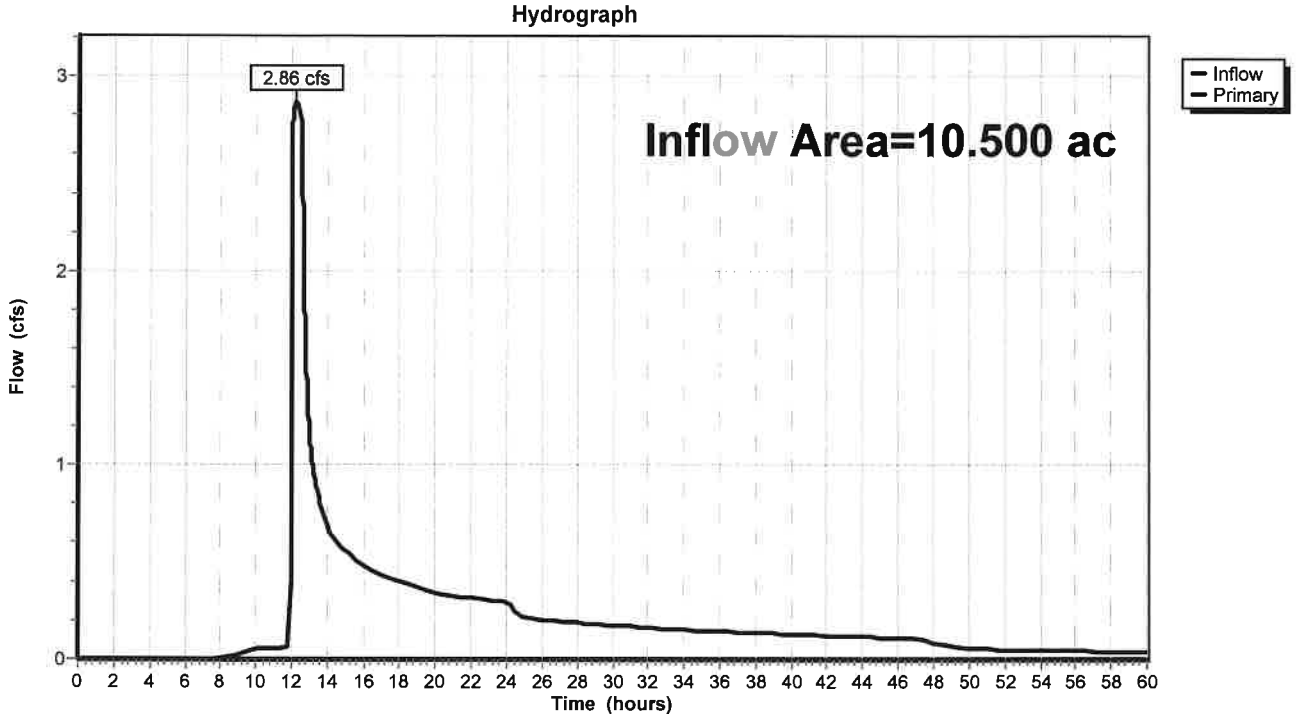
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.09" for 2-Year event
Inflow = 2.86 cfs @ 12.23 hrs, Volume= 0.956 af
Primary = 2.86 cfs @ 12.23 hrs, Volume= 0.956 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.05	0.00	0.05
1.00	0.00	0.00	0.00	53.00	0.05	0.00	0.05
2.00	0.00	0.00	0.00	54.00	0.04	0.00	0.04
3.00	0.00	0.00	0.00	55.00	0.04	0.00	0.04
4.00	0.00	0.00	0.00	56.00	0.04	0.00	0.04
5.00	0.00	0.00	0.00	57.00	0.04	0.00	0.04
6.00	0.00	0.00	0.00	58.00	0.04	0.00	0.04
7.00	0.00	0.00	0.00	59.00	0.04	0.00	0.04
8.00	0.00	0.00	0.00	60.00	0.04	0.00	0.04
9.00	0.02	0.00	0.02				
10.00	0.05	0.00	0.05				
11.00	0.05	0.00	0.05				
12.00	**2.31**	0.00	**2.31**				
13.00	**1.18**	0.00	**1.18**				
14.00	0.69	0.00	0.69				
15.00	0.55	0.00	0.55				
16.00	0.48	0.00	0.48				
17.00	0.43	0.00	0.43				
18.00	0.40	0.00	0.40				
19.00	0.37	0.00	0.37				
20.00	0.34	0.00	0.34				
21.00	0.32	0.00	0.32				
22.00	0.31	0.00	0.31				
23.00	0.30	0.00	0.30				
24.00	0.29	0.00	0.29				
25.00	0.21	0.00	0.21				
26.00	0.20	0.00	0.20				
27.00	0.19	0.00	0.19				
28.00	0.19	0.00	0.19				
29.00	0.18	0.00	0.18				
30.00	0.17	0.00	0.17				
31.00	0.17	0.00	0.17				
32.00	0.16	0.00	0.16				
33.00	0.16	0.00	0.16				
34.00	0.15	0.00	0.15				
35.00	0.15	0.00	0.15				
36.00	0.14	0.00	0.14				
37.00	0.14	0.00	0.14				
38.00	0.13	0.00	0.13				
39.00	0.13	0.00	0.13				
40.00	0.13	0.00	0.13				
41.00	0.12	0.00	0.12				
42.00	0.12	0.00	0.12				
43.00	0.12	0.00	0.12				
44.00	0.11	0.00	0.11				
45.00	0.11	0.00	0.11				
46.00	0.11	0.00	0.11				
47.00	0.11	0.00	0.11				
48.00	0.08	0.00	0.08				
49.00	0.06	0.00	0.06				
50.00	0.06	0.00	0.06				
51.00	0.05	0.00	0.05				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=1.71"
Flow Length=652' Tc=13.3 min CN=90 Runoff=14.18 cfs 0.870 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.79"
Flow Length=683' Tc=14.4 min CN=91 Runoff=10.29 cfs 0.658 af

Pond 1P: Bioretention Area 3 Peak Elev=575.99' Storage=9,153 cf Inflow=14.18 cfs 0.870 af
Primary=2.83 cfs 0.666 af Secondary=10.09 cfs 0.203 af Outflow=12.91 cfs 0.870 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.46' Storage=28,218 cf Inflow=20.08 cfs 0.861 af
Primary=0.33 cfs 0.652 af Secondary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.652 af

Link 5L: Outflow (@ CB 54) Inflow=3.01 cfs 1.318 af
Primary=3.01 cfs 1.318 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.527 af Average Runoff Depth = 1.75"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

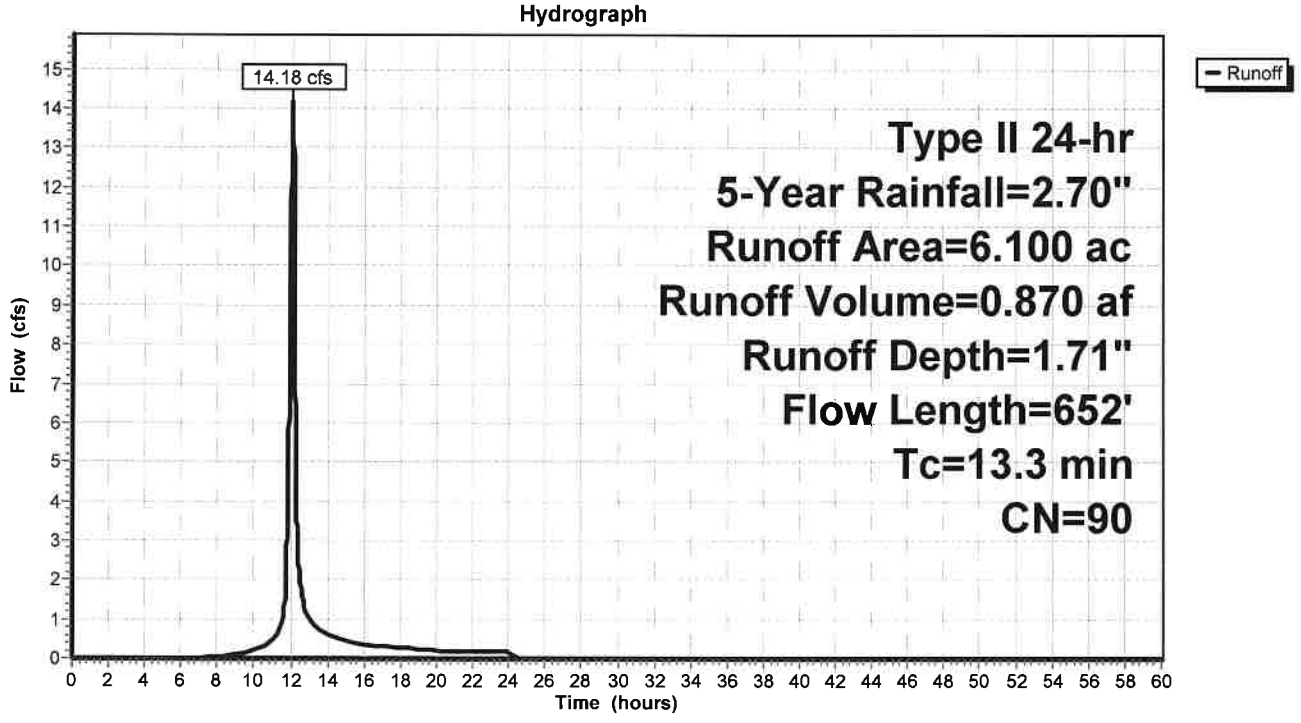
Runoff = 14.18 cfs @ 12.05 hrs, Volume= 0.870 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.02
8.00	0.32	0.01	0.05
9.00	0.40	0.02	0.12
10.00	0.49	0.05	0.20
11.00	0.63	0.11	0.47
12.00	1.79	0.92	**12.79**
13.00	2.08	1.17	**1.02**
14.00	2.21	1.28	0.59
15.00	2.30	1.36	0.46
16.00	2.38	1.42	0.36
17.00	2.43	1.47	0.31
18.00	2.49	1.52	0.27
19.00	2.53	1.56	0.24
20.00	2.57	1.59	0.20
21.00	2.60	1.62	0.19
22.00	2.64	1.65	0.18
23.00	2.67	1.68	0.17
24.00	**2.70**	**1.71**	0.17
25.00	2.70	1.71	0.00
26.00	2.70	1.71	0.00
27.00	2.70	1.71	0.00
28.00	2.70	1.71	0.00
29.00	2.70	1.71	0.00
30.00	2.70	1.71	0.00
31.00	2.70	1.71	0.00
32.00	2.70	1.71	0.00
33.00	2.70	1.71	0.00
34.00	2.70	1.71	0.00
35.00	2.70	1.71	0.00
36.00	2.70	1.71	0.00
37.00	2.70	1.71	0.00
38.00	2.70	1.71	0.00
39.00	2.70	1.71	0.00
40.00	2.70	1.71	0.00
41.00	2.70	1.71	0.00
42.00	2.70	1.71	0.00
43.00	2.70	1.71	0.00
44.00	2.70	1.71	0.00
45.00	2.70	1.71	0.00
46.00	2.70	1.71	0.00
47.00	2.70	1.71	0.00
48.00	2.70	1.71	0.00
49.00	2.70	1.71	0.00
50.00	2.70	1.71	0.00
51.00	2.70	1.71	0.00
52.00	2.70	1.71	0.00
53.00	2.70	1.71	0.00
54.00	2.70	1.71	0.00
55.00	2.70	1.71	0.00
56.00	2.70	1.71	0.00
57.00	2.70	1.71	0.00
58.00	2.70	1.71	0.00
59.00	2.70	1.71	0.00
60.00	2.70	1.71	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

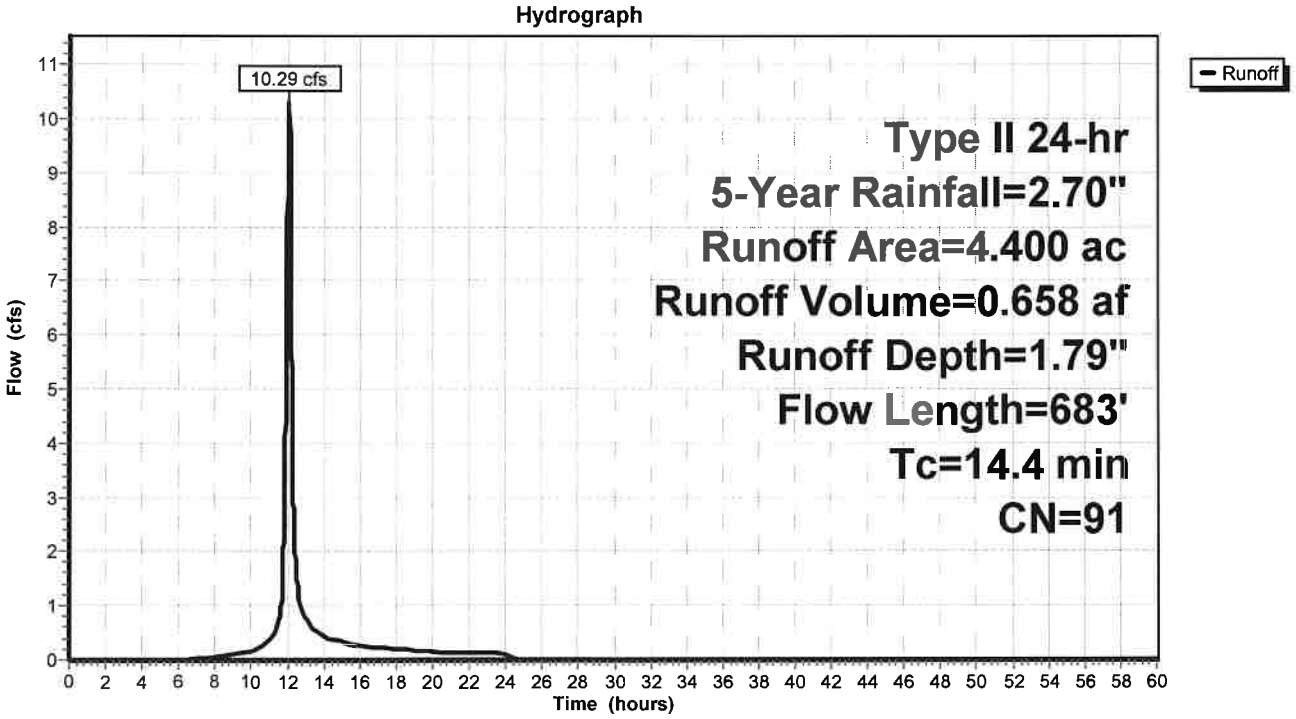
Runoff = 10.29 cfs @ 12.06 hrs, Volume= 0.658 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.03
8.00	0.32	0.01	0.05
9.00	0.40	0.03	0.10
10.00	0.49	0.07	0.17
11.00	0.63	0.13	0.37
12.00	1.79	0.98	**8.97**
13.00	2.08	1.24	**0.77**
14.00	2.21	1.35	0.44
15.00	2.30	1.43	0.34
16.00	2.38	1.50	0.27
17.00	2.43	1.55	0.23
18.00	2.49	1.60	0.20
19.00	2.53	1.64	0.18
20.00	2.57	1.67	0.15
21.00	2.60	1.71	0.14
22.00	2.64	1.74	0.13
23.00	2.67	1.77	0.13
24.00	**2.70**	**1.79**	0.12
25.00	2.70	1.79	0.00
26.00	2.70	1.79	0.00
27.00	2.70	1.79	0.00
28.00	2.70	1.79	0.00
29.00	2.70	1.79	0.00
30.00	2.70	1.79	0.00
31.00	2.70	1.79	0.00
32.00	2.70	1.79	0.00
33.00	2.70	1.79	0.00
34.00	2.70	1.79	0.00
35.00	2.70	1.79	0.00
36.00	2.70	1.79	0.00
37.00	2.70	1.79	0.00
38.00	2.70	1.79	0.00
39.00	2.70	1.79	0.00
40.00	2.70	1.79	0.00
41.00	2.70	1.79	0.00
42.00	2.70	1.79	0.00
43.00	2.70	1.79	0.00
44.00	2.70	1.79	0.00
45.00	2.70	1.79	0.00
46.00	2.70	1.79	0.00
47.00	2.70	1.79	0.00
48.00	2.70	1.79	0.00
49.00	2.70	1.79	0.00
50.00	2.70	1.79	0.00
51.00	2.70	1.79	0.00
52.00	2.70	1.79	0.00
53.00	2.70	1.79	0.00
54.00	2.70	1.79	0.00
55.00	2.70	1.79	0.00
56.00	2.70	1.79	0.00
57.00	2.70	1.79	0.00
58.00	2.70	1.79	0.00
59.00	2.70	1.79	0.00
60.00	2.70	1.79	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 1.71" for 5-Year event
Inflow = 14.18 cfs @ 12.05 hrs, Volume= 0.870 af
Outflow = 12.91 cfs @ 12.10 hrs, Volume= 0.870 af, Atten= 9%, Lag= 2.9 min
Primary = 2.83 cfs @ 12.10 hrs, Volume= 0.666 af
Secondary = 10.09 cfs @ 12.10 hrs, Volume= 0.203 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.99' @ 12.10 hrs Surf.Area= 9,908 sf Storage= 9,153 cf

Plug-Flow detention time= 193.1 min calculated for 0.869 af (100% of inflow)
Center-of-Mass det. time= 193.4 min (1,010.7 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

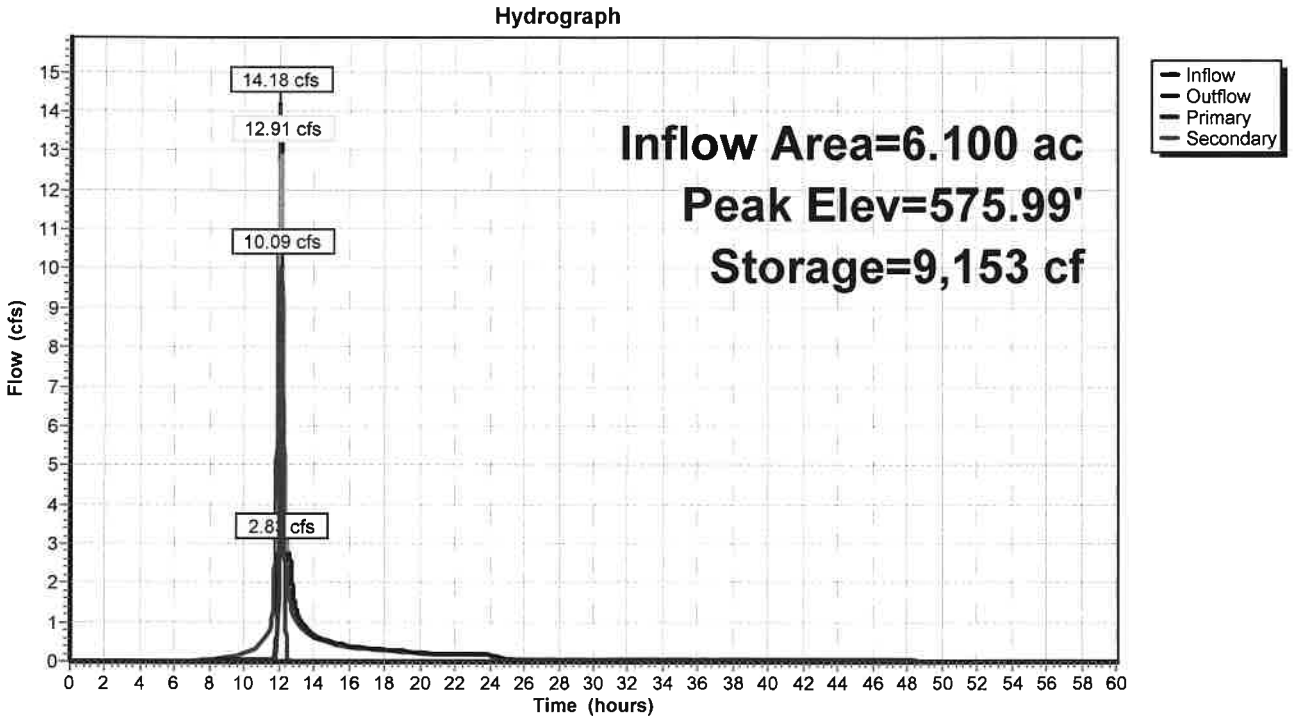
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.83 cfs @ 12.10 hrs HW=575.99' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.83 cfs @ 8.10 fps)
  ├**2=Grate** (Passes < 4.69 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

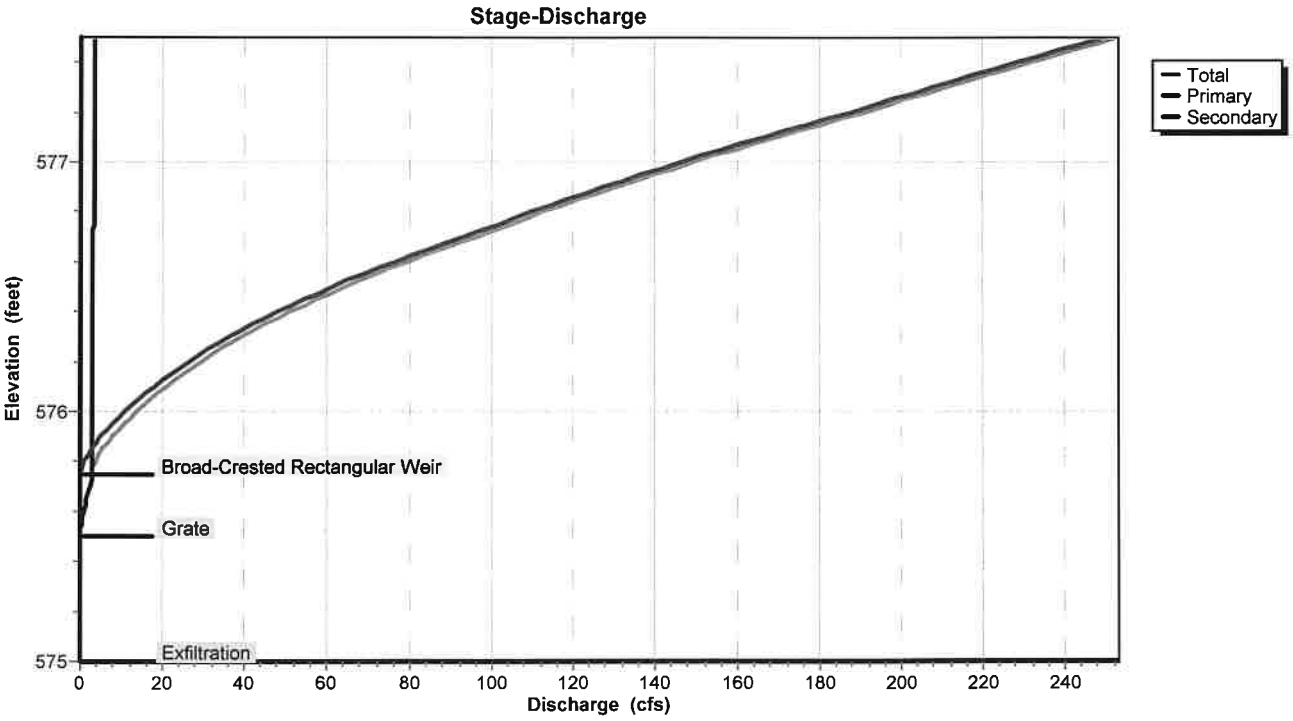
Secondary OutFlow Max=10.07 cfs @ 12.10 hrs HW=575.99' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 10.07 cfs @ 1.42 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

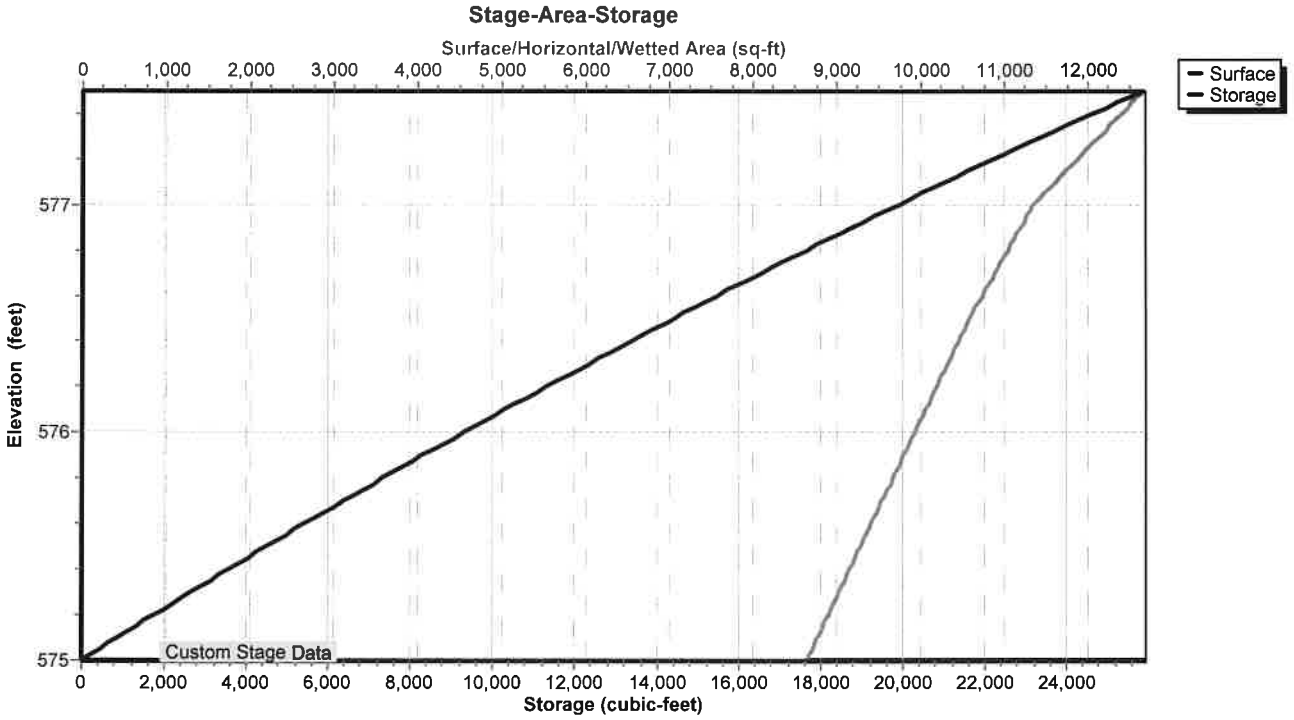


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.05	99	575.01	0.02	0.02	0.00
10.00	0.20	617	575.07	0.05	0.05	0.00
12.00	**12.79**	**8,183**	**575.89**	**7.28**	**2.78**	**4.50**
14.00	**0.59**	**5,218**	**575.58**	**0.66**	**0.66**	**0.00**
16.00	0.36	4,969	575.55	0.38	0.38	0.00
18.00	0.27	4,859	575.54	0.29	0.29	0.00
20.00	0.20	4,774	575.53	0.21	0.21	0.00
22.00	0.18	4,739	575.53	0.18	0.18	0.00
24.00	0.17	4,722	575.53	0.17	0.17	0.00
26.00	0.00	4,258	575.48	0.06	0.06	0.00
28.00	0.00	3,862	575.43	0.05	0.05	0.00
30.00	0.00	3,470	575.39	0.05	0.05	0.00
32.00	0.00	3,081	575.35	0.05	0.05	0.00
34.00	0.00	2,695	575.30	0.05	0.05	0.00
36.00	0.00	2,313	575.26	0.05	0.05	0.00
38.00	0.00	1,934	575.22	0.05	0.05	0.00
40.00	0.00	1,558	575.18	0.05	0.05	0.00
42.00	0.00	1,186	575.14	0.05	0.05	0.00
44.00	0.00	816	575.09	0.05	0.05	0.00
46.00	0.00	450	575.05	0.05	0.05	0.00
48.00	0.00	119	575.01	0.03	0.03	0.00
50.00	0.00	22	575.00	0.01	0.01	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 2.35" for 5-Year event
Inflow = 20.08 cfs @ 12.08 hrs, Volume= 0.861 af
Outflow = 0.33 cfs @ 15.13 hrs, Volume= 0.652 af, Atten= 98%, Lag= 182.5 min
Primary = 0.33 cfs @ 15.13 hrs, Volume= 0.652 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.46' @ 15.13 hrs Surf.Area= 62,747 sf Storage= 28,218 cf

Plug-Flow detention time= 974.3 min calculated for 0.652 af (76% of inflow)
Center-of-Mass det. time= 898.6 min (1,692.2 - 793.6)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

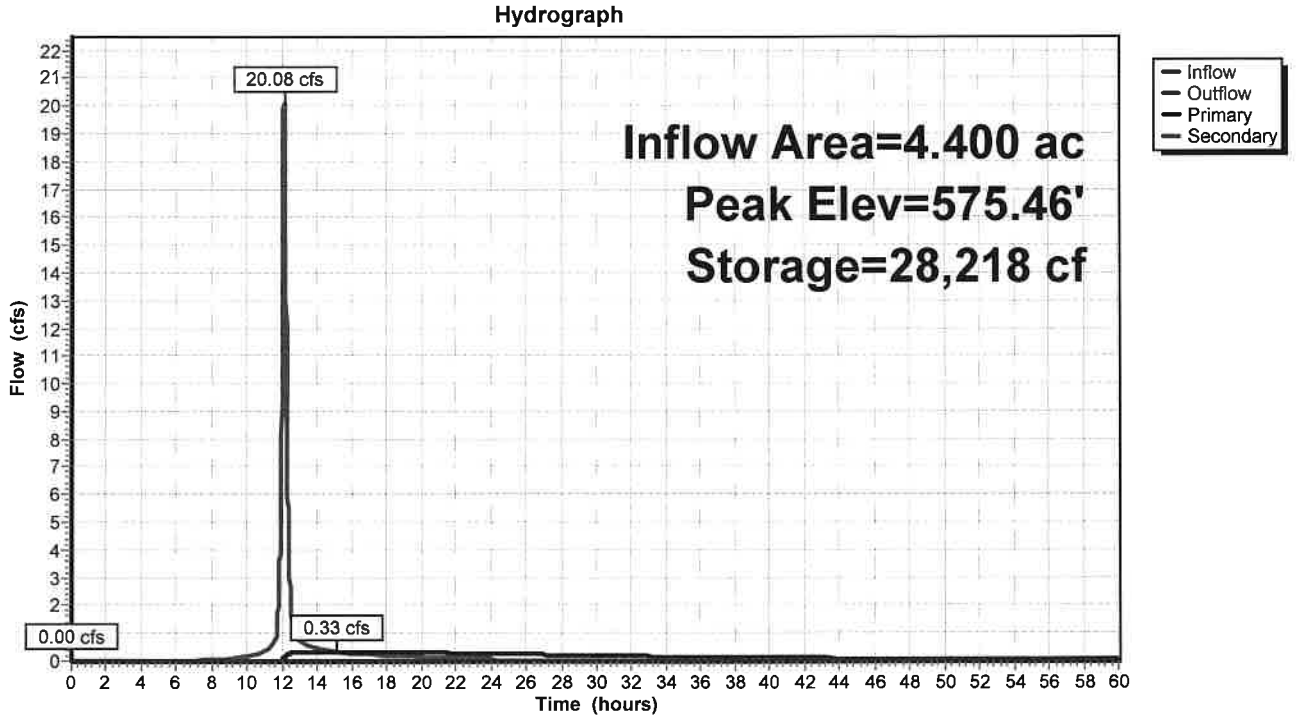
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.33 cfs @ 15.13 hrs HW=575.46' (Free Discharge)
↑**1=12" outlet pipe** (Passes 0.33 cfs of 2.02 cfs potential flow)
↑**2=low flow outlet pipe** (Barrel Controls 0.33 cfs @ 2.27 fps)
3=Grate (Controls 0.00 cfs)

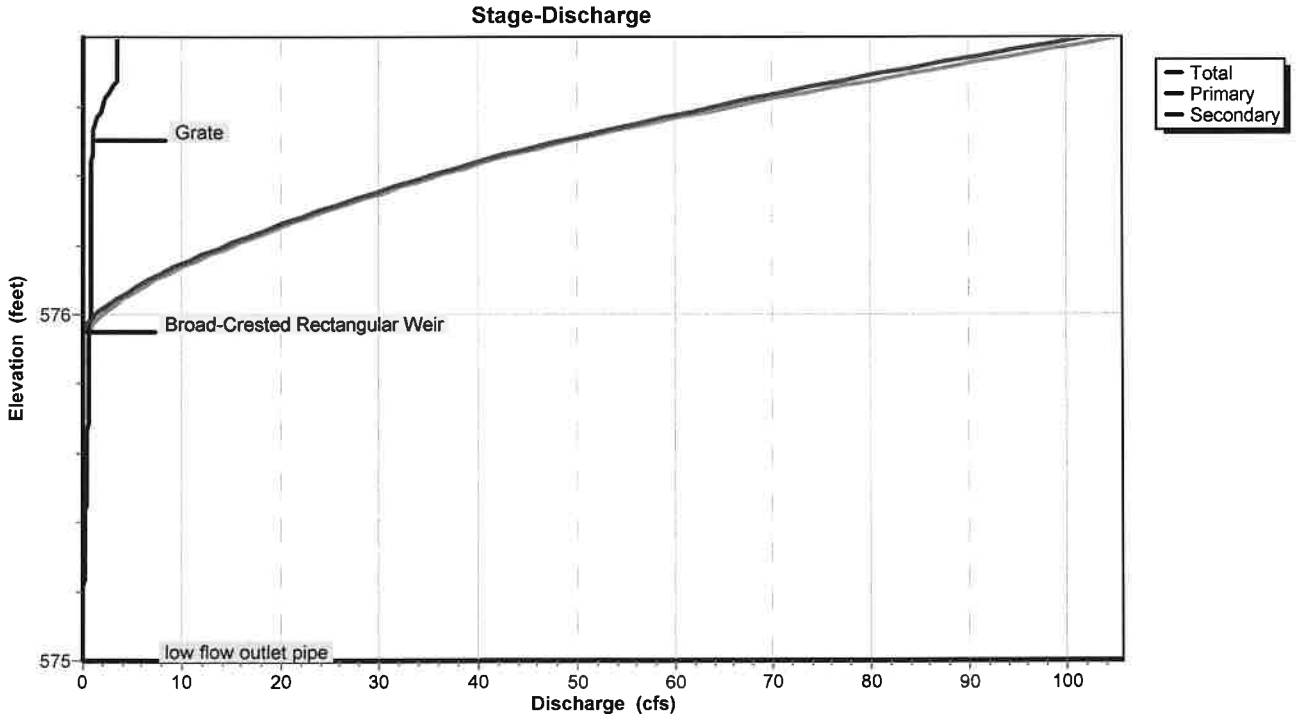
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

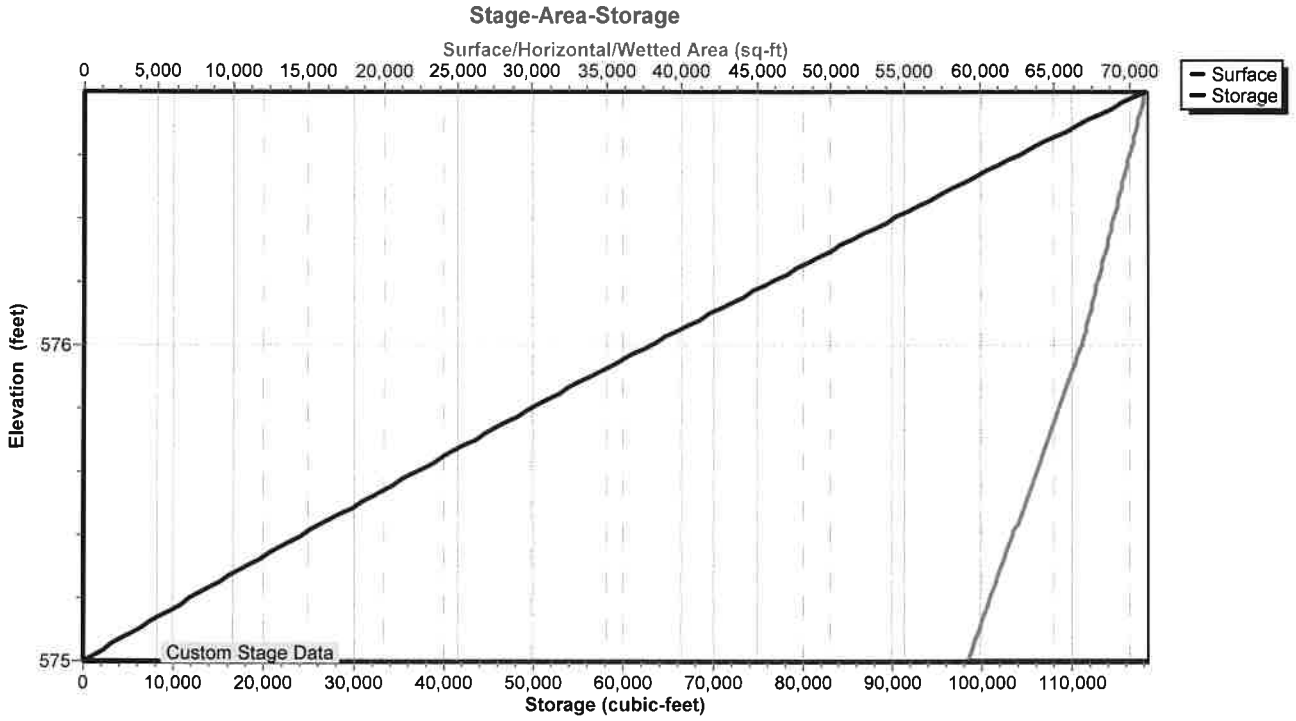


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	1	575.00	0.00	0.00	0.00
8.00	0.05	186	575.00	0.00	0.00	0.00
10.00	0.17	912	575.02	0.00	0.00	0.00
12.00	**13.47**	8,186	575.14	0.04	0.04	0.00
14.00	**0.44**	**28,034**	**575.46**	**0.33**	**0.33**	0.00
16.00	0.27	**28,118**	**575.46**	**0.33**	**0.33**	0.00
18.00	0.20	27,442	575.45	0.32	0.32	0.00
20.00	0.15	26,479	575.43	0.30	0.30	0.00
22.00	0.13	25,382	575.42	0.28	0.28	0.00
24.00	0.12	24,337	575.40	0.26	0.26	0.00
26.00	0.00	22,633	575.37	0.24	0.24	0.00
28.00	0.00	21,033	575.35	0.21	0.21	0.00
30.00	0.00	19,609	575.32	0.19	0.19	0.00
32.00	0.00	18,338	575.30	0.17	0.17	0.00
34.00	0.00	17,199	575.29	0.15	0.15	0.00
36.00	0.00	16,175	575.27	0.13	0.13	0.00
38.00	0.00	15,251	575.25	0.12	0.12	0.00
40.00	0.00	14,415	575.24	0.11	0.11	0.00
42.00	0.00	13,655	575.23	0.10	0.10	0.00
44.00	0.00	12,964	575.22	0.09	0.09	0.00
46.00	0.00	12,331	575.21	0.08	0.08	0.00
48.00	0.00	11,752	575.20	0.08	0.08	0.00
50.00	0.00	11,220	575.19	0.07	0.07	0.00
52.00	0.00	10,729	575.18	0.07	0.07	0.00
54.00	0.00	10,276	575.17	0.06	0.06	0.00
56.00	0.00	9,856	575.16	0.06	0.06	0.00
58.00	0.00	9,467	575.16	0.05	0.05	0.00
60.00	0.00	9,105	575.15	0.05	0.05	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

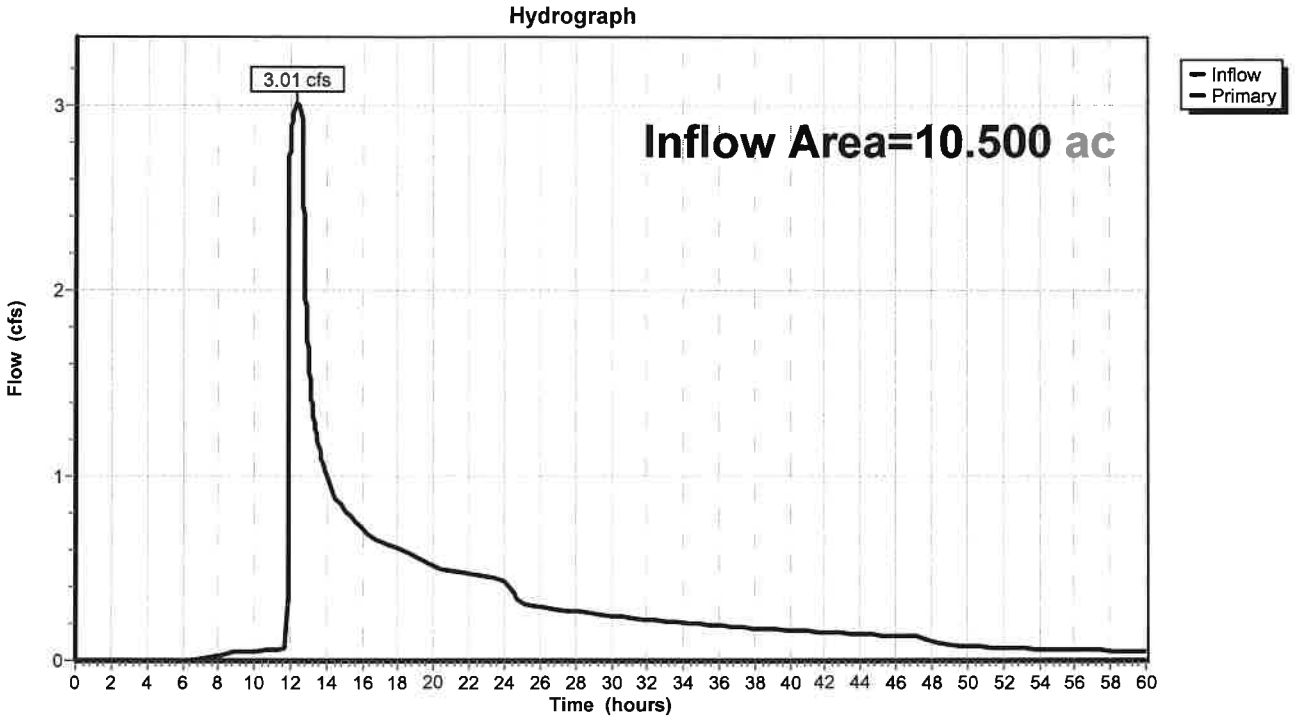
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.51" for 5-Year event
Inflow = 3.01 cfs @ 12.34 hrs, Volume= 1.318 af
Primary = 3.01 cfs @ 12.34 hrs, Volume= 1.318 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.07	0.00	0.07
1.00	0.00	0.00	0.00	53.00	0.06	0.00	0.06
2.00	0.00	0.00	0.00	54.00	0.06	0.00	0.06
3.00	0.00	0.00	0.00	55.00	0.06	0.00	0.06
4.00	0.00	0.00	0.00	56.00	0.06	0.00	0.06
5.00	0.00	0.00	0.00	57.00	0.05	0.00	0.05
6.00	0.00	0.00	0.00	58.00	0.05	0.00	0.05
7.00	0.00	0.00	0.00	59.00	0.05	0.00	0.05
8.00	0.02	0.00	0.02	60.00	0.05	0.00	0.05
9.00	0.05	0.00	0.05				
10.00	0.05	0.00	0.05				
11.00	0.05	0.00	0.05				
12.00	**2.82**	0.00	**2.82**				
13.00	**1.62**	0.00	**1.62**				
14.00	0.99	0.00	0.99				
15.00	0.81	0.00	0.81				
16.00	0.71	0.00	0.71				
17.00	0.65	0.00	0.65				
18.00	0.60	0.00	0.60				
19.00	0.56	0.00	0.56				
20.00	0.51	0.00	0.51				
21.00	0.48	0.00	0.48				
22.00	0.47	0.00	0.47				
23.00	0.45	0.00	0.45				
24.00	0.43	0.00	0.43				
25.00	0.31	0.00	0.31				
26.00	0.29	0.00	0.29				
27.00	0.28	0.00	0.28				
28.00	0.26	0.00	0.26				
29.00	0.25	0.00	0.25				
30.00	0.24	0.00	0.24				
31.00	0.23	0.00	0.23				
32.00	0.22	0.00	0.22				
33.00	0.21	0.00	0.21				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.19	0.00	0.19				
37.00	0.18	0.00	0.18				
38.00	0.17	0.00	0.17				
39.00	0.17	0.00	0.17				
40.00	0.16	0.00	0.16				
41.00	0.16	0.00	0.16				
42.00	0.15	0.00	0.15				
43.00	0.15	0.00	0.15				
44.00	0.14	0.00	0.14				
45.00	0.14	0.00	0.14				
46.00	0.13	0.00	0.13				
47.00	0.13	0.00	0.13				
48.00	0.10	0.00	0.10				
49.00	0.09	0.00	0.09				
50.00	0.08	0.00	0.08				
51.00	0.07	0.00	0.07				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=2.12"
Flow Length=652' Tc=13.3 min CN=90 Runoff=17.46 cfs 1.079 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=2.21"
Flow Length=683' Tc=14.4 min CN=91 Runoff=12.59 cfs 0.811 af

Pond 1P: Bioretention Area 3 Peak Elev=576.04' Storage=9,672 cf Inflow=17.46 cfs 1.079 af
Primary=2.85 cfs 0.765 af Secondary=13.60 cfs 0.314 af Outflow=16.45 cfs 1.079 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.60' Storage=37,117 cf Inflow=26.01 cfs 1.125 af
Primary=0.47 cfs 0.892 af Secondary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.892 af

Link 5L: Outflow (@ CB 54) Inflow=3.16 cfs 1.657 af
Primary=3.16 cfs 1.657 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.890 af Average Runoff Depth = 2.16"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

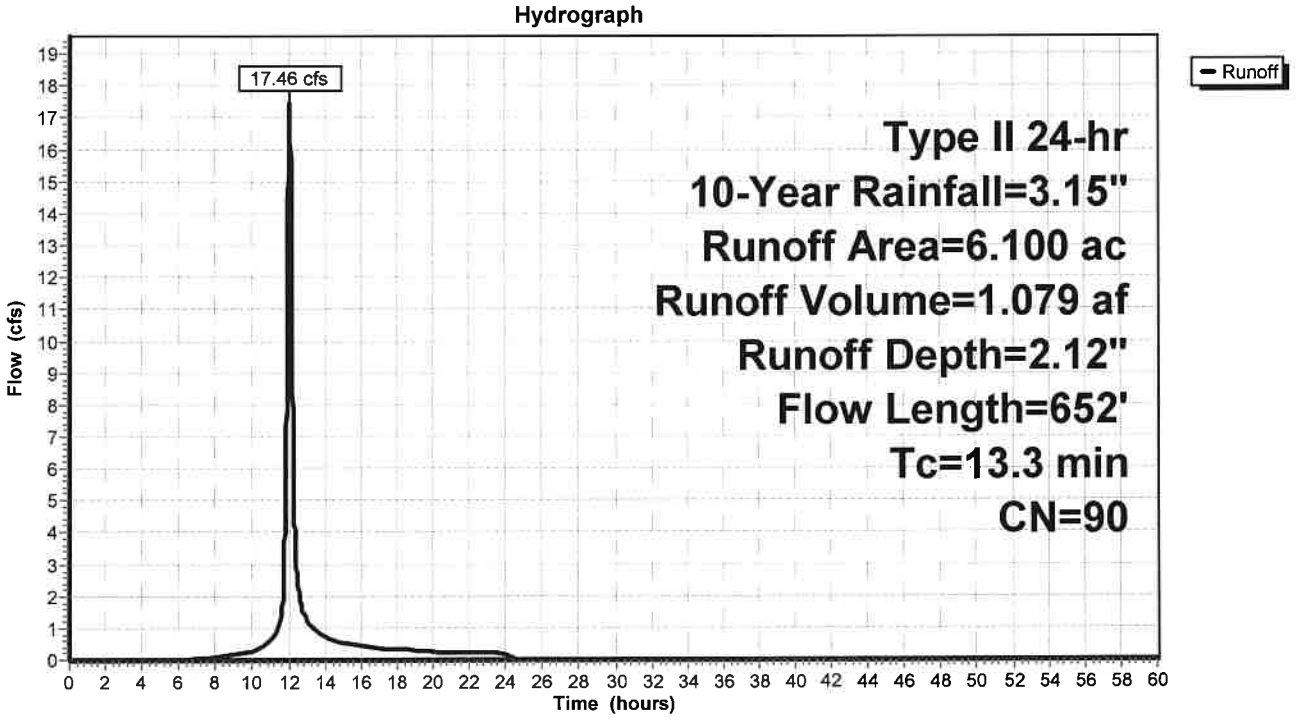
Runoff = 17.46 cfs @ 12.05 hrs, Volume= 1.079 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.01
7.00	0.31	0.01	0.05
8.00	0.38	0.02	0.09
9.00	0.46	0.04	0.18
10.00	0.57	0.08	0.28
11.00	0.74	0.16	0.63
12.00	2.09	1.17	**15.84**
13.00	2.43	1.47	**1.23**
14.00	2.58	1.61	0.71
15.00	2.69	1.70	0.55
16.00	2.77	1.78	0.43
17.00	2.84	1.84	0.37
18.00	2.90	1.89	0.33
19.00	2.95	1.94	0.28
20.00	3.00	1.98	0.24
21.00	3.04	2.02	0.22
22.00	3.08	2.06	0.22
23.00	3.11	2.09	0.21
24.00	**3.15**	**2.12**	0.20
25.00	3.15	2.12	0.00
26.00	3.15	2.12	0.00
27.00	3.15	2.12	0.00
28.00	3.15	2.12	0.00
29.00	3.15	2.12	0.00
30.00	3.15	2.12	0.00
31.00	3.15	2.12	0.00
32.00	3.15	2.12	0.00
33.00	3.15	2.12	0.00
34.00	3.15	2.12	0.00
35.00	3.15	2.12	0.00
36.00	3.15	2.12	0.00
37.00	3.15	2.12	0.00
38.00	3.15	2.12	0.00
39.00	3.15	2.12	0.00
40.00	3.15	2.12	0.00
41.00	3.15	2.12	0.00
42.00	3.15	2.12	0.00
43.00	3.15	2.12	0.00
44.00	3.15	2.12	0.00
45.00	3.15	2.12	0.00
46.00	3.15	2.12	0.00
47.00	3.15	2.12	0.00
48.00	3.15	2.12	0.00
49.00	3.15	2.12	0.00
50.00	3.15	2.12	0.00
51.00	3.15	2.12	0.00
52.00	3.15	2.12	0.00
53.00	3.15	2.12	0.00
54.00	3.15	2.12	0.00
55.00	3.15	2.12	0.00
56.00	3.15	2.12	0.00
57.00	3.15	2.12	0.00
58.00	3.15	2.12	0.00
59.00	3.15	2.12	0.00
60.00	3.15	2.12	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

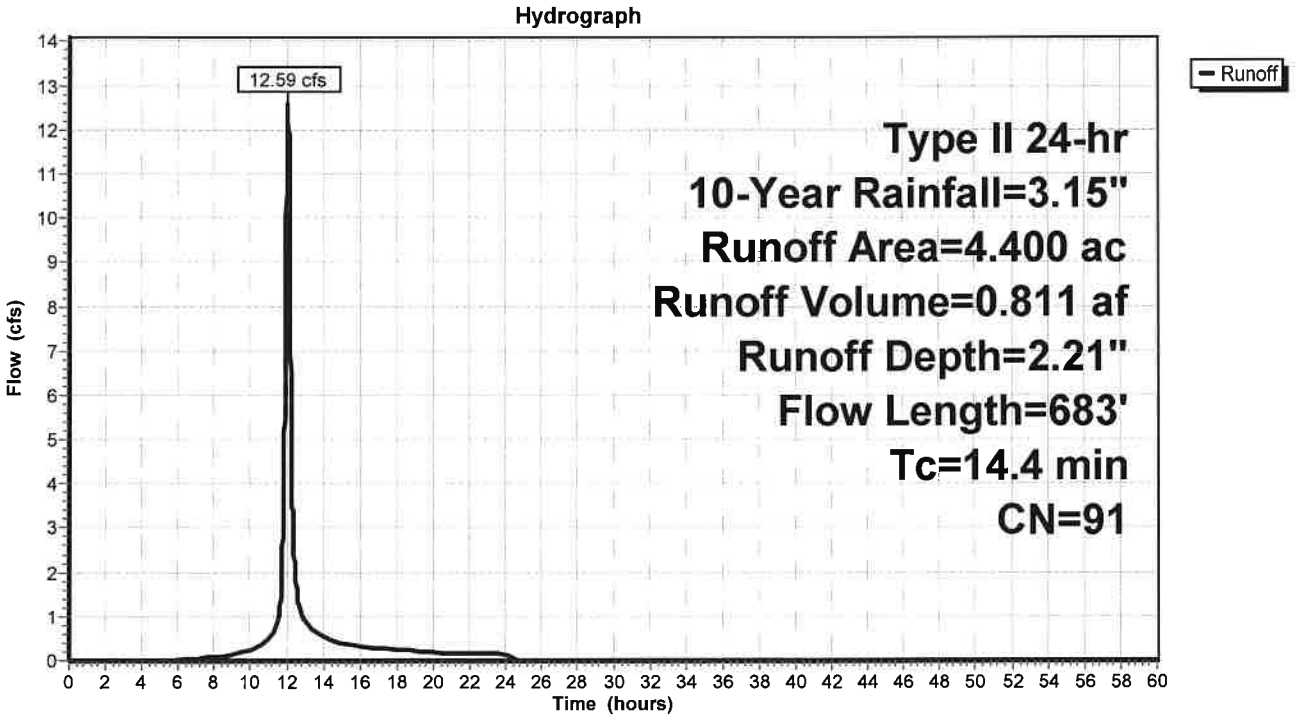
Runoff = 12.59 cfs @ 12.06 hrs, Volume= 0.811 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.02
7.00	0.31	0.01	0.05
8.00	0.38	0.03	0.08
9.00	0.46	0.06	0.15
10.00	0.57	0.10	0.23
11.00	0.74	0.19	0.49
12.00	2.09	1.24	**11.04**
13.00	2.43	1.55	**0.92**
14.00	2.58	1.69	0.53
15.00	2.69	1.78	0.40
16.00	2.77	1.86	0.32
17.00	2.84	1.92	0.27
18.00	2.90	1.98	0.24
19.00	2.95	2.03	0.21
20.00	3.00	2.07	0.18
21.00	3.04	2.11	0.16
22.00	3.08	2.14	0.16
23.00	3.11	2.18	0.15
24.00	**3.15**	**2.21**	0.15
25.00	3.15	2.21	0.00
26.00	3.15	2.21	0.00
27.00	3.15	2.21	0.00
28.00	3.15	2.21	0.00
29.00	3.15	2.21	0.00
30.00	3.15	2.21	0.00
31.00	3.15	2.21	0.00
32.00	3.15	2.21	0.00
33.00	3.15	2.21	0.00
34.00	3.15	2.21	0.00
35.00	3.15	2.21	0.00
36.00	3.15	2.21	0.00
37.00	3.15	2.21	0.00
38.00	3.15	2.21	0.00
39.00	3.15	2.21	0.00
40.00	3.15	2.21	0.00
41.00	3.15	2.21	0.00
42.00	3.15	2.21	0.00
43.00	3.15	2.21	0.00
44.00	3.15	2.21	0.00
45.00	3.15	2.21	0.00
46.00	3.15	2.21	0.00
47.00	3.15	2.21	0.00
48.00	3.15	2.21	0.00
49.00	3.15	2.21	0.00
50.00	3.15	2.21	0.00
51.00	3.15	2.21	0.00
52.00	3.15	2.21	0.00
53.00	3.15	2.21	0.00
54.00	3.15	2.21	0.00
55.00	3.15	2.21	0.00
56.00	3.15	2.21	0.00
57.00	3.15	2.21	0.00
58.00	3.15	2.21	0.00
59.00	3.15	2.21	0.00
60.00	3.15	2.21	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 2.12" for 10-Year event
Inflow = 17.46 cfs @ 12.05 hrs, Volume= 1.079 af
Outflow = 16.45 cfs @ 12.09 hrs, Volume= 1.079 af, Atten= 6%, Lag= 2.3 min
Primary = 2.85 cfs @ 12.09 hrs, Volume= 0.765 af
Secondary = 13.60 cfs @ 12.09 hrs, Volume= 0.314 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.04' @ 12.09 hrs Surf.Area= 9,976 sf Storage= 9,672 cf

Plug-Flow detention time= 160.8 min calculated for 1.079 af (100% of inflow)
Center-of-Mass det. time= 160.7 min (971.9 - 811.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

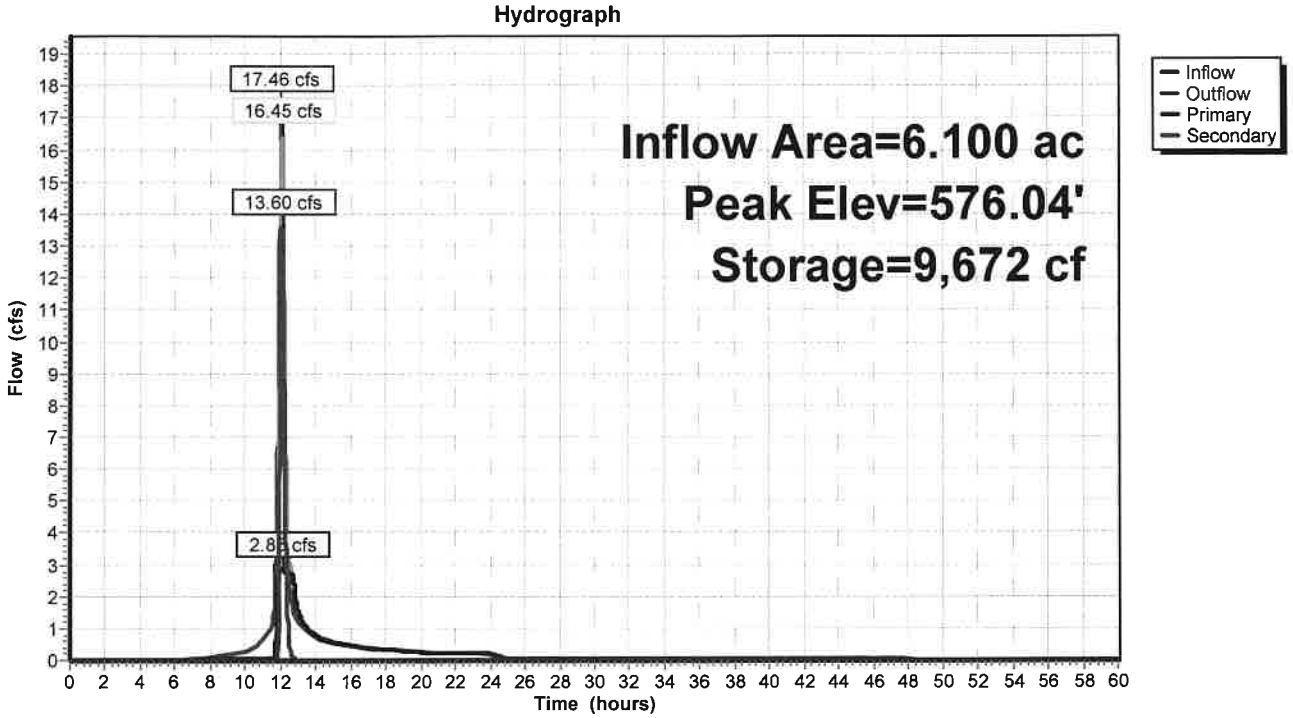
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.85 cfs @ 12.09 hrs HW=576.04' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.85 cfs @ 8.17 fps)
  ├**2=Grate** (Passes < 4.93 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

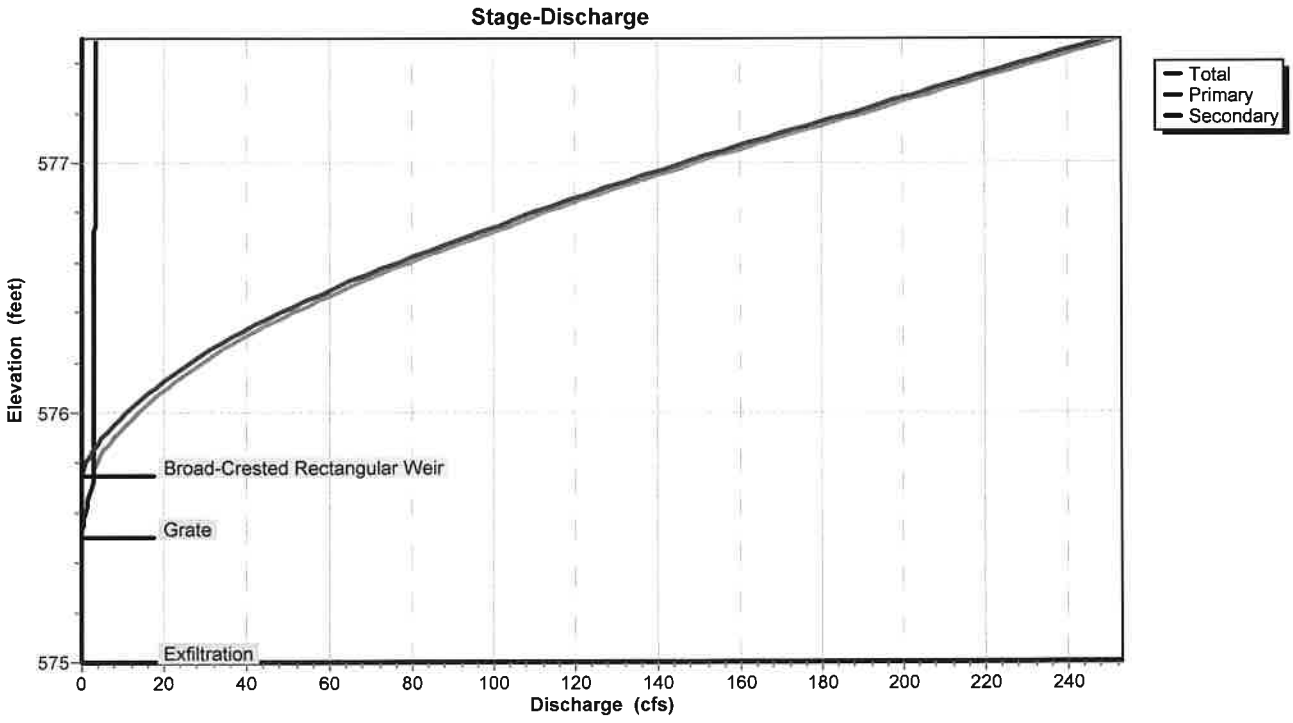
Secondary OutFlow Max=13.58 cfs @ 12.09 hrs HW=576.04' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 13.58 cfs @ 1.57 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

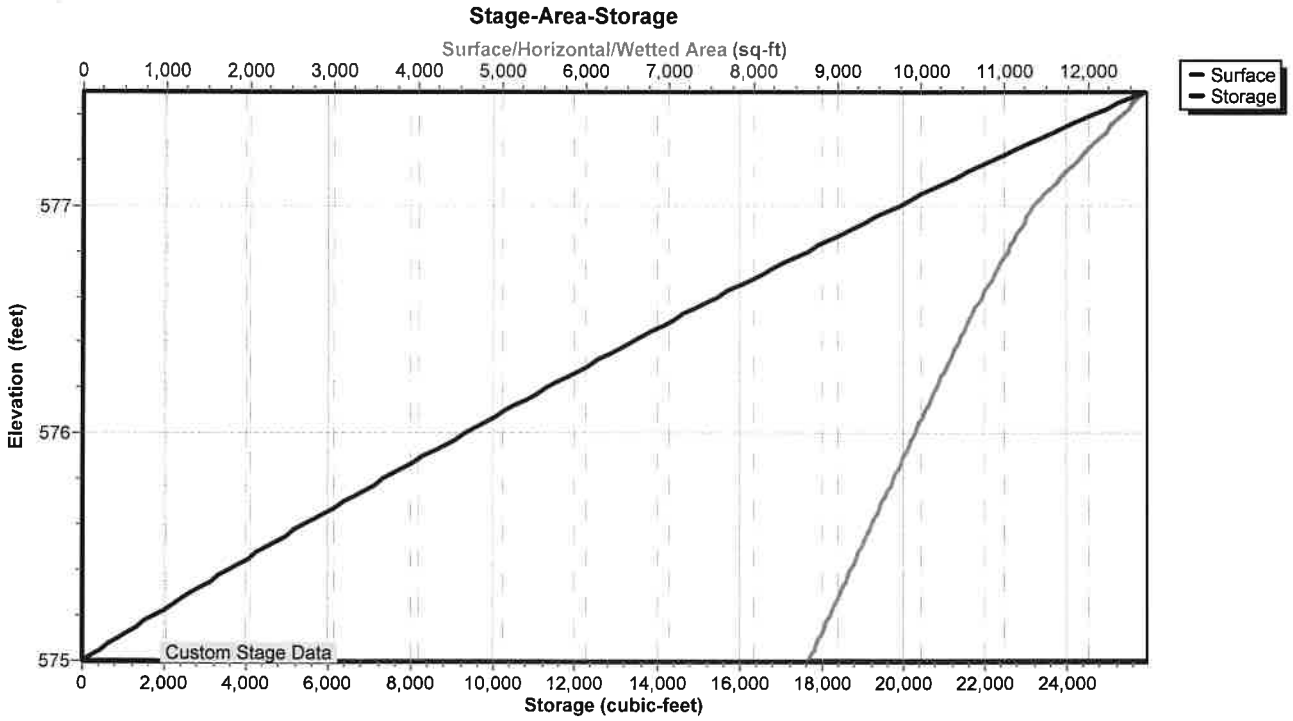


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.01	6	575.00	0.00	0.00	0.00
8.00	0.09	207	575.02	0.05	0.05	0.00
10.00	0.28	1,102	575.13	0.05	0.05	0.00
12.00	**15.84**	**9,006**	**575.97**	**11.97**	**2.82**	**9.15**
14.00	**0.71**	**5,320**	**575.59**	**0.79**	**0.79**	**0.00**
16.00	0.43	5,039	575.56	0.46	0.46	0.00
18.00	0.33	4,925	575.55	0.34	0.34	0.00
20.00	0.24	4,823	575.54	0.25	0.25	0.00
22.00	0.22	4,781	575.53	0.22	0.22	0.00
24.00	0.20	4,760	575.53	0.20	0.20	0.00
26.00	0.00	4,270	575.48	0.06	0.06	0.00
28.00	0.00	3,874	575.43	0.05	0.05	0.00
30.00	0.00	3,482	575.39	0.05	0.05	0.00
32.00	0.00	3,093	575.35	0.05	0.05	0.00
34.00	0.00	2,707	575.31	0.05	0.05	0.00
36.00	0.00	2,324	575.26	0.05	0.05	0.00
38.00	0.00	1,945	575.22	0.05	0.05	0.00
40.00	0.00	1,569	575.18	0.05	0.05	0.00
42.00	0.00	1,197	575.14	0.05	0.05	0.00
44.00	0.00	828	575.10	0.05	0.05	0.00
46.00	0.00	461	575.05	0.05	0.05	0.00
48.00	0.00	126	575.01	0.03	0.03	0.00
50.00	0.00	24	575.00	0.01	0.01	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 3.07" for 10-Year event
Inflow = 26.01 cfs @ 12.08 hrs, Volume= 1.125 af
Outflow = 0.47 cfs @ 14.32 hrs, Volume= 0.892 af, Atten= 98%, Lag= 134.6 min
Primary = 0.47 cfs @ 14.32 hrs, Volume= 0.892 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.60' @ 14.32 hrs Surf.Area= 63,820 sf Storage= 37,117 cf

Plug-Flow detention time= 942.6 min calculated for 0.892 af (79% of inflow)
Center-of-Mass det. time= 874.9 min (1,660.4 - 785.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

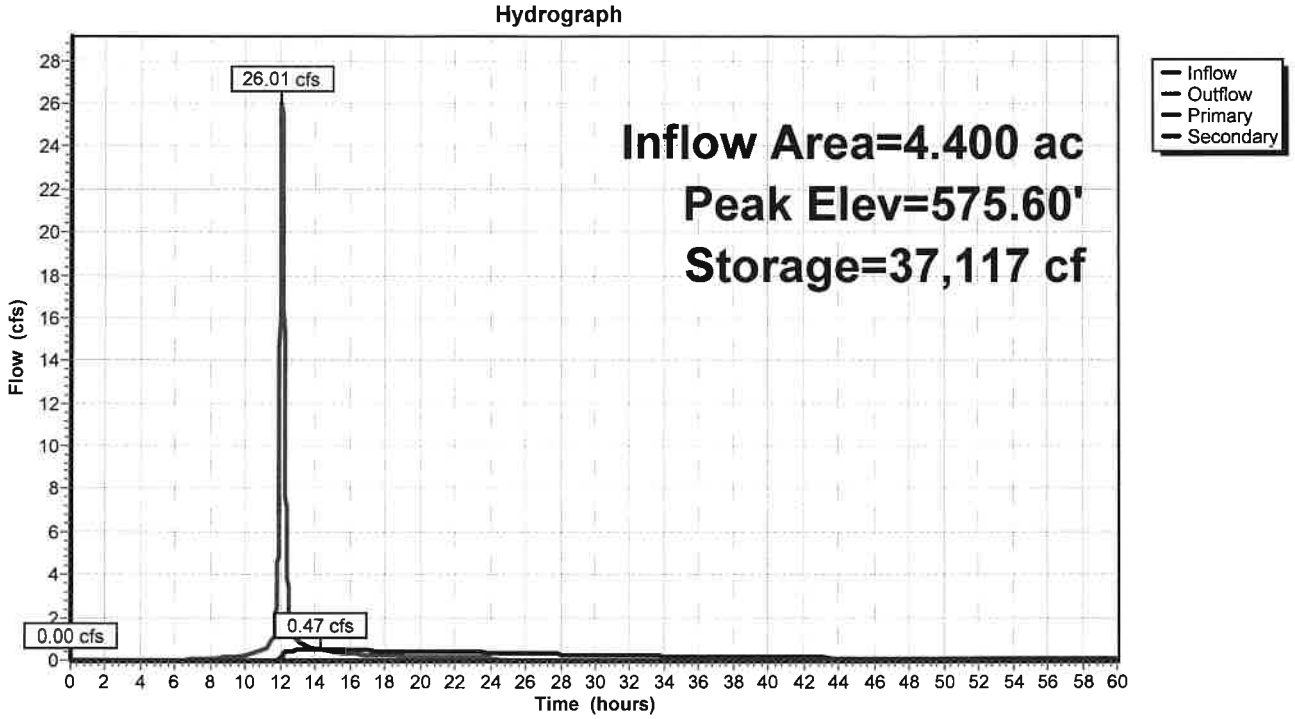
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.47 cfs @ 14.32 hrs HW=575.60' (Free Discharge)
└**1=12" outlet pipe** (Passes 0.47 cfs of 2.23 cfs potential flow)
  ├**2=low flow outlet pipe** (Barrel Controls 0.47 cfs @ 2.50 fps)
  └**3=Grate** (Controls 0.00 cfs)

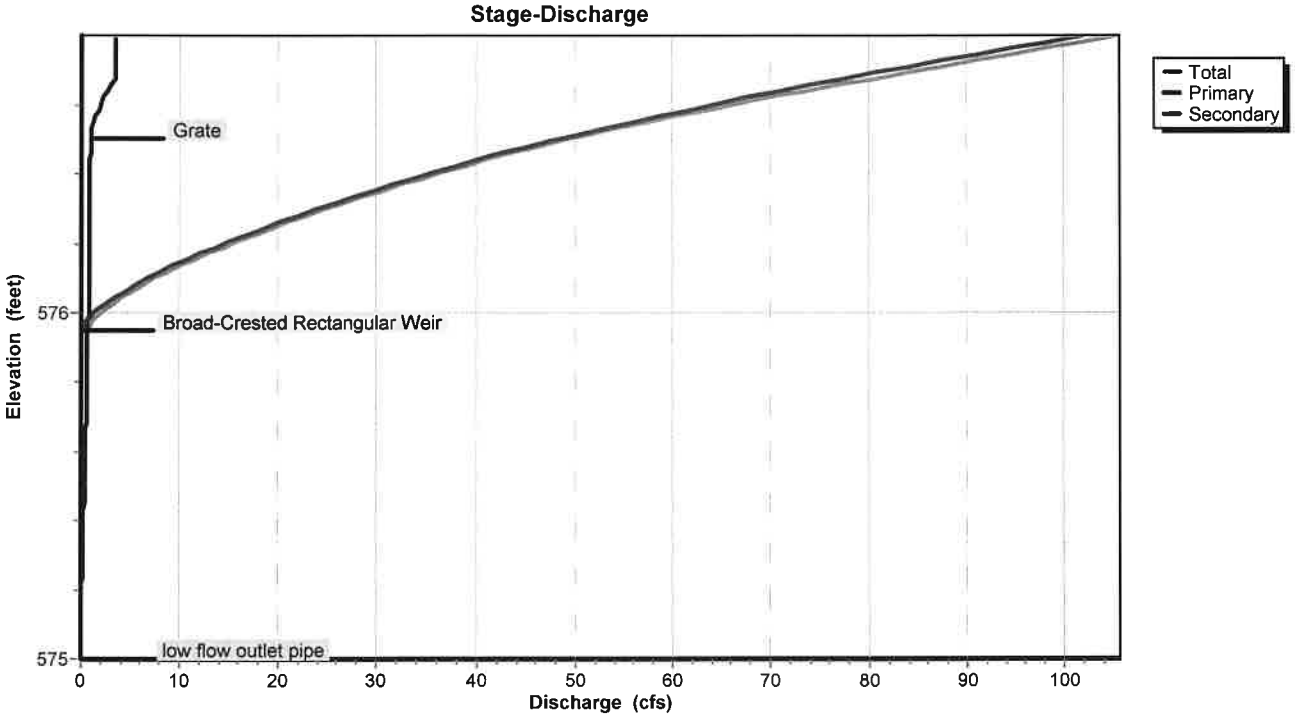
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

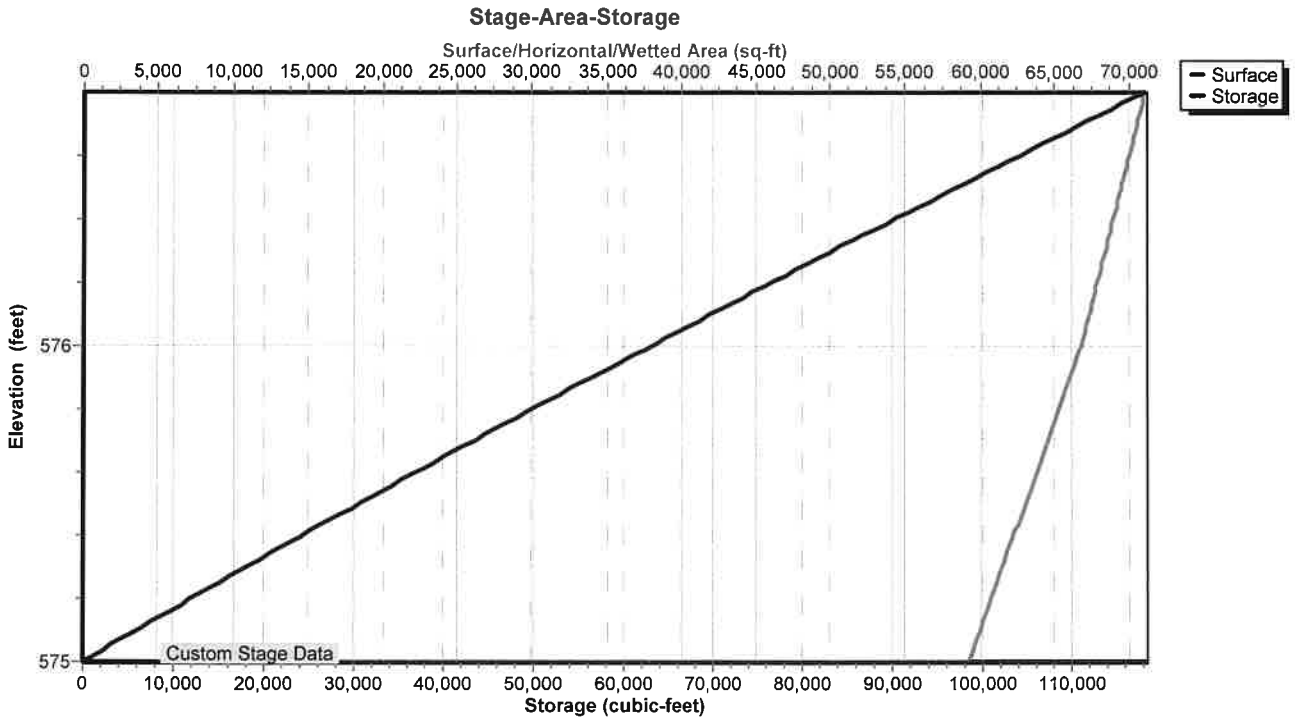


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.02	28	575.00	0.00	0.00	0.00
8.00	0.08	376	575.01	0.00	0.00	0.00
10.00	0.23	1,427	575.02	0.00	0.00	0.00
12.00	**20.19**	11,922	575.20	0.08	0.08	0.00
14.00	**0.53**	**37,087**	**575.60**	**0.47**	**0.47**	0.00
16.00	0.32	**36,669**	**575.60**	**0.46**	**0.46**	0.00
18.00	0.24	35,374	575.58	0.44	0.44	0.00
20.00	0.18	33,764	575.55	0.42	0.42	0.00
22.00	0.16	32,024	575.52	0.39	0.39	0.00
24.00	0.15	30,385	575.50	0.37	0.37	0.00
26.00	0.00	28,005	575.46	0.33	0.33	0.00
28.00	0.00	25,794	575.42	0.29	0.29	0.00
30.00	0.00	23,836	575.39	0.26	0.26	0.00
32.00	0.00	22,102	575.36	0.23	0.23	0.00
34.00	0.00	20,561	575.34	0.20	0.20	0.00
36.00	0.00	19,188	575.32	0.18	0.18	0.00
38.00	0.00	17,961	575.30	0.16	0.16	0.00
40.00	0.00	16,860	575.28	0.14	0.14	0.00
42.00	0.00	15,870	575.26	0.13	0.13	0.00
44.00	0.00	14,975	575.25	0.12	0.12	0.00
46.00	0.00	14,165	575.24	0.11	0.11	0.00
48.00	0.00	13,428	575.22	0.10	0.10	0.00
50.00	0.00	12,756	575.21	0.09	0.09	0.00
52.00	0.00	12,141	575.20	0.08	0.08	0.00
54.00	0.00	11,578	575.19	0.08	0.08	0.00
56.00	0.00	11,059	575.18	0.07	0.07	0.00
58.00	0.00	10,581	575.18	0.06	0.06	0.00
60.00	0.00	10,139	575.17	0.06	0.06	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

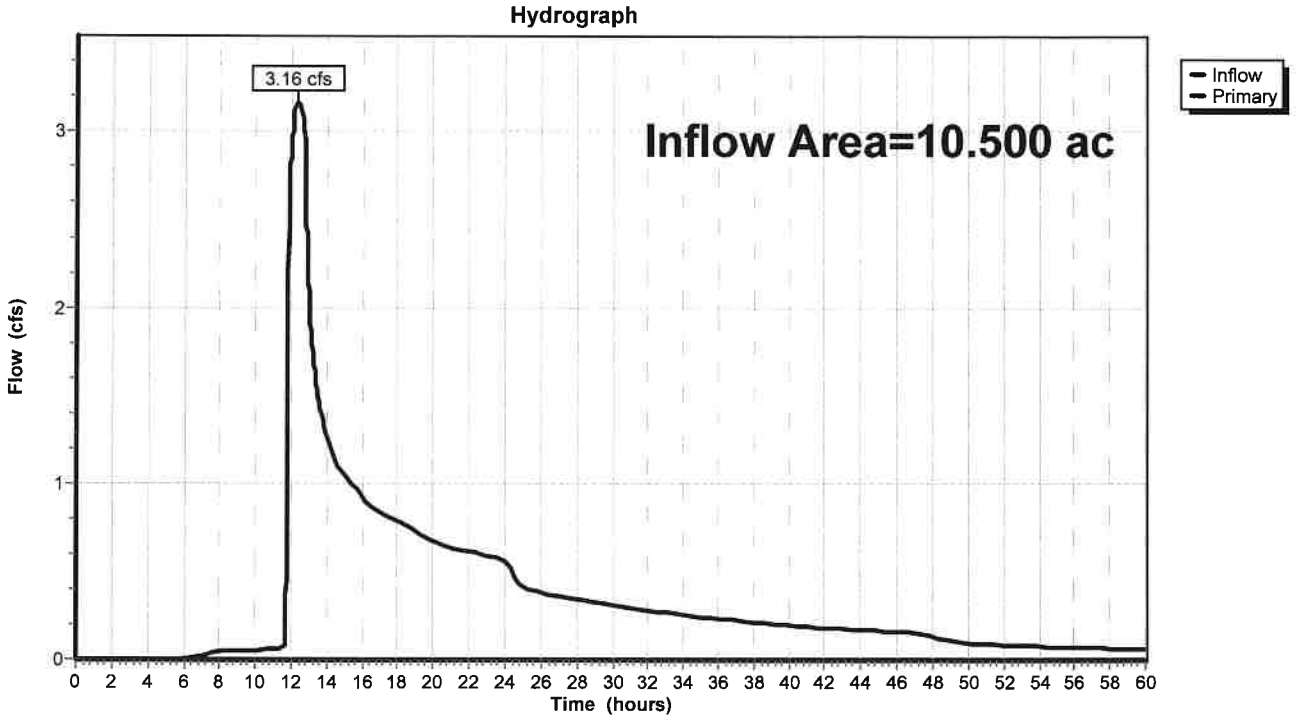
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.89" for 10-Year event
Inflow = 3.16 cfs @ 12.39 hrs, Volume= 1.657 af
Primary = 3.16 cfs @ 12.39 hrs, Volume= 1.657 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.08	0.00	0.08
1.00	0.00	0.00	0.00	53.00	0.08	0.00	0.08
2.00	0.00	0.00	0.00	54.00	0.08	0.00	0.08
3.00	0.00	0.00	0.00	55.00	0.07	0.00	0.07
4.00	0.00	0.00	0.00	56.00	0.07	0.00	0.07
5.00	0.00	0.00	0.00	57.00	0.07	0.00	0.07
6.00	0.00	0.00	0.00	58.00	0.06	0.00	0.06
7.00	0.02	0.00	0.02	59.00	0.06	0.00	0.06
8.00	0.05	0.00	0.05	60.00	0.06	0.00	0.06
9.00	0.05	0.00	0.05				
10.00	0.05	0.00	0.05				
11.00	0.06	0.00	0.06				
12.00	**2.90**	0.00	**2.90**				
13.00	**2.02**	0.00	**2.02**				
14.00	1.26	0.00	1.26				
15.00	1.05	0.00	1.05				
16.00	0.92	0.00	0.92				
17.00	0.84	0.00	0.84				
18.00	0.78	0.00	0.78				
19.00	0.73	0.00	0.73				
20.00	0.67	0.00	0.67				
21.00	0.63	0.00	0.63				
22.00	0.61	0.00	0.61				
23.00	0.59	0.00	0.59				
24.00	0.57	0.00	0.57				
25.00	0.40	0.00	0.40				
26.00	0.38	0.00	0.38				
27.00	0.36	0.00	0.36				
28.00	0.34	0.00	0.34				
29.00	0.33	0.00	0.33				
30.00	0.31	0.00	0.31				
31.00	0.29	0.00	0.29				
32.00	0.28	0.00	0.28				
33.00	0.27	0.00	0.27				
34.00	0.26	0.00	0.26				
35.00	0.24	0.00	0.24				
36.00	0.23	0.00	0.23				
37.00	0.22	0.00	0.22				
38.00	0.21	0.00	0.21				
39.00	0.20	0.00	0.20				
40.00	0.20	0.00	0.20				
41.00	0.19	0.00	0.19				
42.00	0.18	0.00	0.18				
43.00	0.18	0.00	0.18				
44.00	0.17	0.00	0.17				
45.00	0.16	0.00	0.16				
46.00	0.16	0.00	0.16				
47.00	0.15	0.00	0.15				
48.00	0.13	0.00	0.13				
49.00	0.11	0.00	0.11				
50.00	0.09	0.00	0.09				
51.00	0.09	0.00	0.09				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=2.80"
Flow Length=652' Tc=13.3 min CN=90 Runoff=22.74 cfs 1.421 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=2.89"
Flow Length=683' Tc=14.4 min CN=91 Runoff=16.27 cfs 1.061 af

Pond 1P: Bioretention Area 3 Peak Elev=576.11' Storage=10,375 cf Inflow=22.74 cfs 1.421 af
Primary=2.89 cfs 0.934 af Secondary=18.84 cfs 0.487 af Outflow=21.73 cfs 1.421 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.83' Storage=51,963 cf Inflow=34.94 cfs 1.548 af
Primary=0.64 cfs 1.276 af Secondary=0.00 cfs 0.000 af Outflow=0.64 cfs 1.276 af

Link 5L: Outflow (@ CB 54) Inflow=3.36 cfs 2.210 af
Primary=3.36 cfs 2.210 af

Total Runoff Area = 10.500 ac Runoff Volume = 2.482 af Average Runoff Depth = 2.84"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

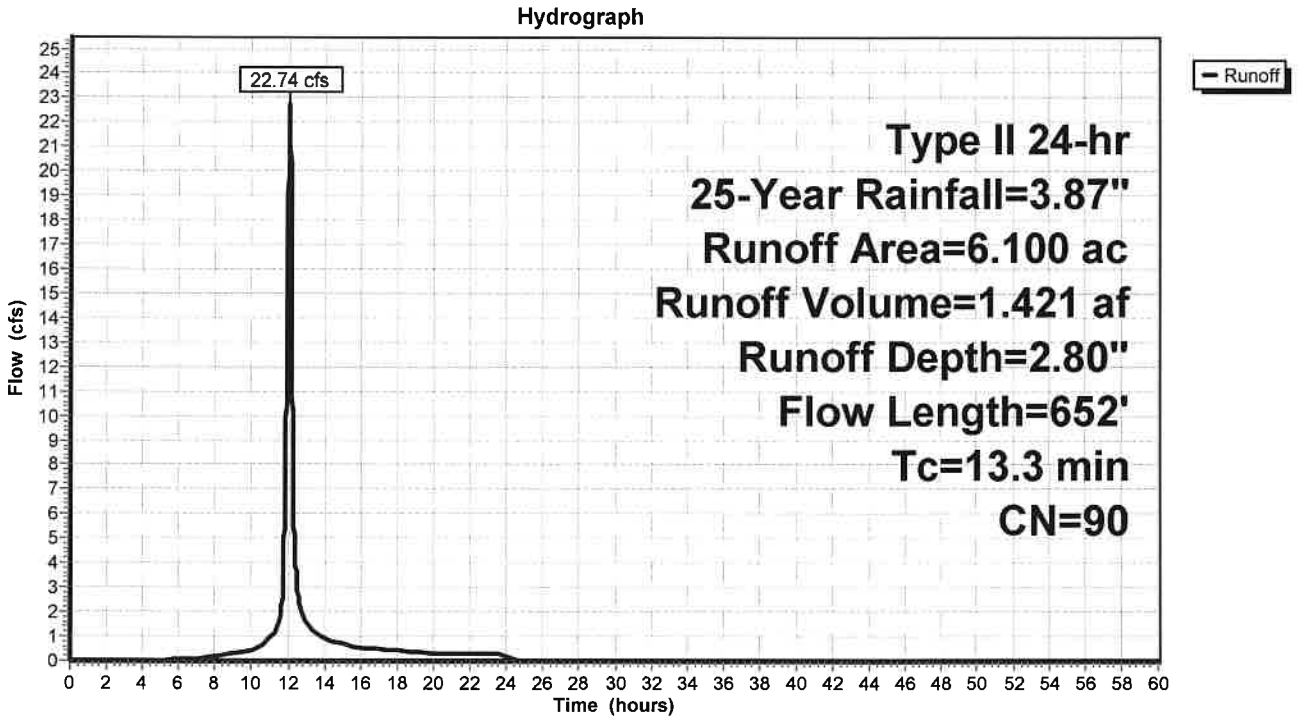
Runoff = 22.74 cfs @ 12.05 hrs, Volume= 1.421 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.01
6.00	0.31	0.01	0.05
7.00	0.38	0.02	0.10
8.00	0.46	0.04	0.16
9.00	0.57	0.08	0.28
10.00	0.70	0.14	0.43
11.00	0.91	0.26	0.90
12.00	2.57	1.59	**20.75**
13.00	2.99	1.97	**1.57**
14.00	3.17	2.14	0.90
15.00	3.30	2.26	0.70
16.00	3.41	2.36	0.54
17.00	3.49	2.44	0.47
18.00	3.56	2.51	0.41
19.00	3.63	2.57	0.36
20.00	3.68	2.62	0.30
21.00	3.73	2.67	0.28
22.00	3.78	2.71	0.27
23.00	3.83	2.75	0.26
24.00	**3.87**	**2.80**	0.25
25.00	3.87	2.80	0.00
26.00	3.87	2.80	0.00
27.00	3.87	2.80	0.00
28.00	3.87	2.80	0.00
29.00	3.87	2.80	0.00
30.00	3.87	2.80	0.00
31.00	3.87	2.80	0.00
32.00	3.87	2.80	0.00
33.00	3.87	2.80	0.00
34.00	3.87	2.80	0.00
35.00	3.87	2.80	0.00
36.00	3.87	2.80	0.00
37.00	3.87	2.80	0.00
38.00	3.87	2.80	0.00
39.00	3.87	2.80	0.00
40.00	3.87	2.80	0.00
41.00	3.87	2.80	0.00
42.00	3.87	2.80	0.00
43.00	3.87	2.80	0.00
44.00	3.87	2.80	0.00
45.00	3.87	2.80	0.00
46.00	3.87	2.80	0.00
47.00	3.87	2.80	0.00
48.00	3.87	2.80	0.00
49.00	3.87	2.80	0.00
50.00	3.87	2.80	0.00
51.00	3.87	2.80	0.00
52.00	3.87	2.80	0.00
53.00	3.87	2.80	0.00
54.00	3.87	2.80	0.00
55.00	3.87	2.80	0.00
56.00	3.87	2.80	0.00
57.00	3.87	2.80	0.00
58.00	3.87	2.80	0.00
59.00	3.87	2.80	0.00
60.00	3.87	2.80	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

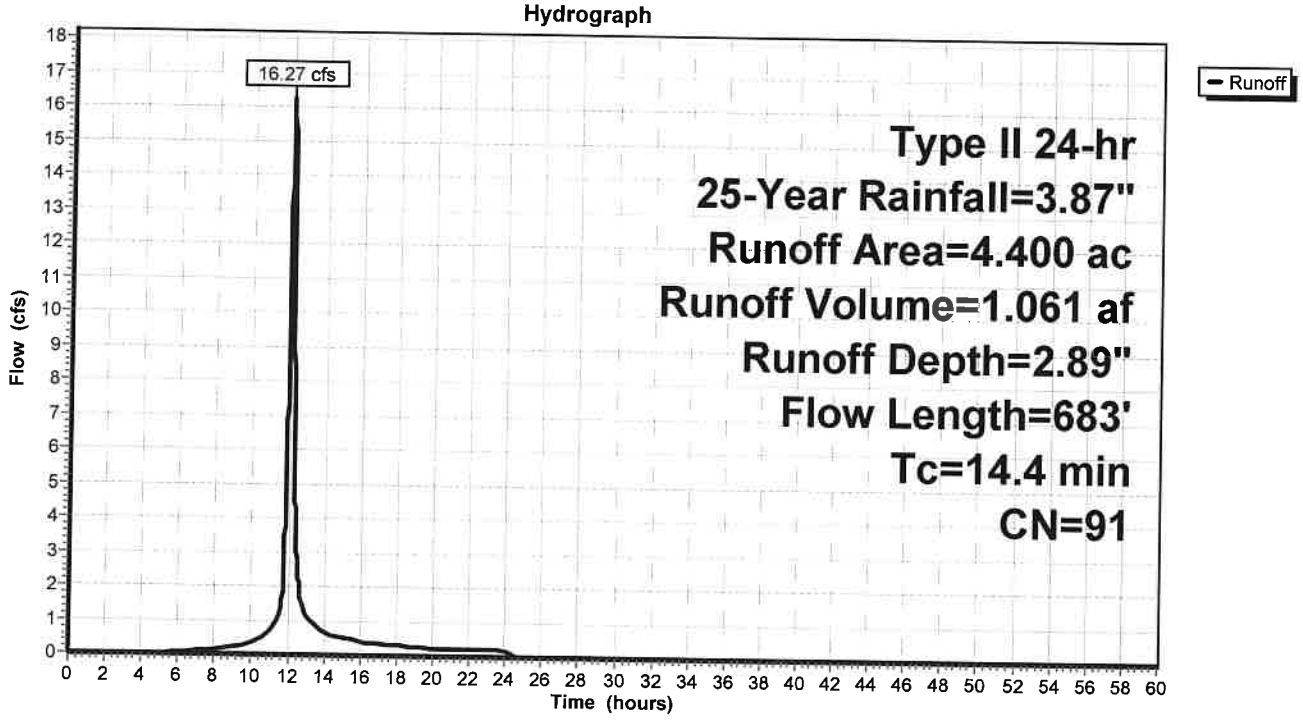
Runoff = 16.27 cfs @ 12.06 hrs, Volume= 1.061 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.02
6.00	0.31	0.01	0.05
7.00	0.38	0.03	0.09
8.00	0.46	0.06	0.13
9.00	0.57	0.10	0.23
10.00	0.70	0.17	0.34
11.00	0.91	0.30	0.69
12.00	2.57	1.67	**14.36**
13.00	2.99	2.06	**1.16**
14.00	3.17	2.23	0.67
15.00	3.30	2.36	0.51
16.00	3.41	2.45	0.40
17.00	3.49	2.53	0.34
18.00	3.56	2.60	0.30
19.00	3.63	2.66	0.26
20.00	3.68	2.72	0.22
21.00	3.73	2.76	0.21
22.00	3.78	2.81	0.20
23.00	3.83	2.85	0.19
24.00	**3.87**	**2.89**	0.18
25.00	3.87	2.89	0.00
26.00	3.87	2.89	0.00
27.00	3.87	2.89	0.00
28.00	3.87	2.89	0.00
29.00	3.87	2.89	0.00
30.00	3.87	2.89	0.00
31.00	3.87	2.89	0.00
32.00	3.87	2.89	0.00
33.00	3.87	2.89	0.00
34.00	3.87	2.89	0.00
35.00	3.87	2.89	0.00
36.00	3.87	2.89	0.00
37.00	3.87	2.89	0.00
38.00	3.87	2.89	0.00
39.00	3.87	2.89	0.00
40.00	3.87	2.89	0.00
41.00	3.87	2.89	0.00
42.00	3.87	2.89	0.00
43.00	3.87	2.89	0.00
44.00	3.87	2.89	0.00
45.00	3.87	2.89	0.00
46.00	3.87	2.89	0.00
47.00	3.87	2.89	0.00
48.00	3.87	2.89	0.00
49.00	3.87	2.89	0.00
50.00	3.87	2.89	0.00
51.00	3.87	2.89	0.00
52.00	3.87	2.89	0.00
53.00	3.87	2.89	0.00
54.00	3.87	2.89	0.00
55.00	3.87	2.89	0.00
56.00	3.87	2.89	0.00
57.00	3.87	2.89	0.00
58.00	3.87	2.89	0.00
59.00	3.87	2.89	0.00
60.00	3.87	2.89	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 2.80" for 25-Year event
Inflow = 22.74 cfs @ 12.05 hrs, Volume= 1.421 af
Outflow = 21.73 cfs @ 12.08 hrs, Volume= 1.421 af, Atten= 4%, Lag= 2.0 min
Primary = 2.89 cfs @ 12.08 hrs, Volume= 0.934 af
Secondary = 18.84 cfs @ 12.08 hrs, Volume= 0.487 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.11' @ 12.08 hrs Surf.Area= 10,069 sf Storage= 10,375 cf

Plug-Flow detention time= 127.9 min calculated for 1.421 af (100% of inflow)
Center-of-Mass det. time= 128.1 min (931.5 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

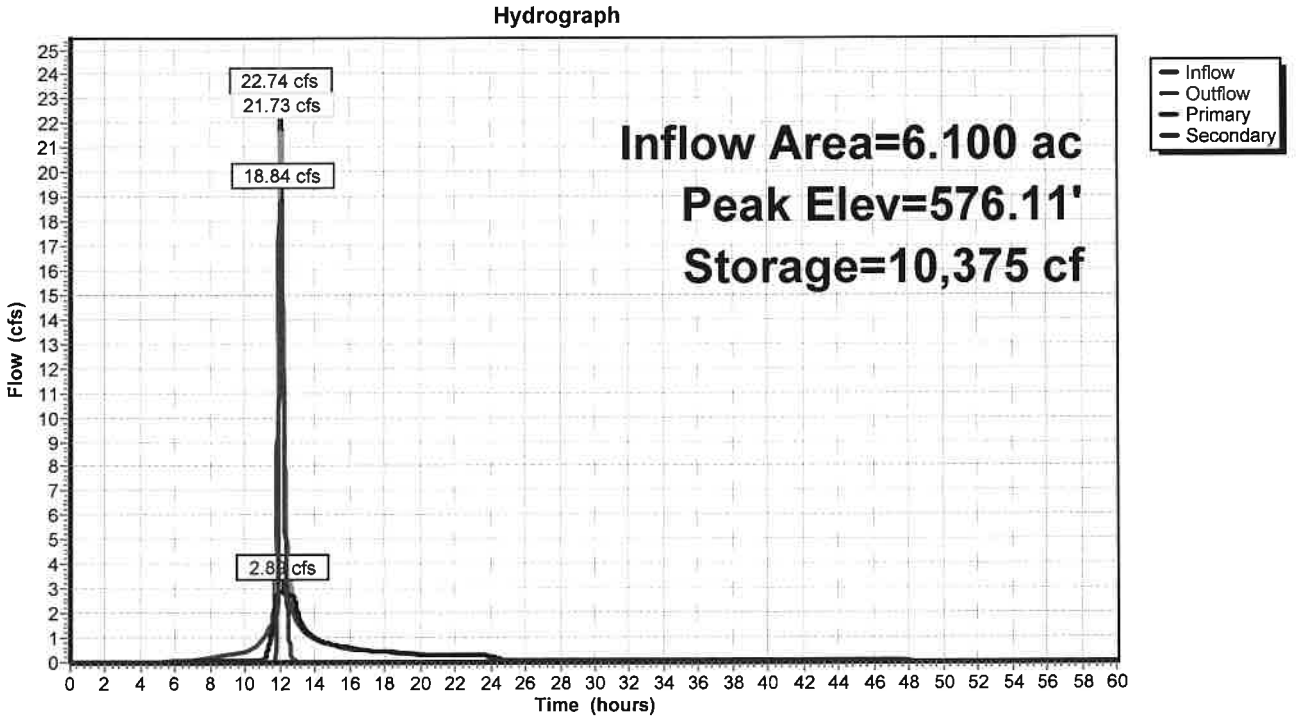
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.89 cfs @ 12.08 hrs HW=576.11' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.89 cfs @ 8.27 fps)
  └**2=Grate** (Passes < 5.25 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

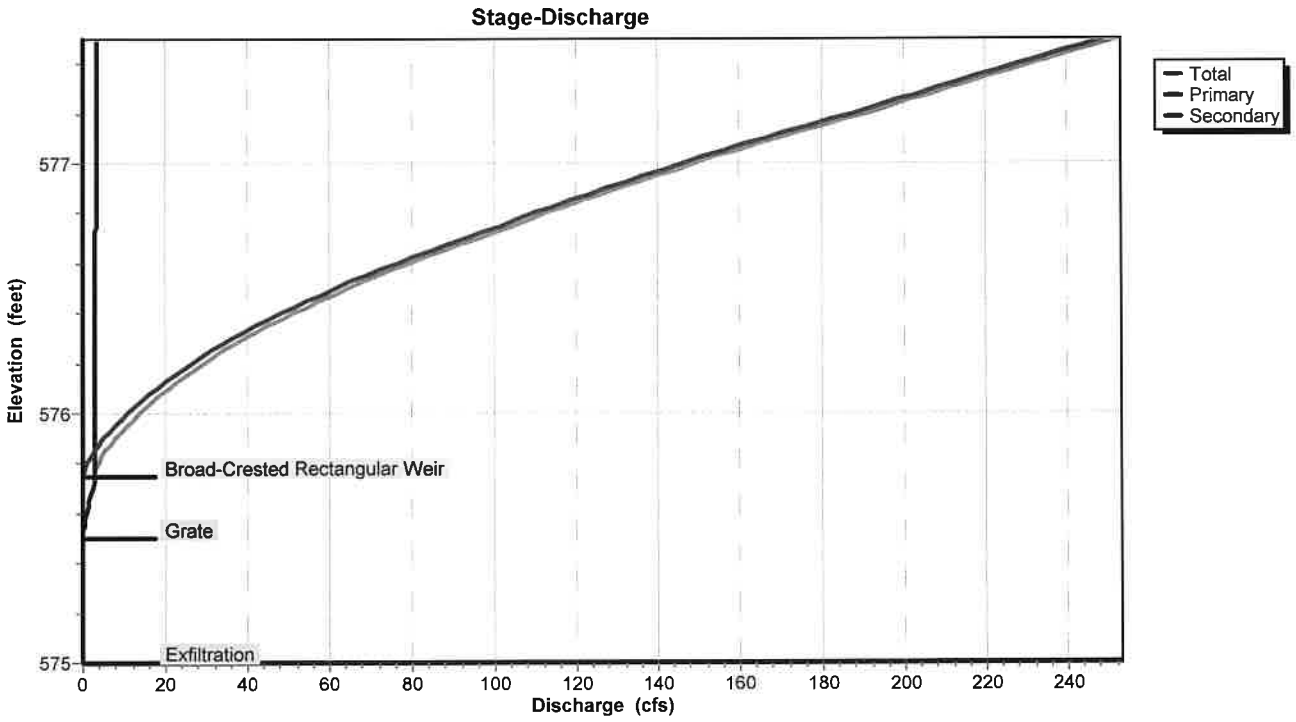
Secondary OutFlow Max=18.83 cfs @ 12.08 hrs HW=576.11' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 18.83 cfs @ 1.75 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

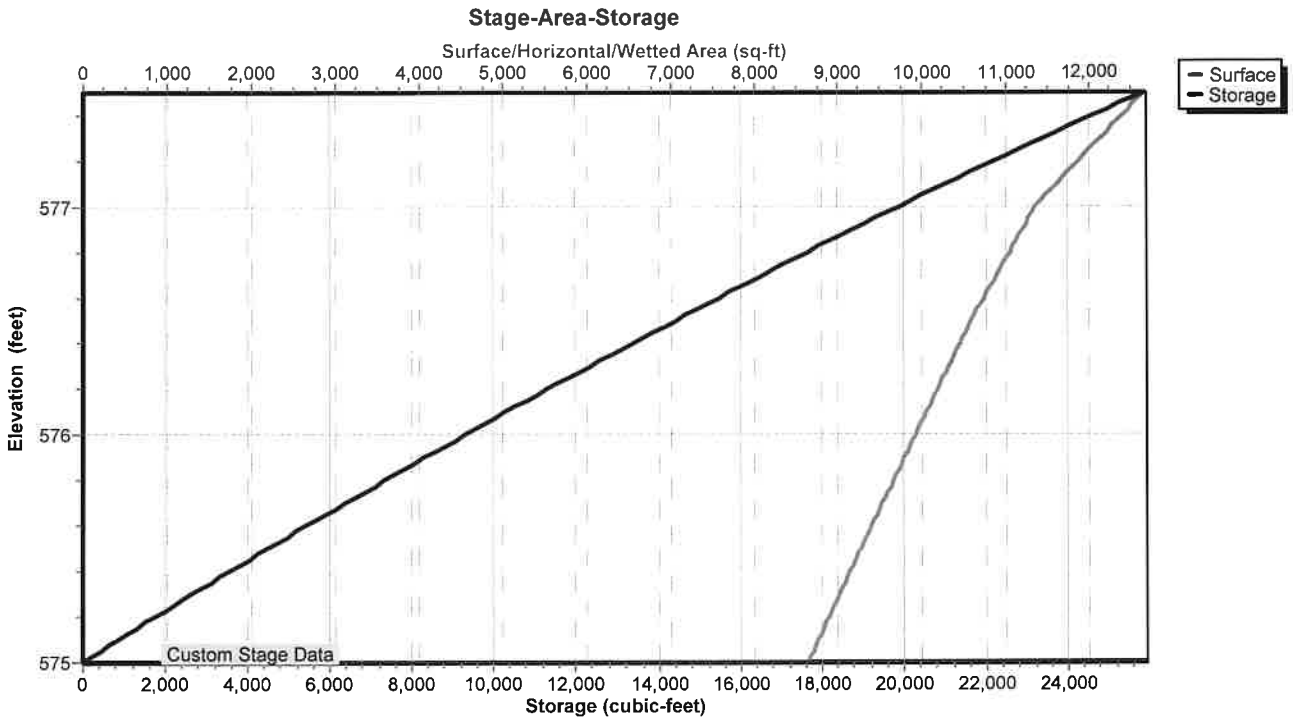


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.05	75	575.01	0.02	0.02	0.00
8.00	0.16	510	575.06	0.05	0.05	0.00
10.00	0.43	2,153	575.24	0.05	0.05	0.00
12.00	**20.75**	**9,748**	**576.05**	**16.99**	**2.86**	**14.14**
14.00	**0.90**	**5,469**	**575.61**	**1.00**	**1.00**	**0.00**
16.00	0.54	5,148	575.57	0.58	0.58	0.00
18.00	0.41	5,009	575.56	0.43	0.43	0.00
20.00	0.30	4,900	575.54	0.32	0.32	0.00
22.00	0.27	4,847	575.54	0.28	0.28	0.00
24.00	0.25	4,821	575.54	0.25	0.25	0.00
26.00	0.00	4,285	575.48	0.06	0.06	0.00
28.00	0.00	3,889	575.44	0.05	0.05	0.00
30.00	0.00	3,497	575.39	0.05	0.05	0.00
32.00	0.00	3,108	575.35	0.05	0.05	0.00
34.00	0.00	2,722	575.31	0.05	0.05	0.00
36.00	0.00	2,339	575.27	0.05	0.05	0.00
38.00	0.00	1,960	575.22	0.05	0.05	0.00
40.00	0.00	1,584	575.18	0.05	0.05	0.00
42.00	0.00	1,211	575.14	0.05	0.05	0.00
44.00	0.00	842	575.10	0.05	0.05	0.00
46.00	0.00	475	575.05	0.05	0.05	0.00
48.00	0.00	134	575.02	0.03	0.03	0.00
50.00	0.00	25	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 4.22" for 25-Year event
Inflow = 34.94 cfs @ 12.07 hrs, Volume= 1.548 af
Outflow = 0.64 cfs @ 14.10 hrs, Volume= 1.276 af, Atten= 98%, Lag= 121.4 min
Primary = 0.64 cfs @ 14.10 hrs, Volume= 1.276 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.83' @ 14.10 hrs Surf.Area= 65,573 sf Storage= 51,963 cf

Plug-Flow detention time= 951.6 min calculated for 1.276 af (82% of inflow)
Center-of-Mass det. time= 890.6 min (1,667.8 - 777.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

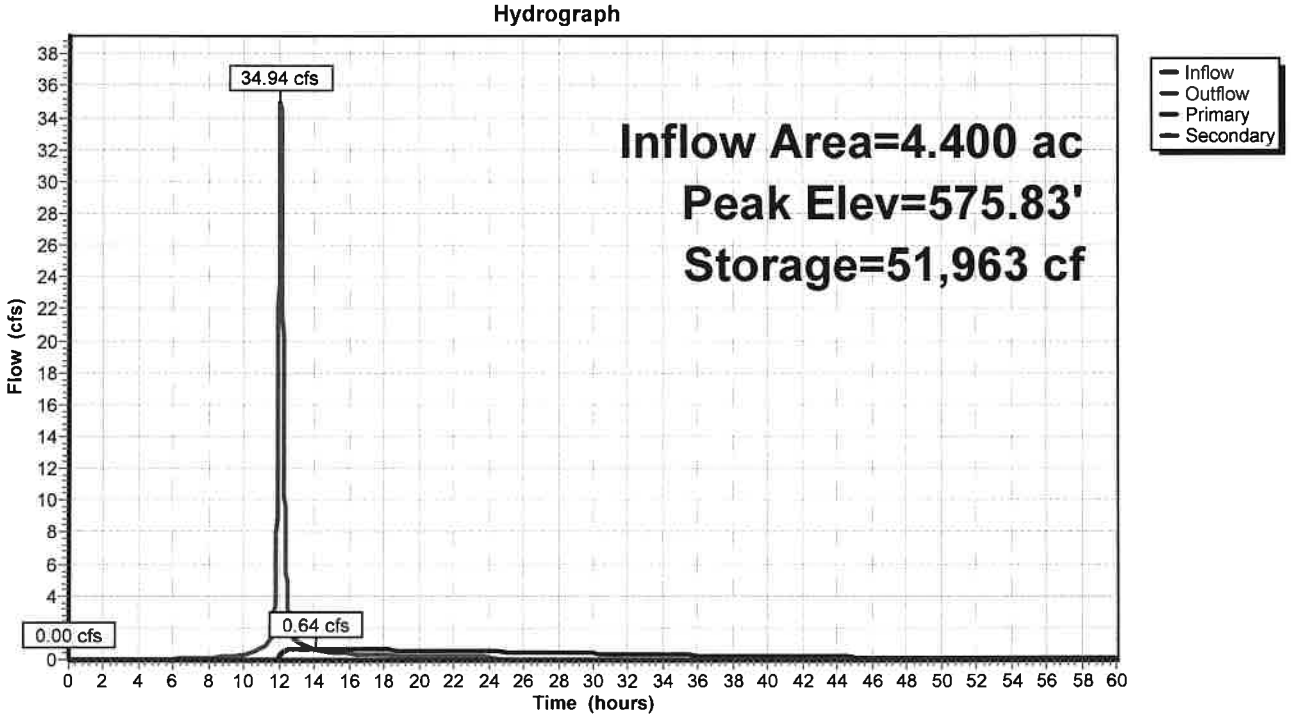
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.64 cfs @ 14.10 hrs HW=575.83' (Free Discharge)
↑—**1=12" outlet pipe** (Passes 0.64 cfs of 2.52 cfs potential flow)
↑—**2=low flow outlet pipe** (Inlet Controls 0.64 cfs @ 3.24 fps)
—**3=Grate** (Controls 0.00 cfs)

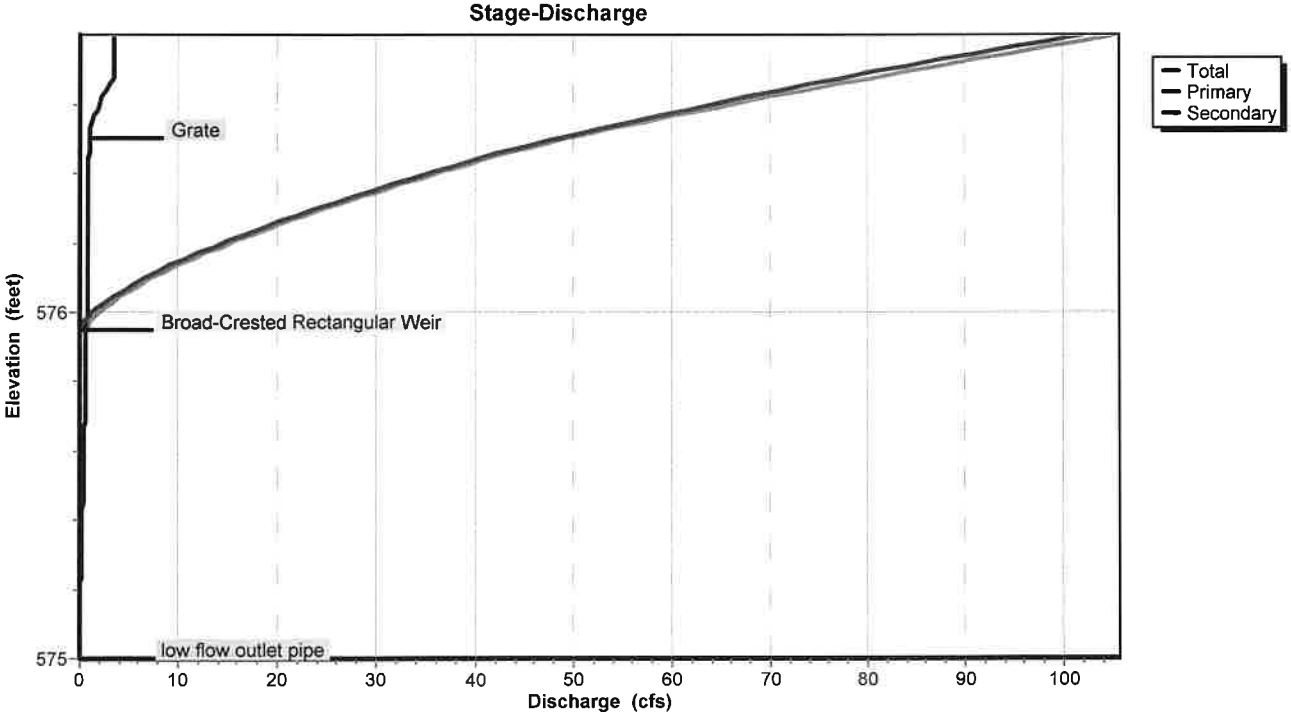
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

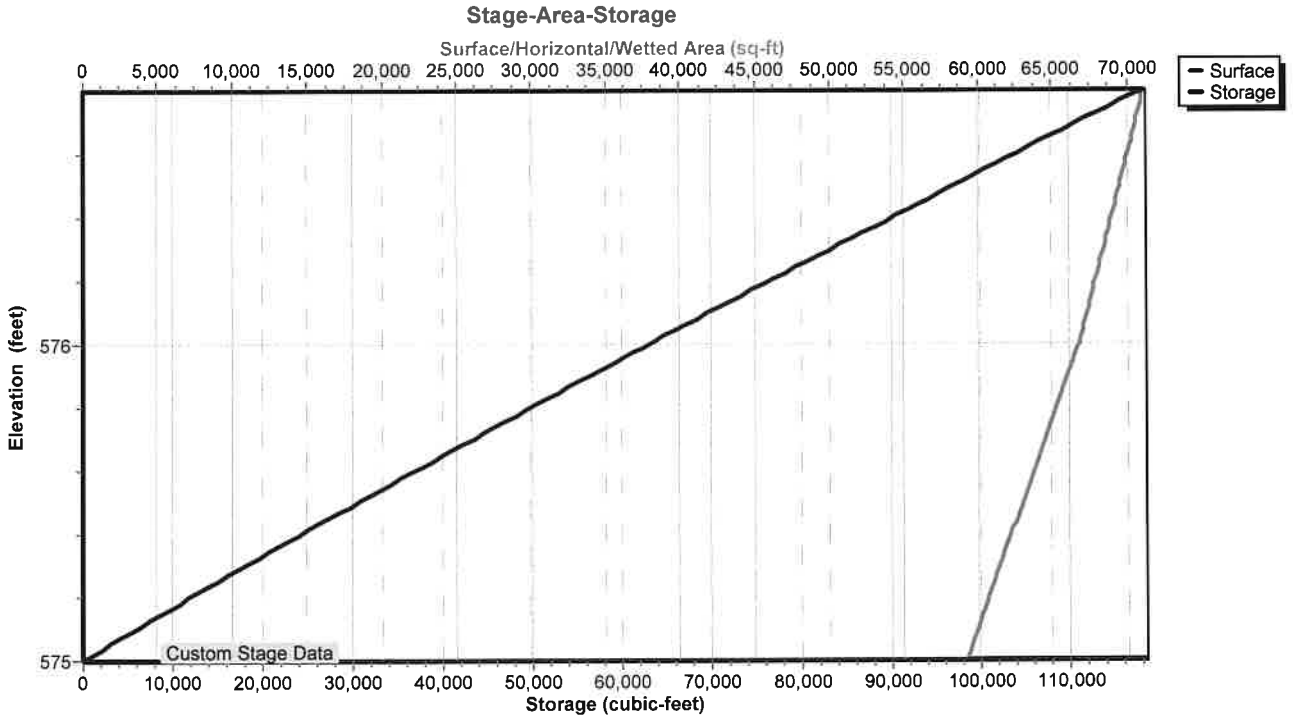


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.05	138	575.00	0.00	0.00	0.00
8.00	0.13	792	575.01	0.00	0.00	0.00
10.00	0.34	2,407	575.04	0.00	0.00	0.00
12.00	**28.50**	18,305	575.30	0.17	0.17	0.00
14.00	**0.67**	**51,959**	**575.83**	**0.64**	**0.64**	0.00
16.00	0.40	**51,083**	**575.82**	**0.63**	**0.63**	0.00
18.00	0.30	49,081	575.79	0.61	0.61	0.00
20.00	0.22	46,637	575.75	0.59	0.59	0.00
22.00	0.20	44,041	575.71	0.55	0.55	0.00
24.00	0.18	41,619	575.67	0.51	0.51	0.00
26.00	0.00	38,209	575.62	0.48	0.48	0.00
28.00	0.00	34,905	575.57	0.44	0.44	0.00
30.00	0.00	31,923	575.52	0.39	0.39	0.00
32.00	0.00	29,266	575.48	0.35	0.35	0.00
34.00	0.00	26,910	575.44	0.31	0.31	0.00
36.00	0.00	24,824	575.41	0.27	0.27	0.00
38.00	0.00	22,978	575.38	0.24	0.24	0.00
40.00	0.00	21,340	575.35	0.21	0.21	0.00
42.00	0.00	19,882	575.33	0.19	0.19	0.00
44.00	0.00	18,582	575.31	0.17	0.17	0.00
46.00	0.00	17,418	575.29	0.15	0.15	0.00
48.00	0.00	16,372	575.27	0.14	0.14	0.00
50.00	0.00	15,429	575.26	0.12	0.12	0.00
52.00	0.00	14,576	575.24	0.11	0.11	0.00
54.00	0.00	13,802	575.23	0.10	0.10	0.00
56.00	0.00	13,098	575.22	0.09	0.09	0.00
58.00	0.00	12,454	575.21	0.09	0.09	0.00
60.00	0.00	11,865	575.20	0.08	0.08	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

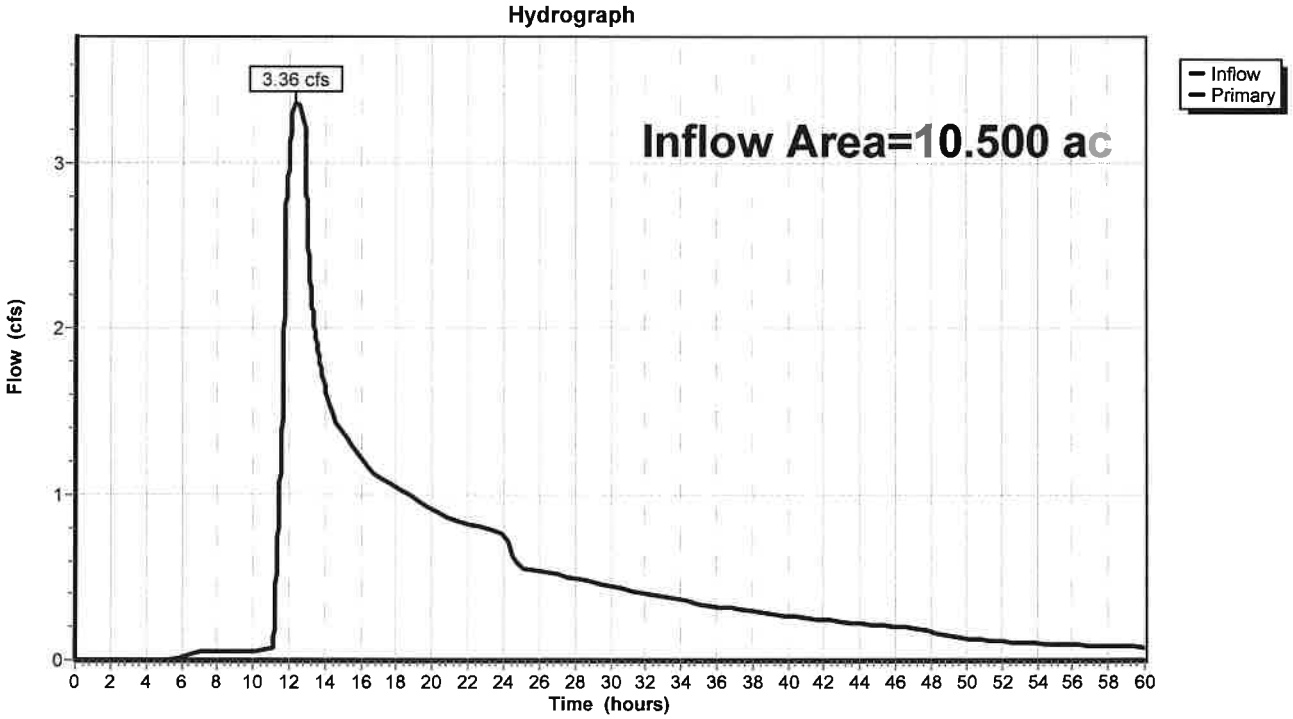
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 2.53" for 25-Year event
Inflow = 3.36 cfs @ 12.37 hrs, Volume= 2.210 af
Primary = 3.36 cfs @ 12.37 hrs, Volume= 2.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.11	0.00	0.11
1.00	0.00	0.00	0.00	53.00	0.11	0.00	0.11
2.00	0.00	0.00	0.00	54.00	0.10	0.00	0.10
3.00	0.00	0.00	0.00	55.00	0.10	0.00	0.10
4.00	0.00	0.00	0.00	56.00	0.09	0.00	0.09
5.00	0.00	0.00	0.00	57.00	0.09	0.00	0.09
6.00	0.02	0.00	0.02	58.00	0.09	0.00	0.09
7.00	0.05	0.00	0.05	59.00	0.08	0.00	0.08
8.00	0.05	0.00	0.05	60.00	0.08	0.00	0.08
9.00	0.05	0.00	0.05				
10.00	0.06	0.00	0.06				
11.00	0.07	0.00	0.07				
12.00	**3.02**	0.00	**3.02**				
13.00	**2.64**	0.00	**2.64**				
14.00	1.63	0.00	1.63				
15.00	1.36	0.00	1.36				
16.00	1.21	0.00	1.21				
17.00	1.10	0.00	1.10				
18.00	1.04	0.00	1.04				
19.00	0.97	0.00	0.97				
20.00	0.91	0.00	0.91				
21.00	0.85	0.00	0.85				
22.00	0.82	0.00	0.82				
23.00	0.79	0.00	0.79				
24.00	0.76	0.00	0.76				
25.00	0.55	0.00	0.55				
26.00	0.53	0.00	0.53				
27.00	0.51	0.00	0.51				
28.00	0.49	0.00	0.49				
29.00	0.47	0.00	0.47				
30.00	0.45	0.00	0.45				
31.00	0.42	0.00	0.42				
32.00	0.40	0.00	0.40				
33.00	0.38	0.00	0.38				
34.00	0.36	0.00	0.36				
35.00	0.34	0.00	0.34				
36.00	0.33	0.00	0.33				
37.00	0.31	0.00	0.31				
38.00	0.29	0.00	0.29				
39.00	0.28	0.00	0.28				
40.00	0.27	0.00	0.27				
41.00	0.25	0.00	0.25				
42.00	0.24	0.00	0.24				
43.00	0.23	0.00	0.23				
44.00	0.22	0.00	0.22				
45.00	0.21	0.00	0.21				
46.00	0.20	0.00	0.20				
47.00	0.20	0.00	0.20				
48.00	0.17	0.00	0.17				
49.00	0.14	0.00	0.14				
50.00	0.13	0.00	0.13				
51.00	0.12	0.00	0.12				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=3.41"
Flow Length=652' Tc=13.3 min CN=90 Runoff=27.50 cfs 1.736 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=3.52"
Flow Length=683' Tc=14.4 min CN=91 Runoff=19.58 cfs 1.290 af

Pond 1P: Bioretention Area 3 Peak Elev=576.17' Storage=10,953 cf Inflow=27.50 cfs 1.736 af
Primary=2.91 cfs 1.092 af Secondary=23.52 cfs 0.644 af Outflow=26.43 cfs 1.736 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=576.00' Storage=62,935 cf Inflow=42.93 cfs 1.933 af
Primary=0.72 cfs 1.504 af Secondary=1.25 cfs 0.131 af Outflow=1.97 cfs 1.635 af

Link 5L: Outflow (@ CB 54) Inflow=3.48 cfs 2.596 af
Primary=3.48 cfs 2.596 af

Total Runoff Area = 10.500 ac Runoff Volume = 3.026 af Average Runoff Depth = 3.46"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

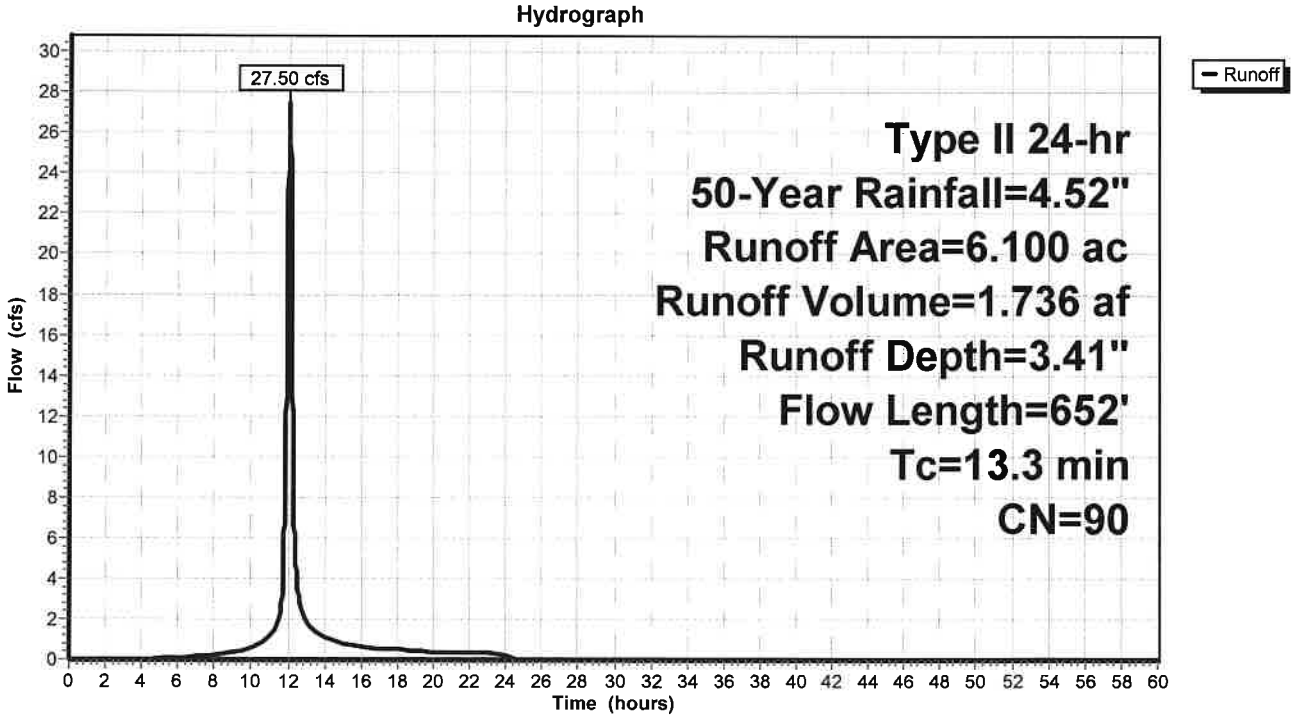
Runoff = 27.50 cfs @ 12.05 hrs, Volume= 1.736 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.52	3.41	0.00
1.00	0.05	0.00	0.00	53.00	4.52	3.41	0.00
2.00	0.10	0.00	0.00	54.00	4.52	3.41	0.00
3.00	0.16	0.00	0.00	55.00	4.52	3.41	0.00
4.00	0.22	0.00	0.00	56.00	4.52	3.41	0.00
5.00	0.28	0.00	0.04	57.00	4.52	3.41	0.00
6.00	0.36	0.02	0.09	58.00	4.52	3.41	0.00
7.00	0.45	0.04	0.16	59.00	4.52	3.41	0.00
8.00	0.54	0.07	0.23	60.00	4.52	3.41	0.00
9.00	0.66	0.13	0.39				
10.00	0.82	0.21	0.57				
11.00	1.06	0.36	1.16				
12.00	3.00	1.98	**25.18**				
13.00	3.49	2.44	**1.87**				
14.00	3.71	2.64	1.08				
15.00	3.86	2.78	0.83				
16.00	3.98	2.90	0.64				
17.00	4.08	2.99	0.55				
18.00	4.16	3.07	0.49				
19.00	4.24	3.15	0.42				
20.00	4.30	3.21	0.36				
21.00	4.36	3.26	0.33				
22.00	4.42	3.32	0.32				
23.00	4.47	3.37	0.31				
24.00	**4.52**	**3.41**	0.30				
25.00	4.52	3.41	0.00				
26.00	4.52	3.41	0.00				
27.00	4.52	3.41	0.00				
28.00	4.52	3.41	0.00				
29.00	4.52	3.41	0.00				
30.00	4.52	3.41	0.00				
31.00	4.52	3.41	0.00				
32.00	4.52	3.41	0.00				
33.00	4.52	3.41	0.00				
34.00	4.52	3.41	0.00				
35.00	4.52	3.41	0.00				
36.00	4.52	3.41	0.00				
37.00	4.52	3.41	0.00				
38.00	4.52	3.41	0.00				
39.00	4.52	3.41	0.00				
40.00	4.52	3.41	0.00				
41.00	4.52	3.41	0.00				
42.00	4.52	3.41	0.00				
43.00	4.52	3.41	0.00				
44.00	4.52	3.41	0.00				
45.00	4.52	3.41	0.00				
46.00	4.52	3.41	0.00				
47.00	4.52	3.41	0.00				
48.00	4.52	3.41	0.00				
49.00	4.52	3.41	0.00				
50.00	4.52	3.41	0.00				
51.00	4.52	3.41	0.00				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

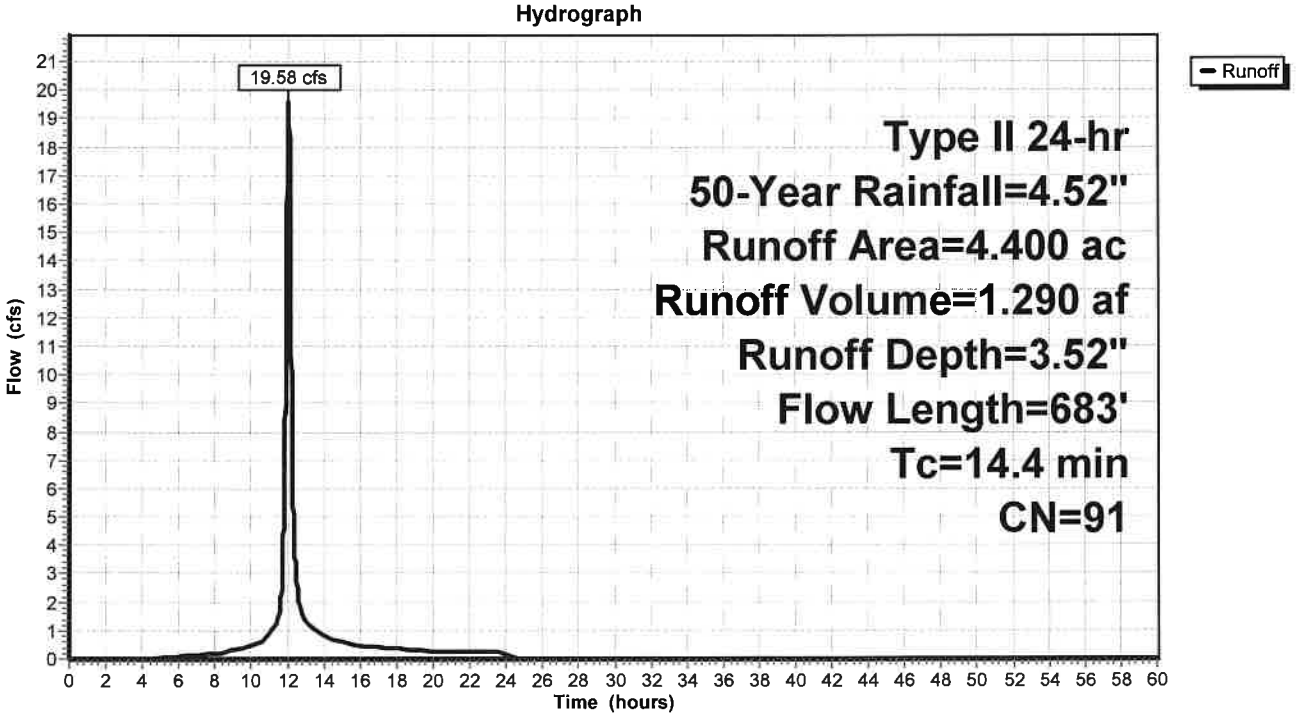
Runoff = 19.58 cfs @ 12.06 hrs, Volume= 1.290 af, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.01	0.04
6.00	0.36	0.02	0.08
7.00	0.45	0.05	0.13
8.00	0.54	0.09	0.19
9.00	0.66	0.15	0.31
10.00	0.82	0.24	0.44
11.00	1.06	0.40	0.88
12.00	3.00	2.07	**17.36**
13.00	3.49	2.53	**1.38**
14.00	3.71	2.74	0.79
15.00	3.86	2.88	0.60
16.00	3.98	3.00	0.47
17.00	4.08	3.09	0.40
18.00	4.16	3.17	0.36
19.00	4.24	3.25	0.31
20.00	4.30	3.31	0.26
21.00	4.36	3.36	0.24
22.00	4.42	3.42	0.23
23.00	4.47	3.47	0.22
24.00	**4.52**	**3.52**	0.21
25.00	4.52	3.52	0.00
26.00	4.52	3.52	0.00
27.00	4.52	3.52	0.00
28.00	4.52	3.52	0.00
29.00	4.52	3.52	0.00
30.00	4.52	3.52	0.00
31.00	4.52	3.52	0.00
32.00	4.52	3.52	0.00
33.00	4.52	3.52	0.00
34.00	4.52	3.52	0.00
35.00	4.52	3.52	0.00
36.00	4.52	3.52	0.00
37.00	4.52	3.52	0.00
38.00	4.52	3.52	0.00
39.00	4.52	3.52	0.00
40.00	4.52	3.52	0.00
41.00	4.52	3.52	0.00
42.00	4.52	3.52	0.00
43.00	4.52	3.52	0.00
44.00	4.52	3.52	0.00
45.00	4.52	3.52	0.00
46.00	4.52	3.52	0.00
47.00	4.52	3.52	0.00
48.00	4.52	3.52	0.00
49.00	4.52	3.52	0.00
50.00	4.52	3.52	0.00
51.00	4.52	3.52	0.00
52.00	4.52	3.52	0.00
53.00	4.52	3.52	0.00
54.00	4.52	3.52	0.00
55.00	4.52	3.52	0.00
56.00	4.52	3.52	0.00
57.00	4.52	3.52	0.00
58.00	4.52	3.52	0.00
59.00	4.52	3.52	0.00
60.00	4.52	3.52	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 3.41" for 50-Year event
Inflow = 27.50 cfs @ 12.05 hrs, Volume= 1.736 af
Outflow = 26.43 cfs @ 12.08 hrs, Volume= 1.736 af, Atten= 4%, Lag= 1.9 min
Primary = 2.91 cfs @ 12.08 hrs, Volume= 1.092 af
Secondary = 23.52 cfs @ 12.08 hrs, Volume= 0.644 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.17' @ 12.08 hrs Surf.Area= 10,144 sf Storage= 10,953 cf

Plug-Flow detention time= 109.3 min calculated for 1.736 af (100% of inflow)
Center-of-Mass det. time= 109.3 min (907.1 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

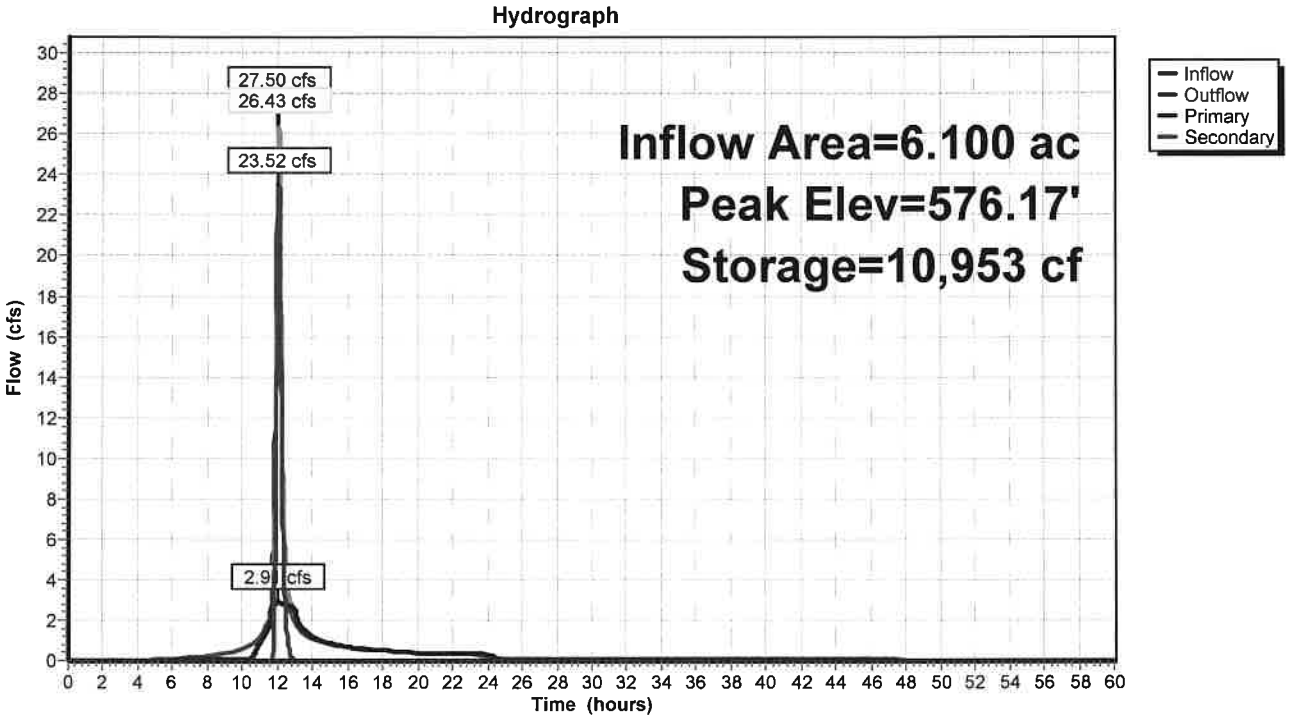
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.91 cfs @ 12.08 hrs HW=576.17' (Free Discharge)
└─**1=8" pipe** (Barrel Controls 2.91 cfs @ 8.34 fps)
  ├─**2=Grate** (Passes < 5.49 cfs potential flow)
  └─**3=Exfiltration** (Passes < 0.06 cfs potential flow)

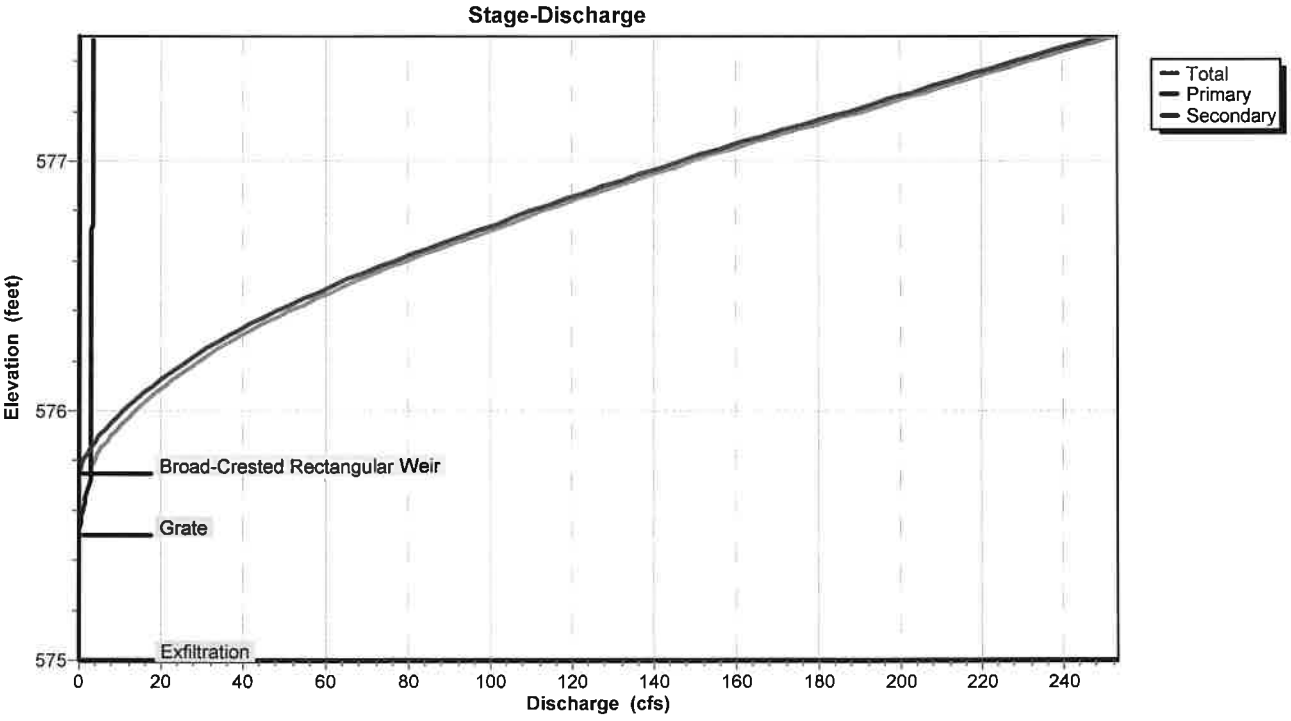
Secondary OutFlow Max=23.50 cfs @ 12.08 hrs HW=576.17' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 23.50 cfs @ 1.88 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

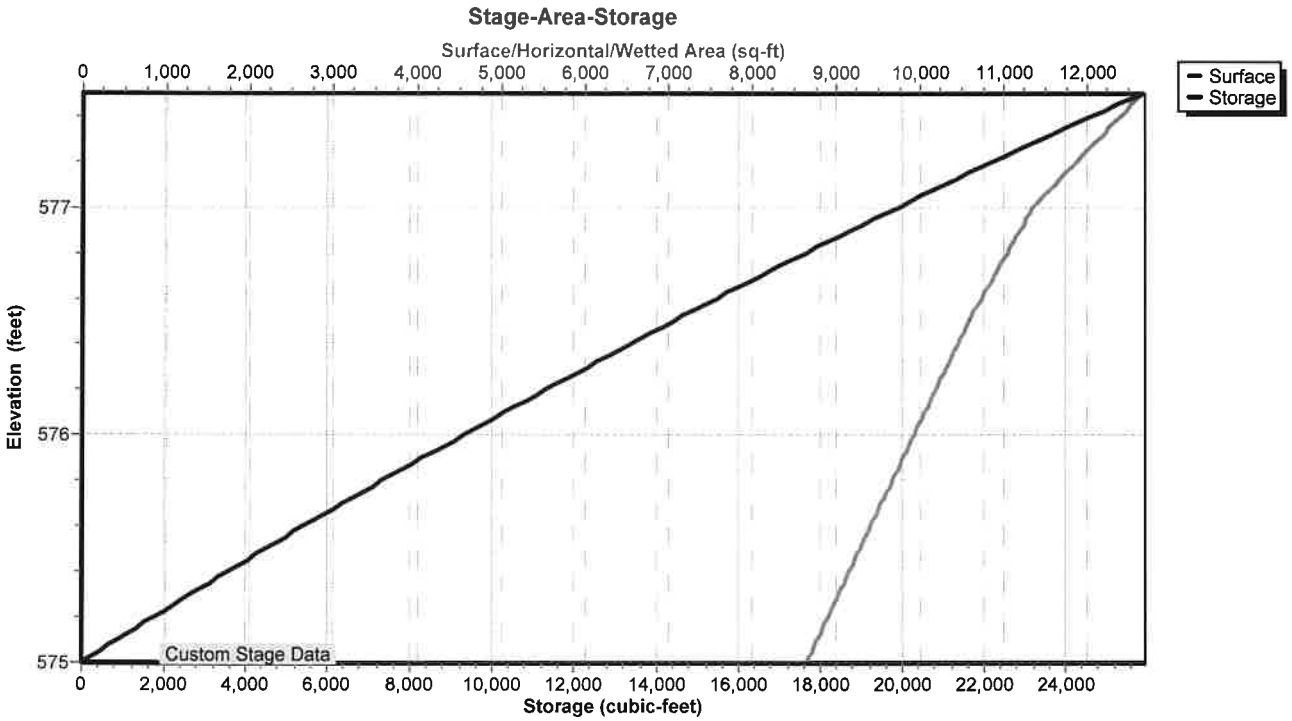


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.09	180	575.02	0.04	0.04	0.00
8.00	0.23	959	575.11	0.05	0.05	0.00
10.00	0.57	3,333	575.38	0.05	0.05	0.00
12.00	**25.18**	**10,302**	**576.10**	**21.15**	**2.88**	**18.27**
14.00	**1.08**	**5,594**	**575.62**	**1.18**	**1.18**	**0.00**
16.00	0.64	5,233	575.58	0.68	0.68	0.00
18.00	0.49	5,081	575.56	0.51	0.51	0.00
20.00	0.36	4,961	575.55	0.38	0.38	0.00
22.00	0.32	4,907	575.55	0.33	0.33	0.00
24.00	0.30	4,876	575.54	0.30	0.30	0.00
26.00	0.00	4,297	575.48	0.06	0.06	0.00
28.00	0.00	3,900	575.44	0.05	0.05	0.00
30.00	0.00	3,508	575.39	0.05	0.05	0.00
32.00	0.00	3,118	575.35	0.05	0.05	0.00
34.00	0.00	2,732	575.31	0.05	0.05	0.00
36.00	0.00	2,350	575.27	0.05	0.05	0.00
38.00	0.00	1,970	575.22	0.05	0.05	0.00
40.00	0.00	1,594	575.18	0.05	0.05	0.00
42.00	0.00	1,221	575.14	0.05	0.05	0.00
44.00	0.00	852	575.10	0.05	0.05	0.00
46.00	0.00	486	575.06	0.05	0.05	0.00
48.00	0.00	140	575.02	0.03	0.03	0.00
50.00	0.00	26	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 5.27" for 50-Year event
Inflow = 42.93 cfs @ 12.07 hrs, Volume= 1.933 af
Outflow = 1.97 cfs @ 12.73 hrs, Volume= 1.635 af, Atten= 95%, Lag= 39.8 min
Primary = 0.72 cfs @ 12.73 hrs, Volume= 1.504 af
Secondary = 1.25 cfs @ 12.73 hrs, Volume= 0.131 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.00' @ 12.73 hrs Surf.Area= 66,838 sf Storage= 62,935 cf

Plug-Flow detention time= 900.4 min calculated for 1.635 af (85% of inflow)
Center-of-Mass det. time= 844.0 min (1,616.3 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

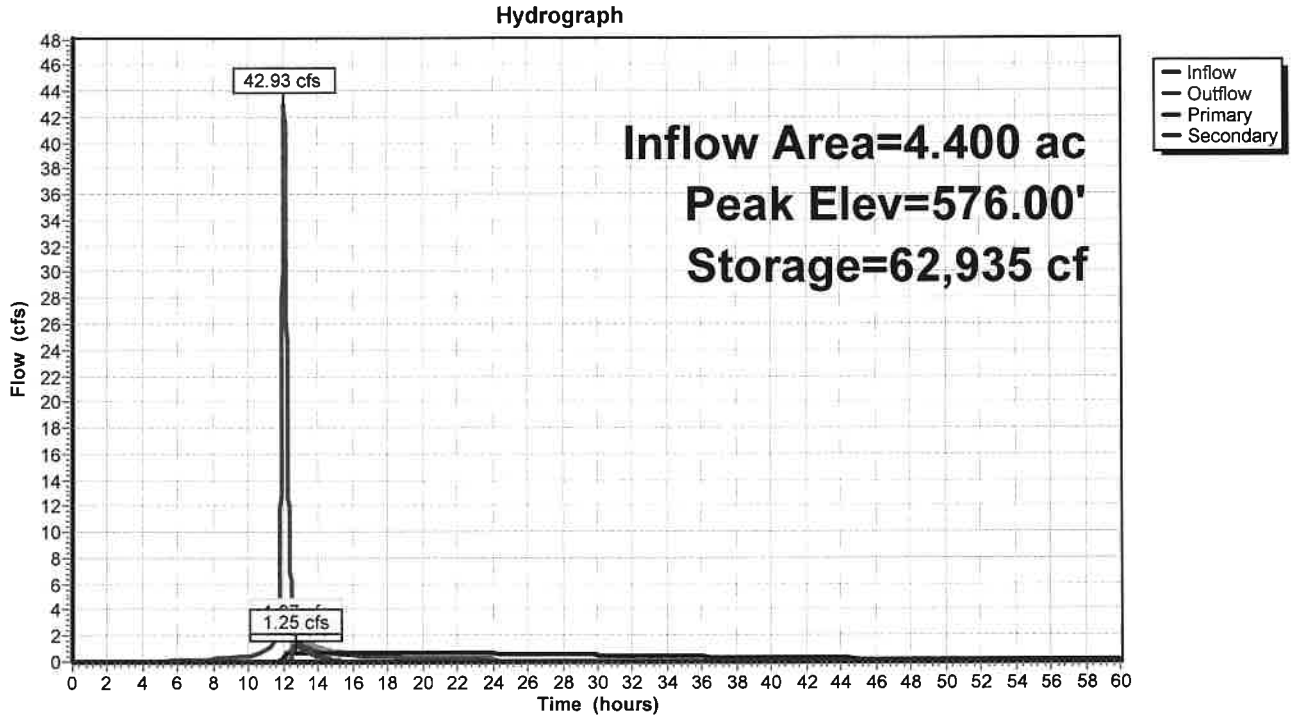
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.72 cfs @ 12.73 hrs HW=576.00' (Free Discharge)
↑—**1=12" outlet pipe** (Passes 0.72 cfs of 2.71 cfs potential flow)
↑—**2=low flow outlet pipe** (Inlet Controls 0.72 cfs @ 3.68 fps)
—**3=Grate** (Controls 0.00 cfs)

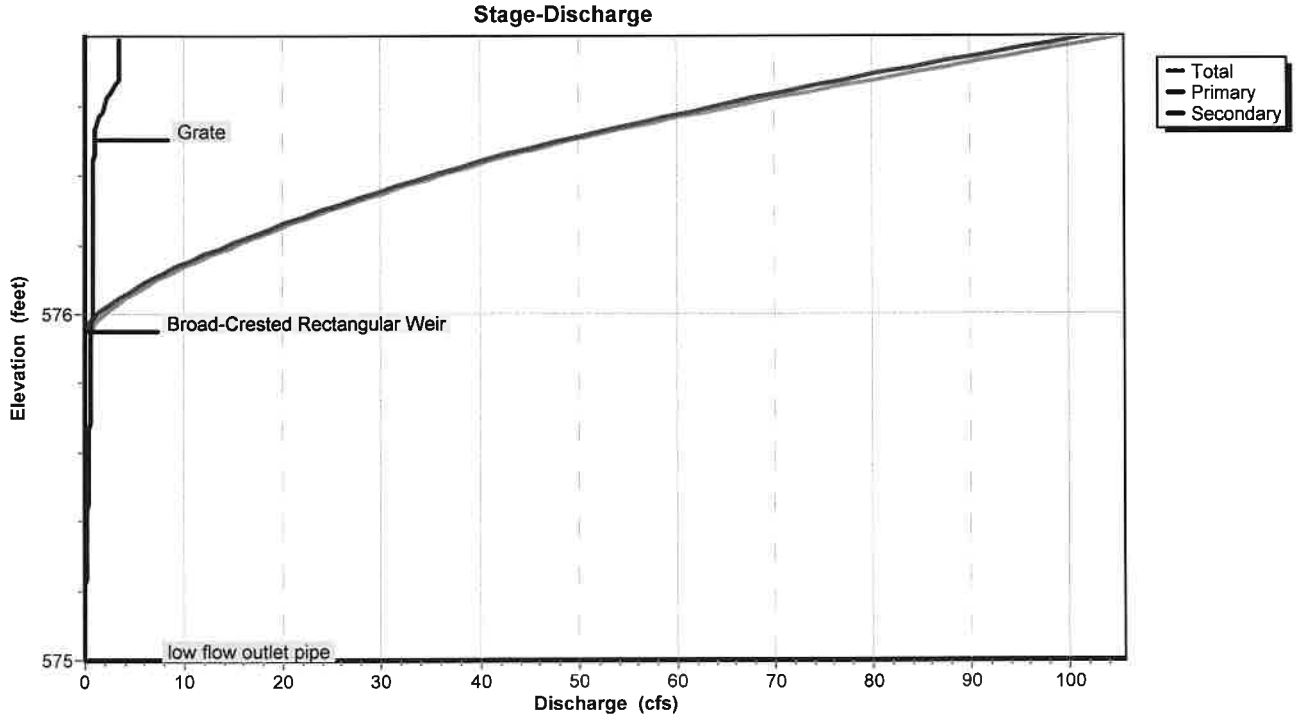
Secondary OutFlow Max=1.25 cfs @ 12.73 hrs HW=576.00' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 1.25 cfs @ 0.64 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

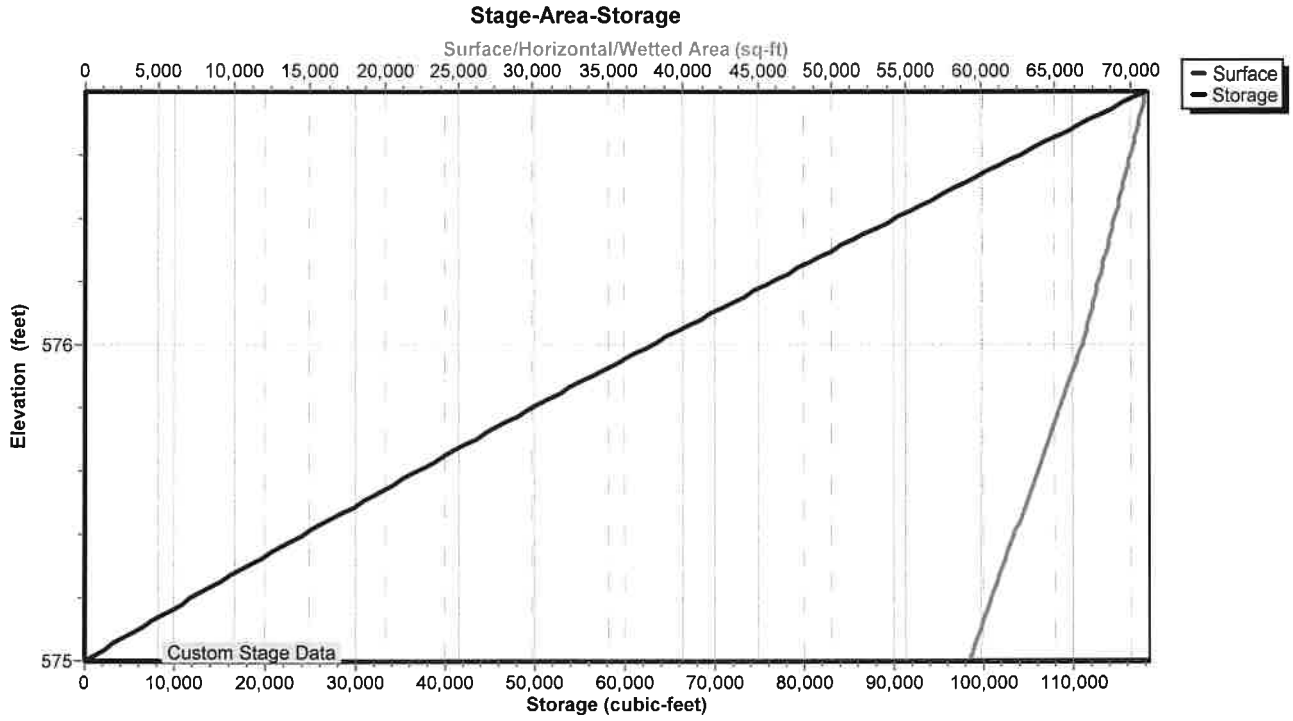


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	1	575.00	0.00	0.00	0.00
6.00	0.08	300	575.01	0.00	0.00	0.00
8.00	0.19	1,265	575.02	0.00	0.00	0.00
10.00	0.44	3,420	575.06	0.01	0.01	0.00
12.00	**35.63**	**24,163**	**575.40**	**0.26**	**0.26**	**0.00**
14.00	**0.79**	**61,204**	**575.97**	**1.11**	**0.71**	**0.40**
16.00	0.47	59,536	575.95	0.70	0.70	0.00
18.00	0.36	57,495	575.92	0.68	0.68	0.00
20.00	0.26	54,889	575.88	0.66	0.66	0.00
22.00	0.23	51,975	575.83	0.64	0.64	0.00
24.00	0.21	49,094	575.79	0.61	0.61	0.00
26.00	0.00	45,010	575.73	0.56	0.56	0.00
28.00	0.00	41,189	575.67	0.50	0.50	0.00
30.00	0.00	37,665	575.61	0.47	0.47	0.00
32.00	0.00	34,410	575.56	0.43	0.43	0.00
34.00	0.00	31,481	575.51	0.38	0.38	0.00
36.00	0.00	28,873	575.47	0.34	0.34	0.00
38.00	0.00	26,562	575.44	0.30	0.30	0.00
40.00	0.00	24,517	575.40	0.27	0.27	0.00
42.00	0.00	22,705	575.37	0.24	0.24	0.00
44.00	0.00	21,097	575.35	0.21	0.21	0.00
46.00	0.00	19,666	575.33	0.19	0.19	0.00
48.00	0.00	18,389	575.30	0.17	0.17	0.00
50.00	0.00	17,245	575.29	0.15	0.15	0.00
52.00	0.00	16,216	575.27	0.14	0.14	0.00
54.00	0.00	15,288	575.25	0.12	0.12	0.00
56.00	0.00	14,449	575.24	0.11	0.11	0.00
58.00	0.00	13,686	575.23	0.10	0.10	0.00
60.00	0.00	12,992	575.22	0.09	0.09	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

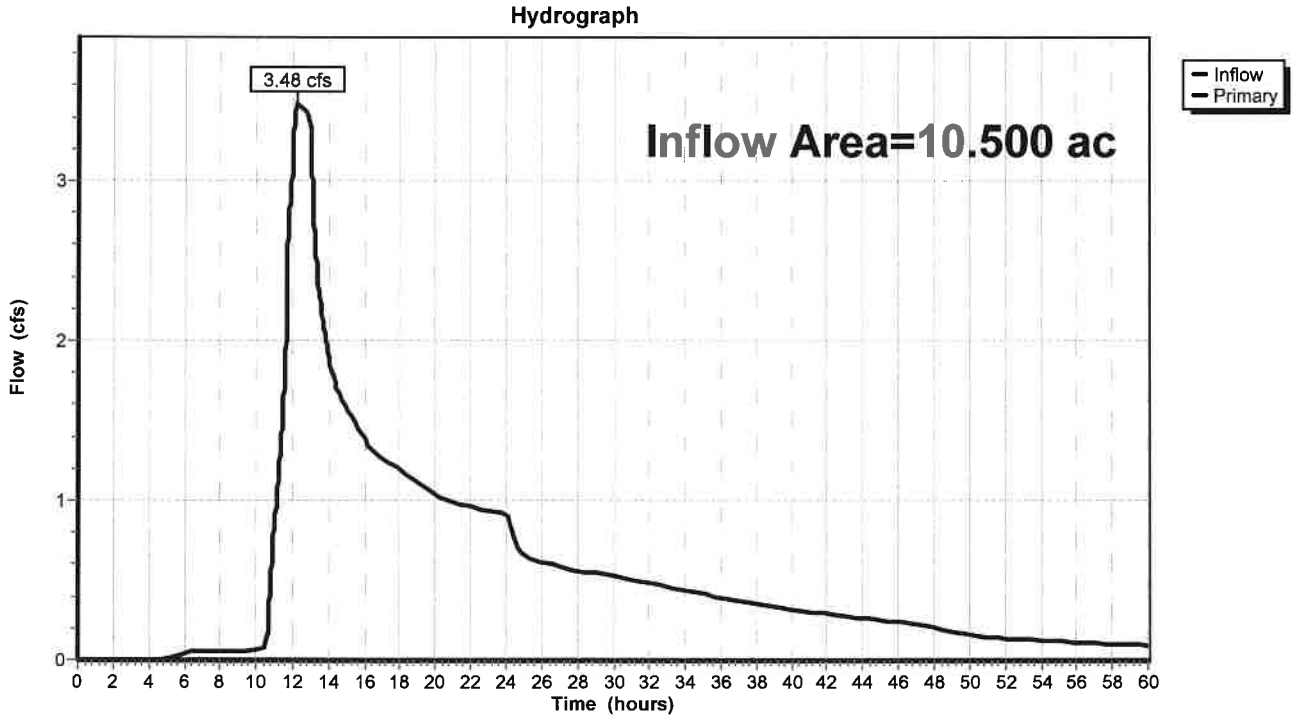
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 2.97" for 50-Year event
Inflow = 3.48 cfs @ 12.21 hrs, Volume= 2.596 af
Primary = 3.48 cfs @ 12.21 hrs, Volume= 2.596 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.14	0.00	0.14
1.00	0.00	0.00	0.00	53.00	0.13	0.00	0.13
2.00	0.00	0.00	0.00	54.00	0.12	0.00	0.12
3.00	0.00	0.00	0.00	55.00	0.12	0.00	0.12
4.00	0.00	0.00	0.00	56.00	0.11	0.00	0.11
5.00	0.01	0.00	0.01	57.00	0.11	0.00	0.11
6.00	0.04	0.00	0.04	58.00	0.10	0.00	0.10
7.00	0.05	0.00	0.05	59.00	0.10	0.00	0.10
8.00	0.05	0.00	0.05	60.00	0.09	0.00	0.09
9.00	0.06	0.00	0.06				
10.00	0.06	0.00	0.06				
11.00	0.88	0.00	0.88				
12.00	**3.14**	0.00	**3.14**				
13.00	**3.25**	0.00	**3.25**				
14.00	1.89	0.00	1.89				
15.00	1.57	0.00	1.57				
16.00	1.38	0.00	1.38				
17.00	1.26	0.00	1.26				
18.00	1.19	0.00	1.19				
19.00	1.11	0.00	1.11				
20.00	1.04	0.00	1.04				
21.00	0.99	0.00	0.99				
22.00	0.96	0.00	0.96				
23.00	0.94	0.00	0.94				
24.00	0.91	0.00	0.91				
25.00	0.65	0.00	0.65				
26.00	0.62	0.00	0.62				
27.00	0.59	0.00	0.59				
28.00	0.56	0.00	0.56				
29.00	0.55	0.00	0.55				
30.00	0.53	0.00	0.53				
31.00	0.51	0.00	0.51				
32.00	0.48	0.00	0.48				
33.00	0.46	0.00	0.46				
34.00	0.44	0.00	0.44				
35.00	0.42	0.00	0.42				
36.00	0.39	0.00	0.39				
37.00	0.37	0.00	0.37				
38.00	0.35	0.00	0.35				
39.00	0.34	0.00	0.34				
40.00	0.32	0.00	0.32				
41.00	0.30	0.00	0.30				
42.00	0.29	0.00	0.29				
43.00	0.27	0.00	0.27				
44.00	0.26	0.00	0.26				
45.00	0.25	0.00	0.25				
46.00	0.24	0.00	0.24				
47.00	0.23	0.00	0.23				
48.00	0.20	0.00	0.20				
49.00	0.17	0.00	0.17				
50.00	0.16	0.00	0.16				
51.00	0.15	0.00	0.15				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=4.15"
Flow Length=652' Tc=13.3 min CN=90 Runoff=33.05 cfs 2.108 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=4.25"
Flow Length=683' Tc=14.4 min CN=91 Runoff=23.44 cfs 1.560 af

Pond 1P: Bioretention Area 3 Peak Elev=576.23' Storage=11,585 cf Inflow=33.05 cfs 2.108 af
Primary=2.94 cfs 1.275 af Secondary=28.98 cfs 0.833 af Outflow=31.92 cfs 2.108 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=576.11' Storage=70,722 cf Inflow=52.24 cfs 2.392 af
Primary=0.78 cfs 1.554 af Secondary=7.80 cfs 0.534 af Outflow=8.57 cfs 2.088 af

Link 5L: Outflow (@ CB 54) Inflow=3.60 cfs 2.829 af
Primary=3.60 cfs 2.829 af

Total Runoff Area = 10.500 ac Runoff Volume = 3.668 af Average Runoff Depth = 4.19"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

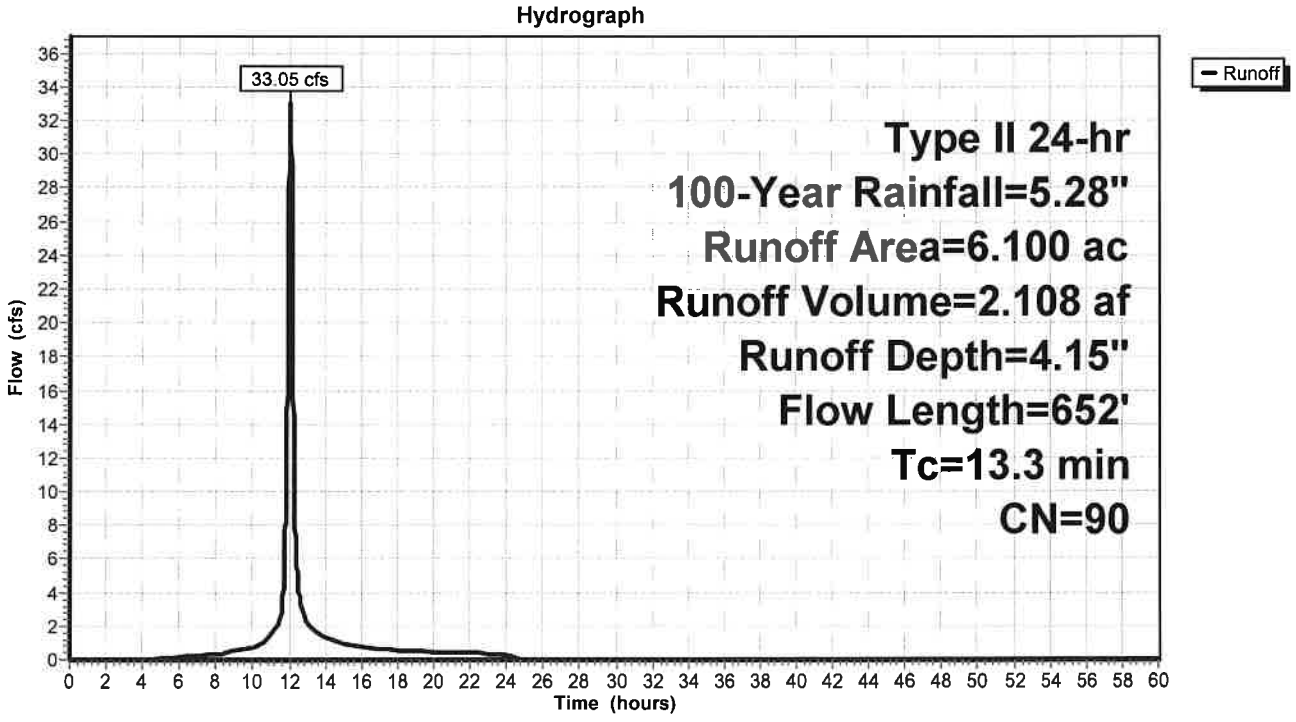
Runoff = 33.05 cfs @ 12.05 hrs, Volume= 2.108 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.28	4.15	0.00
1.00	0.06	0.00	0.00	53.00	5.28	4.15	0.00
2.00	0.12	0.00	0.00	54.00	5.28	4.15	0.00
3.00	0.18	0.00	0.00	55.00	5.28	4.15	0.00
4.00	0.25	0.00	0.01	56.00	5.28	4.15	0.00
5.00	0.33	0.01	0.08	57.00	5.28	4.15	0.00
6.00	0.42	0.03	0.15	58.00	5.28	4.15	0.00
7.00	0.52	0.06	0.23	59.00	5.28	4.15	0.00
8.00	0.63	0.11	0.32	60.00	5.28	4.15	0.00
9.00	0.78	0.18	0.52				
10.00	0.96	0.29	0.74				
11.00	1.24	0.49	1.47				
12.00	3.50	2.45	**30.36**				
13.00	4.08	2.99	**2.21**				
14.00	4.33	3.23	1.27				
15.00	4.51	3.40	0.98				
16.00	4.65	3.54	0.76				
17.00	4.76	3.65	0.66				
18.00	4.86	3.74	0.58				
19.00	4.95	3.83	0.50				
20.00	5.03	3.90	0.42				
21.00	5.09	3.97	0.40				
22.00	5.16	4.03	0.38				
23.00	5.22	4.09	0.36				
24.00	**5.28**	**4.15**	0.35				
25.00	5.28	4.15	0.00				
26.00	5.28	4.15	0.00				
27.00	5.28	4.15	0.00				
28.00	5.28	4.15	0.00				
29.00	5.28	4.15	0.00				
30.00	5.28	4.15	0.00				
31.00	5.28	4.15	0.00				
32.00	5.28	4.15	0.00				
33.00	5.28	4.15	0.00				
34.00	5.28	4.15	0.00				
35.00	5.28	4.15	0.00				
36.00	5.28	4.15	0.00				
37.00	5.28	4.15	0.00				
38.00	5.28	4.15	0.00				
39.00	5.28	4.15	0.00				
40.00	5.28	4.15	0.00				
41.00	5.28	4.15	0.00				
42.00	5.28	4.15	0.00				
43.00	5.28	4.15	0.00				
44.00	5.28	4.15	0.00				
45.00	5.28	4.15	0.00				
46.00	5.28	4.15	0.00				
47.00	5.28	4.15	0.00				
48.00	5.28	4.15	0.00				
49.00	5.28	4.15	0.00				
50.00	5.28	4.15	0.00				
51.00	5.28	4.15	0.00				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

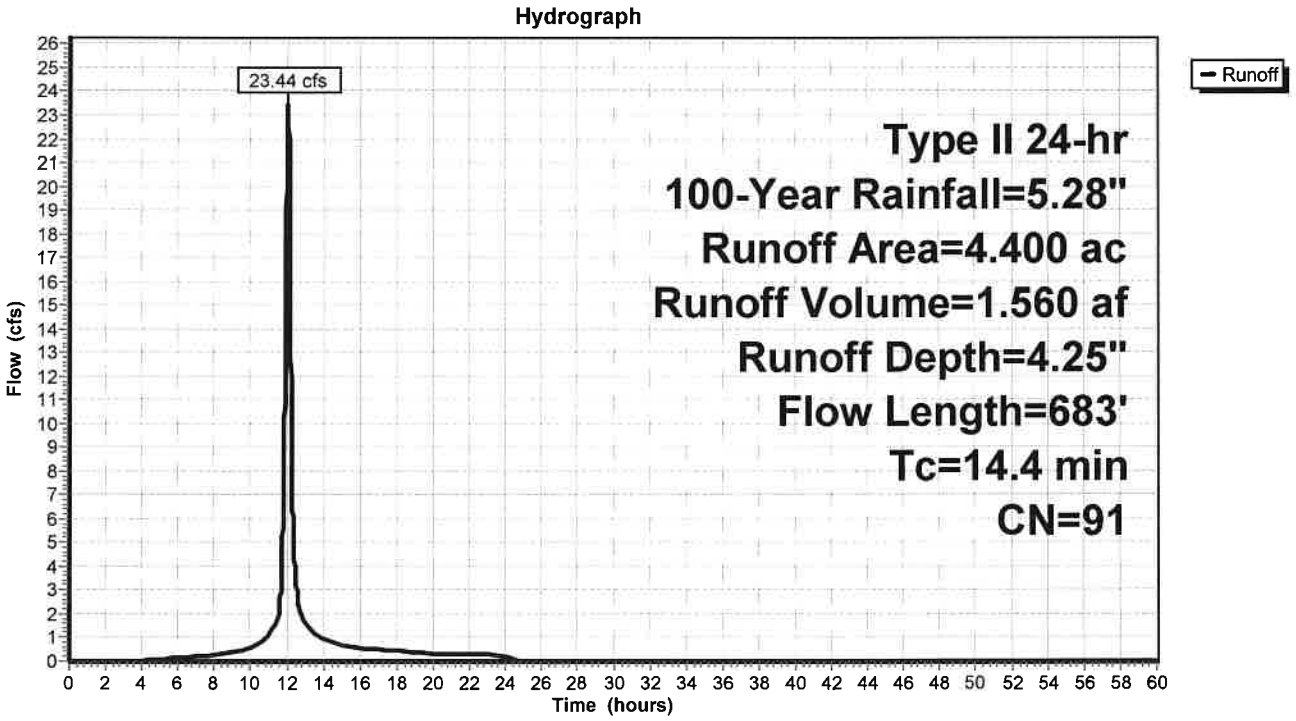
Runoff = 23.44 cfs @ 12.06 hrs, Volume= 1.560 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.02
5.00	0.33	0.02	0.07
6.00	0.42	0.04	0.13
7.00	0.52	0.08	0.19
8.00	0.63	0.13	0.25
9.00	0.78	0.21	0.41
10.00	0.96	0.33	0.57
11.00	1.24	0.54	1.10
12.00	3.50	2.54	**20.85**
13.00	4.08	3.09	**1.64**
14.00	4.33	3.33	0.94
15.00	4.51	3.50	0.71
16.00	4.65	3.64	0.56
17.00	4.76	3.75	0.48
18.00	4.86	3.85	0.42
19.00	4.95	3.93	0.36
20.00	5.03	4.01	0.31
21.00	5.09	4.07	0.29
22.00	5.16	4.14	0.28
23.00	5.22	4.20	0.26
24.00	**5.28**	**4.25**	0.25
25.00	5.28	4.25	0.00
26.00	5.28	4.25	0.00
27.00	5.28	4.25	0.00
28.00	5.28	4.25	0.00
29.00	5.28	4.25	0.00
30.00	5.28	4.25	0.00
31.00	5.28	4.25	0.00
32.00	5.28	4.25	0.00
33.00	5.28	4.25	0.00
34.00	5.28	4.25	0.00
35.00	5.28	4.25	0.00
36.00	5.28	4.25	0.00
37.00	5.28	4.25	0.00
38.00	5.28	4.25	0.00
39.00	5.28	4.25	0.00
40.00	5.28	4.25	0.00
41.00	5.28	4.25	0.00
42.00	5.28	4.25	0.00
43.00	5.28	4.25	0.00
44.00	5.28	4.25	0.00
45.00	5.28	4.25	0.00
46.00	5.28	4.25	0.00
47.00	5.28	4.25	0.00
48.00	5.28	4.25	0.00
49.00	5.28	4.25	0.00
50.00	5.28	4.25	0.00
51.00	5.28	4.25	0.00
52.00	5.28	4.25	0.00
53.00	5.28	4.25	0.00
54.00	5.28	4.25	0.00
55.00	5.28	4.25	0.00
56.00	5.28	4.25	0.00
57.00	5.28	4.25	0.00
58.00	5.28	4.25	0.00
59.00	5.28	4.25	0.00
60.00	5.28	4.25	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 4.15" for 100-Year event
Inflow = 33.05 cfs @ 12.05 hrs, Volume= 2.108 af
Outflow = 31.92 cfs @ 12.08 hrs, Volume= 2.108 af, Atten= 3%, Lag= 1.8 min
Primary = 2.94 cfs @ 12.08 hrs, Volume= 1.275 af
Secondary = 28.98 cfs @ 12.08 hrs, Volume= 0.833 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.23' @ 12.08 hrs Surf.Area= 10,226 sf Storage= 11,585 cf

Plug-Flow detention time= 93.7 min calculated for 2.108 af (100% of inflow)
Center-of-Mass det. time= 93.9 min (886.3 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

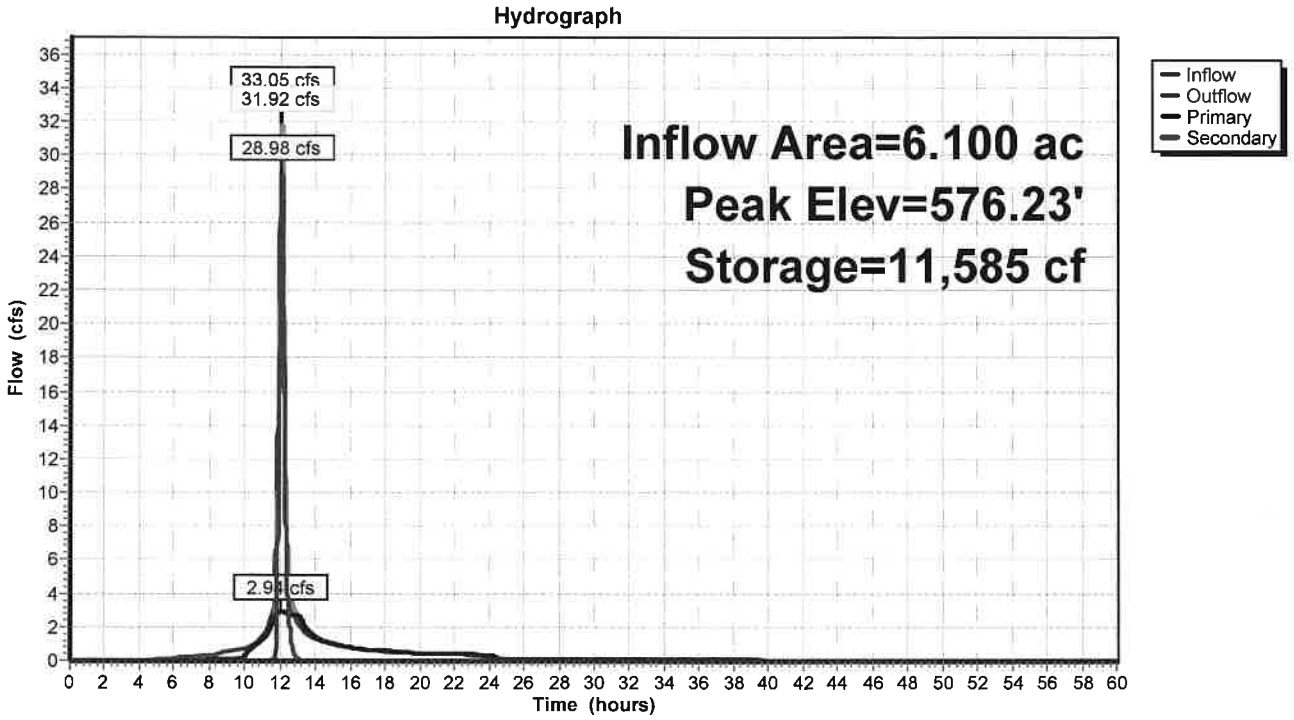
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.94 cfs @ 12.08 hrs HW=576.23' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.94 cfs @ 8.43 fps)
  ├**2=Grate** (Passes < 5.74 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

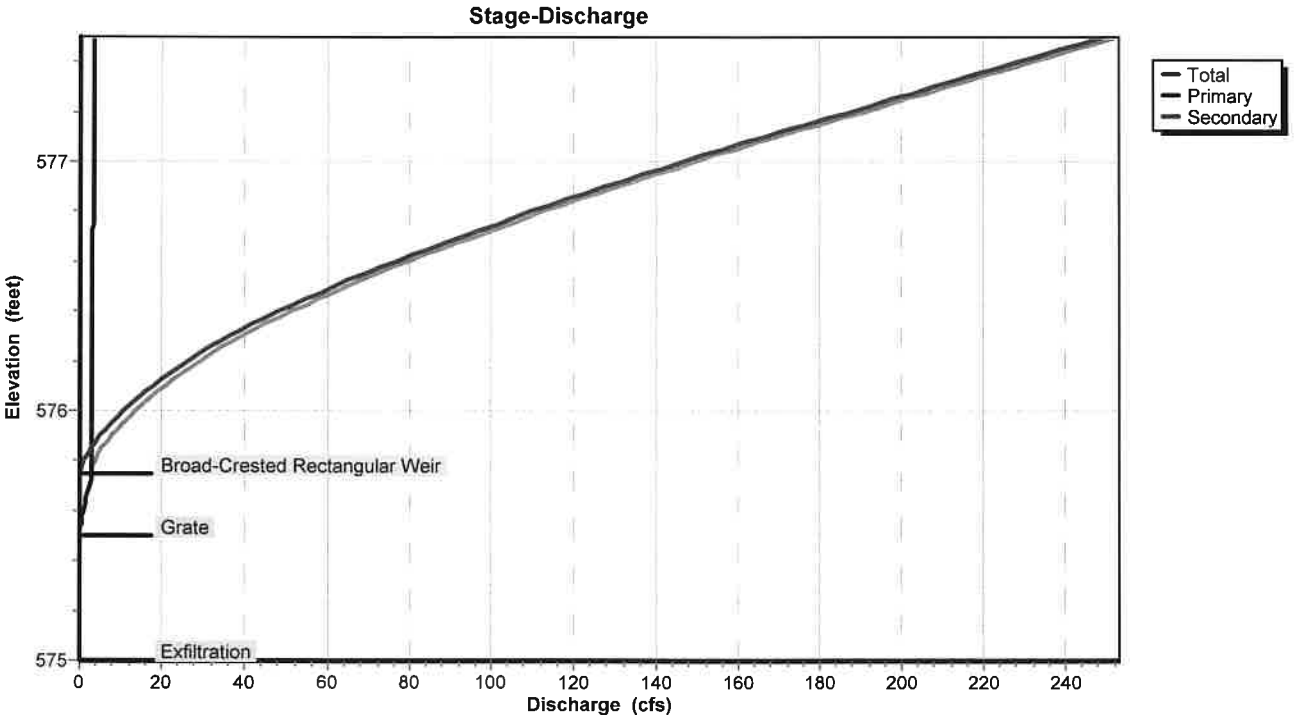
Secondary OutFlow Max=28.93 cfs @ 12.08 hrs HW=576.23' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 28.93 cfs @ 2.02 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

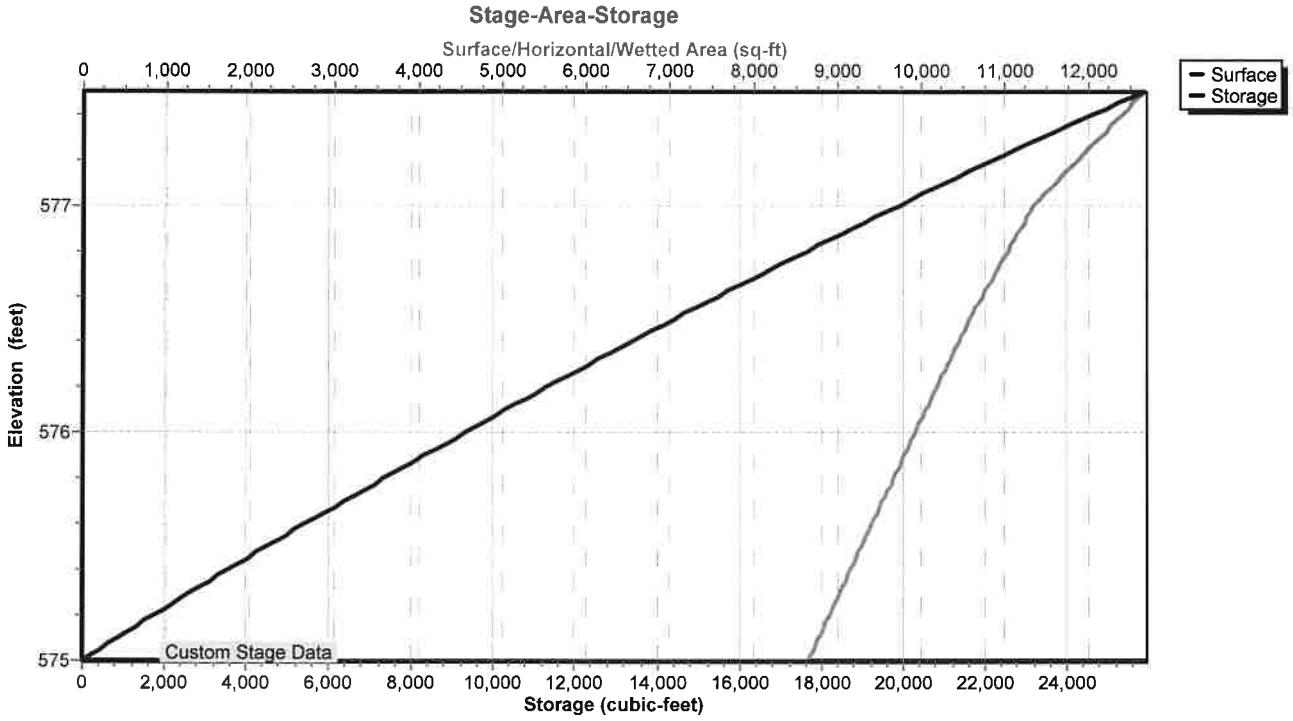


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.01	6	575.00	0.00	0.00	0.00
6.00	0.15	359	575.04	0.05	0.05	0.00
8.00	0.32	1,651	575.19	0.05	0.05	0.00
10.00	0.74	4,857	575.54	0.28	0.28	0.00
12.00	**30.36**	**10,896**	**576.16**	**25.95**	**2.91**	**23.04**
14.00	**1.27**	**5,731**	**575.63**	**1.39**	**1.39**	**0.00**
16.00	0.76	5,329	575.59	0.81	0.81	0.00
18.00	0.58	5,164	575.57	0.60	0.60	0.00
20.00	0.42	5,023	575.56	0.44	0.44	0.00
22.00	0.38	4,969	575.55	0.38	0.38	0.00
24.00	0.35	4,939	575.55	0.35	0.35	0.00
26.00	0.00	4,307	575.48	0.06	0.06	0.00
28.00	0.00	3,911	575.44	0.05	0.05	0.00
30.00	0.00	3,518	575.40	0.05	0.05	0.00
32.00	0.00	3,129	575.35	0.05	0.05	0.00
34.00	0.00	2,743	575.31	0.05	0.05	0.00
36.00	0.00	2,360	575.27	0.05	0.05	0.00
38.00	0.00	1,981	575.23	0.05	0.05	0.00
40.00	0.00	1,604	575.18	0.05	0.05	0.00
42.00	0.00	1,232	575.14	0.05	0.05	0.00
44.00	0.00	862	575.10	0.05	0.05	0.00
46.00	0.00	496	575.06	0.05	0.05	0.00
48.00	0.00	147	575.02	0.03	0.03	0.00
50.00	0.00	28	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 6.52" for 100-Year event
Inflow = 52.24 cfs @ 12.07 hrs, Volume= 2.392 af
Outflow = 8.57 cfs @ 12.41 hrs, Volume= 2.088 af, Atten= 84%, Lag= 20.7 min
Primary = 0.78 cfs @ 12.41 hrs, Volume= 1.554 af
Secondary = 7.80 cfs @ 12.41 hrs, Volume= 0.534 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.11' @ 12.41 hrs Surf.Area= 67,462 sf Storage= 70,722 cf

Plug-Flow detention time= 739.0 min calculated for 2.088 af (87% of inflow)
Center-of-Mass det. time= 688.7 min (1,456.5 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

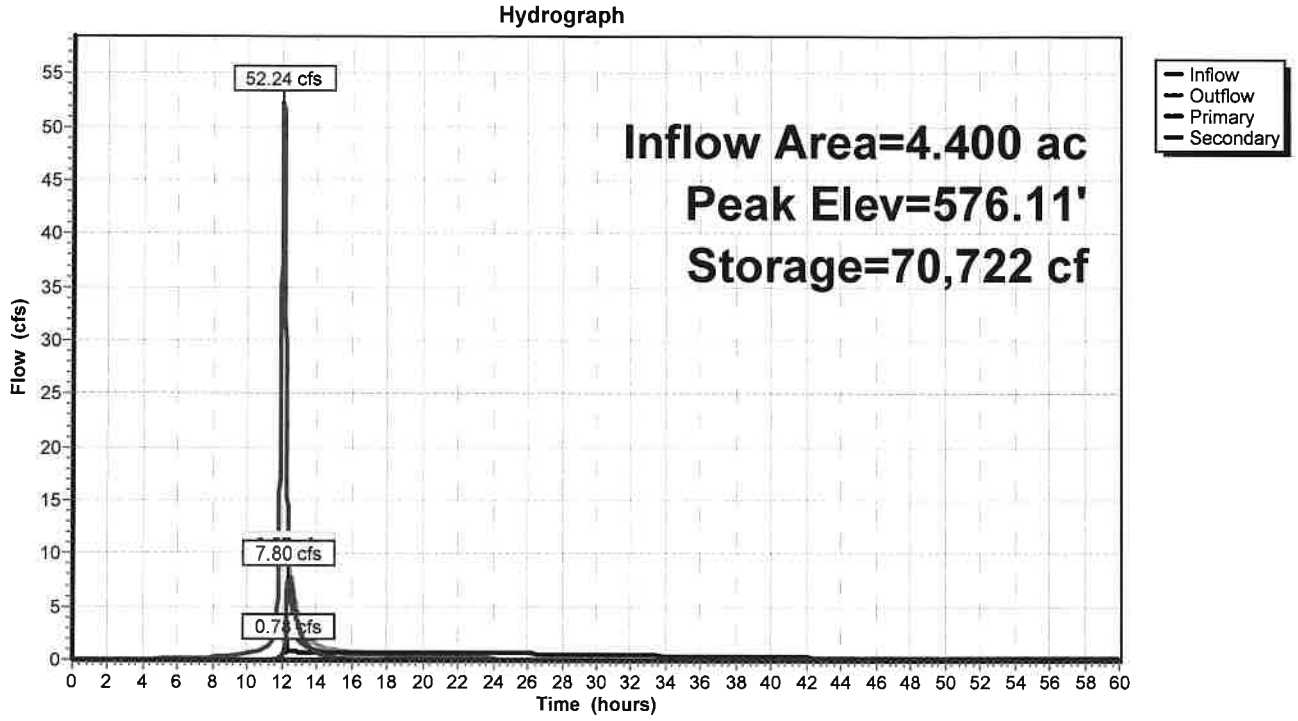
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.78 cfs @ 12.41 hrs HW=576.11' (Free Discharge)
└─**1=12" outlet pipe** (Passes 0.78 cfs of 2.84 cfs potential flow)
  ├─**2=low flow outlet pipe** (Inlet Controls 0.78 cfs @ 3.95 fps)
  └─**3=Grate** (Controls 0.00 cfs)

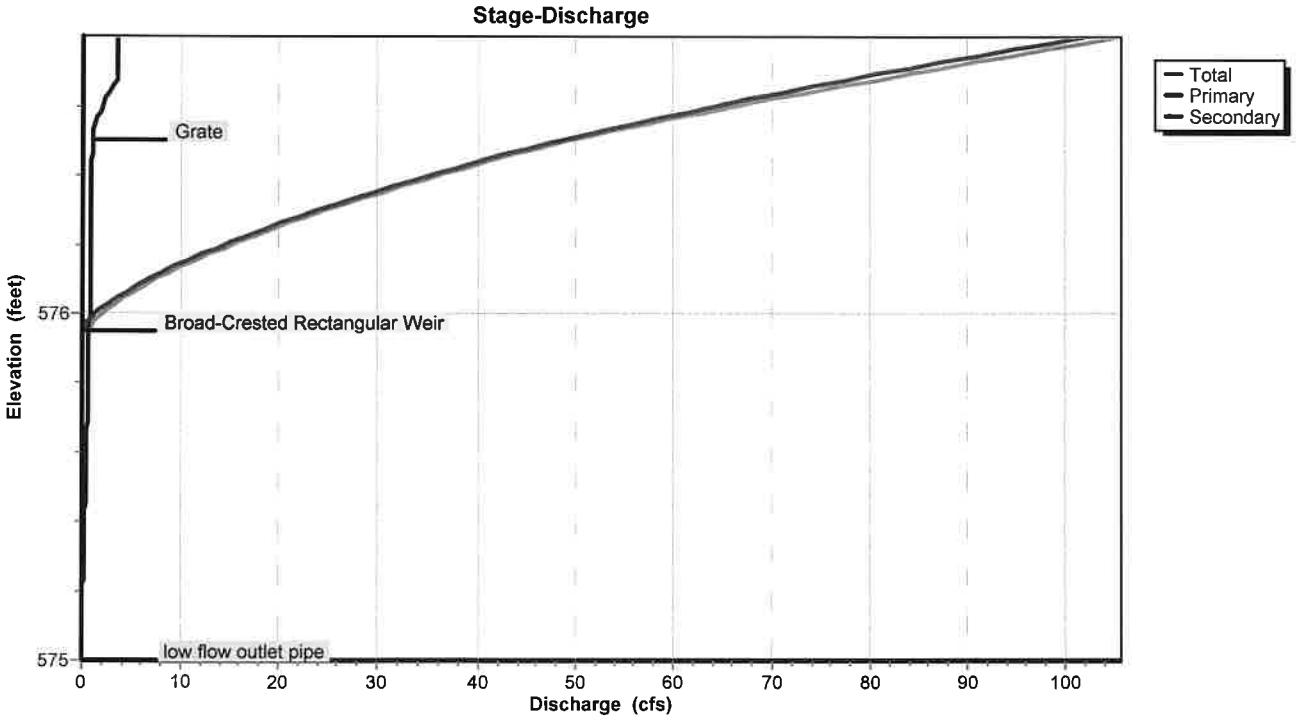
Secondary OutFlow Max=7.79 cfs @ 12.41 hrs HW=576.11' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 7.79 cfs @ 1.18 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

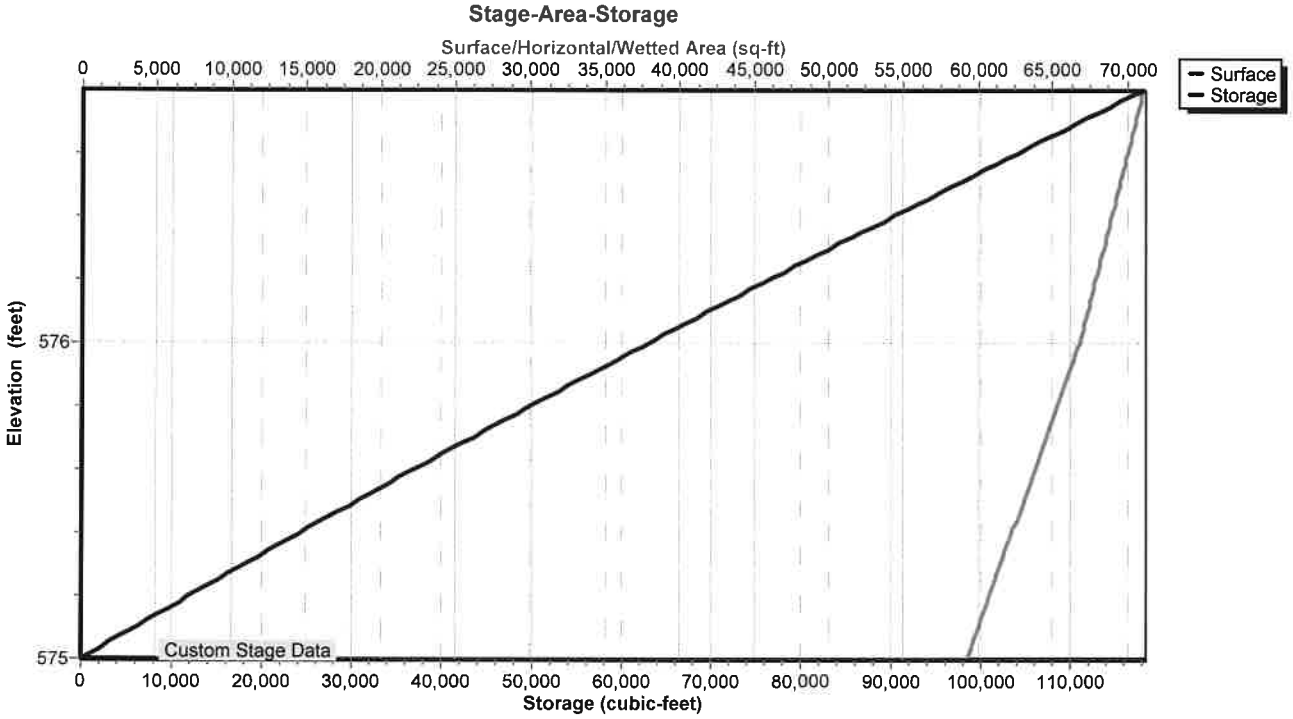


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.02	25	575.00	0.00	0.00	0.00
6.00	0.13	556	575.01	0.00	0.00	0.00
8.00	0.25	1,914	575.03	0.00	0.00	0.00
10.00	0.57	4,720	575.08	0.01	0.01	0.00
12.00	**43.89**	**31,253**	**575.51**	**0.38**	**0.38**	**0.00**
14.00	**0.94**	**61,894**	**575.98**	**1.43**	**0.71**	**0.72**
16.00	0.56	59,972	575.95	0.73	0.70	0.03
18.00	0.42	58,398	575.93	0.69	0.69	0.00
20.00	0.31	56,130	575.90	0.67	0.67	0.00
22.00	0.28	53,450	575.86	0.65	0.65	0.00
24.00	0.25	50,762	575.81	0.63	0.63	0.00
26.00	0.00	46,581	575.75	0.59	0.59	0.00
28.00	0.00	42,588	575.69	0.52	0.52	0.00
30.00	0.00	38,979	575.63	0.49	0.49	0.00
32.00	0.00	35,609	575.58	0.45	0.45	0.00
34.00	0.00	32,555	575.53	0.40	0.40	0.00
36.00	0.00	29,827	575.49	0.36	0.36	0.00
38.00	0.00	27,407	575.45	0.32	0.32	0.00
40.00	0.00	25,264	575.42	0.28	0.28	0.00
42.00	0.00	23,368	575.39	0.25	0.25	0.00
44.00	0.00	21,686	575.36	0.22	0.22	0.00
46.00	0.00	20,191	575.33	0.20	0.20	0.00
48.00	0.00	18,858	575.31	0.17	0.17	0.00
50.00	0.00	17,665	575.29	0.16	0.16	0.00
52.00	0.00	16,594	575.28	0.14	0.14	0.00
54.00	0.00	15,630	575.26	0.13	0.13	0.00
56.00	0.00	14,758	575.25	0.12	0.12	0.00
58.00	0.00	13,967	575.23	0.10	0.10	0.00
60.00	0.00	13,248	575.22	0.10	0.10	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

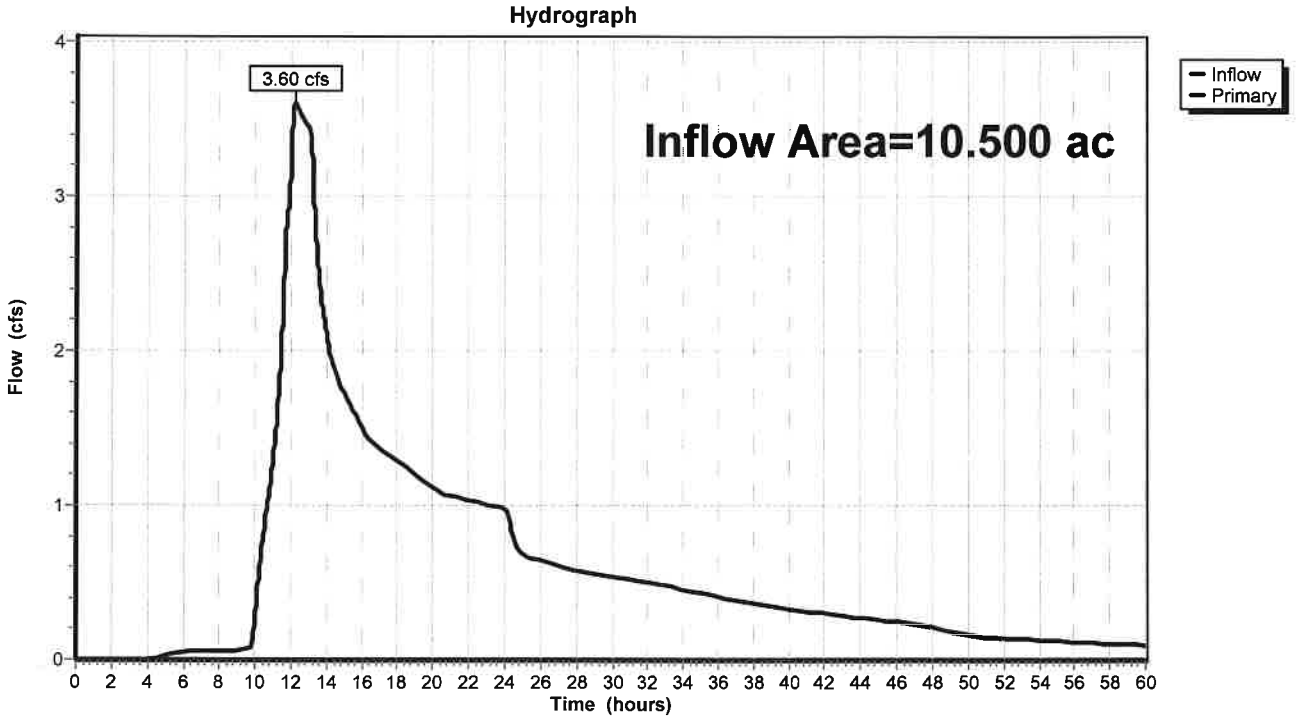
Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 3.23" for 100-Year event
Inflow = 3.60 cfs @ 12.19 hrs, Volume= 2.829 af
Primary = 3.60 cfs @ 12.19 hrs, Volume= 2.829 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

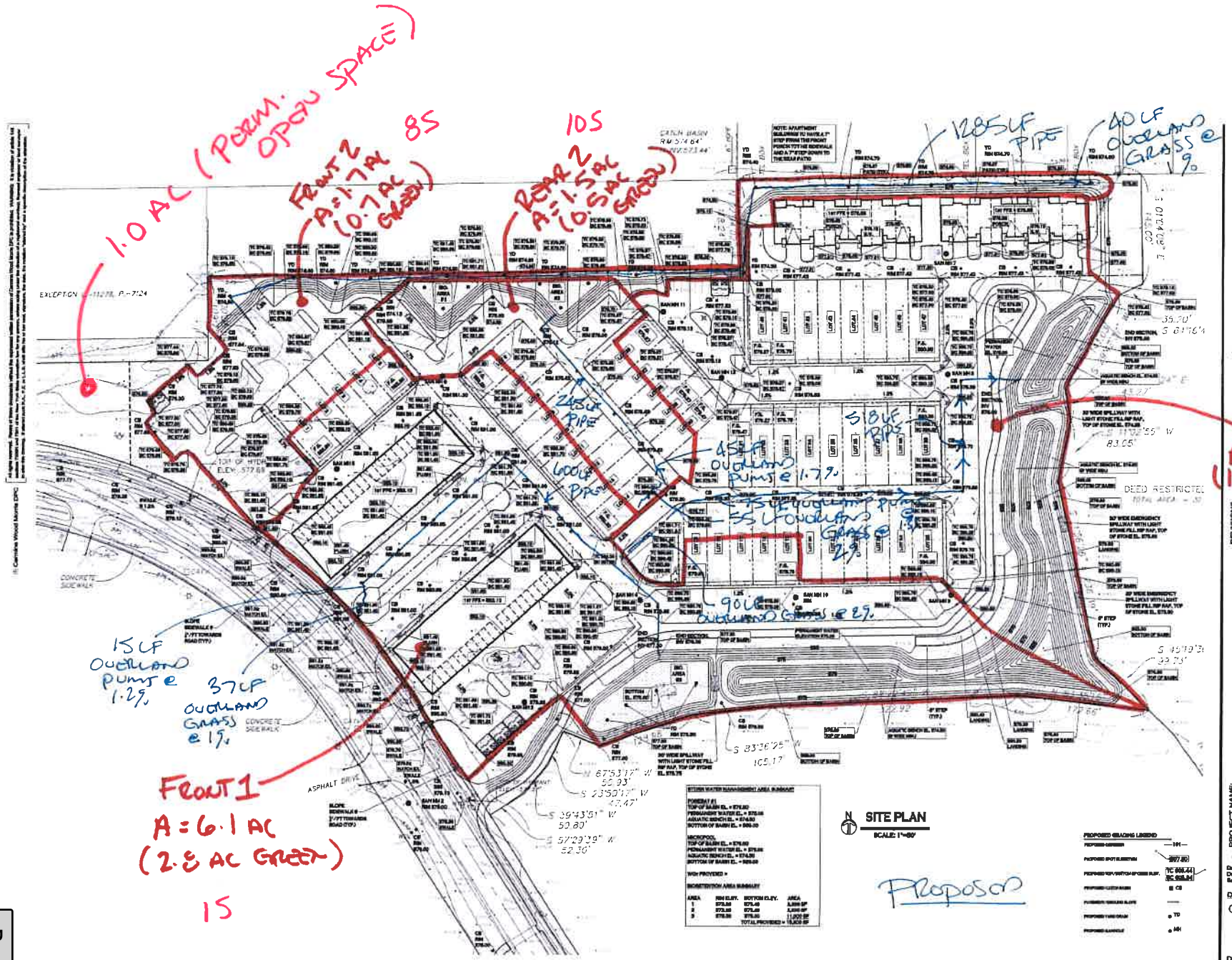
Hydrograph for Link 5L: Outflow (@ CB 54)

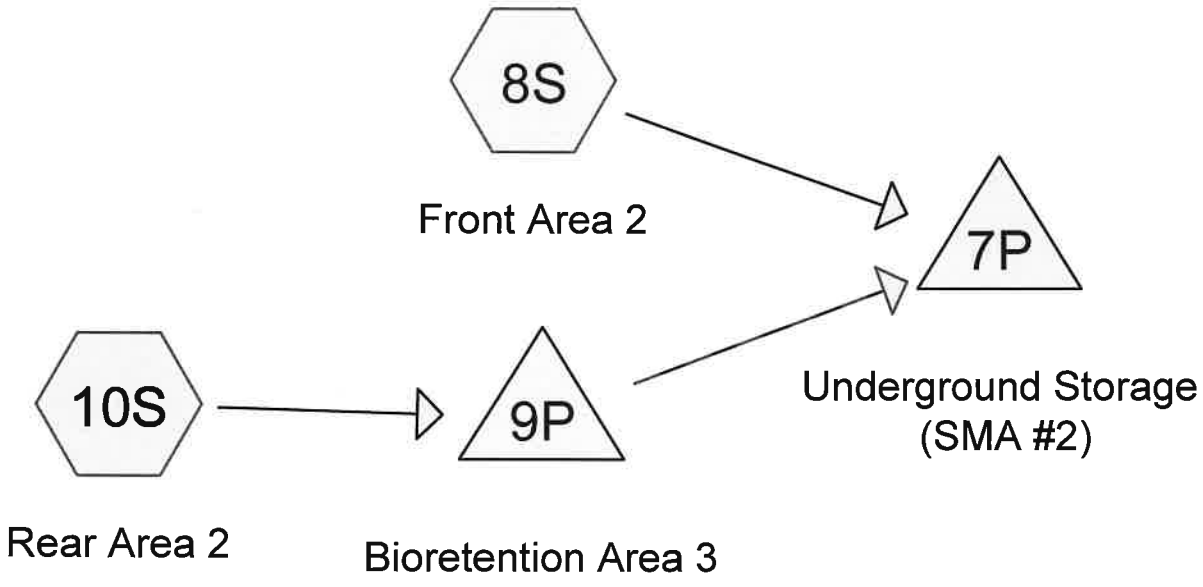
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.14	0.00	0.14
1.00	0.00	0.00	0.00	53.00	0.13	0.00	0.13
2.00	0.00	0.00	0.00	54.00	0.13	0.00	0.13
3.00	0.00	0.00	0.00	55.00	0.12	0.00	0.12
4.00	0.00	0.00	0.00	56.00	0.12	0.00	0.12
5.00	0.03	0.00	0.03	57.00	0.11	0.00	0.11
6.00	0.05	0.00	0.05	58.00	0.10	0.00	0.10
7.00	0.05	0.00	0.05	59.00	0.10	0.00	0.10
8.00	0.05	0.00	0.05	60.00	0.10	0.00	0.10
9.00	0.06	0.00	0.06				
10.00	0.30	0.00	0.30				
11.00	1.31	0.00	1.31				
12.00	**3.29**	0.00	**3.29**				
13.00	**3.44**	0.00	**3.44**				
14.00	2.10	0.00	2.10				
15.00	1.72	0.00	1.72				
16.00	1.51	0.00	1.51				
17.00	1.37	0.00	1.37				
18.00	1.29	0.00	1.29				
19.00	1.20	0.00	1.20				
20.00	1.11	0.00	1.11				
21.00	1.06	0.00	1.06				
22.00	1.03	0.00	1.03				
23.00	1.01	0.00	1.01				
24.00	0.98	0.00	0.98				
25.00	0.68	0.00	0.68				
26.00	0.64	0.00	0.64				
27.00	0.61	0.00	0.61				
28.00	0.58	0.00	0.58				
29.00	0.55	0.00	0.55				
30.00	0.54	0.00	0.54				
31.00	0.52	0.00	0.52				
32.00	0.50	0.00	0.50				
33.00	0.48	0.00	0.48				
34.00	0.45	0.00	0.45				
35.00	0.43	0.00	0.43				
36.00	0.41	0.00	0.41				
37.00	0.39	0.00	0.39				
38.00	0.37	0.00	0.37				
39.00	0.35	0.00	0.35				
40.00	0.33	0.00	0.33				
41.00	0.32	0.00	0.32				
42.00	0.30	0.00	0.30				
43.00	0.28	0.00	0.28				
44.00	0.27	0.00	0.27				
45.00	0.26	0.00	0.26				
46.00	0.25	0.00	0.25				
47.00	0.24	0.00	0.24				
48.00	0.21	0.00	0.21				
49.00	0.18	0.00	0.18				
50.00	0.16	0.00	0.16				
51.00	0.15	0.00	0.15				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Proposed Runoff - West

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)


1.0 AC (PERM. OPEN SPACE)
FRONT 2
A = 1.7 AC
(0.7 AC GREEN)
85
REAR 2
A = 1.5 AC
(0.5 AC GREEN)
105
128 LF PIPE
40 LF OVERLAND GRASS @ 9%
245 LF PIPE
60 LF PIPE
45 LF OVERLAND PUMP @ 1.7%
55 LF PIPE
ES LF OVERLAND GRASS @ 2%
REAR 1
A = 4.4 AC
(1.7 AC GREEN)
25
90 LF OVERLAND GRASS @ 2%
15 LF OVERLAND PUMP @ 1.2%
37 LF OVERLAND GRASS @ 1%
FRONT 1
A = 6.1 AC
(2.8 AC GREEN)
15
PROPOSED
SITE PLAN
SCALE: 1"=60'
Carmina Wood Morris
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York
DRAWING NAME:
Grading Plan
DRAWING NO.
C-200
Project no.: 21.011



Subcat Reach Pond Link

Routing Diagram for 21.011 Proposed
Prepared by Hewlett-Packard Company, Printed 3/4/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Events for Pond 7P: Underground Storage

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	2.40	0.33	570.29	4,537
2-Year	4.15	0.68	570.46	5,990
5-Year	7.03	1.05	570.79	8,639
10-Year	9.17	1.28	571.13	11,342
25-Year	11.11	1.61	571.73	15,804
50-Year	12.80	3.61	572.23	18,836
100-Year	**14.92**	**4.83**	**572.92**	**21,772**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.200	80	>75% Grass cover, Good, HSG D (8S, 10S)
1.200	98	Paved parking, HSG D (8S, 10S)
0.800	98	Roofs, HSG D (8S, 10S)
3.200	**91**	**TOTAL AREA**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
3.200	HSG D	8S, 10S
0.000	Other	
3.200		**TOTAL AREA**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmer Numbers
0.000	0.000	0.000	1.200	0.000	1.200	>75% Grass cover, Good	8S, 10S
0.000	0.000	0.000	1.200	0.000	1.200	Paved parking	8S, 10S
0.000	0.000	0.000	0.800	0.000	0.800	Roofs	8S, 10S
0.000	**0.000**	**0.000**	**3.200**	**0.000**	**3.200**	**TOTAL AREA**	

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.04"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=2.36 cfs 0.148 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.11"
Flow Length=345' Tc=9.1 min CN=92 Runoff=2.63 cfs 0.139 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.29' Storage=4,537 cf Inflow=2.40 cfs 0.287 af
Outflow=0.33 cfs 0.243 af

Pond 9P: Bioretention Area 3 Peak Elev=574.54' Storage=2,922 cf Inflow=2.63 cfs 0.139 af
Outflow=0.43 cfs 0.139 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.287 af Average Runoff Depth = 1.08"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

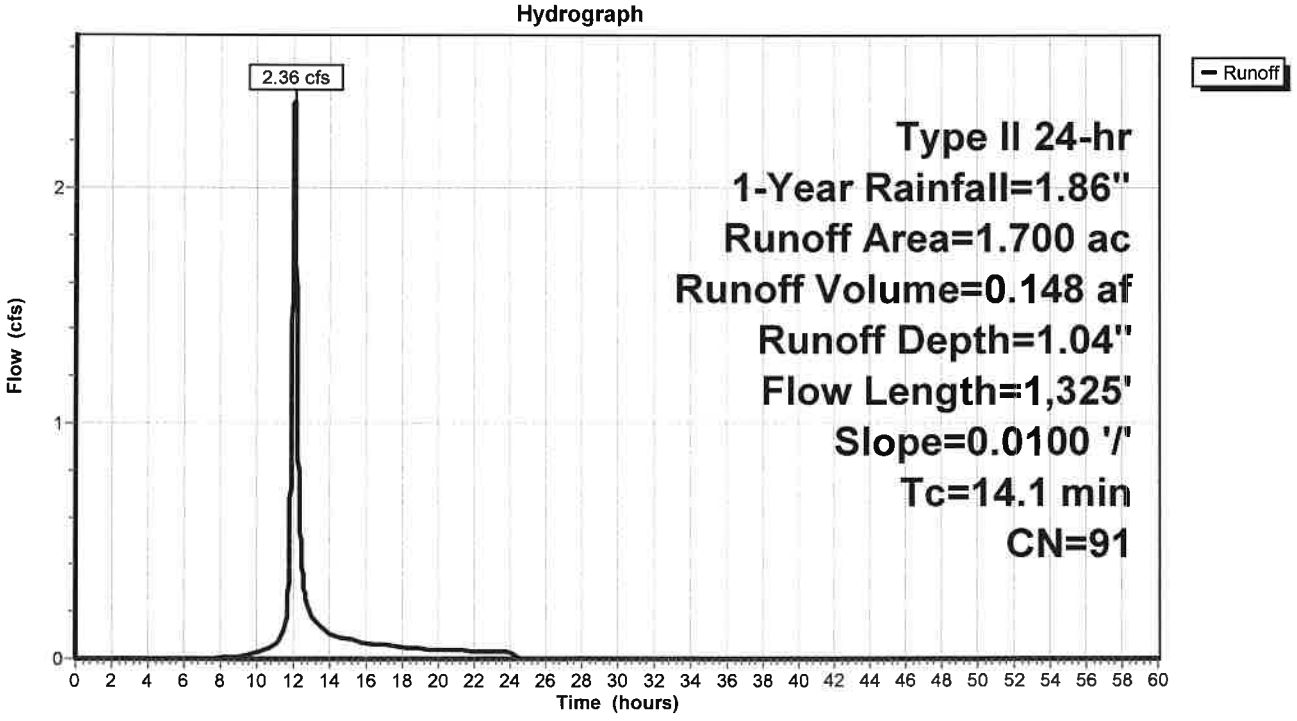
Runoff = 2.36 cfs @ 12.06 hrs, Volume= 0.148 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.01	0.01
10.00	0.34	0.02	0.02
11.00	0.44	0.05	0.07
12.00	1.23	0.53	**2.04**
13.00	1.44	0.69	**0.18**
14.00	1.53	0.76	0.11
15.00	1.59	0.81	0.08
16.00	1.64	0.85	0.07
17.00	1.68	0.89	0.06
18.00	1.71	0.92	0.05
19.00	1.74	0.94	0.04
20.00	1.77	0.97	0.04
21.00	1.79	0.99	0.03
22.00	1.82	1.01	0.03
23.00	1.84	1.02	0.03
24.00	**1.86**	**1.04**	0.03
25.00	1.86	1.04	0.00
26.00	1.86	1.04	0.00
27.00	1.86	1.04	0.00
28.00	1.86	1.04	0.00
29.00	1.86	1.04	0.00
30.00	1.86	1.04	0.00
31.00	1.86	1.04	0.00
32.00	1.86	1.04	0.00
33.00	1.86	1.04	0.00
34.00	1.86	1.04	0.00
35.00	1.86	1.04	0.00
36.00	1.86	1.04	0.00
37.00	1.86	1.04	0.00
38.00	1.86	1.04	0.00
39.00	1.86	1.04	0.00
40.00	1.86	1.04	0.00
41.00	1.86	1.04	0.00
42.00	1.86	1.04	0.00
43.00	1.86	1.04	0.00
44.00	1.86	1.04	0.00
45.00	1.86	1.04	0.00
46.00	1.86	1.04	0.00
47.00	1.86	1.04	0.00
48.00	1.86	1.04	0.00
49.00	1.86	1.04	0.00
50.00	1.86	1.04	0.00
51.00	1.86	1.04	0.00
52.00	1.86	1.04	0.00
53.00	1.86	1.04	0.00
54.00	1.86	1.04	0.00
55.00	1.86	1.04	0.00
56.00	1.86	1.04	0.00
57.00	1.86	1.04	0.00
58.00	1.86	1.04	0.00
59.00	1.86	1.04	0.00
60.00	1.86	1.04	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

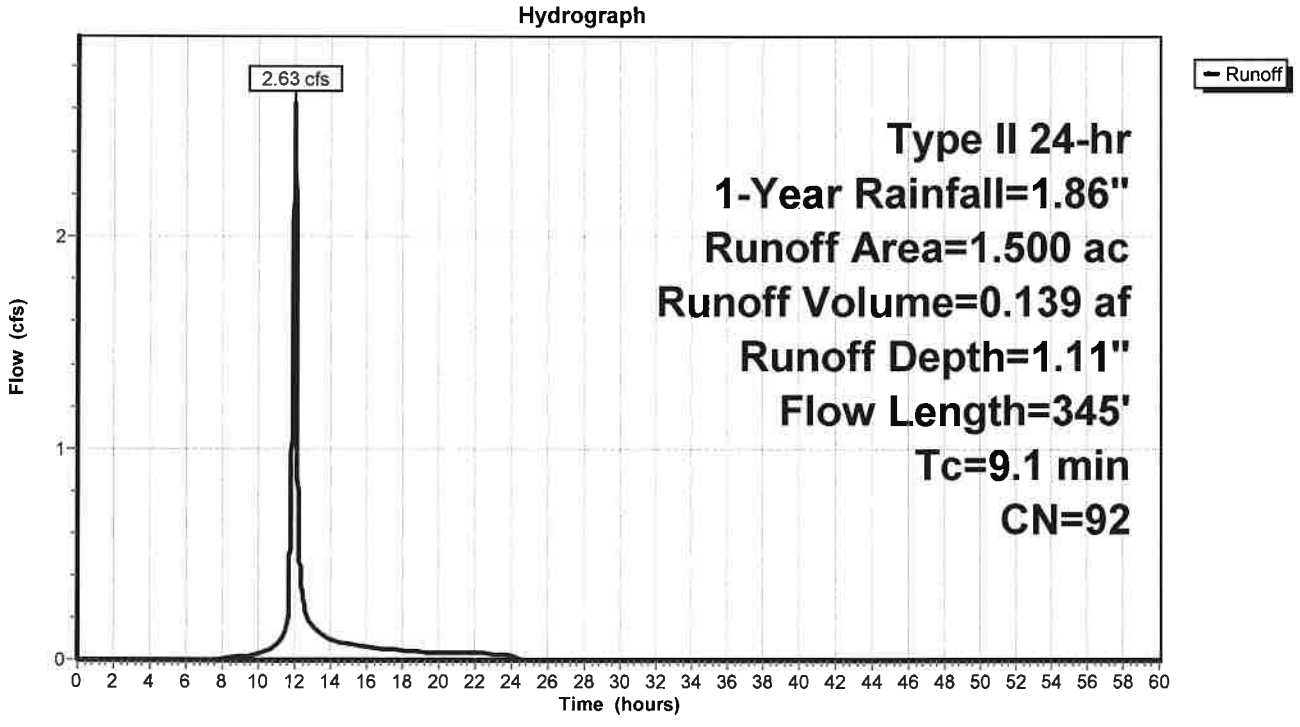
Runoff = 2.63 cfs @ 12.01 hrs, Volume= 0.139 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.01
9.00	0.27	0.01	0.02
10.00	0.34	0.03	0.03
11.00	0.44	0.06	0.07
12.00	1.23	0.58	**2.63**
13.00	1.44	0.75	**0.16**
14.00	1.53	0.82	0.09
15.00	1.59	0.88	0.07
16.00	1.64	0.92	0.06
17.00	1.68	0.95	0.05
18.00	1.71	0.98	0.04
19.00	1.74	1.01	0.04
20.00	1.77	1.03	0.03
21.00	1.79	1.05	0.03
22.00	1.82	1.07	0.03
23.00	1.84	1.09	0.03
24.00	**1.86**	**1.11**	0.03
25.00	1.86	1.11	0.00
26.00	1.86	1.11	0.00
27.00	1.86	1.11	0.00
28.00	1.86	1.11	0.00
29.00	1.86	1.11	0.00
30.00	1.86	1.11	0.00
31.00	1.86	1.11	0.00
32.00	1.86	1.11	0.00
33.00	1.86	1.11	0.00
34.00	1.86	1.11	0.00
35.00	1.86	1.11	0.00
36.00	1.86	1.11	0.00
37.00	1.86	1.11	0.00
38.00	1.86	1.11	0.00
39.00	1.86	1.11	0.00
40.00	1.86	1.11	0.00
41.00	1.86	1.11	0.00
42.00	1.86	1.11	0.00
43.00	1.86	1.11	0.00
44.00	1.86	1.11	0.00
45.00	1.86	1.11	0.00
46.00	1.86	1.11	0.00
47.00	1.86	1.11	0.00
48.00	1.86	1.11	0.00
49.00	1.86	1.11	0.00
50.00	1.86	1.11	0.00
51.00	1.86	1.11	0.00
52.00	1.86	1.11	0.00
53.00	1.86	1.11	0.00
54.00	1.86	1.11	0.00
55.00	1.86	1.11	0.00
56.00	1.86	1.11	0.00
57.00	1.86	1.11	0.00
58.00	1.86	1.11	0.00
59.00	1.86	1.11	0.00
60.00	1.86	1.11	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.08" for 1-Year event
Inflow = 2.40 cfs @ 12.06 hrs, Volume= 0.287 af
Outflow = 0.33 cfs @ 13.18 hrs, Volume= 0.243 af, Atten= 86%, Lag= 67.2 min
Primary = 0.33 cfs @ 13.18 hrs, Volume= 0.243 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.29' @ 13.18 hrs Surf.Area= 10,145 sf Storage= 4,537 cf

Plug-Flow detention time= 493.3 min calculated for 0.243 af (85% of inflow)
Center-of-Mass det. time= 283.3 min (1,405.6 - 1,122.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

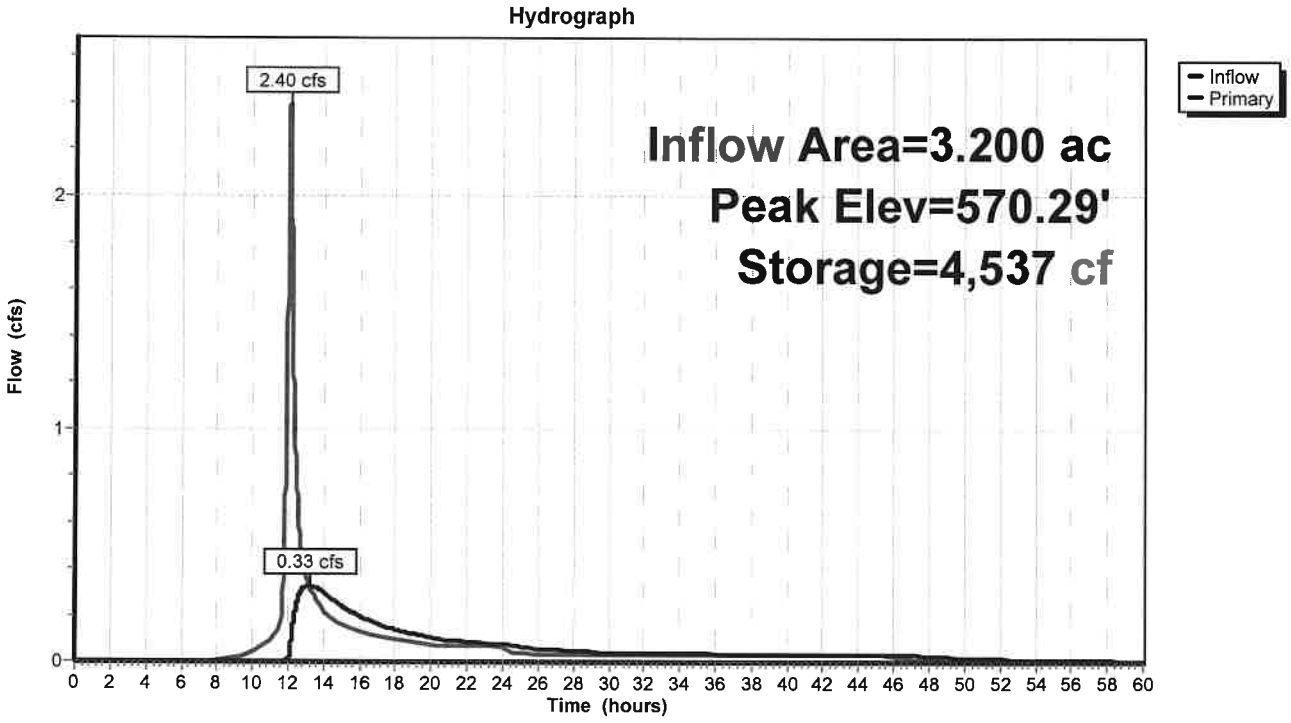
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

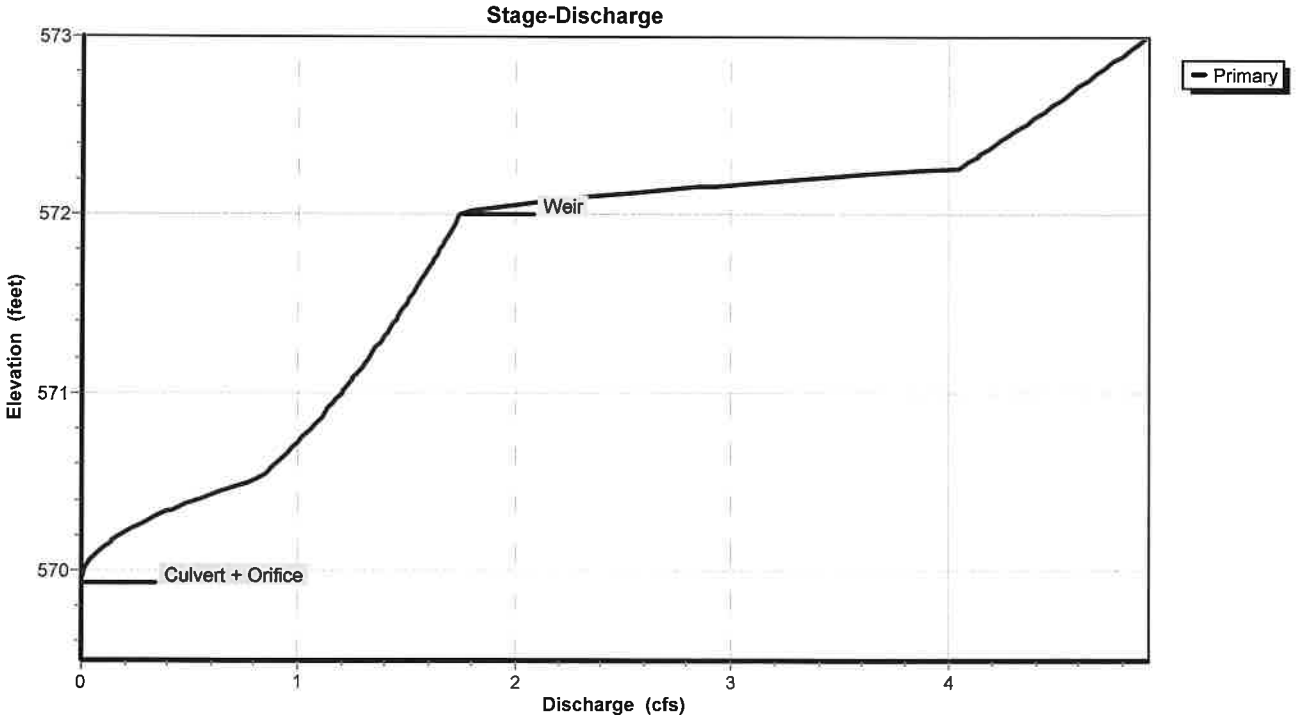
Primary OutFlow Max=0.32 cfs @ 13.18 hrs HW=570.29' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.32 cfs @ 1.88 fps)
  ├**2=Orifice** (Passes 0.32 cfs of 0.56 cfs potential flow)
  └**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

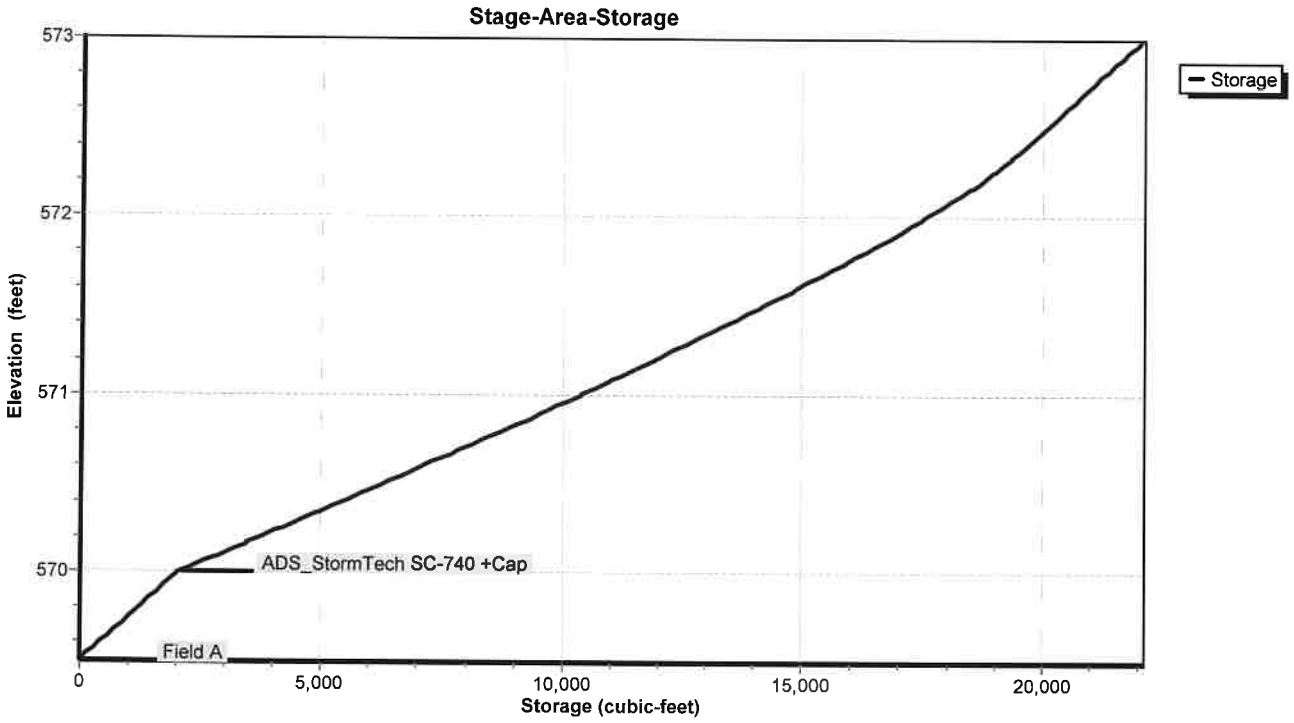


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	0	569.50	0.00
8.00	0.00	4	569.50	0.00
10.00	0.04	139	569.53	0.00
12.00	**2.08**	**1,735**	**569.93**	**0.00**
14.00	**0.22**	**4,393**	**570.28**	**0.30**
16.00	0.13	3,835	570.21	0.20
18.00	0.10	3,452	570.17	0.14
20.00	0.07	3,194	570.14	0.10
22.00	0.07	3,023	570.12	0.08
24.00	0.06	2,931	570.10	0.07
26.00	0.03	2,737	570.08	0.06
28.00	0.03	2,618	570.07	0.05
30.00	0.03	2,550	570.06	0.04
32.00	0.03	2,506	570.06	0.04
34.00	0.03	2,476	570.05	0.04
36.00	0.03	2,453	570.05	0.03
38.00	0.03	2,436	570.05	0.03
40.00	0.03	2,422	570.05	0.03
42.00	0.03	2,410	570.04	0.03
44.00	0.03	2,399	570.04	0.03
46.00	0.03	2,388	570.04	0.03
48.00	0.01	2,288	570.03	0.02
50.00	0.00	2,166	570.02	0.02
52.00	0.00	2,066	570.00	0.01
54.00	0.00	1,993	569.99	0.01
56.00	0.00	1,945	569.98	0.01
58.00	0.00	1,910	569.97	0.00
60.00	0.00	1,885	569.96	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)
569.50	0
569.55	203
569.60	406
569.65	609
569.70	812
569.75	1,014
569.80	1,217
569.85	1,420
569.90	1,623
569.95	1,826
570.00	2,029
570.05	2,459
570.10	2,889
570.15	3,318
570.20	3,746
570.25	4,173
570.30	4,598
570.35	5,022
570.40	5,444
570.45	5,865
570.50	6,284
570.55	6,701
570.60	7,116
570.65	7,529
570.70	7,940
570.75	8,349
570.80	8,756
570.85	9,160
570.90	9,562
570.95	9,962
571.00	10,359
571.05	10,754
571.10	11,145
571.15	11,534
571.20	11,919
571.25	12,301
571.30	12,680
571.35	13,056
571.40	13,428
571.45	13,797
571.50	14,161
571.55	14,522
571.60	14,879
571.65	15,230
571.70	15,577
571.75	15,917
571.80	16,252
571.85	16,582
571.90	16,906
571.95	17,224
572.00	17,535
572.05	17,838
572.10	18,133
572.15	18,417
572.20	18,690
572.25	18,946
572.30	19,188
572.35	19,417
572.40	19,637
572.45	19,850
572.50	20,057
572.55	20,260
572.60	20,463
572.65	20,665
572.70	20,868
572.75	21,071
572.80	21,274
572.85	21,477
572.90	21,680
572.95	21,883
573.00	**22,086**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.11" for 1-Year event
Inflow = 2.63 cfs @ 12.01 hrs, Volume= 0.139 af
Outflow = 0.43 cfs @ 12.29 hrs, Volume= 0.139 af, Atten= 84%, Lag= 17.0 min
Primary = 0.43 cfs @ 12.29 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.54' @ 12.29 hrs Surf.Area= 5,881 sf Storage= 2,922 cf

Plug-Flow detention time= 615.0 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 615.0 min (1,433.7 - 818.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

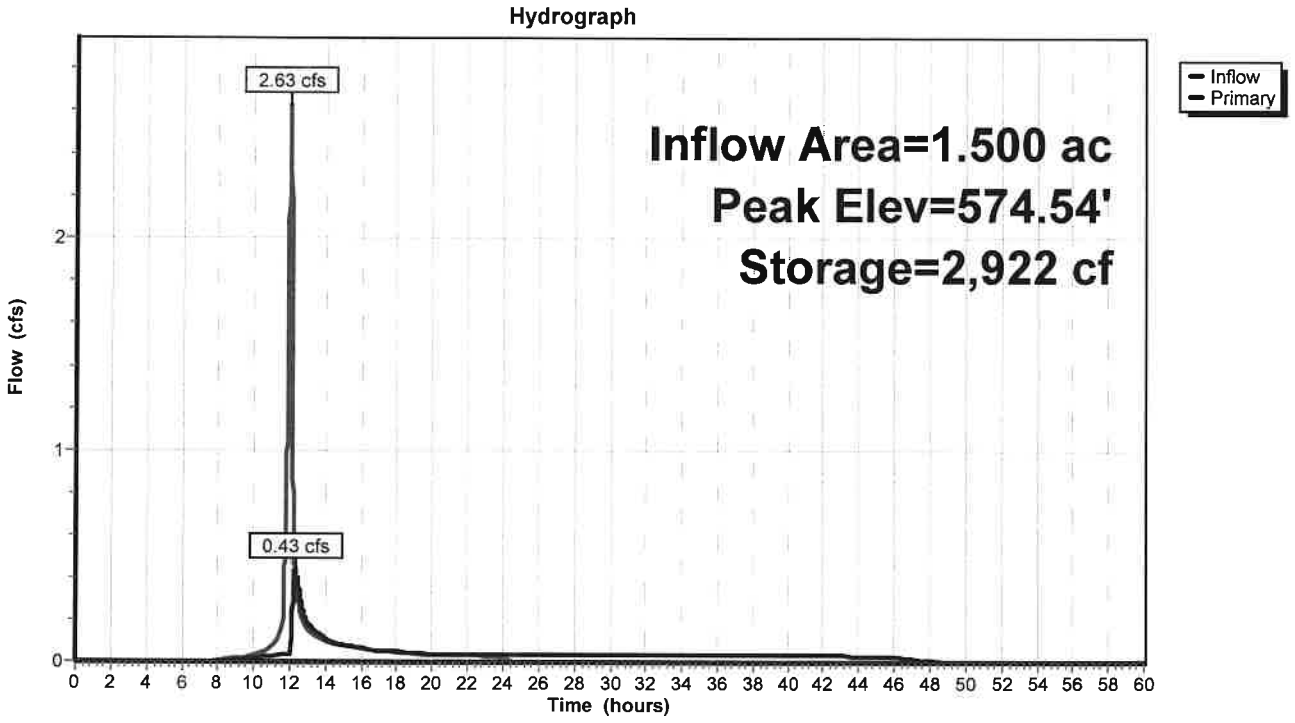
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

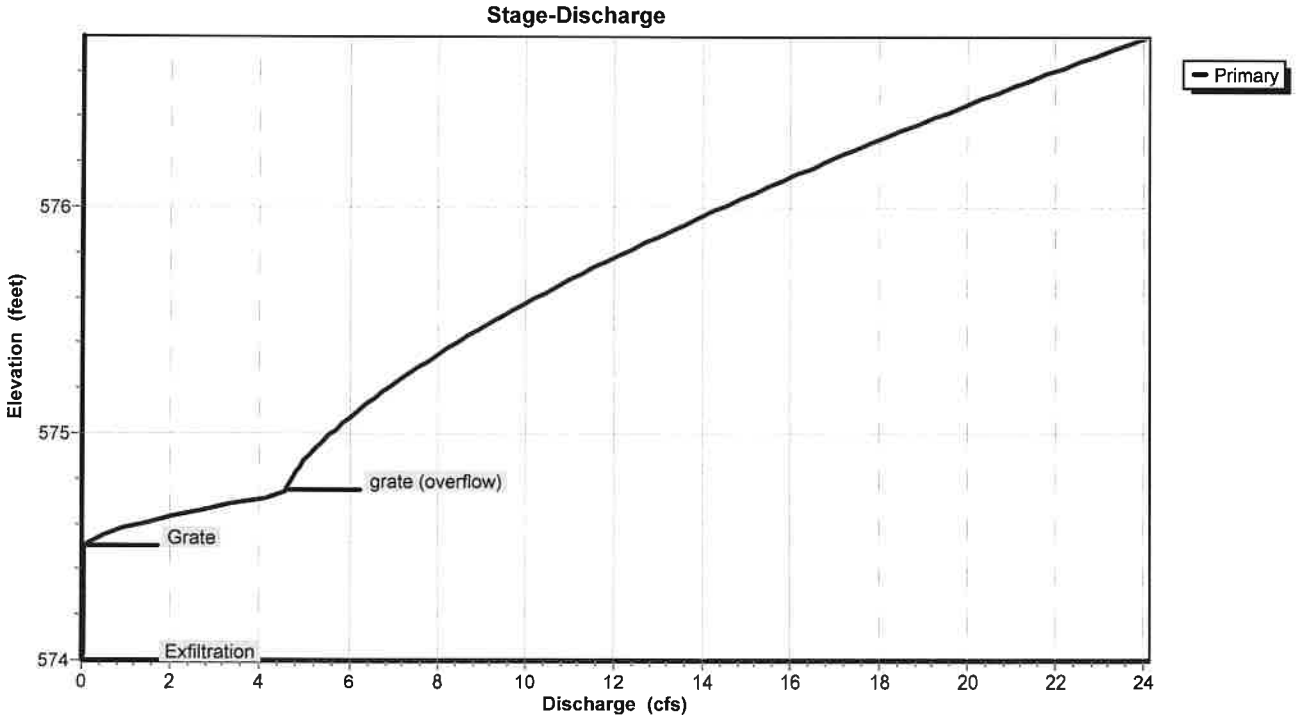
Primary OutFlow Max=0.42 cfs @ 12.29 hrs HW=574.54' (Free Discharge)
- **1=8" pipe** (Passes 0.42 cfs of 4.43 cfs potential flow)
  - **2=Grate** (Weir Controls 0.39 cfs @ 0.69 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

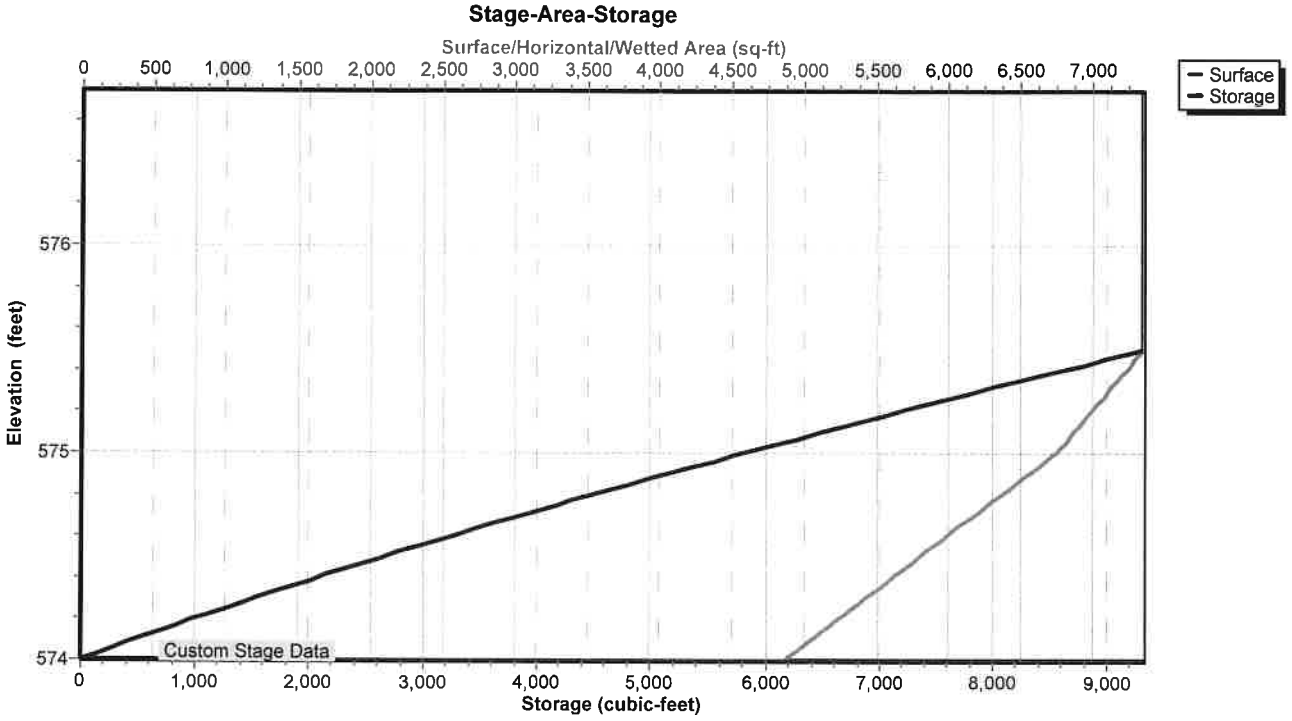


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.00	0	574.00	0.00
8.00	0.01	9	574.00	0.00
10.00	0.03	70	574.01	0.01
12.00	**2.63**	**1,806**	**574.35**	**0.03**
14.00	**0.09**	**2,731**	**574.51**	**0.11**
16.00	0.06	2,688	574.50	0.06
18.00	0.04	2,673	574.50	0.05
20.00	0.03	2,662	574.50	0.03
22.00	0.03	2,636	574.50	0.03
24.00	0.03	2,594	574.49	0.03
26.00	0.00	2,362	574.45	0.03
28.00	0.00	2,119	574.40	0.03
30.00	0.00	1,881	574.36	0.03
32.00	0.00	1,647	574.32	0.03
34.00	0.00	1,417	574.28	0.03
36.00	0.00	1,190	574.23	0.03
38.00	0.00	968	574.19	0.03
40.00	0.00	750	574.15	0.03
42.00	0.00	536	574.11	0.03
44.00	0.00	326	574.07	0.03
46.00	0.00	120	574.02	0.03
48.00	0.00	26	574.01	0.01
50.00	0.00	6	574.00	0.00
52.00	0.00	1	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.34"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=3.03 cfs 0.190 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.42"
Flow Length=345' Tc=9.1 min CN=92 Runoff=3.32 cfs 0.177 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.46' Storage=5,990 cf Inflow=4.15 cfs 0.367 af
Outflow=0.68 cfs 0.324 af

Pond 9P: Bioretention Area 3 Peak Elev=574.60' Storage=3,274 cf Inflow=3.32 cfs 0.177 af
Outflow=1.41 cfs 0.177 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.367 af Average Runoff Depth = 1.38"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

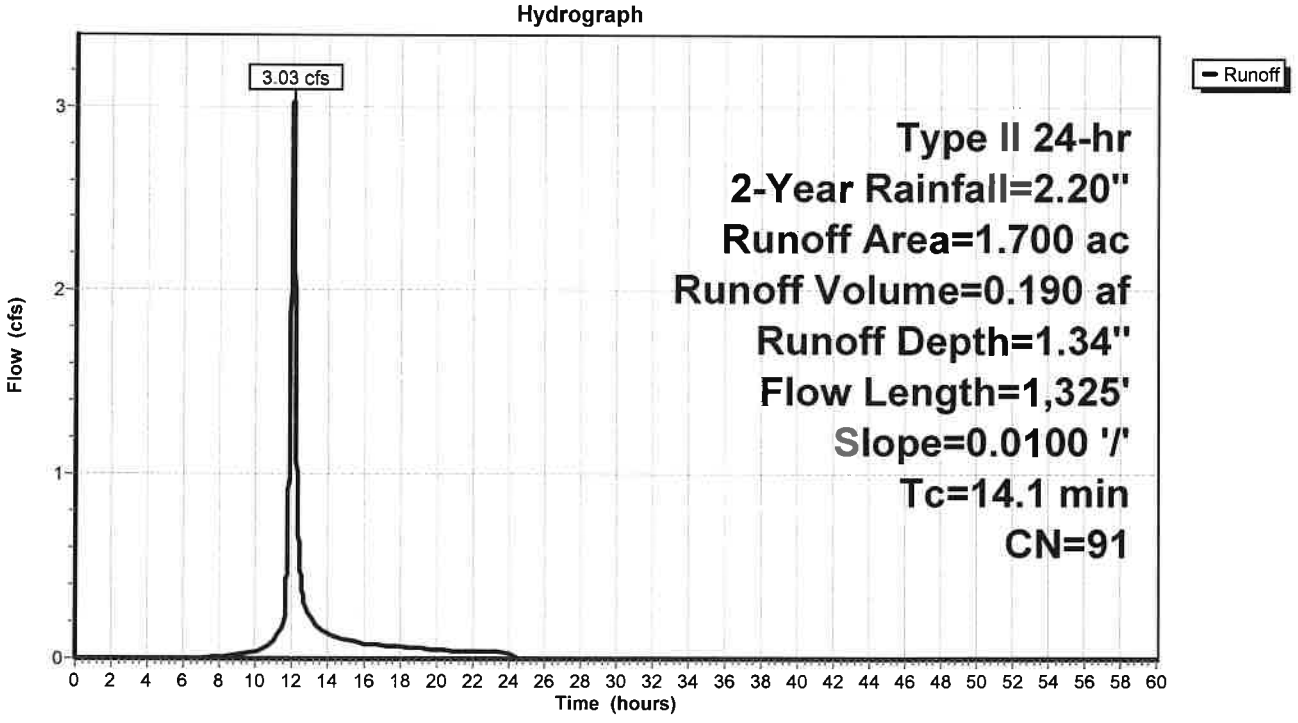
Runoff = 3.03 cfs @ 12.06 hrs, Volume= 0.190 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass**
					Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.01
9.00	0.32	0.01	0.02
10.00	0.40	0.03	0.04
11.00	0.52	0.08	0.10
12.00	1.46	0.71	**2.64**
13.00	1.70	0.90	**0.23**
14.00	1.80	0.99	0.13
15.00	1.88	1.06	0.10
16.00	1.94	1.11	0.08
17.00	1.98	1.15	0.07
18.00	2.03	1.19	0.06
19.00	2.06	1.22	0.05
20.00	2.09	1.25	0.05
21.00	2.12	1.27	0.04
22.00	2.15	1.30	0.04
23.00	2.18	1.32	0.04
24.00	**2.20**	**1.34**	0.04
25.00	2.20	1.34	0.00
26.00	2.20	1.34	0.00
27.00	2.20	1.34	0.00
28.00	2.20	1.34	0.00
29.00	2.20	1.34	0.00
30.00	2.20	1.34	0.00
31.00	2.20	1.34	0.00
32.00	2.20	1.34	0.00
33.00	2.20	1.34	0.00
34.00	2.20	1.34	0.00
35.00	2.20	1.34	0.00
36.00	2.20	1.34	0.00
37.00	2.20	1.34	0.00
38.00	2.20	1.34	0.00
39.00	2.20	1.34	0.00
40.00	2.20	1.34	0.00
41.00	2.20	1.34	0.00
42.00	2.20	1.34	0.00
43.00	2.20	1.34	0.00
44.00	2.20	1.34	0.00
45.00	2.20	1.34	0.00
46.00	2.20	1.34	0.00
47.00	2.20	1.34	0.00
48.00	2.20	1.34	0.00
49.00	2.20	1.34	0.00
50.00	2.20	1.34	0.00
51.00	2.20	1.34	0.00
52.00	2.20	1.34	0.00
53.00	2.20	1.34	0.00
54.00	2.20	1.34	0.00
55.00	2.20	1.34	0.00
56.00	2.20	1.34	0.00
57.00	2.20	1.34	0.00
58.00	2.20	1.34	0.00
59.00	2.20	1.34	0.00
60.00	2.20	1.34	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

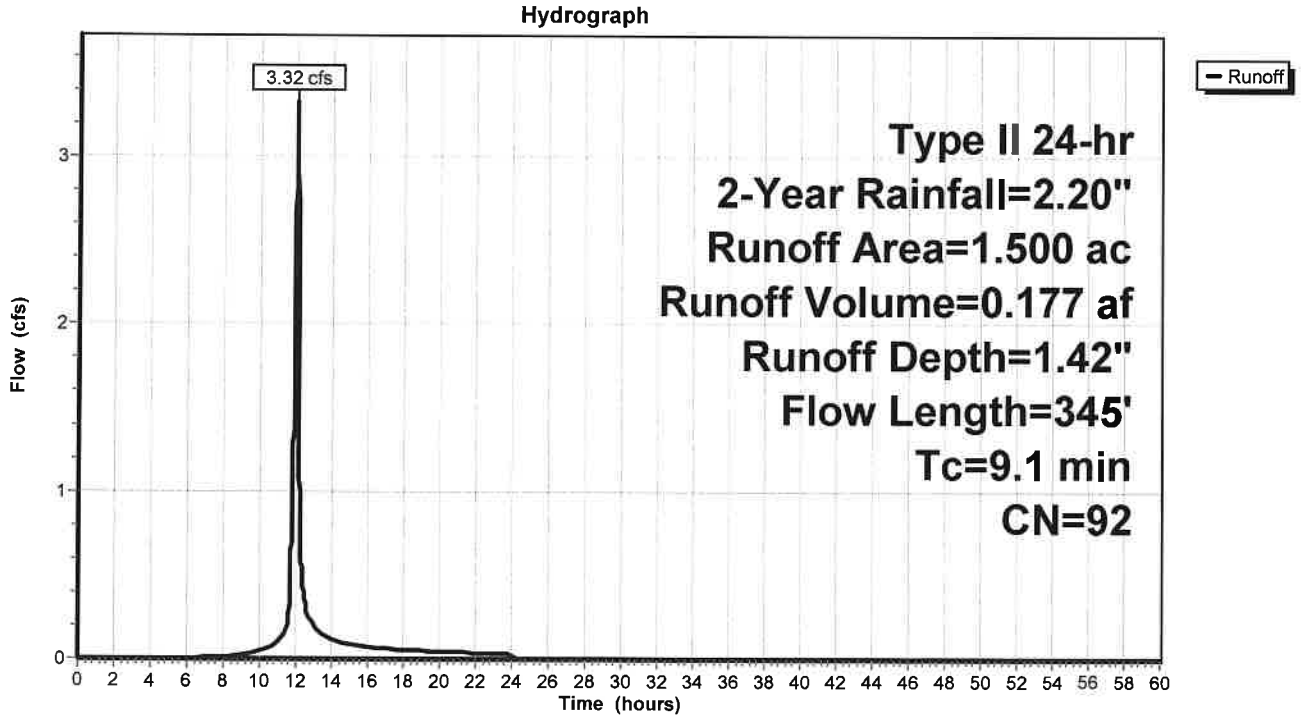
Runoff = 3.32 cfs @ 12.00 hrs, Volume= 0.177 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.20	1.42	0.00
1.00	0.02	0.00	0.00	53.00	2.20	1.42	0.00
2.00	0.05	0.00	0.00	54.00	2.20	1.42	0.00
3.00	0.08	0.00	0.00	55.00	2.20	1.42	0.00
4.00	0.11	0.00	0.00	56.00	2.20	1.42	0.00
5.00	0.14	0.00	0.00	57.00	2.20	1.42	0.00
6.00	0.18	0.00	0.00	58.00	2.20	1.42	0.00
7.00	0.22	0.00	0.01	59.00	2.20	1.42	0.00
8.00	0.26	0.01	0.01	60.00	2.20	1.42	0.00
9.00	0.32	0.02	0.03				
10.00	0.40	0.05	0.04				
11.00	0.52	0.10	0.10				
12.00	1.46	0.77	**3.32**				
13.00	1.70	0.97	0.20				
14.00	1.80	1.06	0.12				
15.00	1.88	1.13	0.09				
16.00	1.94	1.18	0.07				
17.00	1.98	1.22	0.06				
18.00	2.03	1.26	0.05				
19.00	2.06	1.29	0.05				
20.00	2.09	1.32	0.04				
21.00	2.12	1.35	0.04				
22.00	2.15	1.37	0.04				
23.00	2.18	1.40	0.03				
24.00	**2.20**	**1.42**	0.03				
25.00	2.20	1.42	0.00				
26.00	2.20	1.42	0.00				
27.00	2.20	1.42	0.00				
28.00	2.20	1.42	0.00				
29.00	2.20	1.42	0.00				
30.00	2.20	1.42	0.00				
31.00	2.20	1.42	0.00				
32.00	2.20	1.42	0.00				
33.00	2.20	1.42	0.00				
34.00	2.20	1.42	0.00				
35.00	2.20	1.42	0.00				
36.00	2.20	1.42	0.00				
37.00	2.20	1.42	0.00				
38.00	2.20	1.42	0.00				
39.00	2.20	1.42	0.00				
40.00	2.20	1.42	0.00				
41.00	2.20	1.42	0.00				
42.00	2.20	1.42	0.00				
43.00	2.20	1.42	0.00				
44.00	2.20	1.42	0.00				
45.00	2.20	1.42	0.00				
46.00	2.20	1.42	0.00				
47.00	2.20	1.42	0.00				
48.00	2.20	1.42	0.00				
49.00	2.20	1.42	0.00				
50.00	2.20	1.42	0.00				
51.00	2.20	1.42	0.00				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 4.15 cfs @ 12.10 hrs, Volume= 0.367 af
Outflow = 0.68 cfs @ 12.65 hrs, Volume= 0.324 af, Atten= 84%, Lag= 33.2 min
Primary = 0.68 cfs @ 12.65 hrs, Volume= 0.324 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.46' @ 12.65 hrs Surf.Area= 10,145 sf Storage= 5,990 cf

Plug-Flow detention time= 401.0 min calculated for 0.324 af (88% of inflow)
Center-of-Mass det. time= 229.7 min (1,287.9 - 1,058.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

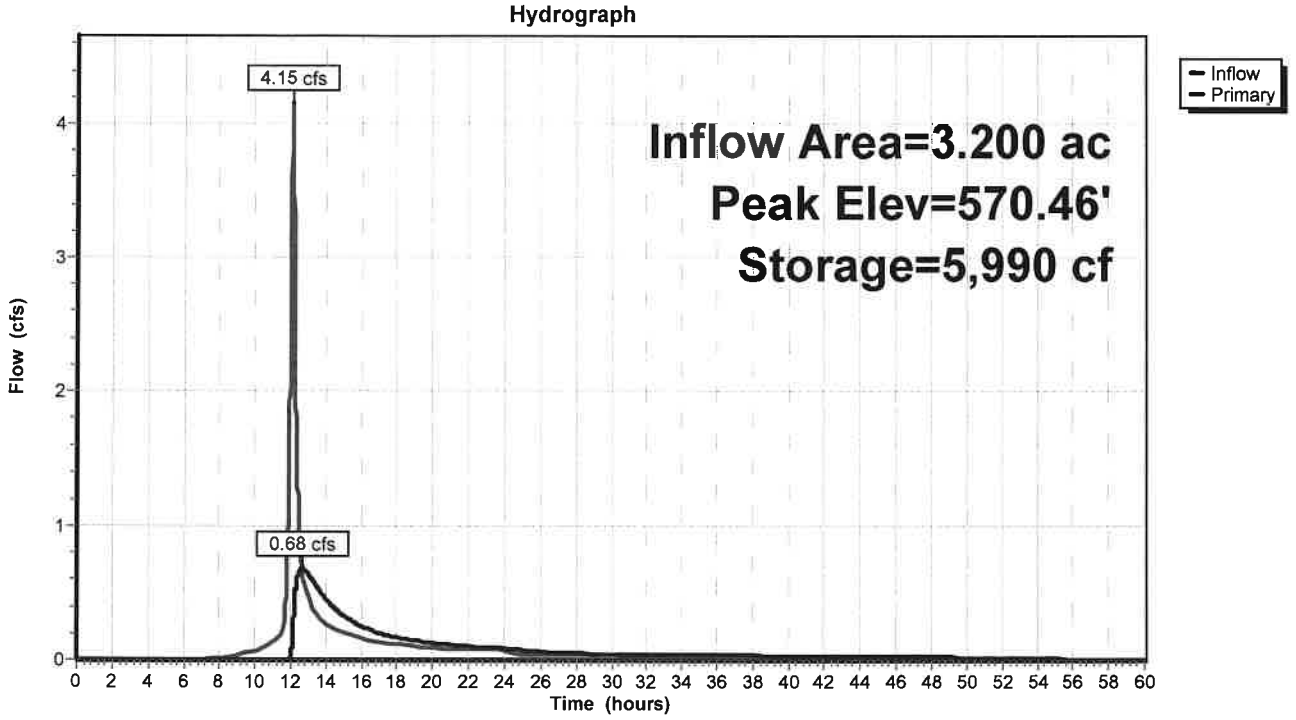
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

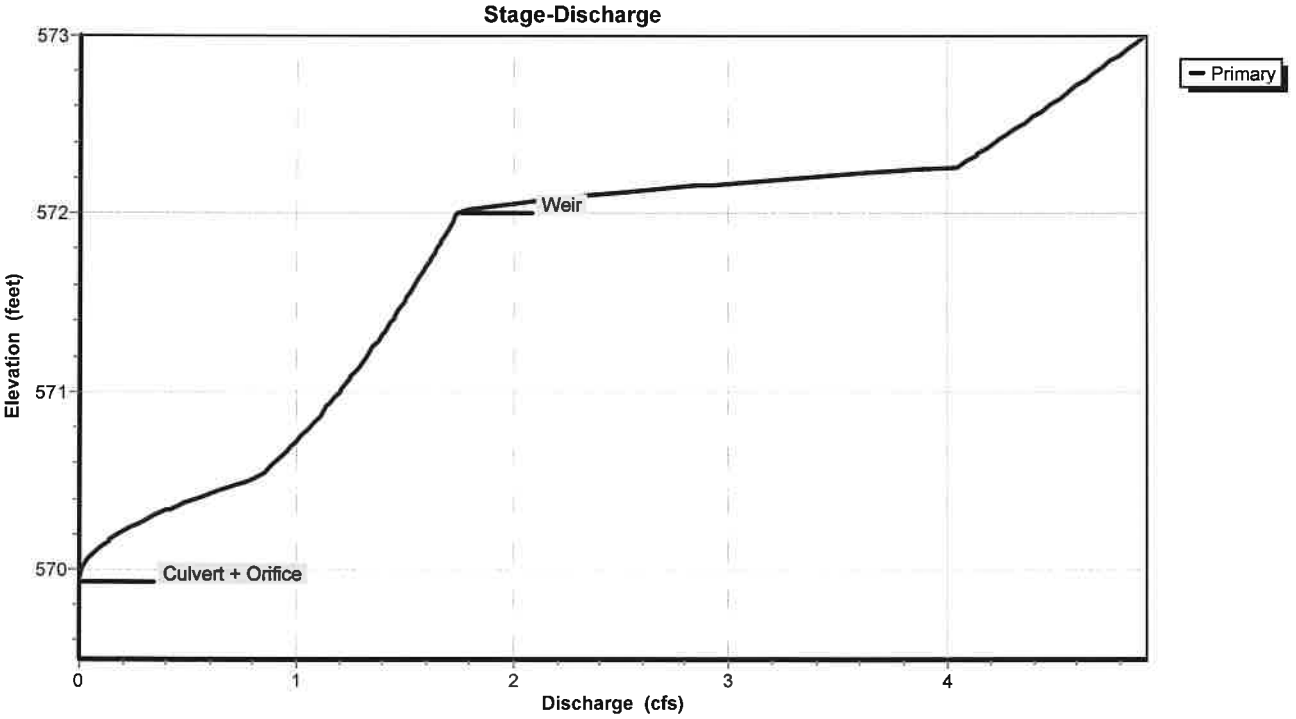
Primary OutFlow Max=0.68 cfs @ 12.65 hrs HW=570.46' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.68 cfs @ 2.31 fps)
└**2=Orifice** (Passes 0.68 cfs of 0.76 cfs potential flow)
└**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

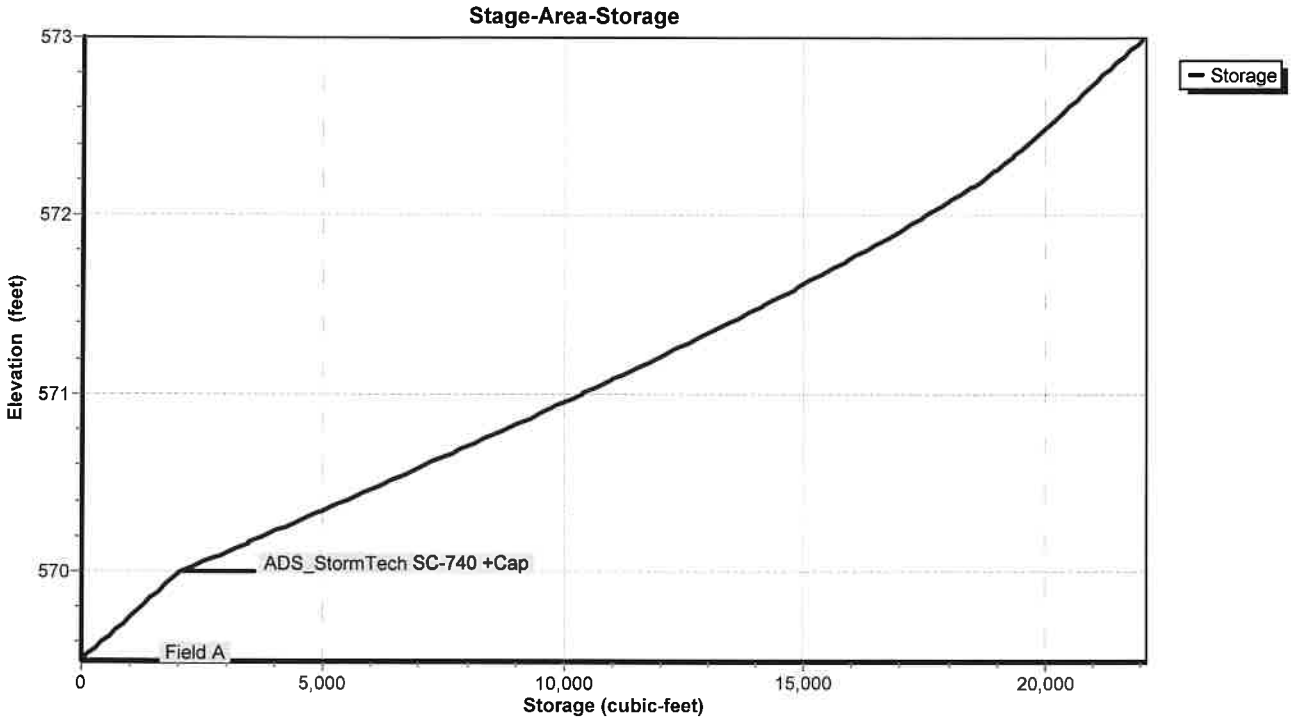


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	0	569.50	0.00
8.00	0.01	32	569.51	0.00
10.00	0.06	286	569.57	0.00
12.00	**2.68**	**2,414**	**570.04**	**0.03**
14.00	**0.27**	**5,111**	**570.36**	**0.45**
16.00	0.16	4,155	570.25	0.25
18.00	0.12	3,660	570.19	0.17
20.00	0.09	3,359	570.15	0.12
22.00	0.08	3,149	570.13	0.10
24.00	0.07	3,029	570.12	0.09
26.00	0.03	2,788	570.09	0.06
28.00	0.03	2,647	570.07	0.05
30.00	0.03	2,566	570.06	0.04
32.00	0.03	2,517	570.06	0.04
34.00	0.03	2,484	570.05	0.04
36.00	0.03	2,459	570.05	0.03
38.00	0.03	2,441	570.05	0.03
40.00	0.03	2,426	570.05	0.03
42.00	0.03	2,413	570.04	0.03
44.00	0.03	2,402	570.04	0.03
46.00	0.03	2,392	570.04	0.03
48.00	0.01	2,323	570.03	0.03
50.00	0.00	2,199	570.02	0.02
52.00	0.00	2,091	570.01	0.01
54.00	0.00	2,010	570.00	0.01
56.00	0.00	1,957	569.98	0.01
58.00	0.00	1,919	569.97	0.00
60.00	0.00	1,891	569.97	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)
569.50	0
569.55	203
569.60	406
569.65	609
569.70	812
569.75	1,014
569.80	1,217
569.85	1,420
569.90	1,623
569.95	1,826
570.00	2,029
570.05	2,459
570.10	2,889
570.15	3,318
570.20	3,746
570.25	4,173
570.30	4,598
570.35	5,022
570.40	5,444
570.45	5,865
570.50	6,284
570.55	6,701
570.60	7,116
570.65	7,529
570.70	7,940
570.75	8,349
570.80	8,756
570.85	9,160
570.90	9,562
570.95	9,962
571.00	10,359
571.05	10,754
571.10	11,145
571.15	11,534
571.20	11,919
571.25	12,301
571.30	12,680
571.35	13,056
571.40	13,428
571.45	13,797
571.50	14,161
571.55	14,522
571.60	14,879
571.65	15,230
571.70	15,577
571.75	15,917
571.80	16,252
571.85	16,582
571.90	16,906
571.95	17,224
572.00	17,535
572.05	17,838
572.10	18,133
572.15	18,417
572.20	18,690
572.25	18,946
572.30	19,188
572.35	19,417
572.40	19,637
572.45	19,850
572.50	20,057
572.55	20,260
572.60	20,463
572.65	20,665
572.70	20,868
572.75	21,071
572.80	21,274
572.85	21,477
572.90	21,680
572.95	21,883
573.00	**22,086**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.42" for 2-Year event
Inflow = 3.32 cfs @ 12.00 hrs, Volume= 0.177 af
Outflow = 1.41 cfs @ 12.13 hrs, Volume= 0.177 af, Atten= 58%, Lag= 7.6 min
Primary = 1.41 cfs @ 12.13 hrs, Volume= 0.177 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.60' @ 12.13 hrs Surf.Area= 5,993 sf Storage= 3,274 cf

Plug-Flow detention time= 499.6 min calculated for 0.177 af (100% of inflow)
Center-of-Mass det. time= 499.8 min (1,311.6 - 811.8)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

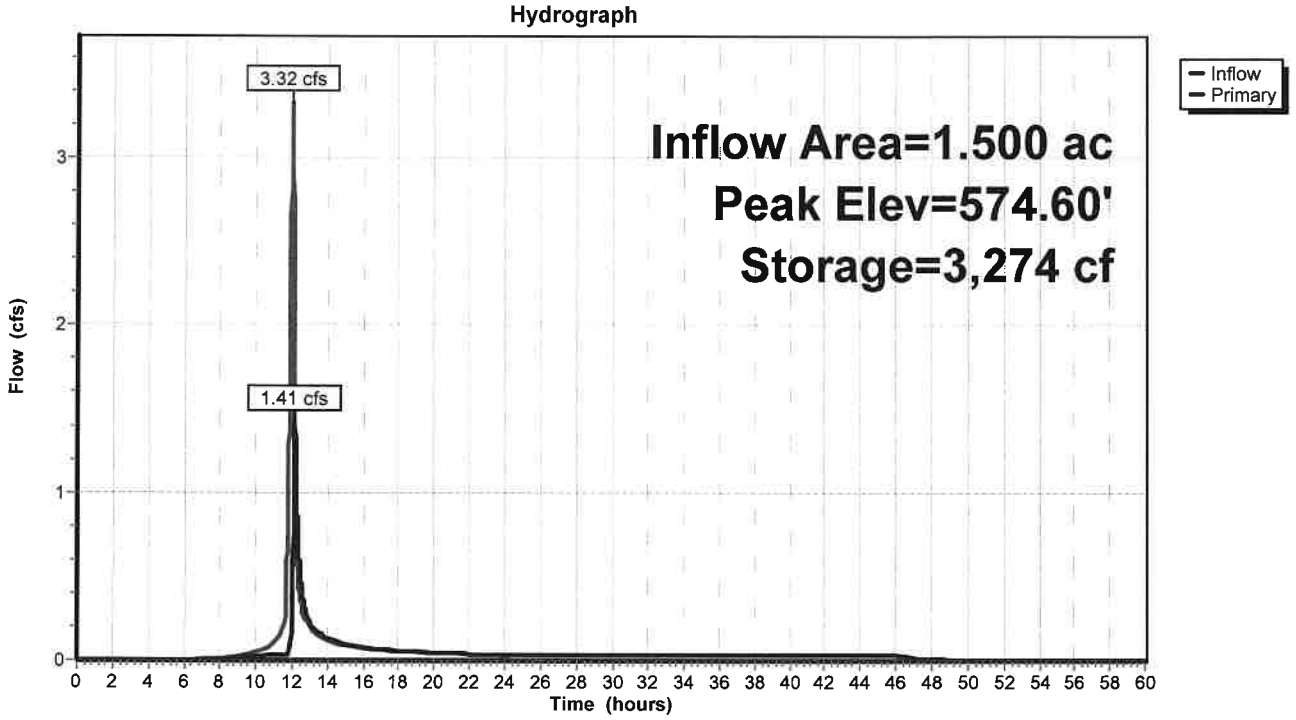
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

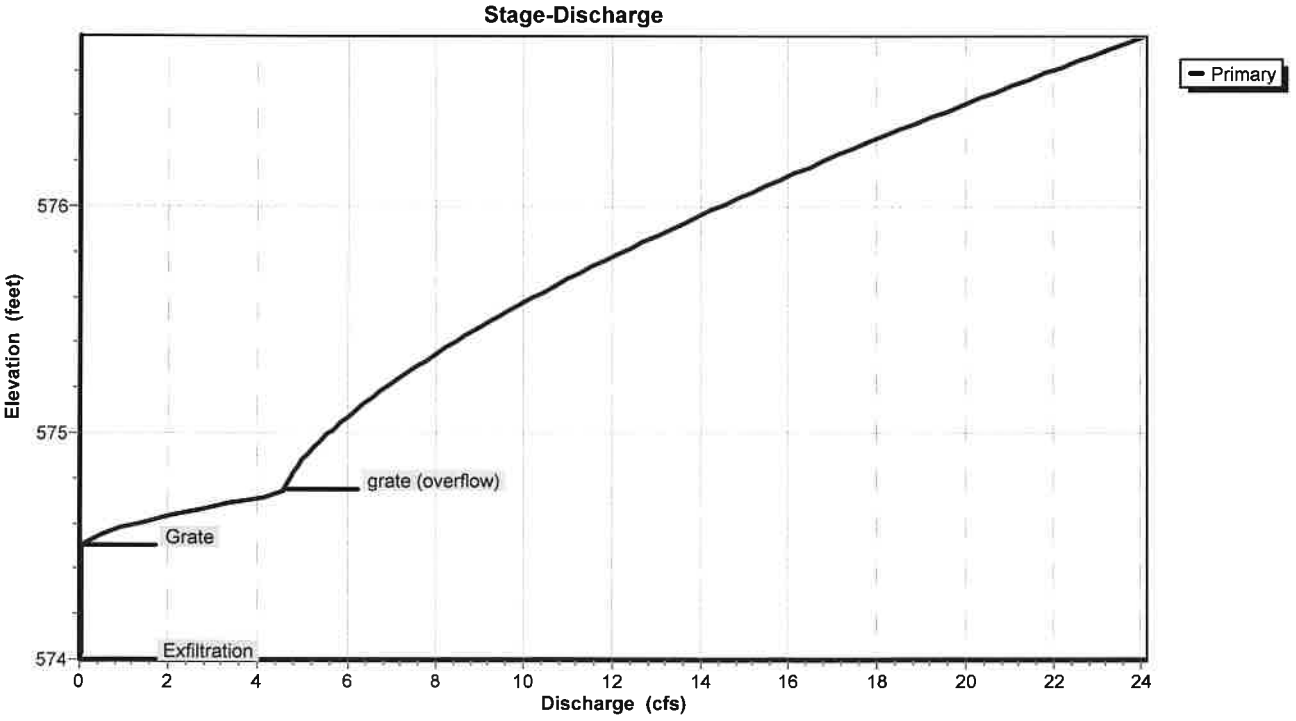
Primary OutFlow Max=1.41 cfs @ 12.13 hrs HW=574.60' (Free Discharge)
- **1=8" pipe** (Passes 1.41 cfs of 4.48 cfs potential flow)
  - **2=Grate** (Weir Controls 1.37 cfs @ 1.05 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

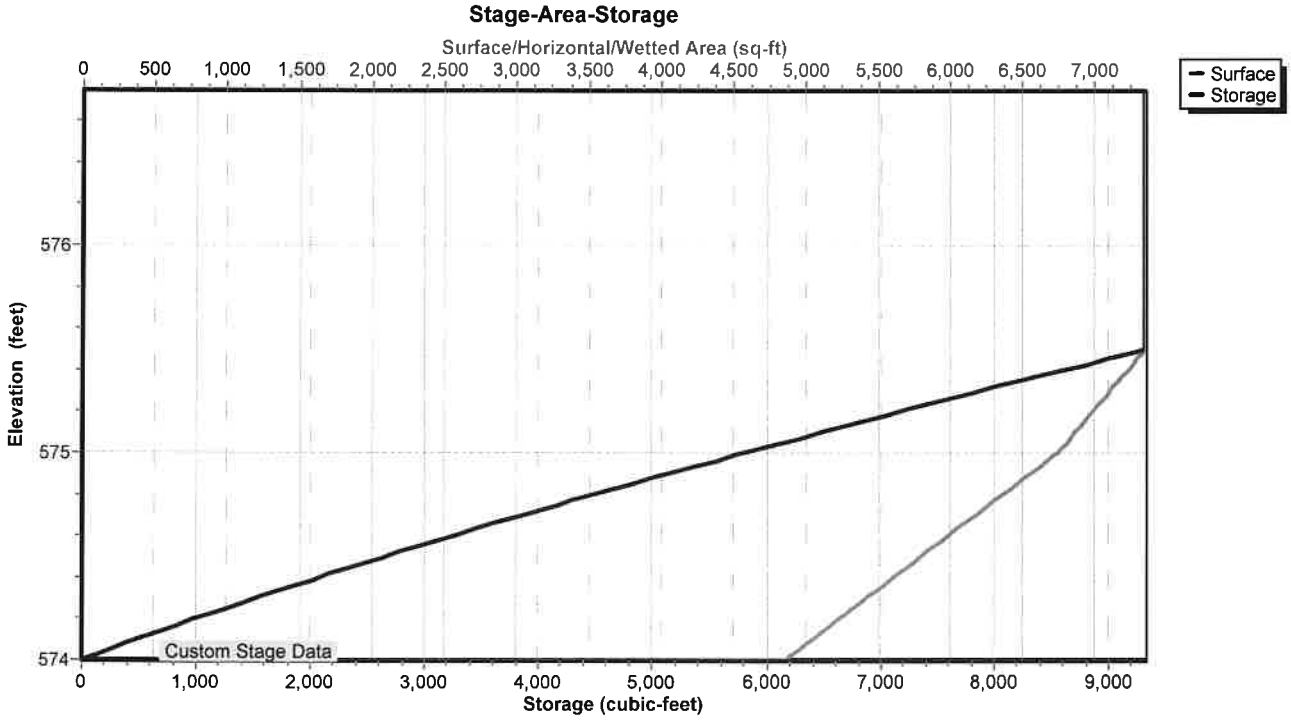


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.00	0	574.00	0.00
8.00	0.01	26	574.01	0.01
10.00	0.04	116	574.02	0.02
12.00	**3.32**	**2,442**	**574.46**	**0.03**
14.00	0.12	**2,754**	**574.52**	**0.13**
16.00	0.07	2,701	574.51	0.08
18.00	0.05	2,683	574.50	0.06
20.00	0.04	2,669	574.50	0.04
22.00	0.04	2,664	574.50	0.04
24.00	0.03	2,661	574.50	0.03
26.00	0.00	2,430	574.46	0.03
28.00	0.00	2,186	574.42	0.03
30.00	0.00	1,947	574.37	0.03
32.00	0.00	1,712	574.33	0.03
34.00	0.00	1,480	574.29	0.03
36.00	0.00	1,253	574.25	0.03
38.00	0.00	1,030	574.20	0.03
40.00	0.00	810	574.16	0.03
42.00	0.00	595	574.12	0.03
44.00	0.00	384	574.08	0.03
46.00	0.00	176	574.04	0.03
48.00	0.00	40	574.01	0.01
50.00	0.00	9	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.79"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=4.02 cfs 0.254 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.88"
Flow Length=345' Tc=9.1 min CN=92 Runoff=4.35 cfs 0.235 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.79' Storage=8,639 cf Inflow=7.03 cfs 0.489 af
Outflow=1.05 cfs 0.446 af

Pond 9P: Bioretention Area 3 Peak Elev=574.68' Storage=3,708 cf Inflow=4.35 cfs 0.235 af
Outflow=3.06 cfs 0.235 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.489 af Average Runoff Depth = 1.83"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

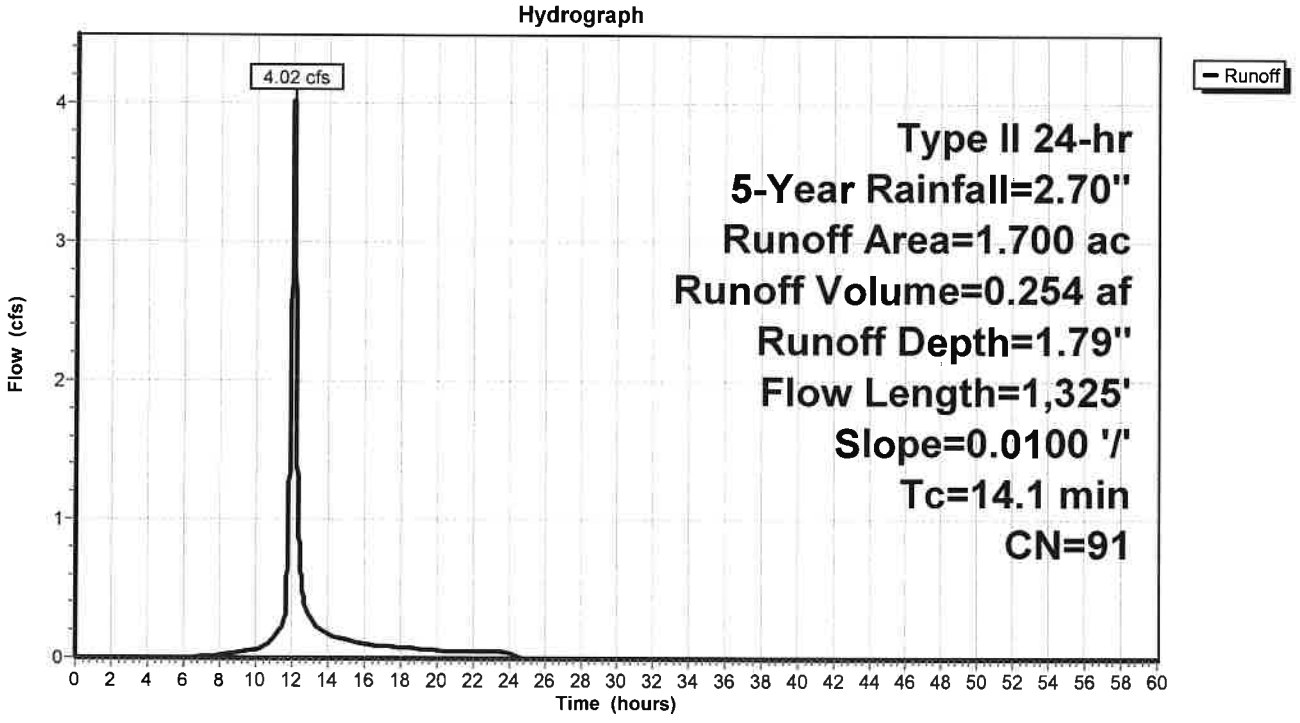
Runoff = 4.02 cfs @ 12.06 hrs, Volume= 0.254 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.01
8.00	0.32	0.01	0.02
9.00	0.40	0.03	0.04
10.00	0.49	0.07	0.06
11.00	0.63	0.13	0.14
12.00	1.79	0.98	**3.54**
13.00	2.08	1.24	**0.30**
14.00	2.21	1.35	0.17
15.00	2.30	1.43	0.13
16.00	2.38	1.50	0.10
17.00	2.43	1.55	0.09
18.00	2.49	1.60	0.08
19.00	2.53	1.64	0.07
20.00	2.57	1.67	0.06
21.00	2.60	1.71	0.05
22.00	2.64	1.74	0.05
23.00	2.67	1.77	0.05
24.00	**2.70**	**1.79**	0.05
25.00	2.70	1.79	0.00
26.00	2.70	1.79	0.00
27.00	2.70	1.79	0.00
28.00	2.70	1.79	0.00
29.00	2.70	1.79	0.00
30.00	2.70	1.79	0.00
31.00	2.70	1.79	0.00
32.00	2.70	1.79	0.00
33.00	2.70	1.79	0.00
34.00	2.70	1.79	0.00
35.00	2.70	1.79	0.00
36.00	2.70	1.79	0.00
37.00	2.70	1.79	0.00
38.00	2.70	1.79	0.00
39.00	2.70	1.79	0.00
40.00	2.70	1.79	0.00
41.00	2.70	1.79	0.00
42.00	2.70	1.79	0.00
43.00	2.70	1.79	0.00
44.00	2.70	1.79	0.00
45.00	2.70	1.79	0.00
46.00	2.70	1.79	0.00
47.00	2.70	1.79	0.00
48.00	2.70	1.79	0.00
49.00	2.70	1.79	0.00
50.00	2.70	1.79	0.00
51.00	2.70	1.79	0.00
52.00	2.70	1.79	0.00
53.00	2.70	1.79	0.00
54.00	2.70	1.79	0.00
55.00	2.70	1.79	0.00
56.00	2.70	1.79	0.00
57.00	2.70	1.79	0.00
58.00	2.70	1.79	0.00
59.00	2.70	1.79	0.00
60.00	2.70	1.79	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

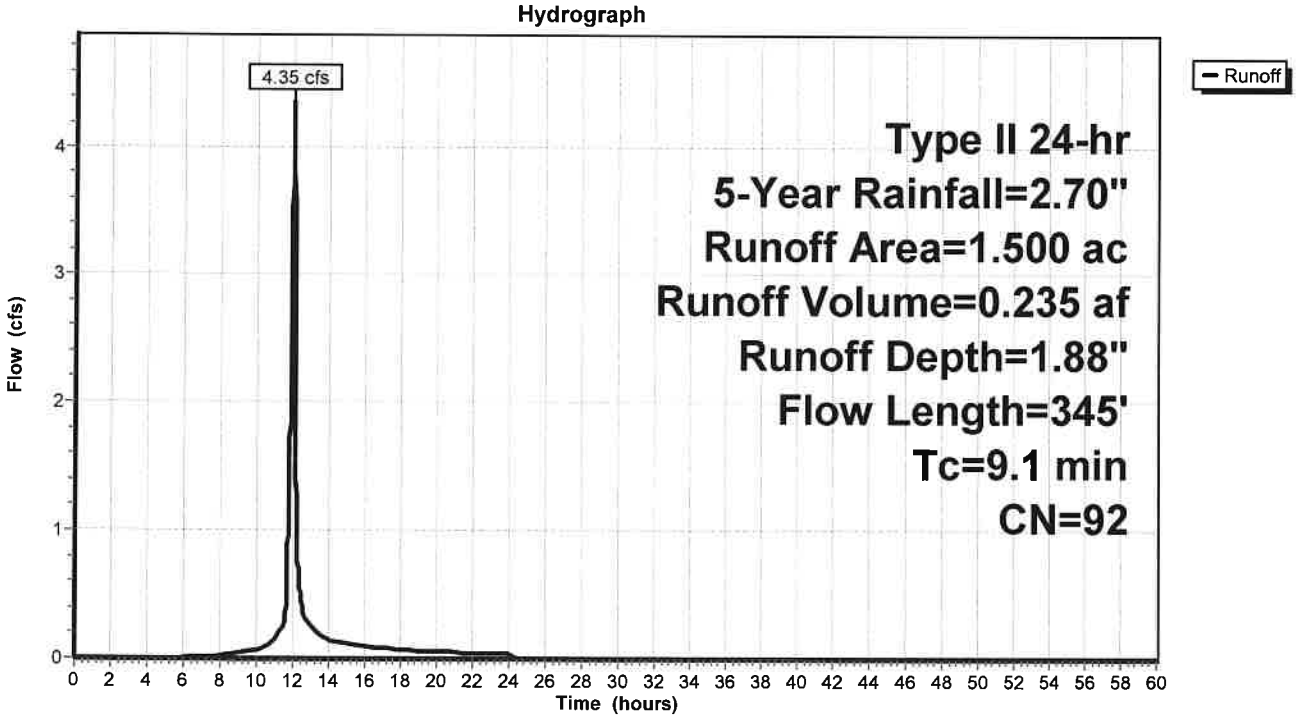
Runoff = 4.35 cfs @ 12.00 hrs, Volume= 0.235 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.01
7.00	0.27	0.01	0.01
8.00	0.32	0.02	0.02
9.00	0.40	0.05	0.04
10.00	0.49	0.08	0.07
11.00	0.63	0.16	0.15
12.00	1.79	1.05	**4.35**
13.00	2.08	1.31	0.25
14.00	2.21	1.43	0.15
15.00	2.30	1.51	0.12
16.00	2.38	1.58	0.09
17.00	2.43	1.63	0.08
18.00	2.49	1.68	0.07
19.00	2.53	1.72	0.06
20.00	2.57	1.76	0.05
21.00	2.60	1.79	0.05
22.00	2.64	1.82	0.05
23.00	2.67	1.85	0.04
24.00	**2.70**	**1.88**	0.04
25.00	2.70	1.88	0.00
26.00	2.70	1.88	0.00
27.00	2.70	1.88	0.00
28.00	2.70	1.88	0.00
29.00	2.70	1.88	0.00
30.00	2.70	1.88	0.00
31.00	2.70	1.88	0.00
32.00	2.70	1.88	0.00
33.00	2.70	1.88	0.00
34.00	2.70	1.88	0.00
35.00	2.70	1.88	0.00
36.00	2.70	1.88	0.00
37.00	2.70	1.88	0.00
38.00	2.70	1.88	0.00
39.00	2.70	1.88	0.00
40.00	2.70	1.88	0.00
41.00	2.70	1.88	0.00
42.00	2.70	1.88	0.00
43.00	2.70	1.88	0.00
44.00	2.70	1.88	0.00
45.00	2.70	1.88	0.00
46.00	2.70	1.88	0.00
47.00	2.70	1.88	0.00
48.00	2.70	1.88	0.00
49.00	2.70	1.88	0.00
50.00	2.70	1.88	0.00
51.00	2.70	1.88	0.00
52.00	2.70	1.88	0.00
53.00	2.70	1.88	0.00
54.00	2.70	1.88	0.00
55.00	2.70	1.88	0.00
56.00	2.70	1.88	0.00
57.00	2.70	1.88	0.00
58.00	2.70	1.88	0.00
59.00	2.70	1.88	0.00
60.00	2.70	1.88	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.83" for 5-Year event
Inflow = 7.03 cfs @ 12.07 hrs, Volume= 0.489 af
Outflow = 1.05 cfs @ 12.55 hrs, Volume= 0.446 af, Atten= 85%, Lag= 29.0 min
Primary = 1.05 cfs @ 12.55 hrs, Volume= 0.446 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.79' @ 12.55 hrs Surf.Area= 10,145 sf Storage= 8,639 cf

Plug-Flow detention time= 321.6 min calculated for 0.446 af (91% of inflow)
Center-of-Mass det. time= 190.4 min (1,183.7 - 993.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

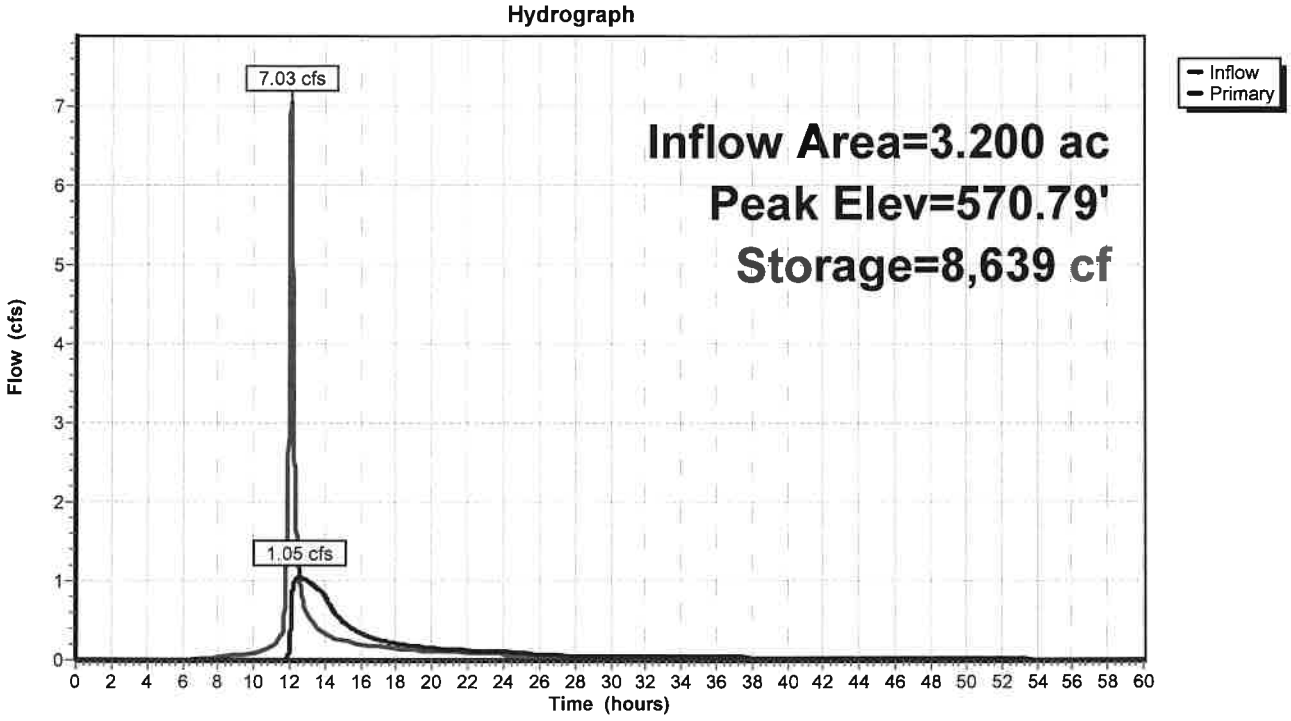
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

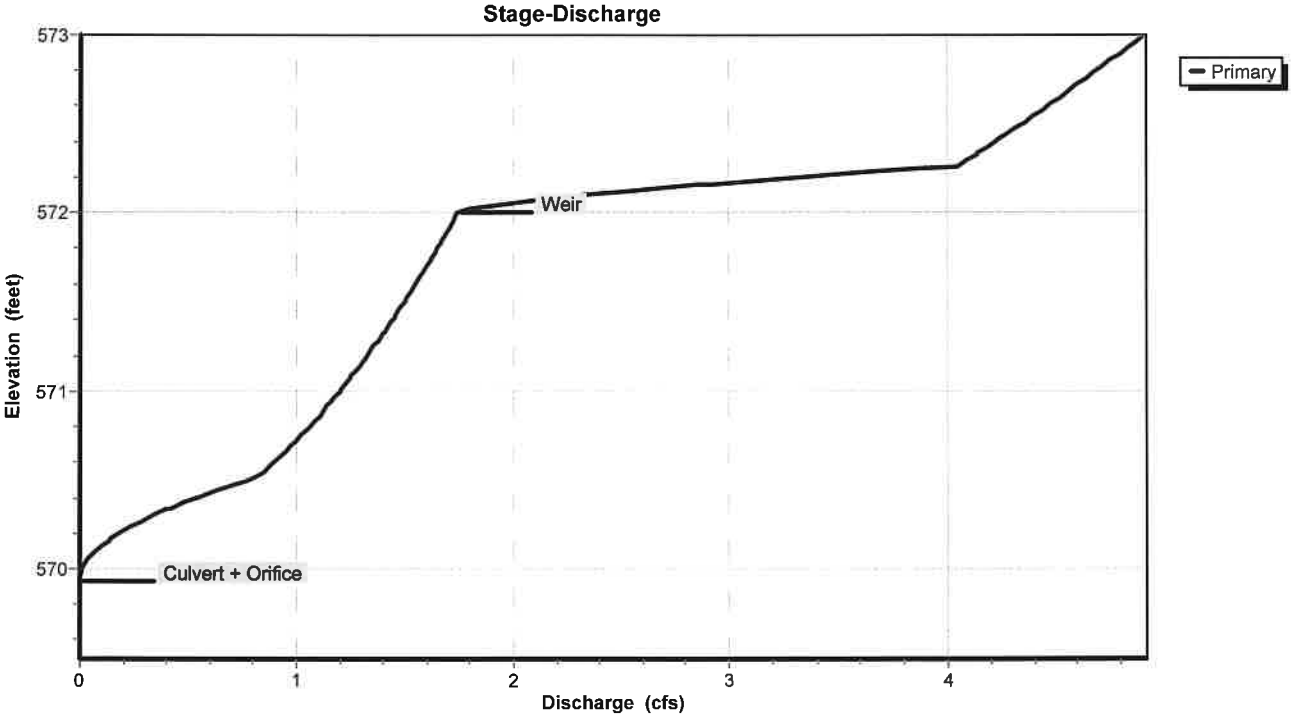
Primary OutFlow Max=1.05 cfs @ 12.55 hrs HW=570.79' (Free Discharge)
↑**1=Culvert** (Passes 1.05 cfs of 1.53 cfs potential flow)
↑**2=Orifice** (Orifice Controls 1.05 cfs @ 4.00 fps)
3=Weir (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

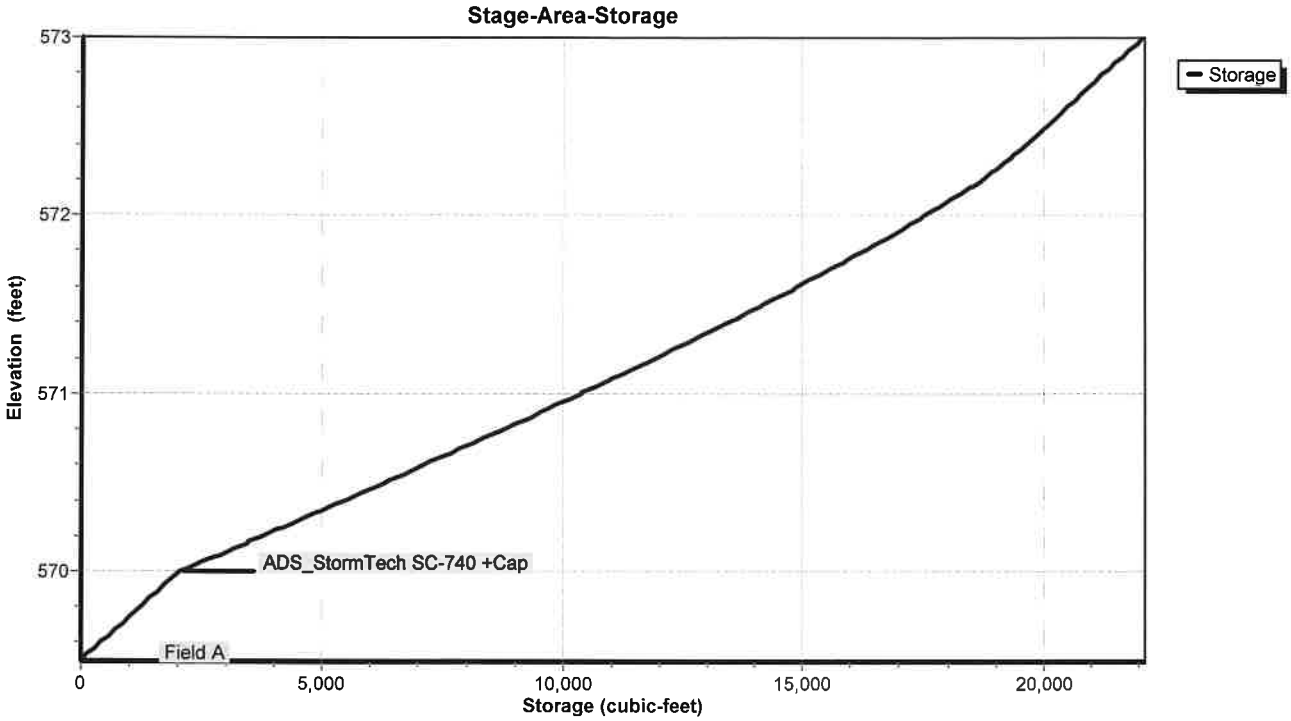


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	2	569.50	0.00
8.00	0.03	119	569.53	0.00
10.00	0.09	566	569.64	0.00
12.00	**5.13**	**3,593**	**570.18**	**0.16**
14.00	**0.33**	**6,444**	**570.52**	**0.81**
16.00	0.20	4,602	570.30	0.34
18.00	0.15	3,932	570.22	0.21
20.00	0.11	3,570	570.18	0.15
22.00	0.10	3,332	570.15	0.12
24.00	0.09	3,200	570.14	0.10
26.00	0.03	2,873	570.10	0.07
28.00	0.03	2,693	570.08	0.05
30.00	0.03	2,592	570.07	0.04
32.00	0.03	2,532	570.06	0.04
34.00	0.03	2,493	570.05	0.04
36.00	0.03	2,465	570.05	0.03
38.00	0.03	2,445	570.05	0.03
40.00	0.03	2,428	570.05	0.03
42.00	0.03	2,415	570.04	0.03
44.00	0.03	2,403	570.04	0.03
46.00	0.03	2,393	570.04	0.03
48.00	0.01	2,328	570.03	0.03
50.00	0.00	2,203	570.02	0.02
52.00	0.00	2,095	570.01	0.01
54.00	0.00	2,013	570.00	0.01
56.00	0.00	1,959	569.98	0.01
58.00	0.00	1,920	569.97	0.00
60.00	0.00	1,892	569.97	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.88" for 5-Year event
Inflow = 4.35 cfs @ 12.00 hrs, Volume= 0.235 af
Outflow = 3.06 cfs @ 12.08 hrs, Volume= 0.235 af, Atten= 30%, Lag= 4.6 min
Primary = 3.06 cfs @ 12.08 hrs, Volume= 0.235 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.68' @ 12.08 hrs Surf.Area= 6,129 sf Storage= 3,708 cf

Plug-Flow detention time= 384.2 min calculated for 0.235 af (100% of inflow)
Center-of-Mass det. time= 384.1 min (1,187.9 - 803.8)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

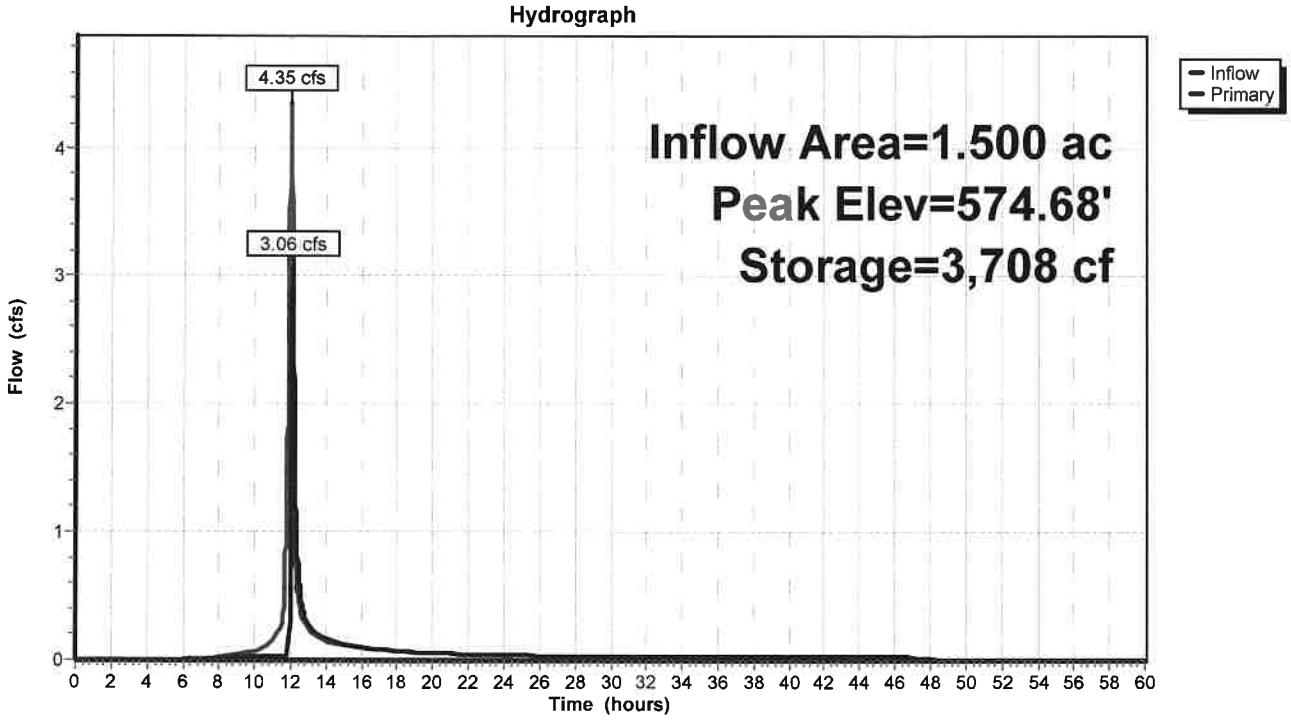
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

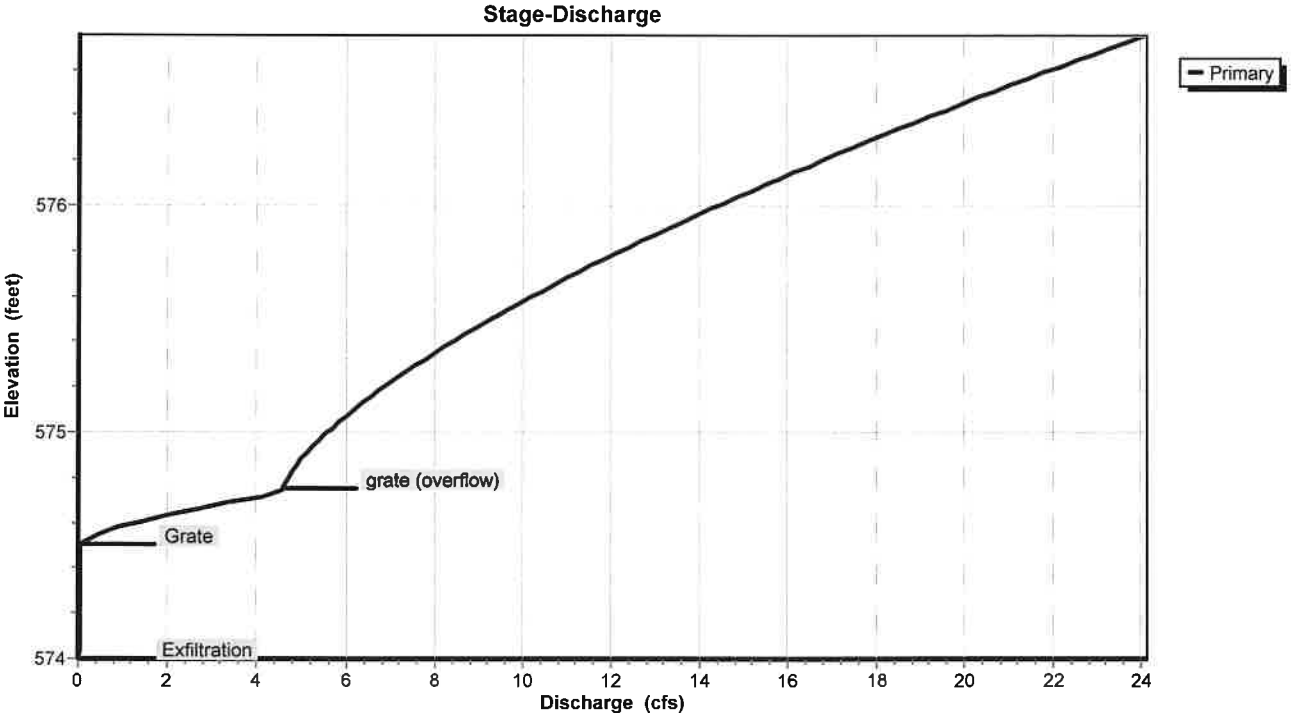
Primary OutFlow Max=3.05 cfs @ 12.08 hrs HW=574.68' (Free Discharge)
- **1=8" pipe** (Passes 3.05 cfs of 4.54 cfs potential flow)
  - **2=Grate** (Weir Controls 3.02 cfs @ 1.37 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

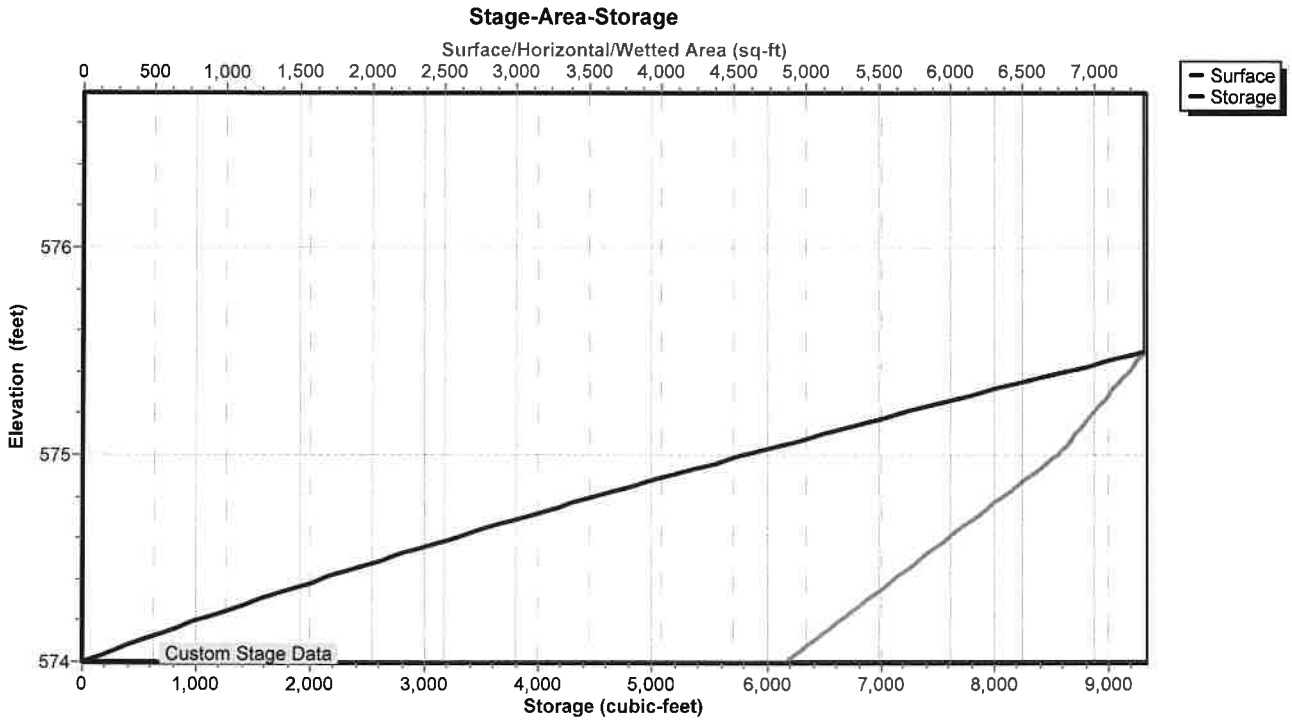


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.01	6	574.00	0.00
8.00	0.02	61	574.01	0.01
10.00	0.07	208	574.04	0.03
12.00	**4.35**	**3,326**	**574.61**	**1.59**
14.00	0.15	**2,783**	**574.52**	**0.16**
16.00	0.09	2,721	574.51	0.10
18.00	0.07	2,697	574.51	0.07
20.00	0.05	2,679	574.50	0.05
22.00	0.05	2,673	574.50	0.05
24.00	0.04	2,670	574.50	0.04
26.00	0.00	2,439	574.46	0.03
28.00	0.00	2,196	574.42	0.03
30.00	0.00	1,956	574.38	0.03
32.00	0.00	1,720	574.33	0.03
34.00	0.00	1,489	574.29	0.03
36.00	0.00	1,262	574.25	0.03
38.00	0.00	1,038	574.21	0.03
40.00	0.00	819	574.16	0.03
42.00	0.00	603	574.12	0.03
44.00	0.00	392	574.08	0.03
46.00	0.00	184	574.04	0.03
48.00	0.00	42	574.01	0.01
50.00	0.00	9	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=2.21"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=4.91 cfs 0.313 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=2.30"
Flow Length=345' Tc=9.1 min CN=92 Runoff=5.28 cfs 0.288 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=571.13' Storage=11,342 cf Inflow=9.17 cfs 0.601 af
Outflow=1.28 cfs 0.558 af

Pond 9P: Bioretention Area 3 Peak Elev=574.72' Storage=4,001 cf Inflow=5.28 cfs 0.288 af
Outflow=4.27 cfs 0.288 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.601 af Average Runoff Depth = 2.25"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

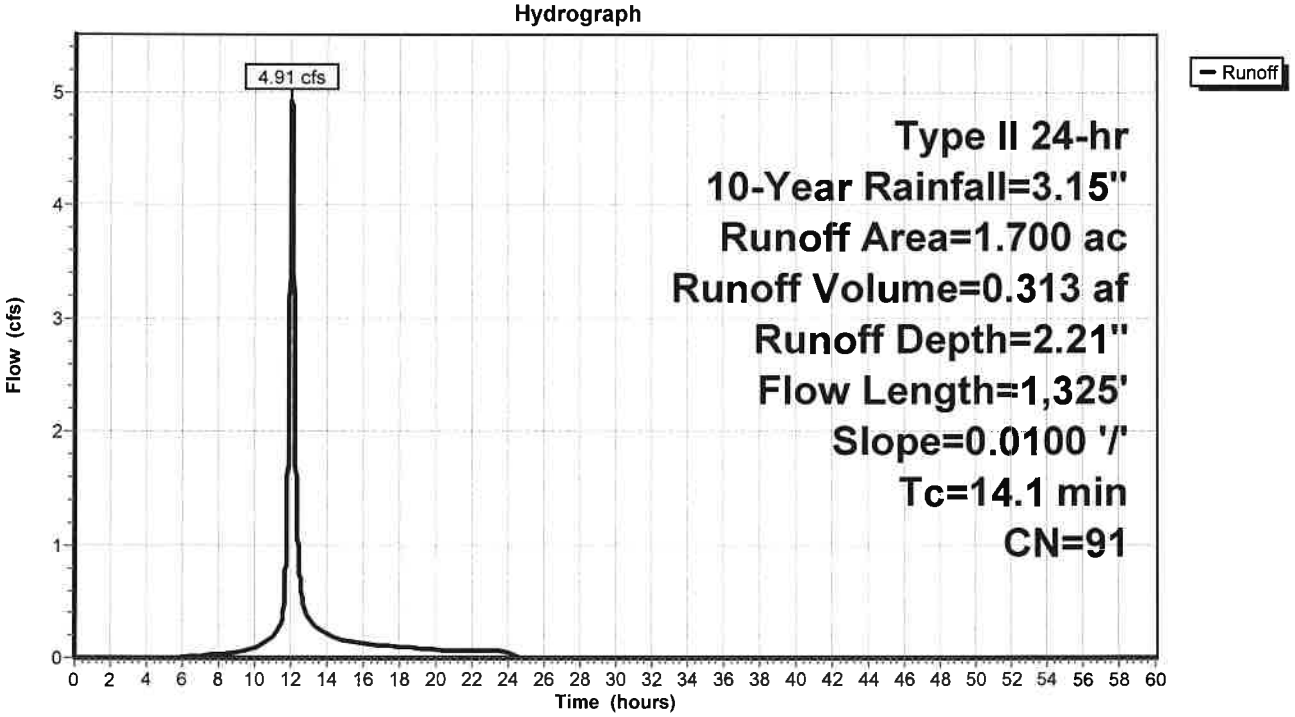
Runoff = 4.91 cfs @ 12.05 hrs, Volume= 0.313 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.01
7.00	0.31	0.01	0.02
8.00	0.38	0.03	0.03
9.00	0.46	0.06	0.06
10.00	0.57	0.10	0.09
11.00	0.74	0.19	0.19
12.00	2.09	1.24	**4.35**
13.00	2.43	1.55	**0.35**
14.00	2.58	1.69	0.20
15.00	2.69	1.78	0.16
16.00	2.77	1.86	0.12
17.00	2.84	1.92	0.11
18.00	2.90	1.98	0.09
19.00	2.95	2.03	0.08
20.00	3.00	2.07	0.07
21.00	3.04	2.11	0.06
22.00	3.08	2.14	0.06
23.00	3.11	2.18	0.06
24.00	**3.15**	**2.21**	0.06
25.00	3.15	2.21	0.00
26.00	3.15	2.21	0.00
27.00	3.15	2.21	0.00
28.00	3.15	2.21	0.00
29.00	3.15	2.21	0.00
30.00	3.15	2.21	0.00
31.00	3.15	2.21	0.00
32.00	3.15	2.21	0.00
33.00	3.15	2.21	0.00
34.00	3.15	2.21	0.00
35.00	3.15	2.21	0.00
36.00	3.15	2.21	0.00
37.00	3.15	2.21	0.00
38.00	3.15	2.21	0.00
39.00	3.15	2.21	0.00
40.00	3.15	2.21	0.00
41.00	3.15	2.21	0.00
42.00	3.15	2.21	0.00
43.00	3.15	2.21	0.00
44.00	3.15	2.21	0.00
45.00	3.15	2.21	0.00
46.00	3.15	2.21	0.00
47.00	3.15	2.21	0.00
48.00	3.15	2.21	0.00
49.00	3.15	2.21	0.00
50.00	3.15	2.21	0.00
51.00	3.15	2.21	0.00
52.00	3.15	2.21	0.00
53.00	3.15	2.21	0.00
54.00	3.15	2.21	0.00
55.00	3.15	2.21	0.00
56.00	3.15	2.21	0.00
57.00	3.15	2.21	0.00
58.00	3.15	2.21	0.00
59.00	3.15	2.21	0.00
60.00	3.15	2.21	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

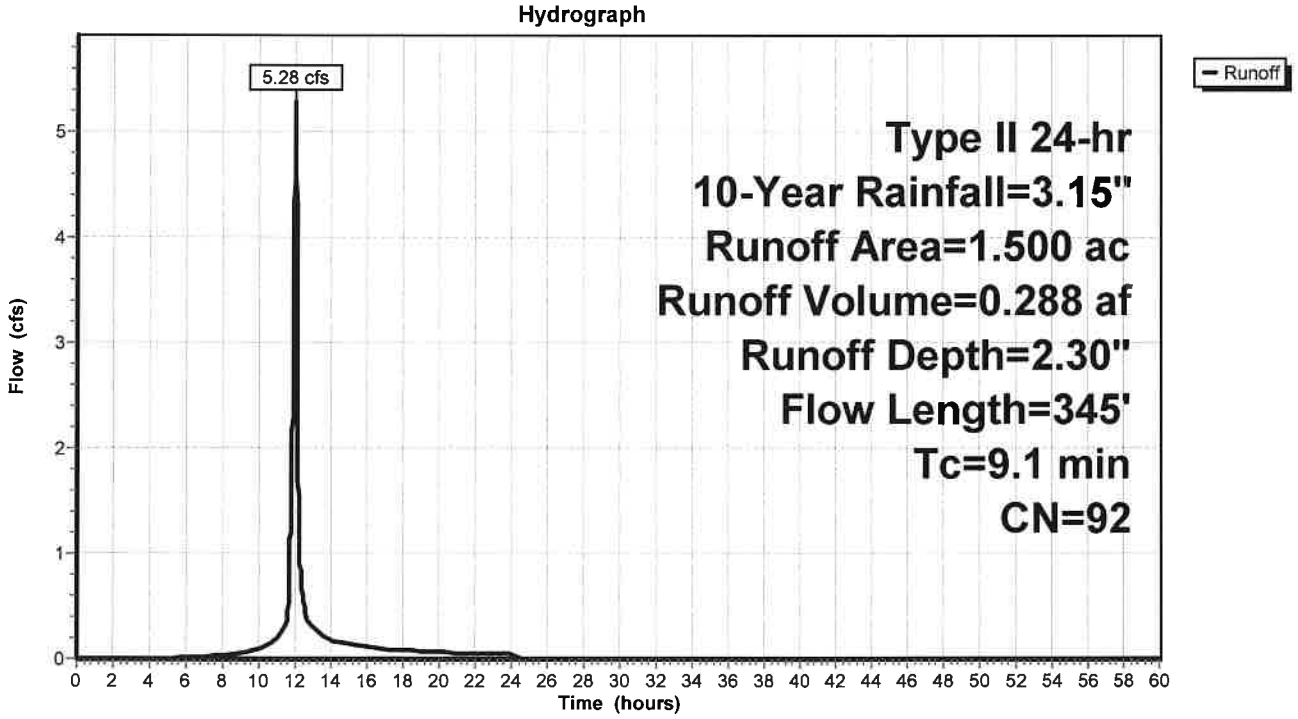
Runoff = 5.28 cfs @ 12.00 hrs, Volume= 0.288 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.15	2.30	0.00
1.00	0.03	0.00	0.00	53.00	3.15	2.30	0.00
2.00	0.07	0.00	0.00	54.00	3.15	2.30	0.00
3.00	0.11	0.00	0.00	55.00	3.15	2.30	0.00
4.00	0.15	0.00	0.00	56.00	3.15	2.30	0.00
5.00	0.20	0.00	0.00	57.00	3.15	2.30	0.00
6.00	0.25	0.01	0.01	58.00	3.15	2.30	0.00
7.00	0.31	0.02	0.02	59.00	3.15	2.30	0.00
8.00	0.38	0.04	0.03	60.00	3.15	2.30	0.00
9.00	0.46	0.07	0.06				
10.00	0.57	0.12	0.09				
11.00	0.74	0.22	0.20				
12.00	2.09	1.32	**5.27**				
13.00	2.43	1.63	0.30				
14.00	2.58	1.77	0.18				
15.00	2.69	1.87	0.14				
16.00	2.77	1.95	0.11				
17.00	2.84	2.01	0.09				
18.00	2.90	2.07	0.08				
19.00	2.95	2.12	0.07				
20.00	3.00	2.16	0.06				
21.00	3.04	2.20	0.06				
22.00	3.08	2.23	0.05				
23.00	3.11	2.27	0.05				
24.00	**3.15**	**2.30**	0.05				
25.00	3.15	2.30	0.00				
26.00	3.15	2.30	0.00				
27.00	3.15	2.30	0.00				
28.00	3.15	2.30	0.00				
29.00	3.15	2.30	0.00				
30.00	3.15	2.30	0.00				
31.00	3.15	2.30	0.00				
32.00	3.15	2.30	0.00				
33.00	3.15	2.30	0.00				
34.00	3.15	2.30	0.00				
35.00	3.15	2.30	0.00				
36.00	3.15	2.30	0.00				
37.00	3.15	2.30	0.00				
38.00	3.15	2.30	0.00				
39.00	3.15	2.30	0.00				
40.00	3.15	2.30	0.00				
41.00	3.15	2.30	0.00				
42.00	3.15	2.30	0.00				
43.00	3.15	2.30	0.00				
44.00	3.15	2.30	0.00				
45.00	3.15	2.30	0.00				
46.00	3.15	2.30	0.00				
47.00	3.15	2.30	0.00				
48.00	3.15	2.30	0.00				
49.00	3.15	2.30	0.00				
50.00	3.15	2.30	0.00				
51.00	3.15	2.30	0.00				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 2.25" for 10-Year event
Inflow = 9.17 cfs @ 12.06 hrs, Volume= 0.601 af
Outflow = 1.28 cfs @ 12.54 hrs, Volume= 0.558 af, Atten= 86%, Lag= 29.2 min
Primary = 1.28 cfs @ 12.54 hrs, Volume= 0.558 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 571.13' @ 12.54 hrs Surf.Area= 10,145 sf Storage= 11,342 cf

Plug-Flow detention time= 284.1 min calculated for 0.558 af (93% of inflow)
Center-of-Mass det. time= 176.3 min (1,132.0 - 955.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

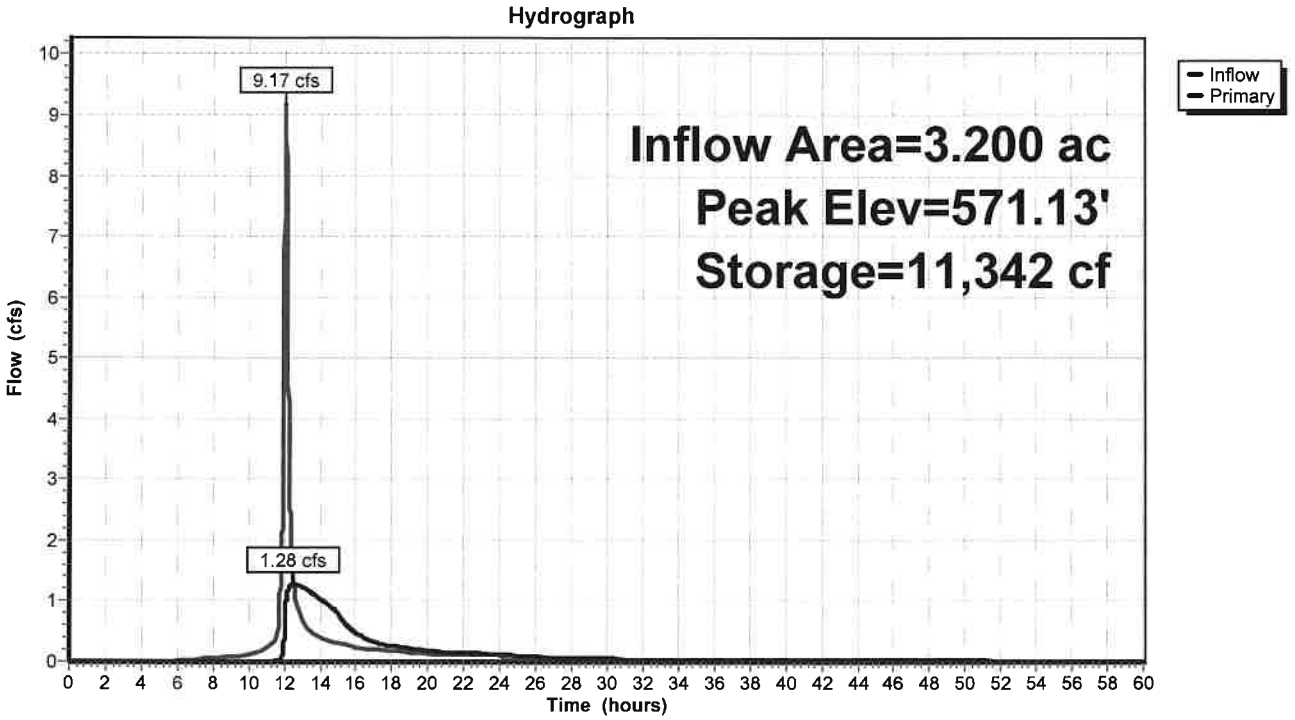
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

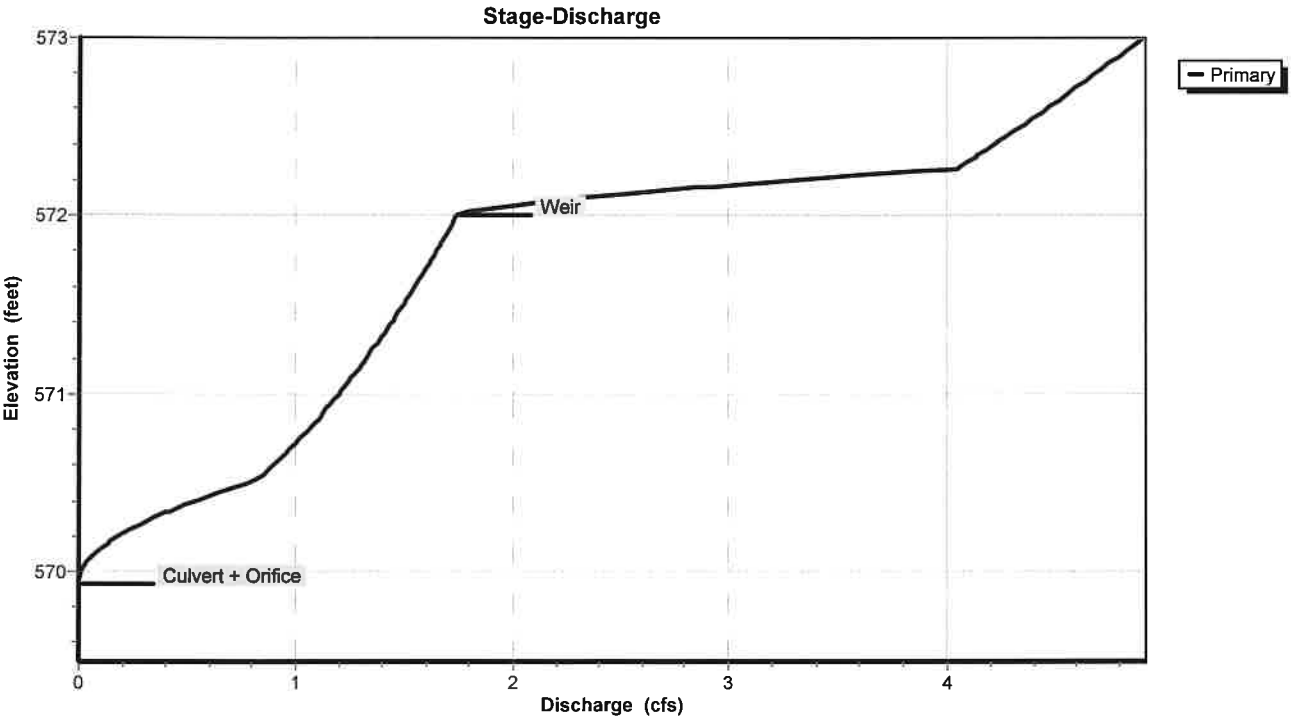
Primary OutFlow Max=1.28 cfs @ 12.54 hrs HW=571.13' (Free Discharge)
└**1=Culvert** (Passes 1.28 cfs of 2.37 cfs potential flow)
├**2=Orifice** (Orifice Controls 1.28 cfs @ 4.88 fps)
└**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

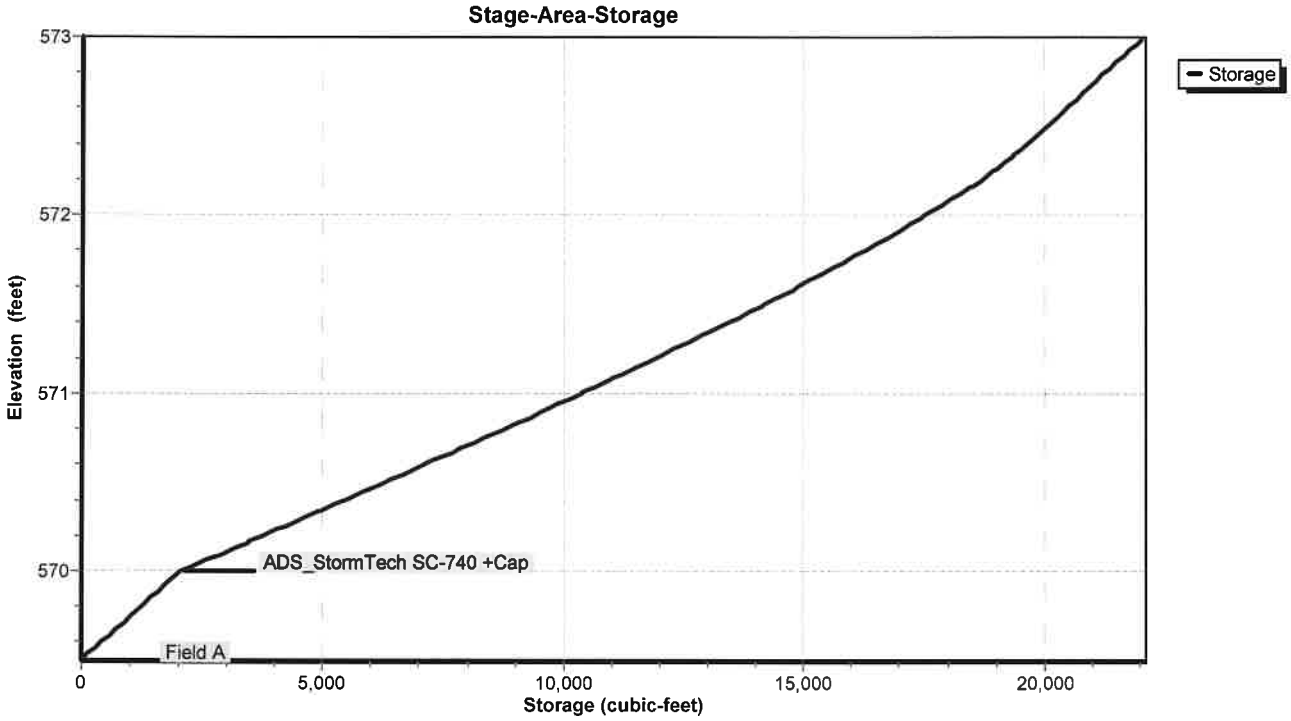


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.01	18	569.50	0.00
8.00	0.05	241	569.56	0.00
10.00	0.12	846	569.71	0.00
12.00	**7.80**	**5,030**	**570.35**	**0.43**
14.00	**0.39**	**8,504**	**570.77**	**1.03**
16.00	0.24	5,183	570.37	0.47
18.00	0.18	4,195	570.25	0.26
20.00	0.13	3,754	570.20	0.18
22.00	0.12	3,484	570.17	0.14
24.00	0.11	3,343	570.15	0.12
26.00	0.03	2,942	570.11	0.08
28.00	0.03	2,728	570.08	0.05
30.00	0.03	2,611	570.07	0.05
32.00	0.03	2,544	570.06	0.04
34.00	0.03	2,500	570.05	0.04
36.00	0.03	2,470	570.05	0.03
38.00	0.03	2,448	570.05	0.03
40.00	0.03	2,430	570.05	0.03
42.00	0.03	2,416	570.05	0.03
44.00	0.03	2,404	570.04	0.03
46.00	0.03	2,393	570.04	0.03
48.00	0.01	2,331	570.04	0.03
50.00	0.00	2,206	570.02	0.02
52.00	0.00	2,098	570.01	0.01
54.00	0.00	2,015	570.00	0.01
56.00	0.00	1,960	569.98	0.01
58.00	0.00	1,921	569.97	0.00
60.00	0.00	1,893	569.97	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)
569.50	0
569.55	203
569.60	406
569.65	609
569.70	812
569.75	1,014
569.80	1,217
569.85	1,420
569.90	1,623
569.95	1,826
570.00	2,029
570.05	2,459
570.10	2,889
570.15	3,318
570.20	3,746
570.25	4,173
570.30	4,598
570.35	5,022
570.40	5,444
570.45	5,865
570.50	6,284
570.55	6,701
570.60	7,116
570.65	7,529
570.70	7,940
570.75	8,349
570.80	8,756
570.85	9,160
570.90	9,562
570.95	9,962
571.00	10,359
571.05	10,754
571.10	11,145
571.15	11,534
571.20	11,919
571.25	12,301
571.30	12,680
571.35	13,056
571.40	13,428
571.45	13,797
571.50	14,161
571.55	14,522
571.60	14,879
571.65	15,230
571.70	15,577
571.75	15,917
571.80	16,252
571.85	16,582
571.90	16,906
571.95	17,224
572.00	17,535
572.05	17,838
572.10	18,133
572.15	18,417
572.20	18,690
572.25	18,946
572.30	19,188
572.35	19,417
572.40	19,637
572.45	19,850
572.50	20,057
572.55	20,260
572.60	20,463
572.65	20,665
572.70	20,868
572.75	21,071
572.80	21,274
572.85	21,477
572.90	21,680
572.95	21,883
573.00	**22,086**

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 2.30" for 10-Year event
Inflow = 5.28 cfs @ 12.00 hrs, Volume= 0.288 af
Outflow = 4.27 cfs @ 12.06 hrs, Volume= 0.288 af, Atten= 19%, Lag= 3.5 min
Primary = 4.27 cfs @ 12.06 hrs, Volume= 0.288 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.72' @ 12.06 hrs Surf.Area= 6,219 sf Storage= 4,001 cf

Plug-Flow detention time= 318.6 min calculated for 0.288 af (100% of inflow)
Center-of-Mass det. time= 318.8 min (1,116.8 - 798.1)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

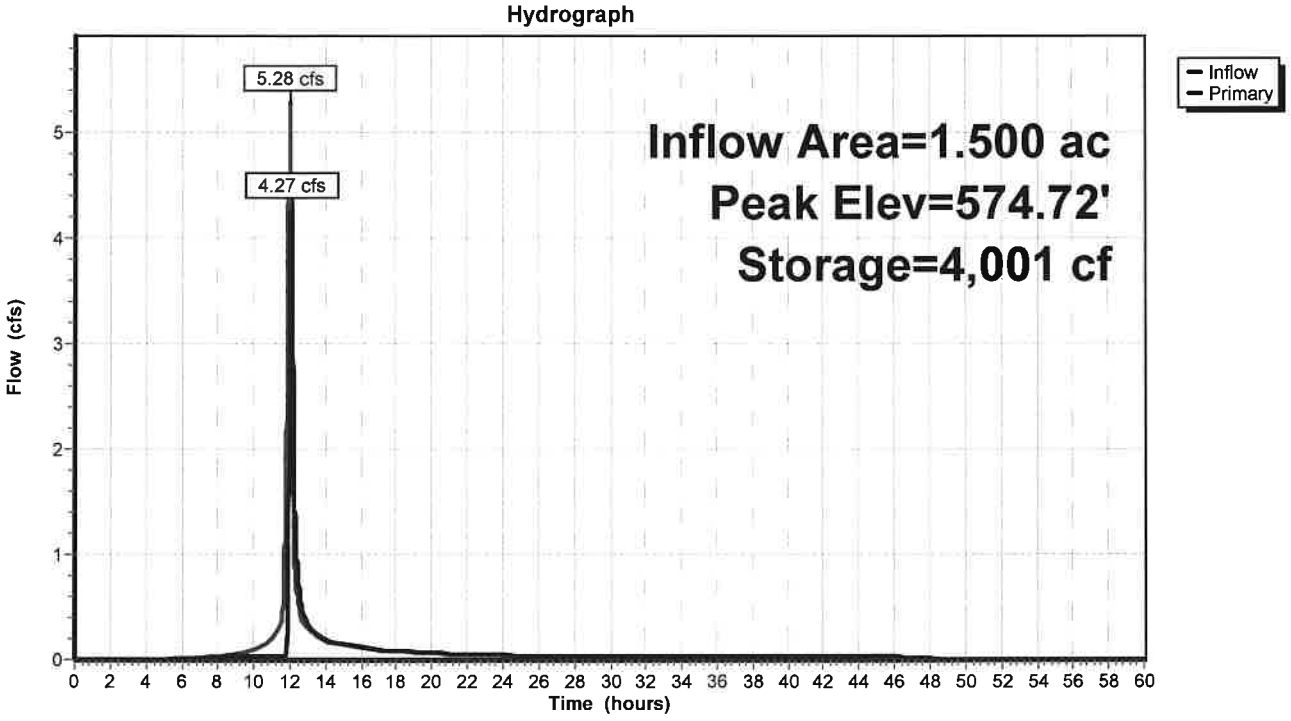
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

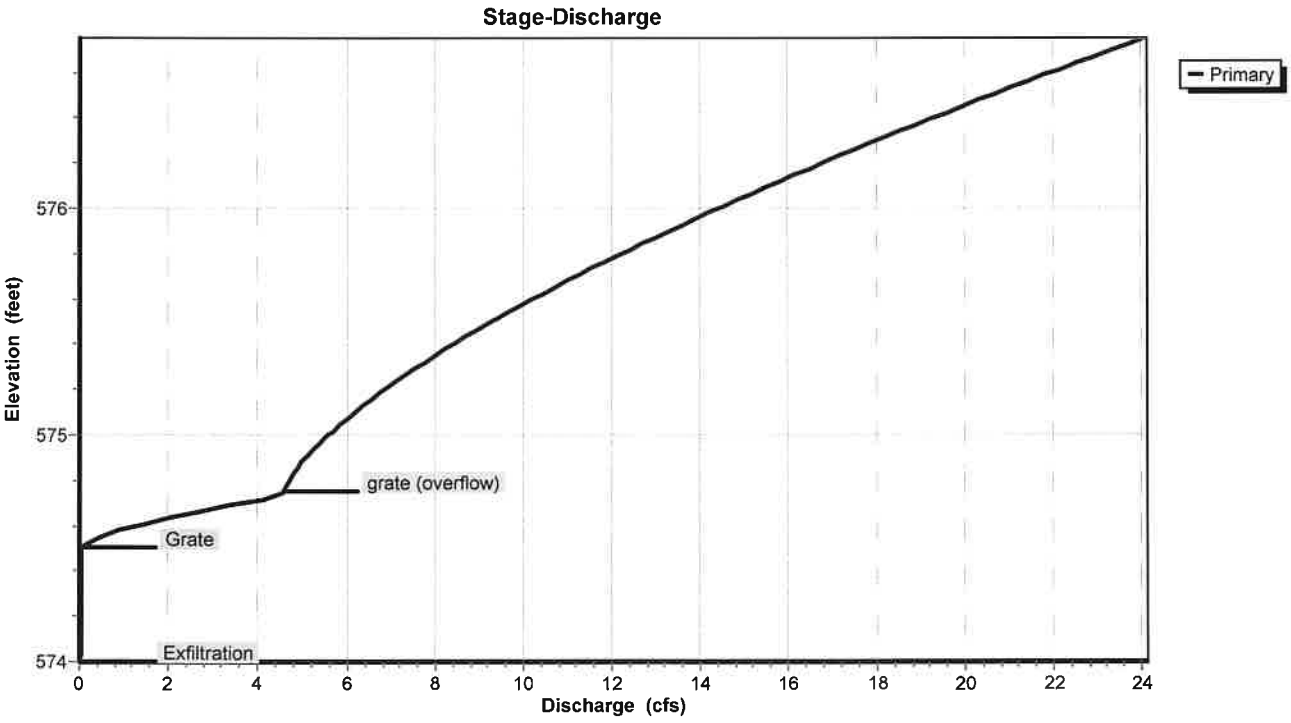
Primary OutFlow Max=4.36 cfs @ 12.06 hrs HW=574.72' (Free Discharge)
- **1=8" pipe** (Passes 4.36 cfs of 4.57 cfs potential flow)
  - **2=Grate** (Weir Controls 4.32 cfs @ 1.54 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

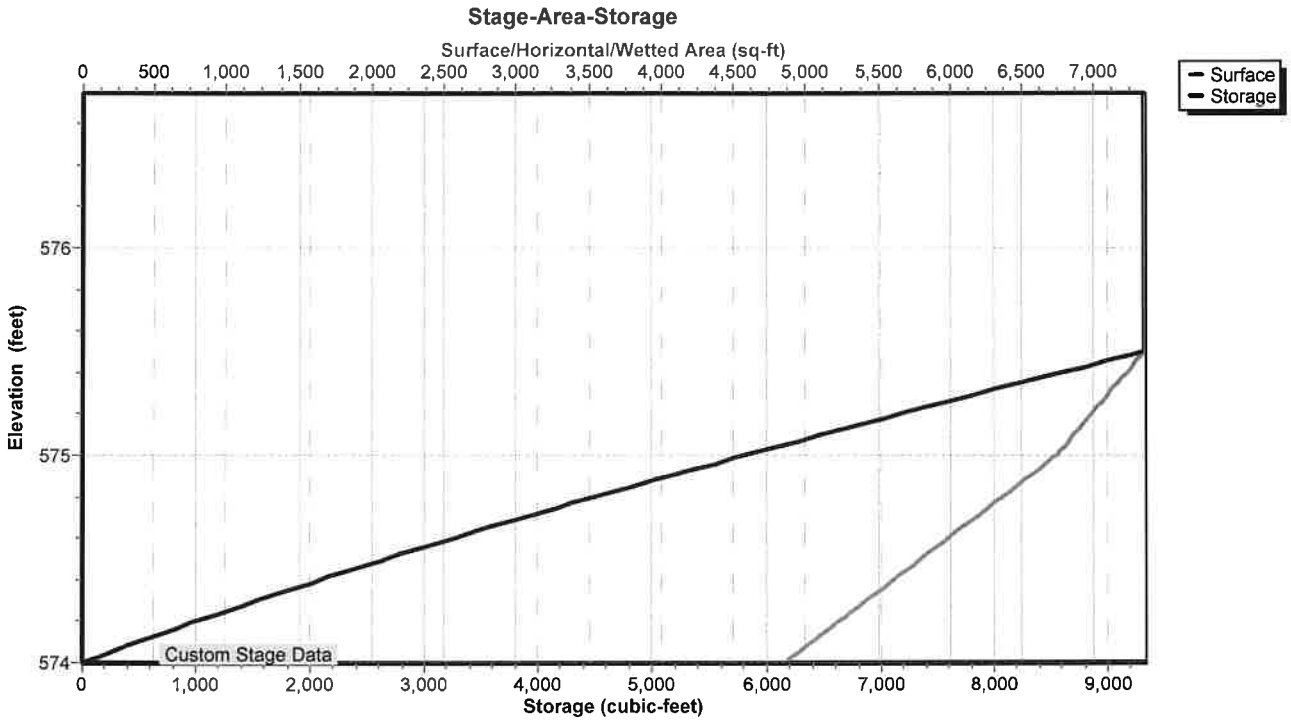


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.01	21	574.00	0.00
8.00	0.03	99	574.02	0.02
10.00	0.09	335	574.07	0.03
12.00	**5.27**	**3,799**	**574.69**	**3.45**
14.00	0.18	**2,801**	**574.52**	**0.19**
16.00	0.11	2,738	574.51	0.12
18.00	0.08	2,710	574.51	0.09
20.00	0.06	2,689	574.50	0.06
22.00	0.05	2,681	574.50	0.06
24.00	0.05	2,677	574.50	0.05
26.00	0.00	2,445	574.46	0.03
28.00	0.00	2,201	574.42	0.03
30.00	0.00	1,961	574.38	0.03
32.00	0.00	1,726	574.33	0.03
34.00	0.00	1,494	574.29	0.03
36.00	0.00	1,267	574.25	0.03
38.00	0.00	1,043	574.21	0.03
40.00	0.00	824	574.16	0.03
42.00	0.00	608	574.12	0.03
44.00	0.00	397	574.08	0.03
46.00	0.00	189	574.04	0.03
48.00	0.00	44	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=2.89"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=6.35 cfs 0.410 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=2.99"
Flow Length=345' Tc=9.1 min CN=92 Runoff=6.75 cfs 0.374 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=571.73' Storage=15,804 cf Inflow=11.11 cfs 0.784 af
Outflow=1.61 cfs 0.740 af

Pond 9P: Bioretention Area 3 Peak Elev=574.82' Storage=4,638 cf Inflow=6.75 cfs 0.374 af
Outflow=4.78 cfs 0.374 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.784 af Average Runoff Depth = 2.94"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

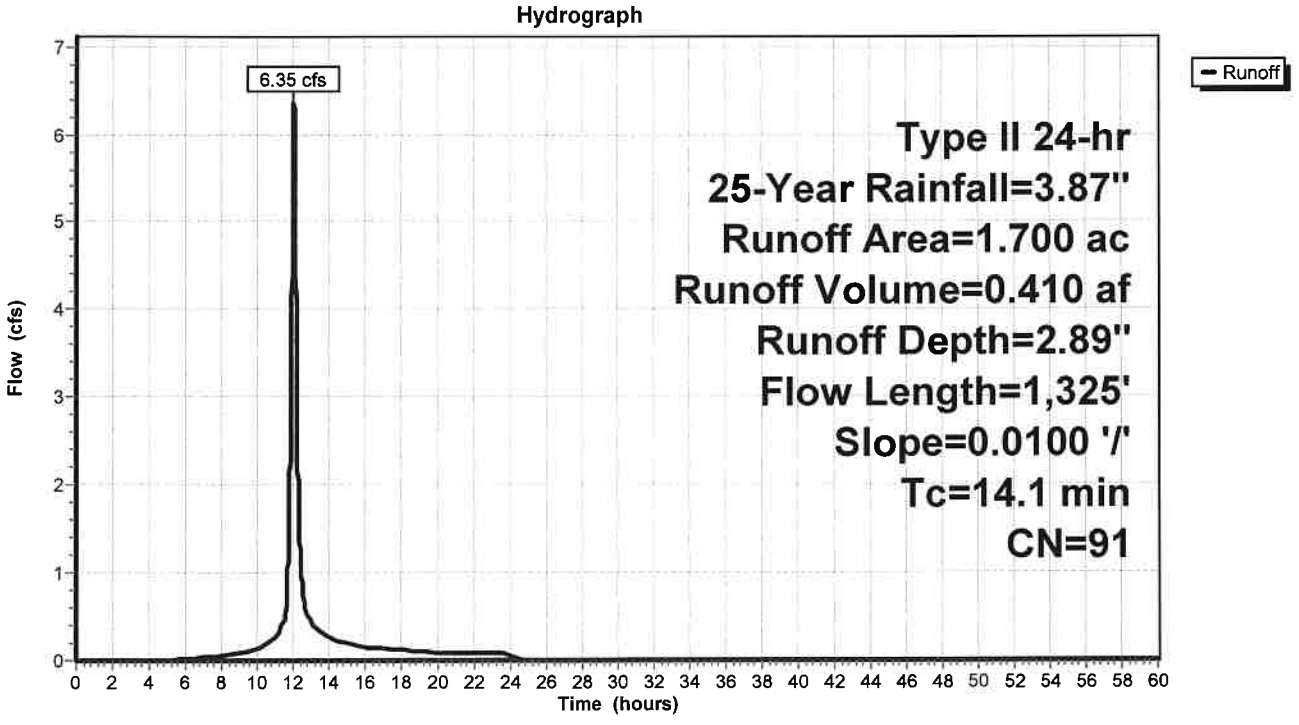
Runoff = 6.35 cfs @ 12.05 hrs, Volume= 0.410 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.01
6.00	0.31	0.01	0.02
7.00	0.38	0.03	0.04
8.00	0.46	0.06	0.05
9.00	0.57	0.10	0.09
10.00	0.70	0.17	0.13
11.00	0.91	0.30	0.27
12.00	2.57	1.67	**5.66**
13.00	2.99	2.06	**0.45**
14.00	3.17	2.23	0.26
15.00	3.30	2.36	0.20
16.00	3.41	2.45	0.15
17.00	3.49	2.53	0.13
18.00	3.56	2.60	0.12
19.00	3.63	2.66	0.10
20.00	3.68	2.72	0.09
21.00	3.73	2.76	0.08
22.00	3.78	2.81	0.08
23.00	3.83	2.85	0.07
24.00	**3.87**	**2.89**	0.07
25.00	3.87	2.89	0.00
26.00	3.87	2.89	0.00
27.00	3.87	2.89	0.00
28.00	3.87	2.89	0.00
29.00	3.87	2.89	0.00
30.00	3.87	2.89	0.00
31.00	3.87	2.89	0.00
32.00	3.87	2.89	0.00
33.00	3.87	2.89	0.00
34.00	3.87	2.89	0.00
35.00	3.87	2.89	0.00
36.00	3.87	2.89	0.00
37.00	3.87	2.89	0.00
38.00	3.87	2.89	0.00
39.00	3.87	2.89	0.00
40.00	3.87	2.89	0.00
41.00	3.87	2.89	0.00
42.00	3.87	2.89	0.00
43.00	3.87	2.89	0.00
44.00	3.87	2.89	0.00
45.00	3.87	2.89	0.00
46.00	3.87	2.89	0.00
47.00	3.87	2.89	0.00
48.00	3.87	2.89	0.00
49.00	3.87	2.89	0.00
50.00	3.87	2.89	0.00
51.00	3.87	2.89	0.00
52.00	3.87	2.89	0.00
53.00	3.87	2.89	0.00
54.00	3.87	2.89	0.00
55.00	3.87	2.89	0.00
56.00	3.87	2.89	0.00
57.00	3.87	2.89	0.00
58.00	3.87	2.89	0.00
59.00	3.87	2.89	0.00
60.00	3.87	2.89	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

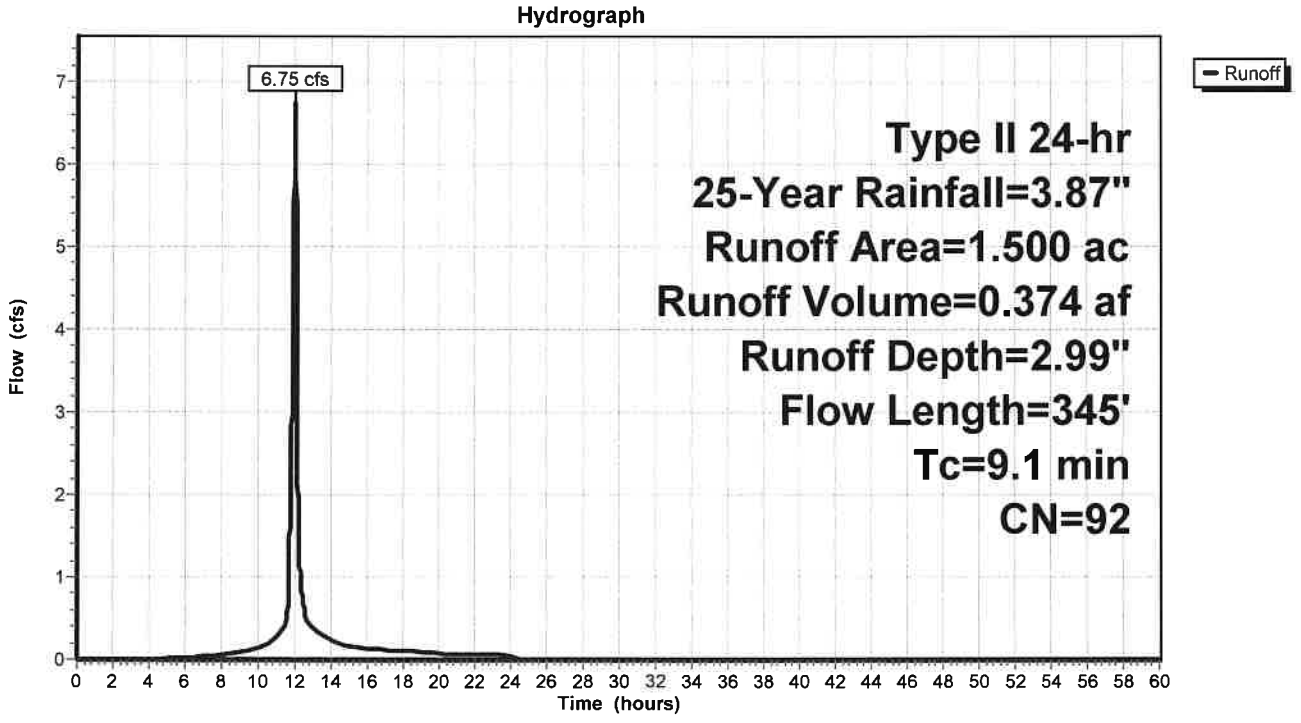
Runoff = 6.75 cfs @ 12.00 hrs, Volume= 0.374 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.01	0.01
6.00	0.31	0.02	0.02
7.00	0.38	0.04	0.04
8.00	0.46	0.07	0.05
9.00	0.57	0.12	0.09
10.00	0.70	0.20	0.13
11.00	0.91	0.34	0.27
12.00	2.57	1.75	**6.75**
13.00	2.99	2.15	0.38
14.00	3.17	2.33	0.22
15.00	3.30	2.45	0.17
16.00	3.41	2.55	0.13
17.00	3.49	2.63	0.12
18.00	3.56	2.70	0.10
19.00	3.63	2.76	0.09
20.00	3.68	2.81	0.08
21.00	3.73	2.86	0.07
22.00	3.78	2.91	0.07
23.00	3.83	2.95	0.07
24.00	**3.87**	**2.99**	0.06
25.00	3.87	2.99	0.00
26.00	3.87	2.99	0.00
27.00	3.87	2.99	0.00
28.00	3.87	2.99	0.00
29.00	3.87	2.99	0.00
30.00	3.87	2.99	0.00
31.00	3.87	2.99	0.00
32.00	3.87	2.99	0.00
33.00	3.87	2.99	0.00
34.00	3.87	2.99	0.00
35.00	3.87	2.99	0.00
36.00	3.87	2.99	0.00
37.00	3.87	2.99	0.00
38.00	3.87	2.99	0.00
39.00	3.87	2.99	0.00
40.00	3.87	2.99	0.00
41.00	3.87	2.99	0.00
42.00	3.87	2.99	0.00
43.00	3.87	2.99	0.00
44.00	3.87	2.99	0.00
45.00	3.87	2.99	0.00
46.00	3.87	2.99	0.00
47.00	3.87	2.99	0.00
48.00	3.87	2.99	0.00
49.00	3.87	2.99	0.00
50.00	3.87	2.99	0.00
51.00	3.87	2.99	0.00
52.00	3.87	2.99	0.00
53.00	3.87	2.99	0.00
54.00	3.87	2.99	0.00
55.00	3.87	2.99	0.00
56.00	3.87	2.99	0.00
57.00	3.87	2.99	0.00
58.00	3.87	2.99	0.00
59.00	3.87	2.99	0.00
60.00	3.87	2.99	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 2.94" for 25-Year event
Inflow = 11.11 cfs @ 12.06 hrs, Volume= 0.784 af
Outflow = 1.61 cfs @ 12.54 hrs, Volume= 0.740 af, Atten= 85%, Lag= 29.2 min
Primary = 1.61 cfs @ 12.54 hrs, Volume= 0.740 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 571.73' @ 12.54 hrs Surf.Area= 10,145 sf Storage= 15,804 cf

Plug-Flow detention time= 252.2 min calculated for 0.740 af (94% of inflow)
Center-of-Mass det. time= 168.6 min (1,084.7 - 916.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

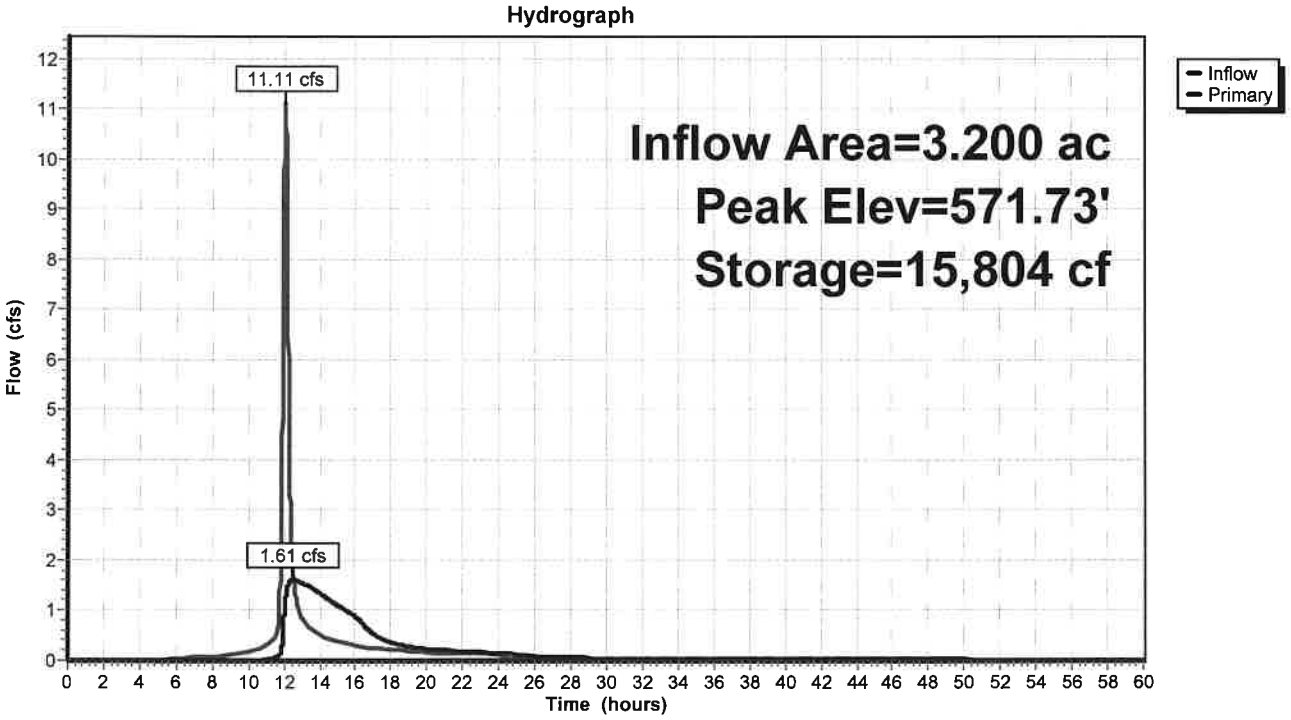
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

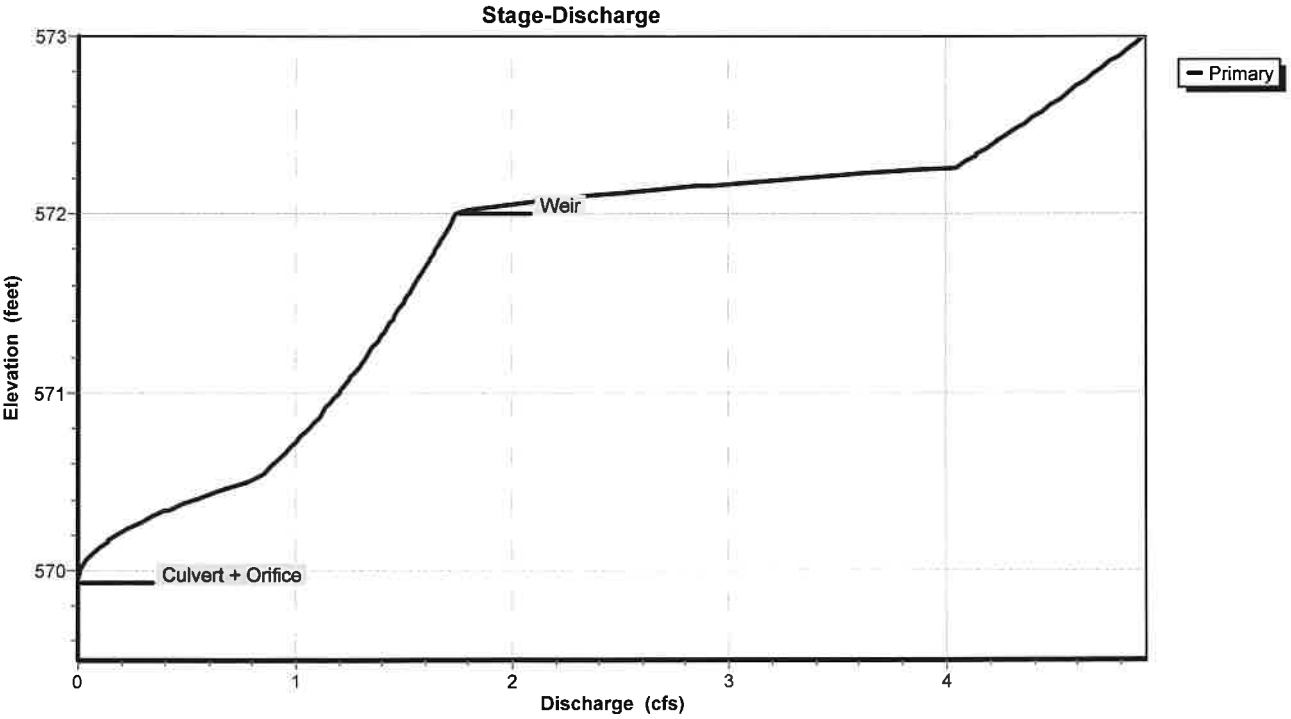
Primary OutFlow Max=1.61 cfs @ 12.54 hrs HW=571.73' (Free Discharge)
└**1=Culvert** (Passes 1.61 cfs of 3.29 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 1.61 cfs @ 6.16 fps)
  └**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

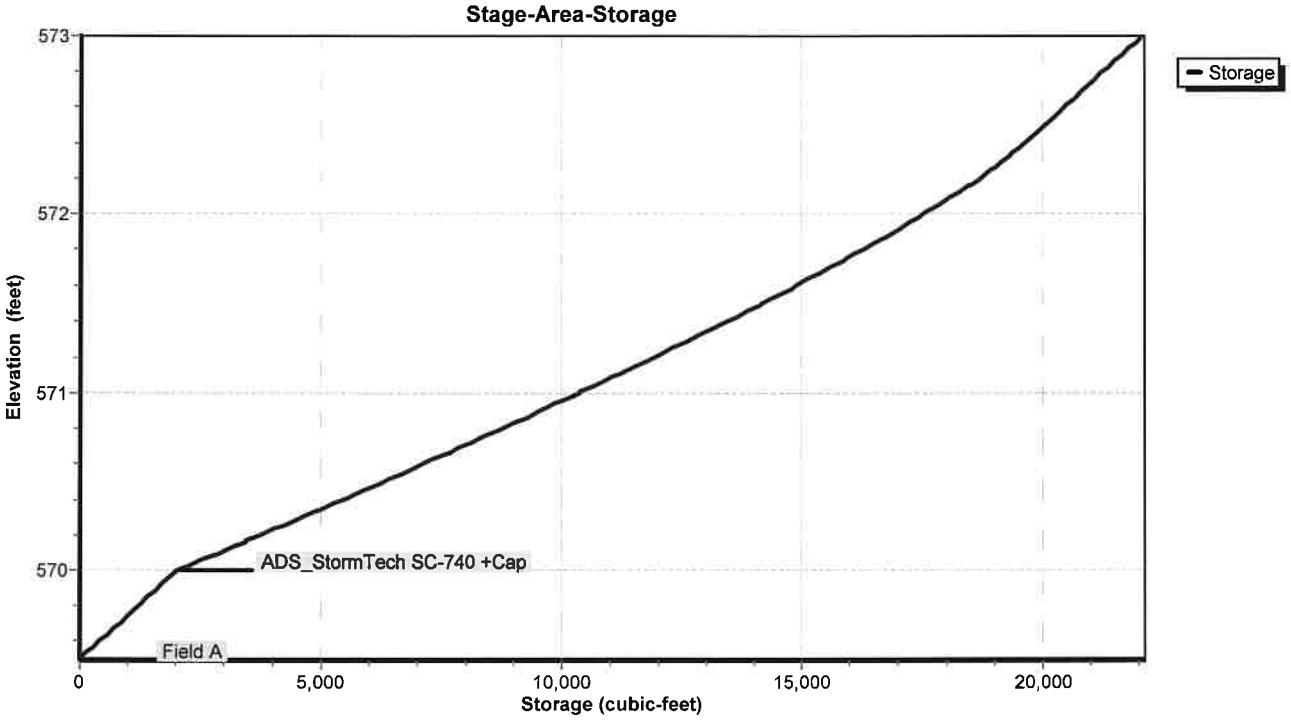


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.03	85	569.52	0.00
8.00	0.08	499	569.62	0.00
10.00	0.16	1,337	569.83	0.00
12.00	**10.28**	**7,562**	**570.65**	**0.94**
14.00	**0.49**	**12,132**	**571.23**	**1.34**
16.00	0.30	6,914	570.58	0.87
18.00	0.22	4,703	570.31	0.36
20.00	0.16	4,045	570.24	0.23
22.00	0.15	3,711	570.20	0.17
24.00	0.13	3,549	570.18	0.15
26.00	0.03	3,038	570.12	0.09
28.00	0.03	2,775	570.09	0.06
30.00	0.03	2,637	570.07	0.05
32.00	0.03	2,558	570.06	0.04
34.00	0.03	2,510	570.06	0.04
36.00	0.03	2,476	570.05	0.04
38.00	0.03	2,451	570.05	0.03
40.00	0.03	2,433	570.05	0.03
42.00	0.03	2,418	570.05	0.03
44.00	0.03	2,405	570.04	0.03
46.00	0.03	2,394	570.04	0.03
48.00	0.01	2,335	570.04	0.03
50.00	0.00	2,210	570.02	0.02
52.00	0.00	2,101	570.01	0.01
54.00	0.00	2,017	570.00	0.01
56.00	0.00	1,961	569.98	0.01
58.00	0.00	1,922	569.97	0.00
60.00	0.00	1,894	569.97	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 2.99" for 25-Year event
Inflow = 6.75 cfs @ 12.00 hrs, Volume= 0.374 af
Outflow = 4.78 cfs @ 12.08 hrs, Volume= 0.374 af, Atten= 29%, Lag= 4.5 min
Primary = 4.78 cfs @ 12.08 hrs, Volume= 0.374 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.82' @ 12.08 hrs Surf.Area= 6,409 sf Storage= 4,638 cf

Plug-Flow detention time= 252.6 min calculated for 0.374 af (100% of inflow)
Center-of-Mass det. time= 252.8 min (1,043.6 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

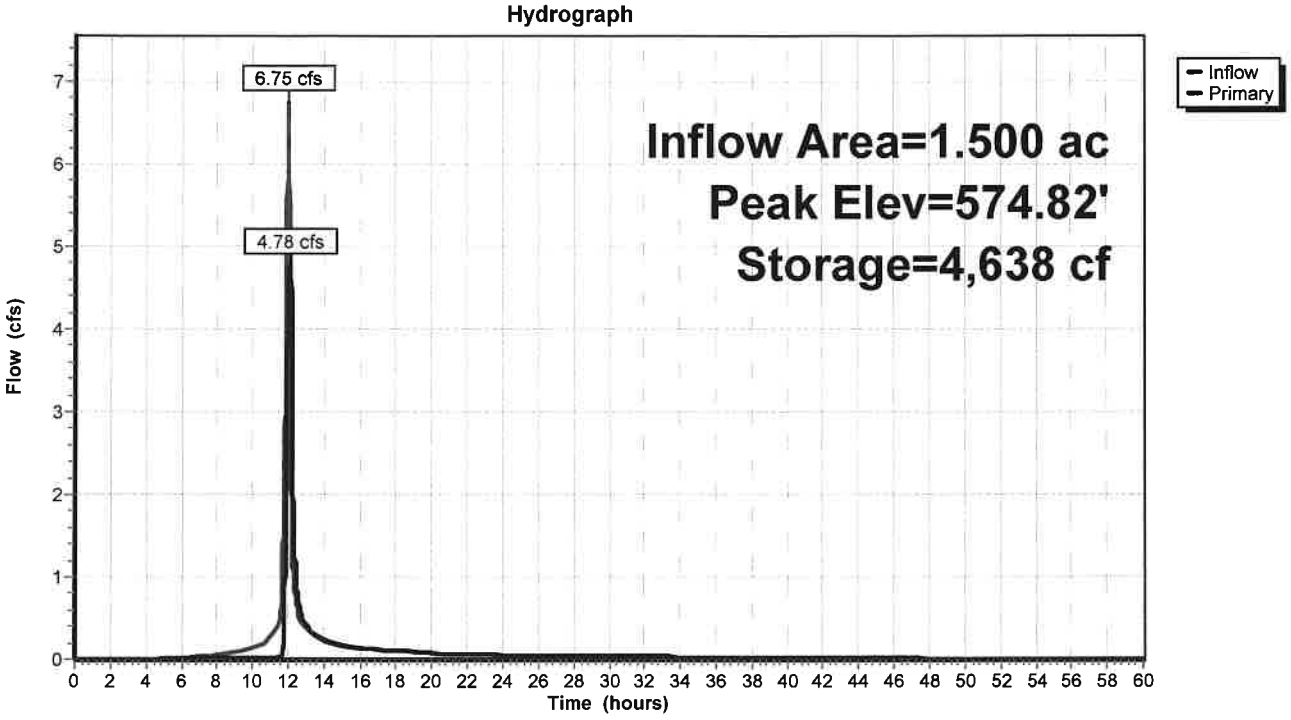
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

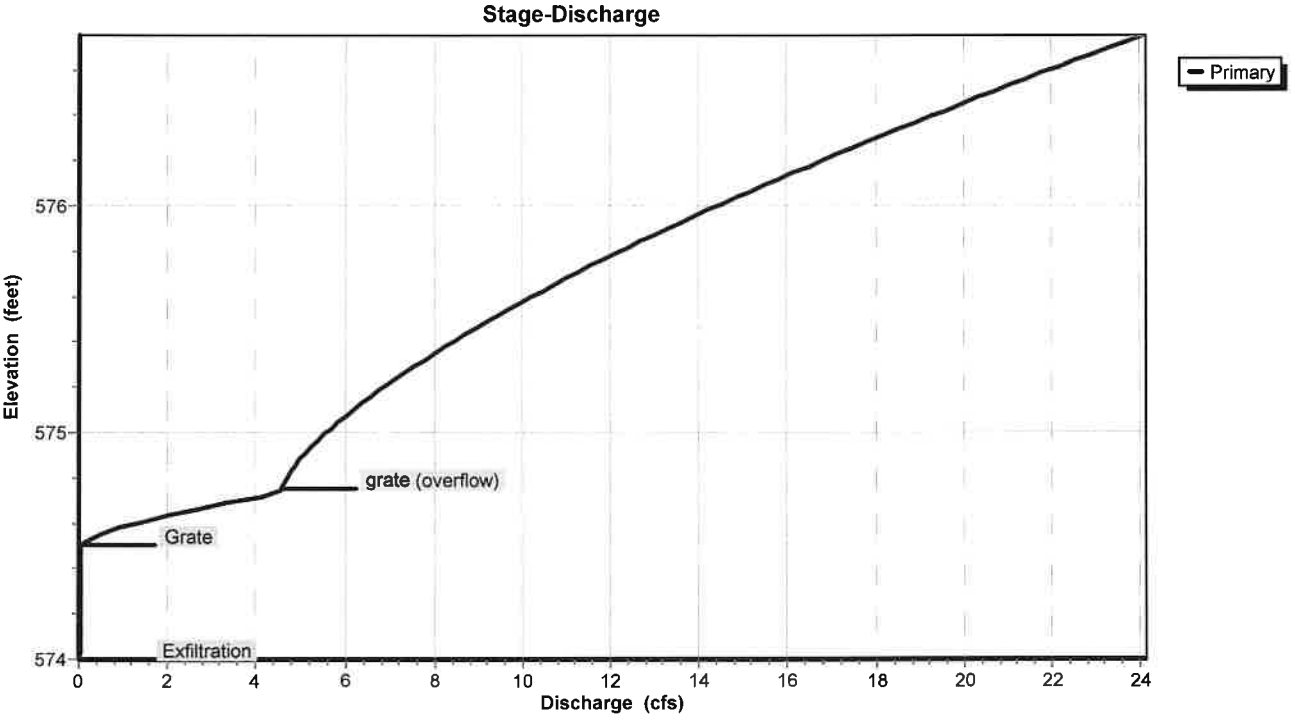
Primary OutFlow Max=4.78 cfs @ 12.08 hrs HW=574.82' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.65 cfs @ 5.92 fps)
  - **2=Grate** (Passes < 5.74 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 0.13 cfs @ 0.87 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

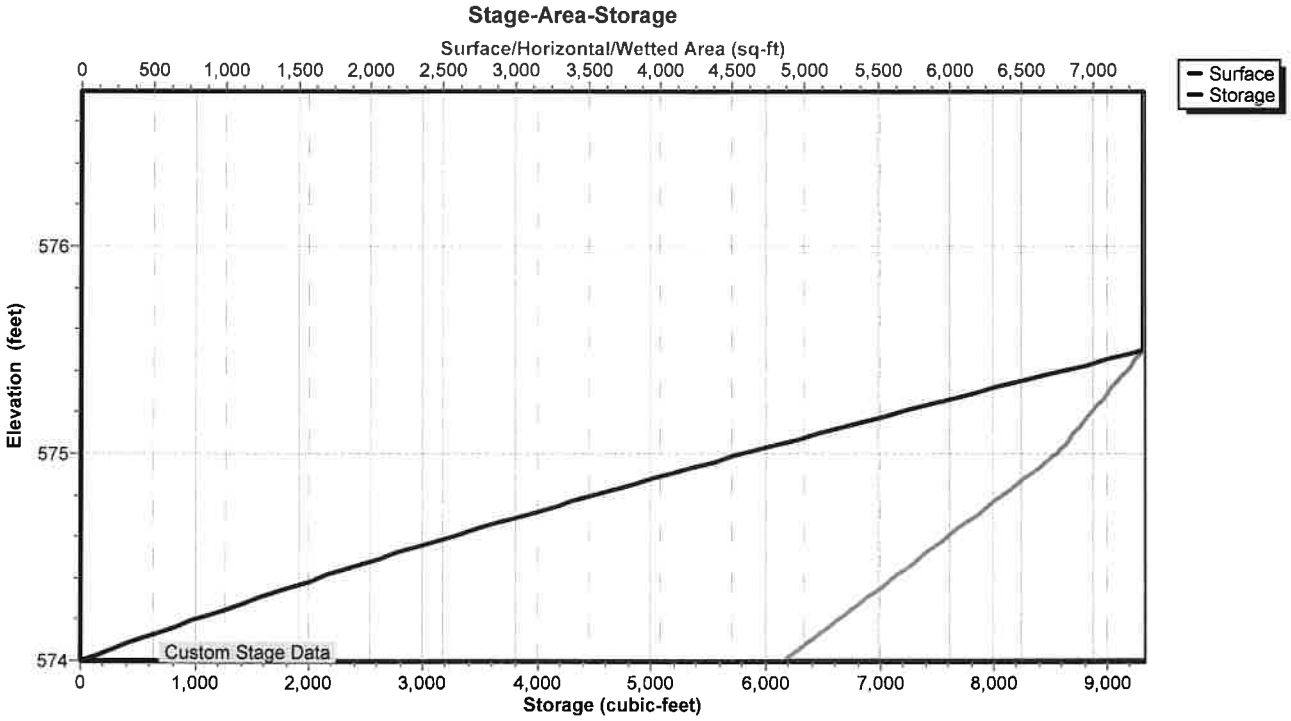


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.02	55	574.01	0.01
8.00	0.05	177	574.04	0.03
10.00	0.13	612	574.12	0.03
12.00	**6.75**	**4,265**	**574.77**	**4.62**
14.00	0.22	**2,825**	**574.53**	**0.24**
16.00	0.13	2,765	574.52	0.14
18.00	0.10	2,730	574.51	0.11
20.00	0.08	2,704	574.51	0.08
22.00	0.07	2,694	574.51	0.07
24.00	0.06	2,689	574.50	0.06
26.00	0.00	2,452	574.46	0.03
28.00	0.00	2,208	574.42	0.03
30.00	0.00	1,968	574.38	0.03
32.00	0.00	1,733	574.34	0.03
34.00	0.00	1,501	574.29	0.03
36.00	0.00	1,273	574.25	0.03
38.00	0.00	1,050	574.21	0.03
40.00	0.00	830	574.17	0.03
42.00	0.00	614	574.12	0.03
44.00	0.00	403	574.08	0.03
46.00	0.00	195	574.04	0.03
48.00	0.00	46	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=3.52"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=7.64 cfs 0.498 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=3.62"
Flow Length=345' Tc=9.1 min CN=92 Runoff=8.07 cfs 0.453 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=572.23' Storage=18,837 cf Inflow=12.80 cfs 0.951 af
Outflow=3.61 cfs 0.907 af

Pond 9P: Bioretention Area 3 Peak Elev=574.93' Storage=5,333 cf Inflow=8.07 cfs 0.453 af
Outflow=5.22 cfs 0.453 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.951 af Average Runoff Depth = 3.57"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

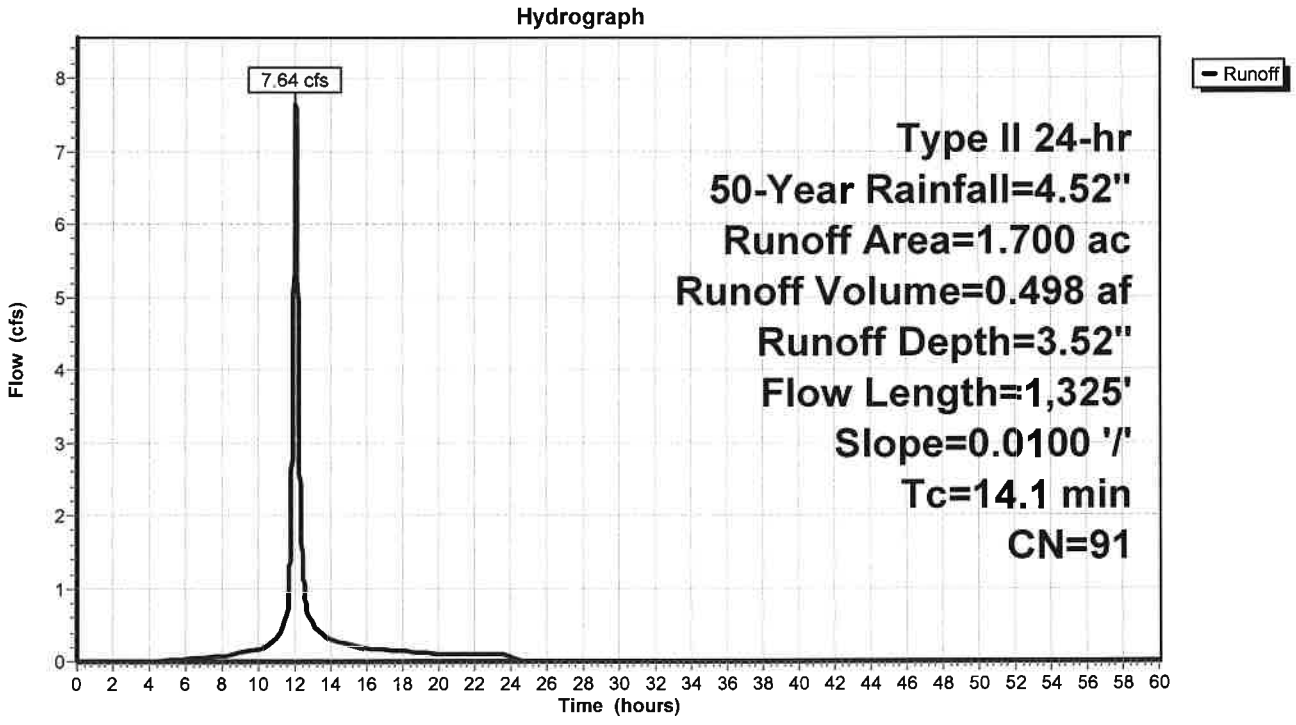
Runoff = 7.64 cfs @ 12.05 hrs, Volume= 0.498 af, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.01	0.02
6.00	0.36	0.02	0.03
7.00	0.45	0.05	0.05
8.00	0.54	0.09	0.07
9.00	0.66	0.15	0.12
10.00	0.82	0.24	0.17
11.00	1.06	0.40	0.34
12.00	3.00	2.07	**6.84**
13.00	3.49	2.53	**0.53**
14.00	3.71	2.74	0.30
15.00	3.86	2.88	0.23
16.00	3.98	3.00	0.18
17.00	4.08	3.09	0.16
18.00	4.16	3.17	0.14
19.00	4.24	3.25	0.12
20.00	4.30	3.31	0.10
21.00	4.36	3.36	0.09
22.00	4.42	3.42	0.09
23.00	4.47	3.47	0.09
24.00	**4.52**	**3.52**	0.08
25.00	4.52	3.52	0.00
26.00	4.52	3.52	0.00
27.00	4.52	3.52	0.00
28.00	4.52	3.52	0.00
29.00	4.52	3.52	0.00
30.00	4.52	3.52	0.00
31.00	4.52	3.52	0.00
32.00	4.52	3.52	0.00
33.00	4.52	3.52	0.00
34.00	4.52	3.52	0.00
35.00	4.52	3.52	0.00
36.00	4.52	3.52	0.00
37.00	4.52	3.52	0.00
38.00	4.52	3.52	0.00
39.00	4.52	3.52	0.00
40.00	4.52	3.52	0.00
41.00	4.52	3.52	0.00
42.00	4.52	3.52	0.00
43.00	4.52	3.52	0.00
44.00	4.52	3.52	0.00
45.00	4.52	3.52	0.00
46.00	4.52	3.52	0.00
47.00	4.52	3.52	0.00
48.00	4.52	3.52	0.00
49.00	4.52	3.52	0.00
50.00	4.52	3.52	0.00
51.00	4.52	3.52	0.00
52.00	4.52	3.52	0.00
53.00	4.52	3.52	0.00
54.00	4.52	3.52	0.00
55.00	4.52	3.52	0.00
56.00	4.52	3.52	0.00
57.00	4.52	3.52	0.00
58.00	4.52	3.52	0.00
59.00	4.52	3.52	0.00
60.00	4.52	3.52	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

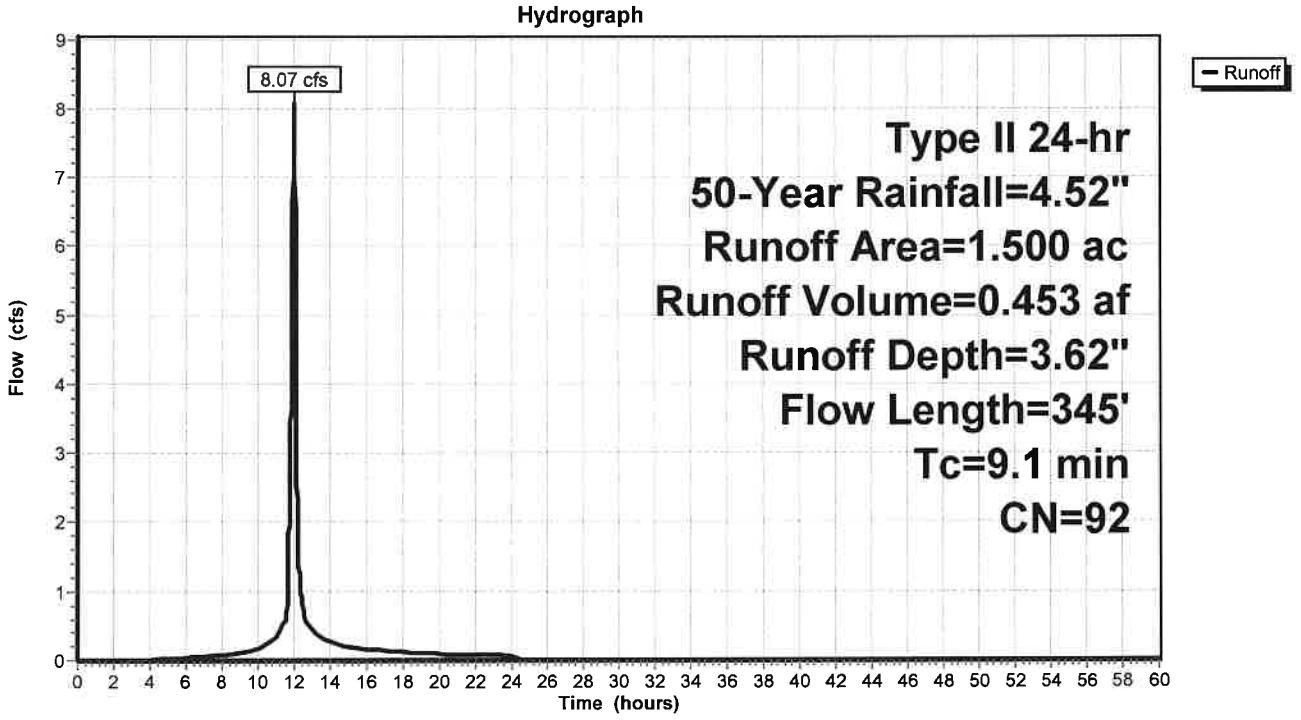
Runoff = 8.07 cfs @ 12.00 hrs, Volume= 0.453 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.01
5.00	0.28	0.01	0.02
6.00	0.36	0.03	0.04
7.00	0.45	0.07	0.06
8.00	0.54	0.11	0.07
9.00	0.66	0.18	0.12
10.00	0.82	0.27	0.17
11.00	1.06	0.45	0.34
12.00	3.00	2.16	**8.07**
13.00	3.49	2.63	0.45
14.00	3.71	2.83	0.26
15.00	3.86	2.98	0.20
16.00	3.98	3.10	0.16
17.00	4.08	3.19	0.14
18.00	4.16	3.28	0.12
19.00	4.24	3.35	0.11
20.00	4.30	3.41	0.09
21.00	4.36	3.47	0.08
22.00	4.42	3.52	0.08
23.00	4.47	3.57	0.08
24.00	**4.52**	**3.62**	0.07
25.00	4.52	3.62	0.00
26.00	4.52	3.62	0.00
27.00	4.52	3.62	0.00
28.00	4.52	3.62	0.00
29.00	4.52	3.62	0.00
30.00	4.52	3.62	0.00
31.00	4.52	3.62	0.00
32.00	4.52	3.62	0.00
33.00	4.52	3.62	0.00
34.00	4.52	3.62	0.00
35.00	4.52	3.62	0.00
36.00	4.52	3.62	0.00
37.00	4.52	3.62	0.00
38.00	4.52	3.62	0.00
39.00	4.52	3.62	0.00
40.00	4.52	3.62	0.00
41.00	4.52	3.62	0.00
42.00	4.52	3.62	0.00
43.00	4.52	3.62	0.00
44.00	4.52	3.62	0.00
45.00	4.52	3.62	0.00
46.00	4.52	3.62	0.00
47.00	4.52	3.62	0.00
48.00	4.52	3.62	0.00
49.00	4.52	3.62	0.00
50.00	4.52	3.62	0.00
51.00	4.52	3.62	0.00
52.00	4.52	3.62	0.00
53.00	4.52	3.62	0.00
54.00	4.52	3.62	0.00
55.00	4.52	3.62	0.00
56.00	4.52	3.62	0.00
57.00	4.52	3.62	0.00
58.00	4.52	3.62	0.00
59.00	4.52	3.62	0.00
60.00	4.52	3.62	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 3.57" for 50-Year event
Inflow = 12.80 cfs @ 12.06 hrs, Volume= 0.951 af
Outflow = 3.61 cfs @ 12.36 hrs, Volume= 0.907 af, Atten= 72%, Lag= 17.7 min
Primary = 3.61 cfs @ 12.36 hrs, Volume= 0.907 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 572.23' @ 12.36 hrs Surf.Area= 10,145 sf Storage= 18,837 cf

Plug-Flow detention time= 228.3 min calculated for 0.907 af (95% of inflow)
Center-of-Mass det. time= 158.8 min (1,051.4 - 892.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

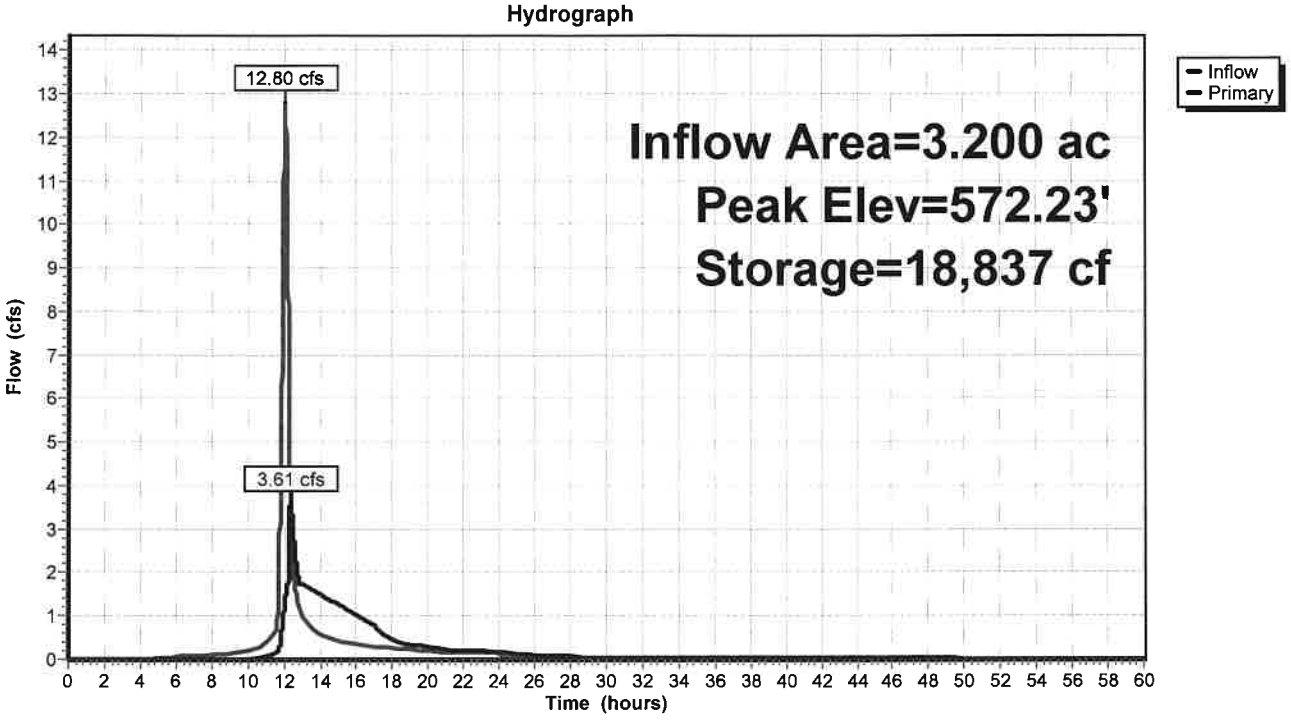
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

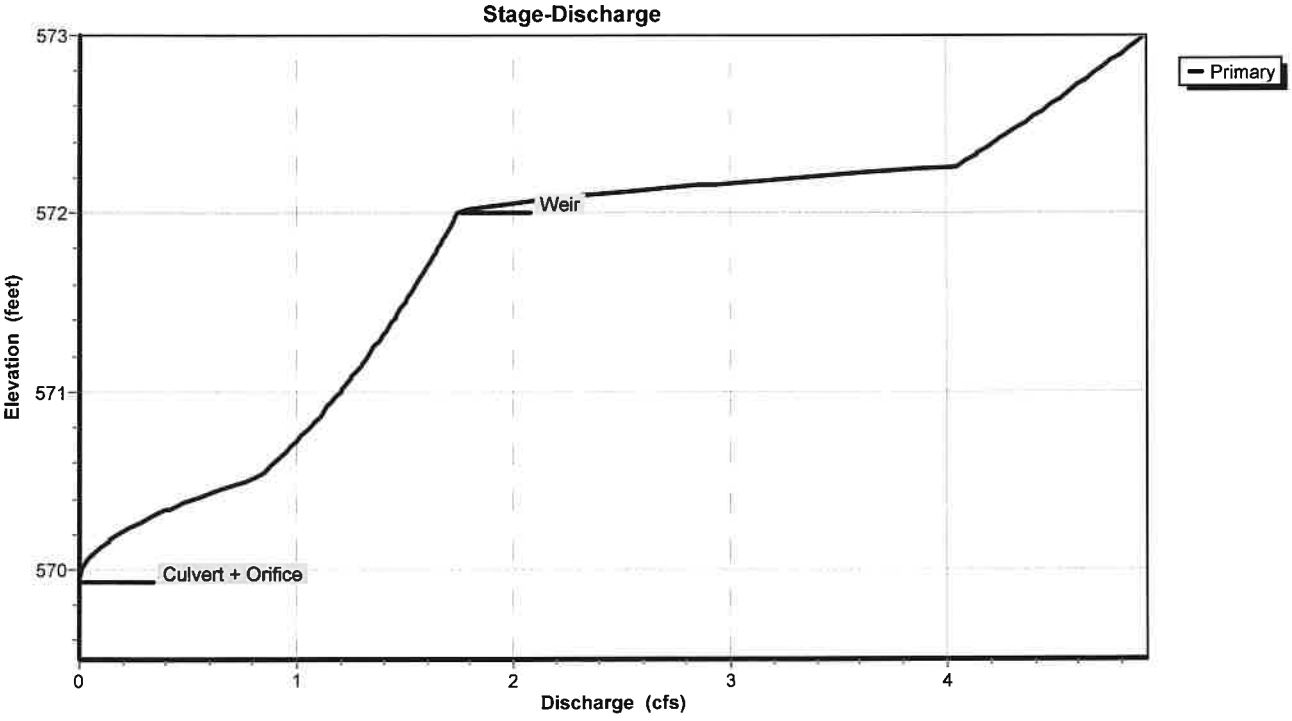
Primary OutFlow Max=3.60 cfs @ 12.36 hrs HW=572.23' (Free Discharge)
└**1=Culvert** (Passes 3.60 cfs of 4.00 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 1.84 cfs @ 7.03 fps)
  └**3=Weir** (Weir Controls 1.76 cfs @ 1.56 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

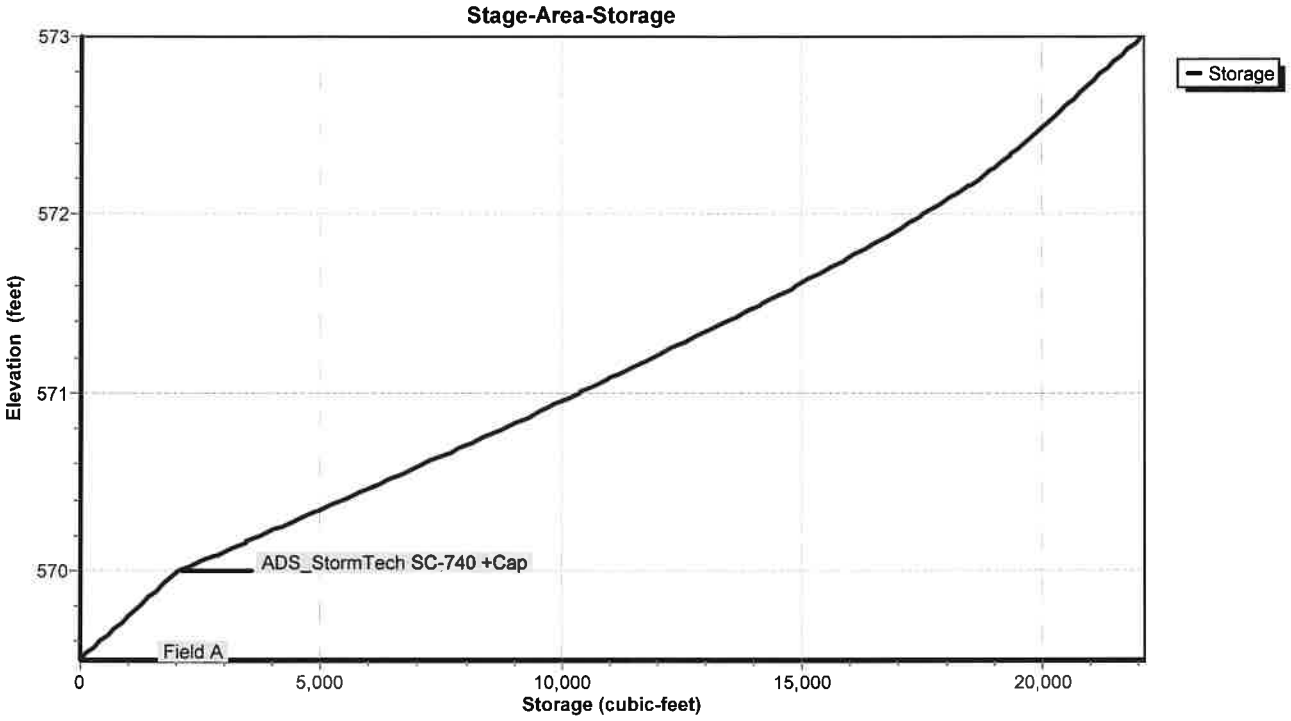


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	1	569.50	0.00
6.00	0.05	184	569.55	0.00
8.00	0.10	755	569.69	0.00
10.00	0.20	1,811	569.95	0.00
12.00	**11.66**	**9,752**	**570.92**	**1.15**
14.00	**0.59**	**14,219**	**571.51**	**1.50**
16.00	0.35	8,385	570.75	1.02
18.00	0.26	5,166	570.37	0.47
20.00	0.19	4,282	570.26	0.27
22.00	0.17	3,893	570.22	0.20
24.00	0.16	3,718	570.20	0.18
26.00	0.03	3,113	570.13	0.09
28.00	0.03	2,810	570.09	0.06
30.00	0.03	2,657	570.07	0.05
32.00	0.03	2,569	570.06	0.04
34.00	0.03	2,516	570.06	0.04
36.00	0.03	2,480	570.05	0.04
38.00	0.03	2,454	570.05	0.03
40.00	0.03	2,435	570.05	0.03
42.00	0.03	2,419	570.05	0.03
44.00	0.03	2,406	570.04	0.03
46.00	0.03	2,395	570.04	0.03
48.00	0.01	2,338	570.04	0.03
50.00	0.00	2,213	570.02	0.02
52.00	0.00	2,103	570.01	0.01
54.00	0.00	2,018	570.00	0.01
56.00	0.00	1,962	569.98	0.01
58.00	0.00	1,923	569.97	0.00
60.00	0.00	1,894	569.97	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 3.62" for 50-Year event
Inflow = 8.07 cfs @ 12.00 hrs, Volume= 0.453 af
Outflow = 5.22 cfs @ 12.09 hrs, Volume= 0.453 af, Atten= 35%, Lag= 5.1 min
Primary = 5.22 cfs @ 12.09 hrs, Volume= 0.453 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.93' @ 12.09 hrs Surf.Area= 6,611 sf Storage= 5,333 cf

Plug-Flow detention time= 214.9 min calculated for 0.453 af (100% of inflow)
Center-of-Mass det. time= 215.2 min (1,000.7 - 785.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

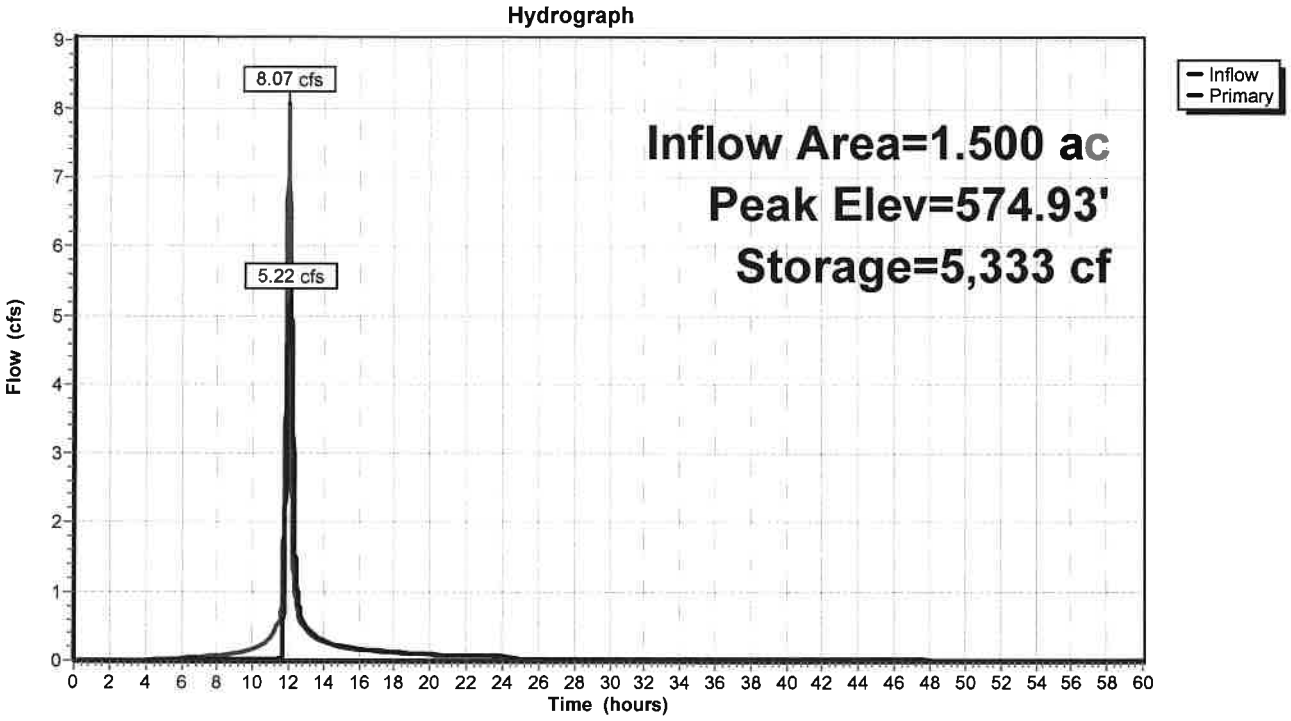
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

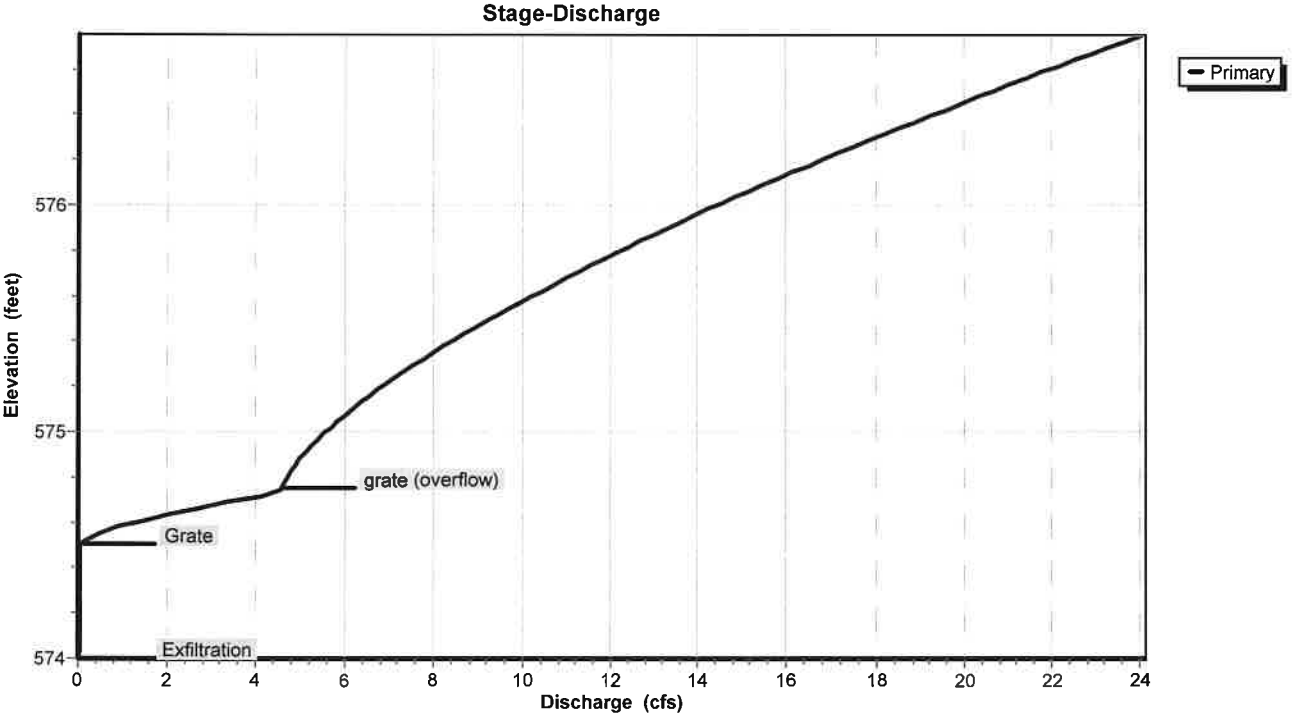
Primary OutFlow Max=5.22 cfs @ 12.09 hrs HW=574.93' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.73 cfs @ 6.02 fps)
  - **2=Grate** (Passes < 6.61 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 0.49 cfs @ 1.36 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

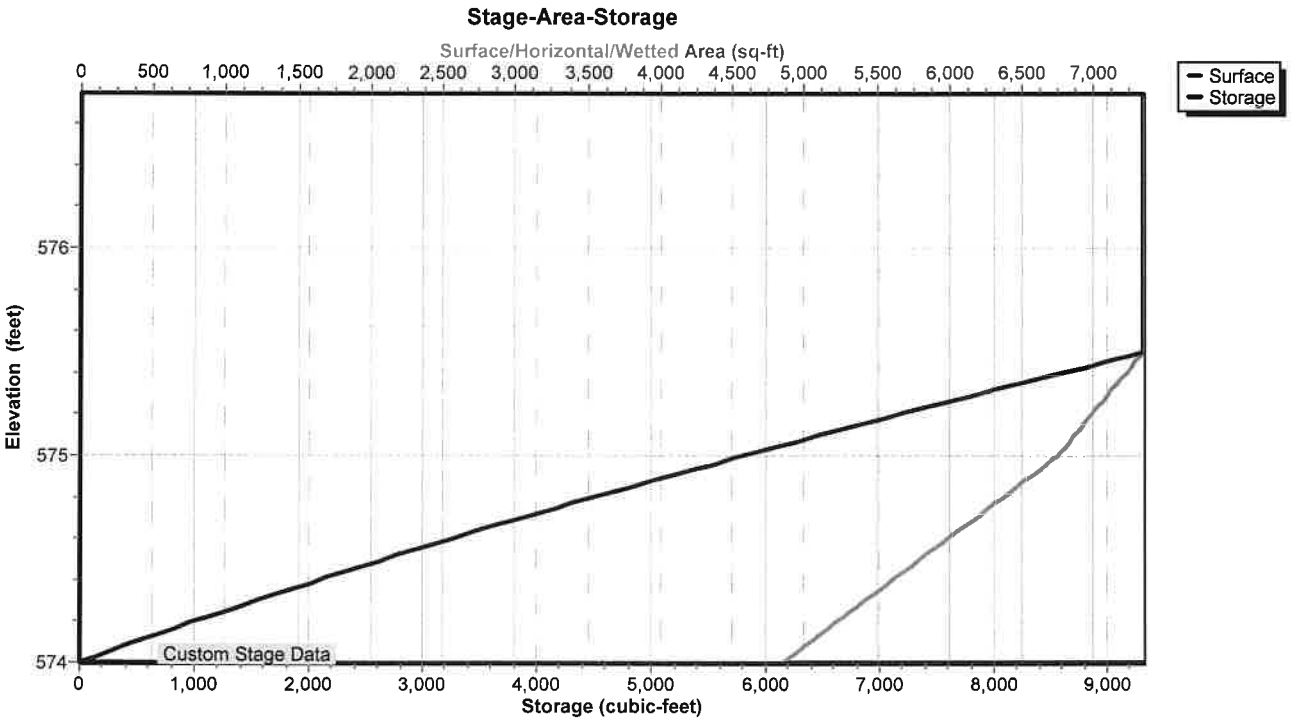


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.01	6	574.00	0.00
6.00	0.04	95	574.02	0.02
8.00	0.07	296	574.06	0.03
10.00	0.17	928	574.18	0.03
12.00	**8.07**	**4,720**	**574.84**	**4.83**
14.00	0.26	**2,846**	**574.53**	**0.28**
16.00	0.16	2,787	574.52	0.17
18.00	0.12	2,748	574.51	0.13
20.00	0.09	2,717	574.51	0.09
22.00	0.08	2,706	574.51	0.08
24.00	0.07	2,699	574.51	0.07
26.00	0.00	2,457	574.46	0.03
28.00	0.00	2,213	574.42	0.03
30.00	0.00	1,974	574.38	0.03
32.00	0.00	1,738	574.34	0.03
34.00	0.00	1,506	574.29	0.03
36.00	0.00	1,278	574.25	0.03
38.00	0.00	1,055	574.21	0.03
40.00	0.00	835	574.17	0.03
42.00	0.00	619	574.12	0.03
44.00	0.00	407	574.08	0.03
46.00	0.00	199	574.04	0.03
48.00	0.00	47	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=4.25"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=9.15 cfs 0.603 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=4.36"
Flow Length=345' Tc=9.1 min CN=92 Runoff=9.61 cfs 0.545 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=572.92' Storage=21,772 cf Inflow=14.92 cfs 1.148 af
Outflow=4.83 cfs 1.105 af

Pond 9P: Bioretention Area 3 Peak Elev=575.05' Storage=6,150 cf Inflow=9.61 cfs 0.545 af
Outflow=5.89 cfs 0.545 af

Total Runoff Area = 3.200 ac Runoff Volume = 1.148 af Average Runoff Depth = 4.31"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

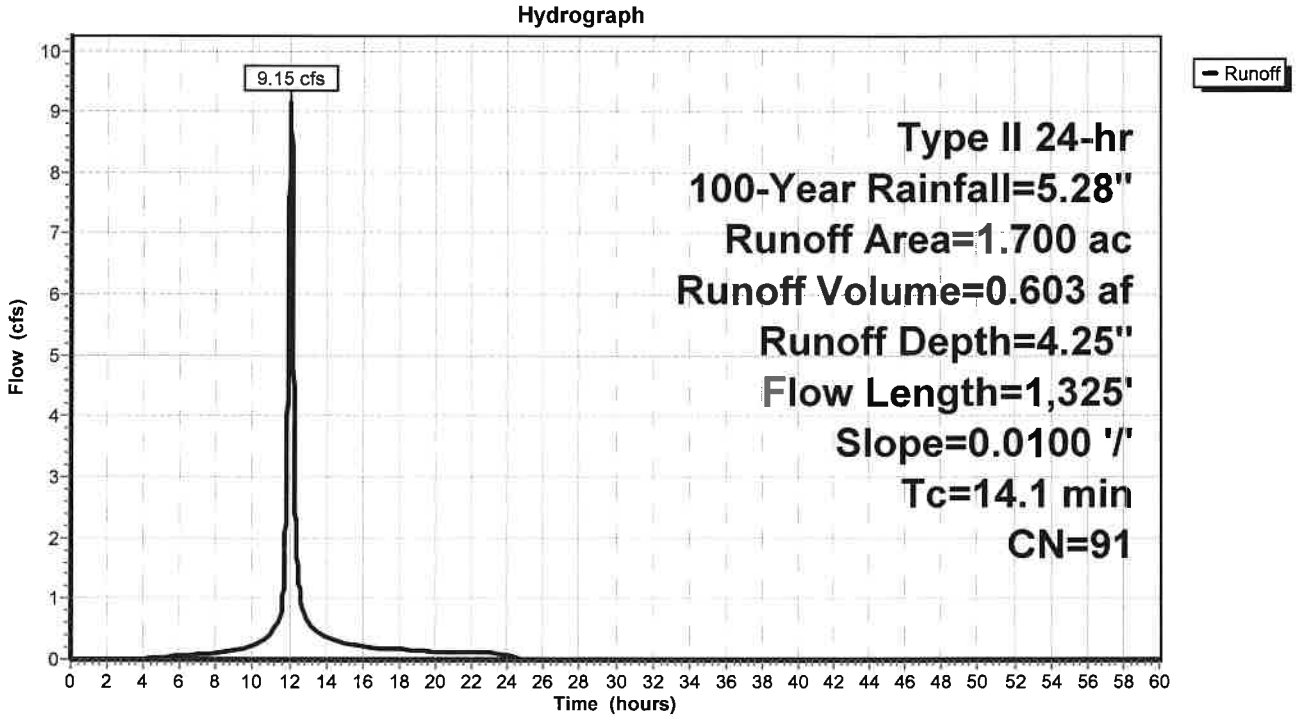
Runoff = 9.15 cfs @ 12.05 hrs, Volume= 0.603 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.28	4.25	0.00
1.00	0.06	0.00	0.00	53.00	5.28	4.25	0.00
2.00	0.12	0.00	0.00	54.00	5.28	4.25	0.00
3.00	0.18	0.00	0.00	55.00	5.28	4.25	0.00
4.00	0.25	0.00	0.01	56.00	5.28	4.25	0.00
5.00	0.33	0.02	0.03	57.00	5.28	4.25	0.00
6.00	0.42	0.04	0.05	58.00	5.28	4.25	0.00
7.00	0.52	0.08	0.07	59.00	5.28	4.25	0.00
8.00	0.63	0.13	0.10	60.00	5.28	4.25	0.00
9.00	0.78	0.21	0.16				
10.00	0.96	0.33	0.22				
11.00	1.24	0.54	0.43				
12.00	3.50	2.54	**8.21**				
13.00	4.08	3.09	**0.63**				
14.00	4.33	3.33	0.36				
15.00	4.51	3.50	0.28				
16.00	4.65	3.64	0.21				
17.00	4.76	3.75	0.18				
18.00	4.86	3.85	0.16				
19.00	4.95	3.93	0.14				
20.00	5.03	4.01	0.12				
21.00	5.09	4.07	0.11				
22.00	5.16	4.14	0.11				
23.00	5.22	4.20	0.10				
24.00	**5.28**	**4.25**	0.10				
25.00	5.28	4.25	0.00				
26.00	5.28	4.25	0.00				
27.00	5.28	4.25	0.00				
28.00	5.28	4.25	0.00				
29.00	5.28	4.25	0.00				
30.00	5.28	4.25	0.00				
31.00	5.28	4.25	0.00				
32.00	5.28	4.25	0.00				
33.00	5.28	4.25	0.00				
34.00	5.28	4.25	0.00				
35.00	5.28	4.25	0.00				
36.00	5.28	4.25	0.00				
37.00	5.28	4.25	0.00				
38.00	5.28	4.25	0.00				
39.00	5.28	4.25	0.00				
40.00	5.28	4.25	0.00				
41.00	5.28	4.25	0.00				
42.00	5.28	4.25	0.00				
43.00	5.28	4.25	0.00				
44.00	5.28	4.25	0.00				
45.00	5.28	4.25	0.00				
46.00	5.28	4.25	0.00				
47.00	5.28	4.25	0.00				
48.00	5.28	4.25	0.00				
49.00	5.28	4.25	0.00				
50.00	5.28	4.25	0.00				
51.00	5.28	4.25	0.00				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

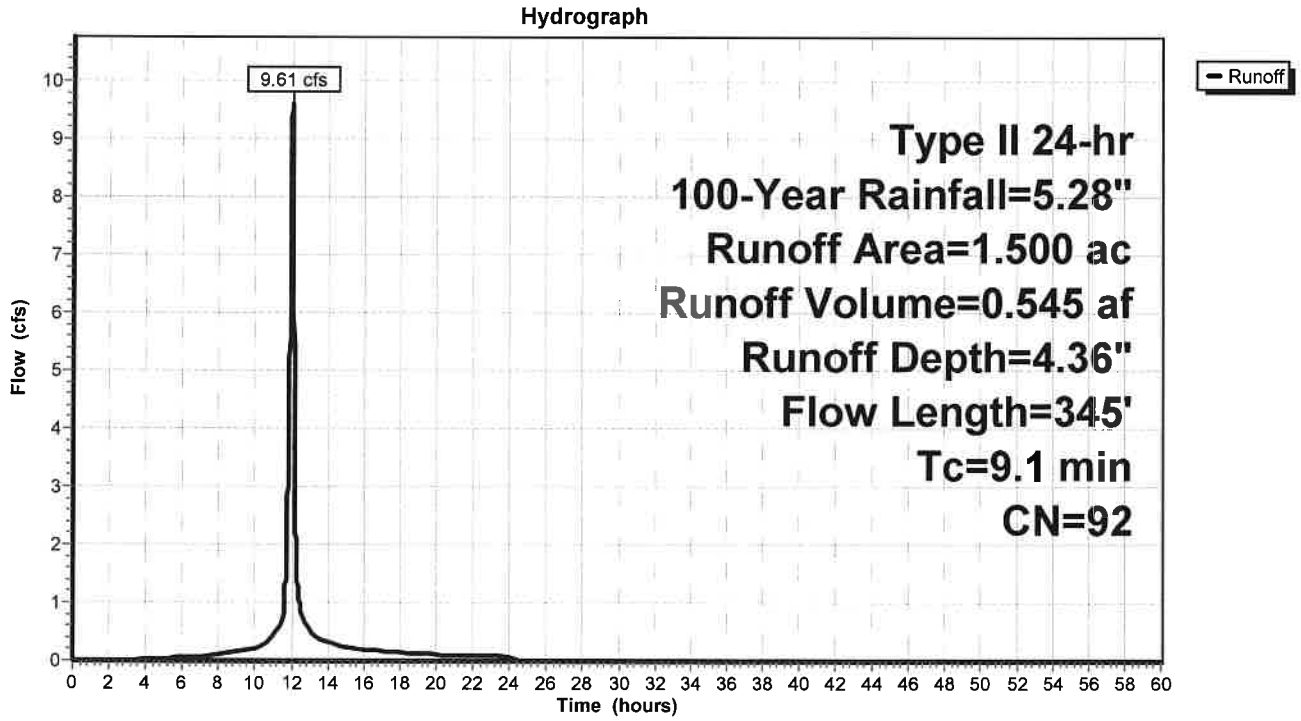
Runoff = 9.61 cfs @ 12.00 hrs, Volume= 0.545 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.01	0.02
5.00	0.33	0.02	0.03
6.00	0.42	0.06	0.05
7.00	0.52	0.10	0.08
8.00	0.63	0.16	0.10
9.00	0.78	0.25	0.16
10.00	0.96	0.37	0.22
11.00	1.24	0.59	0.42
12.00	3.50	2.64	**9.61**
13.00	4.08	3.19	0.53
14.00	4.33	3.44	0.31
15.00	4.51	3.61	0.24
16.00	4.65	3.74	0.19
17.00	4.76	3.86	0.16
18.00	4.86	3.96	0.14
19.00	4.95	4.04	0.12
20.00	5.03	4.12	0.10
21.00	5.09	4.18	0.10
22.00	5.16	4.24	0.09
23.00	5.22	4.30	0.09
24.00	**5.28**	**4.36**	0.09
25.00	5.28	4.36	0.00
26.00	5.28	4.36	0.00
27.00	5.28	4.36	0.00
28.00	5.28	4.36	0.00
29.00	5.28	4.36	0.00
30.00	5.28	4.36	0.00
31.00	5.28	4.36	0.00
32.00	5.28	4.36	0.00
33.00	5.28	4.36	0.00
34.00	5.28	4.36	0.00
35.00	5.28	4.36	0.00
36.00	5.28	4.36	0.00
37.00	5.28	4.36	0.00
38.00	5.28	4.36	0.00
39.00	5.28	4.36	0.00
40.00	5.28	4.36	0.00
41.00	5.28	4.36	0.00
42.00	5.28	4.36	0.00
43.00	5.28	4.36	0.00
44.00	5.28	4.36	0.00
45.00	5.28	4.36	0.00
46.00	5.28	4.36	0.00
47.00	5.28	4.36	0.00
48.00	5.28	4.36	0.00
49.00	5.28	4.36	0.00
50.00	5.28	4.36	0.00
51.00	5.28	4.36	0.00
52.00	5.28	4.36	0.00
53.00	5.28	4.36	0.00
54.00	5.28	4.36	0.00
55.00	5.28	4.36	0.00
56.00	5.28	4.36	0.00
57.00	5.28	4.36	0.00
58.00	5.28	4.36	0.00
59.00	5.28	4.36	0.00
60.00	5.28	4.36	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 4.31" for 100-Year event
Inflow = 14.92 cfs @ 12.06 hrs, Volume= 1.148 af
Outflow = 4.83 cfs @ 12.36 hrs, Volume= 1.105 af, Atten= 68%, Lag= 18.1 min
Primary = 4.83 cfs @ 12.36 hrs, Volume= 1.105 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 572.92' @ 12.36 hrs Surf.Area= 10,145 sf Storage= 21,772 cf

Plug-Flow detention time= 201.7 min calculated for 1.105 af (96% of inflow)
Center-of-Mass det. time= 143.6 min (1,016.5 - 873.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

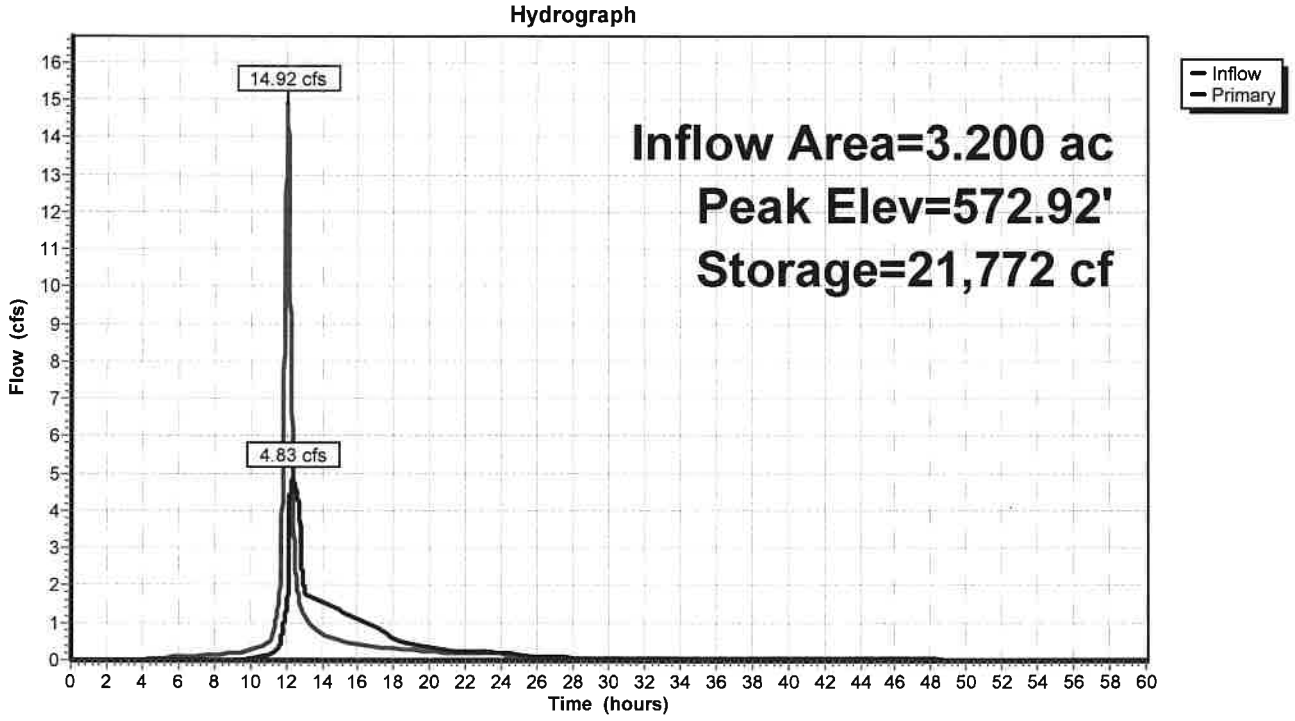
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

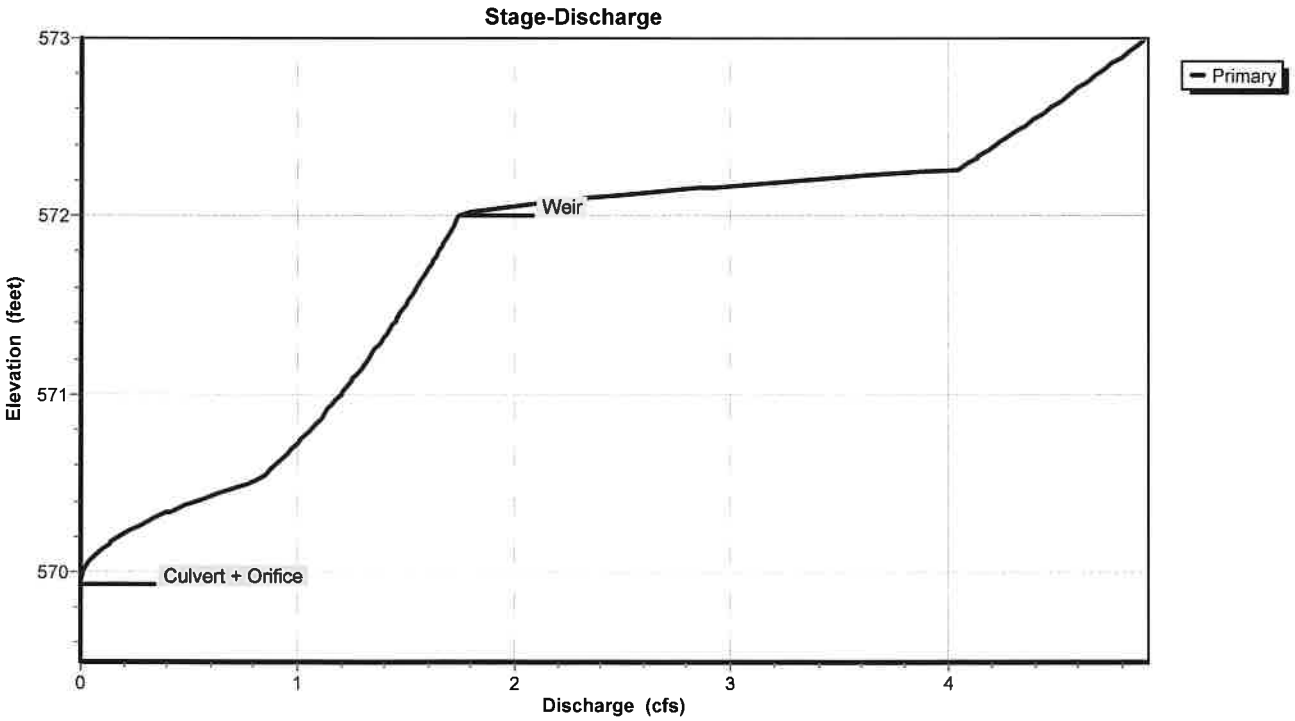
Primary OutFlow Max=4.83 cfs @ 12.36 hrs HW=572.92' (Free Discharge)
↑**1=Culvert** (Barrel Controls 4.83 cfs @ 6.16 fps)
↑**2=Orifice** (Passes < 2.12 cfs potential flow)
3=Weir (Passes < 13.95 cfs potential flow)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

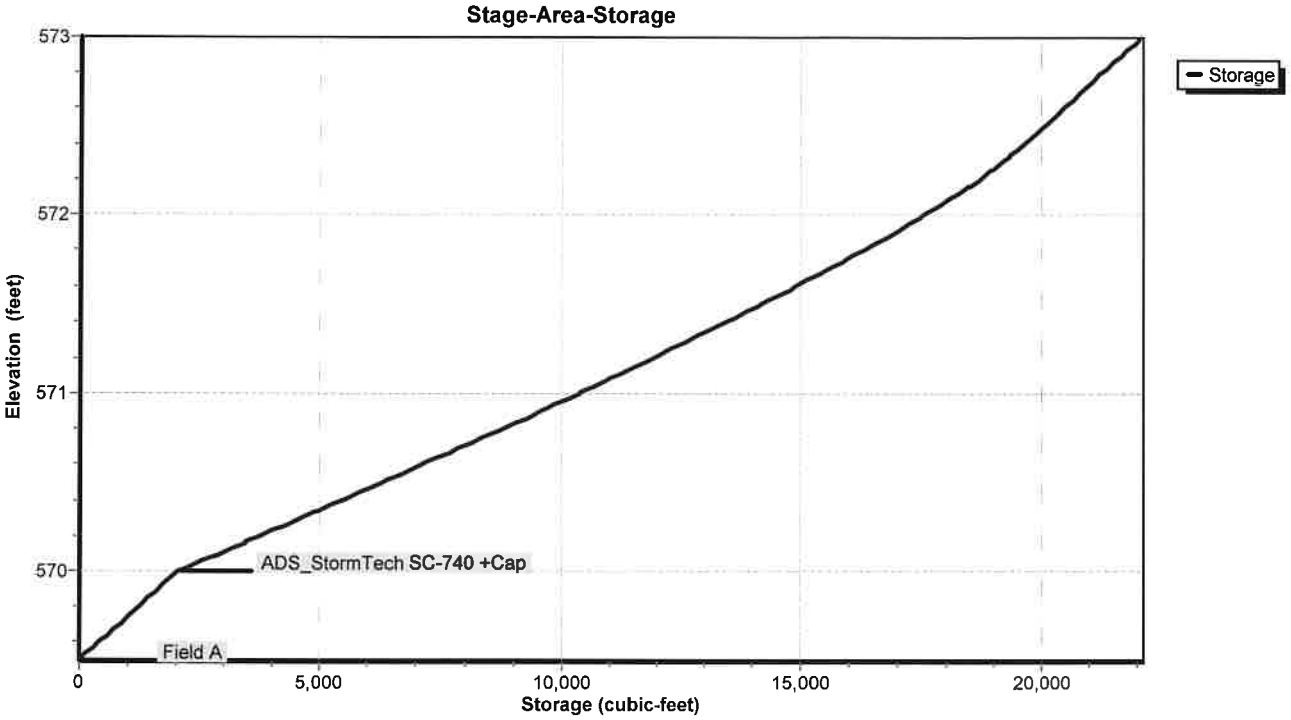


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.01	16	569.50	0.00
6.00	0.08	340	569.58	0.00
8.00	0.13	1,076	569.77	0.00
10.00	0.25	2,364	570.04	0.03
12.00	**13.40**	**12,150**	**571.23**	**1.34**
14.00	**0.69**	**15,059**	**571.63**	**1.56**
16.00	0.41	9,280	570.86	1.10
18.00	0.31	5,592	570.42	0.57
20.00	0.23	4,514	570.29	0.32
22.00	0.20	4,084	570.24	0.24
24.00	0.19	3,896	570.22	0.21
26.00	0.03	3,188	570.13	0.10
28.00	0.03	2,846	570.09	0.07
30.00	0.03	2,675	570.08	0.05
32.00	0.03	2,579	570.06	0.04
34.00	0.03	2,522	570.06	0.04
36.00	0.03	2,484	570.05	0.04
38.00	0.03	2,457	570.05	0.03
40.00	0.03	2,436	570.05	0.03
42.00	0.03	2,420	570.05	0.03
44.00	0.03	2,407	570.04	0.03
46.00	0.03	2,395	570.04	0.03
48.00	0.01	2,341	570.04	0.03
50.00	0.00	2,216	570.02	0.02
52.00	0.00	2,105	570.01	0.01
54.00	0.00	2,020	570.00	0.01
56.00	0.00	1,963	569.98	0.01
58.00	0.00	1,923	569.97	0.00
60.00	0.00	1,895	569.97	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 4.36" for 100-Year event
Inflow = 9.61 cfs @ 12.00 hrs, Volume= 0.545 af
Outflow = 5.89 cfs @ 12.09 hrs, Volume= 0.545 af, Atten= 39%, Lag= 5.5 min
Primary = 5.89 cfs @ 12.09 hrs, Volume= 0.545 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.05' @ 12.09 hrs Surf.Area= 6,805 sf Storage= 6,150 cf

Plug-Flow detention time= 184.7 min calculated for 0.545 af (100% of inflow)
Center-of-Mass det. time= 185.0 min (965.5 - 780.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

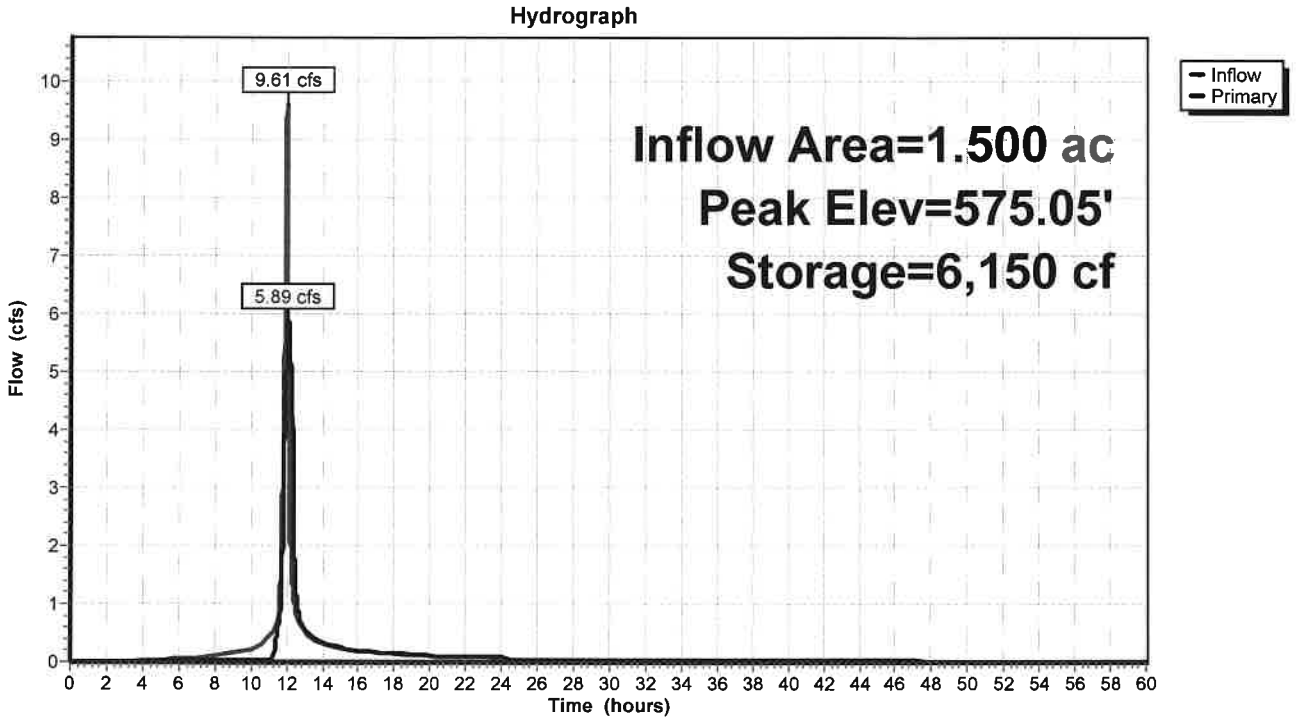
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

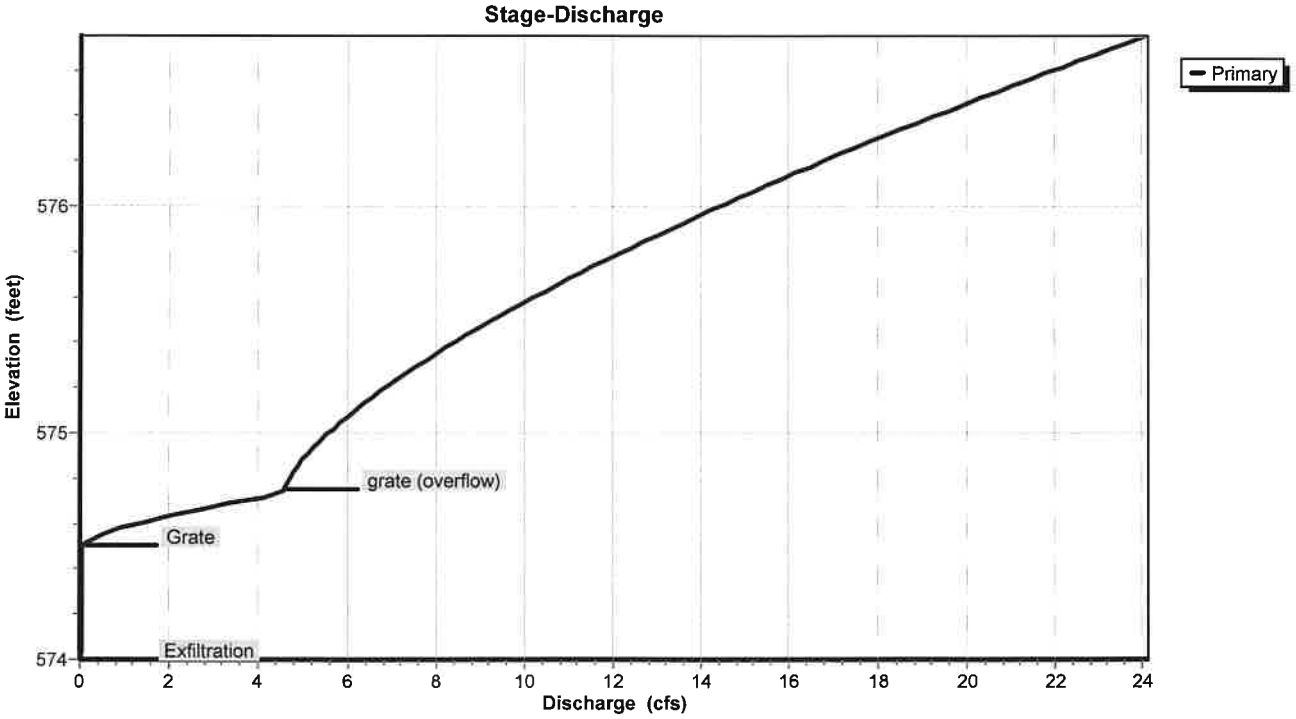
Primary OutFlow Max=5.88 cfs @ 12.09 hrs HW=575.05' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.82 cfs @ 6.14 fps)
  - **2=Grate** (Passes < 7.49 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 1.06 cfs @ 1.76 fps)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

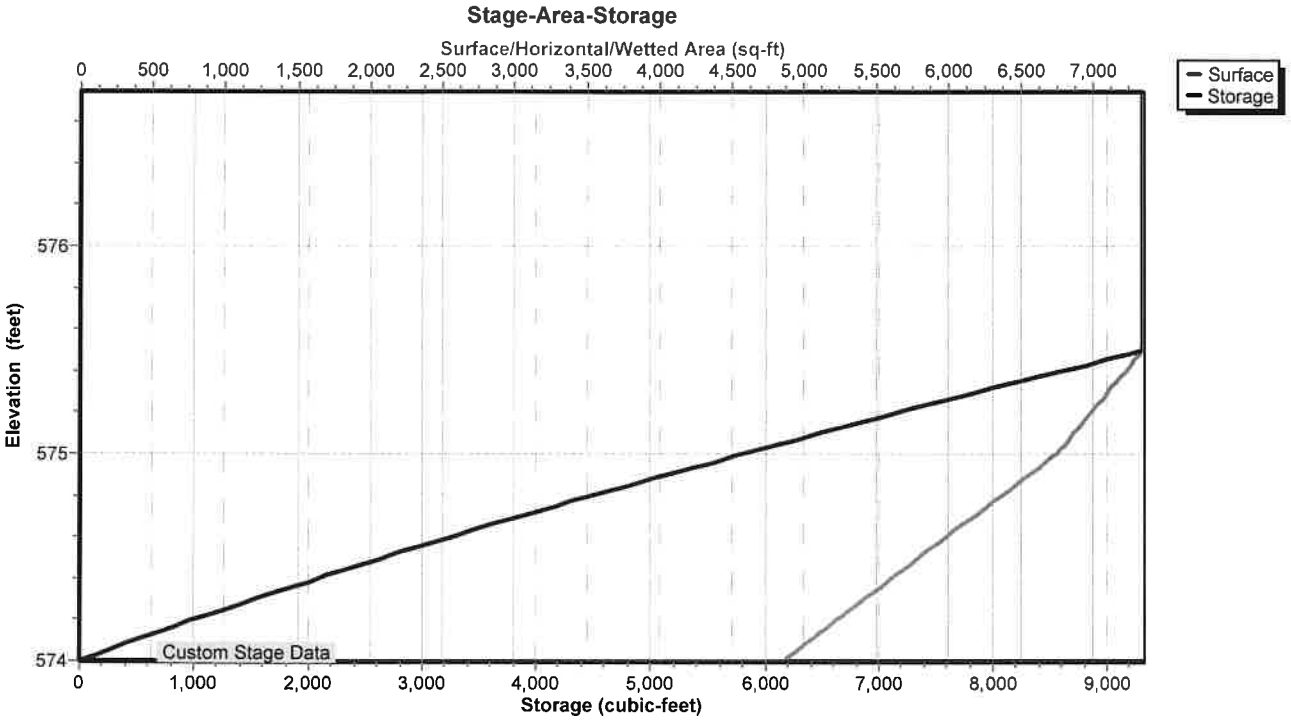


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.02	22	574.00	0.00
6.00	0.05	149	574.03	0.03
8.00	0.10	484	574.10	0.03
10.00	0.22	1,353	574.27	0.03
12.00	**9.61**	**5,288**	**574.92**	**5.19**
14.00	0.31	**2,872**	**574.54**	**0.33**
16.00	0.19	2,803	574.52	0.19
18.00	0.14	2,769	574.52	0.15
20.00	0.10	2,732	574.51	0.11
22.00	0.09	2,719	574.51	0.10
24.00	0.09	2,712	574.51	0.09
26.00	0.00	2,463	574.47	0.03
28.00	0.00	2,219	574.42	0.03
30.00	0.00	1,979	574.38	0.03
32.00	0.00	1,743	574.34	0.03
34.00	0.00	1,511	574.29	0.03
36.00	0.00	1,283	574.25	0.03
38.00	0.00	1,059	574.21	0.03
40.00	0.00	839	574.17	0.03
42.00	0.00	624	574.13	0.03
44.00	0.00	412	574.08	0.03
46.00	0.00	204	574.04	0.03
48.00	0.00	49	574.01	0.01
50.00	0.00	11	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	1	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Green Infrastructure & Water Quality Calculations

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Version 1.7
Last Updated: 2/22/21

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	

Design Point:	1	
P=	1.00	*inch*

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	6.10	3.30	54%	0.54	11,888	
2	1.00	0.00	0%	0.05	182	
3	4.40	2.70	61%	0.60	9,620	
4	1.70	1.00	59%	0.58	3,576	
5	1.50	1.00	67%	0.65	3,539	
6						
7						
8						
9						
10						
Subtotal (1-30)	14.70	8.00	54%	0.54	**28,804**	**Subtotal 1**
Total	14.70	8.00	54%	0.54	**28,804**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	1.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**1.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	14.70	8.00	54%	0.54	28,804
Subtract Area	-1.00	0.00			
WQv adjusted after Area Reductions	**13.70**	**8.00**	58%	0.58	28,623
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	13.70	8.00	58%	0.58	**28,623**
WQv reduced by Area Reduction techniques					182

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

All Subcatchments						
Catchment	**Total Area** *(Acres)*	**Impervious Cover** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient** *Rv*	**WQv** *(ft^3)*	**Description**
1	6.10	3.30	0.54	0.54	11888.25	
2	1.00	0.00	0.00	0.05	182	
3	4.40	2.70	0.61	0.60	9619.50	
4	1.70	1.00	0.59	0.58	3575.55	
5	1.50	1.00	0.67	0.65	3539.25	
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	6.10	3.30	0.54	0.54	11888.25	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	54%	0.54	11,888	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	D		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		11,888	*ft^3*	
Enter Depth of Soil Media	*df*	1.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**8916**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	100	*ft*	
Filter Length	110	*ft*	
Filter Area	11000	*ft^2*	
Actual Volume Provided	14667	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	5,867			
RRv applied	**5,867**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	6,022	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Bioretention Worksheet

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor & Schueler, 1996)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
5	1.50	1.00	0.67	0.65	3539.25	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	67%	0.65	3,539	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	D		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		3,539	*ft^3*	
Enter Depth of Soil Media	*df*	1.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**2654**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	49	*ft*	
Filter Length	100	*ft*	
Filter Area	4900	*ft^2*	
Actual Volume Provided	6533	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?		No	Select Practice	
RRv	2,613			
RRv applied	**2,613**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	926	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

(For use on HSG C or D Soils with underdrains)

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Conservation of Natural Areas

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft^3)	Precipitation (in)	Description
2	1.00	0.00	0.00	0.05	181.50	1.00	

Design Elements	
Is Contiguous Area ≥ 10,000 ft2?	*Yes*
Will limits of disturbance be clearly shown on all construction drawings and marked in field/project development site with structural barriers?	*Yes*
Is the Conservation area located in an acceptable conservation easement instrument that ensures perpetual protection of proposed area?	*Yes*
Does the easement specify how the natural area vegetation will be managed and boundaries will be marked?	*Yes*
Does the conservation area receive runoff from other contributing areas?	*No*
Does Conservation Area drain to a Design Point?	*No*
Is Sheet Flow to Riparian Buffer or another area based practice already being Used for this area?	*No*

Are All Criteria in Section 5.3.1 Met?	*Yes*

Area Reduction Adjustments		
Subtract	*1.00*	*Acres from Total Area*
Subtract	*0.00*	*Acres from Total Impervious Area*

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C		30%
D	**17.40**	20%
Total Area	17.4	
Calculate the Minimum RRv		
S =	**0.20**	
Impervious =	8.00	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**5,518**	***ft3***
	0.13	af

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	28804	*0.661*
30	Total RRV Provided	8662	*0.199*
31	Is RRv Provided ≥WQv Required?	No	
32	Minimum RRv	5518	*0.127*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	159626	*3.664*
34	Sum of Volume Reduced & Treated	168287	*3.863*
34	Sum of Volume Reduced and Treated	168287	*3.863*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		Total Contributing Area	Total Contributing Impervious Area	WQv Reduced (RRv)	WQv Treated
			(acres)	(acres)	cf	cf
Area/Volume Reduction	Conservation of Natural Areas	RR-1	1.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00			
	Bioretention & Infiltration Bioretention	F-5	7.60	4.30	8480	6948
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5	9.8	3.40		152678.000
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			1.00	0.00	182	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			7.60	4.30	8480	6948
Totals by Standard SMP →			9.80	3.40		152678
Totals (Area + Volume + all SMPs) →			18.40	7.70	8,662	159,626
	Impervious Cover √	error				

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 6P: WQv

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
563.00	710	0
563.15	776	111
563.30	843	233
563.45	909	364
563.60	975	506
563.75	1,042	657
563.90	1,108	818
564.05	1,181	989
564.20	1,267	1,173
564.35	1,353	1,369
564.50	1,439	1,579
564.65	1,524	1,801
564.80	1,610	2,036
564.95	1,696	2,284
565.10	1,796	2,546
565.25	1,901	2,823
565.40	2,007	3,116
565.55	2,113	3,425
565.70	2,219	3,750
565.85	2,324	4,090
566.00	2,430	4,447
566.15	2,561	4,821
566.30	2,692	5,215
566.45	2,822	5,629
566.60	2,953	6,062
566.75	3,084	6,515
566.90	3,215	6,987
567.05	3,356	7,479
567.20	3,519	7,995
567.35	3,681	8,535
567.50	3,844	9,100
567.65	4,007	9,688
567.80	4,169	10,301
567.95	4,332	10,939
568.10	4,731	11,613
568.25	5,249	12,361
568.40	5,767	13,188
568.55	6,285	14,091
568.70	6,802	15,073
568.85	7,320	16,132
569.00	7,838	17,269
569.15	8,402	18,487
569.30	8,965	19,790
569.45	9,529	21,177
569.60	10,093	22,648
569.75	10,657	24,204
569.90	11,220	25,845
570.05	11,796	27,571
570.20	12,398	29,385
570.35	13,000	31,290
570.50	13,601	33,285
570.65	14,202	35,371
570.80	14,804	37,546
570.95	15,406	39,812
571.10	16,056	42,170
571.25	16,731	44,629
571.40	17,406	47,189
571.55	18,081	49,851
571.70	18,756	52,614
571.85	19,431	55,478
572.00	20,106	58,443
572.15	20,820	61,512
572.30	21,534	64,689
572.45	22,248	67,973
572.60	22,961	71,363
572.75	23,675	74,861
572.90	24,389	78,466
573.05	25,107	82,178
573.20	25,834	85,998
573.35	26,561	89,928
573.50	27,288	93,967
573.65	28,014	98,114
573.80	28,741	102,371
573.95	29,468	106,737
574.10	32,660	111,335
574.25	37,086	116,565
574.40	41,511	122,460
574.55	45,937	129,019
574.70	50,362	136,241
574.85	54,788	144,127
575.00	**59,213**	**152,678**

WQv

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Appendix O

NYSDEC Stormwater Management Inspection Lists

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Bioretetion Areas (F-5)



Description: Shallow stormwater basin or landscaped area which utilizes engineered soils and vegetation to capture and treat runoff. The practice is often located in parking lot islands, and can also be used to treat residential areas.

KEY CONSIDERATIONS

CONVEYANCE

- Provide overflow for the 10-year storm to the conveyance system.
- Conveyance to the system is typically overland flow delivered to the surface of the system, typically through curb cuts or over a concrete lip.

PRETREATMENT

- Pretreatment consists of a grass channel or grass filter strip, a gravel diaphragm, and a mulch layer, sized based on the methodologies described in Section 6.4.2.

TREATMENT

- Treatment area should have a four foot deep planting soil bed, a surface mulch layer, and a 6" ponding layer.
- Size the treatment area using equations provided in Chapter 6.

LANDSCAPING

- Detailed landscaping plan required.

MAINTENANCE

- Inspect and repair/replace treatment area components
- Stone drop (at least 6") provided at the inlet
- Remulch annually

STORMWATER MANAGEMENT SUITABILITY

- [X] Water Quality
- [ ] Channel Protection
- [ ] Overbank Flood Protection
- [ ] Extreme Flood Protection

Accepts Hotspot Runoff: *Yes*
(requires impermeable liner)

IMPLEMENTATION CONSIDERATIONS

- [M] Capital Cost
- [M] Maintenance Burden

Residential
Subdivision Use: *Yes*

High Density/Ultra-Urban: *Yes*

Drainage Area: *5 acres max.*

Soils: *Planting soils must meet specified criteria; No restrictions on surrounding soils*

Other Considerations:

- *Use of native plants is recommended*

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

	Key: **L**=Low **M**=Medium **H**=High **POLLUTANT REMOVAL** **G** Phosphorus **G** Nitrogen **G** Metals - Cadmium, Copper, Lead, and Zinc removal **F** Pathogens – Coliform, Streptococci, E.Coli removal Key: **G**=Good **F**=Fair **P**=Poor

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Bioretention Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
If designed as exfilter, soil testing for permeability		
Facility location staked out		
2. Excavation		
Size and location		
Lateral slopes completely level		
If designed as exfilter, ensure that excavation does not compact susoils.		
Longitudinal slopes within design range		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
3. Structural Components		
Stone diaphragm installed correctly		
Outlets installed correctly		
Underdrain		
Pretreatment devices installed		
Soil bed composition and texture		
4. Vegetation		
Complies with planting specs		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
5. Final Inspection		
Dimensions		
Proper stone diaphragm		
Proper outlet		
Soil/ filter bed permeability testing		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		
Contributing watershed stabilized before flow is diverted to the practice		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Comments:

Actions to be Taken:

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Comments:

Actions to be Taken:

Attachment: SP-2021-05_application_052021 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7051

LAND SURVEYOR
NAME/TITLE: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
COMPANY/DEPT: 4950 GENESEE STREET, SUITE 100
ADDRESS: BUFFALO, NEW YORK 14225
TELEPHONE 716–633–4844

UTILITIES

NATURAL GAS
COMPANY/DEPT:. NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–857–7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203
TELEPHONE 716–840–8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK
TELEPHONE 716–558–8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214
TELEPHONE 716–236–2738

WATER
COMPANY/DEPT:. ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
TELEPHONE 716–684–1510

DIG SAFELY NEW YORK
TELEPHONE 1–800–962–7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086
TELEPHONE 716 818-0207

ENGINEER

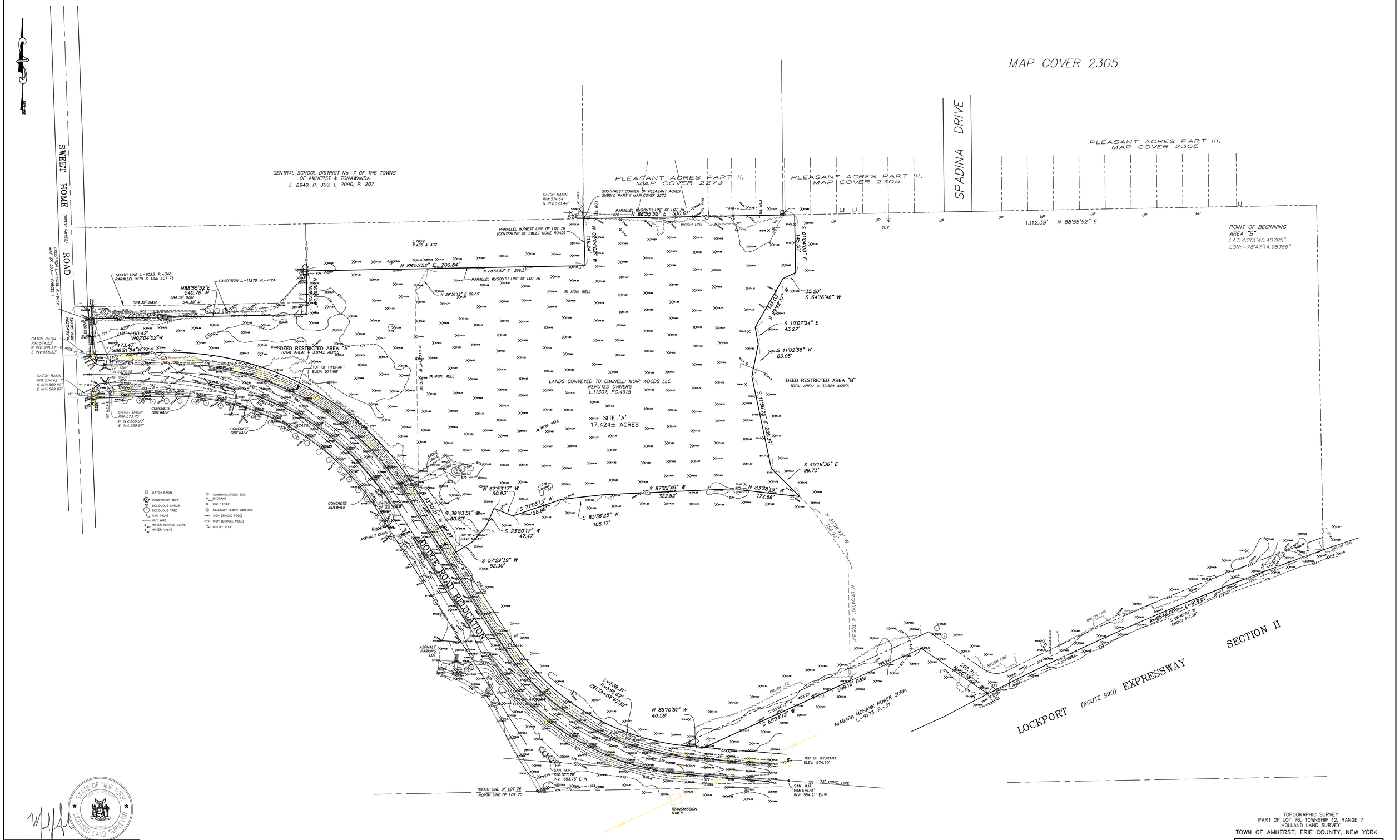
Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

FEBRUARY 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C–001	DEMOLITION & EROSION CONTROL PLAN
C–002	DEMOLITION & EROSION CONTROL DETAILS
C–100	OVERALL SITE PLAN
C–101	SITE PLAN
C–102	PARCEL MAP
C–103	SITE DETAILS
C–104	SITE DETAILS
C–200	GRADING PLAN
C–300	STORM DRAINAGE PLAN
C–301	STORM DRAINAGE DETAILS
C–302	STORM DRAINAGE DETAILS
C–303	STORM DRAINAGE DETAILS
C–400	UTILITY PLAN
C–401	SANITARY SEWER DETAILS
C–402	SANITARY SEWER DETAILS
C–403	SANITARY SEWER GENERAL NOTES
C–404	SANITARY SEWER TESTING NOTES
C–405	WATER DETAILS
C–406	WATER DETAILS
C–407	WATER DETAILS & NOTES
C–408	INSULATED ENCLOSURE DETAIL
L–100	LANDSCAPE PLAN

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
● SET OR EX. 5/8" REBAR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.



DATE	REVISION/TYPE

TOPOGRAPHIC SURVEY
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: DECEMBER 22, 2020
Scale: 1" = 100' TAX No. 40.08-3-13.1 (PART OF)

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SWEET HOME (WIDTH VARIES) ROAD

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

P.O.B.

TEL BOX

UP

GUY

N 88°55'52" E 530.61'
PARALLEL W/SOUTH LINE OF LOT 76

PARALLEL W/WEST LINE OF LOT 76
(CENTERLINE OF SWEET HOME ROAD)

N 02°04'02" W
118.24'

L.7659
P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'12" E 62.65'

S 01°04'08" E
145.00'

35.20'
S 64°16'46" W

141.03'
S 29°42'37" W

S 10°07'24" E
43.27'

S 11°02'55" W
83.05'

S 11°56'26" E 236.39'

S 45°19'36" E
98.73'

SOUTH LINE L.-9095, P.-348
PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

584.39' D&M
541.38' M

N88°55'52"E
540.78' M

N 00°55'59" W
109.75'

EXCEPTION L.-10808, P.-9632
MAP SK 353-1, PARCEL 1

120.85' D&M
N02°04'02"W

120.52'

N02°04'02"W
90.42'

173.47'
S88°21'54"W
216.48' D&M

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.914± ACRES

N 01°03'14" W 512.26'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

L=747.17
R=724.00

N 32°30'21" W 198.87'

N 67°53'17" W
50.93'

S 71°08'13" W
128.98'

S 83°36'25" W
105.17'

S 87°22'49" W
322.92'

N 83°38'15" W
172.66'

S 39°43'51" W
50.80'

S 23°50'17" W
47.47'

S 57°29'39" W
52.30'

N 32°30'21" W 457.24'

258.37'

DODGE ROAD RELOCATION

PT

L=539.31'
R=586.62'
DELTA=52°40'30"

PC

N 85°10'51" W
40.58'

N 35°36'42" W
156.92'

N 01°04'00" W 305.54'

195.94'

599.16' D&M

S 65°24'13" W 403.22'

S 65°24'13" W

NIAGARA MOHAWK POWER CORP.
L.-9173, P.-51

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

STATE OF NEW YORK
MARK J. ANDREWS
050455
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE
12/4/20	REVISE PARCEL BOUNDARY

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
● SET OR EX. 5/8" REBAR

SURVEY OF
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

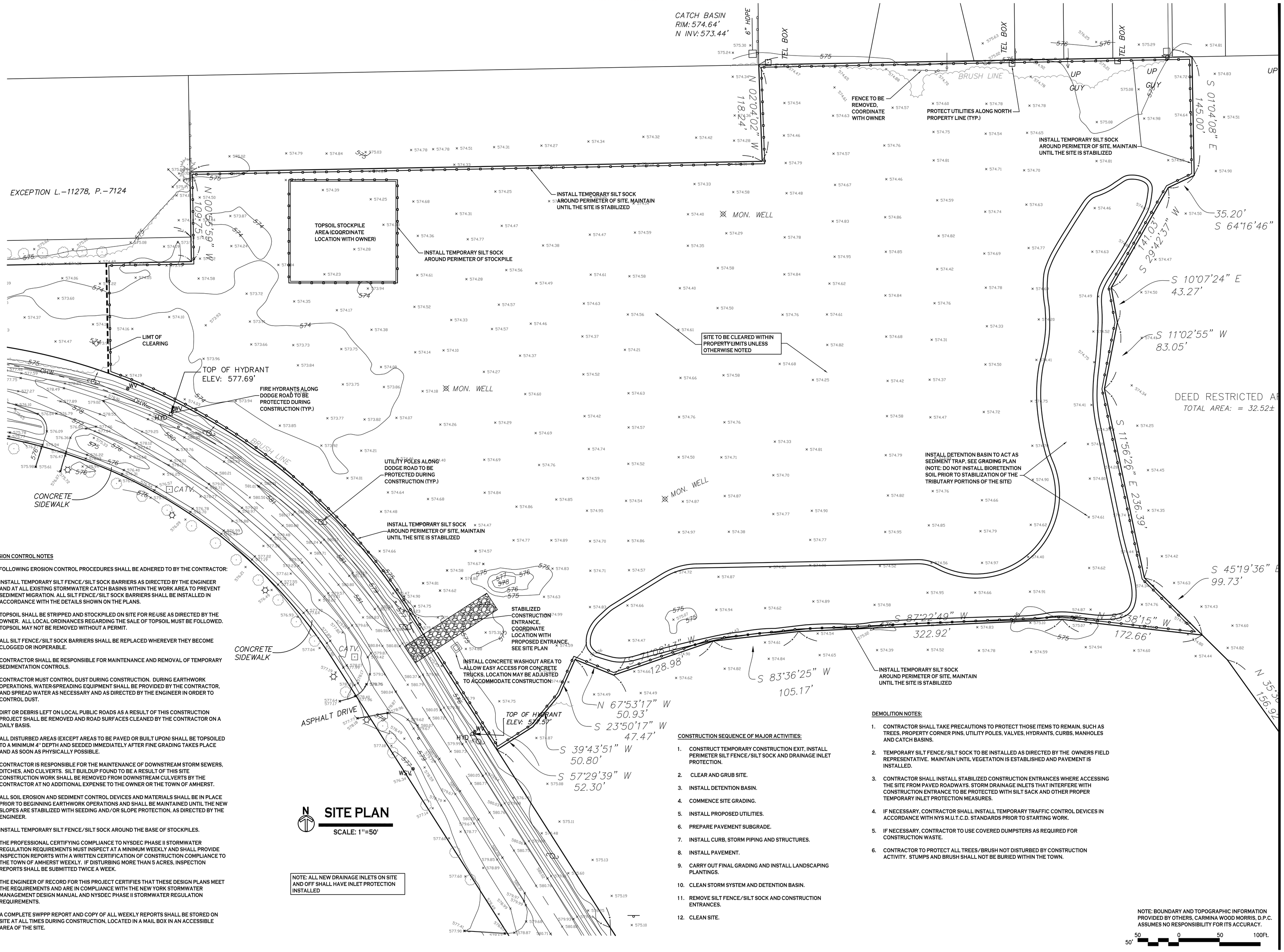
Job No. 2013062-SITE A Date: JUNE 27, 2019
Scale: 1" = 100' TAX No.

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



SITE PLAN

SCALE: 1"=50'

NOTE: ALL NEW DRAINAGE INLETS ON SITE AND OFF SHALL HAVE INLET PROTECTION INSTALLED

EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL PROCEDURES SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE/SILT SOCK BARRIERS AS DIRECTED BY THE ENGINEER AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.
2. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE OF TOPSOIL MUST BE FOLLOWED. TOPSOIL MAY NOT BE REMOVED WITHOUT A PERMIT.
3. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE REPLACED WHEREVER THEY BECOME CLOGGED OR INOPERABLE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.
5. CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER-SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR, AND SPREAD WATER AS NECESSARY AND AS DIRECTED BY THE ENGINEER IN ORDER TO CONTROL DUST.
6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED AND ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.
7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH AND SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE AND AS SOON AS PHYSICALLY POSSIBLE.
8. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES, AND CULVERTS. SILT BUILDUP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN OF AMHERST.
9. ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS SHALL BE IN PLACE PRIOR TO BEGINNING EARTHWORK OPERATIONS AND SHALL BE MAINTAINED UNTIL THE NEW SLOPES ARE STABILIZED WITH SEEDING AND/OR SLOPE PROTECTION, AS DIRECTED BY THE ENGINEER.
10. INSTALL TEMPORARY SILT FENCE/SILT SOCK AROUND THE BASE OF STOCKPILES.
11. THE PROFESSIONAL CERTIFYING COMPLIANCE TO NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS MUST INSPECT AT A MINIMUM WEEKLY AND SHALL PROVIDE INSPECTION REPORTS WITH A WRITTEN CERTIFICATION OF CONSTRUCTION COMPLIANCE TO THE TOWN OF AMHERST WEEKLY. IF DISTURBING MORE THAN 5 ACRES, INSPECTION REPORTS SHALL BE SUBMITTED TWICE A WEEK.
12. THE ENGINEER OF RECORD FOR THIS PROJECT CERTIFIES THAT THESE DESIGN PLANS MEET THE REQUIREMENTS AND ARE IN COMPLIANCE WITH THE NEW YORK STORMWATER MANAGEMENT DESIGN MANUAL AND NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS.
13. A COMPLETE SWPPP REPORT AND COPY OF ALL WEEKLY REPORTS SHALL BE STORED ON SITE AT ALL TIMES DURING CONSTRUCTION, LOCATED IN A MAIL BOX IN AN ACCESSIBLE AREA OF THE SITE.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CONSTRUCT TEMPORARY CONSTRUCTION EXIT, INSTALL PERIMETER SILT FENCE/SILT SOCK AND DRAINAGE INLET PROTECTION.
2. CLEAR AND GRUB SITE.
3. INSTALL DETENTION BASIN.
4. COMMENCE SITE GRADING.
5. INSTALL PROPOSED UTILITIES.
6. PREPARE PAVEMENT SUBGRADE.
7. INSTALL CURB, STORM PIPING AND STRUCTURES.
8. INSTALL PAVEMENT.
9. CARRY OUT FINAL GRADING AND INSTALL LANDSCAPING PLANTINGS.
10. CLEAN STORM SYSTEM AND DETENTION BASIN.
11. REMOVE SILT FENCE/SILT SOCK AND CONSTRUCTION ENTRANCES.
12. CLEAN SITE.

DEMOLITION NOTES:

1. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT THOSE ITEMS TO REMAIN, SUCH AS TREES, PROPERTY CORNER PINS, UTILITY POLES, VALVES, HYDRANTS, CURBS, MANHOLES AND CATCH BASINS.
2. TEMPORARY SILT FENCE/SILT SOCK TO BE INSTALLED AS DIRECTED BY THE OWNERS FIELD REPRESENTATIVE. MAINTAIN UNTIL VEGETATION IS ESTABLISHED AND PAVEMENT IS INSTALLED.
3. CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCES WHERE ACCESSING THE SITE FROM PAVED ROADWAYS. STORM DRAINAGE INLETS THAT INTERFERE WITH CONSTRUCTION ENTRANCE TO BE PROTECTED WITH SILT SACK AND OTHER PROPER TEMPORARY INLET PROTECTION MEASURES.
4. IF NECESSARY, CONTRACTOR SHALL INSTALL TEMPORARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH NYS M.U.T.C.D. STANDARDS PRIOR TO STARTING WORK.
5. IF NECESSARY, CONTRACTOR TO USE COVERED DUMPSTERS AS REQUIRED FOR CONSTRUCTION WASTE.
6. CONTRACTOR TO PROTECT ALL TREES/BRUSH NOT DISTURBED BY CONSTRUCTION ACTIVITY. STUMPS AND BRUSH SHALL NOT BE BURIED WITHIN THE TOWN.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Plan

DRAWING NO.

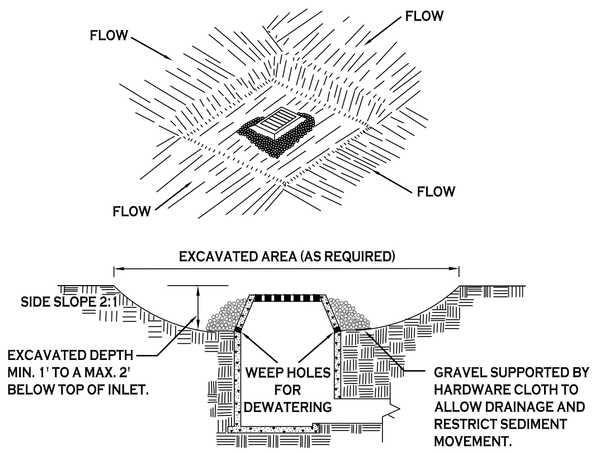
C-001

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



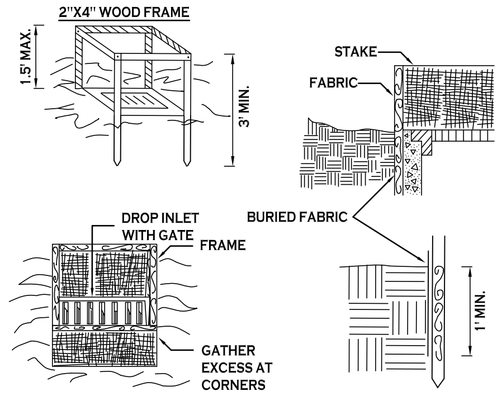
CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

   MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE



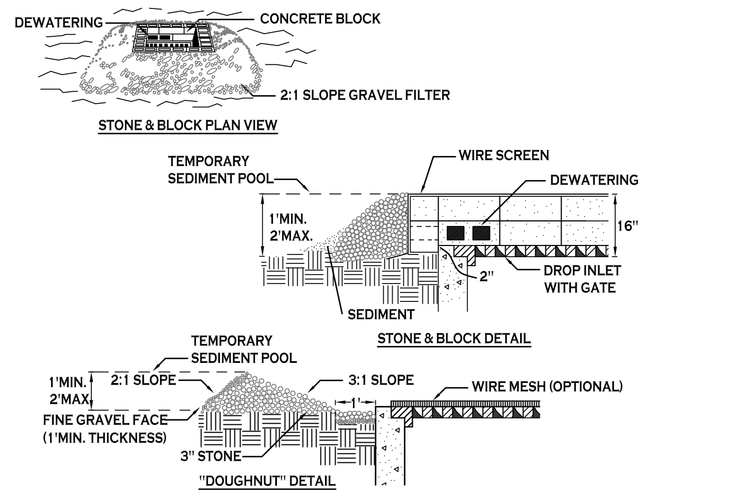
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

   MAXIMUN DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 2

NOT TO SCALE



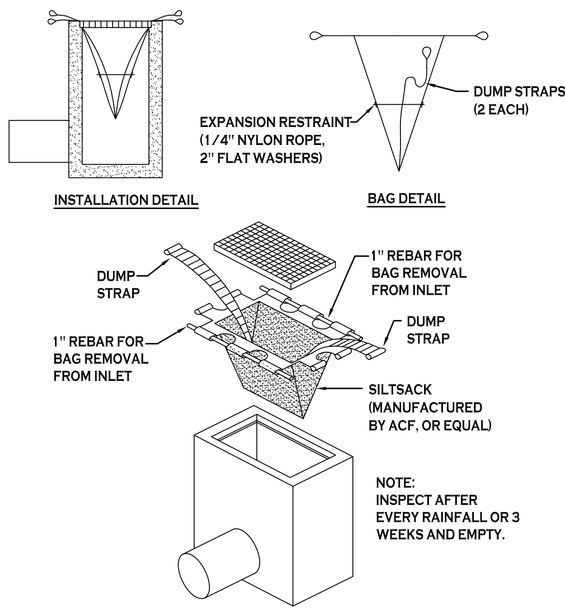
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

   MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

NOT TO SCALE



SILT SACK DETAIL

NOT TO SCALE

NOTE: INSTALL ONE OF THE INLET PROTECTION OPTIONS SHOWN PRIOR TO CONSTRUCTION

CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

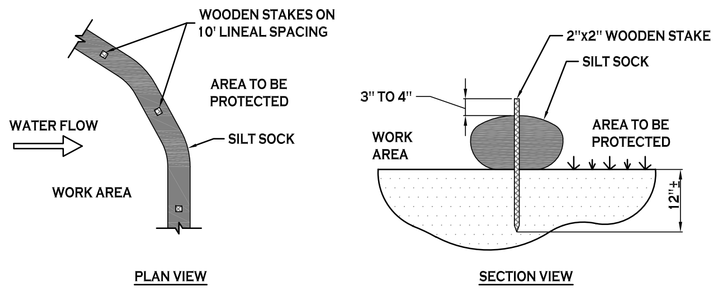
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



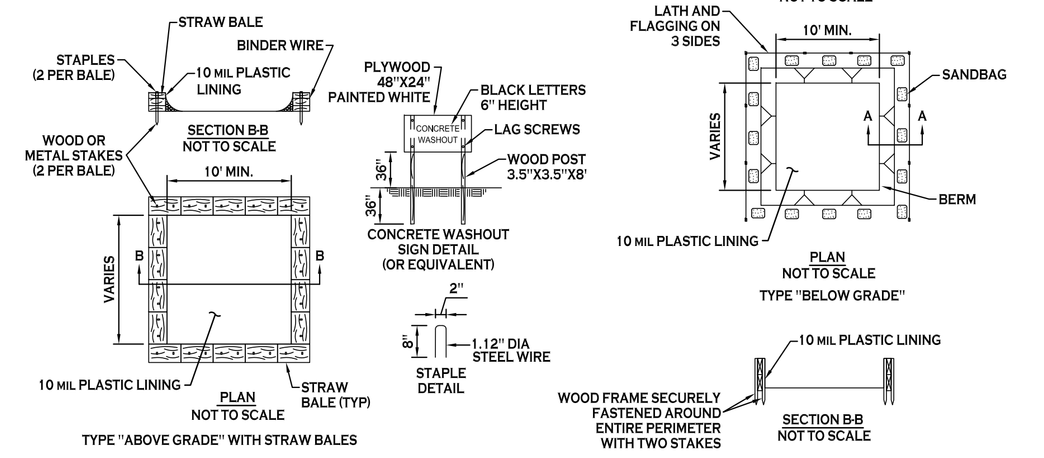
NOTES:

CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED ½ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

SILT SOCK DETAIL

NOT TO SCALE



NOTES

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

CONCRETE WASHOUT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Details

DRAWING NO.

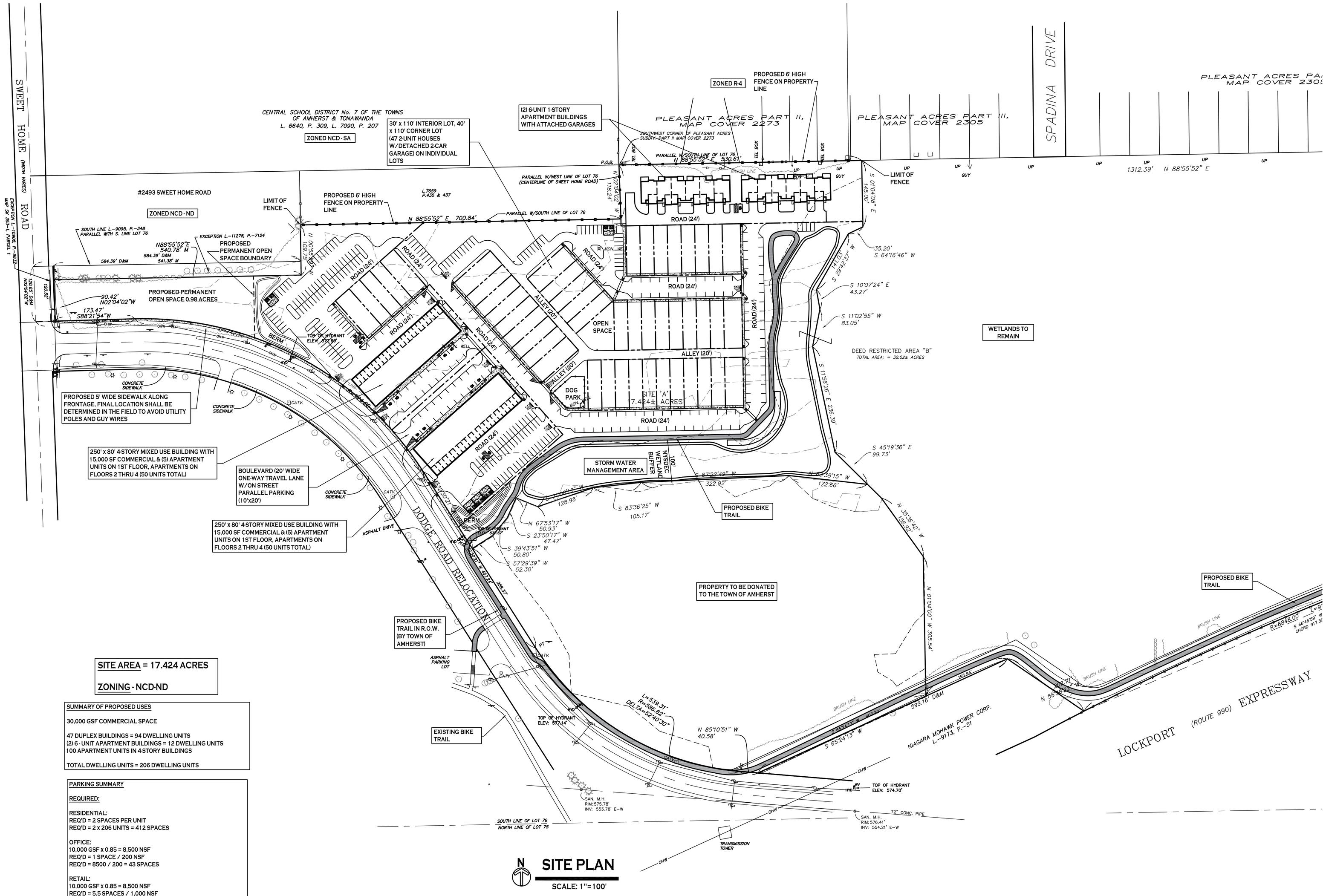
C-002

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



N

SITE PLAN

SCALE: 1"=100'

SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
505 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

C-100

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

Packet Pg. 704

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

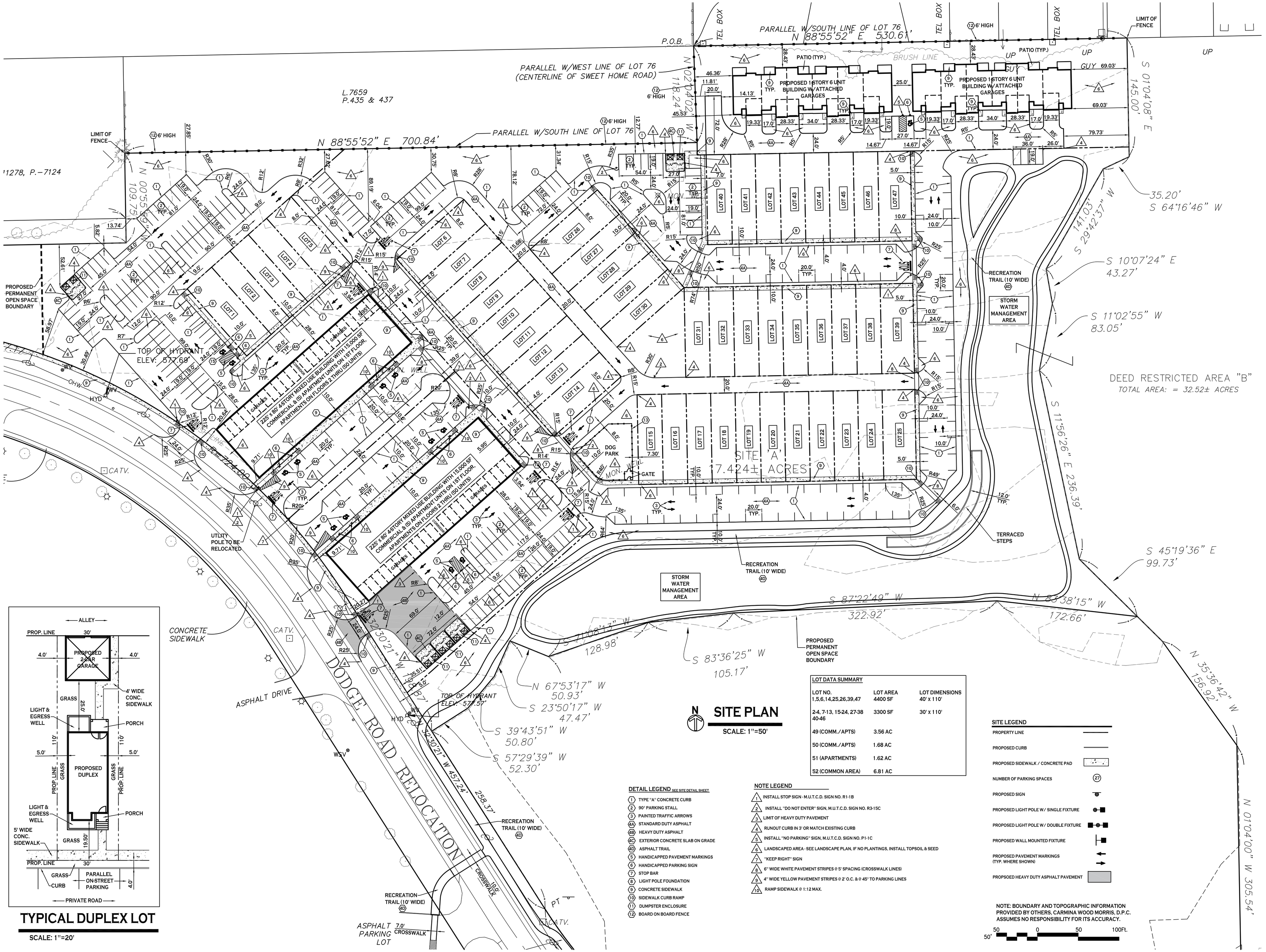
DRAWING NAME:

Site Plan

DRAWING NO.

C-101

Project no.: 21.011



SITE PLAN

SCALE: 1"=50'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

DETAIL LEGEND SEE SITE DETAIL SHEET

1. TYPE "A" CONCRETE CURB
2. 90° PARKING STALL
3. PAINTED TRAFFIC ARROWS
4A. STANDARD DUTY ASPHALT
4B. HEAVY DUTY ASPHALT
4C. EXTERIOR CONCRETE SLAB ON GRADE
4D. ASPHALT TRAIL
5. HANDICAPPED PAVEMENT MARKINGS
6. HANDICAPPED PARKING SIGN
7. STOP BAR
8. LIGHT POLE FOUNDATION
9. CONCRETE SIDEWALK
10. SIDEWALK CURB RAMP
11. DUMPSTER ENCLOSURE
12. BOARD ON BOARD FENCE

NOTE LEGEND

1. INSTALL STOP SIGN - M.U.T.C.D. SIGN NO. R1-1 B
2. INSTALL "DO NOT ENTER" SIGN, M.U.T.C.D. SIGN NO. R3-15C
3. LIMIT OF HEAVY DUTY PAVEMENT
4. RUNOUT CURB IN 3' OR MATCH EXISTING CURB
5. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
6. LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
7. "KEEP RIGHT" SIGN
8. 6" WIDE WHITE PAVEMENT STRIPES @ 5' SPACING (CROSSWALK LINES)
9. 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45° TO PARKING LINES
10. RAMP SIDEWALK @ 1:12 MAX.

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN
- PROPOSED LIGHT POLE W/ SINGLE FIXTURE
- PROPOSED LIGHT POLE W/ DOUBLE FIXTURE
- PROPOSED WALL MOUNTED FIXTURE
- PROPOSED PAVEMENT MARKINGS (TYP. WHERE SHOWN)
- PROPSOED HEAVY DUTY ASPHALT PAVEMENT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

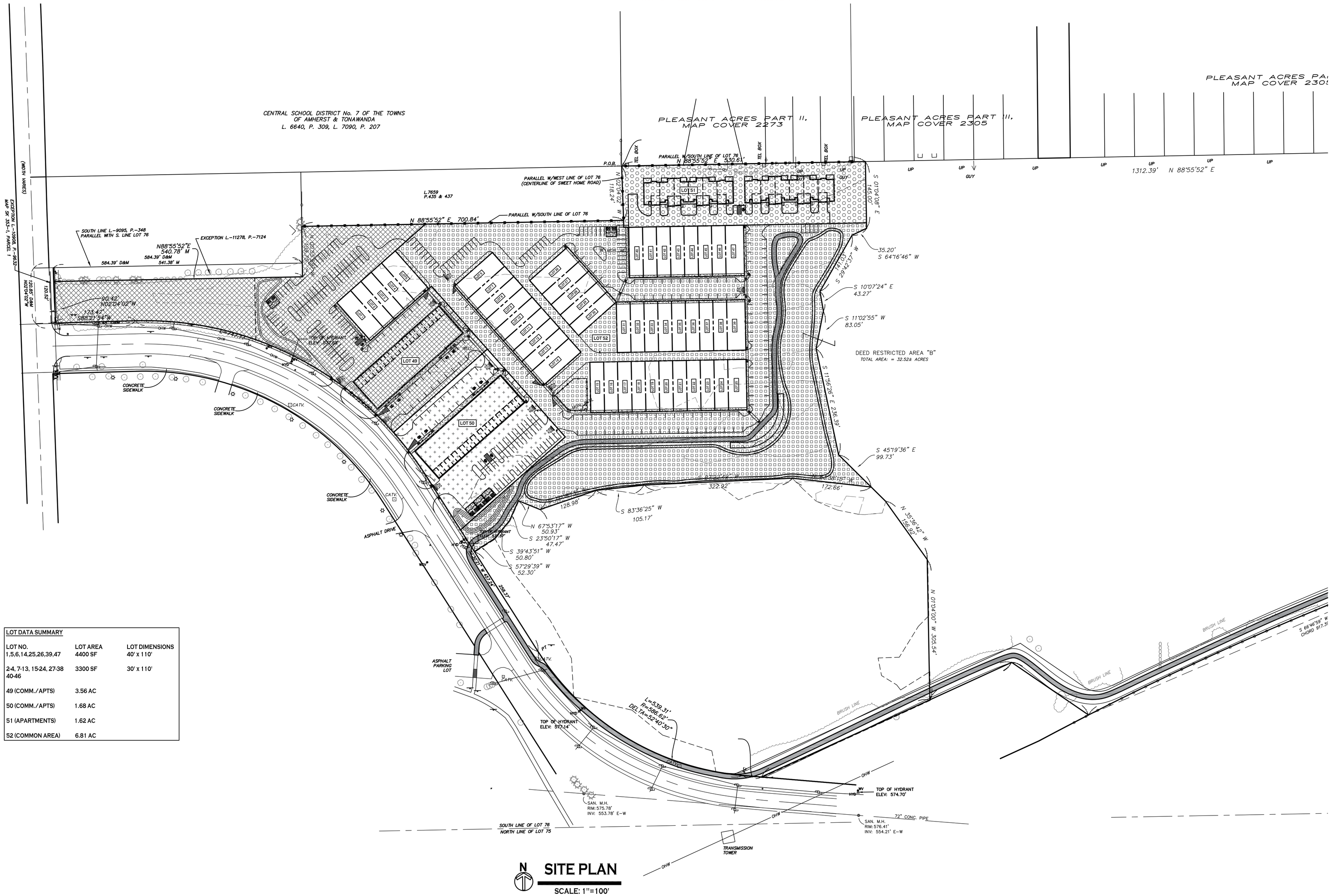
TYPICAL DUPLEX LOT

SCALE: 1"=20'

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



SITE PLAN

SCALE: 1"=100'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Parcel Map

DRAWING NO.

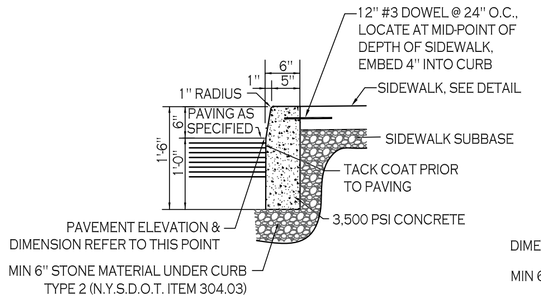
C-102

Project no.: 21.011

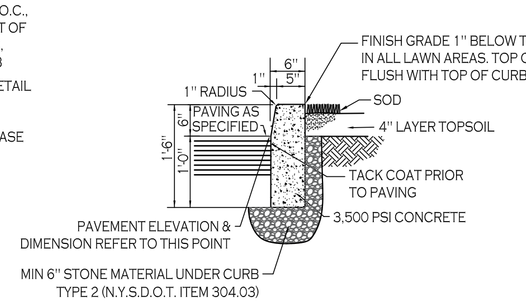
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)



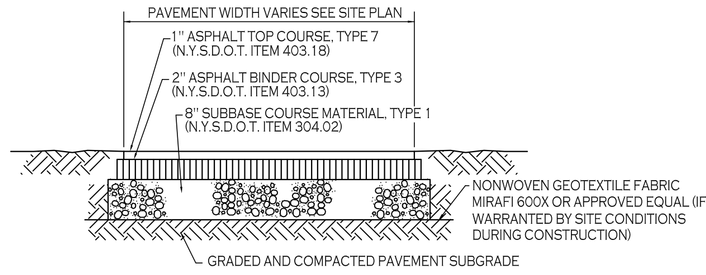
ABUTTING SIDEWALK



ABUTTING LANDSCAPE/GRASS

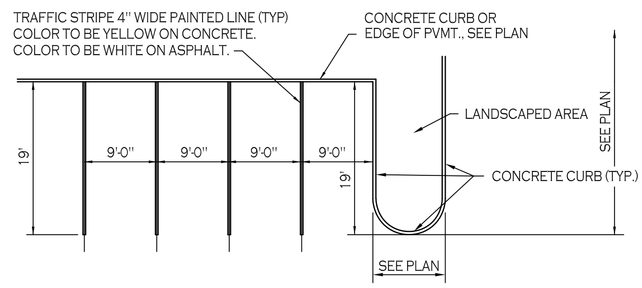
NOTES:
1. CONTROL JOINTS TO BE 2" DEEP AT 15'-0" O.C. - SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. WHERE THE CURB DROPS (IS FLUSH WITH ASPHALT) THE DEPTH OF CURB BELOW GRADE SHALL BE INCREASED TO 1'-6" AND OTHER DIMENSIONS ADJUSTED ACCORDINGLY.

TYPE "A" CONCRETE CURB - 1

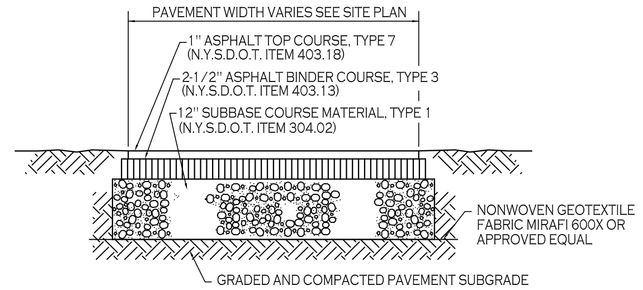


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

STANDARD DUTY ASPHALT SECTION - 4A

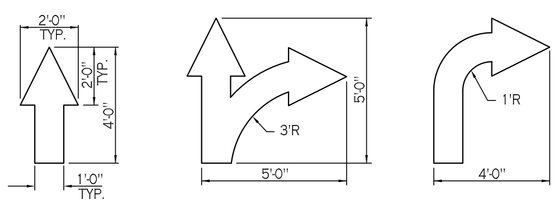


90° PARKING STALL LAYOUT - 2

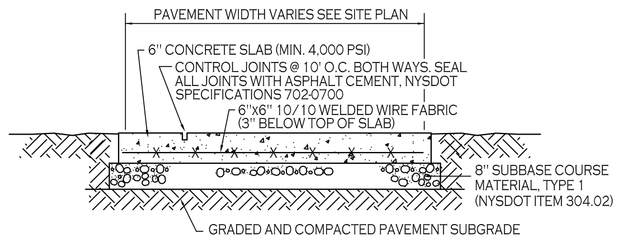


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

HEAVY DUTY ASPHALT SECTION - 4B

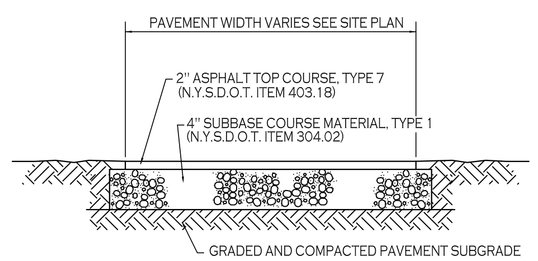


PAINTED TRAFFIC ARROWS - 3



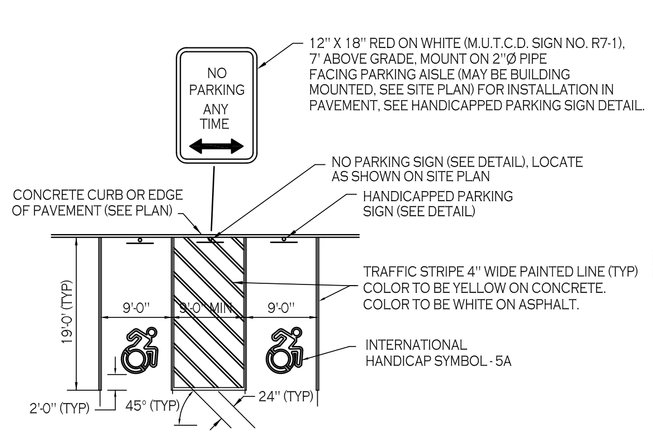
NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502-3.

EXTERIOR CONCRETE SLAB-ON-GRADE SECTION - 4C

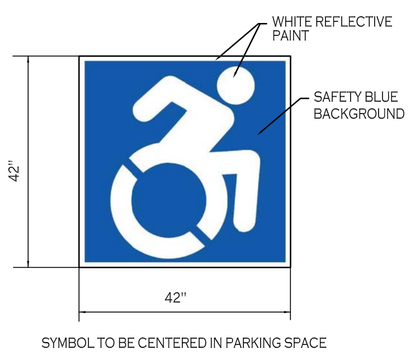


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

ASPHALT TRAIL SECTION - 4D

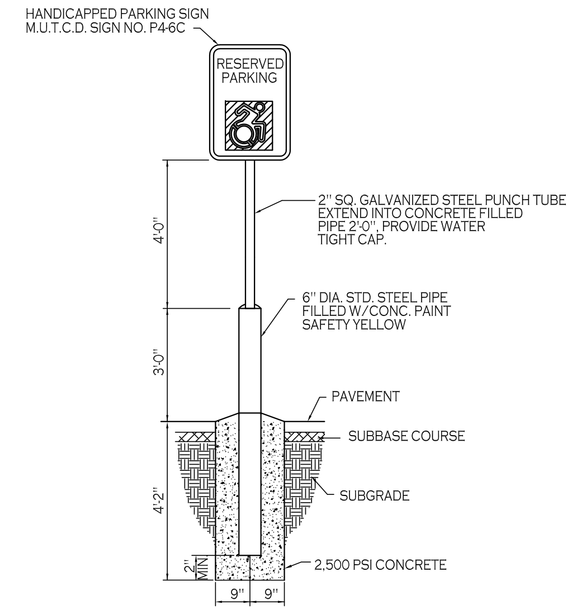


HANDICAPPED PAVEMENT MARKINGS & SIGNAGE - 5



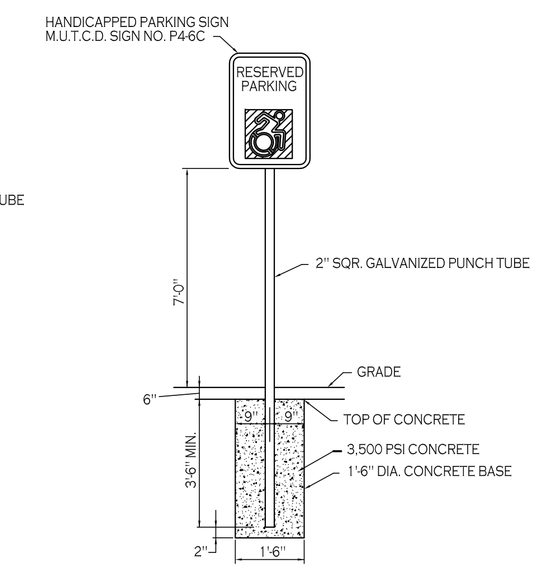
SYMBOL TO BE CENTERED IN PARKING SPACE

INTERNATIONAL HANDICAP SYMBOL - 5A



HANDICAPPED PARKING SIGN - 6

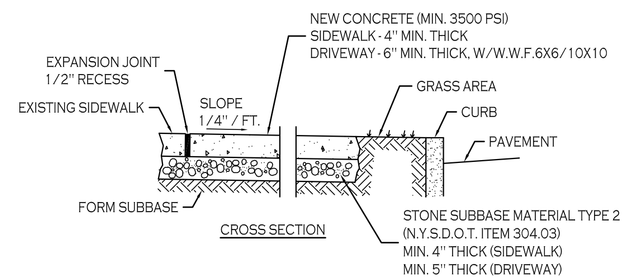
INSTALLED IN PAVEMENT



NOTES:
1. HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

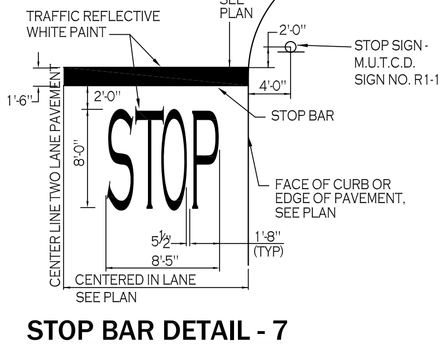
HANDICAP PARKING SIGNS - 6

INSTALLED IN GRASS/LANDSCAPED AREA

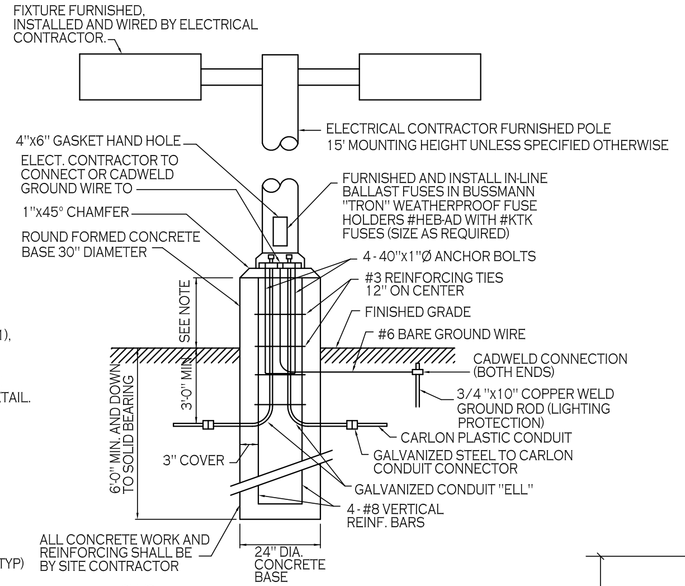


NOTES:
1. CONTROL JOINTS TO BE AT 5'-0" O.C., BOTH WAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3.
3. SUBBASE GRADE SHALL FOLLOW THE PROPOSED GRADE OF THE SIDEWALK AND SLOPE AWAY FROM BUILDING WHERE APPLICABLE, PROVIDE CONTINUOUS STONE PATH TO CURB UNDERDRAIN WHERE PROVIDED.
4. FULL DEPTH EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
5. SEE CURB DETAIL FOR DOWLING REQUIREMENTS WHERE ABUTTING CURB.
6. INSTALL 6" LONG #3 DOWELS @ 12" O.C. WHERE SIDEWALK ABUTS A BUILDING WALL AT AN ENTRANCE, THICKEN SIDEWALK TO 6" AT BUILDING WALL AND INSTALL DOWEL CENTERED IN THE 6" DEPTH. DOWELS AND THICKENING OF SIDEWALK SHALL EXTEND 18" EITHER SIDE OF ENTRANCE.
7. INSTALL 1/2" PREMOLDED EXPANSION JOINT WITH BACKER ROD & SEALANT WHERE SIDEWALK ABUTS BUILDING OR OTHER STRUCTURE.

CONCRETE SIDEWALK - 9



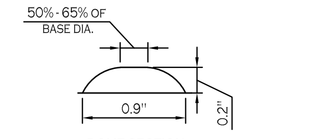
STOP BAR DETAIL - 7



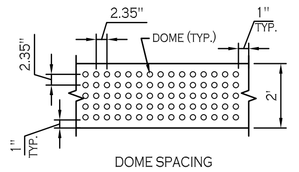
NOTES:
1. FOR LOCATIONS OF FOUNDATIONS SEE SITE PLAN
2. FOR LIGHT FIXTURE ORDERING INFORMATION SEE SITE LIGHTING PLAN
3. LIGHT POLE BASE EXPOSURE ABOVE GRADE SHALL BE:
   IN CURBED ISLANDS: 6" ABOVE TOP OF CURB ELEVATION
   IN PAVEMENT: 3" ABOVE GRADE
   IN NONCURBED GRASS AREAS: 6" ABOVE GRADE

LIGHT POLE FOUNDATION - 8

USE FOR 15' MOUNTING HEIGHT L.E.D. FIXTURES

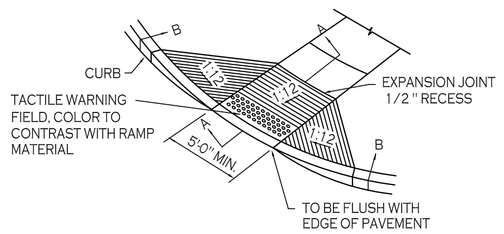


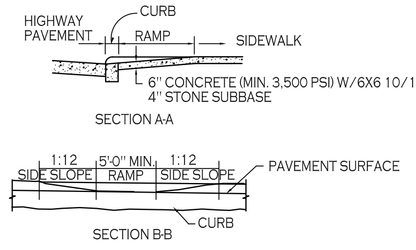
DOME SECTION



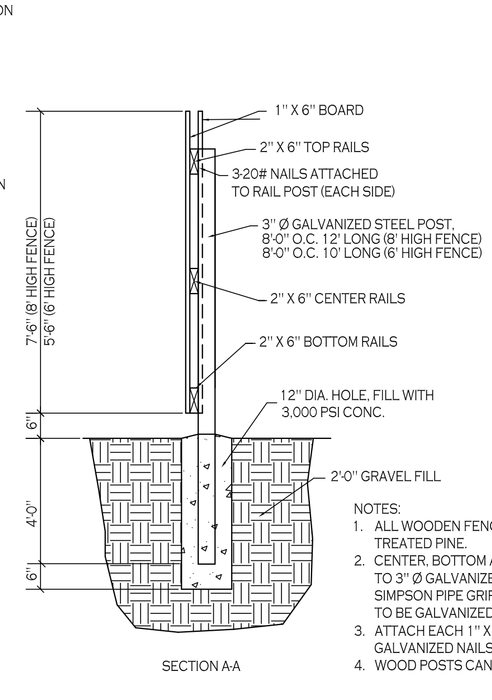
DOME SPACING

NOTE: TACTILE WARNING DEVICES SHALL BE PER ICC/ANSI A117.1-1998, SECTION 705.3.1.2 OR CURRENT UPDATE



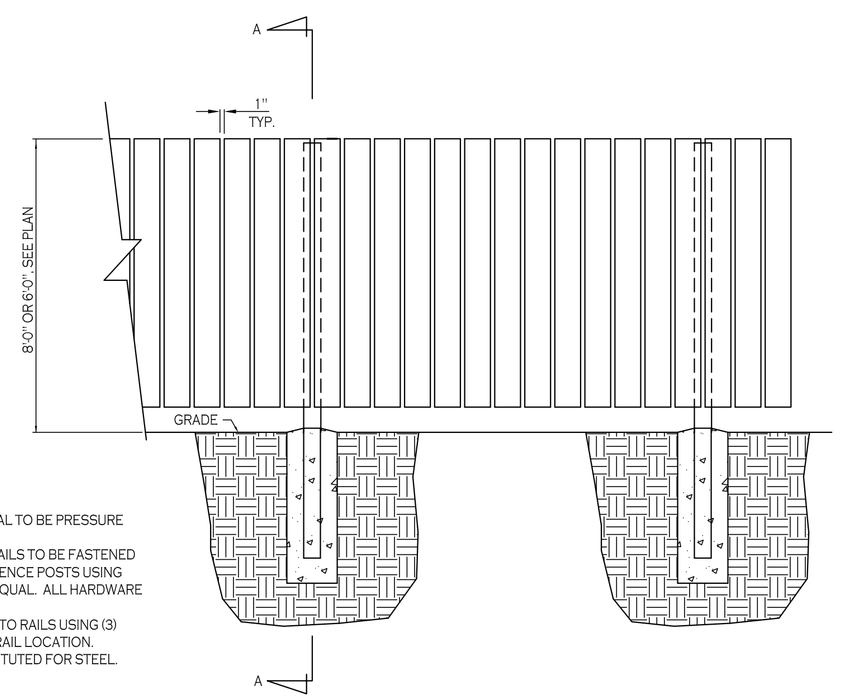


SIDEWALK CURB RAMP - 10



SECTION A-A

NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.



BOARD ON BOARD FENCE FENCE - 12

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Details

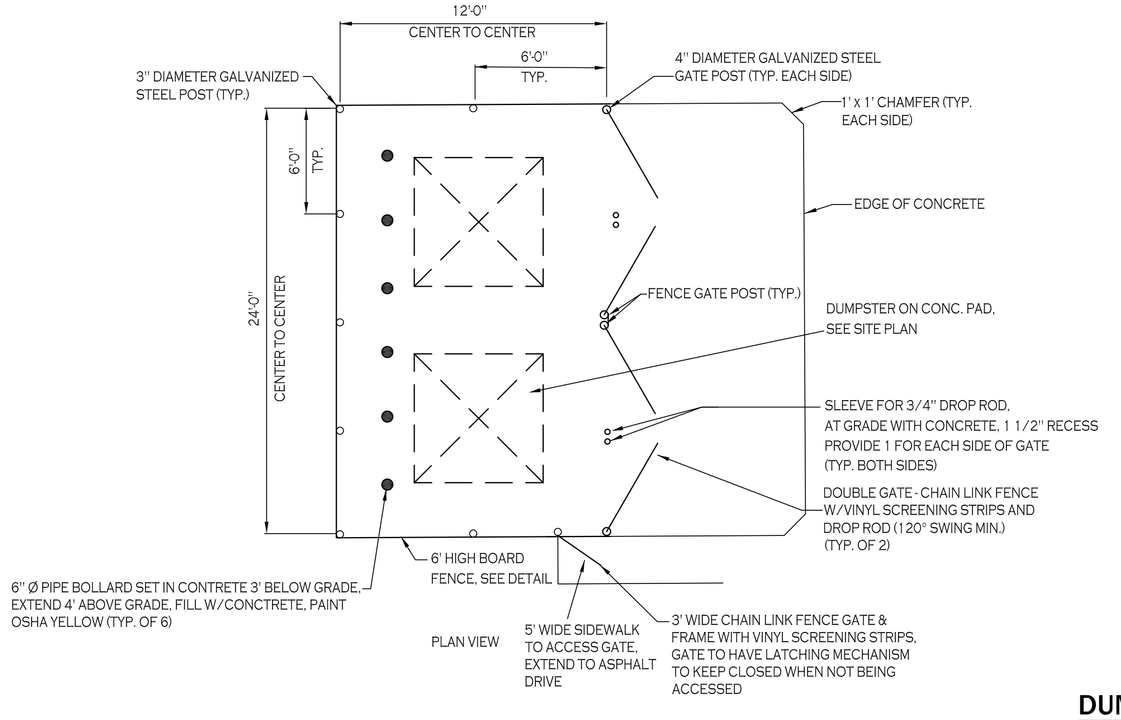
DRAWING NO.
C-103

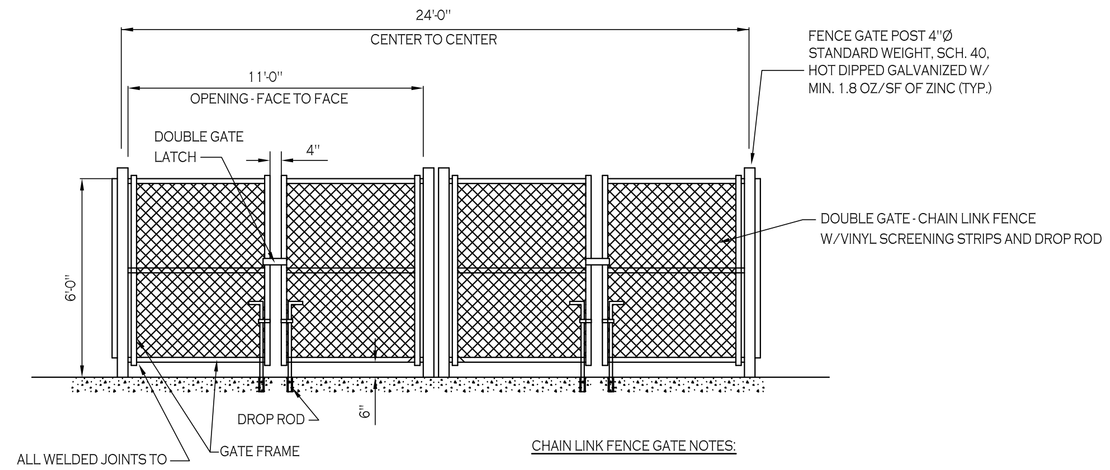
Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

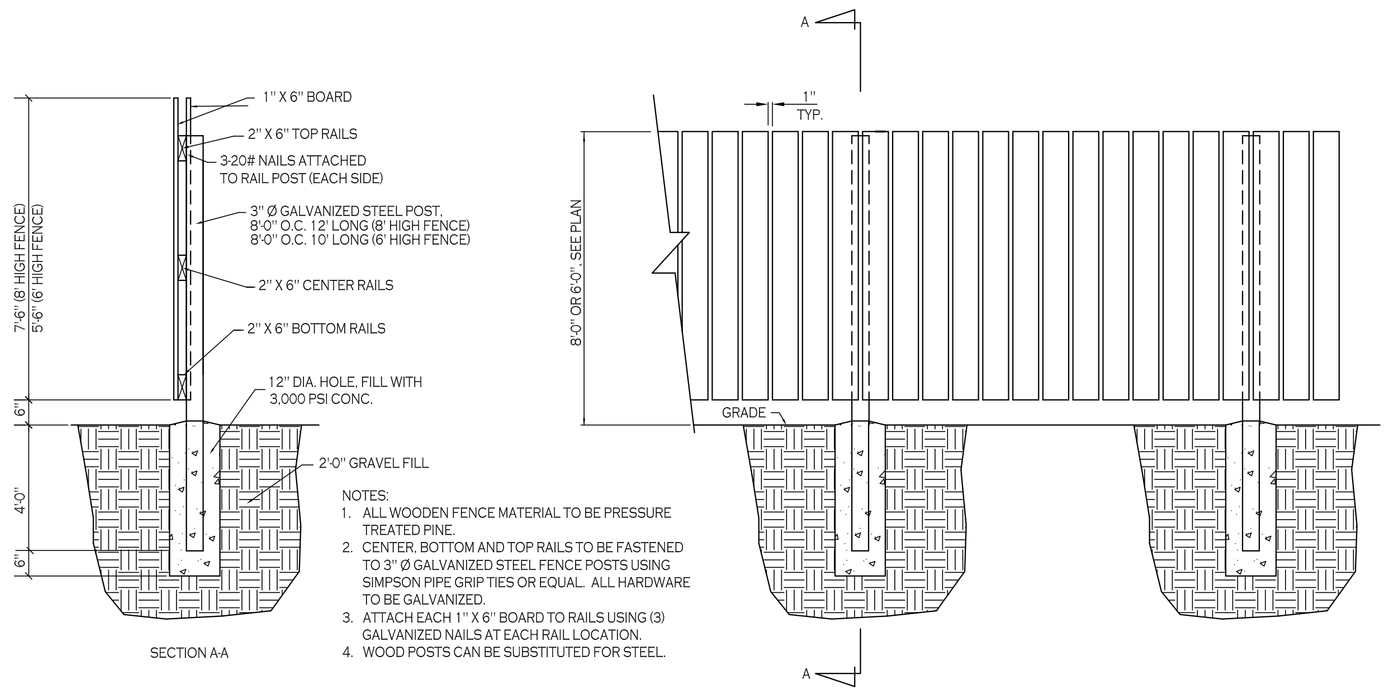




DUMPSTER ENCLOSURE - 11

CHAIN LINK FENCE GATE NOTES:

1. GATE POST FOOTINGS TO BE MIN. 36" DEEP x (4x) POST DIAMETER, EXTEND POST TO WITHIN 6" OF BOTTOM.
2. GATE FRAMES TO BE 2" SQ. GALVANIZED STEEL, WEIGHING 2.60 LB/FT IN ACCORDANCE WITH ASTM F 900.
3. CHAIN LINK FENCE FABRIC SHALL BE 2" MESH, 9 GAUGE, ZINC COATED STEEL CORE WIRE. INSTALL MESH WITH HOOK BOLTS AND TENSION BARS ON ALL 4 SIDES. ATTACH AT 15" MAX.
4. DOUBLE GATE LATCH TO BE FORKED TYPE CAPABLE OF RETAINING GATE IN CLOSED POSITION AND HAVE PROVISION FOR PAD LOCK. LATCH SHALL BE OPERABLE FROM EITHER SIDE OF GATE.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED STEEL TO SUIT GATE SIZE.



NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.

BOARD ON BOARD FENCE FENCE - FOR DUMPSTER ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

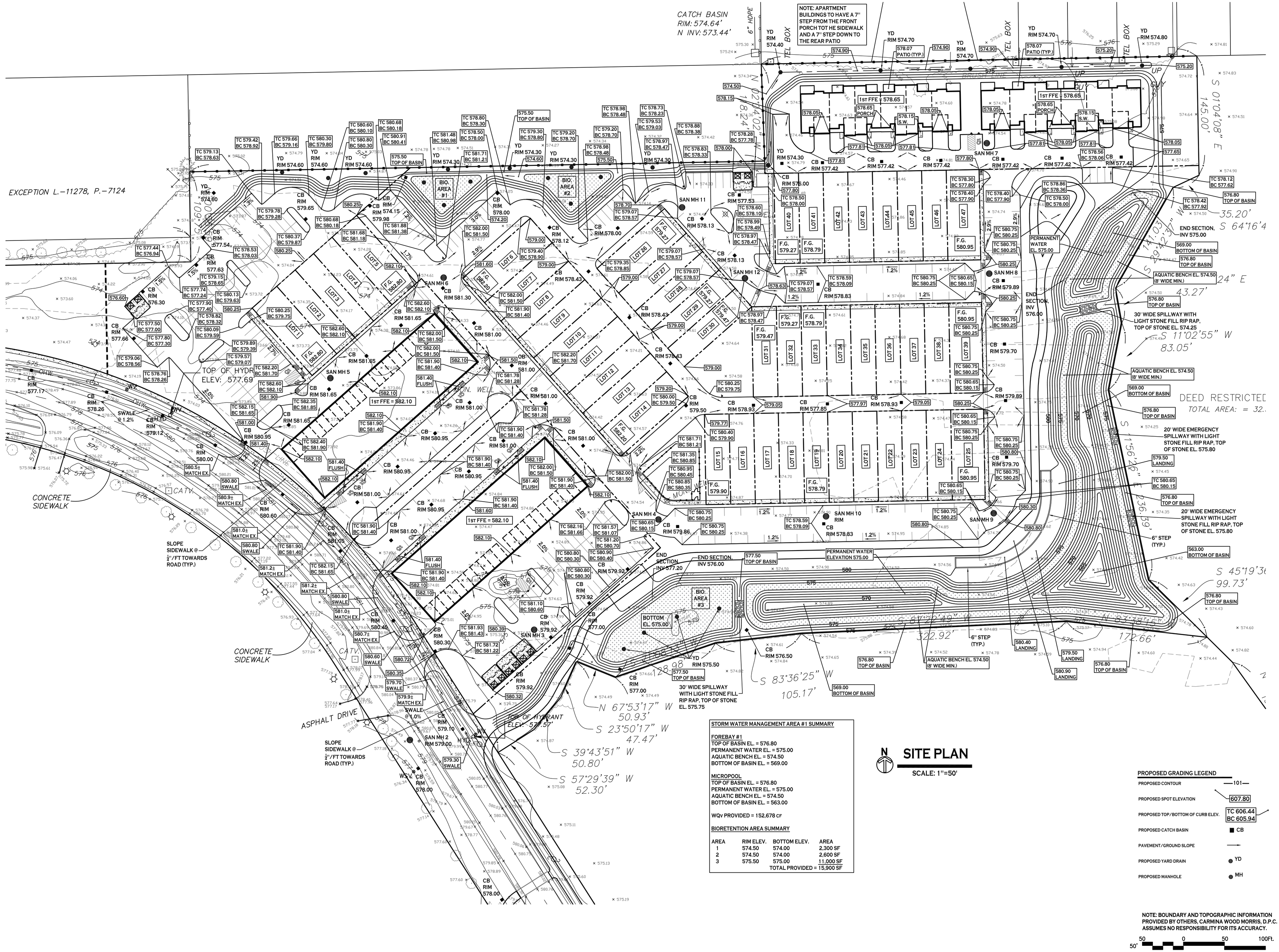
Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site
Details

DRAWING NO.
C-104
Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



STORM WATER MANAGEMENT AREA #1 SUMMARY

FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00

MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00

WQv PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY

AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

SITE PLAN

SCALE: 1"=50'

PROPOSED GRADING LEGEND

PROPOSED CONTOUR	101
PROPOSED SPOT ELEVATION	607.80
PROPOSED TOP/BOTTOM OF CURB ELEV.	TC 606.44 / BC 605.94
PROPOSED CATCH BASIN	CB
PAVEMENT/GROUND SLOPE	
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Grading Plan

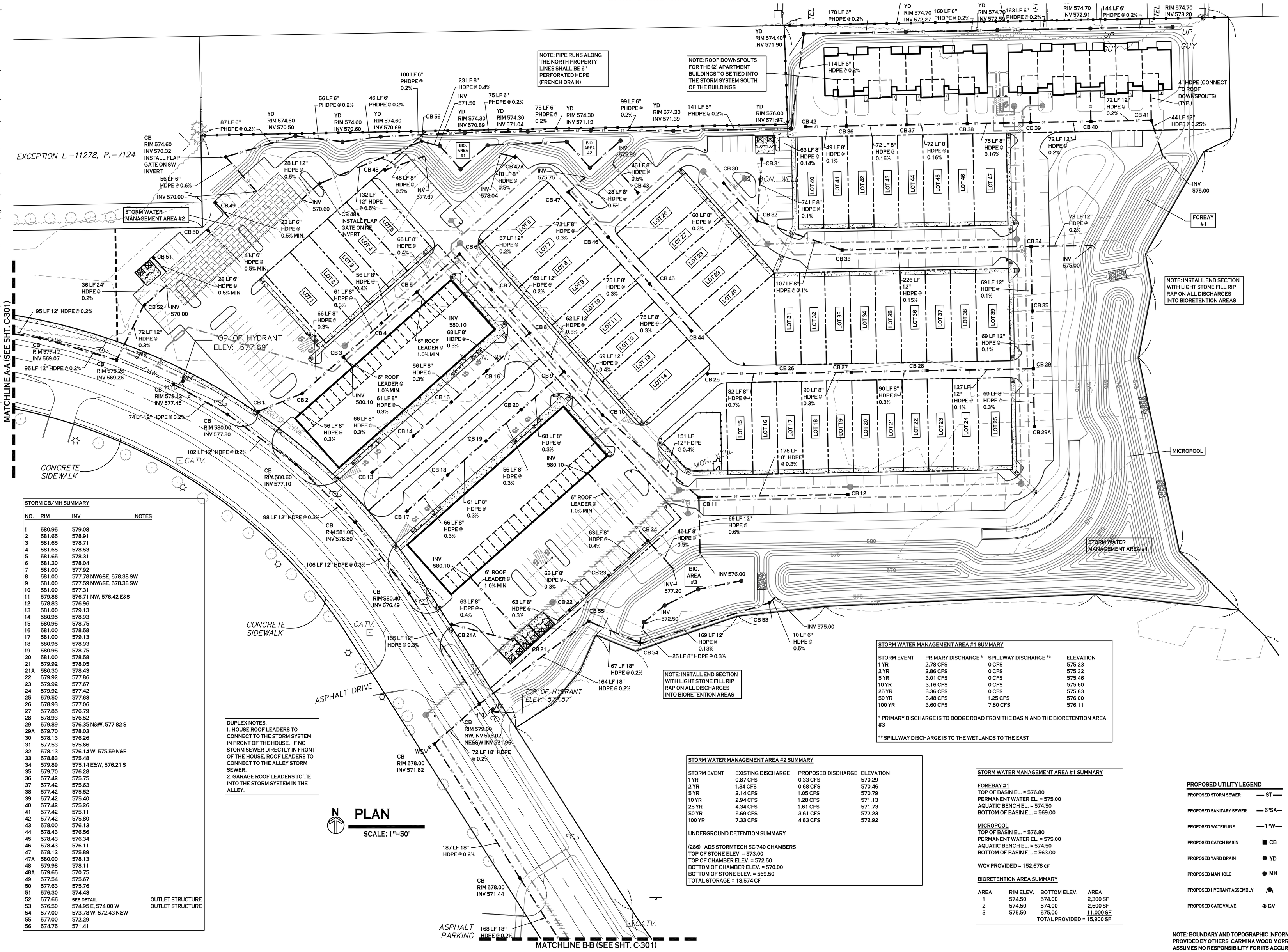
DRAWING NO.

C-200

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



PLAN

SCALE: 1"=50'

STORM CB/MH SUMMARY			
NO.	RIM	INV	NOTES
1	580.95	579.08	
2	581.65	578.91	
3	581.65	578.71	
4	581.65	578.53	
5	581.65	578.31	
6	581.30	578.04	
7	581.00	577.92	
8	581.00	577.78 NW&SE, 578.38 SW	
9	581.00	577.59 NW&SE, 578.38 SW	
10	581.00	577.31	
11	579.86	576.71 NW, 576.42 E&S	
12	578.83	576.96	
13	581.00	579.13	
14	580.95	578.93	
15	580.95	578.75	
16	581.00	578.58	
17	581.00	579.13	
18	580.95	578.93	
19	580.95	578.75	
20	581.00	578.58	
21	579.92	578.05	
21A	580.30	578.43	
22	579.92	577.86	
23	579.92	577.67	
24	579.92	577.42	
25	579.50	577.63	
26	578.93	577.06	
27	577.85	576.79	
28	578.93	576.52	
29	579.89	576.35 N&W, 577.82 S	
29A	579.70	578.03	
30	578.13	576.26	
31	577.53	575.66	
32	578.13	576.14 W, 575.59 N&E	
33	578.83	575.48	
34	579.89	575.14 E&W, 576.21 S	
35	579.70	576.28	
36	577.42	575.75	
37	577.42	575.63	
38	577.42	575.52	
39	577.42	575.40	
40	577.42	575.26	
41	577.42	575.11	
42	577.42	575.80	
43	578.00	576.13	
44	578.43	576.56	
45	578.43	576.34	
46	578.43	576.11	
47	578.12	575.89	
47A	580.00	578.13	
48	579.98	578.11	
48A	579.65	570.75	
49	577.54	575.67	
50	577.63	575.76	
51	576.30	574.43	
52	577.66	SEE DETAIL	OUTLET STRUCTURE
53	576.50	574.95 E, 574.00 W	OUTLET STRUCTURE
54	577.00	573.78 W, 572.43 N&W	
55	577.00	572.29	
56	574.75	571.41	

DUPLEX NOTES:
1. HOUSE ROOF LEADERS TO CONNECT TO THE STORM SYSTEM IN FRONT OF THE HOUSE. IF NO STORM SEWER DIRECTLY IN FRONT OF THE HOUSE, ROOF LEADERS TO CONNECT TO THE ALLEY STORM SEWER.
2. GARAGE ROOF LEADERS TO TIE INTO THE STORM SYSTEM IN THE ALLEY.

STORM WATER MANAGEMENT AREA #1 SUMMARY			
STORM EVENT	PRIMARY DISCHARGE *	SPILLWAY DISCHARGE **	ELEVATION
1 YR	2.78 CFS	0 CFS	575.23
2 YR	2.86 CFS	0 CFS	575.32
5 YR	3.01 CFS	0 CFS	575.46
10 YR	3.16 CFS	0 CFS	575.60
25 YR	3.36 CFS	0 CFS	575.83
50 YR	3.48 CFS	1.25 CFS	576.00
100 YR	3.60 CFS	7.80 CFS	576.11

* PRIMARY DISCHARGE IS TO DODGE ROAD FROM THE BASIN AND THE BIORETENTION AREA #3

** SPILLWAY DISCHARGE IS TO THE WETLANDS TO THE EAST

STORM WATER MANAGEMENT AREA #2 SUMMARY			
STORM EVENT	EXISTING DISCHARGE	PROPOSED DISCHARGE	ELEVATION
1 YR	0.87 CFS	0.33 CFS	570.29
2 YR	1.34 CFS	0.68 CFS	570.46
5 YR	2.14 CFS	1.05 CFS	570.79
10 YR	2.94 CFS	1.28 CFS	571.13
25 YR	4.34 CFS	1.61 CFS	571.73
50 YR	5.69 CFS	3.61 CFS	572.23
100 YR	7.33 CFS	4.83 CFS	572.92

UNDERGROUND DETENTION SUMMARY

(286) ADS STORMTECH SC-740 CHAMBERS
TOP OF STONE ELEV. = 573.00
TOP OF CHAMBER ELEV. = 572.50
BOTTOM OF CHAMBER ELEV. = 570.00
BOTTOM OF STONE ELEV. = 569.50
TOTAL STORAGE = 18,574 CF

STORM WATER MANAGEMENT AREA #1 SUMMARY
FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00
MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00
WQv PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY

AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

PROPOSED UTILITY LEGEND

- PROPOSED STORM SEWER — ST —
- PROPOSED SANITARY SEWER — 6"SA —
- PROPOSED WATERLINE — 1"W —
- PROPOSED CATCH BASIN ■ CB
- PROPOSED YARD DRAIN ● YD
- PROPOSED MANHOLE ● MH
- PROPOSED HYDRANT ASSEMBLY
- PROPOSED GATE VALVE ⊕ GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Plan

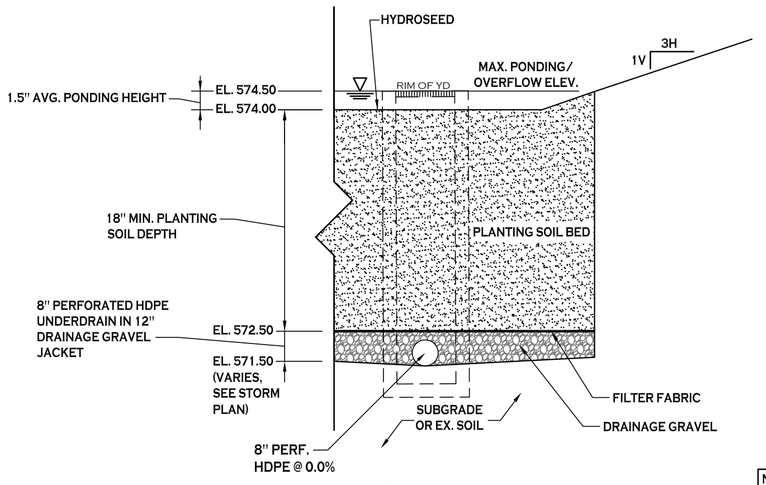
DRAWING NO.
C-300

Project no.: 21.011

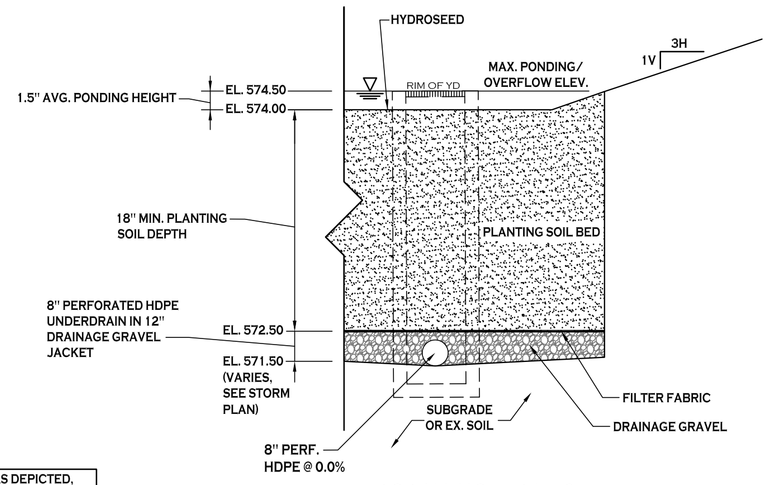
Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

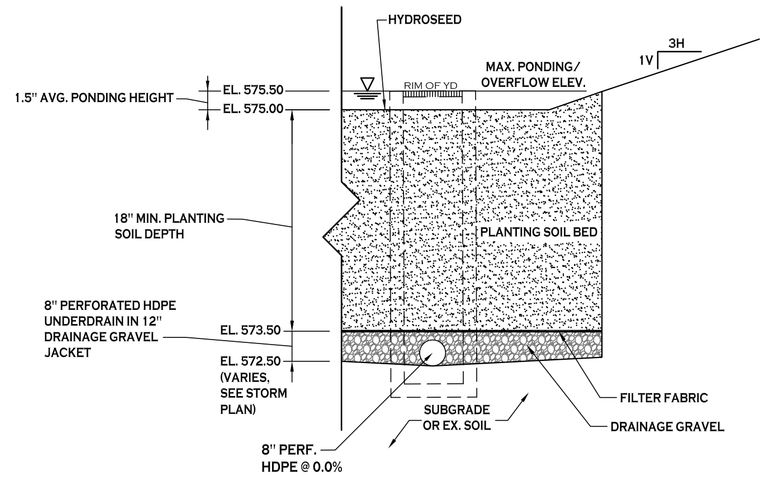
© Carmina Wood Morris DPC



BIORETENTION AREA #1



BIORETENTION AREA #2



BIORETENTION AREA #3

NOTE: AS DEPICTED, YARD DRAIN RIM ELEVATIONS ARE TO BE SET 6" ABOVE PROPOSED GRADE IN BIORETENTION AREAS.

NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 180-N OR APPROVED EQUIVALENT
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43. NO.67, SIZE 0.25" TO 0.75"
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 60% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR ML WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

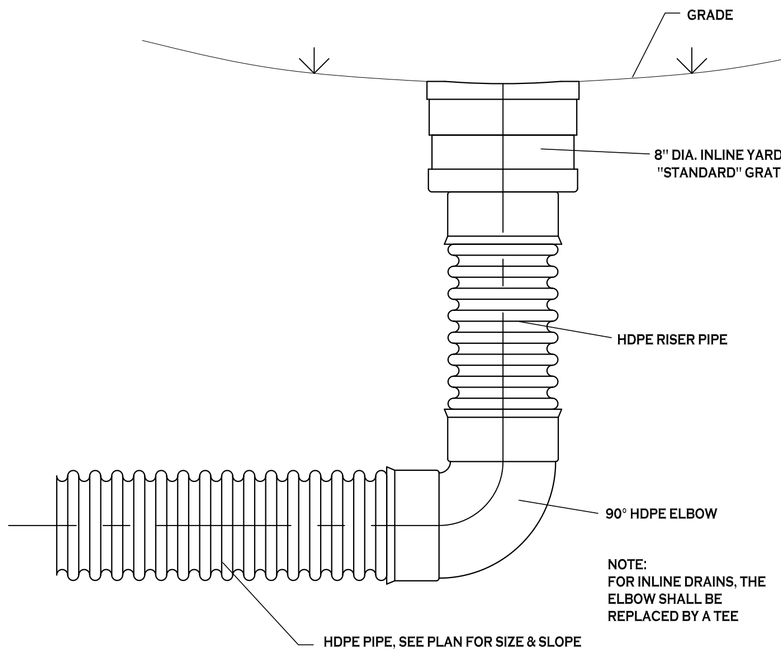
CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHORUS: 75 LBS PER ACRE MIN.
POTASSIUM: 85 LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CREEPING BENTGRASS	AGROSTIS STOLONIFERA	63.0
ROUGH BLUEGRASS	POA TRIVIALIS	17.0
MEADOW FOXTAIL	ALOPECURUS ARUNDINACEUS	11.0
ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	4.5
DEERTONGUE	PANICUM CLANDESTINUM	4.5

BIORETENTION AREA - TYPICAL SECTIONS

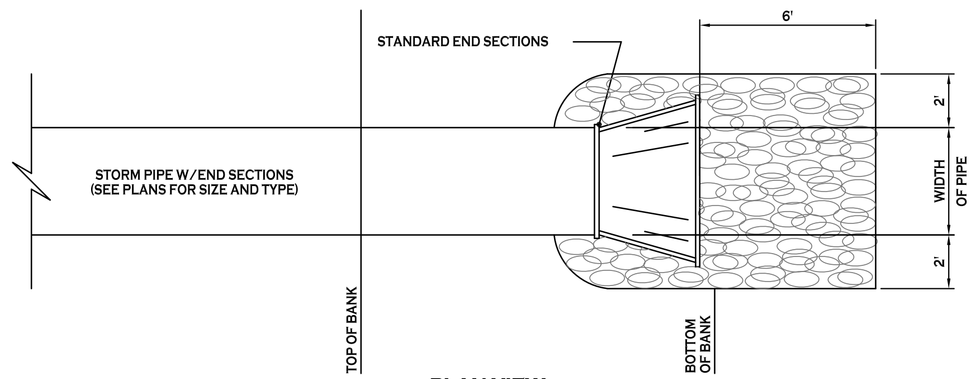
NOT TO SCALE



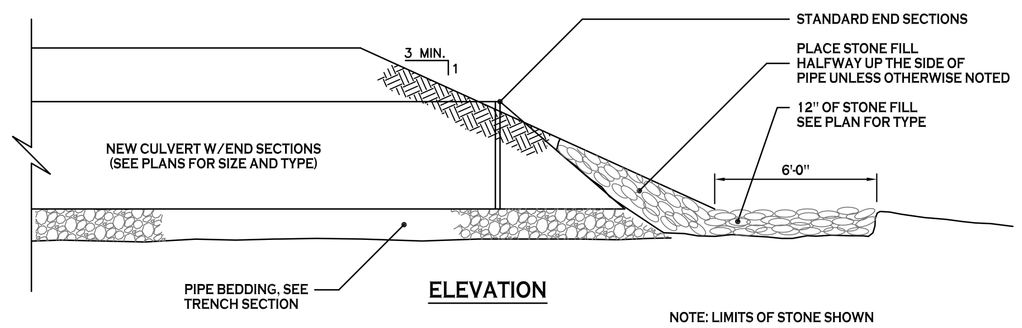
NOTE:
FOR INLINE DRAINS, THE ELBOW SHALL BE REPLACED BY A TEE

NOTE:
SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



PLAN VIEW

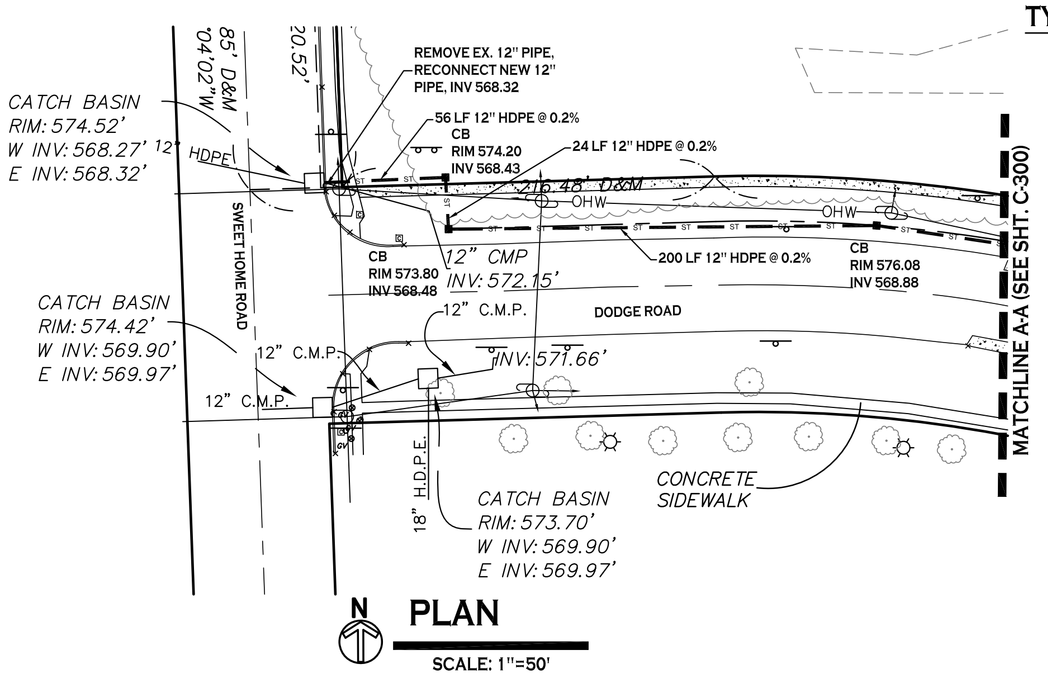


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS, PLAN MAY INDICATE GREATER LIMITS

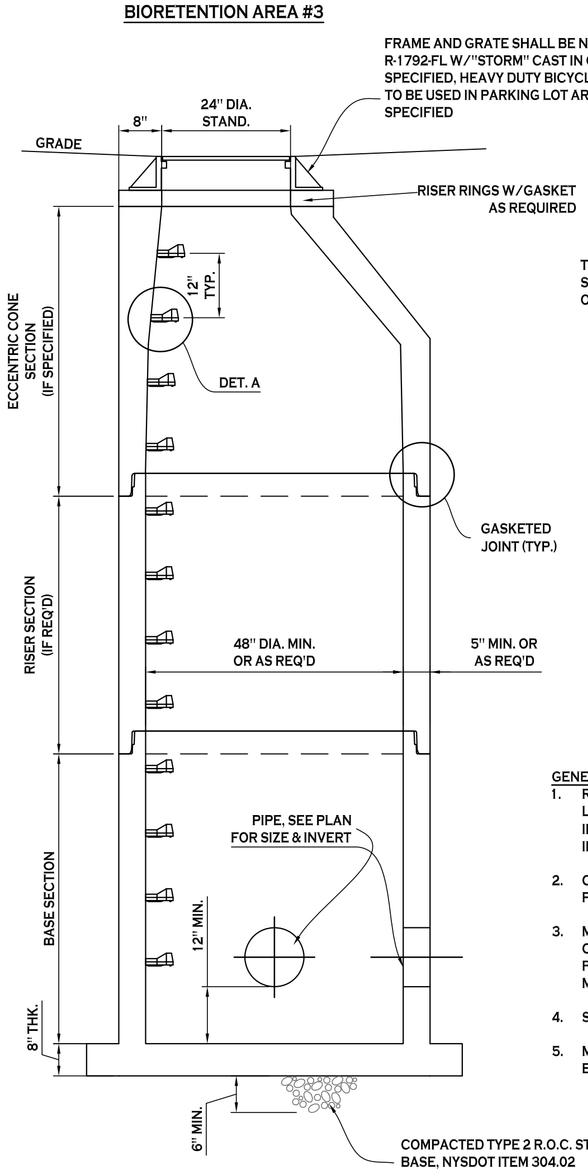
TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

NOT TO SCALE



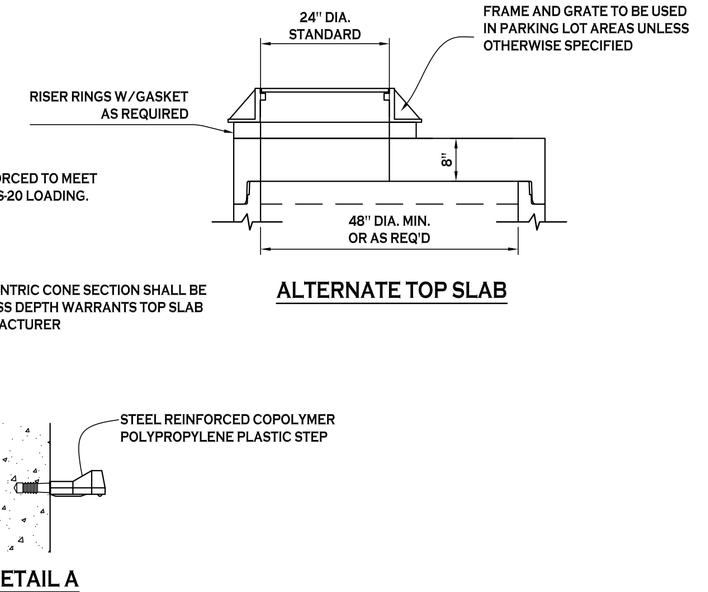
PLAN

SCALE: 1"=50'



TYPICAL STORM MANHOLE DETAIL

NOT TO SCALE

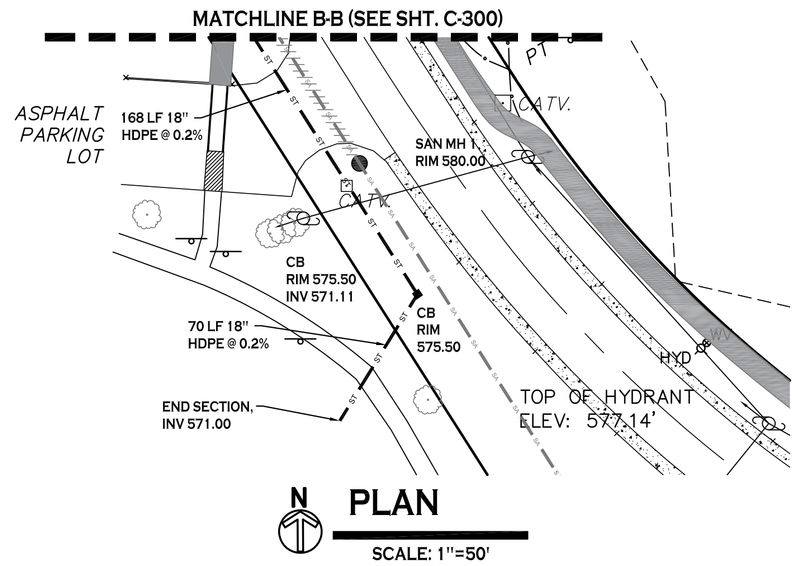


ALTERNATE TOP SLAB

NOTE: ECCENTRIC CONE SECTION SHALL BE USED UNLESS DEPTH WARRANTS TOP SLAB PER MANUFACTURER

DETAIL A

GENERAL NOTES:
1. REINFORCED STEEL TO CONFORM TO LATEST A.S.T.M. A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) IN BASE SLAB.
2. CONCRETE COMPRESSIVE STRENGTH - 4000 PSI MINIMUM.
3. MANHOLE DESIGN SPECIFICATIONS TO CONFORM TO LATEST A.S.T.M. C478 SPEC. FOR PRE-CAST REINFORCED CON-CRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.
5. MANHOLE TO BE COATED ON OUTSIDE WITH BITUMASTIC SEALER.



PLAN

SCALE: 1"=50'

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

C-301

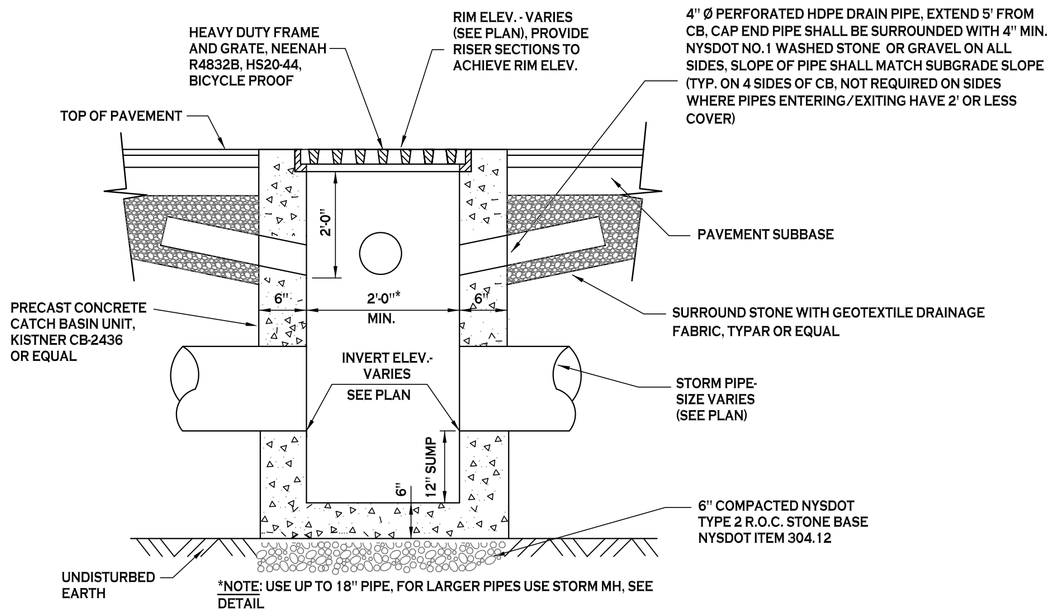
Project no.: 21.011

1b

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

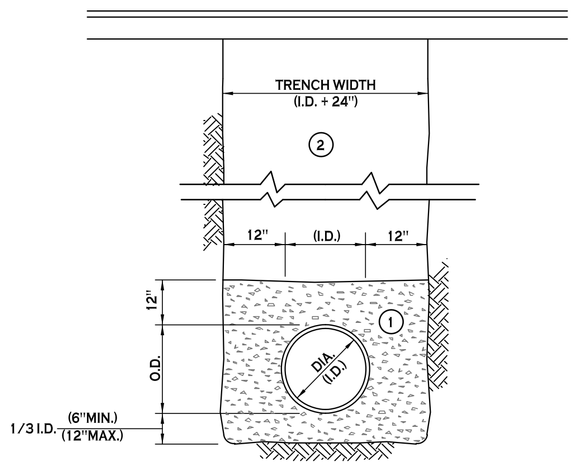
© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)



TYPICAL PRECAST CATCH BASIN

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

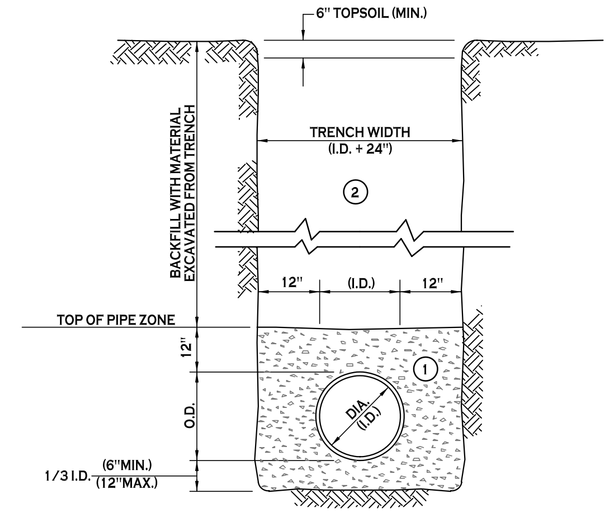
NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (2)

STORM SEWER TRENCH SECTION IN PAVED AREAS

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

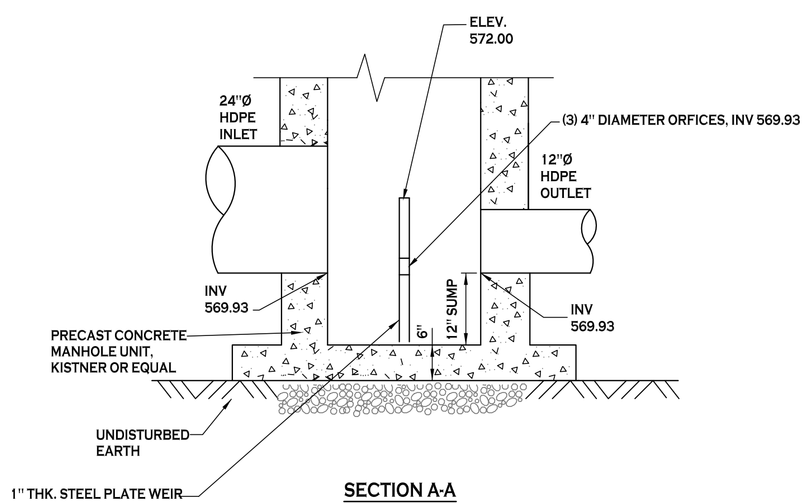
(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

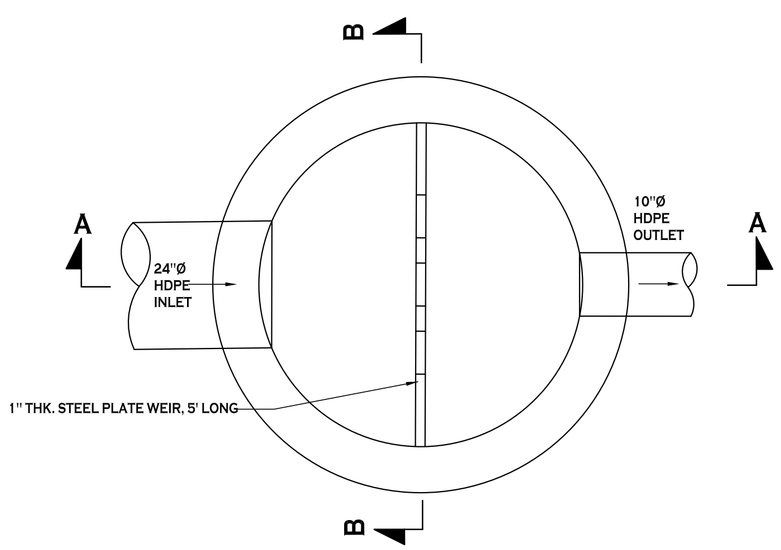
(2) BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 6" LIFTS.

STORM SEWER TRENCH SECTION IN UNPAVED AREAS

NOT TO SCALE



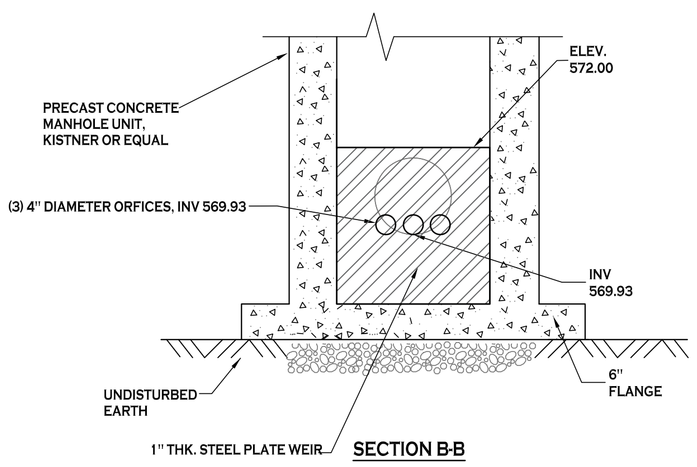
NOTES:
1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED

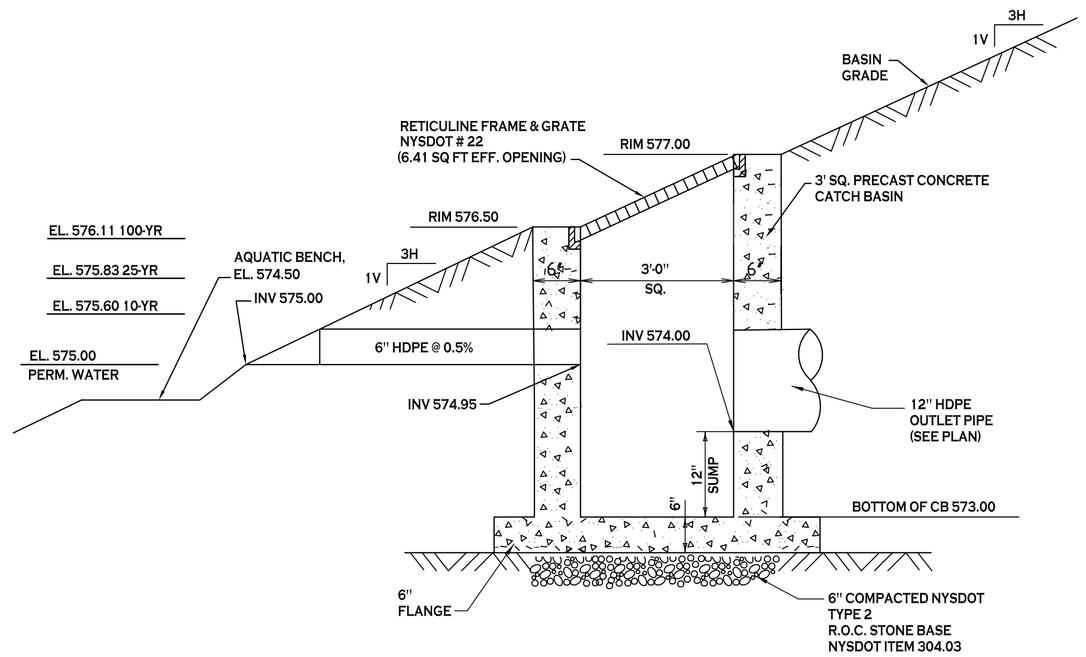


*NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52

NOT TO SCALE





DETENTION BASIN OUTLET STRUCTURE - CB 53

N.T.S.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

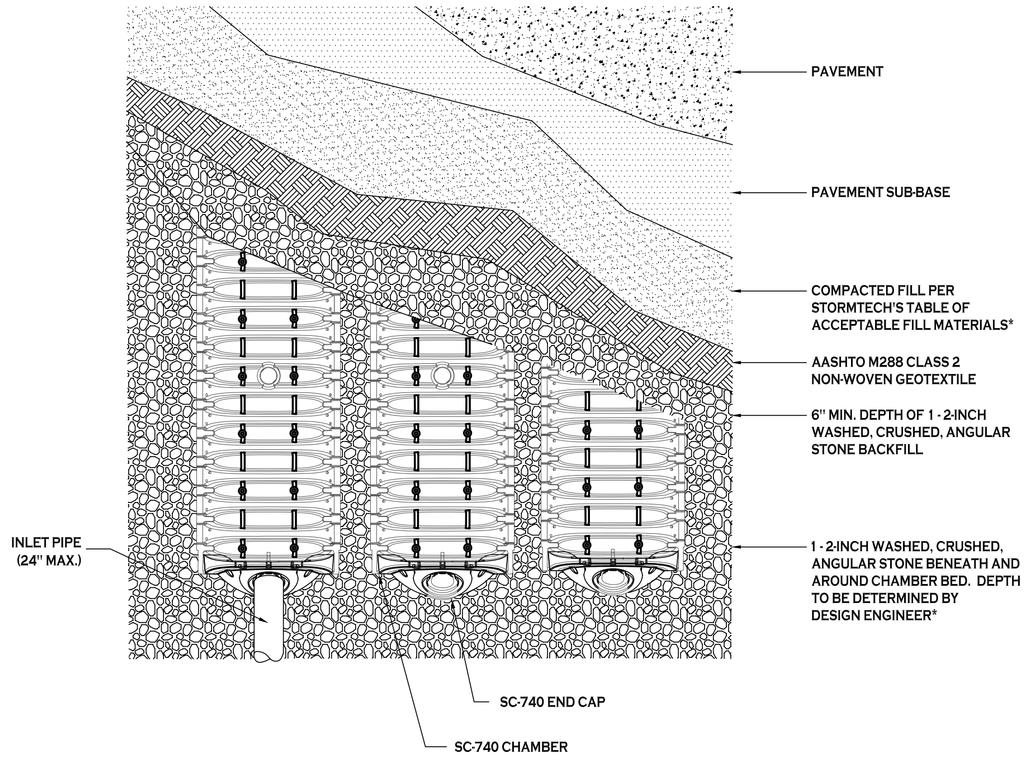
C-302

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)



STORMTECH SC-740 CHAMBER SYSTEM
PLAN VIEW DETAIL

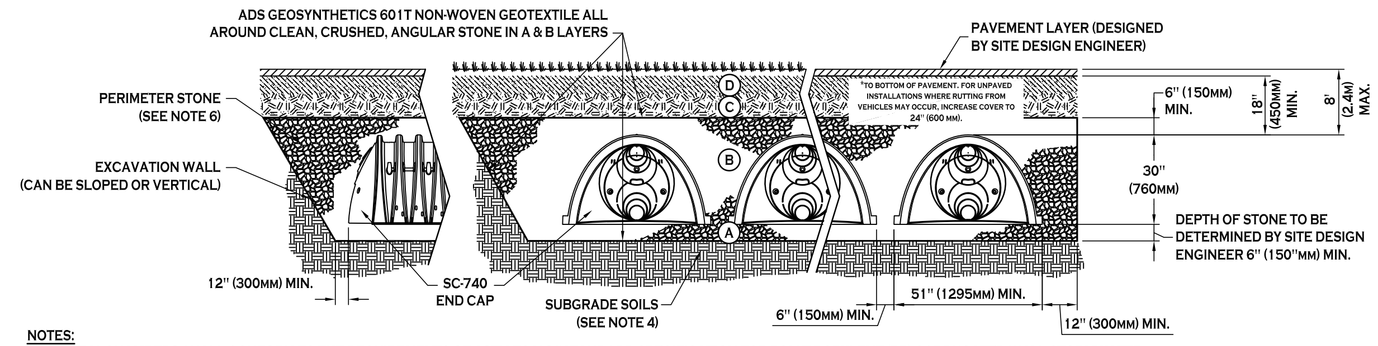
NOT TO SCALE

*SEE STORMTECH'S DESIGN MANUAL

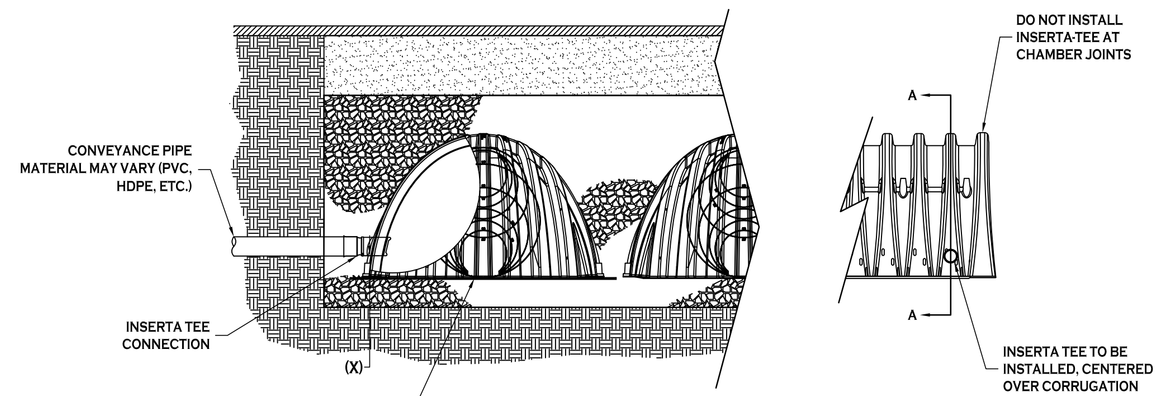
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 MM) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LATER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 MM) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 MM) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS (53 KN). DYNAMIC FORCE NOT TO EXCEED 20,000 LBS (89 KN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 MM) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 MM)	4" (100 MM)
SC-740	10" (250 MM)	4" (100 MM)
DC-780	10" (250 MM)	4" (100 MM)
MC-3500	12" (300 MM)	6" (150 MM)
MC-4500	12" (300 MM)	8" (200 MM)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

INSERTA TEE DETAIL

NOT TO SCALE

INSPECTION AND MAINTENANCE

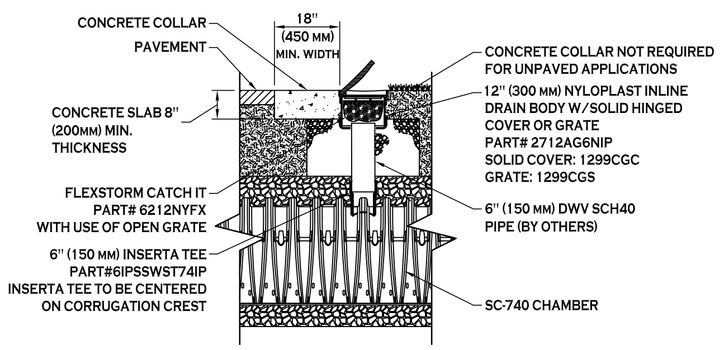
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 M) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/15/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

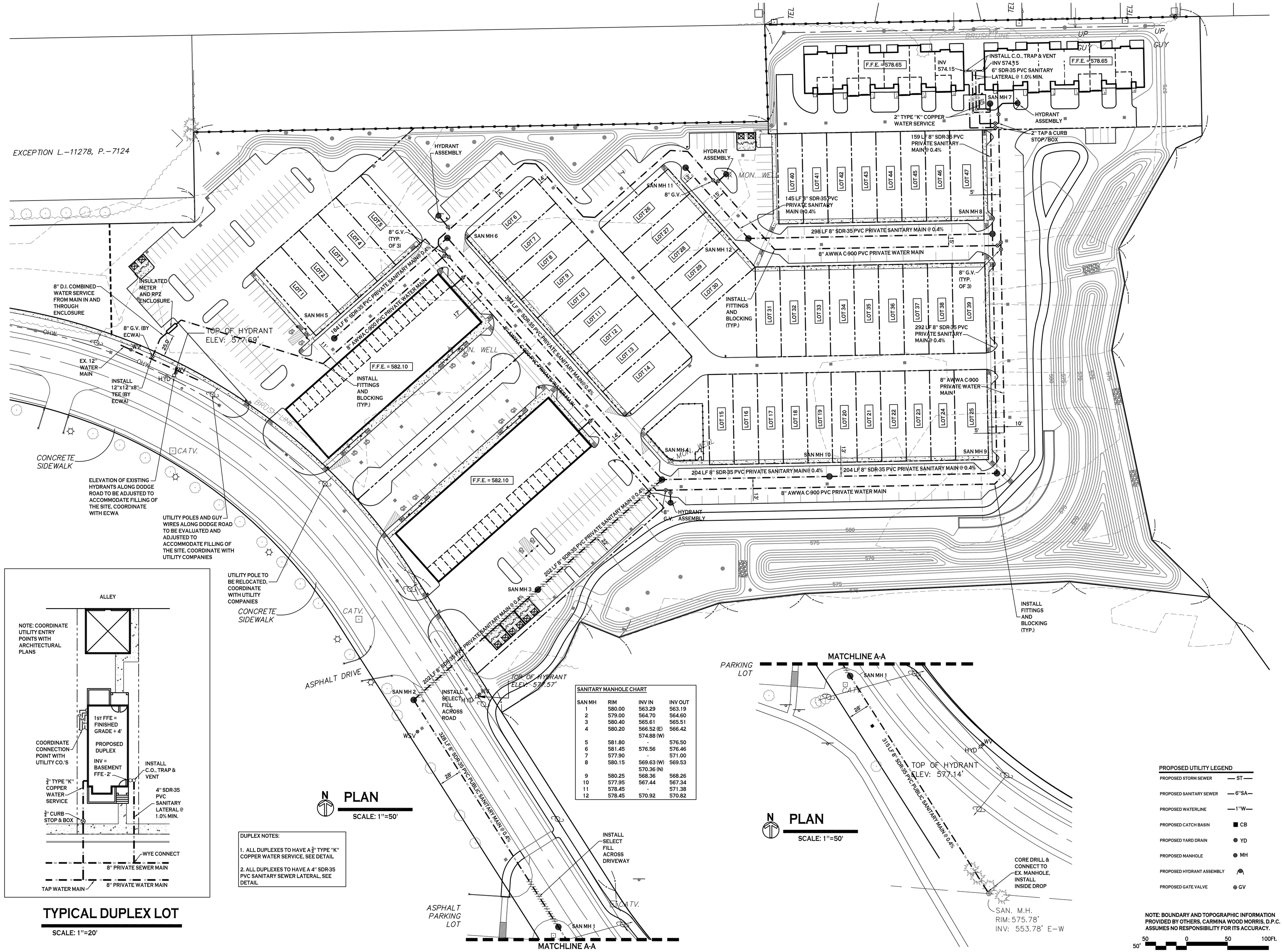
C-303

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (2305?: SP-2021-05)



N PLAN
SCALE: 1"=50'

N PLAN
SCALE: 1"=50'

TYPICAL DUPLEX LOT

SCALE: 1"=20'

DUPLEX NOTES:

1. ALL DUPLEXES TO HAVE A ¾" TYPE "K" COPPER WATER SERVICE, SEE DETAIL
2. ALL DUPLEXES TO HAVE A 4" SDR-35 PVC SANITARY SEWER LATERAL, SEE DETAIL

SANITARY MANHOLE CHART

SAN MH	RIM	INV IN	INV OUT
1	580.00	563.29	563.19
2	579.00	564.70	564.60
3	580.40	565.61	565.51
4	580.20	566.52 (E)	566.42
		574.88 (W)	
5	581.80	-	576.50
6	581.45	576.56	576.46
7	577.90	-	571.00
8	580.15	569.63 (W)	569.53
		570.36 (N)	
9	580.25	568.36	568.26
10	577.95	567.44	567.34
11	578.45	-	571.38
12	578.45	570.92	570.82

PROPOSED UTILITY LEGEND

PROPOSED STORM SEWER	ST
PROPOSED SANITARY SEWER	6"SA
PROPOSED WATERLINE	1"W
PROPOSED CATCH BASIN	CB
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH
PROPOSED HYDRANT ASSEMBLY	
PROPOSED GATE VALVE	GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Utility Plan

DRAWING NO.
C-400

Project no.: 21.011

1b

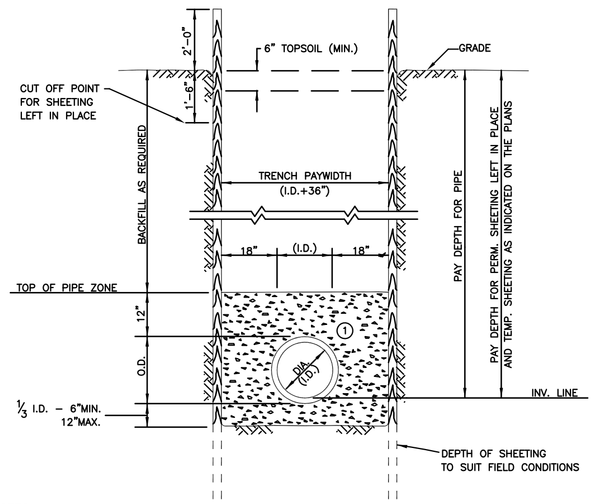
Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

Packet Pg. 714

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

SHEETED TRENCH
(JANUARY 2012)



NOTES:

1. MAINTAIN 18" BETWEEN PIPE AND INSIDE FACE OF TEMPORARY SHEETING. IF SHEETING EXTENDS BELOW PIPE INVERT AS SHOWN, WHEN PVC PIPE MATERIAL IS USED, COMPACT MATERIAL ③ BEFORE PULLING THE SHEETING.
2. SHEETED TRENCH OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING EQUIPMENT.
3. SHEETING DRIVEN BELOW THE INVERT OF THE PIPE FOR BEDDING MATERIAL AND TOE SUPPORT WILL NOT BE CONSIDERED IN THE FORMULA FOR PAYMENT BUT SHOULD BE FIGURED BY THE CONTRACTOR IN DETERMINING HIS UNIT BID PRICE PER SQUARE FOOT OF SHEETING.
4. WHERE INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER, TEMPORARY SHEETING WILL BE PAID FOR UNDER THE APPLICABLE BID ITEM. OTHER AREAS WHERE THE CONTRACTOR ELECTS TO USE TEMPORARY SHEETING NOT PREVIOUSLY AUTHORIZED BY THE ENGINEER SHALL BE AT HIS OPTION AND EXPENSE.

MATERIALS

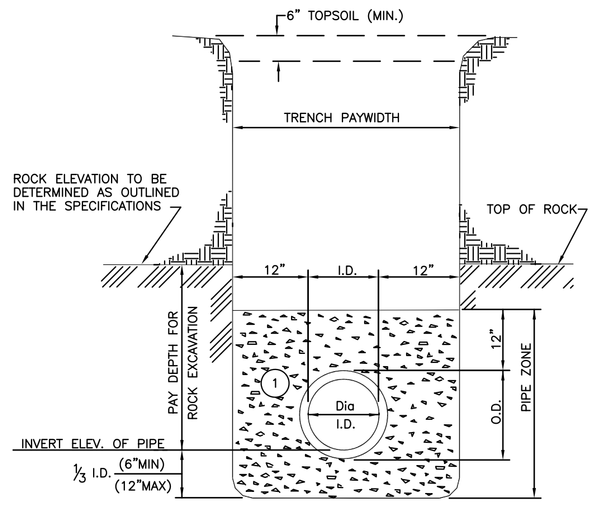
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED TOPSOIL DIMENSION	STD.DETAIL 2
	Rev. 2 6/5/06	UPDATED MATERIALS TO NYSDOT LATEST EDITION	
	File: d-02	Date: 3/1/91	

ROCK TRENCH DETAIL
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

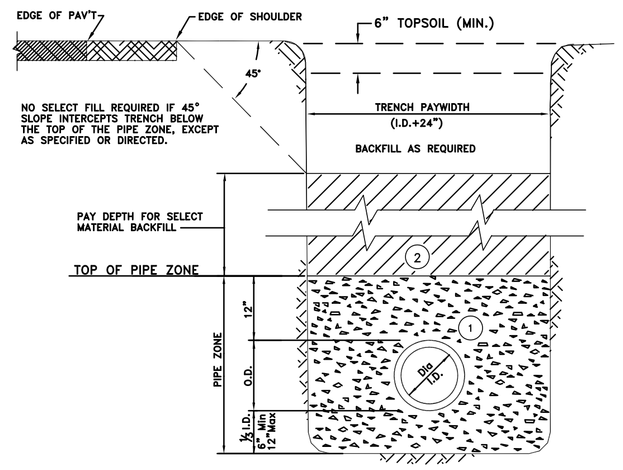
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 1/6/94	ADDED 6" TOPSOIL (MIN.)	STD.DETAIL 3
	Rev. 2 2/7/94	ADDED NOTES A & B	
	File: d-03	Date: 3/1/91	

SELECT BACKFILL FOR TRENCH PARALLEL TO ROADWAYS
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

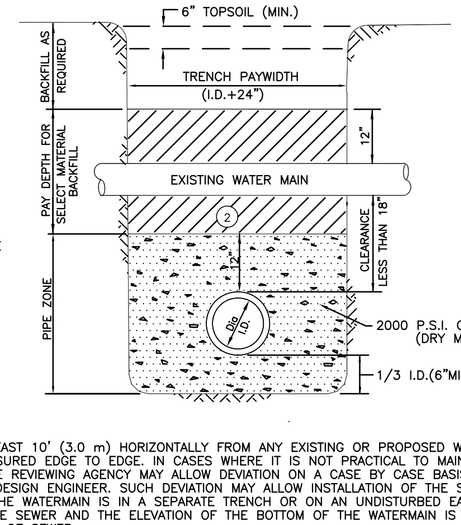
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO. 2 RUN OF CRUSHER STONE OR NO. 2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6" LIFTS TO 90% DENSITY)

NO SLAG SHALL BE ALLOWED FOR MATERIALS ① & ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 2 12/28/00	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 4
	Rev. 3 12/01	Updated NYS DOT Editions	
	File: d-04	Date: 3/1/91	

WATERMAIN CROSSING DETAIL TYPICAL FOR ENCASEMENT
(JANUARY 2012)



NOTES:

A. IN ALL CASES WHERE THERE IS LESS THAN 18" CLEARANCE BETWEEN EXISTING WATER MAIN AND PROPOSED SEWER (INCLUDING HOUSE LATERALS) THE NEW WORK SHALL BE ENCASED IN CONCRETE AS SHOWN. WHEN A CASING PIPE IS SPECIFIED, NO CONCRETE ENCASEMENT IS REQUIRED.

B. THE CONCRETE ENCASEMENT SHALL EXTEND 3'-0" EACH SIDE OF THE WATER MAIN.

C. SEWERS SHALL BE LAID AT LEAST 10' (3.0 m) HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A 10' SEPARATION, THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THE WATERMAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND THE ELEVATION OF THE BOTTOM OF THE WATERMAIN IS AT LEAST 18" (46 cm) ABOVE THE TOP OF SEWER.

D. SEWERS CROSSING WATERMAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46 CM) BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHEN THE WATERMAIN IS ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THE JOINTS OF THE SEWER PIPE WILL BE EQUIDISTANT FROM AND AS FAR AWAY FROM THE WATERMAIN JOINTS AS POSSIBLE. WHERE THE WATERMAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATERMAIN.

E. WHEN IT IS IMPOSSIBLE TO OBTAIN THE PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE SEWER SHALL BE EITHER ENCASED IN CONCRETE OR CONSTRUCTED OF PIPE MATERIAL EQUAL TO THE WATERMAIN AND PRESSURE TESTED AT 150 PSI TO ASSURE WATER TIGHTNESS.

F. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIALS PLACEMENT AND MAXIMUM PAY LIMITS.

G. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

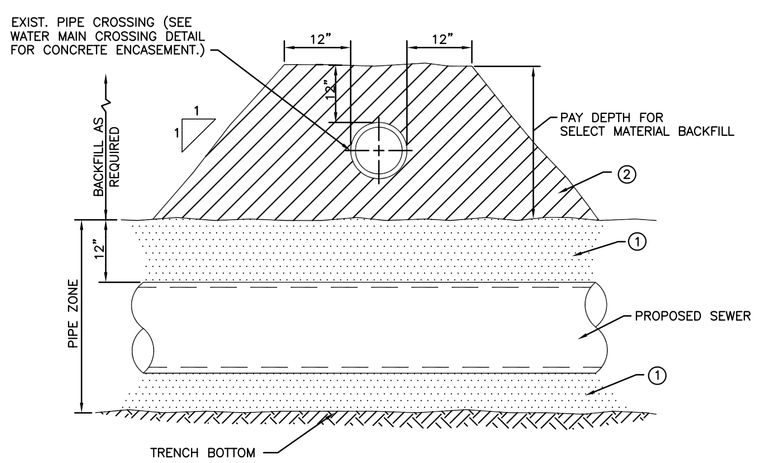
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY)

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Revisions		STD.DETAIL 5
	2/7/94	ADDED 6" TOPSOIL(MIN.) & NOTE F&G	
	01/03/01	REVISED NOTE A	
	12/01	Revised Note "A"	
	File: d-05	Date: 3/1/91	

PIPE CROSSING SUPPORT DETAIL
(JANUARY 2012)



MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

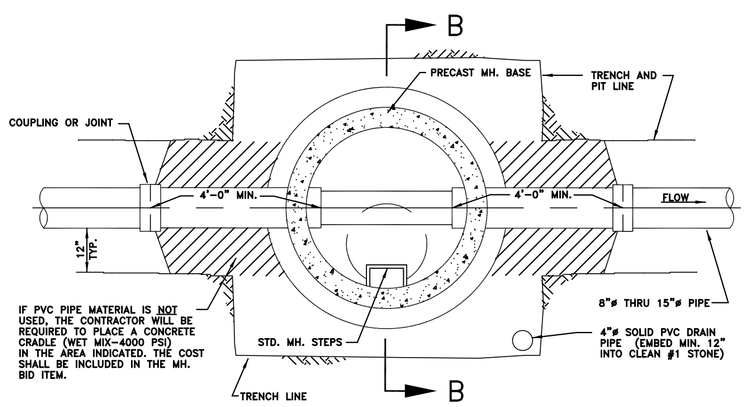
① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY) NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ① AND ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 9
	Rev. 2		
	File: d-09	Date: 3/1/91	

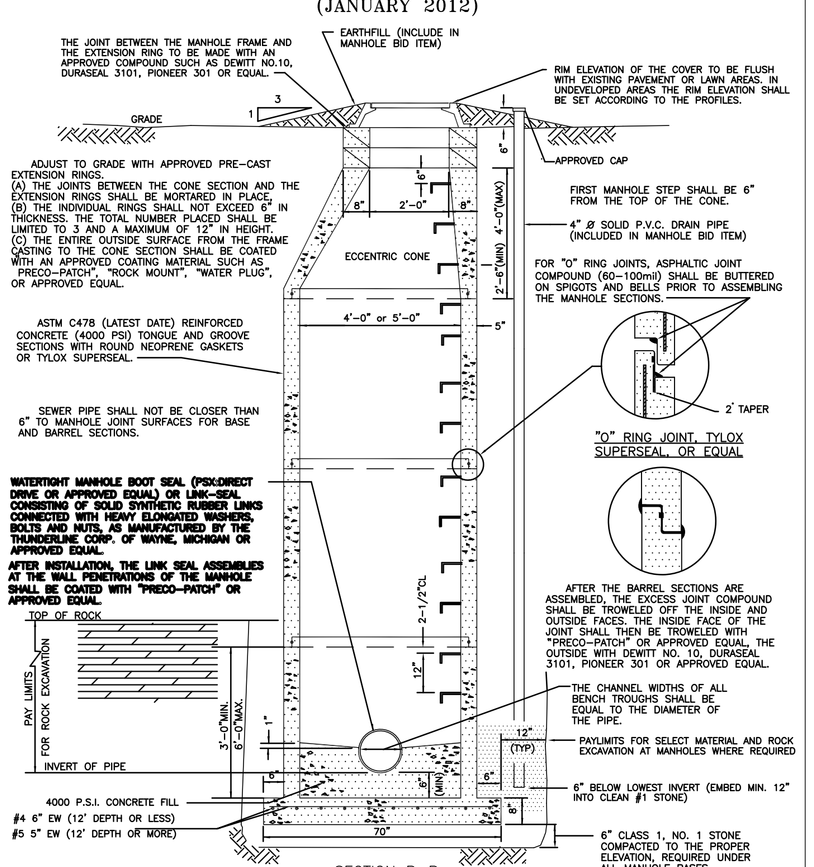
MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS
(JANUARY 2012)



PLAN

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED 4" PVC TO SOLID PIPE IN #1 STONE BED	STD.DETAIL 10
	Rev. 2		
	File: d-10	Date: 3/1/91	

MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS (SECTION B-B)
(JANUARY 2012)



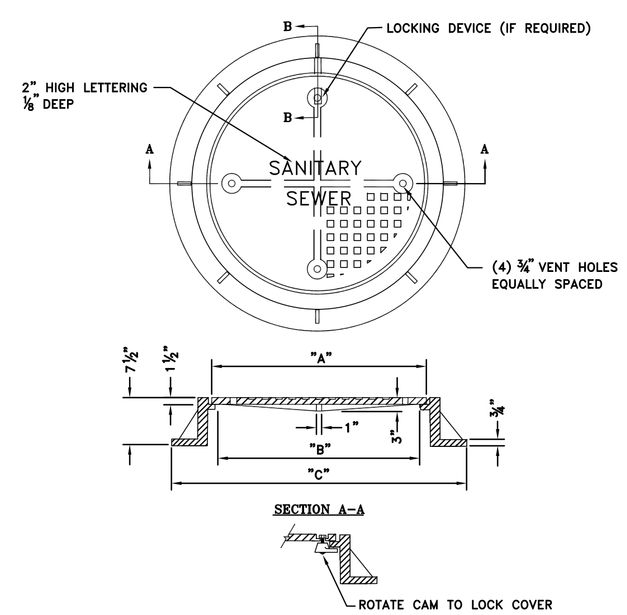
SECTION B-B

Revisions

07/15/98	ADD ROCK EXCAVATION PAYLIMITS
11/23/98	ADD 4"x4"x9" MARKER AND NOTES
12/01	REVISED 4" P.V.C. TO SOLID PIPE
03/04/03	ADDED WATER TIGHT BOOT SEAL NOTE
06/22/05	ADDED TYLOX SUPERSEAL NOTES
02/27/07	REMOVED WOOD POST AND NOTES
	CHANGED THE NUMBER OF EXTENSION RINGS FROM 2 TO 3

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT			STD.DETAIL 11
	File: d-11	Date: 3/1/91	

STANDARD FRAME AND COVER (PRIVATE SEWER)
(JANUARY 2012)



LOCKING DEVICE

TABLE				
PIPE SIZE	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	WEIGHT OF COVER
8" THRU 18"	24"	22 1/4"	35"(MAX.)	150 LBS. ± 5%
OVER 18"	32"	30"	46"(MAX.)	200 LBS. ± 5%

STANDARD FRAME AND COVER NOTES

1. MATERIAL ASTM A48 CLASS 30B CAST IRON.
2. UNIT MUST WITHSTAND H-20 WHEEL LOADING.
3. ALL DIMENSIONS ARE TO BE CONSIDERED MINIMUM WITH THE EXCEPTION OF THE COVER, WHICH MUST CONFORM EXACTLY TO MAINTAIN INTERCHANGEABILITY WITHIN THE COUNTY.
4. COVER WEIGHT 210 LBS. (MAX)
5. COATING NOT REQUIRED.
6. FRAMES AND COVERS SHALL HAVE MACHINED BEARING SURFACES.
7. LOCKING DEVICE MUST BE SITUATED TO ALLOW EASY REMOVAL OF COVER.
8. NO COMMERCIAL "BRAND NAME" LETTERING WILL BE ALLOWED ON THE EXPOSED SURFACE OF THE COVER.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 13P
	Rev. 2		
	Rev. 3		
	Rev. 4		
	File: d-13P	Date: 2/05	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Sanitary Sewer Details

DRAWING NO.

C-401

Project no.: 21.011

1b

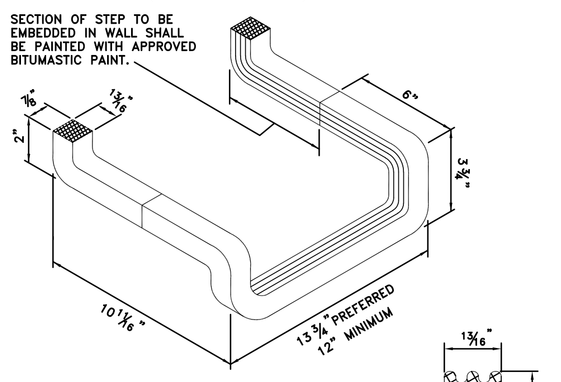
Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

Packet Pg. 715

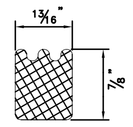
© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

STANDARD MANHOLE STEP
(JANUARY 2012)



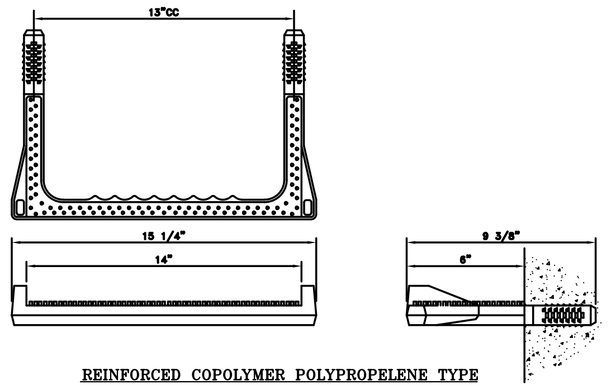
(DROP FRONT TYPE)



TYPICAL SECTION

NOTES:

1. MANHOLE STEPS SHALL BE OF FORGED ALUMINUM ALLOY.
2. AN ACCEPTABLE ALTERNATE IS THE STEEL REINFORCED COPOLYMER POLYPROPYLENE MANHOLE STEP.
3. THE STEPS SHALL BE EMBEDDED IN THE WALLS OF THE CONCRETE MANHOLE BARREL WHILE THE MANHOLE IS BEING CAST OR SECURELY GROUTED IN PLACE AFTER CASTING.



REINFORCED COPOLYMER POLYPROPELENE TYPE

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/8/08	ADDED REINFORCED COLPOLYMER TYPE STEP	STD.DETAIL 17
	Rev. 2		
	File: d-17	Date: 3/1/91	

CONSTRUCTION SPECIFICATIONS FOR HOUSE LATERALS
(JANUARY 2012)

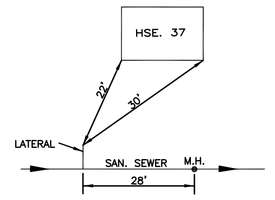
1. MATERIAL
   a. THICK WALL PVC – D – 3034, SDR–35
   b. EXTRA HEAVY CAST IRON
   c. DUCTILE IRON

2. FAR SIDE CROSSING
   a. LATERALS INSTALLED ACROSS TOWN ROADS MAY BE BY THE OPEN CUT METHOD WHERE ALLOWED BY THE HIGHWAY PERMIT.
   b. LATERALS INSTALLED ACROSS STATE OR COUNTY ROADS SHALL BE BY THE BORING AND JACKING METHOD (UNLESS OTHERWISE NOTED ON THE PLANS) USING A STEEL CASING PIPE. THE CARRIER PIPE SHALL CONFORM WITH THE MATERIAL SPECIFIED OR APPROVED BY THE ENGINEER.
   c. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
   d. ALL FAR SIDE CROSSINGS SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE R.O.W. LINE.
   e. THE CONTRACTOR SHALL SUPPLY A 2" X 4" WOOD MARKER EXTENDING FROM THE END OF THE CROSSING TO ONE FOOT BELOW GRADE. ALSO, RECORDS SHALL BE KEPT AS TO THE DEPTH OF THE HOUSE SERVICE AND A MINIMUM OF THREE (3) TIES SHALL BE ESTABLISHED FOR THE LOCATION OF THE SERVICE.
   f. LATERALS SHALL BE LAID AT A 2.0% MINIMUM GRADE. IN CASES OF A SHALLOW SEWER, A 1.0% SLOPE MAY BE APPROVED BY THE ENGINEER.

3. NEAR SIDE SERVICES
   a. THE CONTRACTOR SHALL SUPPLY WYE BRANCHES OF THE SAME MATERIAL AND CLASS AS THE SEWER MAIN.
   b. THE LOCATION OF THE WYE BRANCHES WILL BE DETERMINED BY THE CONTRACTOR AND ENGINEER IN THE FIELD AFTER CONFERRING WITH THE HOMEOWNER.
   c. THE LOCATION OF THE BRANCHES SHALL BE MEASURED FROM THE LAST DOWNSTREAM MANHOLE AND AT LEAST THREE (3) TIES FROM AN EXISTING STRUCTURE, NORMALLY THE HOME IT IS TO SERVICE.
   d. NEAR SIDE SERVICES SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE, R.O.W. LINE.
   e. THE CONTRACTOR SHALL PROVIDE A 2" X 4" WOOD MARKER EXTENDED FROM THE WYE BRANCH TO ONE (1) FOOT BELOW GRADE.
   f. ON ALL SERVICES WHERE THE MAIN IS GREATER THAN 8' IN DEPTH, THE CONTRACTOR SHALL PROVIDE A RISER PIPE TO AN ELEVATION 8' BELOW EXISTING GRADE.

NOTES:

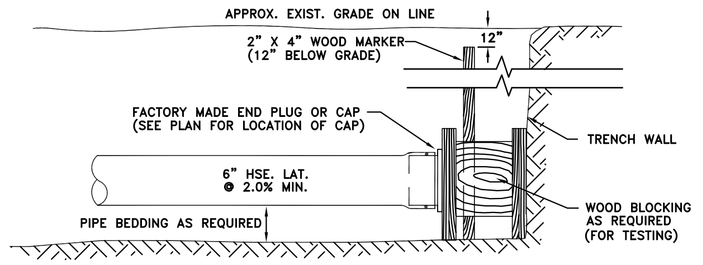
1. RECORDS OF THE DEPTH OF COVER SHALL BE KEPT FOR ALL HOUSE LATERALS BUILT ACROSS PAVEMENTS. SUCH RECORDS SHALL IDENTIFY THE LATERALS BY THE USE OF HOUSE NUMBERS AND SHALL SHOW LOCATION OF THE END OF THE HOUSE LATERAL WITH A MINIMUM OF THREE(3) TIES AS SHOWN IN EXAMPLE BELOW.



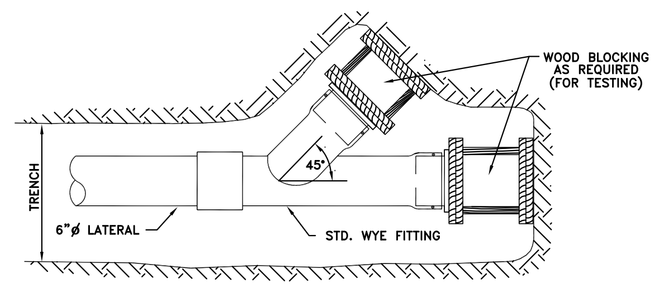
2. THE CONTRACTOR SHALL OBTAIN ALL HIGHWAY/R.O.W. PERMITS PRIOR TO START OF WORK.
3. VENTS AND CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 7/17/85	NOTE 2c: DEPTH 4'–0"	STD.DETAIL 23
	Rev. 2 12/8/86	CHANGED NOTE 1 TO THREE(3) TIES	
	Rev. 3 7/14/99	ADDED TITLE	
	Rev. 4 12/01	ADDED NOTE 5 REGARDING LOCATION OF VENTS AND CLEAN OUTS	
	File: d-23	Date: 3/1/91	

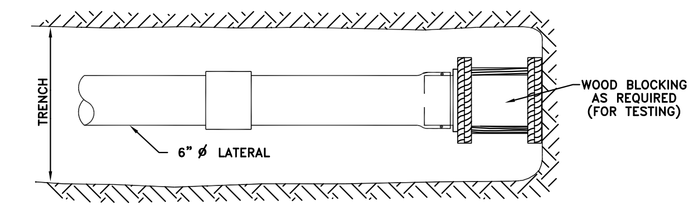
CAP & BLOCKING METHODS FOR AIR TESTING
(JANUARY 2012)



TYPICAL SECTION



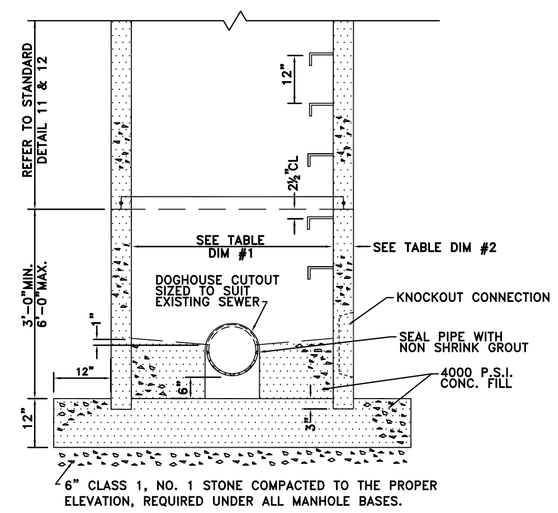
TYPE 2" SERVICE LATERAL FITTING



TYPE "1" SERVICE LATERAL FITTING

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 26
	Rev. 2		
	File: d-26	Date: 3/1/91	

PRECAST DOGHOUSE BASE MANHOLE
(JANUARY 2012)



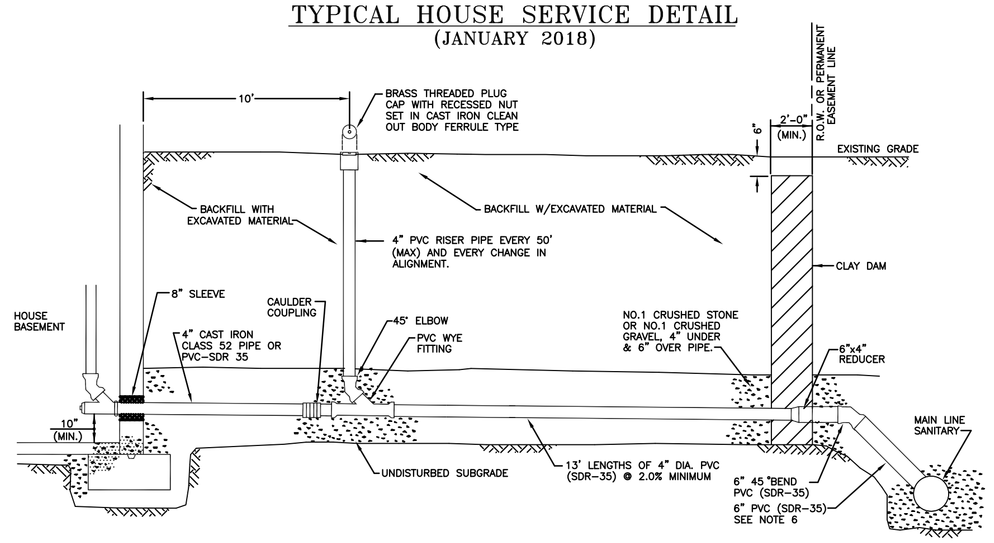
PIPE SIZE	DIMENSION #1	DIMENSION #2
8"–16"	4'–0"*	5"
18"	5'–0"	6"
21"–27"	5'–0"	6"
30"–36"	6'–0"	7"

* FOR DROP CONNECTIONS INSIDE DIAMETER SHALL BE 5'–0"

NOTE:
AREA AROUND DOGHOUSE CUTOUT & PIPE TO BE MADE WATERTIGHT UTILIZING A HYDRAULIC CEMENT MIXTURE (WATERPLUG,PRECO–PATCH, OR APPROVED EQUAL).

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 11/08/91	ADDED PIPE SIZE CHART & NOTE	STD.DETAIL 35
	Rev. 2 2/7/94	REVISED STONE UNDER MANHOLE BASE TO CLASS 1, NO. 1	
	File: d-35	Date:10/16/91	

TYPICAL HOUSE SERVICE DETAIL
(JANUARY 2018)

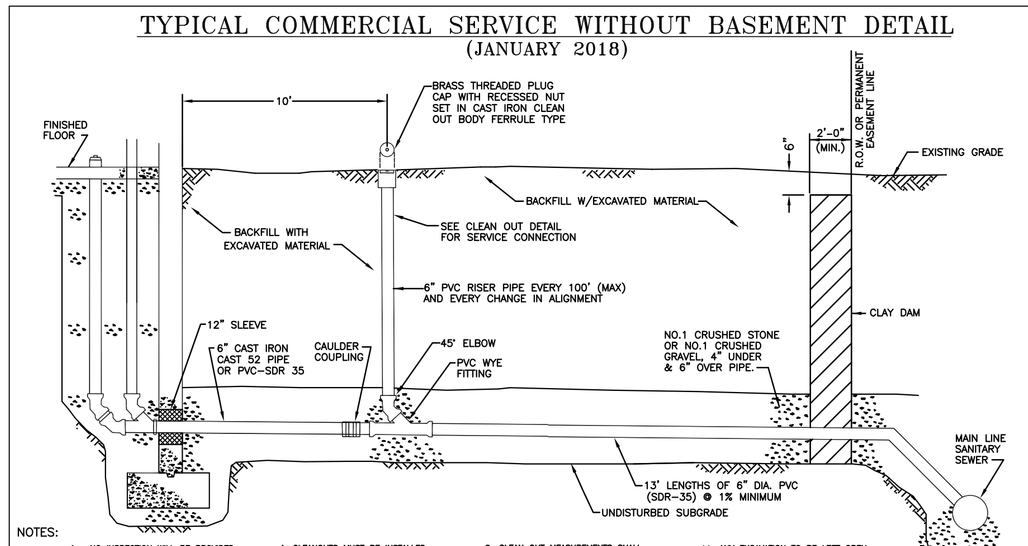


NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. A MANUAL VALVE SHALL BE IN–STALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
6. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION AN 8x6 WYE WITH 6" PVC TO 6" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 20 & CLASS 52 TYPE CI PIPE	STD. DETAIL 21
	Rev. 1/07	REMOVED OLD NOTES 1,3,8,10,12,13 AND 20 REVISED TO 6"PVC–DC/DI, 48 HR ADV NOTICE	
	Rev. 11/08	ADDED PVC TRAP AND SLEEVE	
	Rev. 01/12	REVISED 4" CAST IRON TRAP	
	Rev. 01/18	REMOVED TRAP AND RISER VENT	
	File: d-21	Date: 3/1/91	

TYPICAL COMMERCIAL SERVICE WITHOUT BASEMENT DETAIL
(JANUARY 2018)



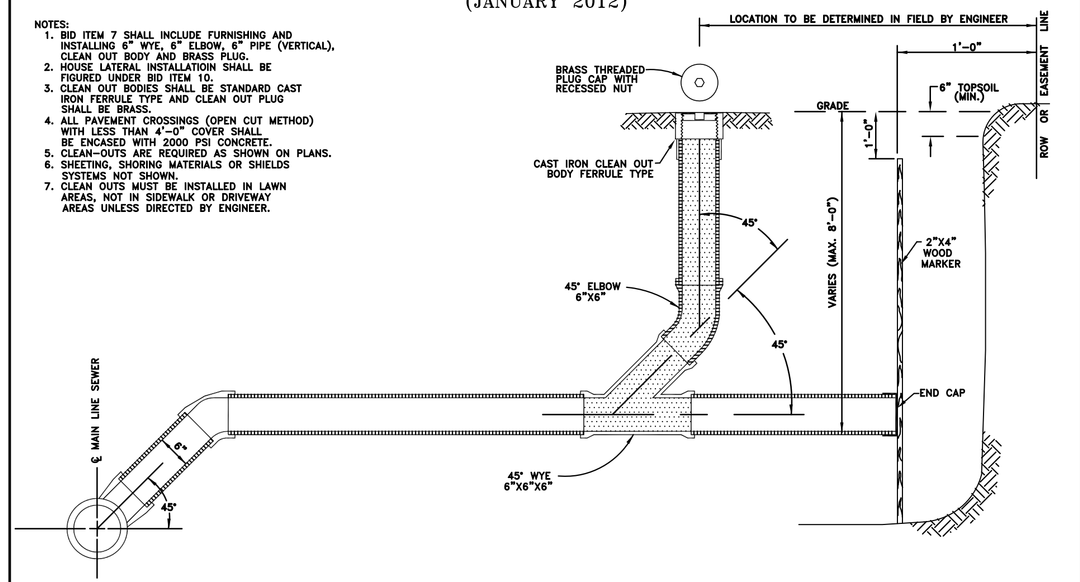
NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. CLEANOUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
5. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
6. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
7. MIN. DEPTH OF COVER 3'–0"
8. CLEAN OUT MEASUREMENTS SHALL START FROM CENTERLINE OF MAIN SEWER AND FROM THE CLEAN OUT FOR FAR SIDE CONNECTIONS. A CLEAN OUT MAY BE REQUIRED FOR ANY ABRUPT CHANGES IN LATERAL DIRECTION
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF OF PAVEMENT.
10. ANY SEWER LAID THROUGH OR OVER ROCK OR LEDGE SHALL BE LAID WITH SEPTIC TANK MUST BE FILLED WITH BANK RUN GRAVEL).
11. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
12. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE LATERAL.
13. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 18 & CLASS 52 TYPE CI PIPE	STD. DETAIL 22
	Rev. 1/07	REMOVED OLD NOTES 2 AND 18 ADDED 18 MIN. TO SERVICE PIPE DETAIL	
	Rev. 11/08	ADDED SLEEVE AND PVC–SDR 35	
	Rev. 1/12	REVISED 6" CAST IRON TRAP NOTE	
	Rev. 1/18	REMOVED TRAP AND RISER VENT	
	File: d-22	Date: 3/1/91	

CLEAN–OUT DETAIL FOR SERVICE CONNECTION
(JANUARY 2012)

NOTES:
1. BID ITEM 7 SHALL INCLUDE FURNISHING AND INSTALLING 6" WYE, 8" ELBOW, 6" PIPE (VERTICAL), CLEAN OUT BODY AND BRASS PLUG.
2. HOUSE LATERAL INSTALLATION SHALL BE FIGURED UNDER BID ITEM 10.
3. CLEAN OUT BODIES SHALL BE STANDARD CAST IRON FERRULE TYPE AND CLEAN OUT PLUG SHALL BE BRASS.
4. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
5. CLEAN–OUTS ARE REQUIRED AS SHOWN ON PLANS.
6. SHEETING, SHORING MATERIALS OR SHIELDS SYSTEMS NOT SHOWN.
7. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS UNLESS DIRECTED BY ENGINEER.



ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 5/03	4'–0" COVER, C.I. CAP "RECESSED NUT	STD. DETAIL 28
	Rev. 2 2/04	CHANGED DIM LINE FOR MAX. DEPTH	
	Rev. 3 12/07	ADDED DOVE 7	
	Rev. 4 5/02	CHANGED C.I. CAP TO BRASS	
	Rev. 5 5/08	1' MIN. FROM EDGE OF WALK NOTE	
	Rev. 6 1/12	CHANGED CI. TO BRASS NOTES 1 & 3	
	File: d-28	Date: 3/1/91	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Details

DRAWING NO.
C-402

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

GENERAL NOTES FOR
SANITARY SEWER CONSTRUCTION
WITHIN ERIE COUNTY SEWER DISTRICTS

1. The Erie County Division of Sewerage Management (DSM), who operates and maintains the existing sewer lines and appurtenances within Erie County Sewer Districts (ECSD), is to be notified at least 48 hours in advance of the start of construction.

2. Construction shall be in accordance with the Rules and Regulations for Erie County Sewer Districts.

3. All permits required by the Federal, State, County, City and/or Town governments to perform work must be obtained prior to the start of work, and paid for by the Contractor.

4. If easement and/or Out of District Agreements are required, they must be complete and ready to be filed before the project will be approved for construction.

5. The contractor shall comply in all respects to the Industrial Code Part (Rule No.) 53 relating to construction, excavation, and demolition operations at or near underground facilities, as issued by the State of New York Department of Labor, Board of Standard and Appeals.

6. The construction of the sanitary sewer facilities shall be under the supervision of a person or firm qualified to practice professional engineering in New York State under the Education Law of the State, whenever engineering services are required by such law for such purposes.

7. Where such sanitary sewer facilities are under the supervision of a professional engineer, he/she shall certify to the DSM and to the applicant that the constructed facilities have been under his/her supervision and that the work has been fully completed in accordance with the approved engineering reports, plans, specifications, and approvals.

8. The Contractor is solely responsible for all site safety. The Contractor's equipment and methods of operation shall be in full compliance with OSHA Standards and satisfy all Federal, State and Local Health and Safety Regulations.

9. The Contractor is advised a trench shield and/or shoring designed in accordance with OSHA Standards shall be used in all open trench excavations.

10. Any contractor and/or plumber performing work in a confined space (i.e. manholes, wetwells, and chambers) owned by an Erie County Sewer District, must certify to the County that they have their own Confined Space Entry Program that meets or exceeds OSHA's regulations. Certification must be notarized by a notary public.

11. The contractor shall expose existing utilities ahead of the pipe laying operation, so if minor adjustments must be made in the pipe elevation and/or alignment due to interference from these utilities, said changes can be made in advance of the work.

12. The contractor shall retain the services of a qualified tree expert to remove, where necessary, branches which interfere with the construction operation, or to repair trees having suffered damage by construction activities. The cost involved is to be included in the various items of the contract.

13. The proposed 8 through 12 inch diameter sanitary sewer pipe shall be polyvinyl chloride (PVC) sewer pipe conforming to the latest revisions of American Society for Testing and Materials (ASTM) designation D-3034, SDR-35, installed in accordance with the ASTM designation D-2321-83a or the latest revision thereof, or approved equal. Larger diameter pipes will be reviewed on a case by case basis.

14. Sewers shall be laid with straight alignment between manholes and shall be checked by using a laser beam or lamping.

15. Should a fluid condition be encountered at the trench bottom, the contractor is to undercut the trench and provide suitable fill material (stone & fabric) to stabilize the trench bottom.

16. Sanitary sewer bedding material shall be No. 1 crushed stone with a gradation conforming to the *DSM Specifications for Subdivisions and Sanitary Sewer Extensions.*

17. Backfill shall be of a suitable material removed from the excavation except where other material is specified. Debris, frozen material, large clods or stones, organic matter, or other unstable materials shall not be used for backfill within two (2') feet of the top of the pipe.

18. All pipes crossing under paved areas are to be backfilled to sub-grade with compacted select material (No. 2 crushed stone) to five (5') feet outside the pavement edges or as required by the highway permit. If any proposed sewer runs under paved areas and has less than four (4) feet of cover, then concrete encasement is required as shown on the DSM Typical Concrete Encasement Detail.

19. Sewers parallel to watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.31, and Page 30-11:* Sewers shall be laid at least ten (10') feet (three (3) meters) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten (10') foot separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18-inches (460 mm) above the top of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the regulatory agency and be pressure tested to 150 pounds per square inch (psi) (1034 kPa) to assure water tightness prior to backfilling.

20. Sewers crossing watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.32, Page 30-11 to 30-12:* Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18-inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

21. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods must be specified:

    a. The sewer shall be designed and constructed equal to water pipe, and shall be pressure tested at 150 psi (1034 kPa) to assure water tightness prior to backfilling.
    b. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends ten (10') feet (three (3) meters) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the regulatory agency for use in water main construction.
    c. The sewer shall be encased in concrete per the DSM Watermain Crossing Detail Typical For Encasement

22. The manhole covers are to bear the inscription "ECSD SANITARY" and comply with the DSM Standard Frame and Cover detail. For private projects the covers shall bear the inscription "SANITARY SEWER" and comply with the DSM Standard Frame and Cover (Private Sewer) detail.

23. Building sanitary sewer vents must be installed six (6) inches above finished grade in a grassy area with a mushroom cap. If the vent is in a sidewalk or paved area, then protect with 6" diameter bollards (2 minimum).

24. Cleanouts (c.o.) are required on 4" and 6" building sewers every fifty feet and one hundred feet respectively, and at every change of alignment.

25. Abandoned building sewer connections from the site, if any, require proof of a District Permit for Disconnection prior to the new connection being made.

26. The following pertains only for direct replacement of in service sanitary sewers:
    a. Each new pipe joint shall be ultrasonic tested after it is laid, but before the next pipe is laid. All tests shall be in accordance with the testing equipment manufacture recommendations.

    b. The ultrasonic test shall be performed in lieu of the hydrostatic and air tests.
    c. A video inspection of the entire sewer shall be performed. Forward the video inspection tape and related paperwork to DSM for review and approval.
    d. A deflection test is required in all cases.

27. For all sanitary sewer installations, a written certificate of construction completeness and compliance, including the results of the hydrostatic leakage test, lamp test, deflection test, air test, etc. shall be submitted to the Erie County Health Department and DSM within thirty (30) days after completion of construction.

28. For all public and private 8" diameter pipe or larger sanitary sewer installations, the developer/contractor must provide one (1) set of record drawings on "D" size paper (24" x 36") and in an electronic file format (CD or flash drive) compatible with the latest AutoCAD release.

29. All public sewer extension projects that consist of more than 750 LF of 8" diameter pipe or larger, shall furnish a 2 year maintenance bond to the DSM.

30. Final Certification will be issued upon the full completeness and compliance of the project including any requirement(s) of I&I remedial work.

Carmina
Wood
Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer
General Notes

DRAWING NO.
C-403

Project no.: 21.011

1b

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

A. Requirements

1. After backfilling and prior to the final acceptance of the project, the Contractor will be required to perform the following three tests on all sewers built under this project:

a) Air Tests
b) Infiltration or Exfiltration
c) Deflection Test (15" dia. and smaller).

2. No more than 1,000 linear feet of installed sewer shall be allowed to remain untested.

3. In view of the fact that house laterals and riser pipes often contribute considerable infiltration, such laterals and risers are to be installed and capped, tied and blocked as the work progresses, prior to the air testing of the lines.

4. The Contractor's testing procedures shall be completed in accordance with OSHA Standards for confined space entry. The Contractor will be required to provide and operate all equipment necessary for full compliance for his operation. Equipment such as gas detectors, safety harnesses, ventilating blowers, respirators etc. shall be provided by the Contractor.

B. Air Tests (Required for All Diameters up to and including 36") 10 State Standards Section, 33.94

1) This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2) The procedure for air testing shall be as specified herein. The minimum allowable time for the test pressure to decrease from 3.5 psi to 3.0 psi shall be not less than as called for in the following table:

Minimum Acceptance Times* For Length Shown (min:sec)

Pipe Diameter	Up to 100'	100 - 200'	200 - 300'	300 - 400'
6"	2:50	2:50	2:50	2:51
8"	3:47	3:47	3:48	5:04
12"	5:40	5:42	8:33	11:24
15"	7:05	8:54	13:21	17:48
18"	8:30	12:49	19:14	25:38
21"	9:55	17:27	26:11	34:54
24"	11:24	22:48	34:11	45:35
27"	14:25	28:51	43:16	57:42
30"	17:48	35:37	53:25	71:13
33"	21:33	43:56	64:38	86:10
36"	25:39	51:17	76:55	102:34

* Erie County Sewer District Inspector will extend time to the next full minute during the test.

3. Pipe lines in sizes up to 36 inches in diameter can be air tested from manhole to manhole for distances not to exceed 400 feet.

4. In wet trenches where pumping to lower the water table is impractical, approved 4" diameter, solid PVC drain pipe (with approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole in order to calculate the groundwater pressure acting on the pipe exterior. The initial air test pressure shall be increased as necessary to overcome the calculated groundwater pressure.

5. The testing procedures outlined shall be strictly adhered to.

6. All testing equipment shall be supplied by the Contractor and be in good working condition. Some of the major equipment required for air tests is:

a) Stop watch graduated in tenths of a second.
b) Compressor of 50 to 100 psi capacity.
c) Bulkheads for pipe.
d) Approximately 100 feet of 3/8" diameter air hose.
e) Pressure gauge - 0 to 5 psi graduated in 1/16th of a pound increments.
f) Three 3/8 inch diameter check valves.

C. Infiltration Tests (Applicable Only if Ground Water is Two Feet Above the Top of the Pipe)

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. Infiltration tests for all sewers constructed under this project shall not exceed 100 gallons per inch diameter per mile of sewer, per 24 hours. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration. All equipment for the tests shall be furnished by the Contractor and be in good working condition.

3. The allowable rate of infiltration given in gallons per mile is not to be construed as a commitment on the part of the District to accept an entire line, where overall infiltration is less than the allowable, while one or more runs contribute excessive infiltration.

4. The infiltration test is intended to measure the water tightness of a sewer as related to the infiltration of ground water and is only applicable if the water table level is 2 feet or higher above the top of the pipe for the entire length of the test section.

RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES, 2014 EDITION

38.3 Relation to Water Mains

38.31 Horizontal and Vertical Separation

Sewers shall be laid at least 10 feet (3 m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. For gravity sewers where it is not practical to maintain a 10 foot (3 m) separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the gravity sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the gravity sewer and at an elevation so the bottom of the water main is at least 18 inches (460 mm) above the top of the sewer.
If it is impossible to obtain proper horizontal and vertical separation as described above for gravity sewers, both the water main and gravity sewer shall be constructed of slip-on or mechanical joint pipe complying with Section 8.1 and Section 8.7 of the "Recommended Standards for Water Works - 2012 Edition" and shall be pressure rated to at least 150 psi (1034 kPa) and pressure tested to ensure watertightness.

38.32 Crossings

Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.
When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:
30-11
a. The sewer shall be designed and constructed equal to water pipe, as described in Paragraph 38.31.
b. Either the water main or the sewer line may be encased in a watertight carrier pipe that extends 10 feet (3 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be made of materials approved by the regulatory agency for use in water main construction.

a) Approved 4" diameter solid PVC drain pipe (with an approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole so that the ground water level can be correlated with the infiltration measurements.

b) Before conducting the tests, the water table should be allowed to stabilize at its normal level and verified that it is 2 feet above the top of the pipe during the test period. The test is usually conducted between adjacent manholes with the upstream end of the sewer bulkheaded in a suitable manner to isolate the test section. All service laterals, stubs and fittings should be properly plugged or capped at the connections to the test pipe section to prevent the entrance of ground water at these locations.

c) A V-notch weir or other suitable measuring device should be installed in the inlet pipe of the downstream manhole. Infiltrating water is then allowed to build up and level off behind the weir until a steady, uniform flow occurs over the weir. Leakage is determined by direct reading from graduations on the weir consecutively for five (5) days and converting the flow quantity to gallons per unit length of pipe per unit of time.

d) An important factor in applying the test criteria is to properly correlate the variable water head over the length of the sewer being tested to the high ground water level. A minimum of 2 feet of water over the pipe is required at the upper manhole before the infiltration test will be allowed.

5. When a sewer run between two consecutive manholes or chambers is found to contribute infiltration at a rate above the allowable, inspection by television or other cameras may be made by the Contractor so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

D. Exfiltration Tests

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. The exfiltration test for all diameter sewers shall be as described below. Although actual infiltration will normally be less than that indicated by the water exfiltration test, the test does provide a positive means of subjecting the completed sewer system to an actual pressure test. Since sanitary sewers are not designed or expected to operate as a pressure system, care must be exercised in conducting the test and correlating the results with the allowable exfiltration limits.

a) The test is usually conducted between adjacent manholes. Prior to the test, all service laterals, stubs and fittings within the test section should be plugged or capped and adequately braced or blocked to withstand the water pressure resulting from the test.

b) If manholes are to be included in the test, the inlet pipe to each manhole should be bulkheaded and the test section filled with water through the upstream manhole. To allow air to escape from the sewer, the flow should be at a steady rate until the water level in the upstream manhole provides an average pressure of 5 psi (11.6' head) at the center point of the test section or the upstream manhole is filled. If necessary, provisions should be made to bleed off entrapped air during the filling of the test section.

c) Once the test section is filled, the water should be allowed to stand for an adequate period of time (one day minimum) to allow for water absorption by the pipe and manhole. After water absorption has stabilized, the water level in the upstream manhole is brought up to the proper test level and this level established by measuring down from the manhole rim or other convenient datum point. After 24 hours, the water elevation should be measured from the same reference point and the loss of water during the test period calculated, or the water can be restored to the level existing at the beginning of the test, and the amount added used to determine the leakage.

d) To exclude both manholes from the test,it is necessary to bulkhead the outlet pipe of the upstream manhole. Provision must be made in the bulkhead for filling the pipe and expelling trapped air.

e) The water level at the upstream manhole shall be computed and varies above the top of the pipe. Since the sewer is installed on a grade, the test section downstream will most likely be subjected to a greater pressure. Therefore, the test pressure head at the upstream manhole should be adjusted such that the maximum pressure on the pipe being tested is no greater than 10 psi, (23 feet of head).

3. When a sewer run between two consecutive manholes or chambers is found to exfiltrate at a rate above the allowable, inspection by television or other cameras may be made by the Contractor during wet weather, so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

E. Deflection Test

1. This test shall be performed no earlier than 30 calendar days after the trenches are backfilled.

2. All flexible (PVC) sewers 8" diameter or larger constructed under this project shall be internally checked with a five percent (5%) deflection "go-no-go pig" or Mandrel to determine if the pipes are deflecting excessively. Any section of pipe unable to pass the deflection test "pig test" shall be removed and replaced at the Contractor's expense.

3. Deflection testing mandrels or pig shall be pulled thru the pipe by hand or hand operated winch. Power winches or drives are not permitted.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Testing Notes

DRAWING NO.
C-404

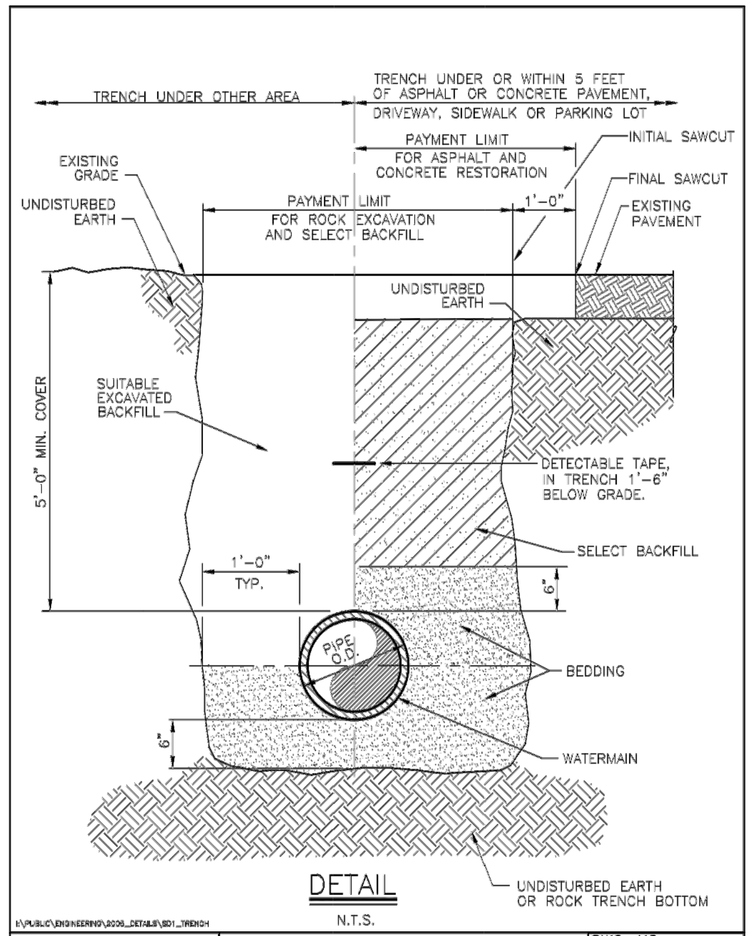
Project no.: 21.011

1b

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

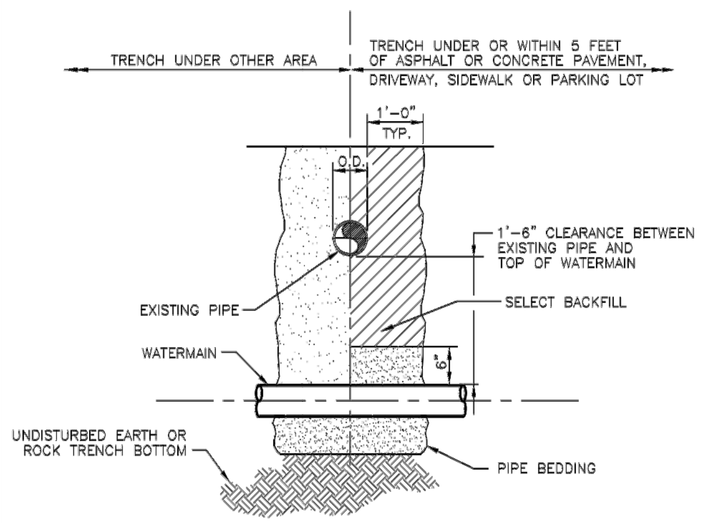
Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)



DETAIL
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD1_TRENCH

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TRENCH THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD1	
		DATE 4/28/92	REVISED 10/05



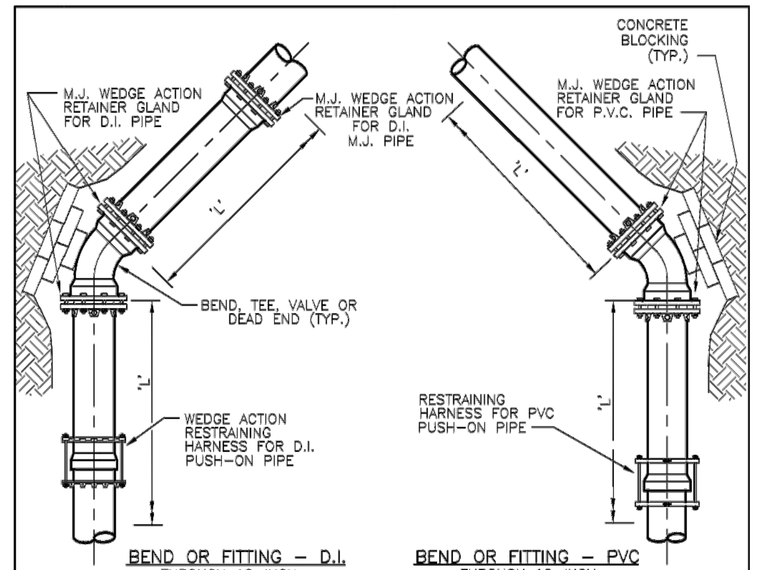
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18 FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2	
		DATE 4/28/92	REVISED 10/05



BEND OR FITTING – D.I.
THROUGH 12–INCH

BEND OR FITTING – PVC
THROUGH 10–INCH

RESTRAINED JOINT SCHEDULE					
PIPE SIZE	PIPE TYPE	11.25° ELBOW 'L'	22.5° ELBOW 'L'	45° ELBOW 'L'	TEE BRANCH, 90° BEND, VALVE OR DEAD END 'L'
6"	PVC	13'	25'	50'	120' MIN.
8"	PVC	15'	30'	59'	122' MIN.
8"	D.I.P.	15'	30'	59'	122' MIN.

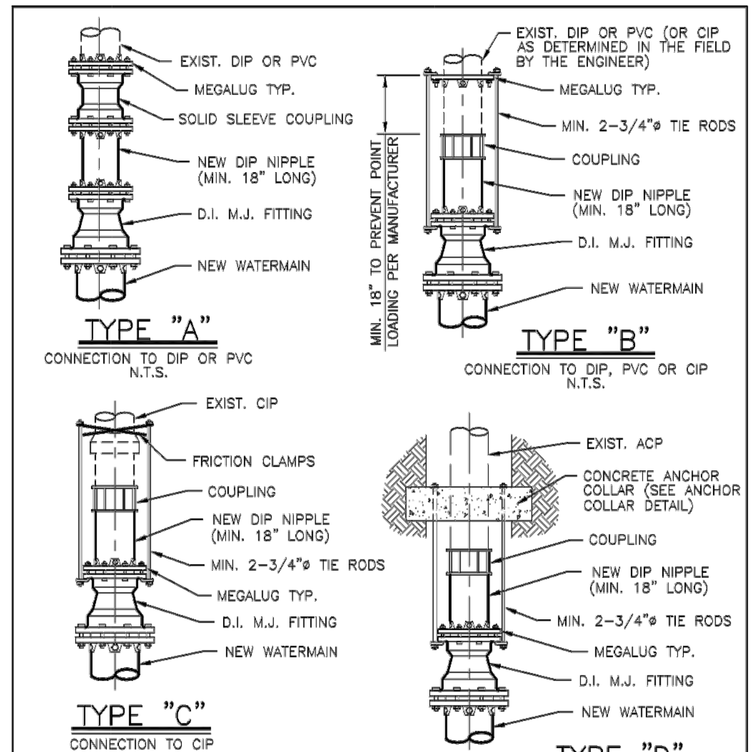
NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD4_REST._JOINT_SCHED

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL RESTRAINED JOINT SCHEDULE	DWG. NO. SD4	
		DATE 4/28/92	REVISED 10/05

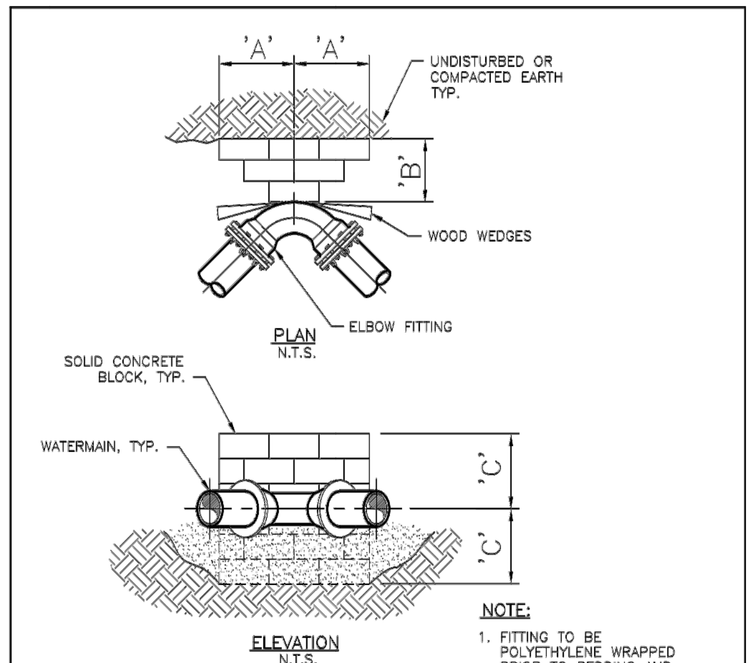


NOTES:

1. VALVES AND TEES MAY BE HARNESSED SIMILARLY.
2. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURE–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
3. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
4. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD5_CONN_EXIST_MAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TYPICAL CONNECTION TO EXISTING WATERMAIN THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD5	
		DATE 3/05	REVISED 10/05



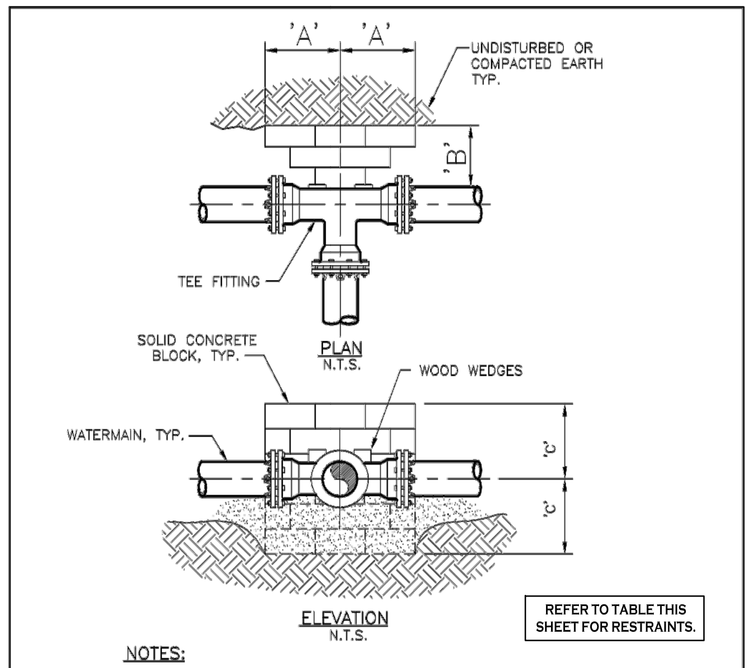
NOTE:

1. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

DIMENSION SCHEDULE												
PIPE SIZE	11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'
8"	1.5'	1.5'	2.5'	2.5'	1.5'	2.5'	3.0'	1.5'	3.5'	3.5'	1.5'	5.0'

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD6_THRUST_BLOCKS_ELBOW

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR ELBOW FITTING	DWG. NO. SD6	
		DATE 4/28/92	REVISED 10/05



NOTES:

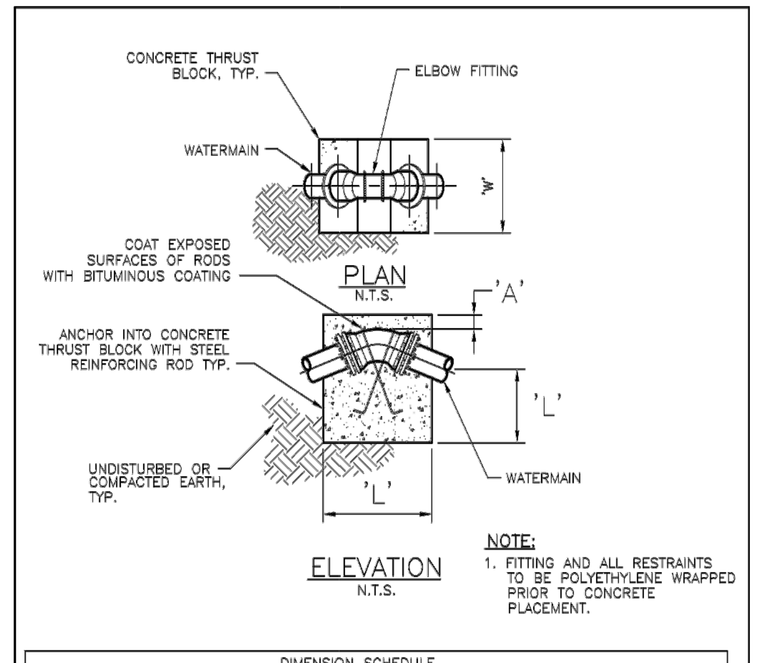
1. THRUST BLOCK REQUIRED FOR TEES, HYDRANT LATERAL TEES AND TAPPING SLEEVE INSTALLATIONS.
2. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

REFER TO TABLE THIS SHEET FOR RESTRAINTS.

BRANCH TEE SIZE	DIMENSION SCHEDULE 'A'	'B'	'C'
6"	1'-0"	1'-0"	0'-6"
8"	1'-6"	1'-0"	0'-6"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD7_THRUST_BLOCKS_TEE

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR TEE OR "DEAD END" FITTING	DWG. NO. SD7	
		DATE 4/28/92	REVISED 10/05



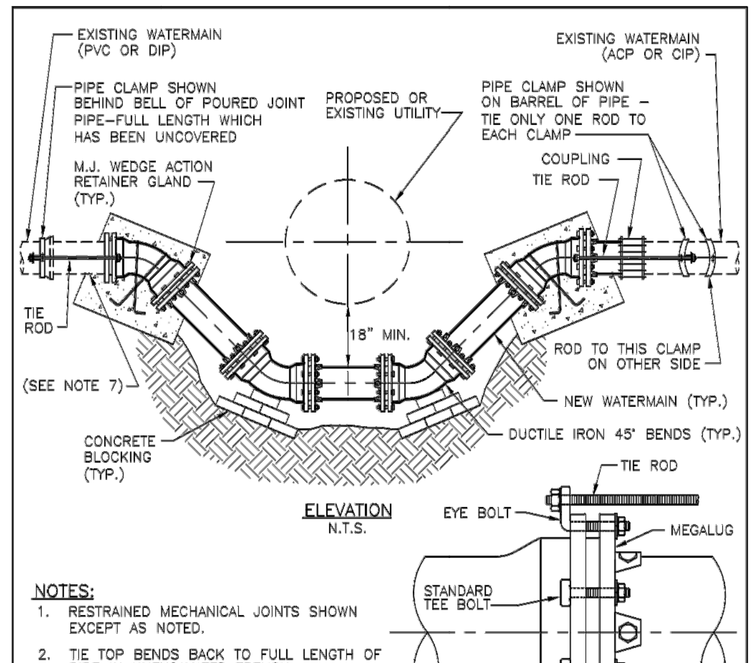
NOTE:

1. FITTING AND ALL RESTRAINTS TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.

DIMENSION SCHEDULE													
PIPE SIZE	PIPE TYPE	11.25° ELBOW				22.5° ELBOW				45° ELBOW			
		'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø
8"	D.I.P	12"	1'-0"	1'-0"	1/2"	12"	1'-9"	1'-9"	1/2"	1'-6"	2'-0"	2'-0"	1/2"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD8_THRUST_BLOCKS_VBEND

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR VERTICAL BEND	DWG. NO. SD8	
		DATE 4/28/92	REVISED 10/05



NOTES:

1. RESTRAINED MECHANICAL JOINTS SHOWN EXCEPT AS NOTED.
2. TIE TOP BENDS BACK TO FULL LENGTH OF PIPE IN UNEXCAVATED TRENCH.
3. VALVES, TEES AND HYDRANTS MAY BE HARNESSED SIMILARLY.
4. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURES–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
5. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
6. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.
7. IF EXISTING PIPE IS CIP OR PVC, CONNECT TO NEW FITTING ONLY WHEN ALLOWED BY ENGINEER.

TIE ROD SCHEDULE			
PIPE SIZE	PIPE TYPE	ROD ø	NUMBER OF RODS
8"	PVC	3/4"	2

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD10_HARN_OFFSET_EXIST_WMAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL HARNESSING DETAILS–INSTALL OFFSET IN EXISTING WATERMAIN	DWG. NO. SD10	
		DATE 6/00	REVISED 10/05

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Water Details

DRAWING NO.

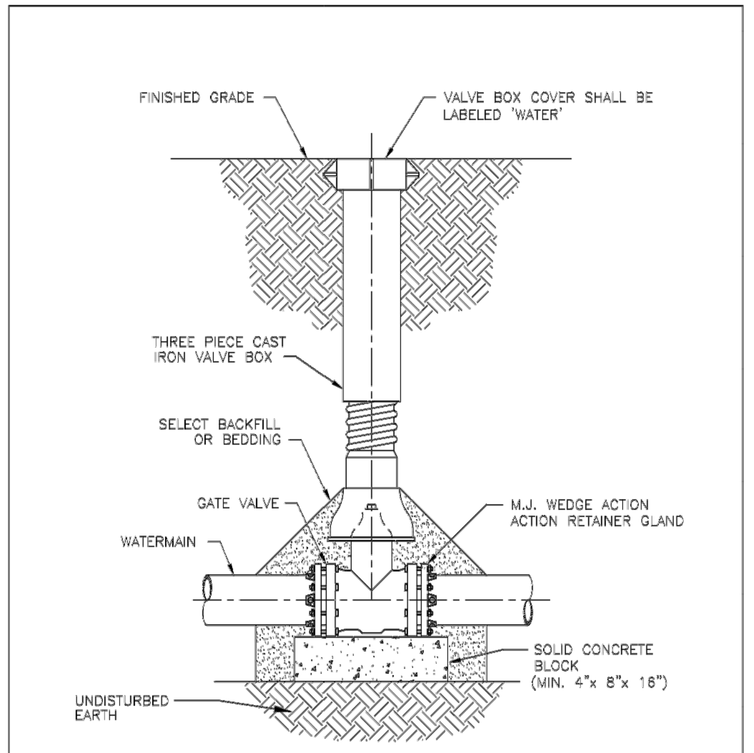
C-405

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

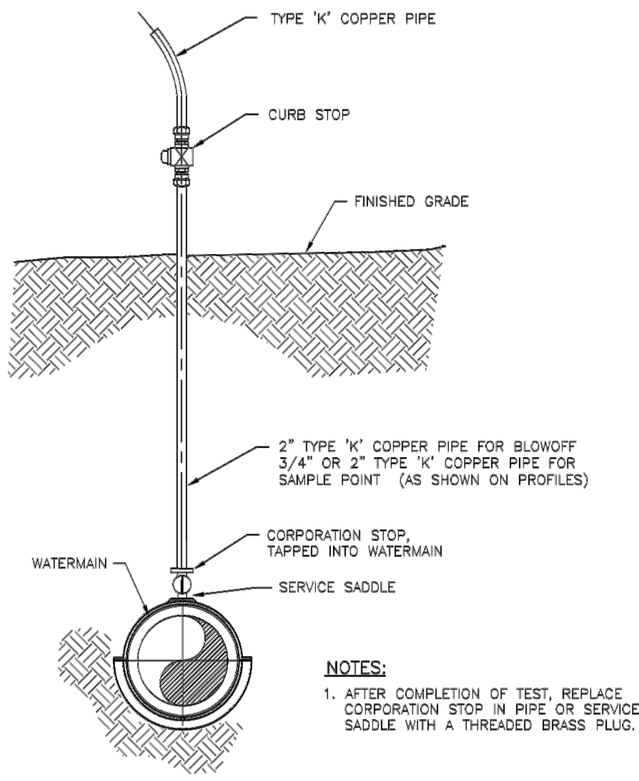


NOTES:
1. VALVE SHALL NOT SUPPORT VALVE BOX.
2. GATE VALVE SHALL BE INSTALLED LEVEL.
3. VALVE BOX SHALL BE PLUMB TO GRADE, WITH OPERATING NUT CENTERED IN BOX.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD11_GATE_VALVE_SET

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GATE VALVE SETTING	DWG. NO. SD11	
		DATE 4/28/92	REVISED 02/17

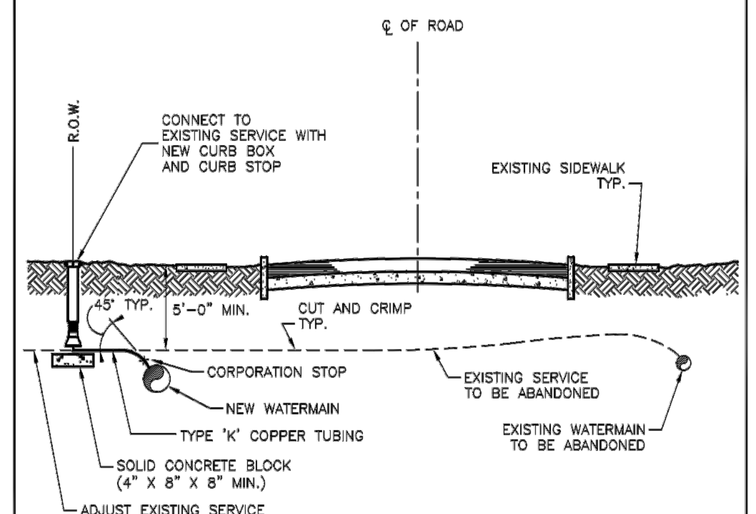


NOTES:
1. AFTER COMPLETION OF TEST, REPLACE CORPORATION STOP IN PIPE OR SERVICE SADDLE WITH A THREADED BRASS PLUG.

ELEVATION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD17_TEMP_BO_SAMP_PT

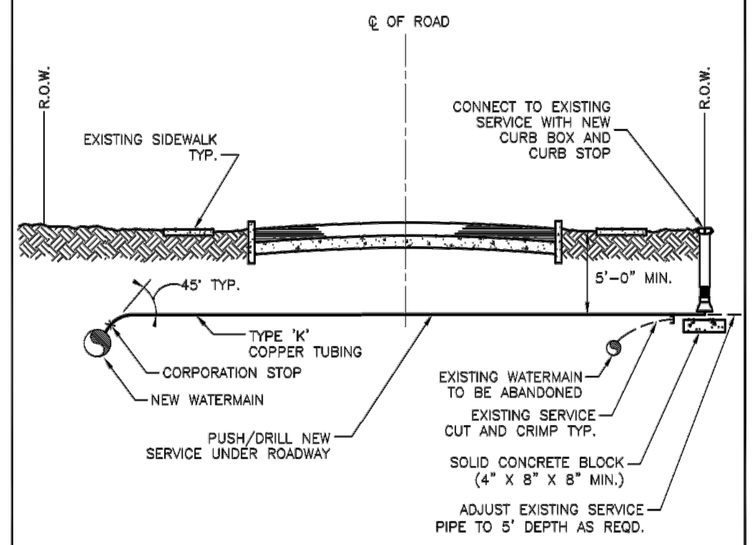
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TEMPORARY BLOW-OFF/SAMPLING POINT	DWG. NO. SD17	
		DATE 4/28/92	REVISED 10/05



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD15_HS_SERV_REPLACE

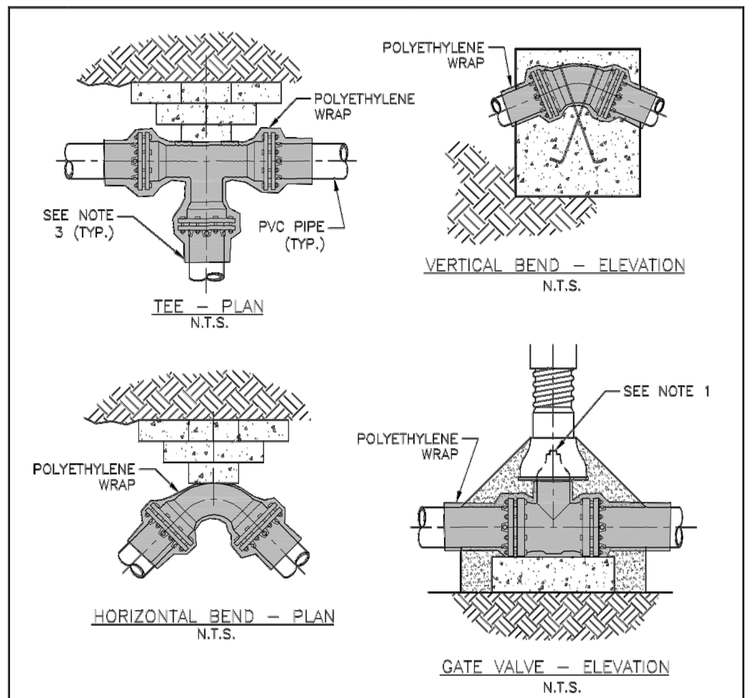
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL NEAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD15	
		DATE 4/92	REVISED 09/16



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_FS_SERV_REPLACE

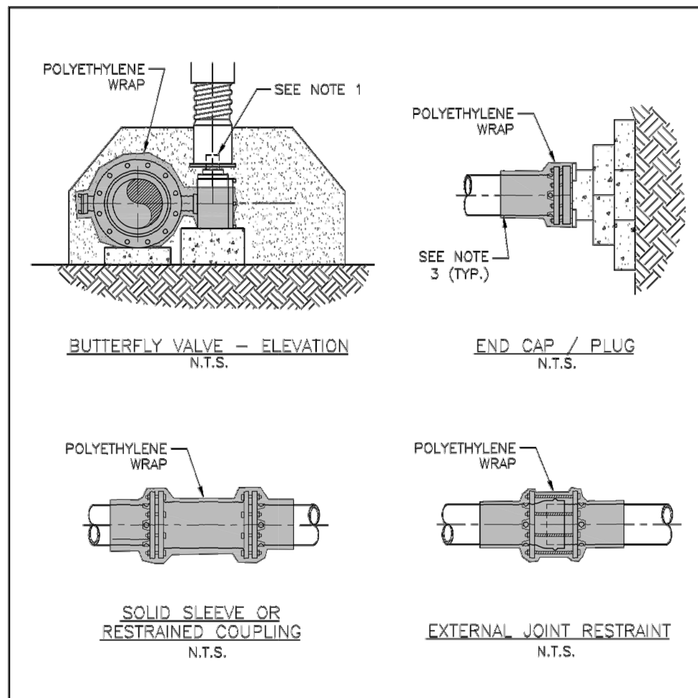
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16	
		DATE 4/92	REVISED 09/16



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39A_POLYWRAPPING_FITTINGS

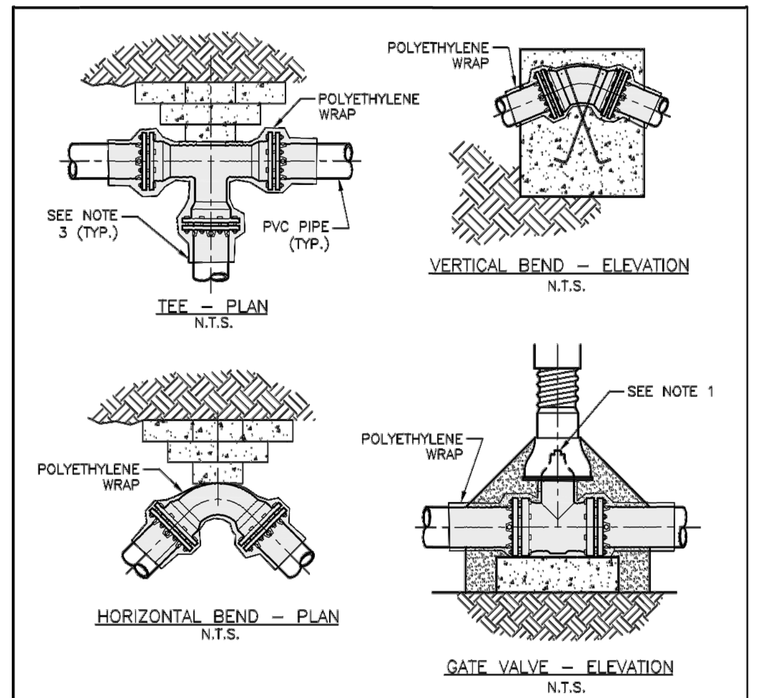
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39A	
		DATE 3/18	REVISED 12/18



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39B_POLYWRAPPING_FITTINGS

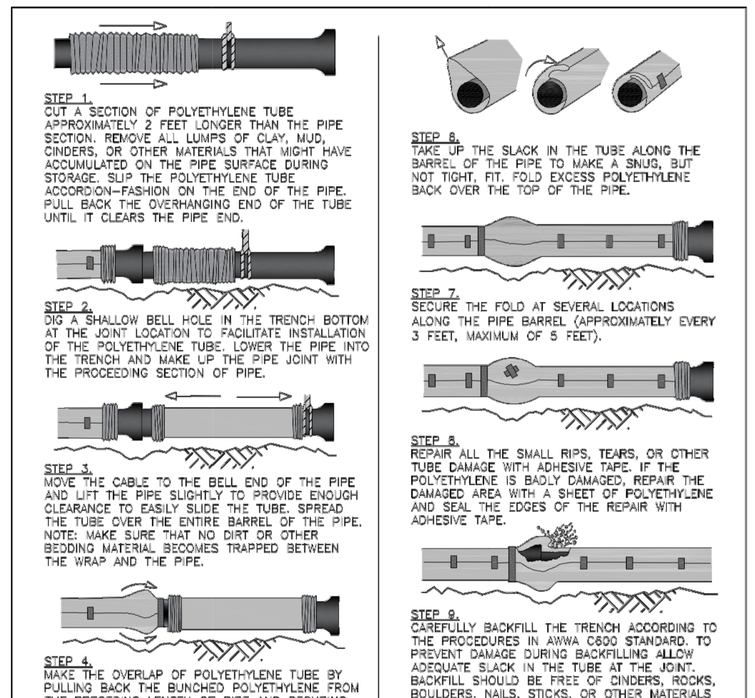
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39B	
		DATE 12/18	REVISED



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON GATE VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PVC PIPE WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39_POLYWRAPPING_FITTINGS

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING DUCTILE IRON FITTINGS ON PVC PIPE	DWG. NO. SD39	
		DATE 3/18	REVISED



NOTES:
1 - POLYETHYLENE WRAP (POLYWRAP) SHALL BE OF PROPER DIAMETER TO FIT OVER BELLS AND EXTERNAL WEDGE-ACTION RETAINER GLANDS.
2 - CAST AND DUCTILE IRON FITTINGS (BENDS, TEES, VALVES, ETC.) ARE TO BE WRAPPED IN POLYWRAP AND SECURED IN PLACE.
3 - DO NOT USE CHAINS, METAL WIRE, OR OTHER SUPPORTING SYSTEMS WHICH MAY DAMAGE THE POLYETHYLENE ENCASEMENT. REPLACE DAMAGED POLYWRAP ACCORDINGLY.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD32_POLY_WRAP

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYETHYLENE ENCASEMENT OF DUCTILE IRON PIPE	DWG. NO. SD32	
		DATE 08/16	REVISED 02/19

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

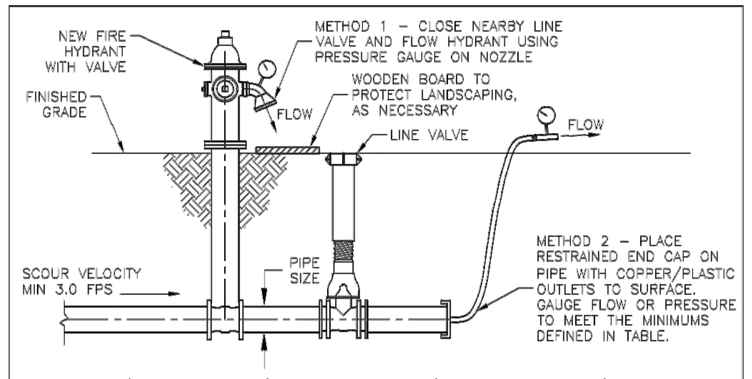
DRAWING NAME:
Water Details

DRAWING NO.
C-406
Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



PIPE SIZE (IN)	REQUIRED FLOW (GPM)	METHOD 1 HYDRANT FLOW		METHOD 2 END CAP FLOW	
		2 1/2" NOZZLE PRESSURE (PSI)	4" NOZZLE PRESSURE (PSI)	2" I.D. PRESSURE (PSI)	3" I.D. PRESSURE (PSI)
6	275	7	1	7	2
8	500	9	2	22	5
10	750	20	4	50	10
12	1100	44	7	–	22
16	1900	–	20	–	62
20	3000	–	50	–	–

I.D. = INNER DIAMETER

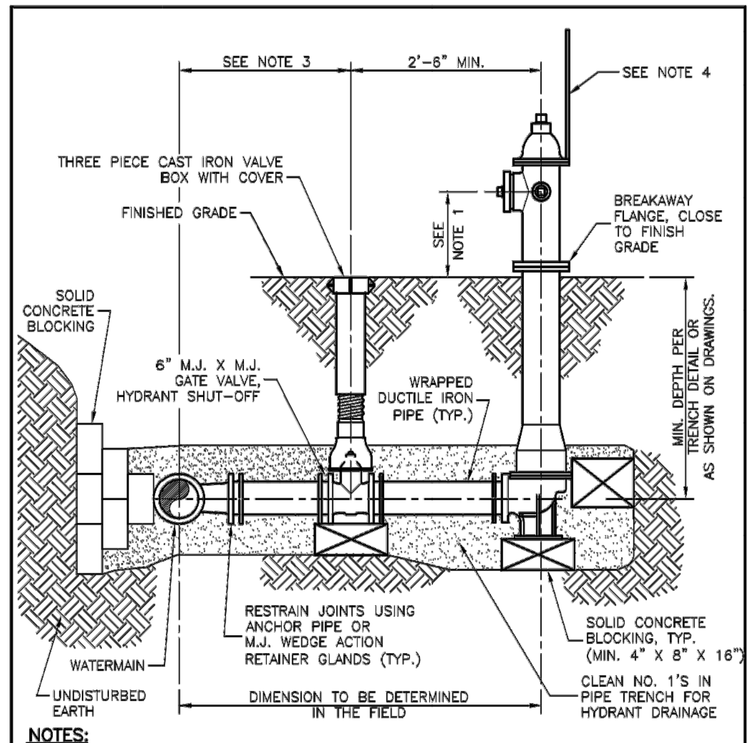
NOTES:

1. TO OBTAIN SCOUR VELOCITY (3.0 FPS) IN THE WATERLINE, CONTRACTOR SHALL ACHIEVE FLOWRATE AT NOZZLE DEFINED IN TABLE. PRESSURE GAUGE USED SHALL SHOW A HIGHER PRESSURE THAN THE MINIMUMS DEFINED IN THE TABLE.
2. OUTLET PRESSURE MEASURED BY PITOT GAUGE.
3. ENGINEER SHALL PROVIDE CALCULATIONS IF CONNECTIONS ARE OTHER THAN THOSE SHOWN, IF MULTIPLE CONNECTIONS ARE USED, OR AS REQUESTED BY ECWA.
4. TO FLUSH THREE PIPE VOLUMES, MINIMUM FLUSHING TIME (IN SECONDS) EQUALS THE LENGTH OF PIPE BEING FLUSHED, IN FEET.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD36_WATERLINE_FLUSHING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL WATERLINE FLUSHING	DWG. NO. SD36	
		DATE 6/16	REVISED 3/18



NOTES:

1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT.
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.
5. HYDRANT FACE TO BE A MINIMUM OF 3' FROM THE BACK FACE OF ALL CURBS OR A MINIMUM OF 5' FROM ALL EDGES OF PAVEMENT (IF NO CURB).

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD13_HYD_INST

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FIRE HYDRANT INSTALLATION	DWG. NO. SD13	
		DATE 6/00	REVISED 11/16

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR'S work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed, or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install the watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as-needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority shall only operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers in writing of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD29	
		DATE 3/05	REVISED 7/17

11. All watermain piping shall be installed with a minimum of 5'-0" of cover.
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment, and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be scheduled and returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York 14227.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict access for school buses or any emergency vehicles.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for review prior to the start of testing.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants, and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30	
		DATE 3/05	REVISED 7/17

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details & Notes

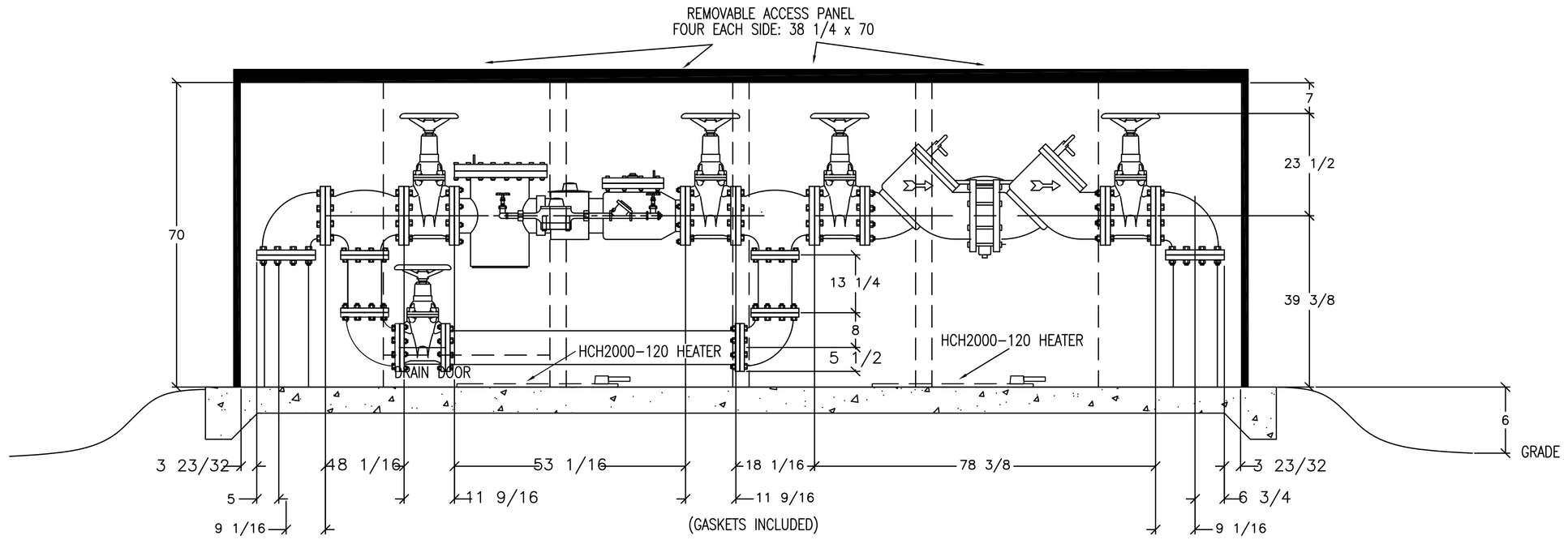
DRAWING NO.
C-407

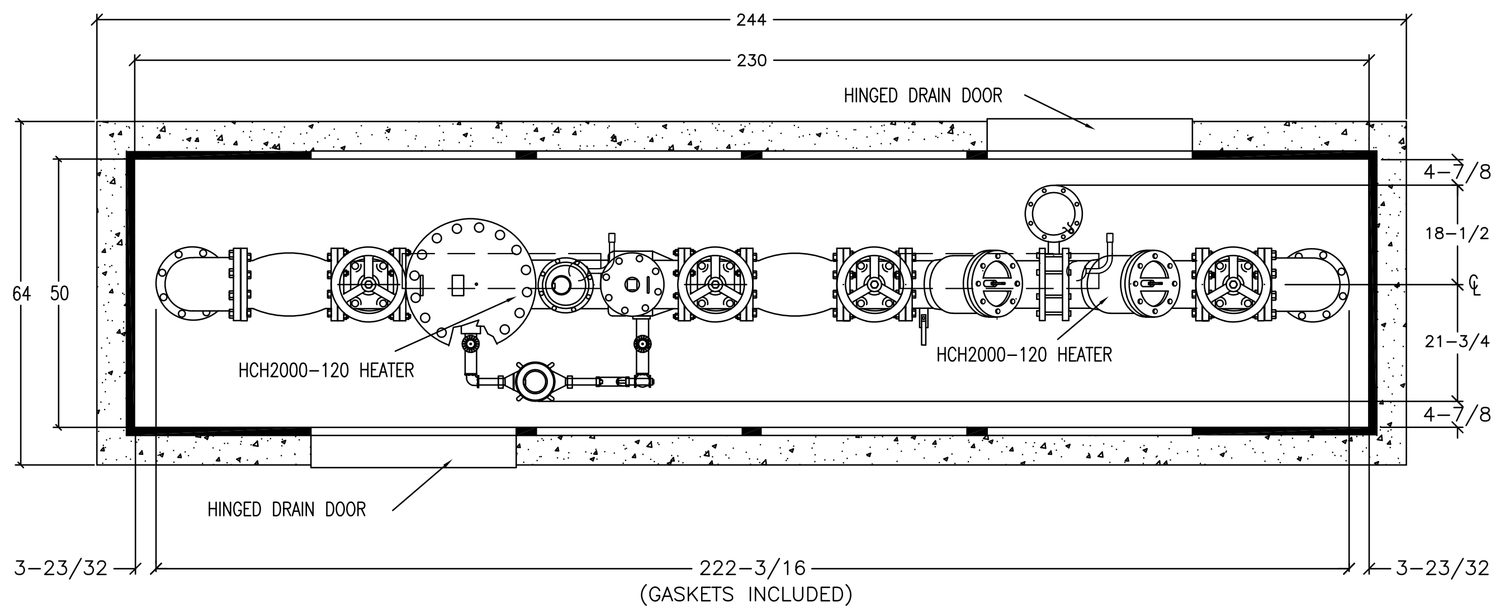
Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.





NOTES:

1. BACKFLOW PREVENTER DIMENSIONS FURNISHED BY WATTS
2. ALL DIMENSIONS ARE IN INCHES
3. WALL & INSULATION THICKNESS IS 1 1/2"
4. ROOF & INSULATION THICKNESS IS 3"
5. ENCLOSURE SHOWN IS SAFE-T-COVER MODEL 1000D-ALC00-17
6. EXTERIOR ENCLOSURE DIMENSIONS: 53"W x 233"L x 73" H
7. CONCRETE PAD IS 64"W x 244"L x 6"THK W/W.W.F. 6X6/10X10
8. METER SHOWN: 8" PROTECTUS III, SPOOL PIECE & METER SUPPLIED BY ECWA, VERIFY DIMENSIONS PRIOR TO ORDERING
9. RPZ SHOWN: 8" WATTS 909 NRS
10. CONTRACTOR TO INSTALL ELECTRIC SERVICE TO ENCLOSURE, COORDINATE SOURCE WITH OWNER
11. INSTALL A 120V GFI OUTLET IN THE ENCLOSURE
12. HEATERS TO HAVE THERMOSTAT CONTROL
13. ALL PIPING WITHIN THE ENCLOSURE SHALL BE DUCTILE IRON

LEGEND:

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H w/DRAIN DOOR

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H

8"METER & RPZ INSULATED ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Insulated Enclosure Detail

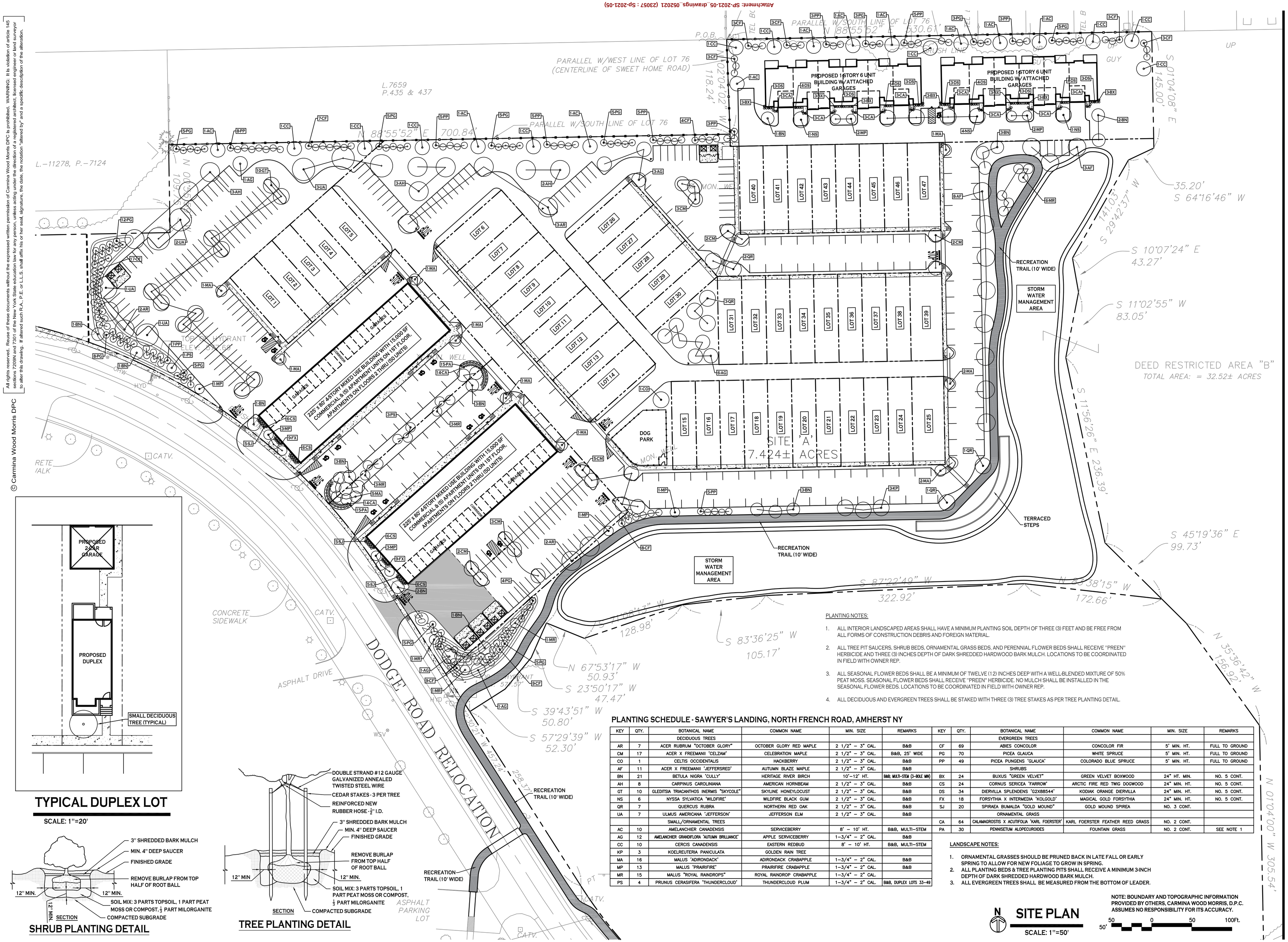
DRAWING NO.
C-408

Project no.: 21.011

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)



TYPICAL DUPLEX LOT

SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND PERENNIAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X. FREEMANII "CELZAM"	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII "JEFFERSRED"	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA "CULLY"	HERITAGE RIVER BIRCH	10'–12' HT.	B&B; MULTI-STEM (3-BOLE MIN)
AH	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	10	GLEDITSIA TRIACANTHOS INERMIS "SKYCOLE"	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
NS	6	NYSSA SYLVATICA "WILDFIRE"	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL/ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	12	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1–3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	16	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1–3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1–3/4" – 2" CAL.	B&B
MR	15	MALUS "ROYAL RAINDROPS"	ROYAL RAINDROP CRABAPPLE	1–3/4" – 2" CAL.	
PS	4	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1–3/4" – 2" CAL.	B&B, DUPLEX LOTS 33–49
		EVERGREEN TREES			
CF	69	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	70	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	49	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	24	BUXUS "GREEN VELVET"	GREEN VELVET BOXWOOD	24" HT. MIN.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DIERVILLA SPLENDENS 'G2X88544'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	20	SPIRAEA BUMALDA "GOLD MOUND"	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	64	CALAMAGROSTIS X ACUTIFOLIA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

N

SITE PLAN

SCALE: 1"=50'

50' 0 50 100Ft.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Landscape Plan

DRAWING NO.

L-100

Project no.: 21.011

1b

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

Packet Pg. 723

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7051

LAND SURVEYOR
NAME/TITLE: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
COMPANY/DEPT: 4950 GENESEE STREET, SUITE 100
ADDRESS: BUFFALO, NEW YORK 14225
TELEPHONE 716–633–4844

UTILITIES

NATURAL GAS
COMPANY/DEPT:. NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–857–7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203
TELEPHONE 716–840–8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK
TELEPHONE 716–558–8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214
TELEPHONE 716–236–2738

WATER
COMPANY/DEPT:. ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
TELEPHONE 716–684–1510

DIG SAFELY NEW YORK
TELEPHONE 1–800–962–7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086
TELEPHONE 716 818-0207

ENGINEER

Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

FEBRUARY 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C–001	DEMOLITION & EROSION CONTROL PLAN
C–002	DEMOLITION & EROSION CONTROL DETAILS
C–100	OVERALL SITE PLAN
C–101	SITE PLAN
C–102	PARCEL MAP
C–103	SITE DETAILS
C–104	SITE DETAILS
C–200	GRADING PLAN
C–300	STORM DRAINAGE PLAN
C–301	STORM DRAINAGE DETAILS
C–302	STORM DRAINAGE DETAILS
C–303	STORM DRAINAGE DETAILS
C–400	UTILITY PLAN
C–401	SANITARY SEWER DETAILS
C–402	SANITARY SEWER DETAILS
C–403	SANITARY SEWER GENERAL NOTES
C–404	SANITARY SEWER TESTING NOTES
C–405	WATER DETAILS
C–406	WATER DETAILS
C–407	WATER DETAILS & NOTES
C–408	INSULATED ENCLOSURE DETAIL
L–100	LANDSCAPE PLAN

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.

● SET OR EX. 5/8" REBAR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

MAP COVER 2305

SWEET HOME ROAD (NORTH VARIES)

EXCEPTION L-10908, P.-363
MAP 39.353-1 PARCEL 1

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SPADINA DRIVE

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

CATCH BASIN RIM:574.64' N INV:573.44'

PARALLEL W/SOUTH LINE OF LOT 76

N 88°55'52" E 530.61'

1312.39' N 88°55'52" E

POINT OF BEGINNING
AREA "B"
LAT: 43°01'40.40785"
LON: -78°47'14.98366"

PARALLEL W/WEST LINE OF LOT 76 (CENTERLINE OF SWEET HOME ROAD)

L.7659 P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

N 20°40'20" W 1182.47'

S 14°01'10" E 145.00'

SOUTH LINE L.-9095, P.-348 PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

N88°55'52"E 540.78' M

584.39' D&M

541.38' M

N 02°04'02" W 1173.47'

S88°21'54"W 225.48' D&M

N02°04'02"W 120.85' D&M

90.42'

PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'17" E 62.65'

MON. WELL

S 10°07'24" E 43.27'

S 11°02'55" W 83.05'

S 64°16'46" W 35.20'

S 20°29'37" W 141.03'

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.9146 ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

TOP OF HYDRANT ELEV: 577.69'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, PG.4915

SITE 'A' 17.424± ACRES

S 11°56'26" E 236.98'

S 45°19'36" E 99.73'

CATCH BASIN RIM:574.52' W INV:568.27' E INV:568.32'

CATCH BASIN RIM:574.42' W INV:569.90' E INV:569.97'

CATCH BASIN RIM:573.70' W INV:569.90' E INV:569.97'

12" CMP

CONCRETE SIDEWALK

N 67°53'17" W 50.93'

S 71°08'13" W 128.98'

S 83°36'25" W 105.17'

S 87°22'49" W 322.92'

N 83°38'15" W 172.66'

S 39°43'51" W 50.80'

S 23°50'17" W 47.47'

S 57°29'39" W 52.30'

N 35°56'42" W 159.92'

N 10°10'00" W 305.54'

DOUGHTY ROAD RELOCATION

L=539.31'
R=598.60'
DELTA=52°00'30"

N 85°10'51" W 40.58'

S 85°24'13" W 403.22'

599.16' D&M

NIAGARA MOHAWK POWER CORP. L.-9173, P.-51

202.71' N 85°38'22" W

R=6848.00' L=918.07'
S 85°46'39" W
CHORD 917.39

BRUSH LINE

ASPHALT PARKING LOT

ASPHALT DRIVE

TOP OF HYDRANT ELEV: 574.70'

SAN. M.H. RIM: 573.78' INV: 553.78' E-W

SAN. M.H. RIM:576.41' INV: 554.21' E-W

72" CONC. PIPE

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

TRANSMISSION TOWER

LOCKPORT (ROUTE 990) EXPRESSWAY

SECTION II

- CATCH BASIN
- CONIFEROUS TREE
- DECIDUOUS SHRUB
- DECIDUOUS TREE
- GAS VALVE
- GUY WIRE
- WATER SERVICE VALVE
- WATER VALVE
- COMMUNICATIONS BOX
- HYDRANT
- LIGHT POLE
- SANITARY SEWER MANHOLE
- SIGN (SINGLE POLE)
- SIGN (DOUBLE POLE)
- UTILITY POLE

STATE OF NEW YORK — LICENSED LAND SURVEYOR

DATE	REVISION/TYPE

TOPOGRAPHIC SURVEY
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: DECEMBER 22, 2020
Scale: 1" = 100' TAX No. 40.08-3-13.1 (PART OF)

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SWEET HOME (WIDTH VARIES) ROAD

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

P.O.B.

TEL BOX

UP

GUY

N 88°55'52" E 530.61'
PARALLEL W/SOUTH LINE OF LOT 76

PARALLEL W/WEST LINE OF LOT 76
(CENTERLINE OF SWEET HOME ROAD)

N 02°04'02" W
118.24'

L.7659
P.435 & 437

S 01°04'08" E
145.00'

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'12" E 62.65'

SOUTH LINE L.-9095, P.-348
PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

584.39' D&M
541.38' M

N88°55'52"E
540.78' M

N 00°55'59" W
109.75'

35.20'
S 64°16'46" W

141.03'
S 29°42'37" W

S 10°07'24" E
43.27'

S 11°02'55" W
83.05'

S 11°56'26" E 236.39'

S 45°19'36" E
98.73'

EXCEPTION L.-10808, P.-9632
MAP SK 353-1, PARCEL 1

120.85' D&M
N02°04'02"W

120.52'

N02°04'02"W
90.42'

173.47'
S88°21'54"W
216.48' D&M

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.914± ACRES

N 01°03'14" W 512.26'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

L=747.17
R=724.00

N 67°53'17" W
50.93'

S 71°08'13" W
128.98'

S 83°36'25" W
105.17'

S 87°22'49" W
322.92'

N 83°38'15" W
172.66'

N 35°36'42" W
136.92'

N 01°04'00" W 305.54'

S 39°43'51" W
50.80'

S 23°50'17" W
47.47'

N 32°30'21" W 198.87'

S 57°29'39" W
52.30'

N 32°30'21" W 457.24'

258.37'

PT

DODGE ROAD RELOCATION

L=539.31'
R=586.62'
DELTA=52°40'30"

PC

N 85°10'51" W
40.58'

195.94'

599.16' D&M

S 65°24'13" W 403.22'

S 65°24'13" W

NIAGARA MOHAWK POWER CORP.
L.-9173, P.-51

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

STATE OF NEW YORK
MARK J. ANDREWS
050455
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE
12/4/20	REVISE PARCEL BOUNDARY

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
● SET OR EX. 5/8" REBAR

SURVEY OF
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

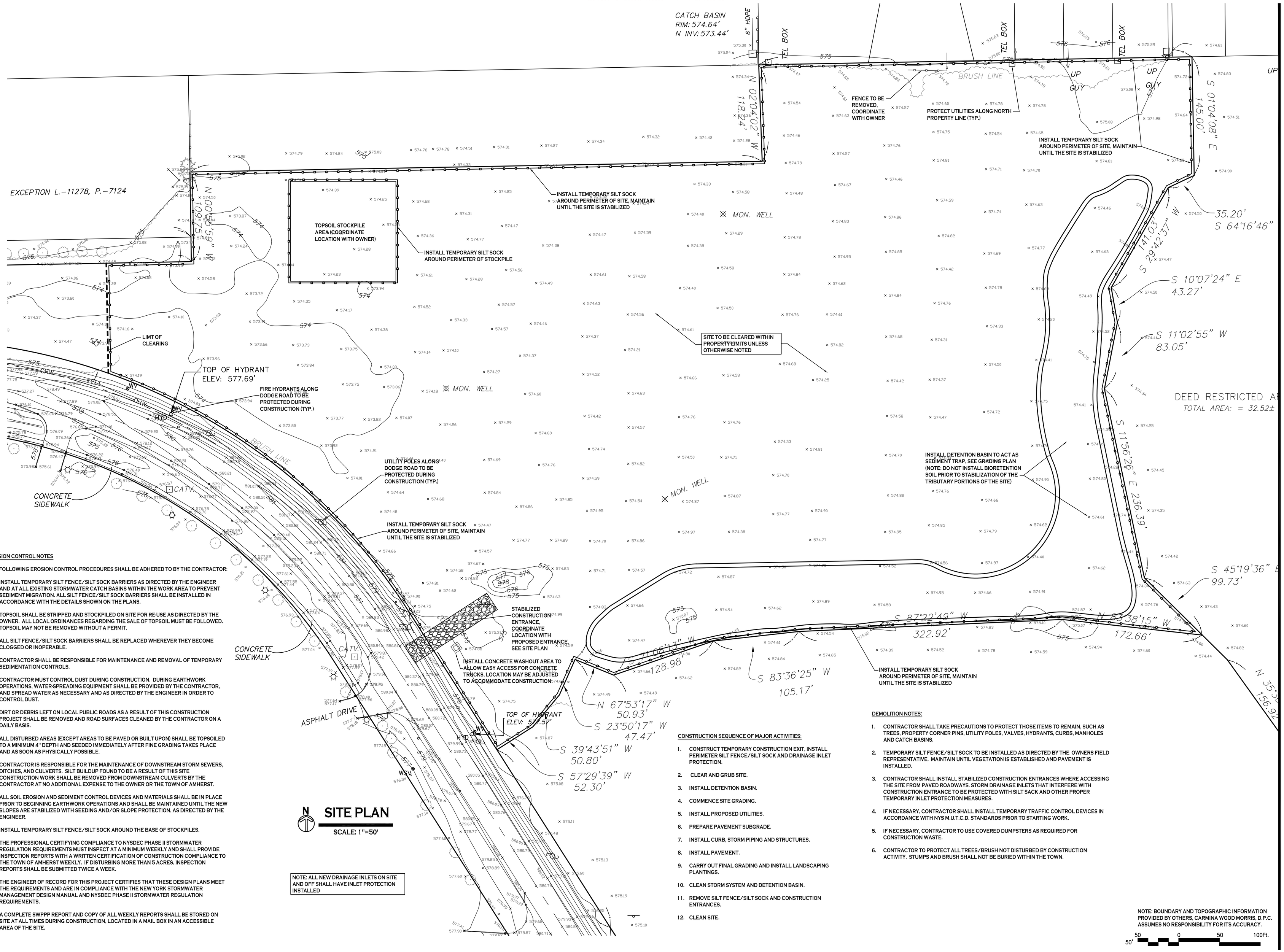
Job No. 2013062-SITE A Date: JUNE 27, 2019
Scale: 1" = 100' TAX No.

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL PROCEDURES SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE/SILT SOCK BARRIERS AS DIRECTED BY THE ENGINEER AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.
2. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE OF TOPSOIL MUST BE FOLLOWED. TOPSOIL MAY NOT BE REMOVED WITHOUT A PERMIT.
3. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE REPLACED WHEREVER THEY BECOME CLOGGED OR INOPERABLE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.
5. CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER-SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR, AND SPREAD WATER AS NECESSARY AND AS DIRECTED BY THE ENGINEER IN ORDER TO CONTROL DUST.
6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED AND ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.
7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH AND SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE AND AS SOON AS PHYSICALLY POSSIBLE.
8. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES, AND CULVERTS. SILT BUILDUP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN OF AMHERST.
9. ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS SHALL BE IN PLACE PRIOR TO BEGINNING EARTHWORK OPERATIONS AND SHALL BE MAINTAINED UNTIL THE NEW SLOPES ARE STABILIZED WITH SEEDING AND/OR SLOPE PROTECTION, AS DIRECTED BY THE ENGINEER.
10. INSTALL TEMPORARY SILT FENCE/SILT SOCK AROUND THE BASE OF STOCKPILES.
11. THE PROFESSIONAL CERTIFYING COMPLIANCE TO NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS MUST INSPECT AT A MINIMUM WEEKLY AND SHALL PROVIDE INSPECTION REPORTS WITH A WRITTEN CERTIFICATION OF CONSTRUCTION COMPLIANCE TO THE TOWN OF AMHERST WEEKLY. IF DISTURBING MORE THAN 5 ACRES, INSPECTION REPORTS SHALL BE SUBMITTED TWICE A WEEK.
12. THE ENGINEER OF RECORD FOR THIS PROJECT CERTIFIES THAT THESE DESIGN PLANS MEET THE REQUIREMENTS AND ARE IN COMPLIANCE WITH THE NEW YORK STORMWATER MANAGEMENT DESIGN MANUAL AND NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS.
13. A COMPLETE SWPPP REPORT AND COPY OF ALL WEEKLY REPORTS SHALL BE STORED ON SITE AT ALL TIMES DURING CONSTRUCTION, LOCATED IN A MAIL BOX IN AN ACCESSIBLE AREA OF THE SITE.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CONSTRUCT TEMPORARY CONSTRUCTION EXIT, INSTALL PERIMETER SILT FENCE/SILT SOCK AND DRAINAGE INLET PROTECTION.
2. CLEAR AND GRUB SITE.
3. INSTALL DETENTION BASIN.
4. COMMENCE SITE GRADING.
5. INSTALL PROPOSED UTILITIES.
6. PREPARE PAVEMENT SUBGRADE.
7. INSTALL CURB, STORM PIPING AND STRUCTURES.
8. INSTALL PAVEMENT.
9. CARRY OUT FINAL GRADING AND INSTALL LANDSCAPING PLANTINGS.
10. CLEAN STORM SYSTEM AND DETENTION BASIN.
11. REMOVE SILT FENCE/SILT SOCK AND CONSTRUCTION ENTRANCES.
12. CLEAN SITE.

DEMOLITION NOTES:

1. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT THOSE ITEMS TO REMAIN, SUCH AS TREES, PROPERTY CORNER PINS, UTILITY POLES, VALVES, HYDRANTS, CURBS, MANHOLES AND CATCH BASINS.
2. TEMPORARY SILT FENCE/SILT SOCK TO BE INSTALLED AS DIRECTED BY THE OWNERS FIELD REPRESENTATIVE. MAINTAIN UNTIL VEGETATION IS ESTABLISHED AND PAVEMENT IS INSTALLED.
3. CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCES WHERE ACCESSING THE SITE FROM PAVED ROADWAYS. STORM DRAINAGE INLETS THAT INTERFERE WITH CONSTRUCTION ENTRANCE TO BE PROTECTED WITH SILT SACK AND OTHER PROPER TEMPORARY INLET PROTECTION MEASURES.
4. IF NECESSARY, CONTRACTOR SHALL INSTALL TEMPORARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH NYS M.U.T.C.D. STANDARDS PRIOR TO STARTING WORK.
5. IF NECESSARY, CONTRACTOR TO USE COVERED DUMPSTERS AS REQUIRED FOR CONSTRUCTION WASTE.
6. CONTRACTOR TO PROTECT ALL TREES/BRUSH NOT DISTURBED BY CONSTRUCTION ACTIVITY. STUMPS AND BRUSH SHALL NOT BE BURIED WITHIN THE TOWN.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Plan

DRAWING NO.

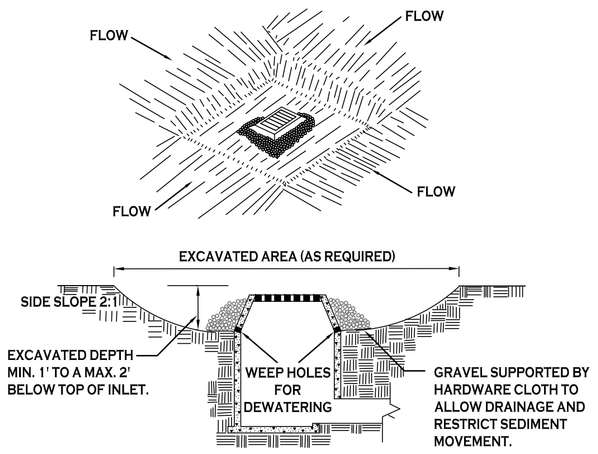
C-001

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



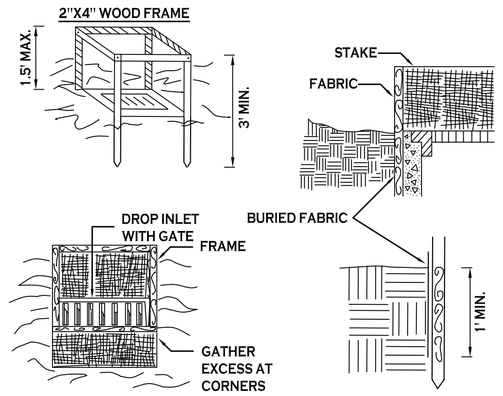
CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

   MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE



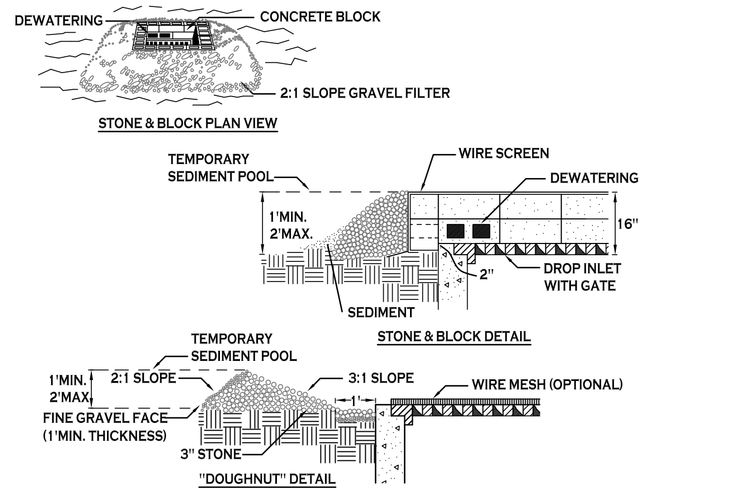
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

   MAXIMUN DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 2

NOT TO SCALE



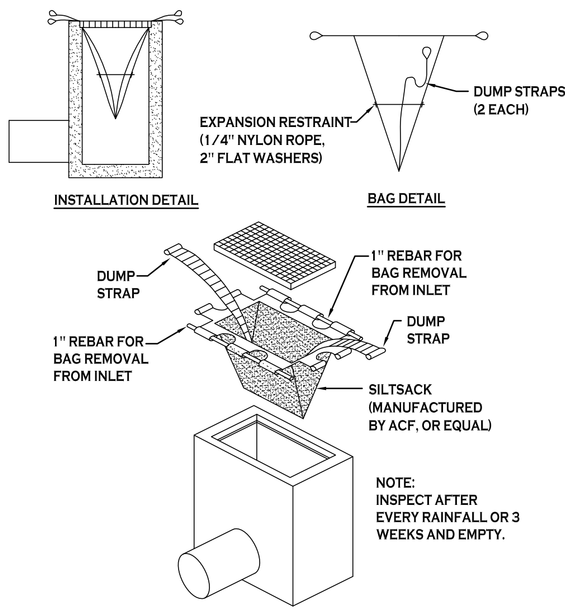
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

   MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

NOT TO SCALE



SILT SACK DETAIL

NOT TO SCALE

NOTE: INSTALL ONE OF THE INLET PROTECTION OPTIONS SHOWN PRIOR TO CONSTRUCTION

CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

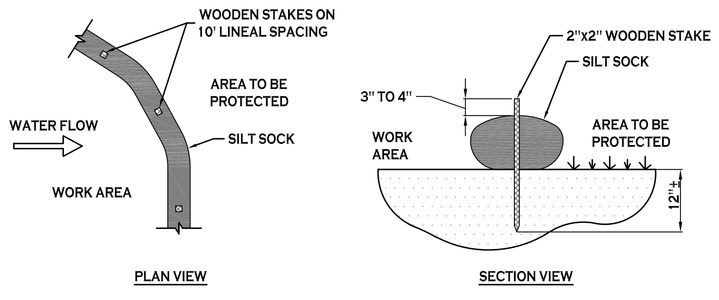
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



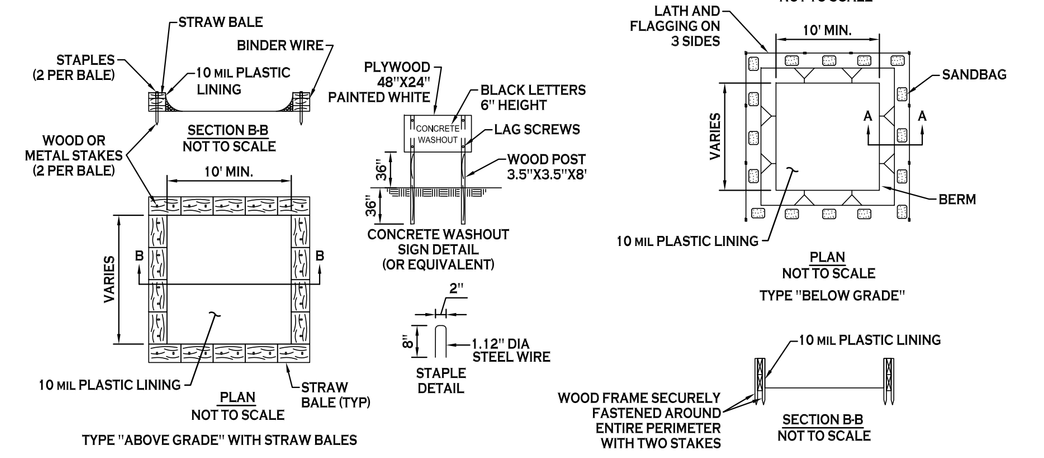
NOTES:

CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED ½ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

SILT SOCK DETAIL

NOT TO SCALE



NOTES

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

CONCRETE WASHOUT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Details

DRAWING NO.

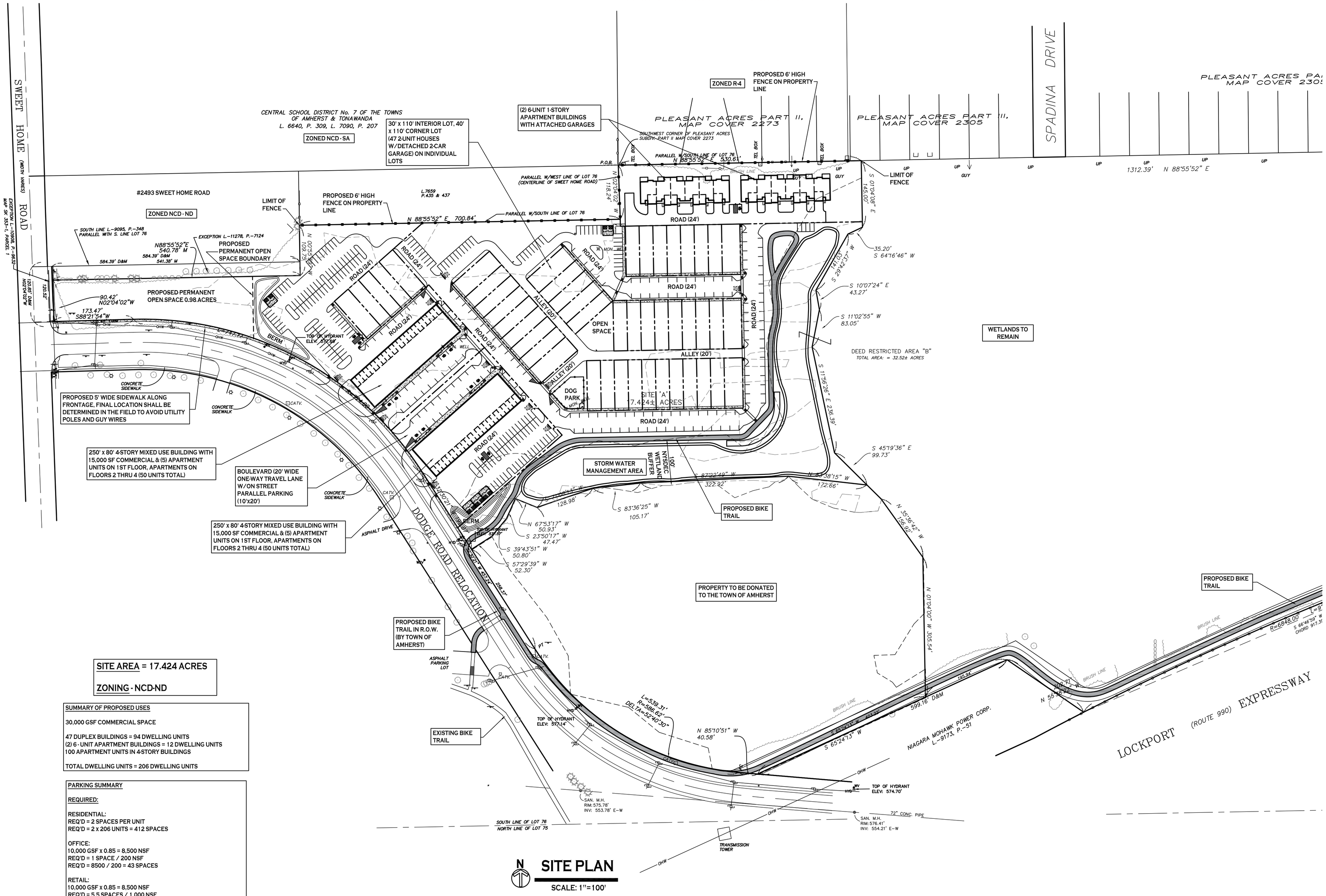
C-002

Project no.: 21.011

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)



N

SITE PLAN

SCALE: 1"=100'

SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
505 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

C-100

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

P.O.B.
PARALLEL W/WEST LINE OF LOT 76 (CENTERLINE OF SWEET HOME ROAD)
PARALLEL W/SOUTH LINE OF LOT 76, N 88°55'52" E 530.61'
N 02°04'02" W 118.24'
L.7659 P.435 & 437
N 88°55'52" E 700.84'
PARALLEL W/SOUTH LINE OF LOT 76
N 01°09'57" W 1109.69'
'11278, P.-7124
LIMIT OF FENCE
6' HIGH
TEL BOX
BRUSH LINE
UP
GUY
PATIO (TYP.)
PROPOSED 1 STORY 6 UNIT BUILDING W/ ATTACHED GARAGES
S 01°04'08" E 145.00'
69.03'
79.73'
35.20' S 64°16'46" W
141.03' S 29°42'37" W
S 10°07'24" E 43.27'
S 11°02'55" W 83.05'
S 11°56'26" E 236.39'
S 45°19'36" E 99.73'
N 35°36'42" W 156.92'
N 01°04'00" W 305.54'
N 89°38'15" W 172.66'
S 87°22'49" W 322.92'
S 71°06'17" W 128.98'
S 83°36'25" W 105.17'
N 67°53'17" W 50.93'
S 23°50'17" W 47.47'
S 39°43'51" W 50.80'
S 57°29'39" W 52.30'
S 32°30'21" W 457.24'
258.37'
RECREATION TRAIL (10' WIDE)
RECREATION TRAIL (10' WIDE)
TERRACED STEPS
STORM WATER MANAGEMENT AREA
STORM WATER MANAGEMENT AREA
PROPOSED PERMANENT OPEN SPACE BOUNDARY
DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES
SITE 'A'
17.424± ACRES
PROPOSED PERMANENT OPEN SPACE BOUNDARY
PROPOSED 1 STORY 6 UNIT BUILDING W/ ATTACHED GARAGES
225' x 80' 4 STORY MIXED USE BUILDING WITH 15,000 SF COMMERCIAL & 60 APARTMENT UNITS ON 1ST FLOOR. APARTMENTS ON FLOORS 2 THRU 4 (60 UNITS)
225' x 80' 4 STORY MIXED USE BUILDING WITH 15,000 SF COMMERCIAL & 60 APARTMENT UNITS ON 1ST FLOOR. APARTMENTS ON FLOORS 2 THRU 4 (60 UNITS)
TOP OF HYDRANT ELEV: 577.69
TOP OF HYDRANT ELEV: 577.57'
DOG PARK
GATE
UTILITY POLE TO BE RELOCATED
CONCRETE SIDEWALK
ASPHALT DRIVE
DODGE ROAD RELOCATION
ASPHALT PARKING LOT
CROSSWALK
CROSSWALK
LOT 1 LOT 2 LOT 3 LOT 4 LOT 5 LOT 6 LOT 7 LOT 8 LOT 9 LOT 10 LOT 11 LOT 12 LOT 13 LOT 14 LOT 15 LOT 16 LOT 17 LOT 18 LOT 19 LOT 20 LOT 21 LOT 22 LOT 23 LOT 24 LOT 25 LOT 26 LOT 27 LOT 28 LOT 29 LOT 30 LOT 31 LOT 32 LOT 33 LOT 34 LOT 35 LOT 36 LOT 37 LOT 38 LOT 39 LOT 40 LOT 41 LOT 42 LOT 43 LOT 44 LOT 45 LOT 46 LOT 47
PROPOSED PERMANENT OPEN SPACE BOUNDARY
CATV.
OHW
HYD
WV
WSV

SITE PLAN
SCALE: 1"=50'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

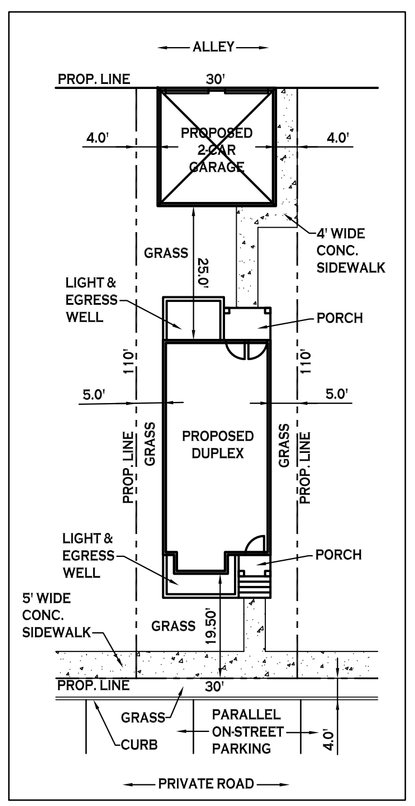
DETAIL LEGEND SEE SITE DETAIL SHEET
1. TYPE "A" CONCRETE CURB
2. 90° PARKING STALL
3. PAINTED TRAFFIC ARROWS
4A. STANDARD DUTY ASPHALT
4B. HEAVY DUTY ASPHALT
4C. EXTERIOR CONCRETE SLAB ON GRADE
4D. ASPHALT TRAIL
5. HANDICAPPED PAVEMENT MARKINGS
6. HANDICAPPED PARKING SIGN
7. STOP BAR
8. LIGHT POLE FOUNDATION
9. CONCRETE SIDEWALK
10. SIDEWALK CURB RAMP
11. DUMPSTER ENCLOSURE
12. BOARD ON BOARD FENCE

NOTE LEGEND
1. INSTALL STOP SIGN - M.U.T.C.D. SIGN NO. R1-1 B
2. INSTALL "DO NOT ENTER" SIGN, M.U.T.C.D. SIGN NO. R3-15C
3. LIMIT OF HEAVY DUTY PAVEMENT
4. RUNOUT CURB IN 3' OR MATCH EXISTING CURB
5. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
6. LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
7. "KEEP RIGHT" SIGN
8. 6" WIDE WHITE PAVEMENT STRIPES @ 5' SPACING (CROSSWALK LINES)
9. 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45° TO PARKING LINES
10. RAMP SIDEWALK @ 1:12 MAX.

SITE LEGEND
- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN
- PROPOSED LIGHT POLE W/ SINGLE FIXTURE
- PROPOSED LIGHT POLE W/ DOUBLE FIXTURE
- PROPOSED WALL MOUNTED FIXTURE
- PROPOSED PAVEMENT MARKINGS (TYP. WHERE SHOWN)
- PROPSOED HEAVY DUTY ASPHALT PAVEMENT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.



TYPICAL DUPLEX LOT
SCALE: 1"=20'

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Plan

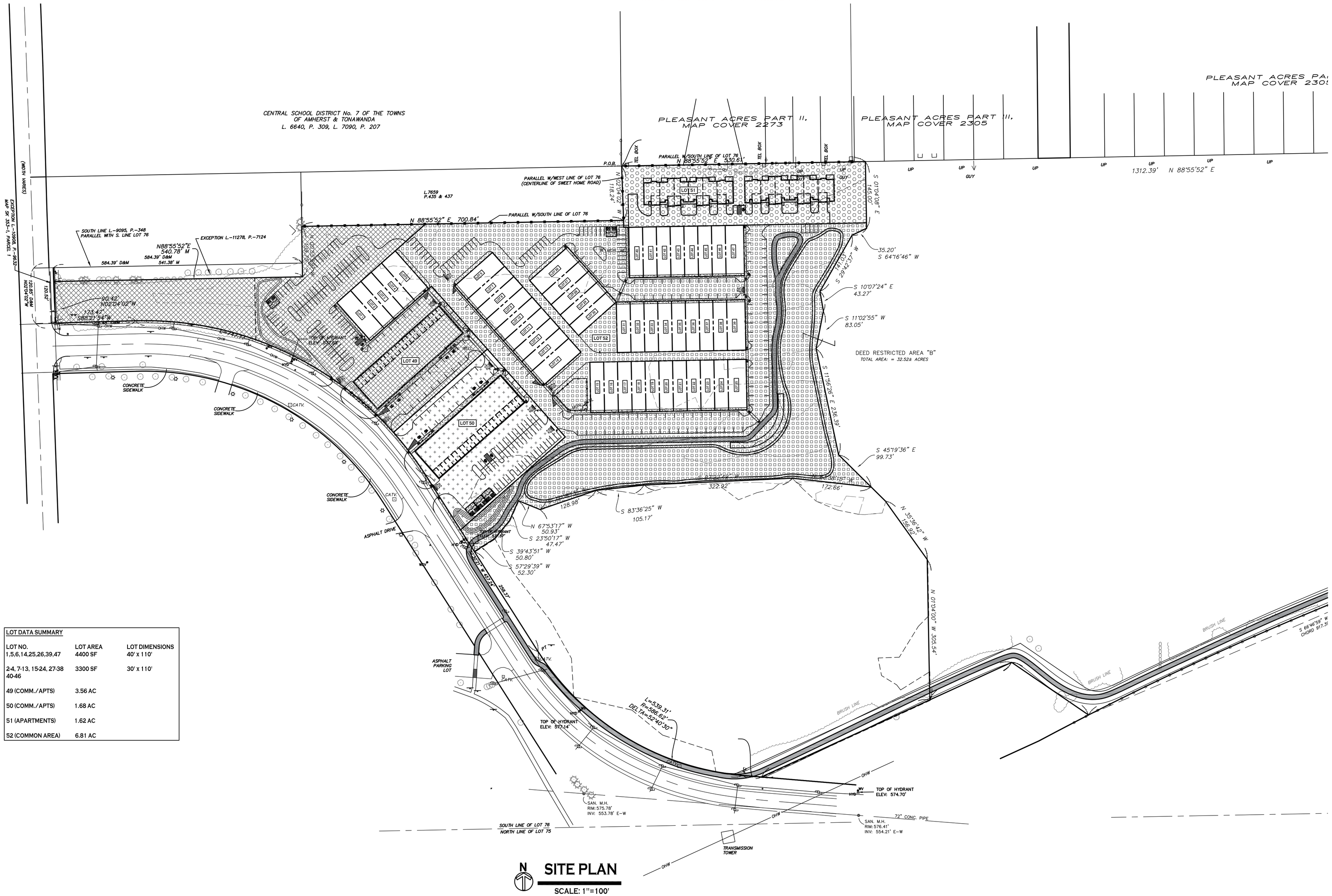
DRAWING NO.
C-101

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)



SITE PLAN

SCALE: 1"=100'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Parcel Map

DRAWING NO.

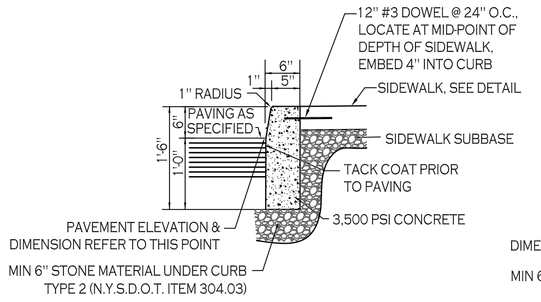
C-102

Project no.: 21.011

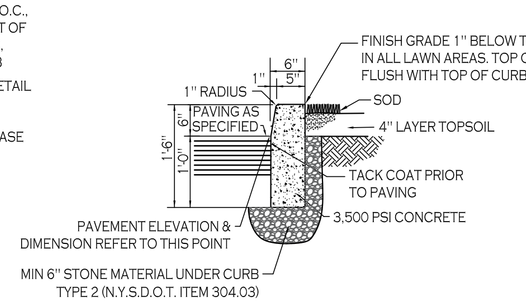
Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



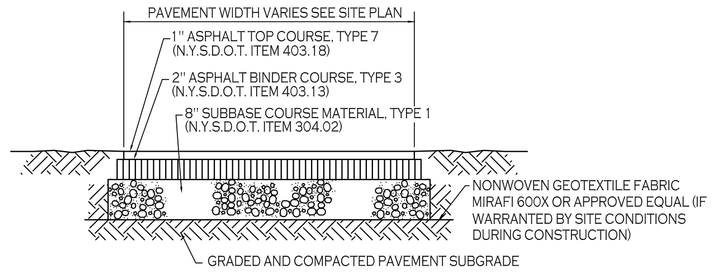
ABUTTING SIDEWALK



ABUTTING LANDSCAPE/GRASS

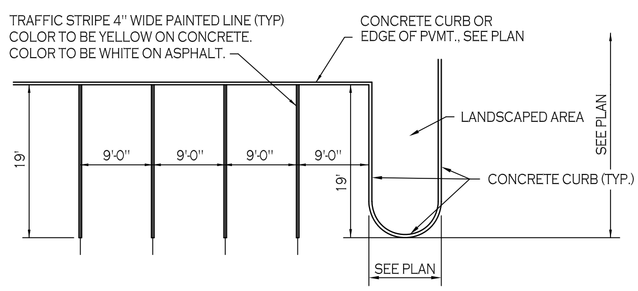
NOTES:
1. CONTROL JOINTS TO BE 2" DEEP AT 15'-0" O.C. - SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. WHERE THE CURB DROPS (IS FLUSH WITH ASPHALT) THE DEPTH OF CURB BELOW GRADE SHALL BE INCREASED TO 1'-6" AND OTHER DIMENSIONS ADJUSTED ACCORDINGLY.

TYPE "A" CONCRETE CURB - 1

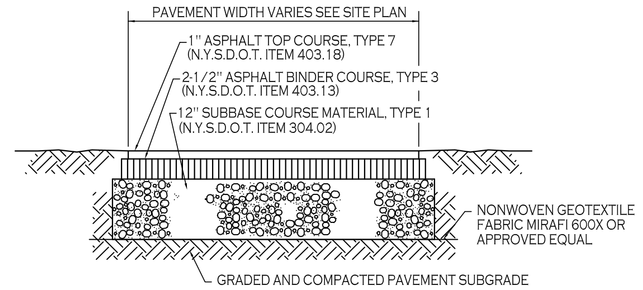


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

STANDARD DUTY ASPHALT SECTION - 4A

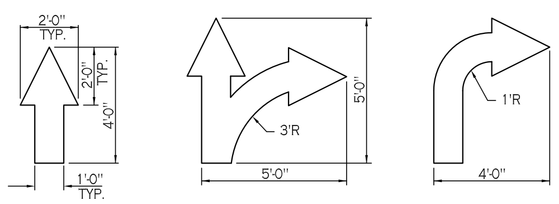


90° PARKING STALL LAYOUT - 2

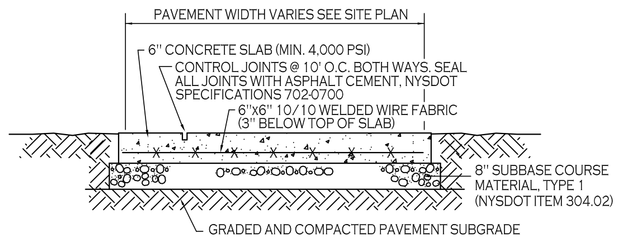


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

HEAVY DUTY ASPHALT SECTION - 4B

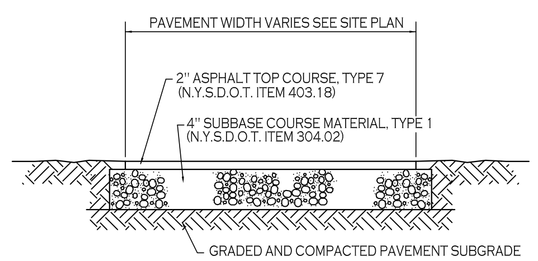


PAINTED TRAFFIC ARROWS - 3



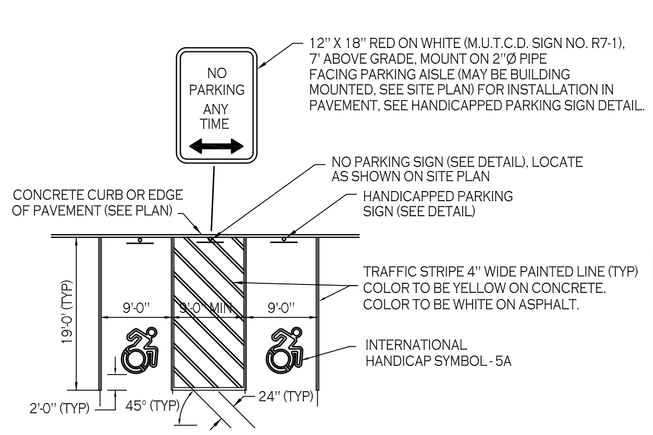
NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502-3.

EXTERIOR CONCRETE SLAB-ON-GRADE SECTION - 4C

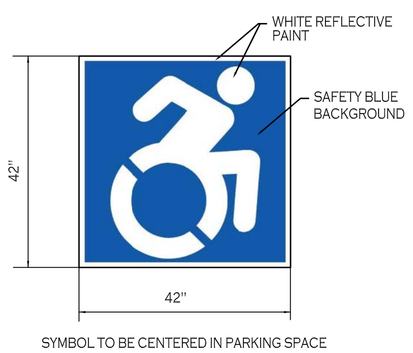


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

ASPHALT TRAIL SECTION - 4D

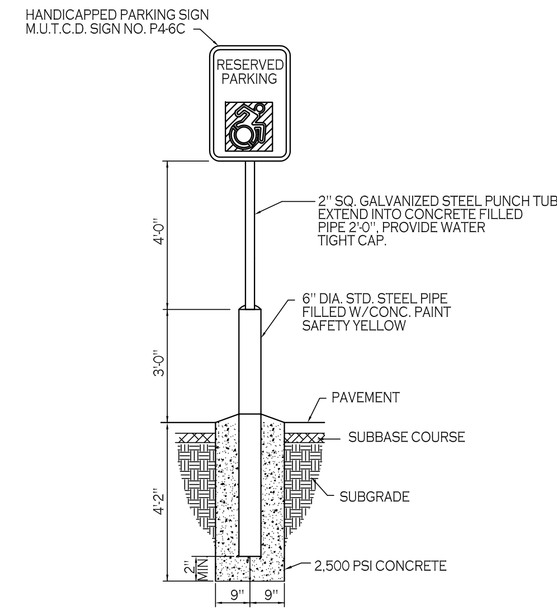


HANDICAPPED PAVEMENT MARKINGS & SIGNAGE - 5



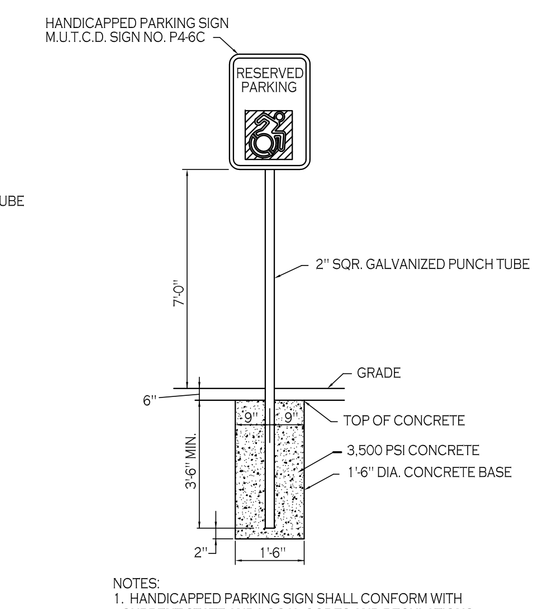
SYMBOL TO BE CENTERED IN PARKING SPACE

INTERNATIONAL HANDICAP SYMBOL - 5A



HANDICAPPED PARKING SIGN - 6

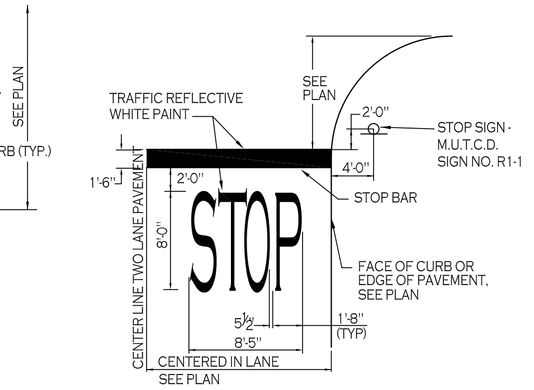
INSTALLED IN PAVEMENT



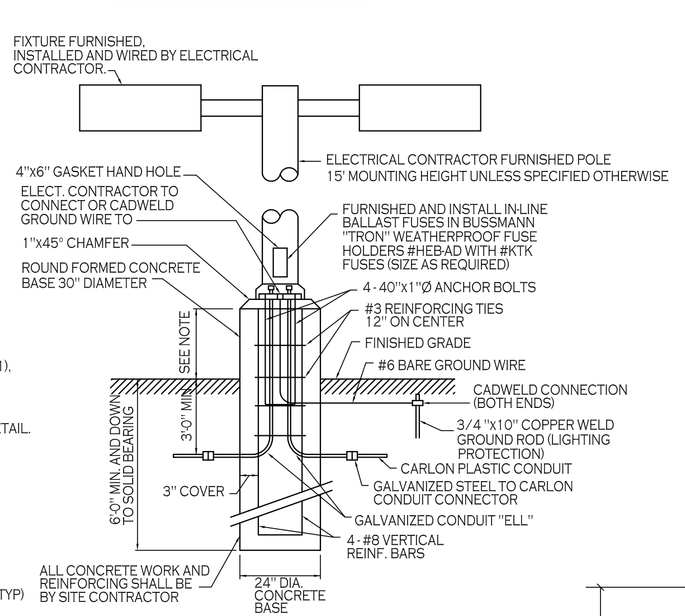
NOTES:
1. HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

HANDICAP PARKING SIGNS - 6

INSTALLED IN GRASS/LANDSCAPED AREA



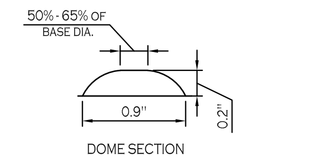
STOP BAR DETAIL - 7



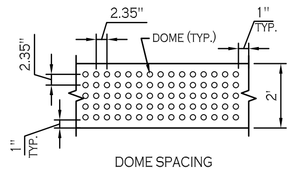
NOTES:
1. FOR LOCATIONS OF FOUNDATIONS SEE SITE PLAN
2. FOR LIGHT FIXTURE ORDERING INFORMATION SEE SITE LIGHTING PLAN
3. LIGHT POLE BASE EXPOSURE ABOVE GRADE SHALL BE:
   IN CURBED ISLANDS: 6" ABOVE TOP OF CURB ELEVATION
   IN PAVEMENT: 3" ABOVE GRADE
   IN NONCURBED GRASS AREAS: 6" ABOVE GRADE

LIGHT POLE FOUNDATION - 8

USE FOR 15' MOUNTING HEIGHT L.E.D. FIXTURES

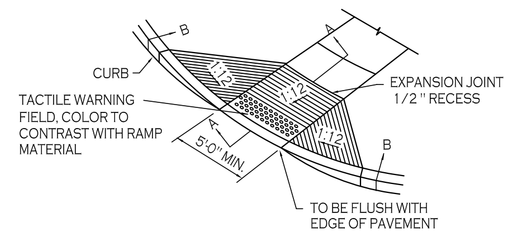


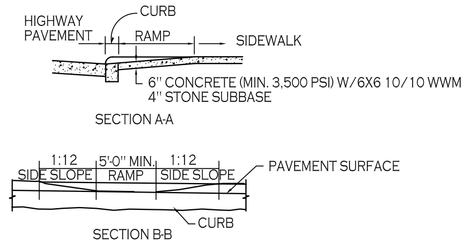
DOME SECTION



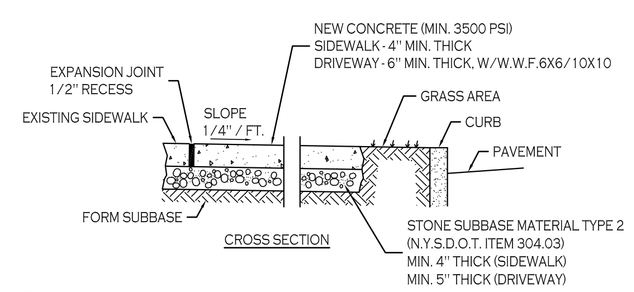
DOME SPACING

NOTE: TACTILE WARNING DEVICES SHALL BE PER ICC/ANSI A117.1-1998, SECTION 705.3.1.2 OR CURRENT UPDATE



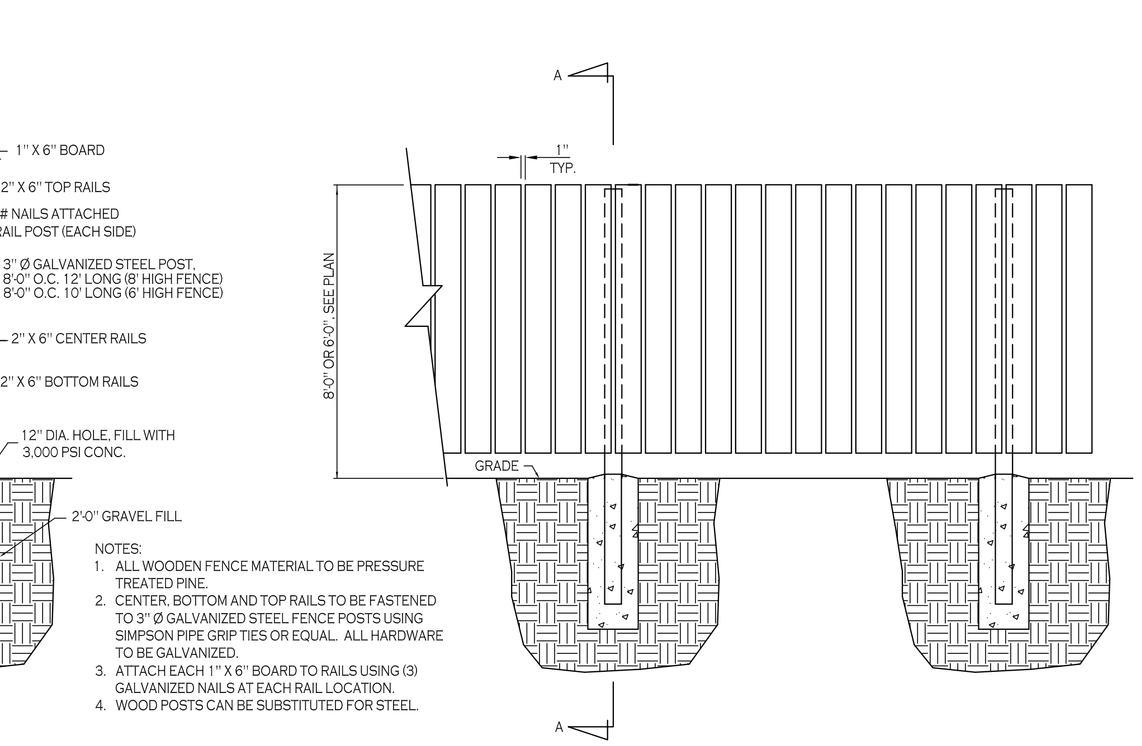


SIDEWALK CURB RAMP - 10



NOTES:
1. CONTROL JOINTS TO BE AT 5'-0" O.C., BOTH WAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3.
3. SUBBASE GRADE SHALL FOLLOW THE PROPOSED GRADE OF THE SIDEWALK AND SLOPE AWAY FROM BUILDING WHERE APPLICABLE, PROVIDE CONTINUOUS STONE PATH TO CURB UNDERDRAIN WHERE PROVIDED.
4. FULL DEPTH EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
5. SEE CURB DETAIL FOR DOWLING REQUIREMENTS WHERE ABUTTING CURB.
6. INSTALL 6" LONG #3 DOWELS @ 12" O.C. WHERE SIDEWALK ABUTS A BUILDING WALL AT AN ENTRANCE, THICKEN SIDEWALK TO 6" AT BUILDING WALL AND INSTALL DOWEL CENTERED IN THE 6" DEPTH. DOWELS AND THICKENING OF SIDEWALK SHALL EXTEND 18" EITHER SIDE OF ENTRANCE.
7. INSTALL 1/2" PREMOLDED EXPANSION JOINT WITH BACKER ROD & SEALANT WHERE SIDEWALK ABUTS BUILDING OR OTHER STRUCTURE.

CONCRETE SIDEWALK - 9



NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.

BOARD ON BOARD FENCE FENCE - 12

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site Details

DRAWING NO.

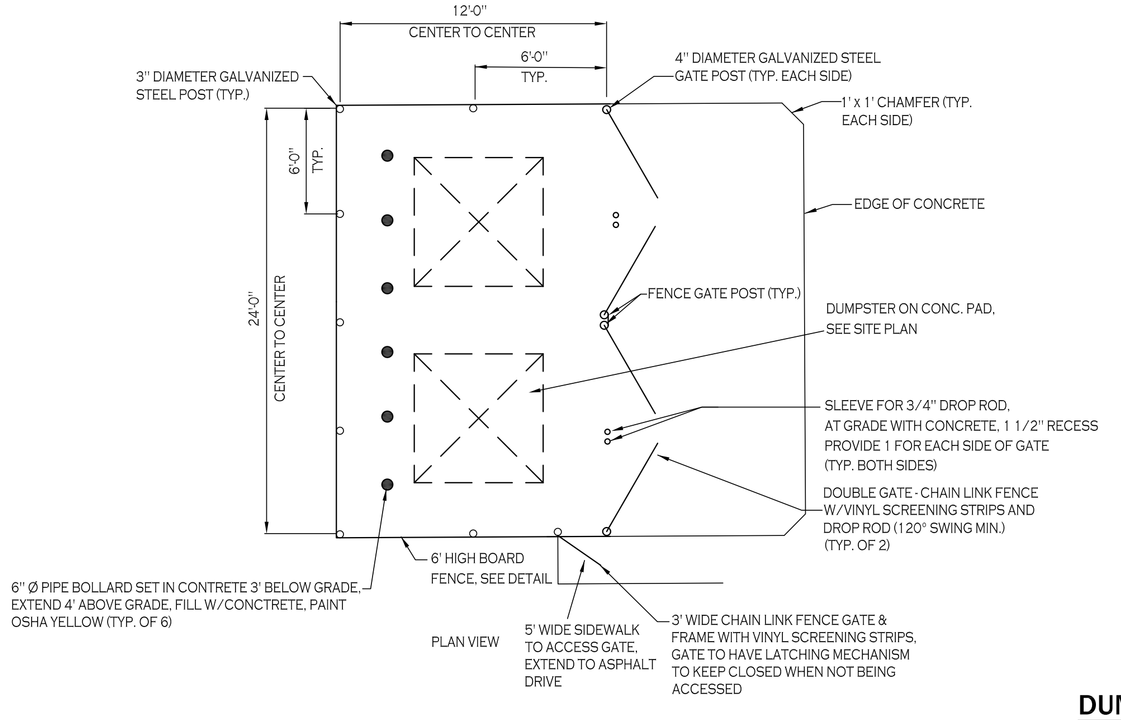
C-103

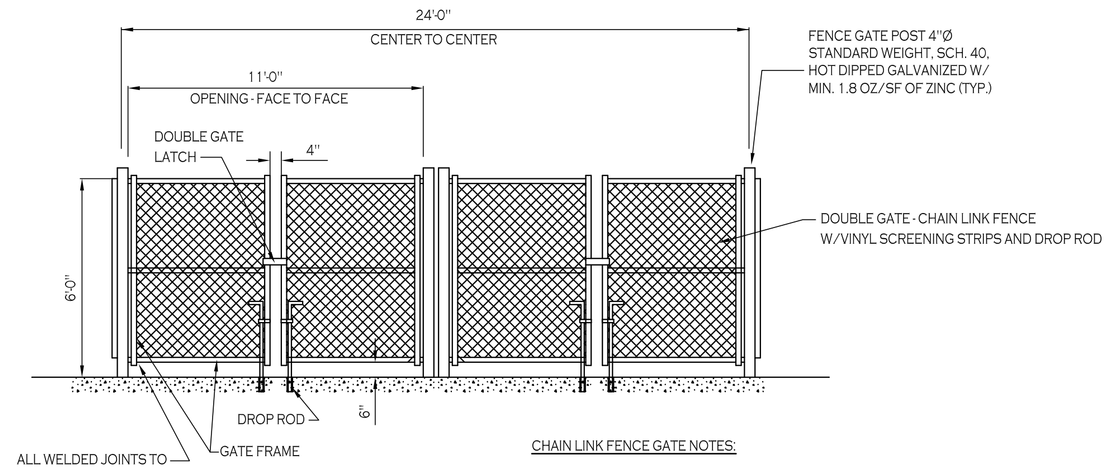
Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

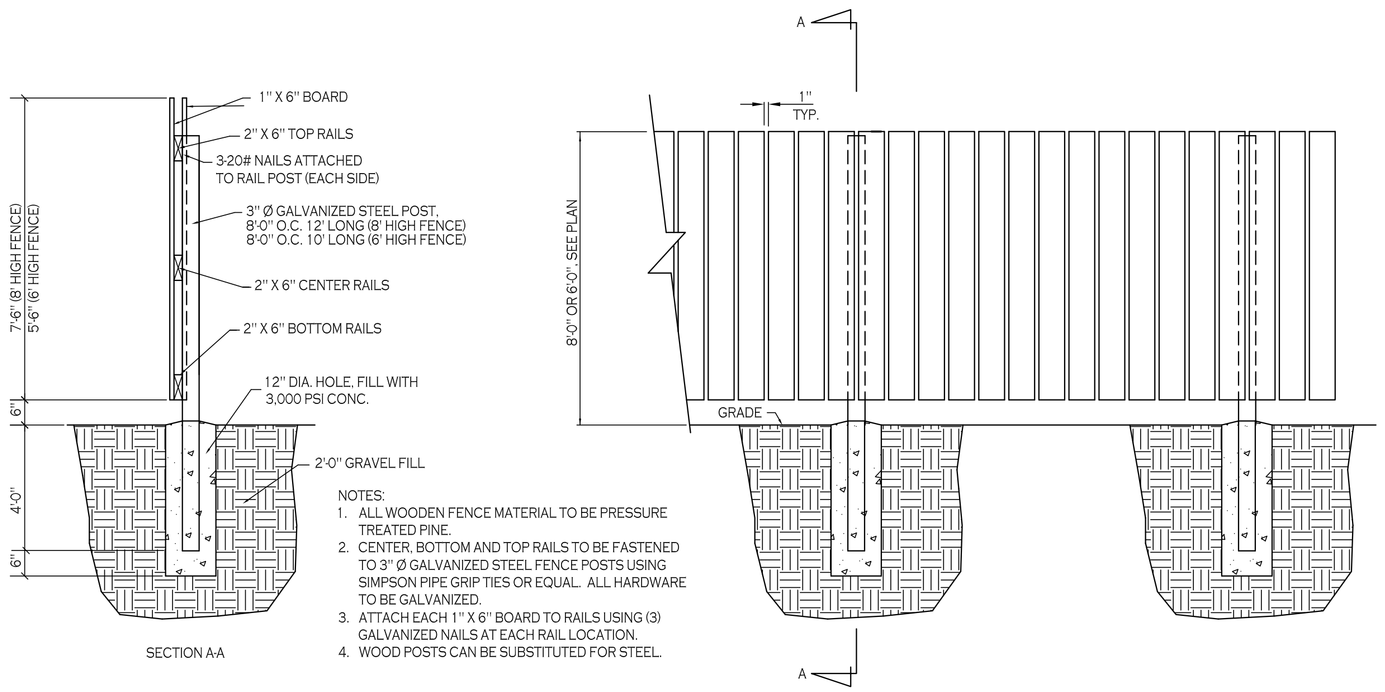




DUMPSTER ENCLOSURE - 11

CHAIN LINK FENCE GATE NOTES:

1. GATE POST FOOTINGS TO BE MIN. 36" DEEP x (4x) POST DIAMETER, EXTEND POST TO WITHIN 6" OF BOTTOM.
2. GATE FRAMES TO BE 2" SQ. GALVANIZED STEEL, WEIGHING 2.60 LB/FT IN ACCORDANCE WITH ASTM F 900.
3. CHAIN LINK FENCE FABRIC SHALL BE 2" MESH, 9 GAUGE, ZINC COATED STEEL CORE WIRE. INSTALL MESH WITH HOOK BOLTS AND TENSION BARS ON ALL 4 SIDES. ATTACH AT 15" MAX.
4. DOUBLE GATE LATCH TO BE FORKED TYPE CAPABLE OF RETAINING GATE IN CLOSED POSITION AND HAVE PROVISION FOR PAD LOCK. LATCH SHALL BE OPERABLE FROM EITHER SIDE OF GATE.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED STEEL TO SUIT GATE SIZE.



NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.

BOARD ON BOARD FENCE FENCE - FOR DUMPSTER ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

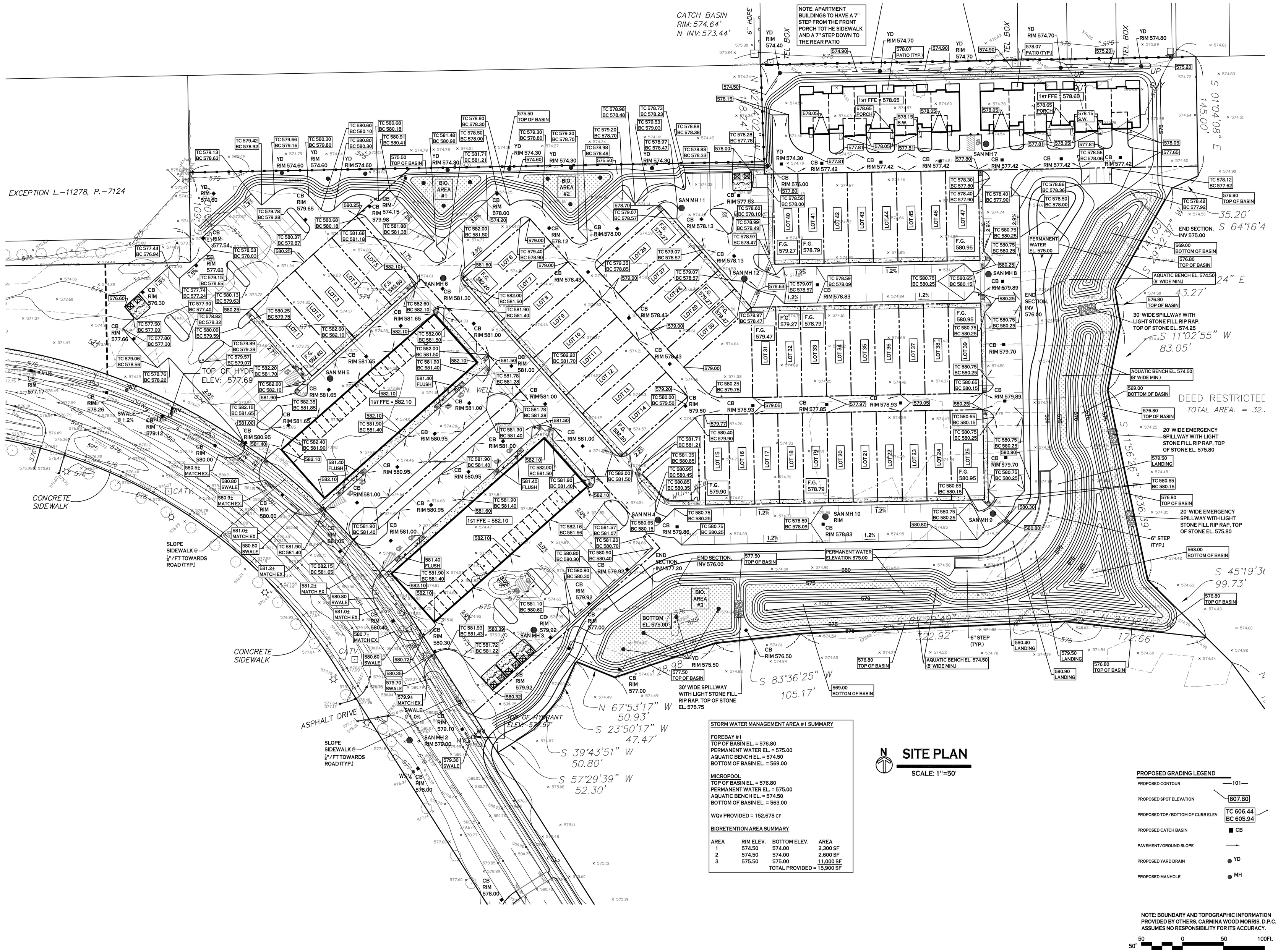
Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site
Details

DRAWING NO.
C-104
Project no.: 21.011

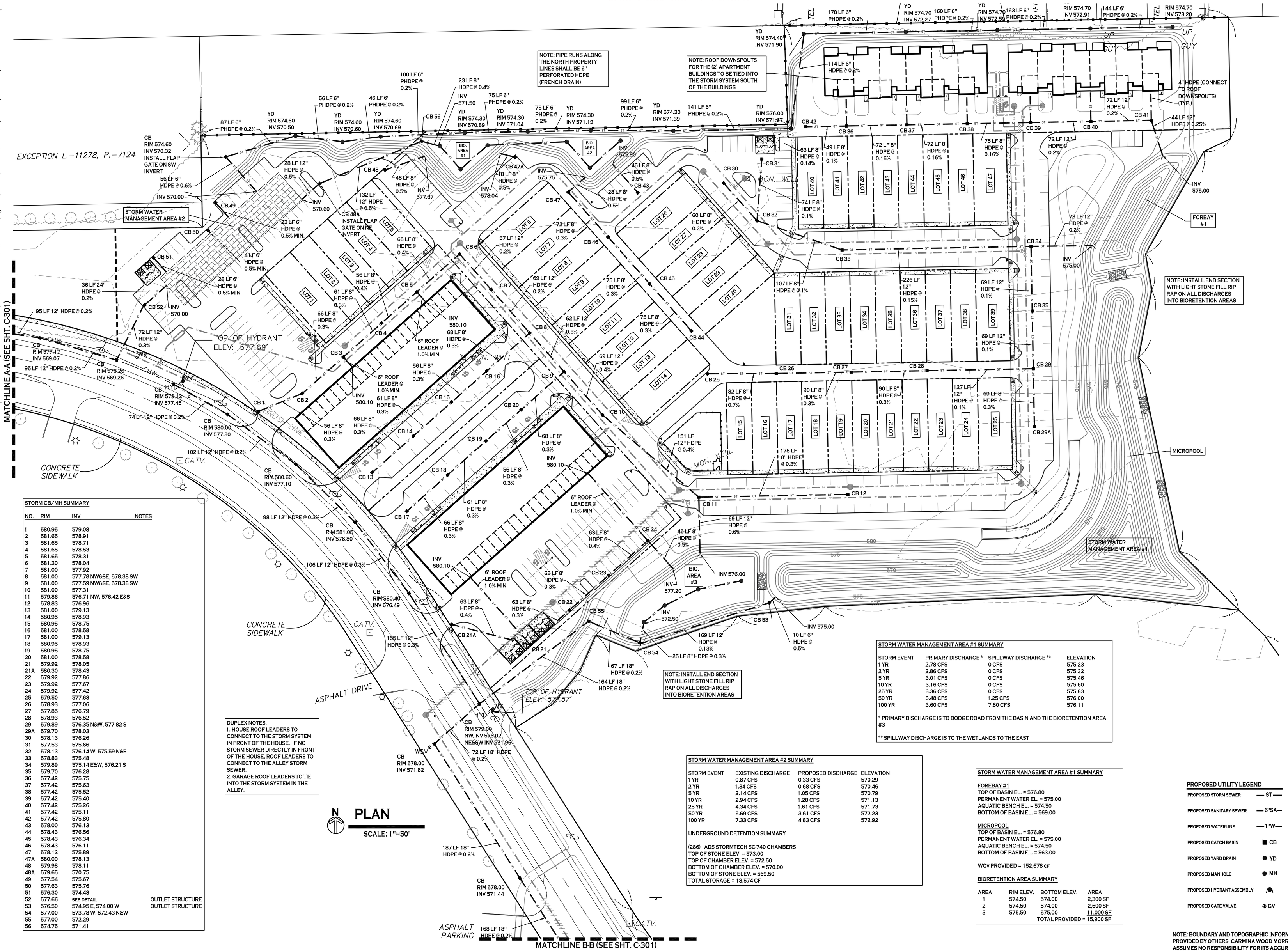
Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.


CATCH BASIN
RIM: 574.64'
N INV: 573.44'
6" HDPE
NOTE: APARTMENT BUILDINGS TO HAVE A 7" STEP FROM THE FRONT PORCH TOT HE SIDEWALK AND A 7" STEP DOWN TO THE REAR PATIO
EXCEPTION L.–11278, P.–7124
TOP OF HYDRANT ELEV.: 577.69'
CONCRETE SIDEWALK
ASPHALT DRIVE
SLOPE SIDEWALK @ ¼"/FT TOWARDS ROAD (TYP.)
SWALE @ 1.2%
SWALE @ 1.0%
1ST FFE = 582.10
1ST FFE = 578.65
BIO. AREA #1
BIO. AREA #2
BIO. AREA #3
SAN MH 1
SAN MH 2
SAN MH 3
SAN MH 4
SAN MH 5
SAN MH 6
SAN MH 7
SAN MH 8
SAN MH 9
SAN MH 10
SAN MH 11
SAN MH 12
PERMANENT WATER EL. 575.00
PERMANENT WATER ELEVATION 575.00
END SECTION, INV 575.00
END SECTION, INV 576.00
END SECTION, INV 577.20
AQUATIC BENCH EL. 574.50 (8' WIDE MIN.)
30' WIDE SPILLWAY WITH LIGHT STONE FILL RIP RAP, TOP OF STONE EL. 574.25
20' WIDE EMERGENCY SPILLWAY WITH LIGHT STONE FILL RIP RAP, TOP OF STONE EL. 575.80
30' WIDE SPILLWAY WITH LIGHT STONE FILL RIP RAP, TOP OF STONE EL. 575.75
6" STEP (TYP.)
DEED RESTRICTE
TOTAL AREA: = 32..
S 01°04'08" E 145.00'
S 64°16'4
35.20'
S 11°02'55" W 83.05'
S 1°56'26" E 236.39'
S 45°19'3
99.73'
S 8°22'49" W 322.92'
N 8°32'1
172.66'
S 83°36'25" W 105.17'
N 67°53'17" W 50.93'
S 23°50'17" W 47.47'
S 39°43'51" W 50.80'
S 57°29'39" W 52.30'
N 02°40'28" E 128.98'
N 01°09'32" W 609.00'
CB RIM 577.54
CB RIM 577.63
CB RIM 577.66
CB RIM 576.30
CB RIM 577.17
CB RIM 578.26
CB RIM 579.12
CB RIM 580.00
CB RIM 580.60
CB RIM 581.05
CB RIM 580.40
CB RIM 580.30
CB RIM 578.00
CB RIM 579.10
CB RIM 579.92
CB RIM 577.00
CB RIM 576.50
CB RIM 579.86
CB RIM 578,83
CB RIM 579.70
CB RIM 579.89
CB RIM 579.50
CB RIM 578.93
CB RIM 577.85
CB RIM 577.93
CB RIM 578.43
CB RIM 578.13
CB RIM 578.12
CB RIM 578.00
CB RIM 577.53
CB RIM 577.42
CB RIM 577.81
CB RIM 577.80
CB RIM 578.00
CB RIM 578.05
CB RIM 577.55
CB RIM 581.30
CB RIM 581.65
CB RIM 581.00
CB RIM 580.95
CB RIM 581.00
CB RIM 581.00
CB RIM 581.00
CB RIM 580.95
CB RIM 580.95
CB RIM 581.00
CB RIM 581.00
CB RIM 580.95
CB RIM 580.95
CB RIM 581.00
CB RIM 581.00
CB RIM 581.00

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



STORM WATER MANAGEMENT AREA #2 SUMMARY

STORM EVENT	EXISTING DISCHARGE	PROPOSED DISCHARGE	ELEVATION
1 YR	0.87 CFS	0.33 CFS	570.29
2 YR	1.34 CFS	0.68 CFS	570.46
5 YR	2.14 CFS	1.05 CFS	570.79
10 YR	2.94 CFS	1.28 CFS	571.13
25 YR	4.34 CFS	1.61 CFS	571.73
50 YR	5.69 CFS	3.61 CFS	572.23
100 YR	7.33 CFS	4.83 CFS	572.92

UNDERGROUND DETENTION SUMMARY

(286) ADS STORMTECH SC-740 CHAMBERS
TOP OF STONE ELEV. = 573.00
TOP OF CHAMBER ELEV. = 572.50
BOTTOM OF CHAMBER ELEV. = 570.00
BOTTOM OF STONE ELEV. = 569.50
TOTAL STORAGE = 18,574 CF

STORM WATER MANAGEMENT AREA #1 SUMMARY

STORM EVENT	PRIMARY DISCHARGE *	SPILLWAY DISCHARGE **	ELEVATION
1 YR	2.78 CFS	0 CFS	575.23
2 YR	2.86 CFS	0 CFS	575.32
5 YR	3.01 CFS	0 CFS	575.46
10 YR	3.16 CFS	0 CFS	575.60
25 YR	3.36 CFS	0 CFS	575.83
50 YR	3.48 CFS	1.25 CFS	576.00
100 YR	3.60 CFS	7.80 CFS	576.11

* PRIMARY DISCHARGE IS TO DODGE ROAD FROM THE BASIN AND THE BIORETENTION AREA #3

** SPILLWAY DISCHARGE IS TO THE WETLANDS TO THE EAST

STORM WATER MANAGEMENT AREA #1 SUMMARY

FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00

MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00

WQv PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY

AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

PROPOSED UTILITY LEGEND

- PROPOSED STORM SEWER — ST —
- PROPOSED SANITARY SEWER — 6"SA —
- PROPOSED WATERLINE — 1"W —
- PROPOSED CATCH BASIN ■ CB
- PROPOSED YARD DRAIN ● YD
- PROPOSED MANHOLE ● MH
- PROPOSED HYDRANT ASSEMBLY
- PROPOSED GATE VALVE ⊕ GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 0 50 100FT.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Plan

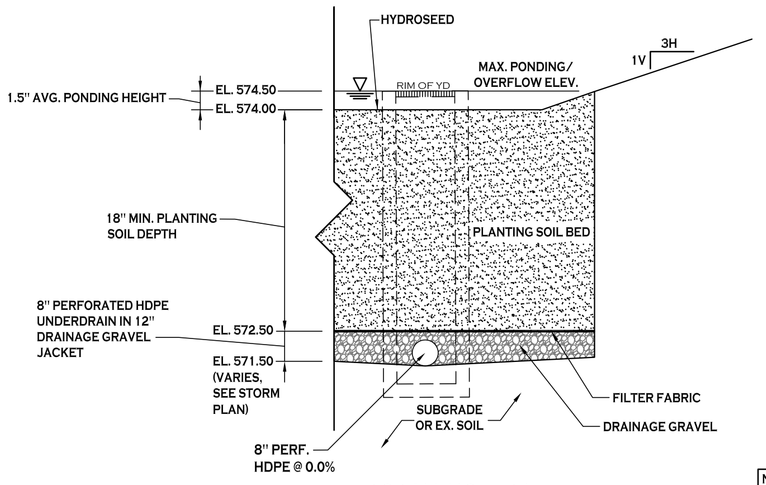
DRAWING NO.
C-300

Project no.: 21.011

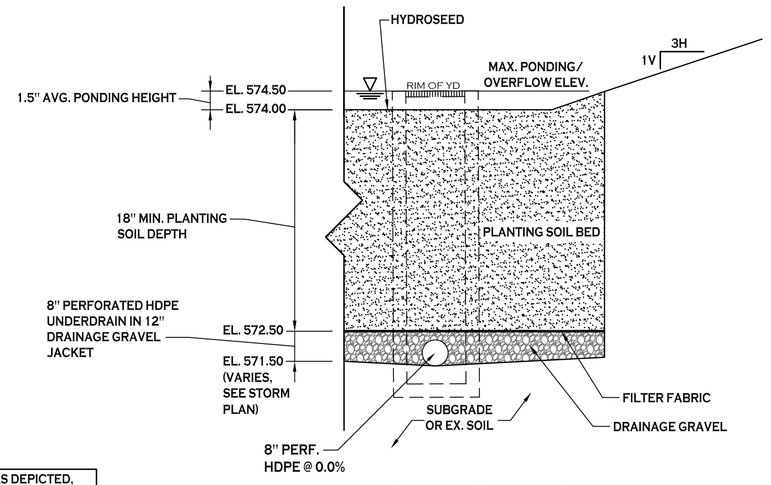
Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

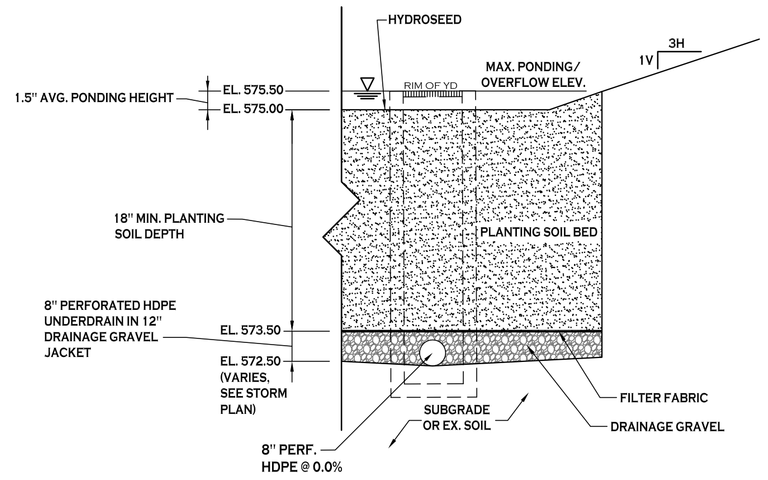


BIORETENTION AREA #1



BIORETENTION AREA #2

NOTE: AS DEPICTED, YARD DRAIN RIM ELEVATIONS ARE TO BE SET 6" ABOVE PROPOSED GRADE IN BIORETENTION AREAS.



BIORETENTION AREA #3

NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 180-N OR APPROVED EQUIVALENT
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43. NO.67, SIZE 0.25" TO 0.75"
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 60% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR ML WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

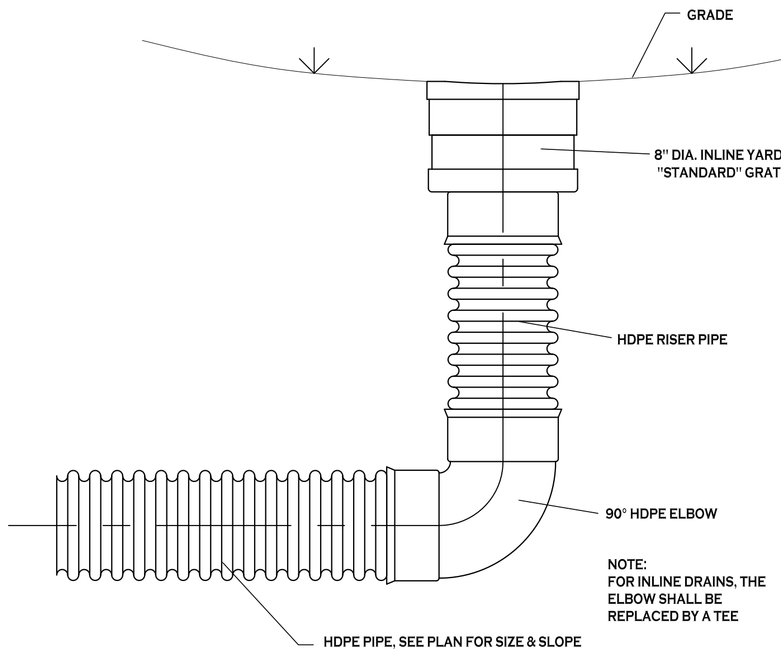
CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHORUS: 75 LBS PER ACRE MIN.
POTASSIUM: 85 LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CREEPING BENTGRASS	AGROSTIS STOLONIFERA	63.0
ROUGH BLUEGRASS	POA TRIVIALIS	17.0
MEADOW FOXTAIL	ALOPECURUS ARUNDINACEUS	11.0
ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	4.5
DEERTONGUE	PANICUM CLANDESTINUM	4.5

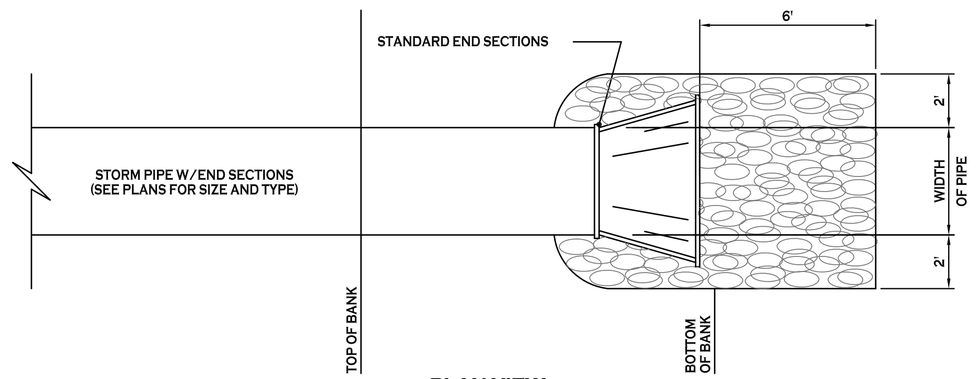
BIORETENTION AREA - TYPICAL SECTIONS

NOT TO SCALE

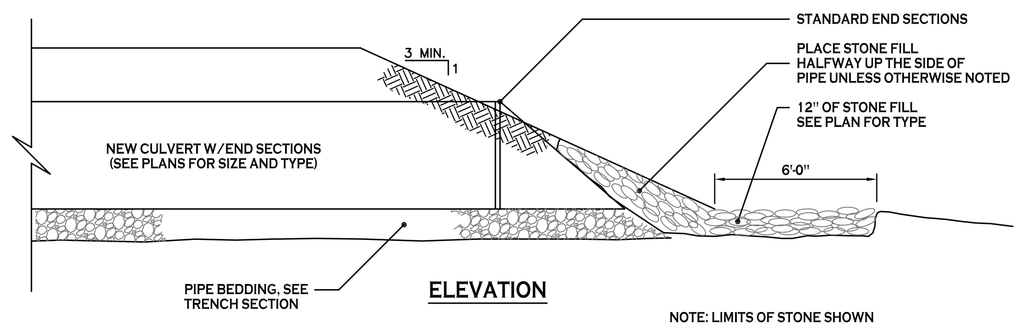


NOTE:
SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



PLAN VIEW

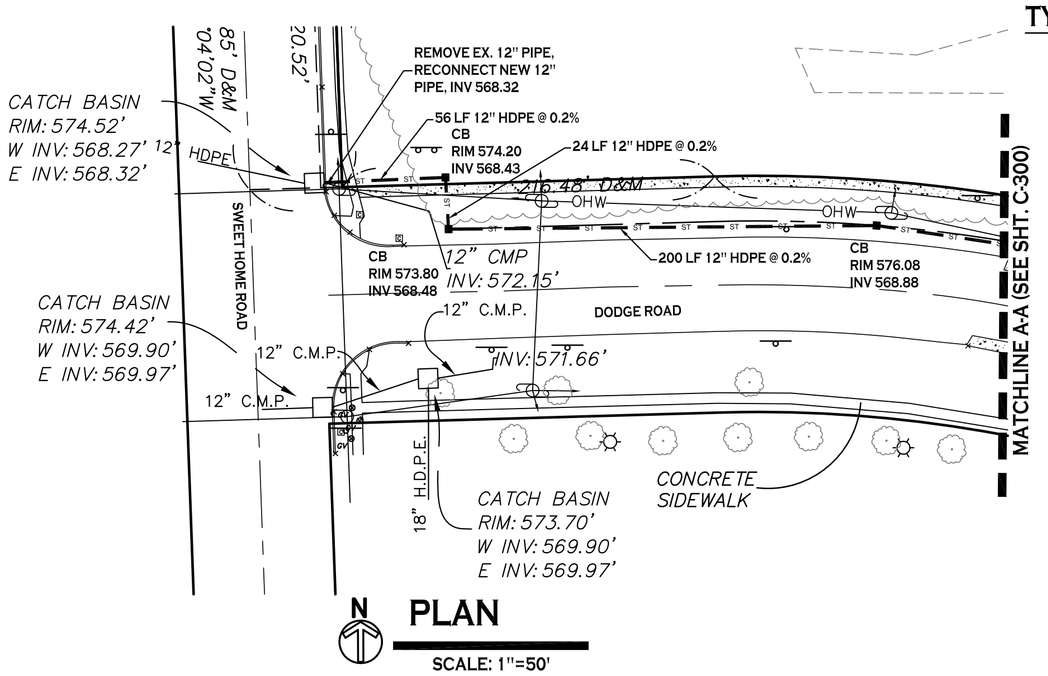


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS, PLAN MAY INDICATE GREATER LIMITS

TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

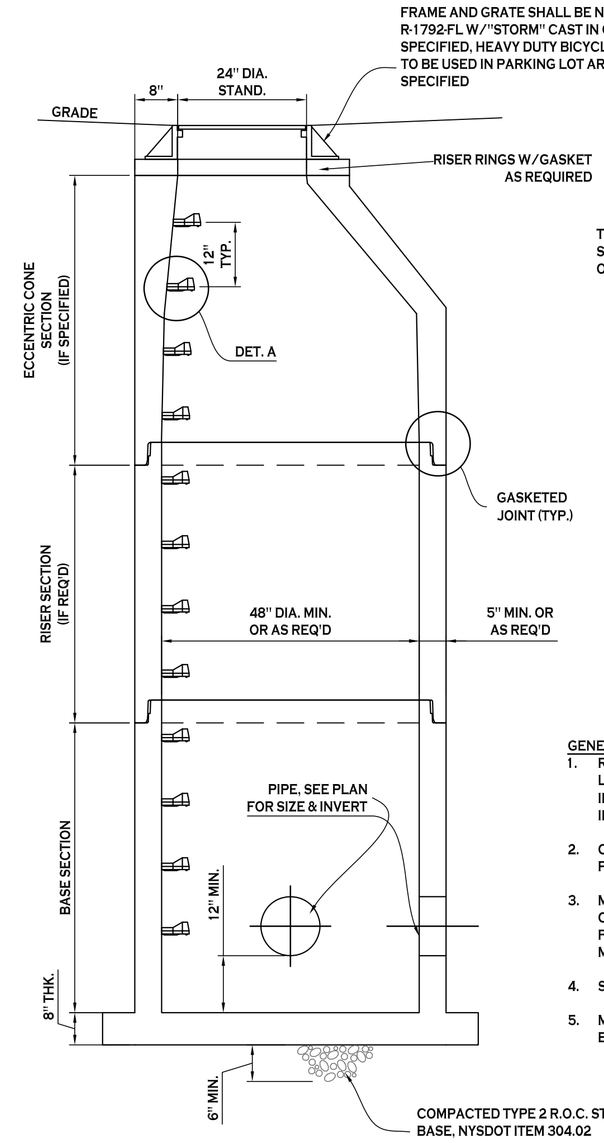
NOT TO SCALE



N

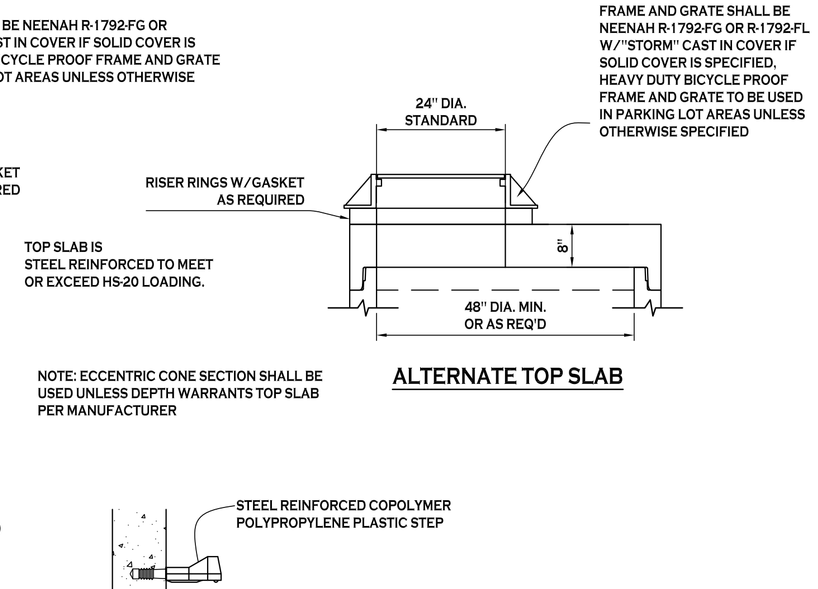
PLAN

SCALE: 1"=50'



TYPICAL STORM MANHOLE DETAIL

NOT TO SCALE

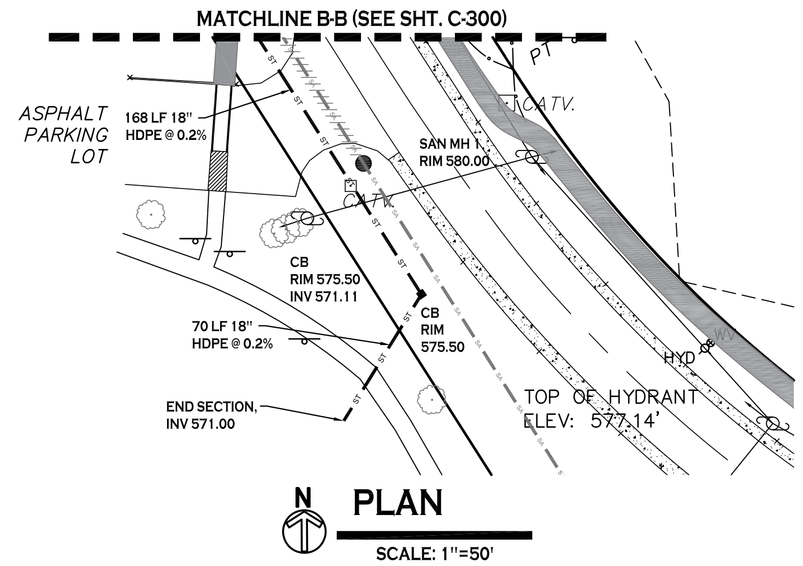


ALTERNATE TOP SLAB

NOTE: ECCENTRIC CONE SECTION SHALL BE USED UNLESS DEPTH WARRANTS TOP SLAB PER MANUFACTURER

DETAIL A

GENERAL NOTES:
1. REINFORCED STEEL TO CONFORM TO LATEST A.S.T.M. A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) IN BASE SLAB.
2. CONCRETE COMPRESSIVE STRENGTH - 4000 PSI MINIMUM.
3. MANHOLE DESIGN SPECIFICATIONS TO CONFORM TO LATEST A.S.T.M. C478 SPEC. FOR PRE-CAST REINFORCED CON-CRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.
5. MANHOLE TO BE COATED ON OUTSIDE WITH BITUMASTIC SEALER.



N

PLAN

SCALE: 1"=50'

Carmina
Wood
Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

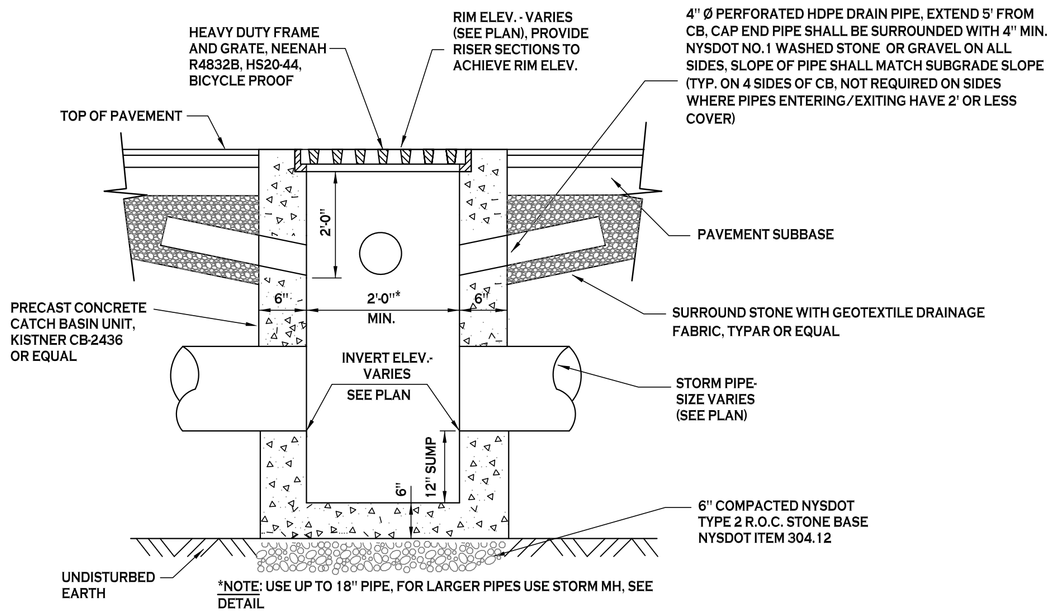
DRAWING NO.

C-301

Project no.: 21.011

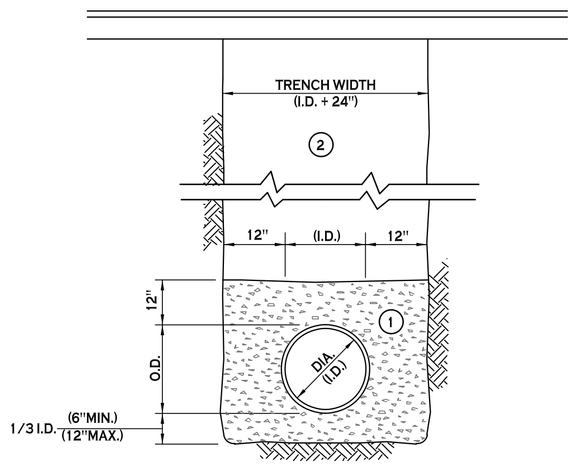
Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)

© Carmina Wood Morris DPC All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



TYPICAL PRECAST CATCH BASIN

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

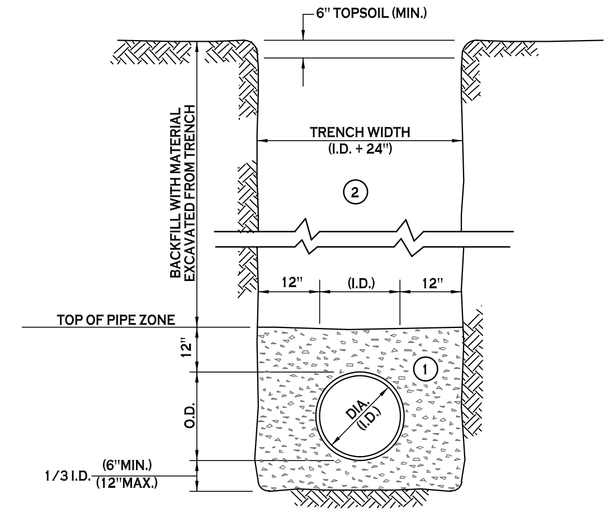
NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (2)

STORM SEWER TRENCH SECTION IN PAVED AREAS

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

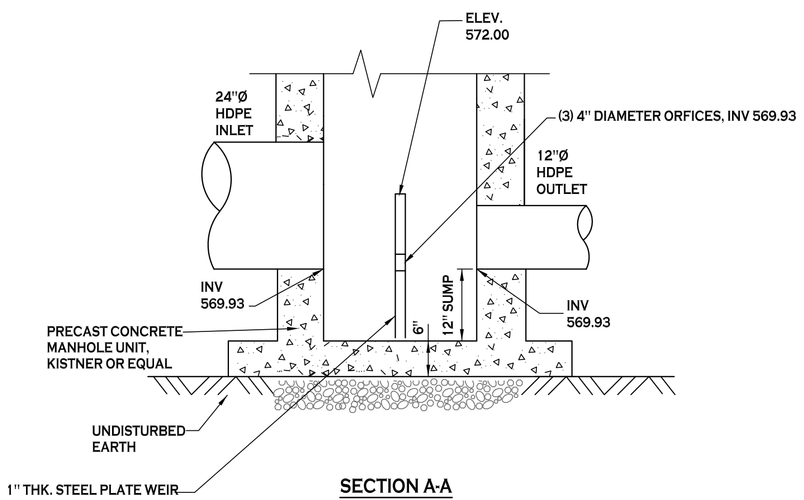
(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 6" LIFTS.

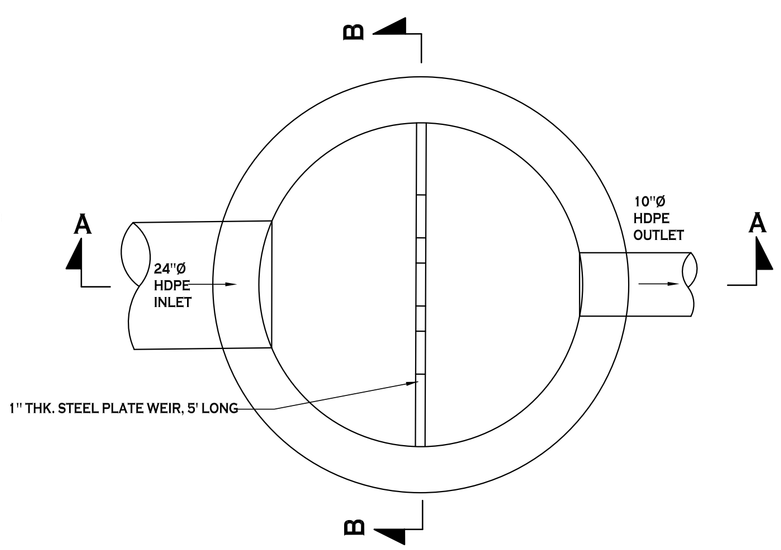
STORM SEWER TRENCH SECTION IN UNPAVED AREAS

NOT TO SCALE



SECTION A-A

NOTES:
1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED

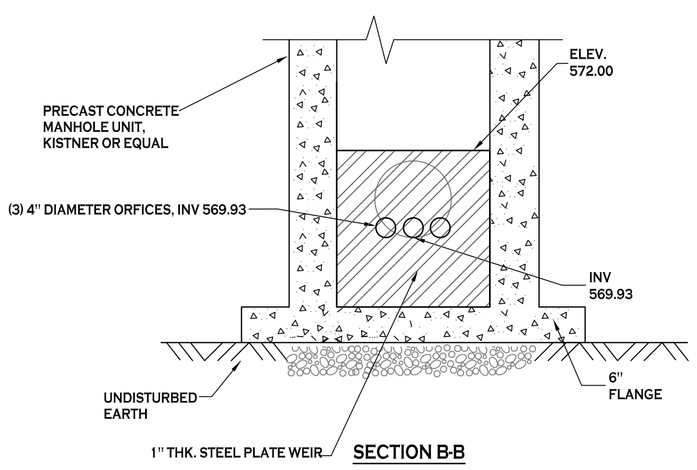


PLAN

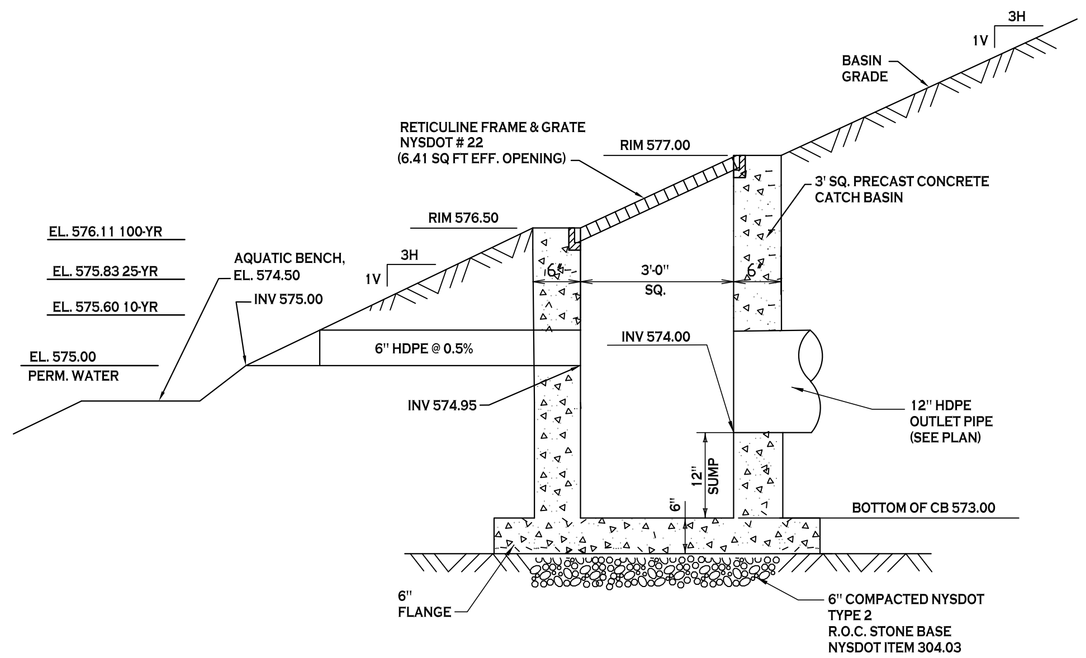
*NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52

NOT TO SCALE



SECTION B-B



DETENTION BASIN OUTLET STRUCTURE - CB 53

N.T.S.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

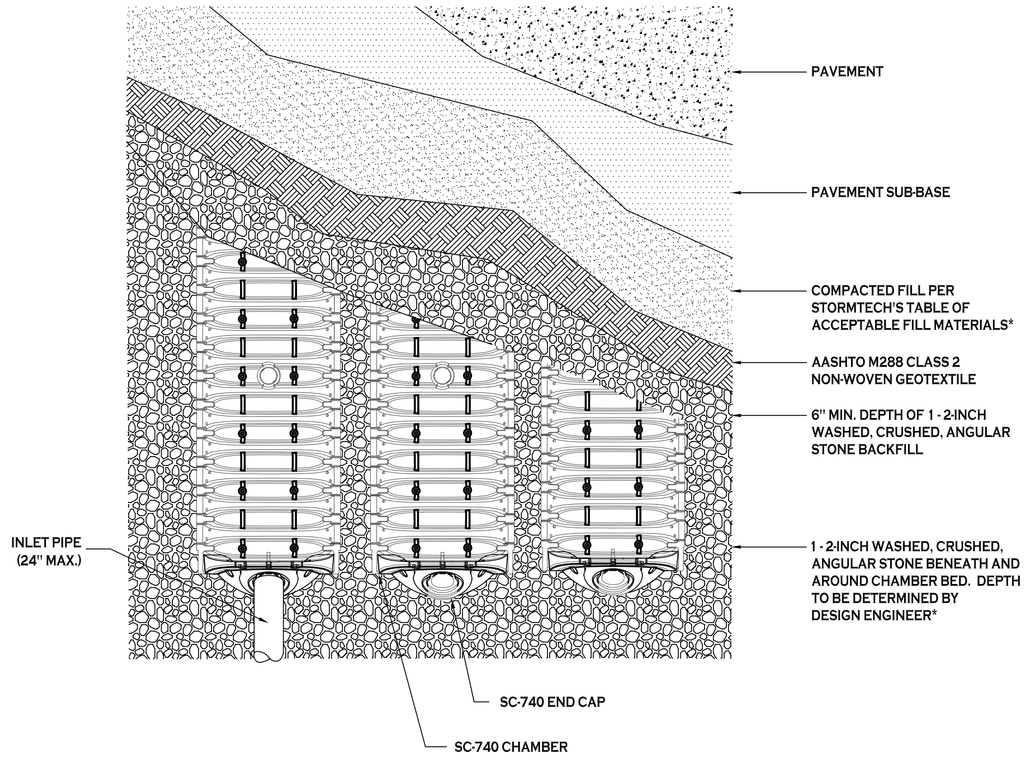
C-302

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209A and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)



STORMTECH SC-740 CHAMBER SYSTEM
PLAN VIEW DETAIL

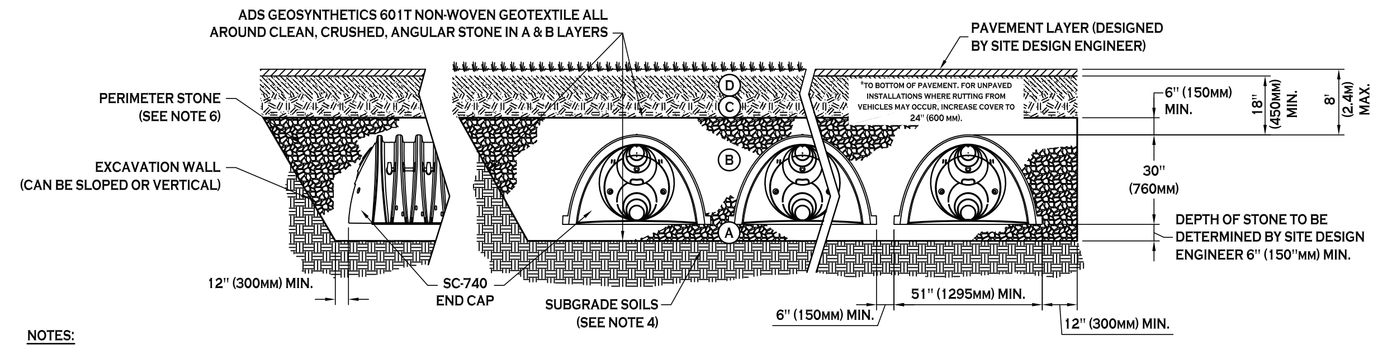
NOT TO SCALE

*SEE STORMTECH'S DESIGN MANUAL

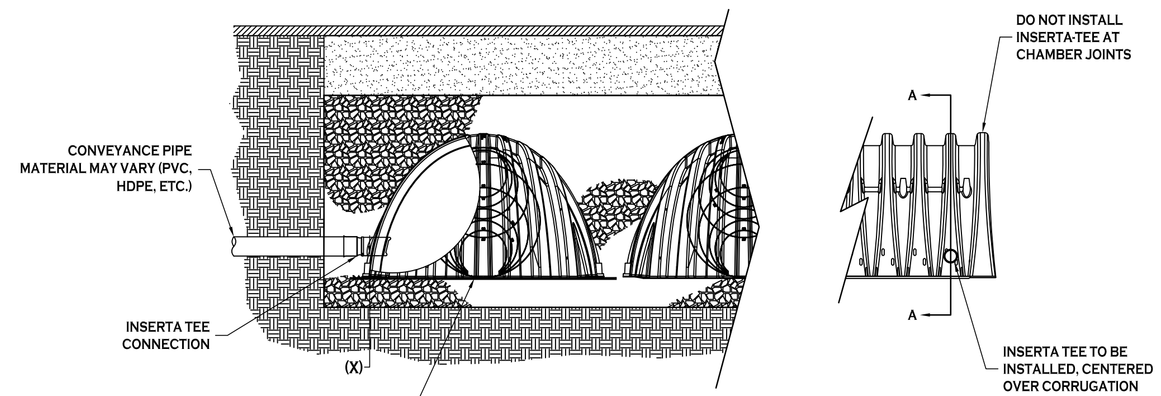
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 MM) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LATER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 MM) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 MM) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS (53 KN). DYNAMIC FORCE NOT TO EXCEED 20,000 LBS (89 KN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 MM) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 MM)	4" (100 MM)
SC-740	10" (250 MM)	4" (100 MM)
DC-780	10" (250 MM)	4" (100 MM)
MC-3500	12" (300 MM)	6" (150 MM)
MC-4500	12" (300 MM)	8" (200 MM)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

INSERTA TEE DETAIL

NOT TO SCALE

INSPECTION AND MAINTENANCE

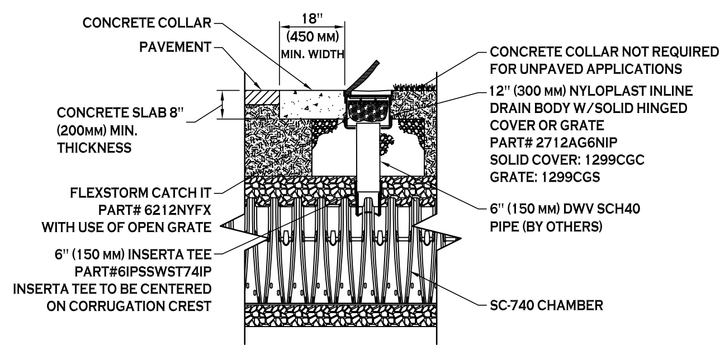
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 M) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/15/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

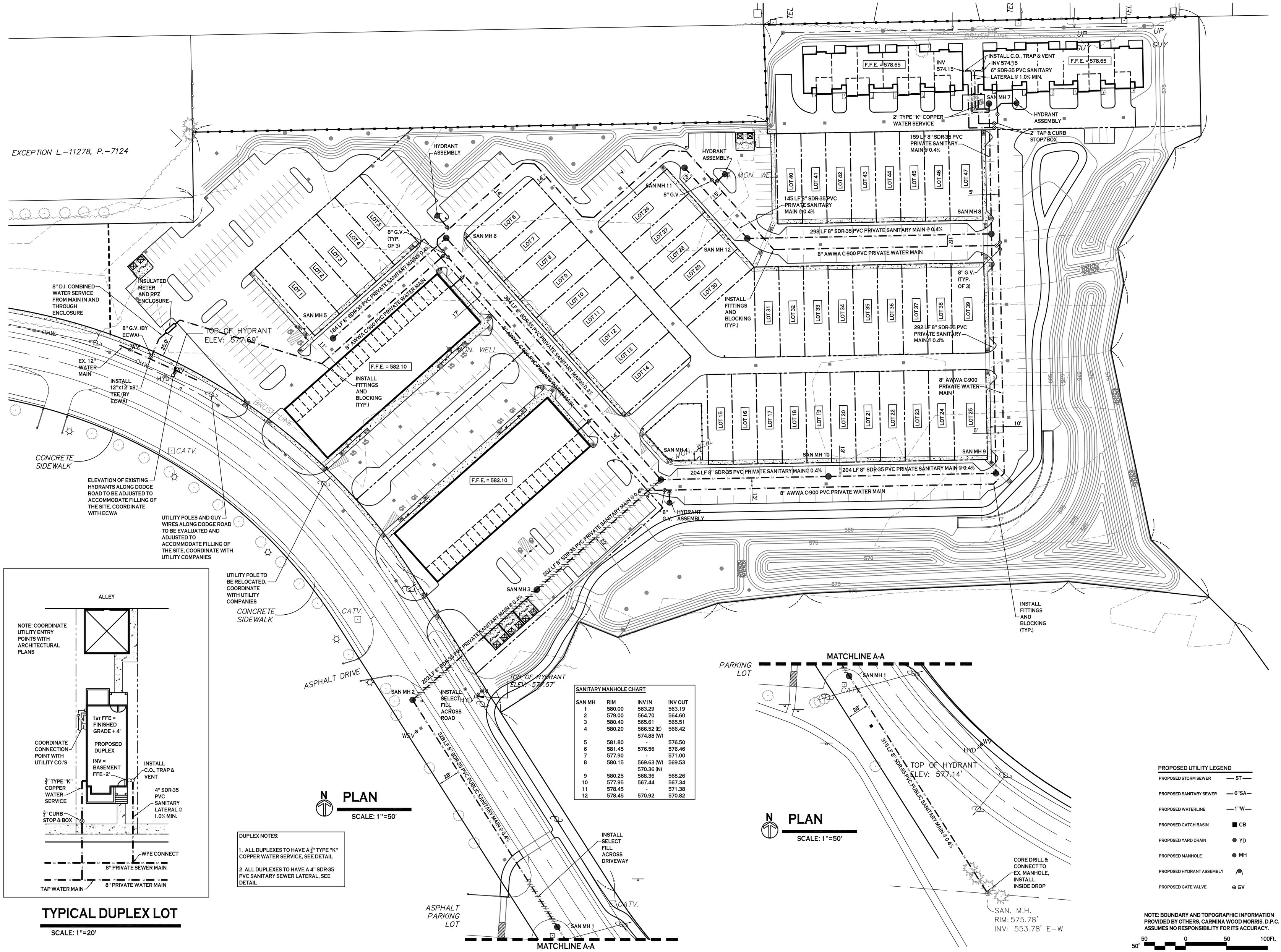
C-303

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (2357 : SP-2021-05)



N PLAN
SCALE: 1"=50'

N PLAN
SCALE: 1"=50'

TYPICAL DUPLEX LOT

SCALE: 1"=20'

DUPLEX NOTES:

1. ALL DUPLEXES TO HAVE A ¾" TYPE "K" COPPER WATER SERVICE, SEE DETAIL
2. ALL DUPLEXES TO HAVE A 4" SDR-35 PVC SANITARY SEWER LATERAL, SEE DETAIL

SANITARY MANHOLE CHART

SAN MH	RIM	INV IN	INV OUT
1	580.00	563.29	563.19
2	579.00	564.70	564.60
3	580.40	565.61	565.51
4	580.20	566.52 (E)	566.42
		574.88 (W)	
5	581.80	-	576.50
6	581.45	576.56	576.46
7	577.90	-	571.00
8	580.15	569.63 (W)	569.53
		570.36 (N)	
9	580.25	568.36	568.26
10	577.95	567.44	567.34
11	578.45	-	571.38
12	578.45	570.92	570.82

PROPOSED UTILITY LEGEND

PROPOSED STORM SEWER	ST
PROPOSED SANITARY SEWER	6"SA
PROPOSED WATERLINE	1"W
PROPOSED CATCH BASIN	CB
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH
PROPOSED HYDRANT ASSEMBLY	
PROPOSED GATE VALVE	GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Utility Plan

DRAWING NO.

C-400

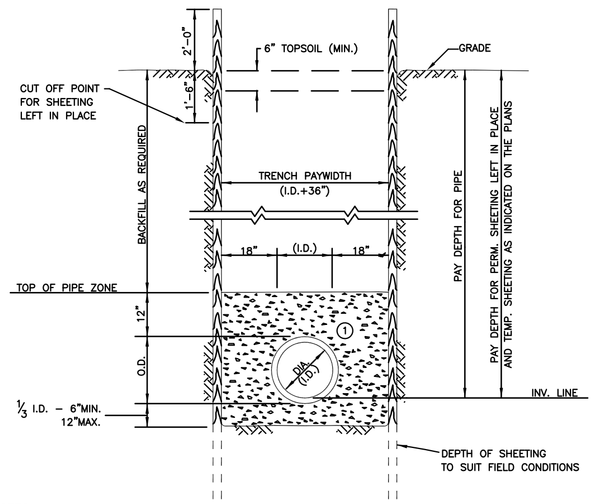
Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

SHEETED TRENCH
(JANUARY 2012)



NOTES:

1. MAINTAIN 18" BETWEEN PIPE AND INSIDE FACE OF TEMPORARY SHEETING. IF SHEETING EXTENDS BELOW PIPE INVERT AS SHOWN, WHEN PVC PIPE MATERIAL IS USED, COMPACT MATERIAL ③ BEFORE PULLING THE SHEETING.
2. SHEETED TRENCH OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING EQUIPMENT.
3. SHEETING DRIVEN BELOW THE INVERT OF THE PIPE FOR BEDDING MATERIAL AND TOE SUPPORT WILL NOT BE CONSIDERED IN THE FORMULA FOR PAYMENT BUT SHOULD BE FIGURED BY THE CONTRACTOR IN DETERMINING HIS UNIT BID PRICE PER SQUARE FOOT OF SHEETING.
4. WHERE INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER, TEMPORARY SHEETING WILL BE PAID FOR UNDER THE APPLICABLE BID ITEM. OTHER AREAS WHERE THE CONTRACTOR ELECTS TO USE TEMPORARY SHEETING NOT PREVIOUSLY AUTHORIZED BY THE ENGINEER SHALL BE AT HIS OPTION AND EXPENSE.

MATERIALS

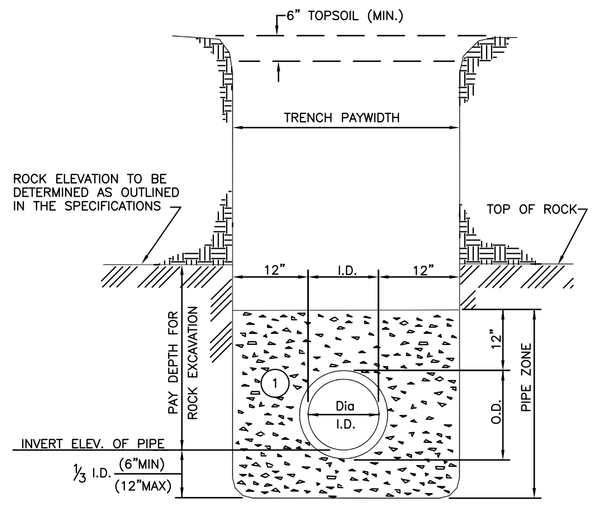
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED TOPSOIL DIMENSION	STD.DETAIL 2
	Rev. 2 6/5/06	UPDATED MATERIALS TO NYSDOT LATEST EDITION	
	File: d-02	Date: 3/1/91	

ROCK TRENCH DETAIL
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

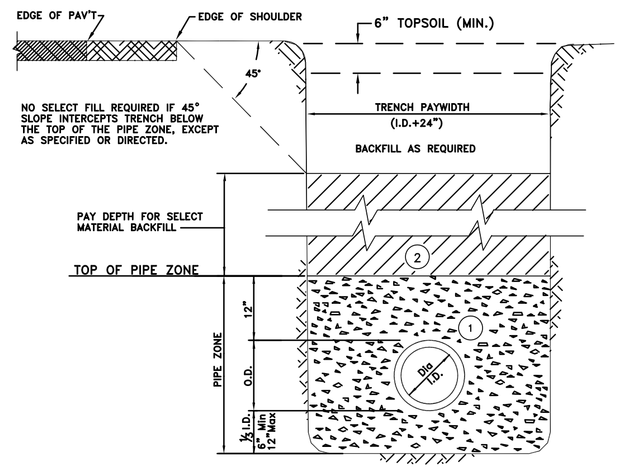
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 1/6/94	ADDED 6" TOPSOIL (MIN.)	STD.DETAIL 3
	Rev. 2 2/7/94	ADDED NOTES A & B	
	File: d-03	Date: 3/1/91	

SELECT BACKFILL FOR TRENCH PARALLEL TO ROADWAYS
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

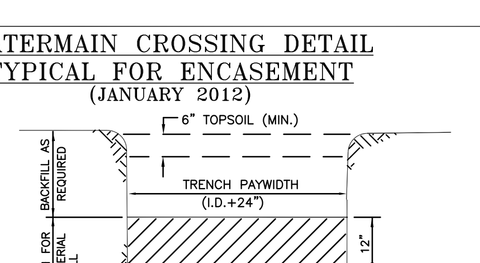
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO. 2 RUN OF CRUSHER STONE OR NO. 2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6" LIFTS TO 90% DENSITY)

NO SLAG SHALL BE ALLOWED FOR MATERIALS ① & ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 2 12/28/00	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 4
	Rev. 3 12/01	Updated NYS DOT Editions	
	File: d-04	Date: 3/1/91	

WATERMAIN CROSSING DETAIL TYPICAL FOR ENCASEMENT
(JANUARY 2012)



NOTES:

A. IN ALL CASES WHERE THERE IS LESS THAN 18" CLEARANCE BETWEEN EXISTING WATER MAIN AND PROPOSED SEWER (INCLUDING HOUSE LATERALS) THE NEW WORK SHALL BE ENCASED IN CONCRETE AS SHOWN. WHEN A CASING PIPE IS SPECIFIED, NO CONCRETE ENCASEMENT IS REQUIRED.

B. THE CONCRETE ENCASEMENT SHALL EXTEND 3'-0" EACH SIDE OF THE WATER MAIN.

C. SEWERS SHALL BE LAID AT LEAST 10' (3.0 m) HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A 10' SEPARATION, THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THE WATERMAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND THE ELEVATION OF THE BOTTOM OF THE WATERMAIN IS AT LEAST 18" (46 cm) ABOVE THE TOP OF SEWER.

D. SEWERS CROSSING WATERMAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46 CM) BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHEN THE WATERMAIN IS ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THE JOINTS OF THE SEWER PIPE WILL BE EQUIDISTANT FROM AND AS FAR AWAY FROM THE WATERMAIN JOINTS AS POSSIBLE. WHERE THE WATERMAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATERMAIN.

E. WHEN IT IS IMPOSSIBLE TO OBTAIN THE PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE SEWER SHALL BE EITHER ENCASED IN CONCRETE OR CONSTRUCTED OF PIPE MATERIAL EQUAL TO THE WATERMAIN AND PRESSURE TESTED AT 150 PSI TO ASSURE WATER TIGHTNESS.

F. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIALS PLACEMENT AND MAXIMUM PAY LIMITS.

G. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

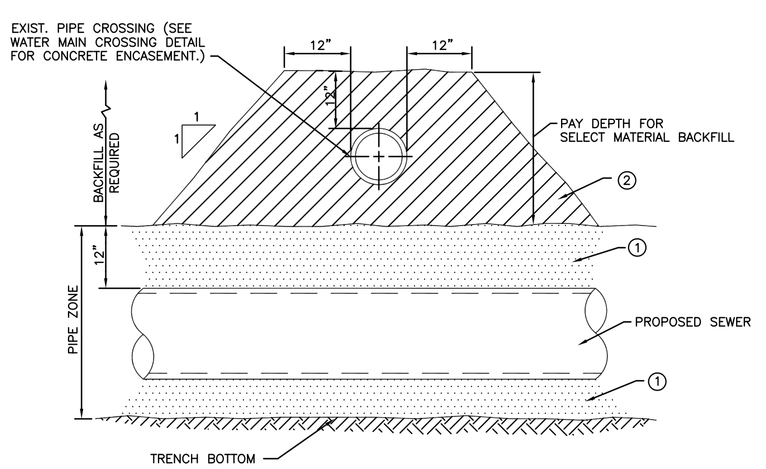
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY)

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Revisions		STD.DETAIL 5
	2/7/94	ADDED 6" TOPSOIL(MIN.) & NOTE F&G	
	01/03/01	REVISED NOTE A	
	12/01	Revised Note "A"	
	File: d-05	Date: 3/1/91	

PIPE CROSSING SUPPORT DETAIL
(JANUARY 2012)



MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

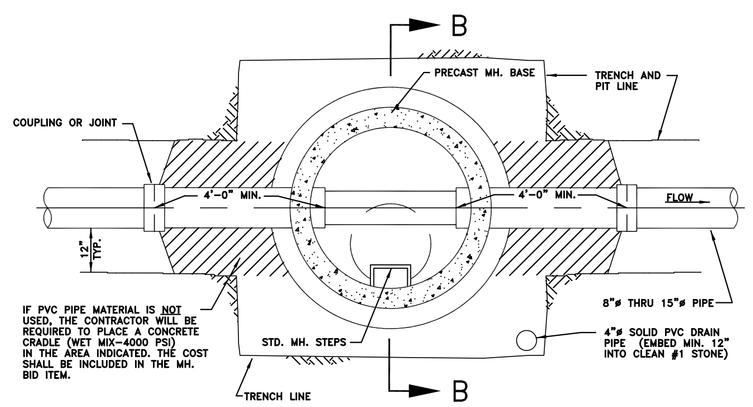
① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY) NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ① AND ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 9
	Rev. 2		
	File: d-09	Date: 3/1/91	

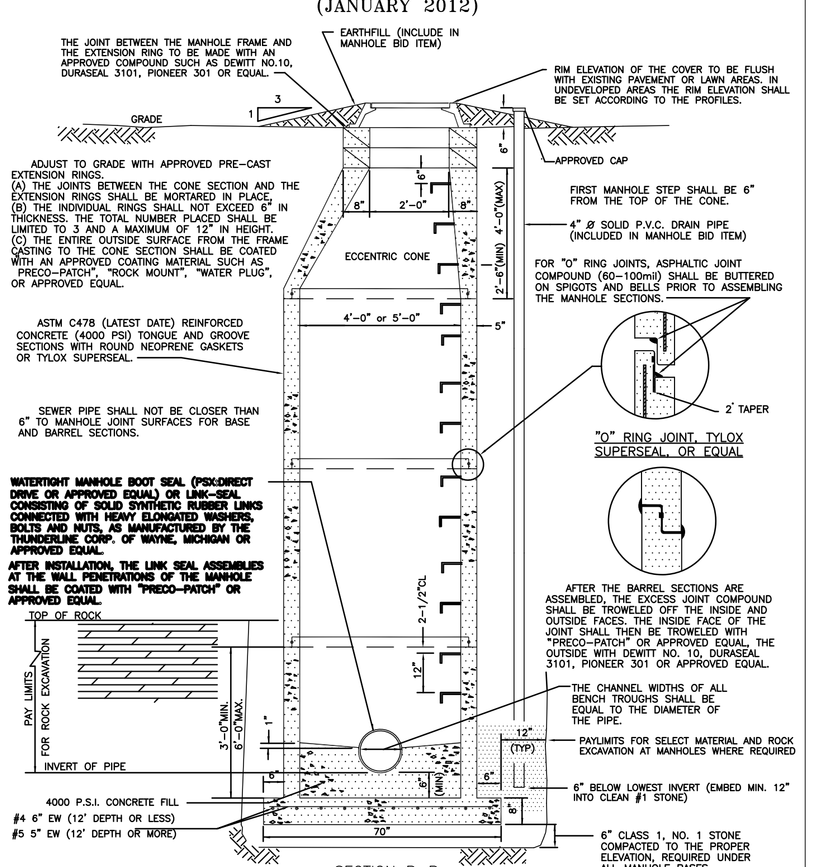
MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS
(JANUARY 2012)



PLAN

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED 4" PVC TO SOLID PIPE IN #1 STONE BED	STD.DETAIL 10
	Rev. 2		
	File: d-10	Date: 3/1/91	

MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS (SECTION B-B)
(JANUARY 2012)



SECTION B-B

Revisions

07/15/98	ADD ROCK EXCAVATION PAYLIMITS
11/23/98	ADD 4"x4"x9" MARKER AND NOTES
12/01	REVISED 4" P.V.C. TO SOLID PIPE
03/04/03	ADDED WATER TIGHT BOOT SEAL NOTE
06/22/05	ADDED TYLOX SUPERSEAL NOTES
02/27/07	REMOVED WOOD POST AND NOTES
	CHANGED THE NUMBER OF EXTENSION RINGS FROM 2 TO 3

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT			STD.DETAIL 11
	File: d-11	Date: 3/1/91	

STANDARD FRAME AND COVER (PRIVATE SEWER)
(JANUARY 2012)

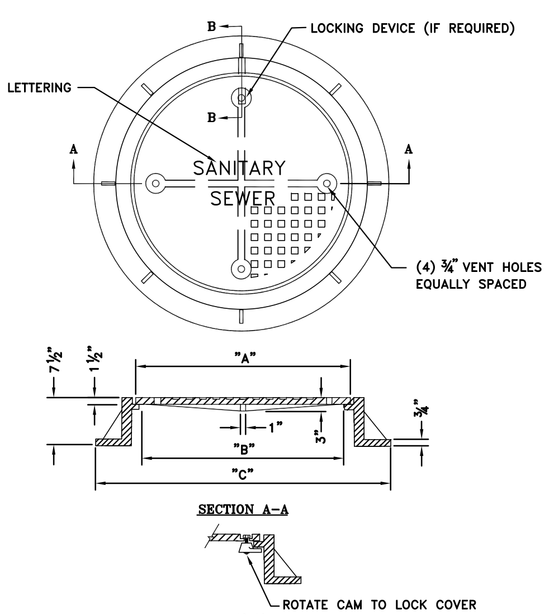


TABLE				
PIPE SIZE	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	WEIGHT OF COVER
8" THRU 18"	24"	22 1/4"	35"(MAX.)	150 LBS. ± 5%
OVER 18"	32"	30"	46"(MAX.)	200 LBS. ± 5%

STANDARD FRAME AND COVER NOTES

1. MATERIAL ASTM A48 CLASS 30B CAST IRON.
2. UNIT MUST WITHSTAND H-20 WHEEL LOADING.
3. ALL DIMENSIONS ARE TO BE CONSIDERED MINIMUM WITH THE EXCEPTION OF THE COVER, WHICH MUST CONFORM EXACTLY TO MAINTAIN INTERCHANGEABILITY WITHIN THE COUNTY.
4. COVER WEIGHT 210 LBS. (MAX)
5. COATING NOT REQUIRED.
6. FRAMES AND COVERS SHALL HAVE MACHINED BEARING SURFACES.
7. LOCKING DEVICE MUST BE SITUATED TO ALLOW EASY REMOVAL OF COVER.
8. NO COMMERCIAL "BRAND NAME" LETTERING WILL BE ALLOWED ON THE EXPOSED SURFACE OF THE COVER.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 13P
	Rev. 2		
	Rev. 3		
	Rev. 4		
	File: d-13P	Date: 2/05	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Sanitary Sewer Details

DRAWING NO.

C-401

Project no.: 21.011

1b

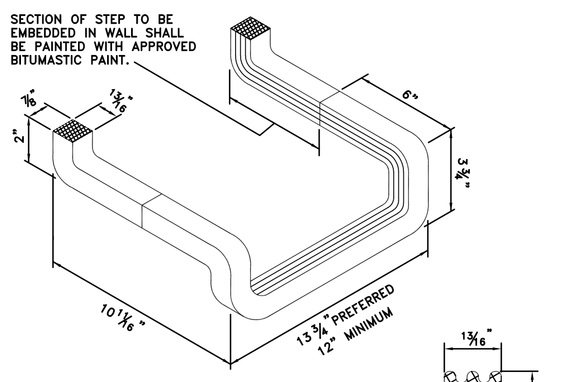
Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)

Packet Pg. 740

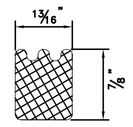
© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

STANDARD MANHOLE STEP
(JANUARY 2012)



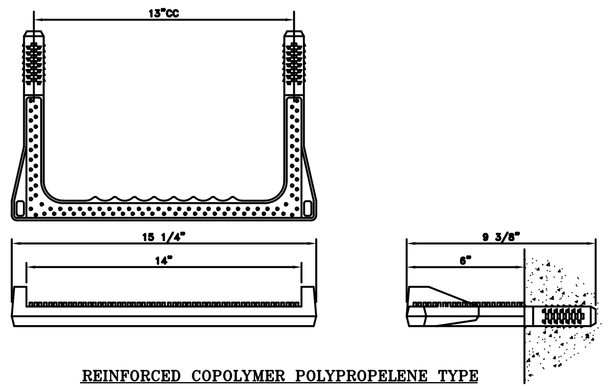
(DROP FRONT TYPE)



TYPICAL SECTION

NOTES:

1. MANHOLE STEPS SHALL BE OF FORGED ALUMINUM ALLOY.
2. AN ACCEPTABLE ALTERNATE IS THE STEEL REINFORCED COPOLYMER POLYPROPYLENE MANHOLE STEP.
3. THE STEPS SHALL BE EMBEDDED IN THE WALLS OF THE CONCRETE MANHOLE BARREL WHILE THE MANHOLE IS BEING CAST OR SECURELY GROUTED IN PLACE AFTER CASTING.



REINFORCED COPOLYMER POLYPROPELENE TYPE

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/9/08	ADDED REINFORCED COLPOLYMER TYPE STEP	STD.DETAIL 17
	Rev. 2		
	File: d-17	Date: 3/1/91	

CONSTRUCTION SPECIFICATIONS FOR HOUSE LATERALS
(JANUARY 2012)

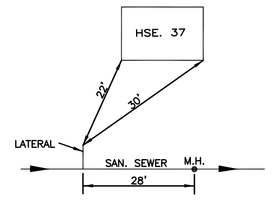
1. MATERIAL
   a. THICK WALL PVC – D – 3034, SDR–35
   b. EXTRA HEAVY CAST IRON
   c. DUCTILE IRON

2. FAR SIDE CROSSING
   a. LATERALS INSTALLED ACROSS TOWN ROADS MAY BE BY THE OPEN CUT METHOD WHERE ALLOWED BY THE HIGHWAY PERMIT.
   b. LATERALS INSTALLED ACROSS STATE OR COUNTY ROADS SHALL BE BY THE BORING AND JACKING METHOD (UNLESS OTHERWISE NOTED ON THE PLANS) USING A STEEL CASING PIPE. THE CARRIER PIPE SHALL CONFORM WITH THE MATERIAL SPECIFIED OR APPROVED BY THE ENGINEER.
   c. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
   d. ALL FAR SIDE CROSSINGS SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE R.O.W. LINE.
   e. THE CONTRACTOR SHALL SUPPLY A 2" X 4" WOOD MARKER EXTENDING FROM THE END OF THE CROSSING TO ONE FOOT BELOW GRADE. ALSO, RECORDS SHALL BE KEPT AS TO THE DEPTH OF THE HOUSE SERVICE AND A MINIMUM OF THREE (3) TIES SHALL BE ESTABLISHED FOR THE LOCATION OF THE SERVICE.
   f. LATERALS SHALL BE LAID AT A 2.0% MINIMUM GRADE. IN CASES OF A SHALLOW SEWER, A 1.0% SLOPE MAY BE APPROVED BY THE ENGINEER.

3. NEAR SIDE SERVICES
   a. THE CONTRACTOR SHALL SUPPLY WYE BRANCHES OF THE SAME MATERIAL AND CLASS AS THE SEWER MAIN.
   b. THE LOCATION OF THE WYE BRANCHES WILL BE DETERMINED BY THE CONTRACTOR AND ENGINEER IN THE FIELD AFTER CONFERRING WITH THE HOMEOWNER.
   c. THE LOCATION OF THE BRANCHES SHALL BE MEASURED FROM THE LAST DOWNSTREAM MANHOLE AND AT LEAST THREE (3) TIES FROM AN EXISTING STRUCTURE, NORMALLY THE HOME IT IS TO SERVICE.
   d. NEAR SIDE SERVICES SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE, R.O.W. LINE.
   e. THE CONTRACTOR SHALL PROVIDE A 2" X 4" WOOD MARKER EXTENDED FROM THE WYE BRANCH TO ONE (1) FOOT BELOW GRADE.
   f. ON ALL SERVICES WHERE THE MAIN IS GREATER THAN 8' IN DEPTH, THE CONTRACTOR SHALL PROVIDE A RISER PIPE TO AN ELEVATION 8' BELOW EXISTING GRADE.

NOTES:

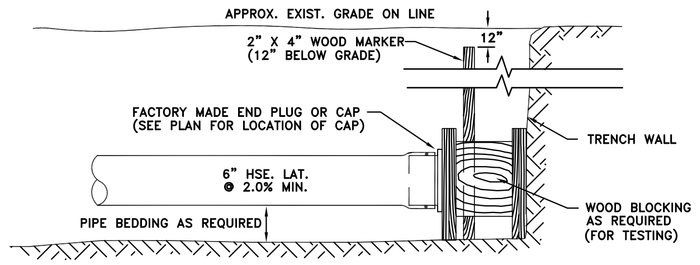
1. RECORDS OF THE DEPTH OF COVER SHALL BE KEPT FOR ALL HOUSE LATERALS BUILT ACROSS PAVEMENTS. SUCH RECORDS SHALL IDENTIFY THE LATERALS BY THE USE OF HOUSE NUMBERS AND SHALL SHOW LOCATION OF THE END OF THE HOUSE LATERAL WITH A MINIMUM OF THREE(3) TIES AS SHOWN IN EXAMPLE BELOW.



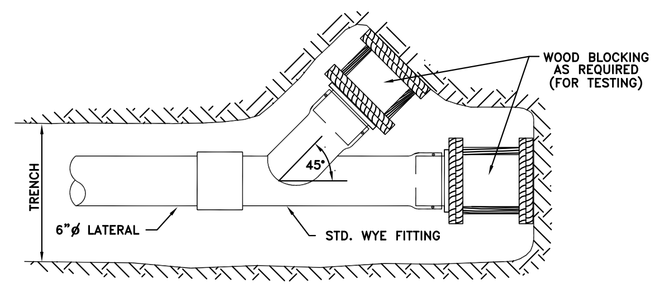
2. THE CONTRACTOR SHALL OBTAIN ALL HIGHWAY/R.O.W. PERMITS PRIOR TO START OF WORK.
3. VENTS AND CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 7/17/85	NOTE 2c: DEPTH 4'–0"	STD.DETAIL 23
	Rev. 2 12/9/96	CHANGED NOTE 1 TO THREE(3) TIES	
	Rev. 3 7/14/99	ADDED TITLE	
	Rev. 4 12/01	ADDED NOTE 5 REGARDING LOCATION OF VENTS AND CLEAN OUTS	
	File: d-23	Date: 3/1/91	

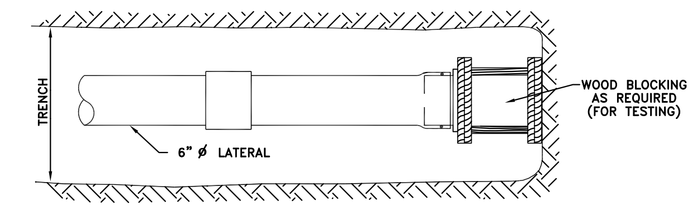
CAP & BLOCKING METHODS FOR AIR TESTING
(JANUARY 2012)



TYPICAL SECTION



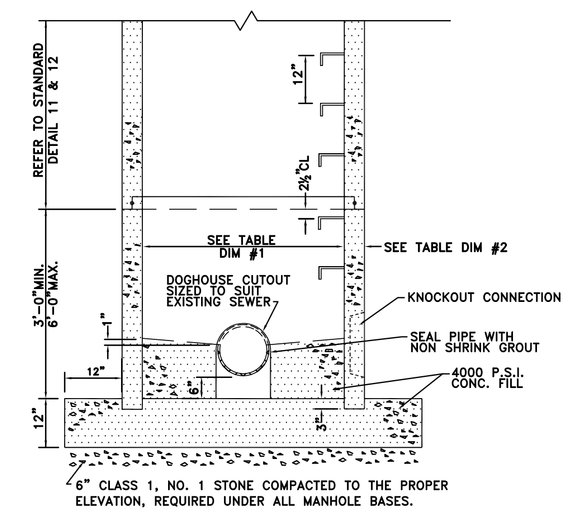
TYPE 2" SERVICE LATERAL FITTING



TYPE "1" SERVICE LATERAL FITTING

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 26
	Rev. 2		
	File: d-26	Date: 3/1/91	

PRECAST DOGHOUSE BASE MANHOLE
(JANUARY 2012)



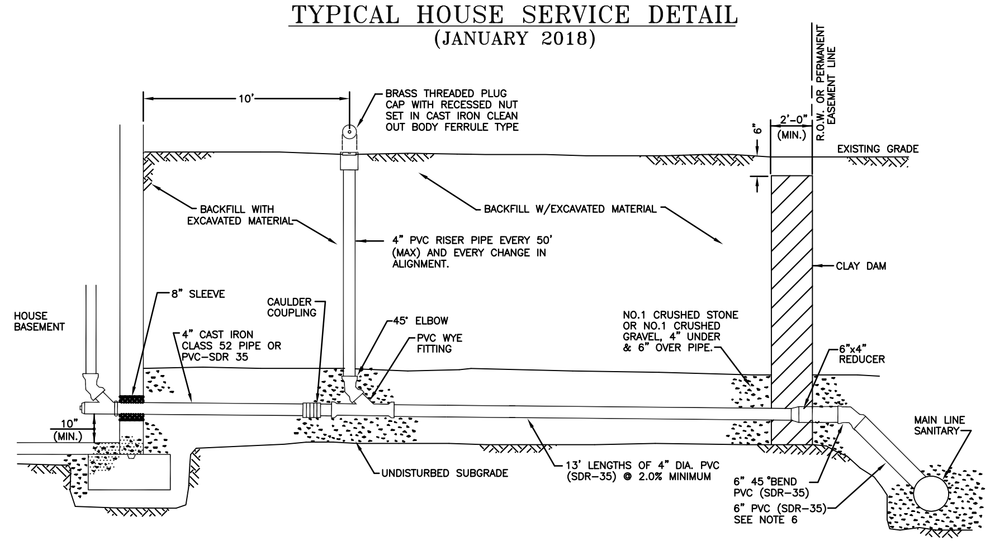
PIPE SIZE	DIMENSION #1	DIMENSION #2
8"–16"	4'–0"*	5"
18"	5'–0"	6"
21"–27"	5'–0"	6"
30"–36"	6'–0"	7"

* FOR DROP CONNECTIONS INSIDE DIAMETER SHALL BE 5'–0"

NOTE:
AREA AROUND DOGHOUSE CUTOUT & PIPE TO BE MADE WATERTIGHT UTILIZING A HYDRAULIC CEMENT MIXTURE (WATERPLUG,PRECO–PATCH, OR APPROVED EQUAL).

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 11/08/91	ADDED PIPE SIZE CHART & NOTE	STD.DETAIL 35
	Rev. 2 2/7/94	REVISED STONE UNDER MANHOLE BASE TO CLASS 1, NO. 1	
	File: d-35	Date:10/16/91	

TYPICAL HOUSE SERVICE DETAIL
(JANUARY 2018)

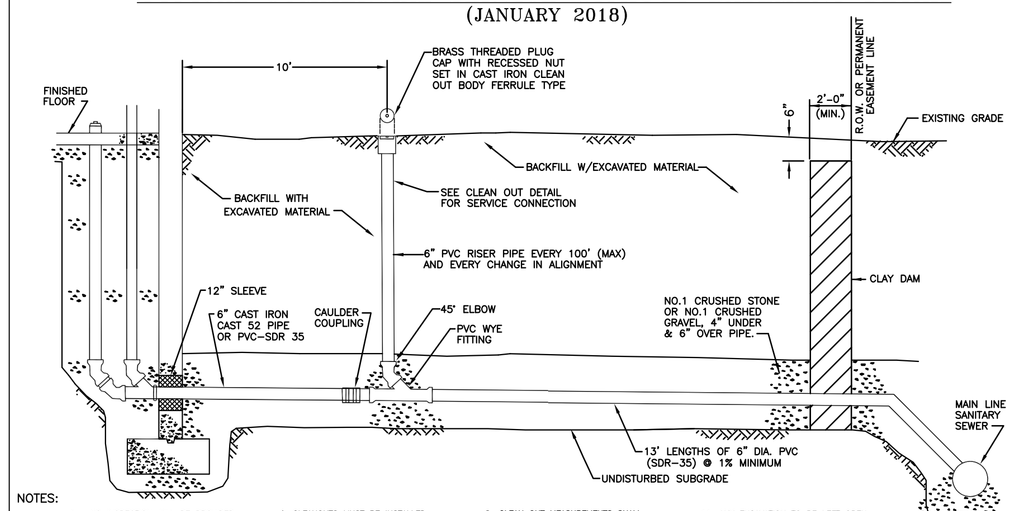


NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. A MANUAL VALVE SHALL BE IN–STALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
6. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION AN 8x6 WYE WITH 6" PVC TO 6" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE HOUSE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 20 & CLASS 52 TYPE CI PIPE	STD. DETAIL 21
	Rev. 1/07	REMOVED OLD NOTES 1,3,8,10,12,13 AND 20 REVISED TO 6"PVC–DGTS, 48 HR ADV NOTICE	
	Rev. 11/08	ADDED PVC TRAP AND SLEEVE	
	Rev. 01/12	REVISED 4" CAST IRON TRAP	
	Rev. 01/18	REMOVED TRAP AND RISER VENT	
	File: d-21	Date: 3/1/91	

TYPICAL COMMERCIAL SERVICE WITHOUT BASEMENT DETAIL
(JANUARY 2018)



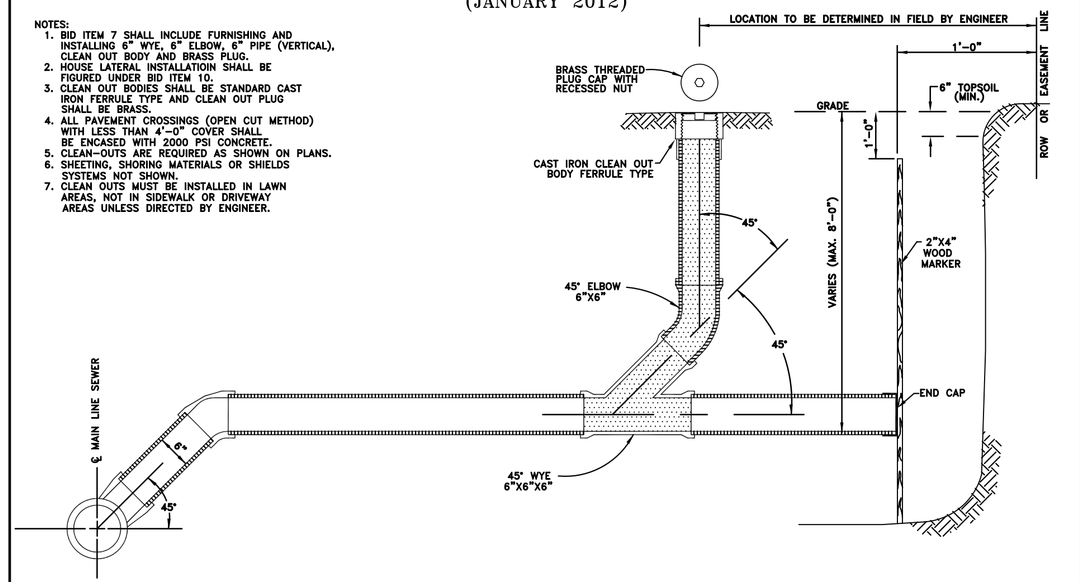
NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. CLEANOUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
5. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
6. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
7. MIN. DEPTH OF COVER 3'–0"
8. CLEAN OUT MEASUREMENTS SHALL START FROM CENTERLINE OF MAIN SEWER AND FROM THE CLEAN OUT FOR FAR SIDE CONNECTIONS. A CLEAN OUT MAY BE REQUIRED FOR ANY ABRUPT CHANGES IN LATERAL DIRECTION
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF OF PAVEMENT.
10. ANY SEWER LAID THROUGH OR OVER ROCK OR LEDGE SHALL BE LAID WITH SEPTIC TANK MUST BE FILLED WITH BANK RUN GRAVEL).
11. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
12. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE LATERAL.
13. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 18 & CLASS 52 TYPE CI PIPE	STD. DETAIL 22
	Rev. 1/07	REMOVED OLD NOTES 2 AND 18 ADDED 18 MIN. TO SERVICE PIPE DETAIL	
	Rev. 11/08	ADDED SLEEVE AND PVC–SDR 35	
	Rev. 1/12	REVISED 6" CAST IRON TRAP NOTE	
	Rev. 1/18	REMOVED TRAP AND RISER VENT	
	File: d-22	Date: 3/1/91	

CLEAN–OUT DETAIL FOR SERVICE CONNECTION
(JANUARY 2012)

NOTES:
1. BID ITEM 7 SHALL INCLUDE FURNISHING AND INSTALLING 6" WYE, 8" ELBOW, 6" PIPE (VERTICAL), CLEAN OUT BODY AND BRASS PLUG.
2. HOUSE LATERAL INSTALLATION SHALL BE FIGURED UNDER BID ITEM 10.
3. CLEAN OUT BODIES SHALL BE STANDARD CAST IRON FERRULE TYPE AND CLEAN OUT PLUG SHALL BE BRASS.
4. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
5. CLEAN–OUTS ARE REQUIRED AS SHOWN ON PLANS.
6. SHEETING, SHORING MATERIALS OR SHIELDS SYSTEMS NOT SHOWN.
7. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS UNLESS DIRECTED BY ENGINEER.



ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 5/03	4'–0" COVER, C.I. CAP "RECESSED NUT	STD. DETAIL 28
	Rev. 2 2/94	CHANGED DIM LINE FOR MAX. DEPTH	
	Rev. 3 12/01	ADDED NOTE 7	
	Rev. 4 5/02	CHANGED C.I. CAP TO BRASS	
	Rev. 5 2/05	1' MIN. FROM EDGE OF WALK NOTE	
	Rev. 6 1/12	CHANGED CAP TO BRASS NOTES 1 & 3	
	File: d-28	Date: 3/1/91	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Details

DRAWING NO.
C-402

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

GENERAL NOTES FOR
SANITARY SEWER CONSTRUCTION
WITHIN ERIE COUNTY SEWER DISTRICTS

1. The Erie County Division of Sewerage Management (DSM), who operates and maintains the existing sewer lines and appurtenances within Erie County Sewer Districts (ECSD), is to be notified at least 48 hours in advance of the start of construction.

2. Construction shall be in accordance with the Rules and Regulations for Erie County Sewer Districts.

3. All permits required by the Federal, State, County, City and/or Town governments to perform work must be obtained prior to the start of work, and paid for by the Contractor.

4. If easement and/or Out of District Agreements are required, they must be complete and ready to be filed before the project will be approved for construction.

5. The contractor shall comply in all respects to the Industrial Code Part (Rule No.) 53 relating to construction, excavation, and demolition operations at or near underground facilities, as issued by the State of New York Department of Labor, Board of Standard and Appeals.

6. The construction of the sanitary sewer facilities shall be under the supervision of a person or firm qualified to practice professional engineering in New York State under the Education Law of the State, whenever engineering services are required by such law for such purposes.

7. Where such sanitary sewer facilities are under the supervision of a professional engineer, he/she shall certify to the DSM and to the applicant that the constructed facilities have been under his/her supervision and that the work has been fully completed in accordance with the approved engineering reports, plans, specifications, and approvals.

8. The Contractor is solely responsible for all site safety. The Contractor's equipment and methods of operation shall be in full compliance with OSHA Standards and satisfy all Federal, State and Local Health and Safety Regulations.

9. The Contractor is advised a trench shield and/or shoring designed in accordance with OSHA Standards shall be used in all open trench excavations.

10. Any contractor and/or plumber performing work in a confined space (i.e. manholes, wetwells, and chambers) owned by an Erie County Sewer District, must certify to the County that they have their own Confined Space Entry Program that meets or exceeds OSHA's regulations. Certification must be notarized by a notary public.

11. The contractor shall expose existing utilities ahead of the pipe laying operation, so if minor adjustments must be made in the pipe elevation and/or alignment due to interference from these utilities, said changes can be made in advance of the work.

12. The contractor shall retain the services of a qualified tree expert to remove, where necessary, branches which interfere with the construction operation, or to repair trees having suffered damage by construction activities. The cost involved is to be included in the various items of the contract.

13. The proposed 8 through 12 inch diameter sanitary sewer pipe shall be polyvinyl chloride (PVC) sewer pipe conforming to the latest revisions of American Society for Testing and Materials (ASTM) designation D-3034, SDR-35, installed in accordance with the ASTM designation D-2321-83a or the latest revision thereof, or approved equal. Larger diameter pipes will be reviewed on a case by case basis.

14. Sewers shall be laid with straight alignment between manholes and shall be checked by using a laser beam or lamping.

15. Should a fluid condition be encountered at the trench bottom, the contractor is to undercut the trench and provide suitable fill material (stone & fabric) to stabilize the trench bottom.

16. Sanitary sewer bedding material shall be No. 1 crushed stone with a gradation conforming to the *DSM Specifications for Subdivisions and Sanitary Sewer Extensions.*

17. Backfill shall be of a suitable material removed from the excavation except where other material is specified. Debris, frozen material, large clods or stones, organic matter, or other unstable materials shall not be used for backfill within two (2') feet of the top of the pipe.

18. All pipes crossing under paved areas are to be backfilled to sub-grade with compacted select material (No. 2 crushed stone) to five (5') feet outside the pavement edges or as required by the highway permit. If any proposed sewer runs under paved areas and has less than four (4) feet of cover, then concrete encasement is required as shown on the DSM Typical Concrete Encasement Detail.

19. Sewers parallel to watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.31, and Page 30-11:* Sewers shall be laid at least ten (10') feet (three (3) meters) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten (10') foot separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18-inches (460 mm) above the top of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the regulatory agency and be pressure tested to 150 pounds per square inch (psi) (1034 kPa) to assure water tightness prior to backfilling.

20. Sewers crossing watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.32, Page 30-11 to 30-12:* Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18-inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

21. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods must be specified:

    a. The sewer shall be designed and constructed equal to water pipe, and shall be pressure tested at 150 psi (1034 kPa) to assure water tightness prior to backfilling.
    b. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends ten (10') feet (three (3) meters) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the regulatory agency for use in water main construction.
    c. The sewer shall be encased in concrete per the DSM Watermain Crossing Detail Typical For Encasement

22. The manhole covers are to bear the inscription "ECSD SANITARY" and comply with the DSM Standard Frame and Cover detail. For private projects the covers shall bear the inscription "SANITARY SEWER" and comply with the DSM Standard Frame and Cover (Private Sewer) detail.

23. Building sanitary sewer vents must be installed six (6) inches above finished grade in a grassy area with a mushroom cap. If the vent is in a sidewalk or paved area, then protect with 6" diameter bollards (2 minimum).

24. Cleanouts (c.o.) are required on 4" and 6" building sewers every fifty feet and one hundred feet respectively, and at every change of alignment.

25. Abandoned building sewer connections from the site, if any, require proof of a District Permit for Disconnection prior to the new connection being made.

26. The following pertains only for direct replacement of in service sanitary sewers:
    a. Each new pipe joint shall be ultrasonic tested after it is laid, but before the next pipe is laid. All tests shall be in accordance with the testing equipment manufacture recommendations.
    b. The ultrasonic test shall be performed in lieu of the hydrostatic and air tests.
    c. A video inspection of the entire sewer shall be performed. Forward the video inspection tape and related paperwork to DSM for review and approval.
    d. A deflection test is required in all cases.

27. For all sanitary sewer installations, a written certificate of construction completeness and compliance, including the results of the hydrostatic leakage test, lamp test, deflection test, air test, etc. shall be submitted to the Erie County Health Department and DSM within thirty (30) days after completion of construction.

28. For all public and private 8" diameter pipe or larger sanitary sewer installations, the developer/contractor must provide one (1) set of record drawings on "D" size paper (24" x 36") and in an electronic file format (CD or flash drive) compatible with the latest AutoCAD release.

29. All public sewer extension projects that consist of more than 750 LF of 8" diameter pipe or larger, shall furnish a 2 year maintenance bond to the DSM.

30. Final Certification will be issued upon the full completeness and compliance of the project including any requirement(s) of I&I remedial work.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer
General Notes

DRAWING NO.
C-403

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (2305?) : SP-2021-05)

1b

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

A. Requirements

1. After backfilling and prior to the final acceptance of the project, the Contractor will be required to perform the following three tests on all sewers built under this project:

a) Air Tests
b) Infiltration or Exfiltration
c) Deflection Test (15" dia. and smaller).

2. No more than 1,000 linear feet of installed sewer shall be allowed to remain untested.

3. In view of the fact that house laterals and riser pipes often contribute considerable infiltration, such laterals and risers are to be installed and capped, tied and blocked as the work progresses, prior to the air testing of the lines.

4. The Contractor's testing procedures shall be completed in accordance with OSHA Standards for confined space entry. The Contractor will be required to provide and operate all equipment necessary for full compliance for his operation. Equipment such as gas detectors, safety harnesses, ventilating blowers, respirators etc. shall be provided by the Contractor.

B. Air Tests (Required for All Diameters up to and including 36") 10 State Standards Section, 33.94

1) This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2) The procedure for air testing shall be as specified herein. The minimum allowable time for the test pressure to decrease from 3.5 psi to 3.0 psi shall be not less than as called for in the following table:

Minimum Acceptance Times* For Length Shown (min:sec)

Pipe Diameter	Up to 100'	100 - 200'	200 - 300'	300 - 400'
6"	2:50	2:50	2:50	2:51
8"	3:47	3:47	3:48	5:04
12"	5:40	5:42	8:33	11:24
15"	7:05	8:54	13:21	17:48
18"	8:30	12:49	19:14	25:38
21"	9:55	17:27	26:11	34:54
24"	11:24	22:48	34:11	45:35
27"	14:25	28:51	43:16	57:42
30"	17:48	35:37	53:25	71:13
33"	21:33	43:56	64:38	86:10
36"	25:39	51:17	76:55	102:34

* Erie County Sewer District Inspector will extend time to the next full minute during the test.

3. Pipe lines in sizes up to 36 inches in diameter can be air tested from manhole to manhole for distances not to exceed 400 feet.

4. In wet trenches where pumping to lower the water table is impractical, approved 4" diameter, solid PVC drain pipe (with approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole in order to calculate the groundwater pressure acting on the pipe exterior. The initial air test pressure shall be increased as necessary to overcome the calculated groundwater pressure.

5. The testing procedures outlined shall be strictly adhered to.

6. All testing equipment shall be supplied by the Contractor and be in good working condition. Some of the major equipment required for air tests is:

a) Stop watch graduated in tenths of a second.
b) Compressor of 50 to 100 psi capacity.
c) Bulkheads for pipe.
d) Approximately 100 feet of 3/8" diameter air hose.
e) Pressure gauge - 0 to 5 psi graduated in 1/16th of a pound increments.
f) Three 3/8 inch diameter check valves.

C. Infiltration Tests (Applicable Only if Ground Water is Two Feet Above the Top of the Pipe)

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. Infiltration tests for all sewers constructed under this project shall not exceed 100 gallons per inch diameter per mile of sewer, per 24 hours. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration. All equipment for the tests shall be furnished by the Contractor and be in good working condition.

3. The allowable rate of infiltration given in gallons per mile is not to be construed as a commitment on the part of the District to accept an entire line, where overall infiltration is less than the allowable, while one or more runs contribute excessive infiltration.

4. The infiltration test is intended to measure the water tightness of a sewer as related to the infiltration of ground water and is only applicable if the water table level is 2 feet or higher above the top of the pipe for the entire length of the test section.

RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES, 2014 EDITION

38.3 Relation to Water Mains

38.31 Horizontal and Vertical Separation

Sewers shall be laid at least 10 feet (3 m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. For gravity sewers where it is not practical to maintain a 10 foot (3 m) separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the gravity sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the gravity sewer and at an elevation so the bottom of the water main is at least 18 inches (460 mm) above the top of the sewer.
If it is impossible to obtain proper horizontal and vertical separation as described above for gravity sewers, both the water main and gravity sewer shall be constructed of slip-on or mechanical joint pipe complying with Section 8.1 and Section 8.7 of the "Recommended Standards for Water Works - 2012 Edition" and shall be pressure rated to at least 150 psi (1034 kPa) and pressure tested to ensure watertightness.

38.32 Crossings

Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.
When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:
30-11
a. The sewer shall be designed and constructed equal to water pipe, as described in Paragraph 38.31.
b. Either the water main or the sewer line may be encased in a watertight carrier pipe that extends 10 feet (3 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be made of materials approved by the regulatory agency for use in water main construction.

a) Approved 4" diameter solid PVC drain pipe (with an approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole so that the ground water level can be correlated with the infiltration measurements.

b) Before conducting the tests, the water table should be allowed to stabilize at its normal level and verified that it is 2 feet above the top of the pipe during the test period. The test is usually conducted between adjacent manholes with the upstream end of the sewer bulkheaded in a suitable manner to isolate the test section. All service laterals, stubs and fittings should be properly plugged or capped at the connections to the test pipe section to prevent the entrance of ground water at these locations.

c) A V-notch weir or other suitable measuring device should be installed in the inlet pipe of the downstream manhole. Infiltrating water is then allowed to build up and level off behind the weir until a steady, uniform flow occurs over the weir. Leakage is determined by direct reading from graduations on the weir consecutively for five (5) days and converting the flow quantity to gallons per unit length of pipe per unit of time.

d) An important factor in applying the test criteria is to properly correlate the variable water head over the length of the sewer being tested to the high ground water level. A minimum of 2 feet of water over the pipe is required at the upper manhole before the infiltration test will be allowed.

5. When a sewer run between two consecutive manholes or chambers is found to contribute infiltration at a rate above the allowable, inspection by television or other cameras may be made by the Contractor so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

D. Exfiltration Tests

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. The exfiltration test for all diameter sewers shall be as described below. Although actual infiltration will normally be less than that indicated by the water exfiltration test, the test does provide a positive means of subjecting the completed sewer system to an actual pressure test. Since sanitary sewers are not designed or expected to operate as a pressure system, care must be exercised in conducting the test and correlating the results with the allowable exfiltration limits.

a) The test is usually conducted between adjacent manholes. Prior to the test, all service laterals, stubs and fittings within the test section should be plugged or capped and adequately braced or blocked to withstand the water pressure resulting from the test.

b) If manholes are to be included in the test, the inlet pipe to each manhole should be bulkheaded and the test section filled with water through the upstream manhole. To allow air to escape from the sewer, the flow should be at a steady rate until the water level in the upstream manhole provides an average pressure of 5 psi (11.6' head) at the center point of the test section or the upstream manhole is filled. If necessary, provisions should be made to bleed off entrapped air during the filling of the test section.

c) Once the test section is filled, the water should be allowed to stand for an adequate period of time (one day minimum) to allow for water absorption by the pipe and manhole. After water absorption has stabilized, the water level in the upstream manhole is brought up to the proper test level and this level established by measuring down from the manhole rim or other convenient datum point. After 24 hours, the water elevation should be measured from the same reference point and the loss of water during the test period calculated, or the water can be restored to the level existing at the beginning of the test, and the amount added used to determine the leakage.

d) To exclude both manholes from the test,it is necessary to bulkhead the outlet pipe of the upstream manhole. Provision must be made in the bulkhead for filling the pipe and expelling trapped air.

e) The water level at the upstream manhole shall be computed and varies above the top of the pipe. Since the sewer is installed on a grade, the test section downstream will most likely be subjected to a greater pressure. Therefore, the test pressure head at the upstream manhole should be adjusted such that the maximum pressure on the pipe being tested is no greater than 10 psi, (23 feet of head).

3. When a sewer run between two consecutive manholes or chambers is found to exfiltrate at a rate above the allowable, inspection by television or other cameras may be made by the Contractor during wet weather, so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

E. Deflection Test

1. This test shall be performed no earlier than 30 calendar days after the trenches are backfilled.

2. All flexible (PVC) sewers 8" diameter or larger constructed under this project shall be internally checked with a five percent (5%) deflection "go-no-go pig" or Mandrel to determine if the pipes are deflecting excessively. Any section of pipe unable to pass the deflection test "pig test" shall be removed and replaced at the Contractor's expense.

3. Deflection testing mandrels or pig shall be pulled thru the pipe by hand or hand operated winch. Power winches or drives are not permitted.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Testing Notes

DRAWING NO.
C-404

Project no.: 21.011

Packet Pg. 742

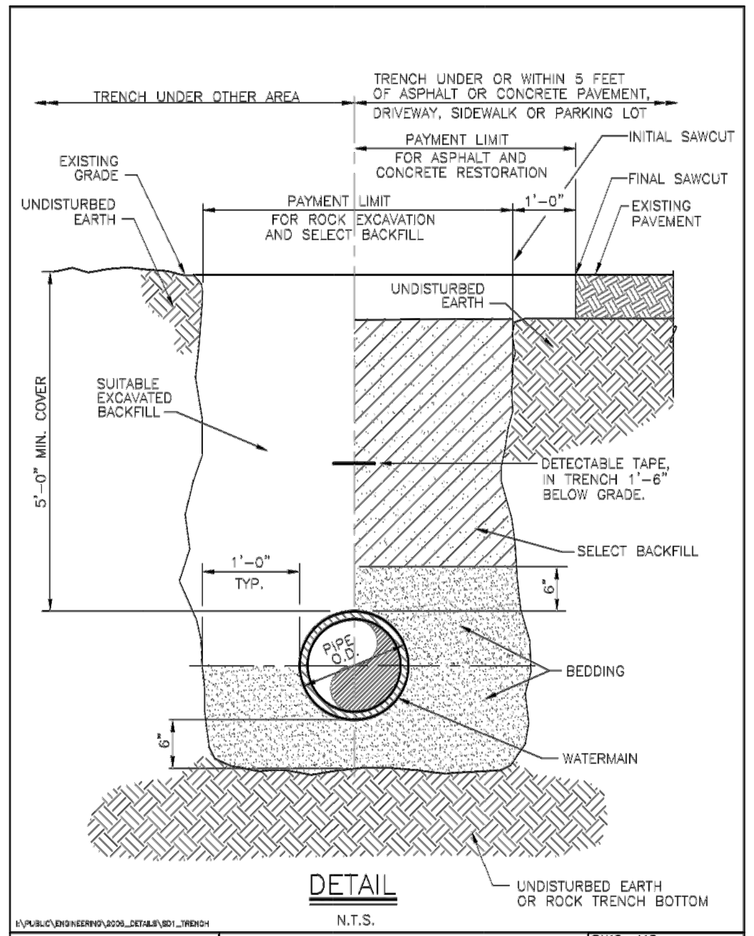
1b

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

Attachment: SP-2021-05_drawings_052021 (2305?: SP-2021-05)

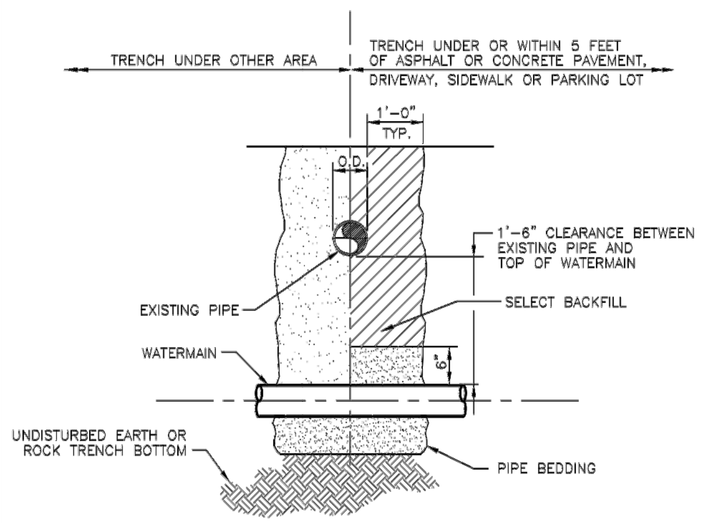
Packet Pg. 743



DETAIL
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD1_TRENCH

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TRENCH THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD1	
		DATE 4/28/92	REVISED 10/05



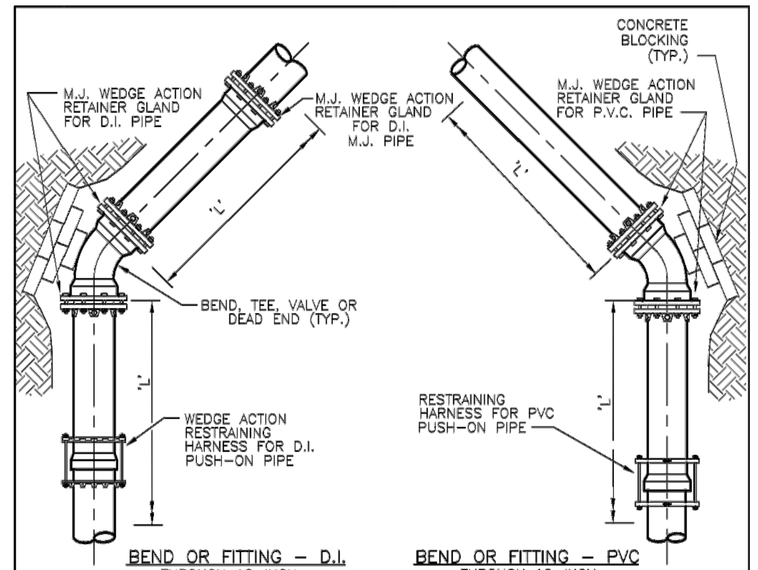
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18 FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD3_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2	
		DATE 4/28/92	REVISED 10/05



BEND OR FITTING – D.I.
THROUGH 12–INCH

BEND OR FITTING – PVC
THROUGH 10–INCH

RESTRAINED JOINT SCHEDULE					
PIPE SIZE	PIPE TYPE	11.25° ELBOW 'L'	22.5° ELBOW 'L'	45° ELBOW 'L'	TEE BRANCH, 90° BEND, VALVE OR DEAD END 'L'
6"	PVC	13'	25'	50'	120' MIN.
8"	PVC	15'	30'	59'	122' MIN.
8"	D.I.P.	15'	30'	59'	122' MIN.

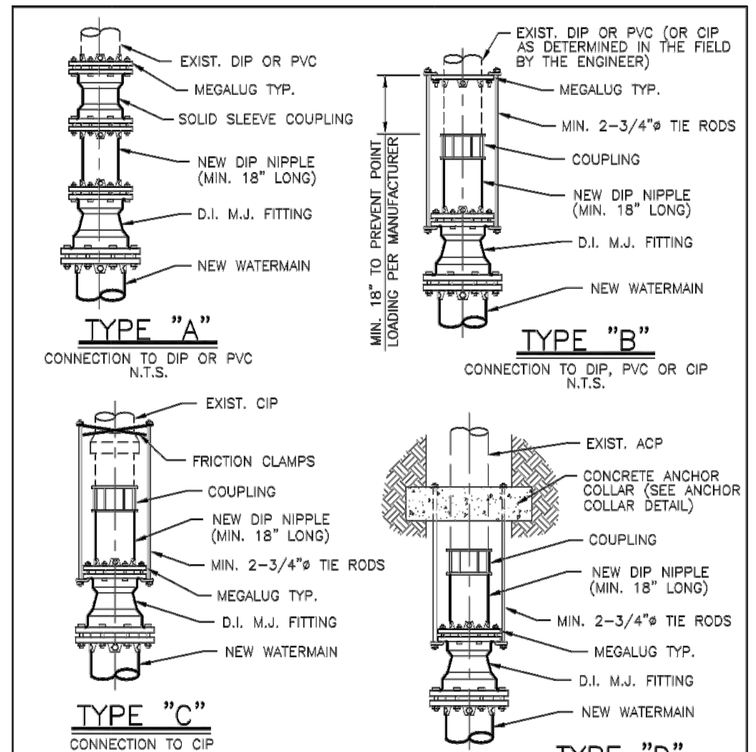
NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD4_REST_JOINT_SCHED

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL RESTRAINED JOINT SCHEDULE	DWG. NO. SD4	
		DATE 4/28/92	REVISED 10/05

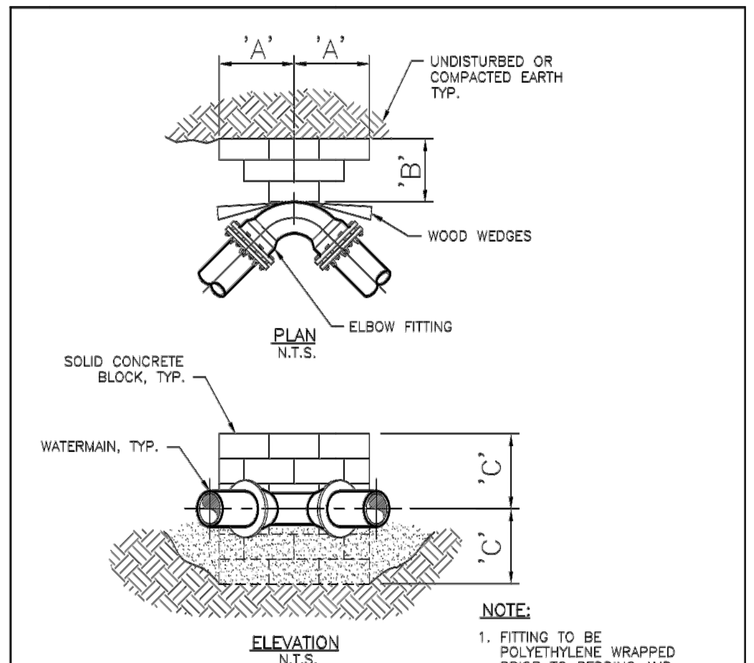


NOTES:

1. VALVES AND TEES MAY BE HARNESSED SIMILARLY.
2. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURE–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
3. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
4. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD5_CONN_EXIST_MAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TYPICAL CONNECTION TO EXISTING WATERMAIN THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD5	
		DATE 3/05	REVISED 10/05



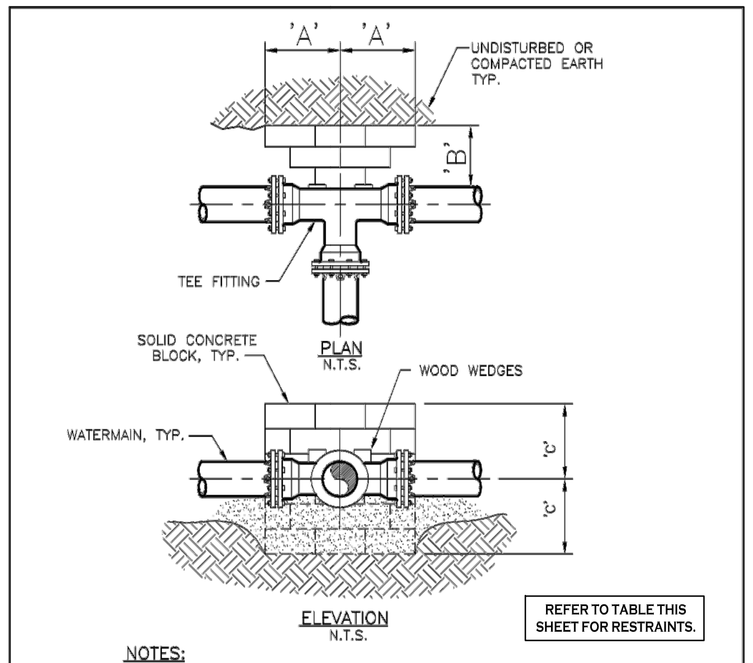
NOTE:

1. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

DIMENSION SCHEDULE												
PIPE SIZE	11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'
8"	1.5'	1.5'	2.5'	2.5'	1.5'	2.5'	3.0'	1.5'	3.5'	3.5'	1.5'	5.0'

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD6_THRUST_BLOCKS_ELBOW

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR ELBOW FITTING	DWG. NO. SD6	
		DATE 4/28/92	REVISED 10/05



REFER TO TABLE THIS SHEET FOR RESTRAINTS.

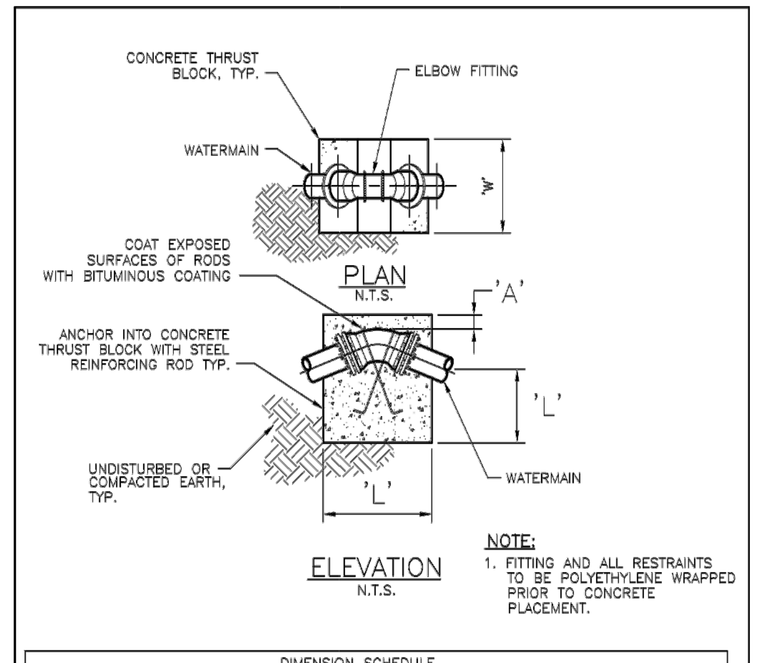
NOTES:

1. THRUST BLOCK REQUIRED FOR TEES, HYDRANT LATERAL TEES AND TAPPING SLEEVE INSTALLATIONS.
2. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

BRANCH TEE SIZE	DIMENSION SCHEDULE		
	'A'	'B'	'C'
6"	1'-0"	1'-0"	0'-6"
8"	1'-6"	1'-0"	0'-6"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD7_THRUST_BLOCKS_TEE

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR TEE OR "DEAD END" FITTING	DWG. NO. SD7	
		DATE 4/28/92	REVISED 10/05



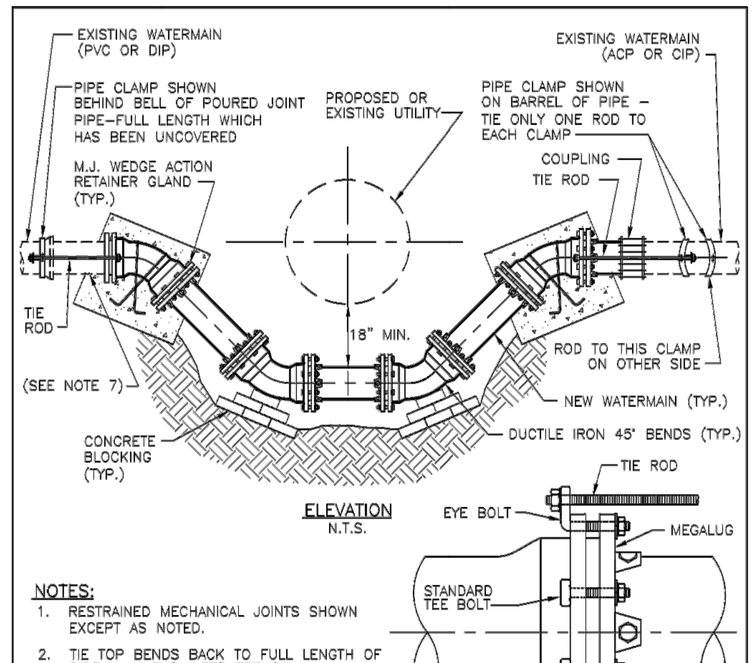
NOTE:

1. FITTING AND ALL RESTRAINTS TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.

DIMENSION SCHEDULE													
PIPE SIZE	PIPE TYPE	11.25° ELBOW				22.5° ELBOW				45° ELBOW			
		'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø
8"	D.I.P	12"	1'-0"	1'-0"	1/2"	12"	1'-9"	1'-9"	1/2"	1'-6"	2'-0"	2'-0"	1/2"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD8_THRUST_BLOCKS_VBEND

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR VERTICAL BEND	DWG. NO. SD8	
		DATE 4/28/92	REVISED 10/05



NOTES:

1. RESTRAINED MECHANICAL JOINTS SHOWN EXCEPT AS NOTED.
2. TIE TOP BENDS BACK TO FULL LENGTH OF PIPE IN UNEXCAVATED TRENCH.
3. VALVES, TEES AND HYDRANTS MAY BE HARNESSED SIMILARLY.
4. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURES–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
5. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
6. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.
7. IF EXISTING PIPE IS CIP OR PVC, CONNECT TO NEW FITTING ONLY WHEN ALLOWED BY ENGINEER.

TIE ROD SCHEDULE			
PIPE SIZE	PIPE TYPE	ROD ø	NUMBER OF RODS
8"	PVC	3/4"	2

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD10_HARN_OFFSET_EXIST_WMAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL HARNESSING DETAILS–INSTALL OFFSET IN EXISTING WATERMAIN	DWG. NO. SD10	
		DATE 6/00	REVISED 10/05

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Water Details

DRAWING NO.

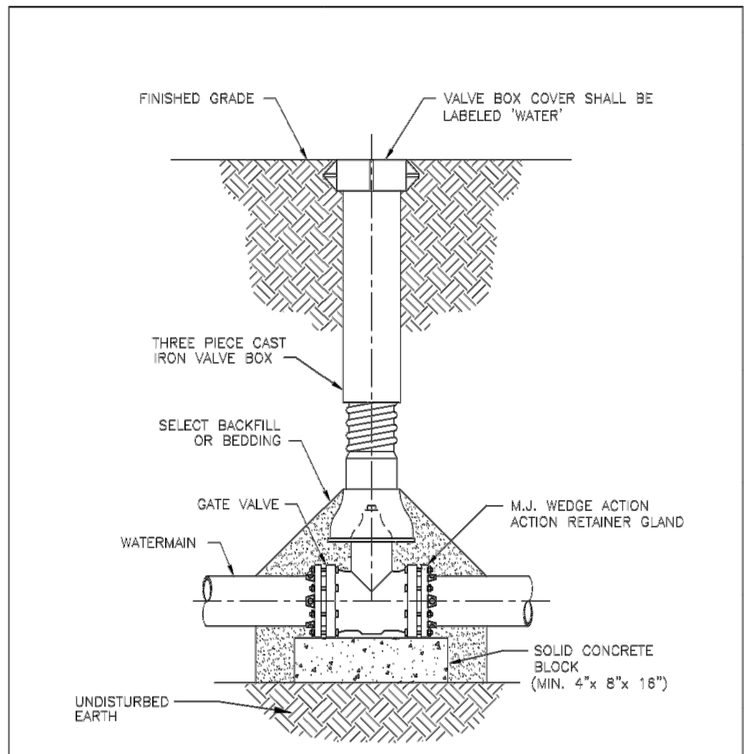
C-405

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

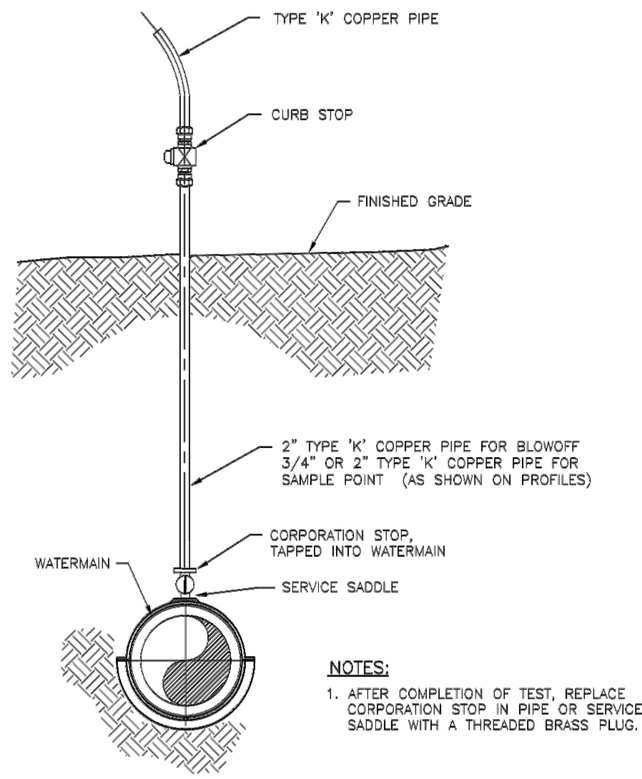


NOTES:
1. VALVE SHALL NOT SUPPORT VALVE BOX.
2. GATE VALVE SHALL BE INSTALLED LEVEL.
3. VALVE BOX SHALL BE PLUMB TO GRADE, WITH OPERATING NUT CENTERED IN BOX.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD11_GATE_VALVE_SET

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GATE VALVE SETTING	DWG. NO. SD11	
		DATE 4/28/92	REVISED 02/17

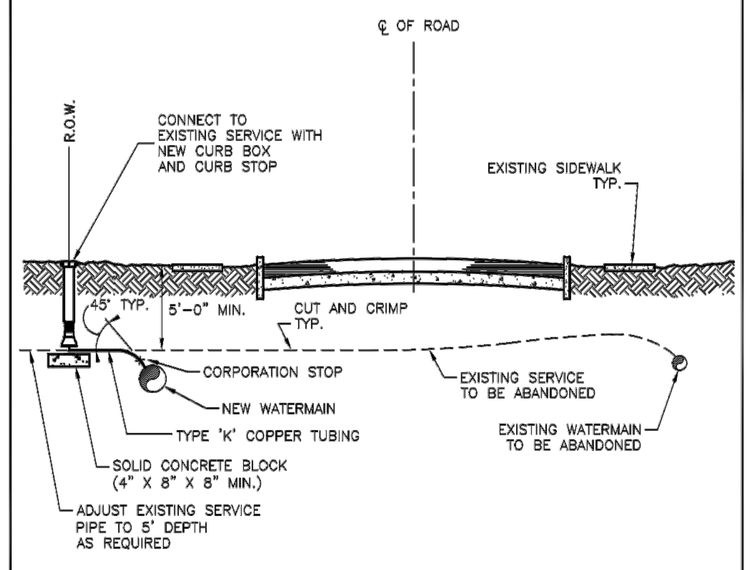


NOTES:
1. AFTER COMPLETION OF TEST, REPLACE CORPORATION STOP IN PIPE OR SERVICE SADDLE WITH A THREADED BRASS PLUG.

ELEVATION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD17_TEMP_BO_SAMP_PT

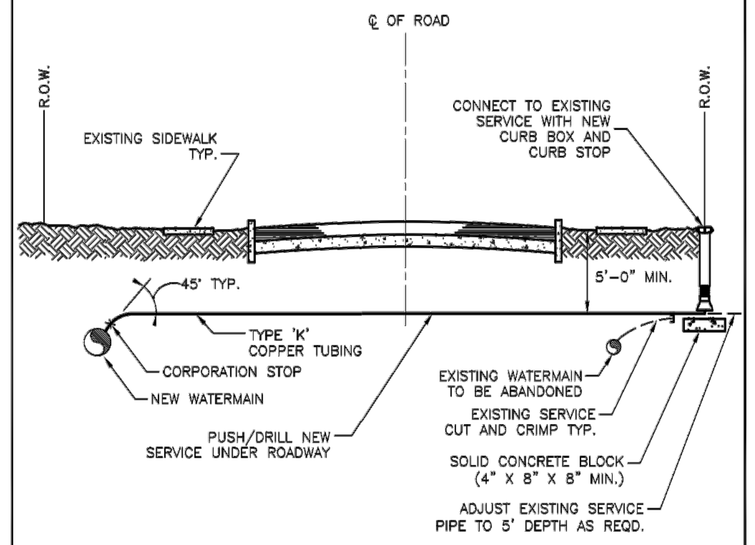
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TEMPORARY BLOW-OFF/SAMPLING POINT	DWG. NO. SD17	
		DATE 4/28/92	REVISED 10/05



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD15_WS_SERV_REPLACE

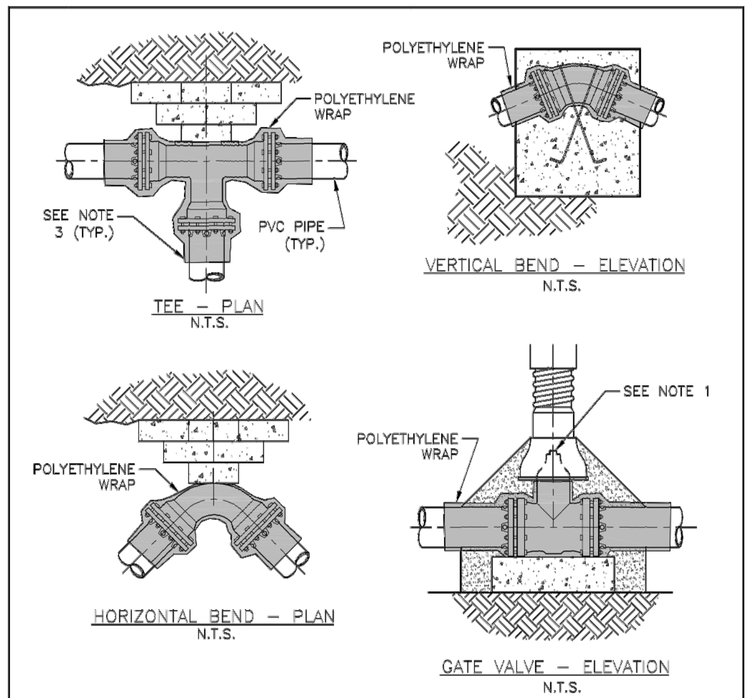
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL NEAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD15	
		DATE 4/92	REVISED 09/16



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_FS_SERV_REPLACE

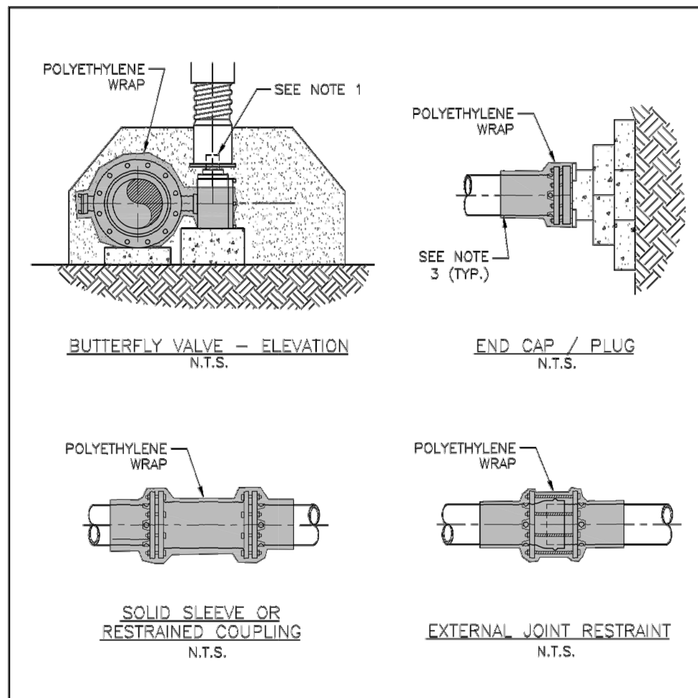
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16	
		DATE 4/92	REVISED 09/16



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39A_POLYWRAPPING_FITTINGS

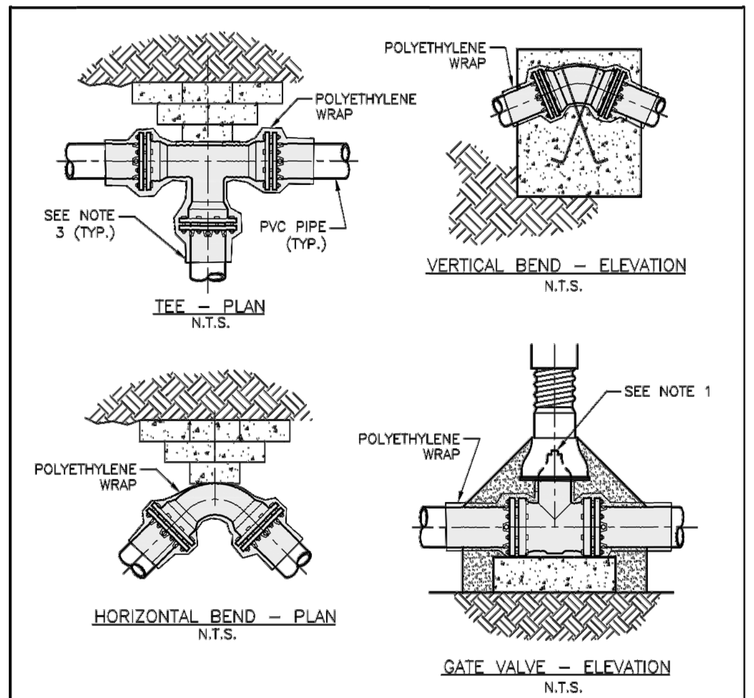
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39A	
		DATE 3/18	REVISED 12/18



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39B_POLYWRAPPING_FITTINGS

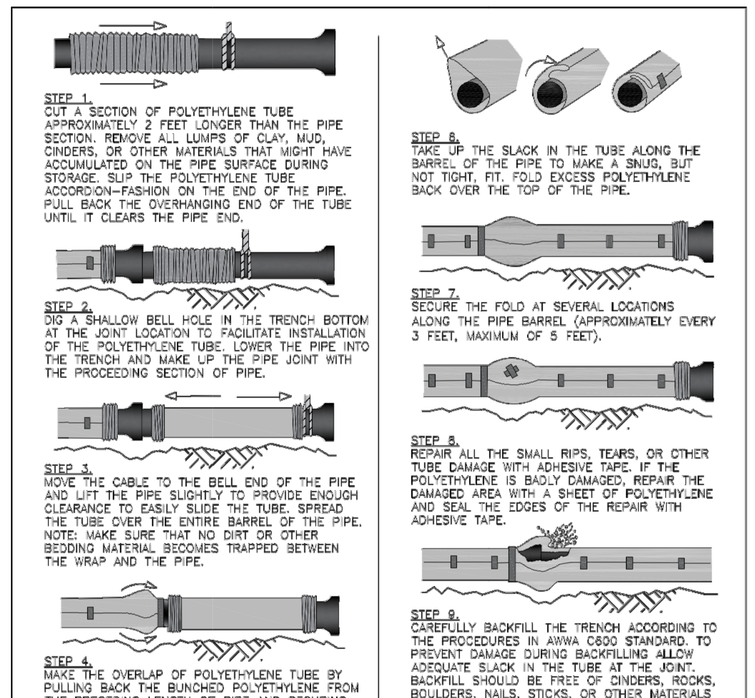
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39B	
		DATE 12/18	REVISED



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON GATE VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PVC PIPE WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39_POLYWRAPPING_FITTINGS

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING DUCTILE IRON FITTINGS ON PVC PIPE	DWG. NO. SD39	
		DATE 3/18	REVISED



NOTES:
1 - POLYETHYLENE WRAP (POLYWRAP) SHALL BE OF PROPER DIAMETER TO FIT OVER BELLS AND EXTERNAL WEDGE-ACTION RETAINER GLANDS.
2 - CAST AND DUCTILE IRON FITTINGS (BENDS, TEES, VALVES, ETC.) ARE TO BE WRAPPED IN POLYWRAP AND SECURED IN PLACE.
3 - DO NOT USE CHAINS, METAL WIRE, OR OTHER SUPPORTING SYSTEMS WHICH MAY DAMAGE THE POLYETHYLENE ENCASEMENT. REPLACE DAMAGED POLYWRAP ACCORDINGLY.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD32_POLY_WRAP

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYETHYLENE ENCASEMENT OF DUCTILE IRON PIPE	DWG. NO. SD32	
		DATE 08/16	REVISED 02/19

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details

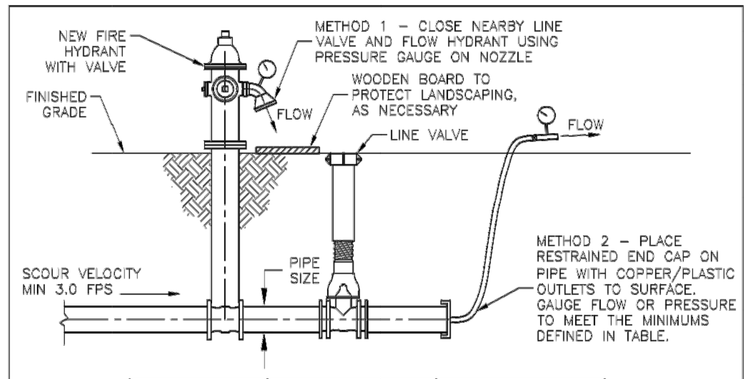
DRAWING NO.
C-406

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



PIPE SIZE (IN)	REQUIRED FLOW (GPM)	METHOD 1 HYDRANT FLOW		METHOD 2 END CAP FLOW	
		2 1/2" NOZZLE PRESSURE (PSI)	4" NOZZLE PRESSURE (PSI)	2" I.D. PRESSURE (PSI)	3" I.D. PRESSURE (PSI)
6	275	7	1	7	2
8	500	9	2	22	5
10	750	20	4	50	10
12	1100	44	7	–	22
16	1900	–	20	–	62
20	3000	–	50	–	–

I.D. = INNER DIAMETER

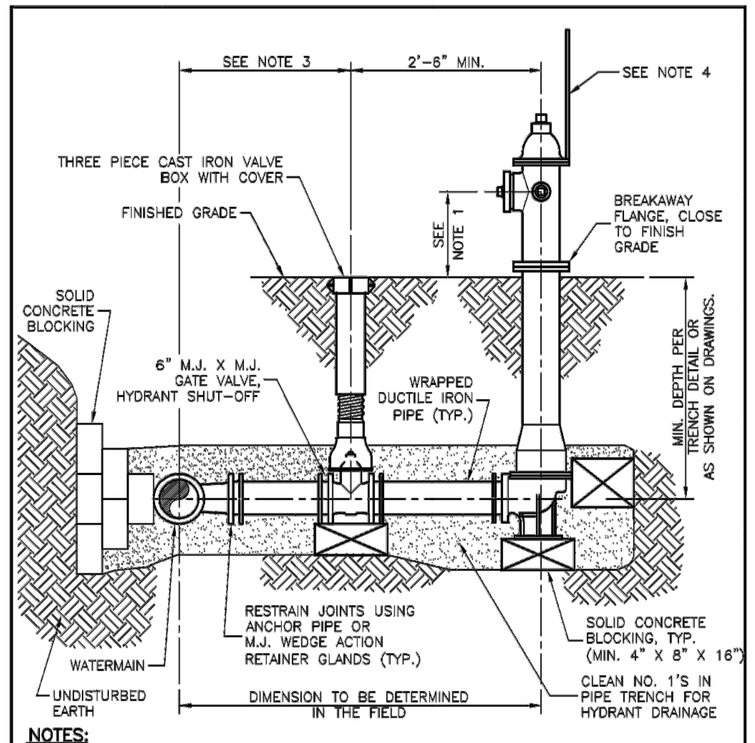
NOTES:

1. TO OBTAIN SCOUR VELOCITY (3.0 FPS) IN THE WATERLINE, CONTRACTOR SHALL ACHIEVE FLOWRATE AT NOZZLE DEFINED IN TABLE. PRESSURE GAUGE USED SHALL SHOW A HIGHER PRESSURE THAN THE MINIMUMS DEFINED IN THE TABLE.
2. OUTLET PRESSURE MEASURED BY PITOT GAUGE.
3. ENGINEER SHALL PROVIDE CALCULATIONS IF CONNECTIONS ARE OTHER THAN THOSE SHOWN, IF MULTIPLE CONNECTIONS ARE USED, OR AS REQUESTED BY ECWA.
4. TO FLUSH THREE PIPE VOLUMES, MINIMUM FLUSHING TIME (IN SECONDS) EQUALS THE LENGTH OF PIPE BEING FLUSHED, IN FEET.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD36_WATERLINE_FLUSHING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL WATERLINE FLUSHING	DWG. NO. SD36	
		DATE 6/16	REVISED 3/18



NOTES:

1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT.
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.
5. HYDRANT FACE TO BE A MINIMUM OF 3' FROM THE BACK FACE OF ALL CURBS OR A MINIMUM OF 5' FROM ALL EDGES OF PAVEMENT (IF NO CURB).

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD13_HYD_INST

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FIRE HYDRANT INSTALLATION	DWG. NO. SD13	
		DATE 6/00	REVISED 11/16

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR'S work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed, or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install the watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as-needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority shall only operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers in writing of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD29	
		DATE 3/05	REVISED 7/17

11. All watermain piping shall be installed with a minimum of 5'-0" of cover.
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment, and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be scheduled and returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York 14227.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict access for school buses or any emergency vehicles.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for review prior to the start of testing.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants, and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30	
		DATE 3/05	REVISED 7/17

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details & Notes

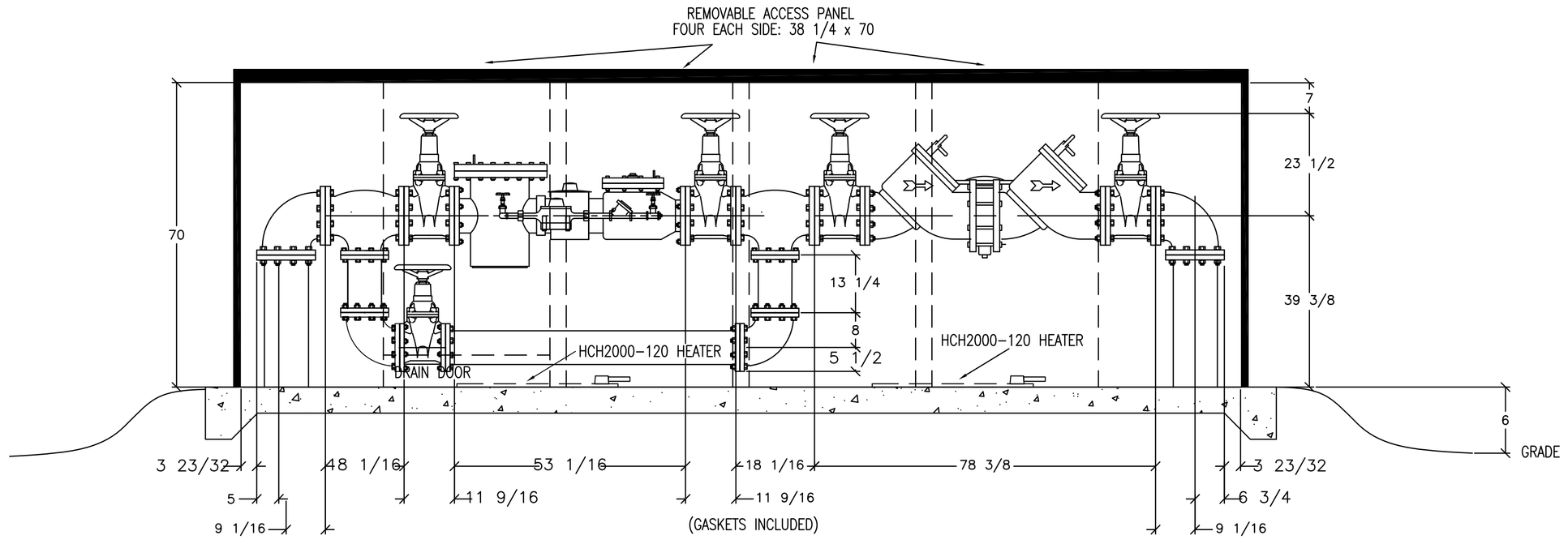
DRAWING NO.
C-407

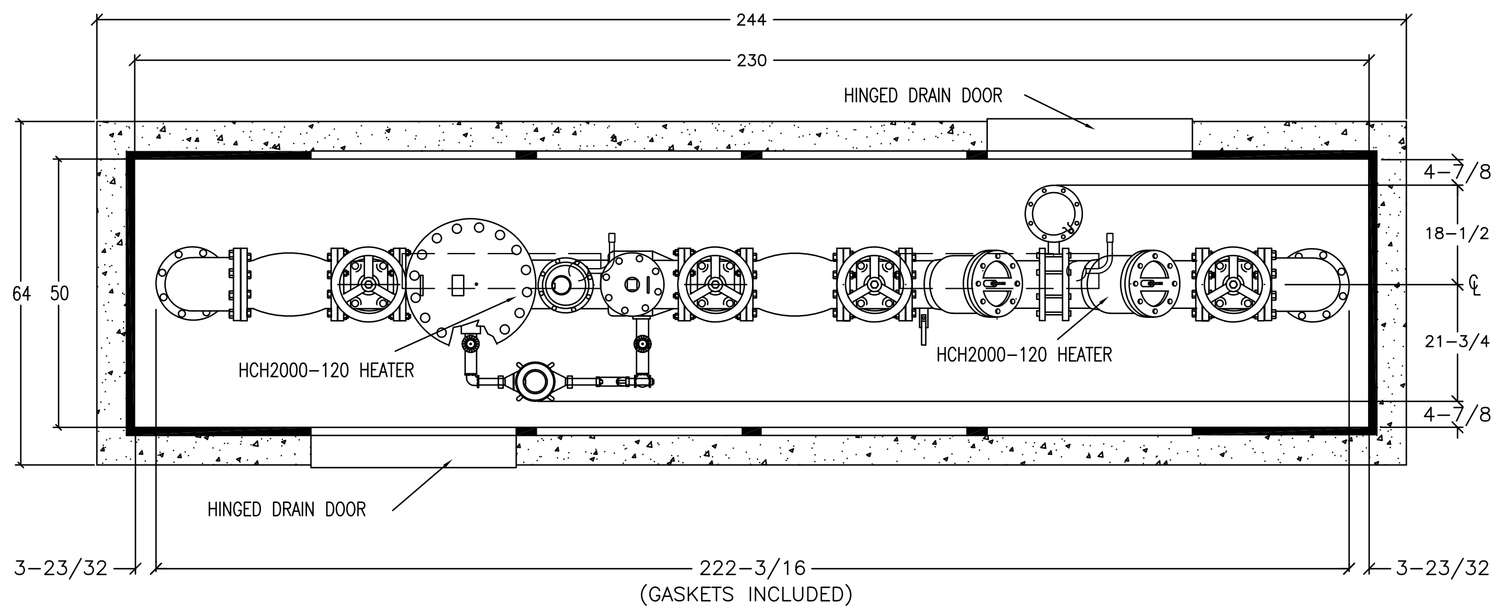
Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.





NOTES:

1. BACKFLOW PREVENTER DIMENSIONS FURNISHED BY WATTS
2. ALL DIMENSIONS ARE IN INCHES
3. WALL & INSULATION THICKNESS IS 1 1/2"
4. ROOF & INSULATION THICKNESS IS 3"
5. ENCLOSURE SHOWN IS SAFE-T-COVER MODEL 1000D-ALC00-17
6. EXTERIOR ENCLOSURE DIMENSIONS: 53"W x 233"L x 73" H
7. CONCRETE PAD IS 64"W x 244"L x 6"THK W/W.W.F. 6X6/10X10
8. METER SHOWN: 8" PROTECTUS III, SPOOL PIECE & METER SUPPLIED BY ECWA, VERIFY DIMENSIONS PRIOR TO ORDERING
9. RPZ SHOWN: 8" WATTS 909 NRS
10. CONTRACTOR TO INSTALL ELECTRIC SERVICE TO ENCLOSURE, COORDINATE SOURCE WITH OWNER
11. INSTALL A 120V GFI OUTLET IN THE ENCLOSURE
12. HEATERS TO HAVE THERMOSTAT CONTROL
13. ALL PIPING WITHIN THE ENCLOSURE SHALL BE DUCTILE IRON

LEGEND:

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H w/DRAIN DOOR

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H

8"METER & RPZ INSULATED ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Insulated Enclosure Detail

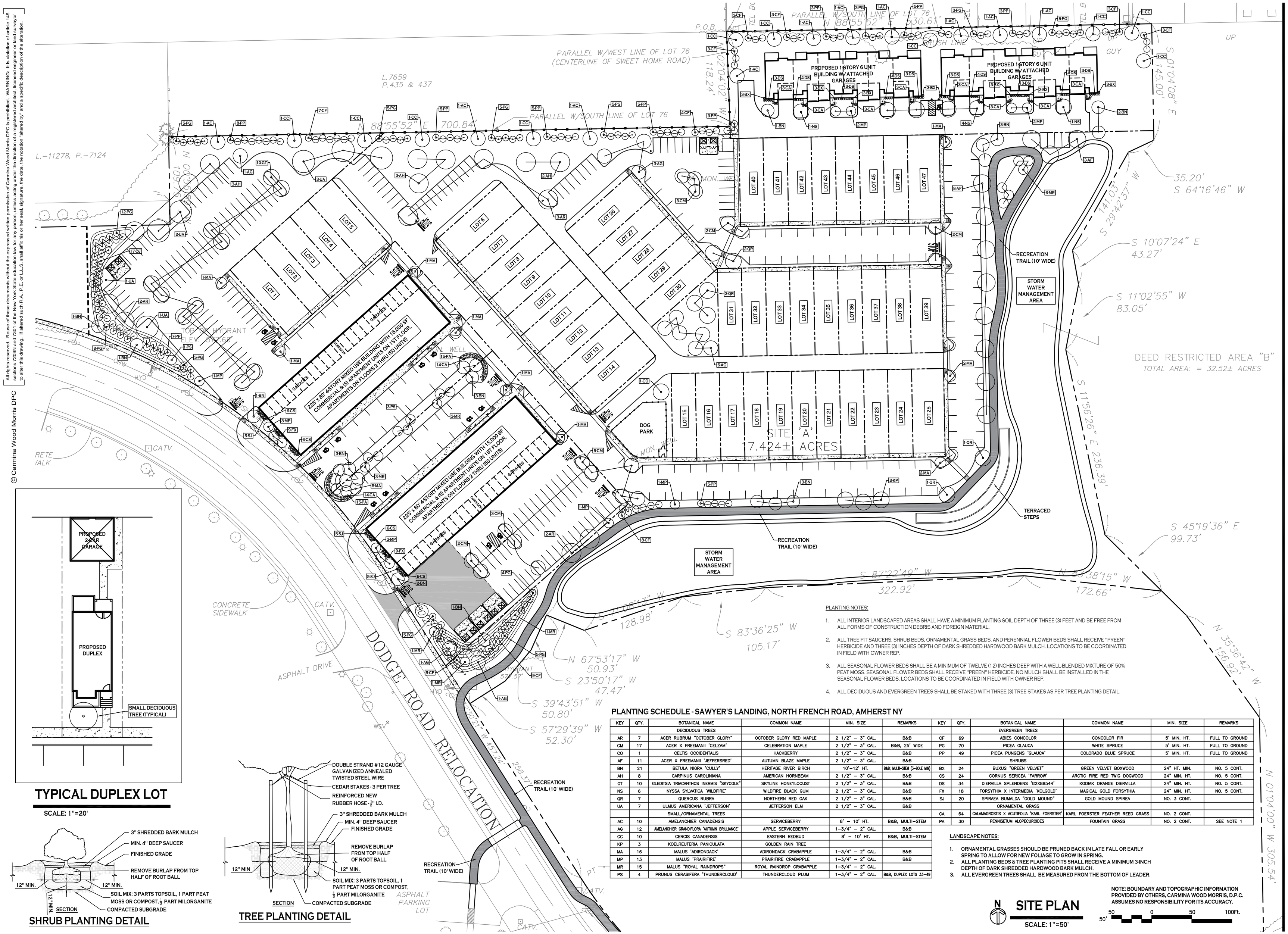
DRAWING NO.
C-408

Project no.: 21.011

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



TYPICAL DUPLEX LOT

SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND PERENNIAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X. FREEMANII "CELZAM"	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII "JEFFERSRED"	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA "CULLY"	HERITAGE RIVER BIRCH	10'–12' HT.	B&B; MULTI-STEM (3-BOLE MIN)
AH	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	10	GLEDITSIA TRIACANTHOS INERMIS "SKYCOLE"	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
NS	6	NYSSA SYLVATICA "WILDFIRE"	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL/ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	12	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1–3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	16	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1–3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1–3/4" – 2" CAL.	B&B
MR	15	MALUS "ROYAL RAINDROPS"	ROYAL RAINDROP CRABAPPLE	1–3/4" – 2" CAL.	
PS	4	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1–3/4" – 2" CAL.	B&B, DUPLEX LOTS 33–49
		EVERGREEN TREES			
CF	69	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	70	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	49	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	24	BUXUS "GREEN VELVET"	GREEN VELVET BOXWOOD	24" HT. MIN.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DIERVILLA SPLENDENS 'G2X88544'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	20	SPIRAEA BUMALDA "GOLD MOUND"	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	64	CALAMAGROSTIS X ACUTIFOLIA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

N

SITE PLAN

SCALE: 1"=50'

50' 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Landscape Plan

DRAWING NO.

L-100

Project no.: 21.011



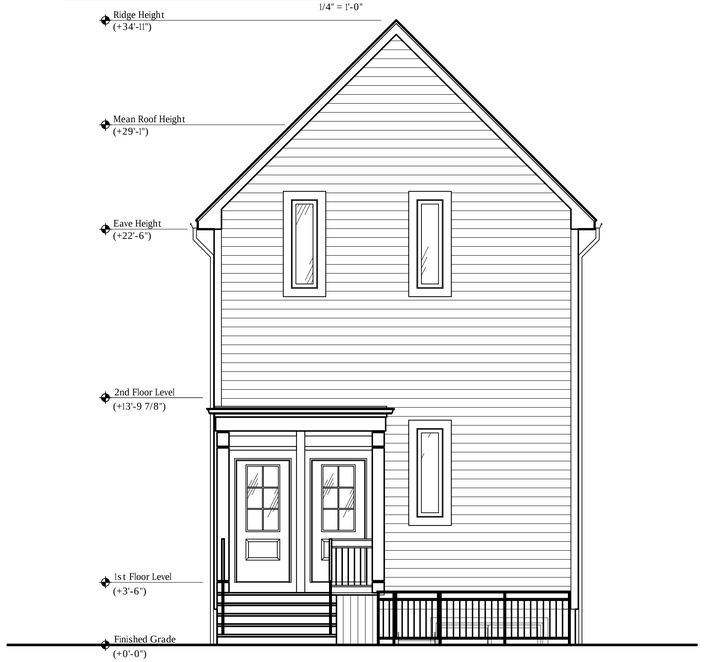
Front Elevation

1/4" = 1'-0"



Right Elevation

1/4" = 1'-0"



Rear Elevation

1/4" = 1'-0"



Left Elevation

1/4" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
Two Family

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)



South Elevation

1/8" = 1'-0"



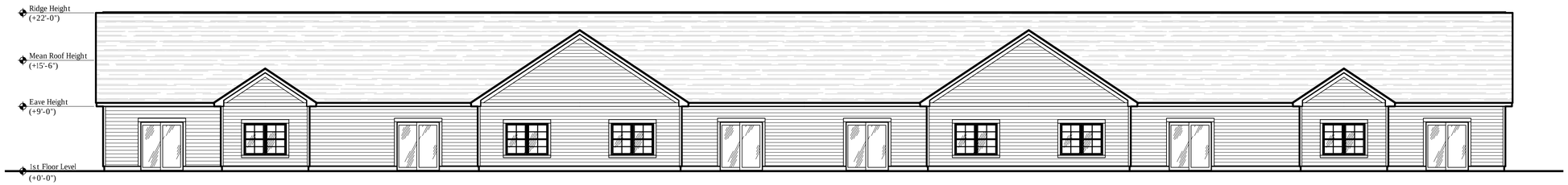
East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"



North Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
6 Unit Multifamily

Portion Of 1081 North French Road Amherst, NY
2/23/21

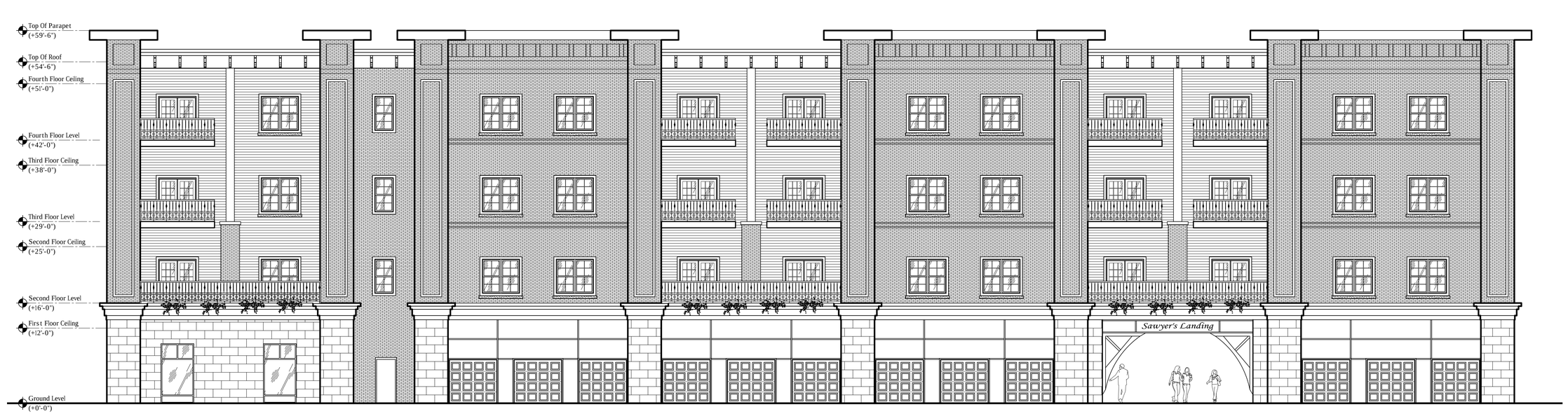
SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)



North Elevation

1/8" = 1'-0"



South Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"

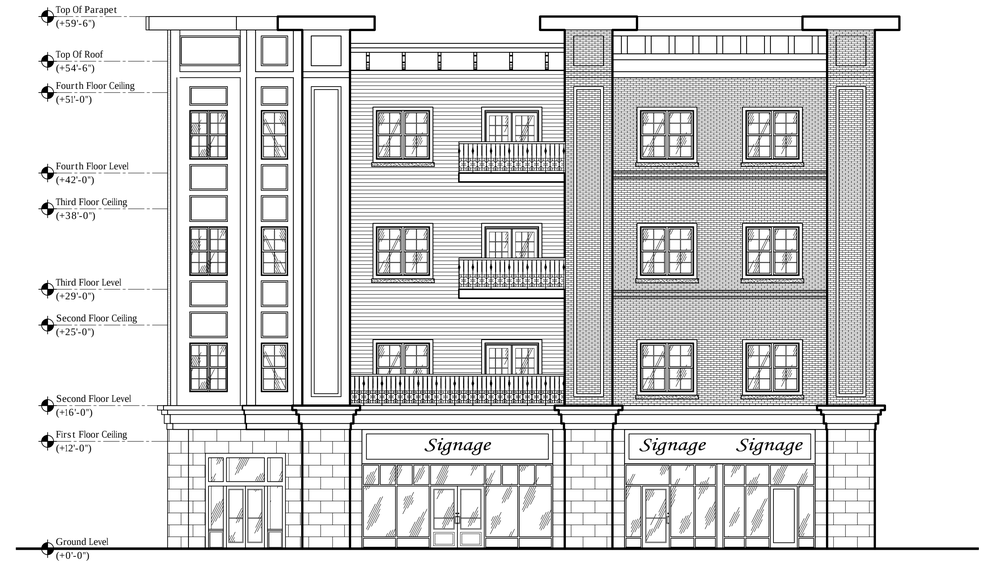
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)



East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY
2/23/21

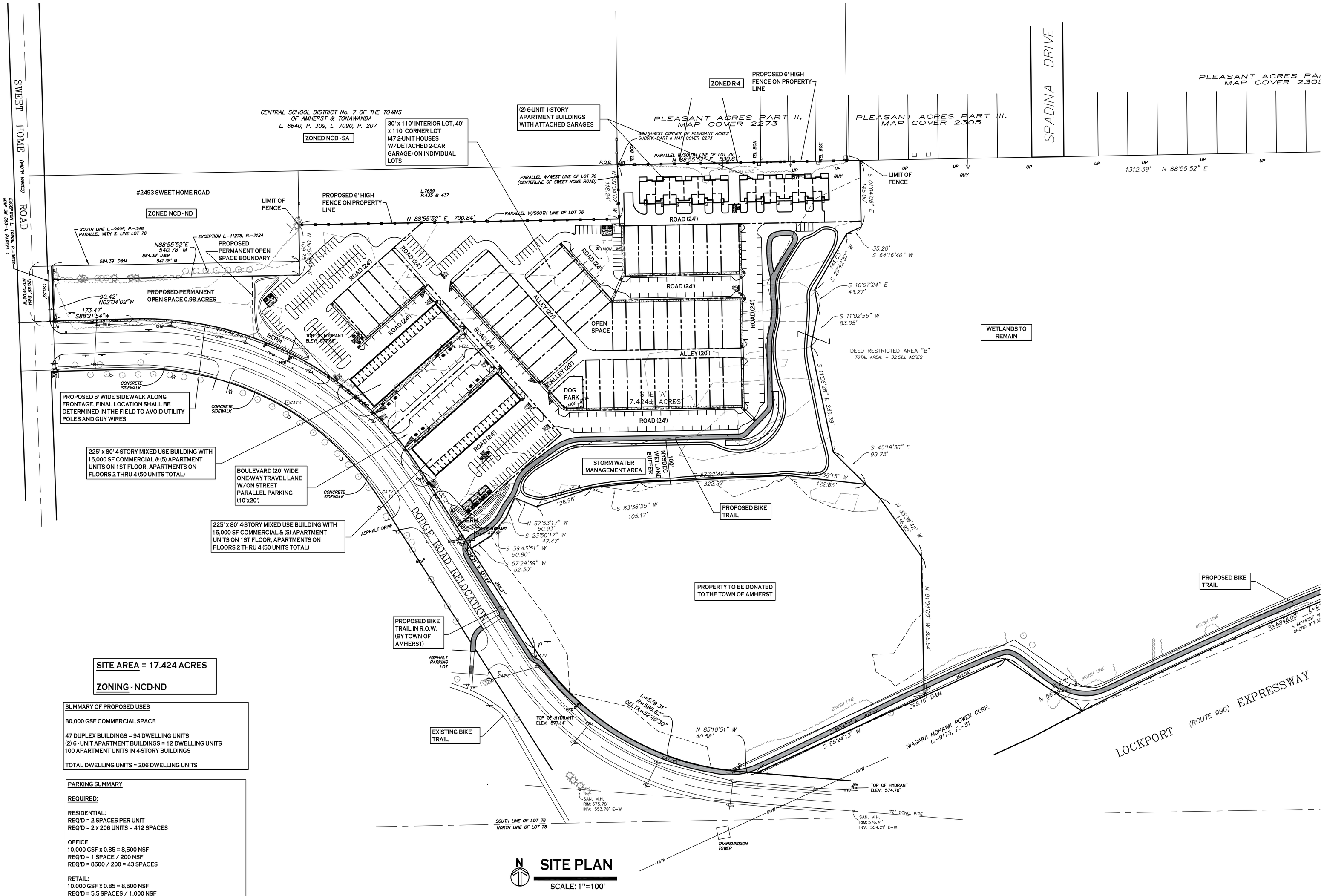
SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



SITE PLAN

SCALE: 1"=100'

SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
505 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/22/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

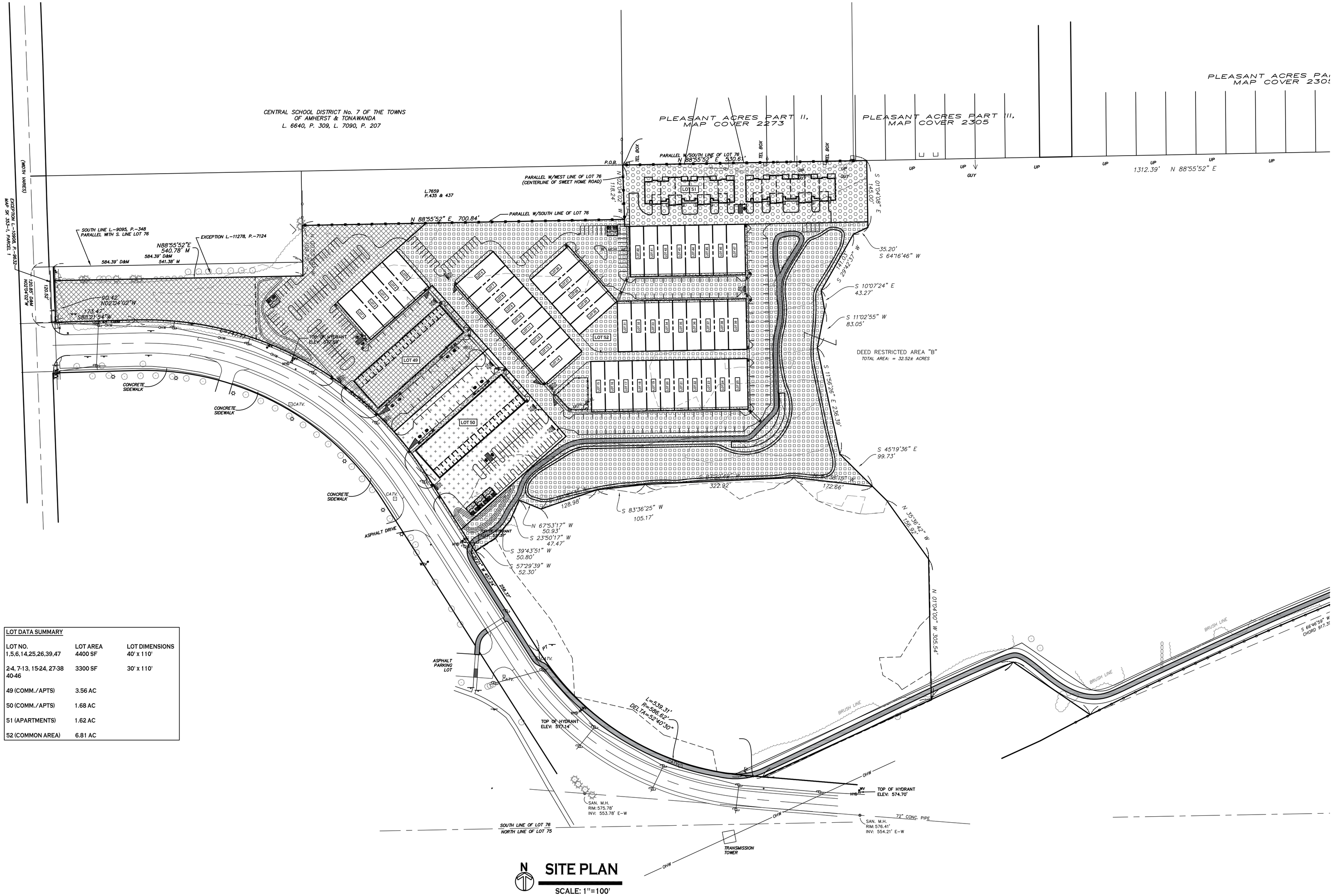
C-100

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_052021 (23057 : SP-2021-05)



LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/22/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Parcel Map

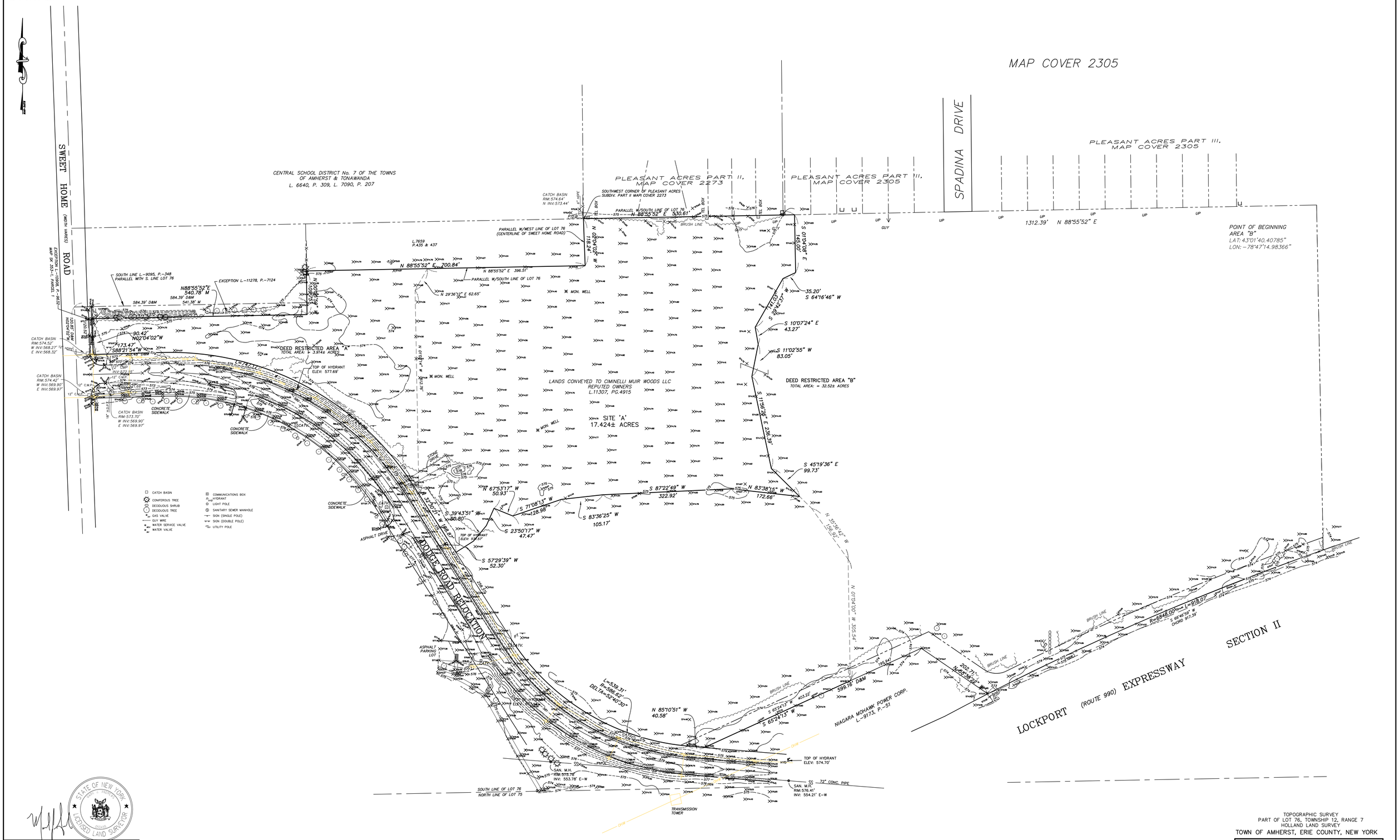
DRAWING NO.

C-102

Project no.: 21.011

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
● SET OR EX. 5/8" REBAR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.



DATE	REVISION/TYPE

TOPOGRAPHIC SURVEY
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: DECEMBER 22, 2020
Scale: 1" = 100' TAX No. 40.08-3-13.1 (PART OF)

Attachment: SP-2021-05_drawings_052021 (23057 : Sp-2021-05)

DRAFT (5/20/21)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-05

PETITIONER

Sawyer's Landing LLC
c/o Sean Hopkins, Esq.
5500 Main Street, Suite 343
Williamsville, NY 14221

PROPERTY LOCATION

1081 North French Road (portion)

WHEREAS, the Town of Amherst Planning Board on Thursday, May 20, 2021 held a public hearing on a Site Plan for a mixed-use development, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-8 of the Zoning Ordinance, the Planning Board finds that:

A. The site plan includes usable space for active and passive recreation, including pedestrian connections.

B. The site plan includes open space lands for public ownership and use offered for dedication or other disposition to the Town or other public entity.

C. School sites and facilities are adequate to accommodate the proposed site plan.

D. The site plan does not include the extension of roadways to adjacent property.

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

Attachment: SP-2021-05_Draft_Resolution_052021 (23057 : Sp-2021-05)

DRAFT (5/20/21)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-05

PETITIONER	PROPERTY LOCATION
Sawyer's Landing LLC	1081 North French Road (portion)

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment. The previously undertaken SEQR process included DEIS, FEIS and culminated in the Town Board's issuance of a SEQR Findings Statement on December 17, 2007. Lead Agency was re-established for review of the proposed amendment to the Findings Statement to allow the proposed mixed-use development, and the Findings Statement was revised on October 19, 2020.

F. Wetland permits were issued for this project by NYSDEC on December 17, 2019 and the US Army Corps of Engineers under Section 404 of the Clean Water Act on December 12, 2019. Both permits authorize work on the project until November 30, 2024.

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance **approves/denies** said Site Plan subject to the following conditions:

1. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

2. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

3. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by _____; seconded by _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

Attachment: SP-2021-05_Draft_Resolution_052021 (23057 : Sp-2021-05)

DRAFT (5/20/21)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-05

PETITIONER	PROPERTY LOCATION
Sawyer's Landing LLC	1081 North French Road (portion)

EK/bf
X:\Current_Planning\Files\Site Plans\2021\SP-2021-05_(1081 N_FrenchRd)_2021\SP-2021-05_Draft_Resolution_052021.docx

cc: Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221
William Severyn, Severyn Development, 43 Central Ave. Suite 300, Lancaster, NY 14086
Adam Faeth, Ciminelli Real Estate Corp., 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Chris Wood, Carmina Wood Morris, 487 Main St, Suite 500, Buffalo, NY 14203
David Sutton, Sutton Architects, 5409 Main St, 2nd Floor, Williamsville, NY 14221

Approved Plan:
Received:

Attachment: SP-2021-05_Draft_Resolution_052021 (23057 : Sp-2021-05)

Application for Site Plan Approval 1021 North French Road [Including Subdivision of Project Site] - Proposed Mixed-Use Project - Site "A" of Muir Woods Property
Applicant: Sawyers Landing LLC

Prepared By: Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 510-4338
E-mail: shopkins@hsr-legal.com

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: SP-2021-05 **Acreage** 17.42 **Fee $** 13,315.00

Address Verified by Assessor's Office
VERIFIED BY DATE

Site Plan Review

		Fill In Applicable Fees
1 acre or less	$1,250.00	$1,250.00
Each Additional acre or fraction thereof	$ 650.00/acre	$11,050.00
Amendments to Site Plans	$1,200.00	
Request for Relief of / or Change to Conditions of Site Plan Approval	$1,200.00	
Request for Extension of Site Plan Approval	$ 450.00	
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	
5-10 Acres	$ 750.00	
>10 Acres	$1,000.00	$1,000.00
Affidavit Fee for Public Hearing	$ 15.00	$15.00
	TOTAL FEE:	$ 13,315.00

Materials Received by Planning Department
RECEIVED BY DATE

RECEIVED FEB 22 2021 TOWN OF AMHERST PLANNING DEPT.

Materials Accepted by Town Clerk & Fee Paid
ACCEPTED BY DATE

To Be Completed By Applicant

Petitioner: Name: Sawyers Landing LLC c/o Sean W. Hopkins, Esq.

Address: 5500 Main Street, Suite 343

Williamsville, New York 14221

city state zip code

Phone: 510-4338 Fax: _____ E Mail: shopkins@hsr-legal.com

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

MAJOR SITE PLAN APPLICATION ***con't.*** ***PAGE 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Name: Christopher Wood, P.E.

Address: Carmina Wood Morris DPC

483 Main Street, Suite 600

Buffalo (city) New York (state) 14203 (zip code)

Phone: 842-3165 [Ext. 103] Fax: 842-0263

E Mail: cwood@cwm-ae.com

Project Location (must be verified by Town Assessor's Office):

Address: Portion of 1081 North French Road

SBL No(s): 40.08-3-13.1/A

Project Name: Proposed Mixed-Use Project

Project Description:

See attached Exhibit "2" for Project Description. The layout of the proposed mixed-use project to be located on the New Community District - General Commercial ("NCD-GC") zoned property at 1081 North French Road as depicted on the Overall Site Plan [Drawing C-100] prepared by Carmina Wood Morris DPC. A reduced size copy of the Overall Site Plan is provided at Exhibit "3". and a reduced size copy of the Site Plan [Drawing C-101] is provided at Exhibit "4". The proposed mixed-use project includes the subdivision of the 17.42 acre Project Site into 52 parcels as depicted on the Parcel Map [Drawing C-102] prepared by Carmina Wood Morris DPC. A reduced size copy of the Parcel Map [Drawing C-102] is provided at Exhibit "5".

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

Not Applicable.

Gross Floor Area (non-residential):	0 existing	30,000 sq. ft. proposed	30,000 sq. ft. total
Number of Residential Units:	0 existing	206 proposed	206 total
Number of Parking Spaces:	0 existing	505 proposed	505 total

Acreage of Parcel: 17.42 Acres

Frontage on Public Roads: The proposed parcel will have approximately 1,120 ft. on Dodge Road and approximately 120 ft. of frontage on Sweet Home Road.

Existing Zoning District(s) NCD-GC

[Note: A completed Part 1 of the Full Environmental Assessment Form prepared pursuant to the State Environmental Quality Review Act ("SEQRA") is attached as Exhibit "1" of this Site Plan Application.]

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Exhibit 1 – Part 1 of the Full Environmental Assessment Form prepared pursuant to the State Environmental Quality Review Act ("SEQRA") with attached Page 5[a] and Attachments "A" and "B"

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Full Environmental Assessment Form Part 1 - Project and Setting

Prepared By: Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 716.510-4338
E-mail: shopkins@hsr-legal.com

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Proposed Mixed-Use Project - Site A of Muir Woods		
Project Location (describe, and attach a general location map): Portion of 1081 North French Road - Town of Amherst - Erie County		
Brief Description of Proposed Action (include purpose or need): The proposed action consists of a request for Site Plan Approval [including the subdivision of the Project Site] for a mixed use project consisting of 2 four story mixed-use buildings [15,000 sq. ft of commercial space and 50 units per building], 47 two-family town homes on individual lots and 2 single-story apartment buildings [6 units per building] along with all related site improvements depicted on the fully engineered plans prepared by Carmina Wood Morris DPC. A reduced size copy of the Overall Site Plan [Drawing C-100] is provided at Exhibit "3". The action has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed driveway connections to Dodge Road, access aisles, parking spaces, driveways, wetland impacts, lighting, landscaping, on-site storm water management improvements, sanitary sewer and water lines and connections and all other required utility improvements. The project purpose is to develop Site "A" of overall Muir Woods Project Site as a mixed-use project. The proposed mixed-use project is a Type I action pursuant to SEQRA and the Town Board issued an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") on October 19, 2020 to allow mixed-use development of the Project Site. On October 19, 2020, the Town Board also adopted a resolution to amend the Town's Comprehensive to designate the Project Site as appropriate for mixed-use.		
Name of Applicant/Sponsor: Sawyers Landing LLC c/o Sean Hopkins, Esq.	Telephone: 716.510-4338 E-Mail: shopkins@hsr-legal.com	
Address: 5500 Main Street, Suite 343		
City/PO: Williamsville, NY	State: NY	Zip Code: 14221
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor): Ciminelli Muir Woods, LLC c/o Adam Faeth, Esq.	Telephone: 716.631-8000 E-Mail: afaeth@ciminelli.com	
Address: 50 Fountain Plaza, Suite 500		
City/PO: Buffalo	State: NY	Zip Code: 14202

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Sewage Works Corporation and PIPs	To be determined
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Planning Board - Site Plan Approval [includes Subdivision Approval - 52 lots]	February 22, 2021
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Building Department - Building Permits; Amherst IDA [PILOT, etc.]	To be determined
e. County agencies ☑Yes ☐No	ECPDW - Highway Work Permit; ECWA - Water; ECHD - Sewer and Water	To be determined
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC - Amended Wetland Permit; DSCA Approval, Sewage Work Corp. & SPDES Permit	Amended Wetland Permit issued on 12/24/20; To be determined.
h. Federal agencies ☑Yes ☐No	USACE - Amended Wetland Permit [Pending]	July 1, 2020

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

NYS Heritage Areas:West Erie Canal Corridor [Note: The project will not have any impacts on the West Erie Canal Corridor.]

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Site "A" of the Muir Woods property is zoned New Community District - Neighborhood District ("NCD-ND") pursuant to the Town of Amherst Zoning Map.

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police Department

c. Which fire protection and emergency medical services serve the project site?
Volunteer Fire Department

d. What parks serve the project site?
Various Town Parks including Nature View Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?Mixed-use project consisting of 2 four-story buildings with 15,000 sq. ft. of 1st floor commercial space and 50 apartments per building; 47 two-family townhomes; and two six-unit single-story apartment buildings.

b. a. Total acreage of the site of the proposed action? 28.47 acres
b. Total acreage to be physically disturbed? 17.0 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 326 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % Units:

d. Is the proposed action a subdivision, or does it include a subdivision? ☑ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
The 45 two-family townhome buildings will consist of individual lots and mixed-use buildings may consist of separate parcels.
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? 52 [47 lots for the two-family townhomes]
iv. Minimum and maximum proposed lot sizes? Minimum 3300 sf Maximum 6.81 Acres

e. Will the proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: ____ months
ii. If Yes:
- Total number of phases anticipated 3-4
- Anticipated commencement date of phase 1 (including demolition) Fall month 2021 year
- Anticipated completion date of final phase July month 2024 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:
The infrastructure necessary for each phase will be installed to ensure compliance with applicable technical standards including those for stormwater management.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

f. Does the project include new residential uses? ☑Yes ☐No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase		20		50
At completion of all phases		47		112

The build-out of the residential components will be based on market conditions.

g. Does the proposed action include new non-residential construction (including expansions)? ☑Yes ☐No
If Yes, There will be 15,000 sq. ft. of commercial space in each of the two 4-story mixed-use buildings.
i. Total number of structures 2
ii. Dimensions (in feet) of largest proposed structure: 55' height; 80' width; and 225' length
iii. Approximate extent of building space to be heated or cooled: 30,000 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑Yes ☐No
If Yes,
i. Purpose of the impoundment: Storm water management
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☑Other specify: Storm water runoff from impervious surfaces.
iii. If other than water, identify the type of impounded/contained liquids and their source.
N/A
iv. Approximate size of the proposed impoundment. Volume: ____ million gallons; surface area: 1.5 acres
v. Dimensions of the proposed dam or impounding structure: N/A height; ____ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):
Impoundment area is an excavation consisting of earth fill.

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐Yes ☑No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)
If Yes:
i. What is the purpose of the excavation or dredging?
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No
If yes, describe.

v. What is the total area to be dredged or excavated? ____ acres
vi. What is the maximum area to be worked at any one time? ____ acres
vii. What would be the maximum depth of excavation or dredging? ____ feet
viii. Will the excavation require blasting? ☐Yes ☐No
ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑Yes ☐No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of of the NYSDEC Freshwater Wetlands (reduction of .55 acres).

[The New York State Department of Environmental Conservation issued an Amended Wetland Permit on December 24, 2020. A copy of the Amended Wetland Permit is provided at Exhibit "8".]

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☑No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☑No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑Yes ☐No
If Yes:

i. Total anticipated water usage/demand per day: 50,820 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑Yes ☐No
If Yes:

- Name of district or service area: ECWA Consolidated Water District
- Does the existing public water supply have capacity to serve the proposal? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No
- Do existing lines serve the project site? ☑Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☑No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑Yes ☐No
If Yes:

i. Total anticipated liquid waste generation per day: 50,820 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used: Tonawanda Creek Wastewater Treatment Plant
- Name of district: Town of Amherst Consolidated Sanitary Sewer District
- Does the existing wastewater treatment plant have capacity to serve the project? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

- Do existing sewer lines serve the project site? ☑Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☑No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 8.0 acres (impervious surface)

_____ Square feet or 28.47 acres (parcel size)

ii. Describe types of new point sources. Parking lots and roof tops

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be conveyed into the on-site stormwater management system to be installed per the applicable stringent stormwater quality and quantity standards of the NYS Department of Environmental Conservation ("NYSDEC")

- If to surface waters, identify receiving water bodies or wetlands: NYSDEC & Federal wetlands on the east portion of the Project Site.
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No A Traffic Impact Study was prepared by SRF Associates DPC dated August 3, 2020 and 4 copies have been submitted with the Site Plan Application dated February 22, 2020.

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____
To be determined

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):
National Grid

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7:00 to 7:00
- Saturday: 8:00 to 6:00
- Sunday: As needed
- Holidays: Not Applicable

ii. During Operations:

- Monday - Friday: 8:00 to 11:00
- Saturday: 8:00 to 11:00
- Sunday: 8:00 to 10:00
- Holidays: 8:00 to 10:00

The hours of operation during "During Operations" as listed above apply to the first floor commercial space in the two mixed-use buildings. The hours are estimates since the tenants that will lease the first floor commercial space including both office and retail tenants have not yet been identified.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Construction activities will include the use of construction equipment during daytime hours that will exceed ambient background noise levels. The construction related noise impacts are a temporary unavoidable impact.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe:

n. Will the proposed action **have outdoor lighting?** ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Lighting will be installed in compliance with the lighting standards contained in the Town of Amherst Zoning Code. There will not be any lighting spillover onto contiguous properties.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☑ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

Potential use of lawn fertilizer and pesticides on maintained portions of property in accordance with applicable standards for application and use of lawn fertilizer and pesticides.

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☑ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: 2 tons per week (unit of time)
- Operation : 2 tons per week (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: wood and metal waste may be recycled by the contract at their discretion
- Operation: Town of Amherst recycling program will be followed

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: approved NYSDEC landfill via contractor or private disposal company
- Operation: approved NYSDEC landfill via private disposal company

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility: _____

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☑ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Wetlands

ii. If mix of uses, generally describe:

There are mixture of uses in the vicinity of the Project Site including residential uses to the north in the Bucyrus Heights Subdivision, an elementary school, apartments and office buildings on Sweet Home Road and permanent open space to the east of Site "A".

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	8.0	+ 8.0
• Forested	12.17	1.87	-10.3
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	16.3	10.2	- 6.1
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: Greenspace, Landscaping, Pond	0	8.4	+8.4

The categories as listed above include the large wetland area subject to the jurisdiction of both the NYSDEC and USACE consisting of approximately 9.81 acres that was previously approved for development by the Town Board that will consist of Permanent Open Space to be donated to the Town of Amherst.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑Yes ☐No
If Yes,
i. Identify Facilities:
1. Heritage Heights Elementary School (Sweet Home School District- 2545 Sweet Home Road); 2. Creative Play Learning Center (Private Day Care Facility- 647 Dodge Road); and 3. Four Seasons Child Care & Preschool (Private Day Care Facility- 1639 North French Road).

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____

iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☐No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____
_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? >5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

Getzville silt loam	94 %
Swormville clay loam	6 %
	%

d. What is the average depth to the water table on the project site? Average: >5 feet

e. Drainage status of project site soils:
☐ Well Drained: _____ % of site
☐ Moderately Well Drained: _____ % of site
☑ Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____ % of site
☐ 15% or greater: _____ % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No
ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters, NYS Wetland Approximate Size NYS Wetland (in a...
- Wetland No. (if regulated by DEC) TE-33

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No
If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:
i. Name of aquifer: _____

The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of NYSDEC Freshwater Wetlands (reduction of .55 acres). A copy of the Amended Wetland Permit issued by the New York State Department of Environmental Conservation authorizing the impacts to the NYSDEC Freshwater Wetlands and the regulated 100 ft. Adjacent Area to accommodate the proposed mixed-use project on Site A of the Muir Woods property is provided at Attachment "A" of this Part 1 of the Full Environmental Assessment Form.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

m. Identify the predominant wildlife species that occupy or use the project site:
Typical suburban species

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No

If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑Yes ☐No

If Yes:
i. Species and listing:
Spiny Softshell - The Project Sponsor does not believe that Spiny Softshell is present on Site A of the Muir Woods property.

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: Eligible property:Heritage Heights Elementary School

iii. Brief description of attributes on which listing is based:

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

[Ccopy of the No Impact Determination letter issued by the NYSOPRP dated October 10, 2001 is provided at Attachment "B".]

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s):

ii. Basis for identification:

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource:

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.):

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation:

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

Documentation evaluating potential adverse environmental impacts pursuant to the State Environmental Quality Review Act ("SEQRA") including the fully engineered plans prepared by Carmina Wood Morris DPC have been submitted with the Site Plan Application.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name: Sawyers Landing LLC Date: February 22, 2021

Signature _____ Title Attorney for Project Sponsor

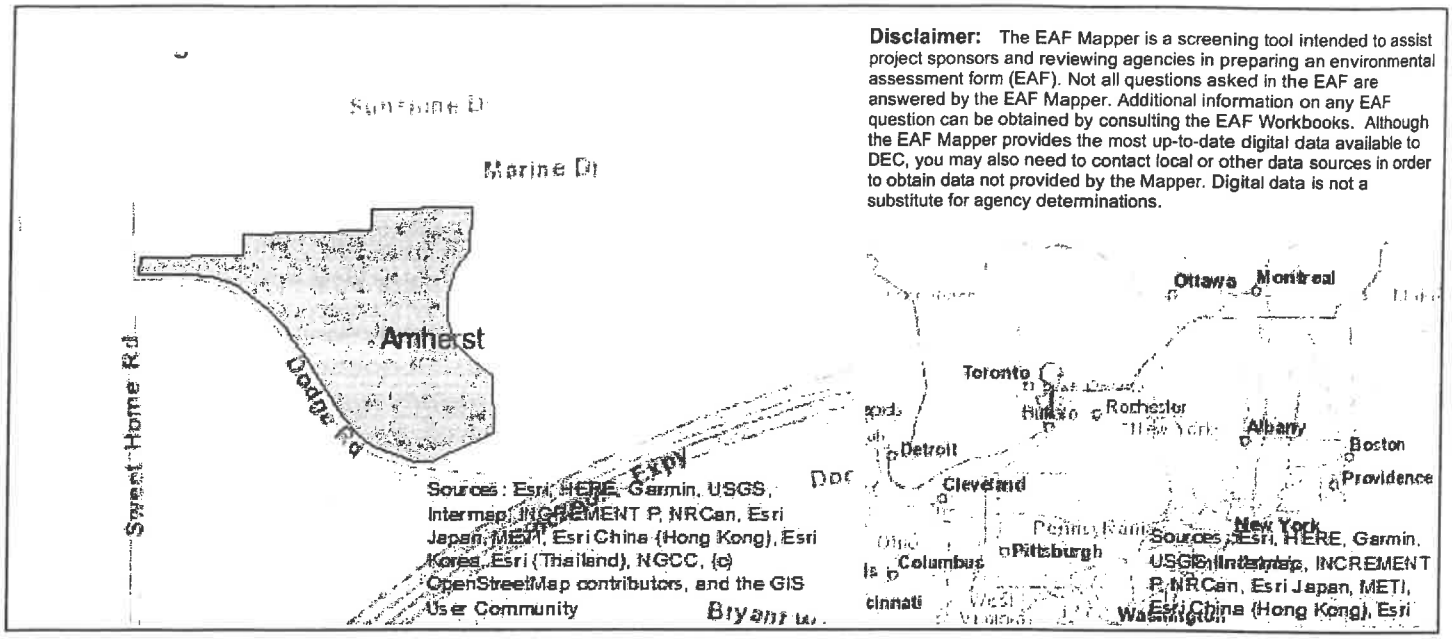
Sean W. Hopkins, Esq.

PRINT FORM

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

EAF Mapper Summary Report

Thursday, June 18, 2020 8:50 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):34.6
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	TE-33
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	Yes
E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:Heritage Heights Elementary School
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TOWN OF AMHERST ATTACHMENT
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
Proposed Mixed-Use Project - Portion of 1081 North French Road

1. For each applicable category of proposed new structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Getzville Silt Loam	Severe	Severe	Severe	Severe	Moderate
Swormville Clay Loam	Severe	Severe	Severe	Severe	Severe

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   _____ Geotechnical report attached _____ Not applicable

   [Note: 3 copies of the Geotechnical Report that has been ordered for the relevant portion of 1081 North French Road to be developed as a mixed-use project will be submitted to the Planning Department. A comprehensive Geotechnical Report for the entire overall Muir Woods Property was previously submitted.

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ■ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ■ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? ☐ Yes ■ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   X Not Applicable

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ■ Yes No

   Describe A student housing community is proposed on property to the east of the Project Site commonly referred to as Site "B" of Muir Woods.

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 106
   Source: Traffic Impact Study prepared by SRF Associates DPC dated August 3, 2020. 3 copies of the Traffic Impact Study have been submitted with the Site Plan Application.

8. Will blasting occur during construction? ☐ Yes ■ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ■ Yes ☐ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    50,820 average flow 203,280 peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? Yes ■ No
    [There are not any buildings located on the Project Site.]

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Attachment "A" of Part 1 of Full Environmental Assessment Form - Amended Wetland Permit Issued by the New York State Separtment of Environmental Conservation dated December 24, 2020

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT

Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Attachment "B" of Part 1 of Full Environmental Assessment Form - No Impact Determination Letter Issued by Ruth Pierpont, Director, New York State Office of Parks, Recreation and Historic Preservation, dated October 10, 2001

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE
Bernadette Castro
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Exhibit 2 – Description of the Proposed Mixed-Use Project on a Portion of 1081 North French Road [Site "A" of the Muir Woods Property]

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

EXHIBIT 2 OF SITE PLAN APPLICATION

DESCRIPTION OF PROPOSED MIXED-USE PROJECT TO BE LOCATION ON A PORTION OF 1081 NORTH FRENCH ROAD [SITE "A" OF MUIR WOODS PROPERTY]

The proposed project consists of a mixed-use project on a portion of 1081 North French Road [Site "A" of Muir Woods Property] (the "Project Site"). The Project Site is properly zoned for the proposed mixed-use project. The mixed-use project consists of 2 four-story mixed-use buildings [15,000 sq. ft. of 1st floor commercial space and 50 units per building], 47 two-family town homes on individual lots, and 2 single-story apartment buildings [6 units per building] along with all related site improvements depicted on the fully engineered plans prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC submitted with this Site Plan Application. A reduced size copy of the Overall Site Plan [Drawing C-100] is provided at Exhibit "3". The Elevation Plans as prepared by Sutton Architecture PLLC are provided at Exhibit "8". The fully engineered plans for the mixed-use project consist of the following:

- Cover Sheet;
- Topographic Survey;
- Boundary Survey;
- Demolition & Erosion Control Plan [Drawing C-001];
- Demolition & Erosion Control Details Plan [Drawing C-002];
- Overall Site Plan [Drawing C-100];
- Site Plan [Drawing C-101];
- Parcel Map [Drawing C-102];
- Site Details Plan [Drawing C-103];
- Site Details Plan [Drawing C-104];
- Grading Plan [Drawing C-200];
- Storm Drainage Plan [Drawing C-300];
- Storm Drainage Details Plan [Drawing C-301];

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

- Storm Drainage Plan [Drawing C-302];
- Storm Drainage Details Plan [Drawing C-303];
- Storm Drainage Details Plan [Drawing C-304];
- Utility Plan [Drawing C-400];
- Sanitary Sewer Details Plan [Drawing C-401];
- Sanitary Sewer Details Plan [Drawing C-402];
- Sanitary Sewer General Notes Plan [Drawing C-403];
- Sanitary Sewer Testing Notes Plan [Drawing C-404];
- Water Details Plan [Drawing C-405];
- Water Details & Notes Plan [Drawing C-407];
- Insulated Enclosure Detail Plan [Drawing C-408]; and
- Landscape Plan as Prepared by Robert Walter, RLA [Drawing L-100]

For purposes of the review process, the proposed mixed-use project has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed driveway connections to Dodge Road, access aisles, parking spaces, driveways, wetland impacts, lighting, landscaping, on-site storm water management improvements, sanitary sewer and water lines and connections and all other required utility improvements.[1] The project purpose is to develop Site "A" of overall Muir Woods Project Site as an innovative mixed-use project on property that has been designated for development for several decades. The proposed mixed-use project is a Type I action pursuant to SEQRA. The Town Board issued an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") on October 19, 2020 to allow mixed-use development of the Project Site.[2]

[1] A completed Part 1 of the Full Environmental Assessment Form with attached Page 5[a] and Attachments "A" and "B" is provided at Exhibit "1".

[2] A copy Resolution 2020-791 as adopted by the Town of Amherst Town Board on October 19, 2020 for the purpose of Issuing an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") for allowing mixed-use development on the Project Site is provided at Exhibit "9".

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

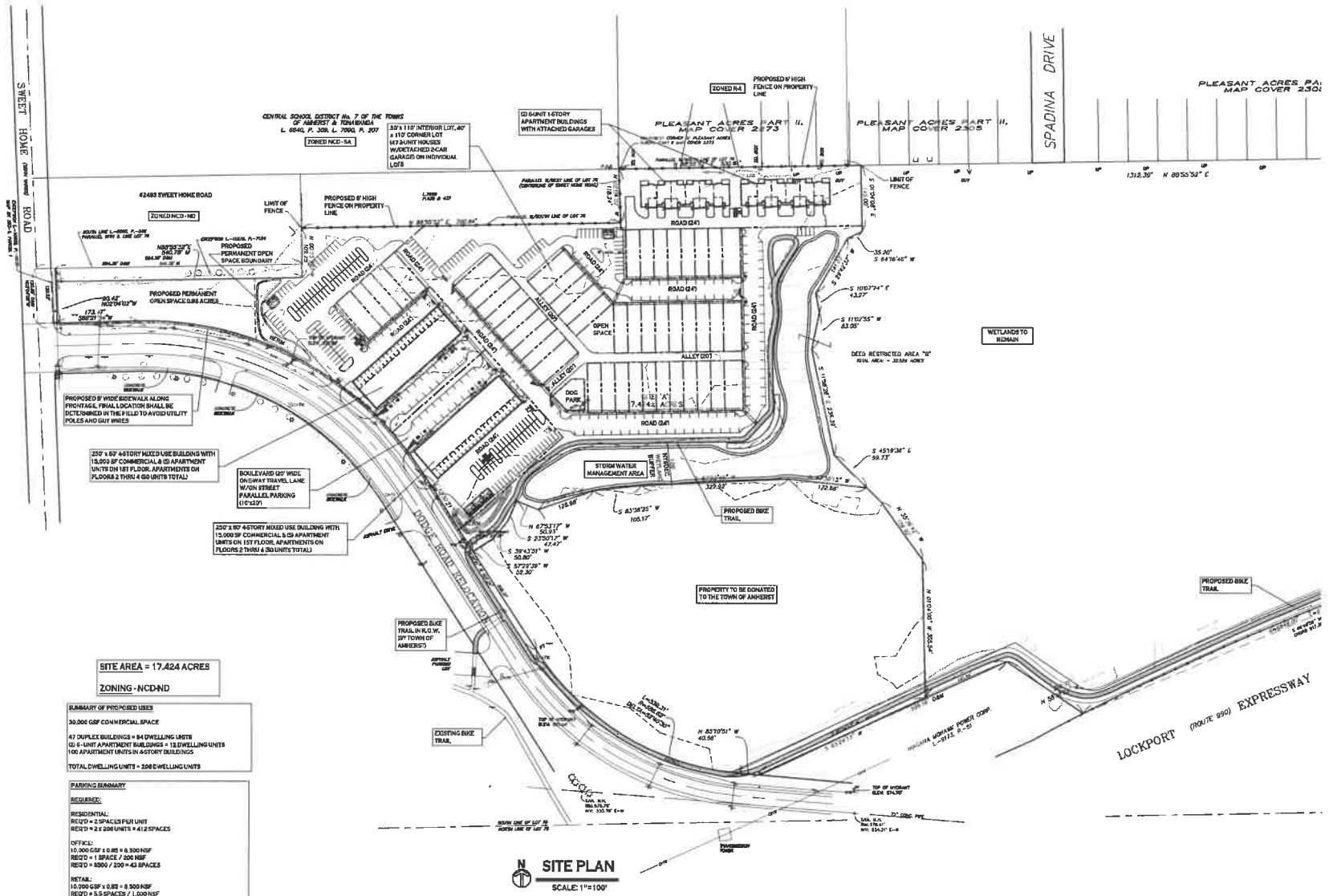
Additionally, on October 19, 2020, the Town Board also adopted a resolution to amend the Town's Comprehensive to designate the Project Site as appropriate for mixed-use.[3]

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

[3] A copy of Resolution 2020-792 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the purpose of approving an Amendment to the Town of Amherst Comprehensive Plan to accommodate mixed-use development on the Project Site is provided at Exhibit "10".

Exhibit 3 – Reduced Size Copy of Overall Site Plan [Drawing C-100] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



N

SITE PLAN

SCALE: 1"=100'

SITE AREA = 17.424 ACRES

ZONING - NCD/ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6-UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 PVI'S* SPACES *
49 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASED)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 8.48 AC
DECREASE = 8.20 AC (87% DECREASED)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASED)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 0 100 200FT

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 section 7209 of the New York State Education Law for any person, unless acting under the direction of a licensed engineer, to alter this drawing. If altered by other parties, the original seal and signature must be affixed to the altered drawing and a specific description of the alteration must be added.

© Carmina Wood Morris DPC

Carmina Wood Morris DPC
497 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0283

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

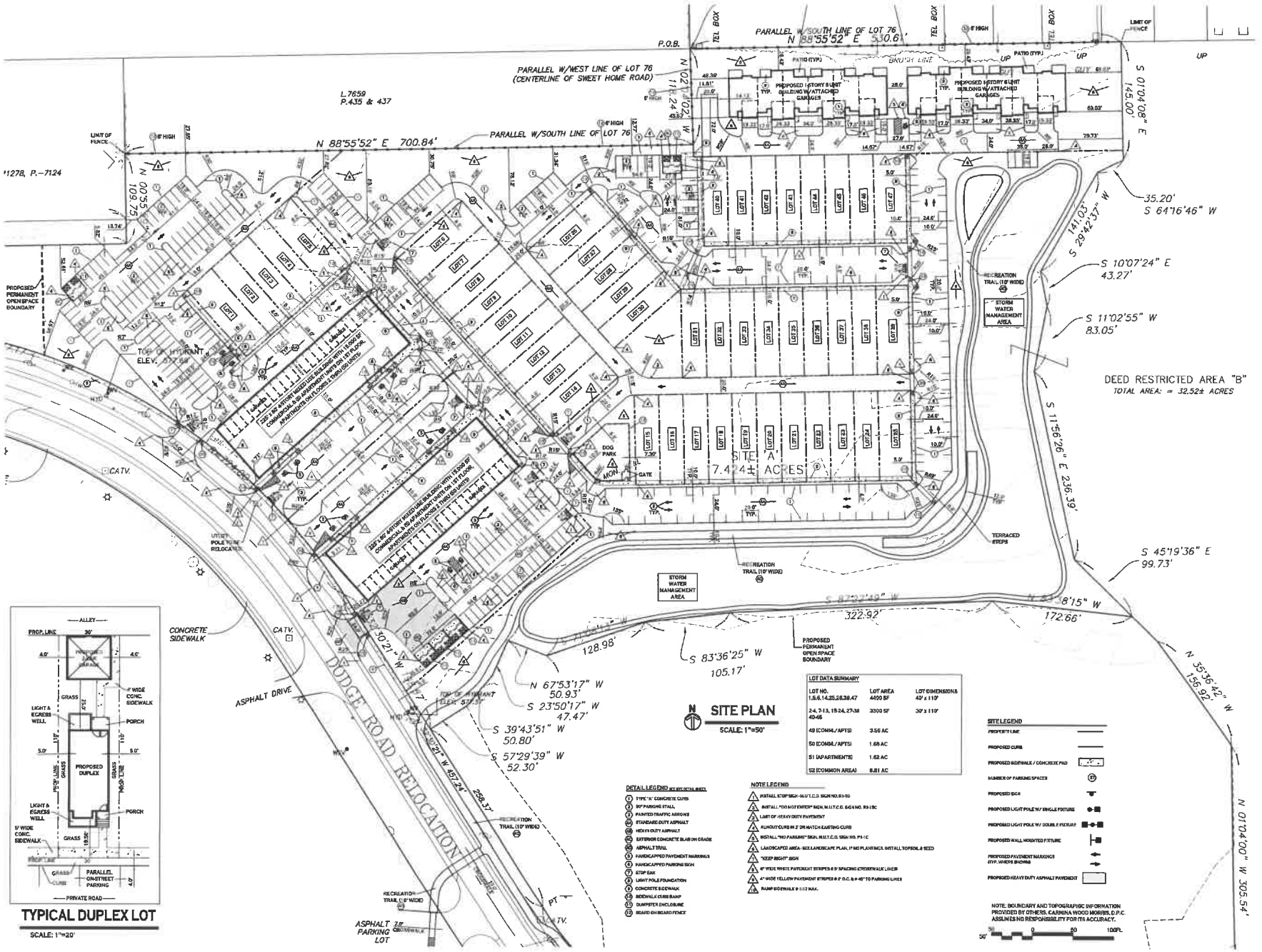
DRAWING NAME:
Overall Site Plan

DRAWING NO.
C-100

Project no.: 21.011

Exhibit 4 – Reduced Size Copy of Site Plan [Drawing C-101] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris, D.P.C. is prohibited. WARNING: It is violation of article 145 sections 7209(2) and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.
© Carmina Wood Morris DPC

Carmina Wood Morris
487 Main Street, Suite 500
Buffalo, New York 14203
P 716.842.2185
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Plan

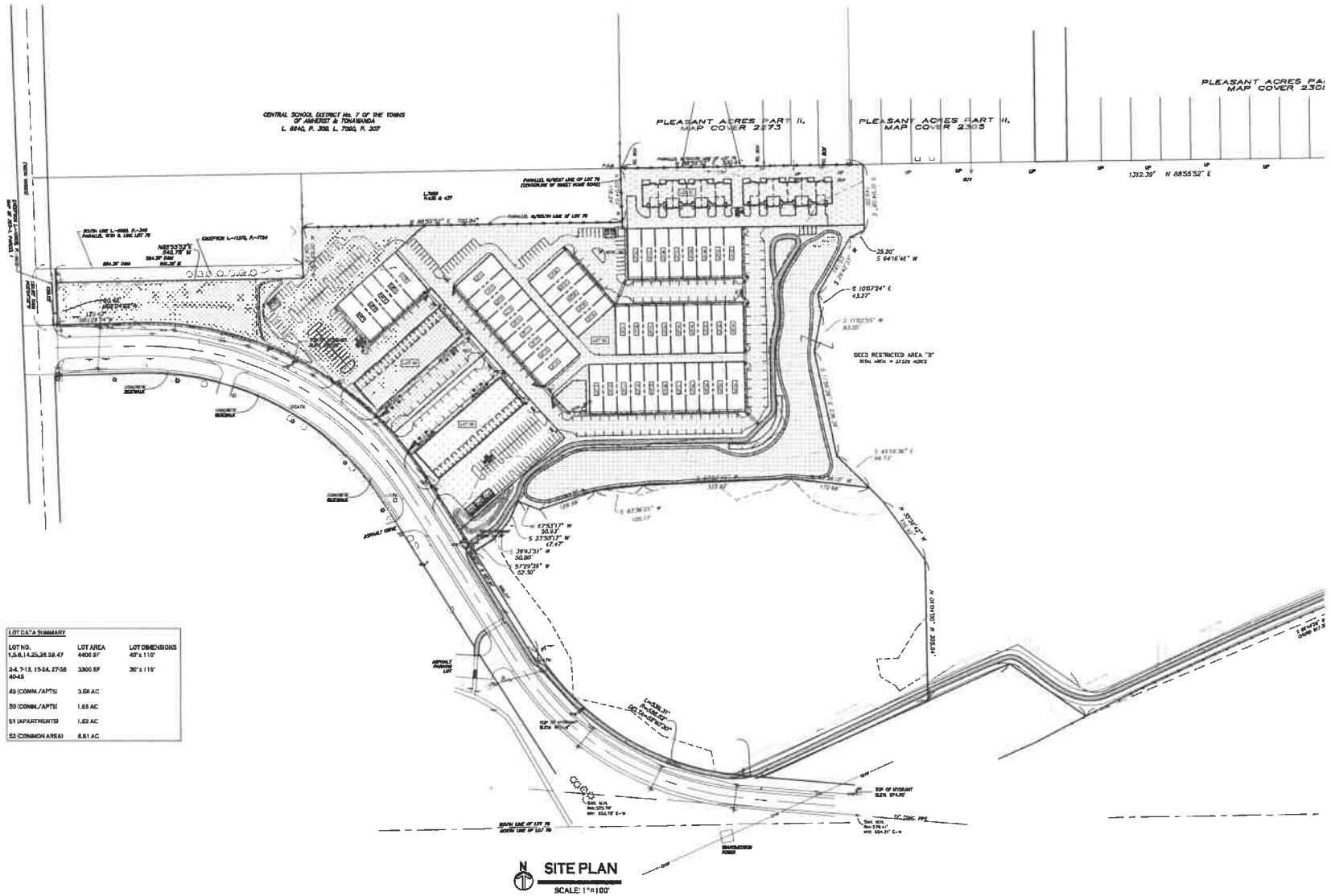
DRAWING NO.
C-101
Project no.: 21.011

Packet Pg. 797

1.d

Exhibit 5 – Reduced Size Copy of Parcel Map [Drawing C-102] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38, 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.65 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.51 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 0 100 200FT.

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 section 7209-b and 7321 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter any drawings. If altered such P.A., P.E. or L.S. shall affix his or her seal, sign such, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York, 14203
P 716.842.3148
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Parcel Map

DRAWING NO.
C-102

Project no.: 21.011

Exhibit 6 – Reduced Size Copy of Storm Drainage Plan [Drawing C-300] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

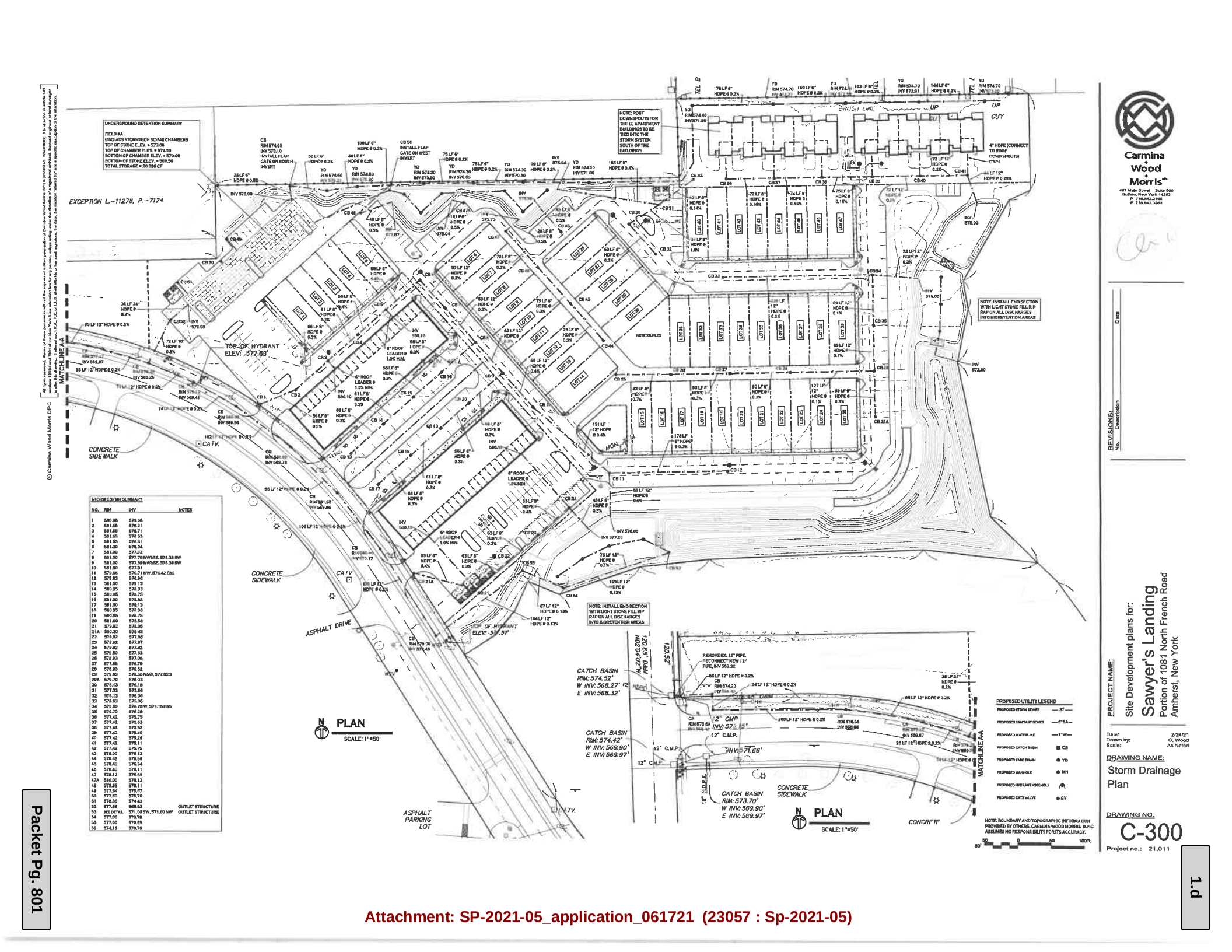
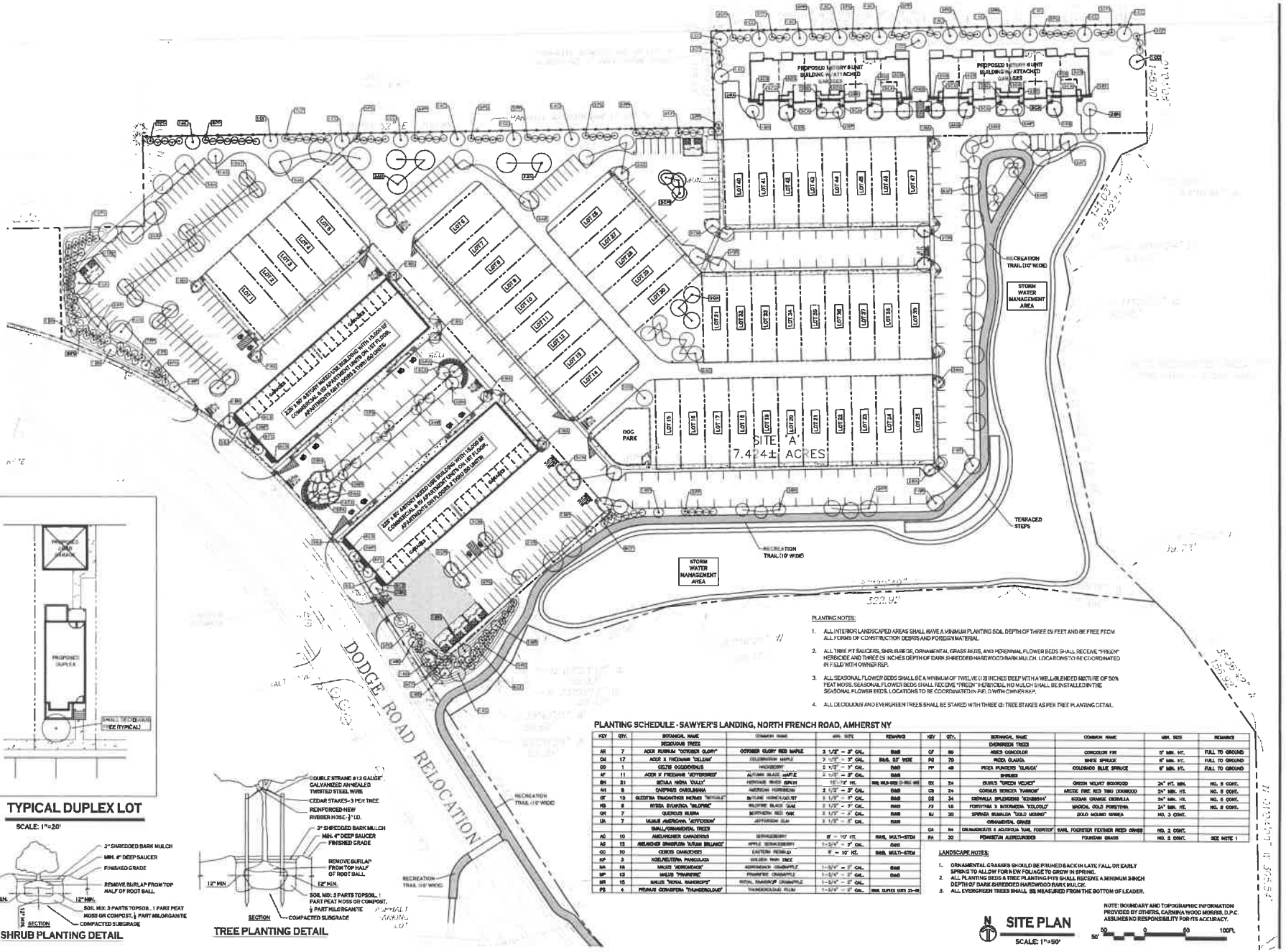

UNDERGROUND DETENTION SUMMARY
FIELD #3
(2)60 ADS STORMTECH SC740 CHAMBERS
TOP OF STONE ELEV. = 573.00
TOP OF CHAMBER ELEV. = 572.50
BOTTOM OF CHAMBER ELEV. = 570.00
BOTTOM OF STONE ELEV. = 569.50
TOTAL STORAGE = 20,096 CF
NOTE: ROOF DOWNSPOUTS FOR THE (2) APARTMENT BUILDINGS TO BE TIED INTO THE STORM SYSTEM SOUTH OF THE BUILDINGS
EXCEPTION L.-11278, P.-7124
TOP OF HYDRANT ELEV.: 577.69'
TOP OF HYDRANT ELEV.: 577.57'
CONCRETE SIDEWALK
ASPHALT DRIVE
ASPHALT PARKING LOT
CATV.
MATCHLINE A-A
NOTE: INSTALL END SECTION WITH LIGHT STONE FILL RIP RAP ON ALL DISCHARGES INTO BIORETENTION AREAS
NOTE: DUPLEX
PLAN
SCALE: 1"=50'
CATCH BASIN RIM: 574.52' W INV: 568.27' 12" E INV: 568.32'
CATCH BASIN RIM: 574.42' W INV: 569.90' E INV: 569.97'
CATCH BASIN RIM: 573.70' W INV: 569.90' E INV: 569.97'
12" C.M.P.
INV: 571.66'
CONCRETE SIDEWALK
CONCRETE
REMOVE EX. 12" PIPE, RECONNECT NEW 12" PIPE, INV 569.32
200 LF 12" HDPE @ 0.2%
95 LF 12" HDPE @ 0.2%
36 LF 24" HDPE @ 0.2%
34 LF 12" HDPE @ 0.2%
PROPOSED UTILITY LEGEND
PROPOSED STORM SEWER
PROPOSED SANITARY SEWER
PROPOSED WATERLINE
PROPOSED CATCH BASIN
PROPOSED YARD DRAIN
PROPOSED MANHOLE
PROPOSED HYDRANT ASSEMBLY
PROPOSED GATE VALVE
NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.
STORM CB/MH SUMMARY
NO. RIM INV NOTES
1 580.95 579.06
2 581.65 578.91
3 581.65 578.71
4 581.65 578.53
5 581.65 578.31
6 581.00 578.04
7 581.00 577.82
8 581.00 577.78 INVASE, 576.38 SW
9 581.00 577.59 INVASE, 576.38 SW
10 581.00 577.31
11 579.65 576.71 INW, 576.42 EAS
12 578.83 576.96
13 581.00 579.13
14 580.95 578.93
15 580.95 578.75
16 581.00 578.88
17 581.00 579.13
18 580.95 578.53
19 580.95 578.75
20 581.00 578.88
21 579.92 578.05
21A 580.30 579.43
22 579.92 577.86
23 579.92 577.87
24 579.92 577.42
25 579.50 577.53
26 578.93 577.06
27 577.85 576.79
28 578.93 576.52
29 579.89 576.35 NAW, 577.82 S
29A 579.70 578.03
30 578.13 576.18
31 577.53 575.66
32 578.13 576.36
33 578.83 575.96
34 579.89 576.28 W, 576.15 EAS
35 579.70 576.28
36 577.42 575.75
37 577.42 575.53
38 577.42 575.52
39 577.42 575.40
40 577.42 575.26
41 577.42 575.11
42 577.42 575.75
43 578.00 576.13
44 578.43 576.56
45 578.43 576.34
46 578.43 576.11
47 578.12 575.89
47A 580.00 578.13
48 579.56 578.11
49 577.54 575.67
50 577.63 575.76
51 576.30 574.43
52 577.66 569.83 OUTLET STRUCTURE
53 SEE DETAIL 571.00 SW, 571.89 NW OUTLET STRUCTURE
54 577.00 570.78
55 577.00 570.69
56 574.15 570.75
Carmina Wood Morris
487 Main Street, Suite 500
Buffalo, New York 14203
P 716.842.3195
F 716.842.2085
REVISIONS:
No. Description Date
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York
Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted
DRAWING NAME:
Storm Drainage Plan
DRAWING NO.
C-300
Project no.: 21.011
© Carmina Wood Morris DPC

Exhibit 7 – Reduced Size Copy of Landscape Plan [Drawing L-100] as Prepared by Robert Walter, Registered Landscape Architect

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND HERENNIAL FLOWER BEDS SHALL RECEIVE "PRIEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PRIEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X FREEMANII 'CELZAM'	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 12' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BH	21	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH	10'-12' HT.	MIN. MULTI-STEM (3-5)
AH	9	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	10	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
NS	6	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	12	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1-3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	16	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1-3/4" – 2" CAL.	B&B
MF	12	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1-3/4" – 2" CAL.	B&B
MR	15	MALUS 'ROYAL RAINDROPS'	ROYAL RAINDROPS CRABAPPLE	1-3/4" – 2" CAL.	
PS	4	PRUNUS SERRASFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1-3/4" – 2" CAL.	B&B, SUPER VARS 25-45
		EVERGREEN TREES			
CF	80	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	70	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	48	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	24	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD	24" MIN. HT.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DEUTZIA SPLENDENS 'KLMDS514'	KOOKIAN ORANGE DEUTZIA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	20	SPIRAEA JAPONICA 'GOLD MOUND'	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	84	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

SITE PLAN
SCALE: 1"=50'

50' 0 50' 100'FT.

TYPICAL DUPLEX LOT
SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

© Carmina Wood Morris DPC
All rights reserved. Re-use of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 section 7209-2 and 7209 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor, to alter this drawing. If altered each FAIL, P.E. or L.S. shall affix his or her seal, signature, the term, the notation "altered by" and a specific description of the alteration.

Carmina Wood Morris DPC
497 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0251

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

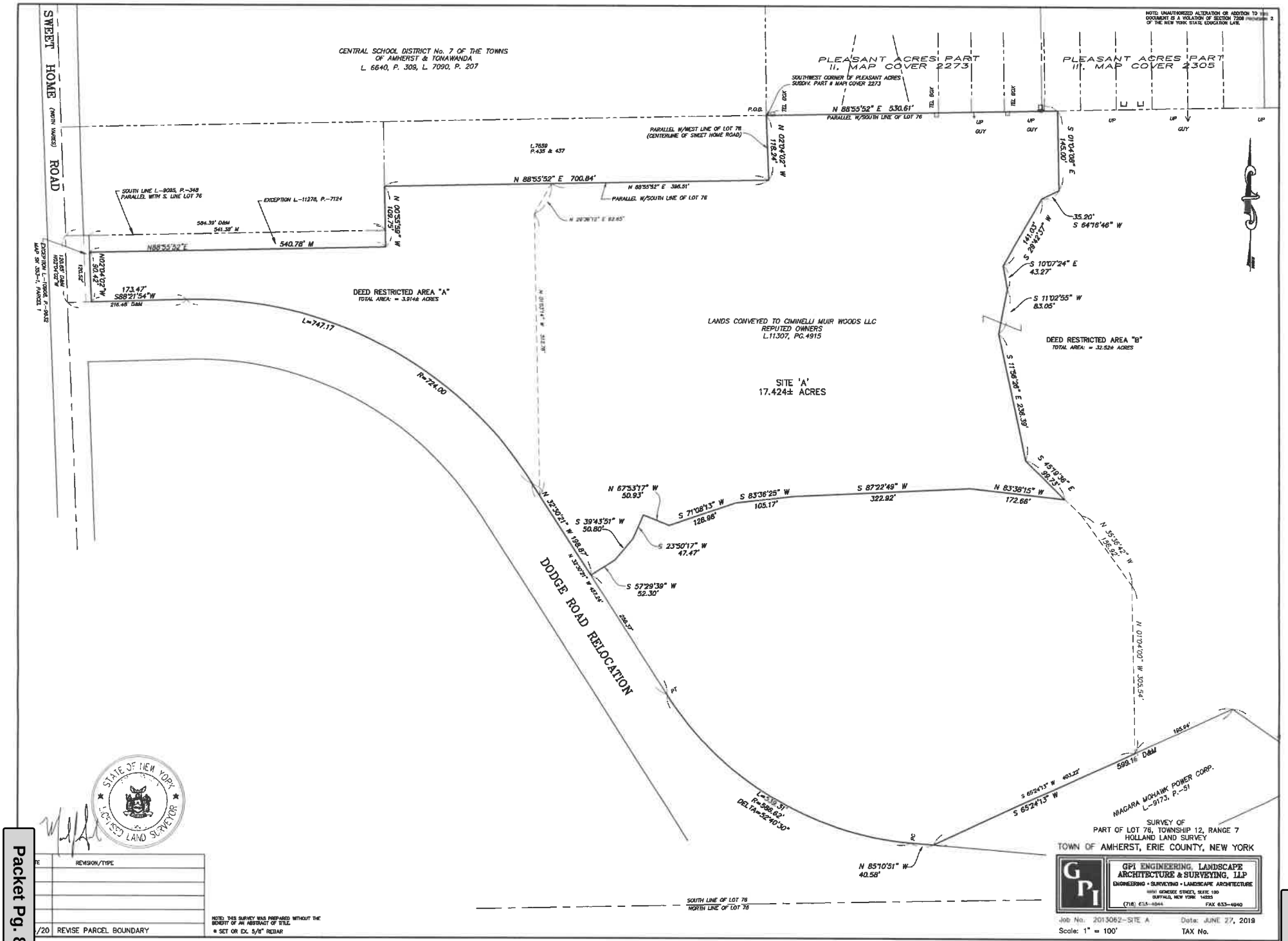
DRAWING NAME:
Landscape Plan

DRAWING NO.
L-100
Project no.: 21.011

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Exhibit 6 – Reduced Size Copy of Storm Drainage Plan [Drawing C-300] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)


SWEET HOME (MAIN VARIES) ROAD
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L 6640, P. 309, L 7090, P. 207
PLEASANT ACRES PART II, MAP COVER 2273
PLEASANT ACRES PART III, MAP COVER 2305
NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273
P.O.B.
N 88°55'52" E 530.61'
PARALLEL W/SOUTH LINE OF LOT 76
PARALLEL W/WEST LINE OF LOT 76 (CENTERLINE OF SWEET HOME ROAD)
N 02°04'02" W 118.24'
L.7659 P.435 & 437
N 88°55'52" E 700.84'
N 88°55'52" E 396.51'
PARALLEL W/SOUTH LINE OF LOT 76
N 00°55'59" W 109.75'
SOUTH LINE L.-9085, P.-348 PARALLEL WITH S. LINE LOT 76
EXCEPTION L.-11278, P.-7124
584.39' D&M
541.38' M
540.78' M
N88°55'52"E
N 00°04'02" W 120.42'
120.35'
180.65' D&M N02°04'02"W
EXCEPTION L.-10808, P.-9832 MAP SH 353-1, PARCEL 1
173.47'
S88°21'54"W
216.48' D&M
DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.914± ACRES
L=747.17
R=724.00
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915
SITE 'A'
17.424± ACRES
DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES
S 01°04'08" E 145.00'
S 64°18'46" W 35.20'
S 28°42'57" W 141.03'
S 10°07'24" E 43.27'
S 11°02'55" W 83.05'
S 11°36'26" E 238.39'
S 45°19'36" E 99.73'
N 83°38'15" W 172.66'
S 87°22'49" W 322.92'
S 83°36'25" W 105.17'
S 71°08'13" W 128.86'
N 67°53'17" W 50.93'
S 39°43'51" W 50.80'
S 23°50'17" W 47.47'
S 57°29'39" W 52.30'
N 32°30'21" W 198.87'
N 32°30'21" W 452.24'
DODGE ROAD RELOCATION
N 35°15'42" W 126.92'
N 01°04'00" W 325.54'
185.84'
599.16' D&M
S 65°24'13" W 403.22'
S 65°24'13" W
L=318.31'
R=388.62'
DELTA=52°40'30"
PT
PC
N 85°10'51" W 40.58'
NIAGARA MOHAWK POWER CORP. L.-9173, P.-51
SOUTH LINE OF LOT 76
NORTH LINE OF LOT 76
UP GUY
TEL. BOX
STATE OF NEW YORK LICENSED LAND SURVEYOR
REVISION/TYPE
/20 REVISE PARCEL BOUNDARY
NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
⊕ SET OR EX. 5/8" REBAR
SURVEY OF
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
(716) 633-4044 FAX 633-4040
Job No. 2013062-SITE A
Date: JUNE 27, 2019
Scale: 1" = 100'
TAX No.

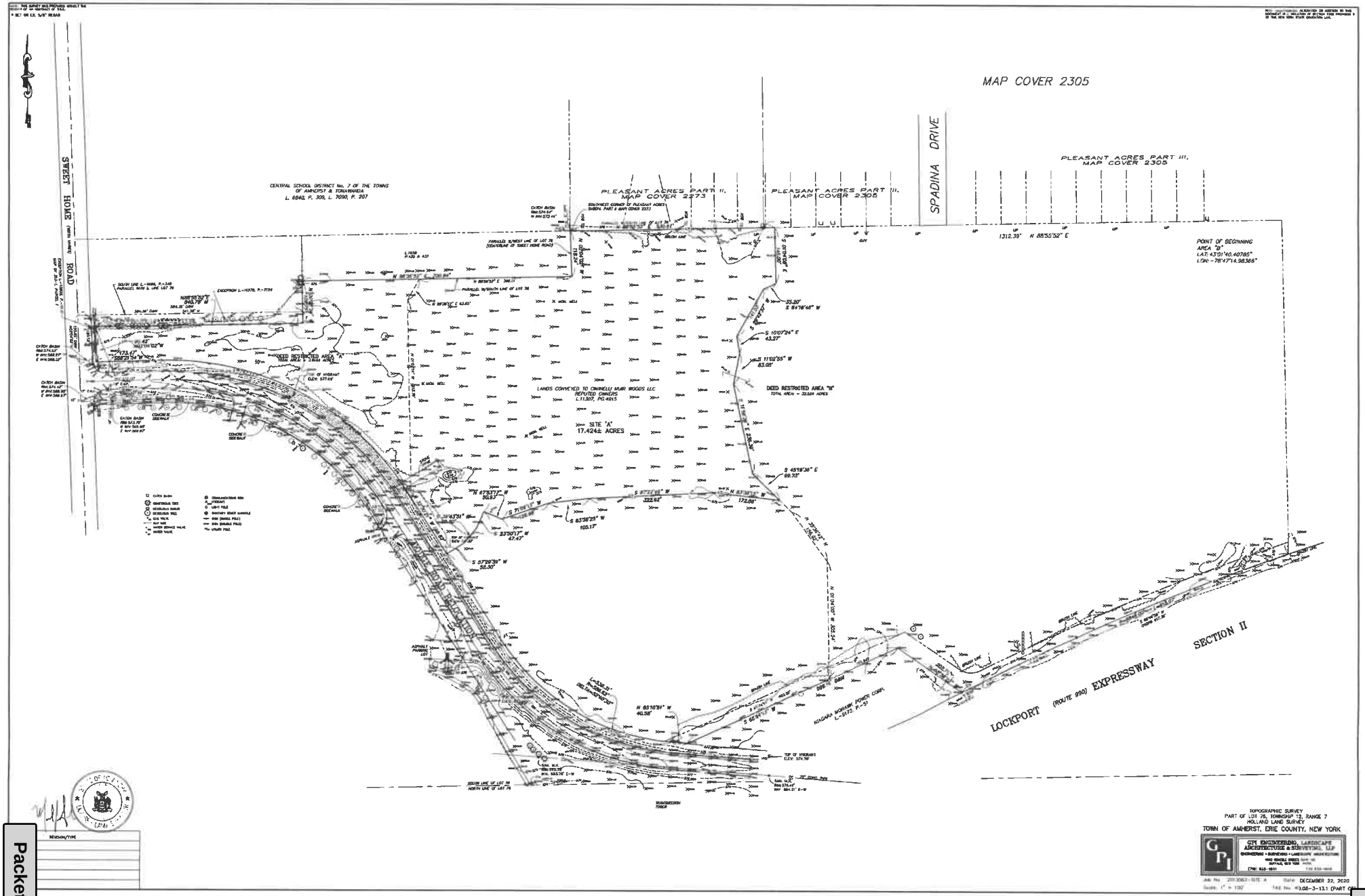
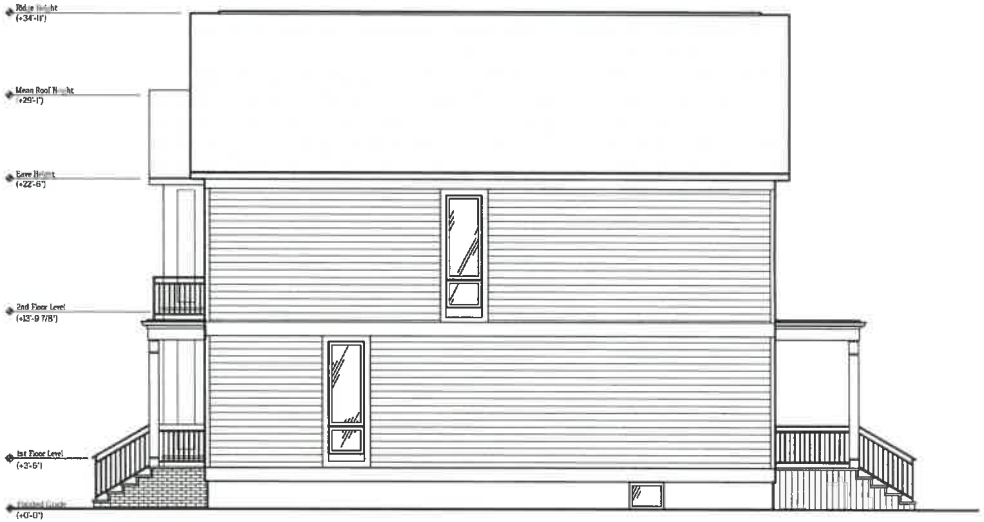

MAP COVER 2305
SPADINA DRIVE
PLEASANT ACRES PART II, MAP COVER 2273
PLEASANT ACRES PART III, MAP COVER 2305
PLEASANT ACRES PART III, MAP COVER 2305
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA L. 6840, P. 309, L. 7090, P. 207
SWEET HOME ROAD
POINT OF BEGINNING AREA 79± LAT: 43°01'40.40785" LON: -78°47'14.98386"
DEED RESTRICTED AREA "A" TOTAL AREA = 2.844 ACRES
DEED RESTRICTED AREA "B" TOTAL AREA = 32.529 ACRES
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, Pg.4915
SITE 'A' 17.424± ACRES
SECTION II
LOCKPORT (ROUTE 990) EXPRESSWAY
NIAGARA MOHAWK POWER CORP. L.9173, P.51
TOPOGRAPHIC SURVEY
PART OF LOT 78, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
DECEMBER 22, 2020

Exhibit 8 – 11" x 17" Size Copies of Elevation Plans for Two-Family Townhomes on Individual Lots, Six-Unit Single-Story Buildings and Four-Story Mixed Use Buildings as Prepared by Sutton Architecture PLLC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



Front Elevation



Right Elevation

1/4" = 1'-0"



Rear Elevation

1/4" = 1'-0"



Left Elevation

1/4" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
Two Family

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



South Elevation

1/8" = 1'-0"



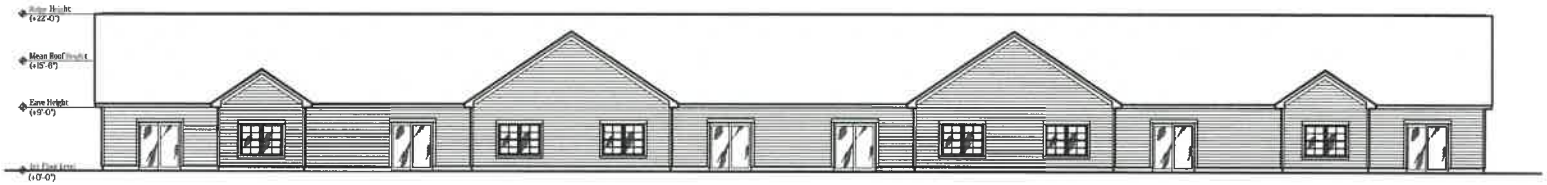
East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"



North Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
6 Unit Multifamily

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



North Elevation

1/8" = 1'-0"



South Elevation

1/8" = 1'-0"

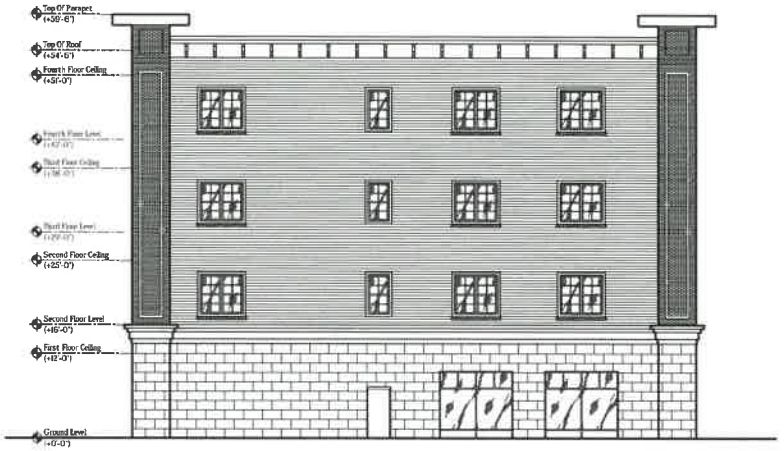
SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-832-7158

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"

SD SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing

4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY

2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Exhibit 9 – Resolution 2020-791 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the Purpose of Issuing an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") for Mixed-Use Development on 1081 North French Road [Site "A" of Muir Woods Property]

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 10/19/20 07:00 PM
Department: Town Clerk
Initiated by: **Kathleen Cooper**
Co-Sponsored by:

DOC ID: 22383 **RESOLUTION 2020-791** **ROLL CALL VOTE (ADOPTED)**

Amendment to the SEQR Findings Statement for "Muir Woods - Site A" (1081 N. French Road)

Amendment to the SEQR Findings Statement for
"Muir Woods - Site A"
[1081 North French Road (NCD); Z-2002-09C]

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, that the requirements of SEQR have been completed, and be it further

RESOLVED, that pursuant to NYS Town Law Section 272-a, the Town Board concurs with the findings of the Planning Board as stated in their resolution of August 20, 2020 to amend the "Development Program" within the SEQR Findings Statement approved by the Town Board on August 5, 2020 to permit "Site A" located at the western end of the overall Muir Woods site located at 1081 North French Road (NCD) to be developed as a mixed-use residential/commercial project instead of flex office/R&D buildings.

RESOLVED, that Ciminelli Muir Woods, LLC has offered to donate to the Town approximately 43 acres of Permanent Open Space located between Site "A" and Site "B" of the Overall Muir Wood Property as depicted on a plan prepared by Greenman-Pedersen Consulting Engineers Inc. dated October 13, 2020;

RESOLVED, the approximately 43 acres of Permanent Open Space includes a portion of the Muir Woods Project with frontage on Dodge Road and is also contiguous to the southern boundary of a portion of the Bucyrus Heights Subdivision and the approximately 43 acres of Permanent Open Space includes extensive existing vegetation and also includes wetlands subject to the jurisdiction of the United States Army Corps of Engineers ("USACE") and wetlands and regulated 100 ft. adjacent areas subject to the jurisdiction of the New York State Department of Environmental Conservation ("NYSDEC"); and

RESOLVED, the Town Board hereby finds as follows: i.) Acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site is consistent with the Conceptual Land Use Plan for the Town contained at Figure 6 of the adopted Bicentennial Comprehensive Plan that designates this acreage as "Recreation, Open Space & Gateways"; and, ii.) Acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site as described herein will result in benefits to the Town and its residents including homeowners in the Bucyrus Heights Subdivision.

RESOLVED, the Town Board has evaluated the potential adverse environmental impacts associated with the acquisition of the 43 acres of Permanent Open Space and determined that such acquisition will not result in any potentially significant adverse environmental impacts.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

RESOLVED, that the Town Board hereby authorizes the acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site as described herein via a donation from Ciminelli Muir Woods, LLC subject to the following terms and conditions:

1. The adoption of this resolution by the Town Board for the purpose of acquiring the Permanent Open Space described herein does not include the Town Board designating the Permanent Open Space as "parkland". The Town Board shall adopt a separate resolution in the future if it determines designating the Permanent Open Space as "parkland" is appropriate.

2. Ciminelli Muir Woods, LLC, its successors and assigns, shall retain an easement with respect to the approximately 43 acres of Permanent Open Space for the purpose of completing required wetland mitigation and wetland mitigation monitoring in accordance with the terms and conditions contained in wetland permits issued by the USACE and the NYSDEC. Upon the USACE and the NYSDEC determining that the required wetland mitigation has been completed to their satisfaction and the expiration of the monitoring period, the easement shall terminate.

3. Prior to the recording of a deed from Ciminelli Muir Woods, LLC to the Town of Amherst for the purpose of conveying ownership of the Permanent Open Space as described herein, a Declaration of Restrictive Covenants shall be recorded at the Erie County Clerk's Office for the restricting the use of the approximately 43 acres of Permanent Open Space in accordance with the terms and conditions of wetland permits issued by the USACE and the NYSDEC and also for the purpose of prohibiting future development of the approximately 43 acres of Permanent Open Space.

4. Ciminelli Muir Woods, LLC shall be responsible for the expenses associated with the preparation of a survey and an Abstract of Title for the Permanent Open Space as described herein and the recording fees for the deed to be recorded at the Erie County Clerk's Office.

5. The documentation required to effectuate the transfer of the Permanent Open Space as described herein and to comply with the above conditions shall be subject to review and approval by the Town Attorney's Office.

6. The Supervisor is authorized to execute any documentation required to effectuate the acquisition of the 43 acres of Permanent Open Space in accordance with the terms and conditions contained in this resolution.

10/06/2020

A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was opened at 7:51 PM.

Sean W. Hopkins, Esq., presented for both resolution #791 and #792 and answered questions from the Board.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

There were no speakers from the public, therefore Supervisor Kulpa moved to adjourn the public hearing and set a Decision Date for October 19th. The motion was seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was adjourned at 8:13 PM.

10/19/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was opened at 7:18 PM.

Sean W. Hopkins, Esq., presented under Res #792.

There were no speakers from the public, therefore Supervisor Kulpa moved to close the public hearing, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was closed at 7:20 PM.

A motion to adopt the amended SEQR Findings Statement was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved via Roll Call vote 4-1 (nay, Bucki).

RESULT:	**ROLL CALL VOTE (ADOPTED) [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Exhibit 10 – Resolution 2020-792 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the Purpose of Approving an Amendment to the Town of Amherst Comprehensive Plan

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 10/19/20 07:00 PM
Department: Town Clerk
Initiated by: **Kathleen Cooper**
Co-Sponsored by:

DOC ID: 22366 **RESOLUTION 2020-792** **ROLL CALL VOTE (ADOPTED)**

Amendment to the Comprehensive Plan for "Muir Woods - Site A" (1081 N. French Road)

Amendment to the Comprehensive Plan for
"Muir Woods - Site A"
[1081 North French Road (NCD); BCPA-2020-02]

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, that the requirements of SEQR have been completed, and be it further

RESOLVED, that pursuant to NYS Town Law Section 272-a and Section 11.6 of the Town Comprehensive Plan, the Town Board concurs with the findings of the Planning Board as stated in their resolution of August 20, 2020 to amend the Conceptual Land Use Plan (Figure 6) and the University Focal Planning Area (Figure 21) of the Comprehensive Plan for "Muir Woods - Site A" located at 1081 North French Road (NCD) to permit mixed-use residential/commercial use on Site A.

For additional information (copy & paste link):
https://share.amherst.ny.us:443/docman/doc_files_list.php?hash=uaaidrb0hpn0mkelzsugvr62

10/06/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was opened at 7:51 PM.

Sean W. Hopkins, Esq., presented for both resolution #791 and #792 and answered questions from the Board.

There were no speakers from the public, therefore Supervisor Kulpa moved to adjourn the public hearing and set a Decision Date for October 19th. The motion was seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was adjourned at 8:13 PM.

10/19/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was opened at 7:07 PM.

Sean W. Hopkins, Esq., presented.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

There were no speakers from the public, therefore Supervisor Kulpa moved to close the public hearing, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was closed at 7:18 PM.

A motion to approve the Negative Declaration was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved 4-1 (nay, Bucki). A motion to adopt the resolution was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved via Roll Call vote 4-1 (nay, Bucki).

RESULT:	**ROLL CALL VOTE (ADOPTED) [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

HSM

February 26, 2021

Ellen Kost, AICP, Assistant Planning Director
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

Re: Proposed Mixed Use Project - Site A of Muir Woods [SP-2021-05]
Portion of 1081 North French Road – Town of Amherst
File No. 10024.12

Dear Ellen:

Attached as Exhibit "1" is a copy of the Amended Wetland Permit [LRB-2001-00067] issued by the United States Army Corps of Engineers ("USACE") on February 25, 2021 authorizing impacts to 6.089 acres of federal wetlands [reduction of 6.921 acres of previously authorized impacts to federal wetlands] in order to accommodate the mixed-use development of Site "A" of the Muir Woods Property in accordance with the project layout depicted on the Concept Site Plan prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC attached as Sheet 1 of 3.

Please feel free to call me at 510-4338 or via e-mail if you have any questions regarding this letter or the Amended Wetland Permit issued by the USACE on February 25, 2021 or the status of the pending request for Major Site Plan Approval for the proposed mixed-use project.

Thank you for your continued cooperation.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: Adam Faeth, Esq., Ciminelli Real Estate Corporation [Via e-mail and mail]
William Severyn, Severyn Development Inc. [Via e-mail and mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]
Scott J. Livingstone, Earth Dimensions, Inc. [Via e-mail]
Jody Celeste, Earth Dimensions, Inc. [Via e-mail]

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Exhibit 1 – Amended Wetland Permit Issued by the United States Army Corps of Engineers dated February 25, 2021

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

February 25, 2021

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Mr. Adam Faeth
Development Manager
Ciminelli Muir Woods LLC
350 Essjay Road Suite 101
Williamsville, NY 14221

Dear Mr. Faeth:

This is in reply to your submittal dated July 20, 2020 in which you requested a modification of Department of the Army Permit No. LRB-2001-00067. The project is located on a 326-acre parcel in the Town of Amherst, Erie County, New York. Specifically, you seek authorization to change the proposed use of an area identified as Site A from research and development and flex office space to a mixed-use commercial and residential development. This includes two 4-story mixed-use buildings, two-family townhouses, 6-unit apartment buildings, and a recreational trail to connect Site A with Site B. Wetland impacts have been reduced from 13.01 acres to 6.089 acres in Site A. A reduction of 6.921 acres. In addition, because of the reconfigured project including the significant reduction of wetland impacts, you have requested that the requirement of off-site compensatory mitigation be removed. Lastly, you have requested that 134 acres of the overall Muir Woods site located northeast of Site B, is donated to the Town of Amherst. This area will remain as open space in perpetuity. Permit compliance with mitigation requirements will remain as it currently is on the 134-acre site as a responsibility of Ciminelli Muir Woods LLC.

A Public Notice was published and coordinated with agencies and adjacent property owners using standard procedures. No comments were received as a result of the Public Notice. Based upon our evaluation, I concluded your request will not result in any unacceptable environmental or navigational impacts. Therefore, I am modifying Department of the Army permit No. LRB-2001-00067 to reflect the changes outlined in your request and identified on the attached drawings. All other terms and conditions of Permit No. LRB-2001-00067 remain in full force and effect.

Sheets 1, 2, and 3 of 3 are hereby made part of Permit No. LRB-2001-00067. Sheet 1 of 3 of this modification is an update to Sheets 2, 3, and 5 of 6 of the original permit. Sheet 2 and 3 of 3 of this modification are updates to Sheet 5 of 6 of the original permit. In addition, the following Special Conditions No. 6 and 8 of Permit No. LRB-2001-00067 are modified so that they no

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

longer include the requirement of off-site compensatory mitigation, as indicated below with the original and the following modified condition:

1. Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 17.83 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site, and 27.37 acres of wetland off-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site and off-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

   Modified Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 10.91 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

2. Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan, and the Proposed Off-Site Wetland Mitigation Plan dated November 16, 2009. The stated mitigation plans are hereby incorporated into and made part of the permit as Attachments 1 and 2. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

   Modified Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan dated November 16, 2009. The stated on-site mitigation plan is hereby incorporated into and made part of the permit as Attachments 1. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Questions pertaining to this matter should be directed to Martin Crosson at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207 or by E-mail at: martin.h.crosson@usace.army.mil

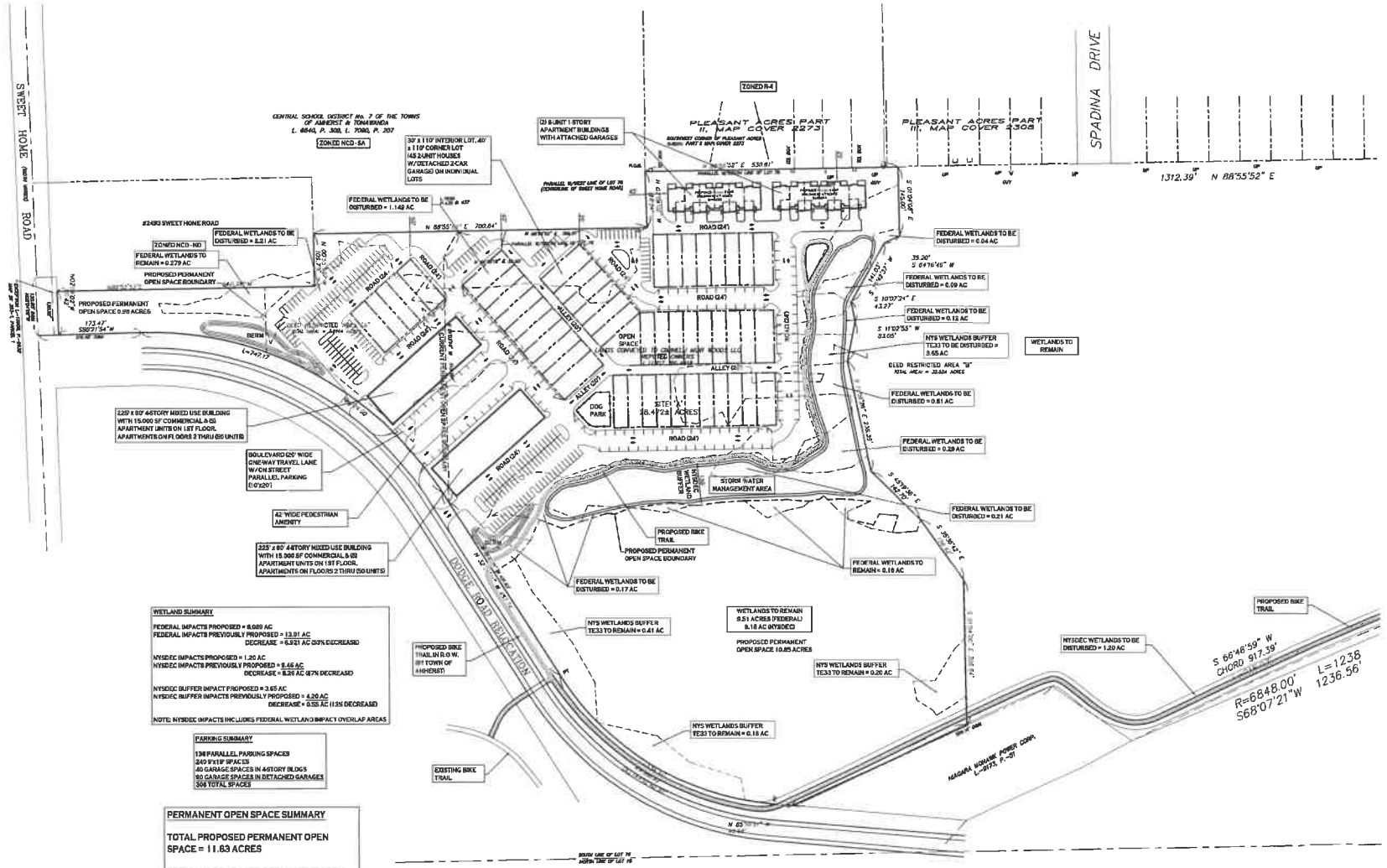
BY AUTHORITY OF THE SECRETARY OF THE ARMY

Steven V. Metivier

For: Mark Scalabrino
Acting Chief, Regulatory Branch

Enclosures

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 1 of 3

© Camina Wood Morris DPC
All rights reserved. Reuse of these documents without the expressed written permission of Camina Wood Morris DPC is prohibited. Violations of article 145 sections 7209(4) and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

Camina Wood Morris
467 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0081

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 7/1/20
Drawn by: C. Wood
Scale: As Noted

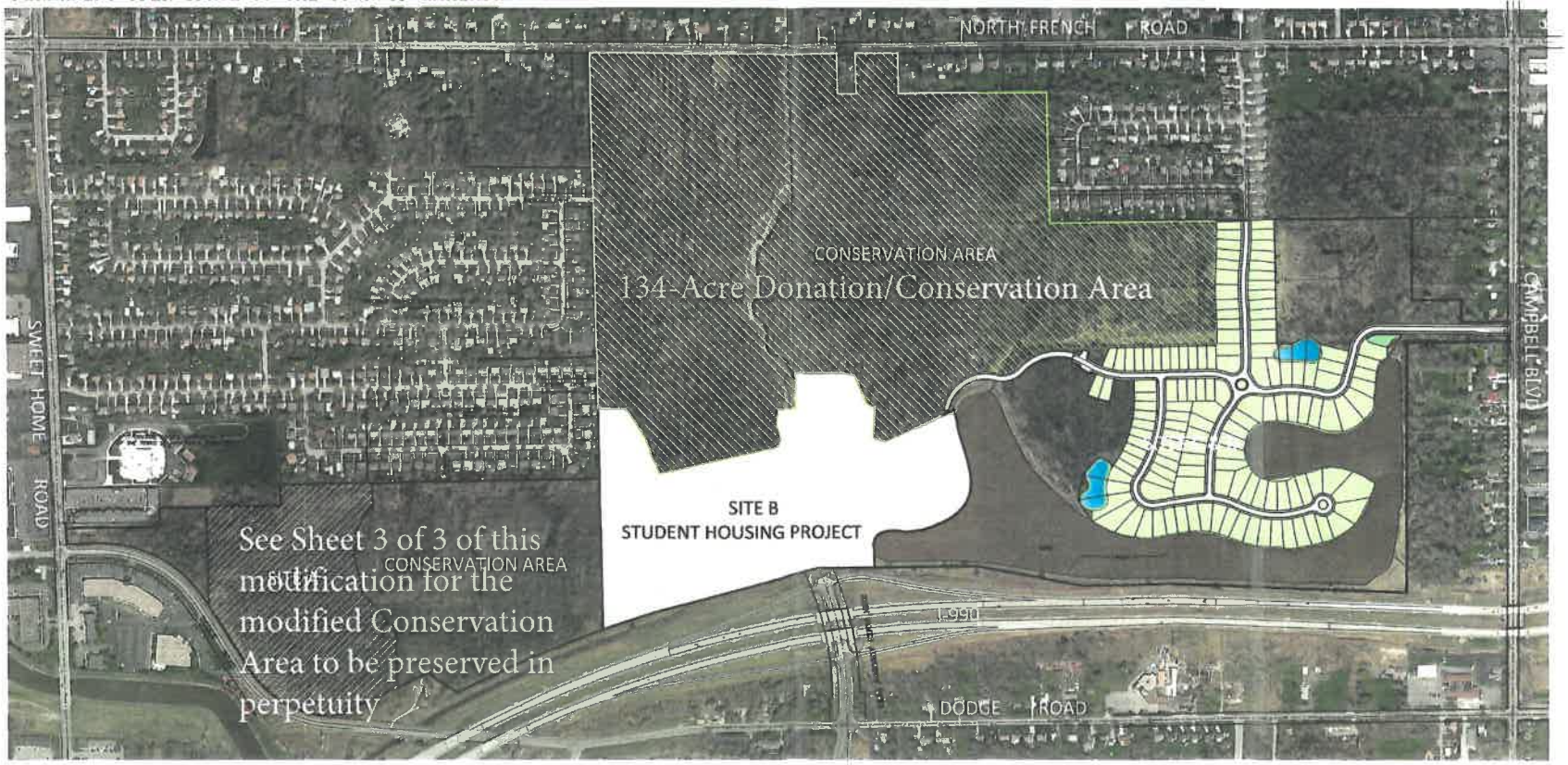
DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100
Project no.: 19.192

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

MUIR WOODS OVERALL PROJECT AREA

PROPOSED DONATION OF APPROXIMATELY 134 ACRES OF
PERMANENT OPEN SPACE TO THE TOWN OF AMHERST

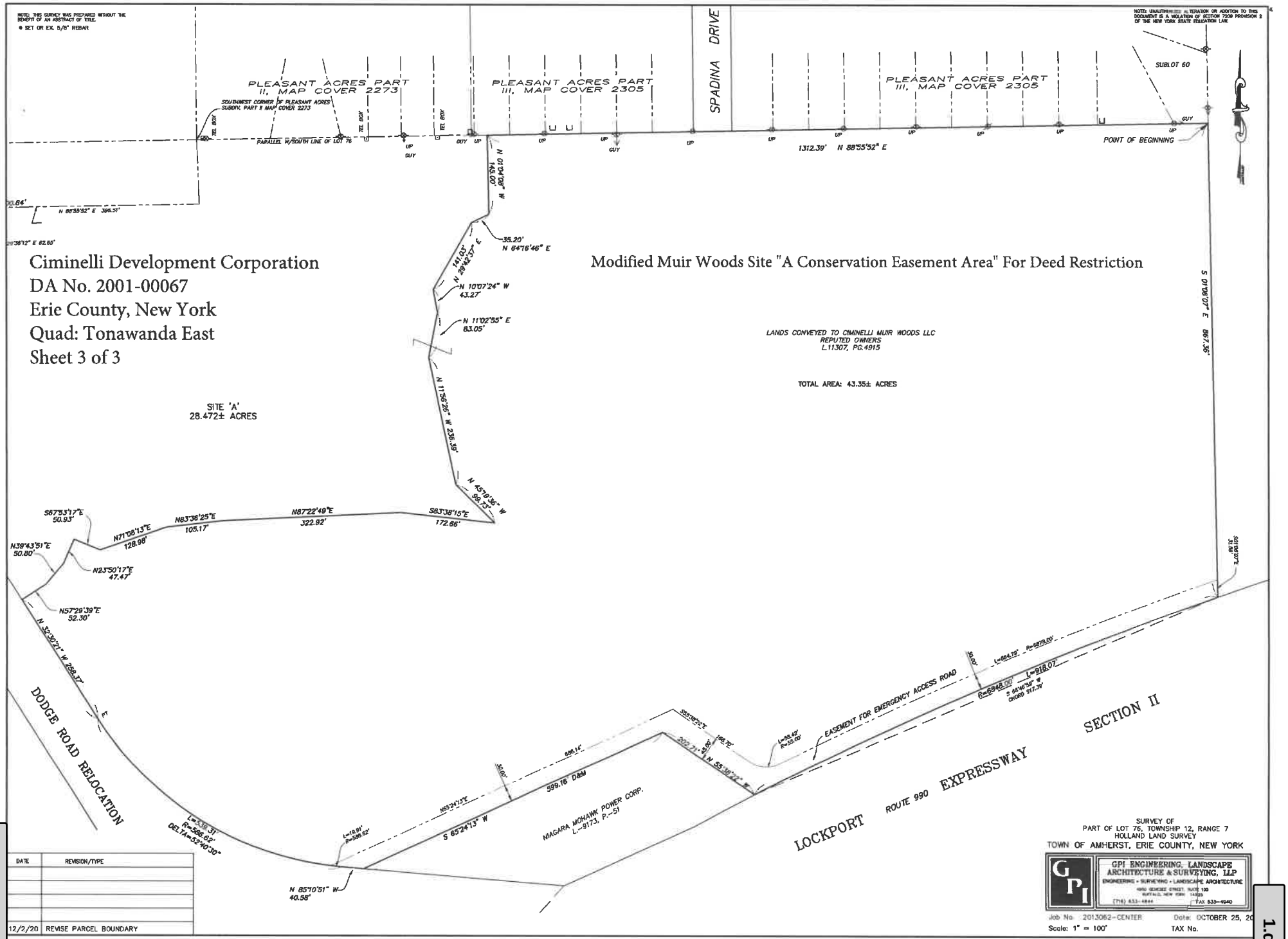


CONSERVATION AREA TO BE DONATED

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 2 of 3

GPI GREENMAN-PEDERSEN, INC. CONSULTING ENGINEERS ENGINEERING • SURVEYING • PLANNING

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

HSM

December 26, 2020

Ellen Kost, AICP, Assistant Planning Director
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

Re: Proposed Mixed Use Project - Site A of Muir Woods [Z-2002-09C & BCPA-2020-02]
Portion of 1081 North French Road
Applicant/Project Sponsor: Ciminelli Real Estate Corporation
File No. 10024.12

Dear Ellen:

Attached as Exhibit "1" is a copy of the Amended Wetland Permit [Permit No. 9-1422-00398/0001] issued by the New York State Department of Environmental Conservation ("NYSDEC") on December 24, 2020 authorizing the impacts to NYSDEC Freshwater Wetlands and the associated regulated 100 ft. Adjacent Area in order to accommodate the mixed-use development of Site "A" of the Muir Woods Property in accordance with the project layout depicted on the Concept Site Plan prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC.

Attached as Exhibit "2" is a copy of the Public Notice of the United States Army Corps of Engineers ("USACE") dated December 21, 2020. The comment period on the pending requested Amended Wetland Permit being sought from the USACE expires on January 11, 2021. The Project Sponsor anticipates receiving an Amended Wetland Permit from the USACE by the end of January.

Please feel free to call me at 510-4338 or via e-mail if you have any questions regarding this letter or the Amended Wetland Permit issued by the NYSDEC on December 24, 2020 or the status of the mixed-use project.

Thank you for your continued cooperation.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: Adam Faeth, Esq., Ciminelli Real Estate Corporation [Via e-mail and mail]
William Severyn, Severyn Development Inc. [Via e-mail and mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Scott J. Livingstone, Earth Dimensions, Inc. [Via e-mail]
Jody Celeste, Earth Dimensions, Inc. [Via e-mail]

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Exhibit 1 – Amended Wetland Permit Issued by the NYS Department of Environmental Conservation dated December 24, 2020

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7165 I F: (716) 851-7168
www.dec.ny.gov

December 24, 2020

Mr. Adam Faeth
Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Muir Woods Development – "Site A"
Permit Transmittal Letter
Permit No. 9-1422-00398/00001

Dear Mr. Faeth:

Enclosed is your permit which was issued in accordance with applicable provisions of the Environmental Conservation Law. The permit is valid for only that project, activity or operation expressly authorized. If modifications are desired after permit issuance, you must submit the proposed revisions and receive written approval from the Permit Administrator prior to initiating any change. If the Department determines that the modification represents a material change in the scope of the authorized project, activity, operation or permit conditions, you will be required to submit a new application for permit.

Please review all permit conditions carefully. In particular, identify your initial responsibilities under this permit in order to assure timely action if required. Since failure to comply precisely with permit conditions may be treated as a violation of the environmental conservation law, you are requested to provide a copy of the permit to the project contractor, facility operator, and other persons directly responsible for permit implementation (if any).

If you have any questions, please contact this office at the above address.

Respectfully,
David S. Denk
Regional Permit Administrator

Enclosure
ecc: NYSDEC Law Enforcement
Maureen Brady, NYSDEC Office of General Counsel
Mr. Chuck Rosenburg, NYSDEC Division of Fish and Wildlife
Mr. Martin Crossen, USACOE
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Exhibit 2 – Public Notice as Published by the United States Army Corps of Engineers dated December 21, 2020

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Public Notice

U.S. Army Corps
of Engineers
Buffalo District
CELRB-TDR

Applicant: Ciminelli Real Estate Corporation

Published: December 21, 2020
Expires: January 11, 2021

Application No: 2001-00067 (2020 Site A Modification)
Section: New York

All written comments should reference the above Application No. and be addressed to:
Attn: Martin Crosson
U.S. Army Corps of Engineers, Buffalo District
1776 Niagara Street
Buffalo, NY 14207

THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.

Application for Permit Modification under Authority of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (33 U.S.C. 1344).

APPLICANT: Ciminelli Real Estate Corporation/Ciminelli Muir Woods, LLC ("Ciminelli"). Ciminelli has requested a modification to an existing permit described below.

WATERWAY & LOCATION: approximately 98 acres of Federal wetlands, a 32 acre lake and approximately 4.4 acres of tributaries have been previously identified as jurisdictional on the 326 acre parcel permitted for development known as "Muir Woods". The permitted project is located in the Town of Amherst, County of Erie and State of New York.

LATITUDE & LONGITUDE: Latitude North: 43°01'46"
Longitude West: -78°46'33"

EXISTING CONDITIONS: On May 14, 2012 a permit was issued to Ciminelli for placement of fill into 17.83 acres of Federal wetland and 1.29 acres of federally regulated tributaries for the multi-use development known as "Muir Woods". The current jurisdictional determination remains valid until the existing permit expiration date of November 30, 2024.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

PROPOSED MODIFICATION: Ciminelli proposes to modify the existing permit to change the proposed use of the area identified as Site A of the "Muir Woods" site. Under the existing permit, Site A was to consist of research and development and flex office space. The applicant is currently proposing to change the previously proposed use of Site A to a mixed-use commercial and residential development. The concept plan for the proposed project includes two 4-story mixed-use buildings, in addition to two-family townhouses and 6-unit apartment buildings. Also in association with the proposed changes, a new recreational bike/walking trail that will enter Site A from the southeast connection with Site B ultimately connecting to the rest of the on-site trail system and the Town's recreational trail that connects to the North Campus of the University of Buffalo and the Ellicott Creek Trailway system. The applicant has indicated these modifications are necessary due to changes in economic conditions in the real estate market, and also due to their consideration of input from the Town of Amherst municipal boards and the local public.

PROJECT PURPOSE
Basic: Construction of a multi-use development.
Overall: Modification of an existing permitted Ciminelli construction project by changing the proposed use of Site A of the Muir Woods site to the planned development from Research and Development and flex office space to mixed-use commercial and residential development with associated amenities on Site A due to market changes and consideration of the Town of Amherst municipal boards and local public input.

Water Dependency Determination: As with the existing permit, this newly proposed modification resulting in changes in project purpose and use within Site A, impacts to waters of the US have been determined to not be water dependent. Therefore, alternatives that do not require impacts to US waters are presumed to exist. The applicant adequately demonstrated that US waters have been avoided and minimized to the greatest extent practicable. As a result, wetland impacts have been reduced from the currently permitted 13.010 acres to 6.089 in Site A.

Mitigation: The currently permitted wetland impact in Site A is 13.010 acres. The new proposed impact to Site A wetlands are 6.089 acres resulting in a reduction in wetland impacts by 6.921 acres. As a result of the decrease in wetland impacts in Site A, the previously approved off-site mitigation consisting of creation of 27.37 acres of wetland habitat in the Town of Newstead has been proposed to be removed as a permit requirement. The previously approved and currently permitted on-site mitigation for Site A consisting of creation of approximately 10.47 acres of wetland remains unchanged. In addition, the increase in avoided wetland area and the reduction in developed area proposed in Site A results in an increase to the amount of wetland area to be preserved on-site as permanent open space from 3.91 acres to 11.83 acres.

Location and details of the above described work are shown on the attached maps and drawings.

Comments or questions pertaining to the work described in this notice should reference the Application Number and be directed to the attention of Martin Crosson, who can be contacted at the above address, by calling (716) 879-4346, or by e-mail at: martin.h.crosson@usace.army.mil. A lack of response will be interpreted as meaning that there is no objection to the work as proposed.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Comments submitted in response to this notice will be fully considered during the public interest review for this permit application. All written comments will be made a part of the administrative record which is available to the public under the Freedom of Information Act. The Administrative Record, or portions thereof, may also be posted on a Corps of Engineers internet web site. Due to resource limitations, this office will normally not acknowledge the receipt of comments or respond to individual letters of comment.

Any individual may request a public hearing by submitting their written request, stating the specific reasons for holding a hearing, in the same manner and time period as other comments.

Pursuant to Section 106 of the National Historic Preservation Act, this proposed modification to Site A does not constitute an action that requires additional consultation with the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP). In a letter dated September 10, 2009 NYSOPRHP indicated the proposed project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places. The proposed modification does not change the previously considered permit area or determination.

Pursuant to Section 7 of the Endangered Species Act (16 U.S.C. 1531), the Corps of Engineers has concluded consultation with the USFWS to evaluate potential impacts to the northern long-eared bat (NLEB). The Corps has previously determined that the project may affect the NLEB, but that the scope of the work falls within the parameters of the 4(d) Rule. Therefore, consultation has concluded. The existing permit for the project included the entire Site A area. This proposed modification does not constitute an action that requires further coordination or consideration under the Endangered Species Act (16 U.S.C. 1531).

Pursuant to Section 401(d) of the Clean Water Act, A Water Quality Certification will be issued or waived for this proposed project modification by the State of New.

Public hearings for the purposes of the Corps permit program will be held when the District Commander determines he can obtain additional information, not available in written comments, that will aid him in the decision-making process for this application. A Corps hearing is not a source of information for the general public, nor a forum for the resolution of issues or conflicting points of view (witnesses are not sworn, and cross examination is prohibited). Hearings will not be held to obtain information on issues unrelated to the work requiring a permit, such as property ownership, neighbor disputes, or the behavior or actions of the public or applicant on upland property not regulated by the Department of the Army. Information obtained from a public hearing is given no greater weight than that obtained from written comments. Therefore, you should not fail to make timely written comments because a hearing might be held.

The decision to approve or deny this permit modification request will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

be relevant to the proposal will be considered including the cumulative effects thereof; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

SIGNED

Diane C. Kozlowski
Chief, Regulatory Branch

NOTICE TO POSTMASTER: It is requested that this notice be posted continuously and conspicuously for 20 days from the date of issuance.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Traffic Impact Study

for the proposed

Muir Woods - Site A
Proposed Mixed-Use Project
1081 North French Road

Town of Amherst
Erie County, New York
August 3, 2020

Project No. 40027

Prepared For:

Ciminelli Real Estate Corporation
350 Essjay Road
Williamsville, New York 14221

Prepared By:

SRF Associates
www.srfa.net
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TABLE OF CONTENTS

LIST OF TABLES i
LIST OF FIGURES ii
LIST OF APPENDICES ii
LIST OF REFERENCES ii
EXECUTIVE SUMMARY iii

I. INTRODUCTION 1
II. LOCATION 1
III. EXISTING HIGHWAY SYSTEM 1
IV. EXISTING TRAFFIC CONDITIONS 2
A. Peak Intervals for Analysis 2
B. Existing Traffic Volume Data 2
C. Field Observations 2
D. Existing Crash History Analysis 2
V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH 3
VI. PROPOSED DEVELOPMENT 3
A. Description 3
B. Site Traffic Generation 3
C. Site Traffic Distribution 4
VII. FULL DEVELOPMENT VOLUMES 4
VIII. CAPACITY ANALYSIS 5
IX. CONCLUSIONS 7
X. FIGURES 7

LIST OF TABLES

TABLE I EXISTING HIGHWAY SYSTEM 1
TABLE II SITE GENERATED TRIPS 4
TABLE III CAPACITY ANALYSIS RESULTS 6

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

LIST OF FIGURES

FIGURE 1 SITE LOCATION & STUDY AREA
FIGURE 2 LANE GEOMETRY & AVERAGE DAILY TRAFFIC
FIGURE 3 PEAK HOUR VOLUMES – 2020 ADJUSTED BASE VOLUMES
FIGURE 4 PEAK HOUR VOLUMES – 2022 BACKGROUND CONDITIONS
FIGURE 5 CONCEPT SITE PLAN
FIGURE 6 TRIP DISTRIBUTION
FIGURE 7 SITE GENERATED TRIPS
FIGURE 8 PEAK HOUR VOLUMES – FULL DEVELOPMENT CONDITIONS

LIST OF APPENDICES

A1. COLLECTED TRAFFIC VOLUME DATA
A2. MISCELLANEOUS TRAFFIC DATA AND CALCULATIONS
A3. LOS CRITERIA/DEFINITIONS
A4. LEVEL OF SERVICE CALCULATIONS – 2020 ADJUSTED BASE CONDITIONS
A5. LEVEL OF SERVICE CALCULATIONS – 2022 BACKGROUND CONDITIONS
A6. LEVEL OF SERVICE CALCULATIONS – FULL DEVELOPMENT CONDITIONS

LIST OF REFERENCES

1. Highway Capacity Manual, Sixth Edition. Transportation Research Board. National Research Council, Washington, DC. 2016.
2. New York State Department of Transportation (NYSDOT) Traffic Data Viewer. 2020. Retrieved from https://www.dot.ny.gov/tdv.
3. Trip Generation, Tenth Edition. Institute of Transportation Engineers. Washington, DC. 2017.
4. Traffic Impact Study for Submittal to Town of Amherst The Hub Amherst. Kimley-Horn of New York, P.C. 2017.
5. Traffic Impact Study for Access Modification Report For Break in Access Application For Northerly Extension of John James Audubon Parkway As A Town of Amherst Roadway. GPI Engineering. 2020.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to identify and evaluate the potential traffic impacts associated with the proposed development of Site "A" of the overall Muir Woods Property as a mixed-use project. Site "A" of the Muir Woods Property consists of approximately 28.47 acres located 1081 North French Road in the Town of Amherst, Erie County, New York ("Project Site"). The Applicant is seeking to amend the Amended Findings Statement issued by the Town of Amherst Town Board ("Town Board") pursuant to the State Environmental Quality Review Act ("SEQRA") on August 5, 2019 to accommodate a change of the previously proposed use of the Project Site as 237,000 sq. ft. of flex office and R&D space to a mixed-use project as described in this report and depicted on the Concept Site Plan prepared by Carmina Wood Morris DPC.

The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified and mitigating measures, if any, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes existing base traffic conditions, projects background traffic flow including area growth and/or additional traffic resulting from new development in the area, and determines the traffic operations that would result the full development of the proposed mixed-use project.

The Project Site consists of vacant land and is located along the north side of Dodge Road, west of Interstate 990, in the Town of Amherst, Erie County, New York. Surrounding the proposed development is residential development and Heritage Heights Elementary School to the north, vacant land to the east, offices to the south, and a medical plaza to the west. Land uses in the vicinity of the Project Site include residential, office, medical, and educational uses. The study area consists of the following intersections:

- Dodge Road/Sweet Home Road
- Dodge Road/ North Forest Road

Access to the Project Site will be provided via three proposed driveways connecting to Dodge Road as follows: one full access driveway located at the southerly/easterly end of the Project Site, one full access driveway located at the northerly/westerly end of the Project Site, and a driveway separated by a 42 ft. wide median which has been designed to be a pedestrian amenity area (i.e. one driveway is enter-only and the other is exit only).

Construction of the proposed mixed-use project is anticipated to be completed within two years. Town of Amherst officials were contacted to discuss projects within the study area that are under construction and/or approved. Three projects were identified that are either under construction, approved for construction, or completed after data was collected in 2017: The Hub Amherst at 2949 North Forest Road, a student housing community on Site "B" of the overall Muir Woods Property, and a mixed-use building at 315 Campbell Boulevard.

Traffic related to full build out of The Hub Development was used to develop the 2020 base traffic volumes. Additional traffic related to the proposed student housing community on Site "B" of the Muir Woods Property has been added to the base traffic volumes at the study area intersections. To account for normal increases in background traffic growth including the mixed-use building 315 Campbell @ Dodge, as well as any other unforeseen developments in the project study area, a growth rate of 1% per year has been applied to the base traffic volumes. This growth rate is

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

based upon historical traffic growth derived from NYSDOT traffic volume data for the area as well as consideration of the approved projects previously mentioned.

CONCLUSIONS & RECOMMENDATIONS

This study evaluates the potential traffic impacts resulting from the Muir Woods Site A Development. This study also provides the Town of Amherst and other governmental agencies with detailed information providing a hard look at potential traffic impacts for the purpose of the environmental review of the proposed mixed-use project pursuant to the State Environmental Quality Review Act ("SEQRA").

Based upon the analyses, the results indicate that the proposed mixed-use project will not have significant adverse traffic impacts on the existing roadway network. The following sets forth conclusions based upon the results of the analyses:

1. The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM peak hour and 106 entering/82 exiting vehicle trips during the PM peak hour.

2. The proposed mixed-use project will not result in any potentially significant adverse traffic impacts to the study area intersections. No mitigation is warranted at the study area intersections as a result of the proposed mixed-use project.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

I. INTRODUCTION

The purpose of this report is to identify the potential traffic impacts associated with the proposed Muir Woods Site A Development in the Town of Amherst, Erie County, New York. The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified and mitigating measures, if any, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes 2020 existing base traffic conditions, projects background traffic flow including area growth and/or additional traffic resulting from new development in the area, and determines the traffic operations that would result from full development of the proposed project.

II. LOCATION

The proposed mixed-use project is located along the north side of Dodge Road, west of Interstate 990, in the Town of Amherst, Erie County, New York. The site is currently vacant. Surrounding the proposed development is residential development and Heritage Heights Elementary School to the north, vacant land to the east, offices to the south, and a medical plaza to the west. Land uses in the vicinity of the project site include residential, office, medical, and educational uses. The study area consists of the following existing intersections:

- Dodge Road/Sweet Home Road
- Dodge Road/ North Forest Road

The site location and study area are shown in **Figure 1** (all figures are included at the end of the report).

III. EXISTING HIGHWAY SYSTEM

The following information outlined in **Table I** provides a description of the existing roadway network within the project study area.

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY	ROUTE[1]	FUNC. CLASS[2]	JURIS.[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. AADT[6]	AADT SOURCE[7]
Dodge Road (from Sweet Home Road to Campbell Road)	CR 45	Minor Arterial	ECDPW	40	2	Two-way/ East-West	7,058	NYSDOT (2016)
Sweet Home Road (from N Ellicott Road to Commerce Drive)	CR 301	Minor Arterial	ECDPW	45	4	Two-way/ North-South	22,713	NYSDOT (2016)
Sweet Home Road (from Commerce Drive to N French Road)	CR 301	Minor Arterial	ECDPW	45	4	Two-way/ North-South	16,008	NYSDOT (2016)

Notes:

1. "CR" = County Route.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

2. State Functional Classification of Roadway: Urban.
3. Jurisdiction: "ECDPW" = Erie County Department of Public Works.
4. Posted or Statewide Limit in Miles per Hour (MPH).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated Annual Average Daily Traffic (AADT) in Vehicles per Day (vpd).
7. "NYSDOT" = New York Department of Transportation. Source (Year). Obtained volumes represent the most recent available data.

Figure 2 illustrates the lane geometry at each of the study intersections and the AADT/ADT volumes on the study roadways.

IV. EXISTING TRAFFIC CONDITIONS

A. Peak Intervals for Analysis

Given the functional characteristics of the land uses proposed for the Project Site (residential, office and retail), the peak hours selected for analysis are the weekday commuter AM and PM peaks. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. Existing Traffic Volume Data

Historical weekday commuter AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak hour volumes were obtained from the Greater Buffalo Niagara Regional Transportation Council (GRBNRTC) and the Traffic Impact Statement for The Hub Amherst at the study area intersections, as noted in *Section II*, on Tuesday February 28, 2017 and Monday, July 17, 2017. The peak hour traffic periods generally occurred between 7:30-8:30 AM and 4:45-5:45 PM at the study intersections. Given the current traffic situation due to business restrictions resulting from COVID-19, it is not possible to collect more current traffic data.

All turning movement count data was collected on a typical weekday. The traffic volumes were reviewed to confirm the accuracy and relative balance of the collective traffic counts. Traffic volumes were adjusted to reflect 2020 traffic conditions by adding traffic associated with any developments (e.g. The Hub residential development) that have been constructed or are currently under construction since the data collection in 2017. The 2020 weekday AM and PM peak hour base volumes used for analysis purposes in this study are reflected in **Figure 3**.

C. Field Observations

Signal timing information was obtained by the Town of Amherst at the signalized intersection within the study area to determine peak hour phasing plans and phase durations during each interval.

D. Existing Crash History Analysis

Crash data has been requested from local agencies and an analysis will be provided once all data is received.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of the proposed mixed-use project is anticipated to be completed within two years. Town of Amherst officials were contacted to discuss projects within the study area that are under construction and/or approved. Three projects were identified that are either under construction, approved for construction, or completed after data was collected in 2017: The Hub Amherst at 2949 North Forest Road, a student housing project on Site "B" of the Muir Woods Property , and a mixed-use building at 315 Campbell Boulevard.

Traffic related to full build out of The Hub Development was used to develop the 2020 base traffic volumes. Additional traffic related to the proposed student housing project on Site "B" of the Muir Woods Property has been added to the base traffic volumes at the study area intersections. To account for normal increases in background traffic growth including the mixed-use building 315 Campbell Boulevard, as well as any other unforeseen developments in the project study area, a growth rate of one percent (1%) per year has been applied to the base traffic volumes. This growth rate is based upon historical traffic growth derived from NYSDOT traffic volume data for the area as well as consideration of the approved projects previously mentioned. The 2022 background traffic volumes are depicted in **Figure 4** for the build out time period.

VI. PROPOSED DEVELOPMENT

A. Description

The proposed mixed-use project will construct:

- (45) 2-unit attached townhomes
- (2) 6-unit 1-story apartment buildings
- (2) 4-story mixed-use buildings with (12) commercial units and (5) apartment units on the 1st floor; apartments on floors 2-4 (50 units total)

An estimated 1,875 square feet (SF) per commercial tenant for the 12 commercial units. Of the 12 units, it is estimated that 8 units will consist of retail use and 4 units will consist of general office space. Access to the Project Site will be provided via three proposed driveways connecting to Dodge Road as follows: one full access driveway located at the southerly/easterly end of the site, one full access driveway located at the northerly/westerly end of the site, and a one-way couple separated by a 42 ft wide pedestrian amenity area (i.e. one driveway is enter-only and the other is exit only).

B. Site Traffic Generation

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation, 10th Edition is used as a reference for this information. Data published by the ITE is the nationally accepted standard for generating trips for new uses. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of adjacent street traffic, in this case, the weekday AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis. All trip generation information has been included in the appendix.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Table II summarizes the volume of projected site trips during the weekday AM and PM peak hours.

TABLE II
SITE GENERATED TRIPS

DESCRIPTION	ITE LUC	SIZE/ UNITS	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Houses w/ 2- Car Detached Garage	210	90 units	17	50	56	33
1-Story Apartments	220	12 units	1	5	6	3
4-Story Apartment Units	221	100 units	9	25	27	17
General Office Building	710	15,000 SF	14	2	2	14
Variety/Retail Store	814	15,000 SF	6	3	15	15
		Total Site Trips	***47***	***85***	***106***	***82***

Notes:
1. "ITE LUC" = ITE Land Use Code.

The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM weekday peak hour and 106 entering/82 exiting vehicle trips during the PM weekday peak hour.

C. Site Traffic Distribution

The cumulative effect of site traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drive serving the Project Site.

The proposed arrival/departure distribution of traffic to be generated at this site is considered a function of several parameters, including the following:

- Employment centers in the local area and region;
- Population centers in the local area and region;
- Proximity and access to Interstate 990;
- Proximity to the North Campus of the University at Buffalo;
- Site access drive locations and internal roadway circulation;
- Existing highway network;
- Existing traffic patterns; and
- Existing traffic conditions and controls

Based on these parameters, **Figure 6** shows the anticipated trip distribution patterns for the proposed development. **Figure 7** illustrates the peak hour of site-generated traffic based on those percentages for the proposed development.

VII. FULL DEVELOPMENT VOLUMES

The projected design hour traffic volumes were developed for the weekday AM and PM peak hours by combining the future background traffic conditions (Figure 4), and projected site generated for the proposed development (Figure 7) to yield the total traffic conditions expected under full development conditions. **Figure 8** illustrate the total weekday AM and PM peak hour

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

volumes anticipated for the proposed mixed-use project under full development conditions respectively.

VIII. CAPACITY ANALYSIS

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis typically focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the best conditions and LOS "F" the worst. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendix.

The standard procedure for capacity analysis of signalized and un-signalized intersections is outlined in the Highway Capacity Manual (HCM 2016) published by the Transportation Research Board. Traffic analysis software, Synchro 10, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service (LOS) based on the HCM as an indicator of how well intersections operate.

Existing base and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The future traffic conditions generated by the proposed development under Phase I and full build out were analyzed to assess the operations of the intersections in the study area. Capacity results for existing, background, and full development conditions are listed in **Table III**. The discussion following the table summarizes capacity conditions. All capacity analysis calculations are included in the Appendices.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TABLE III: CAPACITY ANALYSIS RESULTS

INTERSECTION	2020 BASE CONDITIONS				2022 BACKGROUND CONDITIONS				FULL BUILD CONDITIONS			
	AM		PM		AM		PM		AM		PM	
Sweet Home Road / Commerce Drive/Dodge Road (S)												
EB left - Commerce Road	D	40.5	C	30.3	D	41.1	C	30.9	D	41.1	C	32.1
EB thru/right - Commerce Drive	B	14.2	E	77.7	B	14.3	F	88.5	B	15.0	F	100.2
WB left- Dodge Road	C	27.7	F	191.3	C	28.0	F	*	C	29.3	F	*
WB thru/right - Dodge Road	E	76.4	B	19.3	F	86.8	B	19.9	F	106.8	C	22.9
NB left - Sweet Home Road	C	31.5	C	32.4	C	33.3	C	34.3	C	33.3	C	34.8
NB thru/right - Sweet Home Road	C	20.9	B	18.8	C	21.0	B	19.2	C	21.2	C	20.5
SB left - Sweet Home Road	B	17.6	B	10.1	B	19.0	B	10.3	C	21.2	B	11.9
SB thru/right - Sweet Home Road	C	30.0	C	32.2	C	30.8	C	33.8	C	30.7	C	33.7
Overall LOS	***C***	***34.0***	***D***	***37.6***	***D***	***36.3***	***D***	***40.3***	***D***	***40.4***	***D***	***47.7***
Dodge Road / Proposed North Driveway (U)												
SEB thru/left - Dodge Road	N/A				N/A				A	8.3	A	8.5
SWB - Proposed North Driveway									B	14.9	B	14.9
Dodge Road / Proposed Middle Exit Only Driveway (U)												
SWB - Proposed Middle Exit Only Driveway	N/A				N/A				B	13.3	B	13.4
Dodge Road / Proposed South Driveway (U)												
SEB thru/left - Dodge Road	N/A				N/A				A	8.2	A	8.5
SWB - Proposed South Driveway									C	16.2	C	16.1
Dodge Road / North ForestRoad (U)												
WB thru/left - Dodge Road	A	9.2	A	8.3	A	9.3	A	8.4	A	9.5	A	8.6
NB - North Forest Road	D	27.5	D	28.6	D	31.1	E	35.9	E	39.6	F	59.6

NOTES:

1. A(2.8) = Level of Service (Delay in seconds per vehicle)
2. (U) = Unsignalized
3. N/A = Approach does not exist and/or was not analyzed during this condition
4. F(*) = Delay greater than 200 seconds per vehicle

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Sweet Home Rd/Commerce Drive-Dodge Road

All approaches operate at LOS "D" or better during the AM and PM peak hours under all conditions with the exception of the westbound through/right turn movement which operates at LOS "F" under background and future conditions during the AM peak hour; in addition the westbound left turn and the eastbound through/right turn movements also operate at LOS "F" under background conditions during the PM peak hour. The southbound left turn movement is projected to change from LOS "B" to "C" between background and full development conditions during the AM peak hour. No other changes in LOS are projected as a result of the development. The existing traffic signal is fully actuated and will automatically adjust, within the set parameters, to accommodate the additional traffic. No mitigation is warranted or recommended at this intersection as a result of the proposed development.

Dodge Road/Proposed Driveways

All of the proposed driveways are projected to operate at LOS "C" or better during both peak hours under full development conditions.

Dodge Road/North Forest Road

All approaches operate at LOS "D" or better during the AM peak hour under the existing base and background conditions. During the PM peak hour, the northbound approach operates at LOS "E" under background conditions. Under full development conditions, the northbound approach is projected to operate at LOS "E" during the AM peak hour and LOS "F" with delays on the order of 59.6 seconds per vehicle during the PM peak hour. The development will add 7(16) northbound left turns during the AM(PM) peak hours. The traffic volumes that are exiting northbound North Forest Road are relatively small and a traffic signal is not warranted at this location. No mitigation is warranted or recommended at this intersection as a result of the proposed development.

IX. CONCLUSIONS

This study evaluates the potential traffic impacts resulting from the Muir Woods Site A Development. This study also provides the Town of Amherst and other governmental agencies with detailed information providing a hard look at potential traffic impacts for the purpose of the environmental review of the proposed mixed-use project pursuant to the State Environmental Quality Review Act ("SEQRA").

Based upon the analyses, the results indicate that the proposed mixed-use project will not have significant adverse traffic impacts on the existing roadway network. The following sets forth conclusions based upon the results of the analyses:

1. The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM peak hour and 106 entering/82 exiting vehicle trips during the PM peak hour.

2. The proposed mixed-use project will not result in any potentially significant adverse traffic impacts to the study area intersections. No mitigation is warranted at the study area intersections as a result of the proposed mixed-use project.

X. FIGURES

Figures 1 through 8 are included on the following pages.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

FIGURE 1 - SITE LOCATION AND STUDY AREA



Legend

- Study Intersection
- Proposed Driveway
- Site Location
- Study Area

PROPOSED MUIR WOODS SITE A DEVELOPMENT

TOWN OF AMHERST, NY

0 250 500 1000

Feet

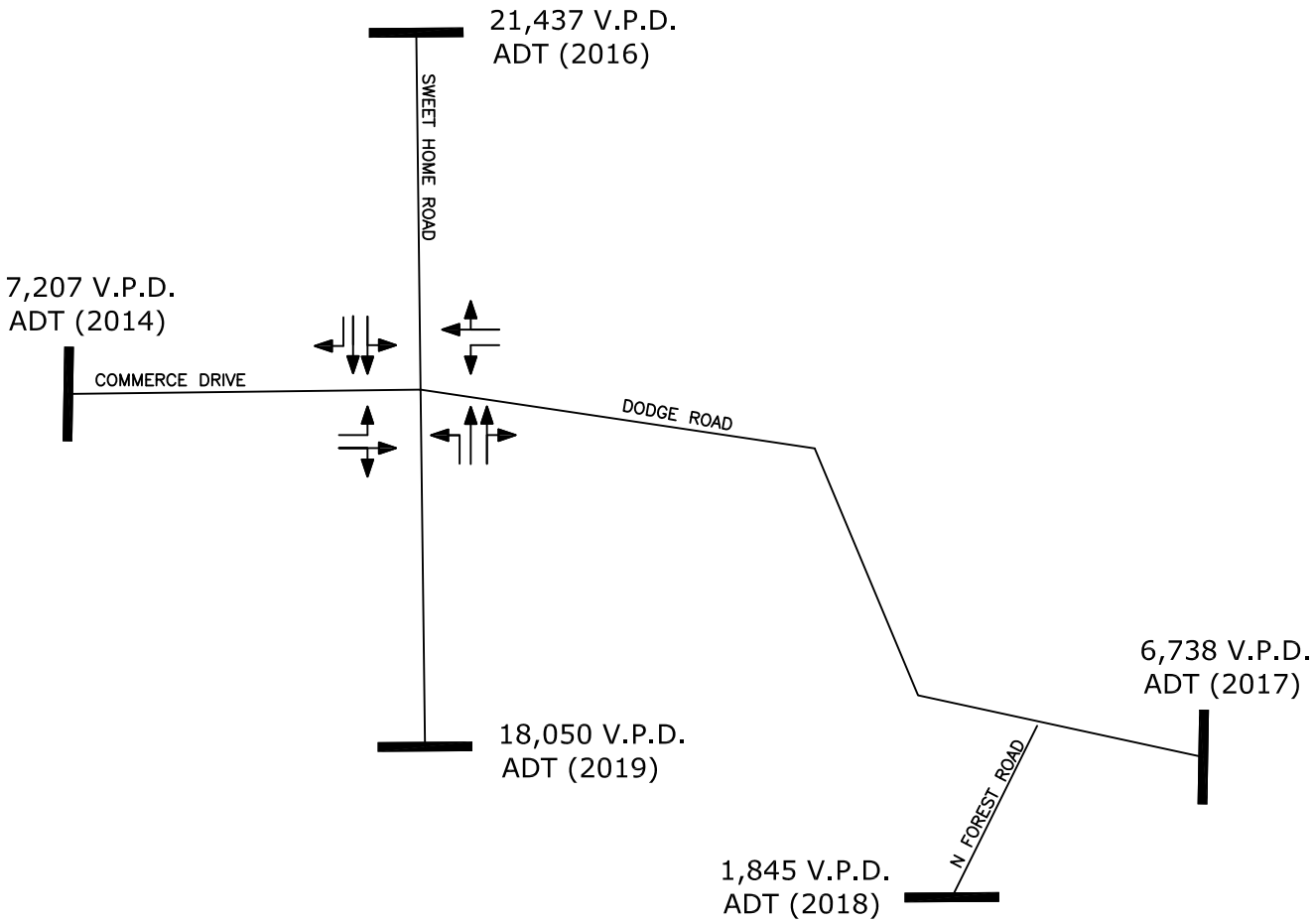
N

SRF ASSOCIATES

www.srfa.net

Transportation

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



NOTES:
1. All counts by NYSDOT
2. V.P.D. = Vehicles per Day

PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

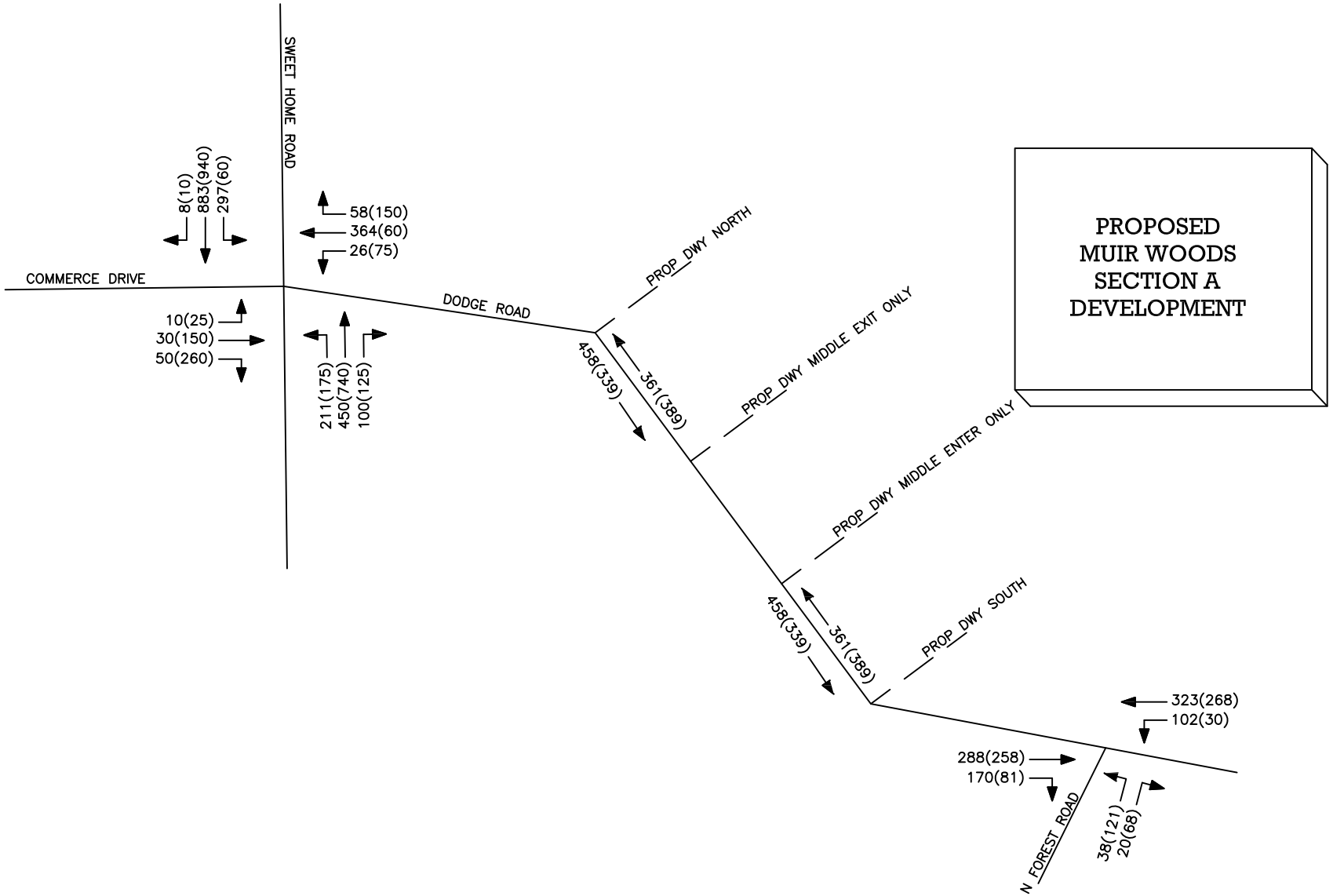
FIGURE 2

LANE GEOMETRY &
AVERAGE DAILY TRAFFIC

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 3

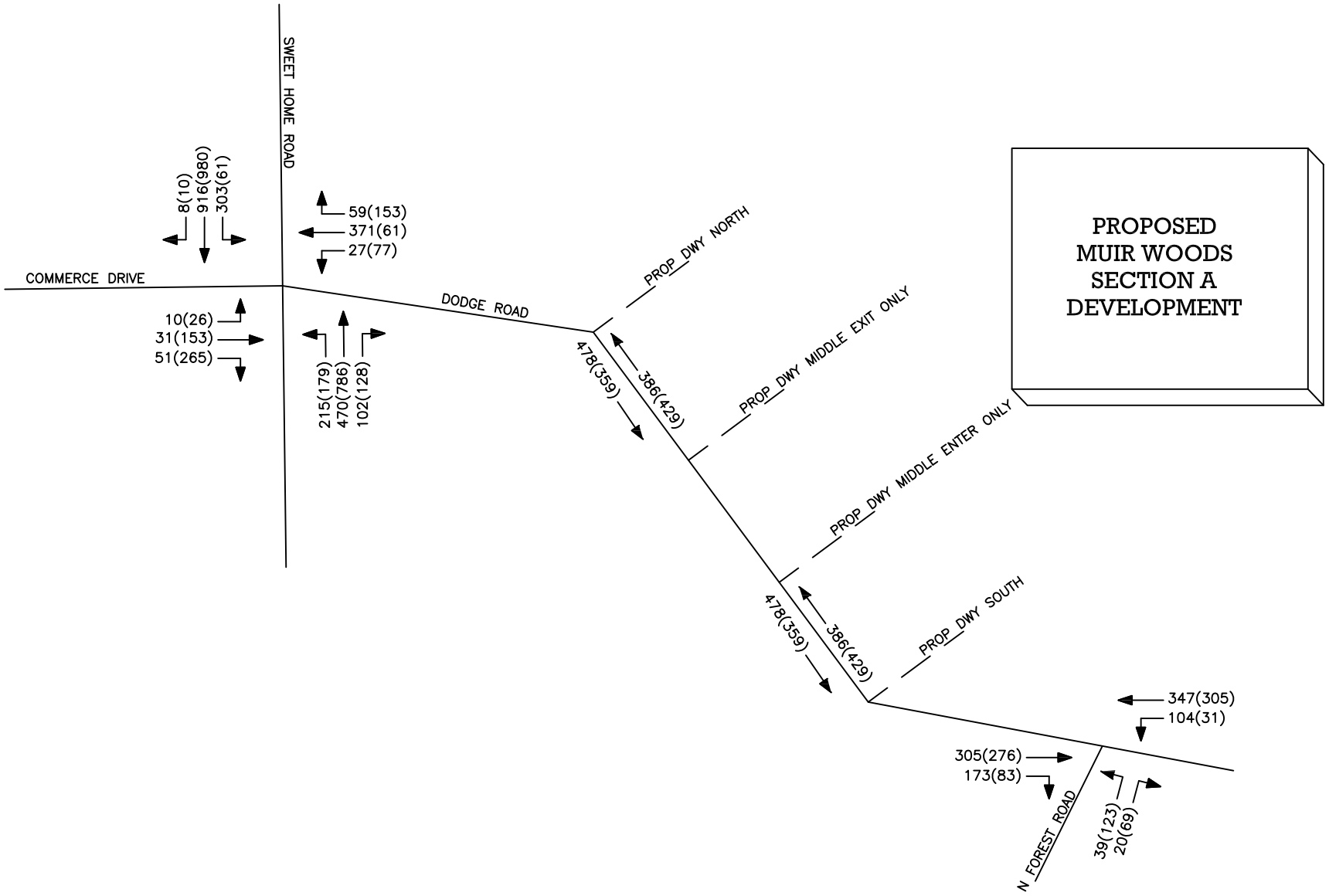
PEAK HOUR VOLUMES
2020 BASE CONDITIONS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design

N
NOT TO SCALE

FIGURE 4

PEAK HOUR VOLUMES
2022 BACKGROUND CONDITIONS

PROPOSED MUIR WOODS SITE A,

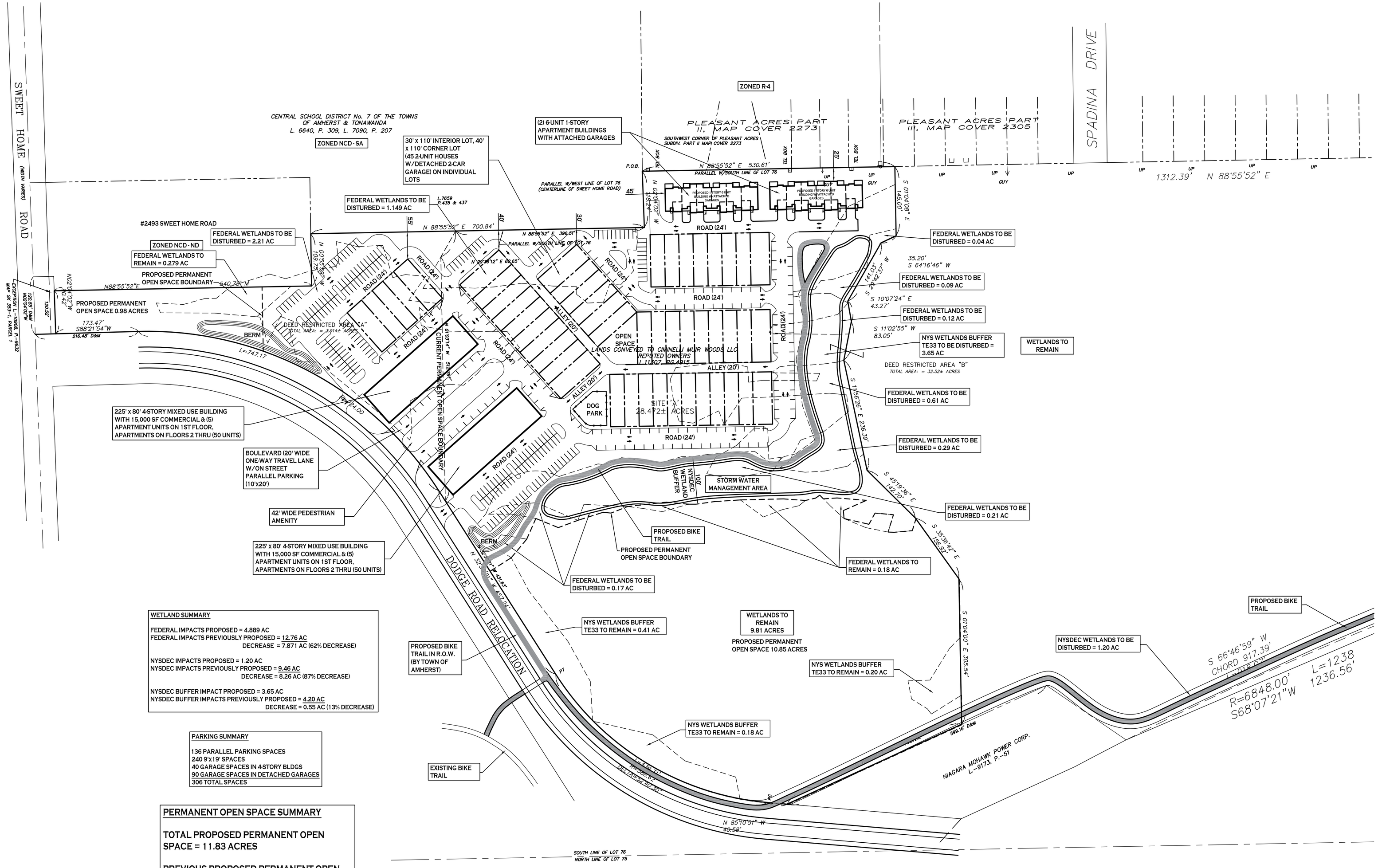
KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

© Carmina Wood Morris DPC



SITE PLAN

SCALE: 1"=100'

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 4.889 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 12.76 AC
DECREASE = 7.871 AC (62% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

PARKING SUMMARY

136 PARALLEL PARKING SPACES
240 9'x19' SPACES
40 GARAGE SPACES IN 4-STORY BLDGS
90 GARAGE SPACES IN DETACHED GARAGES
306 TOTAL SPACES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 11.83 ACRES

PREVIOUS PROPOSED PERMANENT OPEN SPACE = 3.91 ACRES

NET INCREASE = 7.92 ACRES

SITE DATA

28.47 ACRES TOTAL
ZONED: NCD - ND

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Muir Woods Site "A"

Sweet Home & Dodge Road
Amherst, New York

Date: 7/1/20
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Concept Site Plan

DRAWING NO.

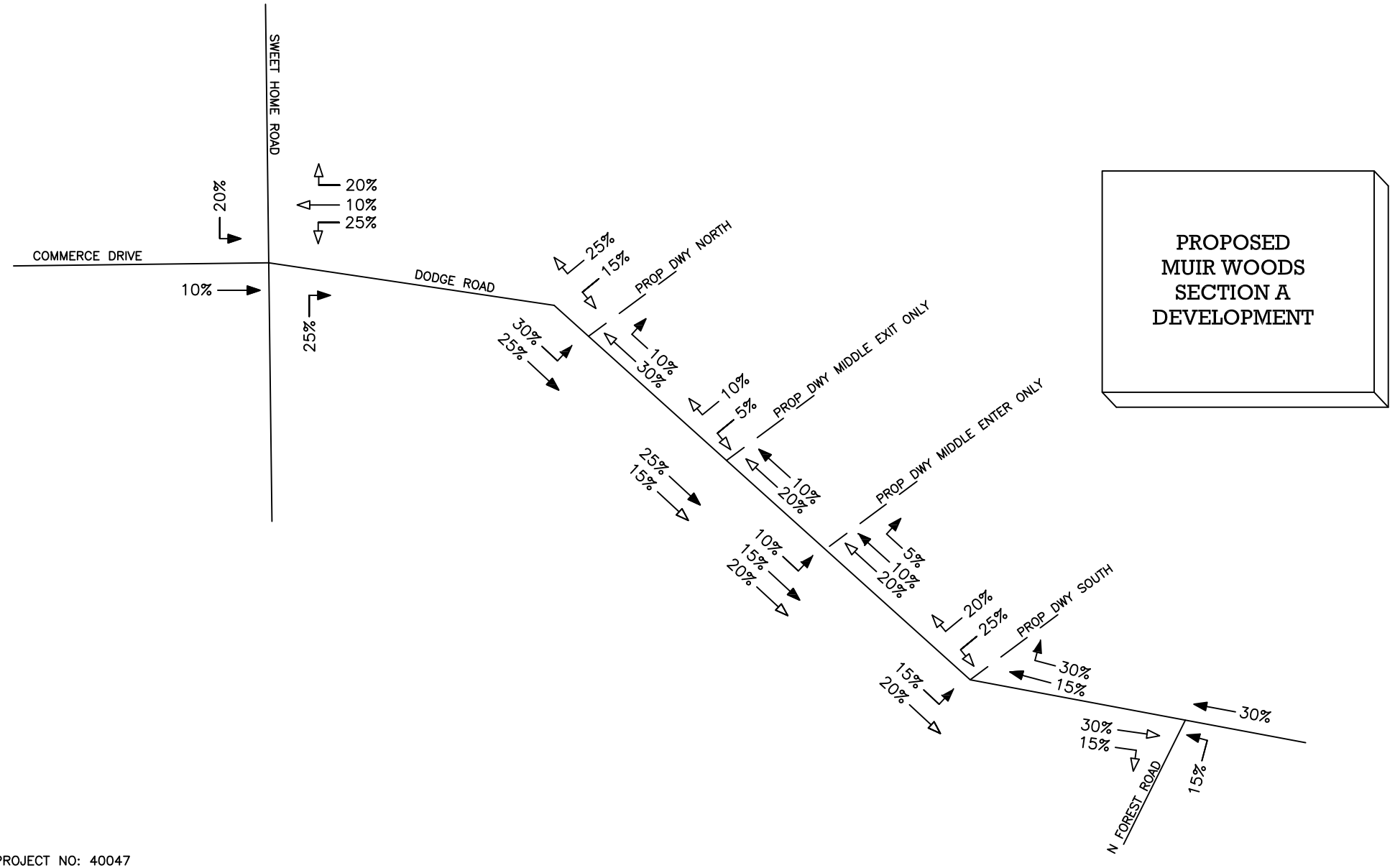
C-100

Project no.: 19.192

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Packet Pg. 861

1.d



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 6

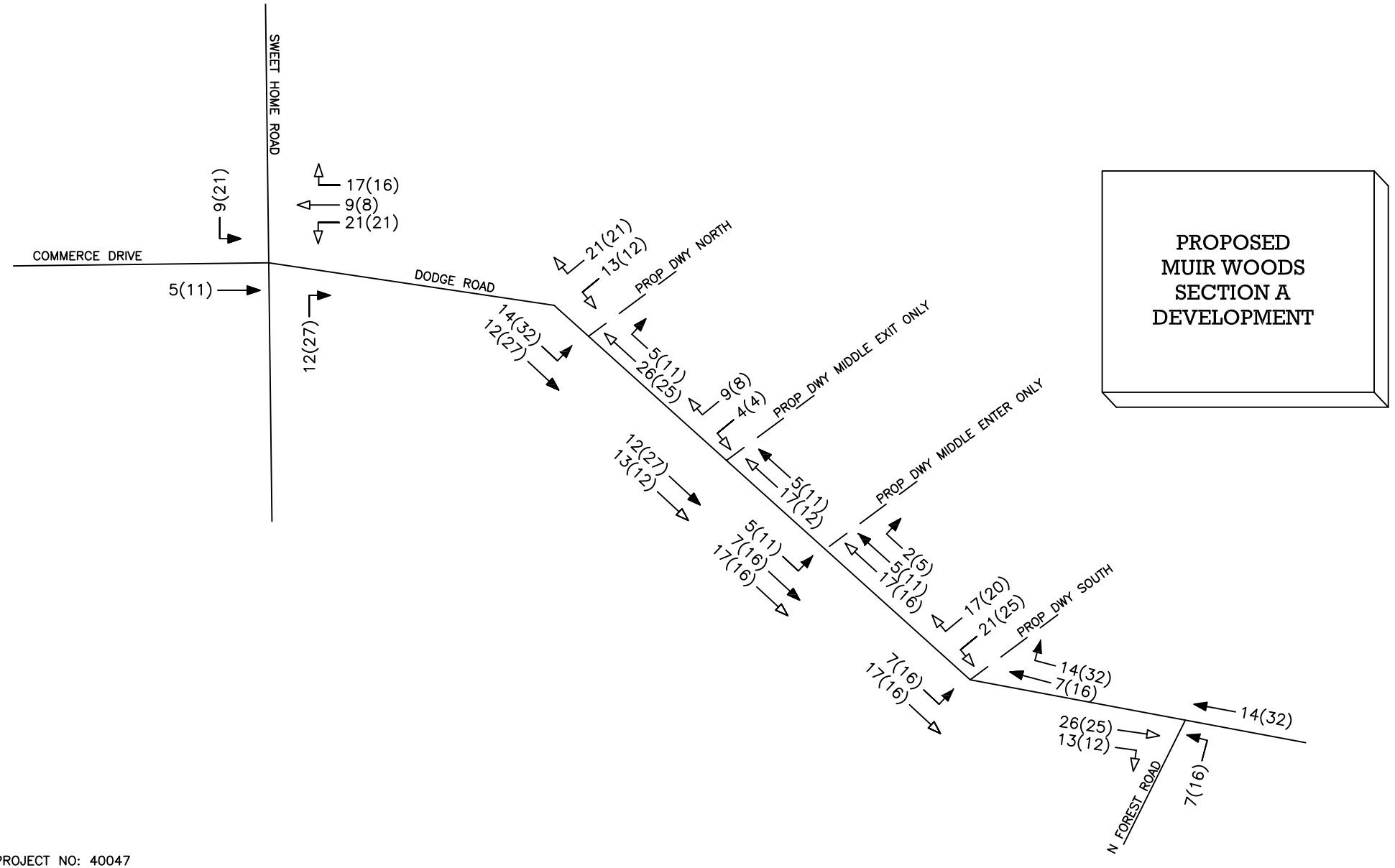
TRIP DISTRIBUTION

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
ENTERING TRIPS →
EXITING TRIPS →

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 7

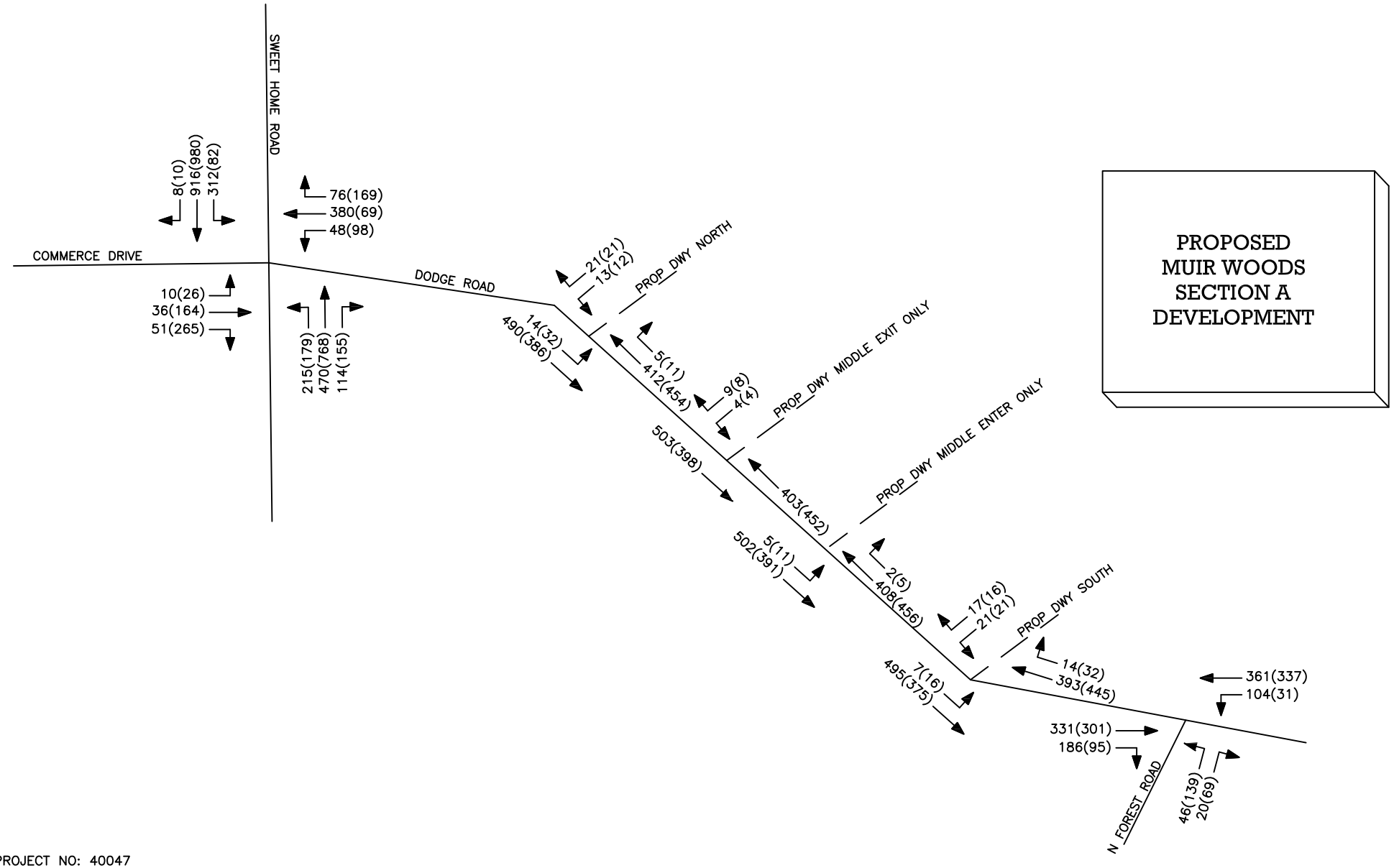
SITE GENERATED TRIPS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
ENTERING TRIPS →
EXITING TRIPS →

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 8

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

APPENDICES

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

A1

Collected Traffic Volume Data

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 1

Turning Movement Data

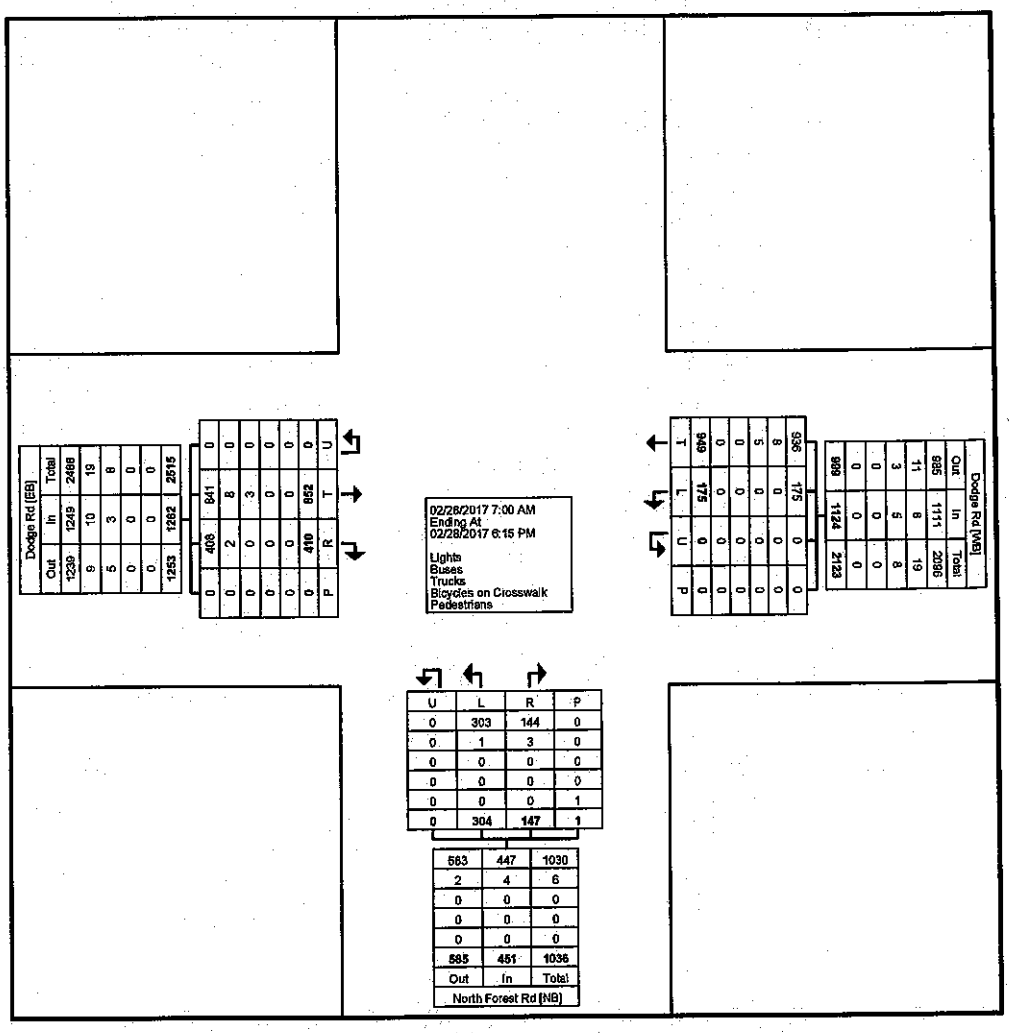
Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	Int. Total
7:00 AM	32	3	0	0	35	2	12	0	0	14	21	30	0	0	51	100
7:15 AM	51	5	0	0	56	1	8	0	0	9	23	37	0	0	60	125
7:30 AM	77	15	0	0	92	4	10	0	0	14	54	55	0	0	109	215
7:45 AM	101	41	0	0	142	5	5	0	0	10	53	85	0	0	138	290
Hourly Total	261	64	0	0	325	12	35	0	0	47	151	207	0	0	358	730
8:00 AM	83	19	0	0	102	2	5	0	0	7	37	53	0	0	90	199
8:15 AM	59	25	0	0	84	6	14	0	0	20	24	59	0	0	83	187
8:30 AM	37	10	0	0	47	3	12	0	0	15	32	45	0	0	77	139
8:45 AM	44	14	0	0	58	4	14	0	1	18	26	50	0	0	76	152
Hourly Total	223	68	0	0	291	15	45	0	1	60	119	207	0	0	326	677
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	56	8	0	0	64	35	35	0	0	70	20	37	0	0	57	191
4:15 PM	51	2	0	0	53	13	30	0	0	43	16	44	0	0	60	156
4:30 PM	58	5	0	0	63	16	34	0	0	50	19	51	0	0	70	183
4:45 PM	45	5	0	0	50	7	25	0	0	32	18	61	0	0	79	161
Hourly Total	210	20	0	0	230	71	124	0	0	195	73	193	0	0	266	691
5:00 PM	84	6	0	0	90	32	38	0	0	70	22	86	0	0	108	268
5:15 PM	78	11	0	0	89	10	22	0	0	32	19	55	0	0	74	195
5:30 PM	39	3	0	0	42	4	23	0	0	27	11	67	0	0	78	147
5:45 PM	53	3	0	0	56	3	17	0	0	20	15	37	0	0	52	128
Hourly Total	254	23	0	0	277	49	100	0	0	149	67	245	0	0	312	738
6:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	949	175	0	0	1124	147	304	0	1	451	410	852	0	0	1262	2837
Approach %	84.4	15.6	0.0	-	-	32.6	67.4	0.0	-	-	32.5	67.5	0.0	-	-	-
Total %	33.5	6.2	0.0	-	39.6	5.2	10.7	0.0	-	15.9	14.5	30.0	0.0	-	44.5	-
Lights	936	175	0	-	1111	144	303	0	-	447	408	841	0	-	1249	2807
% Lights	98.6	100.0	-	-	98.8	98.0	99.7	-	-	99.1	99.5	98.7	-	-	99.0	98.9
Buses	8	0	0	-	8	3	1	0	-	4	2	8	0	-	10	22
% Buses	0.8	0.0	-	-	0.7	2.0	0.3	-	-	0.9	0.5	0.9	-	-	0.8	0.8
Trucks	5	0	0	-	5	0	0	0	-	0	0	3	0	-	3	8
% Trucks	0.5	0.0	-	-	0.4	0.0	0.0	-	-	0.0	0.0	0.4	-	-	0.2	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 2



Turning Movement Data Plot

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017

Turning Movement Peak Hour Data (7:30 AM)

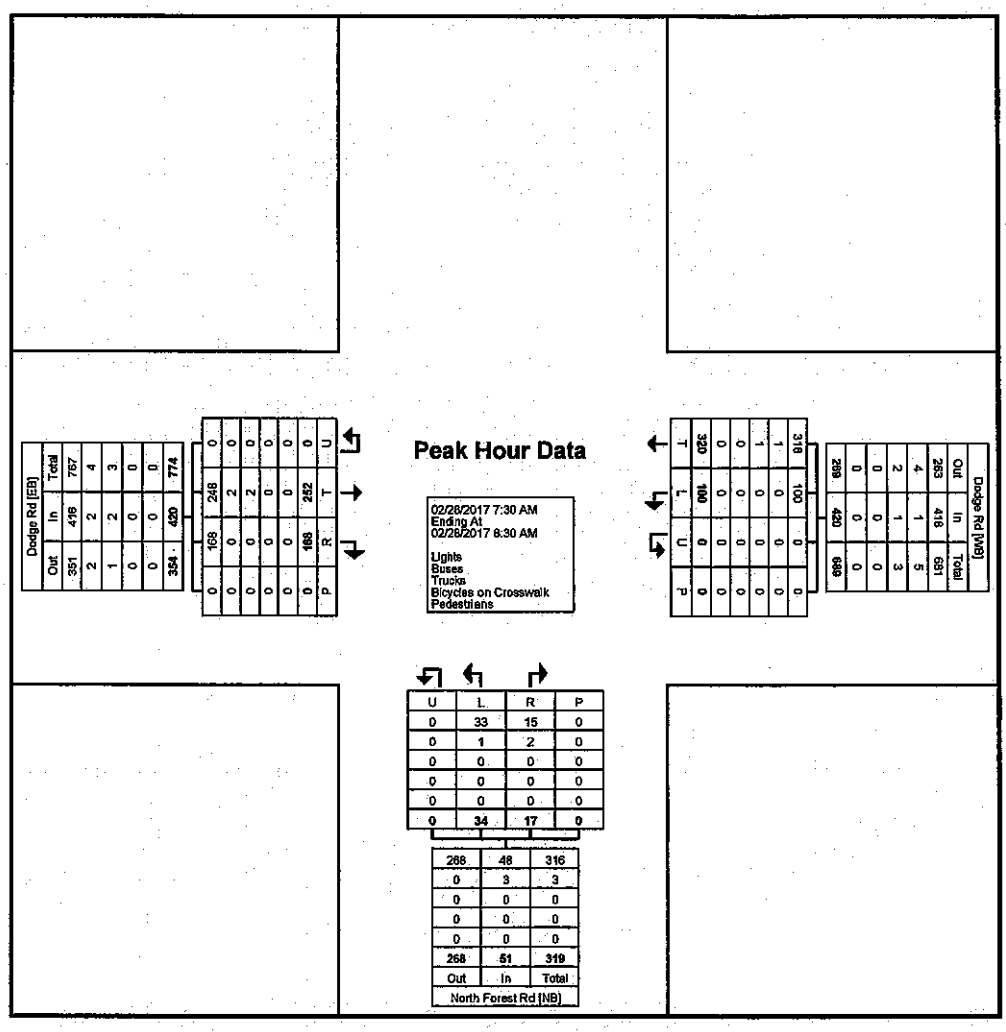
Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:30 AM	77	15	0	0	92	4	10	0	0	14	54	55	0	0	109	215
7:45 AM	101	41	0	0	142	5	5	0	0	10	53	85	0	0	138	290
8:00 AM	83	19	0	0	102	2	5	0	0	7	37	53	0	0	90	199
8:15 AM	59	25	0	0	84	6	14	0	0	20	24	59	0	0	83	187
Total	320	100	0	0	420	17	34	0	0	51	168	252	0	0	420	891
Approach %	76.2	23.8	0.0	-	-	33.3	66.7	0.0	-	-	40.0	60.0	0.0	-	-	-
Total %	35.9	11.2	0.0	-	47.1	1.9	3.8	0.0	-	5.7	18.9	28.3	0.0	-	47.1	-
PHF	0.792	0.610	0.000	-	0.739	0.708	0.607	0.000	-	0.638	0.778	0.741	0.000	-	0.761	0.768
Lights	318	100	0	-	418	15	33	0	-	48	168	248	0	-	416	882
% Lights	99.4	100.0	-	-	99.5	88.2	97.1	-	-	94.1	100.0	98.4	-	-	99.0	99.0
Buses	1	0	0	-	1	2	1	0	-	3	0	2	0	-	2	6
% Buses	0.3	0.0	-	-	0.2	11.8	2.9	-	-	5.9	0.0	0.8	-	-	0.5	0.7
Trucks	1	0	0	-	1	0	0	0	-	0	0	2	0	-	2	3
% Trucks	0.3	0.0	-	-	0.2	0.0	0.0	-	-	0.0	0.0	0.8	-	-	0.5	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 4



Turning Movement Peak Hour Data Plot (7:30 AM)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
4:30 PM	58	5	0	0	63	16	34	0	0	50	19	51	0	0	70	183
4:45 PM	45	5	0	0	50	7	25	0	0	32	18	61	0	0	79	161
5:00 PM	84	6	0	0	90	32	38	0	0	70	22	86	0	0	108	268
5:15 PM	78	11	0	0	89	10	22	0	0	32	19	55	0	0	74	195
Total	265	27	0	0	292	65	119	0	0	184	78	253	0	0	331	807
Approach %	90.8	9.2	0.0	-	-	35.3	64.7	0.0	-	-	23.6	76.4	0.0	-	-	-
Total %	32.8	3.3	0.0	-	36.2	8.1	14.7	0.0	-	22.8	9.7	31.4	0.0	-	41.0	-
PHF	0.789	0.614	0.000	-	0.811	0.508	0.783	0.000	-	0.657	0.886	0.735	0.000	-	0.766	0.753
Lights	265	27	0	-	292	65	119	0	-	184	78	253	0	-	331	807
% Lights	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

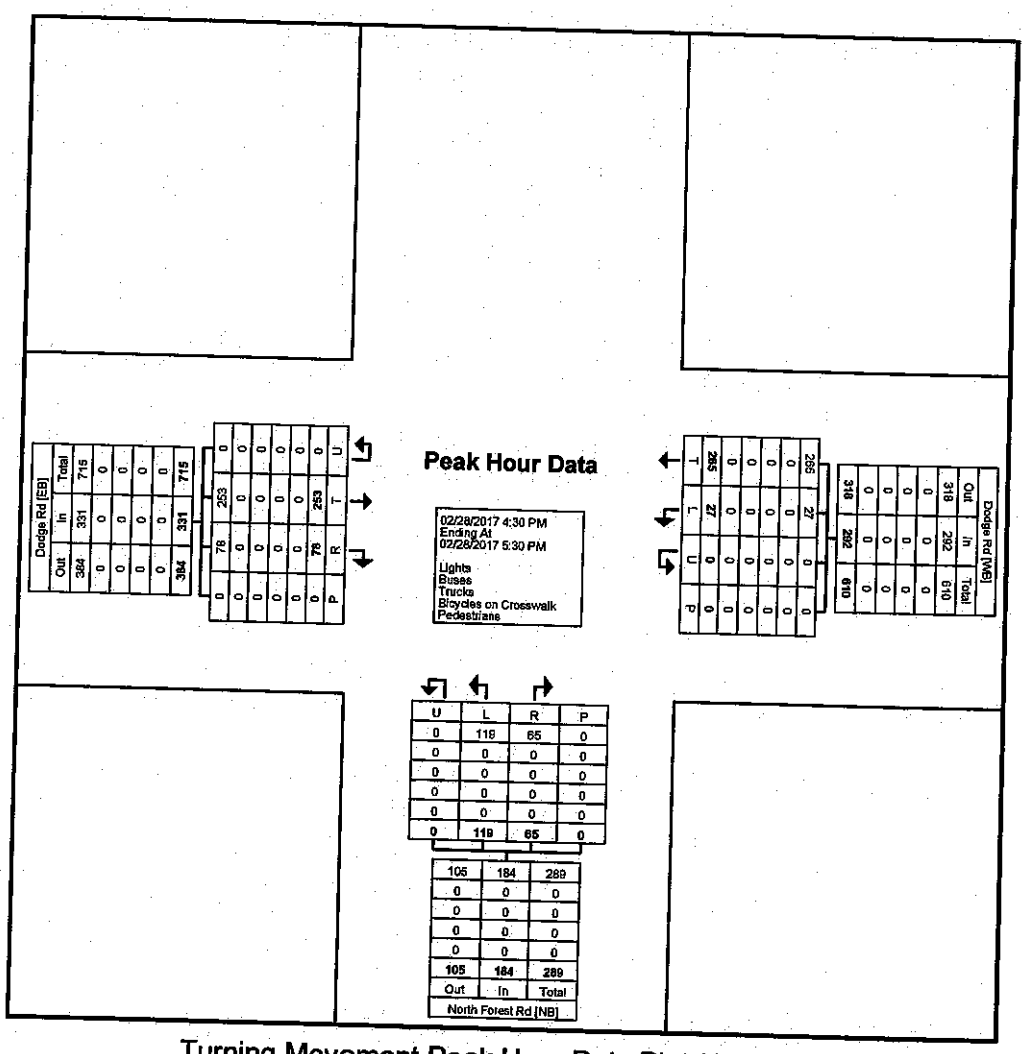
TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 6



Turning Movement Peak Hour Data Plot (4:30 PM)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TIS - THE HUB - 2949 N. FOREST
KIMLEY-HORN, 3/2017

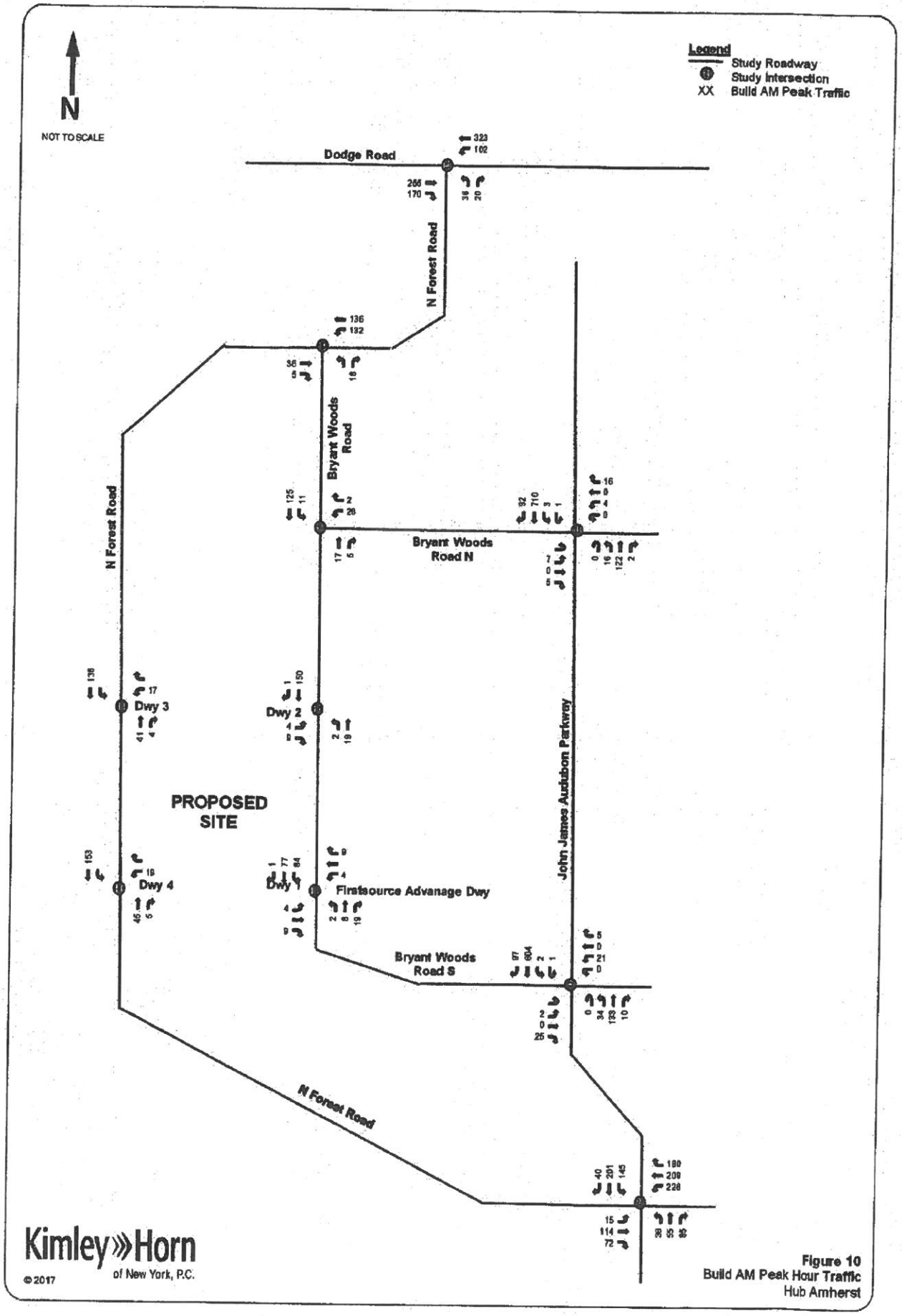


Figure 10
Build AM Peak Hour Traffic
Hub Amherst

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

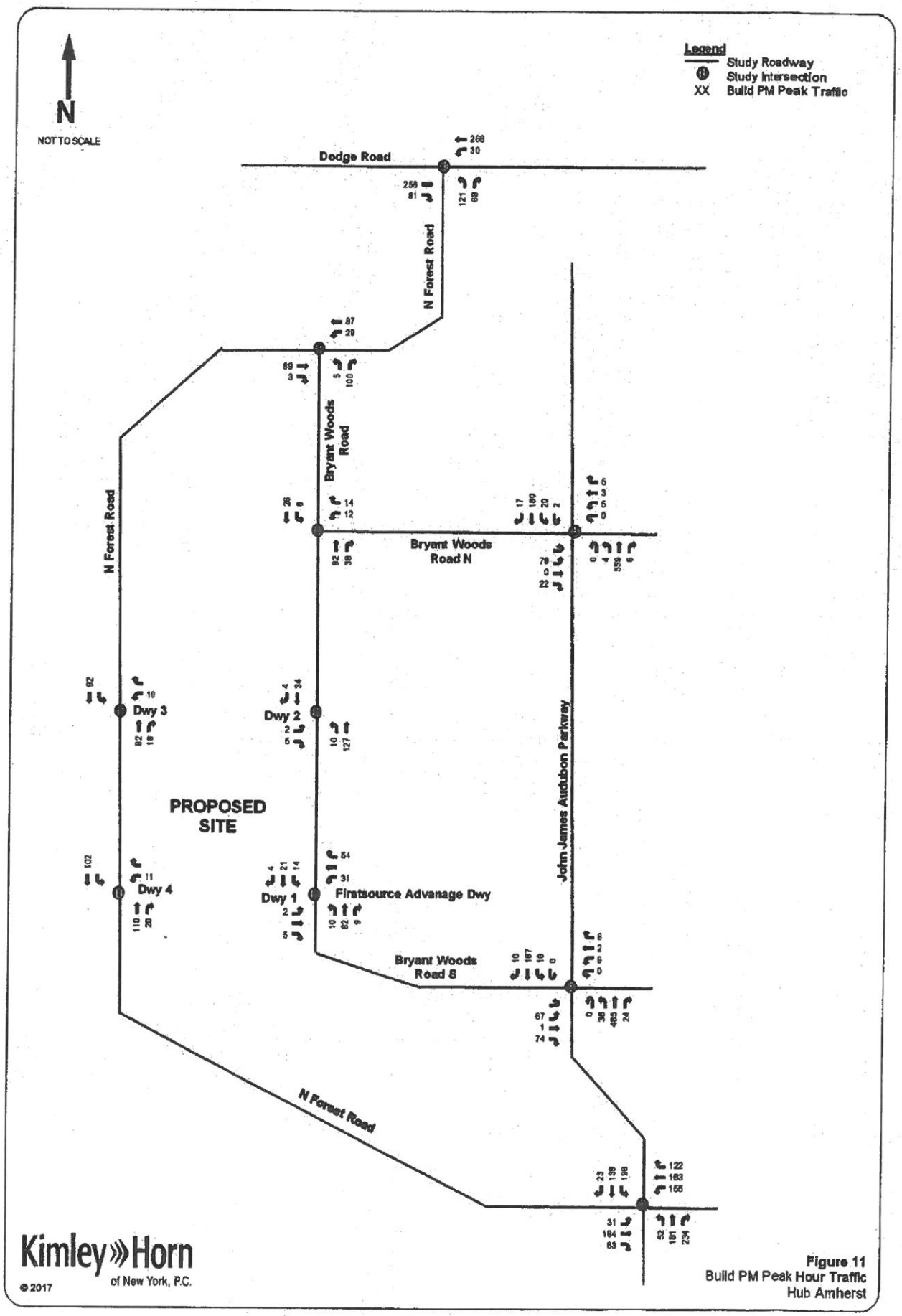


Figure 11
Build PM Peak Hour Traffic
Hub Amherst

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Peak Hour Data for Intersection

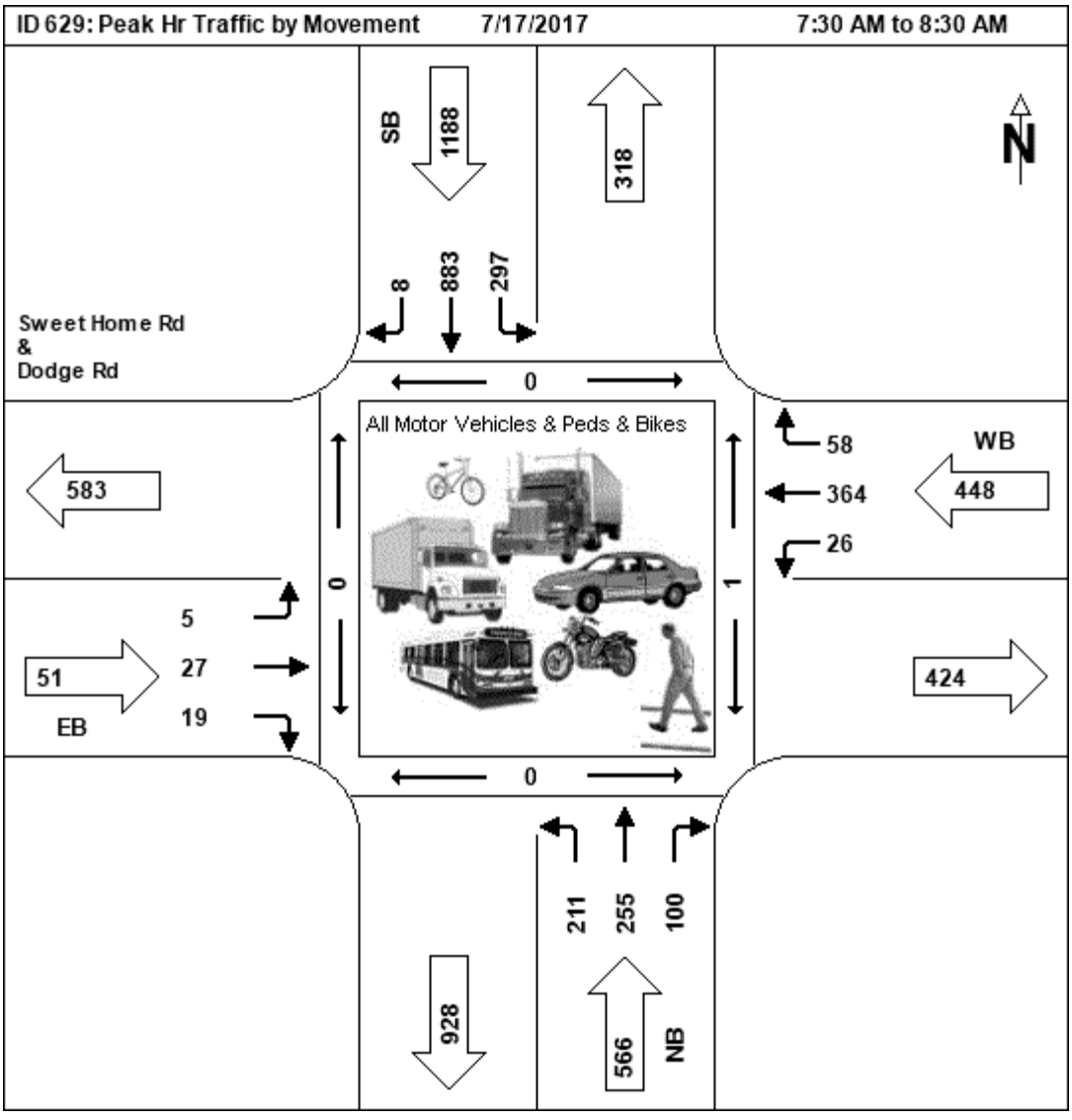
Int ID: 629
Community: Amherst
Road 1: Sweet Home Rd
Road 2: Dodge Rd
Corridor: NA
Road 3: Commerce Dr
Road 4:

|<< < > >>| 1-2 of 2

AM Peak Hour
07/17/2017

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:30 AM	65	54	17	1	136	3	14	4	0	21	60	290	2	0	352	3	97	11	0	111	620
7:45 AM	50	69	31	0	150	0	3	0	0	3	75	196	0	0	271	6	120	8	0	134	558
8:00 AM	49	66	25	0	140	1	5	4	0	10	66	175	2	0	243	10	72	22	0	104	497
8:15 AM	47	66	27	0	140	1	5	11	0	17	96	222	4	0	322	7	75	17	0	99	578
Total	211	255	100	1	566	5	27	19	0	51	297	883	8	0	1188	26	364	58	0	448	2253
PHF	0.81	0.92	0.81		0.94	0.42	0.48	0.43		0.61	0.77	0.76	0.50		0.84	0.65	0.76	0.66		0.84	
HV %	6	4	6			60	0	32			1	3	0			12	1	2			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



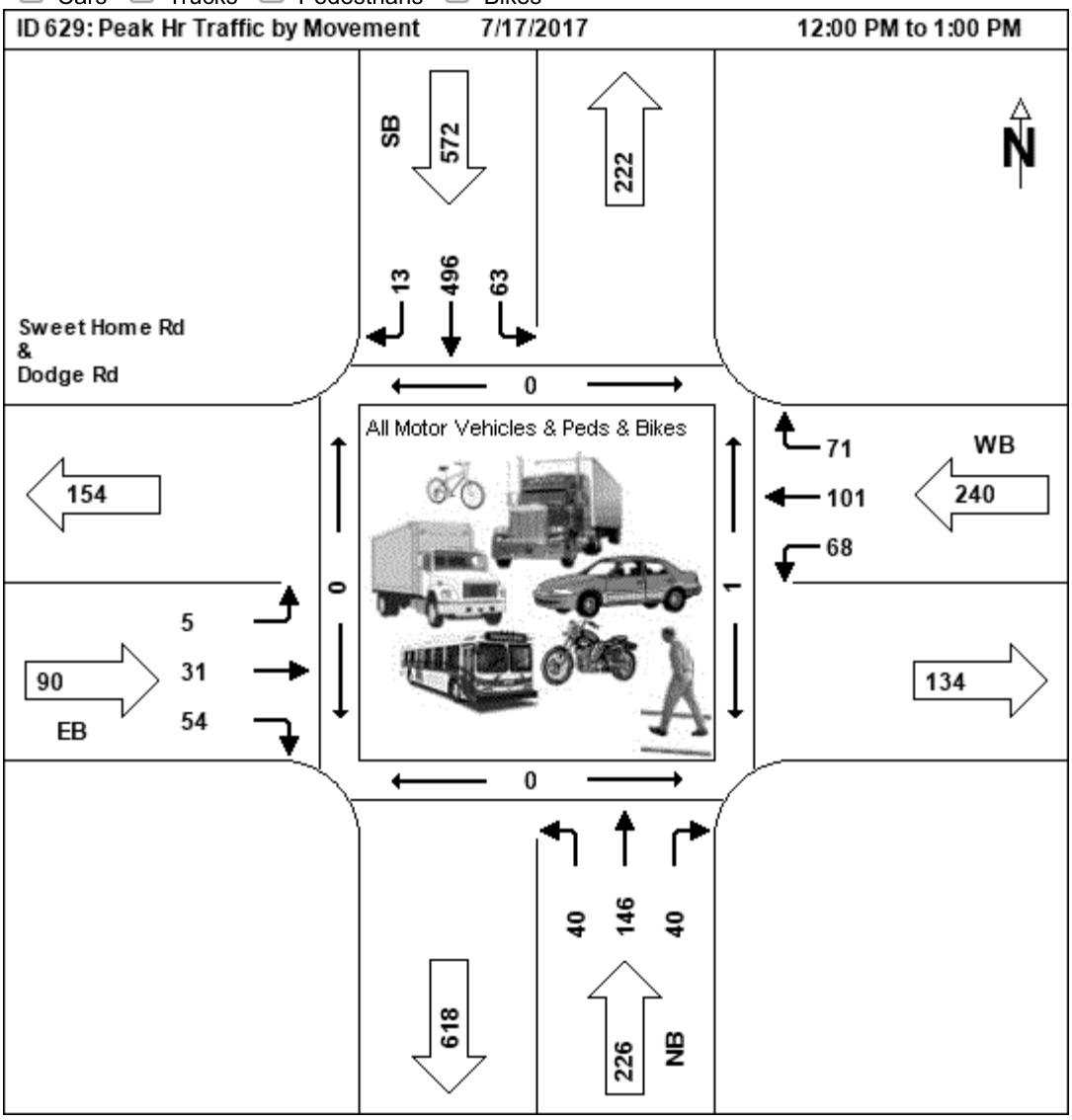
Midday Peak Hour
07/17/2017

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

12:00 PM	6	34	11	1	51	0	6	12	0	18	20	127	4	0	151	26	19	26	0	71	291
12:15 PM	10	15	4	0	29	5	16	13	0	34	17	110	2	0	129	12	23	26	0	61	253
12:30 PM	3	34	10	0	47	0	5	14	0	19	19	120	3	0	142	11	24	11	0	46	254
12:45 PM	21	63	15	0	99	0	4	15	0	19	7	139	4	0	150	19	35	8	0	62	330
Total	40	146	40	1	226	5	31	54	0	90	63	496	13	0	572	68	101	71	0	240	1128
PHF	0.48	0.58	0.67		0.57	0.25	0.48	0.90		0.66	0.79	0.89	0.81		0.95	0.65	0.72	0.68		0.85	
HV %	13	8	5			20	3	4			2	2	0			1	0	1			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

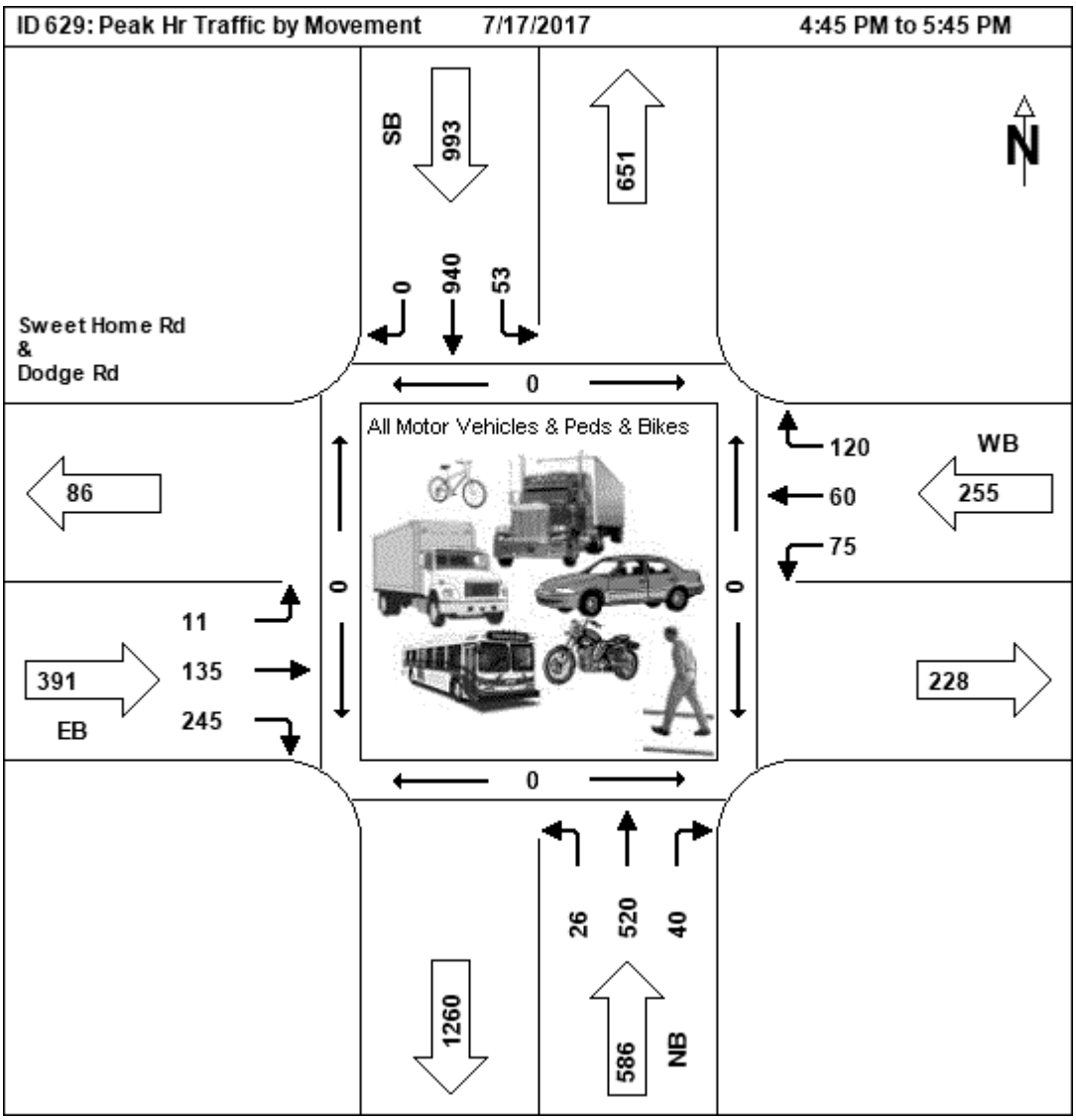


PM Peak Hour
07/17/2017

	NB					EB					SB					WB					
Start Time	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Int Total
4:45 PM	8	132	12	0	152	2	28	51	0	81	24	190	0	0	214	30	22	21	0	73	520
5:00 PM	5	119	6	0	130	4	51	116	0	171	10	258	0	0	268	20	22	50	0	92	661
5:15 PM	7	149	10	0	166	4	27	34	0	65	14	266	0	0	280	18	10	21	0	49	560
5:30 PM	6	119	12	0	137	1	27	44	0	72	5	226	0	0	231	7	6	28	0	41	481
Total	26	519	40	0	585	11	133	245	0	389	53	940	0	0	993	75	60	120	0	255	2222
PHF	0.81	0.87	0.83		0.88	0.69	0.65	0.53		0.57	0.55	0.88			0.89	0.63	0.68	0.60		0.69	
HV %	12	1	5			18	2	1			0	1				0	2	1			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

A2

Miscellaneous Traffic Data and Calculations

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

STATION: **531020**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
DIRECTION: Northbound FACTOR GROUP: 30 REC. SERIAL #: W699 FUNC. CLASS: 16 TOWN: **AMHERST**
STATE DIR CODE: 6 WK OF YR: 16 PLACEMENT: .57m S of Bryant Woods S NHS: no LION#:
DATE OF COUNT: 04/19/2015 @ REF MARKER: JURIS: Village BIN:
NOTES LANE 1: North ADDL DATA: Class Speed CC Stn: RR CROSSING:
COUNT TYPE: VEHICLES BATCH ID: DOT-SJWR5Cww17a CLASS HPMS SAMPLE: 3010446
COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS PROCESSED BY: ORG CODE: DOT INITIALS: SJW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
8	W																											
9	T																											
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M	**2**	**0**	**0**	**0**	**1**	**4**	**12**	**48**	**64**	**42**	**59**	**47**	**74**	**74**	**68**	**100**	**94**	**82**	**63**	**32**	**41**	**20**	**17**	**11**	955	100	15
21	T	**3**	**0**	**1**	**0**	**0**	**1**	**11**	**48**	**43**	**39**	**47**	**66**	**77**	**69**	**81**	**114**	**96**	**98**	**72**	**37**	**40**	**22**	**13**	**8**	986	114	15
22	W	**5**	**1**	**1**	**2**	**2**	**1**	**12**	**48**	**55**	**42**	**46**	**58**	**81**	**59**	**79**	**97**	**98**	**82**	**56**	**47**	**35**	**27**	**23**				
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

ADT

4 0 1 1 1 1 12 48 54 41 51 57 77 67 76 104 96 87 64 39 39 23 18 10 971

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
3	71	2	65	104	11%	1.000	1.047

ESTIMATED

AADT
927

ROAD #: **CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
STATION: **531020** STATE DIR CODE: **6** PLACEMENT: **.57m S of Bryant Woods S** **DATE OF COUNT: 04/19/2015**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

STATION: **531020**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: W805 FUNC. CLASS: 16 TOWN: **AMHERST**
STATE DIR CODE: 7 WK OF YR: 16 PLACEMENT: .57m S of Bryant Woods S NHS: no LION#:
DATE OF COUNT: 04/19/2015 @ REF MARKER: JURIS: Village BIN:
NOTES LANE 1: South ADDL DATA: Class Speed CC Stn: RR CROSSING:
COUNT TYPE: VEHICLES BATCH ID: DOT-SJWR5Cww17a CLASS HPMS SAMPLE: 3010446
COUNT TAKEN BY: ORG CODE: TTG INITIALS: dks PROCESSED BY: ORG CODE: DOT INITIALS: SJW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
8	W																											
9	T																											
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M	**1**	**1**	**1**	**1**	**1**	**11**	**42**	**77**	**104**	**51**	**48**	**44**	**53**	**52**	**71**	**69**	**104**	**79**	**50**	**23**	**18**	**13**	**12**	**3**	929	104	8
21	T	**1**	**1**	**2**	**0**	**0**	**12**	**42**	**84**	**91**	**53**	**56**	**55**	**67**	**63**	**60**	**56**	**85**	**97**	**44**	**28**	**15**	**10**	**7**	**9**	938	97	17
22	W	**1**	**1**	**1**	**2**	**1**	**13**	**41**	**72**	**87**	**57**	**51**	**55**	**63**	**51**	**54**	**66**	**79**	**96**	**56**	**31**	**16**	**15**	**12**				
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
1	**1**	**2**	**1**	**0**	**12**	**42**	**78**	**94**	**54**	**52**	**51**	**61**	**55**	**62**	**64**	**89**	**91**	**50**	**27**	**16**	**13**	**10**	**6**	**932**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
3	71	2	65	94	10%	1.000	1.047	**AADT 890**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Eastbound FACTOR GROUP: 30
STATE DIR CODE: 6 WK OF YR: 32
DATE OF COUNT: 08/07/2017
NOTES LANE 1: EB 1 Lane - 40 mph

COUNT TAKEN BY: ORG CODE: MBN INITIALS: APV

FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD**
REC. SERIAL #: Y110 FUNC. CLASS: 16
PLACEMENT: 450 FEET EAST OF AUDUBON PK NHS: no
@ REF MARKER: JURIS: Village
ADDL DATA: Class Speed CC Stn:
COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R05c32aMBN0000-20170
PROCESSED BY: ORG CODE: DOT INITIALS: CW

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M																		472	223	157	142	81	43	41			
8	T	23	10	6	6	4	17	55	207	272	174	158	216	271	230	243	301	447	457	249	168	165	116	61	41	3897	457	17
9	W	27	14	6	7	3	13	69	195	244	172	177	212	283	268	250	319	412	437	234	185	162	133	51	37	3910	437	17
10	T	18	10	7	5	6	8	60	158	204	154	182	202	301	264	267	326	438	436	228	158	152	114	66	46	3810	438	16
11	F	27	8	13	8	6	16	64	172																			
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
24	**10**	**8**	**6**	**5**	**14**	**62**	**183**	**240**	**167**	**172**	**210**	**285**	**254**	**253**	**315**	**432**	**450**	**234**	**167**	**155**	**111**	**55**	**41**	**3853**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
4	87	4	87	450	12%	1.000	1.100	**AADT 3503**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Westbound FACTOR GROUP: 30
STATE DIR CODE: 7 WK OF YR: 32
DATE OF COUNT: 08/07/2017
NOTES LANE 1: WB 1 Lane - 40 mph

COUNT TAKEN BY: ORG CODE: MBN INITIALS: APV

FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD**
REC. SERIAL #: Y110 FUNC. CLASS: 16
PLACEMENT: 450 FEET EAST OF AUDUBON PK NHS: no
@ REF MARKER: JURIS: Village
ADDL DATA: Class Speed CC Stn:
COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R05c32aMBN0000-2017

PROCESSED BY: ORG CODE: DOT INITIALS: CW

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M																		250	150	104	92	61	38	18			
8	T	**17**	**5**	**2**	**7**	**8**	**27**	**124**	**380**	**419**	**243**	**185**	**169**	**293**	**250**	**231**	**233**	**211**	**287**	**189**	**121**	**109**	**66**	**54**	**17**	3647	419	8
9	W	**9**	**5**	**6**	**6**	**13**	**22**	**125**	**348**	**424**	**225**	**194**	**200**	**202**	**243**	**280**	**212**	**234**	**268**	**206**	**133**	**102**	**68**	**59**	**15**	3599	424	8
10	T	**16**	**3**	**1**	**7**	**9**	**31**	**120**	**335**	**390**	**219**	**208**	**208**	**208**	**243**	**285**	**225**	**252**	**261**	**187**	**127**	**106**	**68**	**50**	**26**	3585	390	8
11	F	**11**	**5**	**5**	**3**	**11**	**27**	**111**	**302**																			
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
13	**4**	**4**	**6**	**10**	**27**	**120**	**341**	**411**	**229**	**196**	**192**	**234**	**245**	**265**	**223**	**232**	**266**	**183**	**121**	**102**	**66**	**50**	**19**	**3559**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	87	5	87	411	12%	1.000	1.100

ESTIMATED

AADT
3235

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

1.d

STATION: **534822**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 23
DATE OF COUNT: 06/03/2019
NOTES LANE 0: North

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **COMMERCE DRIVE**
REC. SERIAL #: W807
PLACEMENT: 151' N of Sunshine Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: DOT INITIALS: JH

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V23aTTG5196HPMS SAMPLE:

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																**774**	**1037**	**1082**	**627**	**443**	**469**	**345**	**209**	**140**			
4	T	**69**	**39**	**23**	**11**	**18**	**46**	**199**	**447**	**506**	**431**	**399**	**484**	**556**	**524**	**607**	**754**	**1009**	**977**	**661**	**468**	**428**	**347**	**201**	**141**	9345	1009	16
5	W	**83**	**50**	**29**	**19**	**27**	**43**	**207**	**467**	**509**	**430**	**409**	**541**	**597**	**521**	**671**	**841**	**1058**	**958**	**630**	**444**	**451**	**358**	**195**	**135**	9673	1058	16
6	T	**89**	**37**	**19**	**18**	**19**	**69**	**186**	**466**	**515**	**474**	**403**	**509**	**563**	**563**	**658**	**825**	**1015**	**1079**	**699**	**549**	**498**	**378**	**235**				
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																											
25	T																											
26	W																											
27	T																											
28	F																											
29	S																											
30	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
79	**41**	**24**	**16**	**21**	**52**	**194**	**454**	**503**	**439**	**399**	**504**	**565**	**529**	**637**	**788**	**1017**	**1011**	**645**	**470**	**456**	**352**	**207**	**137**	**9540**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	80	4	80	1017	11%	0.987	1.113

ESTIMATED (one way)

AADT
8571

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 23
DATE OF COUNT: 06/03/2019
NOTES LANE 0: South

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **COMMERCE DRIVE**
REC. SERIAL #: R314
PLACEMENT: 151' N of Sunshine Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: DOT INITIALS: JH

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V23aTTG5196HPMS SAMPLE:

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																**699**	**811**	**832**	**567**	**382**	**321**	**258**	**169**	**84**			
4	T	**43**	**33**	**20**	**20**	**51**	**171**	**524**	**1071**	**994**	**566**	**536**	**553**	**542**	**550**	**618**	**636**	**794**	**850**	**622**	**297**	**303**	**219**	**180**	**95**	10288	1071	7
5	W	**55**	**29**	**17**	**25**	**42**	**175**	**509**	**1093**	**1076**	**641**	**534**	**616**	**658**	**581**	**586**	**741**	**804**	**788**	**592**	**379**	**319**	**248**	**132**	**88**	10728	1093	7
6	T	**51**	**28**	**12**	**19**	**45**	**168**	**510**	**1095**	**978**	**632**	**570**	**657**	**697**	**639**	**635**	**714**	**823**	**897**	**616**	**377**	**315**	**308**	**189**				
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																											
25	T																											
26	W																											
27	T																											
28	F																											
29	S																											
30	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
49	**30**	**16**	**21**	**45**	**169**	**507**	**1072**	**1003**	**605**	**540**	**601**	**624**	**582**	**605**	**689**	**797**	**831**	**591**	**354**	**310**	**255**	**166**	**88**	**10550**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	80	4	80	1072	10%	0.987	1.113

ESTIMATED (one way)

AADT
9479

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 15
DATE OF COUNT: 04/06/2020
NOTES LANE 1: North
NOTES LANE 2: North
COUNT TAKEN BY: ORG CODE: TTG INITIALS: JB

FROM: **N ELLICOTT RD**
REC. SERIAL #: W796
PLACEMENT: 605ft N of N Ellicott Creek
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: CPA

TO: **COMMERCE DRIVE**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05C15cTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN: 3367090
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M															**393**	**465**	**479**	**413**	**323**	**216**	**173**	**102**	**83**	**53**			
7	T	**35**	**23**	**26**	**24**	**22**	**64**	**243**	**301**	**262**	**259**	**316**	**328**	**380**	**389**	**430**	**478**	**462**	**403**	**294**	**237**	**166**	**120**	**81**	**65**	5408	478	15
8	W	**30**	**26**	**25**	**16**	**18**	**87**	**235**	**303**	**264**	**225**	**242**	**286**	**320**	**329**	**353**	**467**	**400**	**397**	**318**	**242**	**183**	**135**	**90**	**75**	5066	467	15
9	T	**40**	**22**	**24**	**22**	**23**	**78**	**231**	**270**	**258**	**239**	**266**	**294**	**346**	**309**	**418**	**419**	**477**	**421**	**284**	**231**	**146**	**114**	**96**	**72**	5100	477	16
10	F	**44**	**29**	**25**	**26**	**19**	**53**	**164**	**213**	**248**	**199**																	
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

37	**25**	**25**	**22**	**20**	**70**	**218**	**272**	**258**	**230**	**275**	**303**	**349**	**342**	**398**	**457**	**454**	**408**	**305**	**232**	**167**	**118**	**88**	**66**	**ADT 5139**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
5	92	5	92	457	9%	1.000	1.054	**AADT 4876**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**

DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: JH88 FUNC. CLASS: 16 TOWN:

STATE DIR CODE: 2 WK OF YR: 15 PLACEMENT: 605ft N of N Ellicott Creek NHS: no LION#:

DATE OF COUNT: 04/06/2020 @ REF MARKER: JURIS: Village BIN: 3367090

NOTES LANE 1: South ADDL DATA: Class Speed CC Stn: RR CROSSING:

NOTES LANE 2: South COUNT TYPE: VEHICLES BATCH ID: DOT-R05C15cTTG5196 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: JB PROCESSED BY: ORG CODE: DOT INITIALS: CPA

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M															**404**	**497**	**481**	**434**	**284**	**212**	**129**	**97**	**72**	**69**			
7	T	**31**	**29**	**9**	**16**	**27**	**86**	**208**	**320**	**270**	**294**	**276**	**331**	**371**	**388**	**428**	**472**	**470**	**384**	**262**	**229**	**133**	**86**	**70**	**82**	5272	472	15
8	W	**35**	**21**	**15**	**15**	**28**	**88**	**220**	**300**	**264**	**272**	**320**	**266**	**314**	**227**	**248**	**298**	**282**	**248**	**187**	**129**	**97**	**70**	**44**	**58**	4046	320	10
9	T	**25**	**17**	**11**	**12**	**17**	**52**	**122**	**173**	**154**	**137**	**186**	**198**	**222**	**212**	**224**	**308**	**256**	**281**	**165**	**153**	**91**	**74**	**41**	**48**	3179	308	15
10	F	**25**	**9**	**13**	**13**	**20**	**38**	**116**	**194**	**135**	**149**																	
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											
		29	**19**	**12**	**14**	**23**	**66**	**166**	**247**	**206**	**213**	**261**	**265**	**302**	**276**	**326**	**394**	**372**	**337**	**224**	**181**	**112**	**82**	**57**	**64**	**4248**		

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon) **ADT**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	92	5	92	394	9%	1.000	1.054

ESTIMATED

AADT

4030

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 28
DATE OF COUNT: 07/05/2016
NOTES LANE 0: NB 2 lane - 45 mph

COUNT TAKEN BY: ORG CODE: CSE INITIALS: CDM

FROM: **COMMERCE DRIVE**
REC. SERIAL #: 1867
PLACEMENT: 525 ft N of Bucyrus Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: MBN INITIALS: AHL

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05MBN-28-5-July-6-2016

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	F																											
2	S																											
3	S																											
4	M																											
5	T											**397**	**468**	**580**	**510**	**566**	**692**	**905**	**889**	**578**	**443**	**430**	**359**	**229**	**159**			
6	W	**73**	**44**	**20**	**17**	**22**	**45**	**168**	**374**	**471**	**384**	**409**	**448**	**529**	**483**	**557**	**696**	**887**	**1021**	**711**	**498**	**442**	**371**	**225**	**192**	9087	1021	17
7	T	**96**	**51**	**22**	**20**	**21**	**60**	**154**	**375**	**494**	**367**	**368**	**439**	**526**	**522**	**602**	**639**	**856**	**931**	**582**	**459**	**434**	**361**	**270**	**167**	8816	931	17
8	F	**105**	**57**	**27**	**25**	**36**	**53**	**138**	**358**	**407**																		
9	S																											
10	S																											
11	M																											
12	T																											
13	W																											
14	T																											
15	F																											
16	S																											
17	S																											
18	M																											
19	T																											
20	W																											
21	T																											
22	F																											
23	S																											
24	S																											
25	M																											
26	T																											
27	W																											
28	T																											
29	F																											
30	S																											
31	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
91	**51**	**23**	**21**	**26**	**53**	**153**	**369**	**457**	**376**	**391**	**452**	**545**	**505**	**575**	**676**	**883**	**947**	**624**	**467**	**435**	**364**	**241**	**173**	**8898**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	71	4	71	947	11%	1.000	1.093

ESTIMATED (one way)

AADT
8141

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **COMMERCE DRIVE** TO: **N FRENCH RD** COUNTY: **Erie**
STATION: **534822** STATE DIR CODE: **1** PLACEMENT: **525 ft N of Bucyrus Dr** **DATE OF COUNT: 07/05/2016**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 28
DATE OF COUNT: 07/05/2016
NOTES LANE 0: SB 2 lane - 45 mph

COUNT TAKEN BY: ORG CODE: CSE INITIALS: CDM

FROM: **COMMERCE DRIVE**
REC. SERIAL #: 1867
PLACEMENT: 525 ft N of Bucyrus Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: MBN INITIALS: AHL

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05MBN-28-5-July-6-2016

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	F																											
2	S																											
3	S																											
4	M																											
5	T											470	454	539	500	503	502	618	686	463	376	257	240	176	126			
6	W	56	33	9	16	32	135	372	705	742	499	460	444	525	530	497	544	627	705	507	365	306	289	206	108	8712	742	8
7	T	60	32	19	17	33	124	387	685	746	501	501	484	551	523	521	558	629	700	497	385	286	255	203	103	8800	746	8
8	F	65	31	30	28	35	111	354	655	571																		
9	S																											
10	S																											
11	M																											
12	T																											
13	W																											
14	T																											
15	F																											
16	S																											
17	S																											
18	M																											
19	T																											
20	W																											
21	T																											
22	F																											
23	S																											
24	S																											
25	M																											
26	T																											
27	W																											
28	T																											
29	F																											
30	S																											
31	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
60	**32**	**19**	**20**	**33**	**123**	**371**	**682**	**686**	**500**	**477**	**461**	**538**	**518**	**507**	**535**	**625**	**697**	**489**	**375**	**283**	**261**	**195**	**112**	**8599**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	71	4	71	697	8%	1.000	1.093

ESTIMATED (one way)

AADT
7867

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Eastbound FACTOR GROUP: 30
STATE DIR CODE: 6 WK OF YR: 46
DATE OF COUNT: 11/07/2016
NOTES LANE 1: One Lane EB - 35 MPH

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **SWEET HOME RD**
REC. SERIAL #: EZ53
PLACEMENT: 850' E of Audubon Pkwy
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: R05 INITIALS: RPJ

TO: **NY 270 CAMPBELL BLVD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V46aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M															**269**	**339**	**457**		**259**	**156**		**60**	**53**	**27**			
8	T	**37**	**11**	**6**	**3**	**4**	**20**												**482**	**264**	**153**	**114**	**75**	**55**	**30**			
9	W	**16**	**11**	**5**	**6**	**6**	**19**	**47**	**184**	**175**	**128**	**138**	**211**	**256**	**193**	**233**	**330**	**484**	**513**	**212**	**143**	**134**	**76**	**61**	**45**	3626	513	17
10	T	**16**	**7**	**2**	**6**	**5**	**17**	**53**	**204**	**170**	**144**	**152**	**213**	**250**	**220**	**268**	**365**	**466**	**447**	**226**	**159**	**141**	**94**	**62**	**43**	3730	466	16
11	F	**30**																										
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
25	**10**	**4**	**5**	**5**	**19**	**49**	**191**	**170**	**134**	**143**	**209**	**250**	**203**	**254**	**341**	**463**	**475**	**237**	**151**	**128**	**75**	**57**	**36**	**3634**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	70	5	70	475	13%	0.987	1.017

ESTIMATED

AADT
3573

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Westbound FACTOR GROUP: 30
STATE DIR CODE: 7 WK OF YR: 46
DATE OF COUNT: 11/07/2016
NOTES LANE 1: One Lane WB - 35 MPH

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **SWEET HOME RD**
REC. SERIAL #: EZ96
PLACEMENT: 850' E of Audubon Pkwy
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: R05 INITIALS: RPJ

TO: **NY 270 CAMPBELL BLVD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V46aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M															**233**	**227**	**267**		**162**	**127**		**54**	**33**	**19**			
8	T	**9**	**6**	**2**	**10**	**9**	**34**												**329**	**165**	**105**	**91**	**48**	**40**	**21**			
9	W	**7**	**7**	**2**	**14**	**7**	**38**	**138**	**416**	**453**	**239**	**188**	**168**	**207**	**226**	**250**	**227**	**241**	**275**	**178**	**103**	**81**	**63**	**43**	**14**	3585	453	8
10	T	**10**	**5**	**1**	**9**	**14**	**37**	**144**	**421**	**469**	**222**	**187**	**175**	**209**	**212**	**227**	**213**	**250**	**254**	**178**	**120**	**70**	**64**	**38**	**16**	3545	469	8
11	F	**9**																										
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
9	**6**	**2**	**11**	**10**	**36**	**139**	**413**	**455**	**227**	**186**	**170**	**205**	**216**	**234**	**219**	**250**	**282**	**169**	**113**	**80**	**56**	**38**	**18**	**3544**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
5	70	5	70	455	13%	0.987	1.017	**AADT 3485**

ROAD #: **CR45** ROAD NAME: **DODGE RD** FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD** COUNTY: **Erie**
STATION: **534232** STATE DIR CODE: **7** PLACEMENT: **850' E of Audubon Pkwy** **DATE OF COUNT: 11/07/2016**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

STATION: 535024

New York State Department of Transportation
Roadway Traffic Count Hourly Report

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	3, 7	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 East 1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**82**	**77**	**96**	**81**	**42**	**34**	**28**	**12**	452		
9/22, Mon	**13**	**7**	**4**	**3**	**28**	**66**	**336**	**761**	**730**	**393**	**330**	**457**	**486**	**431**	**429**	**673**	**855**	**684**	**321**	**185**	**154**	**82**	**34**	**35**	7497	855	16-17
9/23, Tue	**28**	**5**	**45**	**6**	**36**	**69**	**347**	**783**	**739**	**414**	**319**	**330**	**491**	**397**	**374**	**650**	**842**	**707**	**351**	**226**	**137**	**72**	**35**	**28**	7431	842	16-17
9/24, Wed	**24**	**14**	**42**	**6**	**31**	**61**	**351**	**761**	**721**	**414**	**288**	**355**	**467**	**408**	**447**	**646**	**785**	**759**	**322**	**215**	**127**	**88**	**39**	**36**	7407	785	16-17
9/25, Thu	**22**	**11**	**37**	**8**	**27**	**77**	**336**																		518		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	25	**10**	**41**	**7**	**31**	**69**	**343**	**768**	**730**	**407**	**312**	**381**	**481**	**412**	**417**	**656**	**827**	**717**	**331**	**209**	**139**	**81**	**36**	**33**	7463		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day
4	87	3	73	827	11.1	578	14.2	431	12.7

ESTIMATED AADT		
Roadway	East	West
7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

EB Traffic Count Hourly Report

STATION: 535024

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	3	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 East	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**39**	**33**	**38**	**49**	**21**	**12**	**10**	**5**	207		
9/22, Mon	**5**	**1**	**2**	**1**	**9**	**26**	**65**	**334**	**289**	**185**	**176**	**304**	**261**	**213**	**214**	**406**	**583**	**509**	**192**	**123**	**78**	**31**	**13**	**21**	4041	583	16-17
9/23, Tue	**22**	**4**	**41**	**1**	**14**	**25**	**74**	**351**	**315**	**193**	**149**	**186**	**266**	**208**	**179**	**402**	**602**	**534**	**213**	**132**	**68**	**31**	**11**	**16**	4037	602	16-17
9/24, Wed	**20**	**12**	**39**	**1**	**13**	**20**	**80**	**354**	**292**	**192**	**147**	**199**	**258**	**203**	**224**	**402**	**550**	**577**	**179**	**132**	**67**	**40**	**18**	**20**	4039	577	17-18
9/25, Thu	**17**	**7**	**34**	**2**	**10**	**32**	**72**																		174		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	20	**8**	**38**	**1**	**12**	**26**	**73**	**346**	**299**	**190**	**157**	**230**	**262**	**208**	**206**	**403**	**578**	**540**	**195**	**129**	**71**	**34**	**14**	**19**	4058		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
4	87	3	73	827	11.1	578	14.2	431	12.7	7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

WB Traffic Count Hourly Report

STATION: 535024

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	7	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**43**	**44**	**58**	**32**	**21**	**22**	**18**	**7**	245		
9/22, Mon	**8**	**6**	**2**	**2**	**19**	**40**	**271**	**427**	**441**	**208**	**154**	**153**	**225**	**218**	**215**	**267**	**272**	**175**	**129**	**62**	**76**	**51**	**21**	**14**	3456	441	08-09
9/23, Tue	**6**	**1**	**4**	**5**	**22**	**44**	**273**	**432**	**424**	**221**	**170**	**144**	**225**	**189**	**195**	**248**	**240**	**173**	**138**	**94**	**69**	**41**	**24**	**12**	3394	432	07-08
9/24, Wed	**4**	**2**	**3**	**5**	**18**	**41**	**271**	**407**	**429**	**222**	**141**	**156**	**209**	**205**	**223**	**244**	**235**	**182**	**143**	**83**	**60**	**48**	**21**	**16**	3368	429	08-09
9/25, Thu	**5**	**4**	**3**	**6**	**17**	**45**	**264**																		344		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	5	**2**	**3**	**5**	**19**	**43**	**270**	**422**	**431**	**217**	**155**	**151**	**220**	**204**	**211**	**253**	**249**	**177**	**137**	**80**	**68**	**47**	**22**	**14**	3405		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
4	87	3	73	827	11.1	578	14.2	431	12.7	7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 44
DATE OF COUNT: 10/24/2016
NOTES LANE 1: North
NOTES LANE 2: North
COUNT TAKEN BY: ORG CODE: TTG INITIALS: JM

FROM: **N ELLICOTT RD**
REC. SERIAL #: GC47
PLACEMENT: 654ft N of N Ellicott Creek
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: SJW

TO: **COMMERCE DRIVE**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05C44aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN: 3367090
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																											
4	T																											
5	W																											
6	T																											
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																				**551**	**457**	**315**	**218**	**155**			
25	T	**95**	**35**	**29**	**38**	**46**	**131**	**528**	**977**	**1072**	**621**	**470**	**562**	**659**	**616**	**761**	**837**	**1028**	**1036**	**714**	**520**	**461**	**360**	**232**	**156**	11984	1072	8
26	W	**87**	**42**	**14**	**36**	**41**	**120**	**507**	**931**	**1085**	**628**	**527**	**554**	**618**	**722**	**758**	**852**	**1058**	**1061**	**744**	**555**	**425**	**426**	**251**	**161**	12203	1085	8
27	T	**93**	**37**	**25**	**42**	**40**	**142**	**488**	**951**	**1036**	**600**	**492**	**506**	**588**	**599**	**693**	**862**	**982**	**1040**	**630**	**540**	**454**	**365**	**282**	**188**	11675	1040	17
28	F	**98**	**56**	**37**	**43**	**40**	**111**	**446**	**959**	**988**	**626**																	
29	S																											
30	S																											
31	M																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
93	**42**	**26**	**40**	**42**	**126**	**492**	**954**	**1045**	**619**	**496**	**541**	**622**	**646**	**737**	**850**	**1023**	**1046**	**696**	**542**	**449**	**366**	**246**	**165**	**11904**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	87	4	87	1046	9%	1.000	1.074

ESTIMATED

AADT
11084

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**
STATION: **536335** STATE DIR CODE: **1** PLACEMENT: **654ft N of N Ellicott Creek** **DATE OF COUNT: 10/24/2016**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 44
DATE OF COUNT: 10/24/2016
NOTES LANE 1: South
NOTES LANE 2: South
COUNT TAKEN BY: ORG CODE: TTG INITIALS: MJ

FROM: **N ELLICOTT RD**
REC. SERIAL #: L442
PLACEMENT: 654ft N of N Ellicott Creek
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: SJW

TO: **COMMERCE DRIVE**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05C44aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN: 3367090
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																											
4	T																											
5	W																											
6	T																											
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																				**399**	**311**	**182**	**134**	**102**			
25	T	**69**	**25**	**16**	**24**	**51**	**179**	**474**	**943**	**769**	**596**	**571**	**643**	**718**	**609**	**625**	**1000**	**1321**	**1416**	**779**	**448**	**300**	**211**	**146**	**121**	12054	1416	17
26	W	**57**	**23**	**24**	**40**	**51**	**179**	**485**	**1005**	**901**	**661**	**630**	**647**	**771**	**713**	**752**	**1206**	**1380**	**1346**	**870**	**459**	**302**	**274**	**166**	**118**	13060	1380	16
27	T	**83**	**42**	**20**	**29**	**70**	**156**	**527**	**1040**	**912**	**650**	**572**	**592**	**808**	**663**	**688**	**983**	**1331**	**1307**	**742**	**489**	**337**	**227**	**167**	**125**	12560	1331	16
28	F	**58**	**43**	**18**	**35**	**45**	**162**	**447**	**952**	**841**	**664**																	
29	S																											
30	S																											
31	M																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
67	**33**	**20**	**32**	**54**	**169**	**483**	**985**	**856**	**643**	**591**	**627**	**766**	**662**	**688**	**1063**	**1344**	**1356**	**797**	**449**	**312**	**224**	**153**	**116**	**12490**

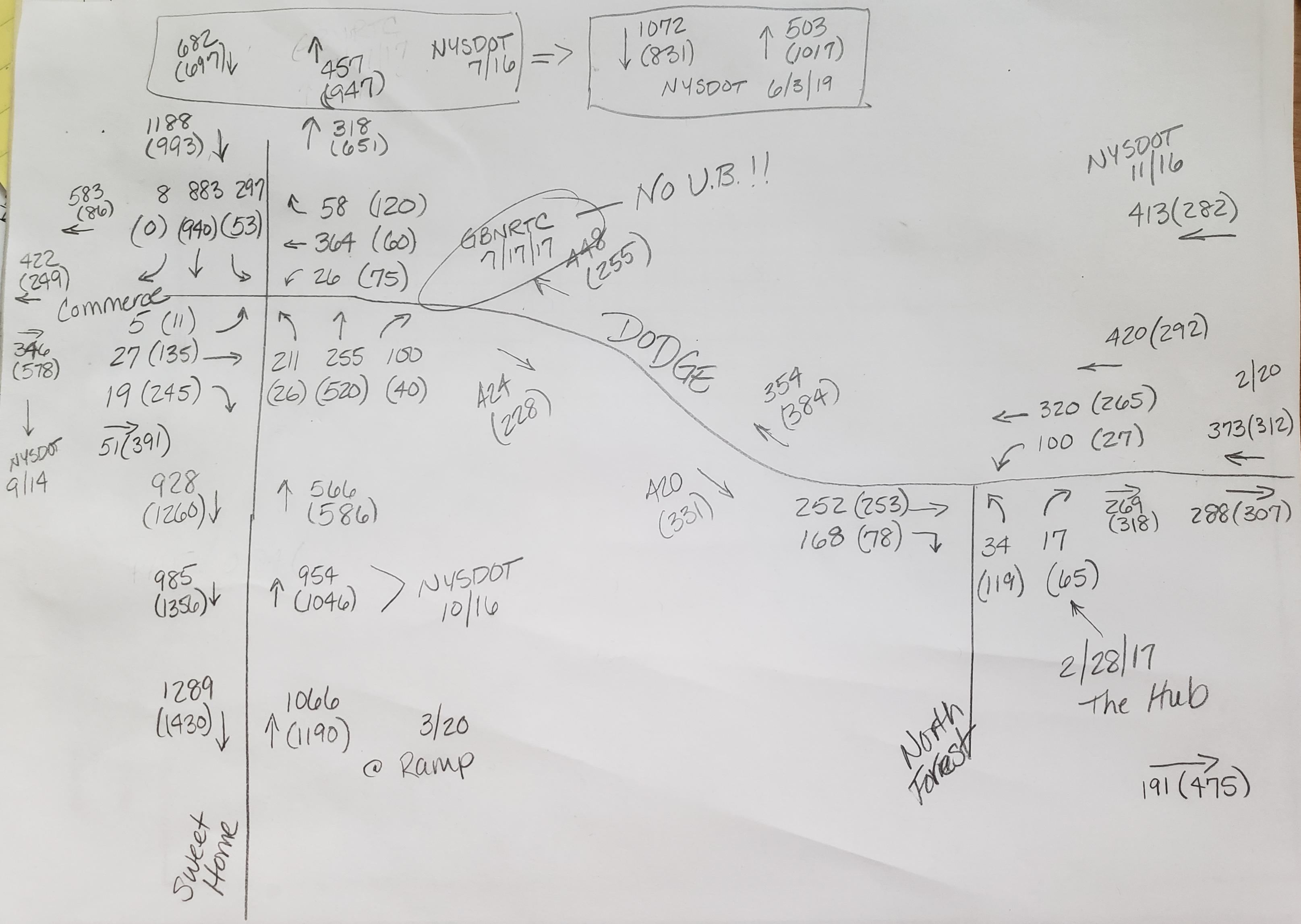
DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	87	4	87	1356	11%	1.000	1.074

ESTIMATED

AADT
11629

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**
STATION: **536335** STATE DIR CODE: **2** PLACEMENT: **654ft N of N Ellicott Creek** **DATE OF COUNT: 10/24/2016**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



682 (697)
457 (947)
NYSDOT 7/16
1072 (831)
503 (1017)
NYSDOT 6/3/19
1188 (993)
318 (651)
583 (86)
8 883 297
(0) (940) (53)
58 (120)
364 (60)
26 (75)
GBNRTC 7/17/17
NO U.B.!!
448 (255)
NYSDOT 11/16
413 (282)
422 (249)
Commerce
5 (11)
27 (135)
19 (245)
346 (578)
211 255 100
(26) (520) (40)
DODGE
424 (228)
354 (384)
420 (292)
2/20
320 (265)
100 (27)
373 (312)
51 (391)
NYSDOT 9/14
928 (1260)
566 (586)
420 (331)
252 (253)
168 (78)
34 (119)
17 (65)
269 (318)
288 (307)
985 (1356)
954 (1046)
NYSDOT 10/16
2/28/17
The Hub
1289 (1430)
1066 (1190)
3/20
@ Ramp
North Forest
191 (475)
Sweet Home

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

Muir Woods Site A, Town of Amherst, NY

Documentation of Ambient Traffic Volume Growth

Roadway	Segment starts at	Segment end at	2004	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Growth
North Forest Road	1.0 N of NY263/Turtle Creek Apt DWY	Dodge Road								2,189			1,809		1,825	1,845		-2.81%
Dodge Road	Sweet Home Road	NY270 Campbell Road					6,363			5,440				7,058	6,738			0.72%
Sweet Home Road	Commerce Drive	North French Road			16,280				16,606		15,052			16,008			18,050	0.86%
Sweet Home Road	N Ellicott Road	Commerce Drive	23,552		21,115			21,021						21,437				-0.78%
Commerce Drive	Woodbridge Road	Sweet Home Road										7,027						

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

PROJECT DETAILS

Project Name:	Muir Woods	Type of Project:	
Project No:		City:	
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Amy Dake	Clients Name:	
Date:	6/22/2020	ZIP/Postal Code:	
State/Province:		No. of Scenarios:	2
Analysis Region:			

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	AM Peak Hour	5	1	0		47	85	132
Scenario - 2	PM Peak Hour	5	1	0		106	82	181

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Scenario - 1

Scenario Name: AM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	90	Weekday, Peak Hour of Adjacent Street Traffic,	Average	17	50	67
Data Source: Trip Gen Manual, 10th Ed +					0.74	25%	75%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	12	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	1	5	6
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.95Ln(X) - 0.51	23%	77%	
221 - Multifamily Housing (Mid-Rise) [Private]	General Urban/Suburban	Dwelling Units	100	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	9	25	34
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.98Ln(X) - 0.98	26%	74%	
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street Traffic,	Average	14	2	17
Data Source: Trip Gen Manual, 10th Ed +					1.16	86%	14%	
875 - Department Store	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street	Average	6	3	9
Data Source: Trip Gen Manual, 10th Ed +					0.58	64%	36%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	25	75
220 - Multifamily Housing (Low-Rise)	100	100	1	1	23	77
221 - Multifamily Housing (Mid-Rise) [Private]	100	100	1	1	26	74
710 - General Office Building	100	100	1	1	86	14
875 - Department Store	100	100	1	1	64	36

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	17	50	0	0	17	50
	67		0		67	
220 - Multifamily Housing (Low-Rise)	1	5	0	0	1	5
	6		0		6	
221 - Multifamily Housing (Mid-Rise) [Private]	9	25	0	0	9	25
	34		0		34	
710 - General Office Building	15	2	0	0	14	2
	17		0		17	
875 - Department Store	6	3	0	0	6	3
	9		0		9	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	17	50	67
220 - Multifamily Housing (Low-Rise)	1	5	6

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

221 - Multifamily Housing (Mid-Rise) [Private]	9	25	34
710 - General Office Building	14	2	17
875 - Department Store	6	3	9

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	47	85	132
External Vehicle Trips	47	85	132
New Vehicle Trips	47	85	132

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Scenario - 2

Scenario Name: PM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	90	Weekday, Peak Hour of Adjacent Street Traffic,	Average	56	33	89
Data Source: Trip Gen Manual, 10th Ed +					0.99	63%	37%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	12	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	6	3	9
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.89Ln(X) - 0.02	63%	37%	
221 - Multifamily Housing (Mid-Rise)	General Urban/Suburban	Dwelling Units	100	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	27	17	44
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.96Ln(X) - 0.63	61%	39%	
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street Traffic,	Average	2	14	17
Data Source: Trip Gen Manual, 10th Ed +					1.15	16%	84%	
875 - Department Store [Private]	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street	Average	15	15	30
Data Source: Trip Gen Manual, 10th Ed +					1.95	50%	50%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37
220 - Multifamily Housing (Low-Rise)	100	100	1	1	63	37
221 - Multifamily Housing (Mid-Rise)	100	100	1	1	61	39
710 - General Office Building	100	100	1	1	16	84
875 - Department Store [Private]	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	56	33	0	0	56	33
	89		0		89	
220 - Multifamily Housing (Low-Rise)	6	3	0	0	6	3
	9		0		9	
221 - Multifamily Housing (Mid-Rise)	27	17	0	0	27	17
	44		0		44	
710 - General Office Building	3	14	0	0	2	14
	17		0		17	
875 - Department Store [Private]	15	15	0	0	15	15
	30		0		30	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	56	33	89
220 - Multifamily Housing (Low-Rise)	6	3	9

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

221 - Multifamily Housing (Mid-Rise)	27	17	44
710 - General Office Building	2	14	17
875 - Department Store [Private]	15	15	30

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	106	82	188
External Vehicle Trips	106	82	188
New Vehicle Trips	106	82	188

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

PROPOSED MUIR WOODS SECTION A
TOWN OF AMHERST, NY
AM PEAK

Fig 3 Fig 4 Fig 6 Fig 7 Fig 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2020 Existing Volume	2022 Bkgd Vol 1.00%	Muir Woods Site B	2022 Bkgrd Volume	Proposed Muir Woods Section A Enter Dist. %	Exit Dist. %	Trips IN 47	Trips OUT 85	Total Site Trips	FULL Build Volumes
1	Sweet Home Road Dodge Road/Commerce Drive										
	SR	8	8		8						8
	ST	883	901	15	916						916
	SL	297	303		303	20%		9		9	312
	WR	58	59		59		20%		17	17	76
	WT	364	371		371		10%		9	9	380
	WL	26	27		27		25%		21	21	48
	NR	100	102		102	25%		12		12	114
	NT	450	459	11	470						470
	NL	211	215		215						215
	ER	50	51		51						51
	ET	30	31		31	10%		5		5	36
	EL	10	10		10						10
2	Dodge Road Proposed North Driveway										
	SR						25%		21	21	21
	ST										
	SL						15%		13	13	13
	WR					10%		5		5	5
	WT	361	368	18	386		30%		26	26	412
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	25%		12		12	490
	EL					30%		14		14	14
3	Dodge Road Proposed Middle Out Driveway										
	SR						10%		9	9	9
	ST										
	SL						5%		4	4	4
	WR										
	WT	361	368	18	386	10%	15%	5	13	17	403
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	25%	15%	12	13	25	503
	EL										
4	Dodge Road Proposed Middle In Driveway										
	SR										
	ST										
	SL										
	WR					5%		2		2	2
	WT	361	368	18	386	10%	20%	5	17	22	408
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	15%	20%	7	17	24	502
	EL					10%		5		5	5
5	Dodge Road Proposed South Driveway										
	SR						20%		17	17	17
	ST										
	SL						25%		21	21	21
	WR					30%		14		14	14
	WT	361	368	18	386	15%		7		7	393
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478		20%		17	17	495
	EL					15%		7		7	7
6	Dodge Road North Forest Road										
	SR										
	ST										
	SL										
	WR										
	WT	323	329	18	347	30%		14		14	361
	WL	102	104		104						104
	NR	20	20		20						20
	NT										
	NL	38	39		39	15%		7		7	46
	ER	170	173		173		15%		13	13	186
	ET	288	294	11	305		30%		26	26	331
	EL										

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

PROPOSED MUIR WOODS SECTION A
TOWN OF AMHERST, NY
PM PEAK

Fig 3 Fig 4 Fig 6 Fig 7 Fig 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2020 Existing Volume	2022 Bkgd Vol 1.00%	Muir Woods Site B	2022 Bkgrd Volume	Proposed Muir Woods Section A Enter Dist. %	Proposed Muir Woods Section A Exit Dist. %	Proposed Muir Woods Section A Trips IN 106	Proposed Muir Woods Section A Trips OUT 82	Total Site Trips	FULL Build Volumes
1	Sweet Home Road Dodge Road/Commerce Drive										
	SR	10	10		10						10
	ST	940	959	21	980						980
	SL	60	61		61	20%		21		21	82
	WR	150	153		153		20%		16	16	169
	WT	60	61		61		10%		8	8	69
	WL	75	77		77		25%		21	21	98
	NR	125	128		128	25%		27		27	155
	NT	740	755	13	768						768
	NL	175	179		179						179
	ER	260	265		265						265
	ET	150	153		153	10%		11		11	164
	EL	25	26		26						26
2	Dodge Road Proposed North Driveway										
	SR						25%		21	21	21
	ST										
	SL						15%		12	12	12
	WR					10%		11		11	11
	WT	389	397	32	429		30%		25	25	454
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	25%		27		27	386
	EL					30%		32		32	32
3	Dodge Road Proposed Middle Out Driveway										
	SR						10%		8	8	8
	ST										
	SL						5%		4	4	4
	WR										
	WT	389	397	32	429	10%	15%	11	12	23	452
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	25%	15%	27	12	39	398
	EL										
4	Dodge Road Proposed Middle In Driveway										
	SR										
	ST										
	SL										
	WR					5%		5		5	5
	WT	389	397	32	429	10%	20%	11	16	27	456
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	15%	20%	16	16	32	391
	EL					10%		11		11	11
5	Dodge Road Proposed South Driveway										
	SR						20%		16	16	16
	ST										
	SL						25%		21	21	21
	WR					30%		32		32	32
	WT	389	397	32	429	15%		16		16	445
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359		20%		16	16	375
	EL					15%		16		16	16
6	Dodge Road North Forest Road										
	SR										
	ST										
	SL										
	WR										
	WT	268	273	32	305	30%		32		32	337
	WL	30	31		31						31
	NR	68	69		69						69
	NT										
	NL	121	123		123	15%		16		16	139
	ER	81	83		83		15%		12	12	95
	ET	258	263	13	276		30%		25	25	301
	EL										

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

SWEET HOME/DODGE/COMMERCE

1.d

Phase Times (next/2/2/2, next/2/2/7/6) E/W									
	1	2	3	4	5	6 SB	7	8	
Movement	SBL	NB			NBL	[redacted]		[redacted]	
Minimum Green	10	40	0	0	10	40	0	15	0 - 255 sec.
Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Yellow	3.2	4.3	0.0	0.0	3.2	4.3	0.0	3.9	0.0 - 25.5 sec.
Red Clearance	1.1	1.4	0.0	0.0	1.1	1.4	0.0	1.8	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	20	45	0	0	20	45	0	30	0 - 255 sec
Max 2	0	0	0	0	0	0	0	0	0 - 255 sec
Walk	0	7	0	0	0	7	0	7	0 - 255 sec
Ped Clear	0	15	0	0	0	15	0	15	0 - 255 sec
Seconds Per Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	0	0	0	0	0	0	0	0 - 255 sec
Time to Reduce	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Gap	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0 - 25.5 sec.
Max Variable Initial	0	0	0	0	0	0	0	0	0 - 255 sec
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Other Controller Functions (next/2/2/9)									
Phase -->	1	2	3	4	5	6	7	8	
Inhibit Simultaneous Gap Out									X = On
Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage							
Red Revert (+2seconds)	0.0	0 - 25.5 sec.							
Auto Ped Clear		X = On							
Flashing Don't Walk Thru Yellow		X = On							
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec.							
Change Sequence	X	X = On (After a download with a power on - off cycle)							
Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

A3

Level of Service: Criteria and Definitions

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

A4

Level of Service Calculations: Existing Conditions

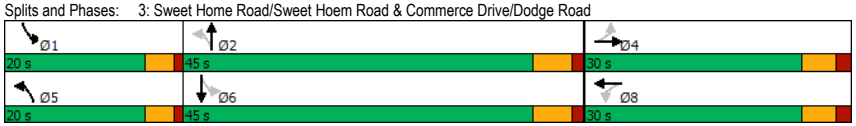
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	30	50	26	364	58	211	450	100	297	883	8
Future Volume (vph)	10	30	50	26	364	58	211	450	100	297	883	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.906			0.979			0.973			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1434	0	1612	1839	0	1703	3366	0	1787	3502	0
Flt Permitted	0.163			0.693			0.117			0.308		
Satd. Flow (perm)	194	1434	0	1176	1839	0	210	3366	0	579	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			8			34			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	37	62	32	449	72	260	556	123	367	1090	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	99	0	32	521	0	260	679	0	367	1100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		49.5	34.2		49.0	34.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.56	0.39		0.56	0.39	
v/c Ratio	0.23	0.22		0.10	1.01		0.74	0.51		0.72	0.82	
Control Delay	40.5	14.2		27.7	76.4		31.5	20.9		17.6	30.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.5	14.2		27.7	76.4		31.5	20.9		17.6	30.0	
LOS	D	B		C	E		C	C		B	C	
Approach Delay		17.0			73.5			23.8			26.9	
Approach LOS		B			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 88.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	288	170	102	323	38	20
Future Volume (vph)	288	170	102	323	38	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950				0.953	
Flt Protected				0.988	0.968	
Satd. Flow (prot)	1783	0	0	1863	1753	0
Flt Permitted				0.988	0.968	
Satd. Flow (perm)	1783	0	0	1863	1753	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	374	221	132	419	49	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	595	0	0	551	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	288	170	102	323	38	20
Future Vol, veh/h	288	170	102	323	38	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	374	221	132	419	49	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	595	0	1168	485
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	683	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	991	-	216	586
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	991	-	178	586
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	417	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	27.5
HCM LOS			D

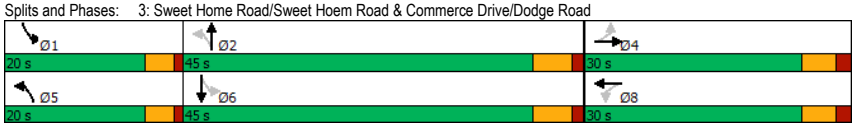
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	991	-
HCM Lane V/C Ratio	0.322	-	-	0.134	-
HCM Control Delay (s)	27.5	-	-	9.2	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	150	260	75	60	150	175	740	125	60	940	10
Future Volume (vph)	25	150	260	75	60	150	175	740	125	60	940	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.905			0.893			0.978			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1696	0	1805	1675	0	1612	3476	0	1805	3567	0
Flt Permitted	0.435			0.164			0.095			0.188		
Satd. Flow (perm)	700	1696	0	312	1675	0	161	3476	0	357	3567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			127			24			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	33	197	342	99	79	197	230	974	164	79	1237	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	539	0	99	276	0	230	1138	0	79	1250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		55.8	45.4		45.0	36.6	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.50		0.50	0.41	
v/c Ratio	0.17	1.03		1.18	0.51		0.73	0.65		0.27	0.86	
Control Delay	30.3	77.7		191.3	19.3		32.4	18.8		10.1	32.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.3	77.7		191.3	19.3		32.4	18.8		10.1	32.2	
LOS	C	E		F	B		C	B		B	C	
Approach Delay		75.0			64.7			21.1			30.9	
Approach LOS		E			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 90.3			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 37.6		Intersection LOS: D	
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	258	81	30	268	121	68
Future Volume (vph)	258	81	30	268	121	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968				0.951	
Flt Protected				0.995	0.969	
Satd. Flow (prot)	1839	0	0	1890	1751	0
Flt Permitted				0.995	0.969	
Satd. Flow (perm)	1839	0	0	1890	1751	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	344	108	40	357	161	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	452	0	0	397	252	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	258	81	30	268	121	68
Future Vol, veh/h	258	81	30	268	121	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	344	108	40	357	161	91

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	452	0	835	398
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	437	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1119	-	340	656
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1119	-	325	656
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	626	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	28.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	397	-	-	1119	-
HCM Lane V/C Ratio	0.635	-	-	0.036	-
HCM Control Delay (s)	28.6	-	-	8.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	4.2	-	-	0.1	-

A5

Level of Service Calculations: Background Conditions

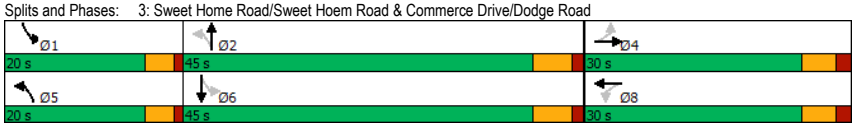
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	31	51	27	371	59	215	470	102	303	916	8
Future Volume (vph)	10	31	51	27	371	59	215	470	102	303	916	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.906			0.979			0.973			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1435	0	1612	1839	0	1703	3366	0	1787	3502	0
Flt Permitted	0.163			0.692			0.112			0.298		
Satd. Flow (perm)	194	1435	0	1174	1839	0	201	3366	0	561	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			8			33			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	38	63	33	458	73	265	580	126	374	1131	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	101	0	33	531	0	265	706	0	374	1141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		51.2	35.6		50.2	35.1	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.57	0.40		0.56	0.39	
v/c Ratio	0.23	0.23		0.10	1.05		0.75	0.52		0.75	0.83	
Control Delay	41.1	14.3		28.0	86.8		33.3	21.0		19.0	30.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	14.3		28.0	86.8		33.3	21.0		19.0	30.8	
LOS	D	B		C	F		C	C		B	C	
Approach Delay		17.1			83.4			24.3			27.9	
Approach LOS		B			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 36.3		Intersection LOS: D	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	305	173	104	347	39	20
Future Volume (vph)	305	173	104	347	39	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951				0.954	
Flt Protected				0.989	0.968	
Satd. Flow (prot)	1784	0	0	1865	1755	0
Flt Permitted				0.989	0.968	
Satd. Flow (perm)	1784	0	0	1865	1755	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	396	225	135	451	51	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	0	586	77	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.0%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	305	173	104	347	39	20
Future Vol, veh/h	305	173	104	347	39	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	396	225	135	451	51	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	621	0	1230	509
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	721	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	969	-	198	568
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	485	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	969	-	161	568
Mov Cap-2 Maneuver	-	-	-	-	161	-
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	395	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	31.1
HCM LOS			D

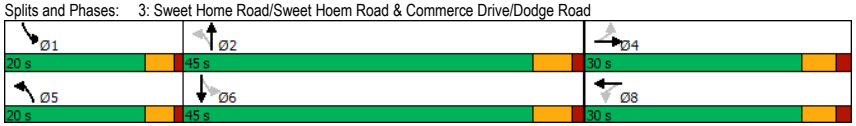
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	213	-	-	969	-
HCM Lane V/C Ratio	0.36	-	-	0.139	-
HCM Control Delay (s)	31.1	-	-	9.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	153	265	77	61	153	179	768	128	61	980	10
Future Volume (vph)	26	153	265	77	61	153	179	768	128	61	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.905			0.893			0.979			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1696	0	1805	1675	0	1612	3480	0	1805	3571	0
Flt Permitted	0.421			0.164			0.093			0.174		
Satd. Flow (perm)	678	1696	0	312	1675	0	158	3480	0	331	3571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			128			24			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	34	201	349	101	80	201	236	1011	168	80	1289	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	550	0	101	281	0	236	1179	0	80	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		57.2	46.6		46.2	37.7	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.51		0.50	0.41	
v/c Ratio	0.19	1.07		1.23	0.52		0.75	0.66		0.29	0.89	
Control Delay	30.9	88.5		206.8	19.9		34.3	19.2		10.3	33.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.9	88.5		206.8	19.9		34.3	19.2		10.3	33.8	
LOS	C	F		F	B		C	B		B	C	
Approach Delay		85.1			69.3			21.7			32.5	
Approach LOS		F			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 91.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	276	83	31	305	123	69
Future Volume (vph)	276	83	31	305	123	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969				0.951	
Flt Protected				0.995	0.969	
Satd. Flow (prot)	1841	0	0	1890	1751	0
Flt Permitted				0.995	0.969	
Satd. Flow (perm)	1841	0	0	1890	1751	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	368	111	41	407	164	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	479	0	0	448	256	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	8.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	276	83	31	305	123	69
Future Vol, veh/h	276	83	31	305	123	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	368	111	41	407	164	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	479	0	913	424
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1094	-	306	634
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1094	-	291	634
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	591	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	35.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	-	-	1094	-
HCM Lane V/C Ratio	0.709	-	-	0.038	-
HCM Control Delay (s)	35.9	-	-	8.4	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	5.2	-	-	0.1	-

A6

Level of Service Calculations: Full Build Conditions

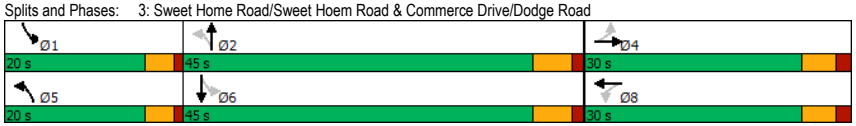
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	36	51	48	380	76	215	470	114	312	916	8
Future Volume (vph)	10	36	51	48	380	76	215	470	114	312	916	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		150	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.912			0.975			0.971			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1458	0	1612	1831	0	1703	3358	0	1787	3502	0
Flt Permitted	0.163			0.688			0.113			0.285		
Satd. Flow (perm)	194	1458	0	1167	1831	0	203	3358	0	536	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			10			38			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	44	63	59	469	94	265	580	141	385	1131	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	107	0	59	563	0	265	721	0	385	1141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		50.8	35.3		50.5	35.1	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.57	0.39		0.56	0.39	
v/c Ratio	0.23	0.24		0.18	1.11		0.75	0.54		0.77	0.83	
Control Delay	41.1	15.0		29.3	106.8		33.3	21.2		21.2	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	15.0		29.3	106.8		33.3	21.2		21.2	30.7	
LOS	D	B		C	F		C	C		C	C	
Approach Delay		17.7			99.5			24.5			28.3	
Approach LOS		B			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 40.4		Intersection LOS: D	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	331	186	104	361	46	20
Future Volume (vph)	331	186	104	361	46	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951				0.959	
Flt Protected				0.989	0.966	
Satd. Flow (prot)	1784	0	0	1865	1760	0
Flt Permitted				0.989	0.966	
Satd. Flow (perm)	1784	0	0	1865	1760	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	430	242	135	469	60	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	672	0	0	604	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	186	104	361	46	20
Future Vol, veh/h	331	186	104	361	46	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	430	242	135	469	60	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	672	0	1290	551
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	928	-	182	538
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	476	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	928	-	146	538
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	382	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	39.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	187	-	-	928	-
HCM Lane V/C Ratio	0.458	-	-	0.146	-
HCM Control Delay (s)	39.6	-	-	9.5	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.5	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	14	490	412	5	13	21
Future Volume (vph)	14	490	412	5	13	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.916	
Flt Protected		0.999			0.981	
Satd. Flow (prot)	0	1861	1861	0	1674	0
Flt Permitted		0.999			0.981	
Satd. Flow (perm)	0	1861	1861	0	1674	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	235		405	
Travel Time (s)		5.5	5.3		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	533	448	5	14	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	548	453	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	14	490	412	5	13	21
Future Vol, veh/h	14	490	412	5	13	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	533	448	5	14	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	453	0	-	0	1014	451
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	563	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1108	-	-	-	264	608
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1108	-	-	-	259	608
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	570	-

Approach	SE	NW	SW
HCM Control Delay, s	0.2	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)	-	-	1108	-	401
HCM Lane V/C Ratio	-	-	0.014	-	0.092
HCM Control Delay (s)	-	-	8.3	0	14.9
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	503	403	0	4	9
Future Volume (vph)	0	503	403	0	4	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.904	
Flt Protected					0.986	
Satd. Flow (prot)	0	1863	1863	0	1660	0
Flt Permitted					0.986	
Satd. Flow (perm)	0	1863	1863	0	1660	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		235	240		378	
Travel Time (s)		5.3	5.5		8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	547	438	0	4	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	547	438	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	503	403	0	4	9
Future Vol, veh/h	0	503	403	0	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	547	438	0	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	985	438
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	547	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	275	619
Stage 1	0	-	-	0	651	-
Stage 2	0	-	-	0	580	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	275	619
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	580	-

Approach	SE	NW	SW
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NWT	SETSWLn1
Capacity (veh/h)	-	- 447
HCM Lane V/C Ratio	-	- 0.032
HCM Control Delay (s)	-	- 13.3
HCM Lane LOS	-	- B
HCM 95th %tile Q(veh)	-	- 0.1

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	5	502	408	2	0	0
Future Volume (vph)	5	502	408	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected						
Satd. Flow (prot)	0	1863	1861	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1863	1861	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	291		382	
Travel Time (s)		5.5	6.6		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	546	443	2	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	551	445	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	7	495	393	14	21	17
Future Volume (vph)	7	495	393	14	21	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.941	
Flt Protected		0.999			0.973	
Satd. Flow (prot)	0	1861	1853	0	1706	0
Flt Permitted		0.999			0.973	
Satd. Flow (perm)	0	1861	1853	0	1706	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		291	117		311	
Travel Time (s)		6.6	2.7		7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	538	427	15	23	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	546	442	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	7	495	393	14	21	17
Future Vol, veh/h	7	495	393	14	21	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	538	427	15	23	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	442	0	-	0	989	435
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	554	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1118	-	-	-	274	621
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1118	-	-	-	271	621
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	575	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	16.2
HCM LOS			C

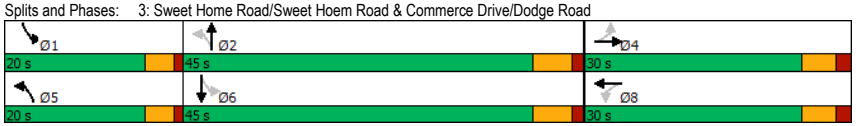
Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1118	-	362
HCM Lane V/C Ratio	-	-	0.007	-	0.114
HCM Control Delay (s)	-	-	8.2	0	16.2
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	164	265	98	69	169	179	768	155	82	980	10
Future Volume (vph)	26	164	265	98	69	169	179	768	155	82	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		150	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.907			0.894			0.975			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1700	0	1805	1677	0	1612	3462	0	1805	3571	0
Flt Permitted	0.369			0.164			0.093			0.153		
Satd. Flow (perm)	594	1700	0	312	1677	0	158	3462	0	291	3571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		82			124			30			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	34	216	349	129	91	222	236	1011	204	108	1289	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	565	0	129	313	0	236	1215	0	108	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		57.1	45.8		47.0	37.7	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.50		0.51	0.41	
v/c Ratio	0.22	1.10		1.57	0.58		0.75	0.70		0.39	0.88	
Control Delay	32.1	100.2		333.9	22.9		34.8	20.5		11.9	33.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.1	100.2		333.9	22.9		34.8	20.5		11.9	33.7	
LOS	C	F		F	C		C	C		B	C	
Approach Delay		96.4			113.7			22.8			32.0	
Approach LOS		F			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 91.5			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 47.7		Intersection LOS: D	
Intersection Capacity Utilization 85.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	301	95	31	337	139	69
Future Volume (vph)	301	95	31	337	139	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968				0.955	
Flt Protected				0.996	0.968	
Satd. Flow (prot)	1839	0	0	1892	1756	0
Flt Permitted				0.996	0.968	
Satd. Flow (perm)	1839	0	0	1892	1756	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	401	127	41	449	185	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	528	0	0	490	277	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	13

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	301	95	31	337	139	69
Future Vol, veh/h	301	95	31	337	139	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	401	127	41	449	185	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	528	0	996	465
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1049	-	273	602
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	594	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1049	-	259	602
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	59.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	-	-	1049	-
HCM Lane V/C Ratio	0.869	-	-	0.039	-
HCM Control Delay (s)	59.6	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	7.9	-	-	0.1	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	32	386	454	11	12	21
Future Volume (vph)	32	386	454	11	12	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.914	
Flt Protected		0.996			0.982	
Satd. Flow (prot)	0	1855	1857	0	1672	0
Flt Permitted		0.996			0.982	
Satd. Flow (perm)	0	1855	1857	0	1672	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	235		405	
Travel Time (s)		5.5	5.3		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	420	493	12	13	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	455	505	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	32	386	454	11	12	21
Future Vol, veh/h	32	386	454	11	12	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	420	493	12	13	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	505	0	-	0	989	499
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	490	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1060	-	-	-	274	572
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1060	-	-	-	262	572
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	616	-

Approach	SE	NW	SW
HCM Control Delay, s	0.7	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1
Capacity (veh/h)	-	-	1060	- 400
HCM Lane V/C Ratio	-	-	0.033	- 0.09
HCM Control Delay (s)	-	-	8.5	0 14.9
HCM Lane LOS	-	-	A	A B
HCM 95th %tile Q(veh)	-	-	0.1	- 0.3

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		Y	
Traffic Volume (vph)	0	398	452	0	4	8
Future Volume (vph)	0	398	452	0	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.907	
Flt Protected					0.985	
Satd. Flow (prot)	0	1863	1863	0	1664	0
Flt Permitted					0.985	
Satd. Flow (perm)	0	1863	1863	0	1664	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		235	240		378	
Travel Time (s)		5.3	5.5		8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	433	491	0	4	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	433	491	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		Y	
Traffic Vol, veh/h	0	398	452	0	4	8
Future Vol, veh/h	0	398	452	0	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	433	491	0	4	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	924	491
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	433	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	299	578
Stage 1	0	-	-	0	615	-
Stage 2	0	-	-	0	654	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	299	578
Mov Cap-2 Maneuver	-	-	-	-	299	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	654	-

Approach	SE	NW	SW
HCM Control Delay, s	0	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NWT	SETSWLn1
Capacity (veh/h)	-	- 441
HCM Lane V/C Ratio	-	- 0.03
HCM Control Delay (s)	-	- 13.4
HCM Lane LOS	-	- B
HCM 95th %tile Q(veh)	-	- 0.1

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	11	391	456	5	0	0
Future Volume (vph)	11	391	456	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected		0.999				
Satd. Flow (prot)	0	1861	1861	0	0	0
Flt Permitted		0.999				
Satd. Flow (perm)	0	1861	1861	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	291		382	
Travel Time (s)		5.5	6.6		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	425	496	5	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	437	501	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.8%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	16	375	445	32	21	16
Future Volume (vph)	16	375	445	32	21	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991		0.943	
Flt Protected		0.998			0.972	
Satd. Flow (prot)	0	1859	1846	0	1707	0
Flt Permitted		0.998			0.972	
Satd. Flow (perm)	0	1859	1846	0	1707	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		291	117		311	
Travel Time (s)		6.6	2.7		7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	408	484	35	23	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	425	519	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	16	375	445	32	21	16
Future Vol, veh/h	16	375	445	32	21	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	408	484	35	23	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	944	502
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1047	-	-	-	291	569
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1047	-	-	-	285	569
Mov Cap-2 Maneuver	-	-	-	-	285	-
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	648	-

Approach	SE	NW	SW
HCM Control Delay, s	0.3	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1047	-	363
HCM Lane V/C Ratio	-	-	0.017	-	0.111
HCM Control Delay (s)	-	-	8.5	0	16.1
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4

Packet P

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

STORMWATER POLLUTION PREVENTION PLAN for CONSTRUCTION ACTIVITIES

Sawyer's Landing

Dodge & Sweet Home Road
Town of Amherst, Erie County, New York

Prepared for

Sawyer's Landing LLC

c/o Severyn Development
43 Central Ave Suite #300
Lancaster, NY 14086

Prepared by

Carmina Wood Morris, D.P.C.

487 Main Street, Suite 500
Buffalo, NY 14203

Telephone: (716) 842-3165
Fax: (716) 842-0263

February 2021



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Table of Contents

Section 101 - Scope

Section 102 - Project Name and Location

Section 103 - Operator's Name and Address

Section 104 - Project Description

Section 105 - Runoff Coefficient, Soils and Rainfall Information

Section 106 - Name of Receiving Waters

Section 107 - Indian Country Lands

Section 108 - Endangered or Threatened Species

Section 109 - Critical Habitat

Section 110 - Historic Places

Section 111 - Wetlands and/or Other Surface Waters

Section 112 - Erosion and Sediment Controls

- **Section 112.1** - Stabilization Practices
- **Section 112.2** - Structural Practices
- **Section 112.3** - Sequence of Major Activities
- **Section 112.4** - Storm Water Management

Section 113 - Other Controls

Section 114 - Compliance with Federal, State and Local Regulations

Section 115 - Inspection and Maintenance Procedures

Section 116 - Inspection and Maintenance Report Forms

Section 117 - Other Record-Keeping Requirements

Section 118 - Spill Prevention Control and Countermeasures (SPCC) Plan

- **Section 118.1** - Materials Covered
- **Section 118.2** - Material Management Practices
- **Section 118.3** - Spill Prevention and Response Procedures

Section 119 - Control of Non-Storm Water Discharges

Section 120 – Storm Water Control Facility Maintenance

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Table of Contents (con't)

Appendix A Site Location Map

Appendix B NYSDEC Notice of Intent (NOI)

Appendix C MS4 SWPPP Acceptance Form

Appendix D NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001

Appendix E Forms

- Contractor's Certification
- Owner/Operator Certification
- SWPPP Preparer Certification

Appendix F NYSDEC Notice of Termination (NOT)

Appendix G Construction Documents

Appendix H Soils Information

Appendix I NYSHPO Information

Appendix J Standard Erosion Control Details

Appendix K Wetland Permits

Appendix L NYSDEC Letter of Acknowledgement

Appendix M 5 Acre Disturbance Letter

Appendix N Engineer's Report

Appendix O NYSDEC Stormwater Management Inspection Lists

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

101 SCOPE

A. **PURPOSE:** Sawyer's Landing LLC (SL) has placed an emphasis on following the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction Activity governing storm water discharges during construction, and in accordance with erosion control practices. The Contractor's participation in this program is mandatory and its non-compliance is subject to various remedies, including without limitation, monetary set-offs, withholding payments; reimbursement for costs, expenses (including reasonable attorney's fees), fines and civil penalties incurred by SL; and/or liquidated damages. This section provides a descriptive explanation of SL's Storm Water Pollution Prevention Program and required Contractor participation.

The Engineer of record for this project certifies that this SWPPP meets the requirements and is in compliance with the New York State Stormwater Management Design Manual and latest NYSDEC Phase II stormwater regulation requirements.

B. **SPDES General Permit for Stormwater Discharges from Construction Activity:** Regulations promulgated by the NYSDEC to regulate the discharge of storm water from construction activities on sites where more than one (1) acre of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities for New York State. In order to use the General Permit, a Notice of Intent (NOI) form must be completed and electronically submitted to the NYSDEC at least 5 business days prior to any earth-disturbing activities (this time frame may increase to 60 business days if a full review of the SWPPP is determined necessary by the NYSDEC) and a Storm Water Pollution Prevention Plan (SWPPP) for the site must be prepared and followed during the construction activities. Once a copy of the SPDES permit is received from NYSDEC after filing, it will be included in Appendix L of this report.

Approval from a regulated, traditional land use control MS4:

1. An **owner or operator** of a construction activity that is <u>not</u> subject to the requirements of a regulated, traditional land use control MS4 must first develop a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the NYSDEC.

2. An **owner or operator** of a construction activity that is subject to the requirements of a regulated, traditional land use control MS4 must first

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

develop a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the MS4 prior to submitting the NOI to the NYSDEC. The **owner or operator** shall have the "MS4 SWPPP Acceptance" form signed by the principal executive officer or ranking elected official from the regulated, traditional land use control MS4, or by a duly authorized representative of that person, and then submit that form along with the NOI to the address referenced under "Notice of Intent (NOI) Submittal".

C. **RESPONSIBILITIES OF THE CONTRACTOR:** The Contractor shall manage the discharge of storm water from the site in accordance with the NYSDEC General Permit for Construction Activities conditions and the following provisions of this section. The Operator shall be responsible for conducting the storm water management practices in accordance with the permit. The Contractor shall be responsible for providing **qualified inspector**s to conduct the inspections required by the SWPPP. The Contractor shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the Contractor's failure to comply with the permit provisions. It shall be the responsibility of the Contractor to make any changes to the SWPPP necessary when the Contractor or any of his subcontractors elects to use borrow or fill or material storage sites, either contiguous to or remote from the construction site, when such sites are used solely for this construction site. Such sites are considered to be part of the construction site covered by the permit and this SWPPP. Off-site borrow, fill, or material storage sites which are used for multiple construction projects are not subject to this requirement, unless specifically required by state or local jurisdictional entity regulations. The Contractor should consider this requirement in negotiating with earthwork subcontractors, since the choice of an off-site borrow, fill, or material storage site may impact their duty to implement, make changes to, and perform inspections required by the SWPPP for the site.

D. **NOTICE OF INTENT:** The Operator has petitioned the NYSDEC for coverage under the storm water discharges during construction at this site to be covered by the SPDES General Permit for Construction Activity for the State of New York. A Notice of Intent (NOI) for coverage under this permit has been filed by the Operator. The SWPPP must be prepared prior to submittal of the NOI form. The Operator will require the Contractor to be a co-permittee with the Operator. The Contractor will be required to post the NOI at the construction site along with any building permits.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

E. **CONTRACTOR CERTIFICATION & TRAINING:** Proof of Training/Certification of the Contractor's Designated individual shall be kept on site at all times.

F. **REQUIREMENTS FOR THE GENERAL CONTRACTOR AND SUBCONTRACTOR(S):** The General Contractor and Subcontractor(s) shall sign the "Contractor's Certification Statement" (located in the Appendix of this report) verifying they have been instructed on how to comply with and fully understand the requirements of the SPDES General Permit for Construction Activity for the State of New York and the SWPPP. These certifications must be signed, by a responsible corporate officer or other party meeting the "Signatory Requirements" of the SPDES General Permit, on behalf of each entity, prior to the beginning of any construction activities.

G. **STORM WATER POLLUTION PREVENTION PROGRAM LOCATION REQUIREMENTS:** The SWPPP is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the project, shall be readily available upon request by the Operator's personnel or NYSDEC or any other agency with regulatory authority over storm water issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. A sign or other notice must be posted near the main entrance of the construction site which contains a completed NOI, the location of the SWPPP and the name and phone number of a contact person responsible for scheduling SWPPP viewing times, and any other state specific requirements.

H. **INSPECTIONS AND RECORD-KEEPING:**

A. **General Construction Site Inspection and Maintenance Requirements**

1. The **owner or operator** must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. **Owner or operator Maintenance Inspection Requirements**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

1. The **owner or operator** shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the **owner or operator** can stop conducting the maintenance inspections. The **owner or operator** shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of the General Permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the **owner or operator** can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. **Qualified inspector Inspection Requirements**

The **owner or operator** shall have a **qualified inspector** conduct site inspections in conformance with the following requirements:

Note: The **trained contractor** identified in Part III.A.6 of the General Permit **cannot** conduct the **qualified inspector** site inspections unless they meet the **qualified inspector** qualifications included in Appendix A of the General Permit. In order to perform these inspections, the trained contractor would have to be a:

- Licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- Someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity.

1. A **qualified inspector** shall conduct site inspections for all construction activities identified in Tables 1 and 2 of Appendix B of the General Permit, with the exception of:

   a. The construction of a single family residential subdivision with 25% or less impervious cover at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C of the General Permit and not directly discharging to one of the 303(d) segments listed in Appendix E of the General Permit;

   b. The construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E of the General Permit;

   c. Construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

   d. Construction activities located in the watersheds identified in Appendix D of the General Permit that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the **qualified inspector** shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the **qualified inspector** shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the **owner or operator** has received authorization in accordance with Part II.C.3 of the General Permit to **disturb greater than five (5) acres** of soil at any one time, the **qualified inspector**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been **temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas**, the **qualified inspector** shall conduct a site inspection at least once every thirty (30) calendar days. The **owner or operator** shall notify the Regional Office stormwater contact person (see contact information in Appendix F of the General Permit) or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4 (provided the MS4 is not the **owner or operator** of the construction activity) in writing prior to reducing the frequency of inspections.

d. For construction sites where **soil disturbance activities have been shut down with partial project completion**, the **qualified inspector** can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The **owner or operator** shall notify the Regional Office stormwater contact person or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4 (provided the MS4 is not the **owner or operator** of the construction activity). in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the **owner or operator** shall have the **qualified inspector** perform a final inspection and certify that all disturbed areas have achieved final stabilization, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The **owner or operator** shall then submit the completed NOT form to the address in Part II.A.1 of the General Permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

3. At a minimum, the **qualified inspector** shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

4. The **qualified inspector** shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

   a. Date and time of inspection;

   b. Name and title of person(s) performing inspection;

   c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

   d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

   e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody;

   f. Identification of all erosion and sediment control practices that need repair or maintenance;

   g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

   h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and

k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The **qualified inspector** shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The **qualified inspector** shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The **qualified inspector** shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the **qualified inspector** shall notify the **owner or operator** and appropriate contractor or subcontractor identified in Part III.A.6. of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the **qualified inspector**. Pursuant to Part II.C.2 of the General Permit, the inspection reports shall be maintained on site with the SWPPP.

Record Retention - The **owner or operator** shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves final stabilization. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

l. **SWPPP MODIFICATIONS:** The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

to be a dynamic working guide that is to be kept current and amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants or when the plan proves to be ineffective in eliminating or significantly minimizing pollutant discharges. The Contractor's failure to modify or report deficiencies to the Operator will result in the Contractor being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

J. **FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE:** A site can be considered finally stabilized when all soil disturbing activities have been completed and a uniform perennial vegetative cover with a density of **85%** for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established and the facility no longer discharges storm water associated with construction activities and a Notice of Termination (NOT) form filed by the Operator(s) with the NYSDEC. The Operator's Project Manager must complete the NOT. The NOT must be signed by the signatory (or equivalent position) on the NOI and subsequently submitted to the appropriate agency. The Operator's Project Manager must provide a completed copy of the NOT to the Contractor for inclusion in the SWPPP, which will then be optically scanned into the final SWPPP document as required. This filing terminates coverage under the General Permit and terminates the Contractor's responsibility to implement the SWPPP, but the requirements of the SWPPP, including periodic inspections, must be continued until the NOT is filed. The **owner or operator** shall also have the **qualified inspector** perform a final site inspection prior to signing and submitting the NOT to the Department. The local MS4/Stormwater Management Officer must also sign the NOT and may require a final site inspection to be completed prior to. Final payment and/or the release of retainage will be withheld until all provisions of the SWPPP have been submitted, completed and accepted by the Operator.

102 PROJECT NAME AND LOCATION

Sawyer's Landing

Dodge Road

Town of Amherst, County of Erie, New York

Easting: 190681.1

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Northing: 4770798.8

Estimated Area of Site ≈ 17.4 acres

Estimated Area to be disturbed by Construction Activities ≈ 16.4 acres

A general location map is included as Appendix A.

103 OPERATOR'S NAME AND ADDRESS

Sawyer's Landing LLC

c/o Severyn Development

43 Central Avenue

Lancaster, NY 14086

Contact Person: William Severyn

Telephone: 716–818-0207

104 PROJECT DESCRIPTION

This project is a development of a 17.4 acre site located on the north side of Dodge Road, west of Sweet Home Road in the Town of Amherst. Both Dodge Road and Sweet Home Road are Erie County roads. Proposed is the construction of a mixed use development to include (2) 4-story buildings with a total of 30,000 sf of commercial and 100 apartments, (47) duplex lots and (2) 1-story apartment buildings with a total of 12 units. A bike trail will be constructed on site, this trail will connect to the existing Town of Amherst bike trail on the south side of Dodge Road. The approximately 1 acre westerly portion will remain undisturbed and be deed restricted as permanent open space. The site is currently undeveloped consisting of woods and overgrown brush/grass. NYSDEC and Federal wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The proposed site development area to be disturbed for this project is approximately 16.4 acres.

Soil disturbing activities will include:

A. Construction of temporary construction exit points

B. Clearing & grubbing of the site within disturbance limits

C. Installation of detention basins, bioretention areas including topsoil & seed

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

D. Installation of storm sewer pipes and inlets

E. Construction of utilities

F. Construction of curb and parking lot

G. Final grading & landscaping

H. Construction of building

This project is owned by Sawyer's Landing LLC and will be developed by the same. The work area consists of approximately 16.4 acres for which erosion and sediment controls have been developed and fully addressed in this written plan and the Erosion and Sediment Control Plans. See the construction documents for additional details.

105 RUNOFF COEFFICIENT, SOILS, AND RAINFALL INFORMATION

The initial runoff curve number for the pre-construction site is "CN" = 78. The post-construction runoff curve number for the site will be "CN" = 91. The site is 17.4 acres of which approximately 16.4 acres will be disturbed by construction activities.

See soils information located in Appendix H.

The site is in Erie County, which receives an average of approximately 45 inches rainfall annually with the highest amounts of rainfall received in the months of May thru September. Annual snow for this area is approximately 120 inches.

106 WATERS

The runoff generated from this site will discharge to the storm system on Dodge Road which is tributary to Ellicott Creek.

107 INDIAN COUNTRY LANDS

This project is not located on Indian Lands.

108 ENDANGERED AND THREATENED SPECIES

No endangered or threatened species have been determined to be on the site.

109 CRITICAL HABITAT

See section 108 above.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

110 HISTORIC PLACES

The assessed property is shown on the NYSHPO map as an archeologically sensitive area. A NYSHPO "no effect" letter is included in Appendix I.

111 WETLANDS AND/OR OTHER SURFACE WATERS

Federal and NYSDEC wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The USACOE and NYSDEC wetland permits are included in Appendix K of this report.

112 EROSION AND SEDIMENT CONTROLS

112.1 STABILIZATION PRACTICES

Stabilization practices for this site include:

A. Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed.

B. Use of stabilization method for all slopes with a slope greater than 1V:3H.

C. Permanent seeding and planting of all unpaved areas using the hydromulching grass seeding technique.

D. Mulching exposed areas.

E. Vegetation preservation in undisturbed areas.

F. Frequent watering to minimize wind erosion during construction.

a. **For sites where 5 acres or more are disturbed at any one time**: In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the New York Standards and Specifications for Erosion and Sediment Control.

b. The **owner or operator** shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

c. The **owner or operator** shall install any additional measures needed to protect water quality.

112.2 STRUCTURAL PRACTICES

Structural practices for this site include:

A. Inlet protection using a method detailed in the Construction Documents.

B. Perimeter protection using temporary silt fence/silt sock or silt sock.

C. Outlet protection using rip-rap stone and end sections.

D. Stabilized Construction Entrance.

E. Temporary stone wash off areas.

F. Storm sewer, curb/gutter.

G. Sediment traps and basins.

112.3 SEQUENCE OF MAJOR ACTIVITIES

The Contractor will be responsible for implementing the following erosion control and storm water management control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor. The order of activities will be as follows:

A. Construct temporary construction exits at locations shown on the Demolition & Erosion Control Plan Sheet.

B. Install perimeter silt fence/silt socks/silt sock in the locations shown on the Demolition & Erosion Control Plan Sheet.

C. Clear & Grub site.

D. Installation of detention basin to act as sediment basin.

E. Commence site grading.

F. If less than 5 acres of the site have been disturbed and construction activity has ceased for more than 14 days, temporarily seed and water to stabilize this area. If more than 5 acres of the site have been disturbed and construction activity has ceased for more than 7 days, temporarily seed and water to stabilize this area.

G. Installation of proposed utilities.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

H. Install base material as required for pavement/buildings.

I. Finalize pavement subgrade preparation.

J. Construction of buildings.

K. Construct all curb, drainage inlets, storm sewer pipes and storm sewer manholes, as shown on the plans. Install temporary inlet protection at the locations of all inlets.

L. Dust control.

L. Remove inlet protection around inlets and manholes no more than 48 hours prior to placing stabilized base course.

N. Carry out final grading and seeding and planting.

O. Install bioretention areas (do not install bioretention soil or underdrains until surrounding area is stabilized).

P. Clean storm system following construction, clean detention basin of any silt and return to design grades.

Q. Remove silt fencing/silt sock only after all paving is complete and exposed surfaces are stabilized.

R. Remove temporary construction exits only prior to pavement construction in these areas.

Note: Sediment control storage during construction (traps & basins) during construction shall be 134 cy per acre of disturbance per NYSDEC requirements.

112.4 STORM WATER MANAGEMENT

The existing site is generally flat and slopes west with portions sloping east. The portion that slopes west settles in a low area and once the capacity of that area is exceeded, sheet flow continues towards Sweet Home Road and is collected by an existing 12" pipe on the north side of Dodge Road. This pipe flows to the Erie County system on Sweet Home Road. The portion that flows east flows to the offsite wetlands.

Currently Dodge Road does not have a drainage system. A series of catch basins and pipes will be installed in the green area on the north side of Dodge Road to collect the road drainage. The west portion of this system will connect to the existing closed drainage system on Sweet Home Road. The east portion will discharge to the Ellicott Creek diversion channel using and existing discharge point. This new system will also convey the proposed discharge from the site as described below.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

The proposed onsite storm sewer system consists of smooth interior and perforated HDPE pipes connected by a series of catch basins, manholes and yard drains. The site is split into a storm water management area on the east and west sides.

West Side

The west side of the site has (2) bioretention areas which portions of the westerly area will discharge to. These bioretention areas along with the remainder of the west portion of the site will discharge to the underground detention area. Note that the yard drains installed along the north property line discharge to the underground detention area. An outlet structure in the SW portion of this area will control runoff to at or below existing runoff flow rates. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Sweet Home Road system.

Underground Detention Summary

(286) ADS Stormtech SC-740 chambers
Top of stone elev. = 573.00
Top of chamber elev. = 572.50
Bottom of chamber elev. = 570.00
Bottom of stone elev. = 569.50
Total storage = 18,574 CF

Event	Ex. Discharge	Pro. Discharge	Elev.
1 yr	0.87 cfs	0.33 cfs	570.29
2 yr	1.34 cfs	0.68 cfs	570.46
5 yr	2.14 cfs	1.05 cfs	570.79
10 yr	2.94 cfs	1.28 cfs	571.13
25 yr	4.34 cfs	1.61 cfs	571.73
50 yr	5.69 cfs	3.61 cfs	572.23
100 yr	7.33 cfs	4.83 cfs	572.92

East Side

The east side of the site has a bioretention area and wet detention pond which this portion of the site discharges to. The NE portion of the site discharges to a forebay which spills into the main micropool portion of the wet detention basin. The SE portion of the site discharges to the bioretention area which also spills into the main micropool portion of the site. An outlet control structure is located in

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

the SE portion of the micropool and controls the discharge from this storm water management area. Spillways are also located on the east portion of the micropool which will discharge to the existing wetlands to the east in order to not cut off all flow from this site into this area. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Ellicott Creek diversion channel.

The bioretention areas and wet detention pond for the project area are sized to provide 100% of the required Runoff Reduction Volume (RRv) and Water Quality Volume (WQv) treatment for the overall site in accordance with Chapter 4 of the NYSDEC Stormwater design manual. The soils in the vicinity of the bioretention areas are mainly USDA hydrologic group 'D' and therefore the system will be installed with underdrains per NYSDEC requirements. The bioretention areas will consist of 6" and 8" perforated HDPE underdrains in 12" of drainage gravel, followed by filter fabric and 18" minimum of planting soil. Overflow yard drains will be installed to allow 6" maximum temporary ponding for RRv treatment. The east bioretention area (area #3) spills into the wet detention pond and the underdrain pipe ties together with the pond discharge and flows to Dodge Road. The east bioretention areas (areas #1 & #2) have a catch basin to act as the spillway and this catch basin and the underdrain pipes discharge to the underground detention area.

Storm Water Management Area Summary

Forebay
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 569.00

Micropool
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 563.00

Overall Storm Water Summary

WQv Provided = 152,678 cf (pond)
WQv Provided = 6,948 cf (bioretention)
WQv Provided = 159,626 cf (total)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Bioretention Area Summary:

Area	Rim Elev.	Bottom Elev.	Area
1	574.50	574.00	2,300 sf
2	574.50	574.00	2,600 sf
3	575.50	575.00	11,000 sf
		Total Provided =	15,900 sf

Water Quality Summary:
WQv req'd = 28,804 cf (0.661 ac-ft)
RRv min. req'd = 5,518 cf (0.127 ac-ft)
RRv provided = 8,662 cf (0.199 ac-ft)
WQv provided = 159,626 cf (3.665 ac-ft)
Total RRv + WQv provided = 8,662 cf + 159,626 cf = 168,287 cf (3.868 ac-ft)

Detention: Comparison of the existing 1-year vs. the proposed 1-year runoff
Comparison of the existing 10-year vs. the proposed 10-year runoff
Comparison of the existing 100-year vs. the proposed 100-year runoff

Storm pipes: 10-year storm

Refer to the engineer's report in Appendix N for additional details.

113 OTHER CONTROLS

113.1 OFF-SITE VEHICLE TRACKING

A stabilized construction exit will be provided to help reduce vehicle tracking of sediments. Existing paved areas will remain as long as possible and will be used for vehicle wash areas and to further aid in the reduction of vehicle tracking of sediments. The paved streets adjacent to the site entrance shall be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material to/from the construction site will be covered with a tarpaulin. The job site superintendent will be responsible for seeing that these procedures are followed.

113.2 EXCAVATION SPOIL MATERIALS

Excavation spoil materials are generated during the excavation of the development's building and utilities installation. These materials must be properly managed to prevent them from contributing to storm water discharges. The materials generated from the development of this project will be hauled off-site or stockpiled for re-use in designated areas which will have temporary erosion &

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

sediment control measures installed. Any removal from site will be done under the necessary permits required by the local governing agencies.

113.3 DUST CONTROL

Minimizing wind erosion and controlling dust will be accomplished by one or more of the following methods:

A. Frequent watering of excavation and fill areas.

B. Providing gravel or paving at entrance/exit drives, parking areas and transit paths.

113.4 WASTE DISPOSAL

If needed, all waste materials will be collected and stored in securely lidded metal dumpsters rented from an approved waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpsters. The dumpsters will be emptied when full and then hauled to a NYSDEC approved landfill for proper disposal. No construction waste will be buried on-site. All personnel will be instructed regarding the correct procedures for waste disposal.

113.5 SANITARY WASTE

If needed, portable toilet units or field offices with toilet facilities connected to the municipal sanitary sewer will be used for sanitary purposes. All portable toilet units will be emptied a minimum of once per week by a licensed portable facility provided in compliance with local and state regulations.

113.6 CONCRETE WASTE FROM CONCRETE TRUCKS

A. Emptying of excess unhardened concrete and/or washout from concrete delivery trucks will be allowed on the job site, but in either (1) specifically designated diked areas which have been prepared to prevent contact between concrete and/or washout and storm water which will be discharged from the site or (2) in locations where waste concrete will be poured into forms to make rip-rap or other useful concrete products.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

B. Hardened waste concrete from the designated diked areas described above will be disposed of in accordance with applicable local and state regulations with regards to disposal of construction debris.

113.7 HAZARDOUS SUBSTANCES & HAZARDOUS WASTE

A. All hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job superintendent, who will also be responsible for seeing these practices are followed. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such products are stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

B. The contractor will implement the Spill Prevention Control and Countermeasures (SPCC) Plan found within this SWPPP and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials of hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge shall be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job superintendent to properly train all personnel in the use of the SPCC plan.

C. Any spills of hazardous materials which are in excess of the Reportable Quantities as defined by the EPA regulations shall be immediately reported to the EPA National Response Center at 1-100-424-1102. From SWPPP-9 "Reportable Quantity Release Form" must be filled out.

D. In order to minimize the potential for a spill of hazardous materials to come in contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals,

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on the job site.

3. A spill control and containment kit (containing for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

4. All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

5. All products will be stored in and used from the original container with the original product label.

6. All products will be used in strict compliance with instructions on the product label.

7. The disposal of excess or used products will be in strict compliance with instructions on the product label.

113.8 CONTAMINATED SOILS

A. Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

B. The job site superintendent will be responsible for seeing that these procedures are followed.

114 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The Contractor will obtain copies of any and all local and state regulations which are applicable to storm water management, erosion control, and

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

pollution minimization at this job site and will comply fully with such regulations. The Contractor will submit written evidence of such compliance if requested by the Operator or any agent of a regulatory body. The Contractor will comply with all conditions of the SPDES General Permit for Construction Activity for the State of New York, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the job site and allowing regulatory personnel access to the job site and to records in order to determine compliance.

The SWPPP for this site development project requires regulated MS4 approval from the Town of Amherst. All changes to the SWPPP must be approved by the Town of Amherst prior to applying changes to the SWPPP in the field.

115 INSPECTION AND MAINTENANCE PROCEDURES

The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

1. All control measures will be inspected by the owner/operator at least weekly and shall continue until the site complies with the Final Stabilization section of this document (See Section 116).

2. All control measures will be inspected by a Qualified Professional at least weekly and shall continue until the site complies with the Final Stabilization section of this document (See Section 116).

3. All measures will be maintained in good working order; if repairs or other measures are found to be necessary, they will be initiated within 24 hours of report.

4. Built up sediment will be removed from silt fence/silt sock when it has reached one-third the height of the fence.

5. Silt fence/silt socks will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.

6. Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.

7. A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

8. The job site superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.

9. Personnel selected for the inspection and maintenance responsibilities will receive training from the job site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept on site with the SWPPP.

10. Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

11. Report to the NYSDEC within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event. The following events require 24 hour reporting: a) any unanticipated bypass which exceeds any effluent limitation in the permit, b) any upset which exceeds any effluent limitation in the permit, and c) a violation of a maximum daily discharge limitation for any of the pollutants listed by the NYSDEC in the permit to be reported within 24 hours. The written submission must contain a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times, and if the non-compliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance.

12. Releases of hazardous substances or oil in excess of reportable quantities (as established under 40 CFR 110, 40 CFR 117 or 40 CFR 302) must be reported.

Upon completion of construction, the property owner is responsible for ensuring that the stormwater facilities are regularly inspected and maintained. Maintenance and inspection procedures are as follows.

1. On a quarterly basis and following significant rainfall events or snow-melts, perform the following:

    - Inspect catch basins, storm manholes, yard drains, storm piping and stormwater pond for debris and accumulation of sediment.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

- Remove and properly dispose of any collected debris and sediment in accordance with applicable state, federal and local regulations.
- Flush piping with water if necessary to remove accumulated sediment.
- Bioretention areas shall be maintained per the NYSDEC Maintenance and Management Checklist included in this SWPPP.
- Check all stone outfall structures for erosion and re-stone if necessary to prevent further erosion.
- Inspect grassed/landscaped areas for un-vegetated areas or areas with less than 85% healthy stand of grass and reseed and mulch as necessary. Water daily if reseeded in July and August.
- A record of all inspections should be kept.

2. Maintain all lawn areas by regular mowing, including the grassed slopes of the stormwater pond and any grass swales. Any eroded areas shall be regarded, seeded and mulched immediately.

116 INSPECTION AND MAINTENANCE REPORT FORMS

Once installation of any required or optional erosion control device or measure has been implemented, inspections shall be performed by a Qualified Professional at least once every seven (7) calendar days. For construction sites where soil disturbance activities are on-going and the **owner or operator** has received authorization in accordance with Part II.C.3 of the General Permit to disturb greater than five (5) acres of soil at any one time, the **qualified inspector** shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days. The owner and contractor shall obtain from the MS4 an approval for disturbing more than five-acres at any given time. For construction sites where active construction has been suspended, inspection frequency under the general permit can be reduced to once every 30 days, provided temporary stabilization measures have been applied to all disturbed areas. The forms found in this SWPPP shall be used by the inspectors to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the Operator's Engineer, and the Operator for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the permittee for five years following the final stabilization of the site.

117 OTHER RECORD-KEEPING REQUIREMENTS

The Contractor shall keep the following records related to construction activities at the site:

- Dates when major grading activities occur and the areas which were graded
- Dates and details concerning the installation of structural controls
- Dates when construction activities cease in an area
- Dates when an areas is stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of hazardous materials
- Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

118 SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

118.1 MATERIALS COVERED

The following materials or substances are expected to be present onsite during construction:

- Concrete/Additives/Wastes
- Cleaning solvents
- Sanitary wastes
- Detergents
- Petroleum based products
- Paints/Solvents
- Pesticides
- Solid and construction wastes
- Acids

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

- Fertilizers
- Soil stabilization additives

118.2 MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The job site superintendent will be responsible for ensuring that these procedures are followed.

A. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

1. An effort will be made to store only enough products required to do the job.
2. All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
3. Products will be kept in their original containers with the original manufacturer's label in legible condition.
4. Substances will not be mixed with one another unless recommended by the manufacturer.
5. Whenever possible, all of a product will be used up before disposing of the container.
6. Manufacturer's recommendations for proper use and disposal will be followed.
7. The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

1. Products will be kept in original containers with the original labels in legible condition.

2. Original labels and material safety data sheets (MSDS's) will be procured and used for each material.

3. If surplus product must be disposed of, manufacturer's or local/state/federal recommended methods for proper disposal will be followed.

4. A spill control and containment kit (containing for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

5. All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

C. Hazardous Waste

All hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed.

D. Product Specific Practices

The following product specific practices will be followed on the job site.

1. Petroleum Products

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on a plan by the contractor once the locations have been determined.

2. Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

3. Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Concrete Wastes

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or wash out and storm water which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

The hardened residue from the concrete wash out diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

as deemed appropriate by the Contractor. The job site superintendent will be responsible for seeing that these procedures are followed.

All concrete wash out areas will be located in an area where the likelihood of the area contributing to storm water discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to storm water discharges. The location of concrete wash out area(s) must be identified on a plan by the contractor once the locations have been determined. In addition, a standard detail on the construction of the concrete wash out shall be included on this plan.

E. Solid and Construction Wastes

All waste materials will be collected and stored in an appropriately covered container and/or securely lidded metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in New York and the Town of Amherst. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of twice per week or more often if necessary, and the trash will be hauled to a landfill approved by the NYSDEC. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges. The location of waste dumpsters and roll-off containers must be identified on a plan by the contractor once the locations have been determined.

F. Sanitary Wastes

Portable toilet units or field offices with toilet facilities connected to the municipal sanitary sewer will be used for sanitary purposes. All portable

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

toilet units will be emptied a minimum of once per week by a licensed portable facility provided in compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges. The location of sanitary waste units must be identified on a plan by the contractor once the locations have been determined.

G. Contaminated Soils

Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations.

118.3 SPILL PREVENTION AND RESPONSE PROCEDURES

The Contractor will train all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job site superintendent to properly train all personnel in spill prevention and clean up procedures.

A. In order to minimize the potential for a spill of hazardous materials to come into contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on the job site.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

B. In the event of a spill, the following procedures should be followed

1. All spills will be cleaned up immediately after discovery.

2. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.

3. The project manager and the Engineer of Record will be notified immediately.

   Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. Spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 110, 40 CFR 117, and 40 CFR 302) must be immediately reported to the EPA National Response Center, telephone 1-100-424-1102. From SWPPP-9 "Reportable Quantity Release Form" must be filled out.

4. If the spill exceeds a Reportable Quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The plans must identify measures to prevent the recurrence of such releases and to respond to such releases.

C. The job site superintendent will be the spill prevention and response coordinator. He will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

of these personnel will be posted in the material storage area and in the office trailer onsite.

119 CONTROL OF NON-STORM WATER DISCHARGES

Certain types of discharges are allowable under the NYSDEC SPDES General Permit for Construction Activity for the State of New York, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this SWPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. The following allowable non-storm water discharges which may occur at the job site include:

A. Discharges from firefighting activities.

B. Fire hydrant flushings (see note below)

C. Waters used to wash vehicles or control dust in order to minimize offsite sediment tracking.

D. Routine external building washdown which does not use detergents.

E. Pavement wash waters where spills or leaks of hazardous materials have not occurred or detergents have not been used.

F. Air conditioning condensate.

G. Springs or other uncontaminated groundwater, including dewatering ground water infiltration.

H. Foundation or footing drains where no contamination with process materials such as solvents is present.

Note: The Contractor shall discharge any super-chlorinated water from water distribution pipe disinfection activities into sanitary sewer system.

120 STORM WATER CONTROL FACILITY MAINTENANCE

Upon completion of construction, SL shall be responsible for maintenance of the storm sewer system and all ponds, bioretention areas, etc. per a Stormwater Maintenance Agreement to the Town of Amherst that shall be filed with the County of Erie.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

The frequency of inspections for the bioretention areas shall match the frequencies listed on the "Bioretention Operation, Maintenance and Management Inspection Checklist" in Appendix O of the SWPPP.

The proposed catch basins, as per section 115, shall be inspected 4 times per year for removal of floatable debris. Any silt buildup over 6" in depth shall be removed and disposed of properly off-site.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix A

Site Location Map

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stormwater Interactive Map



The coordinates of the point you clicked on are:

UTM 18	**Easting:**	190681.063	**Northing:**	4770798.806
Longitude/Latitude	**Longitude:**	-78.796	**Latitude:**	43.027

The approximate address of the point you clicked on is:
26-42 Dodge Rd, Getzville, New York, 14068

County: Erie
Town: Amherst
USGS Quad: TONAWANDA EAST

DEC Administrative Boundaries

Region 9:
(Western New York) Allegany, Chautauqua, Cattaraugus, Erie, Niagara and Wyoming counties. For more information visit http://www.dec.ny.gov/about/617.html.

Regulated MS4s

UA 2000: 11350
Standard: Buffalo
Municipality: AMHERST
SWIS: 142200
Regulated: Automatic

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix B

NYSDEC Notice of Intent (NOI)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Sawyer's Landing LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Severyn

Owner/Operator Contact Person First Name
Will

Owner/Operator Mailing Address
43 Central Ave

City
Lancaster

State
NY

Zip
14086 -

Phone (Owner/Operator)
716 - 912 - 0969

Fax (Owner/Operator)
___ - ___ - ____

Email (Owner/Operator)
william.severyn.ny@gmail.com

FED TAX ID
__ - _____ (not required for individuals)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

6401089828

Project Site Information

Project/Site Name
Sawyer's Landing

Street Address (NOT P.O. BOX)
Dodge Road

Side of Street
● North ○ South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Amherst

State: NY
Zip: 14228 -
County: Erie
DEC Region: 9

Name of Nearest Cross Street
Sweet Home Road

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
○ North ○ South ● East ○ West

Tax Map Numbers
Section-Block-Parcel
40.08-3-13.1

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
-7 8796
Ex. -73.749

Y Coordinates (Northing)
43027
Ex. 42.652

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

4107089829

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
● FOREST	○ SINGLE FAMILY HOME
○ PASTURE/OPEN LAND	○ SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	● OTHER: Mixed use

Number of Lots:

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
17.4	16.4	0.0	8.0

5. Do you plan to disturb more than 5 acres of soil at any one time? ● Yes ○ No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	100 %

7. Is this a phased project? ○ Yes ● No

8. Enter the planned start and end dates of the disturbance activities.

Start Date: 7/1/2021 – End Date: 7/1/2022

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

8600089821

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Ellicott Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ● Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ Yes ● No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ Yes ● No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ Yes ● No
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ Yes ● No
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ Yes ● No

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

6403089820

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Erie County

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

0251089825

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Carmina Wood Morris DPC

Contact Name (Last, Space, First)
Wood Christopher

Mailing Address
487 Main St

City
Buffalo

State Zip
NY 14127-

Phone
716-842-3165

Fax
716-842-0263

Email
cwood@cwm-ae.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name
Christopher

MI

Last Name
Wood

Signature

Date
03/03/2021

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

0005089822

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ● Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

0182089828

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ● **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

0.661 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

7738089822

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
RR Techniques (Area Reduction)			
● Conservation of Natural Areas (RR-1)	1.0	and/or	0.0
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
○ Tree Planting/Tree Pit (RR-3)		and/or	
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			
● Bioretention (F-5)	4.0		3.0
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
○ Wet Pond (P-2)			
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
● Pocket Pond (P-5)	3.0		4.0
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

0762089822

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other [ ]	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.199 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ● **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.127 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

1766089827

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

3.664 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). 3.863

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

0.42 **acre-feet**

CPv Provided

0.42 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

4.34 **CFS**

Post-development

3.63 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

7.33 **CFS**

Post-development

4.38 **CFS**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

1310089822

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Sawyer's Landing LLC

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

4285089826

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ● Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP NYR
- ○ Other
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ● **Yes** ○ **No**
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

3547089826

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name: Will

MI:

Print Last Name: Severyn

Owner/Operator Signature: William T Severyn

Date: 03/03/2021

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix C

MS4 SWPPP Acceptance Form

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Sawyer's Landing LLC
2. Contact Person:	Will Severyn
3. Street Address:	43 Central Ave
4. City/State/Zip:	Lancaster, NY 14086
II. Project Site Information	
5. Project/Site Name:	Sawyer's Landing
6. Street Address:	Dodge Road
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix D

NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS 1
A. Permit Application 1
B. Effluent Limitations Applicable to Discharges from Construction Activities 1
C. Post-construction Stormwater Management Practice Requirements 4
D. Maintaining Water Quality 8
E. Eligibility Under This General Permit 9
F. Activities Which Are Ineligible for Coverage Under This General Permit 9
Part II. PERMIT COVERAGE 12
A. How to Obtain Coverage 12
B. Notice of Intent (NOI) Submittal 13
C. Permit Authorization 13
D. General Requirements For Owners or Operators With Permit Coverage 15
E. Permit Coverage for Discharges Authorized Under GP-0-15-002 17
F. Change of Owner or Operator 17
Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) 18
A. General SWPPP Requirements 18
B. Required SWPPP Contents 20
C. Required SWPPP Components by Project Type 24
Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS 24
A. General Construction Site Inspection and Maintenance Requirements 24
B. Contractor Maintenance Inspection Requirements 24
C. Qualified Inspector Inspection Requirements 25
Part V. TERMINATION OF PERMIT COVERAGE 29
A. Termination of Permit Coverage 29
Part VI. REPORTING AND RETENTION RECORDS 31
A. Record Retention 31
B. Addresses 31
Part VII. STANDARD PERMIT CONDITIONS 31
A. Duty to Comply 31
B. Continuation of the Expired General Permit 32
C. Enforcement 32
D. Need to Halt or Reduce Activity Not a Defense 32
E. Duty to Mitigate 33
F. Duty to Provide Information 33
G. Other Information 33
H. Signatory Requirements 33
I. Property Rights 35
J. Severability 35

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

K. Requirement to Obtain Coverage Under an Alternative Permit 35
L. Proper Operation and Maintenance 36
M. Inspection and Entry 36
N. Permit Actions 37
O. Definitions 37
P. Re-Opener Clause 37
Q. Penalties for Falsification of Forms and Reports 37
R. Other Permits 38
APPENDIX A – Acronyms and Definitions 39
Acronyms 39
Definitions 40
APPENDIX B – Required SWPPP Components by Project Type 48
Table 1 48
Table 2 50
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal 52
APPENDIX D – Watersheds with Lower Disturbance Threshold 58
APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s) 59
APPENDIX F – List of NYS DEC Regional Offices 65

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* ("SWPPP") the reason(s) for the

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards.* At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharges* are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharges* directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges* from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

   a. Background information about the scope of the project, including the location, type and size of project

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

(Part IV.C.4.a)

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities*" and "*Larger Common Plan of Development or Sale*" *also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

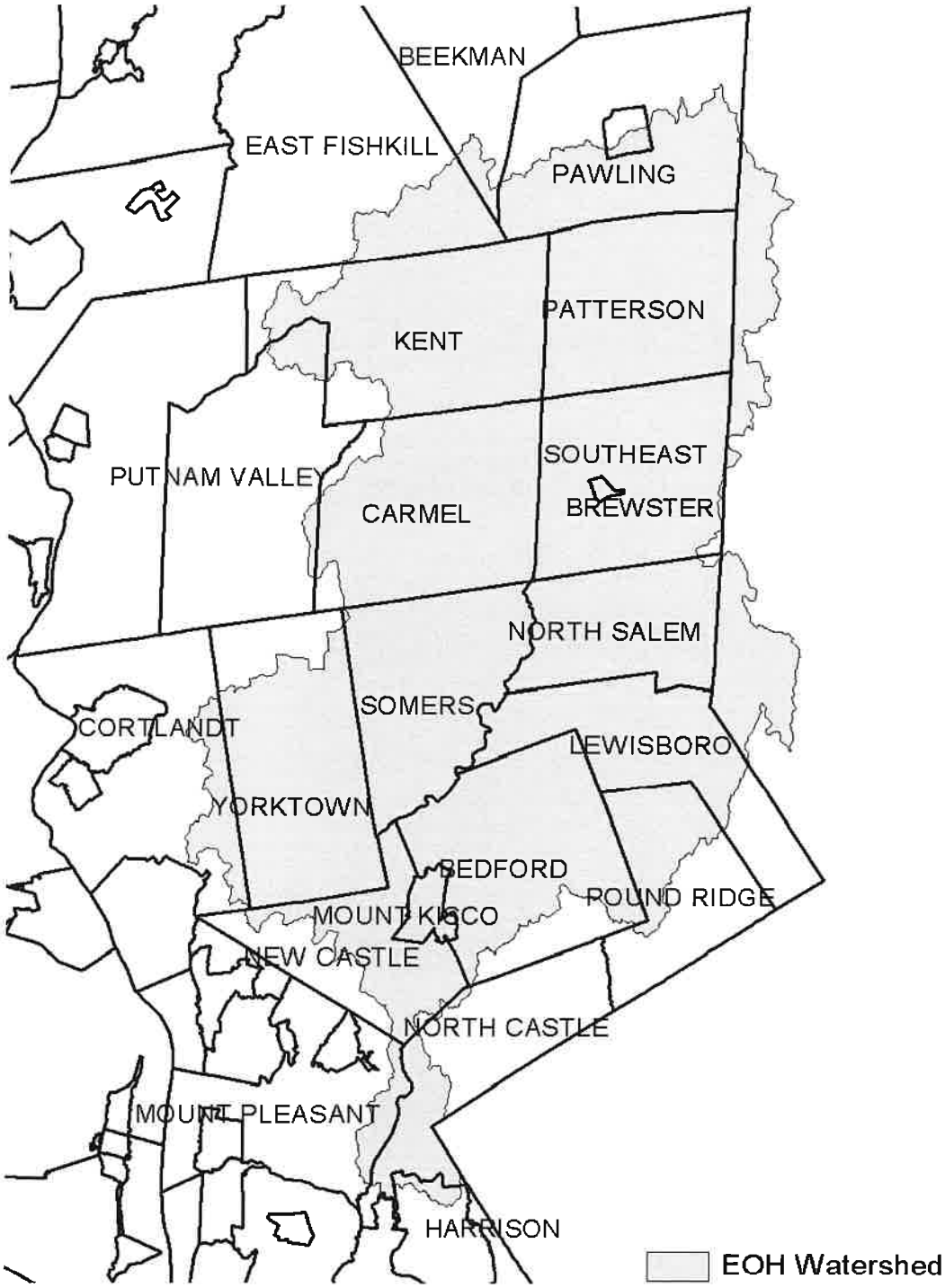
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Figure 1 - New York City Watershed East of the Hudson



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Figure 2 - Onondaga Lake Watershed



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix C

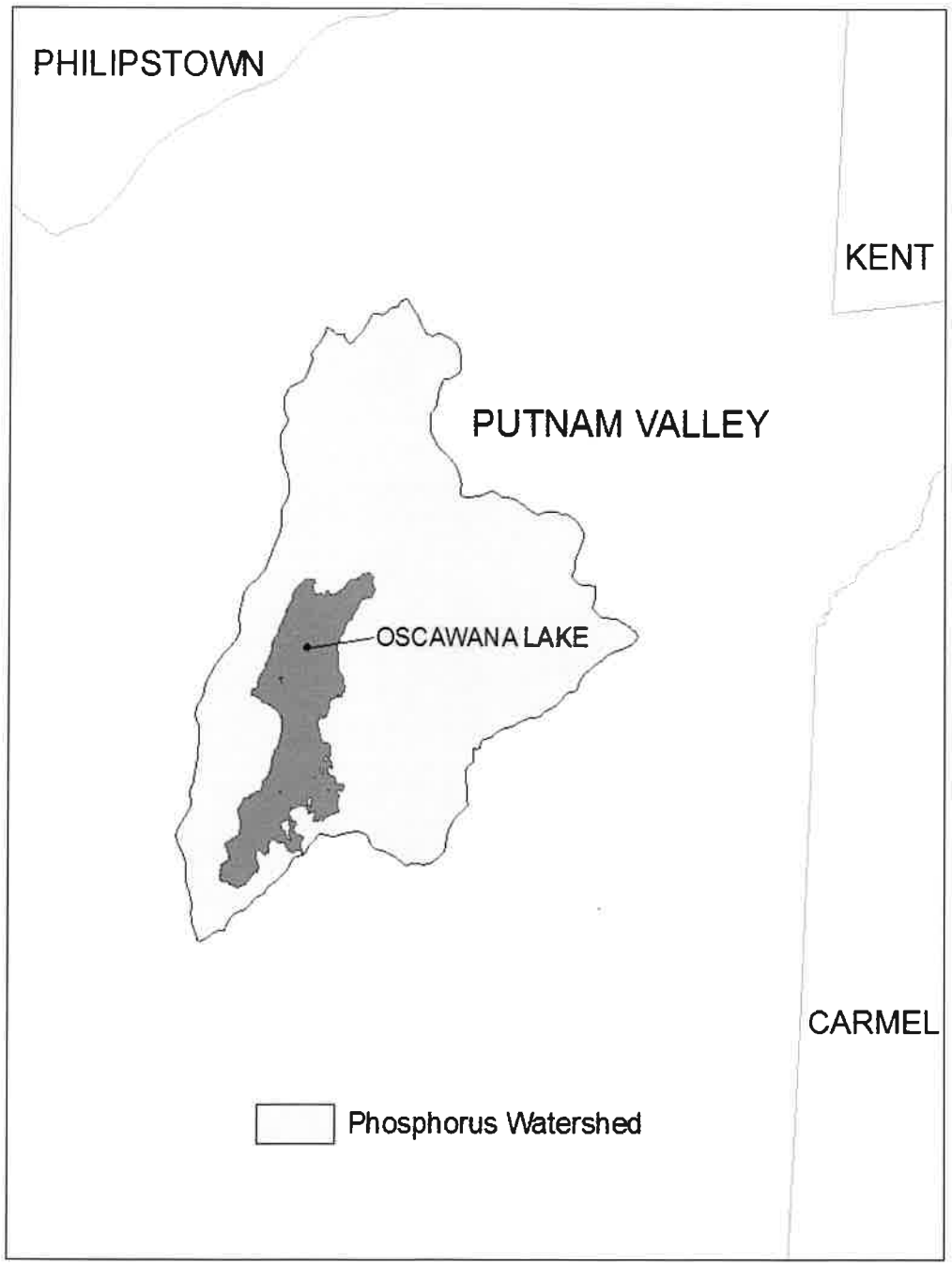
Figure 3 - Greenwood Lake Watershed



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix C

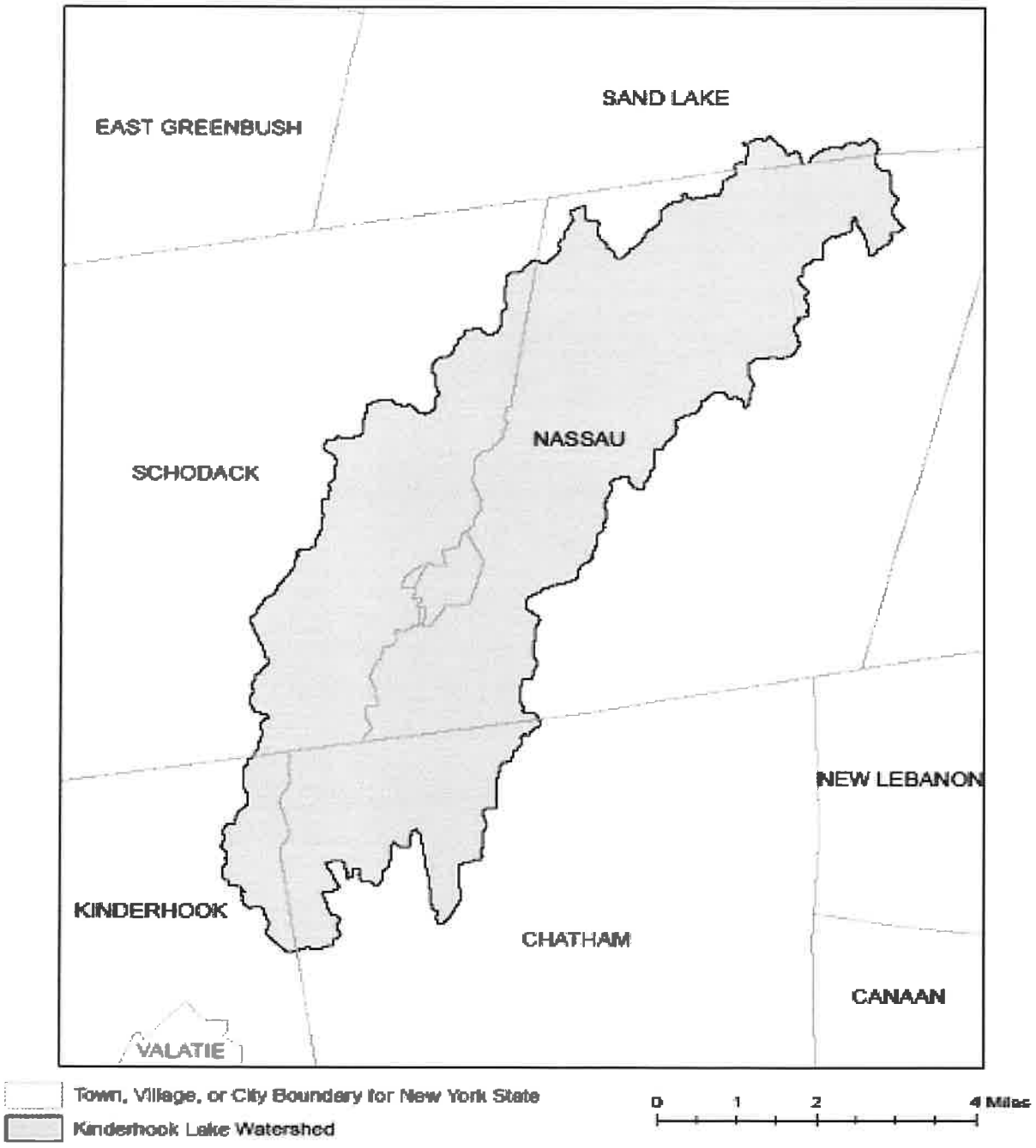
Figure 4 - Oscawana Lake Watershed



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix C

Figure 5 - Kinderhook Lake Watershed



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	Division of Environmental Permits (DEP) Permit Administrators	Division of Water (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix E

Forms

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

STORM WATER POLLUTION PREVENTION PLAN
CONTRACTOR'S CERTIFICATION STATEMENT

Sawyer's Landing

CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge storm water. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Note: The contractor shall have at least one NYSDEC trained individual onsite at all times when earthwork and other SWPPP associated work is being performed from each contractor(s) and subcontractor(s). Each contractor(s) and subcontractor(s) shall provide copies of these individuals' certifications to the Town of Amherst.

Name: _____
(Print)

Signature: _____

Title: _____

Company Name: _____

Address: _____

Telephone Number: _____

Date: _____

Scope of Services: _____

Trained Individual(s) Responsible for Implementation: _____

This form must be signed by a responsible corporate officer or other party meeting the "Signatory Requirements" of the NYSDEC SPDES General Permit

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

Sawyer's Landing

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

Sawyer's Landing LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Christopher		Wood
First name	MI	Last Name

Signature

3/3/21
Date

Revised: January 2020

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: Sawyer's Landing

eNOI Submission Number: _____

eNOI Submitted by: ☐ Owner/Operator ☑ SWPPP Preparer ☐ Other

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

William T Severyn

Signature

3/3/21

Date

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix F

NYSDEC Notice of Termination (NOT)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix G

Construction Documents

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-631-7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-631-7051

LAND SURVEYOR
NAME/TITLE:
COMPANY/DEPT: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
ADDRESS: 4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
TELEPHONE 716-633-4844

UTILITIES

NATURAL GAS
COMPANY/DEPT: NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-857-7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203
TELEPHONE 716-840-8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK
TELEPHONE 716-558-8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214
TELEPHONE 716-236-2738

WATER
COMPANY/DEPT: ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
TELEPHONE 716-684-1510

DIG SAFELY NEW YORK
TELEPHONE 1-800-962-7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086

TELEPHONE 716 818-0207

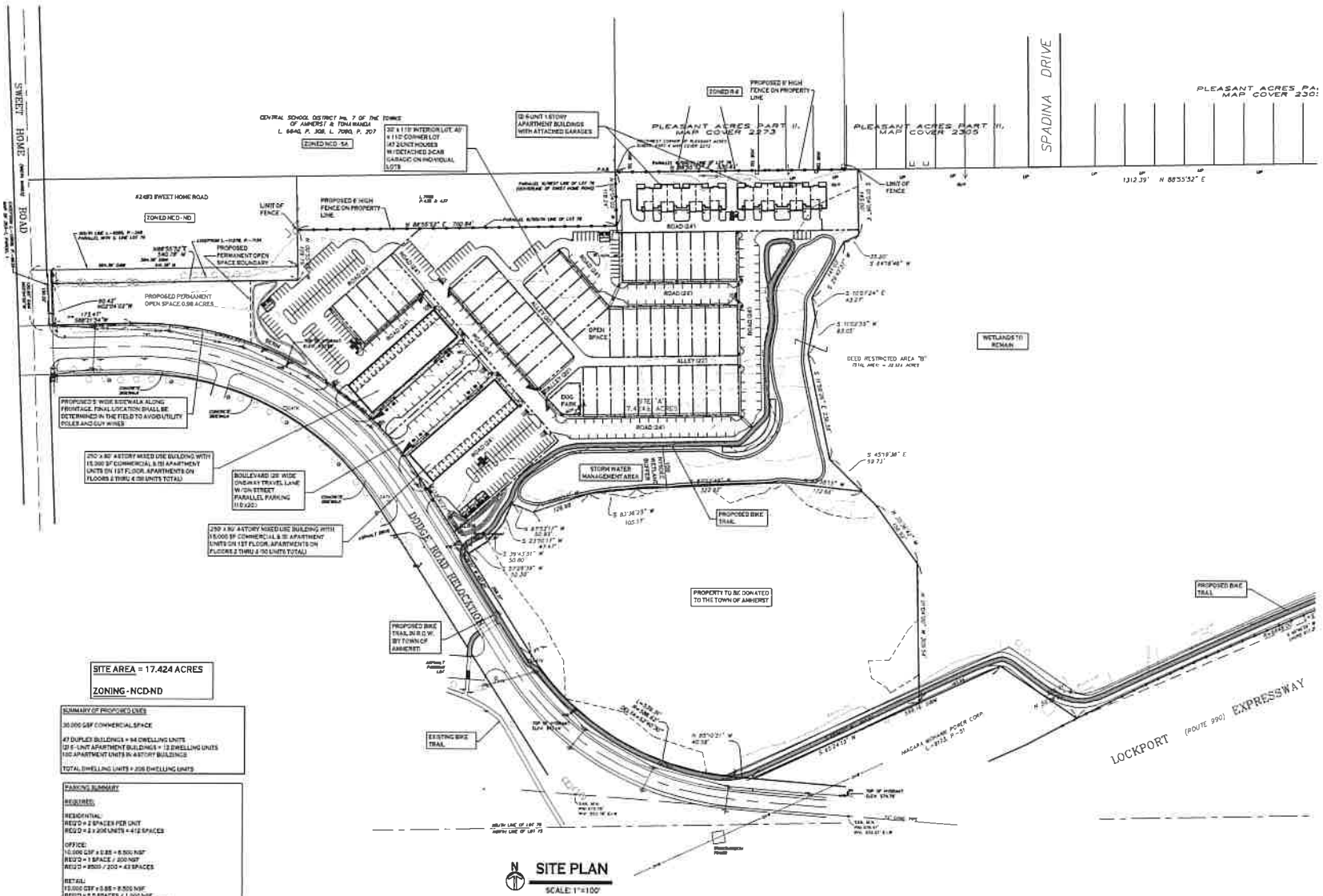
ENGINEER

Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

FEBRUARY 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C-001	DEMOLITION & EROSION CONTROL PLAN
C-002	DEMOLITION & EROSION CONTROL DETAILS
C-100	OVERALL SITE PLAN
C-101	SITE PLAN
C-102	PARCEL MAP
C-103	SITE DETAILS
C-104	SITE DETAILS
C-200	GRADING PLAN
C-300	STORM DRAINAGE PLAN
C-301	STORM DRAINAGE DETAILS
C-302	STORM DRAINAGE DETAILS
C-303	STORM DRAINAGE DETAILS
C-400	UTILITY PLAN
C-401	SANITARY SEWER DETAILS
C-402	SANITARY SEWER DETAILS
C-403	SANITARY SEWER GENERAL NOTES
C-404	SANITARY SEWER TESTING NOTES
C-405	WATER DETAILS
C-406	WATER DETAILS
C-407	WATER DETAILS & NOTES
C-408	INSULATED ENCLOSURE DETAIL
L-100	LANDSCAPE PLAN

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



SITE PLAN
SCALE: 1"=100'

© Carmina Wood Morris DPC

Carmina Wood Morris
497 Main Street Suite 300
Buffalo, New York 14203
P 716.842.2185
F 716.842.0761

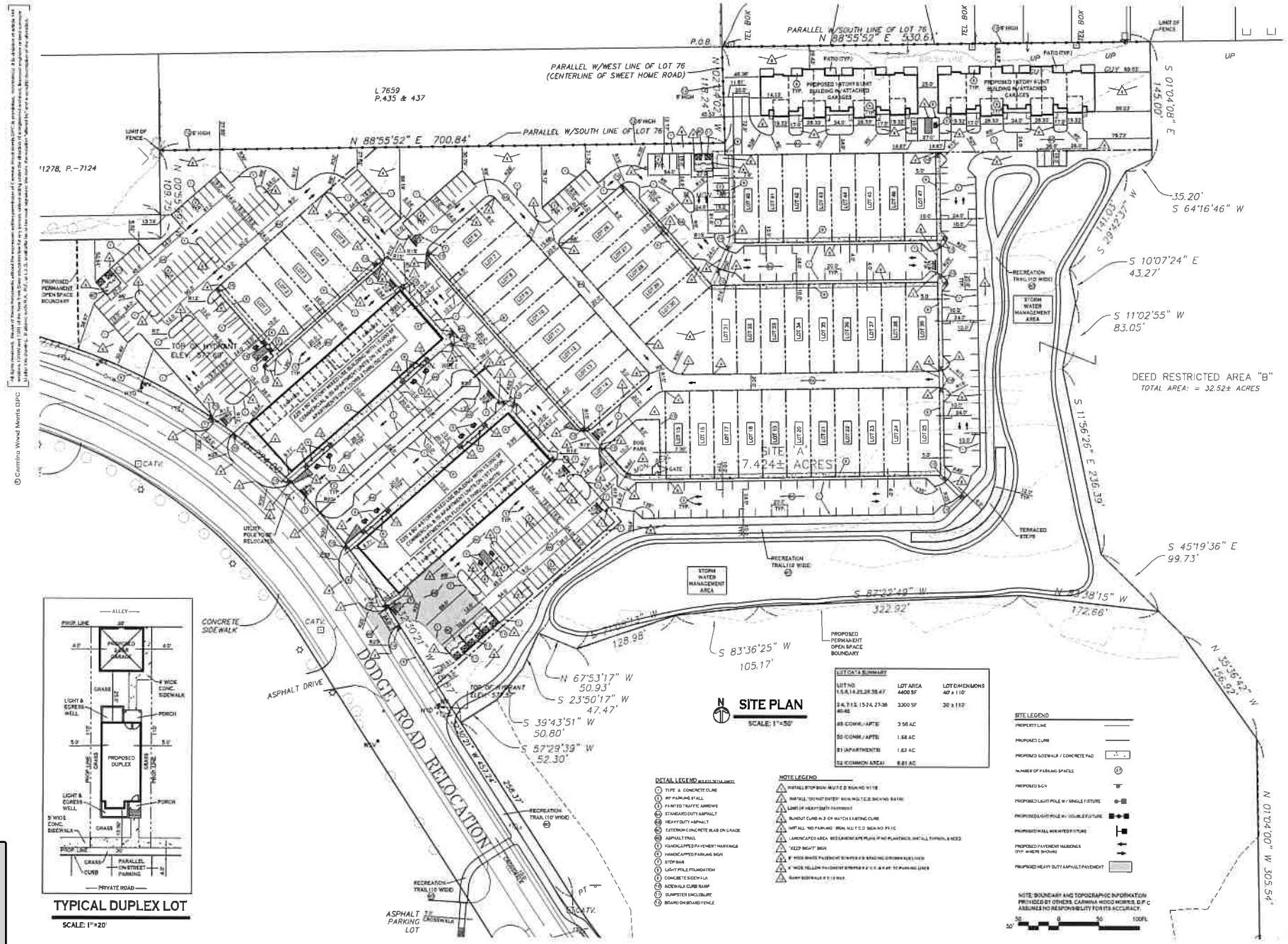
REVISIONS:
No. Description Date
Nil.

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Overall Site Plan

DRAWING NO.
C-100
Project no.: 21.011



SITE PLAN
SCALE: 1"=50'

TYPICAL DUPLEX LOT
SCALE: 1"=20'

Carmina Wood Morris
467 Main Street Suite 500
Buffalo, New York 14203
P 716.842.2185
F 716.842.0263

REVISIONS:
No. Description Date

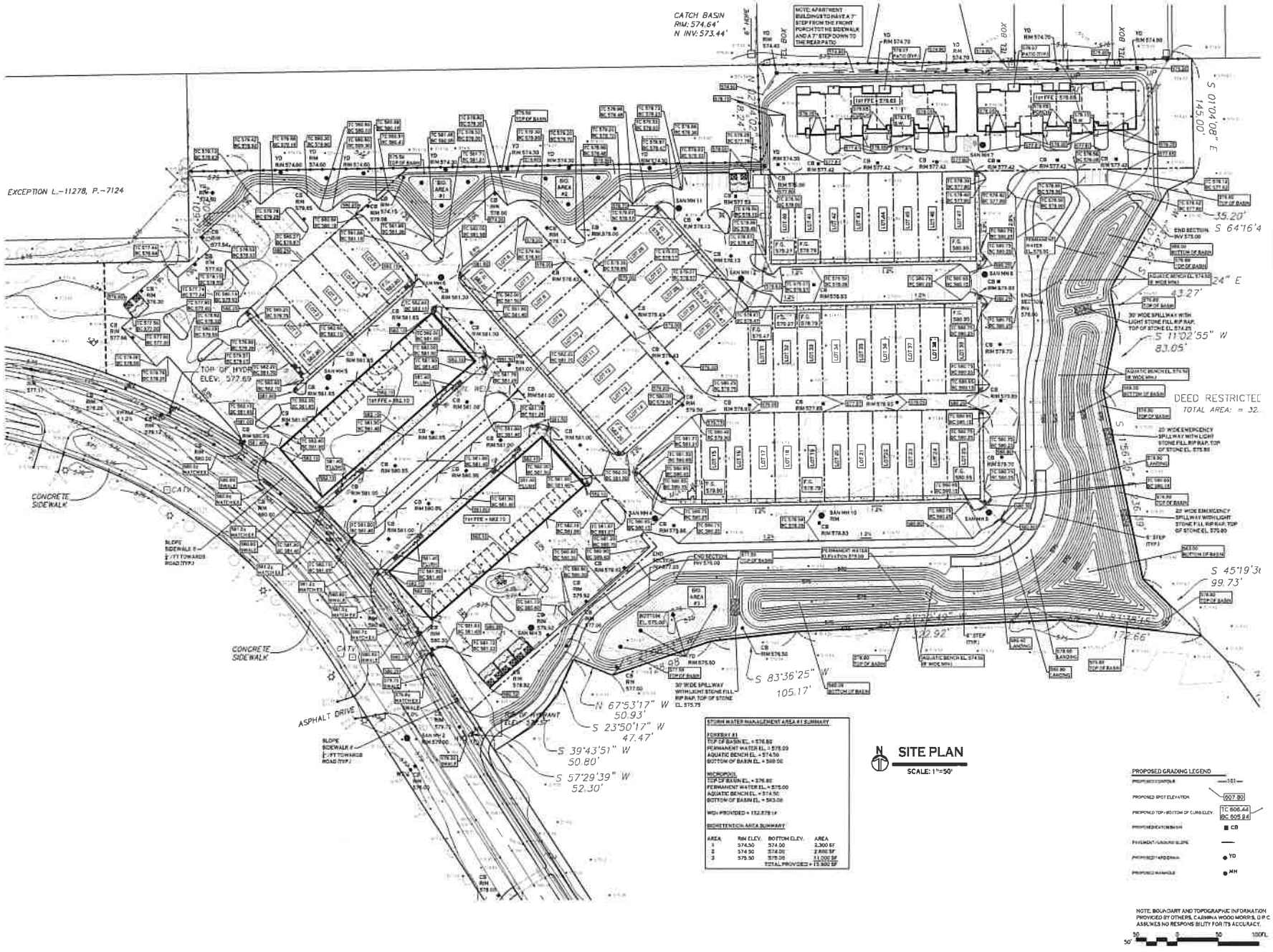
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 7/24/21
Drawn by: C. Wood
Scale: As Plotted

DRAWING NAME:
Site Plan

DRAWING NO.
C-101
Project no.: 21.01

© Carmina Wood Morris DPC



SITE PLAN
SCALE: 1"=50'

Carmina Wood Morris
487 Main Street - Suite 500
Buffalo, New York 14203
P 716.842.3185
F 716.842.0961

REVISIONS:
No. Description Date

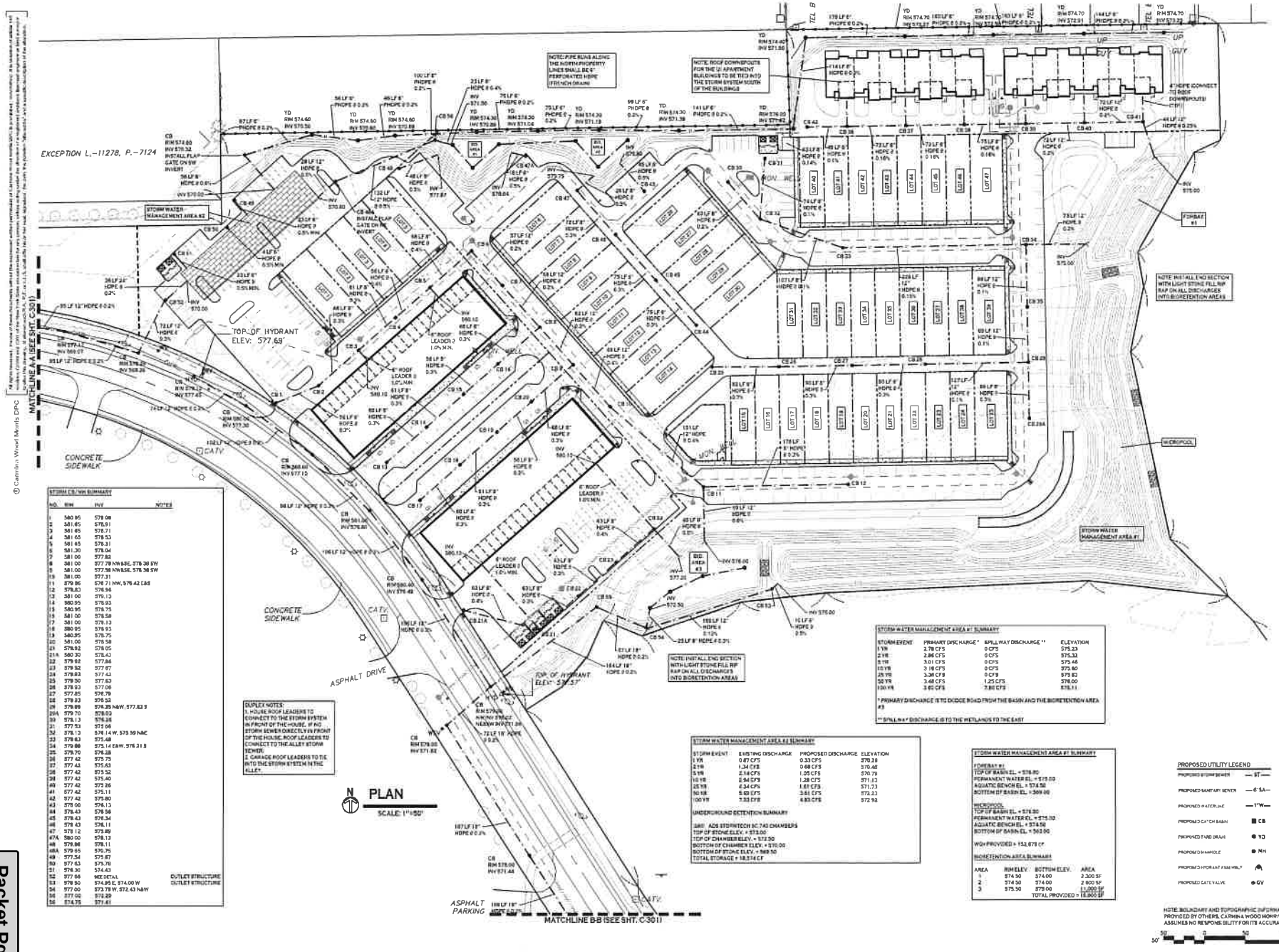
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/2/21
Drawn by: C. Wood
Scale: As noted

DRAWING NAME:
Grading Plan

DRAWING NO.
C-200
Project no.: 21.011

© Carmina Wood Morris DPC



Carmina Wood Morris
487 Main Street - Suite 500
Buffalo, New York 14203
P 716.842.3186
F 716.842.0761

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Plan

DRAWING NO.
C-300

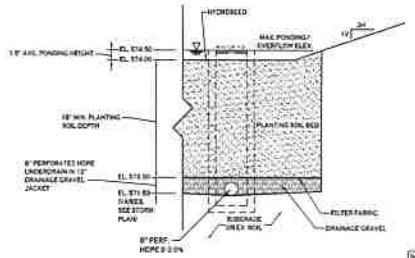
Project no.: 21.011

© Carmina Wood Morris DPC

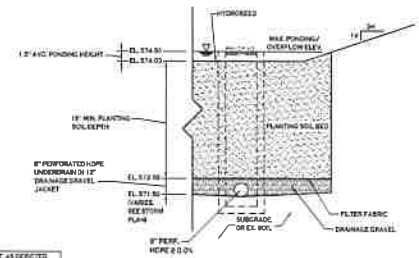
Packet Pg. 1069

1.d

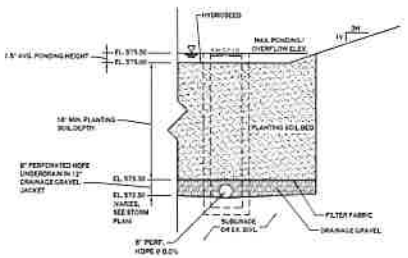
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



BIORETENTION AREA #1



BIORETENTION AREA #2



BIORETENTION AREA #3

NOTE: AS DEPICTED TYPICALLY IN BIORETENTION AREAS, PROPOSED GRADE ELEVATIONS ARE TO BE SET 6" ABOVE PROPOSED GRADE IN BIORETENTION AREAS.

BIORETENTION AREA - TYPICAL SECTIONS

NOT TO SCALE

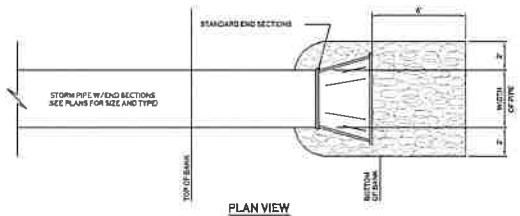
NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 140 OR APPROVED EQUIVALENT.
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43, NO.57, SIZE 0.25" TO 0.75"
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 99% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR SL WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

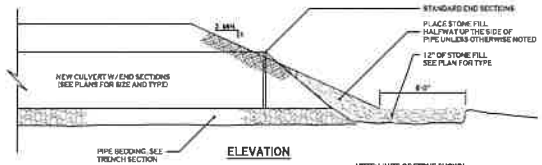
CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHERUS: 75 LBS PER ACRE MIN
POTASSIUM: 85 LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CAREX STRICTA	AGROSTIS STOLONIFERA	83.0
SCIRPUS CYPERINUS	POA TRIVIALIS	17.0
ELYMUS VIRGINICUS	ALOPECURUS ARUNDINACEUS	11.0
JUNCUS EFFUSUS	LOLIUM MULTIFLORUM	4.5
DESCHAMPSIA CESPITOSA	FESTUCA ELANOR STRICTA	4.5



PLAN VIEW

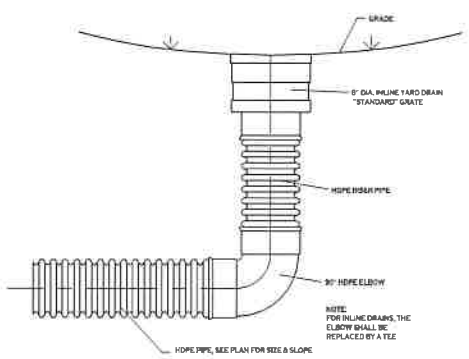


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS. PLAN MAY INDICATE GREATER LIMITS

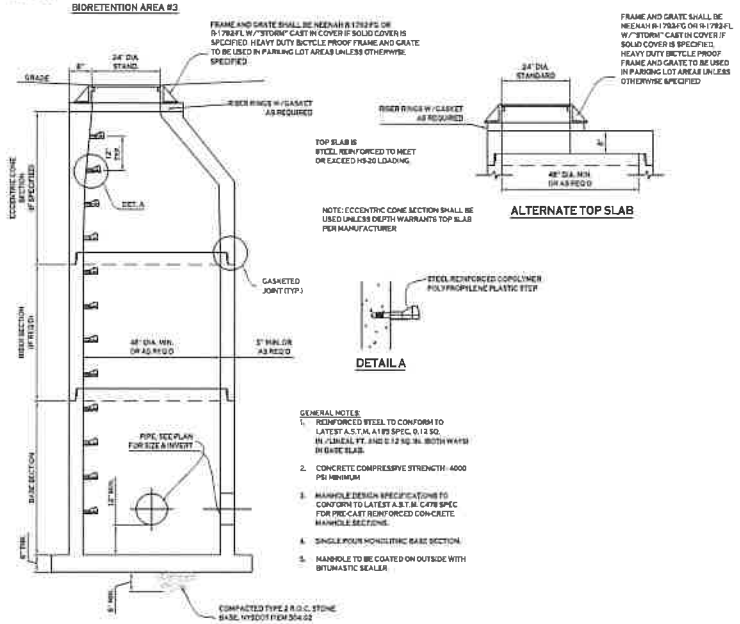
TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

NOT TO SCALE



NOTE: SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



TOP SLAB IS 8"CEL REINFORCED TO MEET OR EXCEED H-20 LOADING

NOTE: ECCENTRIC CONE SECTION SHALL BE USED UNLESS DEPTH WARRANTS TOP SLAB PER MANUFACTURER

ALTERNATE TOP SLAB

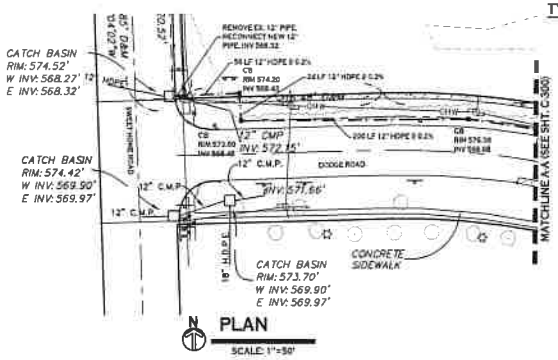
FRAME AND GRATE SHALL BE NEENAH R-1783-FS OR R-1782-FL W/ "STORM" CAST IN COVER IF SOLID COVER IS SPECIFIED. HEAVY DUTY BICYCLE PROOF FRAME AND GRATE TO BE USED IN PARKING LOT AREAS UNLESS OTHERWISE SPECIFIED

DETAIL A

GENERAL NOTES:
1. REINFORCED STEEL TO CONFORM TO LATEST A.S.T.M. A185 SPEC., 6 X 6 SQ. IN. WELDED WT. AND 6 X 12 SQ. IN. BOTH WAYS IN BASE SLAB.
2. CONCRETE COMPRESSIVE STRENGTH: 4000 PSI MINIMUM
3. MANHOLE DESIGN SPECIFICATIONS TO CONFORM TO LATEST A.S.T.M. C478 SPEC FOR PRE-CAST REINFORCED CONCRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.
5. MANHOLE TO BE COATED ON OUTSIDE WITH BITUMASTIC SEALER

TYPICAL STORM MANHOLE DETAIL

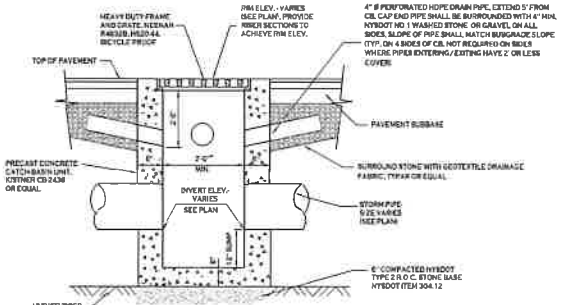
NOT TO SCALE



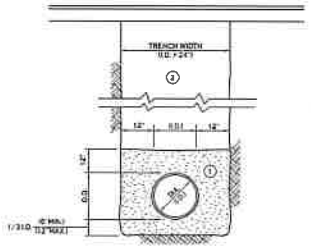
N PLAN

SCALE: 1"=50'





TYPICAL PRECAST CATCH BASIN
NOT TO SCALE



NOTES:
A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.
C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.
D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT | 1985 EDITION)

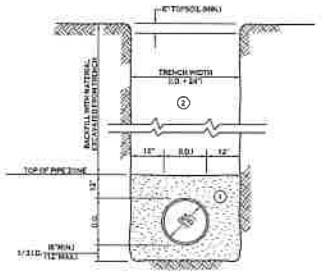
① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703.02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL ①

② TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYDOT SECTION 304.2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL ②

STORM SEWER TRENCH SECTION IN PAVED AREAS
NOT TO SCALE



NOTES:
A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.
C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.
D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

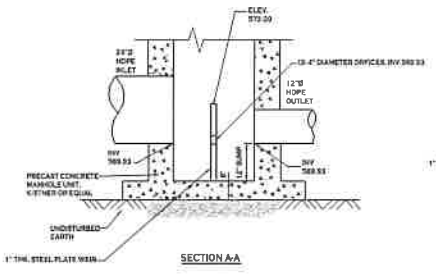
PIPE BEDDING MATERIAL (NYSDOT | 1985 EDITION)

① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703.02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL ①

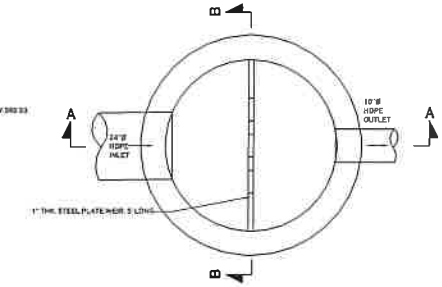
② BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 6" LIFTS.

STORM SEWER TRENCH SECTION IN UNPAVED AREAS
NOT TO SCALE



SECTION A-A

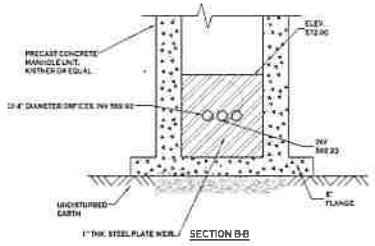
NOTES:
1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED



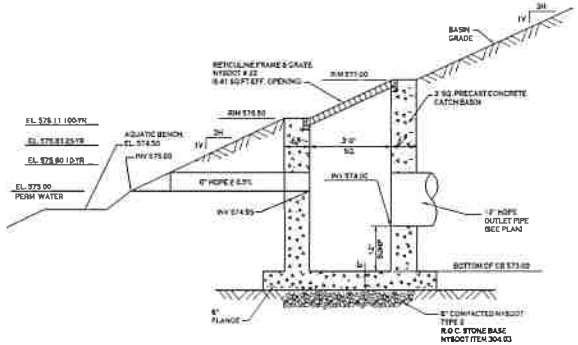
PLAN

* NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52
NOT TO SCALE



SECTION B-B



DETENTION BASIN OUTLET STRUCTURE - CB 53
N.T.S.

© Carmina Wood Morris DPC
All rights reserved. Unauthorized use of these documents without the written permission of Carmina Wood Morris DPC is prohibited. Any violation of this notice may result in civil and criminal penalties. Any unauthorized use of these documents shall be at the sole risk of the user and without liability to Carmina Wood Morris DPC and its consultants.

Carmina Wood Morris DPC
444 Main Street, Suite 320
Buffalo, New York 14203
P: 716.842.1085
F: 716.842.0287

REVISIONS:
No. Description Date

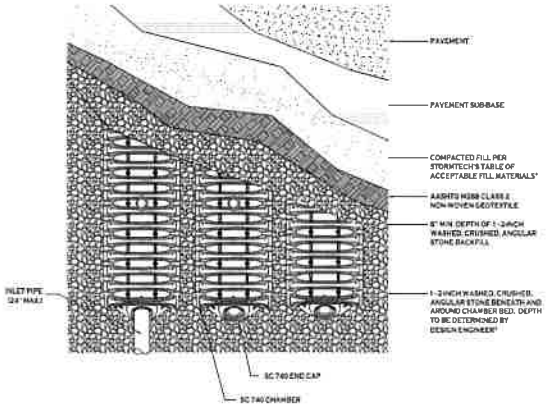
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-302
Project no.: 21,011

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



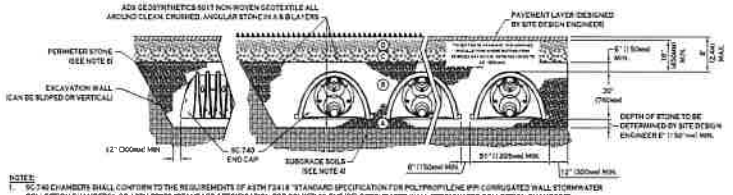
STORMTECH SC-740 CHAMBER SYSTEM PLAN VIEW DETAIL

NOT TO SCALE

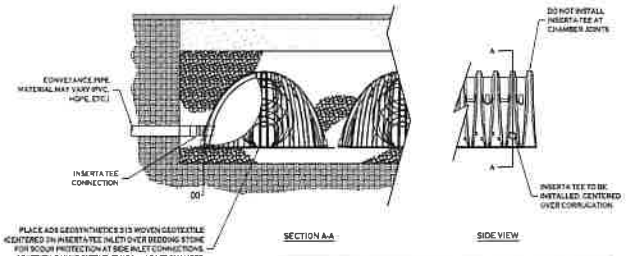
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1]: A-1, A-2-4, A-3 OR AASHTO M43[1]: 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,500 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1]: 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1]: 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[3,4]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43 STONE)".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION



NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)

INSERTA TEE FITTINGS AVAILABLE FOR SOR-26, SOR-35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON

INSERTA TEE DETAIL

NOT TO SCALE

INSPECTION AND MAINTENANCE

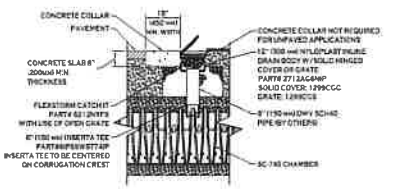
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - () MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - () FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 rad) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

© Carmina Wood Morris DPC
All rights reserved. Unauthorized use of this drawing without the express written permission of Carmina Wood Morris DPC is prohibited. Reproduction, publication or sharing of this drawing in any format, including but not limited to hard copy, PDF, CAD or digital means, without the express written permission of Carmina Wood Morris DPC is prohibited. Any unauthorized use, reproduction or publication is a violation of applicable law. Any infringement will be prosecuted to the fullest extent possible under law. The Architect "Consultant" and its sub-Professional Consultants reserve all rights to the use of the Drawings and Models prepared by them, whether or not the project is executed. All persons and/or entities using the Drawings and Models without the Consultant's written permission shall indemnify and hold harmless the Consultant and its sub-Professional Consultants from all claims, damages, losses, expenses, including reasonable attorney's fees arising out of or resulting therefrom.

Carmina Wood Morris
487 Main Street Suite 500
Buffalo, New York 14203
P: 716.842.3180
F: 716.842.0293

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

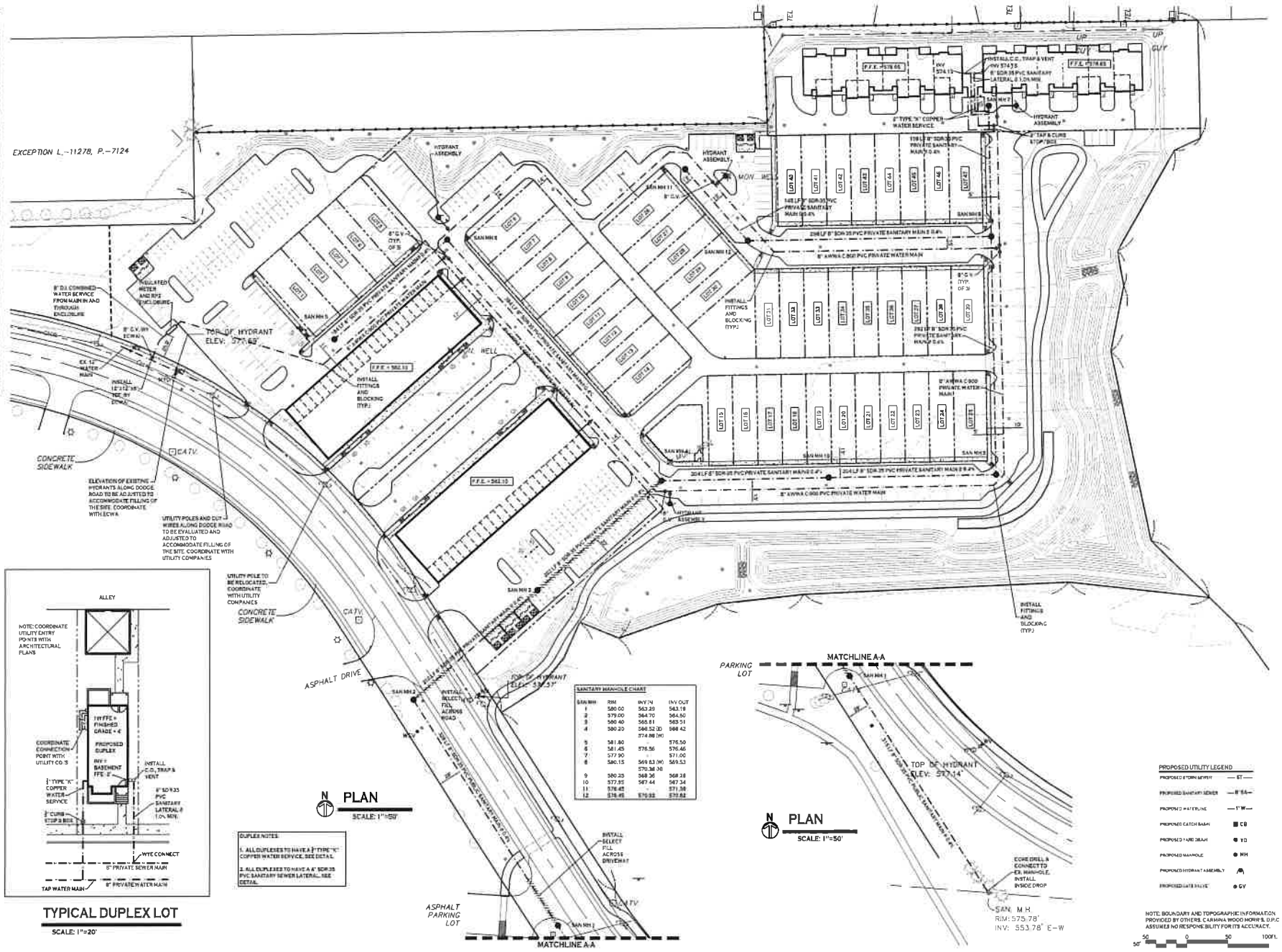
Date: 2/15/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-303

Project no: 21.011

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



© Carmina Wood Morris DPC

Carmina Wood Morris DPC

REVISIONS:

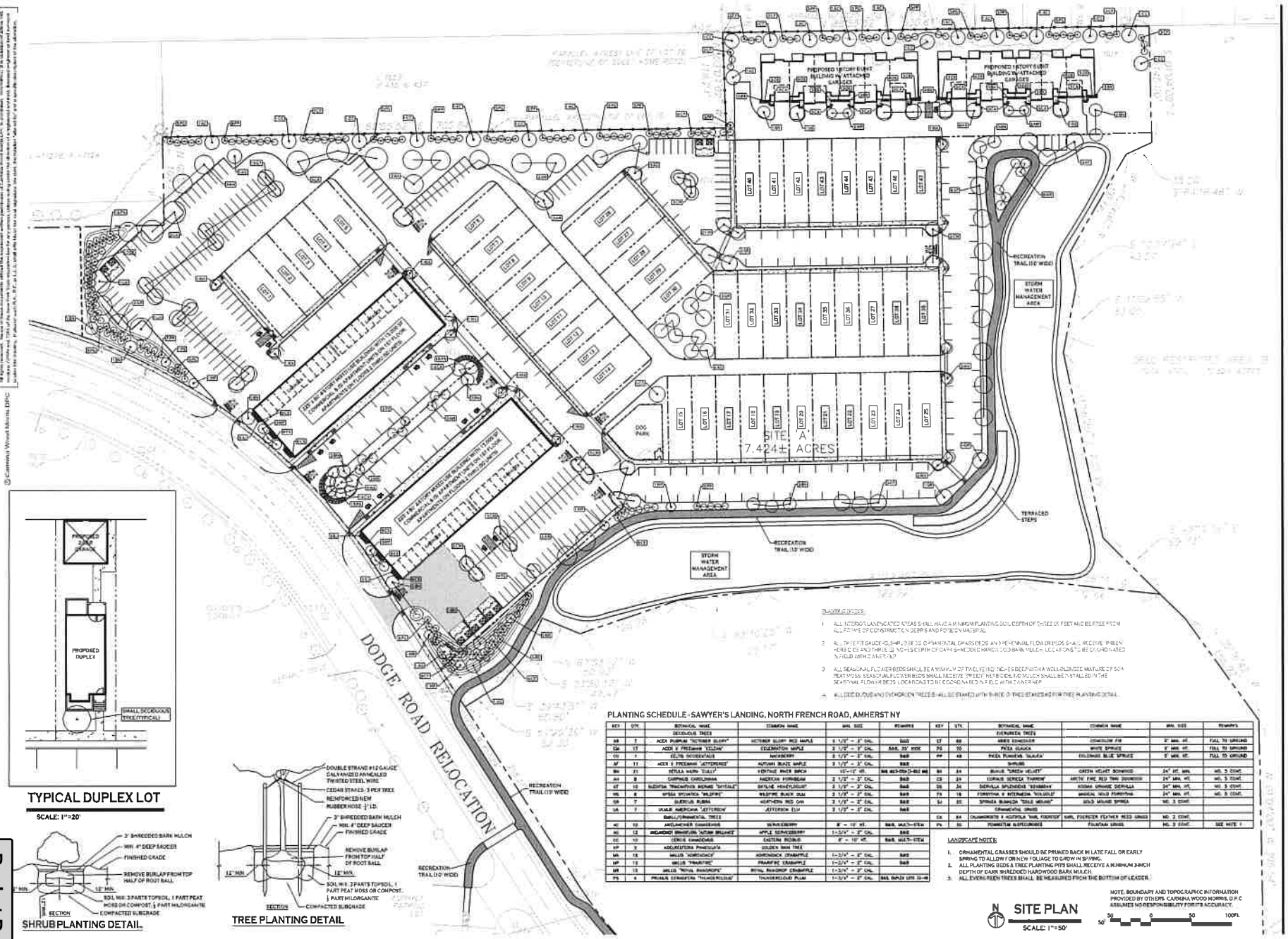
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Utility Plan

DRAWING NO.
C-400

Project no.: 21,011



PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PITS AND SHRUB BEDS, ORNAMENTAL GRASS BEDS AND PERENNIAL FLOWER BEDS SHALL RECEIVE THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE CONFIRMED IN FIELD WITH OWNER.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE TREFLY HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE CONFIRMED IN FIELD WITH OWNER.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AND FOR TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X FREEMANII 'CELZAM'	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII 'AUTUMN BLAZE'	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA 'DURA-1'	HERITAGE RIVER BIRCH	10'-12' HT.	B&B MULTI-STEM
AM	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	10	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
WS	8	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL/ORNAMENTAL TREES			
AC	12	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
MJ	13	MALUS/PYRUS 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1-3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
RP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	18	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1-3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1-3/4" – 2" CAL.	B&B
MR	13	MALUS 'ROYAL RAINDROPS'	ROYAL RAINDROP CRABAPPLE	1-3/4" – 2" CAL.	
PS	4	PRUNUS SERRULATA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1-3/4" – 2" CAL.	B&B, SAMPLE LOTS 33-44
		EVERGREEN TREES			
AB	68	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	10	PICEA GLAUCA	WHITE SPRUCE	6' MIN. HT.	FULL TO GROUND
PP	48	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BH	24	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD	24" HT. MIN.	MO. 3 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	MO. 3 CONT.
DS	24	DIERVILLA SPLENDENS 'SEIBERT4'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	MO. 3 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'BOUCLE'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	MO. 3 CONT.
SJ	35	SPIRAEA JAPONICA 'DOUG MEDARC'	DOUG MOUND SPIREA	MO. 3 CONT.	
		ORNAMENTAL GRASS			
CK	84	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	MO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	MO. 3 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR IT'S ACCURACY.

N SITE PLAN
SCALE: 1"=50'

50 0 50 100FT.

TYPICAL DUPLEX LOT
SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

Carmina Wood Morris DPC
487 Main Street, Suite 500
Buffalo, New York 14203
P 716.842.3181
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Landscape Plan

DRAWING NO.
L-100
Project no.: 21.011

© Carmina Wood Morris, DPC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix H

Soils Information

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Soil Map—Erie County, New York



Map Scale: 1:3,590 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 20, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2019—Oct 10, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ge	Getzville silt loam	27.2	87.5%
Ld	Lamson mucky very fine sandy loam	1.8	5.7%
Sw	Swormville clay loam	2.1	6.8%
Totals for Area of Interest		**31.1**	**100.0%**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix I

SHPO Information

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643

Bernadette Castro
Commissioner

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

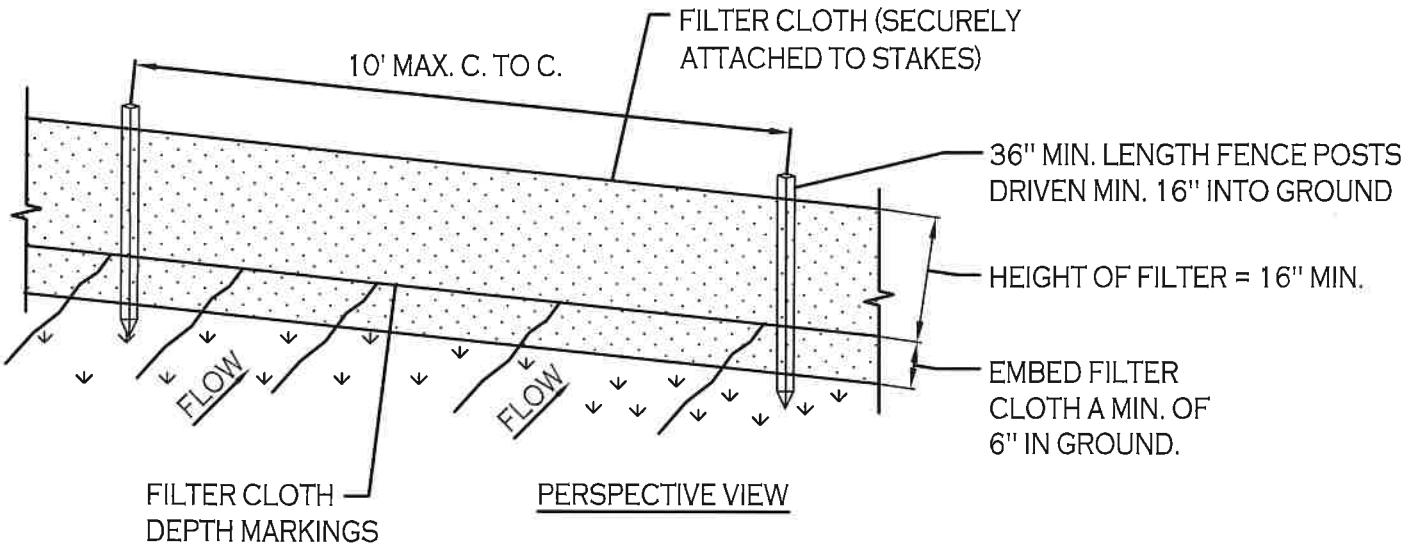
An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

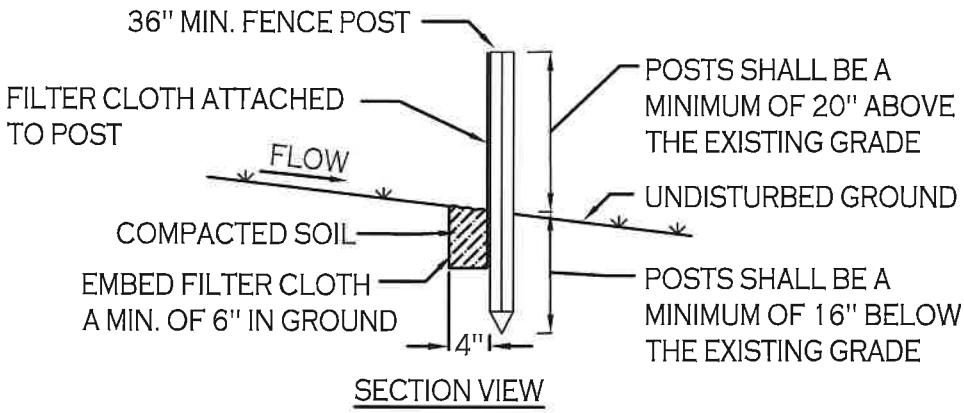
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix J

Standard Erosion Control Details

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)





CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.

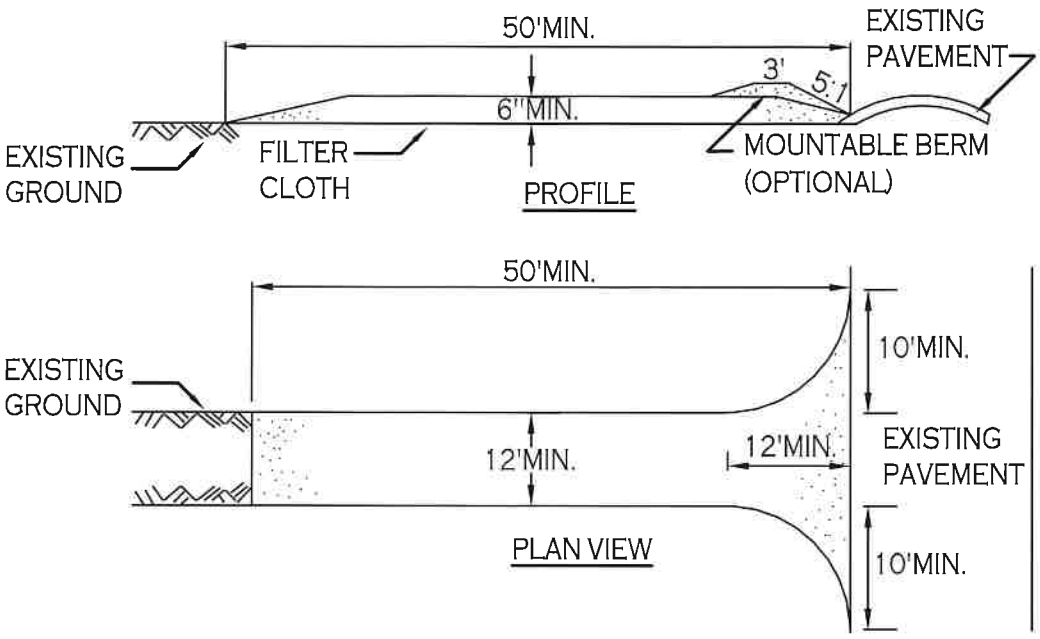
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.

3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



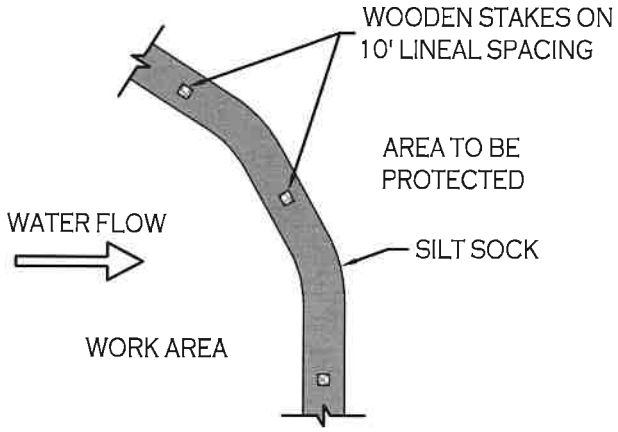
CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

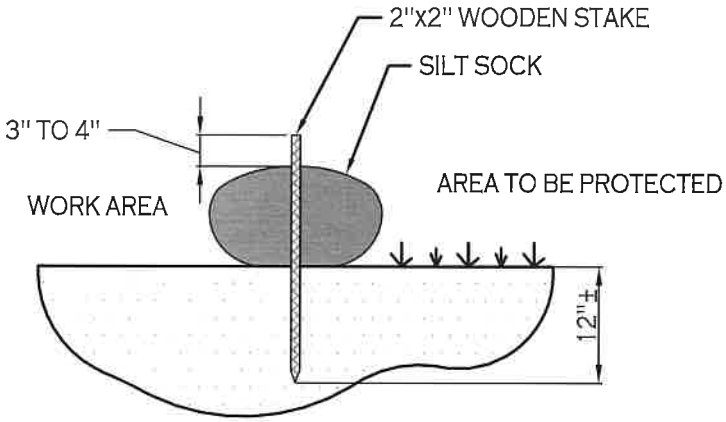
STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



PLAN VIEW



SECTION VIEW

NOTES:

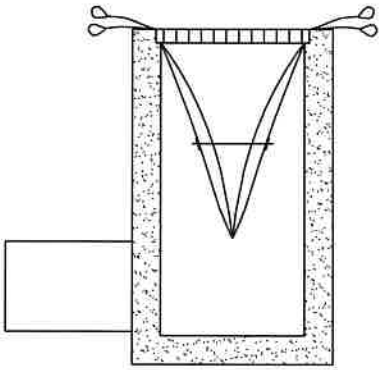
CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED $\frac{1}{2}$ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

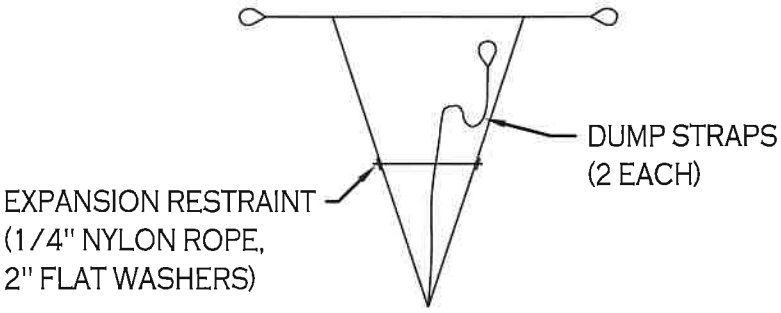
SILT SOCK DETAIL

NOT TO SCALE

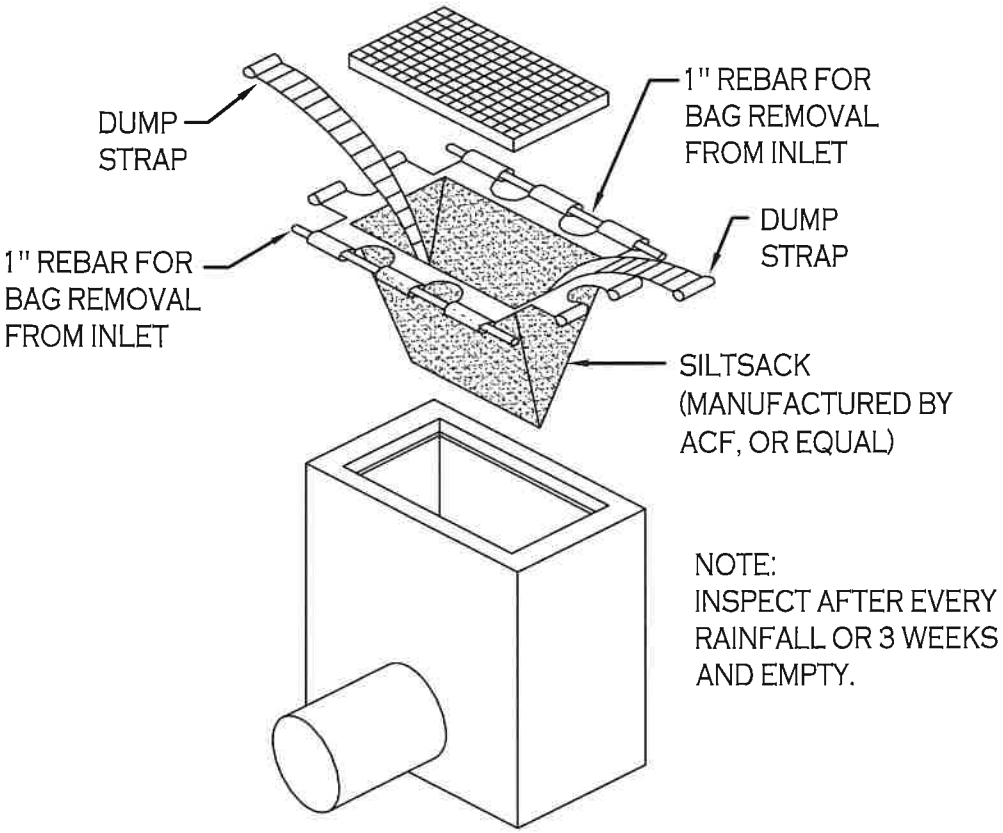
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



INSTALLATION DETAIL



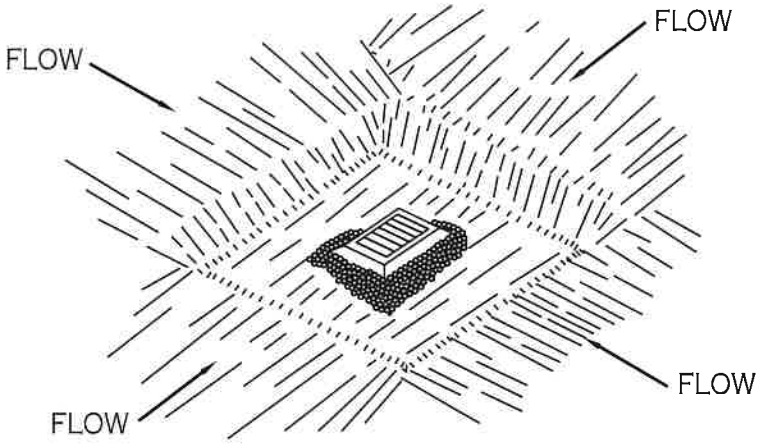
BAG DETAIL

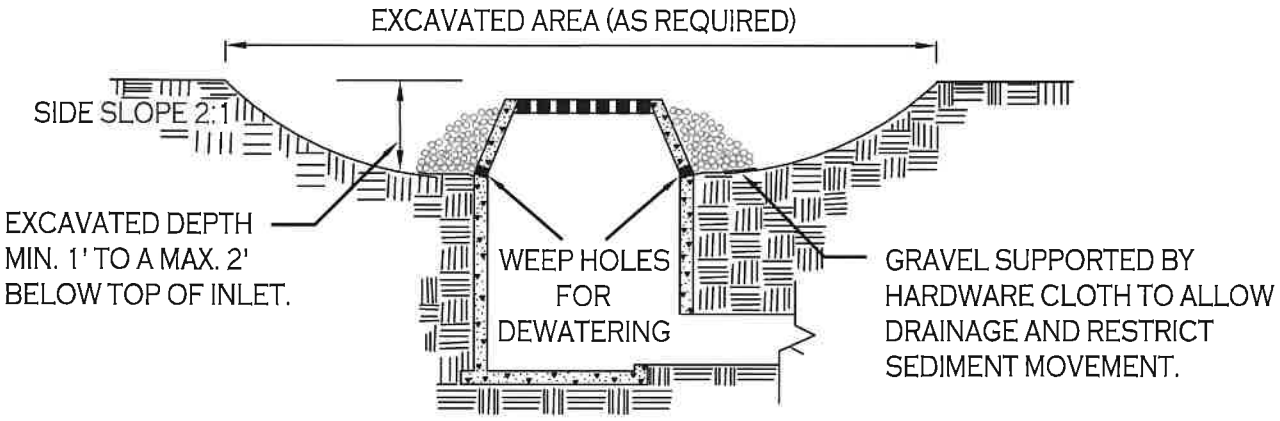


SILT SACK DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)





CONSTRUCTION SPECIFICATIONS

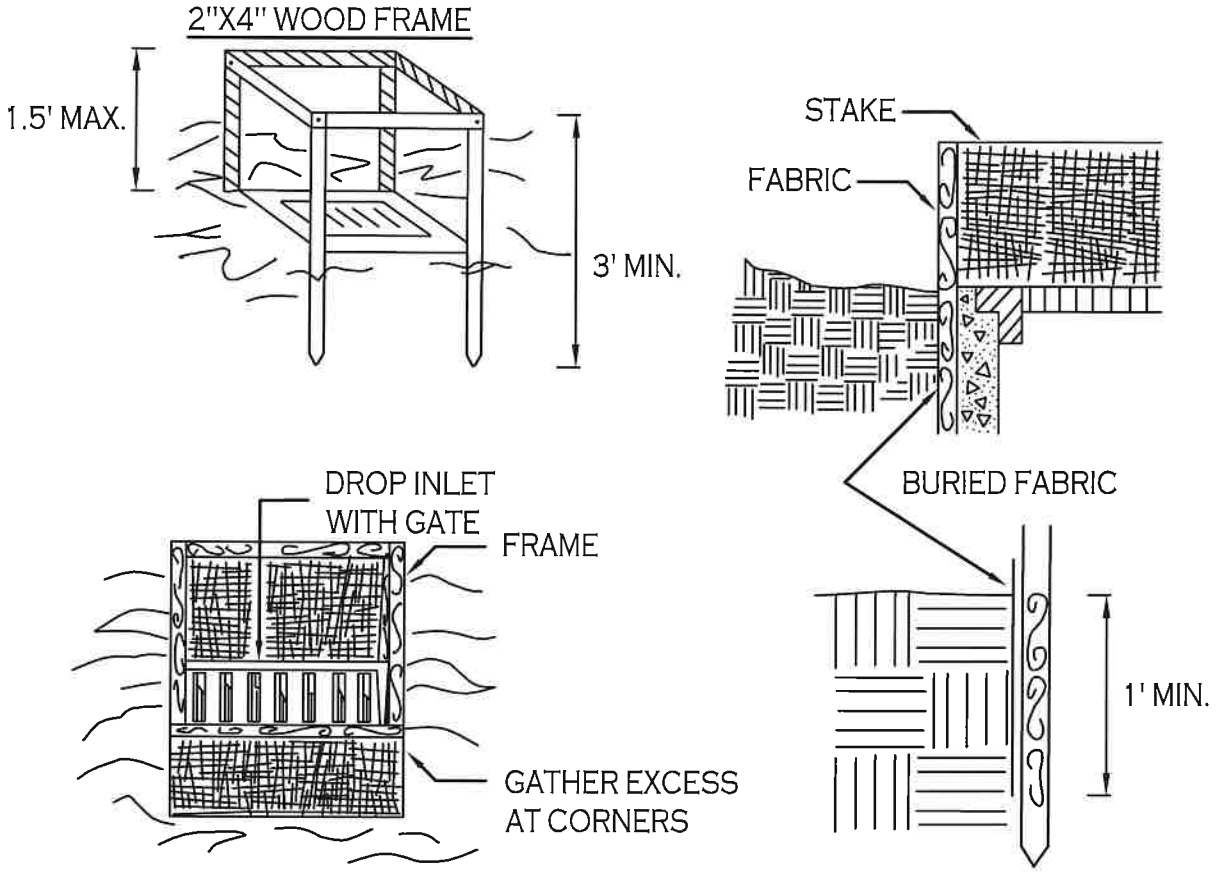
1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.

2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.

3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.

4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.

5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.

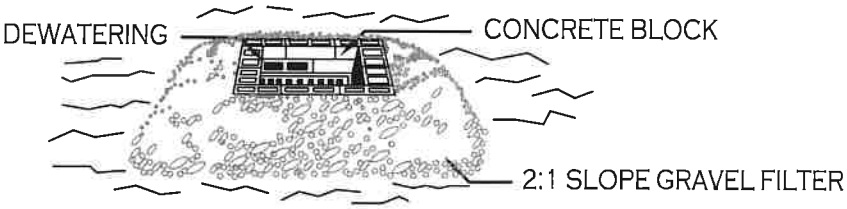
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

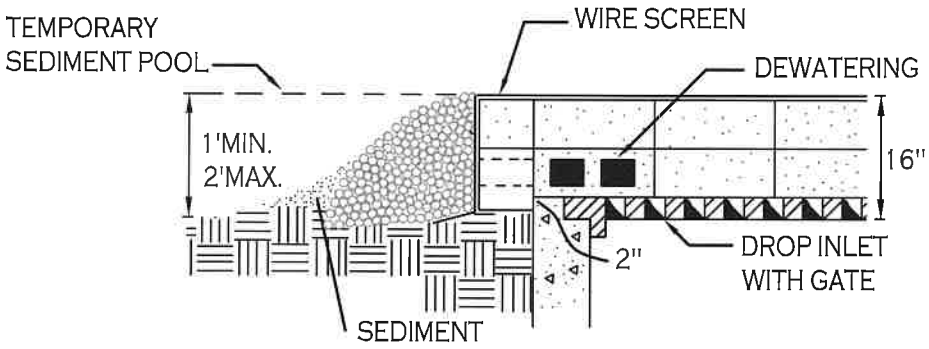
INLET PROTECTION DETAIL 2

NOT TO SCALE

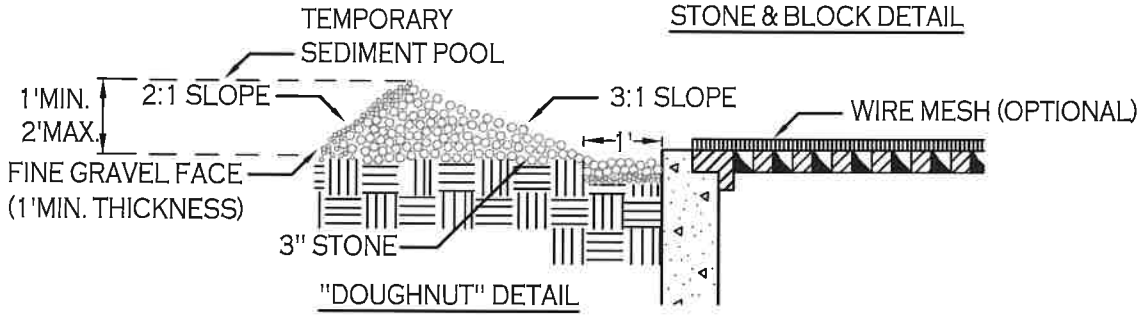
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



STONE & BLOCK PLAN VIEW



STONE & BLOCK DETAIL



"DOUGHNUT" DETAIL

CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.

2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.

3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.

4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

NOT TO SCALE

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix K

Wetland Permits

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7165 I F: (716) 851-7168
www.dec.ny.gov

December 24, 2020

Mr. Adam Faeth
Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Muir Woods Development – "Site A"
Permit Transmittal Letter
Permit No. 9-1422-00398/00001

Dear Mr. Faeth:

Enclosed is your permit which was issued in accordance with applicable provisions of the Environmental Conservation Law. The permit is valid for only that project, activity or operation expressly authorized. If modifications are desired after permit issuance, you must submit the proposed revisions and receive written approval from the Permit Administrator prior to initiating any change. If the Department determines that the modification represents a material change in the scope of the authorized project, activity, operation or permit conditions, you will be required to submit a new application for permit.

Please review all permit conditions carefully. In particular, identify your initial responsibilities under this permit in order to assure timely action if required. Since failure to comply precisely with permit conditions may be treated as a violation of the environmental conservation law, you are requested to provide a copy of the permit to the project contractor, facility operator, and other persons directly responsible for permit implementation (if any).

If you have any questions, please contact this office at the above address.

Respectfully,
David S. Denk
Regional Permit Administrator

Enclosure
ecc: NYSDEC Law Enforcement
Maureen Brady, NYSDEC Office of General Counsel
Mr. Chuck Rosenburg, NYSDEC Division of Fish and Wildlife
Mr. Martin Crossen, USACOE
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

February 25, 2021

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Mr. Adam Faeth
Development Manager
Ciminelli Muir Woods LLC
350 Essjay Road Suite 101
Williamsville, NY 14221

Dear Mr. Faeth:

This is in reply to your submittal dated July 20, 2020 in which you requested a modification of Department of the Army Permit No. LRB-2001-00067. The project is located on a 326-acre parcel in the Town of Amherst, Erie County, New York. Specifically, you seek authorization to change the proposed use of an area identified as Site A from research and development and flex office space to a mixed-use commercial and residential development. This includes two 4-story mixed-use buildings, two-family townhouses, 6-unit apartment buildings, and a recreational trail to connect Site A with Site B. Wetland impacts have been reduced from 13.01 acres to 6.089 acres in Site A. A reduction of 6.921 acres. In addition, because of the reconfigured project including the significant reduction of wetland impacts, you have requested that the requirement of off-site compensatory mitigation be removed. Lastly, you have requested that 134 acres of the overall Muir Woods site located northeast of Site B, is donated to the Town of Amherst. This area will remain as open space in perpetuity. Permit compliance with mitigation requirements will remain as it currently is on the 134-acre site as a responsibility of Ciminelli Muir Woods LLC.

A Public Notice was published and coordinated with agencies and adjacent property owners using standard procedures. No comments were received as a result of the Public Notice. Based upon our evaluation, I concluded your request will not result in any unacceptable environmental or navigational impacts. Therefore, I am modifying Department of the Army permit No. LRB-2001-00067 to reflect the changes outlined in your request and identified on the attached drawings. All other terms and conditions of Permit No. LRB-2001-00067 remain in full force and effect.

Sheets 1, 2, and 3 of 3 are hereby made part of Permit No. LRB-2001-00067. Sheet 1 of 3 of this modification is an update to Sheets 2, 3, and 5 of 6 of the original permit. Sheet 2 and 3 of 3 of this modification are updates to Sheet 5 of 6 of the original permit. In addition, the following Special Conditions No. 6 and 8 of Permit No. LRB-2001-00067 are modified so that they no

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

longer include the requirement of off-site compensatory mitigation, as indicated below with the original and the following modified condition:

1. Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 17.83 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site, and 27.37 acres of wetland off-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site and off-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

   Modified Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 10.91 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

2. Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan, and the Proposed Off-Site Wetland Mitigation Plan dated November 16, 2009. The stated mitigation plans are hereby incorporated into and made part of the permit as Attachments 1 and 2. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

   Modified Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan dated November 16, 2009. The stated on-site mitigation plan is hereby incorporated into and made part of the permit as Attachments 1. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Questions pertaining to this matter should be directed to Martin Crosson at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207 or by E-mail at: martin.h.crosson@usace.army.mil

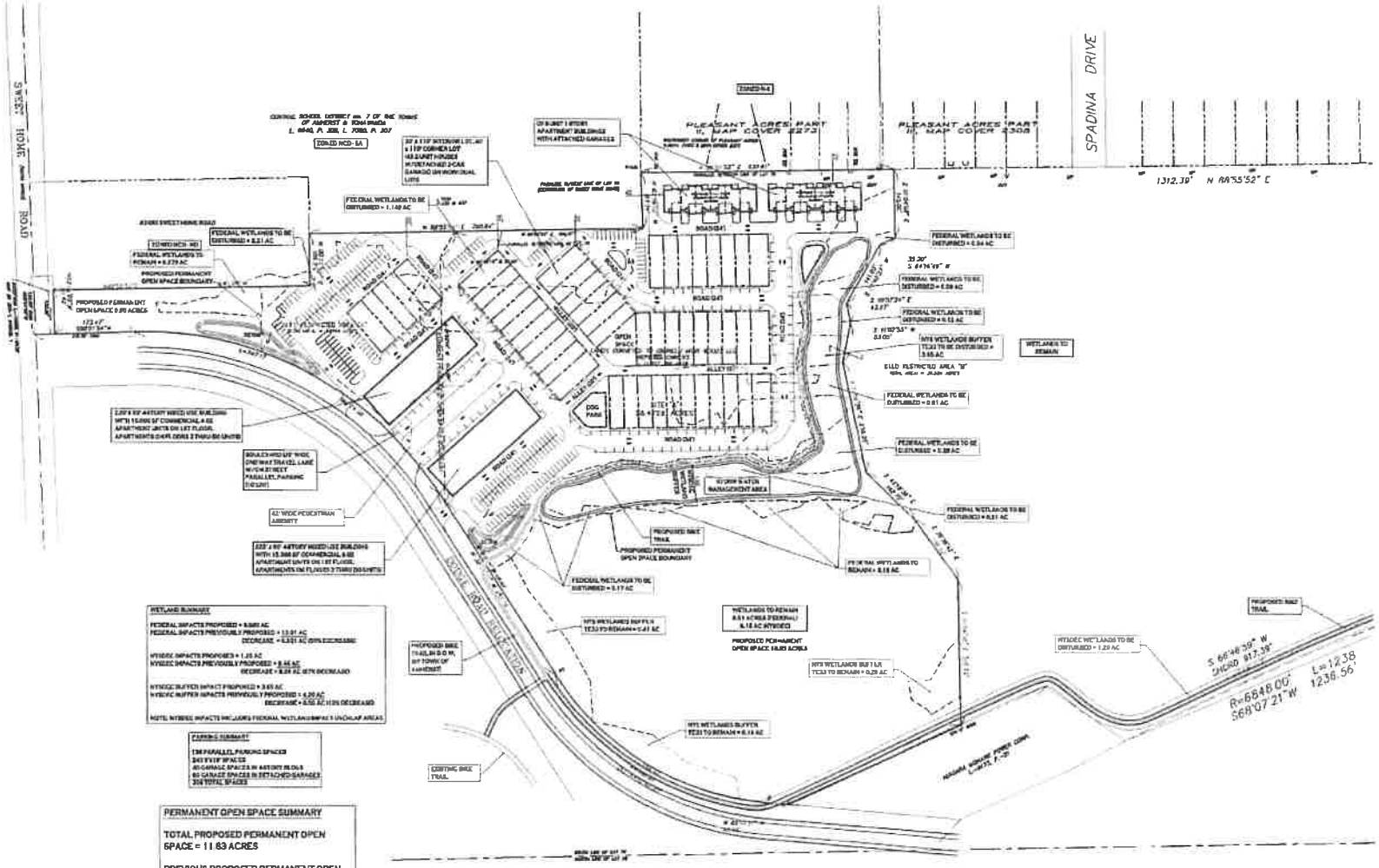
BY AUTHORITY OF THE SECRETARY OF THE ARMY

Steven V. Metivier

For: Mark Scalabrino
Acting Chief, Regulatory Branch

Enclosures

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



N SITE PLAN
SCALE: 1"=100'

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 1 of 3

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

Carmina Wood Morris

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 7/17/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Concept Site Plan

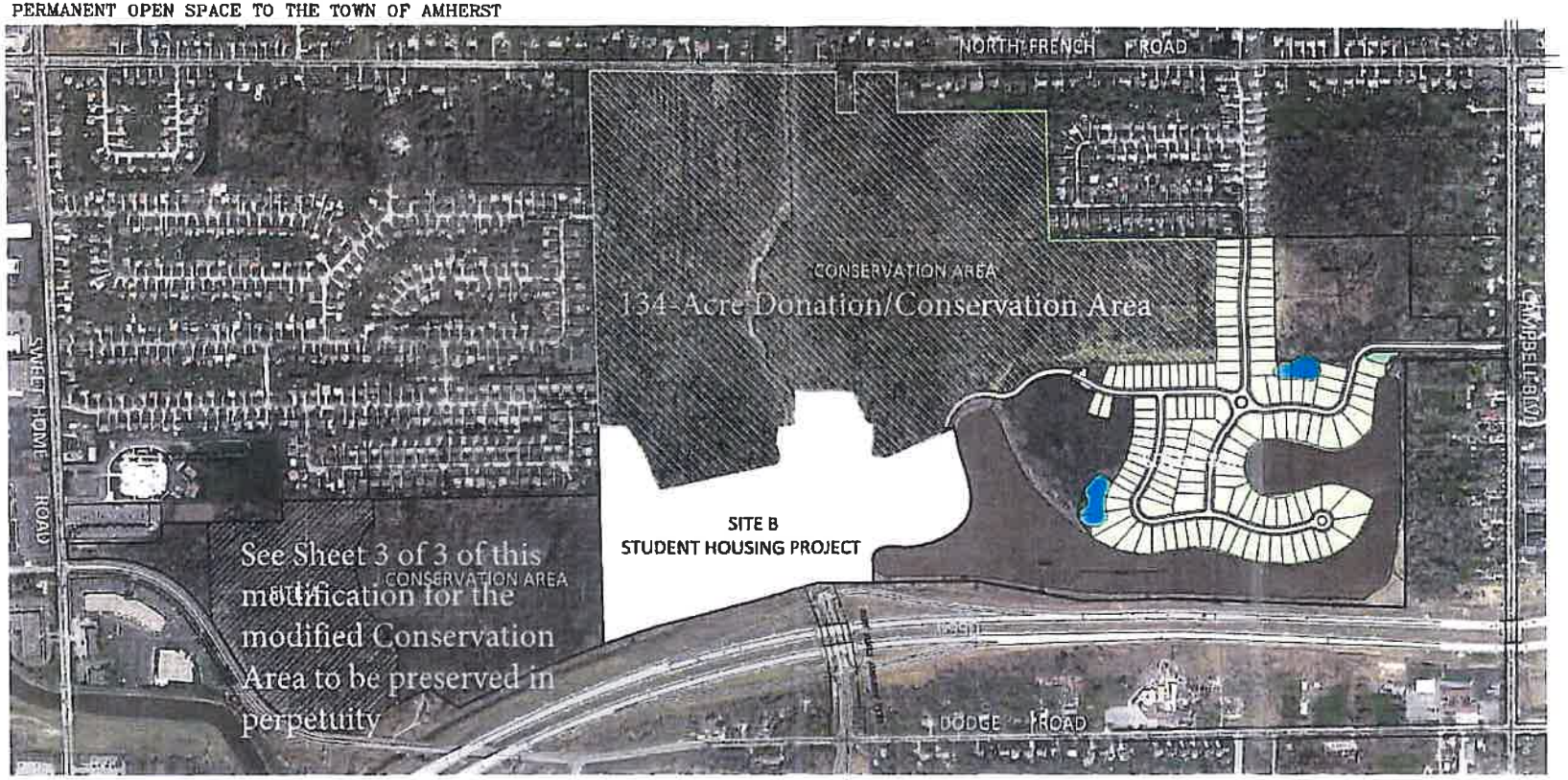
DRAWING NO.
C-100
Project no.: 19.192

© Carmina Wood Morris D.P.C.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

MUIR WOODS OVERALL PROJECT AREA

PROPOSED DONATION OF APPROXIMATELY 134 ACRES OF PERMANENT OPEN SPACE TO THE TOWN OF AMHERST

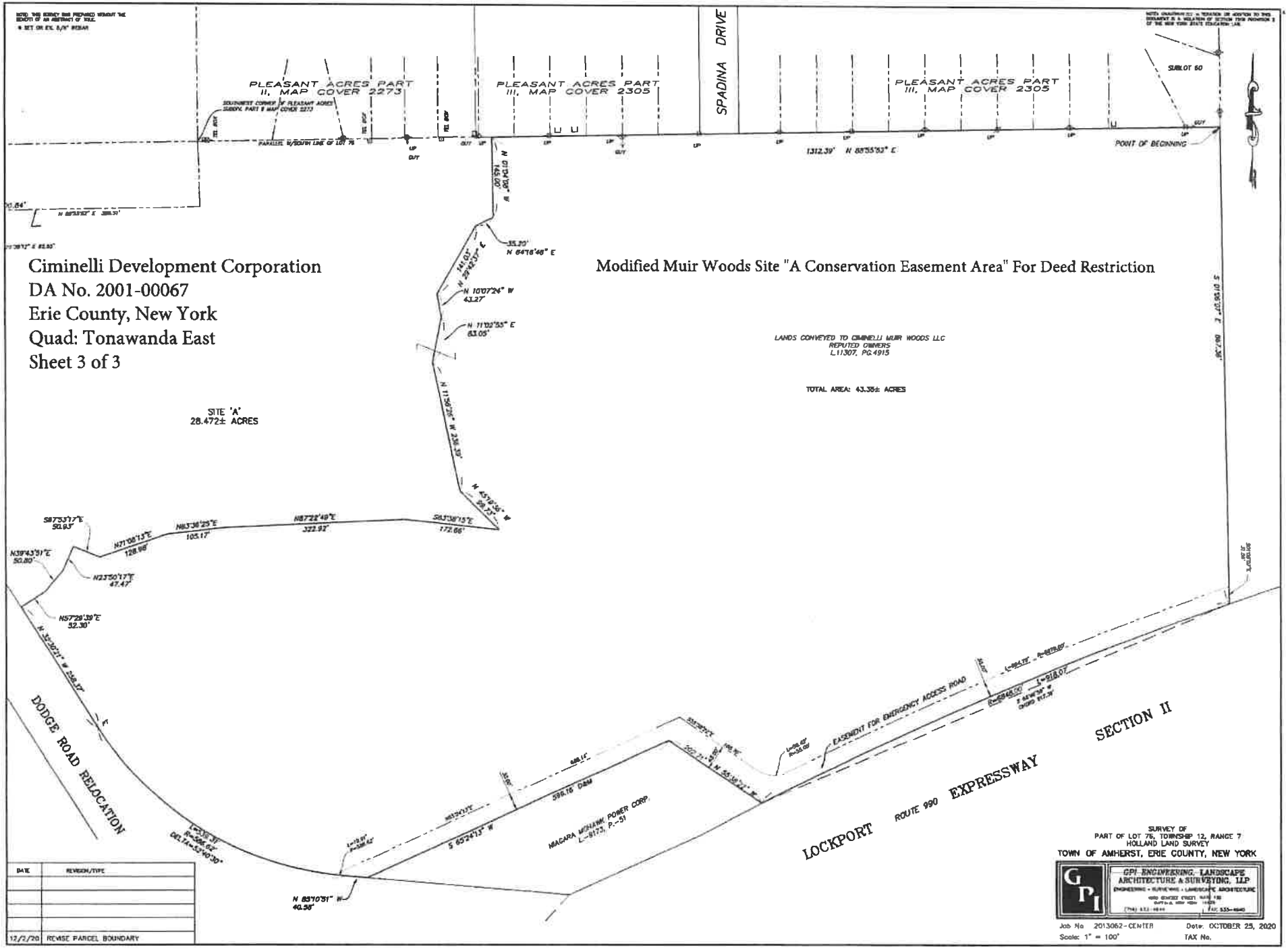


CONSERVATION AREA TO BE DONATED

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 2 of 3

GPI GREENMAN-PEDERSEN, INC. CONSULTING ENGINEERS

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix L

NYSDEC Letter of Acknowledgement

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix M

5 Acre Disturbance Letter

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

March 4, 2021

Vaishali Reberholt, PE, CPESC
Town of Amherst Engineering Department
1100 North Forest Road
Amherst, NY 14221

Re: **Sawyer's Landing**
Amherst, NY

Dear Vaishali:

This letter shall serve as our request to have a total of 5 acres disturbed at one time at the above site. Per the NYSDEC General Permit, our site inspections will increase to 2 times per week when 5 acres is reached and will continue until the time the total disturbance is under 5 acres.

If you have any questions regarding the above, please feel free to contact me at 842-3165 [Ext 103] or via e-mail at cwood@cwm-ae.com.

Sincerely,
Carmina Wood Morris, D.P.C.

Christopher Wood, PE

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix N

Engineer's Report

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

ENGINEER'S REPORT

for

Sawyer's Landing

Dodge & Sweet Home Road
Town of Amherst, Erie County, New York

Prepared for

Sawyer's Landing LLC

c/o Severyn Development
43 Central Ave Suite #300
Lancaster, NY 14086

Prepared by

Carmina Wood Morris, D.P.C.

487 Main Street, Suite 500
Buffalo, NY 14203

Telephone: (716) 842-3165
Fax: (716) 842-0263

February 2021



Table of Contents

Written Engineer's Report

Section 1 - Location & Description
Section 2 - Water Service
Section 3 - Sanitary Sewer Service
Section 4 - Storm Sewer Service

Appendices

Appendix A Sanitary Sewer and Water Demand Calculations

Appendix B Storm Sewer System Drainage Calculations

- Existing Runoff
- Proposed Runoff – East
- Proposed Runoff - West
- Green Infrastructure & Water Quality Calculations

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Section 1 - Location & Description

This project is a development of a 17.4 acre site located on the north side of Dodge Road, west of Sweet Home Road in the Town of Amherst. Both Dodge Road and Sweet Home Road are Erie County roads. Proposed is the construction of a mixed use development to include (2) 4-story buildings with a total of 30,000 sf of commercial and 100 apartments, (47) duplex lots and (2) 1-story apartment buildings with a total of 12 units. A bike trail will be constructed on site, this trail will connect to the existing Town of Amherst bike trail on the south side of Dodge Road. The approximately 1 acre westerly portion will remain undisturbed and be deed restricted as permanent open space. The site is currently undeveloped consisting of woods and overgrown brush/grass. NYSDEC and Federal wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The proposed site development area to be disturbed for this project is approximately 16.4 acres.

Section 2 - Water Service

A new 8" D.I. combined service will be tapped off the existing 24" D.I.P. ECWA water main along the north side of Dodge Road. Following the tap, the 8" D.I. service will continue north into the site where it will enter into a Hot-Box enclosure. Within the Hot-Box enclosure an 8" meter (by ECWA) and an 8" Watts 957 RPZ will be installed. The service will exit the Hot-Box enclosure and then transition into 8" AWWA C-900 PVC. The service will run throughout the site to provide both domestic and fire service to the proposed buildings. Heat & light for testing will be provided in the area of the meter & RPZ to prevent freezing. Drainage due to testing or failure will be to the exterior through a drain, drainage will be away from the enclosure. The owner will be responsible for keeping the drainage ports clear of snow and debris. A total of 4 (four) proposed fire hydrants shall be installed around the site to provide fire protection coverage. There are no existing water services to this site, and therefor none to be killed/abandoned per ECWA requirements.

Domestic Summary:

Peak Operating Demand:	140.6 gpm
Water Main:	24" on Dodge Road
Static Pressure:	105 psi (per ECWA, 98 psi residual)
Friction Loss:	0.0 psi
Loss through meter/RPZ:	13.0 psi
Elevation Loss:	0.0 psi
Pressure after RPZ & Meter:	92 psi
Pressure at 4th floor:	77 psi

Repairs to all devices will be made during off hours, dual backflow preventers are not required. The site is not located in a 100-year flood plain. Disinfection of the

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

water service following installation will be continuous feed, according to AWWA C-651, latest revision.

Section 3 - Sanitary Sewer Service

The proposed sanitary sewer service will connect to the existing 60" sanitary sewer (peanut line) located on the south side of Dodge Road. In order to connect to this sewer, a public sewer extension along the south side of Dodge Road will be required. This public extension will consist of a total of 643 LF of 8" SDR-35 PVC at a minimum slope of 0.4%.

The proposed private on site sewer mains will consist of 8" SDR-35 PVC at a minimum slope of 0.4%. Each of the proposed commercial buildings and apartment buildings will have a 6" SDR-35 PVC sanitary sewer lateral at a minimum slope of 1.0% tied into the private main. The duplex units will have a 4" SDR-35 PVC sanitary sewer lateral at a minimum slope of 1.0% tied into the private main. The 8" private main will tie into the proposed public extension on the south side of Dodge Road across from the SE portion of the project site.

A downstream sanitary sewer capacity analysis (DSCA) is required to be prepared for the site given the flows will exceed 2,500 gpd. This report is included in Appendix A.

Design Parameters

Housing: use 110/gpd/bedroom
Q = 412 bedrooms x 110 gpd/bed = 45,320 gpd

Commercial: use 0.1 gpd/sf
Q = 20,000 sf x 0.1 gpd/sf = 2,000 gpd

use 15 gpd/employee
Q = 20 employees x 15 gpd/emp = 300 gpd

Restaurant: use 35 gpd/seat
Q = 100 seats x 35 gpd/seat = 3,500 gpd

Total = 51,120 gpd (average)

using a 3.97 PF (see appendix A for calc)

Total = 51,120 x 3.97 = 202,908 gpd = 140.91 gpm = 0.314 cfs

The hydraulic loading rates per "Design Standard for Wastewater Treatment Works" 2014, NYSDEC. See attached Sanitary Sewer & Water Calculations for additional information.

I/I Mitigation:

Peak Flow = 140.91 gpm

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

4:1 offset = 140.91 x 4 = 563.63 gpm
Mitigation Credit = $250/gpm
I/I Mitigation = 563.63 gpm x $250/gpm = $140,908.66
Refer to Appendix A for additional information.

Section 4 - Storm Sewer Service

The existing site is generally flat and slopes west with portions sloping east. The portion that slopes west settles in a low area and once the capacity of that area is exceeded, sheet flow continues towards Sweet Home Road and is collected by an existing 12" pipe on the north side of Dodge Road. This pipe flows to the Erie County system on Sweet Home Road. The portion that flows east flows to the offsite wetlands.

Currently Dodge Road does not have a drainage system. A series of catch basins and pipes will be installed in the green area on the north side of Dodge Road to collect the road drainage. The west portion of this system will connect to the existing closed drainage system on Sweet Home Road. The east portion will discharge to the Ellicott Creek diversion channel using and existing discharge point. This new system will also convey the proposed discharge from the site as described below.

The proposed onsite storm sewer system consists of smooth interior and perforated HDPE pipes connected by a series of catch basins, manholes and yard drains. The site is split into a storm water management area on the east and west sides.

West Side

The west side of the site has (2) bioretention areas which portions of the westerly area will discharge to. These bioretention areas along with the remainder of the west portion of the site will discharge to the underground detention area. Note that the yard drains installed along the north property line discharge to the underground detention area. An outlet structure in the SW portion of this area will control runoff to at or below existing runoff flow rates. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Sweet Home Road system.

Underground Detention Summary

(286) ADS Stormtech SC-740 chambers
Top of stone elev. = 573.00
Top of chamber elev. = 572.50
Bottom of chamber elev. = 570.00
Bottom of stone elev. = 569.50
Total storage = 18,574 CF

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Sawyer's Landing
3/4/2021
4 of 5

Event	Ex. Discharge	Pro. Discharge	Elev.
1 yr	0.87 cfs	0.33 cfs	570.29
2 yr	1.34 cfs	0.68 cfs	570.46
5 yr	2.14 cfs	1.05 cfs	570.79
10 yr	2.94 cfs	1.28 cfs	571.13
25 yr	4.34 cfs	1.61 cfs	571.73
50 yr	5.69 cfs	3.61 cfs	572.23
100 yr	7.33 cfs	4.83 cfs	572.92

East Side

The east side of the site has a bioretention area and wet detention pond which this portion of the site discharges to. The NE portion of the site discharges to a forebay which spills into the main micropool portion of the wet detention basin. The SE portion of the site discharges to the bioretention area which also spills into the main micropool portion of the site. An outlet control structure is located in the SE portion of the micropool and controls the discharge from this storm water management area. Spillways are also located on the east portion of the micropool which will discharge to the existing wetlands to the east in order to not cut off all flow from this site into this area. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Ellicott Creek diversion channel.

The bioretention areas and wet detention pond for the project area are sized to provide 100% of the required Runoff Reduction Volume (RRv) and Water Quality Volume (WQv) treatment for the overall site in accordance with Chapter 4 of the NYSDEC Stormwater design manual. The soils in the vicinity of the bioretention areas are mainly USDA hydrologic group 'D' and therefore the system will be installed with underdrains per NYSDEC requirements. The bioretention areas will consist of 6" and 8" perforated HDPE underdrains in 12" of drainage gravel, followed by filter fabric and 18" minimum of planting soil. Overflow yard drains will be installed to allow 6" maximum temporary ponding for RRv treatment. The east bioretention area (area #3) spills into the wet detention pond and the underdrain pipe ties together with the pond discharge and flows to Dodge Road. The east bioretention areas (areas #1 & #2) have a catch basin to act as the spillway and this catch basin and the underdrain pipes discharge to the underground detention area.

Storm Water Management Area Summary

Forebay
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 569.00

Micropool
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 563.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Sawyer's Landing
3/4/2021
5 of 5

Overall Storm Water Summary

WQv Provided = 152,678 cf (pond)
WQv Provided = 6,948 cf (bioretention)
WQv Provided = 159,626 cf (total)

Bioretention Area Summary:

Area	Rim Elev.	Bottom Elev.	Area
1	574.50	574.00	2,300 sf
2	574.50	574.00	2,600 sf
3	575.50	575.00	11,000 sf
		Total Provided =	15,900 sf

Water Quality Summary:
WQv req'd = 28,804 cf (0.661 ac-ft)
RRv min. req'd = 5,518 cf (0.127 ac-ft)
RRv provided = 8,662 cf (0.199 ac-ft)
WQv provided = 159,626 cf (3.665 ac-ft)
Total RRv + WQv provided = 8,662 cf + 159,626 cf = 168,287 cf (3.868 ac-ft)

Detention: Comparison of the existing 1-year vs. the proposed 1-year runoff
Comparison of the existing 10-year vs. the proposed 10-year runoff
Comparison of the existing 100-year vs. the proposed 100-year runoff

Storm pipes: 10-year storm

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix A

Sanitary Sewer and Water Demand Calculations

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 21.011 Date: 2/19/2021
Project Name: Sawyer's Landing
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer Demand Calcs
Sheet: 1 of 1

1.d

Sanitary Sewage Demand Calculations:

West - Mixed Use Buildings							
0.1	gal/d/sf	x 20,000	sf	=	2,000	gpd	*use 0.1 gallons per day per square foot
35.0	gal/d/seat	x 100	seats	=	3,500	gpd	*use 35 gallons per day per seat (fast food)
15	gal/d/employee	x 20	employees	=	300	gpd	*use 15 gallons per day per employee
West - Apartments							
220	gal/d/unit	x 100	units	=	22,000	gpd	*use 220 gallons per day per 2-bedroom unit
North - Apartments and Duplex Buildings							
220	gal/d/unit	x 94	units	=	20,680	gpd	*use 220 gallons per day per 2-bedroom unit
220	gal/d/unit	x 12	units	=	2,640	gpd	*use 220 gallons per day per 2-bedroom unit

Total Site Sanitary Demand: = 51,120 gpd
= 0.051 MGD
Find Peak Sanitary Demand: = 0.079 cfs

Peaking Factor based on Population:
Total demand: 51,120 gpd / 100 gpcd = 511 per capita

Population (P) = 511 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 3.97

Peak Sanitary Demand = 51,120 x 3.97 = 202,908 gpd
= 0.203 MGD
= 0.314 cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow	=	202,908 gpd	=	140.91 gpm	
4:1 offset flow per NYSDEC requirements	=	140.9 x 4	=	563.63 gpm req'd	
Mitigation Credit	=	$250 / gpm			
Mitigation Agreement Amount	=	**$140,908.66**			

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 21.011 Date: 2/19/2021
Project Name: Sawyer's Landing
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer & Water Demand Calcs
Sheet: 2 of 2

Water Demand Calculations (domestic):

Site

51,120 gpd x 1.1 = 56,232 gpd *use 110% of sewage demand

*use 1.8 peaking factor and assume a 12 hour day

56,232 gpm x 1day/12hr x 1hr/60min = 78.10 gpm

78.10 gpm x 1.8 = 140.58 gpm Q_{peak}

Headlosses:

Q_{peak} = 140.58 gpm
Pipe = 8 inch Ductile Iron C = 140
Length = 20 LF (approx. distance from tap to RPZ)

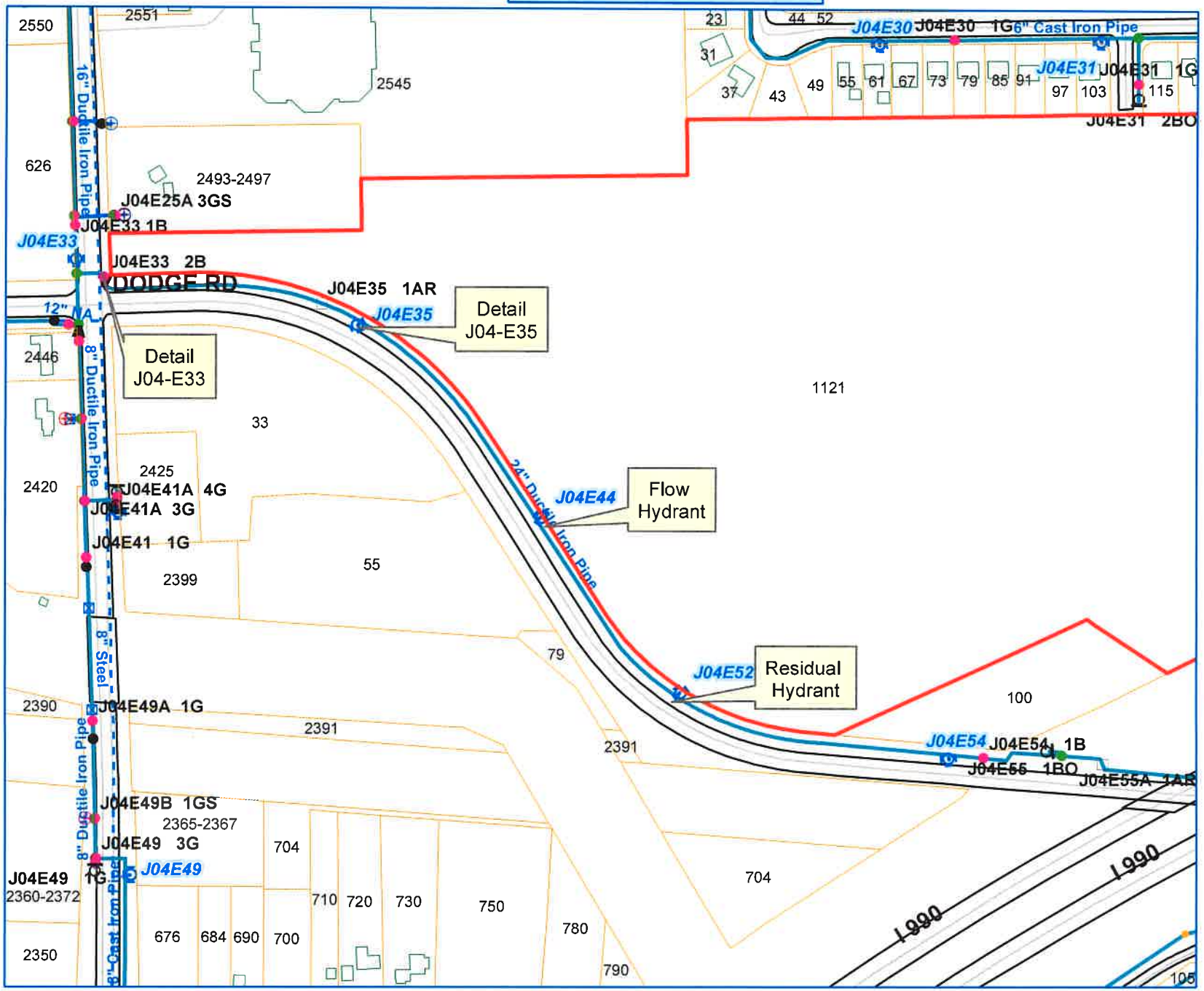
$$H_L = \frac{10.44\, L\, Q^{1.85}}{C^{1.85}\, D^{4.866}} = \frac{10.44(20)(21.51)^{1.85}}{(140)^{1.85}\,(6)^{4.866}} = 0.01 \text{ ft} = 0.00 \text{ psi}$$

Δ elev = 0 ft = 0.00 psi
Loss through meter = 1 psi
Loss through RPZ = 12 psi
Total Losses = 13.0 psi
Static Pressure = 105 psi (per ECWA - residual pressure 98 psi)
Residual Pressure Following RPZ = 105 - 13.0 = 92.0 psi (available after rpz & meter)

Residual Pressure 30" above 4th Floor
Δ elev = 35 ft = 15.16 psi
Residual Pressure 30" above 4th Floor = 76.8 psi

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

1121 Dodge Rd., AMTN



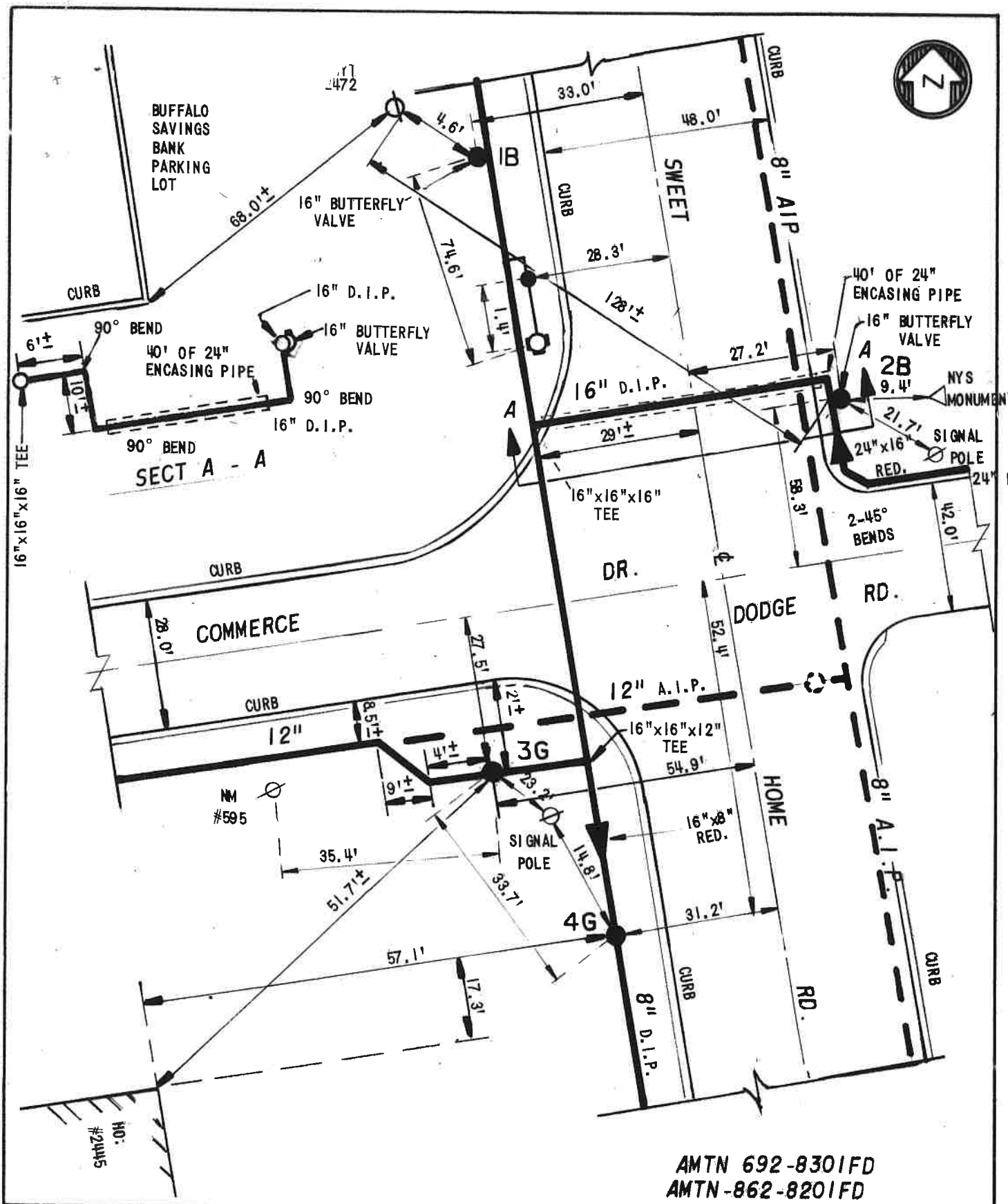
N

1 inch = 300 feet

Legend:

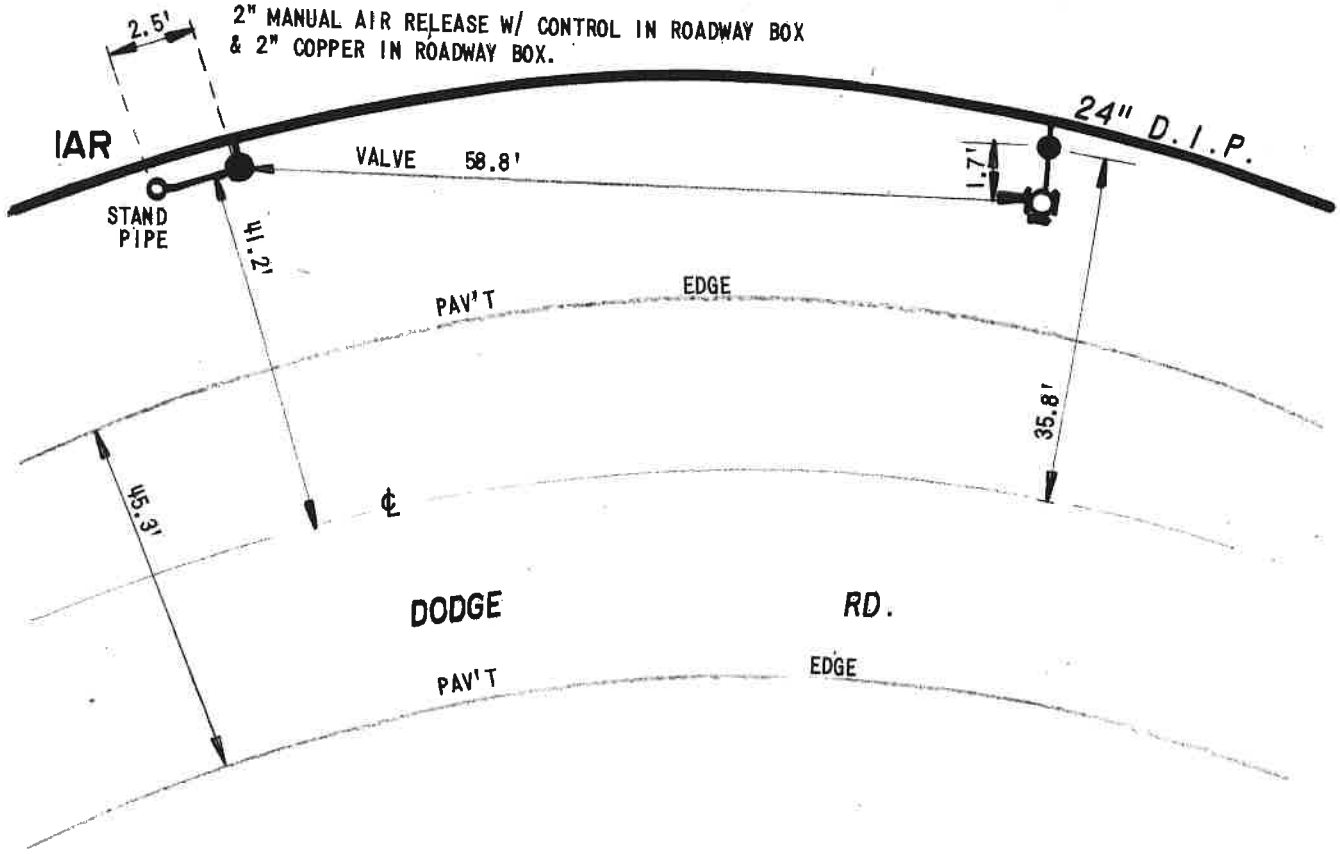
Parcels





ERIE COUNTY WATER AUTHORITY, BUFFALO, NEW YORK	REVISED DR. BY: RLS DATE: 6-30-06 NOT TO SCALE	TOWN OF AMHERST W.D 15C	J04-E33 DETAIL SHEET NO.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)



AMTN-692-8301-FD

SHEET 1

ERIE COUNTY WATER AUTHORITY, BUFFALO, NEW YORK	REVISED DR. BY: RLS DATE: 6-30-06 NOT TO SCALE	TOWN OF AMHERST W.D. 15C	J04-E35 DETAIL SHEET NO.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

AMHERST
Size of Main/Branch: 24"/6" Fire District: 22028 GETZVILLE FD 11 Water District: 315 AMHERST DISTRICT 15C

Performed By: JRS & DPZ

Comments: HYDRANT FLOW TEST REQUESTED BY BILL GROFF
PRATT & HUTH, PHONE: 633-4844, FAX: 633-4940

Dischrge Coef: .90 Elvtn Usgs(ft): Static(psi): 105 Residual(psi): 98 Required Residual Pressure(psi): 20
Gallons Used..: 7,680 Total Flow(gpm): 2,558 Flow at Reqd Resid Pressure: 9,850

Flow Hydrants:

C	Flow Hyd	Flow Hydrant Address	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
_	J04 E44	DODGE RD	24"/6"	1:	2.50	58.0	1,279	
		2ND HYD E/O SWEET HOME RD		2:	2.50	58.0	1,279	
				3:			Tot Flow:	2,558

Bottom

I=Flow Hydrant Inquiry
ENTER=Continue F3=Exit F6=Maintain Test F7=Test Hydrant Inquiry F15=Print Test Information

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Downstream Sewer Capacity Analysis

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Muir Woods Site

Sweet Home & Dodge Road, Amherst New York

Downstream Sewer Capacity Analysis Report

Project Description

This new site development project will consist of the construction of apartment buildings, duplexes, office, restaurant, and retail space. Construction will also include on-site utility, landscaping improvements, and associated roads and parking. The overall acreage of the site is 28.47 acres. The site is located at Sweet Home Road and Dodge Road on a western portion of parcel 40.08-3-13.1 in the Town of Amherst.

The proposed sewer for this project will tie into the existing 60" RCP Peanut line along Dodge Road. Sewage will then be conveyed west and then eventually north through the 84" West Side Interceptor to the Town of Amherst Wastewater Treatment Facility #16.

Node 1 – Dodge Road (60"):

Existing Peak Flow measured (wet weather event)	=	40.602 cfs (21.851 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	40.939 cfs

Theoretical capacity of existing 60" RCP pipe @ 0.07% = 81.366 cfs

Conclusion: The proposed peak flow is less than the capacity of the 60" pipe, therefore there is sufficient capacity. At no time during the monitoring did the flow depth exceed the pipe diameter at Node 1 of the downstream monitoring points during the rain events monitored.

Node 2 – North Ellicott Creek Rd (60")

Existing Peak Flow measured (wet weather event)	=	99.524 cfs (53.561 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	99.861 cfs

Theoretical capacity of existing 60" pipe = 82.873 cfs (44.60 mgd)

Conclusion: Current flows the day following the 1.21" rainfall event exceeded the capacity of the existing 60" sewer pipe, but at no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole. In addition, Sanitary Sewer Overflow (SSD) did not occur. I/I mitigation shall be required for the contribution proposed for this project.

Notes:

Pipe slopes, sizes and materials provided by Town of Amherst Engineering Department Sewer Maintenance Division

* Converted from measurements in TECSmith report dated 8/12/20

** See Sanitary Sewage Demand Calculations

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Node 3 – Sweet Home (66")

Existing Peak Flow measured (overall)	=	69.058 cfs (39.601 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	69.395 cfs

Capacity of existing 66" pipe = 106.657 cfs (57.40 mgd)

Conclusion: The proposed peak flow is less than the capacity of the 66" pipe, therefore there is sufficient capacity. At no time during the monitoring did the flow depth exceed the pipe diameter at Node 3 of the downstream monitoring points during the rain events monitored.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Notes:

Pipe slopes, sizes and materials provided by Town of Amherst Engineering Department Sewer Maintenance Division

* Converted from measurements in TECSmith report dated 8/12/20

** See Sanitary Sewage Demand Calculations

Location Map

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Muir Woods Site - Sweet Home and Dodge Rd



8/18/2020, 8:51:26 AM

Parcels

Municipal Boundaries

1:9,028

0 300 600 1,200 ft

0 90 180 360 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, :GIS .gov

Sanitary Demand Calculations

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 19.192 Date: 8/24/2020
Project Name: Muir Woods
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer Demand Calcs
Sheet: 1 of 1

1.d

Sanitary Sewage Demand Calculations:

West - Mixed Use Buildings							
0.1 gal/d/sf	x	15,000	sf	=	1,500	gpd	*use 0.1 gallons per day per square foot
35.0 gal/d/seat	x	200	seats	=	7,000	gpd	*use 35 gallons per day per seat (fast food)
15 gal/d/employee	x	20	employees	=	300	gpd	*use 15 gallons per day per employee
West - Apartments							
220 gal/d/unit	x	110	units	=	24,200	gpd	*use 220 gallons per day per 2-bedroom unit
North - Apartments and Duplex Buildings							
220 gal/d/unit	x	90	units	=	19,800	gpd	*use 220 gallons per day per 2-bedroom unit
220 gal/d/unit	x	12	units	=	2,640	gpd	*use 220 gallons per day per 2-bedroom unit

Total Site Sanitary Demand: = 55,440 gpd
= 0.055 MGD
Find Peak Sanitary Demand: = 0.086 cfs

Peaking Factor based on Population:
Total demand: 55,440 gpd / 100 gpcd = 554 per capita

Population (P) = 554 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 3.95

Peak Sanitary Demand = 55,440 x 3.95 = 219,029 gpd
= 0.219 MGD
= 0.339 cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow = 219,029 gpd = 152.10 gpm

4:1 offset flow per NYSDEC requirements = 152.1 x 4 = 608.41 gpm req'd

Mitigation Credit = $250 / gpm

Mitigation Agreement Amount = $152,103.30

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TECSmith Monitoring Report

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Date	Node 1			Node 2			Node 3			Rain:
	Dodge Rd 60" (60")			North Ellicott Creek Rd. (60")			Sweethome 66 (66")			
	FLOW (GAL x 1,000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1,000)	PEAK FLOW (MDG)	PEAK LEVEL (IN)	FLOW (GAL x 1	PEAK FLOW (MDG)	PEAK LEVEL (IN)	(inches)
7/8/2020	4186.283	8.161	14.473	7265.409	8.598	16.319	4800986323.2	8.025	19.770	0
7/9/2020	6195.964	8.253	14.556	7387.504	8.661	16.273	6645115872.8	8.044	19.590	0
7/10/2020	6231.790	8.143	14.521	7625.321	9.362	16.873	6667623530.3	8.079	19.790	0
7/11/2020	10033.769	21.851	39.526	20780.607	53.561	76.701	10540796680.3	28.096	66.000	1.21
7/12/2020	9184.078	14.374	22.474	11292.759	17.205	23.420	9306202243.7	13.750	25.810	0
7/13/2020	7070.585	9.115	15.714	11243.925	29.525	33.420	7609650153.8	9.108	20.730	0.47
7/14/2020	6974.494	9.101	15.869	9685.896	13.288	20.168	7274548275.2	9.280	20.720	0
7/15/2020	6591.385	8.845	15.512	8174.879	9.503	17.013	6975378581.5	8.831	20.460	0
7/16/2020	9916.241	20.532	27.213	18886.012	44.070	43.892	12067803314.2	39.601	32.990	0.86
7/17/2020	10096.644	16.639	23.493	12451.728	18.137	24.043	10307997546.4	14.224	26.250	0.03
7/18/2020	8256.593	10.757	17.307	9766.538	11.556	18.960	8664937727.1	10.772	22.350	0
7/19/2020	7589.558	11.382	18.060	10166.964	17.245	24.128	8331695207.5	24.048	23.030	0.21
7/20/2020	7269.757	9.235	16.144	8853.911	10.160	18.118	7730113857.4	9.669	20.890	0
7/21/2020	6681.658	8.895	15.365	8179.097	9.991	17.880	1603593925.8	9.197	20.330	0
7/22/2020	8633.887	15.390	22.402	15950.443	42.105	43.300	16326027301.0	29.736	27.790	0.42
7/23/2020	7327.211	9.216	16.027	9664.310	11.130	18.508	6916249204.1	19.172	20.800	0
7/24/2020	6764.464	8.779	15.317	8434.117	9.760	17.405	8296938032.2	15.723	20.360	0
7/25/2020	6426.122	8.861	15.407	8159.333	9.969	17.608	6871634377.4	12.359	20.320	0
7/26/2020	6409.255	8.667	15.297	8027.060	9.774	17.372	6816880470.0	9.106	20.360	0
7/27/2020	6487.339	8.269	15.107	7871.954	9.244	16.902	6854655651.9	8.336	20.100	0.03
7/28/2020	6298.427	8.016	14.780	7696.223	9.134	16.757	6692447010.5	8.080	19.740	0.01
7/29/2020	8340.302	16.584	23.592	12134.192	36.728	39.530	9170179156.5	20.222	29.310	0.18
7/30/2020	6969.955	8.785	15.769	8383.294	9.650	17.268	7523641190.2	9.272	20.460	0
7/31/2020	6450.443	8.415	15.050	7762.583	9.287	16.964	7145517425.5	9.079	20.020	0
8/1/2020	6190.340	8.162	14.979	7900.808	9.762	17.305	6954528215.3	13.188	20.010	0
8/2/2020	7093.727	10.270	17.033	9801.968	15.922	22.240	7827565960.7	17.585	22.270	0.29
8/3/2020	6767.967	8.538	15.346	8117.853	9.663	17.172	7374180322.3	9.104	20.460	0
8/4/2020	6796.062	10.365	17.180	8920.731	24.649	28.896	7717920498.0	19.489	24.920	0.9
8/5/2020	4464.403	13.072	20.203	5583.196	26.407	31.097	3896577334.0	14.011	25.600	0
---	---	---	---	---	---	---	---	---	---	4.61

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Date: August 12, 2020

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: Muir Woods Capacity Analysis

Christopher Wood
487 Main Street, Suite 600
Buffalo, New York 14203
P: (716) 842-3165
F: (716) 842-0263

Project Name: Muir Woods Capacity Analysis

Flow Monitoring Period: July 8, 2020 to August 5, 2020

Rain Events (> 0.5-inches) Monitored: July 11 (1.21"), July 16 (0.86"), and August (0.90")

Number of Monitoring Nodes: Three (3) downstream manholes

Node Locations and Descriptions:

- Node 1 Dodge Rd 60" (60")
- Node 2 North Ellicott Creek Rd. (60")
- Node 3 Sweethome 66 (66")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below)

- At no time did the flow depth exceed pipe diameter at Node 1 and Node3 of the downstream monitoring points during the rain events monitored.
- One time the flow depth exceed pipe diameter at Node 2 of the downstream monitoring points during the rain events monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

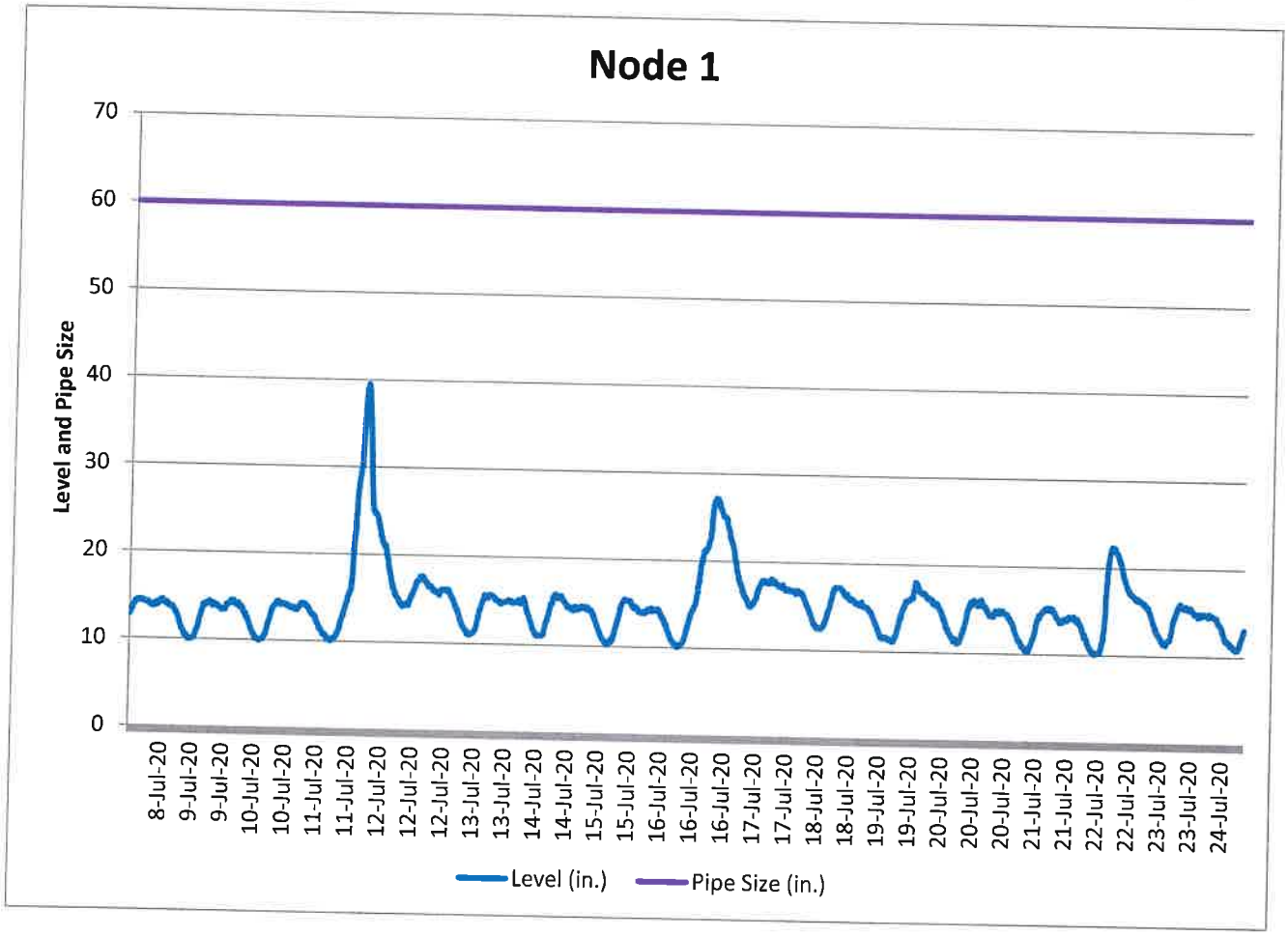
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 1.

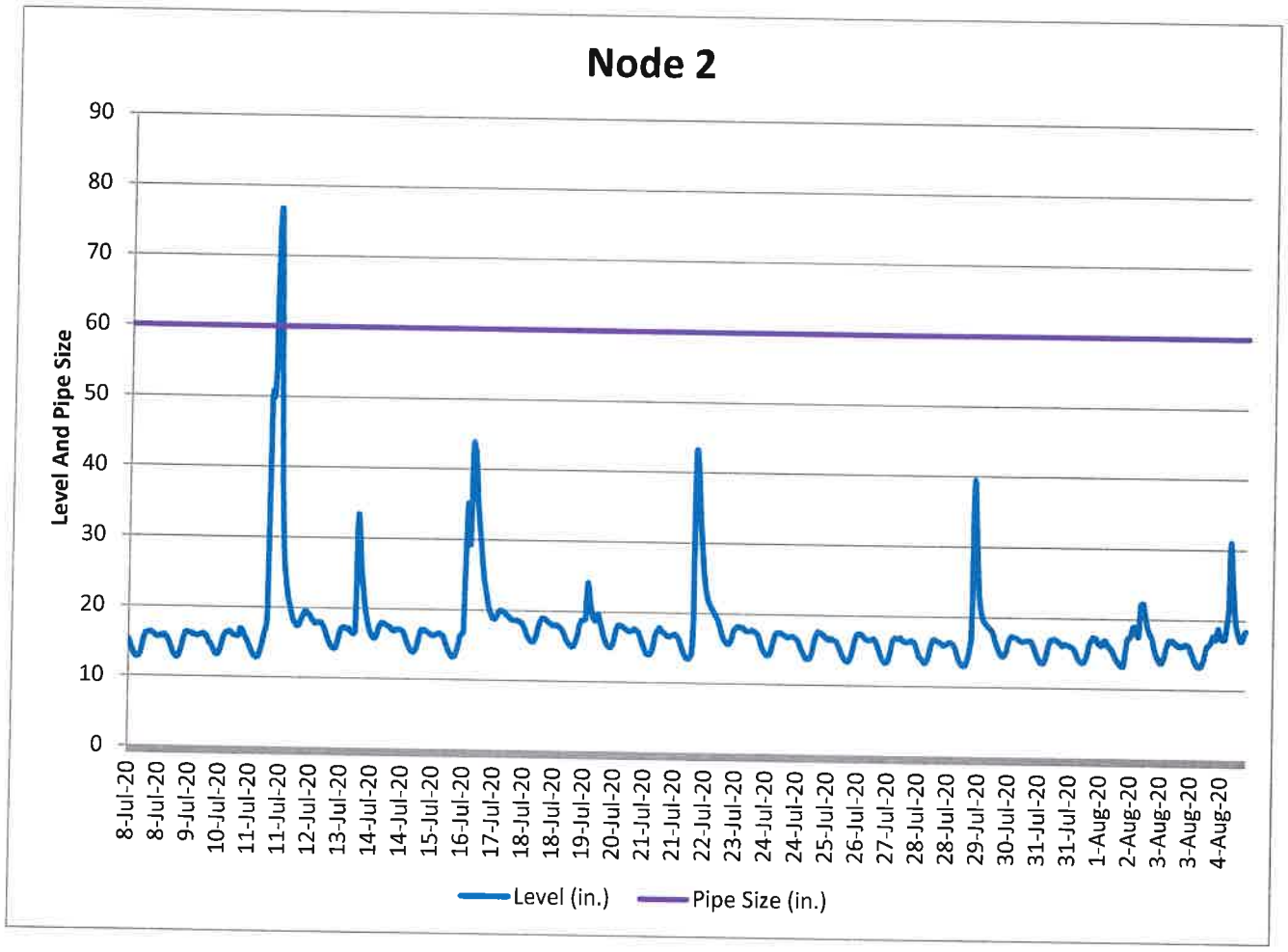


Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

- One time during the monitoring period did depth of flow exceed pipe diameter at Node 2.

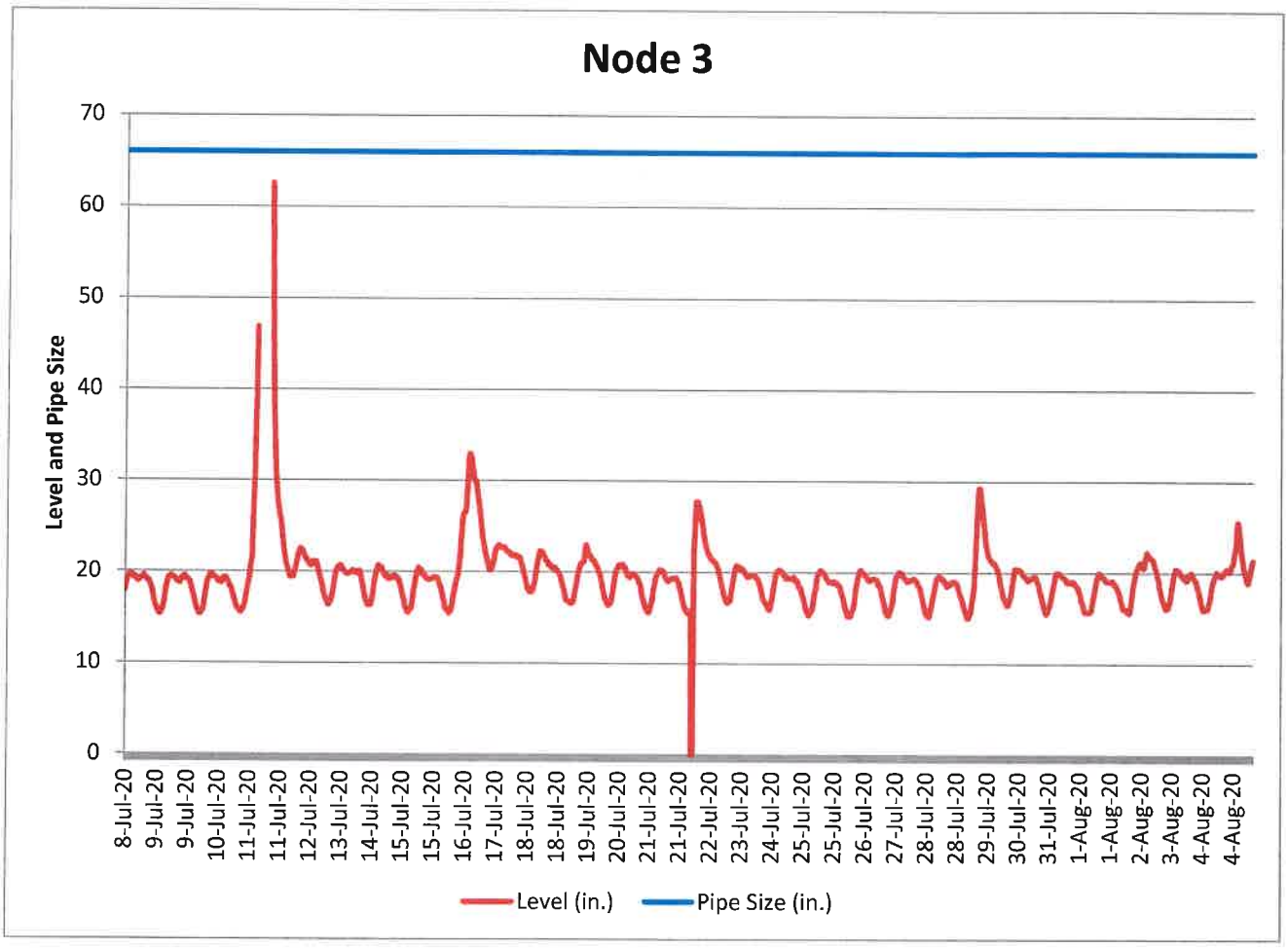


Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 3.



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

(T) Amherst Engineering Department Sewer Maintenance Division Downstream Routing Map

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER

AMHERST PEANUT LINE & WEST SIDE INTERCEPTOR

460 Dodge Road - Proposed 26 Unit Apartment Building - Amherst Consolidated Sewer District

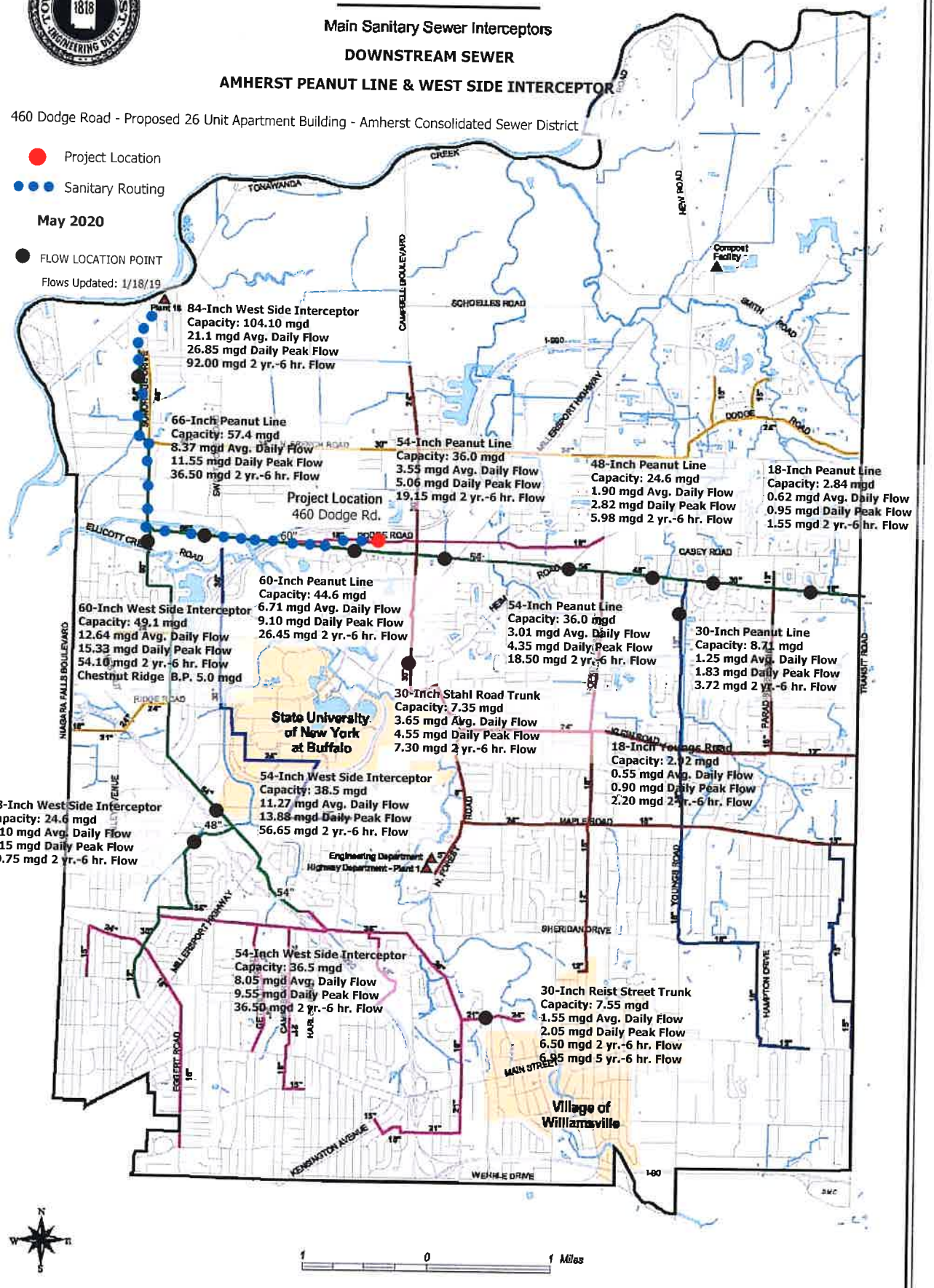
Project Location

Sanitary Routing

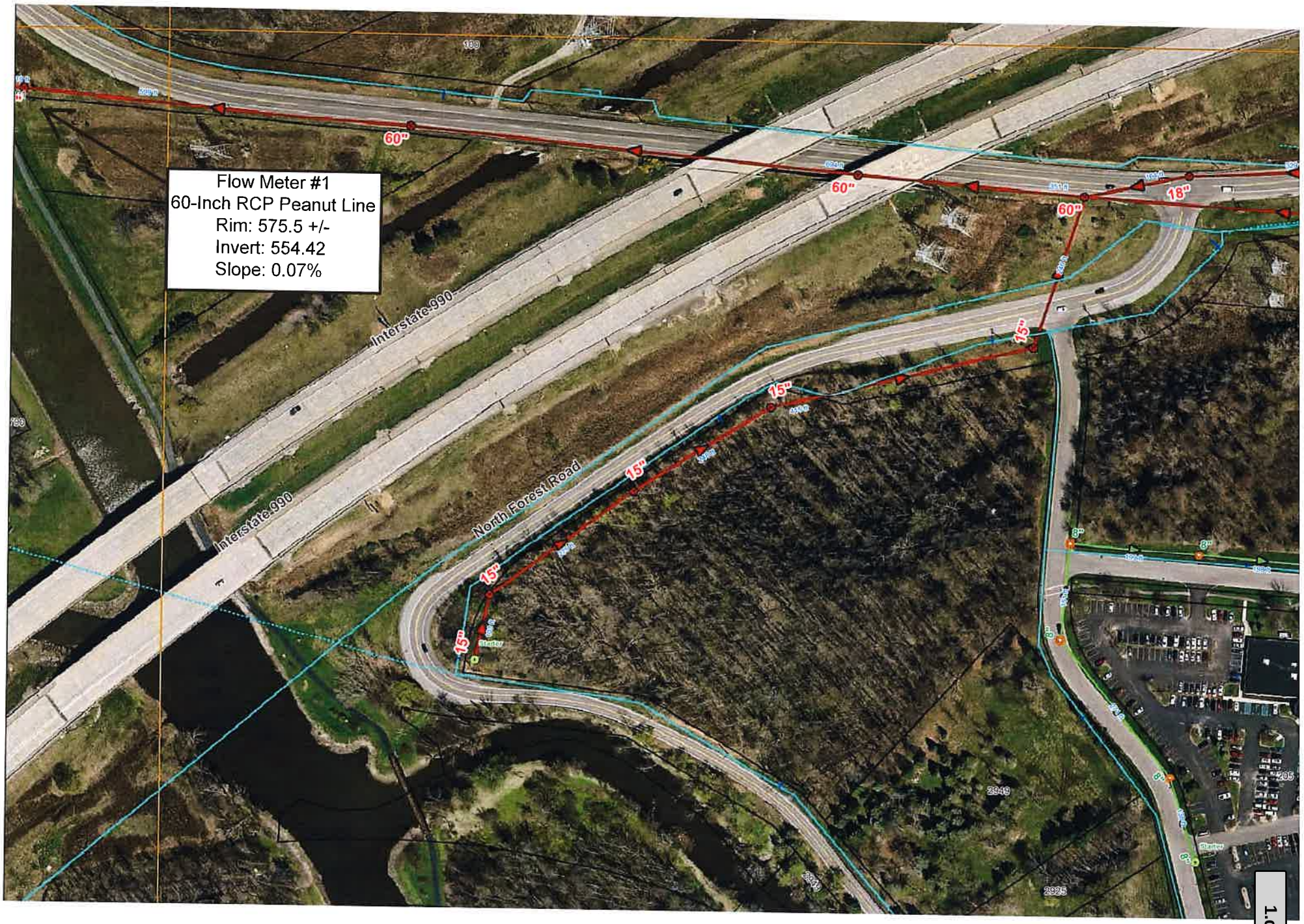
May 2020

FLOW LOCATION POINT

Flows Updated: 1/18/19



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)


Flow Meter #1
60-Inch RCP Peanut Line
Rim: 575.5 +/-
Invert: 554.42
Slope: 0.07%
Interstate 990
Interstate 990
North Forest Road
60"
60"
60"
18"
15"
15"
15"
15"
15"



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Flow Meter #3


Sweet Home Rd
Reznicki & Company, LLP
Timothy M Brown CPA PLLC
Buffalo Vet Center
Dr. Ronald A. Cooke, MD
Ashley's Garden

Appendix B

Storm Sewer System Drainage Calculations

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Existing Runoff

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

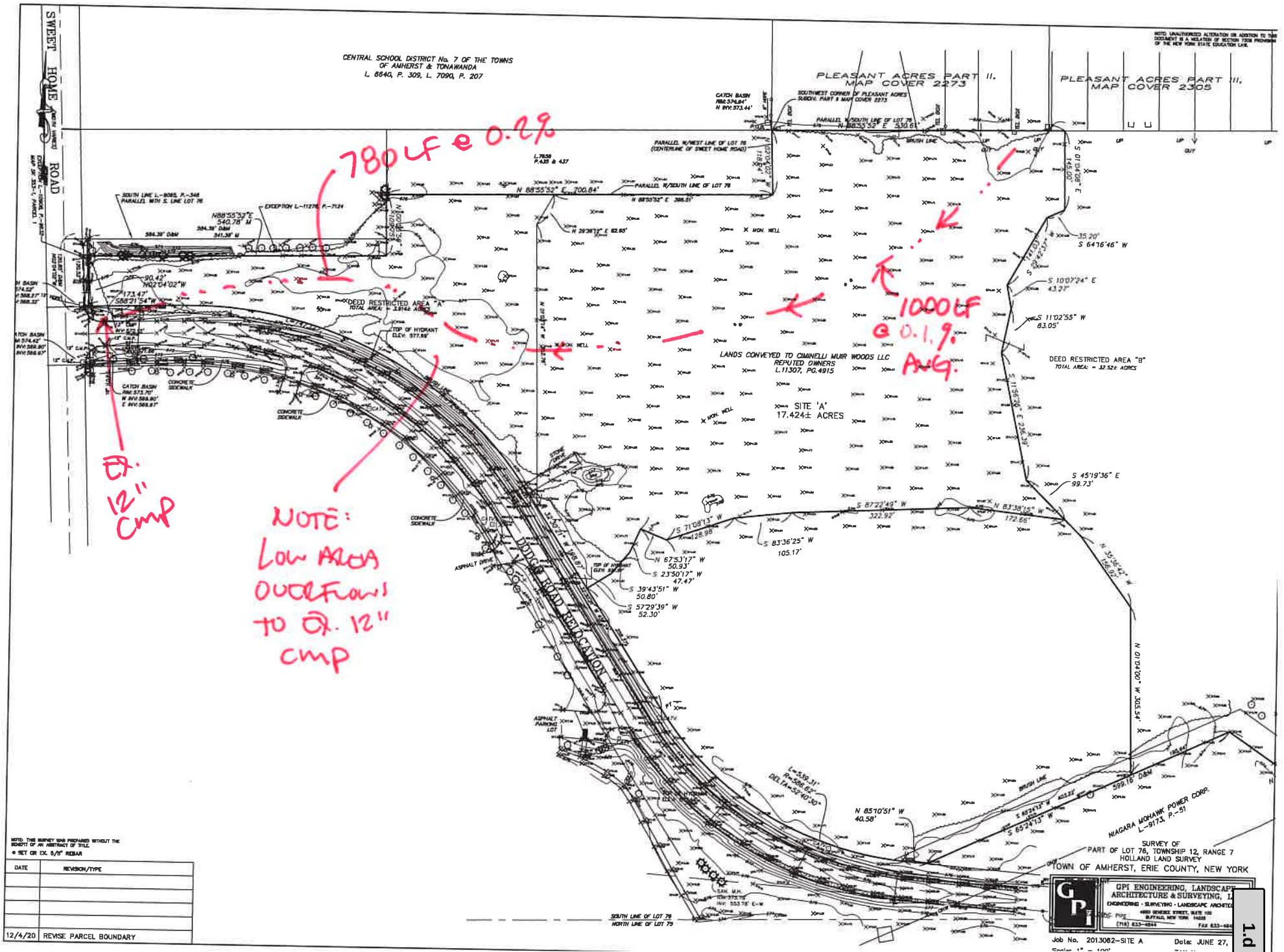


Existing

Subcat Reach Pond Link

Routing Diagram for 21.011 Existing
Prepared by Hewlett-Packard Company, Printed 3/1/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)


780 LF @ 0.2%
1000 LF @ 0.1% AVG.
EX. 12" CMP
NOTE: LOW AREA OVERFLOWS TO EX. 12" CMP
SWEET HOME ROAD
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 8640, P. 309, L. 7090, P. 207
PLEASANT ACRES PART II. MAP COVER 2273
PLEASANT ACRES PART III. MAP COVER 2305
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, PG.4915
SITE 'A' 17.424± ACRES
DEED RESTRICTED AREA "A" TOTAL AREA = 3.8144 ACRES
DEED RESTRICTED AREA "B" TOTAL AREA = 12.52± ACRES
DODGE ROAD RELOCATION
NIAGARA MOHAWK POWER CORP. L.-9173, P.-51
SURVEY OF PART OF LOT 78, TOWNSHIP 12, RANGE 7 HOLLAND LAND SURVEY TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, L
Job No. 2013082-SITE A
Date: JUNE 27,
DATE | REVISION/TYPE
12/4/20 | REVISE PARCEL BOUNDARY

Events for Subcatchment 1S: Existing

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	0.87	0.578	0.41
2-Year	1.34	0.851	0.60
5-Year	2.14	1.304	0.92
10-Year	2.94	1.752	1.24
25-Year	4.34	2.527	1.78
50-Year	5.69	3.272	2.31
100-Year	**7.33**	**4.181**	**2.95**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.830	77	Brush, Fair, HSG D (1S)
12.170	79	Woods, Fair, HSG D (1S)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
17.000	HSG D	1S
0.000	Other	

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	4.830	0.000	4.830	Brush, Fair	1S
0.000	0.000	0.000	12.170	0.000	12.170	Woods, Fair	1S

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

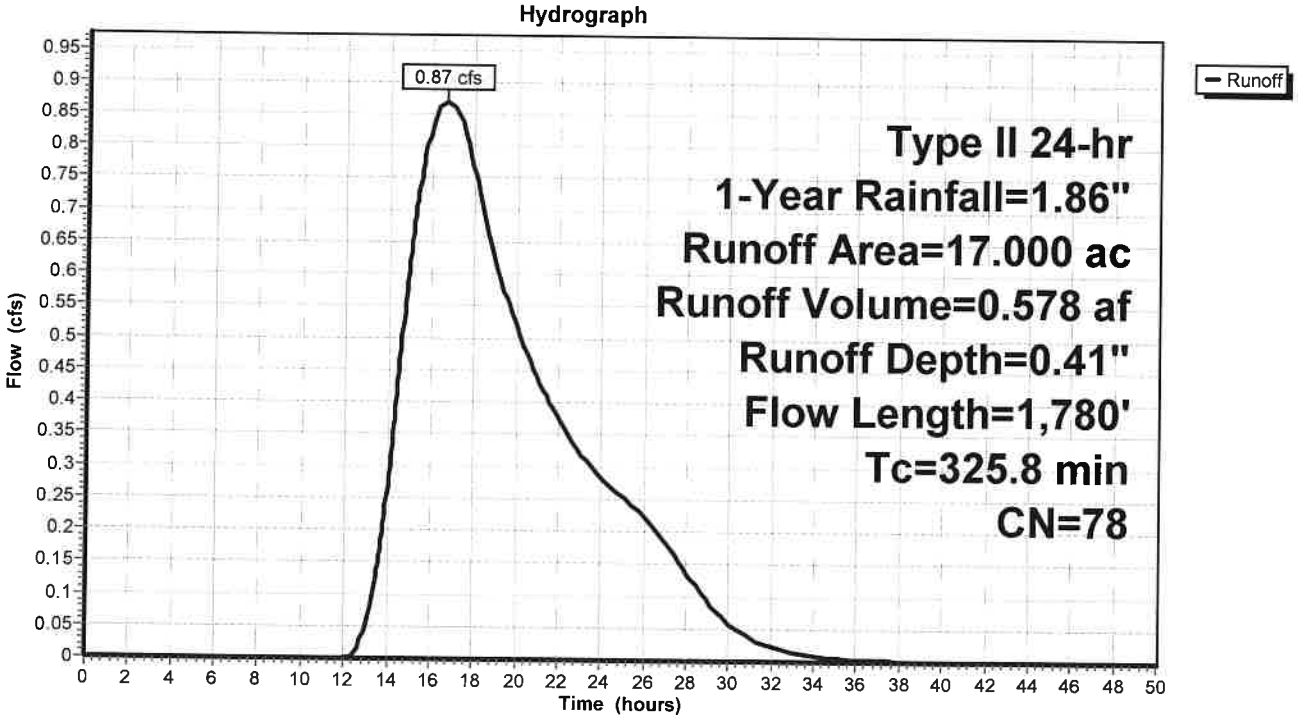
Runoff = 0.87 cfs @ 16.65 hrs, Volume= 0.578 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

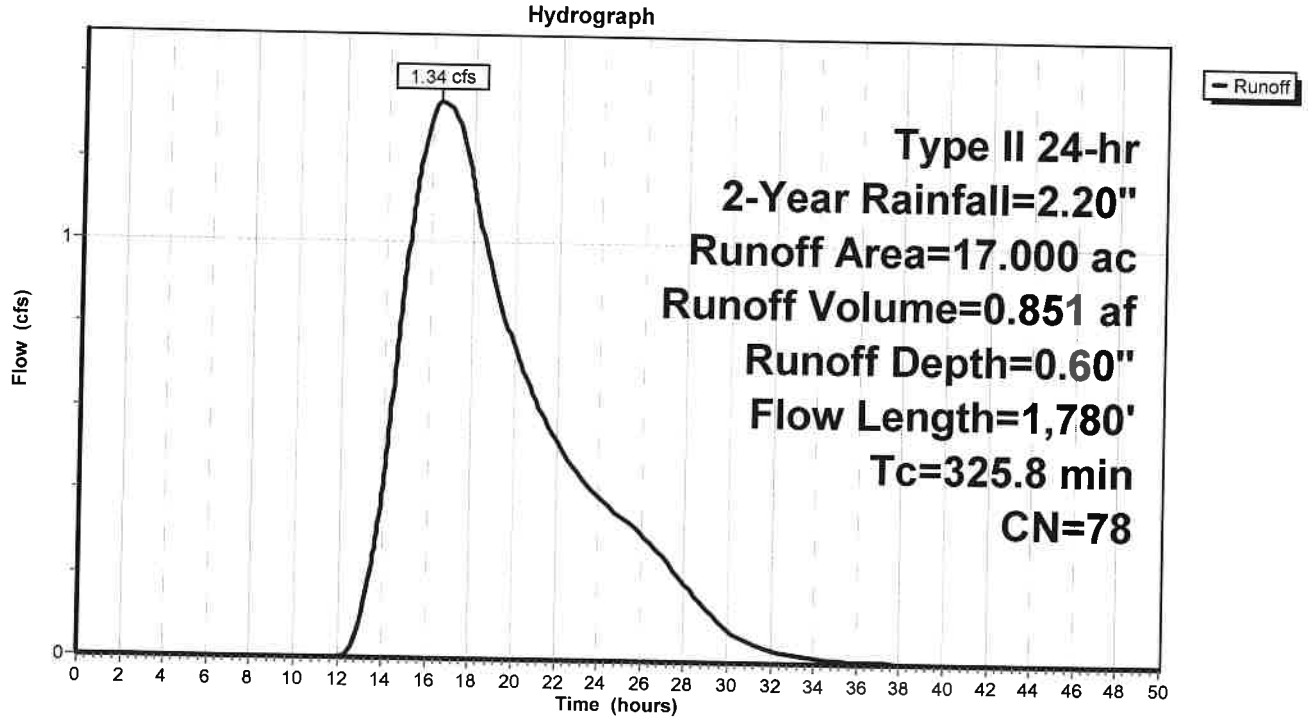
Runoff = 1.34 cfs @ 16.35 hrs, Volume= 0.851 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

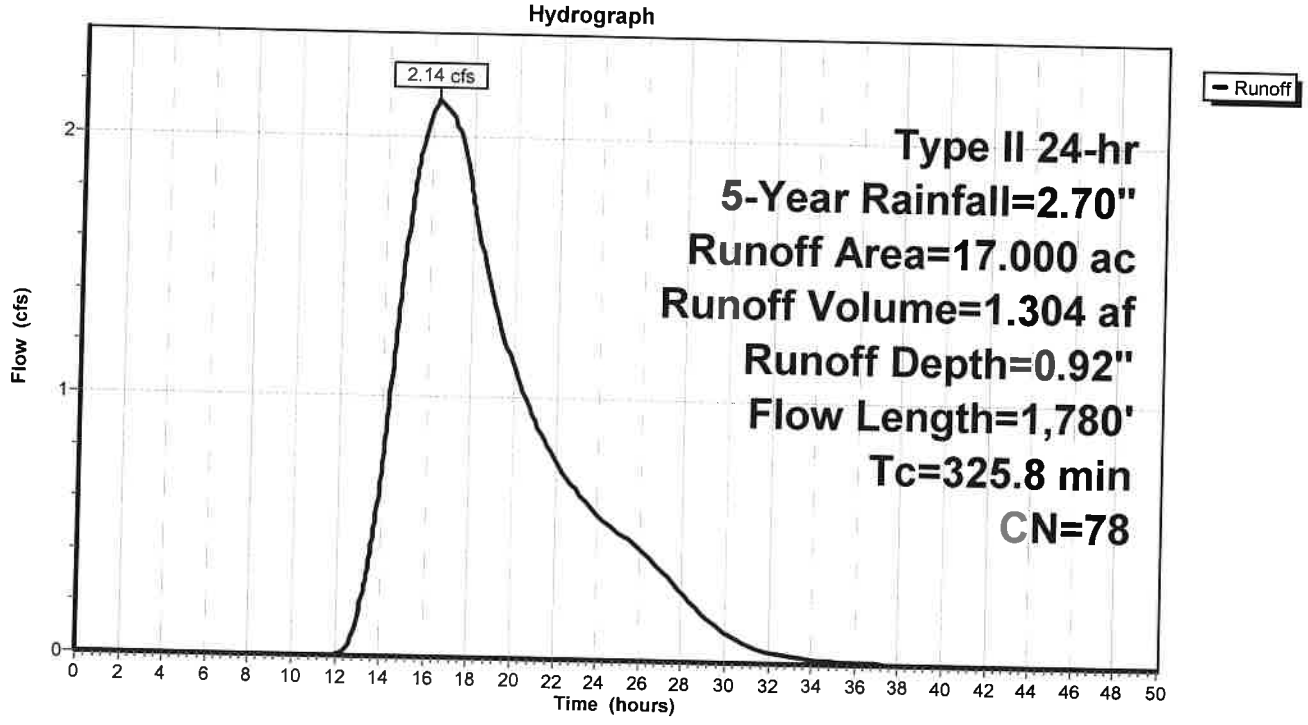
Runoff = 2.14 cfs @ 16.31 hrs, Volume= 1.304 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

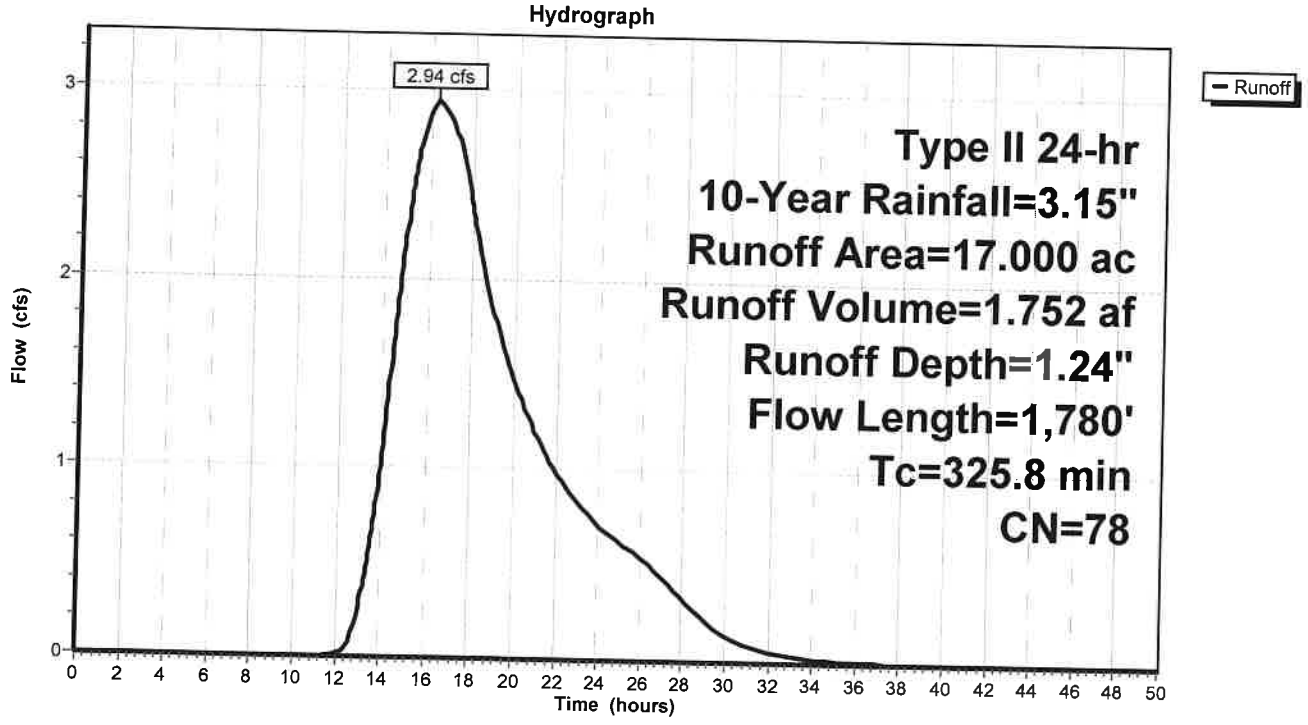
Runoff = 2.94 cfs @ 16.31 hrs, Volume= 1.752 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

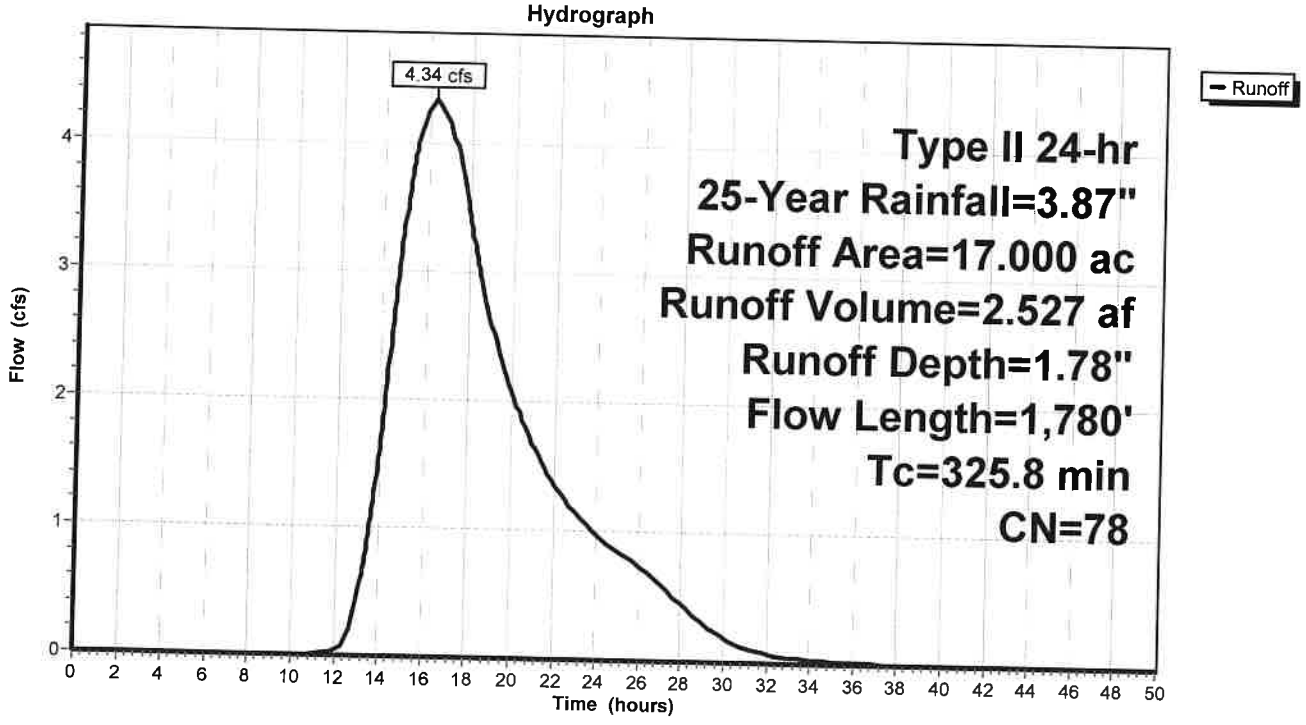
Runoff = 4.34 cfs @ 16.30 hrs, Volume= 2.527 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

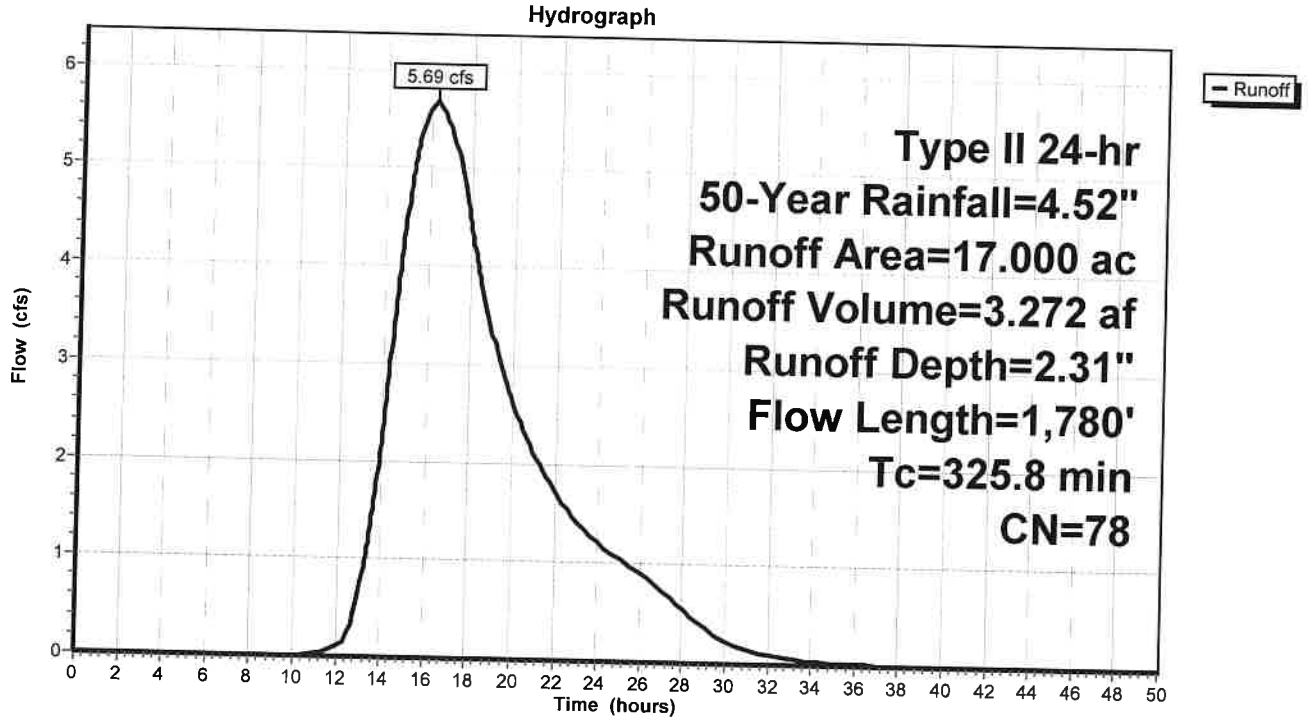
Runoff = 5.69 cfs @ 16.29 hrs, Volume= 3.272 af, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

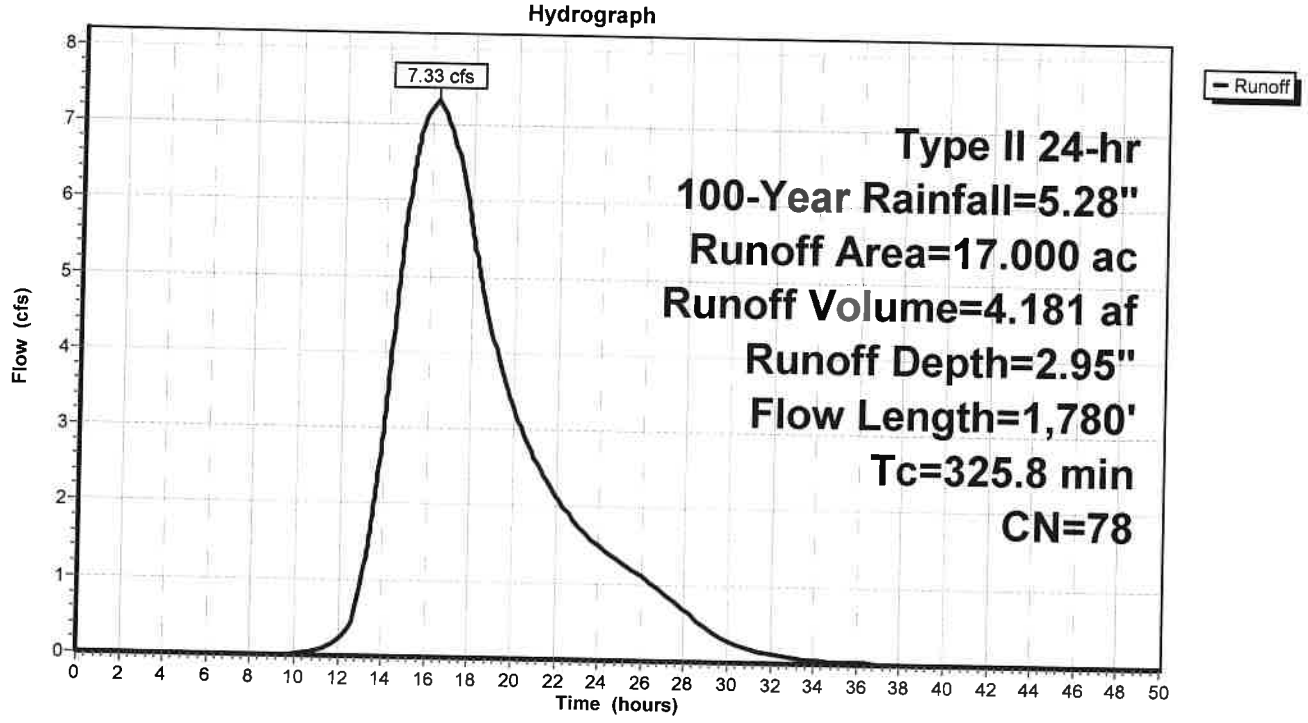
Runoff = 7.33 cfs @ 16.29 hrs, Volume= 4.181 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



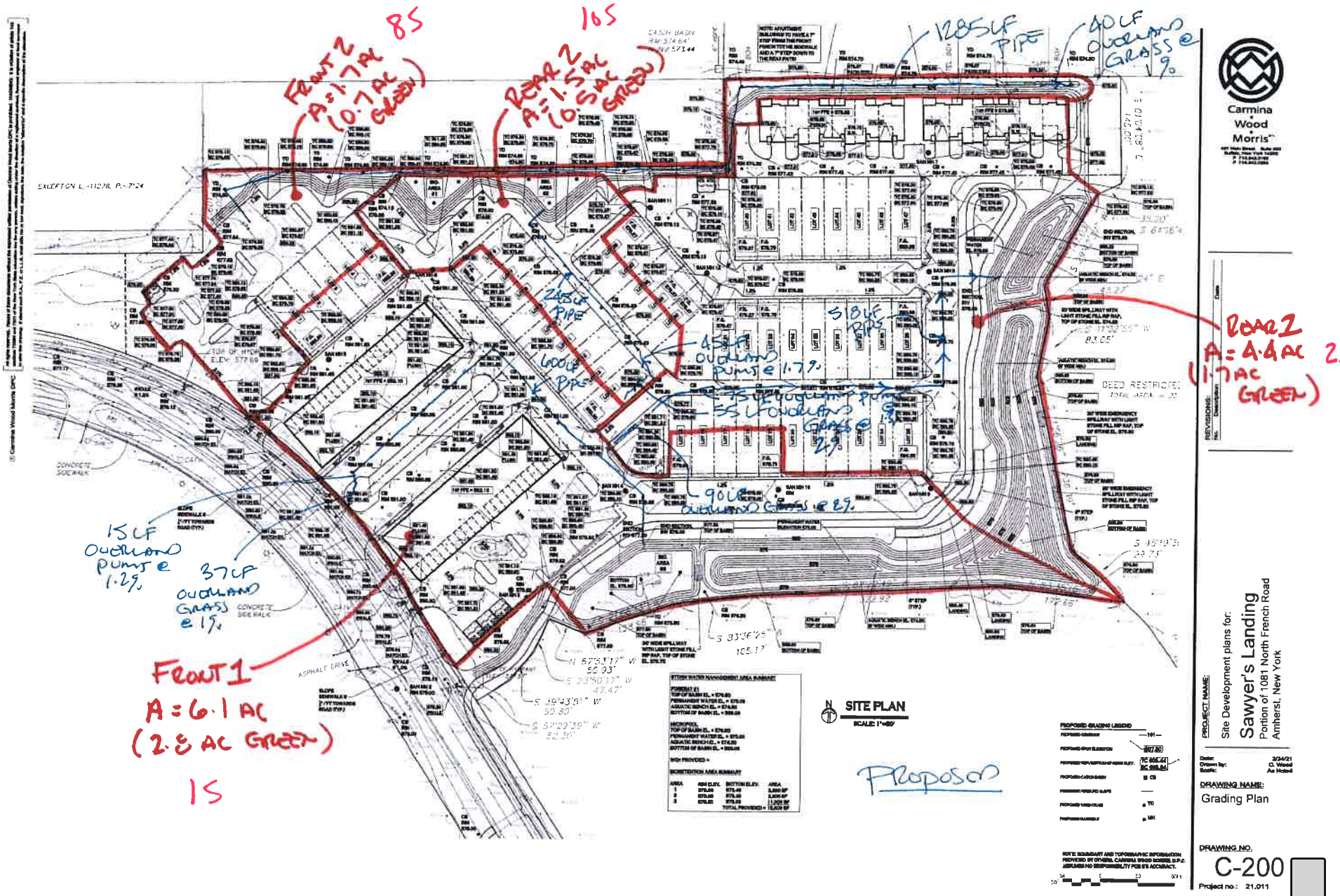
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

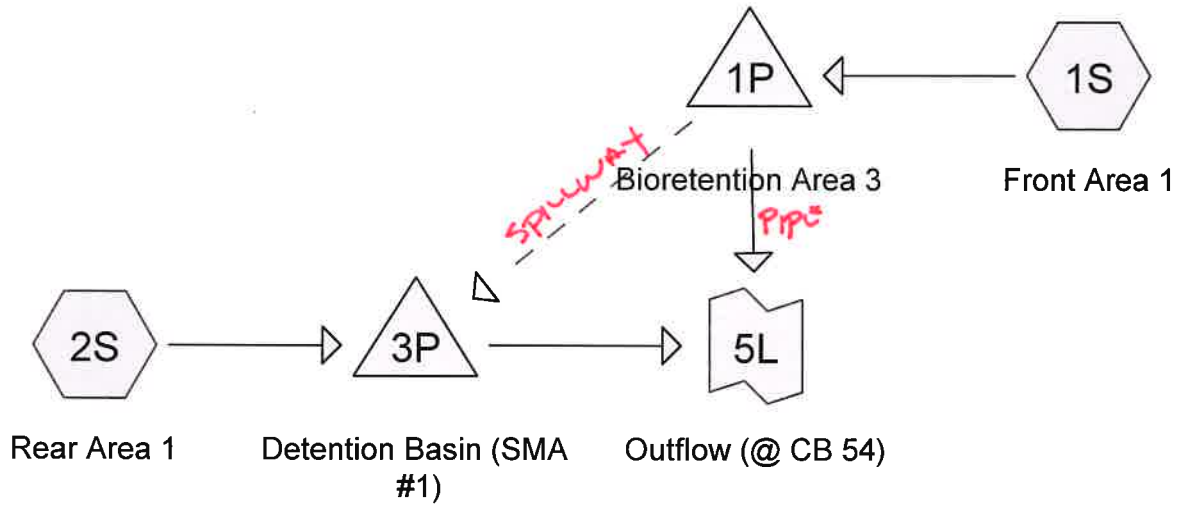
Proposed Runoff

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Proposed Runoff - East

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)


FRONT 2
A = 1.7 AC
(0.7 AC GREEN)
85
REAR 2
A = 1.5 AC
(0.5 AC GREEN)
105
120 LF PIPE
40 LF OVERLAND GRASS e 9%
REAR 2
A = 4.4 AC
(1.7 AC GREEN)
245 LF PIPE
45 LF OVERLAND PUMP e 1.7%
60 LF PIPE
55 LF PIPE
55 LF OVERLAND PUMP e 2%
90 LF OVERLAND GRASS e 2%
15 LF OVERLAND PUMP e 1.2%
37 LF OVERLAND GRASS e 1%
FRONT 1
A = 6.1 AC
(2.5 AC GREEN)
15
SITE PLAN
SCALE: 1"=80'
Proposed
Carmina Wood Morris
REVISIONS:
No. Description Date
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York
Date: 3/24/21
Drawn by: C. Wood
Scale: As Noted
DRAWING NAME:
Grading Plan
DRAWING NO.
C-200
Project no.: 21.011



Subcat Reach Pond Link

Routing Diagram for 21.011 Proposed
Prepared by Hewlett-Packard Company, Printed 3/4/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Events for Link 5L: Outflow (@ CB 54)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-Year	2.78	2.78	**0.00**
2-Year	2.86	2.86	0.00
5-Year	3.01	3.01	0.00
10-Year	3.16	3.16	0.00
25-Year	3.36	3.36	0.00
50-Year	3.48	3.48	0.00
100-Year	**3.60**	**3.60**	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Events for Pond 3P: Detention Basin (SMA #1)

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	6.05	0.10	0.10	0.00	575.23	13,685
2-Year	12.29	0.18	0.18	0.00	575.32	19,129
5-Year	20.08	0.33	0.33	0.00	575.46	28,218
10-Year	26.01	0.47	0.47	0.00	575.60	37,117
25-Year	34.94	0.64	0.64	0.00	575.83	51,964
50-Year	42.93	1.97	0.72	1.25	576.00	62,935
100-Year	**52.24**	**8.57**	**0.78**	**7.80**	**576.11**	**70,722**

TO DUDLEE RD

TO WETLANDS

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Events for Pond 1P: Bioretention Area 3

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	8.17	4.38	2.74	1.63	575.82	7,520
2-Year	10.57	8.19	2.79	5.41	575.91	8,359
5-Year	14.18	12.91	2.83	10.09	575.99	9,153
10-Year	17.46	16.45	2.85	13.60	576.04	9,672
25-Year	22.74	21.73	2.89	18.84	576.11	10,375
50-Year	27.50	26.43	2.91	23.52	576.17	10,954
100-Year	**33.05**	**31.92**	**2.94**	**28.98**	**576.23**	**11,585**

↑ TO DOUGE RD

↑ TO BASIN

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.500	80	>75% Grass cover, Good, HSG D (1S, 2S)
3.200	98	Paved parking, HSG D (1S, 2S)
2.800	98	Roofs, HSG D (1S, 2S)
10.500	**90**	**TOTAL AREA**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
10.500	HSG D	1S, 2S
0.000	Other	
10.500		**TOTAL AREA**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	4.500	0.000	4.500	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.000	3.200	0.000	3.200	Paved parking	1S, 2S
0.000	0.000	0.000	2.800	0.000	2.800	Roofs	1S, 2S
0.000	**0.000**	**0.000**	**10.500**	**0.000**	**10.500**	**TOTAL AREA**	

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=0.98"
Flow Length=652' Tc=13.3 min CN=90 Runoff=8.17 cfs 0.496 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.04"
Flow Length=683' Tc=14.4 min CN=91 Runoff=6.05 cfs 0.382 af

Pond 1P: Bioretention Area 3 Peak Elev=575.82' Storage=7,520 cf Inflow=8.17 cfs 0.496 af
Primary=2.74 cfs 0.475 af Secondary=1.63 cfs 0.021 af Outflow=4.38 cfs 0.496 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.23' Storage=13,685 cf Inflow=6.05 cfs 0.403 af
Primary=0.10 cfs 0.249 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.249 af

Link 5L: Outflow (@ CB 54) Inflow=2.78 cfs 0.724 af
Primary=2.78 cfs 0.724 af

Total Runoff Area = 10.500 ac Runoff Volume = 0.878 af Average Runoff Depth = 1.00"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

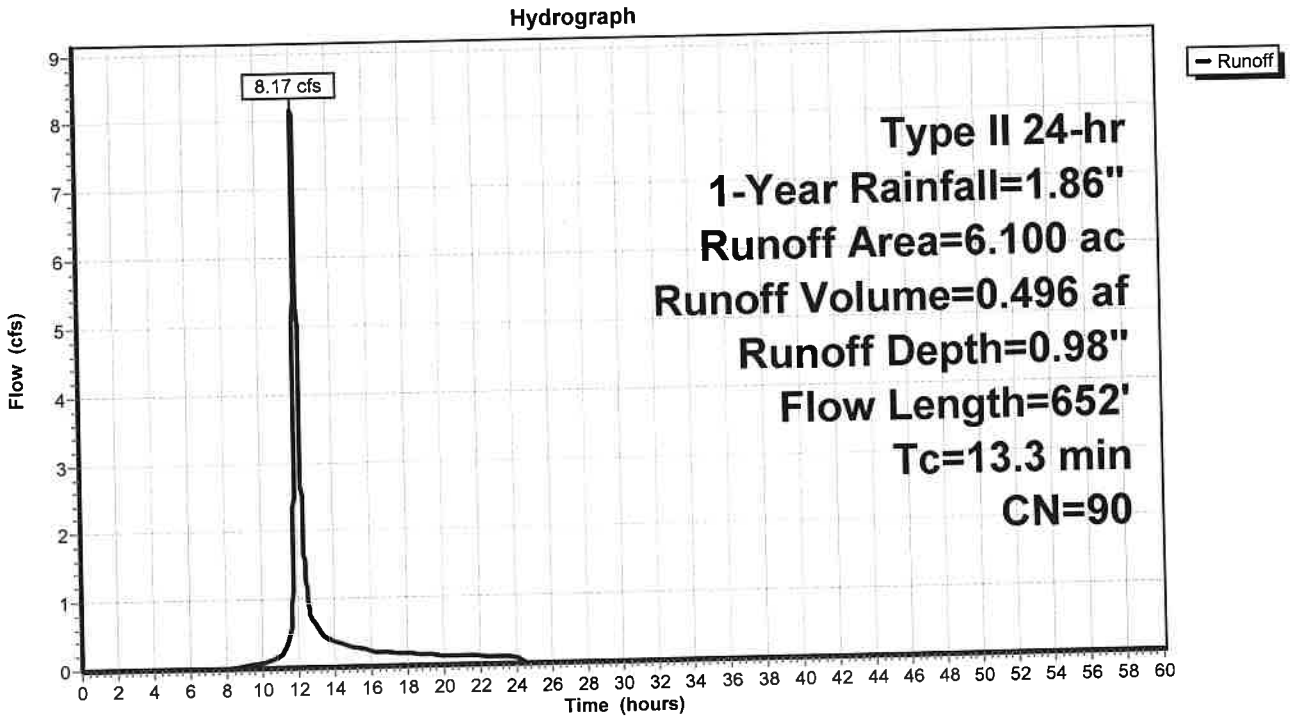
Runoff = 8.17 cfs @ 12.05 hrs, Volume= 0.496 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.02
10.00	0.34	0.01	0.07
11.00	0.44	0.03	0.20
12.00	1.23	0.48	**7.23**
13.00	1.44	0.63	**0.63**
14.00	1.53	0.70	0.37
15.00	1.59	0.75	0.29
16.00	1.64	0.79	0.23
17.00	1.68	0.83	0.20
18.00	1.71	0.85	0.17
19.00	1.74	0.88	0.15
20.00	1.77	0.90	0.13
21.00	1.79	0.92	0.12
22.00	1.82	0.94	0.12
23.00	1.84	0.96	0.11
24.00	**1.86**	**0.98**	0.11
25.00	1.86	0.98	0.00
26.00	1.86	0.98	0.00
27.00	1.86	0.98	0.00
28.00	1.86	0.98	0.00
29.00	1.86	0.98	0.00
30.00	1.86	0.98	0.00
31.00	1.86	0.98	0.00
32.00	1.86	0.98	0.00
33.00	1.86	0.98	0.00
34.00	1.86	0.98	0.00
35.00	1.86	0.98	0.00
36.00	1.86	0.98	0.00
37.00	1.86	0.98	0.00
38.00	1.86	0.98	0.00
39.00	1.86	0.98	0.00
40.00	1.86	0.98	0.00
41.00	1.86	0.98	0.00
42.00	1.86	0.98	0.00
43.00	1.86	0.98	0.00
44.00	1.86	0.98	0.00
45.00	1.86	0.98	0.00
46.00	1.86	0.98	0.00
47.00	1.86	0.98	0.00
48.00	1.86	0.98	0.00
49.00	1.86	0.98	0.00
50.00	1.86	0.98	0.00
51.00	1.86	0.98	0.00
52.00	1.86	0.98	0.00
53.00	1.86	0.98	0.00
54.00	1.86	0.98	0.00
55.00	1.86	0.98	0.00
56.00	1.86	0.98	0.00
57.00	1.86	0.98	0.00
58.00	1.86	0.98	0.00
59.00	1.86	0.98	0.00
60.00	1.86	0.98	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

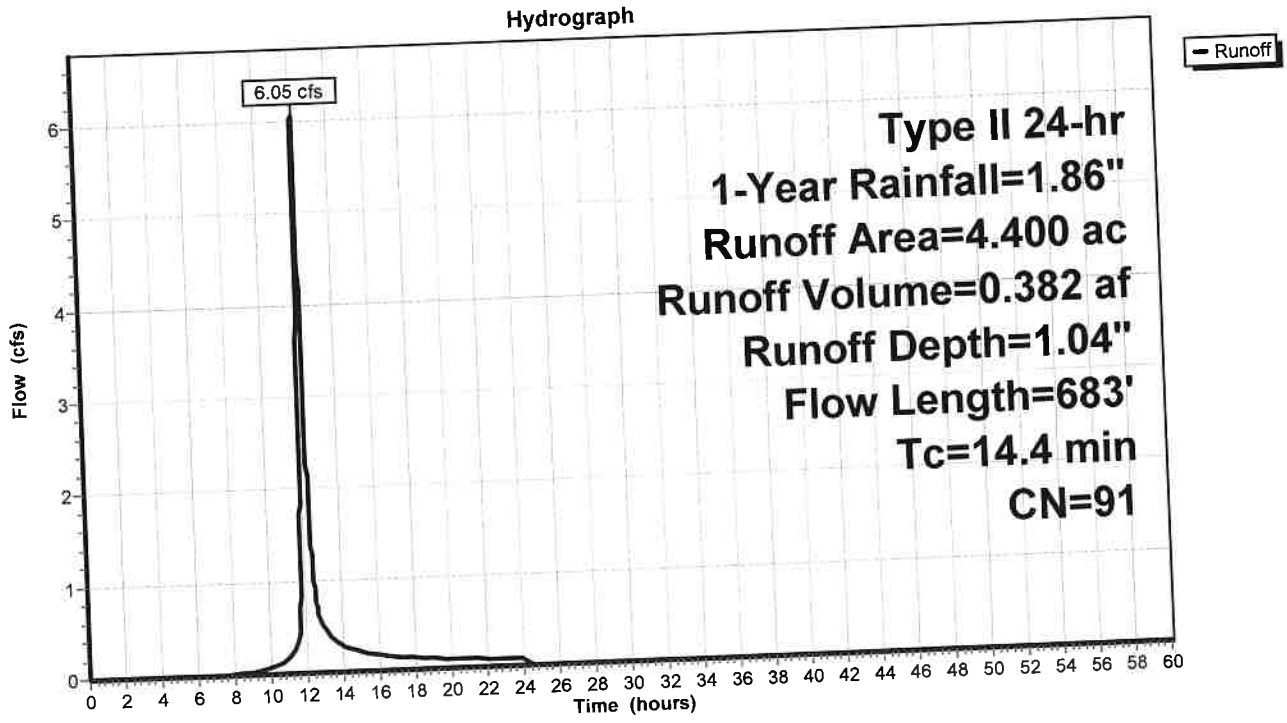
Runoff = 6.05 cfs @ 12.06 hrs, Volume= 0.382 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.01
9.00	0.27	0.01	0.03
10.00	0.34	0.02	0.06
11.00	0.44	0.05	0.17
12.00	1.23	0.53	**5.18**
13.00	1.44	0.69	**0.48**
14.00	1.53	0.76	0.28
15.00	1.59	0.81	0.21
16.00	1.64	0.85	0.17
17.00	1.68	0.89	0.15
18.00	1.71	0.92	0.13
19.00	1.74	0.94	0.11
20.00	1.77	0.97	0.10
21.00	1.79	0.99	0.09
22.00	1.82	1.01	0.09
23.00	1.84	1.02	0.08
24.00	**1.86**	**1.04**	0.08
25.00	1.86	1.04	0.00
26.00	1.86	1.04	0.00
27.00	1.86	1.04	0.00
28.00	1.86	1.04	0.00
29.00	1.86	1.04	0.00
30.00	1.86	1.04	0.00
31.00	1.86	1.04	0.00
32.00	1.86	1.04	0.00
33.00	1.86	1.04	0.00
34.00	1.86	1.04	0.00
35.00	1.86	1.04	0.00
36.00	1.86	1.04	0.00
37.00	1.86	1.04	0.00
38.00	1.86	1.04	0.00
39.00	1.86	1.04	0.00
40.00	1.86	1.04	0.00
41.00	1.86	1.04	0.00
42.00	1.86	1.04	0.00
43.00	1.86	1.04	0.00
44.00	1.86	1.04	0.00
45.00	1.86	1.04	0.00
46.00	1.86	1.04	0.00
47.00	1.86	1.04	0.00
48.00	1.86	1.04	0.00
49.00	1.86	1.04	0.00
50.00	1.86	1.04	0.00
51.00	1.86	1.04	0.00
52.00	1.86	1.04	0.00
53.00	1.86	1.04	0.00
54.00	1.86	1.04	0.00
55.00	1.86	1.04	0.00
56.00	1.86	1.04	0.00
57.00	1.86	1.04	0.00
58.00	1.86	1.04	0.00
59.00	1.86	1.04	0.00
60.00	1.86	1.04	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area =	6.100 ac,	54.10% Impervious,	Inflow Depth =	0.98"	for 1-Year event
Inflow =	8.17 cfs @	12.05 hrs,	Volume=	0.496 af	
Outflow =	4.38 cfs @	12.19 hrs,	Volume=	0.496 af,	Atten= 46%, Lag= 8.2 min
Primary =	2.74 cfs @	12.19 hrs,	Volume=	0.475 af	
Secondary =	1.63 cfs @	12.19 hrs,	Volume=	0.021 af	

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.82' @ 12.19 hrs Surf.Area= 9,695 sf Storage= 7,520 cf

Plug-Flow detention time= 319.4 min calculated for 0.496 af (100% of inflow)
Center-of-Mass det. time= 319.4 min (1,152.7 - 833.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

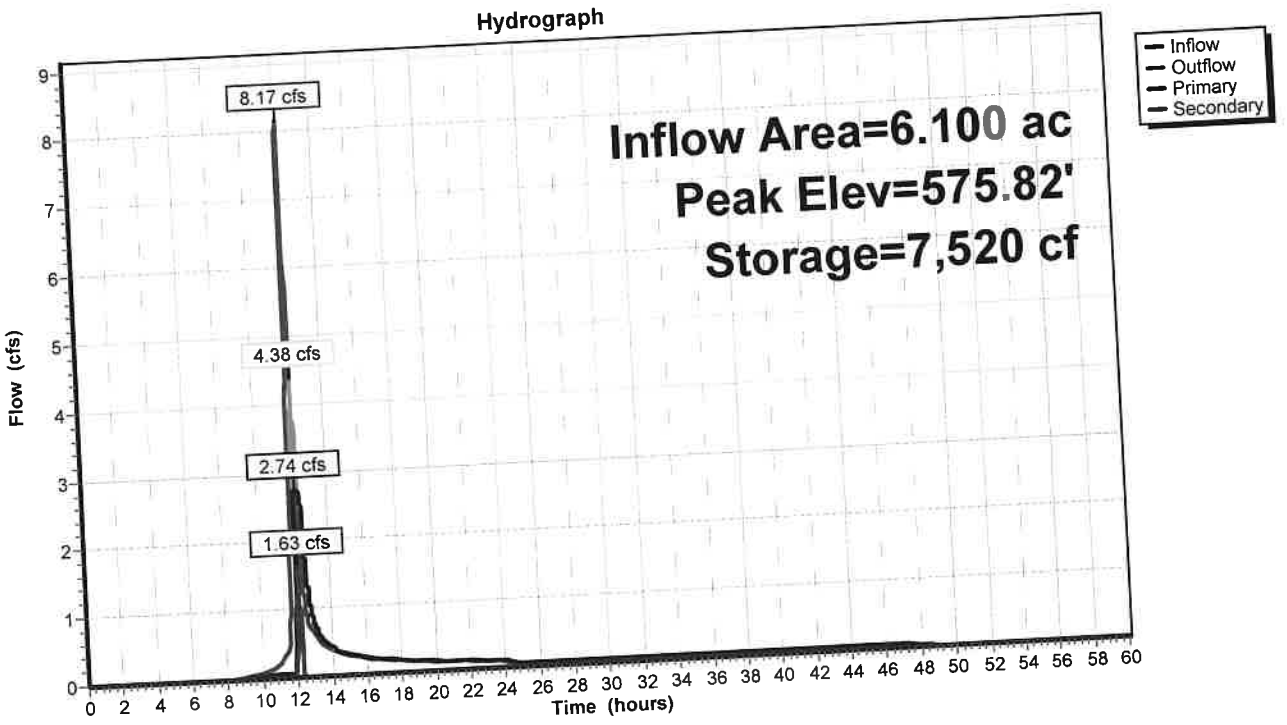
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.74 cfs @ 12.19 hrs HW=575.82' (Free Discharge)
↑—**1=8" pipe** (Barrel Controls 2.74 cfs @ 7.86 fps)
↑—**2=Grate** (Passes < 3.80 cfs potential flow)
└—**3=Exfiltration** (Passes < 0.06 cfs potential flow)

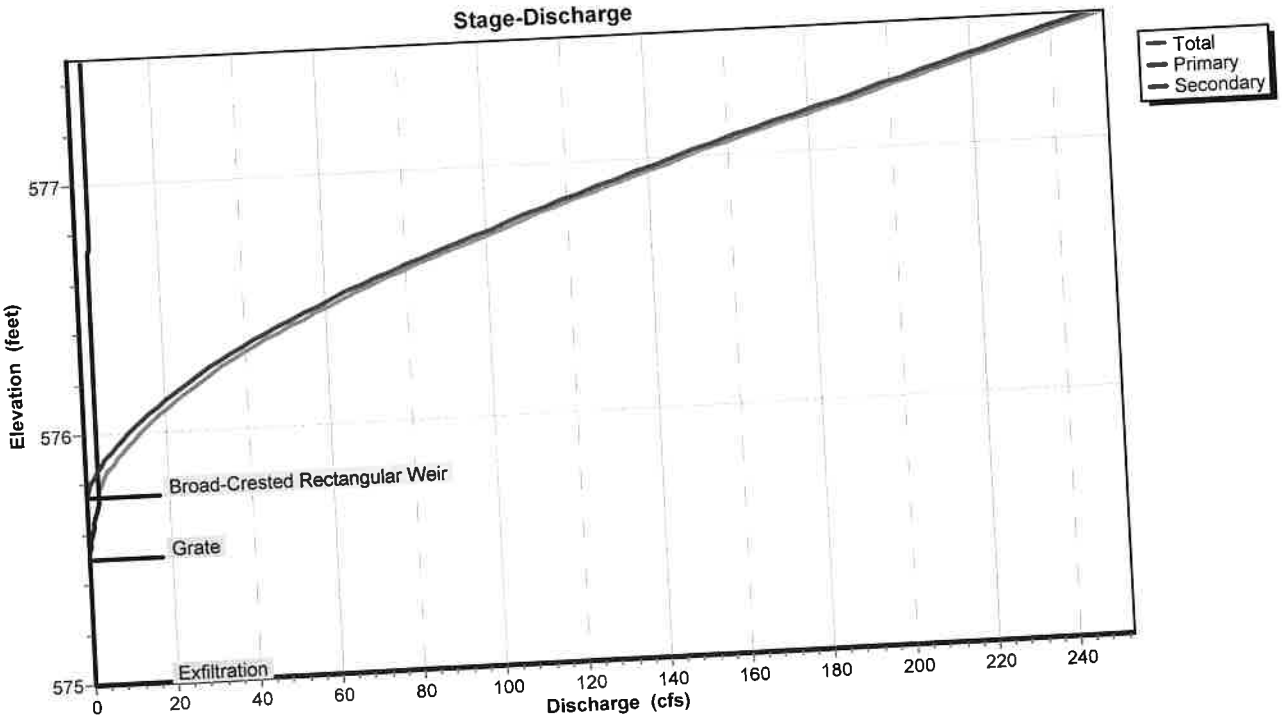
Secondary OutFlow Max=1.62 cfs @ 12.19 hrs HW=575.82' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 1.62 cfs @ 0.77 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

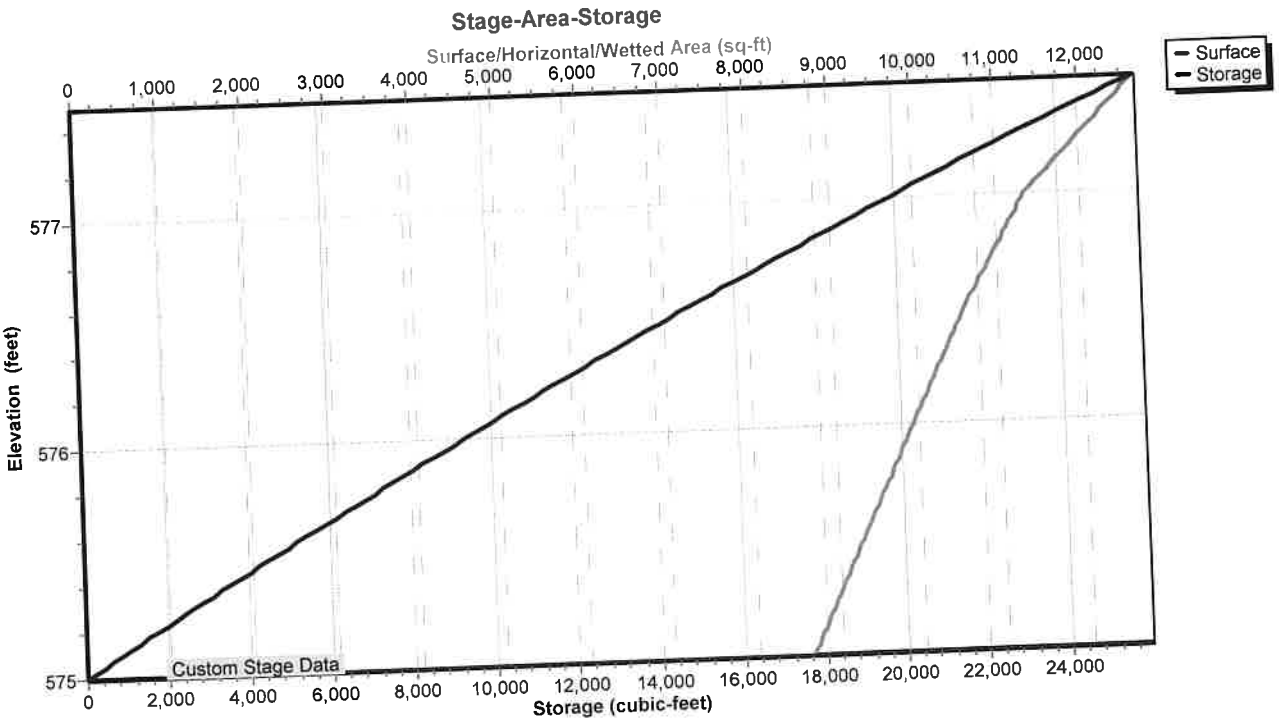


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.00	0	575.00	0.00	0.00	0.00
10.00	0.07	121	575.01	0.03	0.03	0.00
12.00	**7.23**	**4,533**	**575.51**	**0.08**	**0.08**	**0.00**
14.00	**0.37**	**5,004**	**575.56**	**0.42**	**0.42**	**0.00**
16.00	0.23	4,812	575.54	0.25	0.25	0.00
18.00	0.17	4,735	575.53	0.18	0.18	0.00
20.00	0.13	4,666	575.52	0.14	0.14	0.00
22.00	0.12	4,618	575.51	0.12	0.12	0.00
24.00	0.11	4,598	575.51	0.11	0.11	0.00
26.00	0.00	4,207	575.47	0.06	0.06	0.00
28.00	0.00	3,812	575.43	0.05	0.05	0.00
30.00	0.00	3,420	575.38	0.05	0.05	0.00
32.00	0.00	3,031	575.34	0.05	0.05	0.00
34.00	0.00	2,646	575.30	0.05	0.05	0.00
36.00	0.00	2,264	575.26	0.05	0.05	0.00
38.00	0.00	1,885	575.21	0.05	0.05	0.00
40.00	0.00	1,510	575.17	0.05	0.05	0.00
42.00	0.00	1,138	575.13	0.05	0.05	0.00
44.00	0.00	769	575.09	0.05	0.05	0.00
46.00	0.00	404	575.05	0.05	0.05	0.00
48.00	0.00	96	575.01	0.02	0.02	0.00
50.00	0.00	18	575.00	0.00	0.00	0.00
52.00	0.00	3	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 1.10" for 1-Year event
Inflow = 6.05 cfs @ 12.06 hrs, Volume= 0.403 af
Outflow = 0.10 cfs @ 19.66 hrs, Volume= 0.249 af, Atten= 98%, Lag= 455.7 min
Primary = 0.10 cfs @ 19.66 hrs, Volume= 0.249 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.23' @ 19.66 hrs Surf.Area= 60,952 sf Storage= 13,685 cf

Plug-Flow detention time= 1,134.7 min calculated for 0.249 af (62% of inflow)
Center-of-Mass det. time= 1,028.3 min (1,852.6 - 824.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

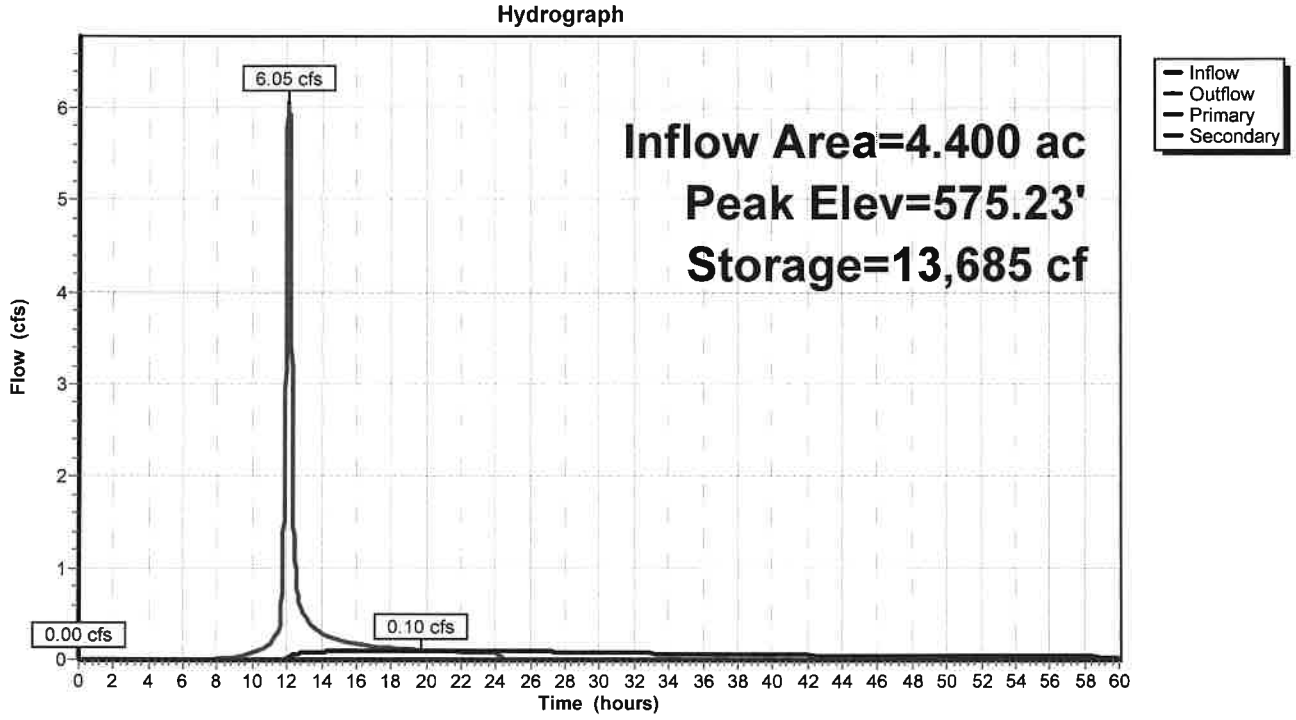
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.10 cfs @ 19.66 hrs HW=575.23' (Free Discharge)
└**1=12" outlet pipe** (Passes 0.10 cfs of 1.85 cfs potential flow)
  ├**2=low flow outlet pipe** (Barrel Controls 0.10 cfs @ 1.70 fps)
  └**3=Grate** (Controls 0.00 cfs)

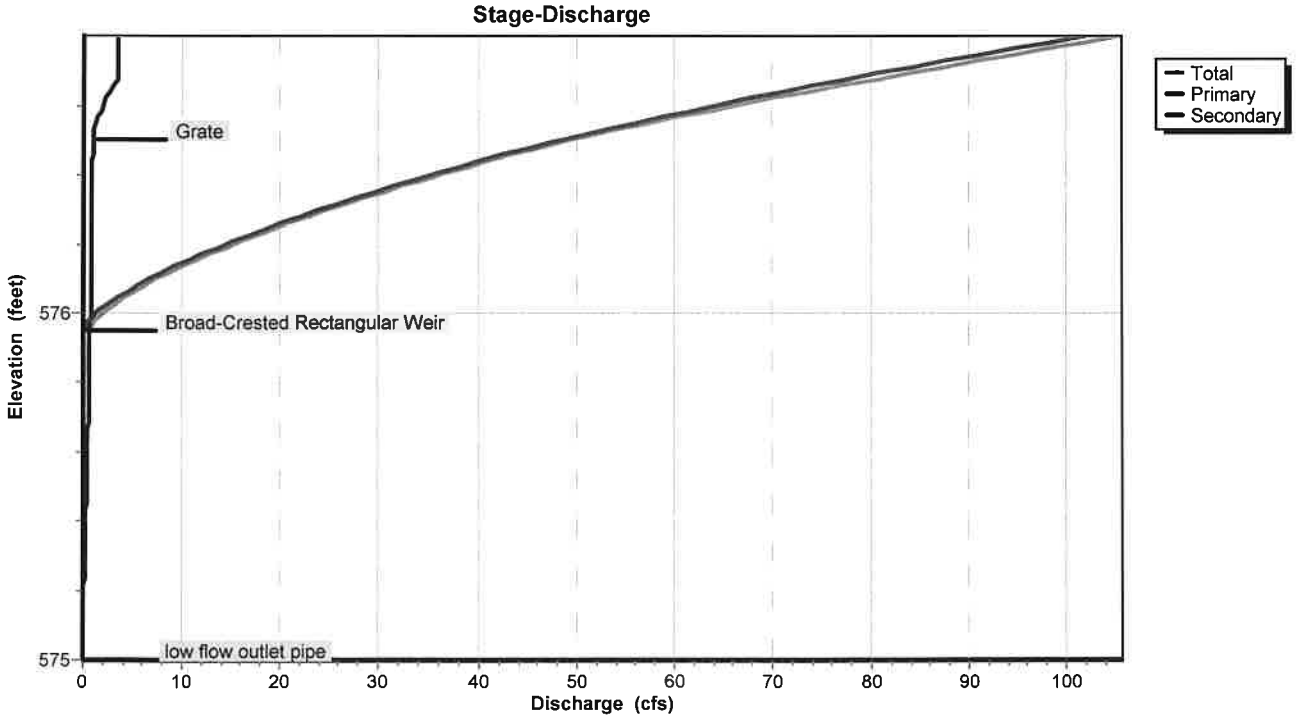
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

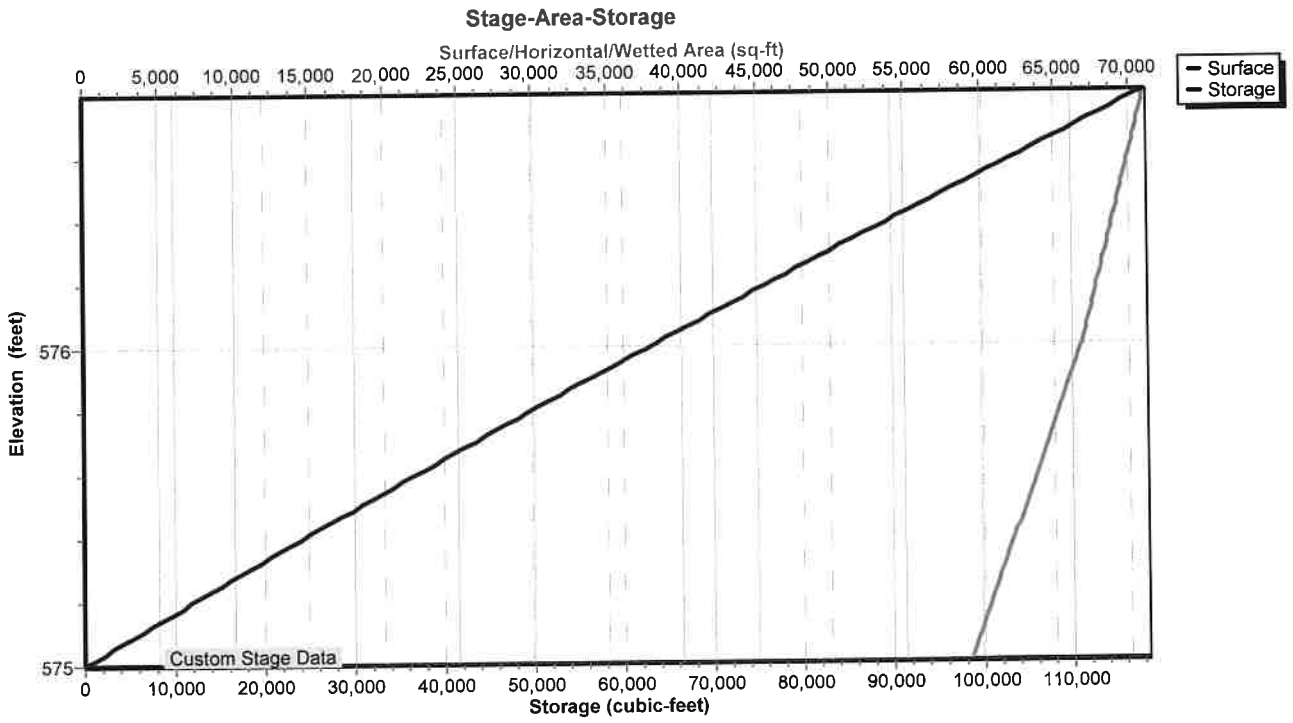


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.01	5	575.00	0.00	0.00	0.00
10.00	0.06	218	575.00	0.00	0.00	0.00
12.00	**5.18**	3,798	575.06	0.01	0.01	0.00
14.00	**0.28**	12,350	575.21	0.08	0.08	0.00
16.00	0.17	13,252	575.22	0.10	0.10	0.00
18.00	0.13	**13,599**	**575.23**	**0.10**	**0.10**	0.00
20.00	0.10	**13,682**	**575.23**	**0.10**	**0.10**	0.00
22.00	0.09	13,599	575.23	0.10	0.10	0.00
24.00	0.08	13,477	575.22	0.10	0.10	0.00
26.00	0.00	12,859	575.21	0.09	0.09	0.00
28.00	0.00	12,236	575.20	0.08	0.08	0.00
30.00	0.00	11,664	575.19	0.08	0.08	0.00
32.00	0.00	11,139	575.19	0.07	0.07	0.00
34.00	0.00	10,655	575.18	0.06	0.06	0.00
36.00	0.00	10,207	575.17	0.06	0.06	0.00
38.00	0.00	9,792	575.16	0.06	0.06	0.00
40.00	0.00	9,408	575.16	0.05	0.05	0.00
42.00	0.00	9,050	575.15	0.05	0.05	0.00
44.00	0.00	8,716	575.15	0.04	0.04	0.00
46.00	0.00	8,404	575.14	0.04	0.04	0.00
48.00	0.00	8,113	575.14	0.04	0.04	0.00
50.00	0.00	7,839	575.13	0.04	0.04	0.00
52.00	0.00	7,582	575.13	0.03	0.03	0.00
54.00	0.00	7,341	575.12	0.03	0.03	0.00
56.00	0.00	7,114	575.12	0.03	0.03	0.00
58.00	0.00	6,899	575.12	0.03	0.03	0.00
60.00	0.00	6,696	575.11	0.03	0.03	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

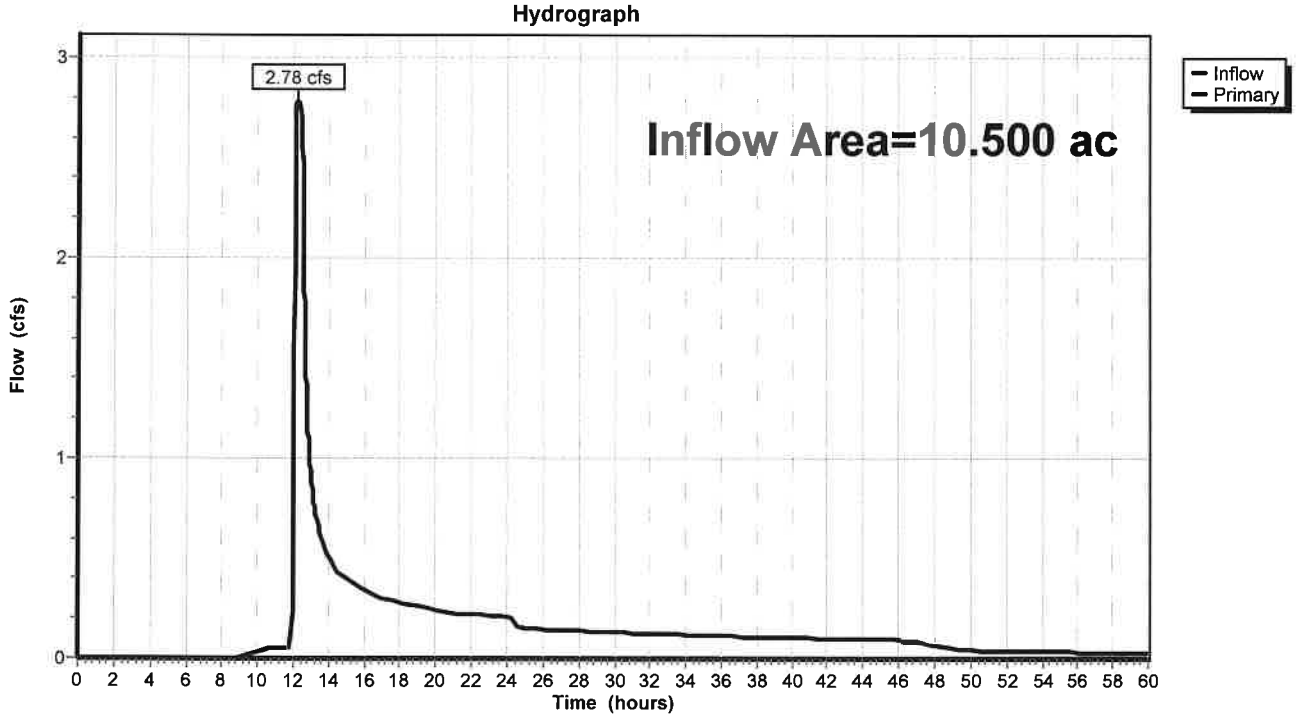
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 0.83" for 1-Year event
Inflow = 2.78 cfs @ 12.22 hrs, Volume= 0.724 af
Primary = 2.78 cfs @ 12.22 hrs, Volume= 0.724 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.04	0.00	0.04
1.00	0.00	0.00	0.00	53.00	0.03	0.00	0.03
2.00	0.00	0.00	0.00	54.00	0.03	0.00	0.03
3.00	0.00	0.00	0.00	55.00	0.03	0.00	0.03
4.00	0.00	0.00	0.00	56.00	0.03	0.00	0.03
5.00	0.00	0.00	0.00	57.00	0.03	0.00	0.03
6.00	0.00	0.00	0.00	58.00	0.03	0.00	0.03
7.00	0.00	0.00	0.00	59.00	0.03	0.00	0.03
8.00	0.00	0.00	0.00	60.00	0.03	0.00	0.03
9.00	0.01	0.00	0.01				
10.00	0.03	0.00	0.03				
11.00	0.05	0.00	0.05				
12.00	**0.09**	0.00	**0.09**				
13.00	**0.91**	0.00	**0.91**				
14.00	0.51	0.00	0.51				
15.00	0.40	0.00	0.40				
16.00	0.34	0.00	0.34				
17.00	0.30	0.00	0.30				
18.00	0.28	0.00	0.28				
19.00	0.26	0.00	0.26				
20.00	0.24	0.00	0.24				
21.00	0.23	0.00	0.23				
22.00	0.22	0.00	0.22				
23.00	0.21	0.00	0.21				
24.00	0.21	0.00	0.21				
25.00	0.15	0.00	0.15				
26.00	0.15	0.00	0.15				
27.00	0.14	0.00	0.14				
28.00	0.14	0.00	0.14				
29.00	0.13	0.00	0.13				
30.00	0.13	0.00	0.13				
31.00	0.13	0.00	0.13				
32.00	0.12	0.00	0.12				
33.00	0.12	0.00	0.12				
34.00	0.12	0.00	0.12				
35.00	0.12	0.00	0.12				
36.00	0.11	0.00	0.11				
37.00	0.11	0.00	0.11				
38.00	0.11	0.00	0.11				
39.00	0.11	0.00	0.11				
40.00	0.10	0.00	0.10				
41.00	0.10	0.00	0.10				
42.00	0.10	0.00	0.10				
43.00	0.10	0.00	0.10				
44.00	0.10	0.00	0.10				
45.00	0.09	0.00	0.09				
46.00	0.09	0.00	0.09				
47.00	0.09	0.00	0.09				
48.00	0.06	0.00	0.06				
49.00	0.05	0.00	0.05				
50.00	0.04	0.00	0.04				
51.00	0.04	0.00	0.04				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=1.27"
Flow Length=652' Tc=13.3 min CN=90 Runoff=10.57 cfs 0.644 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.34"
Flow Length=683' Tc=14.4 min CN=91 Runoff=7.75 cfs 0.491 af

Pond 1P: Bioretention Area 3 Peak Elev=575.91' Storage=8,359 cf Inflow=10.57 cfs 0.644 af
Primary=2.79 cfs 0.556 af Secondary=5.41 cfs 0.088 af Outflow=8.19 cfs 0.644 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.32' Storage=19,128 cf Inflow=12.29 cfs 0.579 af
Primary=0.18 cfs 0.400 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.400 af

Link 5L: Outflow (@ CB 54) Inflow=2.86 cfs 0.956 af
Primary=2.86 cfs 0.956 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.135 af Average Runoff Depth = 1.30"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

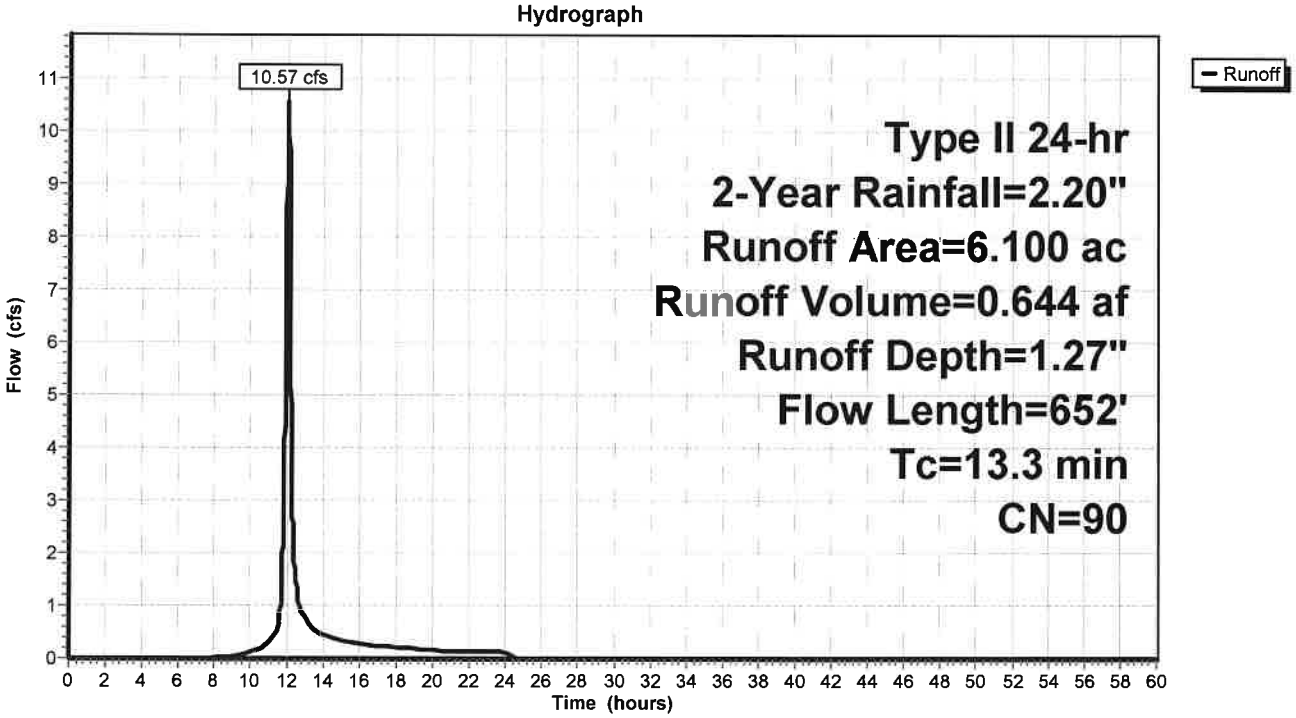
Runoff = 10.57 cfs @ 12.05 hrs, Volume= 0.644 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.02
9.00	0.32	0.01	0.06
10.00	0.40	0.02	0.12
11.00	0.52	0.06	0.30
12.00	1.46	0.65	**9.45**
13.00	1.70	0.84	**0.79**
14.00	1.80	0.93	0.46
15.00	1.88	0.99	0.36
16.00	1.94	1.04	0.28
17.00	1.98	1.08	0.24
18.00	2.03	1.12	0.21
19.00	2.06	1.15	0.19
20.00	2.09	1.17	0.16
21.00	2.12	1.20	0.15
22.00	2.15	1.22	0.14
23.00	2.18	1.24	0.14
24.00	**2.20**	**1.27**	0.13
25.00	2.20	1.27	0.00
26.00	2.20	1.27	0.00
27.00	2.20	1.27	0.00
28.00	2.20	1.27	0.00
29.00	2.20	1.27	0.00
30.00	2.20	1.27	0.00
31.00	2.20	1.27	0.00
32.00	2.20	1.27	0.00
33.00	2.20	1.27	0.00
34.00	2.20	1.27	0.00
35.00	2.20	1.27	0.00
36.00	2.20	1.27	0.00
37.00	2.20	1.27	0.00
38.00	2.20	1.27	0.00
39.00	2.20	1.27	0.00
40.00	2.20	1.27	0.00
41.00	2.20	1.27	0.00
42.00	2.20	1.27	0.00
43.00	2.20	1.27	0.00
44.00	2.20	1.27	0.00
45.00	2.20	1.27	0.00
46.00	2.20	1.27	0.00
47.00	2.20	1.27	0.00
48.00	2.20	1.27	0.00
49.00	2.20	1.27	0.00
50.00	2.20	1.27	0.00
51.00	2.20	1.27	0.00
52.00	2.20	1.27	0.00
53.00	2.20	1.27	0.00
54.00	2.20	1.27	0.00
55.00	2.20	1.27	0.00
56.00	2.20	1.27	0.00
57.00	2.20	1.27	0.00
58.00	2.20	1.27	0.00
59.00	2.20	1.27	0.00
60.00	2.20	1.27	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

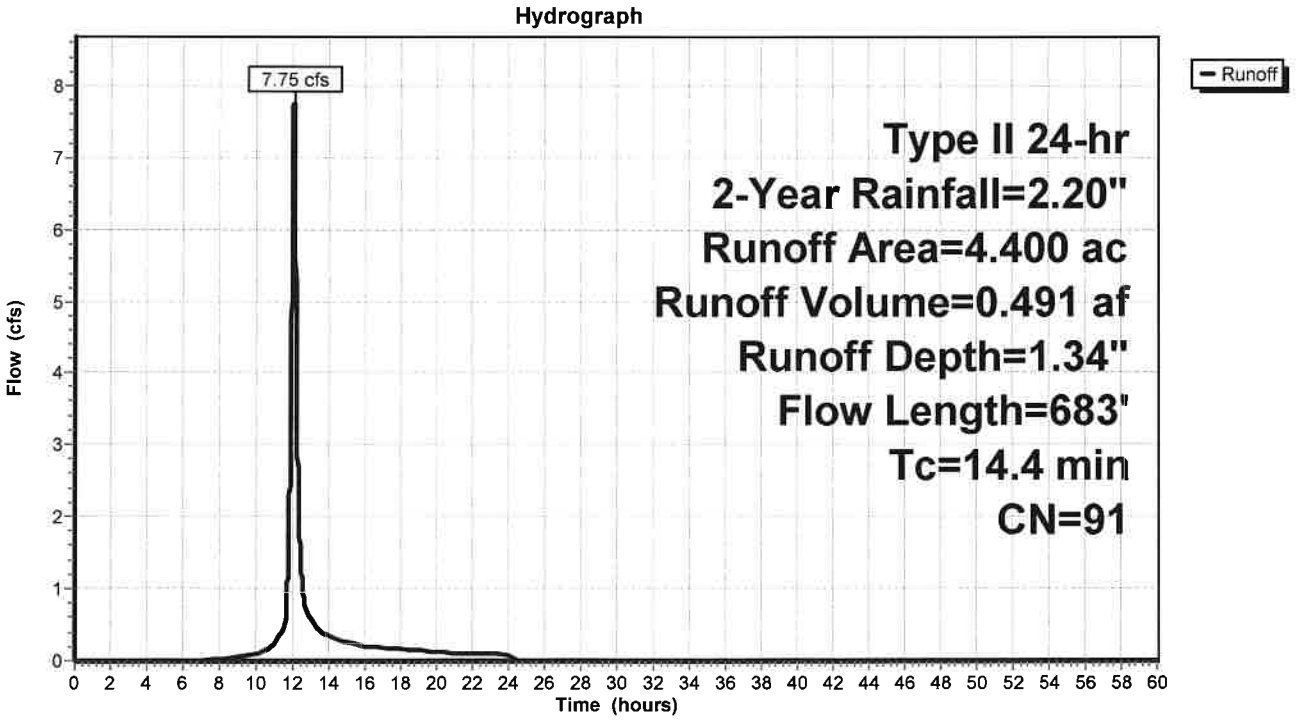
Runoff = 7.75 cfs @ 12.06 hrs, Volume= 0.491 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.02
9.00	0.32	0.01	0.06
10.00	0.40	0.03	0.10
11.00	0.52	0.08	0.25
12.00	1.46	0.71	**6.69**
13.00	1.70	0.90	**0.60**
14.00	1.80	0.99	0.35
15.00	1.88	1.06	0.27
16.00	1.94	1.11	0.21
17.00	1.98	1.15	0.18
18.00	2.03	1.19	0.16
19.00	2.06	1.22	0.14
20.00	2.09	1.25	0.12
21.00	2.12	1.27	0.11
22.00	2.15	1.30	0.10
23.00	2.18	1.32	0.10
24.00	**2.20**	**1.34**	0.10
25.00	2.20	1.34	0.00
26.00	2.20	1.34	0.00
27.00	2.20	1.34	0.00
28.00	2.20	1.34	0.00
29.00	2.20	1.34	0.00
30.00	2.20	1.34	0.00
31.00	2.20	1.34	0.00
32.00	2.20	1.34	0.00
33.00	2.20	1.34	0.00
34.00	2.20	1.34	0.00
35.00	2.20	1.34	0.00
36.00	2.20	1.34	0.00
37.00	2.20	1.34	0.00
38.00	2.20	1.34	0.00
39.00	2.20	1.34	0.00
40.00	2.20	1.34	0.00
41.00	2.20	1.34	0.00
42.00	2.20	1.34	0.00
43.00	2.20	1.34	0.00
44.00	2.20	1.34	0.00
45.00	2.20	1.34	0.00
46.00	2.20	1.34	0.00
47.00	2.20	1.34	0.00
48.00	2.20	1.34	0.00
49.00	2.20	1.34	0.00
50.00	2.20	1.34	0.00
51.00	2.20	1.34	0.00
52.00	2.20	1.34	0.00
53.00	2.20	1.34	0.00
54.00	2.20	1.34	0.00
55.00	2.20	1.34	0.00
56.00	2.20	1.34	0.00
57.00	2.20	1.34	0.00
58.00	2.20	1.34	0.00
59.00	2.20	1.34	0.00
60.00	2.20	1.34	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 10.57 cfs @ 12.05 hrs, Volume= 0.644 af
Outflow = 8.19 cfs @ 12.13 hrs, Volume= 0.644 af, Atten= 22%, Lag= 4.9 min
Primary = 2.79 cfs @ 12.13 hrs, Volume= 0.556 af
Secondary = 5.41 cfs @ 12.13 hrs, Volume= 0.088 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.91' @ 12.13 hrs Surf.Area= 9,805 sf Storage= 8,359 cf

Plug-Flow detention time= 252.3 min calculated for 0.644 af (100% of inflow)
Center-of-Mass det. time= 252.2 min (1,078.1 - 825.9)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

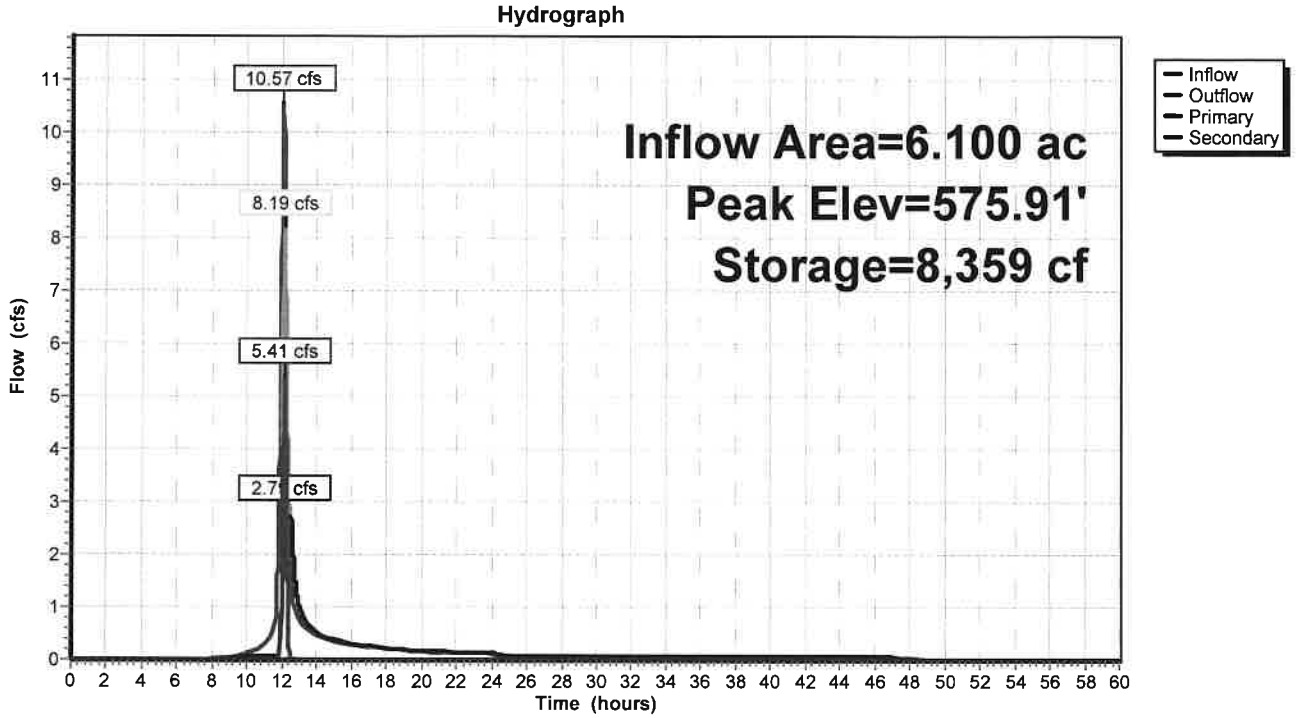
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.79 cfs @ 12.13 hrs HW=575.91' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.79 cfs @ 7.98 fps)
  ├**2=Grate** (Passes < 4.28 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

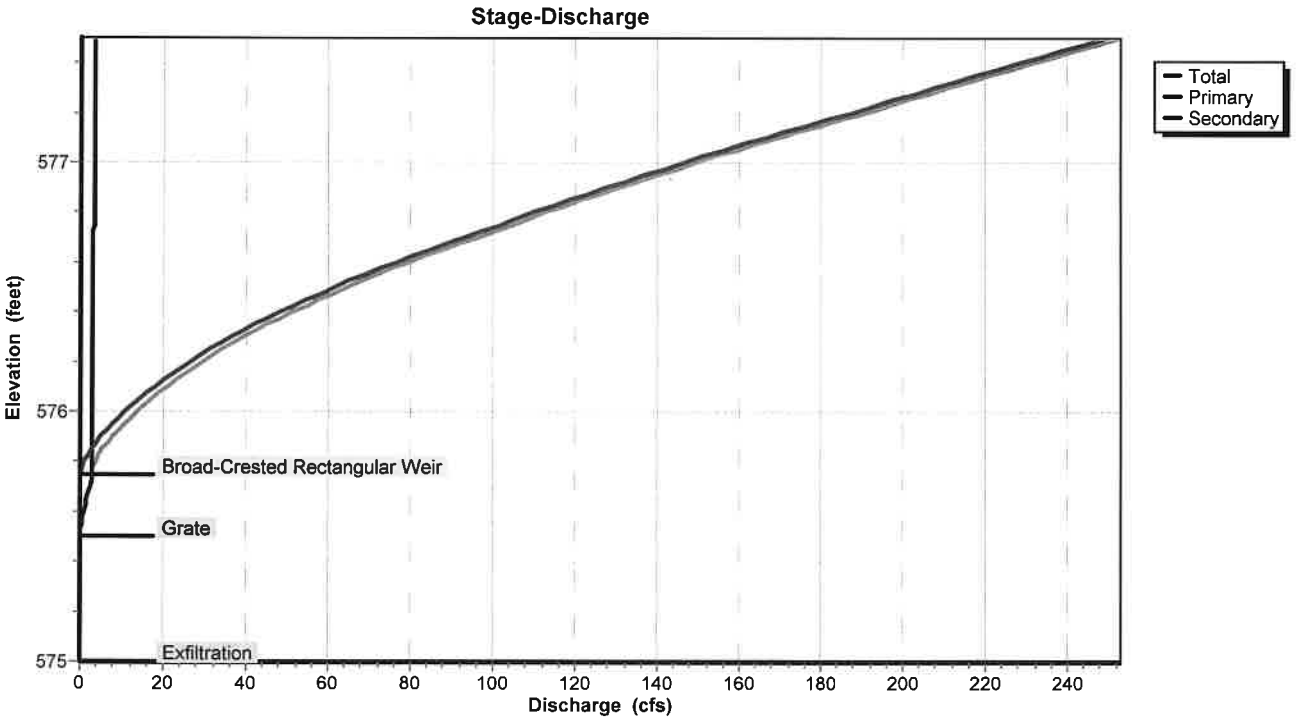
Secondary OutFlow Max=5.39 cfs @ 12.13 hrs HW=575.91' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 5.39 cfs @ 1.15 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

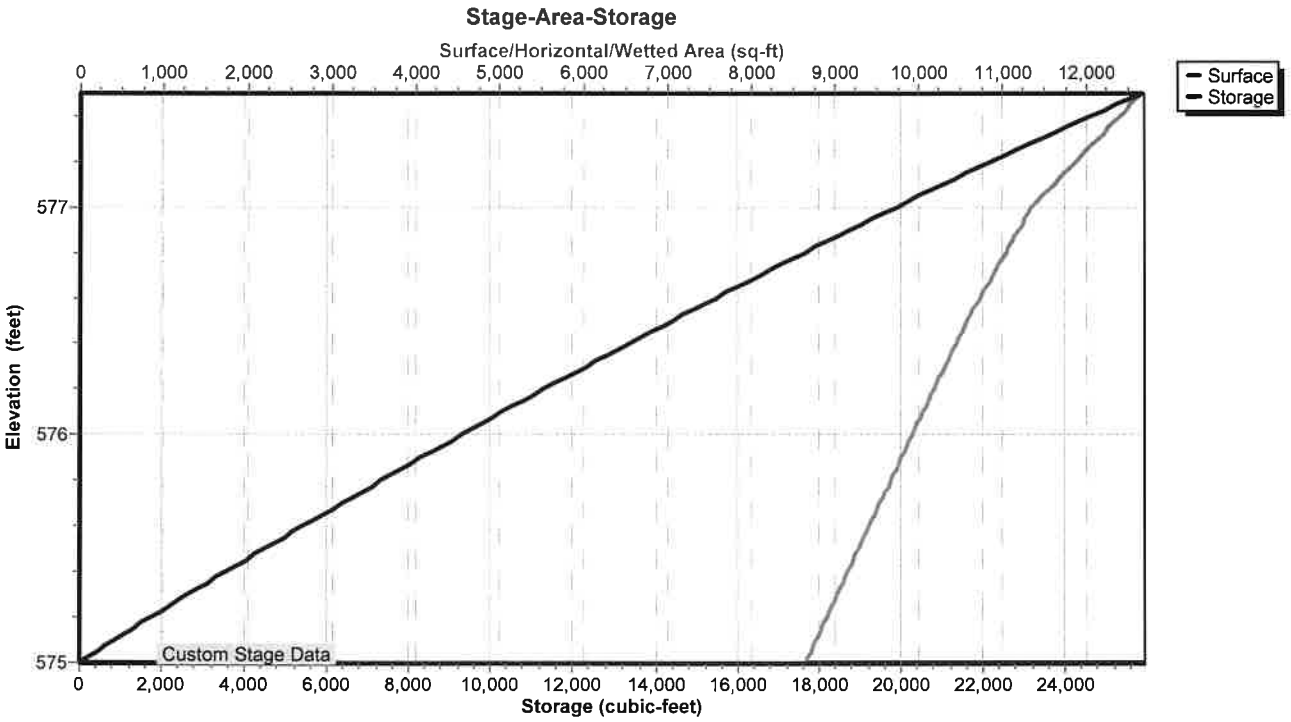


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.02	17	575.00	0.00	0.00	0.00
10.00	0.12	257	575.03	0.05	0.05	0.00
12.00	**9.45**	**6,253**	**575.69**	**2.30**	**2.30**	**0.00**
14.00	**0.46**	**5,096**	**575.57**	**0.52**	**0.52**	**0.00**
16.00	0.28	4,881	575.54	0.30	0.30	0.00
18.00	0.21	4,786	575.53	0.22	0.22	0.00
20.00	0.16	4,719	575.53	0.17	0.17	0.00
22.00	0.14	4,676	575.52	0.15	0.15	0.00
24.00	0.13	4,652	575.52	0.13	0.13	0.00
26.00	0.00	4,232	575.47	0.06	0.06	0.00
28.00	0.00	3,836	575.43	0.05	0.05	0.00
30.00	0.00	3,444	575.39	0.05	0.05	0.00
32.00	0.00	3,055	575.34	0.05	0.05	0.00
34.00	0.00	2,670	575.30	0.05	0.05	0.00
36.00	0.00	2,287	575.26	0.05	0.05	0.00
38.00	0.00	1,909	575.22	0.05	0.05	0.00
40.00	0.00	1,533	575.18	0.05	0.05	0.00
42.00	0.00	1,161	575.13	0.05	0.05	0.00
44.00	0.00	792	575.09	0.05	0.05	0.00
46.00	0.00	426	575.05	0.05	0.05	0.00
48.00	0.00	107	575.01	0.02	0.02	0.00
50.00	0.00	20	575.00	0.00	0.00	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 1.58" for 2-Year event
Inflow = 12.29 cfs @ 12.11 hrs, Volume= 0.579 af
Outflow = 0.18 cfs @ 17.01 hrs, Volume= 0.400 af, Atten= 99%, Lag= 293.7 min
Primary = 0.18 cfs @ 17.01 hrs, Volume= 0.400 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.32' @ 17.01 hrs Surf.Area= 61,630 sf Storage= 19,128 cf

Plug-Flow detention time= 1,051.7 min calculated for 0.400 af (69% of inflow)
Center-of-Mass det. time= 962.0 min (1,770.2 - 808.1)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

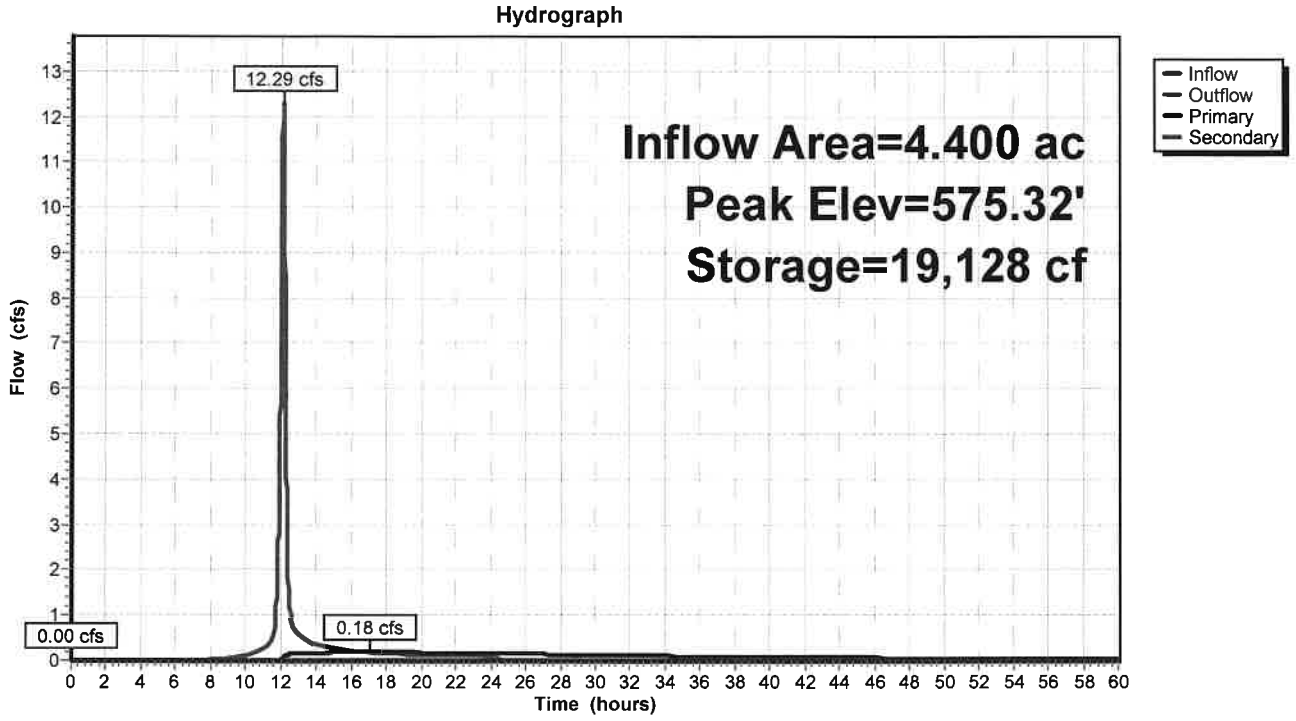
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.18 cfs @ 17.01 hrs HW=575.32' (Free Discharge)
└─**1=12" outlet pipe** (Passes 0.18 cfs of 1.87 cfs potential flow)
  ├─**2=low flow outlet pipe** (Barrel Controls 0.18 cfs @ 1.95 fps)
  └─**3=Grate** (Controls 0.00 cfs)

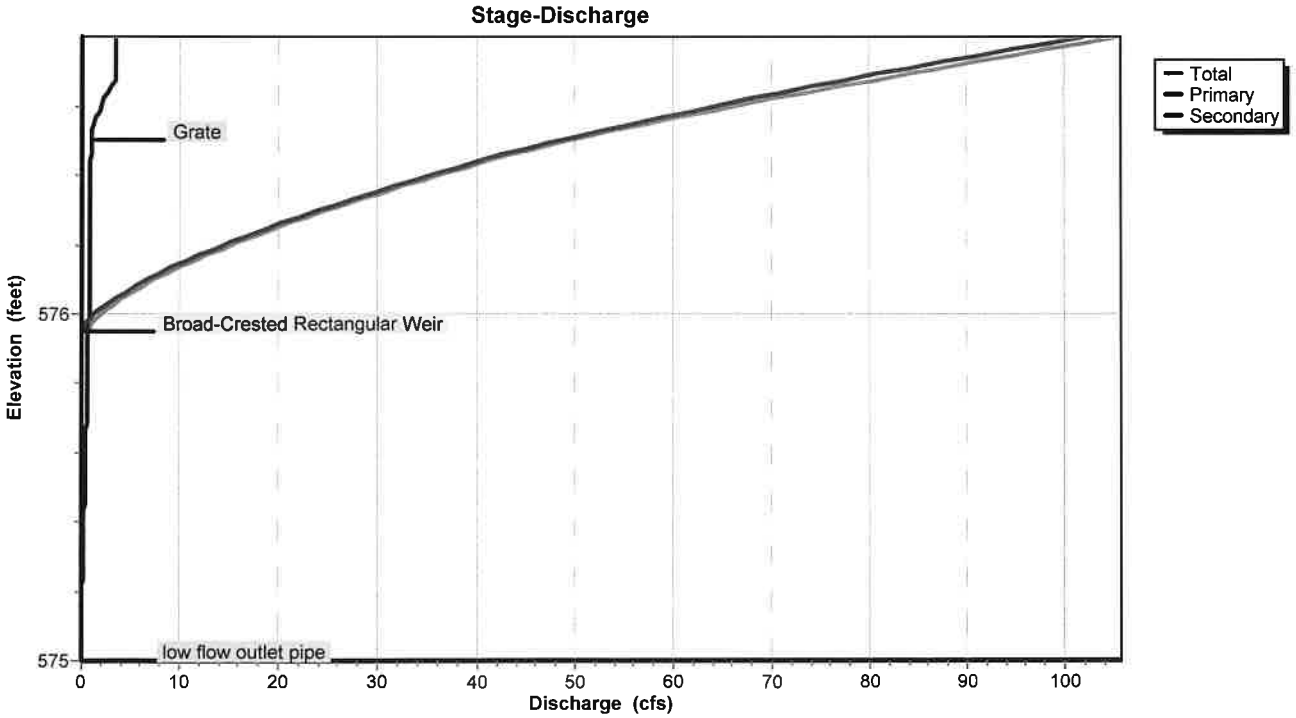
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

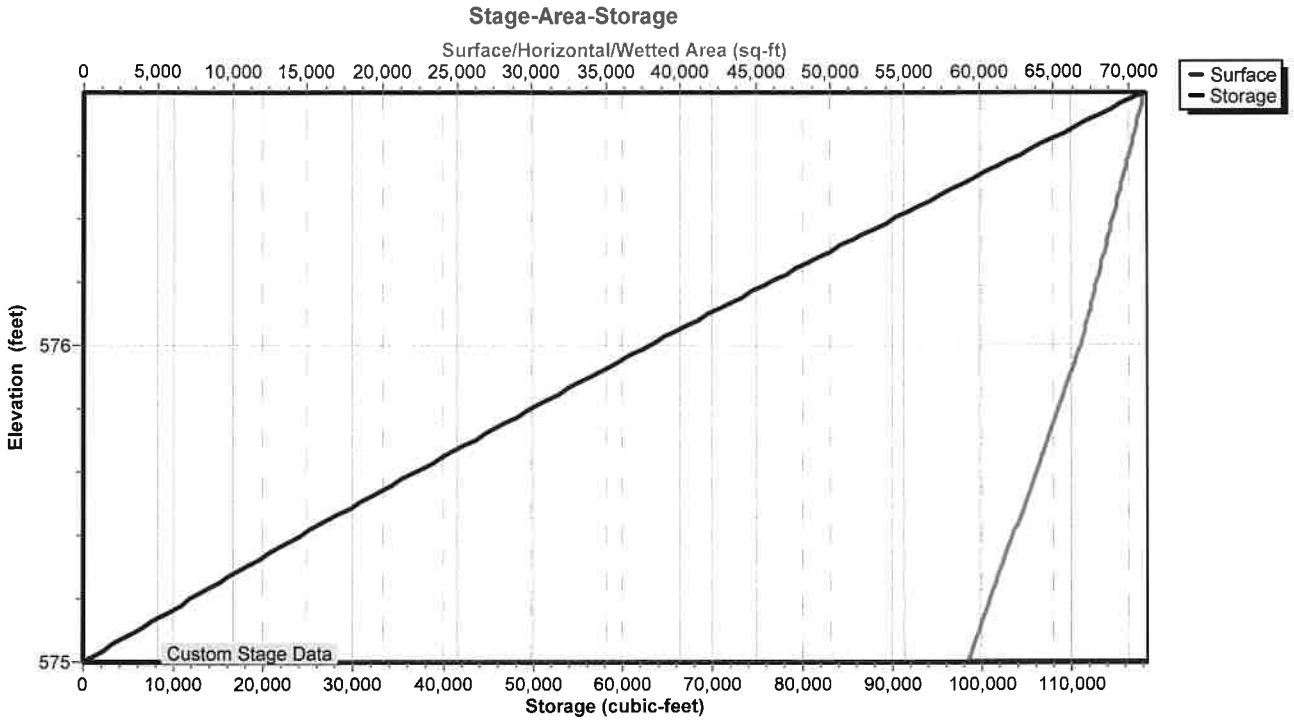


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.02	48	575.00	0.00	0.00	0.00
10.00	0.10	451	575.01	0.00	0.00	0.00
12.00	**6.69**	5,327	575.09	0.02	0.02	0.00
14.00	**0.35**	18,425	575.31	0.17	0.17	0.00
16.00	0.21	**19,087**	**575.32**	**0.18**	**0.18**	0.00
18.00	0.16	**19,093**	**575.32**	**0.18**	**0.18**	0.00
20.00	0.12	18,812	575.31	0.17	0.17	0.00
22.00	0.10	18,367	575.30	0.17	0.17	0.00
24.00	0.10	17,912	575.30	0.16	0.16	0.00
26.00	0.00	16,886	575.28	0.15	0.15	0.00
28.00	0.00	15,893	575.26	0.13	0.13	0.00
30.00	0.00	14,996	575.25	0.12	0.12	0.00
32.00	0.00	14,184	575.24	0.11	0.11	0.00
34.00	0.00	13,445	575.22	0.10	0.10	0.00
36.00	0.00	12,772	575.21	0.09	0.09	0.00
38.00	0.00	12,156	575.20	0.08	0.08	0.00
40.00	0.00	11,591	575.19	0.08	0.08	0.00
42.00	0.00	11,071	575.18	0.07	0.07	0.00
44.00	0.00	10,592	575.18	0.06	0.06	0.00
46.00	0.00	10,149	575.17	0.06	0.06	0.00
48.00	0.00	9,739	575.16	0.05	0.05	0.00
50.00	0.00	9,358	575.16	0.05	0.05	0.00
52.00	0.00	9,003	575.15	0.05	0.05	0.00
54.00	0.00	8,673	575.15	0.04	0.04	0.00
56.00	0.00	8,364	575.14	0.04	0.04	0.00
58.00	0.00	8,075	575.14	0.04	0.04	0.00
60.00	0.00	7,803	575.13	0.04	0.04	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

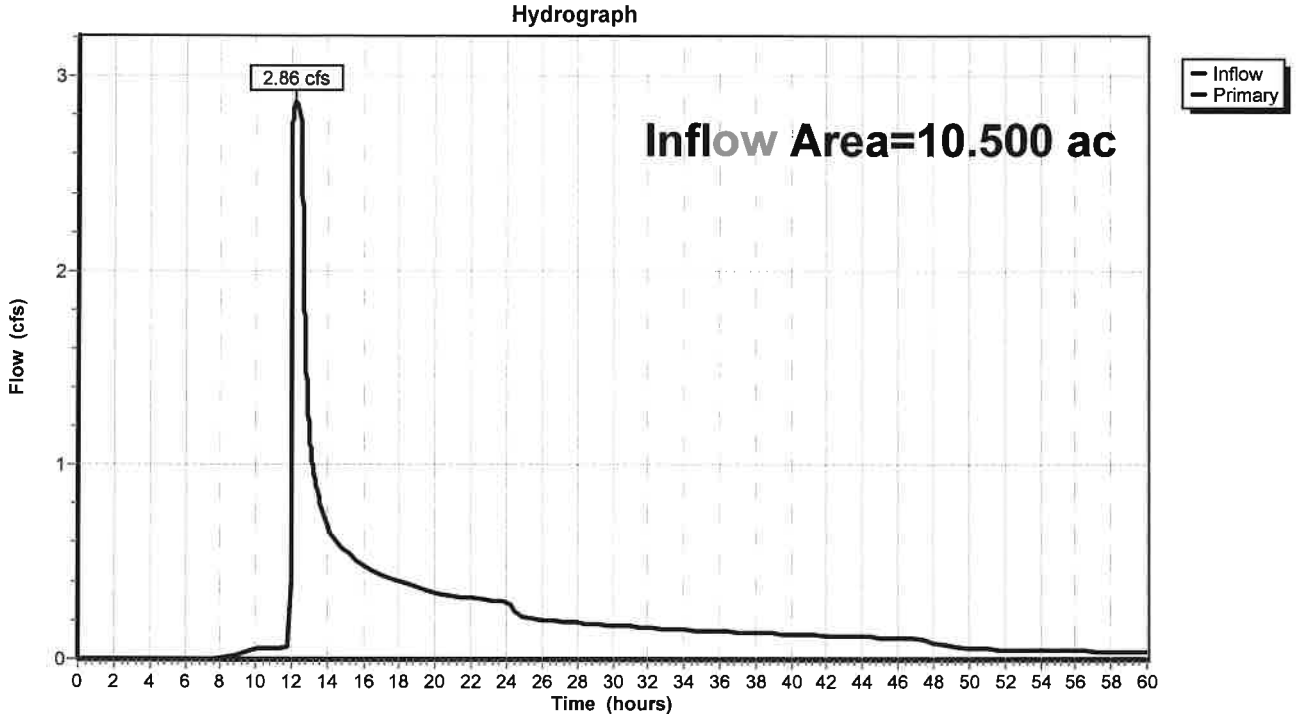
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.09" for 2-Year event
Inflow = 2.86 cfs @ 12.23 hrs, Volume= 0.956 af
Primary = 2.86 cfs @ 12.23 hrs, Volume= 0.956 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.05	0.00	0.05
1.00	0.00	0.00	0.00	53.00	0.05	0.00	0.05
2.00	0.00	0.00	0.00	54.00	0.04	0.00	0.04
3.00	0.00	0.00	0.00	55.00	0.04	0.00	0.04
4.00	0.00	0.00	0.00	56.00	0.04	0.00	0.04
5.00	0.00	0.00	0.00	57.00	0.04	0.00	0.04
6.00	0.00	0.00	0.00	58.00	0.04	0.00	0.04
7.00	0.00	0.00	0.00	59.00	0.04	0.00	0.04
8.00	0.00	0.00	0.00	60.00	0.04	0.00	0.04
9.00	0.02	0.00	0.02				
10.00	0.05	0.00	0.05				
11.00	0.05	0.00	0.05				
12.00	**2.31**	0.00	**2.31**				
13.00	**1.18**	0.00	**1.18**				
14.00	0.69	0.00	0.69				
15.00	0.55	0.00	0.55				
16.00	0.48	0.00	0.48				
17.00	0.43	0.00	0.43				
18.00	0.40	0.00	0.40				
19.00	0.37	0.00	0.37				
20.00	0.34	0.00	0.34				
21.00	0.32	0.00	0.32				
22.00	0.31	0.00	0.31				
23.00	0.30	0.00	0.30				
24.00	0.29	0.00	0.29				
25.00	0.21	0.00	0.21				
26.00	0.20	0.00	0.20				
27.00	0.19	0.00	0.19				
28.00	0.19	0.00	0.19				
29.00	0.18	0.00	0.18				
30.00	0.17	0.00	0.17				
31.00	0.17	0.00	0.17				
32.00	0.16	0.00	0.16				
33.00	0.16	0.00	0.16				
34.00	0.15	0.00	0.15				
35.00	0.15	0.00	0.15				
36.00	0.14	0.00	0.14				
37.00	0.14	0.00	0.14				
38.00	0.13	0.00	0.13				
39.00	0.13	0.00	0.13				
40.00	0.13	0.00	0.13				
41.00	0.12	0.00	0.12				
42.00	0.12	0.00	0.12				
43.00	0.12	0.00	0.12				
44.00	0.11	0.00	0.11				
45.00	0.11	0.00	0.11				
46.00	0.11	0.00	0.11				
47.00	0.11	0.00	0.11				
48.00	0.08	0.00	0.08				
49.00	0.06	0.00	0.06				
50.00	0.06	0.00	0.06				
51.00	0.05	0.00	0.05				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=1.71"
Flow Length=652' Tc=13.3 min CN=90 Runoff=14.18 cfs 0.870 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.79"
Flow Length=683' Tc=14.4 min CN=91 Runoff=10.29 cfs 0.658 af

Pond 1P: Bioretention Area 3 Peak Elev=575.99' Storage=9,153 cf Inflow=14.18 cfs 0.870 af
Primary=2.83 cfs 0.666 af Secondary=10.09 cfs 0.203 af Outflow=12.91 cfs 0.870 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.46' Storage=28,218 cf Inflow=20.08 cfs 0.861 af
Primary=0.33 cfs 0.652 af Secondary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.652 af

Link 5L: Outflow (@ CB 54) Inflow=3.01 cfs 1.318 af
Primary=3.01 cfs 1.318 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.527 af Average Runoff Depth = 1.75"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

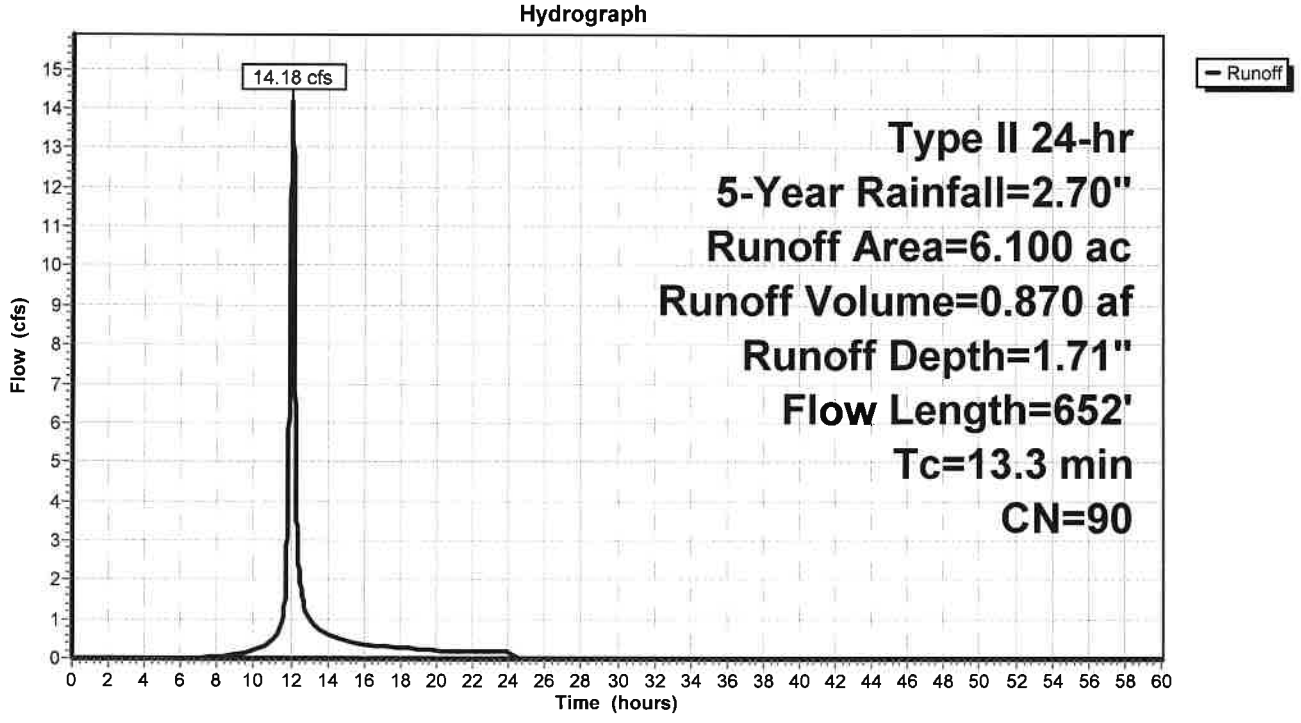
Runoff = 14.18 cfs @ 12.05 hrs, Volume= 0.870 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.02
8.00	0.32	0.01	0.05
9.00	0.40	0.02	0.12
10.00	0.49	0.05	0.20
11.00	0.63	0.11	0.47
12.00	1.79	0.92	**12.79**
13.00	2.08	1.17	**1.02**
14.00	2.21	1.28	0.59
15.00	2.30	1.36	0.46
16.00	2.38	1.42	0.36
17.00	2.43	1.47	0.31
18.00	2.49	1.52	0.27
19.00	2.53	1.56	0.24
20.00	2.57	1.59	0.20
21.00	2.60	1.62	0.19
22.00	2.64	1.65	0.18
23.00	2.67	1.68	0.17
24.00	**2.70**	**1.71**	0.17
25.00	2.70	1.71	0.00
26.00	2.70	1.71	0.00
27.00	2.70	1.71	0.00
28.00	2.70	1.71	0.00
29.00	2.70	1.71	0.00
30.00	2.70	1.71	0.00
31.00	2.70	1.71	0.00
32.00	2.70	1.71	0.00
33.00	2.70	1.71	0.00
34.00	2.70	1.71	0.00
35.00	2.70	1.71	0.00
36.00	2.70	1.71	0.00
37.00	2.70	1.71	0.00
38.00	2.70	1.71	0.00
39.00	2.70	1.71	0.00
40.00	2.70	1.71	0.00
41.00	2.70	1.71	0.00
42.00	2.70	1.71	0.00
43.00	2.70	1.71	0.00
44.00	2.70	1.71	0.00
45.00	2.70	1.71	0.00
46.00	2.70	1.71	0.00
47.00	2.70	1.71	0.00
48.00	2.70	1.71	0.00
49.00	2.70	1.71	0.00
50.00	2.70	1.71	0.00
51.00	2.70	1.71	0.00
52.00	2.70	1.71	0.00
53.00	2.70	1.71	0.00
54.00	2.70	1.71	0.00
55.00	2.70	1.71	0.00
56.00	2.70	1.71	0.00
57.00	2.70	1.71	0.00
58.00	2.70	1.71	0.00
59.00	2.70	1.71	0.00
60.00	2.70	1.71	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

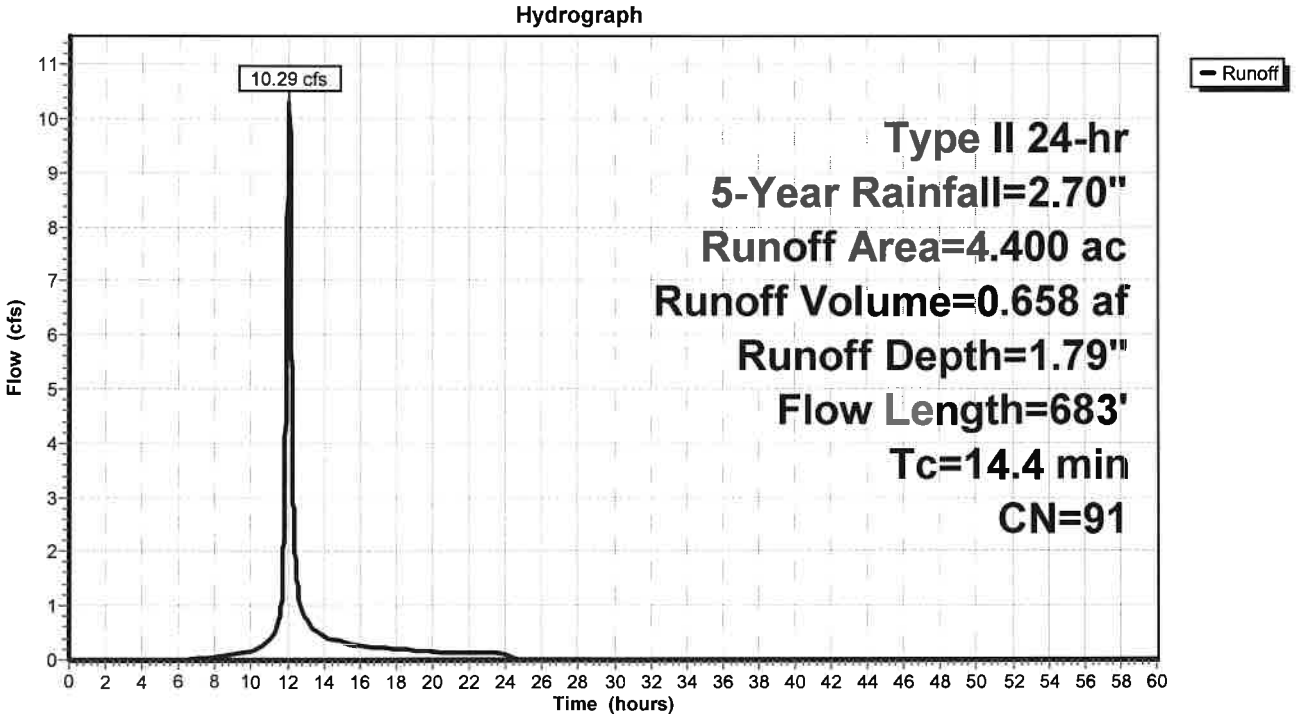
Runoff = 10.29 cfs @ 12.06 hrs, Volume= 0.658 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.03
8.00	0.32	0.01	0.05
9.00	0.40	0.03	0.10
10.00	0.49	0.07	0.17
11.00	0.63	0.13	0.37
12.00	1.79	0.98	**8.97**
13.00	2.08	1.24	**0.77**
14.00	2.21	1.35	0.44
15.00	2.30	1.43	0.34
16.00	2.38	1.50	0.27
17.00	2.43	1.55	0.23
18.00	2.49	1.60	0.20
19.00	2.53	1.64	0.18
20.00	2.57	1.67	0.15
21.00	2.60	1.71	0.14
22.00	2.64	1.74	0.13
23.00	2.67	1.77	0.13
24.00	**2.70**	**1.79**	0.12
25.00	2.70	1.79	0.00
26.00	2.70	1.79	0.00
27.00	2.70	1.79	0.00
28.00	2.70	1.79	0.00
29.00	2.70	1.79	0.00
30.00	2.70	1.79	0.00
31.00	2.70	1.79	0.00
32.00	2.70	1.79	0.00
33.00	2.70	1.79	0.00
34.00	2.70	1.79	0.00
35.00	2.70	1.79	0.00
36.00	2.70	1.79	0.00
37.00	2.70	1.79	0.00
38.00	2.70	1.79	0.00
39.00	2.70	1.79	0.00
40.00	2.70	1.79	0.00
41.00	2.70	1.79	0.00
42.00	2.70	1.79	0.00
43.00	2.70	1.79	0.00
44.00	2.70	1.79	0.00
45.00	2.70	1.79	0.00
46.00	2.70	1.79	0.00
47.00	2.70	1.79	0.00
48.00	2.70	1.79	0.00
49.00	2.70	1.79	0.00
50.00	2.70	1.79	0.00
51.00	2.70	1.79	0.00
52.00	2.70	1.79	0.00
53.00	2.70	1.79	0.00
54.00	2.70	1.79	0.00
55.00	2.70	1.79	0.00
56.00	2.70	1.79	0.00
57.00	2.70	1.79	0.00
58.00	2.70	1.79	0.00
59.00	2.70	1.79	0.00
60.00	2.70	1.79	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 1.71" for 5-Year event
Inflow = 14.18 cfs @ 12.05 hrs, Volume= 0.870 af
Outflow = 12.91 cfs @ 12.10 hrs, Volume= 0.870 af, Atten= 9%, Lag= 2.9 min
Primary = 2.83 cfs @ 12.10 hrs, Volume= 0.666 af
Secondary = 10.09 cfs @ 12.10 hrs, Volume= 0.203 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.99' @ 12.10 hrs Surf.Area= 9,908 sf Storage= 9,153 cf

Plug-Flow detention time= 193.1 min calculated for 0.869 af (100% of inflow)
Center-of-Mass det. time= 193.4 min (1,010.7 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

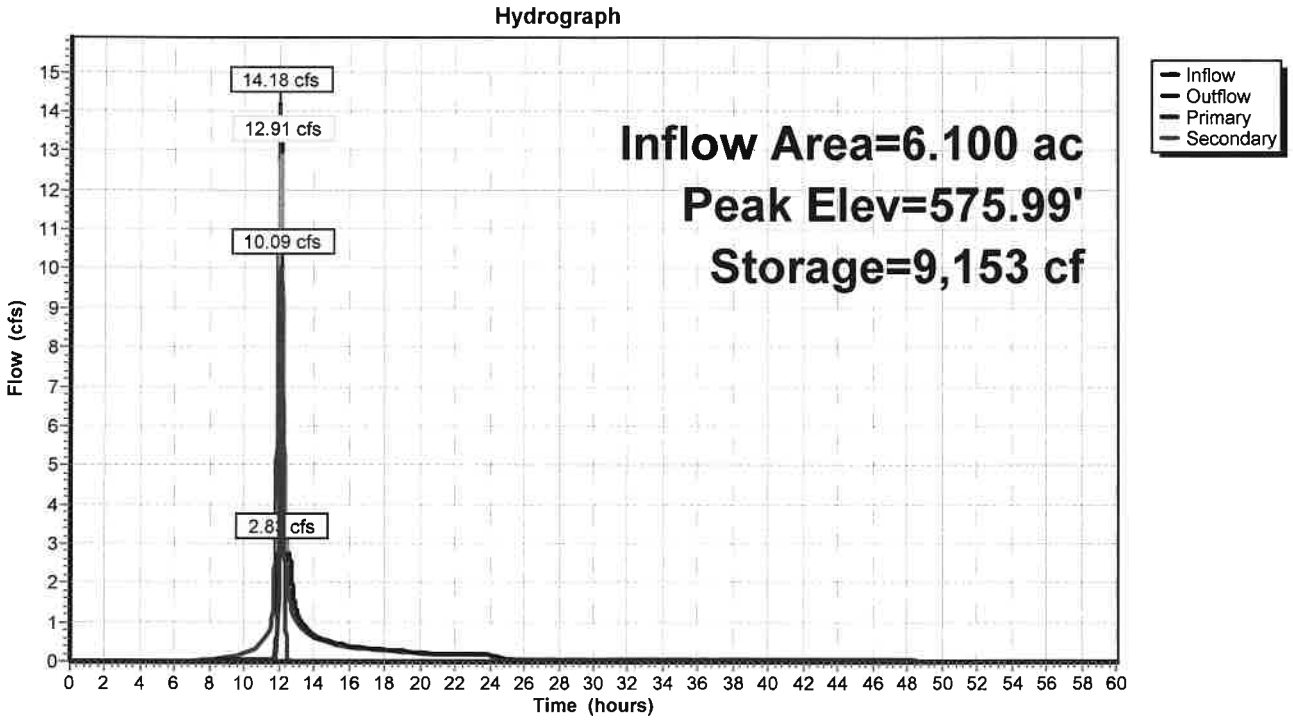
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.83 cfs @ 12.10 hrs HW=575.99' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.83 cfs @ 8.10 fps)
  ├**2=Grate** (Passes < 4.69 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

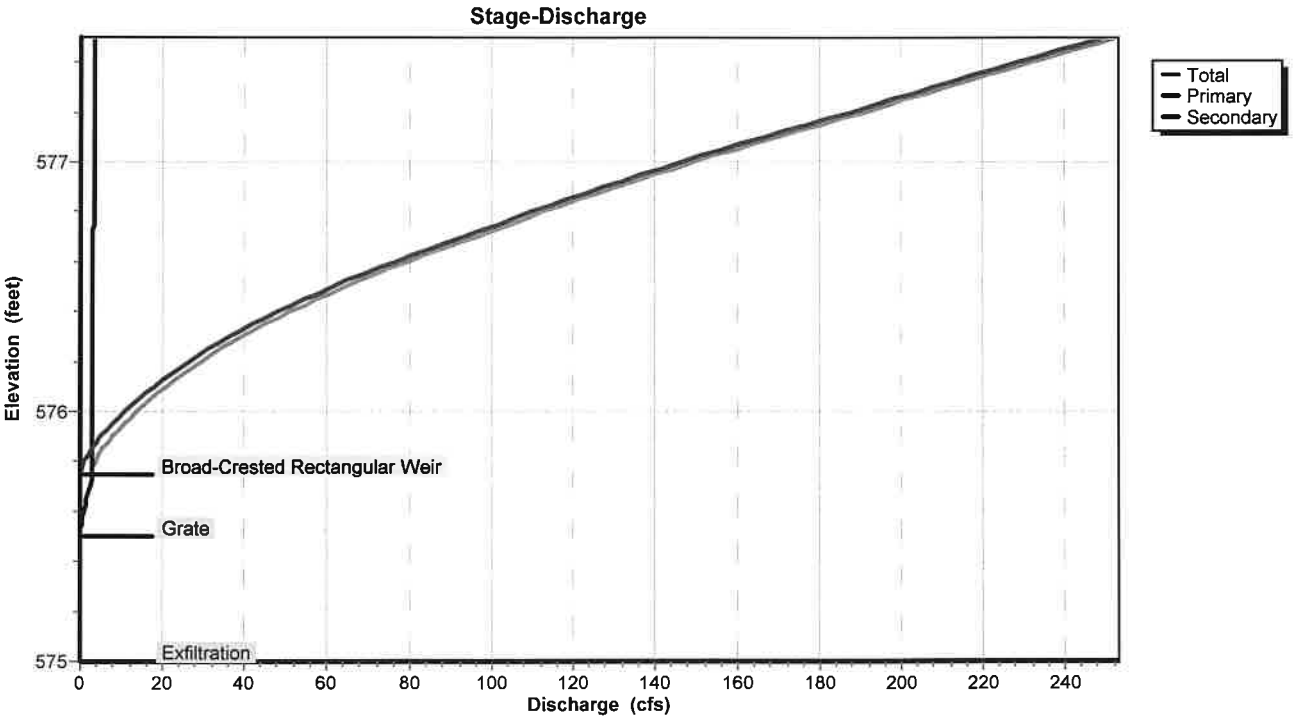
Secondary OutFlow Max=10.07 cfs @ 12.10 hrs HW=575.99' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 10.07 cfs @ 1.42 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

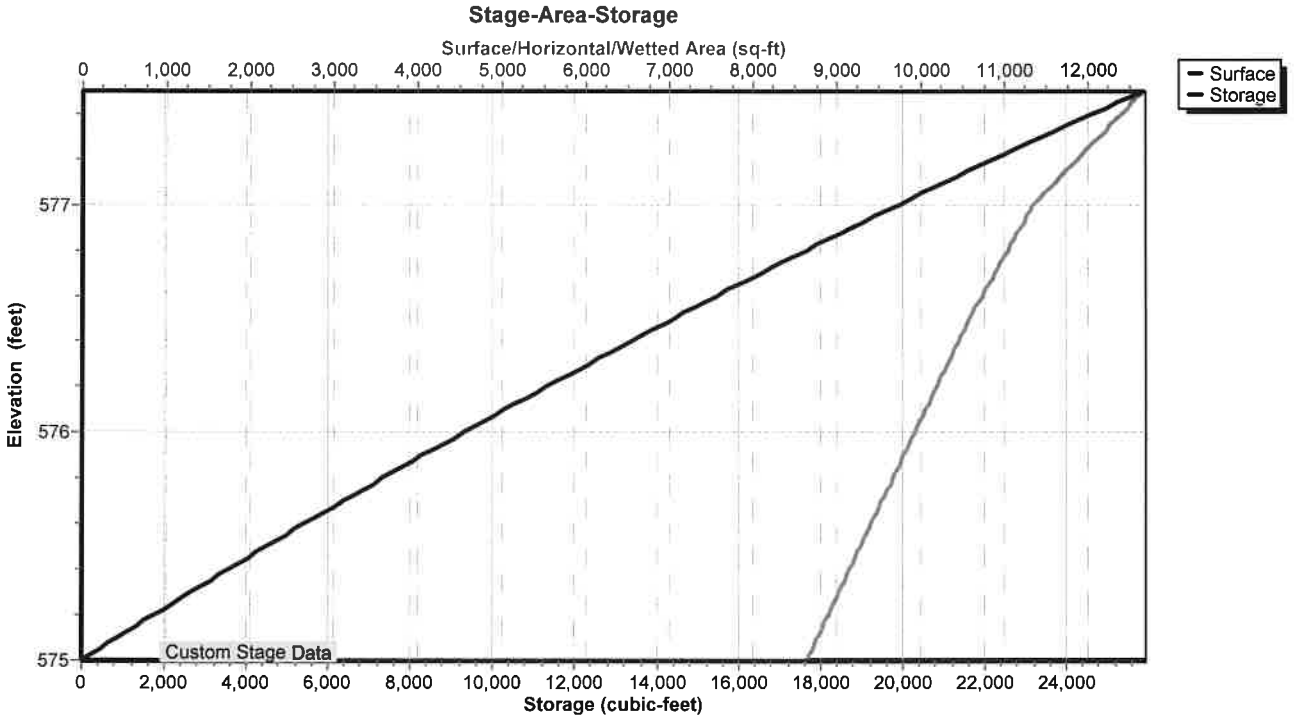


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.05	99	575.01	0.02	0.02	0.00
10.00	0.20	617	575.07	0.05	0.05	0.00
12.00	**12.79**	**8,183**	**575.89**	**7.28**	**2.78**	**4.50**
14.00	**0.59**	**5,218**	**575.58**	**0.66**	**0.66**	**0.00**
16.00	0.36	4,969	575.55	0.38	0.38	0.00
18.00	0.27	4,859	575.54	0.29	0.29	0.00
20.00	0.20	4,774	575.53	0.21	0.21	0.00
22.00	0.18	4,739	575.53	0.18	0.18	0.00
24.00	0.17	4,722	575.53	0.17	0.17	0.00
26.00	0.00	4,258	575.48	0.06	0.06	0.00
28.00	0.00	3,862	575.43	0.05	0.05	0.00
30.00	0.00	3,470	575.39	0.05	0.05	0.00
32.00	0.00	3,081	575.35	0.05	0.05	0.00
34.00	0.00	2,695	575.30	0.05	0.05	0.00
36.00	0.00	2,313	575.26	0.05	0.05	0.00
38.00	0.00	1,934	575.22	0.05	0.05	0.00
40.00	0.00	1,558	575.18	0.05	0.05	0.00
42.00	0.00	1,186	575.14	0.05	0.05	0.00
44.00	0.00	816	575.09	0.05	0.05	0.00
46.00	0.00	450	575.05	0.05	0.05	0.00
48.00	0.00	119	575.01	0.03	0.03	0.00
50.00	0.00	22	575.00	0.01	0.01	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 2.35" for 5-Year event
Inflow = 20.08 cfs @ 12.08 hrs, Volume= 0.861 af
Outflow = 0.33 cfs @ 15.13 hrs, Volume= 0.652 af, Atten= 98%, Lag= 182.5 min
Primary = 0.33 cfs @ 15.13 hrs, Volume= 0.652 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.46' @ 15.13 hrs Surf.Area= 62,747 sf Storage= 28,218 cf

Plug-Flow detention time= 974.3 min calculated for 0.652 af (76% of inflow)
Center-of-Mass det. time= 898.6 min (1,692.2 - 793.6)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

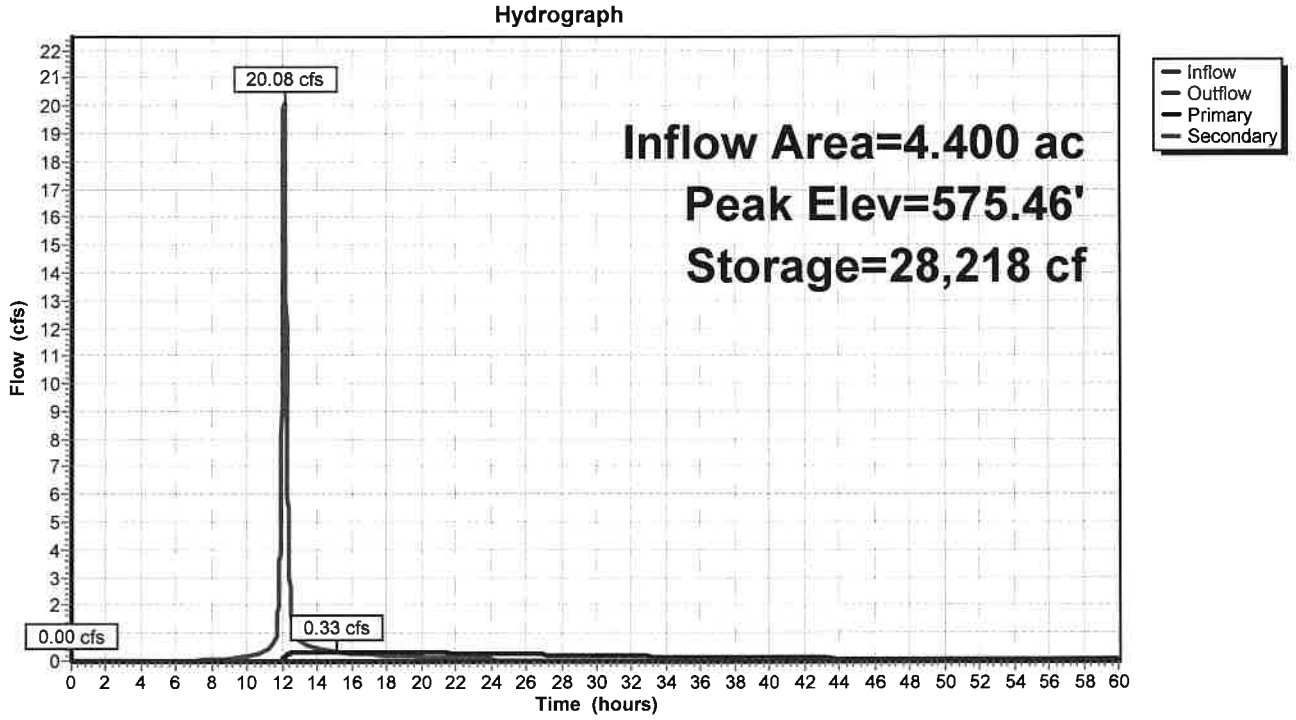
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.33 cfs @ 15.13 hrs HW=575.46' (Free Discharge)
↑└─**1=12" outlet pipe** (Passes 0.33 cfs of 2.02 cfs potential flow)
  ↑└─**2=low flow outlet pipe** (Barrel Controls 0.33 cfs @ 2.27 fps)
  └─**3=Grate** (Controls 0.00 cfs)

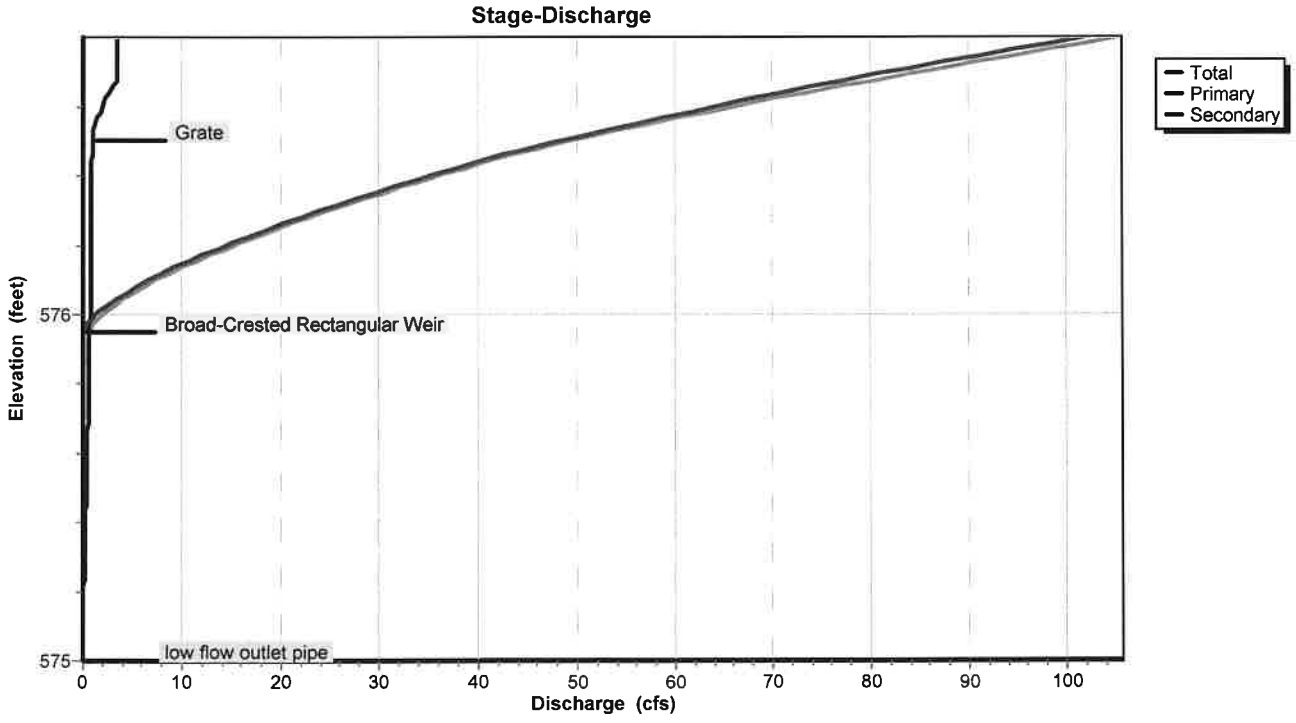
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
↑└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

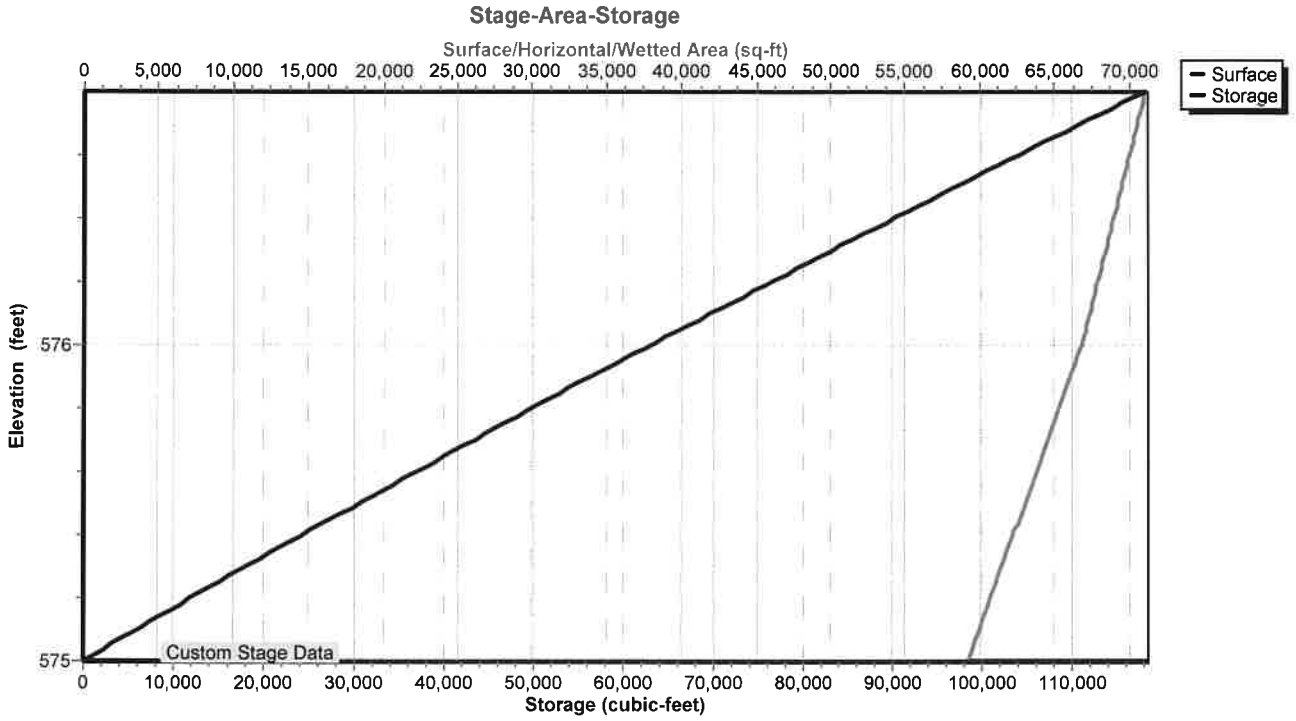


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	1	575.00	0.00	0.00	0.00
8.00	0.05	186	575.00	0.00	0.00	0.00
10.00	0.17	912	575.02	0.00	0.00	0.00
12.00	**13.47**	8,186	575.14	0.04	0.04	0.00
14.00	**0.44**	**28,034**	**575.46**	**0.33**	**0.33**	0.00
16.00	0.27	**28,118**	**575.46**	**0.33**	**0.33**	0.00
18.00	0.20	27,442	575.45	0.32	0.32	0.00
20.00	0.15	26,479	575.43	0.30	0.30	0.00
22.00	0.13	25,382	575.42	0.28	0.28	0.00
24.00	0.12	24,337	575.40	0.26	0.26	0.00
26.00	0.00	22,633	575.37	0.24	0.24	0.00
28.00	0.00	21,033	575.35	0.21	0.21	0.00
30.00	0.00	19,609	575.32	0.19	0.19	0.00
32.00	0.00	18,338	575.30	0.17	0.17	0.00
34.00	0.00	17,199	575.29	0.15	0.15	0.00
36.00	0.00	16,175	575.27	0.13	0.13	0.00
38.00	0.00	15,251	575.25	0.12	0.12	0.00
40.00	0.00	14,415	575.24	0.11	0.11	0.00
42.00	0.00	13,655	575.23	0.10	0.10	0.00
44.00	0.00	12,964	575.22	0.09	0.09	0.00
46.00	0.00	12,331	575.21	0.08	0.08	0.00
48.00	0.00	11,752	575.20	0.08	0.08	0.00
50.00	0.00	11,220	575.19	0.07	0.07	0.00
52.00	0.00	10,729	575.18	0.07	0.07	0.00
54.00	0.00	10,276	575.17	0.06	0.06	0.00
56.00	0.00	9,856	575.16	0.06	0.06	0.00
58.00	0.00	9,467	575.16	0.05	0.05	0.00
60.00	0.00	9,105	575.15	0.05	0.05	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

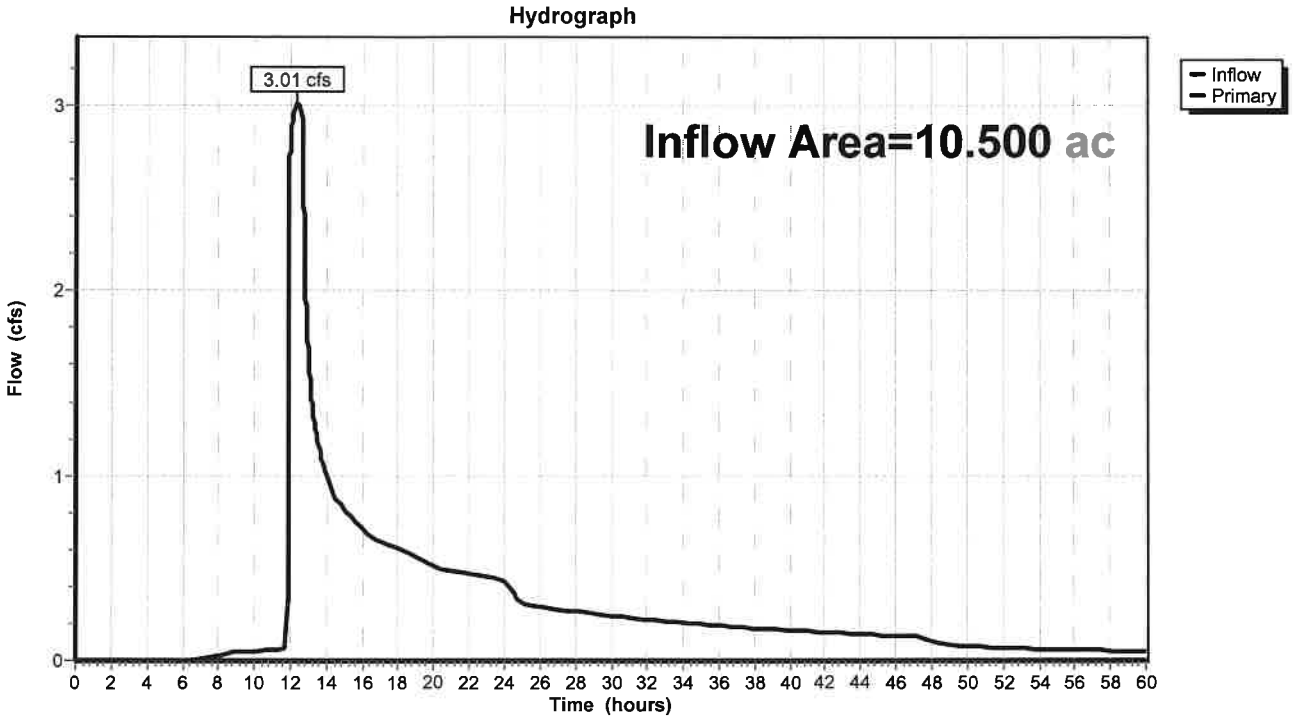
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.51" for 5-Year event
Inflow = 3.01 cfs @ 12.34 hrs, Volume= 1.318 af
Primary = 3.01 cfs @ 12.34 hrs, Volume= 1.318 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.07	0.00	0.07
1.00	0.00	0.00	0.00	53.00	0.06	0.00	0.06
2.00	0.00	0.00	0.00	54.00	0.06	0.00	0.06
3.00	0.00	0.00	0.00	55.00	0.06	0.00	0.06
4.00	0.00	0.00	0.00	56.00	0.06	0.00	0.06
5.00	0.00	0.00	0.00	57.00	0.05	0.00	0.05
6.00	0.00	0.00	0.00	58.00	0.05	0.00	0.05
7.00	0.00	0.00	0.00	59.00	0.05	0.00	0.05
8.00	0.02	0.00	0.02	60.00	0.05	0.00	0.05
9.00	0.05	0.00	0.05				
10.00	0.05	0.00	0.05				
11.00	0.05	0.00	0.05				
12.00	**2.82**	0.00	**2.82**				
13.00	**1.62**	0.00	**1.62**				
14.00	0.99	0.00	0.99				
15.00	0.81	0.00	0.81				
16.00	0.71	0.00	0.71				
17.00	0.65	0.00	0.65				
18.00	0.60	0.00	0.60				
19.00	0.56	0.00	0.56				
20.00	0.51	0.00	0.51				
21.00	0.48	0.00	0.48				
22.00	0.47	0.00	0.47				
23.00	0.45	0.00	0.45				
24.00	0.43	0.00	0.43				
25.00	0.31	0.00	0.31				
26.00	0.29	0.00	0.29				
27.00	0.28	0.00	0.28				
28.00	0.26	0.00	0.26				
29.00	0.25	0.00	0.25				
30.00	0.24	0.00	0.24				
31.00	0.23	0.00	0.23				
32.00	0.22	0.00	0.22				
33.00	0.21	0.00	0.21				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.19	0.00	0.19				
37.00	0.18	0.00	0.18				
38.00	0.17	0.00	0.17				
39.00	0.17	0.00	0.17				
40.00	0.16	0.00	0.16				
41.00	0.16	0.00	0.16				
42.00	0.15	0.00	0.15				
43.00	0.15	0.00	0.15				
44.00	0.14	0.00	0.14				
45.00	0.14	0.00	0.14				
46.00	0.13	0.00	0.13				
47.00	0.13	0.00	0.13				
48.00	0.10	0.00	0.10				
49.00	0.09	0.00	0.09				
50.00	0.08	0.00	0.08				
51.00	0.07	0.00	0.07				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=2.12"
Flow Length=652' Tc=13.3 min CN=90 Runoff=17.46 cfs 1.079 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=2.21"
Flow Length=683' Tc=14.4 min CN=91 Runoff=12.59 cfs 0.811 af

Pond 1P: Bioretention Area 3 Peak Elev=576.04' Storage=9,672 cf Inflow=17.46 cfs 1.079 af
Primary=2.85 cfs 0.765 af Secondary=13.60 cfs 0.314 af Outflow=16.45 cfs 1.079 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.60' Storage=37,117 cf Inflow=26.01 cfs 1.125 af
Primary=0.47 cfs 0.892 af Secondary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.892 af

Link 5L: Outflow (@ CB 54) Inflow=3.16 cfs 1.657 af
Primary=3.16 cfs 1.657 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.890 af Average Runoff Depth = 2.16"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

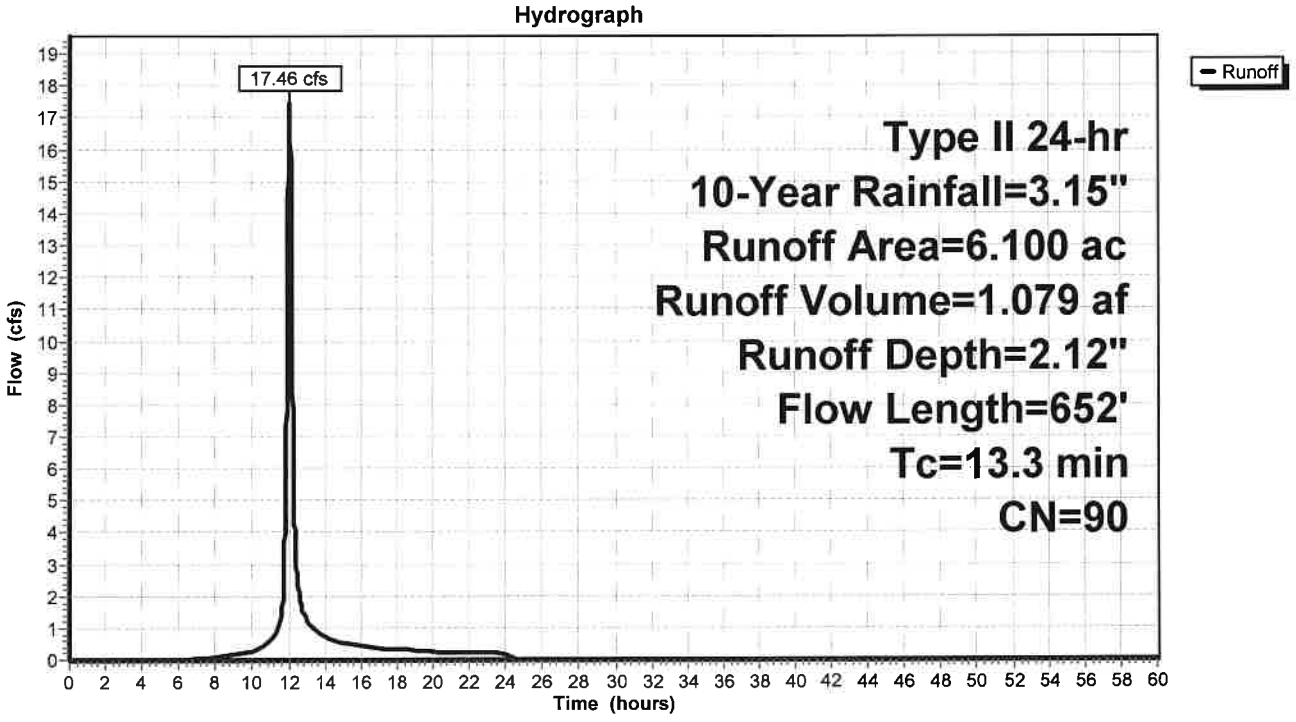
Runoff = 17.46 cfs @ 12.05 hrs, Volume= 1.079 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.01
7.00	0.31	0.01	0.05
8.00	0.38	0.02	0.09
9.00	0.46	0.04	0.18
10.00	0.57	0.08	0.28
11.00	0.74	0.16	0.63
12.00	2.09	1.17	**15.84**
13.00	2.43	1.47	**1.23**
14.00	2.58	1.61	0.71
15.00	2.69	1.70	0.55
16.00	2.77	1.78	0.43
17.00	2.84	1.84	0.37
18.00	2.90	1.89	0.33
19.00	2.95	1.94	0.28
20.00	3.00	1.98	0.24
21.00	3.04	2.02	0.22
22.00	3.08	2.06	0.22
23.00	3.11	2.09	0.21
24.00	**3.15**	**2.12**	0.20
25.00	3.15	2.12	0.00
26.00	3.15	2.12	0.00
27.00	3.15	2.12	0.00
28.00	3.15	2.12	0.00
29.00	3.15	2.12	0.00
30.00	3.15	2.12	0.00
31.00	3.15	2.12	0.00
32.00	3.15	2.12	0.00
33.00	3.15	2.12	0.00
34.00	3.15	2.12	0.00
35.00	3.15	2.12	0.00
36.00	3.15	2.12	0.00
37.00	3.15	2.12	0.00
38.00	3.15	2.12	0.00
39.00	3.15	2.12	0.00
40.00	3.15	2.12	0.00
41.00	3.15	2.12	0.00
42.00	3.15	2.12	0.00
43.00	3.15	2.12	0.00
44.00	3.15	2.12	0.00
45.00	3.15	2.12	0.00
46.00	3.15	2.12	0.00
47.00	3.15	2.12	0.00
48.00	3.15	2.12	0.00
49.00	3.15	2.12	0.00
50.00	3.15	2.12	0.00
51.00	3.15	2.12	0.00
52.00	3.15	2.12	0.00
53.00	3.15	2.12	0.00
54.00	3.15	2.12	0.00
55.00	3.15	2.12	0.00
56.00	3.15	2.12	0.00
57.00	3.15	2.12	0.00
58.00	3.15	2.12	0.00
59.00	3.15	2.12	0.00
60.00	3.15	2.12	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

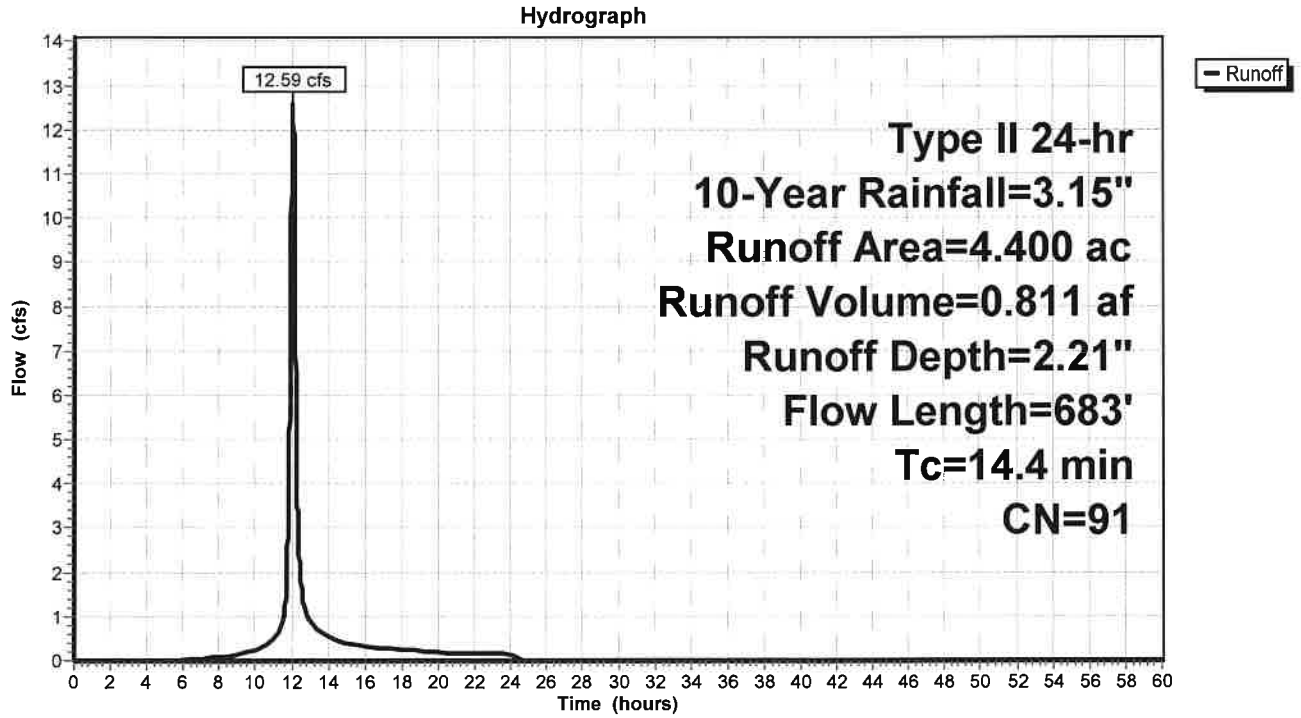
Runoff = 12.59 cfs @ 12.06 hrs, Volume= 0.811 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.02
7.00	0.31	0.01	0.05
8.00	0.38	0.03	0.08
9.00	0.46	0.06	0.15
10.00	0.57	0.10	0.23
11.00	0.74	0.19	0.49
12.00	2.09	1.24	**11.04**
13.00	2.43	1.55	**0.92**
14.00	2.58	1.69	0.53
15.00	2.69	1.78	0.40
16.00	2.77	1.86	0.32
17.00	2.84	1.92	0.27
18.00	2.90	1.98	0.24
19.00	2.95	2.03	0.21
20.00	3.00	2.07	0.18
21.00	3.04	2.11	0.16
22.00	3.08	2.14	0.16
23.00	3.11	2.18	0.15
24.00	**3.15**	**2.21**	0.15
25.00	3.15	2.21	0.00
26.00	3.15	2.21	0.00
27.00	3.15	2.21	0.00
28.00	3.15	2.21	0.00
29.00	3.15	2.21	0.00
30.00	3.15	2.21	0.00
31.00	3.15	2.21	0.00
32.00	3.15	2.21	0.00
33.00	3.15	2.21	0.00
34.00	3.15	2.21	0.00
35.00	3.15	2.21	0.00
36.00	3.15	2.21	0.00
37.00	3.15	2.21	0.00
38.00	3.15	2.21	0.00
39.00	3.15	2.21	0.00
40.00	3.15	2.21	0.00
41.00	3.15	2.21	0.00
42.00	3.15	2.21	0.00
43.00	3.15	2.21	0.00
44.00	3.15	2.21	0.00
45.00	3.15	2.21	0.00
46.00	3.15	2.21	0.00
47.00	3.15	2.21	0.00
48.00	3.15	2.21	0.00
49.00	3.15	2.21	0.00
50.00	3.15	2.21	0.00
51.00	3.15	2.21	0.00
52.00	3.15	2.21	0.00
53.00	3.15	2.21	0.00
54.00	3.15	2.21	0.00
55.00	3.15	2.21	0.00
56.00	3.15	2.21	0.00
57.00	3.15	2.21	0.00
58.00	3.15	2.21	0.00
59.00	3.15	2.21	0.00
60.00	3.15	2.21	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 2.12" for 10-Year event
Inflow = 17.46 cfs @ 12.05 hrs, Volume= 1.079 af
Outflow = 16.45 cfs @ 12.09 hrs, Volume= 1.079 af, Atten= 6%, Lag= 2.3 min
Primary = 2.85 cfs @ 12.09 hrs, Volume= 0.765 af
Secondary = 13.60 cfs @ 12.09 hrs, Volume= 0.314 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.04' @ 12.09 hrs Surf.Area= 9,976 sf Storage= 9,672 cf

Plug-Flow detention time= 160.8 min calculated for 1.079 af (100% of inflow)
Center-of-Mass det. time= 160.7 min (971.9 - 811.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

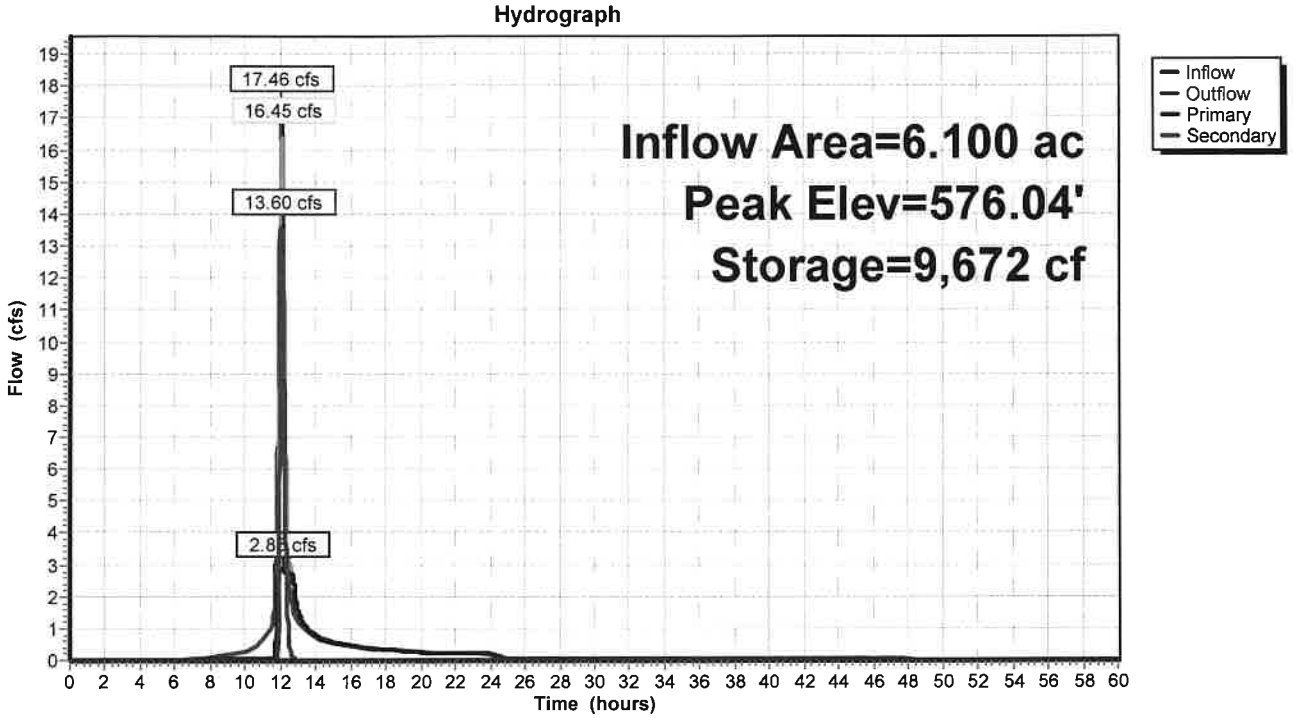
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.85 cfs @ 12.09 hrs HW=576.04' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.85 cfs @ 8.17 fps)
  ├**2=Grate** (Passes < 4.93 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

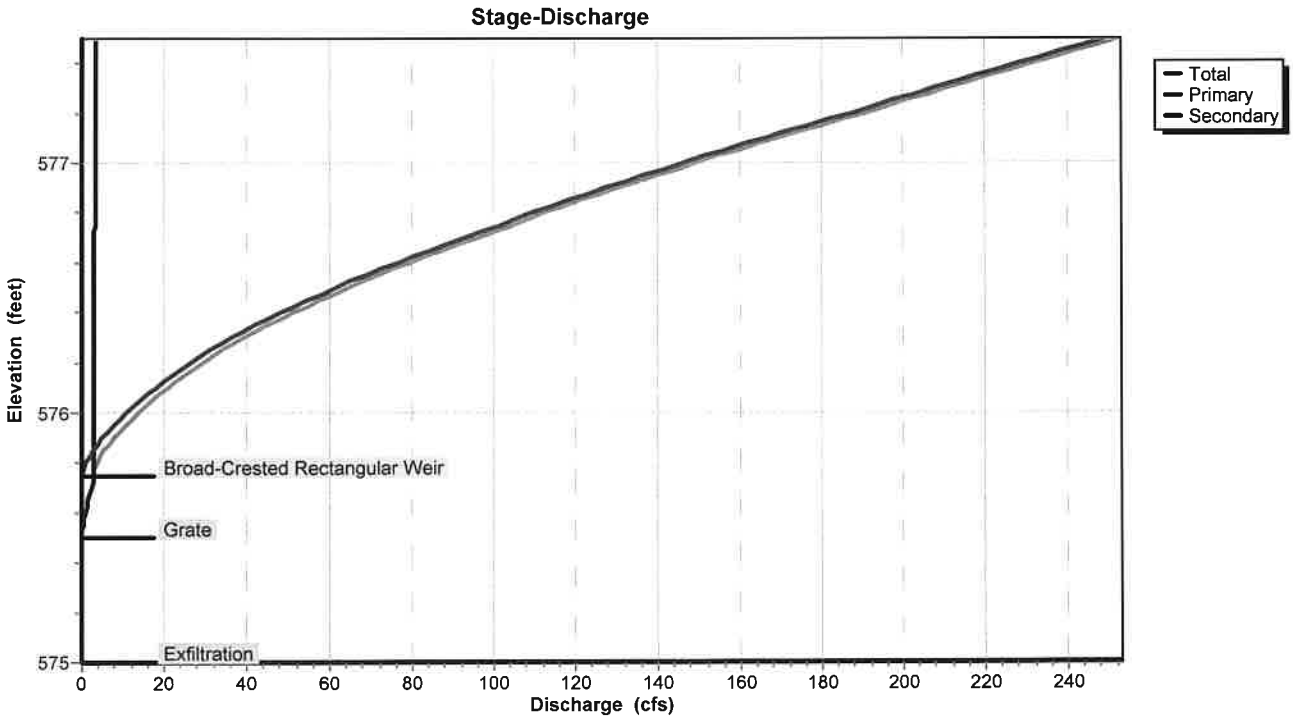
Secondary OutFlow Max=13.58 cfs @ 12.09 hrs HW=576.04' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 13.58 cfs @ 1.57 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

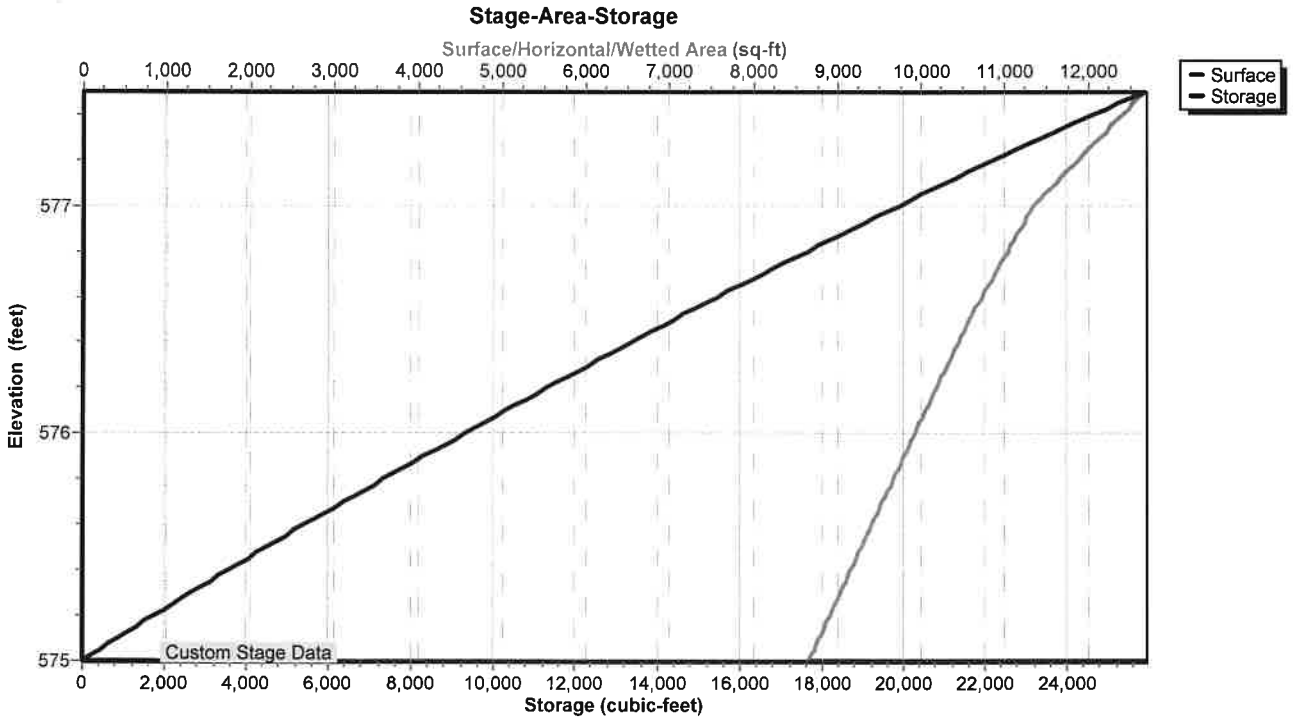


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.01	6	575.00	0.00	0.00	0.00
8.00	0.09	207	575.02	0.05	0.05	0.00
10.00	0.28	1,102	575.13	0.05	0.05	0.00
12.00	**15.84**	**9,006**	**575.97**	**11.97**	**2.82**	**9.15**
14.00	**0.71**	**5,320**	**575.59**	**0.79**	**0.79**	**0.00**
16.00	0.43	5,039	575.56	0.46	0.46	0.00
18.00	0.33	4,925	575.55	0.34	0.34	0.00
20.00	0.24	4,823	575.54	0.25	0.25	0.00
22.00	0.22	4,781	575.53	0.22	0.22	0.00
24.00	0.20	4,760	575.53	0.20	0.20	0.00
26.00	0.00	4,270	575.48	0.06	0.06	0.00
28.00	0.00	3,874	575.43	0.05	0.05	0.00
30.00	0.00	3,482	575.39	0.05	0.05	0.00
32.00	0.00	3,093	575.35	0.05	0.05	0.00
34.00	0.00	2,707	575.31	0.05	0.05	0.00
36.00	0.00	2,324	575.26	0.05	0.05	0.00
38.00	0.00	1,945	575.22	0.05	0.05	0.00
40.00	0.00	1,569	575.18	0.05	0.05	0.00
42.00	0.00	1,197	575.14	0.05	0.05	0.00
44.00	0.00	828	575.10	0.05	0.05	0.00
46.00	0.00	461	575.05	0.05	0.05	0.00
48.00	0.00	126	575.01	0.03	0.03	0.00
50.00	0.00	24	575.00	0.01	0.01	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 3.07" for 10-Year event
Inflow = 26.01 cfs @ 12.08 hrs, Volume= 1.125 af
Outflow = 0.47 cfs @ 14.32 hrs, Volume= 0.892 af, Atten= 98%, Lag= 134.6 min
Primary = 0.47 cfs @ 14.32 hrs, Volume= 0.892 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.60' @ 14.32 hrs Surf.Area= 63,820 sf Storage= 37,117 cf

Plug-Flow detention time= 942.6 min calculated for 0.892 af (79% of inflow)
Center-of-Mass det. time= 874.9 min (1,660.4 - 785.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

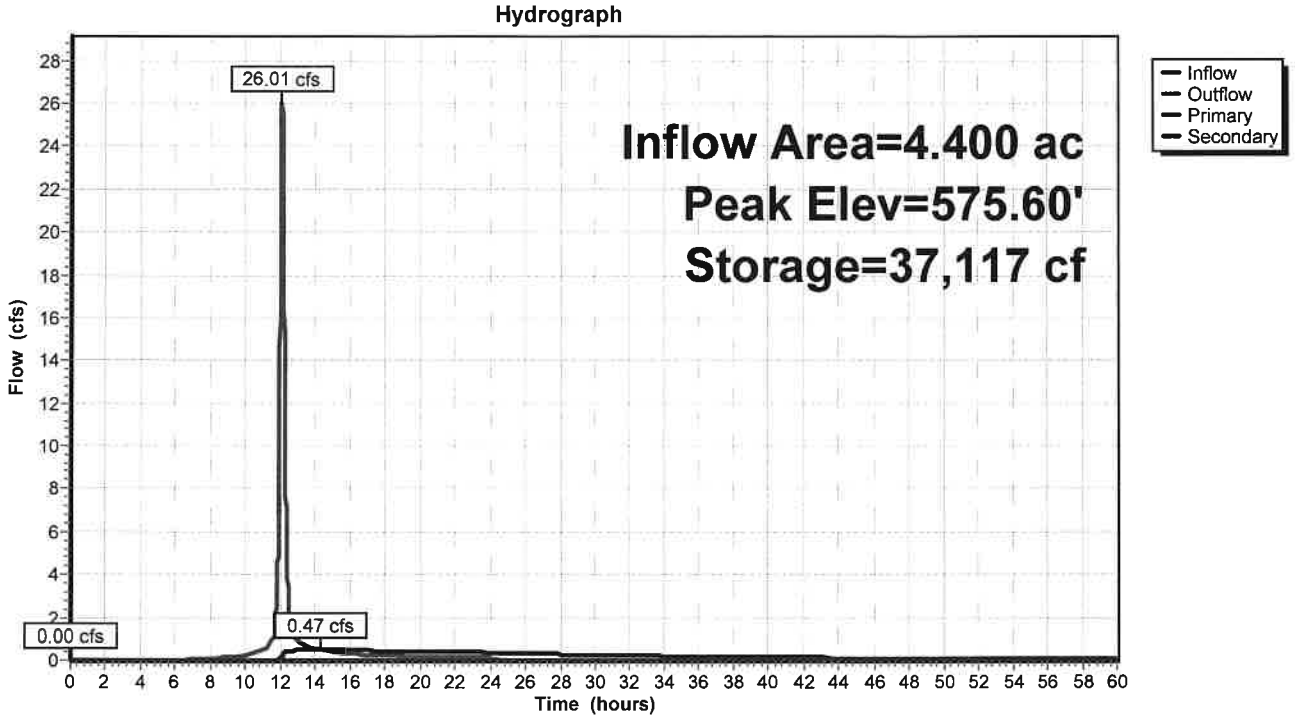
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.47 cfs @ 14.32 hrs HW=575.60' (Free Discharge)
└**1=12" outlet pipe** (Passes 0.47 cfs of 2.23 cfs potential flow)
  ├**2=low flow outlet pipe** (Barrel Controls 0.47 cfs @ 2.50 fps)
  └**3=Grate** (Controls 0.00 cfs)

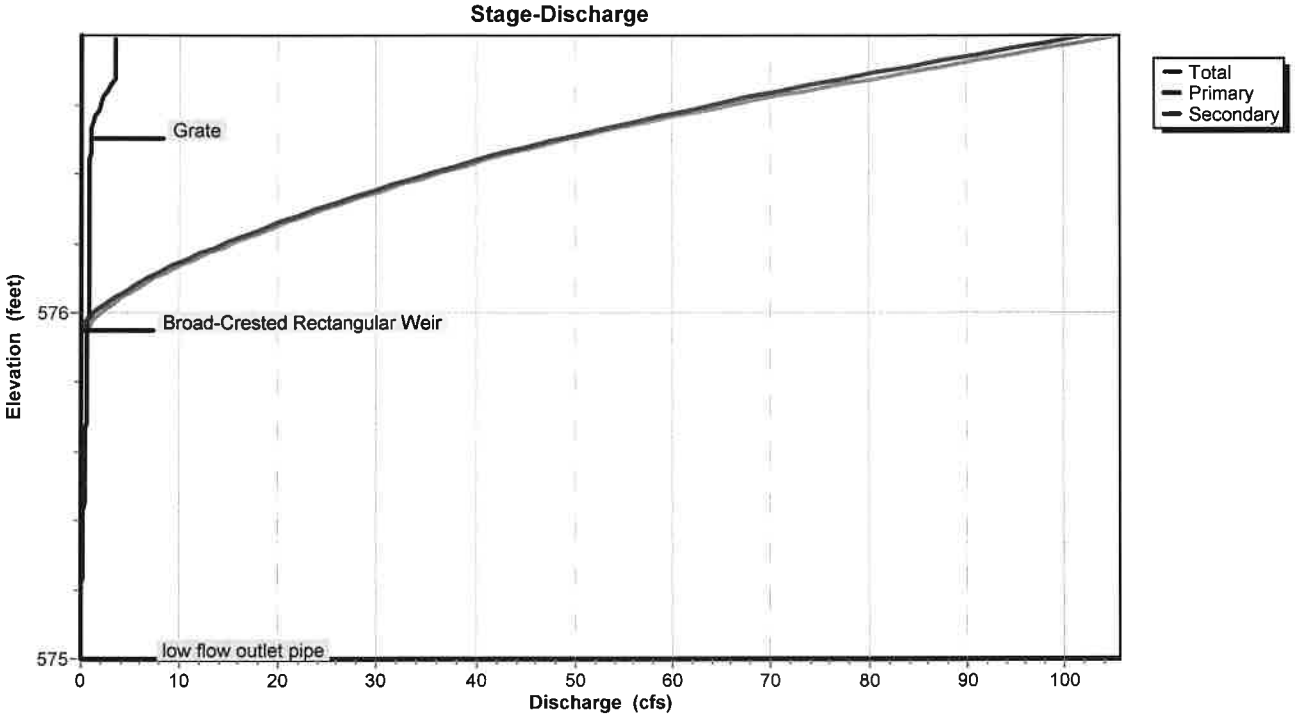
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

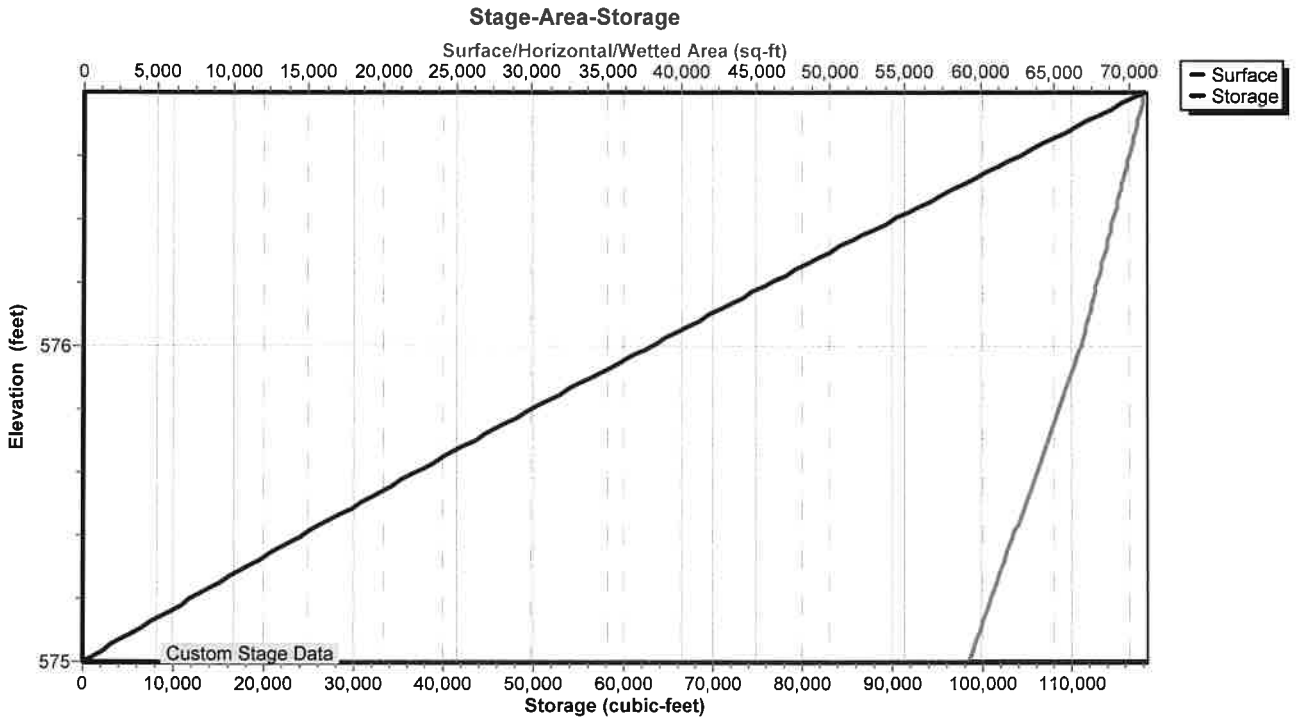


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.02	28	575.00	0.00	0.00	0.00
8.00	0.08	376	575.01	0.00	0.00	0.00
10.00	0.23	1,427	575.02	0.00	0.00	0.00
12.00	**20.19**	11,922	575.20	0.08	0.08	0.00
14.00	**0.53**	**37,087**	**575.60**	**0.47**	**0.47**	0.00
16.00	0.32	**36,669**	**575.60**	**0.46**	**0.46**	0.00
18.00	0.24	35,374	575.58	0.44	0.44	0.00
20.00	0.18	33,764	575.55	0.42	0.42	0.00
22.00	0.16	32,024	575.52	0.39	0.39	0.00
24.00	0.15	30,385	575.50	0.37	0.37	0.00
26.00	0.00	28,005	575.46	0.33	0.33	0.00
28.00	0.00	25,794	575.42	0.29	0.29	0.00
30.00	0.00	23,836	575.39	0.26	0.26	0.00
32.00	0.00	22,102	575.36	0.23	0.23	0.00
34.00	0.00	20,561	575.34	0.20	0.20	0.00
36.00	0.00	19,188	575.32	0.18	0.18	0.00
38.00	0.00	17,961	575.30	0.16	0.16	0.00
40.00	0.00	16,860	575.28	0.14	0.14	0.00
42.00	0.00	15,870	575.26	0.13	0.13	0.00
44.00	0.00	14,975	575.25	0.12	0.12	0.00
46.00	0.00	14,165	575.24	0.11	0.11	0.00
48.00	0.00	13,428	575.22	0.10	0.10	0.00
50.00	0.00	12,756	575.21	0.09	0.09	0.00
52.00	0.00	12,141	575.20	0.08	0.08	0.00
54.00	0.00	11,578	575.19	0.08	0.08	0.00
56.00	0.00	11,059	575.18	0.07	0.07	0.00
58.00	0.00	10,581	575.18	0.06	0.06	0.00
60.00	0.00	10,139	575.17	0.06	0.06	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

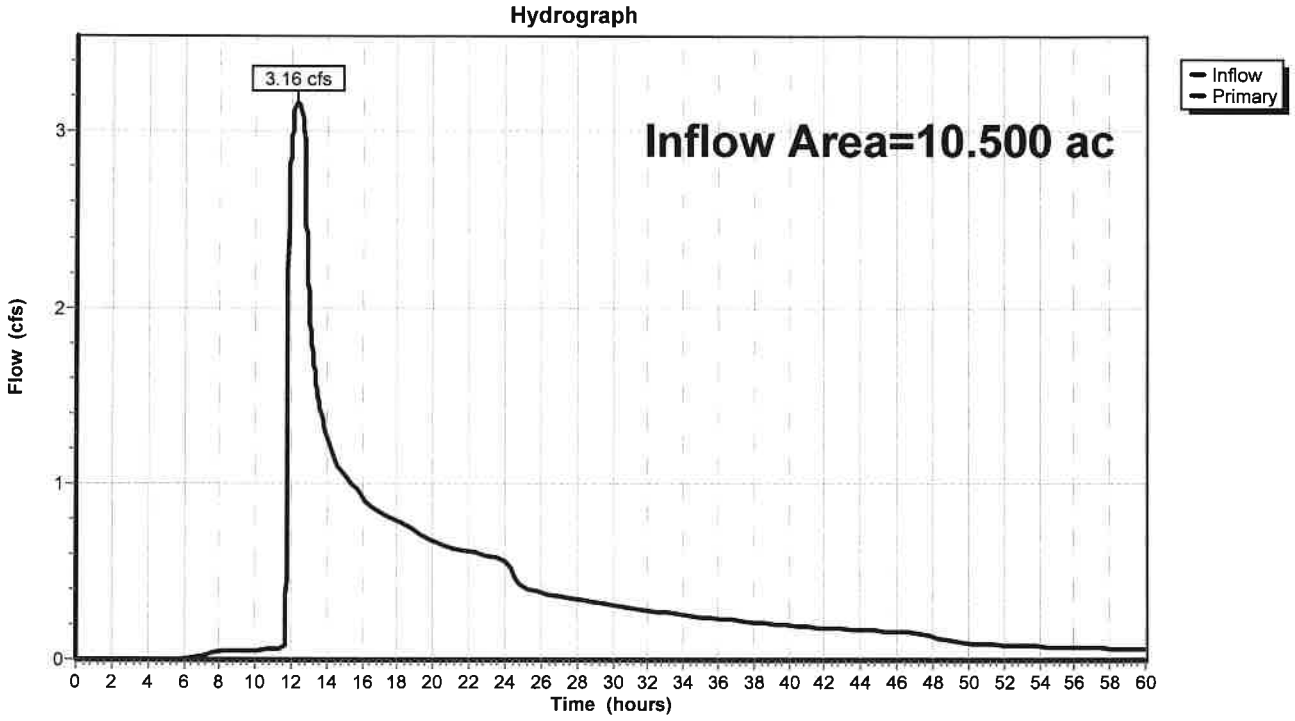
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.89" for 10-Year event
Inflow = 3.16 cfs @ 12.39 hrs, Volume= 1.657 af
Primary = 3.16 cfs @ 12.39 hrs, Volume= 1.657 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.08	0.00	0.08
1.00	0.00	0.00	0.00	53.00	0.08	0.00	0.08
2.00	0.00	0.00	0.00	54.00	0.08	0.00	0.08
3.00	0.00	0.00	0.00	55.00	0.07	0.00	0.07
4.00	0.00	0.00	0.00	56.00	0.07	0.00	0.07
5.00	0.00	0.00	0.00	57.00	0.07	0.00	0.07
6.00	0.00	0.00	0.00	58.00	0.06	0.00	0.06
7.00	0.02	0.00	0.02	59.00	0.06	0.00	0.06
8.00	0.05	0.00	0.05	60.00	0.06	0.00	0.06
9.00	0.05	0.00	0.05				
10.00	0.05	0.00	0.05				
11.00	0.06	0.00	0.06				
12.00	**2.90**	0.00	**2.90**				
13.00	**2.02**	0.00	**2.02**				
14.00	1.26	0.00	1.26				
15.00	1.05	0.00	1.05				
16.00	0.92	0.00	0.92				
17.00	0.84	0.00	0.84				
18.00	0.78	0.00	0.78				
19.00	0.73	0.00	0.73				
20.00	0.67	0.00	0.67				
21.00	0.63	0.00	0.63				
22.00	0.61	0.00	0.61				
23.00	0.59	0.00	0.59				
24.00	0.57	0.00	0.57				
25.00	0.40	0.00	0.40				
26.00	0.38	0.00	0.38				
27.00	0.36	0.00	0.36				
28.00	0.34	0.00	0.34				
29.00	0.33	0.00	0.33				
30.00	0.31	0.00	0.31				
31.00	0.29	0.00	0.29				
32.00	0.28	0.00	0.28				
33.00	0.27	0.00	0.27				
34.00	0.26	0.00	0.26				
35.00	0.24	0.00	0.24				
36.00	0.23	0.00	0.23				
37.00	0.22	0.00	0.22				
38.00	0.21	0.00	0.21				
39.00	0.20	0.00	0.20				
40.00	0.20	0.00	0.20				
41.00	0.19	0.00	0.19				
42.00	0.18	0.00	0.18				
43.00	0.18	0.00	0.18				
44.00	0.17	0.00	0.17				
45.00	0.16	0.00	0.16				
46.00	0.16	0.00	0.16				
47.00	0.15	0.00	0.15				
48.00	0.13	0.00	0.13				
49.00	0.11	0.00	0.11				
50.00	0.09	0.00	0.09				
51.00	0.09	0.00	0.09				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=2.80"
Flow Length=652' Tc=13.3 min CN=90 Runoff=22.74 cfs 1.421 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=2.89"
Flow Length=683' Tc=14.4 min CN=91 Runoff=16.27 cfs 1.061 af

Pond 1P: Bioretention Area 3 Peak Elev=576.11' Storage=10,375 cf Inflow=22.74 cfs 1.421 af
Primary=2.89 cfs 0.934 af Secondary=18.84 cfs 0.487 af Outflow=21.73 cfs 1.421 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.83' Storage=51,963 cf Inflow=34.94 cfs 1.548 af
Primary=0.64 cfs 1.276 af Secondary=0.00 cfs 0.000 af Outflow=0.64 cfs 1.276 af

Link 5L: Outflow (@ CB 54) Inflow=3.36 cfs 2.210 af
Primary=3.36 cfs 2.210 af

Total Runoff Area = 10.500 ac Runoff Volume = 2.482 af Average Runoff Depth = 2.84"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

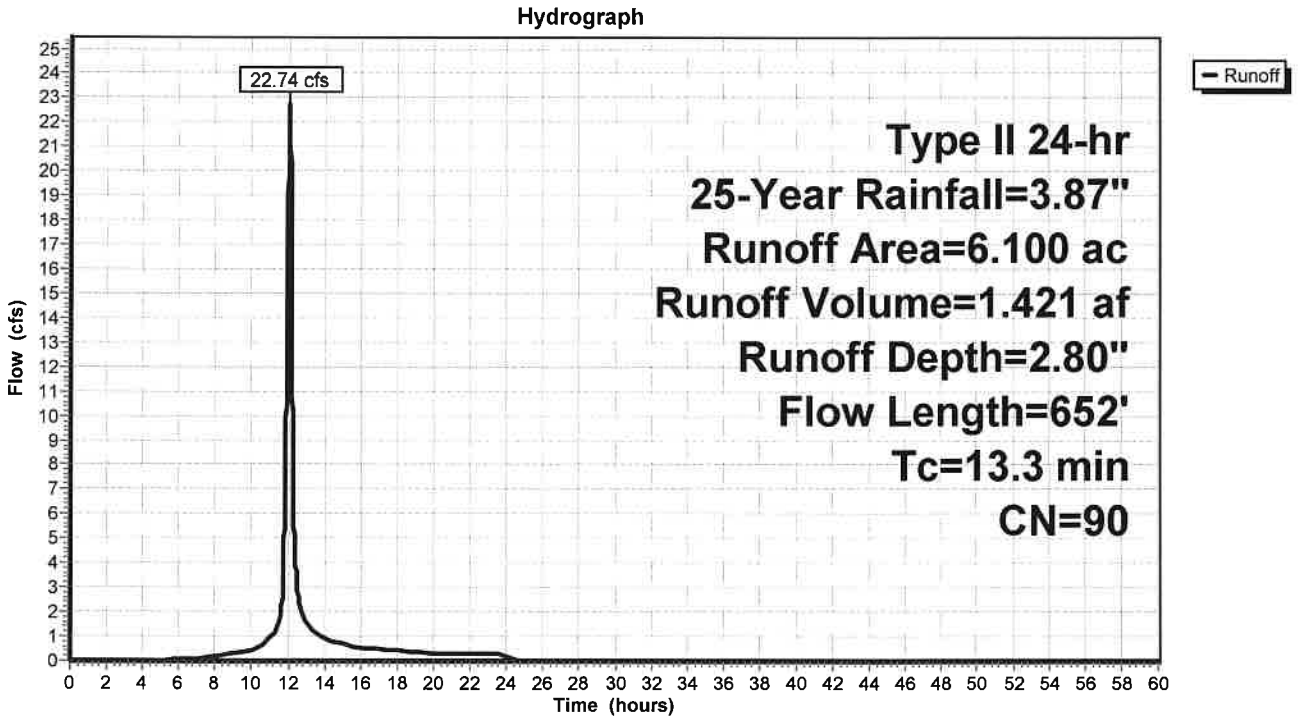
Runoff = 22.74 cfs @ 12.05 hrs, Volume= 1.421 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.01
6.00	0.31	0.01	0.05
7.00	0.38	0.02	0.10
8.00	0.46	0.04	0.16
9.00	0.57	0.08	0.28
10.00	0.70	0.14	0.43
11.00	0.91	0.26	0.90
12.00	2.57	1.59	**20.75**
13.00	2.99	1.97	**1.57**
14.00	3.17	2.14	0.90
15.00	3.30	2.26	0.70
16.00	3.41	2.36	0.54
17.00	3.49	2.44	0.47
18.00	3.56	2.51	0.41
19.00	3.63	2.57	0.36
20.00	3.68	2.62	0.30
21.00	3.73	2.67	0.28
22.00	3.78	2.71	0.27
23.00	3.83	2.75	0.26
24.00	**3.87**	**2.80**	0.25
25.00	3.87	2.80	0.00
26.00	3.87	2.80	0.00
27.00	3.87	2.80	0.00
28.00	3.87	2.80	0.00
29.00	3.87	2.80	0.00
30.00	3.87	2.80	0.00
31.00	3.87	2.80	0.00
32.00	3.87	2.80	0.00
33.00	3.87	2.80	0.00
34.00	3.87	2.80	0.00
35.00	3.87	2.80	0.00
36.00	3.87	2.80	0.00
37.00	3.87	2.80	0.00
38.00	3.87	2.80	0.00
39.00	3.87	2.80	0.00
40.00	3.87	2.80	0.00
41.00	3.87	2.80	0.00
42.00	3.87	2.80	0.00
43.00	3.87	2.80	0.00
44.00	3.87	2.80	0.00
45.00	3.87	2.80	0.00
46.00	3.87	2.80	0.00
47.00	3.87	2.80	0.00
48.00	3.87	2.80	0.00
49.00	3.87	2.80	0.00
50.00	3.87	2.80	0.00
51.00	3.87	2.80	0.00
52.00	3.87	2.80	0.00
53.00	3.87	2.80	0.00
54.00	3.87	2.80	0.00
55.00	3.87	2.80	0.00
56.00	3.87	2.80	0.00
57.00	3.87	2.80	0.00
58.00	3.87	2.80	0.00
59.00	3.87	2.80	0.00
60.00	3.87	2.80	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

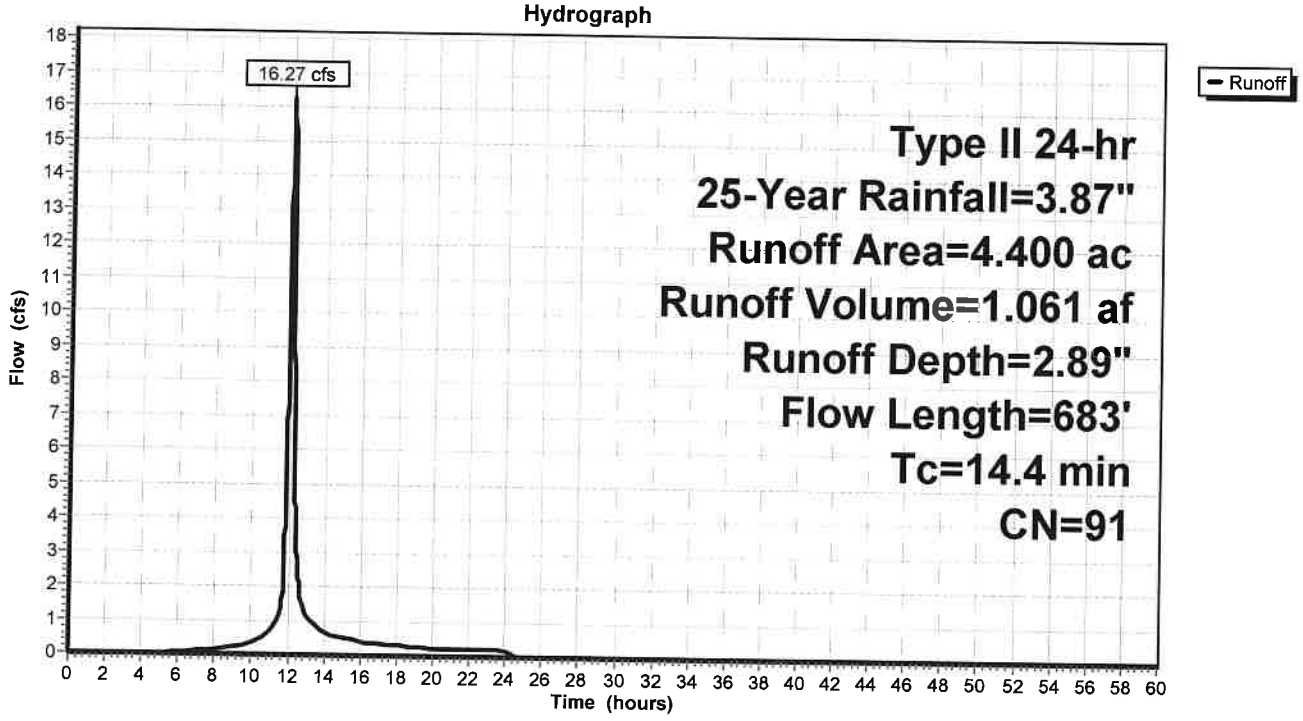
Runoff = 16.27 cfs @ 12.06 hrs, Volume= 1.061 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.02
6.00	0.31	0.01	0.05
7.00	0.38	0.03	0.09
8.00	0.46	0.06	0.13
9.00	0.57	0.10	0.23
10.00	0.70	0.17	0.34
11.00	0.91	0.30	0.69
12.00	2.57	1.67	**14.36**
13.00	2.99	2.06	**1.16**
14.00	3.17	2.23	0.67
15.00	3.30	2.36	0.51
16.00	3.41	2.45	0.40
17.00	3.49	2.53	0.34
18.00	3.56	2.60	0.30
19.00	3.63	2.66	0.26
20.00	3.68	2.72	0.22
21.00	3.73	2.76	0.21
22.00	3.78	2.81	0.20
23.00	3.83	2.85	0.19
24.00	**3.87**	**2.89**	0.18
25.00	3.87	2.89	0.00
26.00	3.87	2.89	0.00
27.00	3.87	2.89	0.00
28.00	3.87	2.89	0.00
29.00	3.87	2.89	0.00
30.00	3.87	2.89	0.00
31.00	3.87	2.89	0.00
32.00	3.87	2.89	0.00
33.00	3.87	2.89	0.00
34.00	3.87	2.89	0.00
35.00	3.87	2.89	0.00
36.00	3.87	2.89	0.00
37.00	3.87	2.89	0.00
38.00	3.87	2.89	0.00
39.00	3.87	2.89	0.00
40.00	3.87	2.89	0.00
41.00	3.87	2.89	0.00
42.00	3.87	2.89	0.00
43.00	3.87	2.89	0.00
44.00	3.87	2.89	0.00
45.00	3.87	2.89	0.00
46.00	3.87	2.89	0.00
47.00	3.87	2.89	0.00
48.00	3.87	2.89	0.00
49.00	3.87	2.89	0.00
50.00	3.87	2.89	0.00
51.00	3.87	2.89	0.00
52.00	3.87	2.89	0.00
53.00	3.87	2.89	0.00
54.00	3.87	2.89	0.00
55.00	3.87	2.89	0.00
56.00	3.87	2.89	0.00
57.00	3.87	2.89	0.00
58.00	3.87	2.89	0.00
59.00	3.87	2.89	0.00
60.00	3.87	2.89	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 2.80" for 25-Year event
Inflow = 22.74 cfs @ 12.05 hrs, Volume= 1.421 af
Outflow = 21.73 cfs @ 12.08 hrs, Volume= 1.421 af, Atten= 4%, Lag= 2.0 min
Primary = 2.89 cfs @ 12.08 hrs, Volume= 0.934 af
Secondary = 18.84 cfs @ 12.08 hrs, Volume= 0.487 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.11' @ 12.08 hrs Surf.Area= 10,069 sf Storage= 10,375 cf

Plug-Flow detention time= 127.9 min calculated for 1.421 af (100% of inflow)
Center-of-Mass det. time= 128.1 min (931.5 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

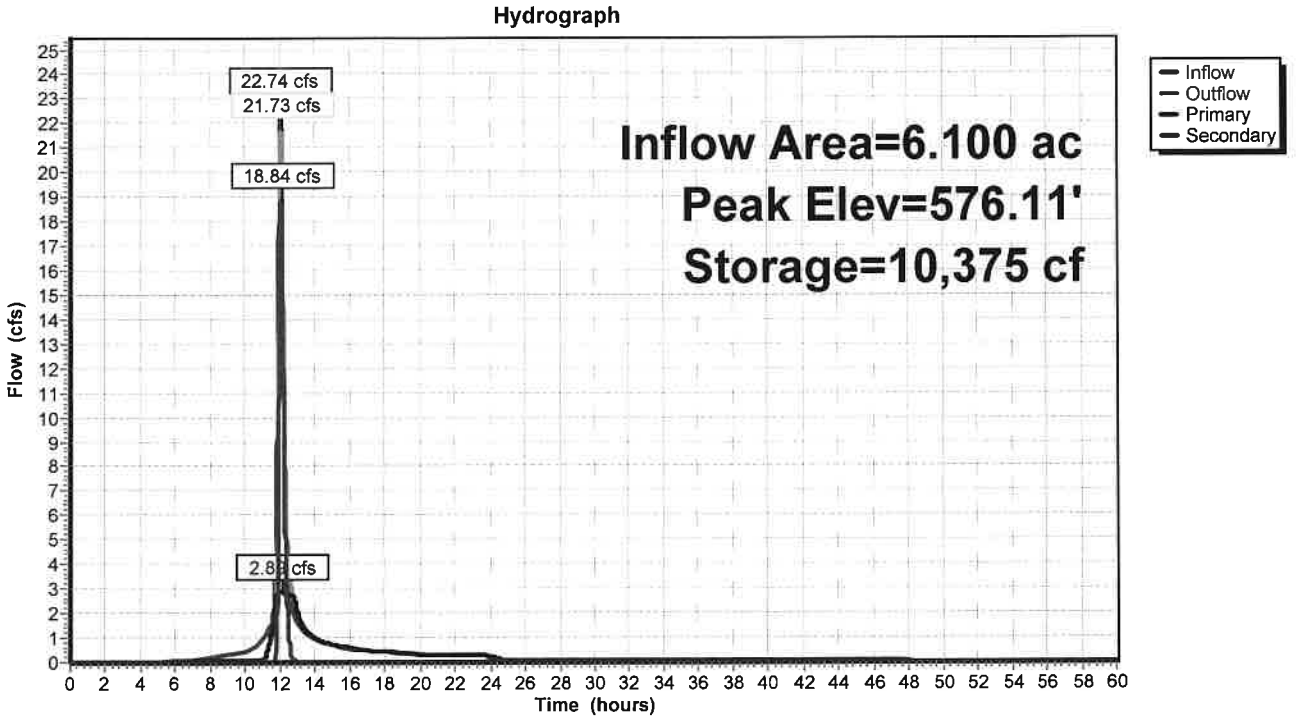
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.89 cfs @ 12.08 hrs HW=576.11' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.89 cfs @ 8.27 fps)
  └**2=Grate** (Passes < 5.25 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

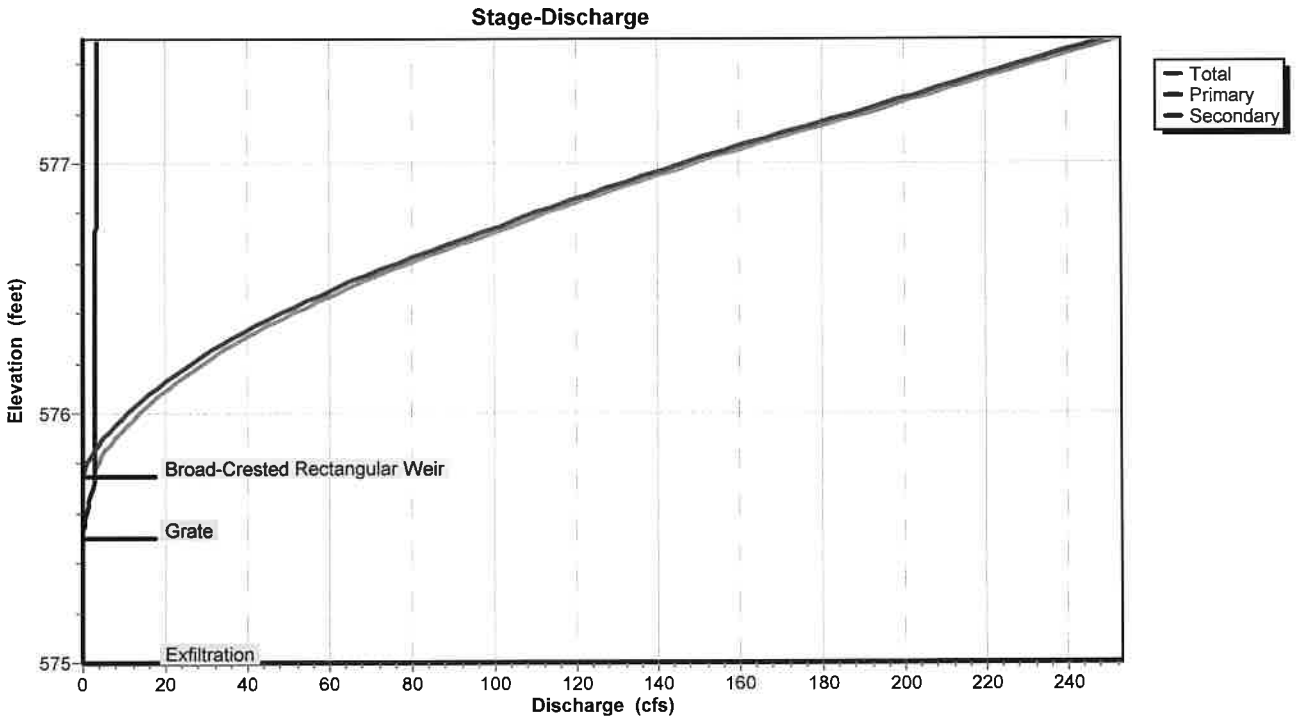
Secondary OutFlow Max=18.83 cfs @ 12.08 hrs HW=576.11' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 18.83 cfs @ 1.75 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

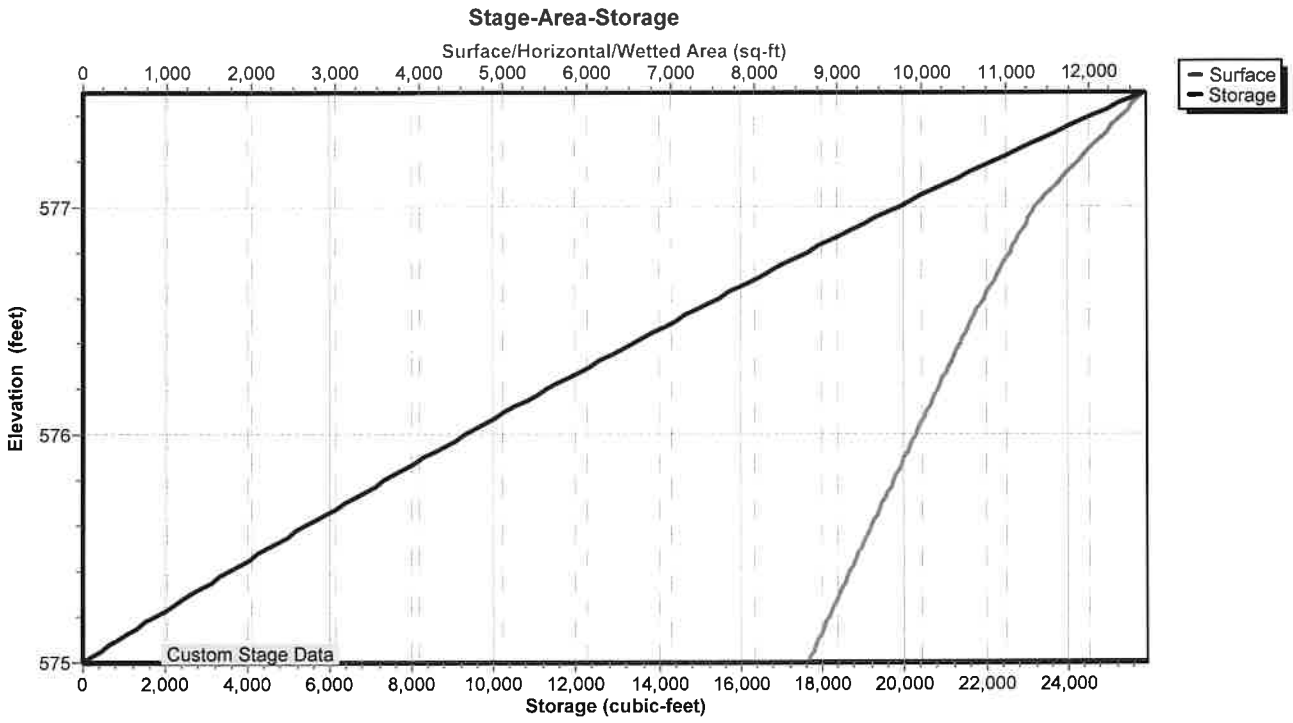


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.05	75	575.01	0.02	0.02	0.00
8.00	0.16	510	575.06	0.05	0.05	0.00
10.00	0.43	2,153	575.24	0.05	0.05	0.00
12.00	**20.75**	**9,748**	**576.05**	**16.99**	**2.86**	**14.14**
14.00	**0.90**	**5,469**	**575.61**	**1.00**	**1.00**	**0.00**
16.00	0.54	5,148	575.57	0.58	0.58	0.00
18.00	0.41	5,009	575.56	0.43	0.43	0.00
20.00	0.30	4,900	575.54	0.32	0.32	0.00
22.00	0.27	4,847	575.54	0.28	0.28	0.00
24.00	0.25	4,821	575.54	0.25	0.25	0.00
26.00	0.00	4,285	575.48	0.06	0.06	0.00
28.00	0.00	3,889	575.44	0.05	0.05	0.00
30.00	0.00	3,497	575.39	0.05	0.05	0.00
32.00	0.00	3,108	575.35	0.05	0.05	0.00
34.00	0.00	2,722	575.31	0.05	0.05	0.00
36.00	0.00	2,339	575.27	0.05	0.05	0.00
38.00	0.00	1,960	575.22	0.05	0.05	0.00
40.00	0.00	1,584	575.18	0.05	0.05	0.00
42.00	0.00	1,211	575.14	0.05	0.05	0.00
44.00	0.00	842	575.10	0.05	0.05	0.00
46.00	0.00	475	575.05	0.05	0.05	0.00
48.00	0.00	134	575.02	0.03	0.03	0.00
50.00	0.00	25	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 4.22" for 25-Year event
Inflow = 34.94 cfs @ 12.07 hrs, Volume= 1.548 af
Outflow = 0.64 cfs @ 14.10 hrs, Volume= 1.276 af, Atten= 98%, Lag= 121.4 min
Primary = 0.64 cfs @ 14.10 hrs, Volume= 1.276 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.83' @ 14.10 hrs Surf.Area= 65,573 sf Storage= 51,963 cf

Plug-Flow detention time= 951.6 min calculated for 1.276 af (82% of inflow)
Center-of-Mass det. time= 890.6 min (1,667.8 - 777.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

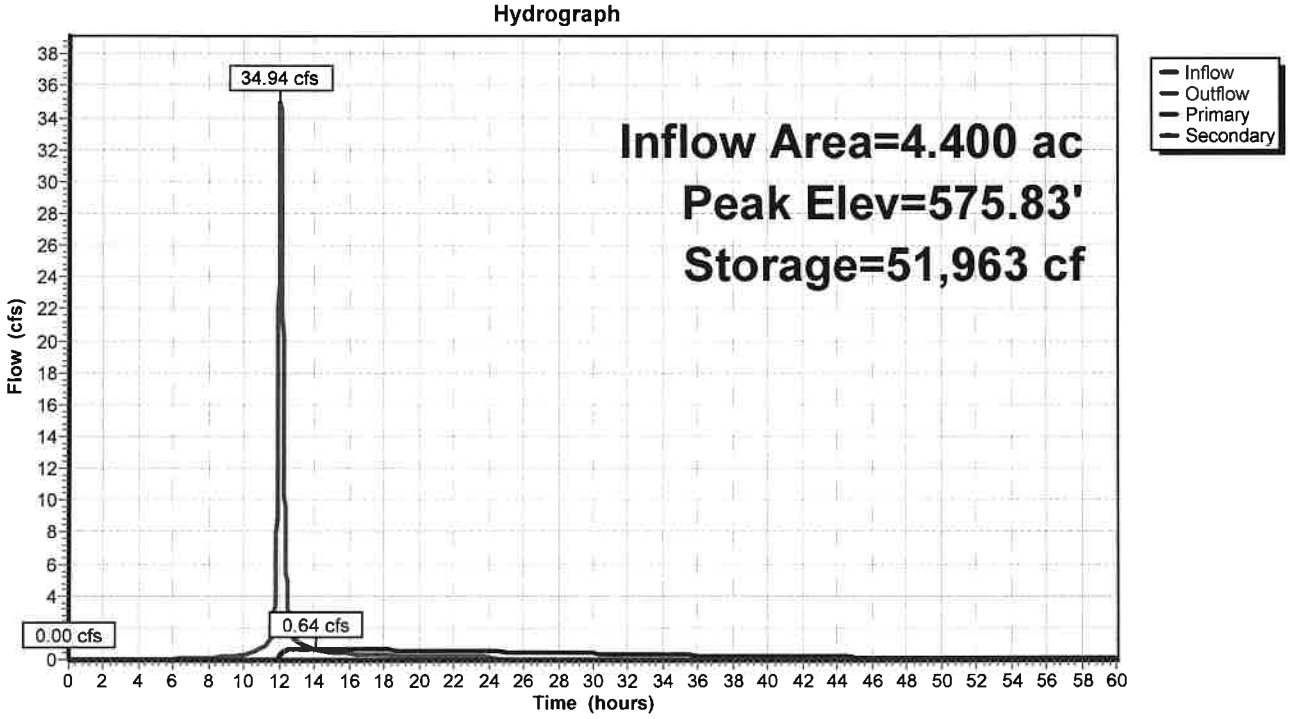
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.64 cfs @ 14.10 hrs HW=575.83' (Free Discharge)
↑—**1=12" outlet pipe** (Passes 0.64 cfs of 2.52 cfs potential flow)
↑—**2=low flow outlet pipe** (Inlet Controls 0.64 cfs @ 3.24 fps)
—**3=Grate** (Controls 0.00 cfs)

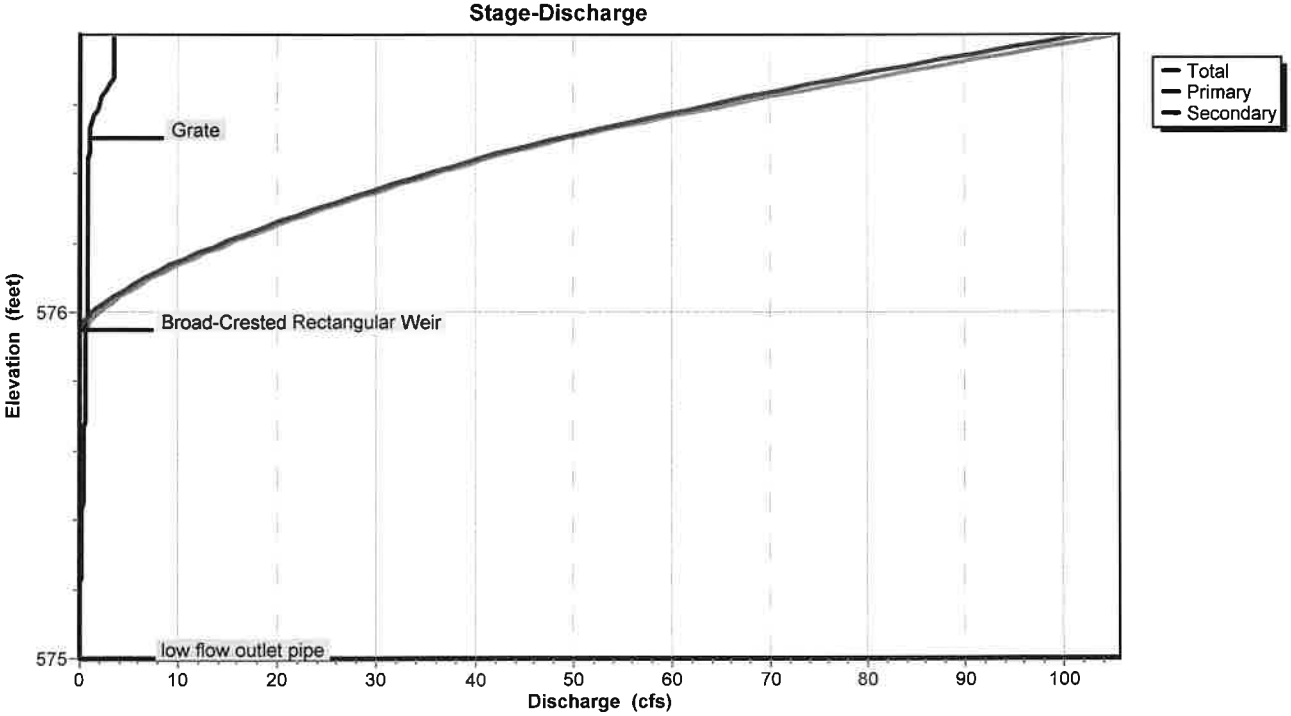
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

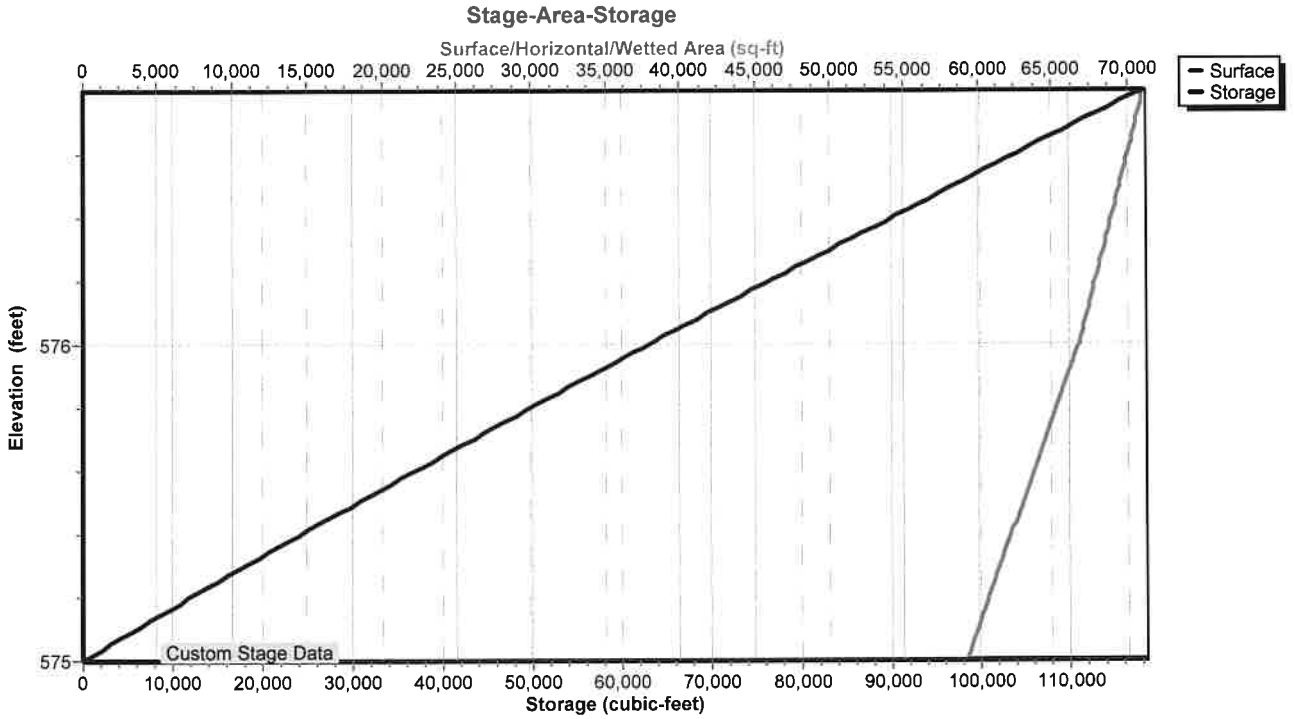


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.05	138	575.00	0.00	0.00	0.00
8.00	0.13	792	575.01	0.00	0.00	0.00
10.00	0.34	2,407	575.04	0.00	0.00	0.00
12.00	**28.50**	18,305	575.30	0.17	0.17	0.00
14.00	**0.67**	**51,959**	**575.83**	**0.64**	**0.64**	0.00
16.00	0.40	**51,083**	**575.82**	**0.63**	**0.63**	0.00
18.00	0.30	49,081	575.79	0.61	0.61	0.00
20.00	0.22	46,637	575.75	0.59	0.59	0.00
22.00	0.20	44,041	575.71	0.55	0.55	0.00
24.00	0.18	41,619	575.67	0.51	0.51	0.00
26.00	0.00	38,209	575.62	0.48	0.48	0.00
28.00	0.00	34,905	575.57	0.44	0.44	0.00
30.00	0.00	31,923	575.52	0.39	0.39	0.00
32.00	0.00	29,266	575.48	0.35	0.35	0.00
34.00	0.00	26,910	575.44	0.31	0.31	0.00
36.00	0.00	24,824	575.41	0.27	0.27	0.00
38.00	0.00	22,978	575.38	0.24	0.24	0.00
40.00	0.00	21,340	575.35	0.21	0.21	0.00
42.00	0.00	19,882	575.33	0.19	0.19	0.00
44.00	0.00	18,582	575.31	0.17	0.17	0.00
46.00	0.00	17,418	575.29	0.15	0.15	0.00
48.00	0.00	16,372	575.27	0.14	0.14	0.00
50.00	0.00	15,429	575.26	0.12	0.12	0.00
52.00	0.00	14,576	575.24	0.11	0.11	0.00
54.00	0.00	13,802	575.23	0.10	0.10	0.00
56.00	0.00	13,098	575.22	0.09	0.09	0.00
58.00	0.00	12,454	575.21	0.09	0.09	0.00
60.00	0.00	11,865	575.20	0.08	0.08	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

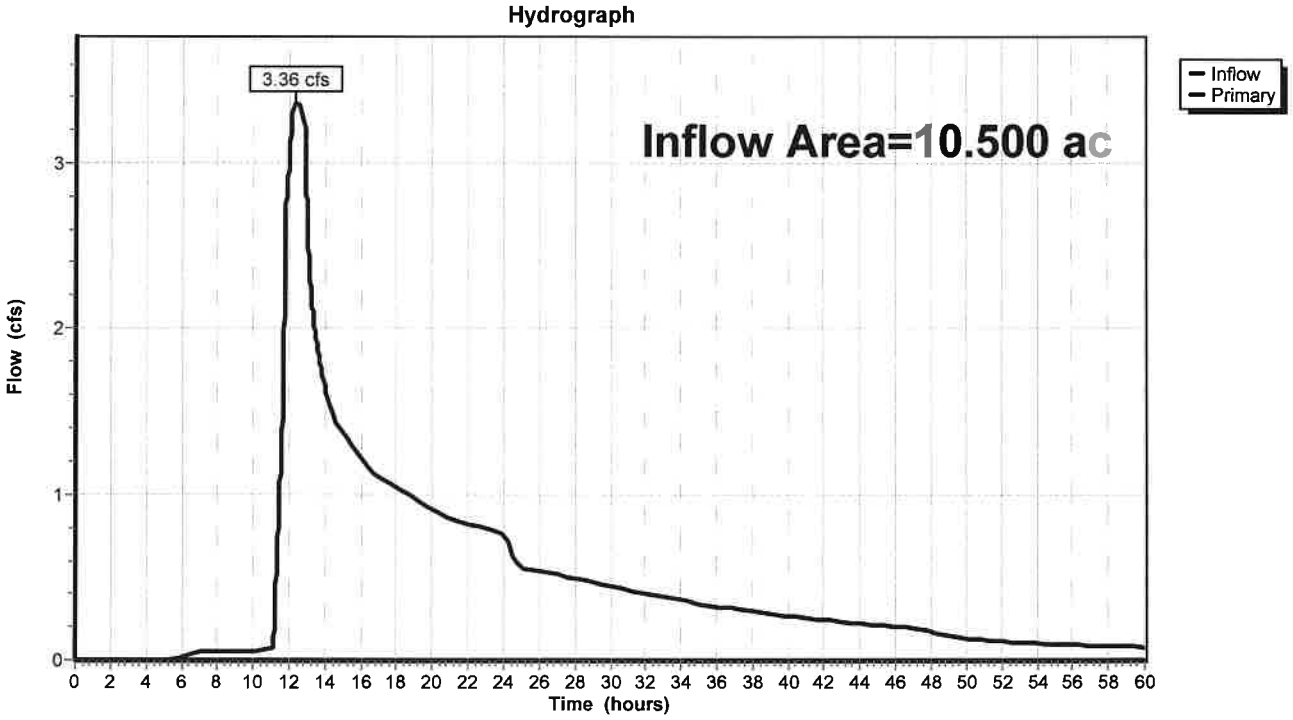
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 2.53" for 25-Year event
Inflow = 3.36 cfs @ 12.37 hrs, Volume= 2.210 af
Primary = 3.36 cfs @ 12.37 hrs, Volume= 2.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.11	0.00	0.11
1.00	0.00	0.00	0.00	53.00	0.11	0.00	0.11
2.00	0.00	0.00	0.00	54.00	0.10	0.00	0.10
3.00	0.00	0.00	0.00	55.00	0.10	0.00	0.10
4.00	0.00	0.00	0.00	56.00	0.09	0.00	0.09
5.00	0.00	0.00	0.00	57.00	0.09	0.00	0.09
6.00	0.02	0.00	0.02	58.00	0.09	0.00	0.09
7.00	0.05	0.00	0.05	59.00	0.08	0.00	0.08
8.00	0.05	0.00	0.05	60.00	0.08	0.00	0.08
9.00	0.05	0.00	0.05				
10.00	0.06	0.00	0.06				
11.00	0.07	0.00	0.07				
12.00	**3.02**	0.00	**3.02**				
13.00	**2.64**	0.00	**2.64**				
14.00	1.63	0.00	1.63				
15.00	1.36	0.00	1.36				
16.00	1.21	0.00	1.21				
17.00	1.10	0.00	1.10				
18.00	1.04	0.00	1.04				
19.00	0.97	0.00	0.97				
20.00	0.91	0.00	0.91				
21.00	0.85	0.00	0.85				
22.00	0.82	0.00	0.82				
23.00	0.79	0.00	0.79				
24.00	0.76	0.00	0.76				
25.00	0.55	0.00	0.55				
26.00	0.53	0.00	0.53				
27.00	0.51	0.00	0.51				
28.00	0.49	0.00	0.49				
29.00	0.47	0.00	0.47				
30.00	0.45	0.00	0.45				
31.00	0.42	0.00	0.42				
32.00	0.40	0.00	0.40				
33.00	0.38	0.00	0.38				
34.00	0.36	0.00	0.36				
35.00	0.34	0.00	0.34				
36.00	0.33	0.00	0.33				
37.00	0.31	0.00	0.31				
38.00	0.29	0.00	0.29				
39.00	0.28	0.00	0.28				
40.00	0.27	0.00	0.27				
41.00	0.25	0.00	0.25				
42.00	0.24	0.00	0.24				
43.00	0.23	0.00	0.23				
44.00	0.22	0.00	0.22				
45.00	0.21	0.00	0.21				
46.00	0.20	0.00	0.20				
47.00	0.20	0.00	0.20				
48.00	0.17	0.00	0.17				
49.00	0.14	0.00	0.14				
50.00	0.13	0.00	0.13				
51.00	0.12	0.00	0.12				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=3.41"
Flow Length=652' Tc=13.3 min CN=90 Runoff=27.50 cfs 1.736 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=3.52"
Flow Length=683' Tc=14.4 min CN=91 Runoff=19.58 cfs 1.290 af

Pond 1P: Bioretention Area 3 Peak Elev=576.17' Storage=10,953 cf Inflow=27.50 cfs 1.736 af
Primary=2.91 cfs 1.092 af Secondary=23.52 cfs 0.644 af Outflow=26.43 cfs 1.736 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=576.00' Storage=62,935 cf Inflow=42.93 cfs 1.933 af
Primary=0.72 cfs 1.504 af Secondary=1.25 cfs 0.131 af Outflow=1.97 cfs 1.635 af

Link 5L: Outflow (@ CB 54) Inflow=3.48 cfs 2.596 af
Primary=3.48 cfs 2.596 af

Total Runoff Area = 10.500 ac Runoff Volume = 3.026 af Average Runoff Depth = 3.46"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

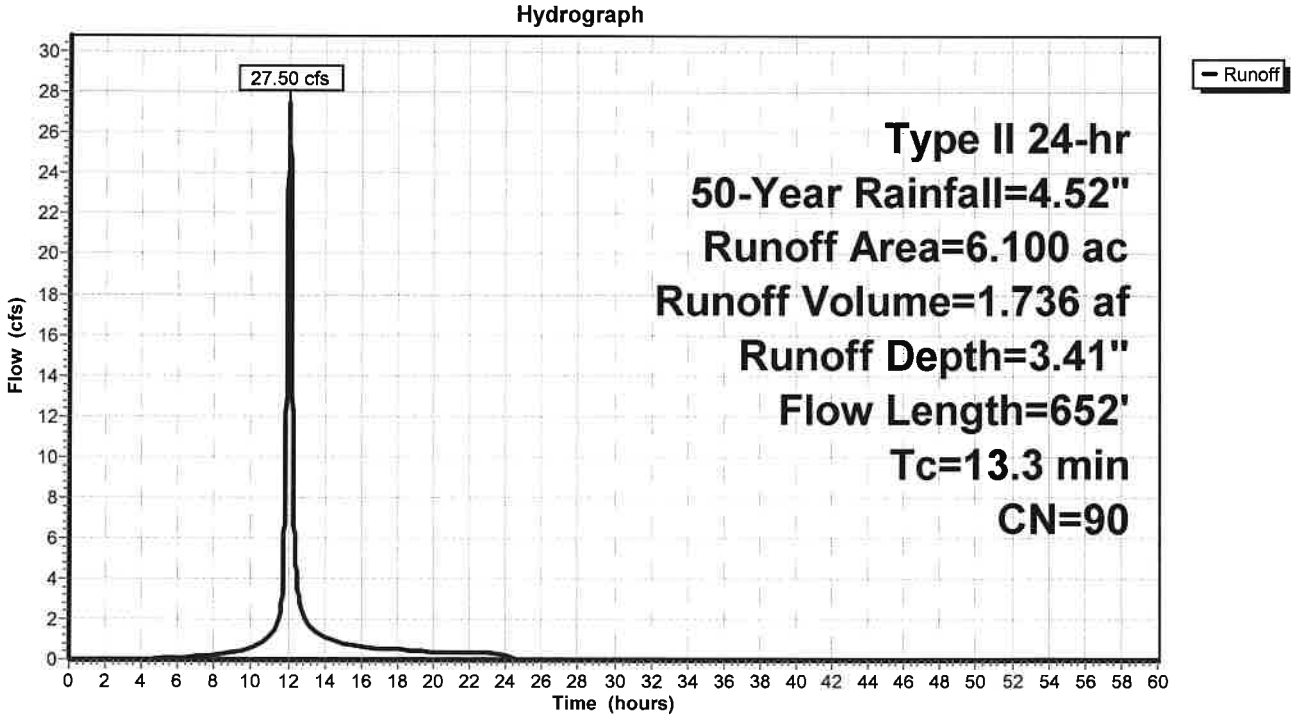
Runoff = 27.50 cfs @ 12.05 hrs, Volume= 1.736 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.52	3.41	0.00
1.00	0.05	0.00	0.00	53.00	4.52	3.41	0.00
2.00	0.10	0.00	0.00	54.00	4.52	3.41	0.00
3.00	0.16	0.00	0.00	55.00	4.52	3.41	0.00
4.00	0.22	0.00	0.00	56.00	4.52	3.41	0.00
5.00	0.28	0.00	0.04	57.00	4.52	3.41	0.00
6.00	0.36	0.02	0.09	58.00	4.52	3.41	0.00
7.00	0.45	0.04	0.16	59.00	4.52	3.41	0.00
8.00	0.54	0.07	0.23	60.00	4.52	3.41	0.00
9.00	0.66	0.13	0.39				
10.00	0.82	0.21	0.57				
11.00	1.06	0.36	1.16				
12.00	3.00	1.98	**25.18**				
13.00	3.49	2.44	**1.87**				
14.00	3.71	2.64	1.08				
15.00	3.86	2.78	0.83				
16.00	3.98	2.90	0.64				
17.00	4.08	2.99	0.55				
18.00	4.16	3.07	0.49				
19.00	4.24	3.15	0.42				
20.00	4.30	3.21	0.36				
21.00	4.36	3.26	0.33				
22.00	4.42	3.32	0.32				
23.00	4.47	3.37	0.31				
24.00	**4.52**	**3.41**	0.30				
25.00	4.52	3.41	0.00				
26.00	4.52	3.41	0.00				
27.00	4.52	3.41	0.00				
28.00	4.52	3.41	0.00				
29.00	4.52	3.41	0.00				
30.00	4.52	3.41	0.00				
31.00	4.52	3.41	0.00				
32.00	4.52	3.41	0.00				
33.00	4.52	3.41	0.00				
34.00	4.52	3.41	0.00				
35.00	4.52	3.41	0.00				
36.00	4.52	3.41	0.00				
37.00	4.52	3.41	0.00				
38.00	4.52	3.41	0.00				
39.00	4.52	3.41	0.00				
40.00	4.52	3.41	0.00				
41.00	4.52	3.41	0.00				
42.00	4.52	3.41	0.00				
43.00	4.52	3.41	0.00				
44.00	4.52	3.41	0.00				
45.00	4.52	3.41	0.00				
46.00	4.52	3.41	0.00				
47.00	4.52	3.41	0.00				
48.00	4.52	3.41	0.00				
49.00	4.52	3.41	0.00				
50.00	4.52	3.41	0.00				
51.00	4.52	3.41	0.00				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

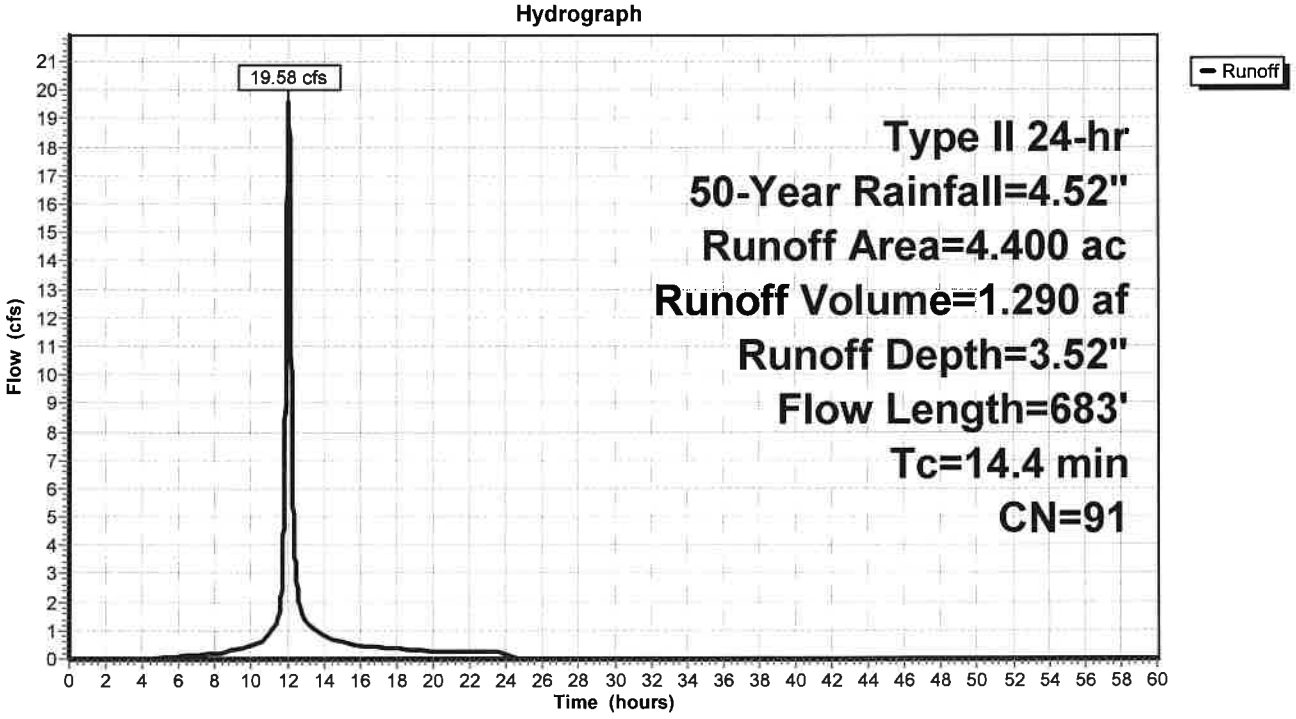
Runoff = 19.58 cfs @ 12.06 hrs, Volume= 1.290 af, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.01	0.04
6.00	0.36	0.02	0.08
7.00	0.45	0.05	0.13
8.00	0.54	0.09	0.19
9.00	0.66	0.15	0.31
10.00	0.82	0.24	0.44
11.00	1.06	0.40	0.88
12.00	3.00	2.07	**17.36**
13.00	3.49	2.53	**1.38**
14.00	3.71	2.74	0.79
15.00	3.86	2.88	0.60
16.00	3.98	3.00	0.47
17.00	4.08	3.09	0.40
18.00	4.16	3.17	0.36
19.00	4.24	3.25	0.31
20.00	4.30	3.31	0.26
21.00	4.36	3.36	0.24
22.00	4.42	3.42	0.23
23.00	4.47	3.47	0.22
24.00	**4.52**	**3.52**	0.21
25.00	4.52	3.52	0.00
26.00	4.52	3.52	0.00
27.00	4.52	3.52	0.00
28.00	4.52	3.52	0.00
29.00	4.52	3.52	0.00
30.00	4.52	3.52	0.00
31.00	4.52	3.52	0.00
32.00	4.52	3.52	0.00
33.00	4.52	3.52	0.00
34.00	4.52	3.52	0.00
35.00	4.52	3.52	0.00
36.00	4.52	3.52	0.00
37.00	4.52	3.52	0.00
38.00	4.52	3.52	0.00
39.00	4.52	3.52	0.00
40.00	4.52	3.52	0.00
41.00	4.52	3.52	0.00
42.00	4.52	3.52	0.00
43.00	4.52	3.52	0.00
44.00	4.52	3.52	0.00
45.00	4.52	3.52	0.00
46.00	4.52	3.52	0.00
47.00	4.52	3.52	0.00
48.00	4.52	3.52	0.00
49.00	4.52	3.52	0.00
50.00	4.52	3.52	0.00
51.00	4.52	3.52	0.00
52.00	4.52	3.52	0.00
53.00	4.52	3.52	0.00
54.00	4.52	3.52	0.00
55.00	4.52	3.52	0.00
56.00	4.52	3.52	0.00
57.00	4.52	3.52	0.00
58.00	4.52	3.52	0.00
59.00	4.52	3.52	0.00
60.00	4.52	3.52	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 3.41" for 50-Year event
Inflow = 27.50 cfs @ 12.05 hrs, Volume= 1.736 af
Outflow = 26.43 cfs @ 12.08 hrs, Volume= 1.736 af, Atten= 4%, Lag= 1.9 min
Primary = 2.91 cfs @ 12.08 hrs, Volume= 1.092 af
Secondary = 23.52 cfs @ 12.08 hrs, Volume= 0.644 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.17' @ 12.08 hrs Surf.Area= 10,144 sf Storage= 10,953 cf

Plug-Flow detention time= 109.3 min calculated for 1.736 af (100% of inflow)
Center-of-Mass det. time= 109.3 min (907.1 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

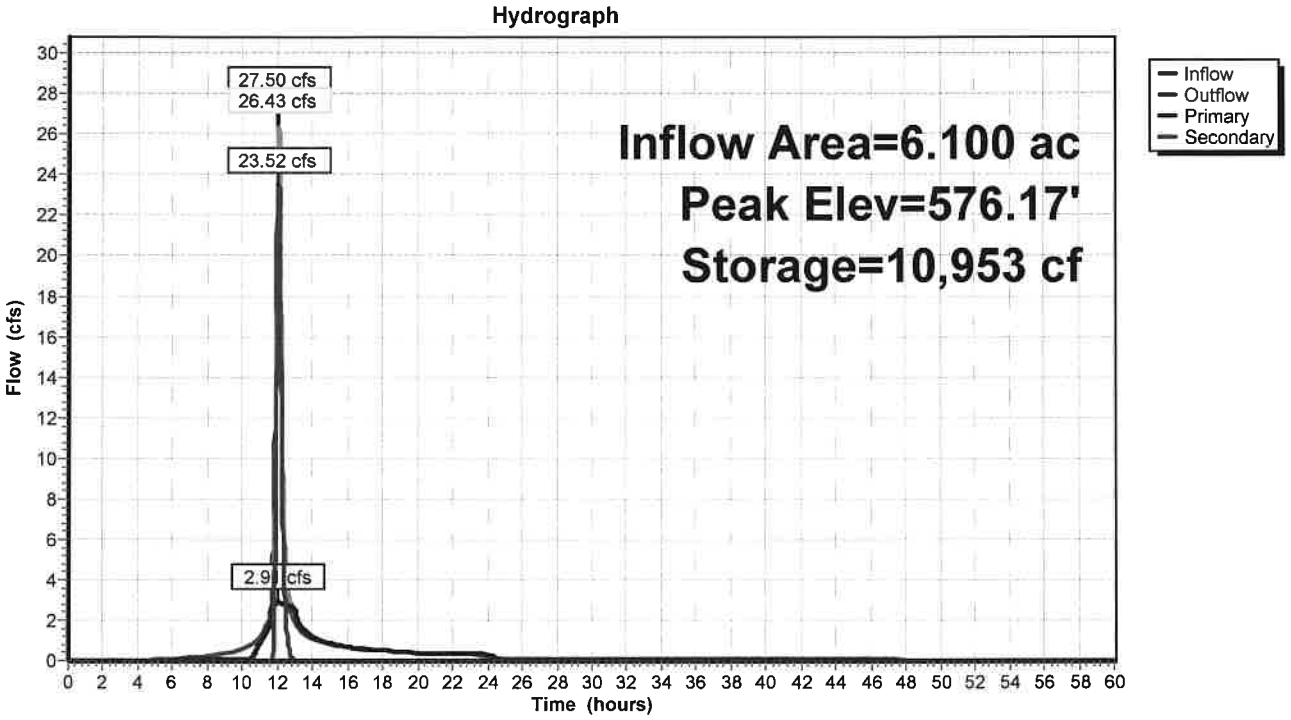
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.91 cfs @ 12.08 hrs HW=576.17' (Free Discharge)
└─**1=8" pipe** (Barrel Controls 2.91 cfs @ 8.34 fps)
  ├─**2=Grate** (Passes < 5.49 cfs potential flow)
  └─**3=Exfiltration** (Passes < 0.06 cfs potential flow)

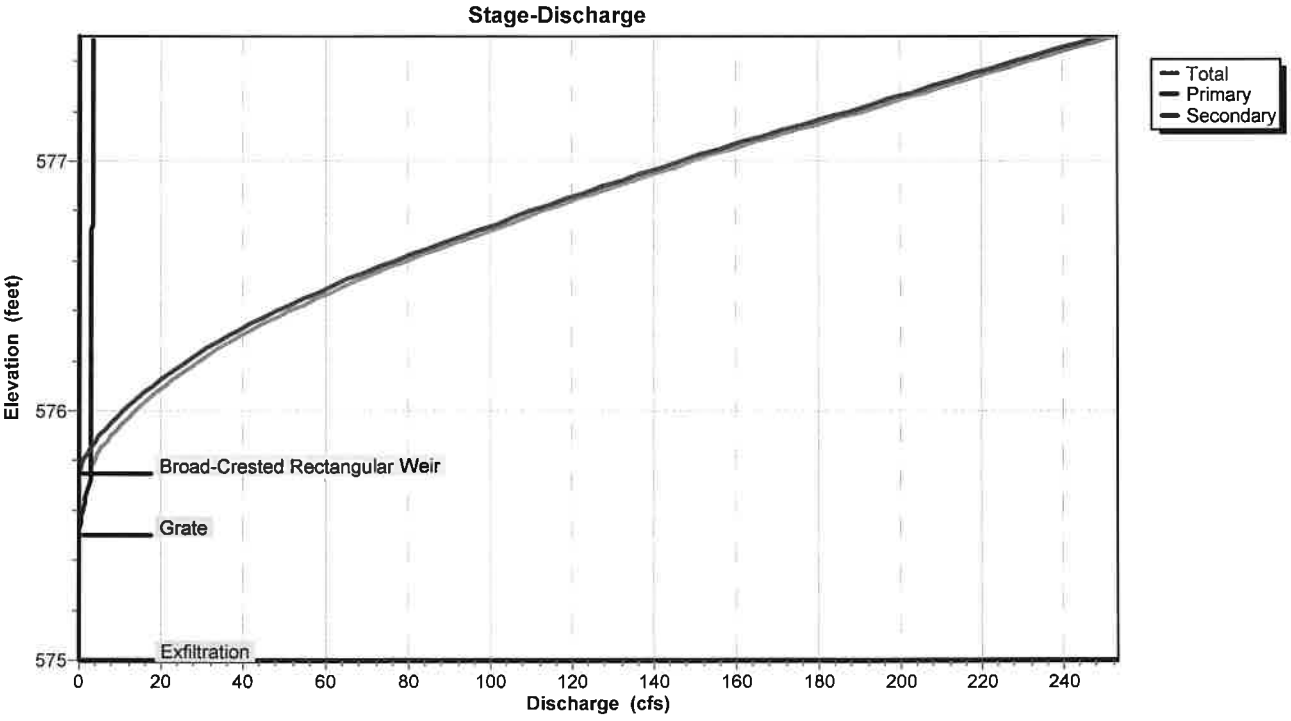
Secondary OutFlow Max=23.50 cfs @ 12.08 hrs HW=576.17' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 23.50 cfs @ 1.88 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

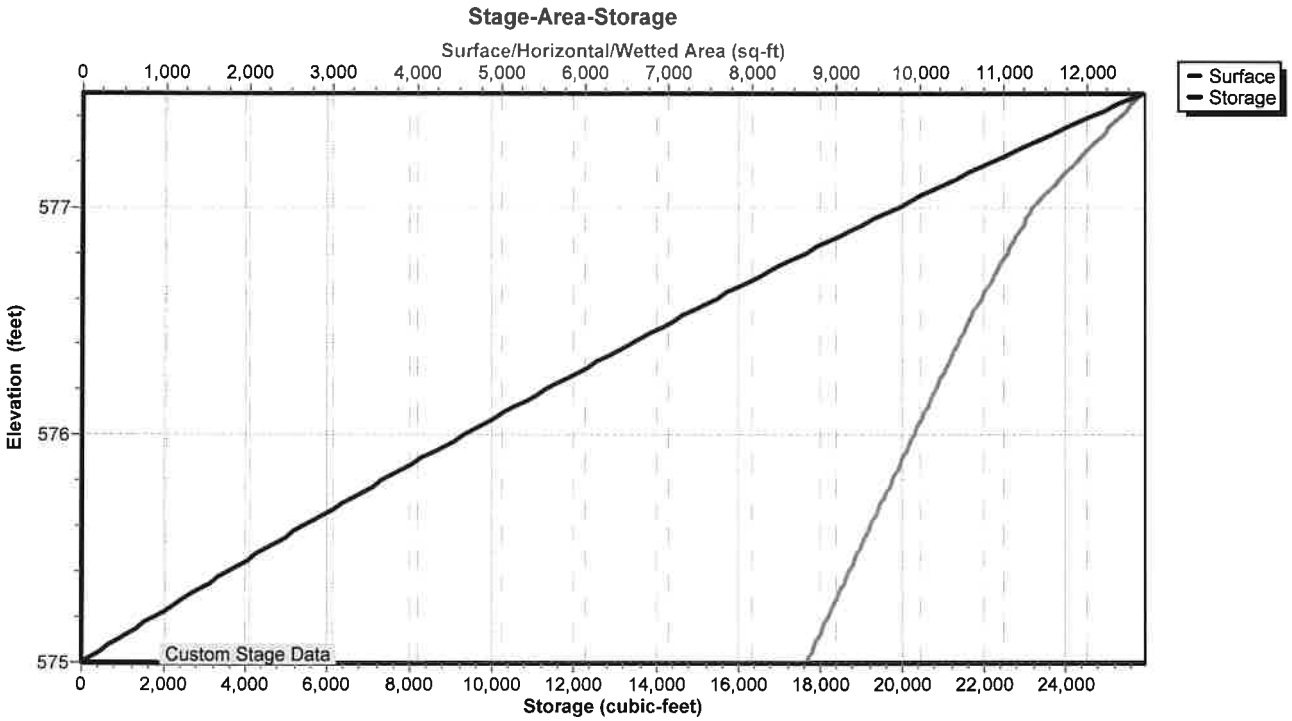


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.09	180	575.02	0.04	0.04	0.00
8.00	0.23	959	575.11	0.05	0.05	0.00
10.00	0.57	3,333	575.38	0.05	0.05	0.00
12.00	**25.18**	**10,302**	**576.10**	**21.15**	**2.88**	**18.27**
14.00	**1.08**	**5,594**	**575.62**	**1.18**	**1.18**	**0.00**
16.00	0.64	5,233	575.58	0.68	0.68	0.00
18.00	0.49	5,081	575.56	0.51	0.51	0.00
20.00	0.36	4,961	575.55	0.38	0.38	0.00
22.00	0.32	4,907	575.55	0.33	0.33	0.00
24.00	0.30	4,876	575.54	0.30	0.30	0.00
26.00	0.00	4,297	575.48	0.06	0.06	0.00
28.00	0.00	3,900	575.44	0.05	0.05	0.00
30.00	0.00	3,508	575.39	0.05	0.05	0.00
32.00	0.00	3,118	575.35	0.05	0.05	0.00
34.00	0.00	2,732	575.31	0.05	0.05	0.00
36.00	0.00	2,350	575.27	0.05	0.05	0.00
38.00	0.00	1,970	575.22	0.05	0.05	0.00
40.00	0.00	1,594	575.18	0.05	0.05	0.00
42.00	0.00	1,221	575.14	0.05	0.05	0.00
44.00	0.00	852	575.10	0.05	0.05	0.00
46.00	0.00	486	575.06	0.05	0.05	0.00
48.00	0.00	140	575.02	0.03	0.03	0.00
50.00	0.00	26	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 5.27" for 50-Year event
Inflow = 42.93 cfs @ 12.07 hrs, Volume= 1.933 af
Outflow = 1.97 cfs @ 12.73 hrs, Volume= 1.635 af, Atten= 95%, Lag= 39.8 min
Primary = 0.72 cfs @ 12.73 hrs, Volume= 1.504 af
Secondary = 1.25 cfs @ 12.73 hrs, Volume= 0.131 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.00' @ 12.73 hrs Surf.Area= 66,838 sf Storage= 62,935 cf

Plug-Flow detention time= 900.4 min calculated for 1.635 af (85% of inflow)
Center-of-Mass det. time= 844.0 min (1,616.3 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

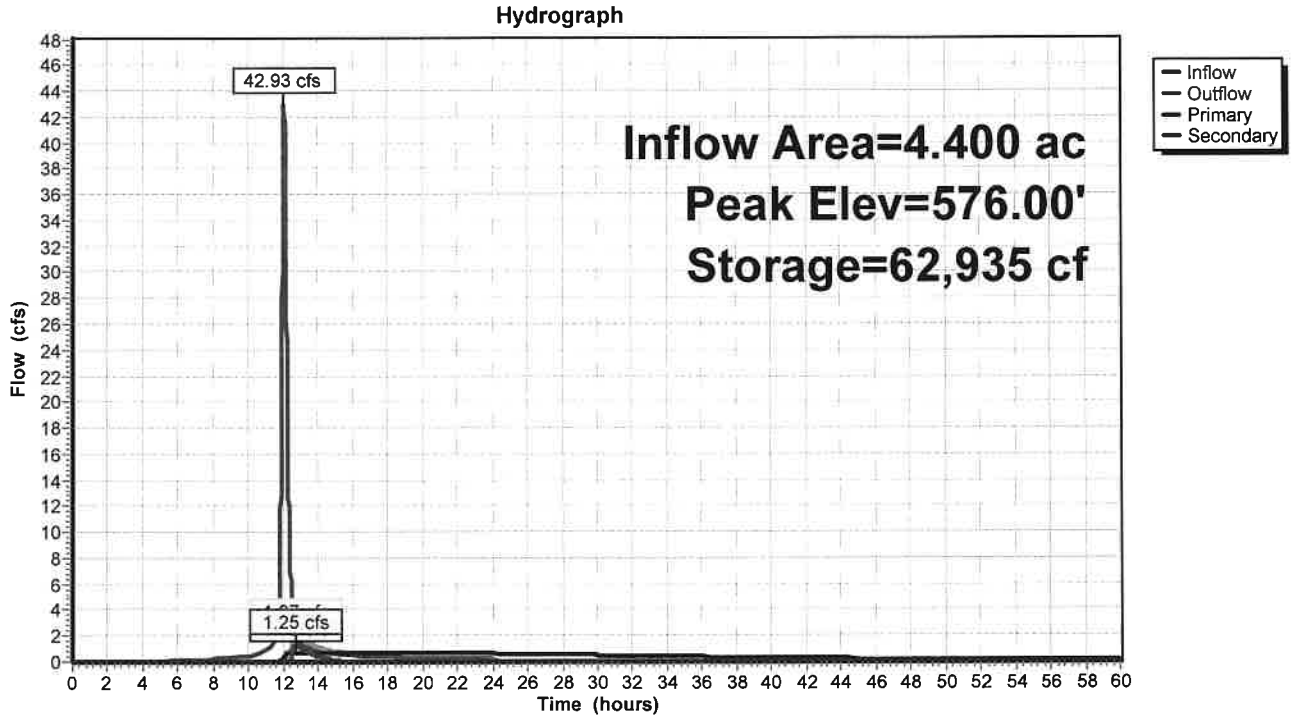
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.72 cfs @ 12.73 hrs HW=576.00' (Free Discharge)
└**1=12" outlet pipe** (Passes 0.72 cfs of 2.71 cfs potential flow)
  ├**2=low flow outlet pipe** (Inlet Controls 0.72 cfs @ 3.68 fps)
  └**3=Grate** (Controls 0.00 cfs)

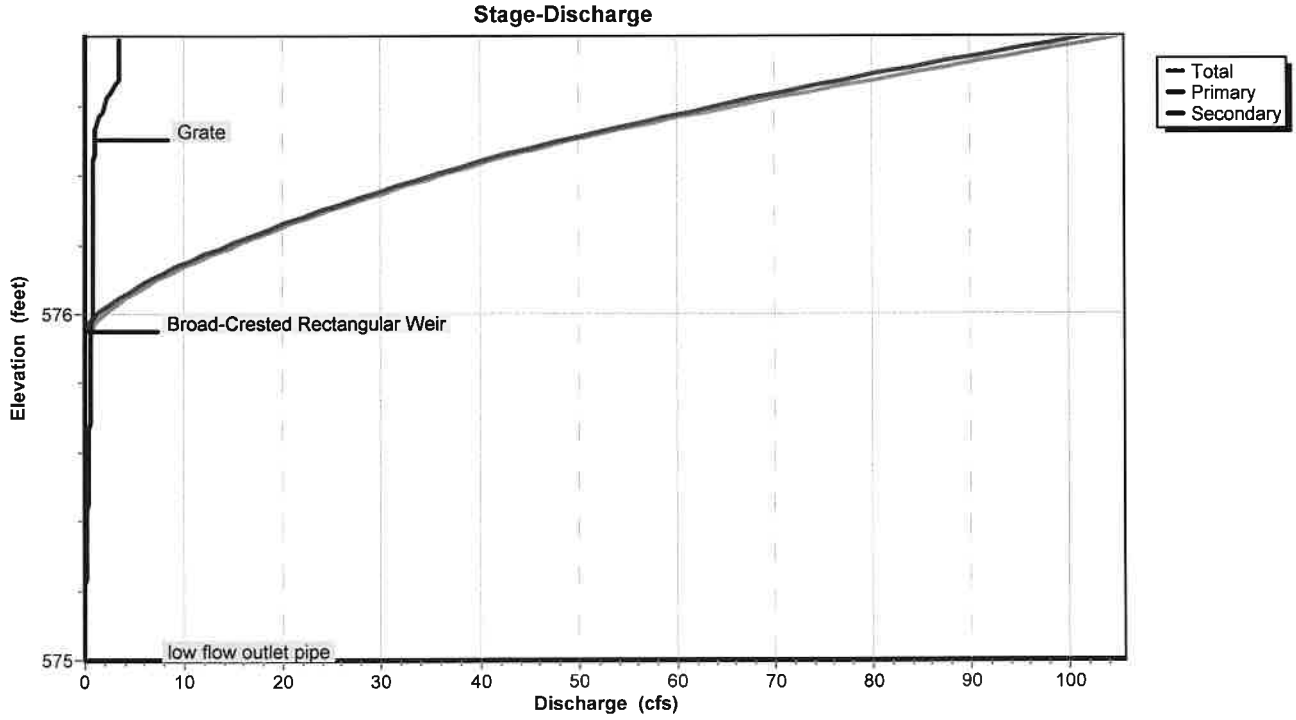
Secondary OutFlow Max=1.25 cfs @ 12.73 hrs HW=576.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 1.25 cfs @ 0.64 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

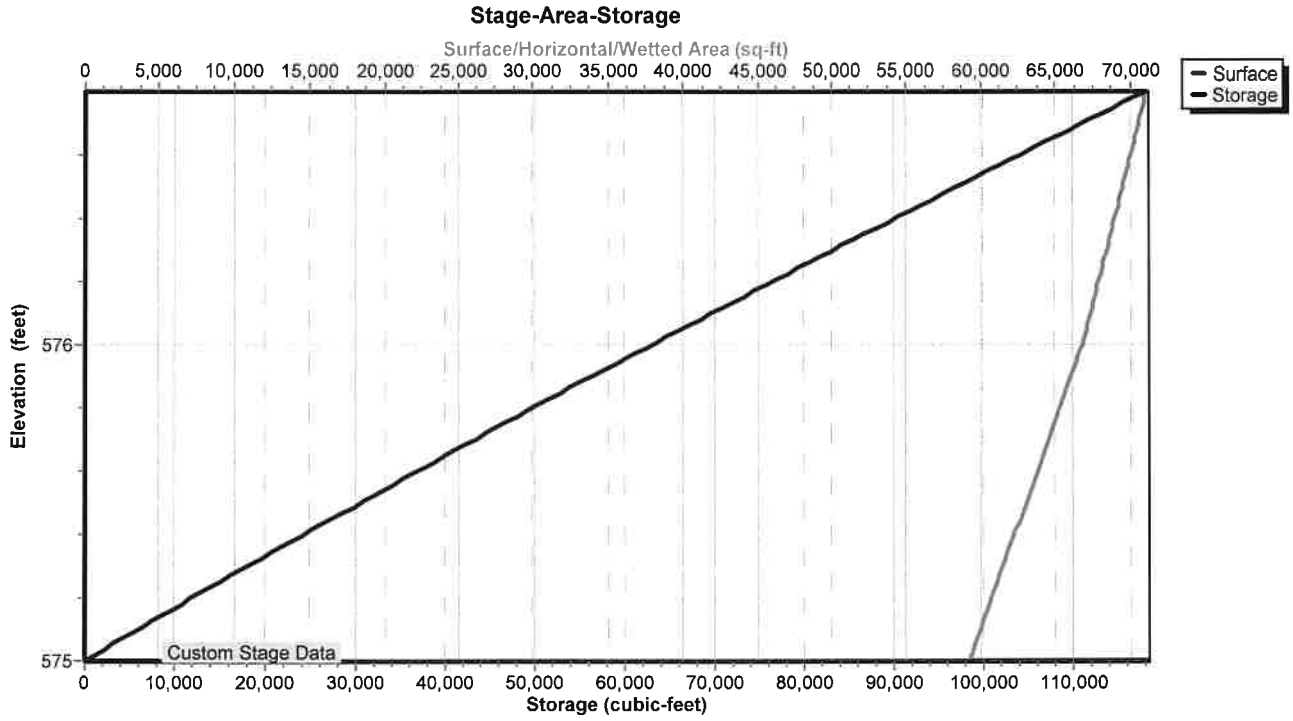


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	1	575.00	0.00	0.00	0.00
6.00	0.08	300	575.01	0.00	0.00	0.00
8.00	0.19	1,265	575.02	0.00	0.00	0.00
10.00	0.44	3,420	575.06	0.01	0.01	0.00
12.00	**35.63**	**24,163**	**575.40**	**0.26**	**0.26**	**0.00**
14.00	**0.79**	**61,204**	**575.97**	**1.11**	**0.71**	**0.40**
16.00	0.47	59,536	575.95	0.70	0.70	0.00
18.00	0.36	57,495	575.92	0.68	0.68	0.00
20.00	0.26	54,889	575.88	0.66	0.66	0.00
22.00	0.23	51,975	575.83	0.64	0.64	0.00
24.00	0.21	49,094	575.79	0.61	0.61	0.00
26.00	0.00	45,010	575.73	0.56	0.56	0.00
28.00	0.00	41,189	575.67	0.50	0.50	0.00
30.00	0.00	37,665	575.61	0.47	0.47	0.00
32.00	0.00	34,410	575.56	0.43	0.43	0.00
34.00	0.00	31,481	575.51	0.38	0.38	0.00
36.00	0.00	28,873	575.47	0.34	0.34	0.00
38.00	0.00	26,562	575.44	0.30	0.30	0.00
40.00	0.00	24,517	575.40	0.27	0.27	0.00
42.00	0.00	22,705	575.37	0.24	0.24	0.00
44.00	0.00	21,097	575.35	0.21	0.21	0.00
46.00	0.00	19,666	575.33	0.19	0.19	0.00
48.00	0.00	18,389	575.30	0.17	0.17	0.00
50.00	0.00	17,245	575.29	0.15	0.15	0.00
52.00	0.00	16,216	575.27	0.14	0.14	0.00
54.00	0.00	15,288	575.25	0.12	0.12	0.00
56.00	0.00	14,449	575.24	0.11	0.11	0.00
58.00	0.00	13,686	575.23	0.10	0.10	0.00
60.00	0.00	12,992	575.22	0.09	0.09	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

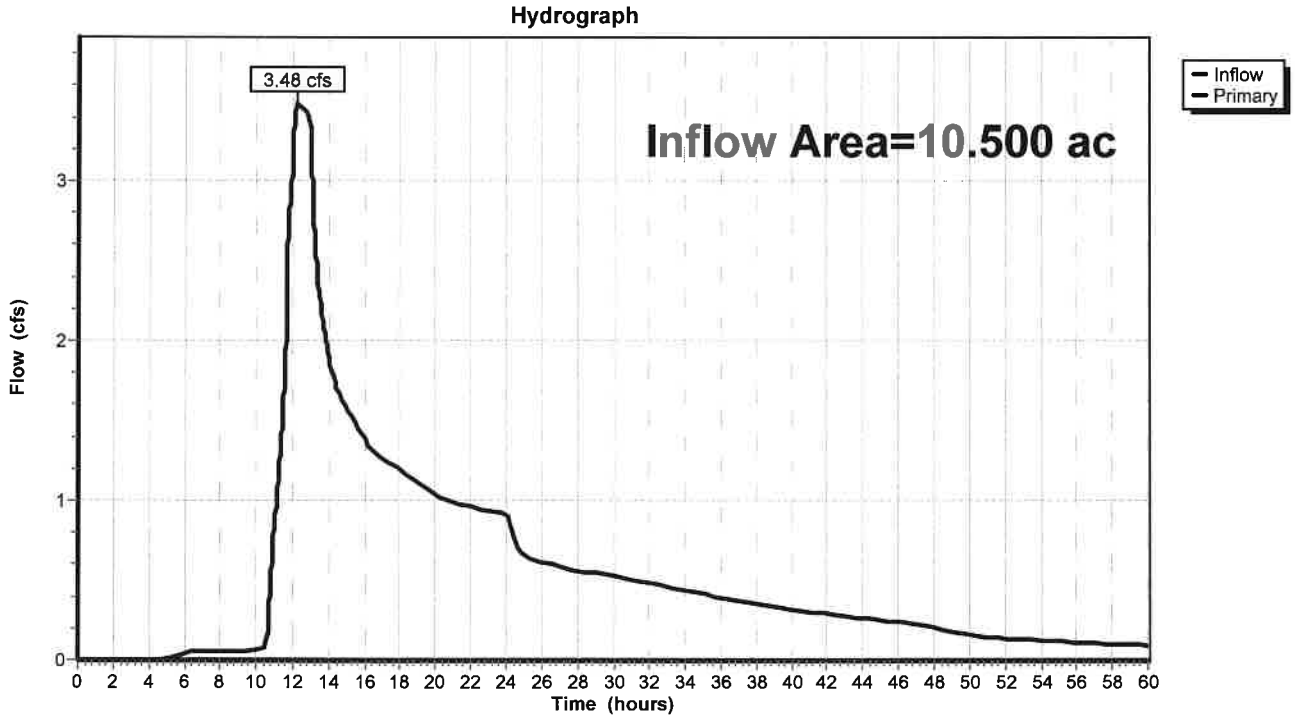
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 2.97" for 50-Year event
Inflow = 3.48 cfs @ 12.21 hrs, Volume= 2.596 af
Primary = 3.48 cfs @ 12.21 hrs, Volume= 2.596 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.14	0.00	0.14
1.00	0.00	0.00	0.00	53.00	0.13	0.00	0.13
2.00	0.00	0.00	0.00	54.00	0.12	0.00	0.12
3.00	0.00	0.00	0.00	55.00	0.12	0.00	0.12
4.00	0.00	0.00	0.00	56.00	0.11	0.00	0.11
5.00	0.01	0.00	0.01	57.00	0.11	0.00	0.11
6.00	0.04	0.00	0.04	58.00	0.10	0.00	0.10
7.00	0.05	0.00	0.05	59.00	0.10	0.00	0.10
8.00	0.05	0.00	0.05	60.00	0.09	0.00	0.09
9.00	0.06	0.00	0.06				
10.00	0.06	0.00	0.06				
11.00	0.88	0.00	0.88				
12.00	**3.14**	0.00	**3.14**				
13.00	**3.25**	0.00	**3.25**				
14.00	1.89	0.00	1.89				
15.00	1.57	0.00	1.57				
16.00	1.38	0.00	1.38				
17.00	1.26	0.00	1.26				
18.00	1.19	0.00	1.19				
19.00	1.11	0.00	1.11				
20.00	1.04	0.00	1.04				
21.00	0.99	0.00	0.99				
22.00	0.96	0.00	0.96				
23.00	0.94	0.00	0.94				
24.00	0.91	0.00	0.91				
25.00	0.65	0.00	0.65				
26.00	0.62	0.00	0.62				
27.00	0.59	0.00	0.59				
28.00	0.56	0.00	0.56				
29.00	0.55	0.00	0.55				
30.00	0.53	0.00	0.53				
31.00	0.51	0.00	0.51				
32.00	0.48	0.00	0.48				
33.00	0.46	0.00	0.46				
34.00	0.44	0.00	0.44				
35.00	0.42	0.00	0.42				
36.00	0.39	0.00	0.39				
37.00	0.37	0.00	0.37				
38.00	0.35	0.00	0.35				
39.00	0.34	0.00	0.34				
40.00	0.32	0.00	0.32				
41.00	0.30	0.00	0.30				
42.00	0.29	0.00	0.29				
43.00	0.27	0.00	0.27				
44.00	0.26	0.00	0.26				
45.00	0.25	0.00	0.25				
46.00	0.24	0.00	0.24				
47.00	0.23	0.00	0.23				
48.00	0.20	0.00	0.20				
49.00	0.17	0.00	0.17				
50.00	0.16	0.00	0.16				
51.00	0.15	0.00	0.15				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=4.15"
Flow Length=652' Tc=13.3 min CN=90 Runoff=33.05 cfs 2.108 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=4.25"
Flow Length=683' Tc=14.4 min CN=91 Runoff=23.44 cfs 1.560 af

Pond 1P: Bioretention Area 3 Peak Elev=576.23' Storage=11,585 cf Inflow=33.05 cfs 2.108 af
Primary=2.94 cfs 1.275 af Secondary=28.98 cfs 0.833 af Outflow=31.92 cfs 2.108 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=576.11' Storage=70,722 cf Inflow=52.24 cfs 2.392 af
Primary=0.78 cfs 1.554 af Secondary=7.80 cfs 0.534 af Outflow=8.57 cfs 2.088 af

Link 5L: Outflow (@ CB 54) Inflow=3.60 cfs 2.829 af
Primary=3.60 cfs 2.829 af

Total Runoff Area = 10.500 ac Runoff Volume = 3.668 af Average Runoff Depth = 4.19"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

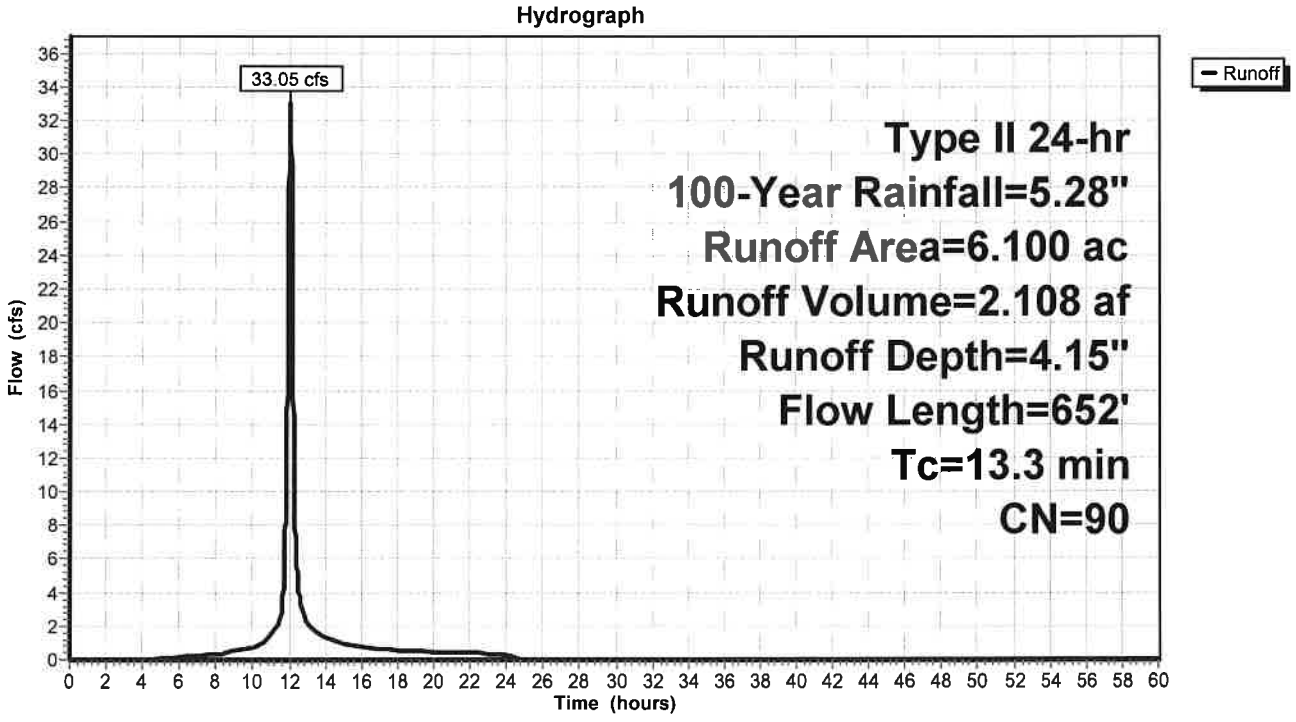
Runoff = 33.05 cfs @ 12.05 hrs, Volume= 2.108 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.28	4.15	0.00
1.00	0.06	0.00	0.00	53.00	5.28	4.15	0.00
2.00	0.12	0.00	0.00	54.00	5.28	4.15	0.00
3.00	0.18	0.00	0.00	55.00	5.28	4.15	0.00
4.00	0.25	0.00	0.01	56.00	5.28	4.15	0.00
5.00	0.33	0.01	0.08	57.00	5.28	4.15	0.00
6.00	0.42	0.03	0.15	58.00	5.28	4.15	0.00
7.00	0.52	0.06	0.23	59.00	5.28	4.15	0.00
8.00	0.63	0.11	0.32	60.00	5.28	4.15	0.00
9.00	0.78	0.18	0.52				
10.00	0.96	0.29	0.74				
11.00	1.24	0.49	1.47				
12.00	3.50	2.45	**30.36**				
13.00	4.08	2.99	**2.21**				
14.00	4.33	3.23	1.27				
15.00	4.51	3.40	0.98				
16.00	4.65	3.54	0.76				
17.00	4.76	3.65	0.66				
18.00	4.86	3.74	0.58				
19.00	4.95	3.83	0.50				
20.00	5.03	3.90	0.42				
21.00	5.09	3.97	0.40				
22.00	5.16	4.03	0.38				
23.00	5.22	4.09	0.36				
24.00	**5.28**	**4.15**	0.35				
25.00	5.28	4.15	0.00				
26.00	5.28	4.15	0.00				
27.00	5.28	4.15	0.00				
28.00	5.28	4.15	0.00				
29.00	5.28	4.15	0.00				
30.00	5.28	4.15	0.00				
31.00	5.28	4.15	0.00				
32.00	5.28	4.15	0.00				
33.00	5.28	4.15	0.00				
34.00	5.28	4.15	0.00				
35.00	5.28	4.15	0.00				
36.00	5.28	4.15	0.00				
37.00	5.28	4.15	0.00				
38.00	5.28	4.15	0.00				
39.00	5.28	4.15	0.00				
40.00	5.28	4.15	0.00				
41.00	5.28	4.15	0.00				
42.00	5.28	4.15	0.00				
43.00	5.28	4.15	0.00				
44.00	5.28	4.15	0.00				
45.00	5.28	4.15	0.00				
46.00	5.28	4.15	0.00				
47.00	5.28	4.15	0.00				
48.00	5.28	4.15	0.00				
49.00	5.28	4.15	0.00				
50.00	5.28	4.15	0.00				
51.00	5.28	4.15	0.00				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

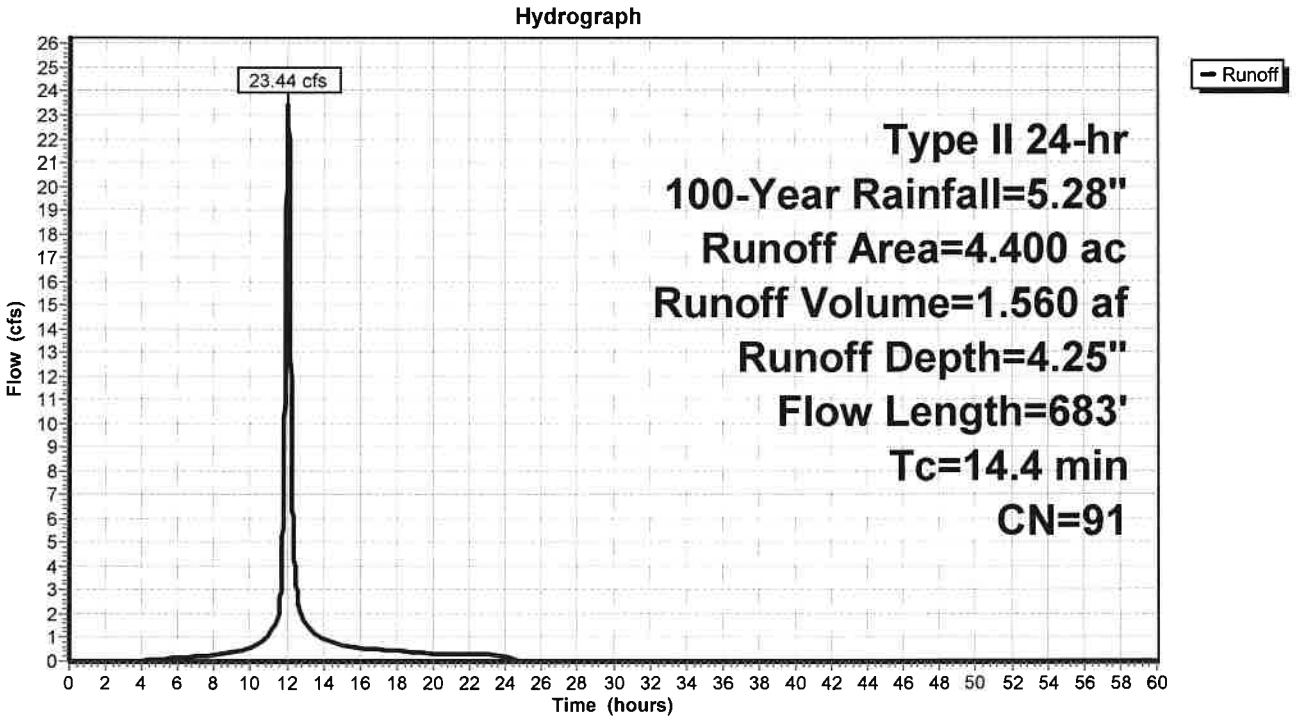
Runoff = 23.44 cfs @ 12.06 hrs, Volume= 1.560 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.02
5.00	0.33	0.02	0.07
6.00	0.42	0.04	0.13
7.00	0.52	0.08	0.19
8.00	0.63	0.13	0.25
9.00	0.78	0.21	0.41
10.00	0.96	0.33	0.57
11.00	1.24	0.54	1.10
12.00	3.50	2.54	**20.85**
13.00	4.08	3.09	**1.64**
14.00	4.33	3.33	0.94
15.00	4.51	3.50	0.71
16.00	4.65	3.64	0.56
17.00	4.76	3.75	0.48
18.00	4.86	3.85	0.42
19.00	4.95	3.93	0.36
20.00	5.03	4.01	0.31
21.00	5.09	4.07	0.29
22.00	5.16	4.14	0.28
23.00	5.22	4.20	0.26
24.00	**5.28**	**4.25**	0.25
25.00	5.28	4.25	0.00
26.00	5.28	4.25	0.00
27.00	5.28	4.25	0.00
28.00	5.28	4.25	0.00
29.00	5.28	4.25	0.00
30.00	5.28	4.25	0.00
31.00	5.28	4.25	0.00
32.00	5.28	4.25	0.00
33.00	5.28	4.25	0.00
34.00	5.28	4.25	0.00
35.00	5.28	4.25	0.00
36.00	5.28	4.25	0.00
37.00	5.28	4.25	0.00
38.00	5.28	4.25	0.00
39.00	5.28	4.25	0.00
40.00	5.28	4.25	0.00
41.00	5.28	4.25	0.00
42.00	5.28	4.25	0.00
43.00	5.28	4.25	0.00
44.00	5.28	4.25	0.00
45.00	5.28	4.25	0.00
46.00	5.28	4.25	0.00
47.00	5.28	4.25	0.00
48.00	5.28	4.25	0.00
49.00	5.28	4.25	0.00
50.00	5.28	4.25	0.00
51.00	5.28	4.25	0.00
52.00	5.28	4.25	0.00
53.00	5.28	4.25	0.00
54.00	5.28	4.25	0.00
55.00	5.28	4.25	0.00
56.00	5.28	4.25	0.00
57.00	5.28	4.25	0.00
58.00	5.28	4.25	0.00
59.00	5.28	4.25	0.00
60.00	5.28	4.25	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 4.15" for 100-Year event
Inflow = 33.05 cfs @ 12.05 hrs, Volume= 2.108 af
Outflow = 31.92 cfs @ 12.08 hrs, Volume= 2.108 af, Atten= 3%, Lag= 1.8 min
Primary = 2.94 cfs @ 12.08 hrs, Volume= 1.275 af
Secondary = 28.98 cfs @ 12.08 hrs, Volume= 0.833 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.23' @ 12.08 hrs Surf.Area= 10,226 sf Storage= 11,585 cf

Plug-Flow detention time= 93.7 min calculated for 2.108 af (100% of inflow)
Center-of-Mass det. time= 93.9 min (886.3 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

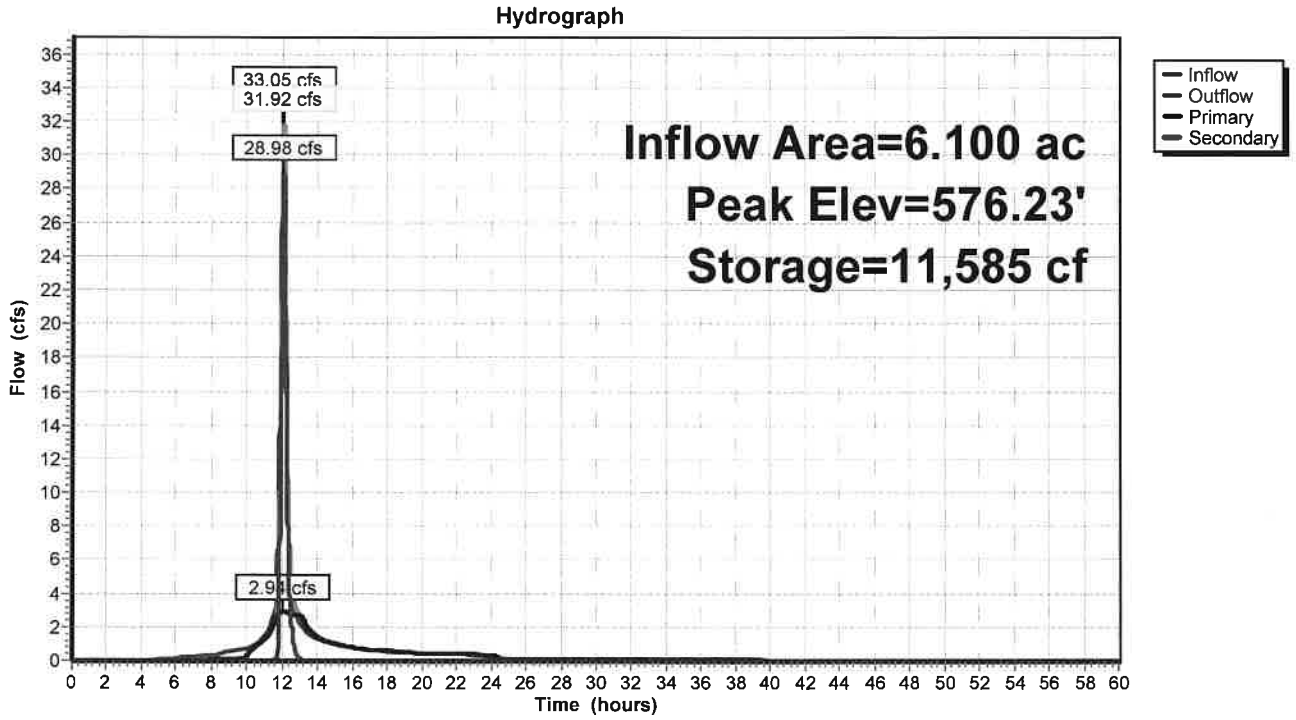
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.94 cfs @ 12.08 hrs HW=576.23' (Free Discharge)
└─**1=8" pipe** (Barrel Controls 2.94 cfs @ 8.43 fps)
  ├─**2=Grate** (Passes < 5.74 cfs potential flow)
  └─**3=Exfiltration** (Passes < 0.06 cfs potential flow)

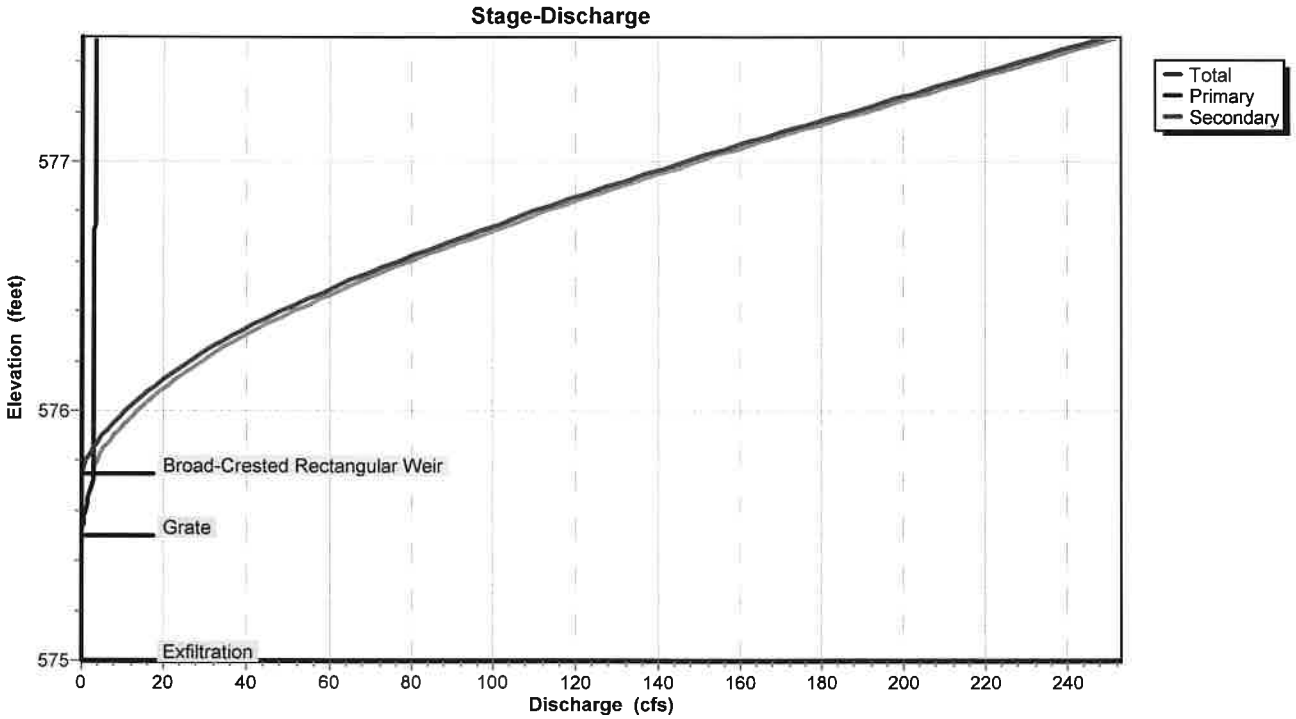
Secondary OutFlow Max=28.93 cfs @ 12.08 hrs HW=576.23' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 28.93 cfs @ 2.02 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

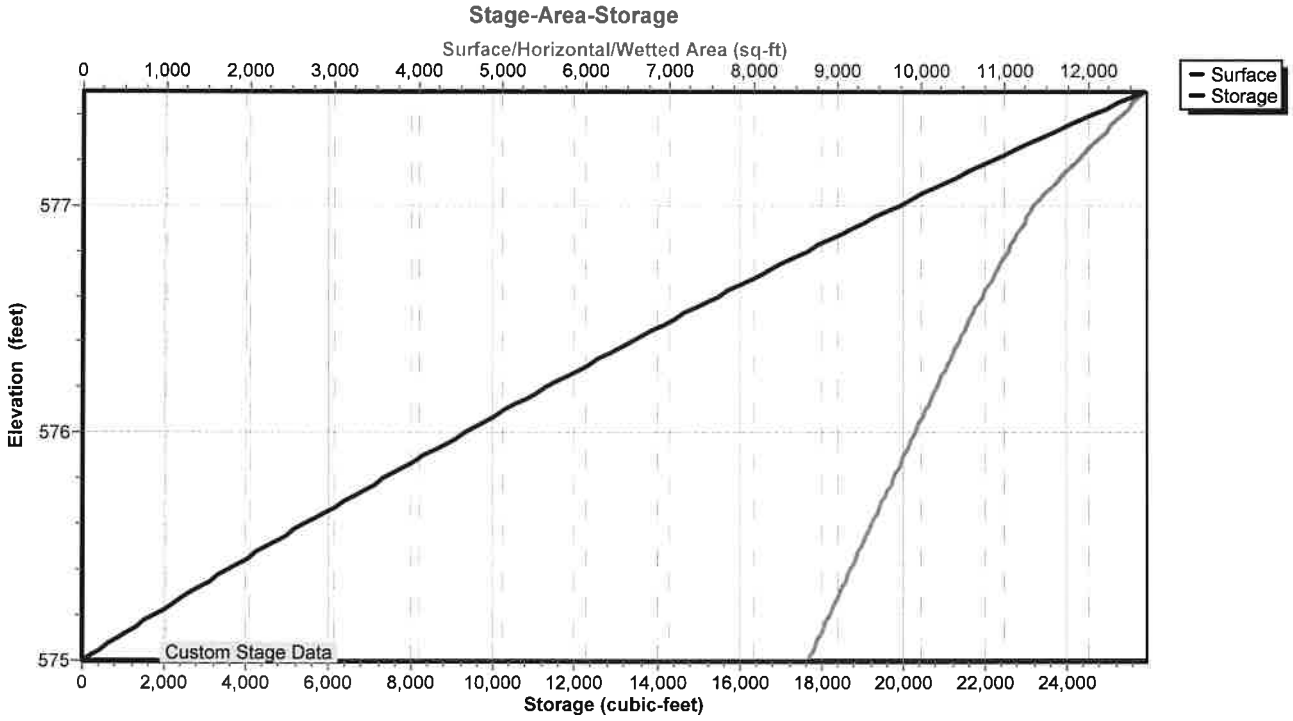


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.01	6	575.00	0.00	0.00	0.00
6.00	0.15	359	575.04	0.05	0.05	0.00
8.00	0.32	1,651	575.19	0.05	0.05	0.00
10.00	0.74	4,857	575.54	0.28	0.28	0.00
12.00	**30.36**	**10,896**	**576.16**	**25.95**	**2.91**	**23.04**
14.00	**1.27**	**5,731**	**575.63**	**1.39**	**1.39**	**0.00**
16.00	0.76	5,329	575.59	0.81	0.81	0.00
18.00	0.58	5,164	575.57	0.60	0.60	0.00
20.00	0.42	5,023	575.56	0.44	0.44	0.00
22.00	0.38	4,969	575.55	0.38	0.38	0.00
24.00	0.35	4,939	575.55	0.35	0.35	0.00
26.00	0.00	4,307	575.48	0.06	0.06	0.00
28.00	0.00	3,911	575.44	0.05	0.05	0.00
30.00	0.00	3,518	575.40	0.05	0.05	0.00
32.00	0.00	3,129	575.35	0.05	0.05	0.00
34.00	0.00	2,743	575.31	0.05	0.05	0.00
36.00	0.00	2,360	575.27	0.05	0.05	0.00
38.00	0.00	1,981	575.23	0.05	0.05	0.00
40.00	0.00	1,604	575.18	0.05	0.05	0.00
42.00	0.00	1,232	575.14	0.05	0.05	0.00
44.00	0.00	862	575.10	0.05	0.05	0.00
46.00	0.00	496	575.06	0.05	0.05	0.00
48.00	0.00	147	575.02	0.03	0.03	0.00
50.00	0.00	28	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 6.52" for 100-Year event
Inflow = 52.24 cfs @ 12.07 hrs, Volume= 2.392 af
Outflow = 8.57 cfs @ 12.41 hrs, Volume= 2.088 af, Atten= 84%, Lag= 20.7 min
Primary = 0.78 cfs @ 12.41 hrs, Volume= 1.554 af
Secondary = 7.80 cfs @ 12.41 hrs, Volume= 0.534 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.11' @ 12.41 hrs Surf.Area= 67,462 sf Storage= 70,722 cf

Plug-Flow detention time= 739.0 min calculated for 2.088 af (87% of inflow)
Center-of-Mass det. time= 688.7 min (1,456.5 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

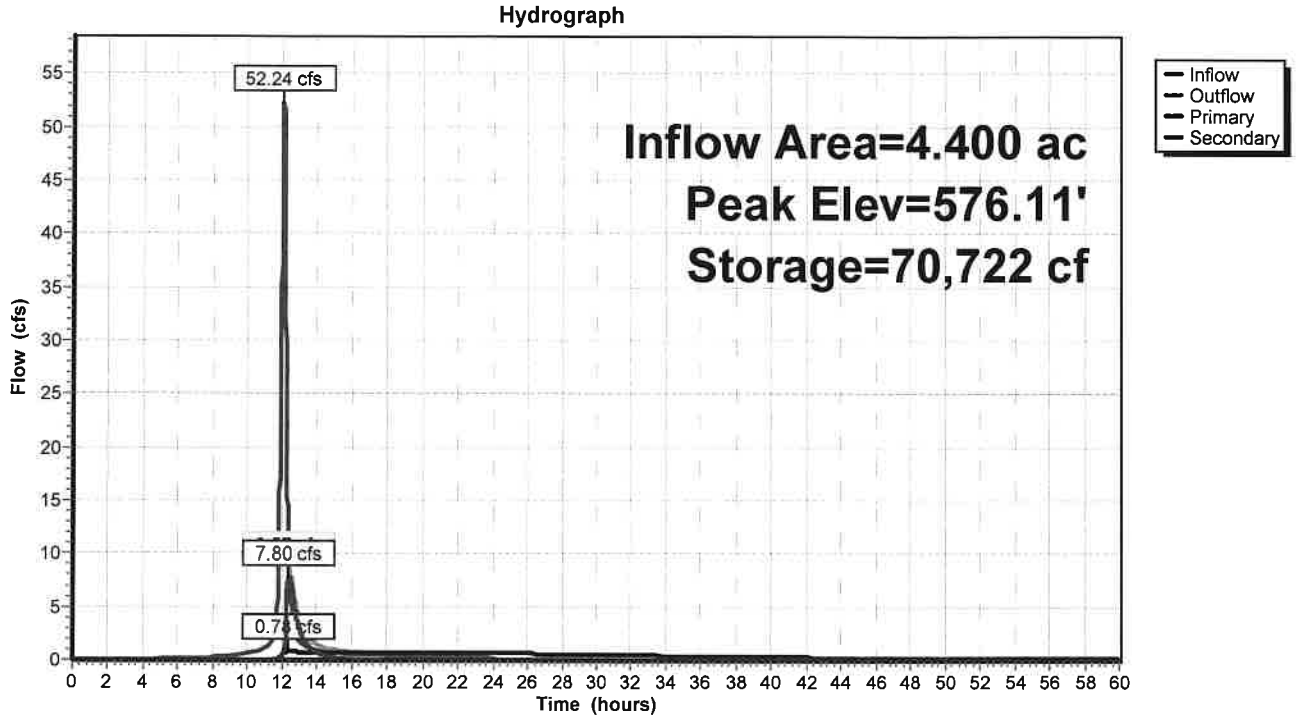
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.78 cfs @ 12.41 hrs HW=576.11' (Free Discharge)
└─**1=12" outlet pipe** (Passes 0.78 cfs of 2.84 cfs potential flow)
  ├─**2=low flow outlet pipe** (Inlet Controls 0.78 cfs @ 3.95 fps)
  └─**3=Grate** (Controls 0.00 cfs)

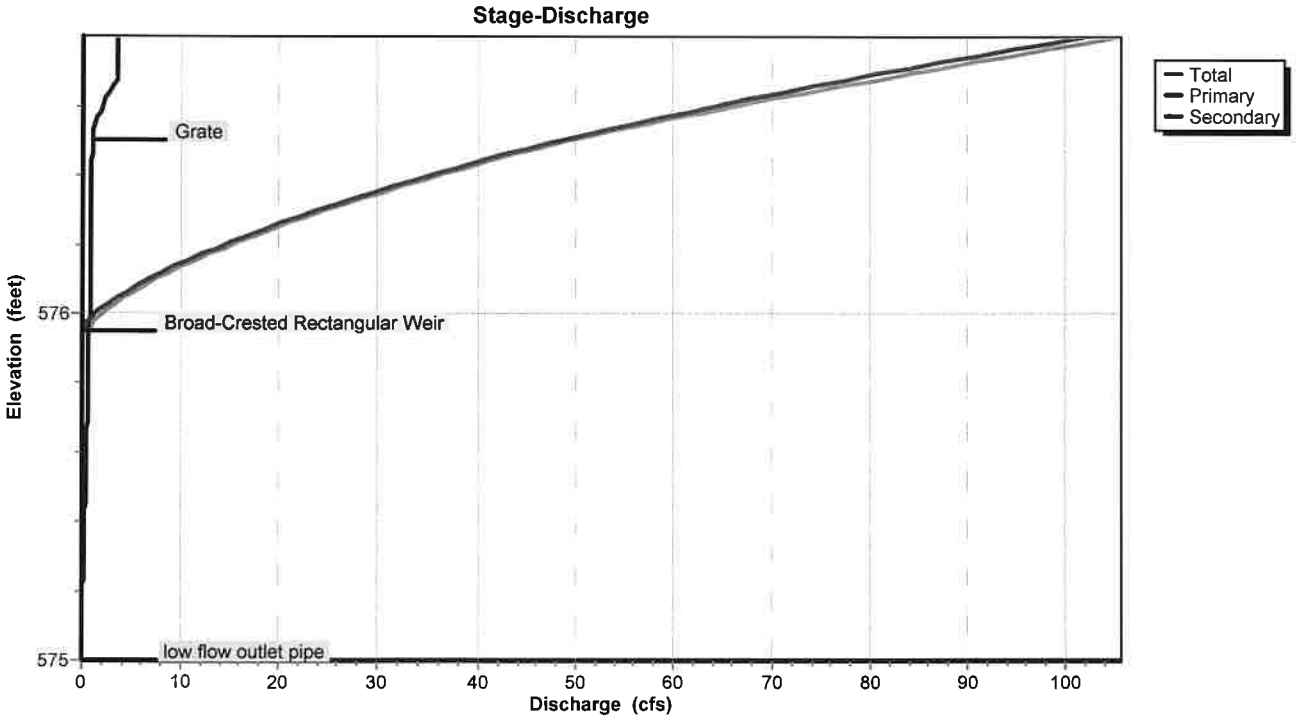
Secondary OutFlow Max=7.79 cfs @ 12.41 hrs HW=576.11' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 7.79 cfs @ 1.18 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

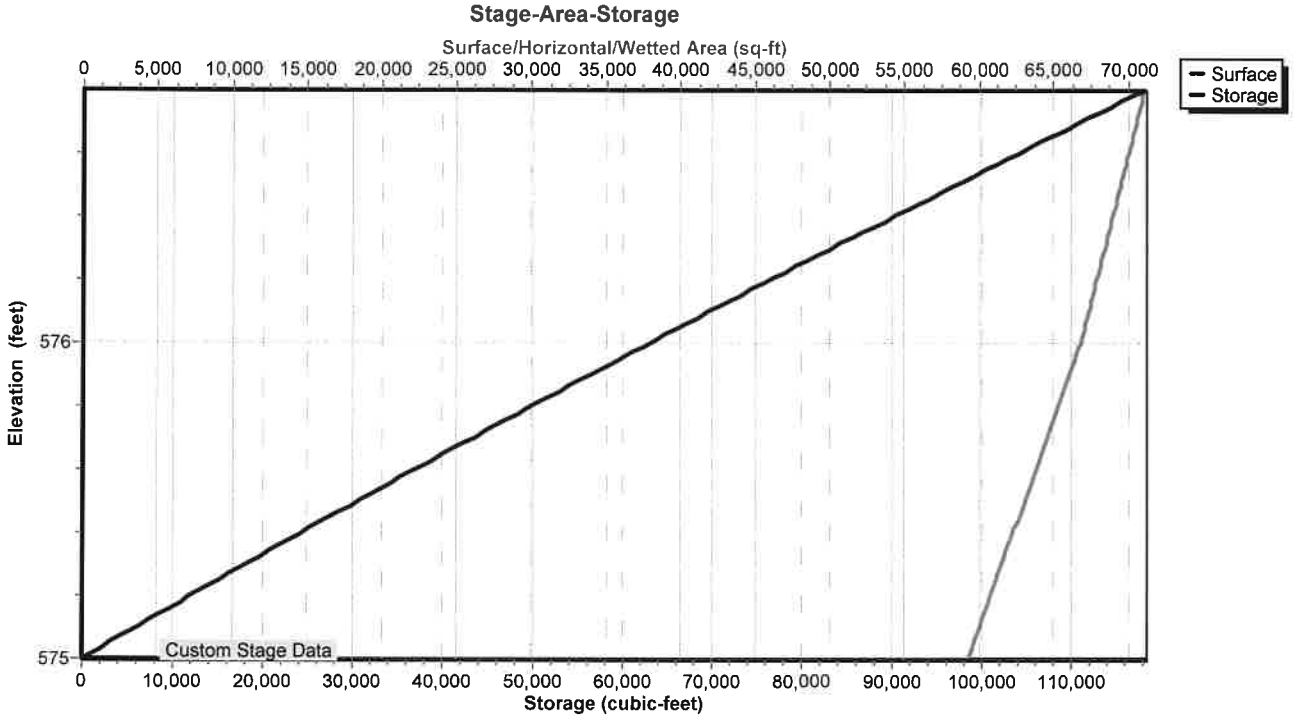


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.02	25	575.00	0.00	0.00	0.00
6.00	0.13	556	575.01	0.00	0.00	0.00
8.00	0.25	1,914	575.03	0.00	0.00	0.00
10.00	0.57	4,720	575.08	0.01	0.01	0.00
12.00	**43.89**	**31,253**	**575.51**	**0.38**	**0.38**	**0.00**
14.00	**0.94**	**61,894**	**575.98**	**1.43**	**0.71**	**0.72**
16.00	0.56	59,972	575.95	0.73	0.70	0.03
18.00	0.42	58,398	575.93	0.69	0.69	0.00
20.00	0.31	56,130	575.90	0.67	0.67	0.00
22.00	0.28	53,450	575.86	0.65	0.65	0.00
24.00	0.25	50,762	575.81	0.63	0.63	0.00
26.00	0.00	46,581	575.75	0.59	0.59	0.00
28.00	0.00	42,588	575.69	0.52	0.52	0.00
30.00	0.00	38,979	575.63	0.49	0.49	0.00
32.00	0.00	35,609	575.58	0.45	0.45	0.00
34.00	0.00	32,555	575.53	0.40	0.40	0.00
36.00	0.00	29,827	575.49	0.36	0.36	0.00
38.00	0.00	27,407	575.45	0.32	0.32	0.00
40.00	0.00	25,264	575.42	0.28	0.28	0.00
42.00	0.00	23,368	575.39	0.25	0.25	0.00
44.00	0.00	21,686	575.36	0.22	0.22	0.00
46.00	0.00	20,191	575.33	0.20	0.20	0.00
48.00	0.00	18,858	575.31	0.17	0.17	0.00
50.00	0.00	17,665	575.29	0.16	0.16	0.00
52.00	0.00	16,594	575.28	0.14	0.14	0.00
54.00	0.00	15,630	575.26	0.13	0.13	0.00
56.00	0.00	14,758	575.25	0.12	0.12	0.00
58.00	0.00	13,967	575.23	0.10	0.10	0.00
60.00	0.00	13,248	575.22	0.10	0.10	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

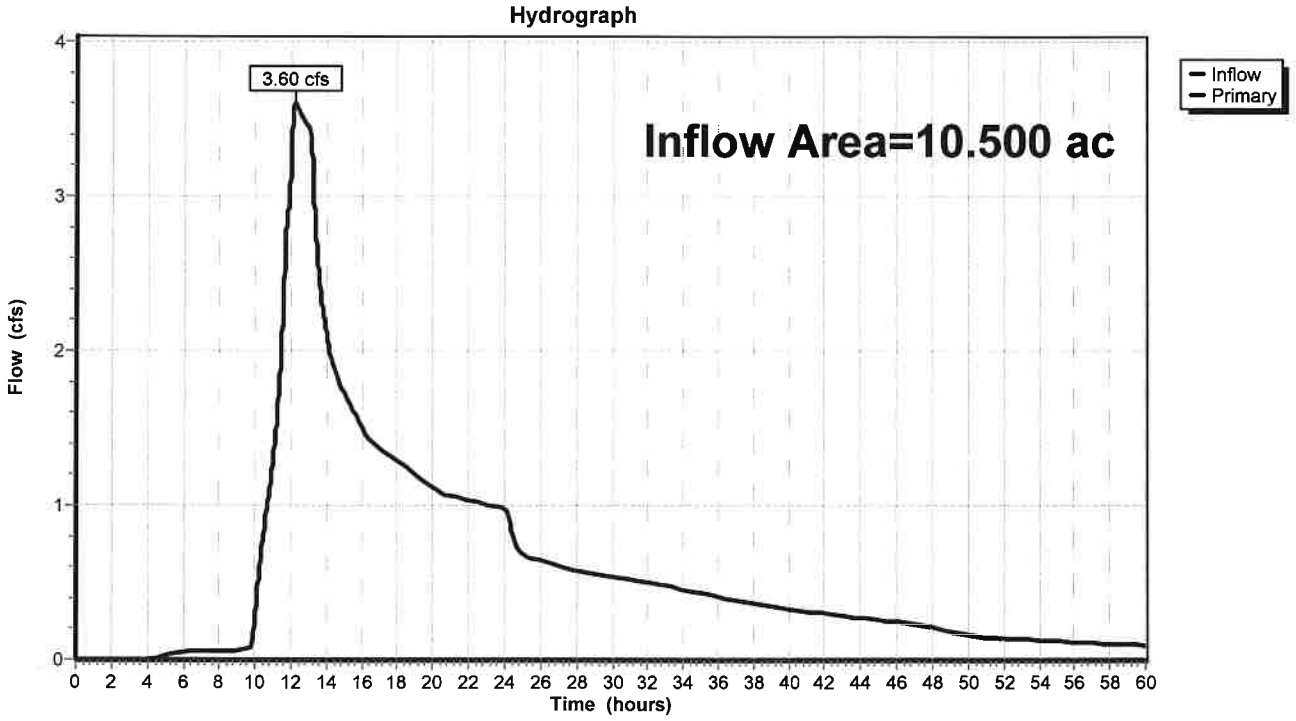
Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 3.23" for 100-Year event
Inflow = 3.60 cfs @ 12.19 hrs, Volume= 2.829 af
Primary = 3.60 cfs @ 12.19 hrs, Volume= 2.829 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

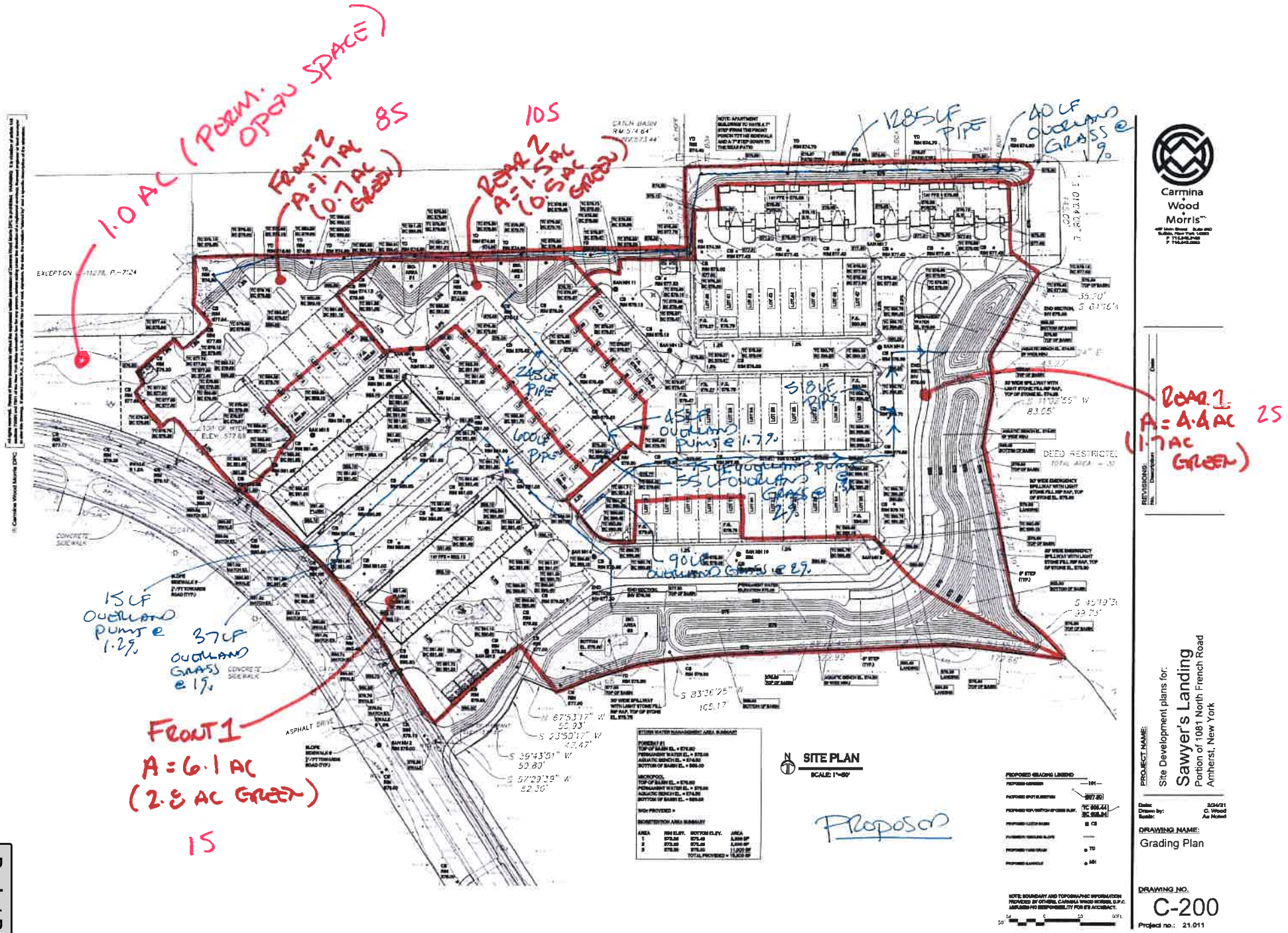
Hydrograph for Link 5L: Outflow (@ CB 54)

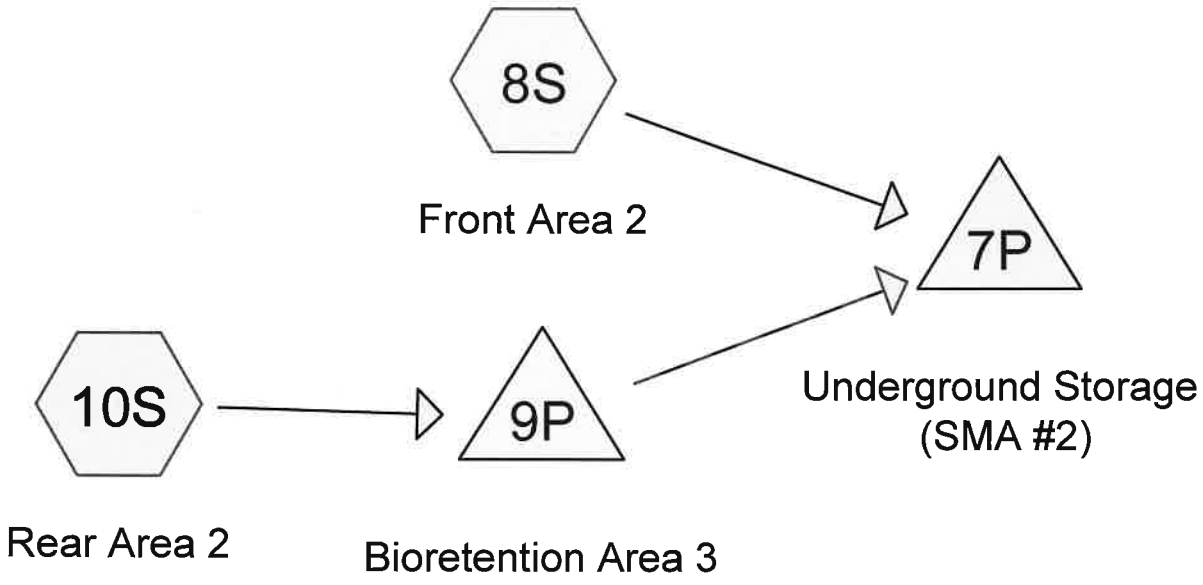
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.14	0.00	0.14
1.00	0.00	0.00	0.00	53.00	0.13	0.00	0.13
2.00	0.00	0.00	0.00	54.00	0.13	0.00	0.13
3.00	0.00	0.00	0.00	55.00	0.12	0.00	0.12
4.00	0.00	0.00	0.00	56.00	0.12	0.00	0.12
5.00	0.03	0.00	0.03	57.00	0.11	0.00	0.11
6.00	0.05	0.00	0.05	58.00	0.10	0.00	0.10
7.00	0.05	0.00	0.05	59.00	0.10	0.00	0.10
8.00	0.05	0.00	0.05	60.00	0.10	0.00	0.10
9.00	0.06	0.00	0.06				
10.00	0.30	0.00	0.30				
11.00	1.31	0.00	1.31				
12.00	**3.29**	0.00	**3.29**				
13.00	**3.44**	0.00	**3.44**				
14.00	2.10	0.00	2.10				
15.00	1.72	0.00	1.72				
16.00	1.51	0.00	1.51				
17.00	1.37	0.00	1.37				
18.00	1.29	0.00	1.29				
19.00	1.20	0.00	1.20				
20.00	1.11	0.00	1.11				
21.00	1.06	0.00	1.06				
22.00	1.03	0.00	1.03				
23.00	1.01	0.00	1.01				
24.00	0.98	0.00	0.98				
25.00	0.68	0.00	0.68				
26.00	0.64	0.00	0.64				
27.00	0.61	0.00	0.61				
28.00	0.58	0.00	0.58				
29.00	0.55	0.00	0.55				
30.00	0.54	0.00	0.54				
31.00	0.52	0.00	0.52				
32.00	0.50	0.00	0.50				
33.00	0.48	0.00	0.48				
34.00	0.45	0.00	0.45				
35.00	0.43	0.00	0.43				
36.00	0.41	0.00	0.41				
37.00	0.39	0.00	0.39				
38.00	0.37	0.00	0.37				
39.00	0.35	0.00	0.35				
40.00	0.33	0.00	0.33				
41.00	0.32	0.00	0.32				
42.00	0.30	0.00	0.30				
43.00	0.28	0.00	0.28				
44.00	0.27	0.00	0.27				
45.00	0.26	0.00	0.26				
46.00	0.25	0.00	0.25				
47.00	0.24	0.00	0.24				
48.00	0.21	0.00	0.21				
49.00	0.18	0.00	0.18				
50.00	0.16	0.00	0.16				
51.00	0.15	0.00	0.15				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Proposed Runoff - West

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)


1.0 AC (PERM. OPEN SPACE)
FRONT 2
A=1.7AC
(0.7AC GREEN)
85
REAR 2
A=1.5AC
(0.5AC GREEN)
105
1285LF PIPE
40LF OVERLAND GRASS @ 1%
245LF PIPE
600LF PIPE
45LF OVERLAND PUMP @ 1.7%
518LF PIPE
35LF OVERLAND PUMP
35LF OVERLAND GRASS @ 1.5%
90LF OVERLAND GRASS @ 2%
REAR 1
A=4.4AC
(1.7AC GREEN)
25
15LF OVERLAND PUMP @ 1.2%
37LF OVERLAND GRASS @ 1%
FRONT 1
A=6.1AC
(2.8AC GREEN)
15
SITE PLAN
SCALE: 1"=80'
PROPOSED
Carmina Wood Morris
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York
DRAWING NAME:
Grading Plan
DRAWING NO.
C-200
Project no.: 21.011



Subcat Reach Pond Link

Routing Diagram for 21.011 Proposed
Prepared by Hewlett-Packard Company, Printed 3/4/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Events for Pond 7P: Underground Storage

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	2.40	0.33	570.29	4,537
2-Year	4.15	0.68	570.46	5,990
5-Year	7.03	1.05	570.79	8,639
10-Year	9.17	1.28	571.13	11,342
25-Year	11.11	1.61	571.73	15,804
50-Year	12.80	3.61	572.23	18,836
100-Year	**14.92**	**4.83**	**572.92**	**21,772**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.200	80	>75% Grass cover, Good, HSG D (8S, 10S)
1.200	98	Paved parking, HSG D (8S, 10S)
0.800	98	Roofs, HSG D (8S, 10S)
3.200	**91**	**TOTAL AREA**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
3.200	HSG D	8S, 10S
0.000	Other	
3.200		**TOTAL AREA**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmer Numbers
0.000	0.000	0.000	1.200	0.000	1.200	>75% Grass cover, Good	8S, 10S
0.000	0.000	0.000	1.200	0.000	1.200	Paved parking	8S, 10S
0.000	0.000	0.000	0.800	0.000	0.800	Roofs	8S, 10S
0.000	**0.000**	**0.000**	**3.200**	**0.000**	**3.200**	**TOTAL AREA**	

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.04"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=2.36 cfs 0.148 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.11"
Flow Length=345' Tc=9.1 min CN=92 Runoff=2.63 cfs 0.139 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.29' Storage=4,537 cf Inflow=2.40 cfs 0.287 af
Outflow=0.33 cfs 0.243 af

Pond 9P: Bioretention Area 3 Peak Elev=574.54' Storage=2,922 cf Inflow=2.63 cfs 0.139 af
Outflow=0.43 cfs 0.139 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.287 af Average Runoff Depth = 1.08"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

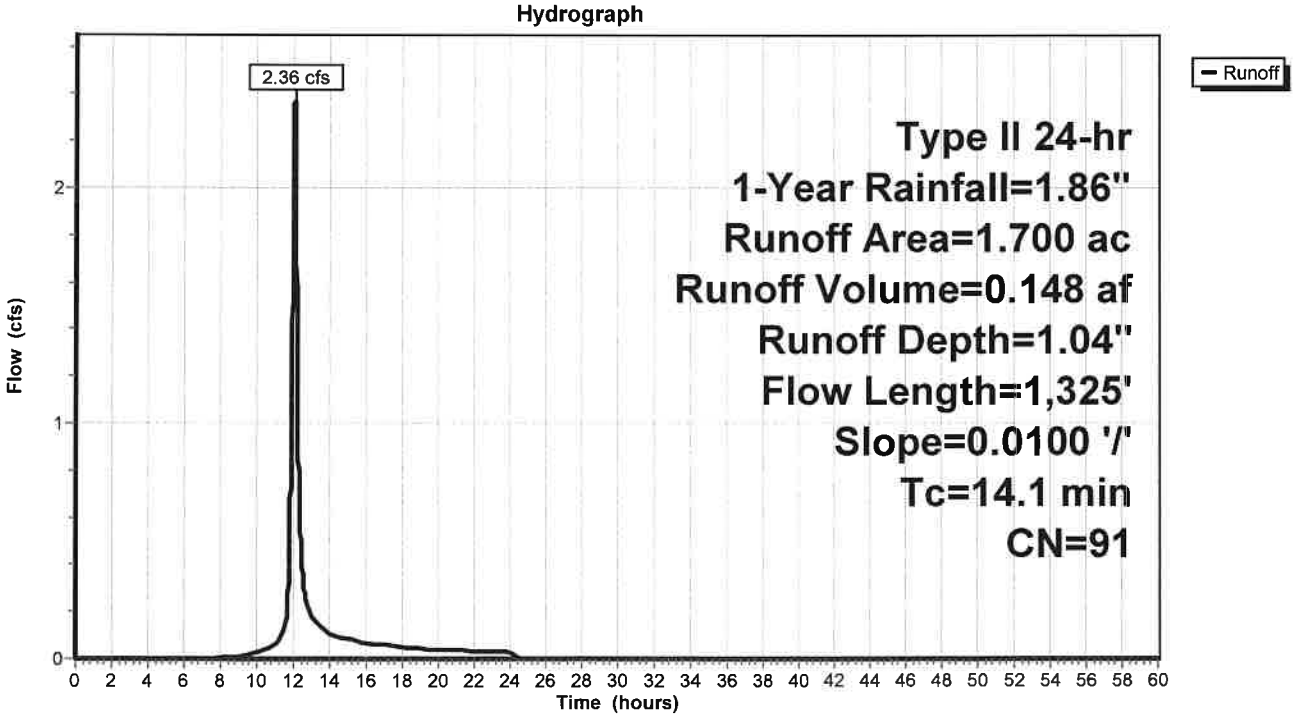
Runoff = 2.36 cfs @ 12.06 hrs, Volume= 0.148 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.01	0.01
10.00	0.34	0.02	0.02
11.00	0.44	0.05	0.07
12.00	1.23	0.53	**2.04**
13.00	1.44	0.69	**0.18**
14.00	1.53	0.76	0.11
15.00	1.59	0.81	0.08
16.00	1.64	0.85	0.07
17.00	1.68	0.89	0.06
18.00	1.71	0.92	0.05
19.00	1.74	0.94	0.04
20.00	1.77	0.97	0.04
21.00	1.79	0.99	0.03
22.00	1.82	1.01	0.03
23.00	1.84	1.02	0.03
24.00	**1.86**	**1.04**	0.03
25.00	1.86	1.04	0.00
26.00	1.86	1.04	0.00
27.00	1.86	1.04	0.00
28.00	1.86	1.04	0.00
29.00	1.86	1.04	0.00
30.00	1.86	1.04	0.00
31.00	1.86	1.04	0.00
32.00	1.86	1.04	0.00
33.00	1.86	1.04	0.00
34.00	1.86	1.04	0.00
35.00	1.86	1.04	0.00
36.00	1.86	1.04	0.00
37.00	1.86	1.04	0.00
38.00	1.86	1.04	0.00
39.00	1.86	1.04	0.00
40.00	1.86	1.04	0.00
41.00	1.86	1.04	0.00
42.00	1.86	1.04	0.00
43.00	1.86	1.04	0.00
44.00	1.86	1.04	0.00
45.00	1.86	1.04	0.00
46.00	1.86	1.04	0.00
47.00	1.86	1.04	0.00
48.00	1.86	1.04	0.00
49.00	1.86	1.04	0.00
50.00	1.86	1.04	0.00
51.00	1.86	1.04	0.00
52.00	1.86	1.04	0.00
53.00	1.86	1.04	0.00
54.00	1.86	1.04	0.00
55.00	1.86	1.04	0.00
56.00	1.86	1.04	0.00
57.00	1.86	1.04	0.00
58.00	1.86	1.04	0.00
59.00	1.86	1.04	0.00
60.00	1.86	1.04	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

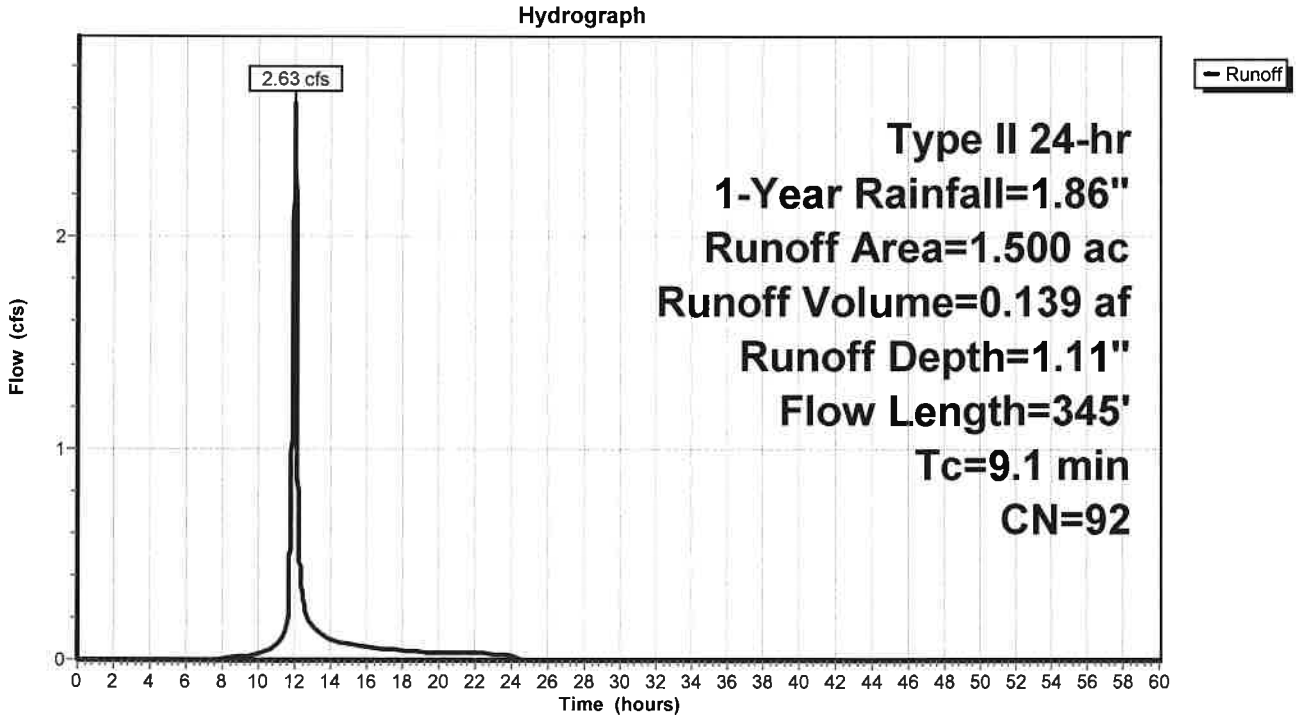
Runoff = 2.63 cfs @ 12.01 hrs, Volume= 0.139 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.01
9.00	0.27	0.01	0.02
10.00	0.34	0.03	0.03
11.00	0.44	0.06	0.07
12.00	1.23	0.58	**2.63**
13.00	1.44	0.75	**0.16**
14.00	1.53	0.82	0.09
15.00	1.59	0.88	0.07
16.00	1.64	0.92	0.06
17.00	1.68	0.95	0.05
18.00	1.71	0.98	0.04
19.00	1.74	1.01	0.04
20.00	1.77	1.03	0.03
21.00	1.79	1.05	0.03
22.00	1.82	1.07	0.03
23.00	1.84	1.09	0.03
24.00	**1.86**	**1.11**	0.03
25.00	1.86	1.11	0.00
26.00	1.86	1.11	0.00
27.00	1.86	1.11	0.00
28.00	1.86	1.11	0.00
29.00	1.86	1.11	0.00
30.00	1.86	1.11	0.00
31.00	1.86	1.11	0.00
32.00	1.86	1.11	0.00
33.00	1.86	1.11	0.00
34.00	1.86	1.11	0.00
35.00	1.86	1.11	0.00
36.00	1.86	1.11	0.00
37.00	1.86	1.11	0.00
38.00	1.86	1.11	0.00
39.00	1.86	1.11	0.00
40.00	1.86	1.11	0.00
41.00	1.86	1.11	0.00
42.00	1.86	1.11	0.00
43.00	1.86	1.11	0.00
44.00	1.86	1.11	0.00
45.00	1.86	1.11	0.00
46.00	1.86	1.11	0.00
47.00	1.86	1.11	0.00
48.00	1.86	1.11	0.00
49.00	1.86	1.11	0.00
50.00	1.86	1.11	0.00
51.00	1.86	1.11	0.00
52.00	1.86	1.11	0.00
53.00	1.86	1.11	0.00
54.00	1.86	1.11	0.00
55.00	1.86	1.11	0.00
56.00	1.86	1.11	0.00
57.00	1.86	1.11	0.00
58.00	1.86	1.11	0.00
59.00	1.86	1.11	0.00
60.00	1.86	1.11	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.08" for 1-Year event
Inflow = 2.40 cfs @ 12.06 hrs, Volume= 0.287 af
Outflow = 0.33 cfs @ 13.18 hrs, Volume= 0.243 af, Atten= 86%, Lag= 67.2 min
Primary = 0.33 cfs @ 13.18 hrs, Volume= 0.243 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.29' @ 13.18 hrs Surf.Area= 10,145 sf Storage= 4,537 cf

Plug-Flow detention time= 493.3 min calculated for 0.243 af (85% of inflow)
Center-of-Mass det. time= 283.3 min (1,405.6 - 1,122.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

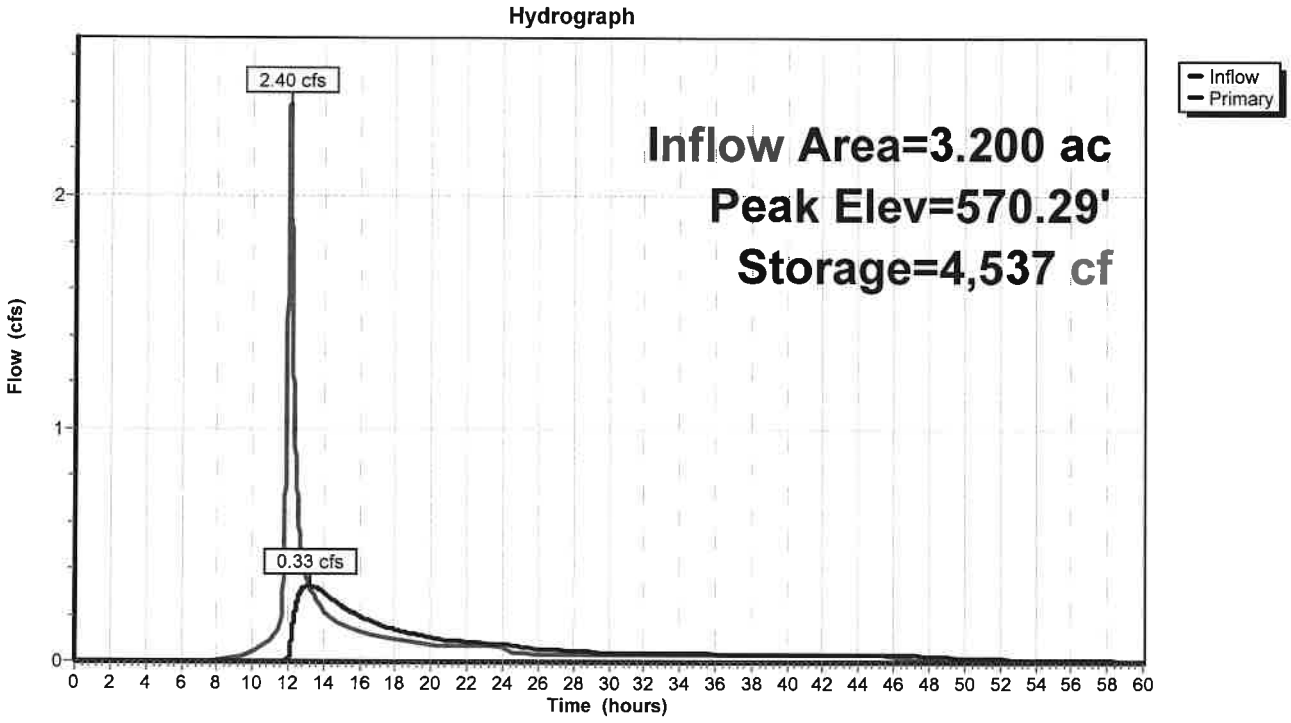
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

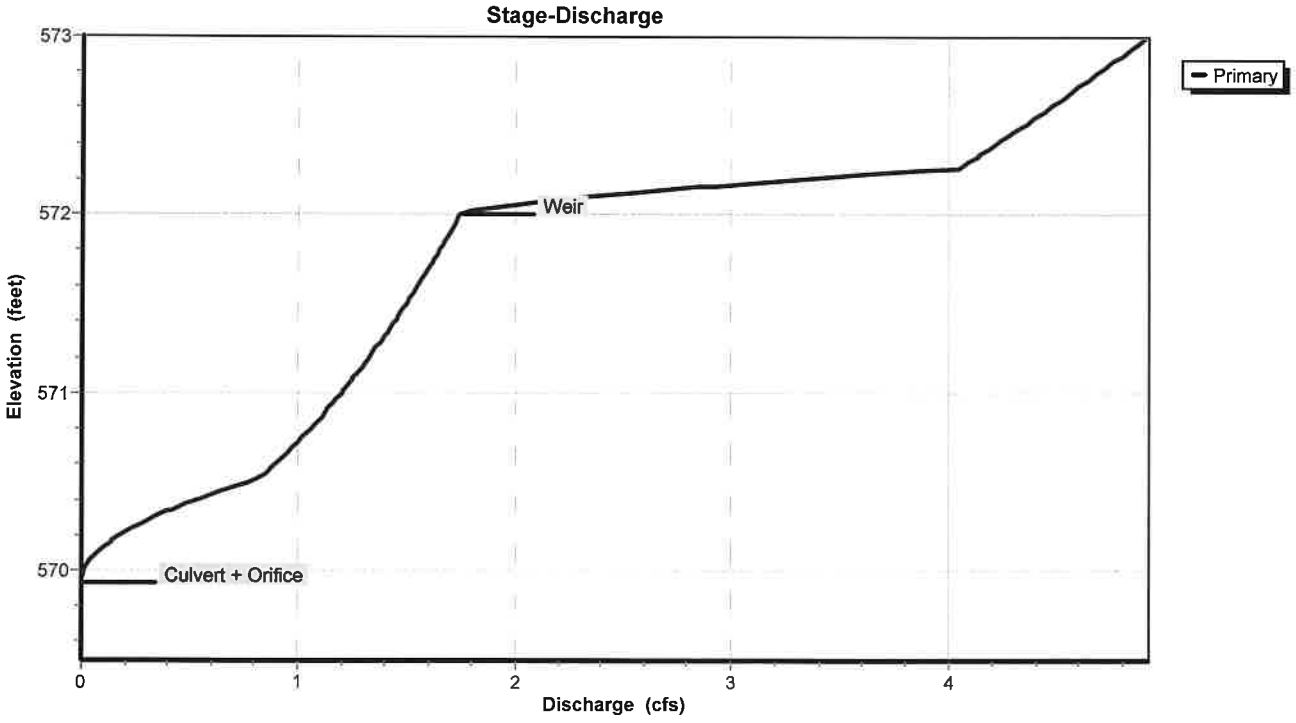
Primary OutFlow Max=0.32 cfs @ 13.18 hrs HW=570.29' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.32 cfs @ 1.88 fps)
  ├**2=Orifice** (Passes 0.32 cfs of 0.56 cfs potential flow)
  └**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

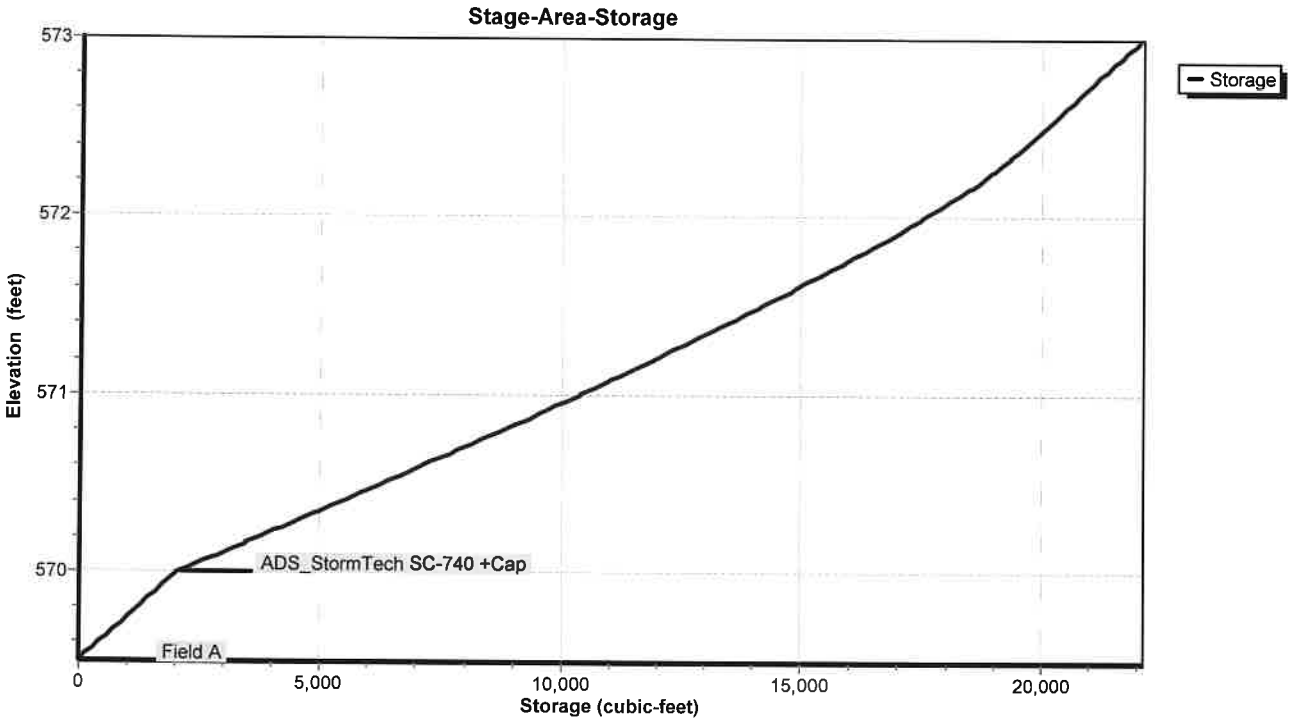


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	0	569.50	0.00
8.00	0.00	4	569.50	0.00
10.00	0.04	139	569.53	0.00
12.00	**2.08**	**1,735**	**569.93**	**0.00**
14.00	**0.22**	**4,393**	**570.28**	**0.30**
16.00	0.13	3,835	570.21	0.20
18.00	0.10	3,452	570.17	0.14
20.00	0.07	3,194	570.14	0.10
22.00	0.07	3,023	570.12	0.08
24.00	0.06	2,931	570.10	0.07
26.00	0.03	2,737	570.08	0.06
28.00	0.03	2,618	570.07	0.05
30.00	0.03	2,550	570.06	0.04
32.00	0.03	2,506	570.06	0.04
34.00	0.03	2,476	570.05	0.04
36.00	0.03	2,453	570.05	0.03
38.00	0.03	2,436	570.05	0.03
40.00	0.03	2,422	570.05	0.03
42.00	0.03	2,410	570.04	0.03
44.00	0.03	2,399	570.04	0.03
46.00	0.03	2,388	570.04	0.03
48.00	0.01	2,288	570.03	0.02
50.00	0.00	2,166	570.02	0.02
52.00	0.00	2,066	570.00	0.01
54.00	0.00	1,993	569.99	0.01
56.00	0.00	1,945	569.98	0.01
58.00	0.00	1,910	569.97	0.00
60.00	0.00	1,885	569.96	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)
569.50	0
569.55	203
569.60	406
569.65	609
569.70	812
569.75	1,014
569.80	1,217
569.85	1,420
569.90	1,623
569.95	1,826
570.00	2,029
570.05	2,459
570.10	2,889
570.15	3,318
570.20	3,746
570.25	4,173
570.30	4,598
570.35	5,022
570.40	5,444
570.45	5,865
570.50	6,284
570.55	6,701
570.60	7,116
570.65	7,529
570.70	7,940
570.75	8,349
570.80	8,756
570.85	9,160
570.90	9,562
570.95	9,962
571.00	10,359
571.05	10,754
571.10	11,145
571.15	11,534
571.20	11,919
571.25	12,301
571.30	12,680
571.35	13,056
571.40	13,428
571.45	13,797
571.50	14,161
571.55	14,522
571.60	14,879
571.65	15,230
571.70	15,577
571.75	15,917
571.80	16,252
571.85	16,582
571.90	16,906
571.95	17,224
572.00	17,535
572.05	17,838
572.10	18,133
572.15	18,417
572.20	18,690
572.25	18,946
572.30	19,188
572.35	19,417
572.40	19,637
572.45	19,850
572.50	20,057
572.55	20,260
572.60	20,463
572.65	20,665
572.70	20,868
572.75	21,071
572.80	21,274
572.85	21,477
572.90	21,680
572.95	21,883
573.00	**22,086**

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.11" for 1-Year event
Inflow = 2.63 cfs @ 12.01 hrs, Volume= 0.139 af
Outflow = 0.43 cfs @ 12.29 hrs, Volume= 0.139 af, Atten= 84%, Lag= 17.0 min
Primary = 0.43 cfs @ 12.29 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.54' @ 12.29 hrs Surf.Area= 5,881 sf Storage= 2,922 cf

Plug-Flow detention time= 615.0 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 615.0 min (1,433.7 - 818.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

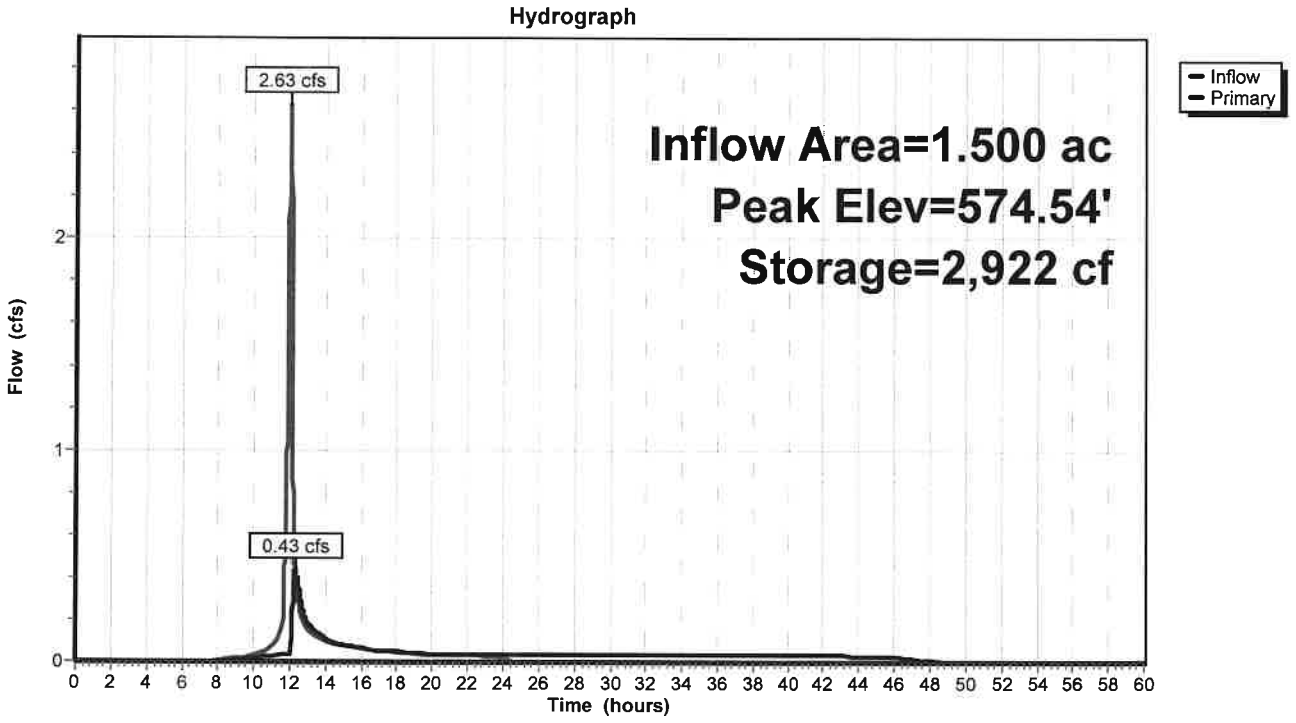
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

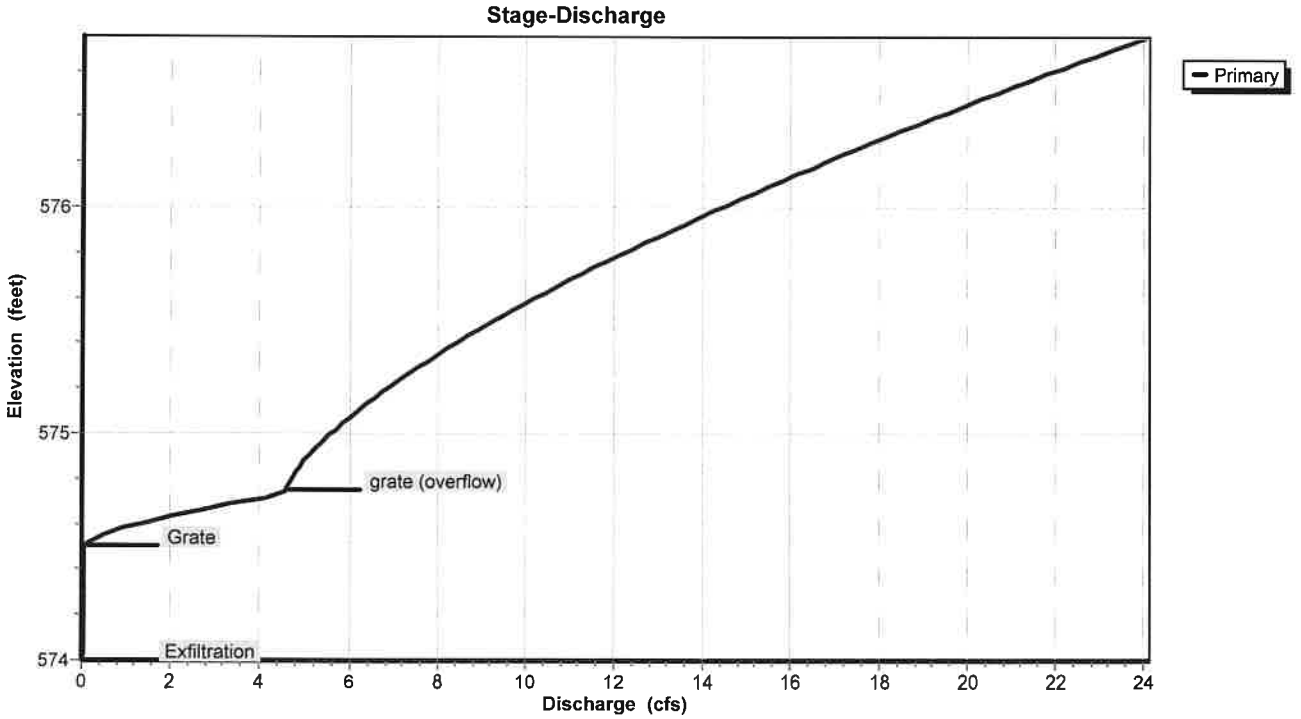
Primary OutFlow Max=0.42 cfs @ 12.29 hrs HW=574.54' (Free Discharge)
- **1=8" pipe** (Passes 0.42 cfs of 4.43 cfs potential flow)
  - **2=Grate** (Weir Controls 0.39 cfs @ 0.69 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

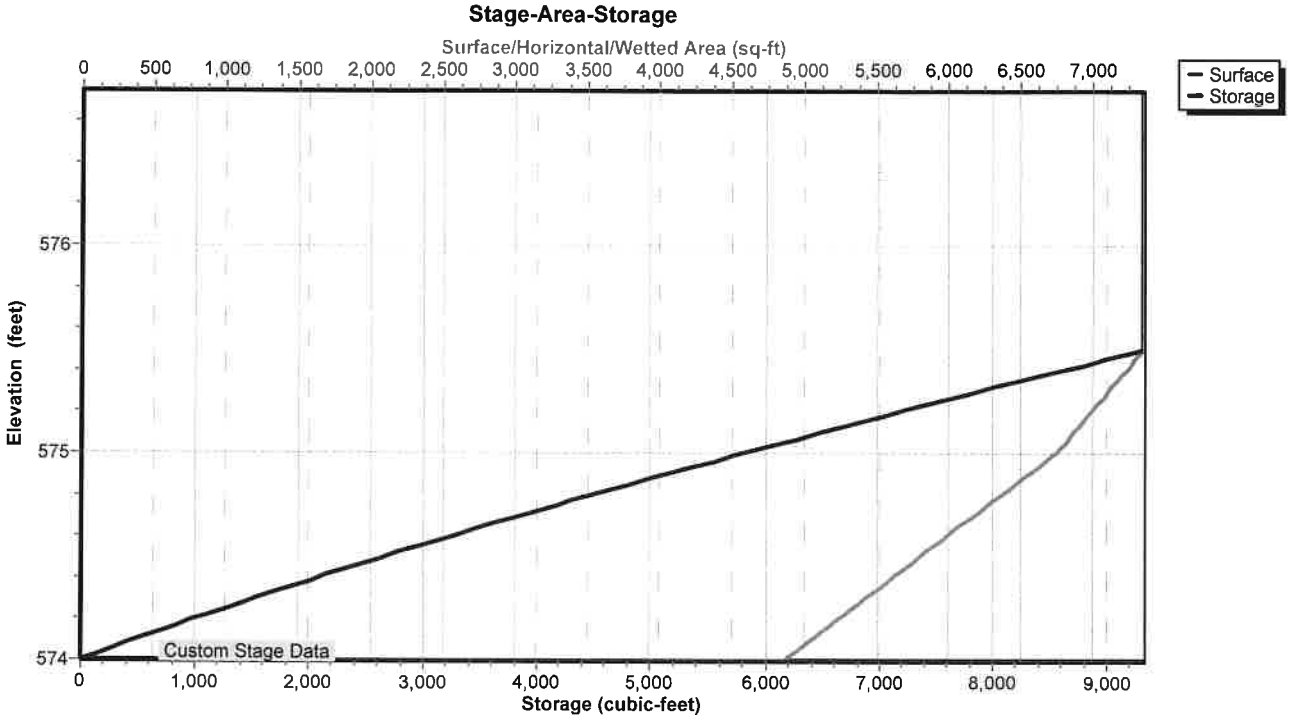


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.00	0	574.00	0.00
8.00	0.01	9	574.00	0.00
10.00	0.03	70	574.01	0.01
12.00	**2.63**	**1,806**	**574.35**	**0.03**
14.00	**0.09**	**2,731**	**574.51**	**0.11**
16.00	0.06	2,688	574.50	0.06
18.00	0.04	2,673	574.50	0.05
20.00	0.03	2,662	574.50	0.03
22.00	0.03	2,636	574.50	0.03
24.00	0.03	2,594	574.49	0.03
26.00	0.00	2,362	574.45	0.03
28.00	0.00	2,119	574.40	0.03
30.00	0.00	1,881	574.36	0.03
32.00	0.00	1,647	574.32	0.03
34.00	0.00	1,417	574.28	0.03
36.00	0.00	1,190	574.23	0.03
38.00	0.00	968	574.19	0.03
40.00	0.00	750	574.15	0.03
42.00	0.00	536	574.11	0.03
44.00	0.00	326	574.07	0.03
46.00	0.00	120	574.02	0.03
48.00	0.00	26	574.01	0.01
50.00	0.00	6	574.00	0.00
52.00	0.00	1	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.34"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=3.03 cfs 0.190 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.42"
Flow Length=345' Tc=9.1 min CN=92 Runoff=3.32 cfs 0.177 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.46' Storage=5,990 cf Inflow=4.15 cfs 0.367 af
Outflow=0.68 cfs 0.324 af

Pond 9P: Bioretention Area 3 Peak Elev=574.60' Storage=3,274 cf Inflow=3.32 cfs 0.177 af
Outflow=1.41 cfs 0.177 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.367 af Average Runoff Depth = 1.38"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

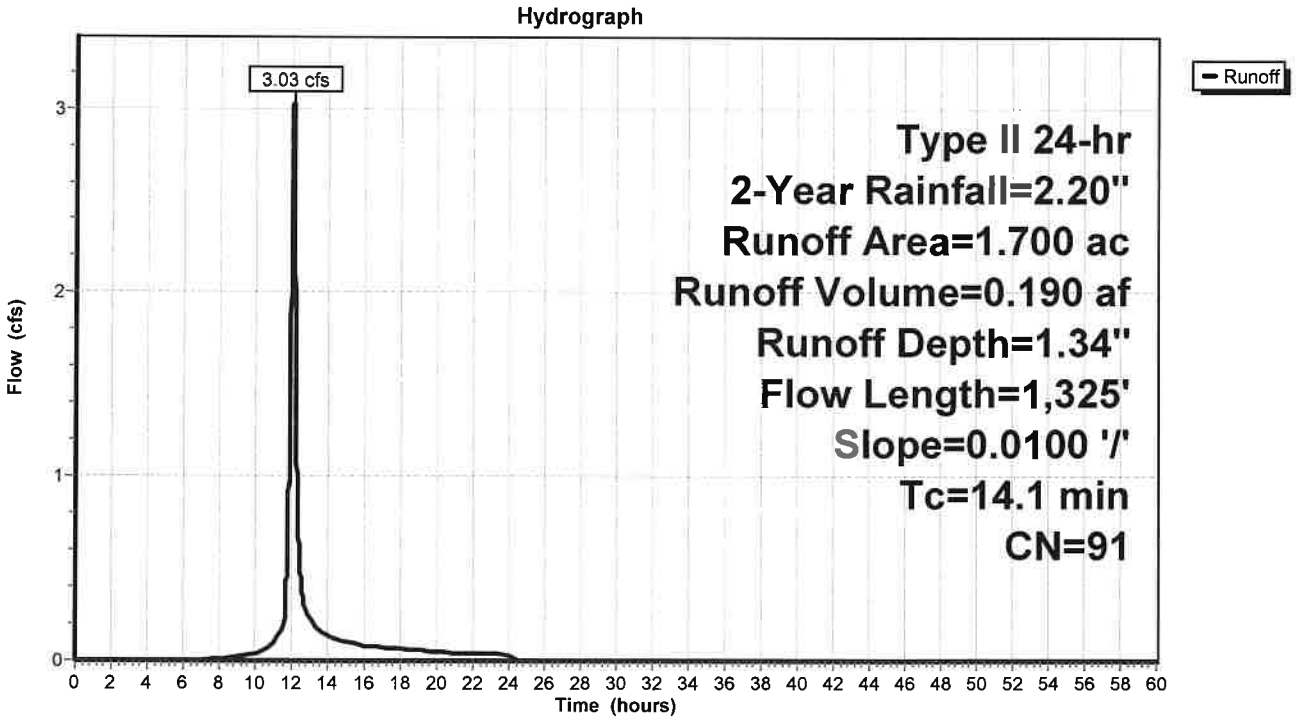
Runoff = 3.03 cfs @ 12.06 hrs, Volume= 0.190 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass**
					Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.01
9.00	0.32	0.01	0.02
10.00	0.40	0.03	0.04
11.00	0.52	0.08	0.10
12.00	1.46	0.71	**2.64**
13.00	1.70	0.90	**0.23**
14.00	1.80	0.99	0.13
15.00	1.88	1.06	0.10
16.00	1.94	1.11	0.08
17.00	1.98	1.15	0.07
18.00	2.03	1.19	0.06
19.00	2.06	1.22	0.05
20.00	2.09	1.25	0.05
21.00	2.12	1.27	0.04
22.00	2.15	1.30	0.04
23.00	2.18	1.32	0.04
24.00	**2.20**	**1.34**	0.04
25.00	2.20	1.34	0.00
26.00	2.20	1.34	0.00
27.00	2.20	1.34	0.00
28.00	2.20	1.34	0.00
29.00	2.20	1.34	0.00
30.00	2.20	1.34	0.00
31.00	2.20	1.34	0.00
32.00	2.20	1.34	0.00
33.00	2.20	1.34	0.00
34.00	2.20	1.34	0.00
35.00	2.20	1.34	0.00
36.00	2.20	1.34	0.00
37.00	2.20	1.34	0.00
38.00	2.20	1.34	0.00
39.00	2.20	1.34	0.00
40.00	2.20	1.34	0.00
41.00	2.20	1.34	0.00
42.00	2.20	1.34	0.00
43.00	2.20	1.34	0.00
44.00	2.20	1.34	0.00
45.00	2.20	1.34	0.00
46.00	2.20	1.34	0.00
47.00	2.20	1.34	0.00
48.00	2.20	1.34	0.00
49.00	2.20	1.34	0.00
50.00	2.20	1.34	0.00
51.00	2.20	1.34	0.00
52.00	2.20	1.34	0.00
53.00	2.20	1.34	0.00
54.00	2.20	1.34	0.00
55.00	2.20	1.34	0.00
56.00	2.20	1.34	0.00
57.00	2.20	1.34	0.00
58.00	2.20	1.34	0.00
59.00	2.20	1.34	0.00
60.00	2.20	1.34	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

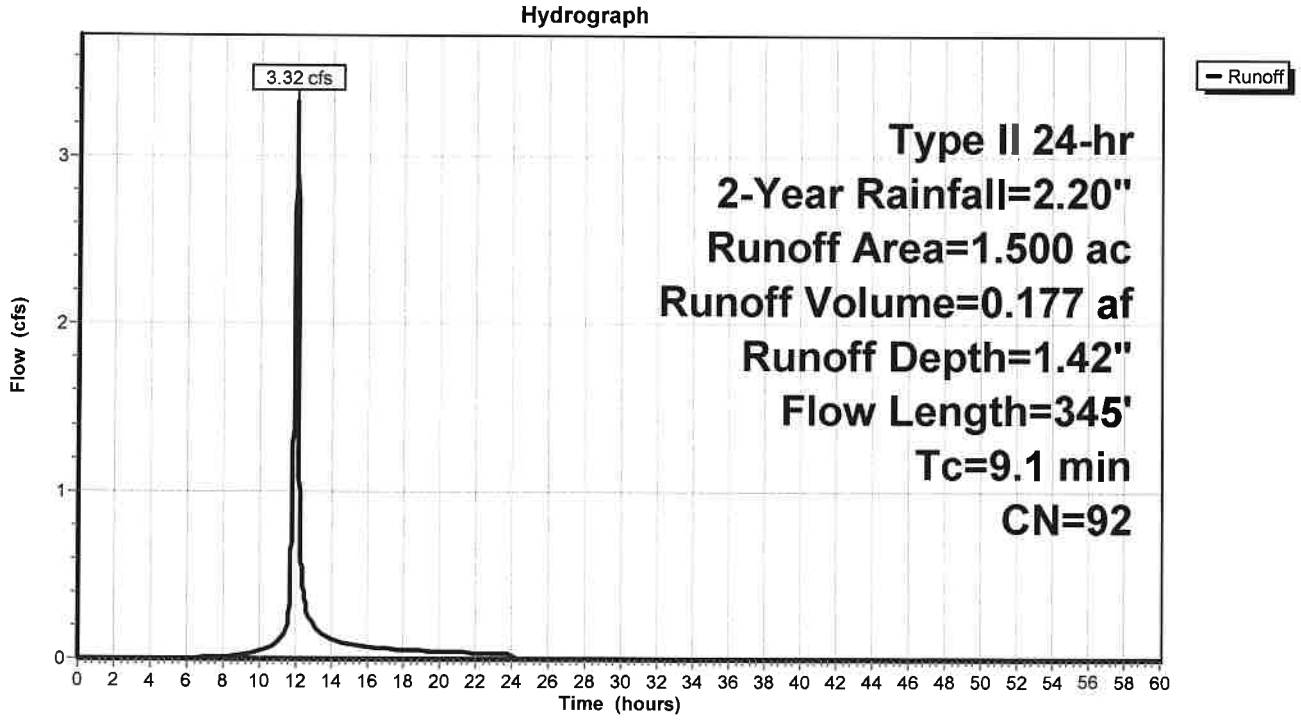
Runoff = 3.32 cfs @ 12.00 hrs, Volume= 0.177 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.20	1.42	0.00
1.00	0.02	0.00	0.00	53.00	2.20	1.42	0.00
2.00	0.05	0.00	0.00	54.00	2.20	1.42	0.00
3.00	0.08	0.00	0.00	55.00	2.20	1.42	0.00
4.00	0.11	0.00	0.00	56.00	2.20	1.42	0.00
5.00	0.14	0.00	0.00	57.00	2.20	1.42	0.00
6.00	0.18	0.00	0.00	58.00	2.20	1.42	0.00
7.00	0.22	0.00	0.01	59.00	2.20	1.42	0.00
8.00	0.26	0.01	0.01	60.00	2.20	1.42	0.00
9.00	0.32	0.02	0.03				
10.00	0.40	0.05	0.04				
11.00	0.52	0.10	0.10				
12.00	1.46	0.77	**3.32**				
13.00	1.70	0.97	0.20				
14.00	1.80	1.06	0.12				
15.00	1.88	1.13	0.09				
16.00	1.94	1.18	0.07				
17.00	1.98	1.22	0.06				
18.00	2.03	1.26	0.05				
19.00	2.06	1.29	0.05				
20.00	2.09	1.32	0.04				
21.00	2.12	1.35	0.04				
22.00	2.15	1.37	0.04				
23.00	2.18	1.40	0.03				
24.00	**2.20**	**1.42**	0.03				
25.00	2.20	1.42	0.00				
26.00	2.20	1.42	0.00				
27.00	2.20	1.42	0.00				
28.00	2.20	1.42	0.00				
29.00	2.20	1.42	0.00				
30.00	2.20	1.42	0.00				
31.00	2.20	1.42	0.00				
32.00	2.20	1.42	0.00				
33.00	2.20	1.42	0.00				
34.00	2.20	1.42	0.00				
35.00	2.20	1.42	0.00				
36.00	2.20	1.42	0.00				
37.00	2.20	1.42	0.00				
38.00	2.20	1.42	0.00				
39.00	2.20	1.42	0.00				
40.00	2.20	1.42	0.00				
41.00	2.20	1.42	0.00				
42.00	2.20	1.42	0.00				
43.00	2.20	1.42	0.00				
44.00	2.20	1.42	0.00				
45.00	2.20	1.42	0.00				
46.00	2.20	1.42	0.00				
47.00	2.20	1.42	0.00				
48.00	2.20	1.42	0.00				
49.00	2.20	1.42	0.00				
50.00	2.20	1.42	0.00				
51.00	2.20	1.42	0.00				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 4.15 cfs @ 12.10 hrs, Volume= 0.367 af
Outflow = 0.68 cfs @ 12.65 hrs, Volume= 0.324 af, Atten= 84%, Lag= 33.2 min
Primary = 0.68 cfs @ 12.65 hrs, Volume= 0.324 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.46' @ 12.65 hrs Surf.Area= 10,145 sf Storage= 5,990 cf

Plug-Flow detention time= 401.0 min calculated for 0.324 af (88% of inflow)
Center-of-Mass det. time= 229.7 min (1,287.9 - 1,058.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

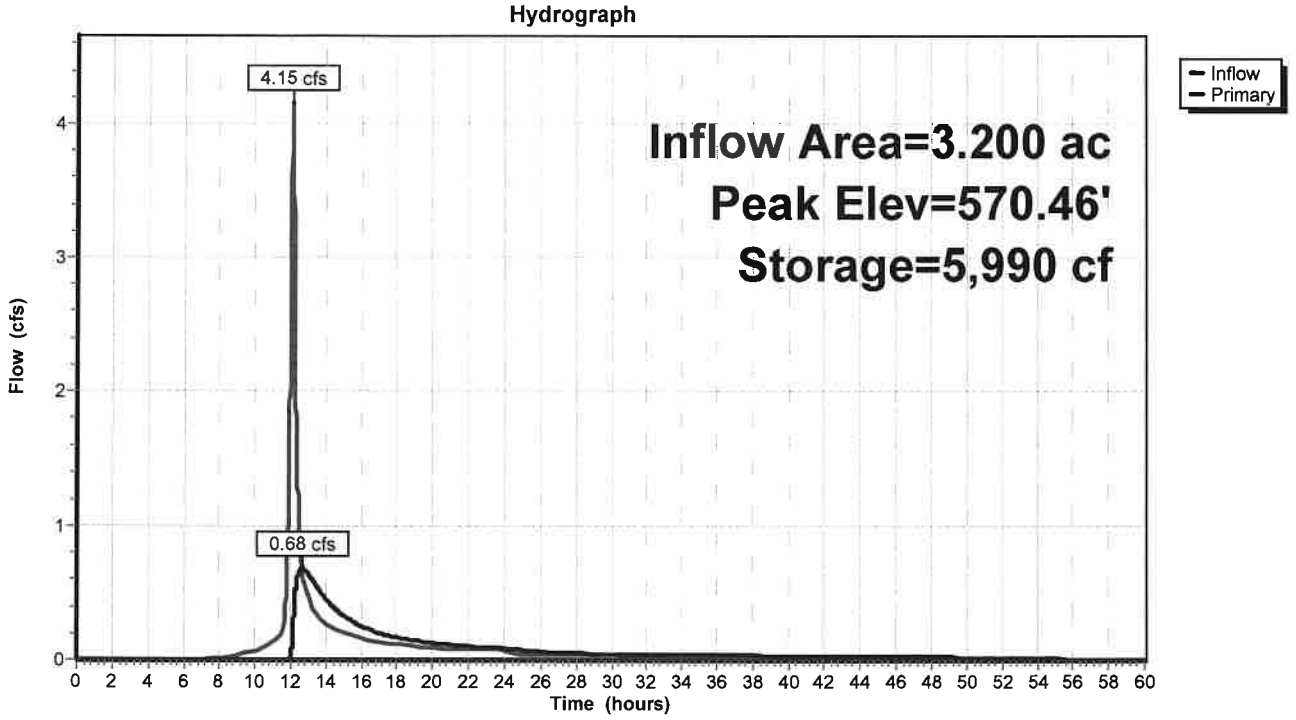
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

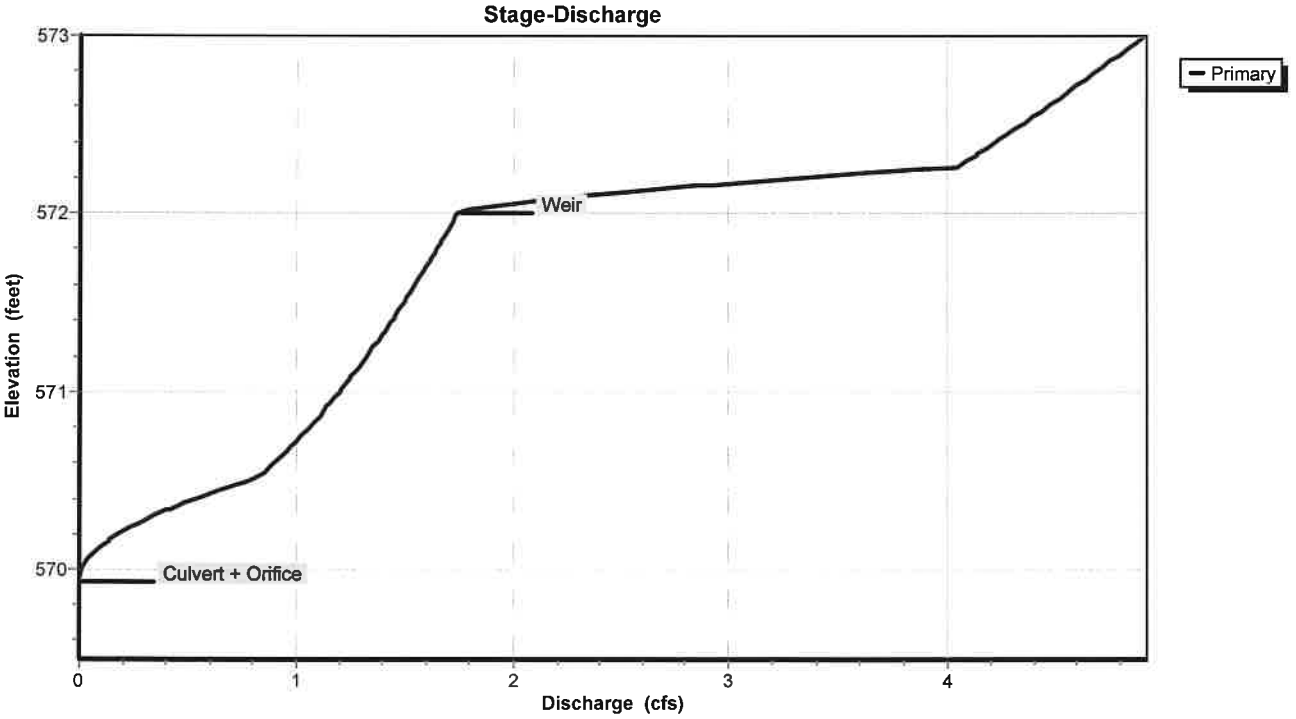
Primary OutFlow Max=0.68 cfs @ 12.65 hrs HW=570.46' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.68 cfs @ 2.31 fps)
↑—**2=Orifice** (Passes 0.68 cfs of 0.76 cfs potential flow)
—**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

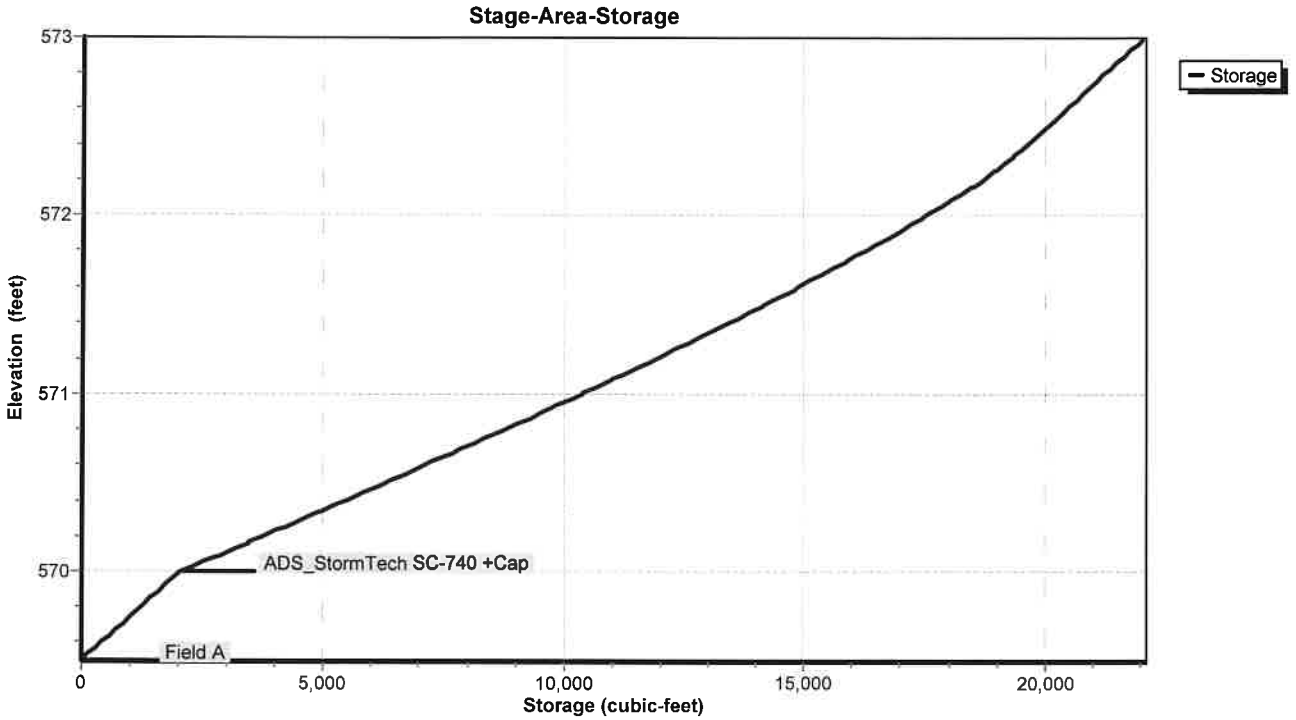


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	0	569.50	0.00
8.00	0.01	32	569.51	0.00
10.00	0.06	286	569.57	0.00
12.00	**2.68**	**2,414**	**570.04**	**0.03**
14.00	**0.27**	**5,111**	**570.36**	**0.45**
16.00	0.16	4,155	570.25	0.25
18.00	0.12	3,660	570.19	0.17
20.00	0.09	3,359	570.15	0.12
22.00	0.08	3,149	570.13	0.10
24.00	0.07	3,029	570.12	0.09
26.00	0.03	2,788	570.09	0.06
28.00	0.03	2,647	570.07	0.05
30.00	0.03	2,566	570.06	0.04
32.00	0.03	2,517	570.06	0.04
34.00	0.03	2,484	570.05	0.04
36.00	0.03	2,459	570.05	0.03
38.00	0.03	2,441	570.05	0.03
40.00	0.03	2,426	570.05	0.03
42.00	0.03	2,413	570.04	0.03
44.00	0.03	2,402	570.04	0.03
46.00	0.03	2,392	570.04	0.03
48.00	0.01	2,323	570.03	0.03
50.00	0.00	2,199	570.02	0.02
52.00	0.00	2,091	570.01	0.01
54.00	0.00	2,010	570.00	0.01
56.00	0.00	1,957	569.98	0.01
58.00	0.00	1,919	569.97	0.00
60.00	0.00	1,891	569.97	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.42" for 2-Year event
Inflow = 3.32 cfs @ 12.00 hrs, Volume= 0.177 af
Outflow = 1.41 cfs @ 12.13 hrs, Volume= 0.177 af, Atten= 58%, Lag= 7.6 min
Primary = 1.41 cfs @ 12.13 hrs, Volume= 0.177 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.60' @ 12.13 hrs Surf.Area= 5,993 sf Storage= 3,274 cf

Plug-Flow detention time= 499.6 min calculated for 0.177 af (100% of inflow)
Center-of-Mass det. time= 499.8 min (1,311.6 - 811.8)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

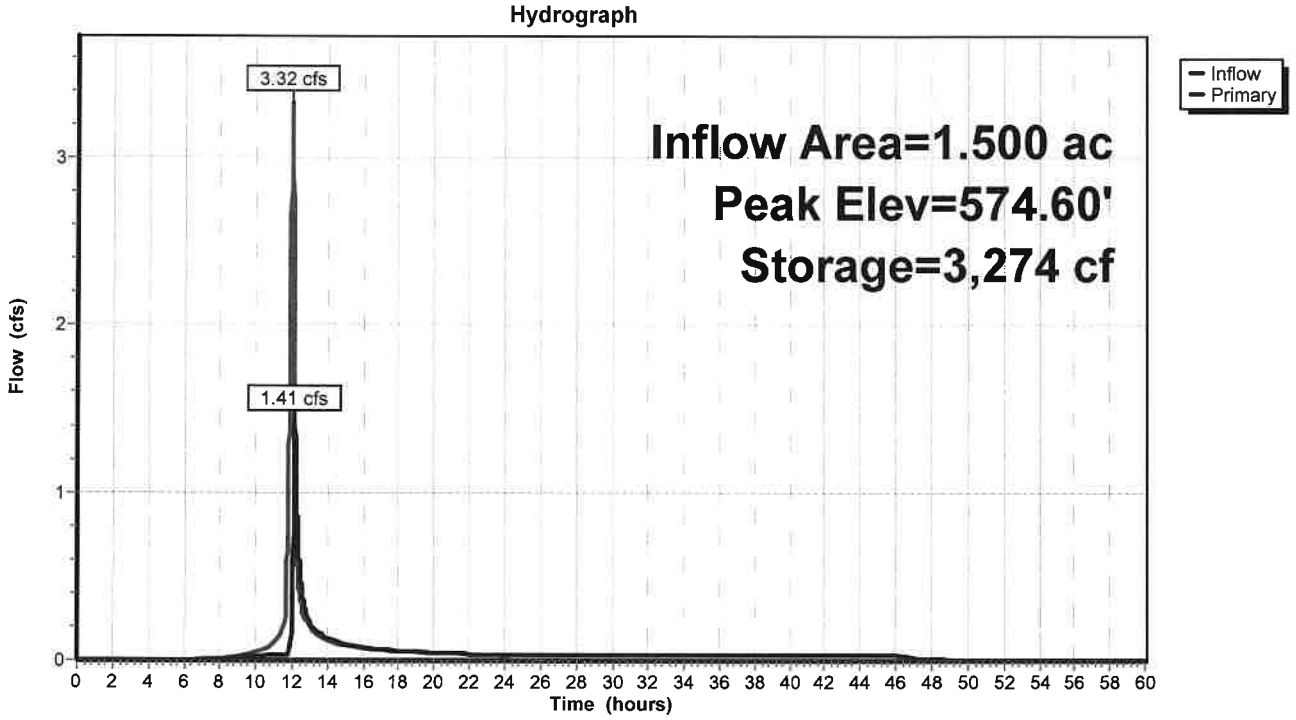
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

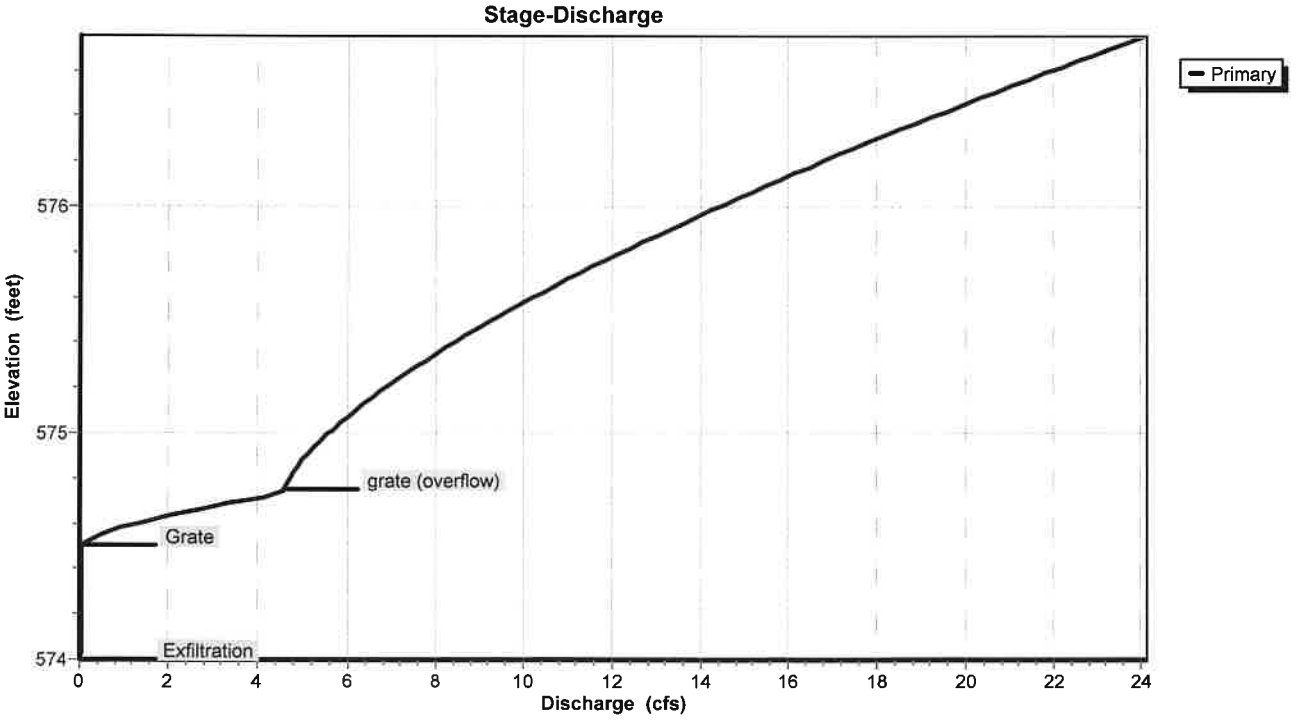
Primary OutFlow Max=1.41 cfs @ 12.13 hrs HW=574.60' (Free Discharge)
- **1=8" pipe** (Passes 1.41 cfs of 4.48 cfs potential flow)
  - **2=Grate** (Weir Controls 1.37 cfs @ 1.05 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

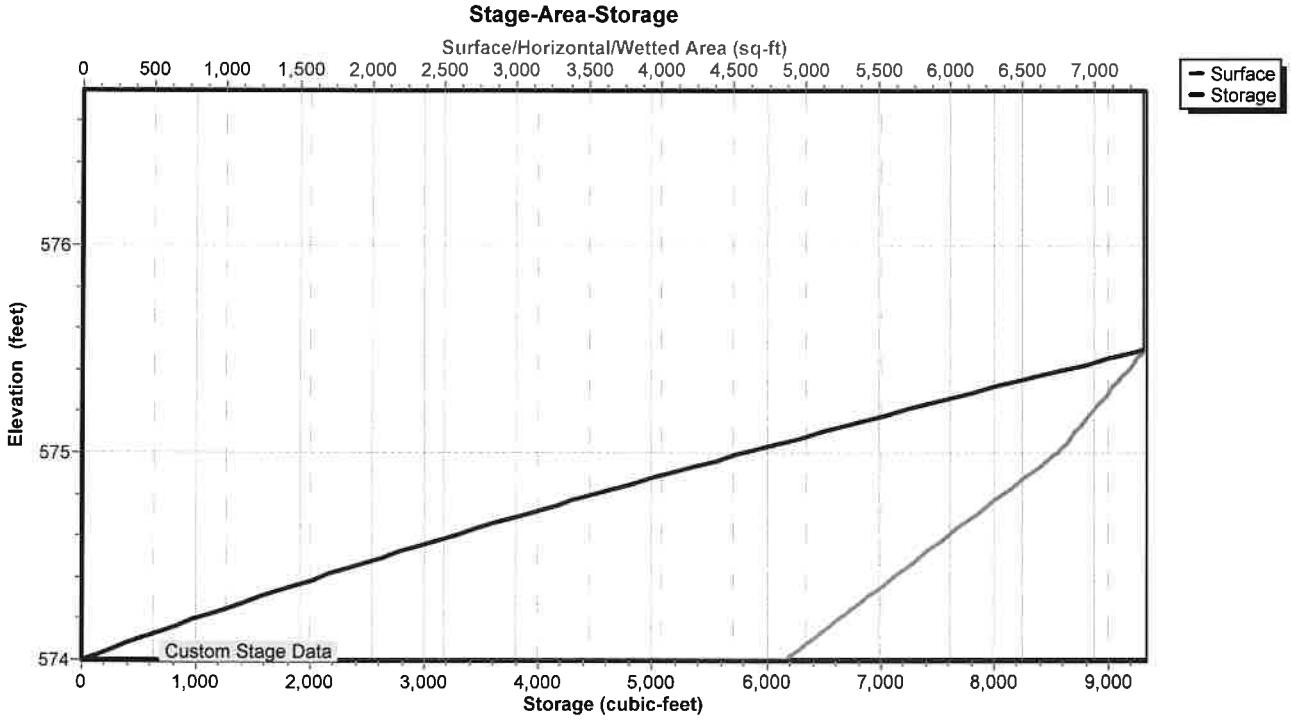


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.00	0	574.00	0.00
8.00	0.01	26	574.01	0.01
10.00	0.04	116	574.02	0.02
12.00	**3.32**	**2,442**	**574.46**	**0.03**
14.00	0.12	**2,754**	**574.52**	**0.13**
16.00	0.07	2,701	574.51	0.08
18.00	0.05	2,683	574.50	0.06
20.00	0.04	2,669	574.50	0.04
22.00	0.04	2,664	574.50	0.04
24.00	0.03	2,661	574.50	0.03
26.00	0.00	2,430	574.46	0.03
28.00	0.00	2,186	574.42	0.03
30.00	0.00	1,947	574.37	0.03
32.00	0.00	1,712	574.33	0.03
34.00	0.00	1,480	574.29	0.03
36.00	0.00	1,253	574.25	0.03
38.00	0.00	1,030	574.20	0.03
40.00	0.00	810	574.16	0.03
42.00	0.00	595	574.12	0.03
44.00	0.00	384	574.08	0.03
46.00	0.00	176	574.04	0.03
48.00	0.00	40	574.01	0.01
50.00	0.00	9	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.79"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=4.02 cfs 0.254 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.88"
Flow Length=345' Tc=9.1 min CN=92 Runoff=4.35 cfs 0.235 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.79' Storage=8,639 cf Inflow=7.03 cfs 0.489 af
Outflow=1.05 cfs 0.446 af

Pond 9P: Bioretention Area 3 Peak Elev=574.68' Storage=3,708 cf Inflow=4.35 cfs 0.235 af
Outflow=3.06 cfs 0.235 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.489 af Average Runoff Depth = 1.83"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

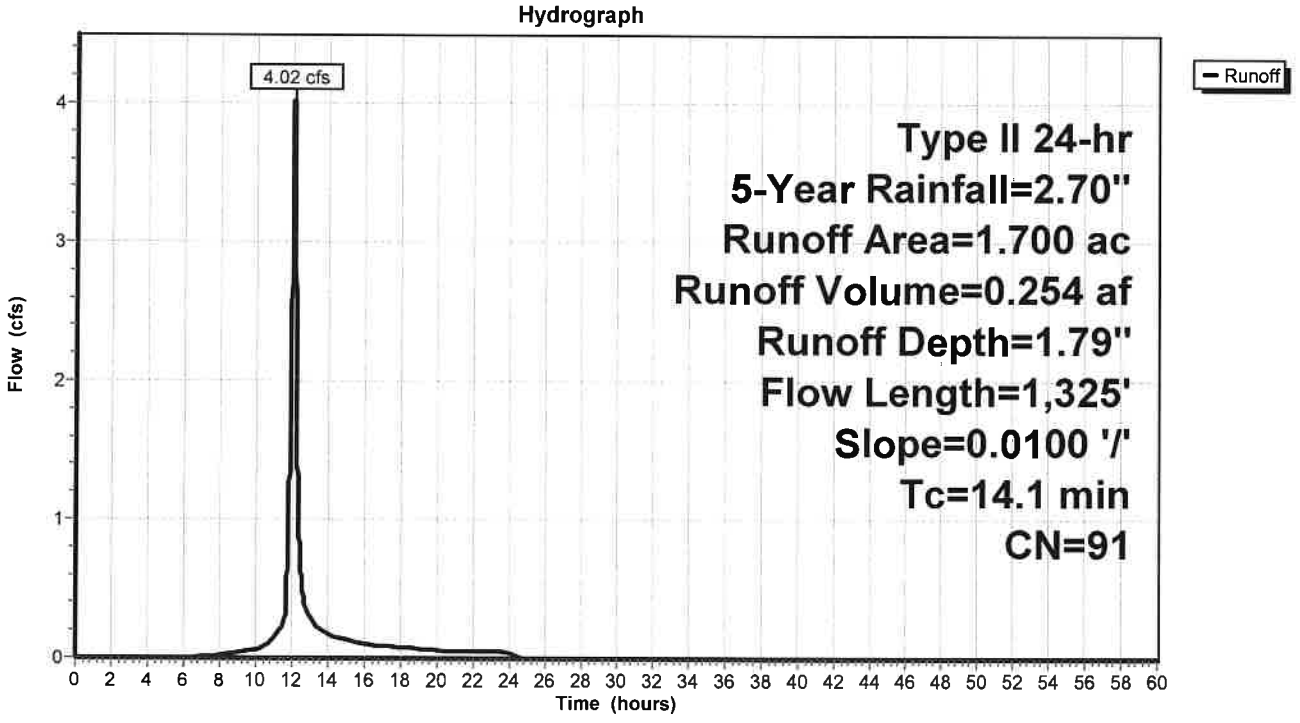
Runoff = 4.02 cfs @ 12.06 hrs, Volume= 0.254 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass**
					Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.01
8.00	0.32	0.01	0.02
9.00	0.40	0.03	0.04
10.00	0.49	0.07	0.06
11.00	0.63	0.13	0.14
12.00	1.79	0.98	**3.54**
13.00	2.08	1.24	**0.30**
14.00	2.21	1.35	0.17
15.00	2.30	1.43	0.13
16.00	2.38	1.50	0.10
17.00	2.43	1.55	0.09
18.00	2.49	1.60	0.08
19.00	2.53	1.64	0.07
20.00	2.57	1.67	0.06
21.00	2.60	1.71	0.05
22.00	2.64	1.74	0.05
23.00	2.67	1.77	0.05
24.00	**2.70**	**1.79**	0.05
25.00	2.70	1.79	0.00
26.00	2.70	1.79	0.00
27.00	2.70	1.79	0.00
28.00	2.70	1.79	0.00
29.00	2.70	1.79	0.00
30.00	2.70	1.79	0.00
31.00	2.70	1.79	0.00
32.00	2.70	1.79	0.00
33.00	2.70	1.79	0.00
34.00	2.70	1.79	0.00
35.00	2.70	1.79	0.00
36.00	2.70	1.79	0.00
37.00	2.70	1.79	0.00
38.00	2.70	1.79	0.00
39.00	2.70	1.79	0.00
40.00	2.70	1.79	0.00
41.00	2.70	1.79	0.00
42.00	2.70	1.79	0.00
43.00	2.70	1.79	0.00
44.00	2.70	1.79	0.00
45.00	2.70	1.79	0.00
46.00	2.70	1.79	0.00
47.00	2.70	1.79	0.00
48.00	2.70	1.79	0.00
49.00	2.70	1.79	0.00
50.00	2.70	1.79	0.00
51.00	2.70	1.79	0.00
52.00	2.70	1.79	0.00
53.00	2.70	1.79	0.00
54.00	2.70	1.79	0.00
55.00	2.70	1.79	0.00
56.00	2.70	1.79	0.00
57.00	2.70	1.79	0.00
58.00	2.70	1.79	0.00
59.00	2.70	1.79	0.00
60.00	2.70	1.79	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

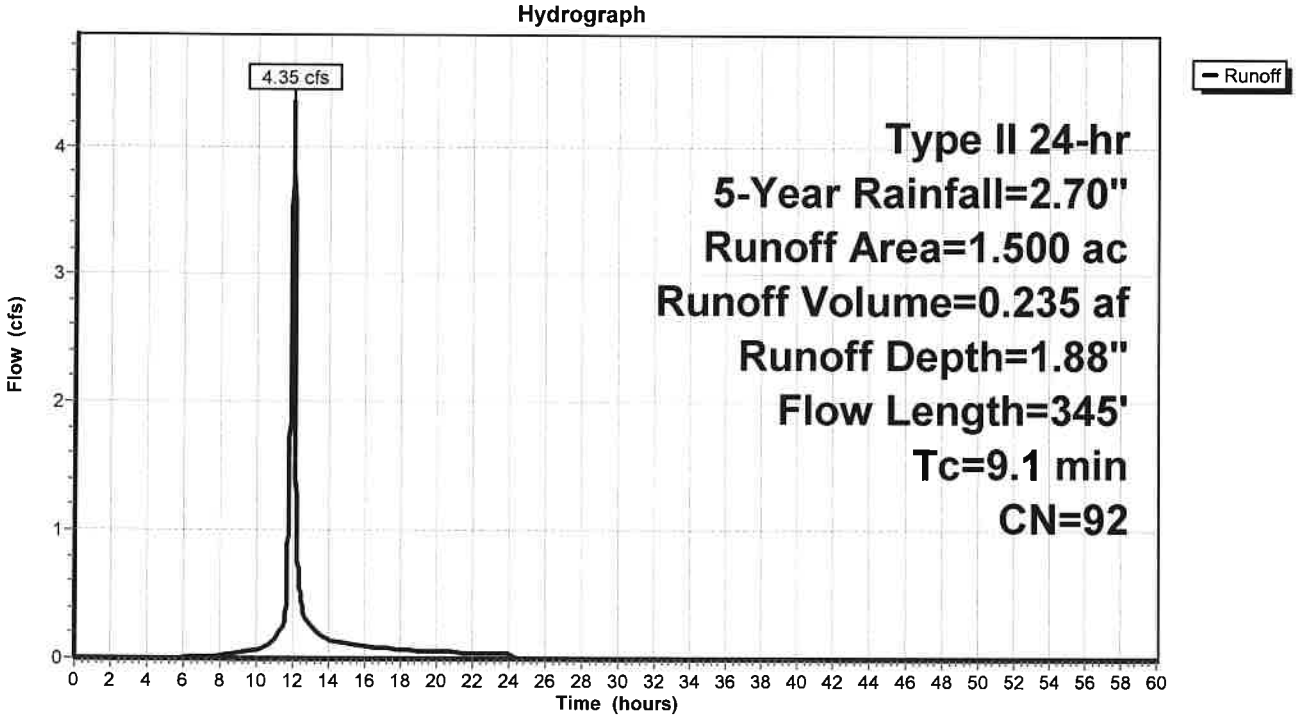
Runoff = 4.35 cfs @ 12.00 hrs, Volume= 0.235 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.01
7.00	0.27	0.01	0.01
8.00	0.32	0.02	0.02
9.00	0.40	0.05	0.04
10.00	0.49	0.08	0.07
11.00	0.63	0.16	0.15
12.00	1.79	1.05	**4.35**
13.00	2.08	1.31	0.25
14.00	2.21	1.43	0.15
15.00	2.30	1.51	0.12
16.00	2.38	1.58	0.09
17.00	2.43	1.63	0.08
18.00	2.49	1.68	0.07
19.00	2.53	1.72	0.06
20.00	2.57	1.76	0.05
21.00	2.60	1.79	0.05
22.00	2.64	1.82	0.05
23.00	2.67	1.85	0.04
24.00	**2.70**	**1.88**	0.04
25.00	2.70	1.88	0.00
26.00	2.70	1.88	0.00
27.00	2.70	1.88	0.00
28.00	2.70	1.88	0.00
29.00	2.70	1.88	0.00
30.00	2.70	1.88	0.00
31.00	2.70	1.88	0.00
32.00	2.70	1.88	0.00
33.00	2.70	1.88	0.00
34.00	2.70	1.88	0.00
35.00	2.70	1.88	0.00
36.00	2.70	1.88	0.00
37.00	2.70	1.88	0.00
38.00	2.70	1.88	0.00
39.00	2.70	1.88	0.00
40.00	2.70	1.88	0.00
41.00	2.70	1.88	0.00
42.00	2.70	1.88	0.00
43.00	2.70	1.88	0.00
44.00	2.70	1.88	0.00
45.00	2.70	1.88	0.00
46.00	2.70	1.88	0.00
47.00	2.70	1.88	0.00
48.00	2.70	1.88	0.00
49.00	2.70	1.88	0.00
50.00	2.70	1.88	0.00
51.00	2.70	1.88	0.00
52.00	2.70	1.88	0.00
53.00	2.70	1.88	0.00
54.00	2.70	1.88	0.00
55.00	2.70	1.88	0.00
56.00	2.70	1.88	0.00
57.00	2.70	1.88	0.00
58.00	2.70	1.88	0.00
59.00	2.70	1.88	0.00
60.00	2.70	1.88	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.83" for 5-Year event
Inflow = 7.03 cfs @ 12.07 hrs, Volume= 0.489 af
Outflow = 1.05 cfs @ 12.55 hrs, Volume= 0.446 af, Atten= 85%, Lag= 29.0 min
Primary = 1.05 cfs @ 12.55 hrs, Volume= 0.446 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.79' @ 12.55 hrs Surf.Area= 10,145 sf Storage= 8,639 cf

Plug-Flow detention time= 321.6 min calculated for 0.446 af (91% of inflow)
Center-of-Mass det. time= 190.4 min (1,183.7 - 993.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

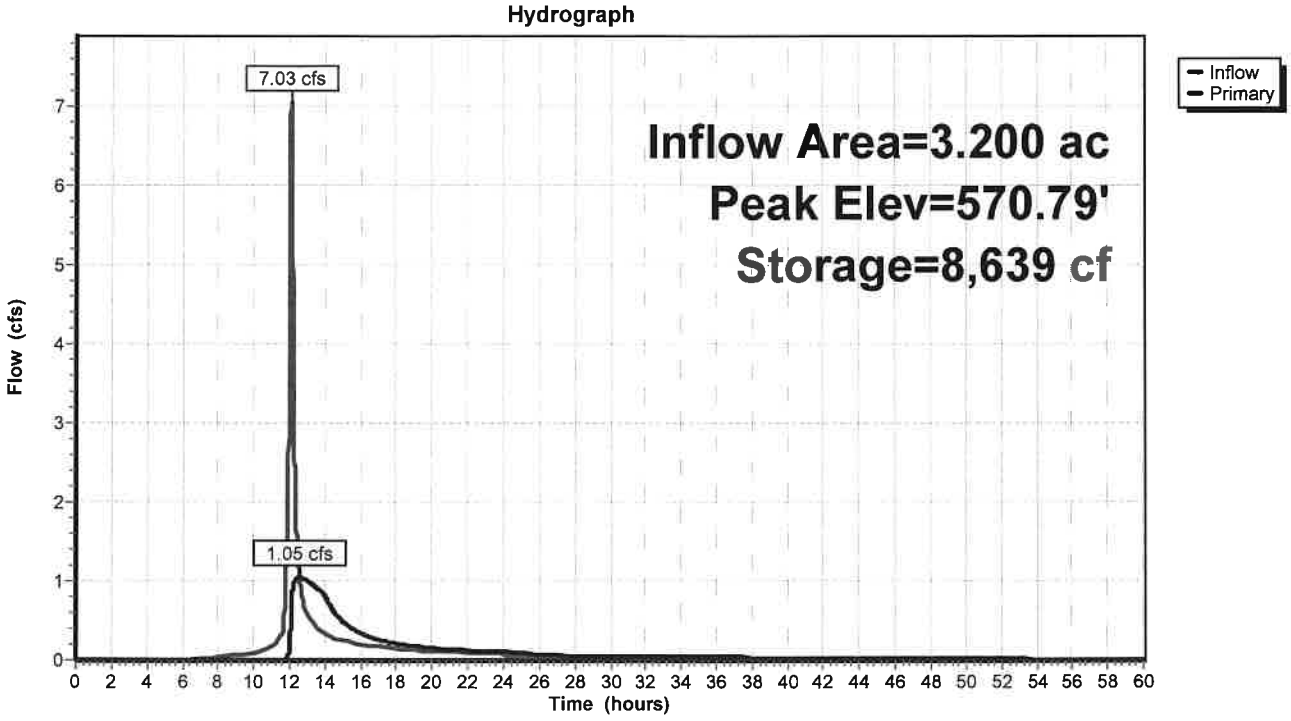
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

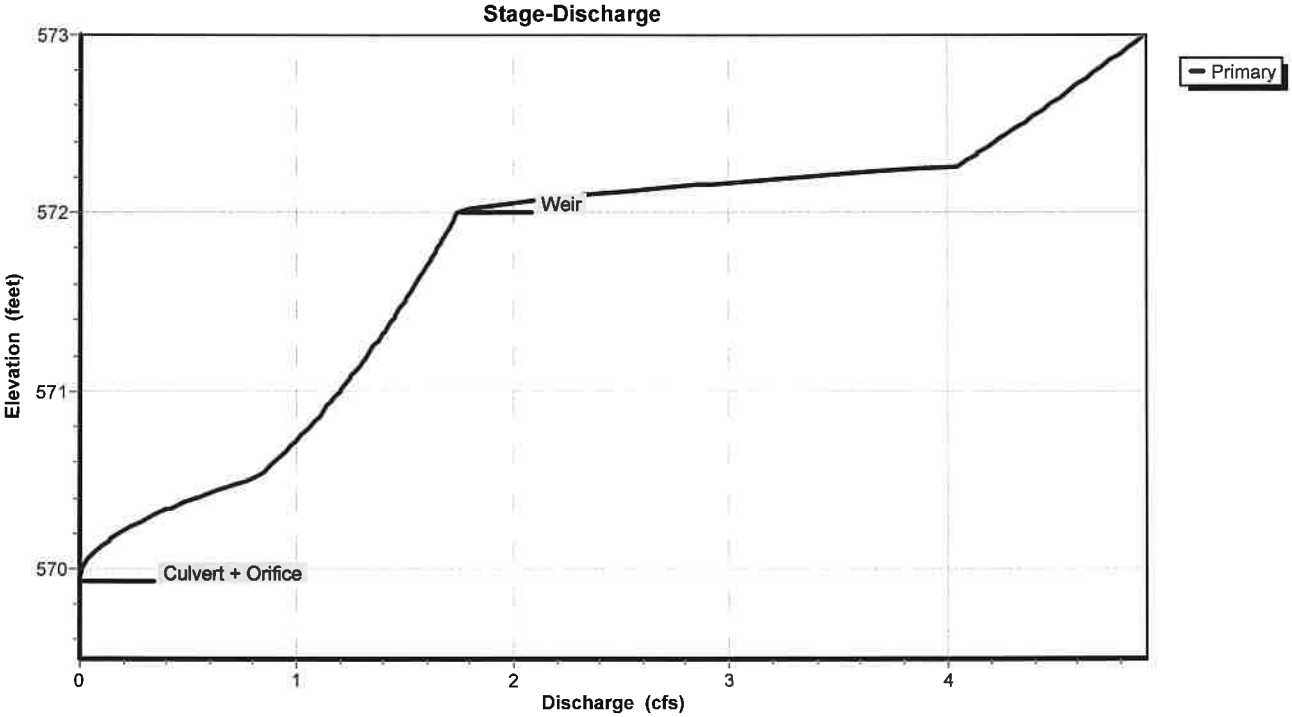
Primary OutFlow Max=1.05 cfs @ 12.55 hrs HW=570.79' (Free Discharge)
↑**1=Culvert** (Passes 1.05 cfs of 1.53 cfs potential flow)
↑**2=Orifice** (Orifice Controls 1.05 cfs @ 4.00 fps)
3=Weir (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

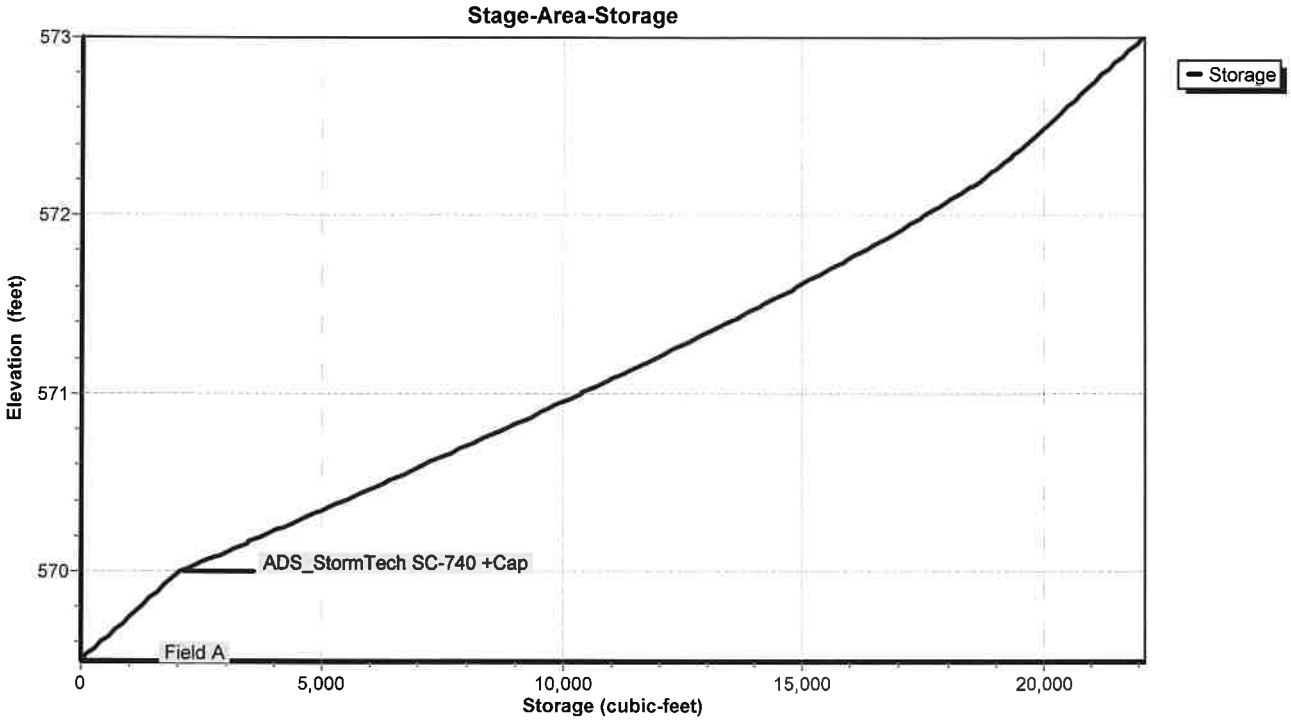


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	2	569.50	0.00
8.00	0.03	119	569.53	0.00
10.00	0.09	566	569.64	0.00
12.00	**5.13**	**3,593**	**570.18**	**0.16**
14.00	**0.33**	**6,444**	**570.52**	**0.81**
16.00	0.20	4,602	570.30	0.34
18.00	0.15	3,932	570.22	0.21
20.00	0.11	3,570	570.18	0.15
22.00	0.10	3,332	570.15	0.12
24.00	0.09	3,200	570.14	0.10
26.00	0.03	2,873	570.10	0.07
28.00	0.03	2,693	570.08	0.05
30.00	0.03	2,592	570.07	0.04
32.00	0.03	2,532	570.06	0.04
34.00	0.03	2,493	570.05	0.04
36.00	0.03	2,465	570.05	0.03
38.00	0.03	2,445	570.05	0.03
40.00	0.03	2,428	570.05	0.03
42.00	0.03	2,415	570.04	0.03
44.00	0.03	2,403	570.04	0.03
46.00	0.03	2,393	570.04	0.03
48.00	0.01	2,328	570.03	0.03
50.00	0.00	2,203	570.02	0.02
52.00	0.00	2,095	570.01	0.01
54.00	0.00	2,013	570.00	0.01
56.00	0.00	1,959	569.98	0.01
58.00	0.00	1,920	569.97	0.00
60.00	0.00	1,892	569.97	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.88" for 5-Year event
Inflow = 4.35 cfs @ 12.00 hrs, Volume= 0.235 af
Outflow = 3.06 cfs @ 12.08 hrs, Volume= 0.235 af, Atten= 30%, Lag= 4.6 min
Primary = 3.06 cfs @ 12.08 hrs, Volume= 0.235 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.68' @ 12.08 hrs Surf.Area= 6,129 sf Storage= 3,708 cf

Plug-Flow detention time= 384.2 min calculated for 0.235 af (100% of inflow)
Center-of-Mass det. time= 384.1 min (1,187.9 - 803.8)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

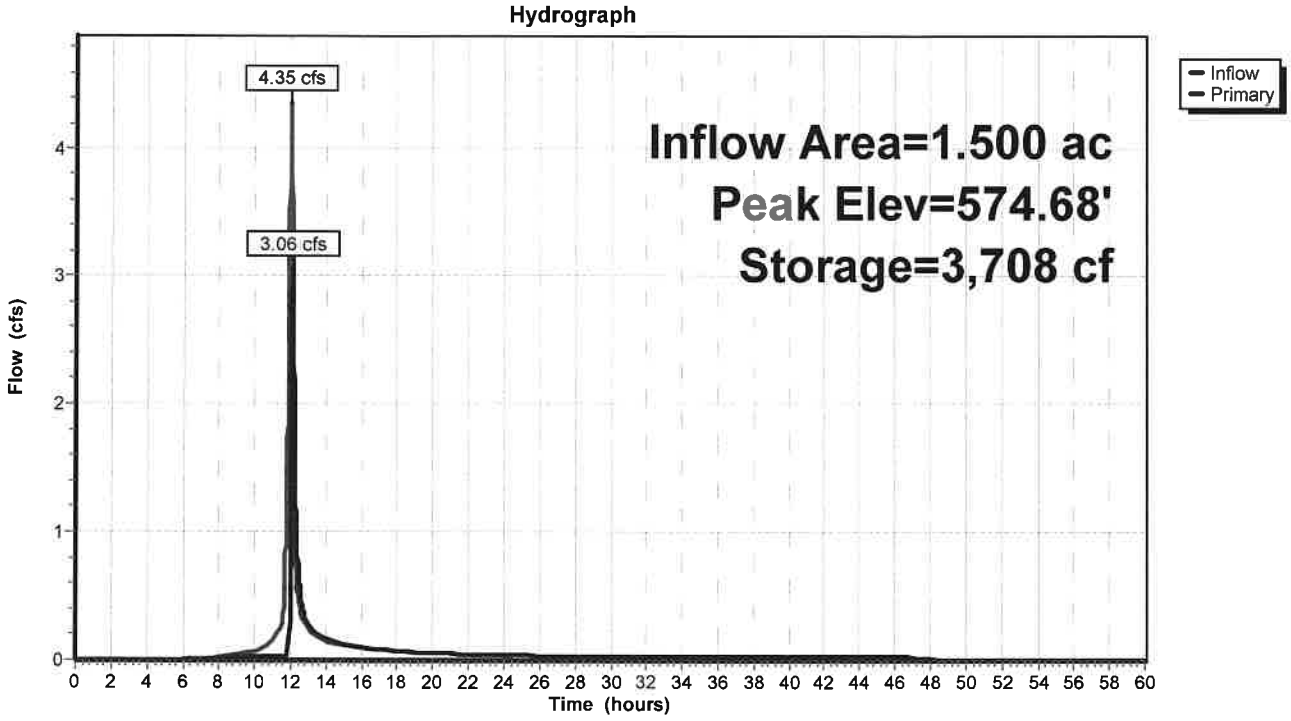
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

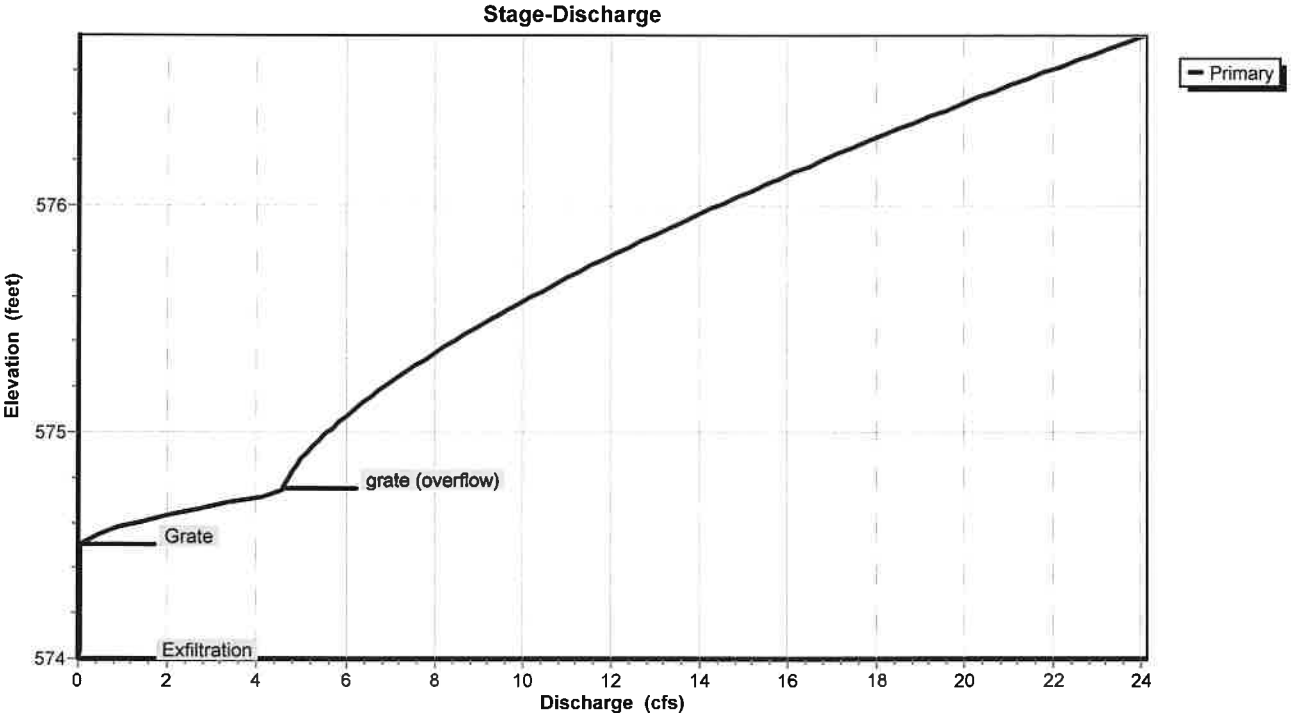
Primary OutFlow Max=3.05 cfs @ 12.08 hrs HW=574.68' (Free Discharge)
- **1=8" pipe** (Passes 3.05 cfs of 4.54 cfs potential flow)
  - **2=Grate** (Weir Controls 3.02 cfs @ 1.37 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

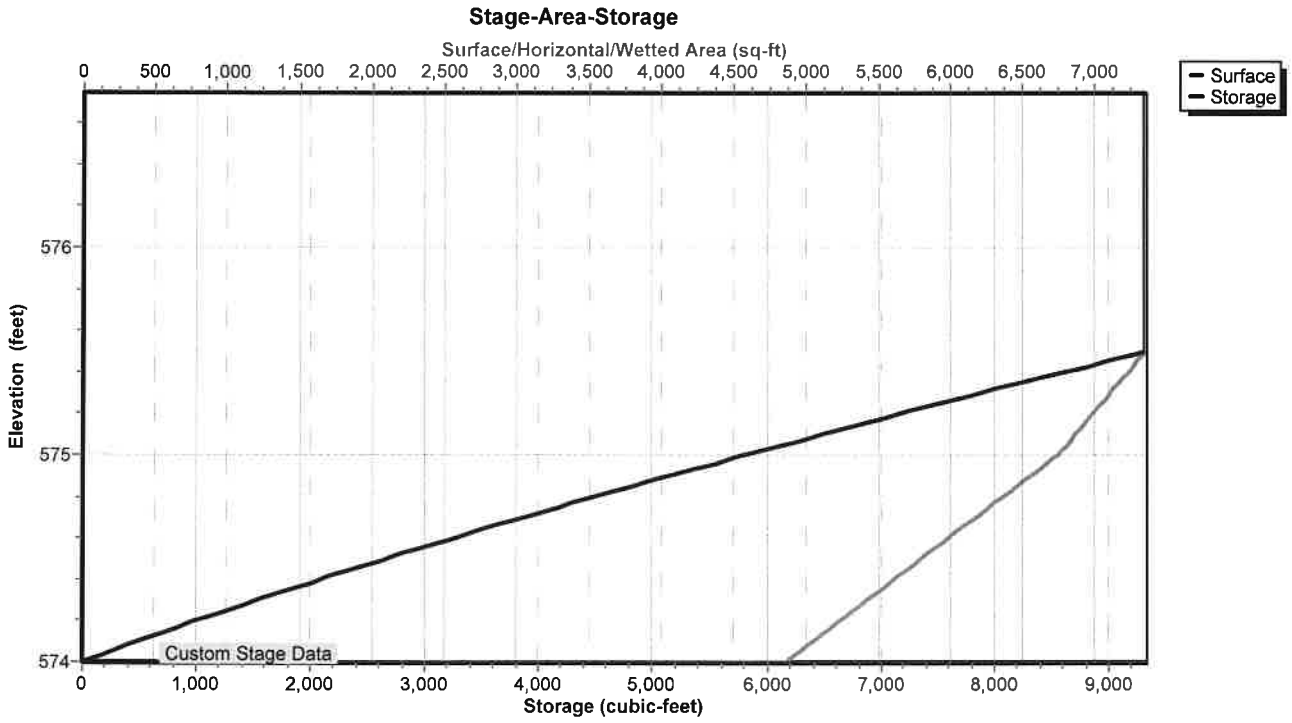


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.01	6	574.00	0.00
8.00	0.02	61	574.01	0.01
10.00	0.07	208	574.04	0.03
12.00	**4.35**	**3,326**	**574.61**	**1.59**
14.00	0.15	**2,783**	**574.52**	**0.16**
16.00	0.09	2,721	574.51	0.10
18.00	0.07	2,697	574.51	0.07
20.00	0.05	2,679	574.50	0.05
22.00	0.05	2,673	574.50	0.05
24.00	0.04	2,670	574.50	0.04
26.00	0.00	2,439	574.46	0.03
28.00	0.00	2,196	574.42	0.03
30.00	0.00	1,956	574.38	0.03
32.00	0.00	1,720	574.33	0.03
34.00	0.00	1,489	574.29	0.03
36.00	0.00	1,262	574.25	0.03
38.00	0.00	1,038	574.21	0.03
40.00	0.00	819	574.16	0.03
42.00	0.00	603	574.12	0.03
44.00	0.00	392	574.08	0.03
46.00	0.00	184	574.04	0.03
48.00	0.00	42	574.01	0.01
50.00	0.00	9	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=2.21"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=4.91 cfs 0.313 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=2.30"
Flow Length=345' Tc=9.1 min CN=92 Runoff=5.28 cfs 0.288 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=571.13' Storage=11,342 cf Inflow=9.17 cfs 0.601 af
Outflow=1.28 cfs 0.558 af

Pond 9P: Bioretention Area 3 Peak Elev=574.72' Storage=4,001 cf Inflow=5.28 cfs 0.288 af
Outflow=4.27 cfs 0.288 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.601 af Average Runoff Depth = 2.25"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

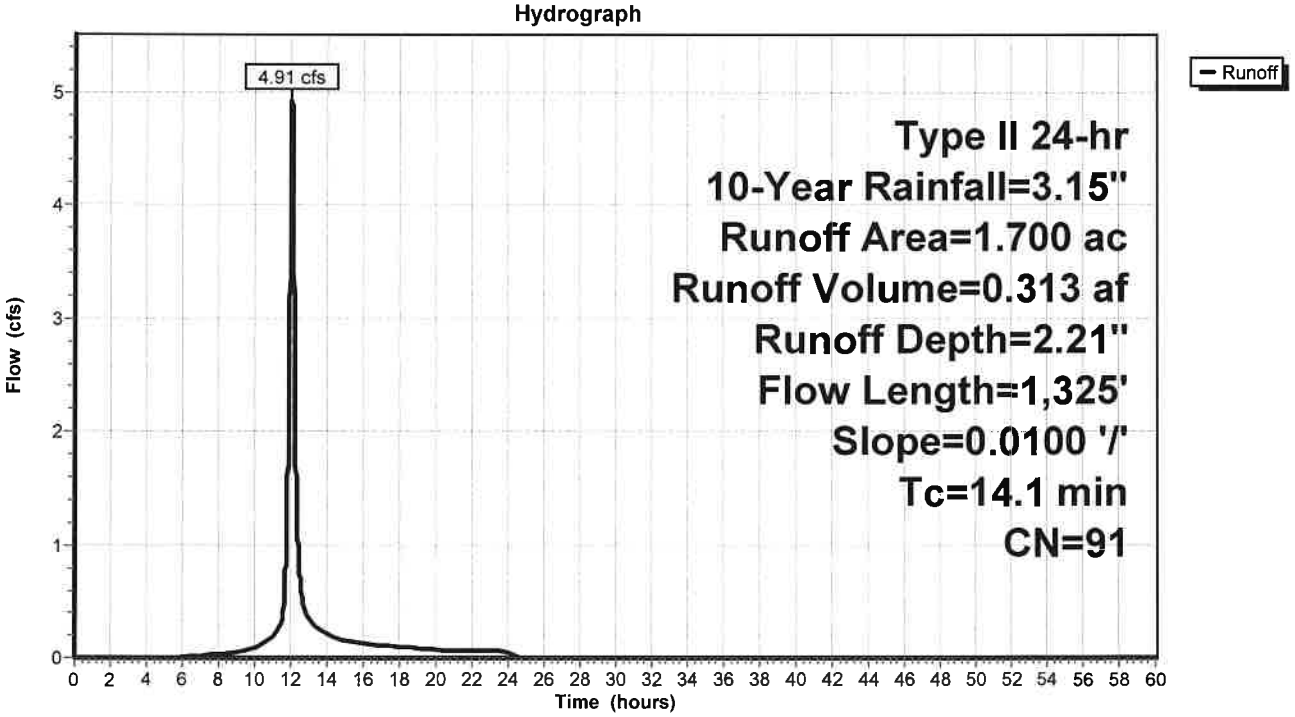
Runoff = 4.91 cfs @ 12.05 hrs, Volume= 0.313 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.01
7.00	0.31	0.01	0.02
8.00	0.38	0.03	0.03
9.00	0.46	0.06	0.06
10.00	0.57	0.10	0.09
11.00	0.74	0.19	0.19
12.00	2.09	1.24	**4.35**
13.00	2.43	1.55	**0.35**
14.00	2.58	1.69	0.20
15.00	2.69	1.78	0.16
16.00	2.77	1.86	0.12
17.00	2.84	1.92	0.11
18.00	2.90	1.98	0.09
19.00	2.95	2.03	0.08
20.00	3.00	2.07	0.07
21.00	3.04	2.11	0.06
22.00	3.08	2.14	0.06
23.00	3.11	2.18	0.06
24.00	**3.15**	**2.21**	0.06
25.00	3.15	2.21	0.00
26.00	3.15	2.21	0.00
27.00	3.15	2.21	0.00
28.00	3.15	2.21	0.00
29.00	3.15	2.21	0.00
30.00	3.15	2.21	0.00
31.00	3.15	2.21	0.00
32.00	3.15	2.21	0.00
33.00	3.15	2.21	0.00
34.00	3.15	2.21	0.00
35.00	3.15	2.21	0.00
36.00	3.15	2.21	0.00
37.00	3.15	2.21	0.00
38.00	3.15	2.21	0.00
39.00	3.15	2.21	0.00
40.00	3.15	2.21	0.00
41.00	3.15	2.21	0.00
42.00	3.15	2.21	0.00
43.00	3.15	2.21	0.00
44.00	3.15	2.21	0.00
45.00	3.15	2.21	0.00
46.00	3.15	2.21	0.00
47.00	3.15	2.21	0.00
48.00	3.15	2.21	0.00
49.00	3.15	2.21	0.00
50.00	3.15	2.21	0.00
51.00	3.15	2.21	0.00
52.00	3.15	2.21	0.00
53.00	3.15	2.21	0.00
54.00	3.15	2.21	0.00
55.00	3.15	2.21	0.00
56.00	3.15	2.21	0.00
57.00	3.15	2.21	0.00
58.00	3.15	2.21	0.00
59.00	3.15	2.21	0.00
60.00	3.15	2.21	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

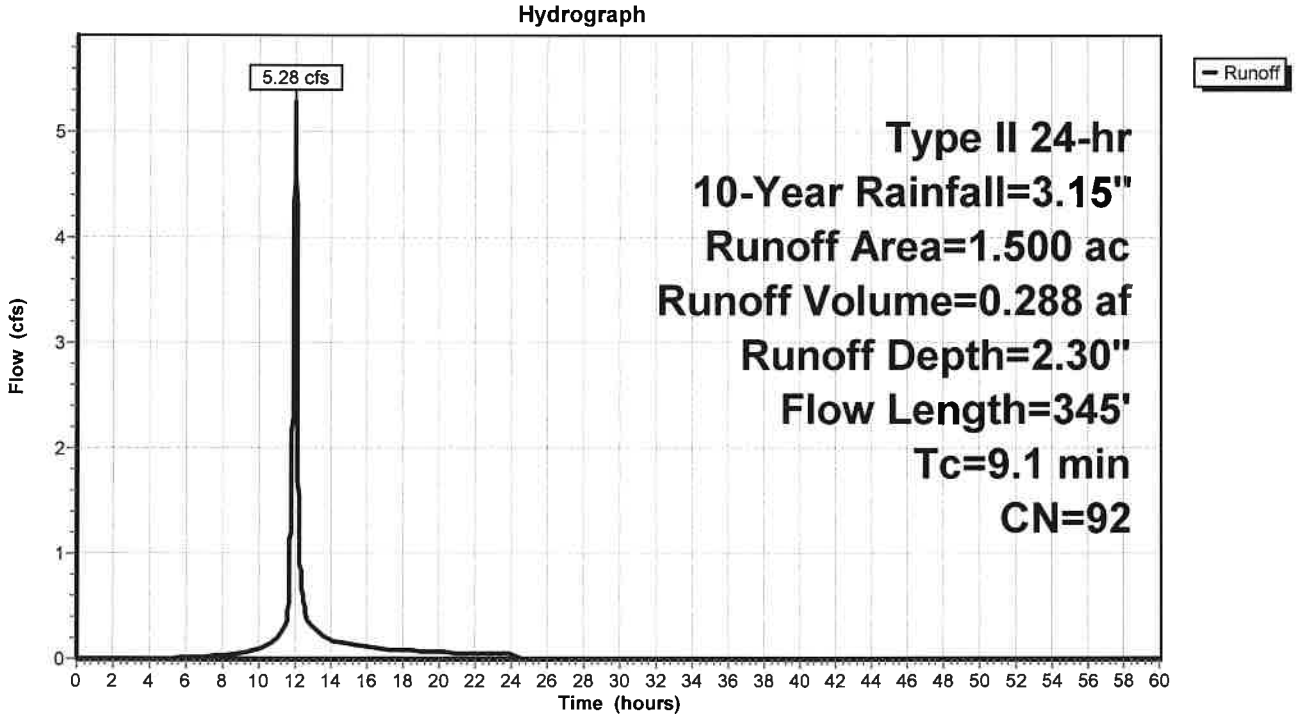
Runoff = 5.28 cfs @ 12.00 hrs, Volume= 0.288 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.15	2.30	0.00
1.00	0.03	0.00	0.00	53.00	3.15	2.30	0.00
2.00	0.07	0.00	0.00	54.00	3.15	2.30	0.00
3.00	0.11	0.00	0.00	55.00	3.15	2.30	0.00
4.00	0.15	0.00	0.00	56.00	3.15	2.30	0.00
5.00	0.20	0.00	0.00	57.00	3.15	2.30	0.00
6.00	0.25	0.01	0.01	58.00	3.15	2.30	0.00
7.00	0.31	0.02	0.02	59.00	3.15	2.30	0.00
8.00	0.38	0.04	0.03	60.00	3.15	2.30	0.00
9.00	0.46	0.07	0.06				
10.00	0.57	0.12	0.09				
11.00	0.74	0.22	0.20				
12.00	2.09	1.32	**5.27**				
13.00	2.43	1.63	0.30				
14.00	2.58	1.77	0.18				
15.00	2.69	1.87	0.14				
16.00	2.77	1.95	0.11				
17.00	2.84	2.01	0.09				
18.00	2.90	2.07	0.08				
19.00	2.95	2.12	0.07				
20.00	3.00	2.16	0.06				
21.00	3.04	2.20	0.06				
22.00	3.08	2.23	0.05				
23.00	3.11	2.27	0.05				
24.00	**3.15**	**2.30**	0.05				
25.00	3.15	2.30	0.00				
26.00	3.15	2.30	0.00				
27.00	3.15	2.30	0.00				
28.00	3.15	2.30	0.00				
29.00	3.15	2.30	0.00				
30.00	3.15	2.30	0.00				
31.00	3.15	2.30	0.00				
32.00	3.15	2.30	0.00				
33.00	3.15	2.30	0.00				
34.00	3.15	2.30	0.00				
35.00	3.15	2.30	0.00				
36.00	3.15	2.30	0.00				
37.00	3.15	2.30	0.00				
38.00	3.15	2.30	0.00				
39.00	3.15	2.30	0.00				
40.00	3.15	2.30	0.00				
41.00	3.15	2.30	0.00				
42.00	3.15	2.30	0.00				
43.00	3.15	2.30	0.00				
44.00	3.15	2.30	0.00				
45.00	3.15	2.30	0.00				
46.00	3.15	2.30	0.00				
47.00	3.15	2.30	0.00				
48.00	3.15	2.30	0.00				
49.00	3.15	2.30	0.00				
50.00	3.15	2.30	0.00				
51.00	3.15	2.30	0.00				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 2.25" for 10-Year event
Inflow = 9.17 cfs @ 12.06 hrs, Volume= 0.601 af
Outflow = 1.28 cfs @ 12.54 hrs, Volume= 0.558 af, Atten= 86%, Lag= 29.2 min
Primary = 1.28 cfs @ 12.54 hrs, Volume= 0.558 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 571.13' @ 12.54 hrs Surf.Area= 10,145 sf Storage= 11,342 cf

Plug-Flow detention time= 284.1 min calculated for 0.558 af (93% of inflow)
Center-of-Mass det. time= 176.3 min (1,132.0 - 955.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

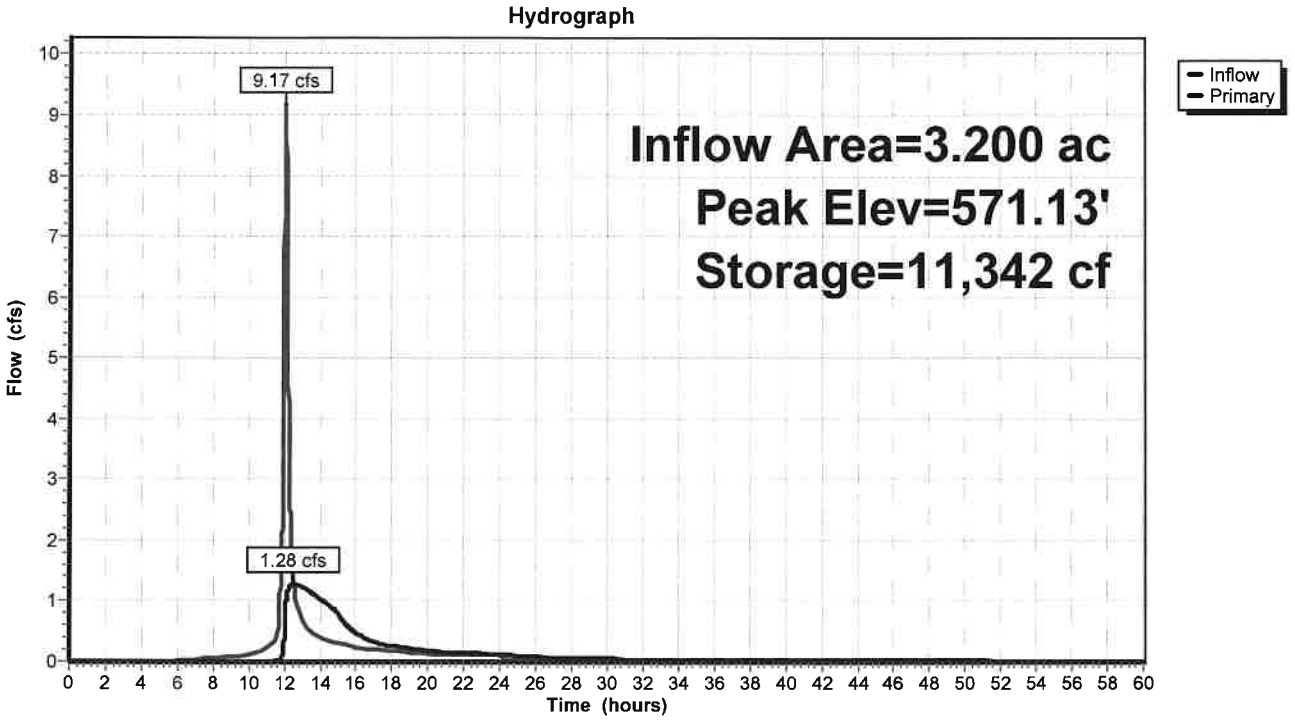
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

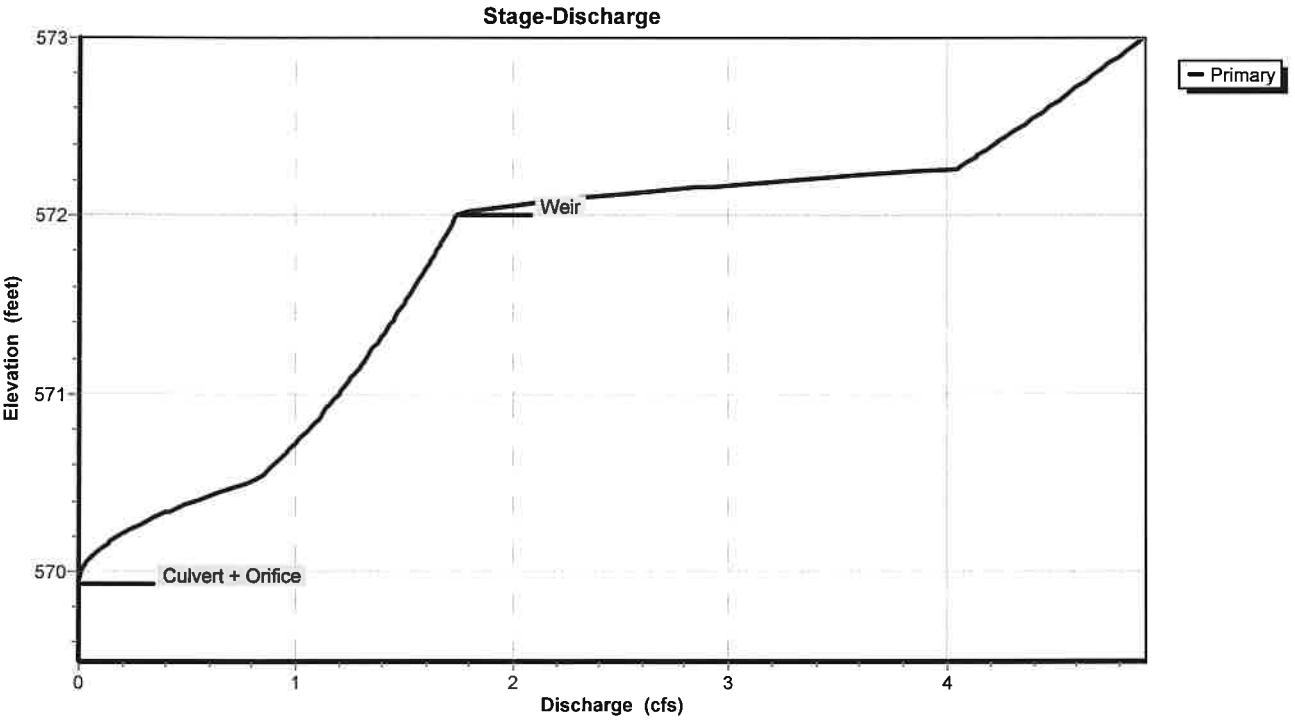
Primary OutFlow Max=1.28 cfs @ 12.54 hrs HW=571.13' (Free Discharge)
└**1=Culvert** (Passes 1.28 cfs of 2.37 cfs potential flow)
├**2=Orifice** (Orifice Controls 1.28 cfs @ 4.88 fps)
└**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

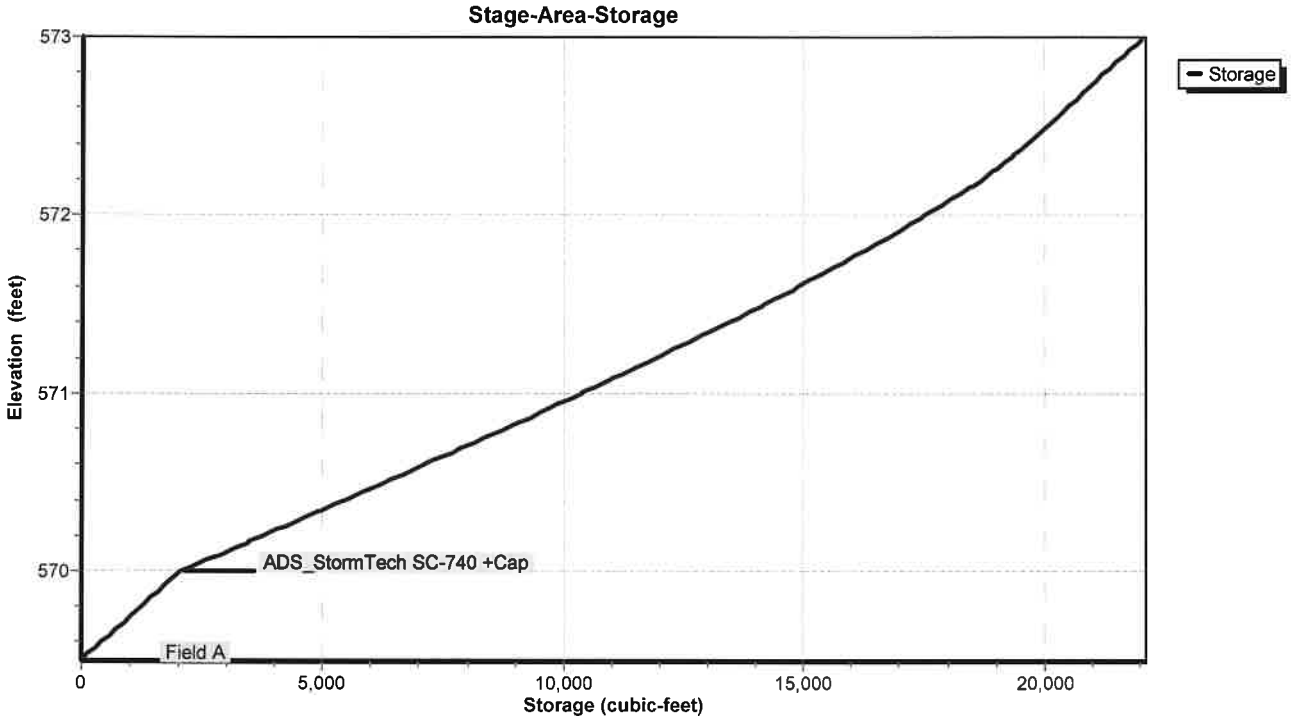


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.01	18	569.50	0.00
8.00	0.05	241	569.56	0.00
10.00	0.12	846	569.71	0.00
12.00	**7.80**	**5,030**	**570.35**	**0.43**
14.00	**0.39**	**8,504**	**570.77**	**1.03**
16.00	0.24	5,183	570.37	0.47
18.00	0.18	4,195	570.25	0.26
20.00	0.13	3,754	570.20	0.18
22.00	0.12	3,484	570.17	0.14
24.00	0.11	3,343	570.15	0.12
26.00	0.03	2,942	570.11	0.08
28.00	0.03	2,728	570.08	0.05
30.00	0.03	2,611	570.07	0.05
32.00	0.03	2,544	570.06	0.04
34.00	0.03	2,500	570.05	0.04
36.00	0.03	2,470	570.05	0.03
38.00	0.03	2,448	570.05	0.03
40.00	0.03	2,430	570.05	0.03
42.00	0.03	2,416	570.05	0.03
44.00	0.03	2,404	570.04	0.03
46.00	0.03	2,393	570.04	0.03
48.00	0.01	2,331	570.04	0.03
50.00	0.00	2,206	570.02	0.02
52.00	0.00	2,098	570.01	0.01
54.00	0.00	2,015	570.00	0.01
56.00	0.00	1,960	569.98	0.01
58.00	0.00	1,921	569.97	0.00
60.00	0.00	1,893	569.97	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 2.30" for 10-Year event
Inflow = 5.28 cfs @ 12.00 hrs, Volume= 0.288 af
Outflow = 4.27 cfs @ 12.06 hrs, Volume= 0.288 af, Atten= 19%, Lag= 3.5 min
Primary = 4.27 cfs @ 12.06 hrs, Volume= 0.288 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.72' @ 12.06 hrs Surf.Area= 6,219 sf Storage= 4,001 cf

Plug-Flow detention time= 318.6 min calculated for 0.288 af (100% of inflow)
Center-of-Mass det. time= 318.8 min (1,116.8 - 798.1)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

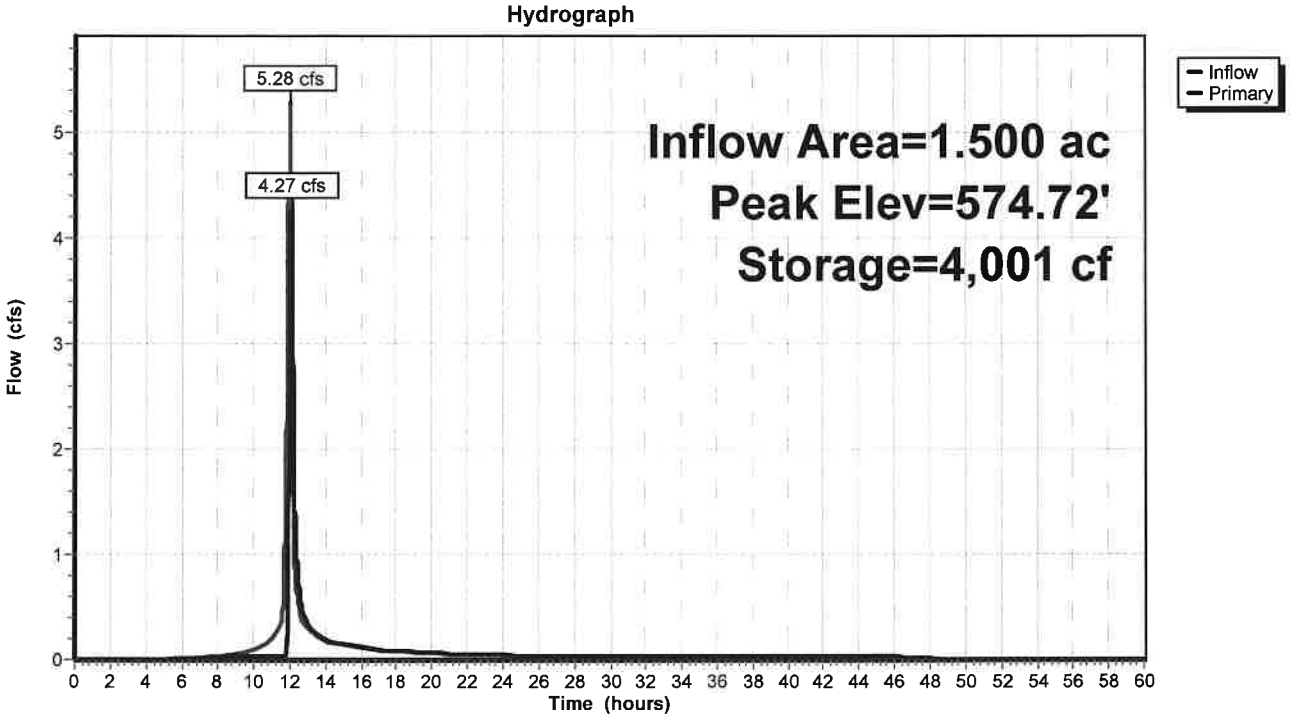
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

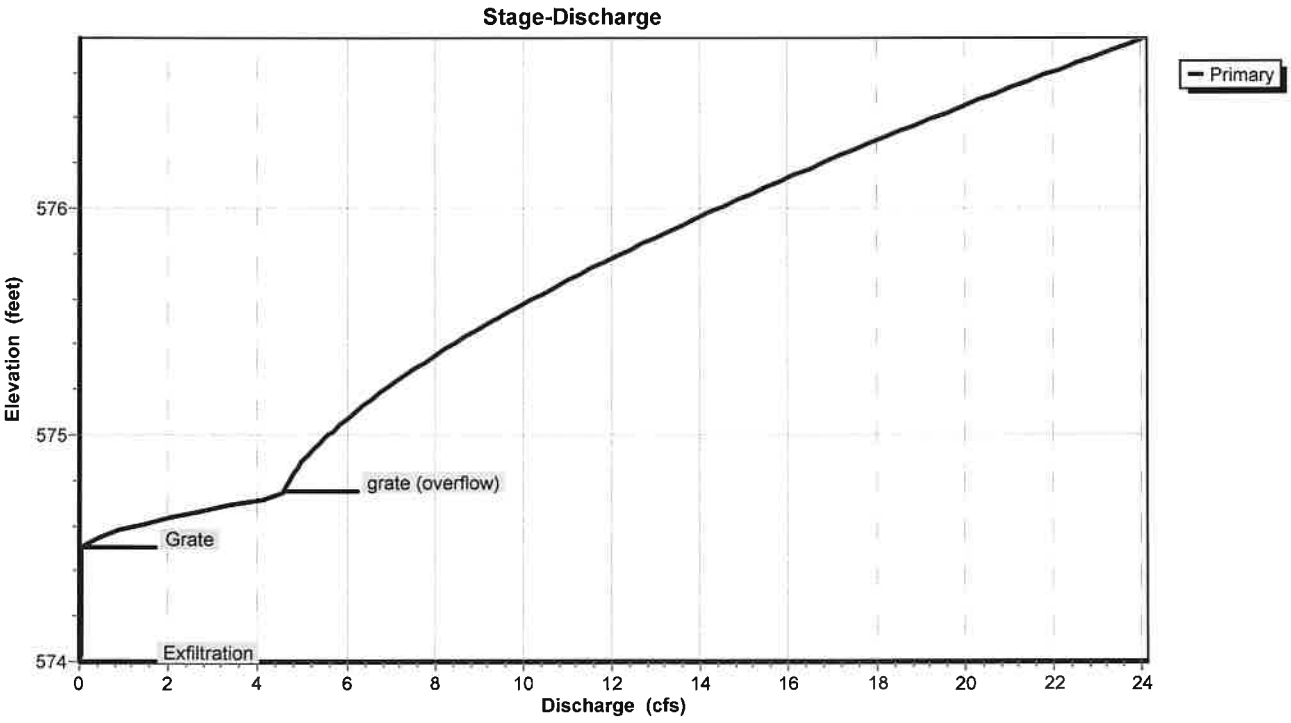
Primary OutFlow Max=4.36 cfs @ 12.06 hrs HW=574.72' (Free Discharge)
- **1=8" pipe** (Passes 4.36 cfs of 4.57 cfs potential flow)
  - **2=Grate** (Weir Controls 4.32 cfs @ 1.54 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

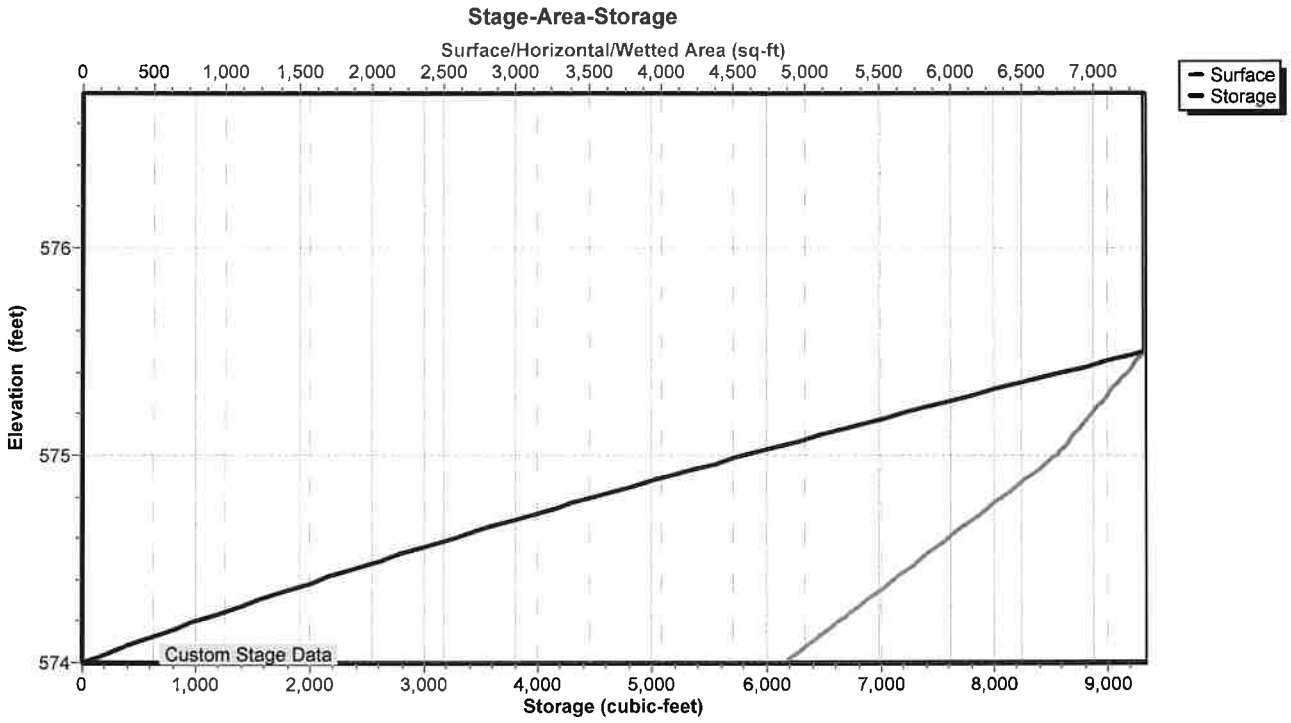


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.01	21	574.00	0.00
8.00	0.03	99	574.02	0.02
10.00	0.09	335	574.07	0.03
12.00	**5.27**	**3,799**	**574.69**	**3.45**
14.00	0.18	**2,801**	**574.52**	**0.19**
16.00	0.11	2,738	574.51	0.12
18.00	0.08	2,710	574.51	0.09
20.00	0.06	2,689	574.50	0.06
22.00	0.05	2,681	574.50	0.06
24.00	0.05	2,677	574.50	0.05
26.00	0.00	2,445	574.46	0.03
28.00	0.00	2,201	574.42	0.03
30.00	0.00	1,961	574.38	0.03
32.00	0.00	1,726	574.33	0.03
34.00	0.00	1,494	574.29	0.03
36.00	0.00	1,267	574.25	0.03
38.00	0.00	1,043	574.21	0.03
40.00	0.00	824	574.16	0.03
42.00	0.00	608	574.12	0.03
44.00	0.00	397	574.08	0.03
46.00	0.00	189	574.04	0.03
48.00	0.00	44	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=2.89"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=6.35 cfs 0.410 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=2.99"
Flow Length=345' Tc=9.1 min CN=92 Runoff=6.75 cfs 0.374 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=571.73' Storage=15,804 cf Inflow=11.11 cfs 0.784 af
Outflow=1.61 cfs 0.740 af

Pond 9P: Bioretention Area 3 Peak Elev=574.82' Storage=4,638 cf Inflow=6.75 cfs 0.374 af
Outflow=4.78 cfs 0.374 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.784 af Average Runoff Depth = 2.94"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

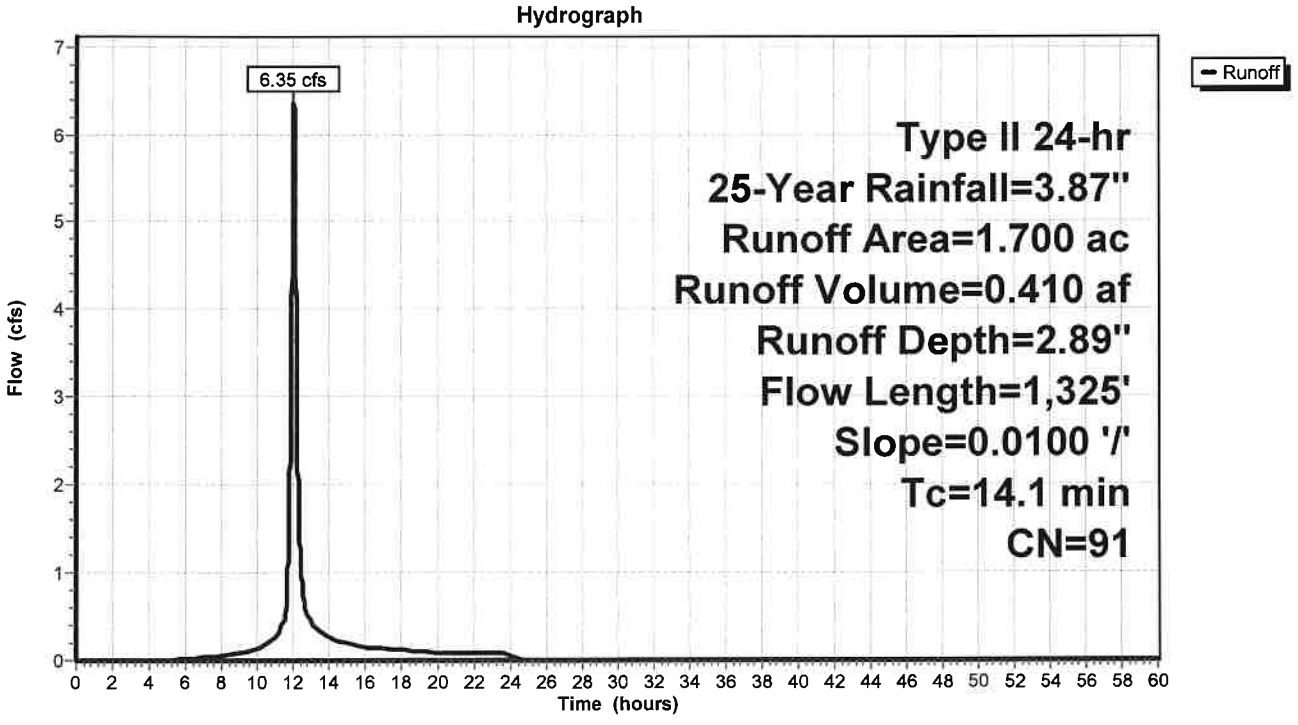
Runoff = 6.35 cfs @ 12.05 hrs, Volume= 0.410 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.01
6.00	0.31	0.01	0.02
7.00	0.38	0.03	0.04
8.00	0.46	0.06	0.05
9.00	0.57	0.10	0.09
10.00	0.70	0.17	0.13
11.00	0.91	0.30	0.27
12.00	2.57	1.67	**5.66**
13.00	2.99	2.06	**0.45**
14.00	3.17	2.23	0.26
15.00	3.30	2.36	0.20
16.00	3.41	2.45	0.15
17.00	3.49	2.53	0.13
18.00	3.56	2.60	0.12
19.00	3.63	2.66	0.10
20.00	3.68	2.72	0.09
21.00	3.73	2.76	0.08
22.00	3.78	2.81	0.08
23.00	3.83	2.85	0.07
24.00	**3.87**	**2.89**	0.07
25.00	3.87	2.89	0.00
26.00	3.87	2.89	0.00
27.00	3.87	2.89	0.00
28.00	3.87	2.89	0.00
29.00	3.87	2.89	0.00
30.00	3.87	2.89	0.00
31.00	3.87	2.89	0.00
32.00	3.87	2.89	0.00
33.00	3.87	2.89	0.00
34.00	3.87	2.89	0.00
35.00	3.87	2.89	0.00
36.00	3.87	2.89	0.00
37.00	3.87	2.89	0.00
38.00	3.87	2.89	0.00
39.00	3.87	2.89	0.00
40.00	3.87	2.89	0.00
41.00	3.87	2.89	0.00
42.00	3.87	2.89	0.00
43.00	3.87	2.89	0.00
44.00	3.87	2.89	0.00
45.00	3.87	2.89	0.00
46.00	3.87	2.89	0.00
47.00	3.87	2.89	0.00
48.00	3.87	2.89	0.00
49.00	3.87	2.89	0.00
50.00	3.87	2.89	0.00
51.00	3.87	2.89	0.00
52.00	3.87	2.89	0.00
53.00	3.87	2.89	0.00
54.00	3.87	2.89	0.00
55.00	3.87	2.89	0.00
56.00	3.87	2.89	0.00
57.00	3.87	2.89	0.00
58.00	3.87	2.89	0.00
59.00	3.87	2.89	0.00
60.00	3.87	2.89	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

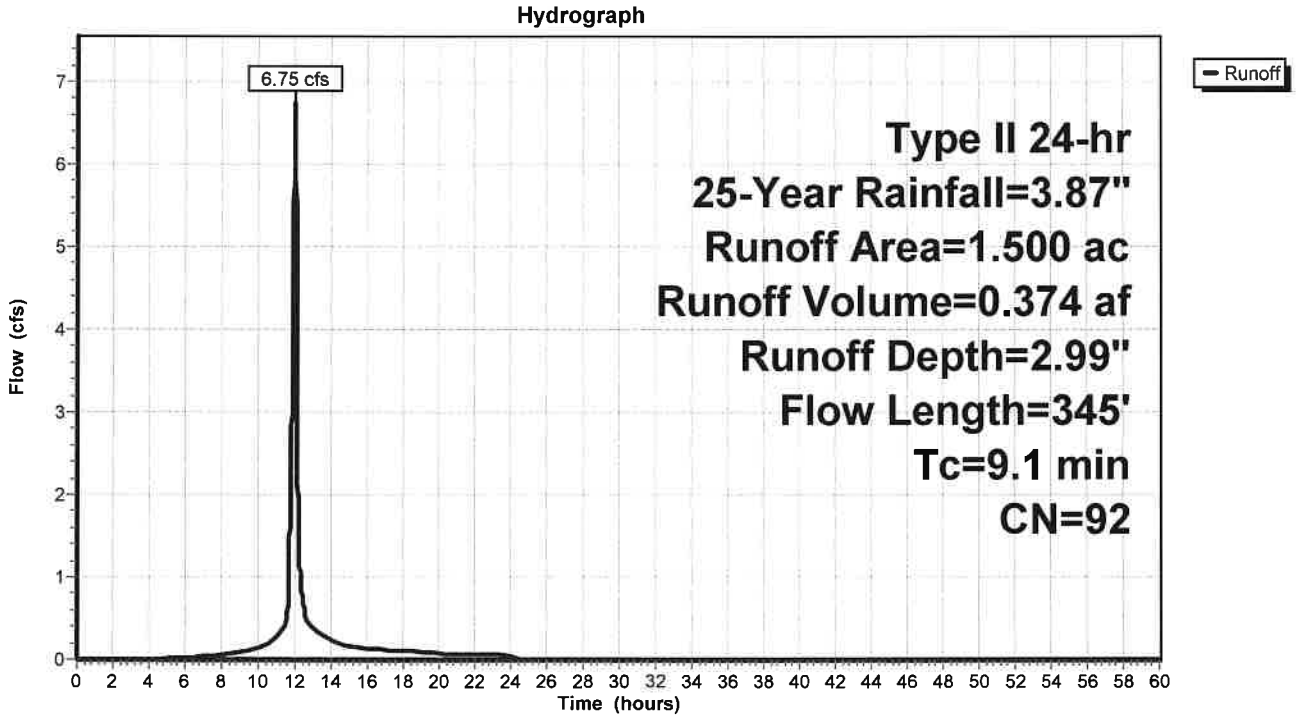
Runoff = 6.75 cfs @ 12.00 hrs, Volume= 0.374 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.87	2.99	0.00
1.00	0.04	0.00	0.00	53.00	3.87	2.99	0.00
2.00	0.09	0.00	0.00	54.00	3.87	2.99	0.00
3.00	0.13	0.00	0.00	55.00	3.87	2.99	0.00
4.00	0.19	0.00	0.00	56.00	3.87	2.99	0.00
5.00	0.24	0.01	0.01	57.00	3.87	2.99	0.00
6.00	0.31	0.02	0.02	58.00	3.87	2.99	0.00
7.00	0.38	0.04	0.04	59.00	3.87	2.99	0.00
8.00	0.46	0.07	0.05	60.00	3.87	2.99	0.00
9.00	0.57	0.12	0.09				
10.00	0.70	0.20	0.13				
11.00	0.91	0.34	0.27				
12.00	2.57	1.75	**6.75**				
13.00	2.99	2.15	0.38				
14.00	3.17	2.33	0.22				
15.00	3.30	2.45	0.17				
16.00	3.41	2.55	0.13				
17.00	3.49	2.63	0.12				
18.00	3.56	2.70	0.10				
19.00	3.63	2.76	0.09				
20.00	3.68	2.81	0.08				
21.00	3.73	2.86	0.07				
22.00	3.78	2.91	0.07				
23.00	3.83	2.95	0.07				
24.00	**3.87**	**2.99**	0.06				
25.00	3.87	2.99	0.00				
26.00	3.87	2.99	0.00				
27.00	3.87	2.99	0.00				
28.00	3.87	2.99	0.00				
29.00	3.87	2.99	0.00				
30.00	3.87	2.99	0.00				
31.00	3.87	2.99	0.00				
32.00	3.87	2.99	0.00				
33.00	3.87	2.99	0.00				
34.00	3.87	2.99	0.00				
35.00	3.87	2.99	0.00				
36.00	3.87	2.99	0.00				
37.00	3.87	2.99	0.00				
38.00	3.87	2.99	0.00				
39.00	3.87	2.99	0.00				
40.00	3.87	2.99	0.00				
41.00	3.87	2.99	0.00				
42.00	3.87	2.99	0.00				
43.00	3.87	2.99	0.00				
44.00	3.87	2.99	0.00				
45.00	3.87	2.99	0.00				
46.00	3.87	2.99	0.00				
47.00	3.87	2.99	0.00				
48.00	3.87	2.99	0.00				
49.00	3.87	2.99	0.00				
50.00	3.87	2.99	0.00				
51.00	3.87	2.99	0.00				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 2.94" for 25-Year event
Inflow = 11.11 cfs @ 12.06 hrs, Volume= 0.784 af
Outflow = 1.61 cfs @ 12.54 hrs, Volume= 0.740 af, Atten= 85%, Lag= 29.2 min
Primary = 1.61 cfs @ 12.54 hrs, Volume= 0.740 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 571.73' @ 12.54 hrs Surf.Area= 10,145 sf Storage= 15,804 cf

Plug-Flow detention time= 252.2 min calculated for 0.740 af (94% of inflow)
Center-of-Mass det. time= 168.6 min (1,084.7 - 916.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

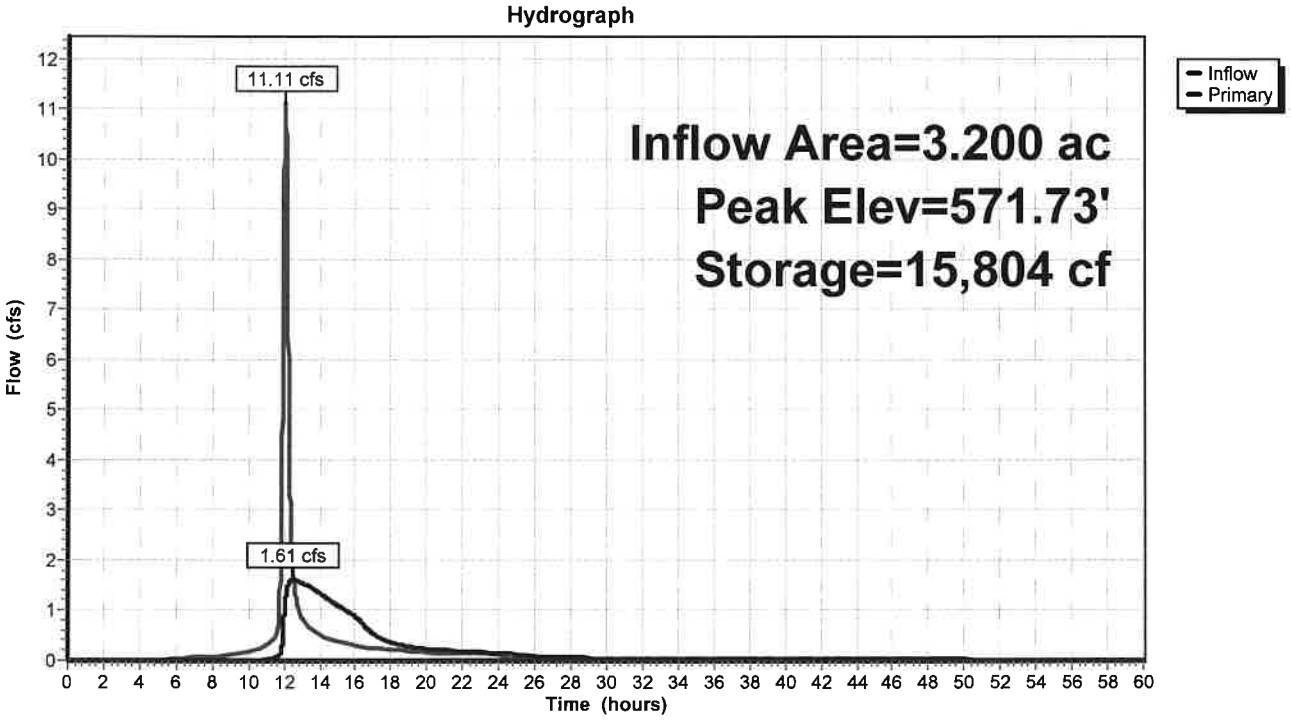
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

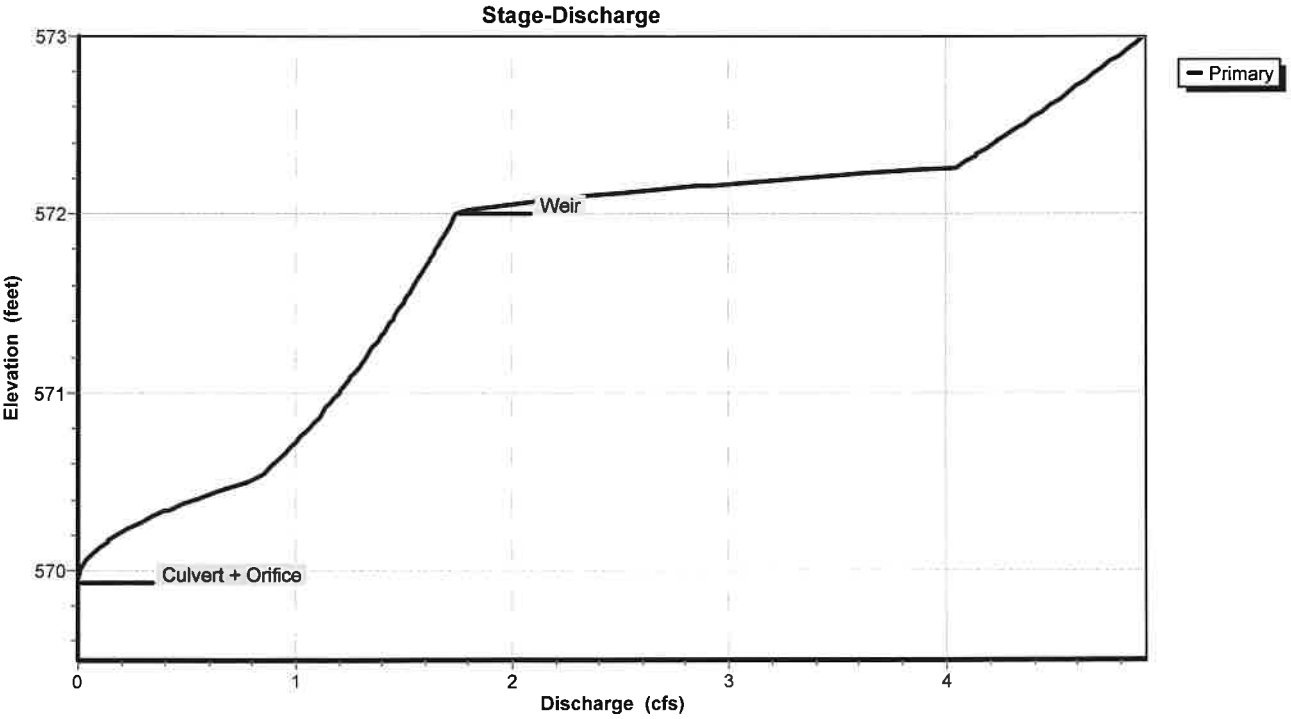
Primary OutFlow Max=1.61 cfs @ 12.54 hrs HW=571.73' (Free Discharge)
└**1=Culvert** (Passes 1.61 cfs of 3.29 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 1.61 cfs @ 6.16 fps)
  └**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

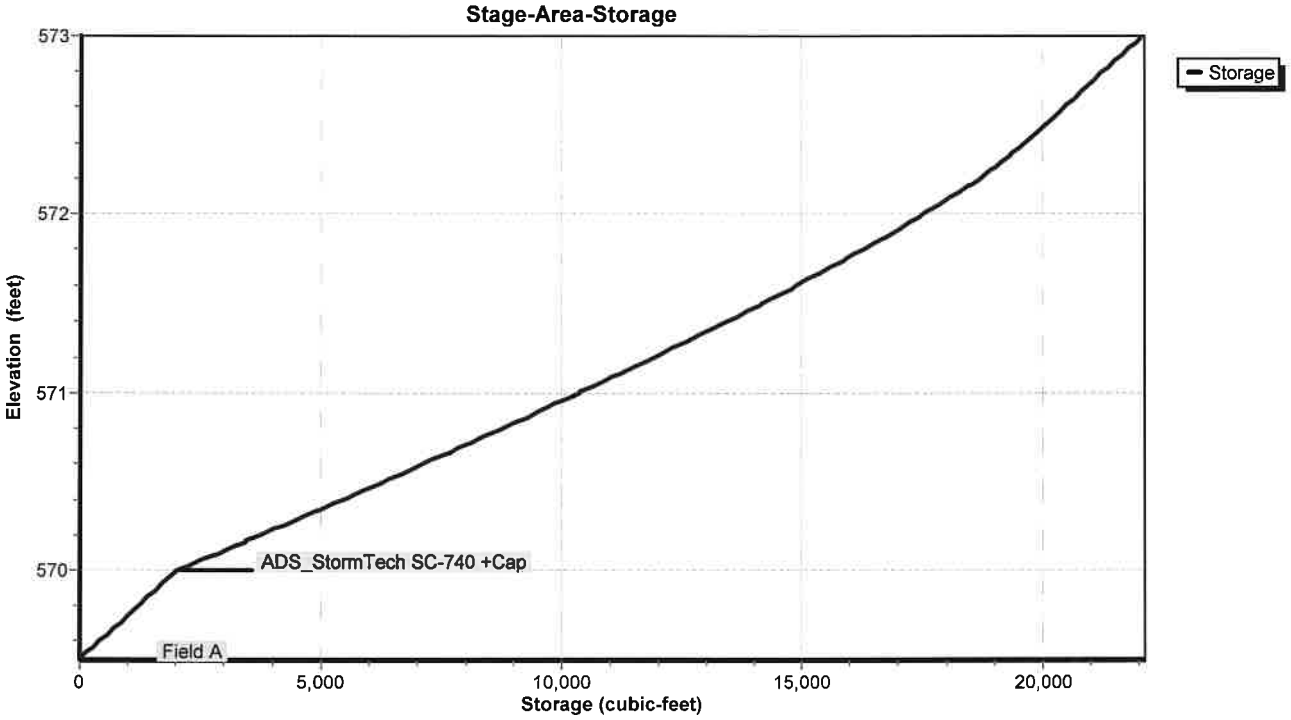


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.03	85	569.52	0.00
8.00	0.08	499	569.62	0.00
10.00	0.16	1,337	569.83	0.00
12.00	**10.28**	**7,562**	**570.65**	**0.94**
14.00	**0.49**	**12,132**	**571.23**	**1.34**
16.00	0.30	6,914	570.58	0.87
18.00	0.22	4,703	570.31	0.36
20.00	0.16	4,045	570.24	0.23
22.00	0.15	3,711	570.20	0.17
24.00	0.13	3,549	570.18	0.15
26.00	0.03	3,038	570.12	0.09
28.00	0.03	2,775	570.09	0.06
30.00	0.03	2,637	570.07	0.05
32.00	0.03	2,558	570.06	0.04
34.00	0.03	2,510	570.06	0.04
36.00	0.03	2,476	570.05	0.04
38.00	0.03	2,451	570.05	0.03
40.00	0.03	2,433	570.05	0.03
42.00	0.03	2,418	570.05	0.03
44.00	0.03	2,405	570.04	0.03
46.00	0.03	2,394	570.04	0.03
48.00	0.01	2,335	570.04	0.03
50.00	0.00	2,210	570.02	0.02
52.00	0.00	2,101	570.01	0.01
54.00	0.00	2,017	570.00	0.01
56.00	0.00	1,961	569.98	0.01
58.00	0.00	1,922	569.97	0.00
60.00	0.00	1,894	569.97	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 2.99" for 25-Year event
Inflow = 6.75 cfs @ 12.00 hrs, Volume= 0.374 af
Outflow = 4.78 cfs @ 12.08 hrs, Volume= 0.374 af, Atten= 29%, Lag= 4.5 min
Primary = 4.78 cfs @ 12.08 hrs, Volume= 0.374 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.82' @ 12.08 hrs Surf.Area= 6,409 sf Storage= 4,638 cf

Plug-Flow detention time= 252.6 min calculated for 0.374 af (100% of inflow)
Center-of-Mass det. time= 252.8 min (1,043.6 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

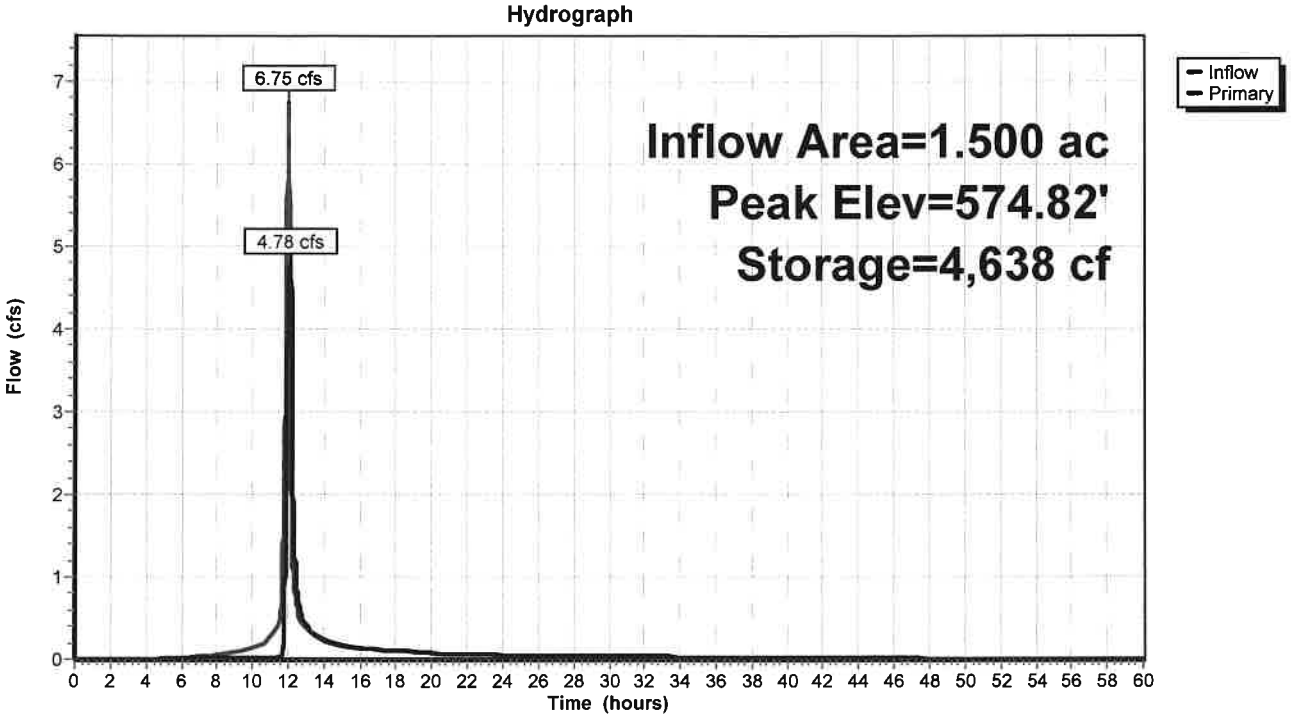
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

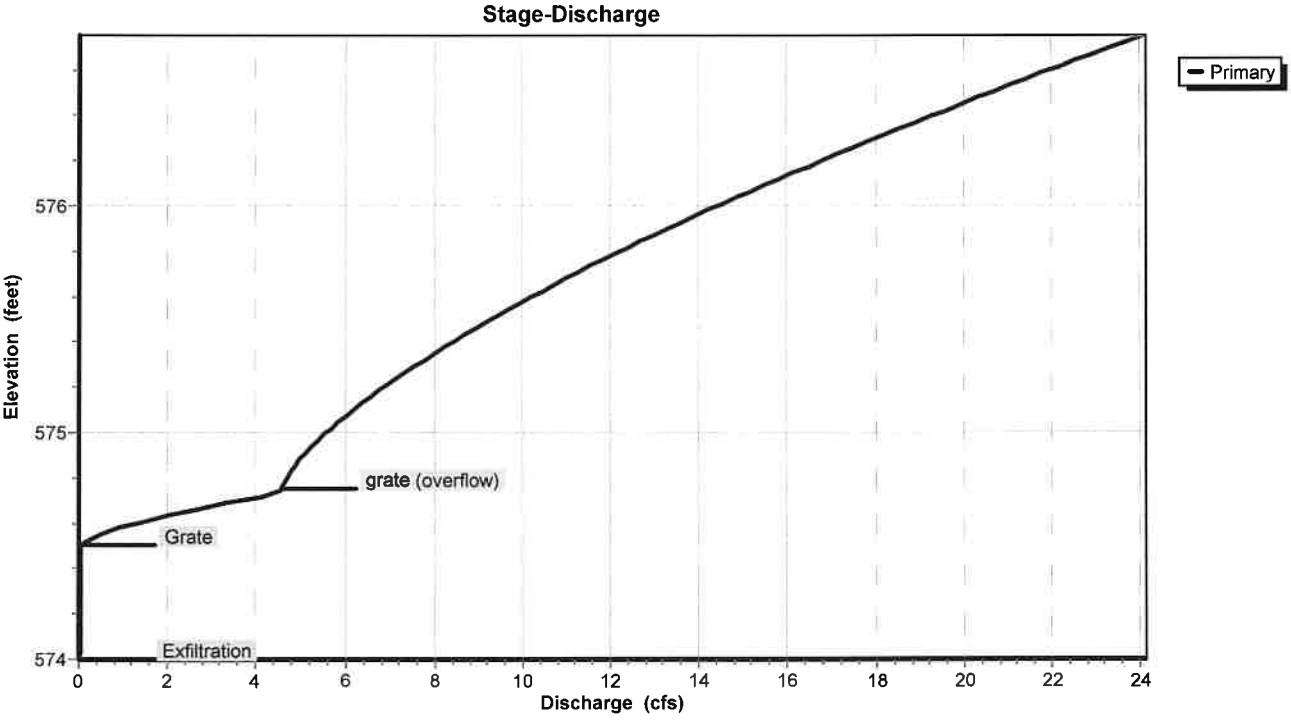
Primary OutFlow Max=4.78 cfs @ 12.08 hrs HW=574.82' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.65 cfs @ 5.92 fps)
  - **2=Grate** (Passes < 5.74 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 0.13 cfs @ 0.87 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

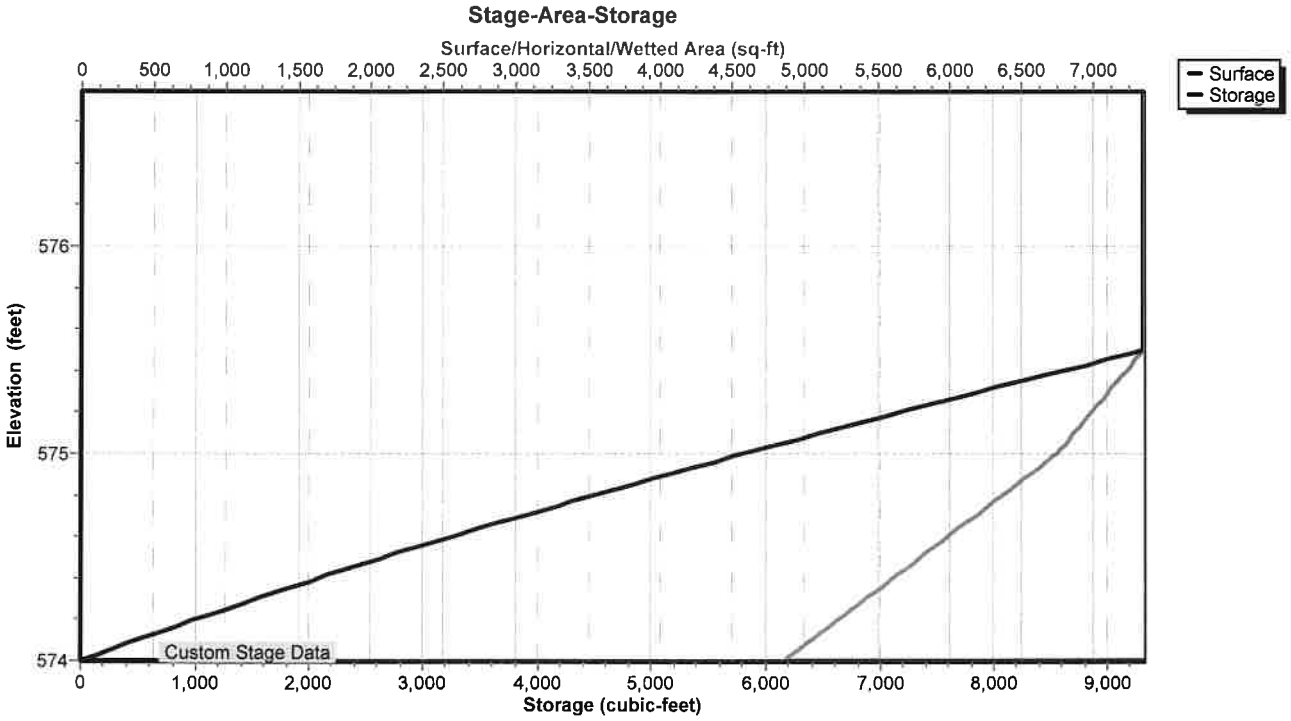


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.02	55	574.01	0.01
8.00	0.05	177	574.04	0.03
10.00	0.13	612	574.12	0.03
12.00	**6.75**	**4,265**	**574.77**	**4.62**
14.00	0.22	**2,825**	**574.53**	**0.24**
16.00	0.13	2,765	574.52	0.14
18.00	0.10	2,730	574.51	0.11
20.00	0.08	2,704	574.51	0.08
22.00	0.07	2,694	574.51	0.07
24.00	0.06	2,689	574.50	0.06
26.00	0.00	2,452	574.46	0.03
28.00	0.00	2,208	574.42	0.03
30.00	0.00	1,968	574.38	0.03
32.00	0.00	1,733	574.34	0.03
34.00	0.00	1,501	574.29	0.03
36.00	0.00	1,273	574.25	0.03
38.00	0.00	1,050	574.21	0.03
40.00	0.00	830	574.17	0.03
42.00	0.00	614	574.12	0.03
44.00	0.00	403	574.08	0.03
46.00	0.00	195	574.04	0.03
48.00	0.00	46	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=3.52"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=7.64 cfs 0.498 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=3.62"
Flow Length=345' Tc=9.1 min CN=92 Runoff=8.07 cfs 0.453 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=572.23' Storage=18,837 cf Inflow=12.80 cfs 0.951 af
Outflow=3.61 cfs 0.907 af

Pond 9P: Bioretention Area 3 Peak Elev=574.93' Storage=5,333 cf Inflow=8.07 cfs 0.453 af
Outflow=5.22 cfs 0.453 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.951 af Average Runoff Depth = 3.57"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

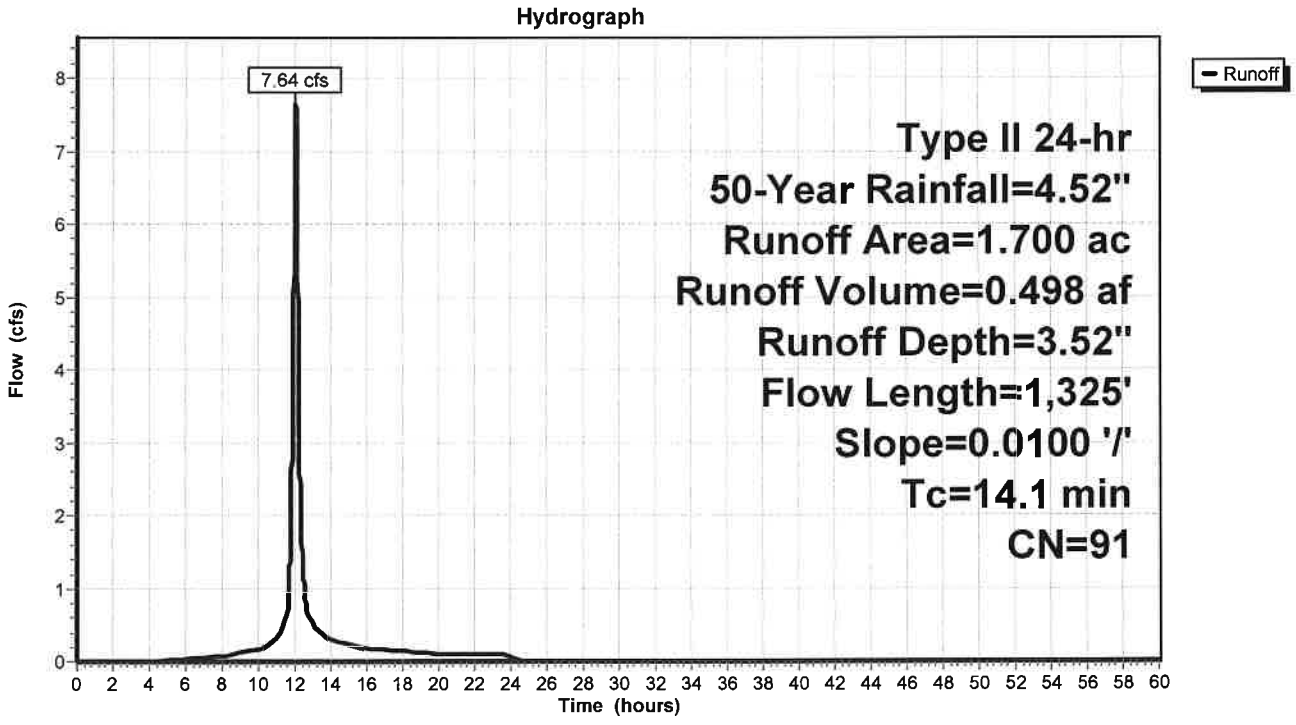
Runoff = 7.64 cfs @ 12.05 hrs, Volume= 0.498 af, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.01	0.02
6.00	0.36	0.02	0.03
7.00	0.45	0.05	0.05
8.00	0.54	0.09	0.07
9.00	0.66	0.15	0.12
10.00	0.82	0.24	0.17
11.00	1.06	0.40	0.34
12.00	3.00	2.07	**6.84**
13.00	3.49	2.53	**0.53**
14.00	3.71	2.74	0.30
15.00	3.86	2.88	0.23
16.00	3.98	3.00	0.18
17.00	4.08	3.09	0.16
18.00	4.16	3.17	0.14
19.00	4.24	3.25	0.12
20.00	4.30	3.31	0.10
21.00	4.36	3.36	0.09
22.00	4.42	3.42	0.09
23.00	4.47	3.47	0.09
24.00	**4.52**	**3.52**	0.08
25.00	4.52	3.52	0.00
26.00	4.52	3.52	0.00
27.00	4.52	3.52	0.00
28.00	4.52	3.52	0.00
29.00	4.52	3.52	0.00
30.00	4.52	3.52	0.00
31.00	4.52	3.52	0.00
32.00	4.52	3.52	0.00
33.00	4.52	3.52	0.00
34.00	4.52	3.52	0.00
35.00	4.52	3.52	0.00
36.00	4.52	3.52	0.00
37.00	4.52	3.52	0.00
38.00	4.52	3.52	0.00
39.00	4.52	3.52	0.00
40.00	4.52	3.52	0.00
41.00	4.52	3.52	0.00
42.00	4.52	3.52	0.00
43.00	4.52	3.52	0.00
44.00	4.52	3.52	0.00
45.00	4.52	3.52	0.00
46.00	4.52	3.52	0.00
47.00	4.52	3.52	0.00
48.00	4.52	3.52	0.00
49.00	4.52	3.52	0.00
50.00	4.52	3.52	0.00
51.00	4.52	3.52	0.00
52.00	4.52	3.52	0.00
53.00	4.52	3.52	0.00
54.00	4.52	3.52	0.00
55.00	4.52	3.52	0.00
56.00	4.52	3.52	0.00
57.00	4.52	3.52	0.00
58.00	4.52	3.52	0.00
59.00	4.52	3.52	0.00
60.00	4.52	3.52	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

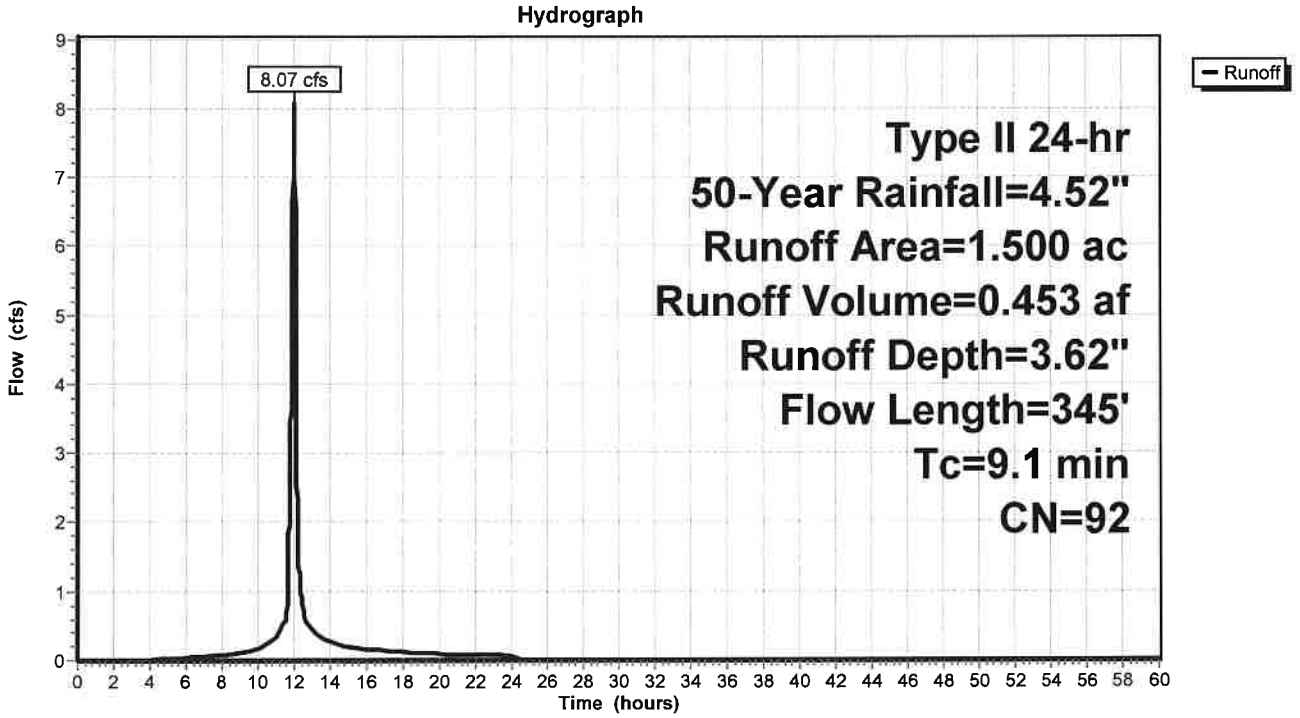
Runoff = 8.07 cfs @ 12.00 hrs, Volume= 0.453 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.52	3.62	0.00
1.00	0.05	0.00	0.00	53.00	4.52	3.62	0.00
2.00	0.10	0.00	0.00	54.00	4.52	3.62	0.00
3.00	0.16	0.00	0.00	55.00	4.52	3.62	0.00
4.00	0.22	0.00	0.01	56.00	4.52	3.62	0.00
5.00	0.28	0.01	0.02	57.00	4.52	3.62	0.00
6.00	0.36	0.03	0.04	58.00	4.52	3.62	0.00
7.00	0.45	0.07	0.06	59.00	4.52	3.62	0.00
8.00	0.54	0.11	0.07	60.00	4.52	3.62	0.00
9.00	0.66	0.18	0.12				
10.00	0.82	0.27	0.17				
11.00	1.06	0.45	0.34				
12.00	3.00	2.16	**8.07**				
13.00	3.49	2.63	0.45				
14.00	3.71	2.83	0.26				
15.00	3.86	2.98	0.20				
16.00	3.98	3.10	0.16				
17.00	4.08	3.19	0.14				
18.00	4.16	3.28	0.12				
19.00	4.24	3.35	0.11				
20.00	4.30	3.41	0.09				
21.00	4.36	3.47	0.08				
22.00	4.42	3.52	0.08				
23.00	4.47	3.57	0.08				
24.00	**4.52**	**3.62**	0.07				
25.00	4.52	3.62	0.00				
26.00	4.52	3.62	0.00				
27.00	4.52	3.62	0.00				
28.00	4.52	3.62	0.00				
29.00	4.52	3.62	0.00				
30.00	4.52	3.62	0.00				
31.00	4.52	3.62	0.00				
32.00	4.52	3.62	0.00				
33.00	4.52	3.62	0.00				
34.00	4.52	3.62	0.00				
35.00	4.52	3.62	0.00				
36.00	4.52	3.62	0.00				
37.00	4.52	3.62	0.00				
38.00	4.52	3.62	0.00				
39.00	4.52	3.62	0.00				
40.00	4.52	3.62	0.00				
41.00	4.52	3.62	0.00				
42.00	4.52	3.62	0.00				
43.00	4.52	3.62	0.00				
44.00	4.52	3.62	0.00				
45.00	4.52	3.62	0.00				
46.00	4.52	3.62	0.00				
47.00	4.52	3.62	0.00				
48.00	4.52	3.62	0.00				
49.00	4.52	3.62	0.00				
50.00	4.52	3.62	0.00				
51.00	4.52	3.62	0.00				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 3.57" for 50-Year event
Inflow = 12.80 cfs @ 12.06 hrs, Volume= 0.951 af
Outflow = 3.61 cfs @ 12.36 hrs, Volume= 0.907 af, Atten= 72%, Lag= 17.7 min
Primary = 3.61 cfs @ 12.36 hrs, Volume= 0.907 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 572.23' @ 12.36 hrs Surf.Area= 10,145 sf Storage= 18,837 cf

Plug-Flow detention time= 228.3 min calculated for 0.907 af (95% of inflow)
Center-of-Mass det. time= 158.8 min (1,051.4 - 892.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

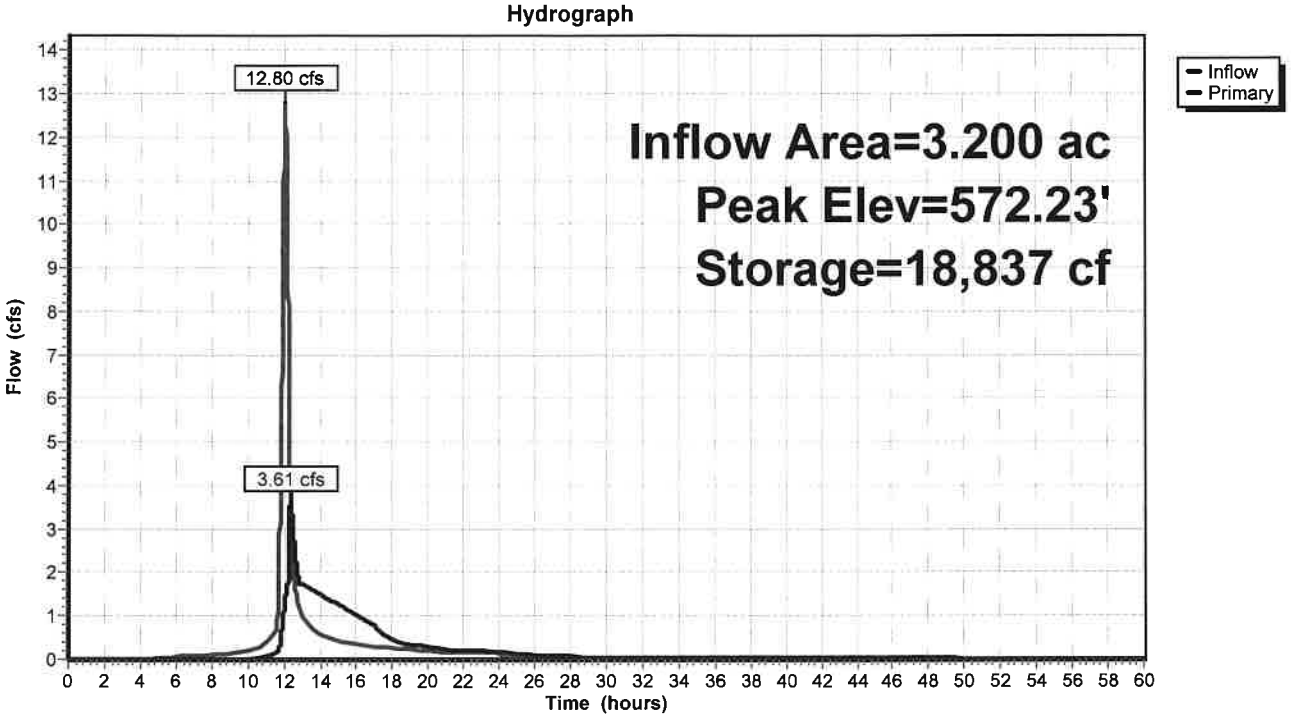
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

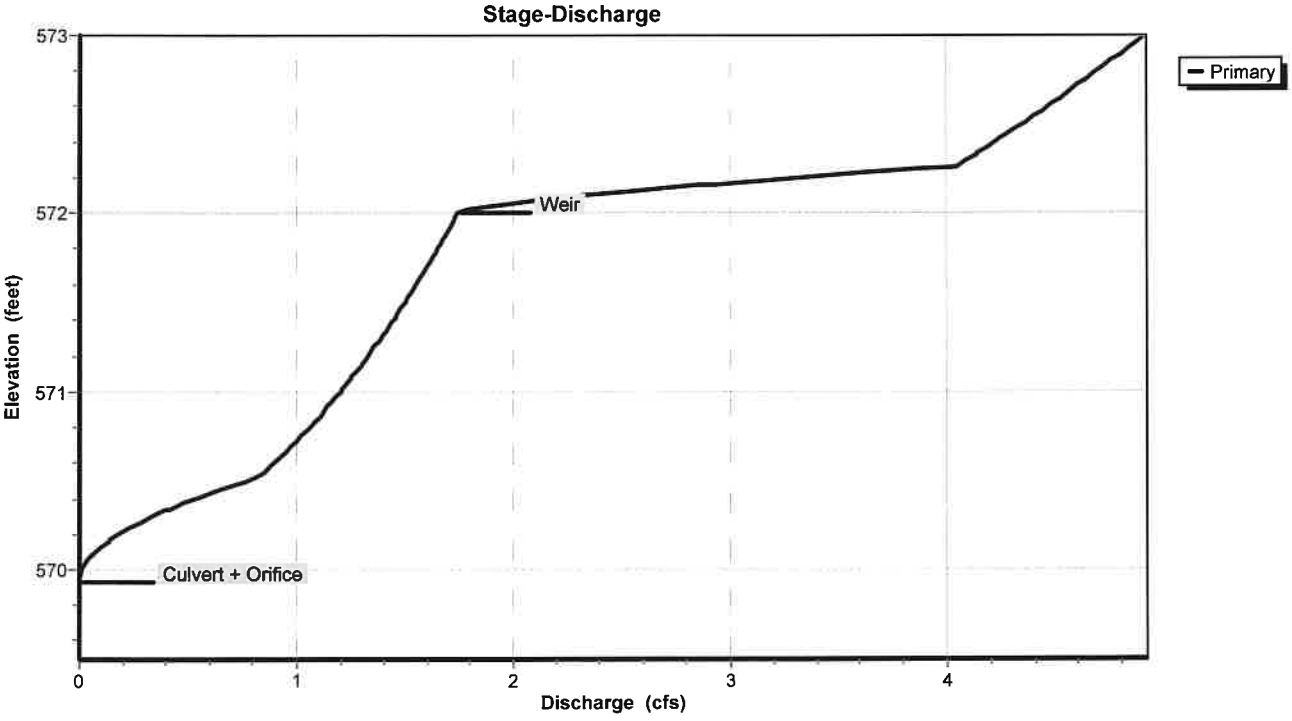
Primary OutFlow Max=3.60 cfs @ 12.36 hrs HW=572.23' (Free Discharge)
└**1=Culvert** (Passes 3.60 cfs of 4.00 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 1.84 cfs @ 7.03 fps)
  └**3=Weir** (Weir Controls 1.76 cfs @ 1.56 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

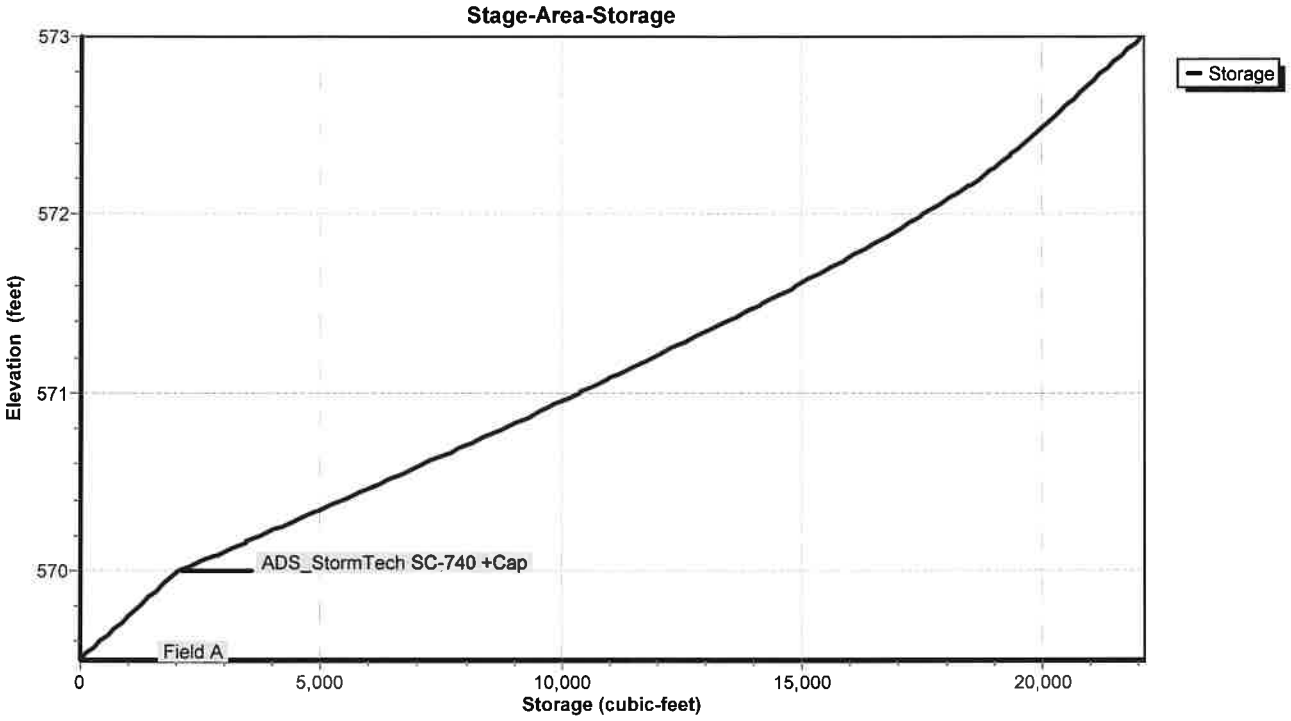


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	1	569.50	0.00
6.00	0.05	184	569.55	0.00
8.00	0.10	755	569.69	0.00
10.00	0.20	1,811	569.95	0.00
12.00	**11.66**	**9,752**	**570.92**	**1.15**
14.00	**0.59**	**14,219**	**571.51**	**1.50**
16.00	0.35	8,385	570.75	1.02
18.00	0.26	5,166	570.37	0.47
20.00	0.19	4,282	570.26	0.27
22.00	0.17	3,893	570.22	0.20
24.00	0.16	3,718	570.20	0.18
26.00	0.03	3,113	570.13	0.09
28.00	0.03	2,810	570.09	0.06
30.00	0.03	2,657	570.07	0.05
32.00	0.03	2,569	570.06	0.04
34.00	0.03	2,516	570.06	0.04
36.00	0.03	2,480	570.05	0.04
38.00	0.03	2,454	570.05	0.03
40.00	0.03	2,435	570.05	0.03
42.00	0.03	2,419	570.05	0.03
44.00	0.03	2,406	570.04	0.03
46.00	0.03	2,395	570.04	0.03
48.00	0.01	2,338	570.04	0.03
50.00	0.00	2,213	570.02	0.02
52.00	0.00	2,103	570.01	0.01
54.00	0.00	2,018	570.00	0.01
56.00	0.00	1,962	569.98	0.01
58.00	0.00	1,923	569.97	0.00
60.00	0.00	1,894	569.97	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 3.62" for 50-Year event
Inflow = 8.07 cfs @ 12.00 hrs, Volume= 0.453 af
Outflow = 5.22 cfs @ 12.09 hrs, Volume= 0.453 af, Atten= 35%, Lag= 5.1 min
Primary = 5.22 cfs @ 12.09 hrs, Volume= 0.453 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.93' @ 12.09 hrs Surf.Area= 6,611 sf Storage= 5,333 cf

Plug-Flow detention time= 214.9 min calculated for 0.453 af (100% of inflow)
Center-of-Mass det. time= 215.2 min (1,000.7 - 785.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

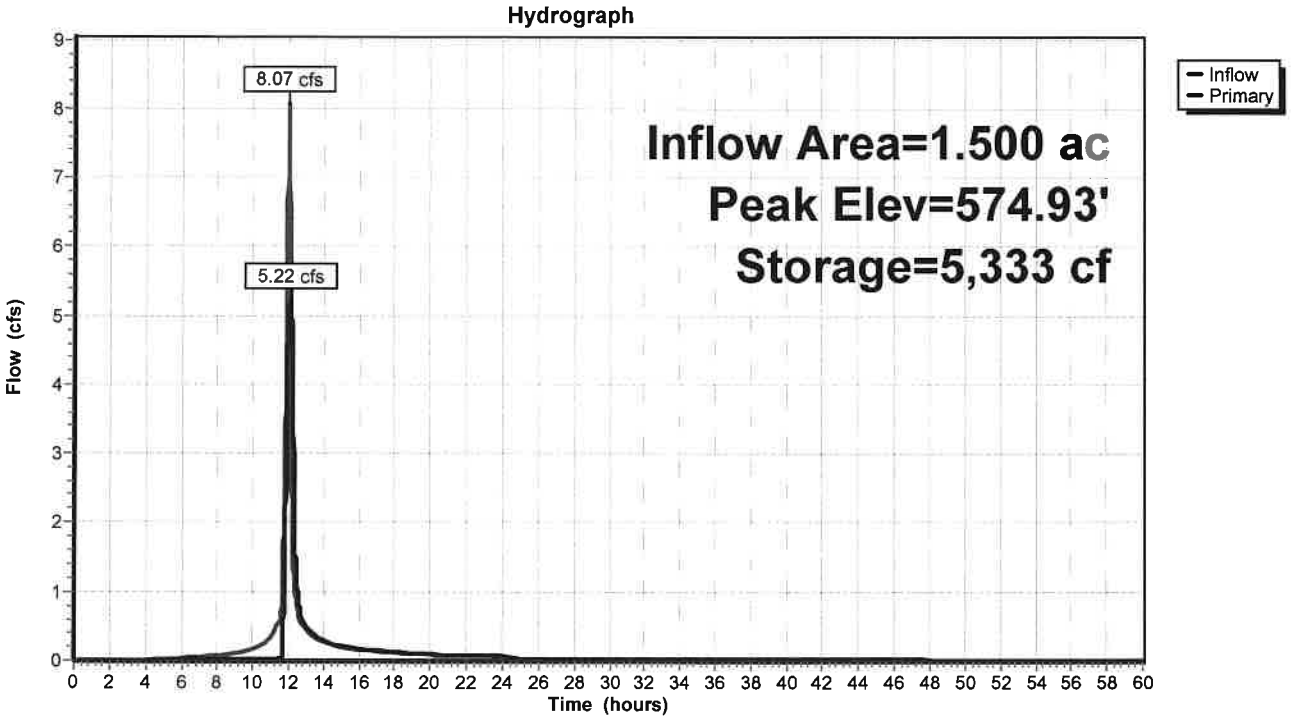
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

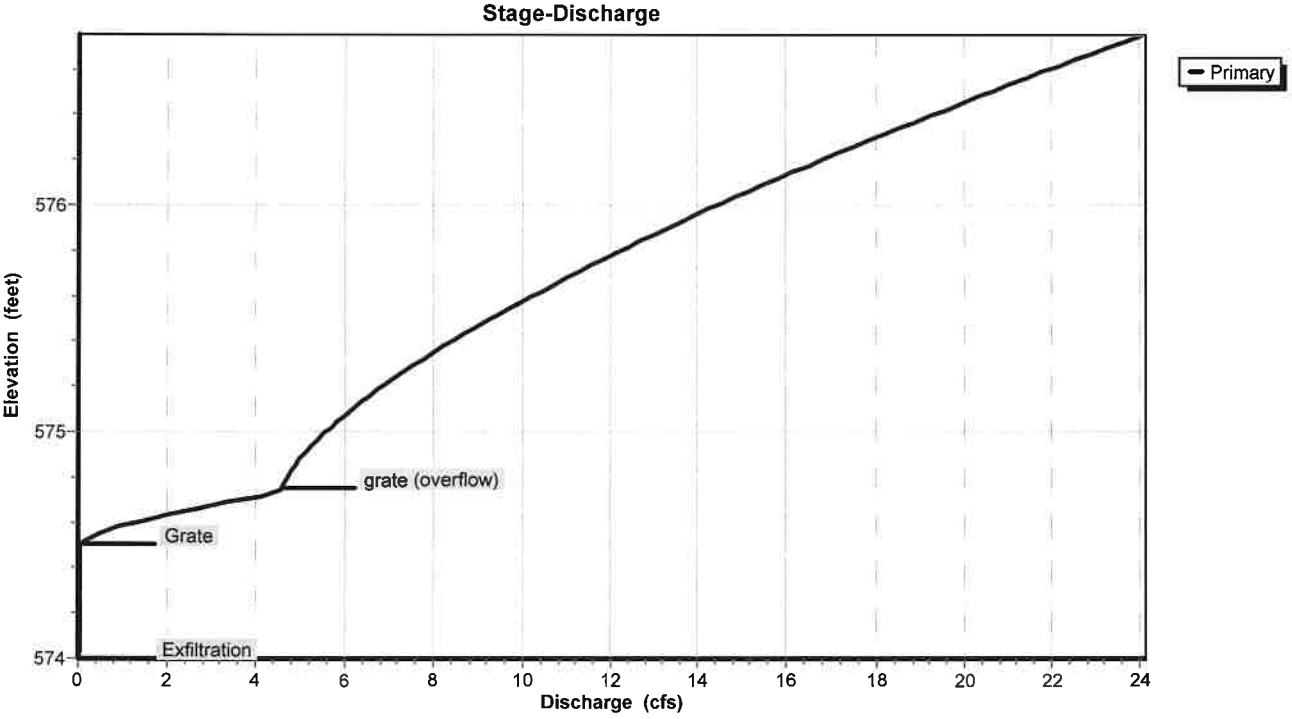
Primary OutFlow Max=5.22 cfs @ 12.09 hrs HW=574.93' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.73 cfs @ 6.02 fps)
  - **2=Grate** (Passes < 6.61 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 0.49 cfs @ 1.36 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

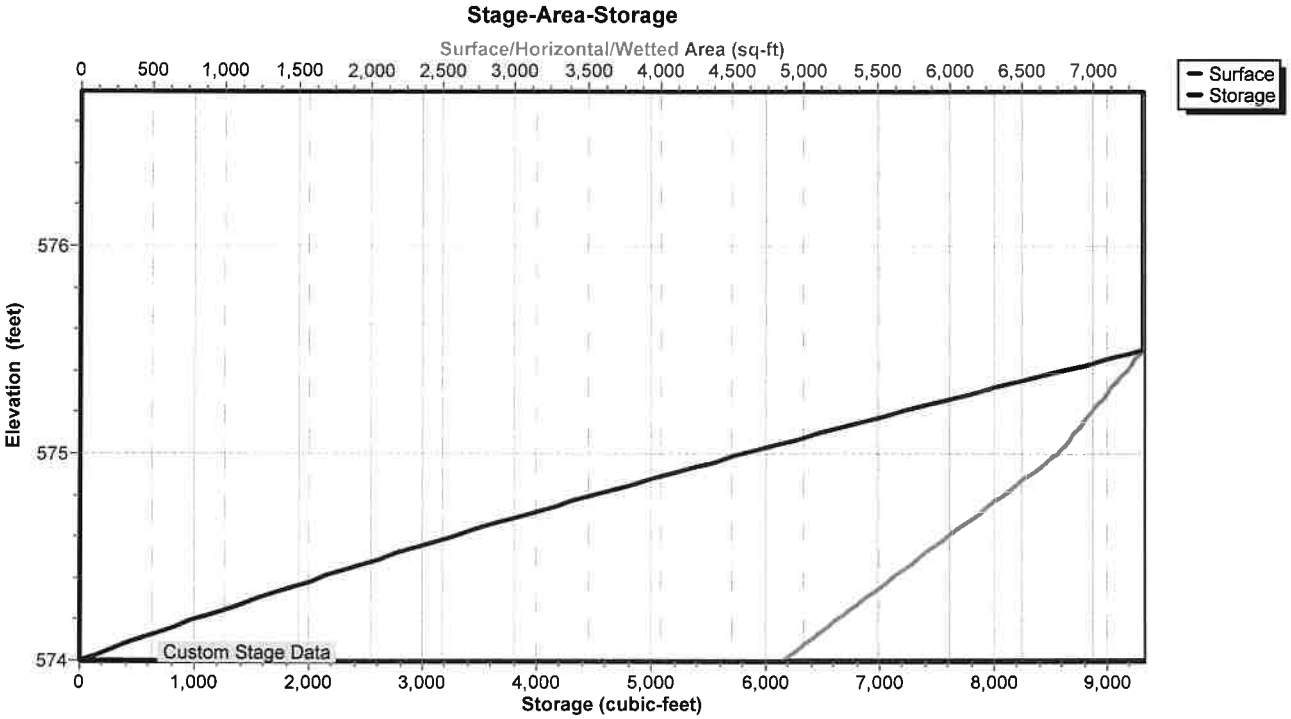


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.01	6	574.00	0.00
6.00	0.04	95	574.02	0.02
8.00	0.07	296	574.06	0.03
10.00	0.17	928	574.18	0.03
12.00	**8.07**	**4,720**	**574.84**	**4.83**
14.00	0.26	**2,846**	**574.53**	**0.28**
16.00	0.16	2,787	574.52	0.17
18.00	0.12	2,748	574.51	0.13
20.00	0.09	2,717	574.51	0.09
22.00	0.08	2,706	574.51	0.08
24.00	0.07	2,699	574.51	0.07
26.00	0.00	2,457	574.46	0.03
28.00	0.00	2,213	574.42	0.03
30.00	0.00	1,974	574.38	0.03
32.00	0.00	1,738	574.34	0.03
34.00	0.00	1,506	574.29	0.03
36.00	0.00	1,278	574.25	0.03
38.00	0.00	1,055	574.21	0.03
40.00	0.00	835	574.17	0.03
42.00	0.00	619	574.12	0.03
44.00	0.00	407	574.08	0.03
46.00	0.00	199	574.04	0.03
48.00	0.00	47	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=4.25"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=9.15 cfs 0.603 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=4.36"
Flow Length=345' Tc=9.1 min CN=92 Runoff=9.61 cfs 0.545 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=572.92' Storage=21,772 cf Inflow=14.92 cfs 1.148 af
Outflow=4.83 cfs 1.105 af

Pond 9P: Bioretention Area 3 Peak Elev=575.05' Storage=6,150 cf Inflow=9.61 cfs 0.545 af
Outflow=5.89 cfs 0.545 af

Total Runoff Area = 3.200 ac Runoff Volume = 1.148 af Average Runoff Depth = 4.31"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

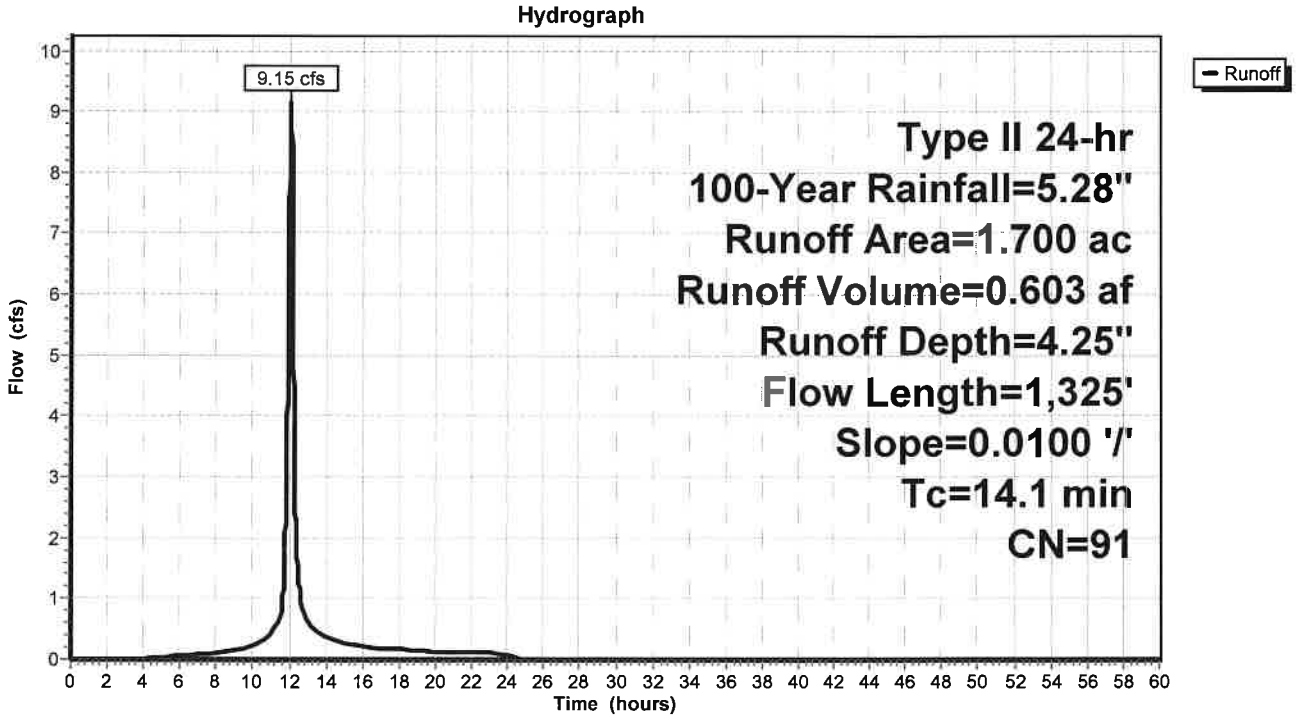
Runoff = 9.15 cfs @ 12.05 hrs, Volume= 0.603 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.28	4.25	0.00
1.00	0.06	0.00	0.00	53.00	5.28	4.25	0.00
2.00	0.12	0.00	0.00	54.00	5.28	4.25	0.00
3.00	0.18	0.00	0.00	55.00	5.28	4.25	0.00
4.00	0.25	0.00	0.01	56.00	5.28	4.25	0.00
5.00	0.33	0.02	0.03	57.00	5.28	4.25	0.00
6.00	0.42	0.04	0.05	58.00	5.28	4.25	0.00
7.00	0.52	0.08	0.07	59.00	5.28	4.25	0.00
8.00	0.63	0.13	0.10	60.00	5.28	4.25	0.00
9.00	0.78	0.21	0.16				
10.00	0.96	0.33	0.22				
11.00	1.24	0.54	0.43				
12.00	3.50	2.54	**8.21**				
13.00	4.08	3.09	**0.63**				
14.00	4.33	3.33	0.36				
15.00	4.51	3.50	0.28				
16.00	4.65	3.64	0.21				
17.00	4.76	3.75	0.18				
18.00	4.86	3.85	0.16				
19.00	4.95	3.93	0.14				
20.00	5.03	4.01	0.12				
21.00	5.09	4.07	0.11				
22.00	5.16	4.14	0.11				
23.00	5.22	4.20	0.10				
24.00	**5.28**	**4.25**	0.10				
25.00	5.28	4.25	0.00				
26.00	5.28	4.25	0.00				
27.00	5.28	4.25	0.00				
28.00	5.28	4.25	0.00				
29.00	5.28	4.25	0.00				
30.00	5.28	4.25	0.00				
31.00	5.28	4.25	0.00				
32.00	5.28	4.25	0.00				
33.00	5.28	4.25	0.00				
34.00	5.28	4.25	0.00				
35.00	5.28	4.25	0.00				
36.00	5.28	4.25	0.00				
37.00	5.28	4.25	0.00				
38.00	5.28	4.25	0.00				
39.00	5.28	4.25	0.00				
40.00	5.28	4.25	0.00				
41.00	5.28	4.25	0.00				
42.00	5.28	4.25	0.00				
43.00	5.28	4.25	0.00				
44.00	5.28	4.25	0.00				
45.00	5.28	4.25	0.00				
46.00	5.28	4.25	0.00				
47.00	5.28	4.25	0.00				
48.00	5.28	4.25	0.00				
49.00	5.28	4.25	0.00				
50.00	5.28	4.25	0.00				
51.00	5.28	4.25	0.00				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

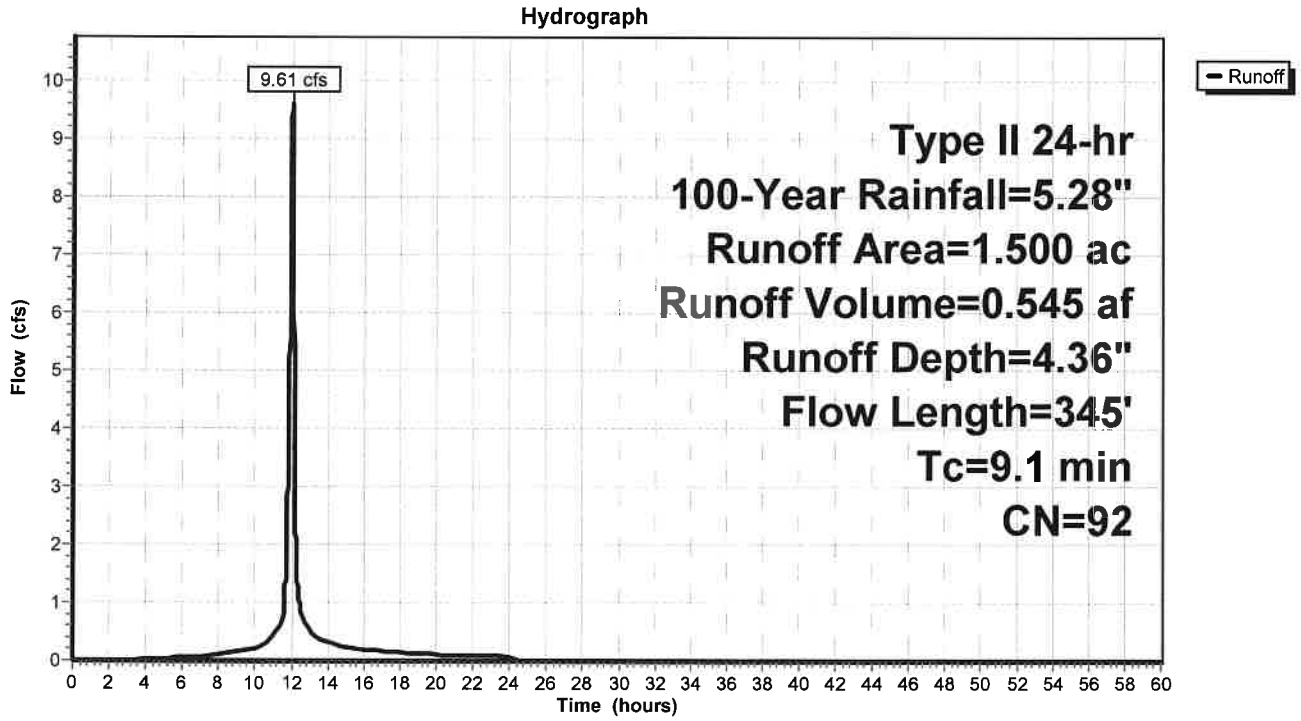
Runoff = 9.61 cfs @ 12.00 hrs, Volume= 0.545 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.01	0.02
5.00	0.33	0.02	0.03
6.00	0.42	0.06	0.05
7.00	0.52	0.10	0.08
8.00	0.63	0.16	0.10
9.00	0.78	0.25	0.16
10.00	0.96	0.37	0.22
11.00	1.24	0.59	0.42
12.00	3.50	2.64	**9.61**
13.00	4.08	3.19	0.53
14.00	4.33	3.44	0.31
15.00	4.51	3.61	0.24
16.00	4.65	3.74	0.19
17.00	4.76	3.86	0.16
18.00	4.86	3.96	0.14
19.00	4.95	4.04	0.12
20.00	5.03	4.12	0.10
21.00	5.09	4.18	0.10
22.00	5.16	4.24	0.09
23.00	5.22	4.30	0.09
24.00	**5.28**	**4.36**	0.09
25.00	5.28	4.36	0.00
26.00	5.28	4.36	0.00
27.00	5.28	4.36	0.00
28.00	5.28	4.36	0.00
29.00	5.28	4.36	0.00
30.00	5.28	4.36	0.00
31.00	5.28	4.36	0.00
32.00	5.28	4.36	0.00
33.00	5.28	4.36	0.00
34.00	5.28	4.36	0.00
35.00	5.28	4.36	0.00
36.00	5.28	4.36	0.00
37.00	5.28	4.36	0.00
38.00	5.28	4.36	0.00
39.00	5.28	4.36	0.00
40.00	5.28	4.36	0.00
41.00	5.28	4.36	0.00
42.00	5.28	4.36	0.00
43.00	5.28	4.36	0.00
44.00	5.28	4.36	0.00
45.00	5.28	4.36	0.00
46.00	5.28	4.36	0.00
47.00	5.28	4.36	0.00
48.00	5.28	4.36	0.00
49.00	5.28	4.36	0.00
50.00	5.28	4.36	0.00
51.00	5.28	4.36	0.00
52.00	5.28	4.36	0.00
53.00	5.28	4.36	0.00
54.00	5.28	4.36	0.00
55.00	5.28	4.36	0.00
56.00	5.28	4.36	0.00
57.00	5.28	4.36	0.00
58.00	5.28	4.36	0.00
59.00	5.28	4.36	0.00
60.00	5.28	4.36	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 4.31" for 100-Year event
Inflow = 14.92 cfs @ 12.06 hrs, Volume= 1.148 af
Outflow = 4.83 cfs @ 12.36 hrs, Volume= 1.105 af, Atten= 68%, Lag= 18.1 min
Primary = 4.83 cfs @ 12.36 hrs, Volume= 1.105 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 572.92' @ 12.36 hrs Surf.Area= 10,145 sf Storage= 21,772 cf

Plug-Flow detention time= 201.7 min calculated for 1.105 af (96% of inflow)
Center-of-Mass det. time= 143.6 min (1,016.5 - 873.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

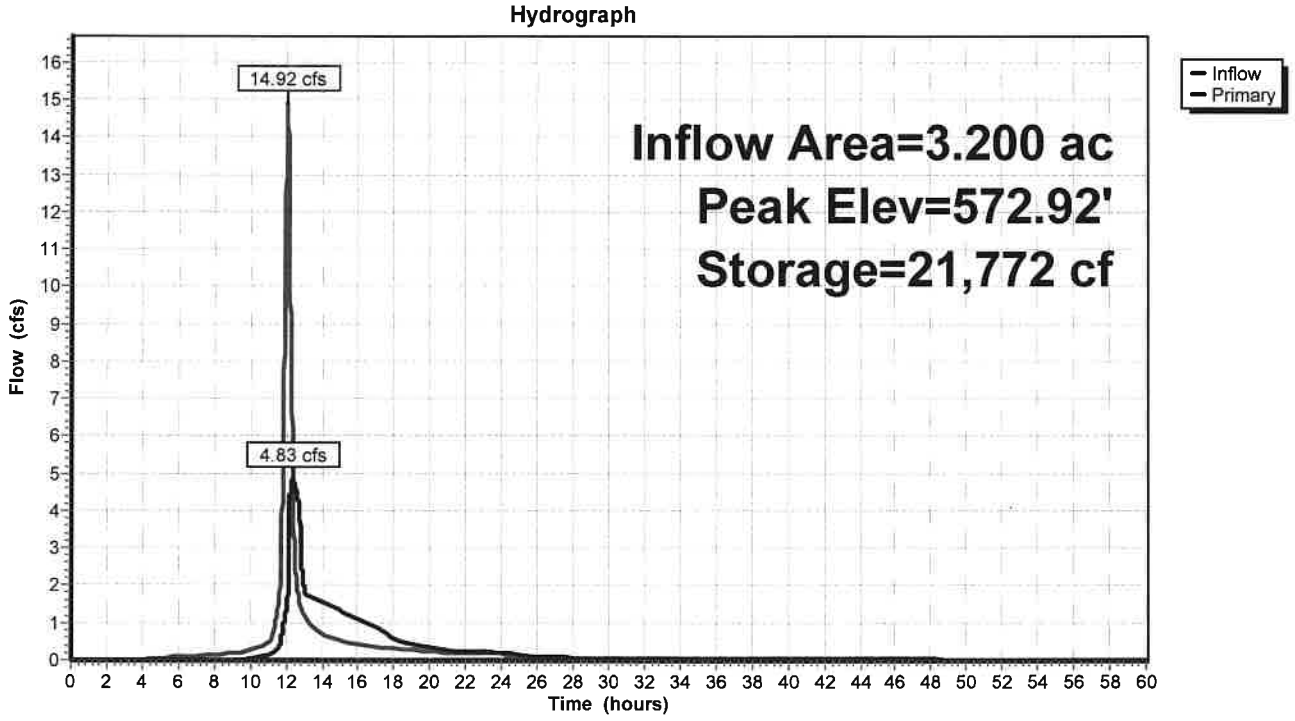
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

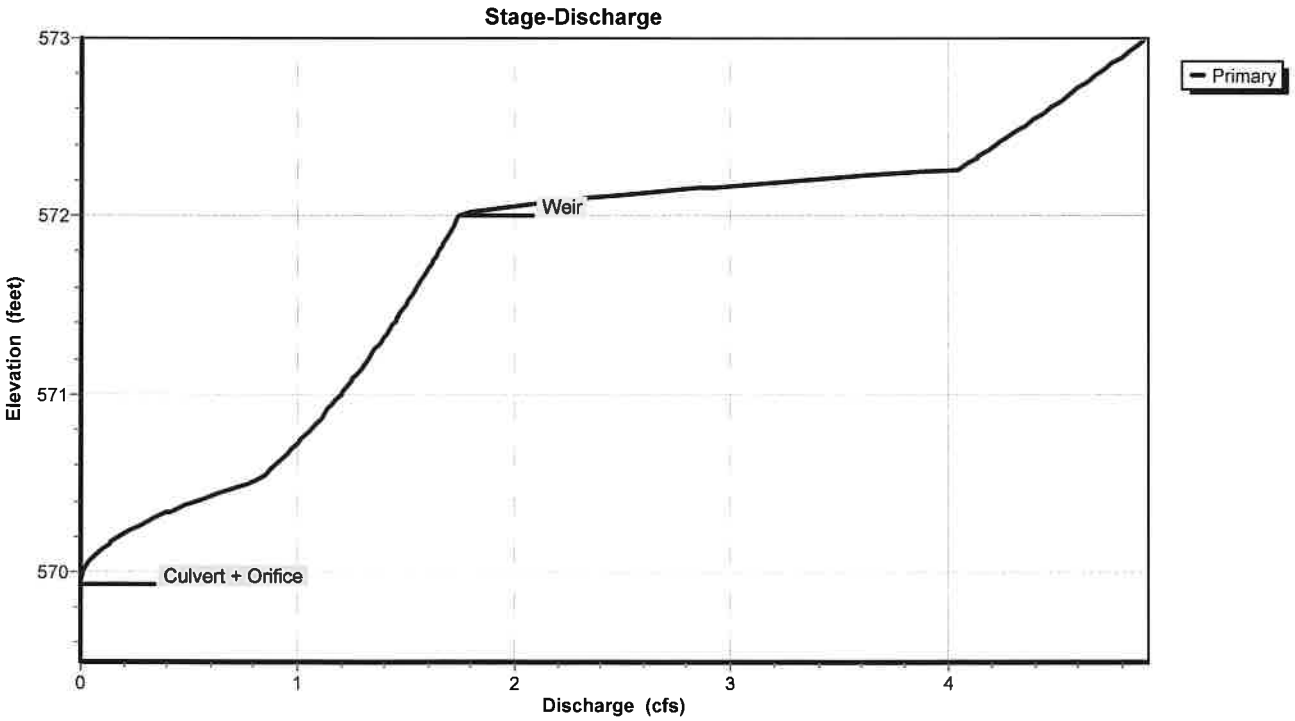
Primary OutFlow Max=4.83 cfs @ 12.36 hrs HW=572.92' (Free Discharge)
↑**1=Culvert** (Barrel Controls 4.83 cfs @ 6.16 fps)
↑**2=Orifice** (Passes < 2.12 cfs potential flow)
3=Weir (Passes < 13.95 cfs potential flow)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

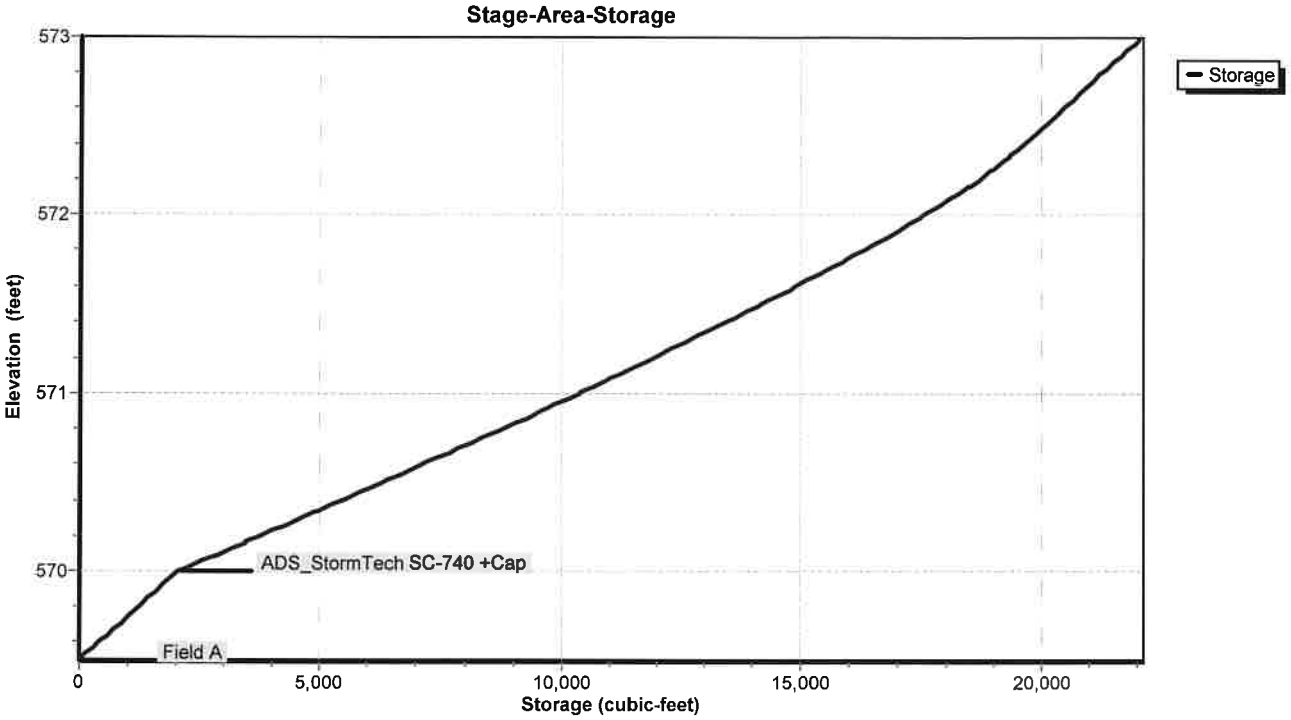


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.01	16	569.50	0.00
6.00	0.08	340	569.58	0.00
8.00	0.13	1,076	569.77	0.00
10.00	0.25	2,364	570.04	0.03
12.00	**13.40**	**12,150**	**571.23**	**1.34**
14.00	**0.69**	**15,059**	**571.63**	**1.56**
16.00	0.41	9,280	570.86	1.10
18.00	0.31	5,592	570.42	0.57
20.00	0.23	4,514	570.29	0.32
22.00	0.20	4,084	570.24	0.24
24.00	0.19	3,896	570.22	0.21
26.00	0.03	3,188	570.13	0.10
28.00	0.03	2,846	570.09	0.07
30.00	0.03	2,675	570.08	0.05
32.00	0.03	2,579	570.06	0.04
34.00	0.03	2,522	570.06	0.04
36.00	0.03	2,484	570.05	0.04
38.00	0.03	2,457	570.05	0.03
40.00	0.03	2,436	570.05	0.03
42.00	0.03	2,420	570.05	0.03
44.00	0.03	2,407	570.04	0.03
46.00	0.03	2,395	570.04	0.03
48.00	0.01	2,341	570.04	0.03
50.00	0.00	2,216	570.02	0.02
52.00	0.00	2,105	570.01	0.01
54.00	0.00	2,020	570.00	0.01
56.00	0.00	1,963	569.98	0.01
58.00	0.00	1,923	569.97	0.00
60.00	0.00	1,895	569.97	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 4.36" for 100-Year event
Inflow = 9.61 cfs @ 12.00 hrs, Volume= 0.545 af
Outflow = 5.89 cfs @ 12.09 hrs, Volume= 0.545 af, Atten= 39%, Lag= 5.5 min
Primary = 5.89 cfs @ 12.09 hrs, Volume= 0.545 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.05' @ 12.09 hrs Surf.Area= 6,805 sf Storage= 6,150 cf

Plug-Flow detention time= 184.7 min calculated for 0.545 af (100% of inflow)
Center-of-Mass det. time= 185.0 min (965.5 - 780.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

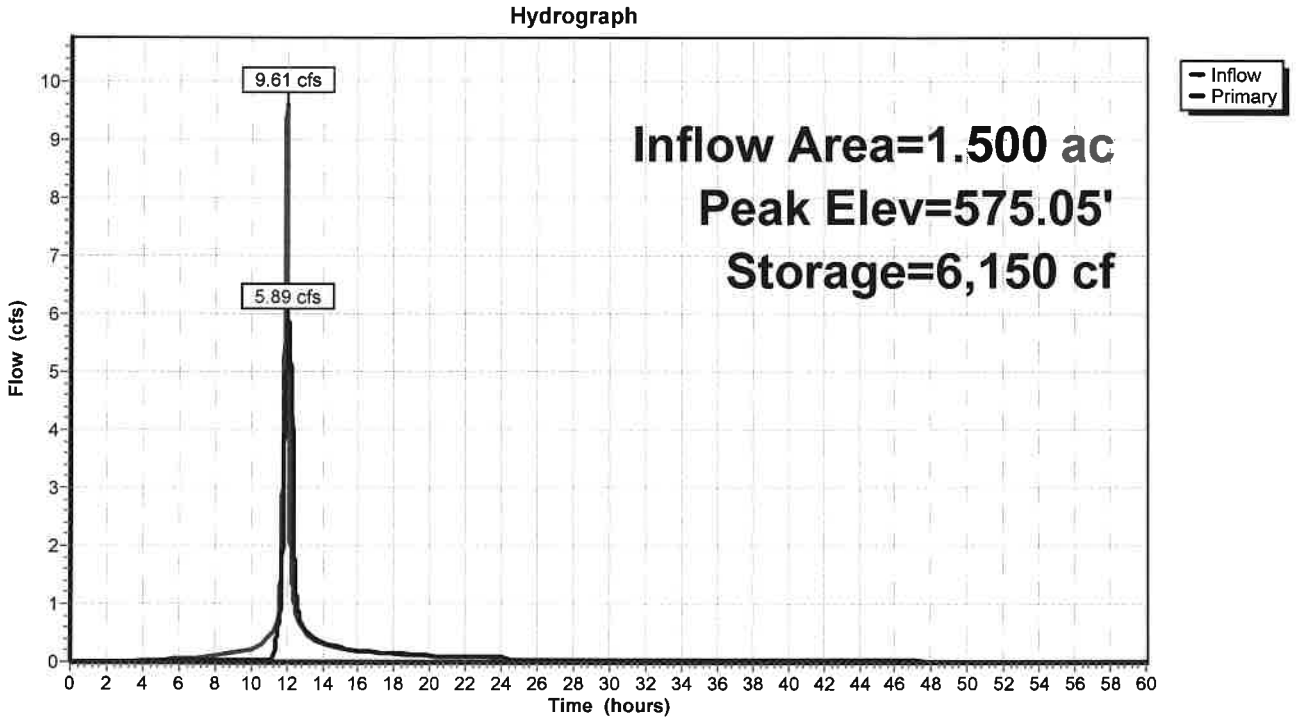
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

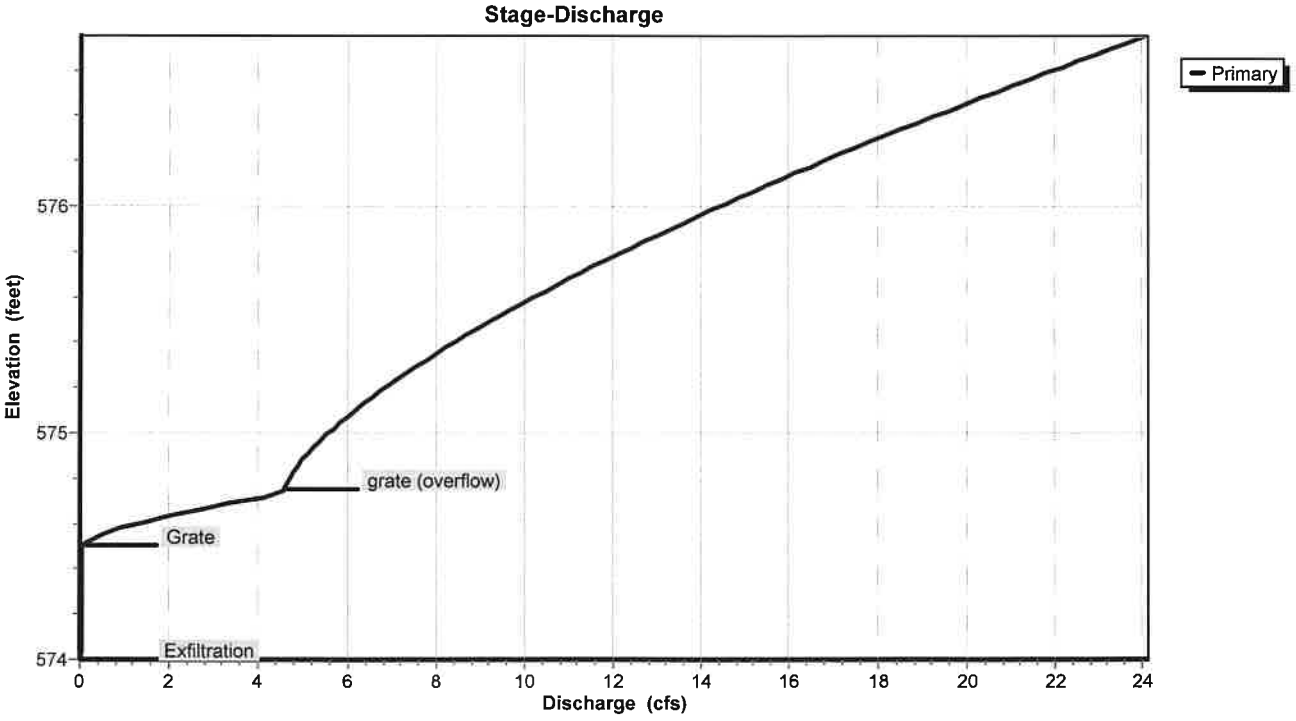
Primary OutFlow Max=5.88 cfs @ 12.09 hrs HW=575.05' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.82 cfs @ 6.14 fps)
  - **2=Grate** (Passes < 7.49 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 1.06 cfs @ 1.76 fps)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

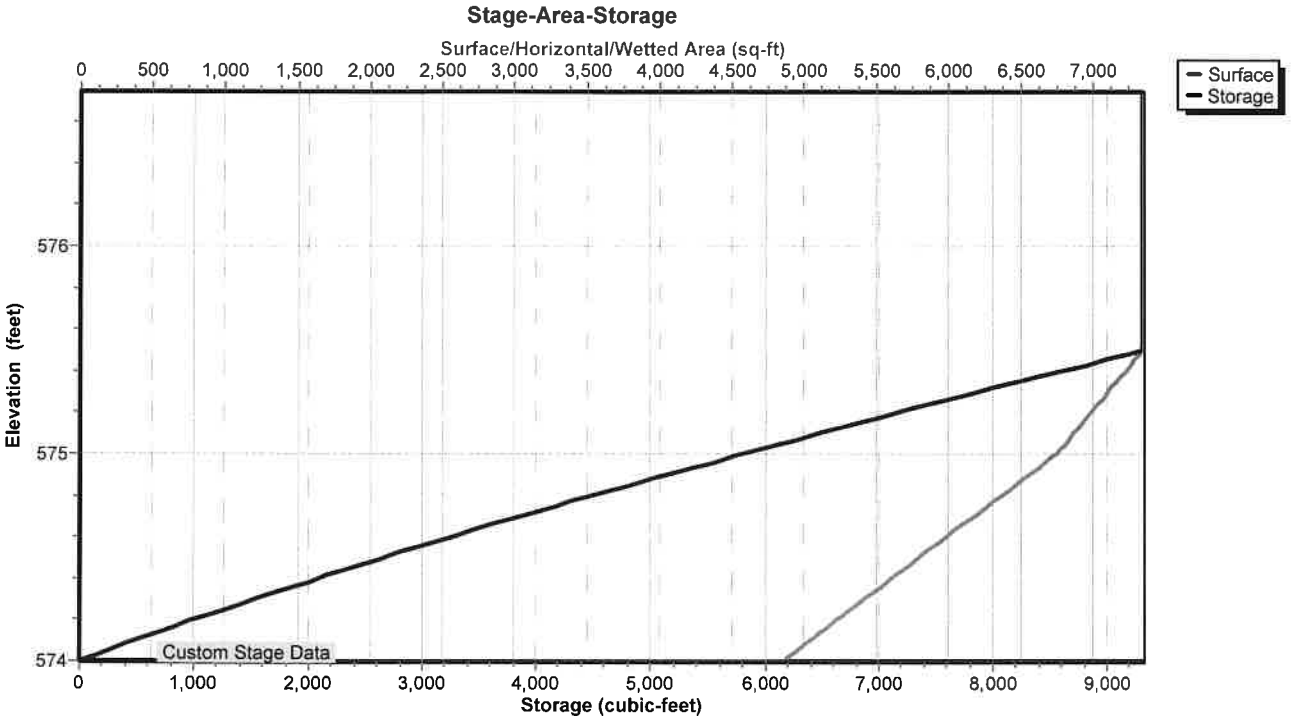


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.02	22	574.00	0.00
6.00	0.05	149	574.03	0.03
8.00	0.10	484	574.10	0.03
10.00	0.22	1,353	574.27	0.03
12.00	**9.61**	**5,288**	**574.92**	**5.19**
14.00	0.31	**2,872**	**574.54**	**0.33**
16.00	0.19	2,803	574.52	0.19
18.00	0.14	2,769	574.52	0.15
20.00	0.10	2,732	574.51	0.11
22.00	0.09	2,719	574.51	0.10
24.00	0.09	2,712	574.51	0.09
26.00	0.00	2,463	574.47	0.03
28.00	0.00	2,219	574.42	0.03
30.00	0.00	1,979	574.38	0.03
32.00	0.00	1,743	574.34	0.03
34.00	0.00	1,511	574.29	0.03
36.00	0.00	1,283	574.25	0.03
38.00	0.00	1,059	574.21	0.03
40.00	0.00	839	574.17	0.03
42.00	0.00	624	574.13	0.03
44.00	0.00	412	574.08	0.03
46.00	0.00	204	574.04	0.03
48.00	0.00	49	574.01	0.01
50.00	0.00	11	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	1	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Green Infrastructure & Water Quality Calculations

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Version 1.7
Last Updated: 2/22/21

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	

Design Point:	1	
P=	1.00	*inch*

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	6.10	3.30	54%	0.54	11,888	
2	1.00	0.00	0%	0.05	182	
3	4.40	2.70	61%	0.60	9,620	
4	1.70	1.00	59%	0.58	3,576	
5	1.50	1.00	67%	0.65	3,539	
6						
7						
8						
9						
10						
Subtotal (1-30)	14.70	8.00	54%	0.54	**28,804**	**Subtotal 1**
Total	14.70	8.00	54%	0.54	**28,804**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	1.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**1.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	14.70	8.00	54%	0.54	28,804
Subtract Area	-1.00	0.00			
WQv adjusted after Area Reductions	**13.70**	**8.00**	58%	0.58	28,623
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	13.70	8.00	58%	0.58	**28,623**
WQv reduced by Area Reduction techniques					182

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Total Water Quality Volume Calculation

WQv(acre-feet) = [(P)(Rv)(A)] /12

All Subcatchments						
Catchment	**Total Area** *(Acres)*	**Impervious Cover** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient** *Rv*	**WQv** *(ft^3)*	**Description**
1	6.10	3.30	0.54	0.54	11888.25	
2	1.00	0.00	0.00	0.05	182	
3	4.40	2.70	0.61	0.60	9619.50	
4	1.70	1.00	0.59	0.58	3575.55	
5	1.50	1.00	0.67	0.65	3539.25	
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	6.10	3.30	0.54	0.54	11888.25	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	54%	0.54	11,888	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	D		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		11,888	*ft^3*	
Enter Depth of Soil Media	*df*	1.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**8916**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	100	*ft*	
Filter Length	110	*ft*	
Filter Area	11000	*ft^2*	
Actual Volume Provided	14667	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	5,867			
RRv applied	**5,867**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	6,022	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Bioretention Worksheet

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor & Schueler, 1996)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft^3)	Precipitation (in)	Description
5	1.50	1.00	0.67	0.65	3539.25	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	67%	0.65	3,539	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						ft^3	

Soil Information

Soil Group	D		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area

		Value	Units	Notes
WQv		3,539	ft^3	
Enter Depth of Soil Media	*df*	1.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**2654**	ft^2	

Determine Actual Bio-Retention Area

Filter Width	49	*ft*
Filter Length	100	*ft*
Filter Area	4900	ft^2
Actual Volume Provided	6533	ft^3

Determine Runoff Reduction

Is the Bioretention contributing flow to another practice?	No	Select Practice	
RRv	2,613		
RRv applied	**2,613**	ft^3	***This is 40% of the storage provided or WQv whichever is less.***
Volume Treated	926	ft^3	*This is the portion of the WQv that is not reduced in the practice.*
Volume Directed	0	ft^3	This volume is directed another practice
Sizing √	OK		*Check to be sure Area provided ≥ Af*

(For use on HSG C or D Soils with underdrains)

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Conservation of Natural Areas

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft^3)	Precipitation (in)	Description
2	1.00	0.00	0.00	0.05	181.50	1.00	

Design Elements	
Is Contiguous Area ≥ 10,000 ft2?	*Yes*
Will limits of disturbance be clearly shown on all construction drawings and marked in field/project development site with structural barriers?	*Yes*
Is the Conservation area located in an acceptable conservation easement instrument that ensures perpetual protection of proposed area?	*Yes*
Does the easement specify how the natural area vegetation will be managed and boundaries will be marked?	*Yes*
Does the conservation area receive runoff from other contributing areas?	*No*
Does Conservation Area drain to a Design Point?	*No*
Is Sheet Flow to Riparian Buffer or another area based practice already being Used for this area?	*No*

Are All Criteria in Section 5.3.1 Met?	*Yes*

Area Reduction Adjustments		
Subtract	*1.00*	*Acres from Total Area*
Subtract	*0.00*	*Acres from Total Impervious Area*

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C		30%
D	**17.40**	20%
Total Area	17.4	
Calculate the Minimum RRv		
S =	**0.20**	
Impervious =	8.00	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**5,518**	***ft3***
	0.13	af

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	28804	*0.661*
30	Total RRV Provided	8662	*0.199*
31	Is RRv Provided ≥WQv Required?	No	
32	Minimum RRv	5518	*0.127*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	159626	*3.664*
34	Sum of Volume Reduced & Treated	168287	*3.863*
34	Sum of Volume Reduced and Treated	168287	*3.863*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		Total Contributing Area	Total Contributing Impervious Area	WQv Reduced (RRv)	WQv Treated
			(acres)	(acres)	cf	cf
Area/Volume Reduction	Conservation of Natural Areas	RR-1	1.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00			
	Bioretention & Infiltration Bioretention	F-5	7.60	4.30	8480	6948
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5	9.8	3.40		152678.000
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			1.00	0.00	182	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			7.60	4.30	8480	6948
Totals by Standard SMP →			9.80	3.40		152678
Totals (Area + Volume + all SMPs) →			18.40	7.70	8,662	159,626
	Impervious Cover √	error				

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 6P: WQv

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
563.00	710	0
563.15	776	111
563.30	843	233
563.45	909	364
563.60	975	506
563.75	1,042	657
563.90	1,108	818
564.05	1,181	989
564.20	1,267	1,173
564.35	1,353	1,369
564.50	1,439	1,579
564.65	1,524	1,801
564.80	1,610	2,036
564.95	1,696	2,284
565.10	1,796	2,546
565.25	1,901	2,823
565.40	2,007	3,116
565.55	2,113	3,425
565.70	2,219	3,750
565.85	2,324	4,090
566.00	2,430	4,447
566.15	2,561	4,821
566.30	2,692	5,215
566.45	2,822	5,629
566.60	2,953	6,062
566.75	3,084	6,515
566.90	3,215	6,987
567.05	3,356	7,479
567.20	3,519	7,995
567.35	3,681	8,535
567.50	3,844	9,100
567.65	4,007	9,688
567.80	4,169	10,301
567.95	4,332	10,939
568.10	4,731	11,613
568.25	5,249	12,361
568.40	5,767	13,188
568.55	6,285	14,091
568.70	6,802	15,073
568.85	7,320	16,132
569.00	7,838	17,269
569.15	8,402	18,487
569.30	8,965	19,790
569.45	9,529	21,177
569.60	10,093	22,648
569.75	10,657	24,204
569.90	11,220	25,845
570.05	11,796	27,571
570.20	12,398	29,385
570.35	13,000	31,290
570.50	13,601	33,285
570.65	14,202	35,371
570.80	14,804	37,546
570.95	15,406	39,812
571.10	16,056	42,170
571.25	16,731	44,629
571.40	17,406	47,189
571.55	18,081	49,851
571.70	18,756	52,614
571.85	19,431	55,478
572.00	20,106	58,443
572.15	20,820	61,512
572.30	21,534	64,689
572.45	22,248	67,973
572.60	22,961	71,363
572.75	23,675	74,861
572.90	24,389	78,466
573.05	25,107	82,178
573.20	25,834	85,998
573.35	26,561	89,928
573.50	27,288	93,967
573.65	28,014	98,114
573.80	28,741	102,371
573.95	29,468	106,737
574.10	32,660	111,335
574.25	37,086	116,565
574.40	41,511	122,460
574.55	45,937	129,019
574.70	50,362	136,241
574.85	54,788	144,127
575.00	**59,213**	**152,678**

WQv

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Appendix O

NYSDEC Stormwater Management Inspection Lists

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Bioretetion Areas (F-5)



Description: Shallow stormwater basin or landscaped area which utilizes engineered soils and vegetation to capture and treat runoff. The practice is often located in parking lot islands, and can also be used to treat residential areas.

KEY CONSIDERATIONS

CONVEYANCE

- Provide overflow for the 10-year storm to the conveyance system.
- Conveyance to the system is typically overland flow delivered to the surface of the system, typically through curb cuts or over a concrete lip.

PRETREATMENT

- Pretreatment consists of a grass channel or grass filter strip, a gravel diaphragm, and a mulch layer, sized based on the methodologies described in Section 6.4.2.

TREATMENT

- Treatment area should have a four foot deep planting soil bed, a surface mulch layer, and a 6" ponding layer.
- Size the treatment area using equations provided in Chapter 6.

LANDSCAPING

- Detailed landscaping plan required.

MAINTENANCE

- Inspect and repair/replace treatment area components
- Stone drop (at least 6") provided at the inlet
- Remulch annually

STORMWATER MANAGEMENT SUITABILITY

- [X] Water Quality
- [ ] Channel Protection
- [ ] Overbank Flood Protection
- [ ] Extreme Flood Protection

Accepts Hotspot Runoff: *Yes*
(requires impermeable liner)

IMPLEMENTATION CONSIDERATIONS

- [M] Capital Cost
- [M] Maintenance Burden

Residential
Subdivision Use: *Yes*

High Density/Ultra-Urban: *Yes*

Drainage Area: *5 acres max.*

Soils: *Planting soils must meet specified criteria; No restrictions on surrounding soils*

Other Considerations:

- *Use of native plants is recommended*

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

	Key: **L**=Low **M**=Medium **H**=High **POLLUTANT REMOVAL** G Phosphorus G Nitrogen G Metals - Cadmium, Copper, Lead, and Zinc removal F Pathogens – Coliform, Streptococci, E.Coli removal Key: **G**=Good **F**=Fair **P**=Poor

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Bioretention Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
If designed as exfilter, soil testing for permeability		
Facility location staked out		
2. Excavation		
Size and location		
Lateral slopes completely level		
If designed as exfilter, ensure that excavation does not compact susoils.		
Longitudinal slopes within design range		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
3. Structural Components		
Stone diaphragm installed correctly		
Outlets installed correctly		
Underdrain		
Pretreatment devices installed		
Soil bed composition and texture		
4. Vegetation		
Complies with planting specs		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
5. Final Inspection		
Dimensions		
Proper stone diaphragm		
Proper outlet		
Soil/ filter bed permeability testing		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		
Contributing watershed stabilized before flow is diverted to the practice		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Comments:

Actions to be Taken:

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Comments:

Actions to be Taken:

Attachment: SP-2021-05_application_061721 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7051

LAND SURVEYOR
NAME/TITLE: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
COMPANY/DEPT: 4950 GENESEE STREET, SUITE 100
ADDRESS: BUFFALO, NEW YORK 14225
TELEPHONE 716–633–4844

UTILITIES

NATURAL GAS
COMPANY/DEPT:. NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–857–7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203
TELEPHONE 716–840–8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK
TELEPHONE 716–558–8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214
TELEPHONE 716–236–2738

WATER
COMPANY/DEPT:. ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
TELEPHONE 716–684–1510

DIG SAFELY NEW YORK
TELEPHONE 1–800–962–7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086
TELEPHONE 716 818-0207

ENGINEER

Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

FEBRUARY 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C–001	DEMOLITION & EROSION CONTROL PLAN
C–002	DEMOLITION & EROSION CONTROL DETAILS
C–100	OVERALL SITE PLAN
C–101	SITE PLAN
C–102	PARCEL MAP
C–103	SITE DETAILS
C–104	SITE DETAILS
C–200	GRADING PLAN
C–300	STORM DRAINAGE PLAN
C–301	STORM DRAINAGE DETAILS
C–302	STORM DRAINAGE DETAILS
C–303	STORM DRAINAGE DETAILS
C–400	UTILITY PLAN
C–401	SANITARY SEWER DETAILS
C–402	SANITARY SEWER DETAILS
C–403	SANITARY SEWER GENERAL NOTES
C–404	SANITARY SEWER TESTING NOTES
C–405	WATER DETAILS
C–406	WATER DETAILS
C–407	WATER DETAILS & NOTES
C–408	INSULATED ENCLOSURE DETAIL
L–100	LANDSCAPE PLAN

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.

● SET OR EX. 5/8" REBAR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

MAP COVER 2305

SWEET HOME ROAD (NORTH VARIES)

EXCEPTION L-10908, P-363
MAP 39.353-1 PARCEL 1

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SPADINA DRIVE

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

CATCH BASIN RIM:574.64' N INV:573.44'

PARALLEL W/SOUTH LINE OF LOT 76

N 88°55'52" E 530.61'

1312.39' N 88°55'52" E

POINT OF BEGINNING AREA "B"
LAT: 43°01'40.40785"
LON: -78°47'14.98366"

PARALLEL W/WEST LINE OF LOT 76 (CENTERLINE OF SWEET HOME ROAD)

L.7659 P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

N 20°40'24" W 118.24'

S 10°10'01" E 145.00'

S 64°16'46" W 35.20'

S 10°07'24" E 43.27'

S 11°02'55" W 83.05'

S 11°56'26" E 236.98'

S 45°19'36" E 99.73'

N 35°36'42" W 155.92'

N 10°10'01" W 305.54'

SOUTH LINE L.-9095, P.-348 PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

N88°55'52"E 540.78' M
584.39' D&M
541.38' M

N02°04'02"W 120.85' D&M
N02°04'02"W 90.42'

S88°21'54"W 173.47'
S88°21'54"W 225.48' D&M

CATCH BASIN RIM:574.52' W INV:568.27' E INV:568.32'

CATCH BASIN RIM:574.42' W INV:569.90' E INV:569.97'

CATCH BASIN RIM:573.70' W INV:569.90' E INV:569.97'

12" CMP

CONCRETE SIDEWALK

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.9146 ACRES

TOP OF HYDRANT ELEV: 577.69'

MON. WELL

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

N 67°53'17" W 50.93'

S 71°08'13" W 128.98'

S 87°22'49" W 322.92'

N 83°38'15" W 172.66'

S 83°36'25" W 105.17'

S 39°43'51" W 50.80'

S 23°50'17" W 47.47'

S 57°29'39" W 52.30'

N 85°10'51" W 40.58'

L=539.31'
R=598.60'
DELTA=52°00'30"

L=1272.57'
R=1382.67'
DELTA=52°46'30"

DOUGHTY ROAD RELOCATION

ASPHALT DRIVE

ASPHALT PARKING LOT

CONCRETE SIDEWALK

STONE DRIVE

TOP OF HYDRANT ELEV: 574.70'

SAN. M.H. RIM: 573.78' INV: 553.78' E-W

SAN. M.H. RIM:576.41' INV: 554.21' E-W

72" CONC. PIPE

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

TRANSMISSION TOWER

NIAGARA MOHAWK POWER CORP. L.-9173, P.-51

599.16' D&M

N 85°24'13" E 403.22'

S 85°24'13" W 202.71'
N 85°38'39" W 201.93'

BRUSH LINE

R=6848.00' L=918.07'
S 65°48'39" W
CHORD 917.39

SECTION II

LOCKPORT (ROUTE 990) EXPRESSWAY

GUY

UP

E.O.P.

CATCH BASIN
CONIFEROUS TREE
DECIDUOUS SHRUB
DECIDUOUS TREE
GAS VALVE
GUY WIRE
WATER SERVICE VALVE
WATER VALVE
COMMUNICATIONS BOX
HYDRANT
LIGHT POLE
SANITARY SEWER MANHOLE
SIGN (SINGLE POLE)
SIGN (DOUBLE POLE)
UTILITY POLE

STATE OF NEW YORK
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE

TOPOGRAPHIC SURVEY
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: DECEMBER 22, 2020
Scale: 1" = 100' TAX No. 40.08-3-13.1 (PART OF)

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SWEET HOME (WIDTH VARIES) ROAD

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

P.O.B.

TEL BOX

UP

GUY

N 88°55'52" E 530.61'
PARALLEL W/SOUTH LINE OF LOT 76

PARALLEL W/WEST LINE OF LOT 76
(CENTERLINE OF SWEET HOME ROAD)

N 02°04'02" W
118.24'

L.7659
P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'12" E 62.65'

S 01°04'08" E
145.00'

35.20'
S 64°16'46" W

141.03'
S 29°42'37" W

S 10°07'24" E
43.27'

S 11°02'55" W
83.05'

S 11°56'26" E 236.39'

S 45°19'36" E
98.73'

SOUTH LINE L.-9095, P.-348
PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

584.39' D&M
541.38' M

N88°55'52"E
540.78' M

N 00°55'59" W
109.75'

EXCEPTION L.-10808, P.-9632
MAP SK 353-1, PARCEL 1

120.85' D&M
N02°04'02"W

120.52'

N02°04'02"W
90.42'

173.47'
S88°21'54"W
216.48' D&M

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.914± ACRES

N 01°03'14" W 512.26'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

L=747.17
R=724.00

N 32°30'21" W 198.87'

N 67°53'17" W
50.93'

S 39°43'51" W
50.80'

S 71°08'13" W
128.98'

S 83°36'25" W
105.17'

S 87°22'49" W
322.92'

N 83°38'15" W
172.66'

S 23°50'17" W
47.47'

S 57°29'39" W
52.30'

N 32°30'21" W 457.24'

258.37'

DODGE ROAD RELOCATION

PT

L=539.31'
R=586.62'
DELTA=52°40'30"

PC

N 85°10'51" W
40.58'

N 35°36'42" W
136.92'

N 01°04'00" W 305.54'

S 65°24'13" W 403.22'

599.16' D&M

195.94'

NIAGARA MOHAWK POWER CORP.
L.-9173, P.-51

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

STATE OF NEW YORK
MARK J. ANDREWS
050455
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE
12/4/20	REVISE PARCEL BOUNDARY

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
● SET OR EX. 5/8" REBAR

SURVEY OF
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

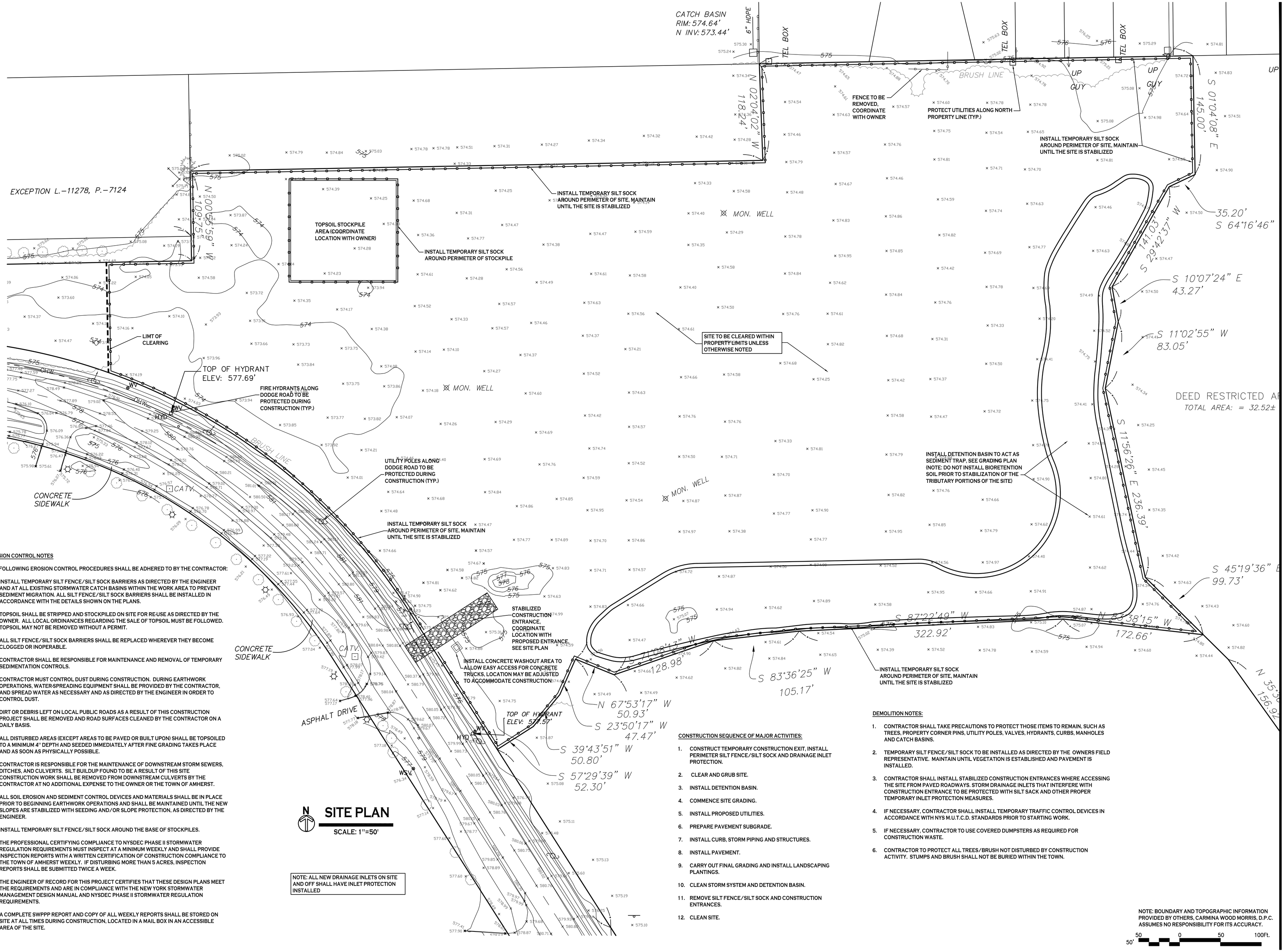
Job No. 2013062-SITE A Date: JUNE 27, 2019
Scale: 1" = 100' TAX No.

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL PROCEDURES SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE/SILT SOCK BARRIERS AS DIRECTED BY THE ENGINEER AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.
2. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE OF TOPSOIL MUST BE FOLLOWED. TOPSOIL MAY NOT BE REMOVED WITHOUT A PERMIT.
3. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE REPLACED WHEREVER THEY BECOME CLOGGED OR INOPERABLE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.
5. CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER-SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR, AND SPREAD WATER AS NECESSARY AND AS DIRECTED BY THE ENGINEER IN ORDER TO CONTROL DUST.
6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED AND ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.
7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH AND SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE AND AS SOON AS PHYSICALLY POSSIBLE.
8. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES, AND CULVERTS. SILT BUILDUP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN OF AMHERST.
9. ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS SHALL BE IN PLACE PRIOR TO BEGINNING EARTHWORK OPERATIONS AND SHALL BE MAINTAINED UNTIL THE NEW SLOPES ARE STABILIZED WITH SEEDING AND/OR SLOPE PROTECTION, AS DIRECTED BY THE ENGINEER.
10. INSTALL TEMPORARY SILT FENCE/SILT SOCK AROUND THE BASE OF STOCKPILES.
11. THE PROFESSIONAL CERTIFYING COMPLIANCE TO NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS MUST INSPECT AT A MINIMUM WEEKLY AND SHALL PROVIDE INSPECTION REPORTS WITH A WRITTEN CERTIFICATION OF CONSTRUCTION COMPLIANCE TO THE TOWN OF AMHERST WEEKLY. IF DISTURBING MORE THAN 5 ACRES, INSPECTION REPORTS SHALL BE SUBMITTED TWICE A WEEK.
12. THE ENGINEER OF RECORD FOR THIS PROJECT CERTIFIES THAT THESE DESIGN PLANS MEET THE REQUIREMENTS AND ARE IN COMPLIANCE WITH THE NEW YORK STORMWATER MANAGEMENT DESIGN MANUAL AND NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS.
13. A COMPLETE SWPPP REPORT AND COPY OF ALL WEEKLY REPORTS SHALL BE STORED ON SITE AT ALL TIMES DURING CONSTRUCTION, LOCATED IN A MAIL BOX IN AN ACCESSIBLE AREA OF THE SITE.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CONSTRUCT TEMPORARY CONSTRUCTION EXIT, INSTALL PERIMETER SILT FENCE/SILT SOCK AND DRAINAGE INLET PROTECTION.
2. CLEAR AND GRUB SITE.
3. INSTALL DETENTION BASIN.
4. COMMENCE SITE GRADING.
5. INSTALL PROPOSED UTILITIES.
6. PREPARE PAVEMENT SUBGRADE.
7. INSTALL CURB, STORM PIPING AND STRUCTURES.
8. INSTALL PAVEMENT.
9. CARRY OUT FINAL GRADING AND INSTALL LANDSCAPING PLANTINGS.
10. CLEAN STORM SYSTEM AND DETENTION BASIN.
11. REMOVE SILT FENCE/SILT SOCK AND CONSTRUCTION ENTRANCES.
12. CLEAN SITE.

DEMOLITION NOTES:

1. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT THOSE ITEMS TO REMAIN, SUCH AS TREES, PROPERTY CORNER PINS, UTILITY POLES, VALVES, HYDRANTS, CURBS, MANHOLES AND CATCH BASINS.
2. TEMPORARY SILT FENCE/SILT SOCK TO BE INSTALLED AS DIRECTED BY THE OWNERS FIELD REPRESENTATIVE. MAINTAIN UNTIL VEGETATION IS ESTABLISHED AND PAVEMENT IS INSTALLED.
3. CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCES WHERE ACCESSING THE SITE FROM PAVED ROADWAYS. STORM DRAINAGE INLETS THAT INTERFERE WITH CONSTRUCTION ENTRANCE TO BE PROTECTED WITH SILT SACK AND OTHER PROPER TEMPORARY INLET PROTECTION MEASURES.
4. IF NECESSARY, CONTRACTOR SHALL INSTALL TEMPORARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH NYS M.U.T.C.D. STANDARDS PRIOR TO STARTING WORK.
5. IF NECESSARY, CONTRACTOR TO USE COVERED DUMPSTERS AS REQUIRED FOR CONSTRUCTION WASTE.
6. CONTRACTOR TO PROTECT ALL TREES/BRUSH NOT DISTURBED BY CONSTRUCTION ACTIVITY. STUMPS AND BRUSH SHALL NOT BE BURIED WITHIN THE TOWN.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Plan

DRAWING NO.

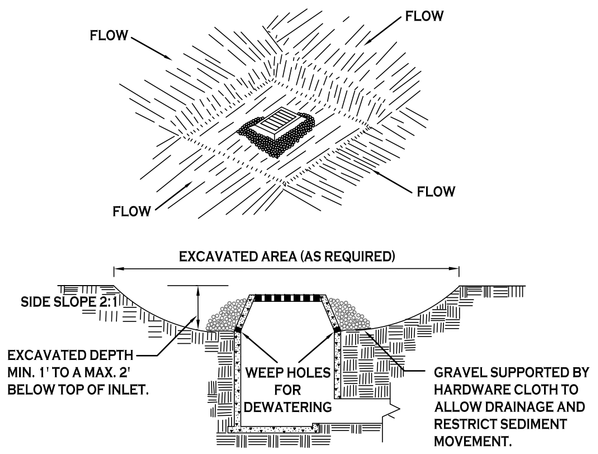
C-001

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

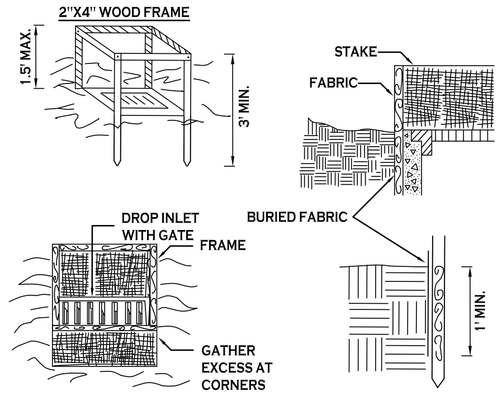


CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1
NOT TO SCALE

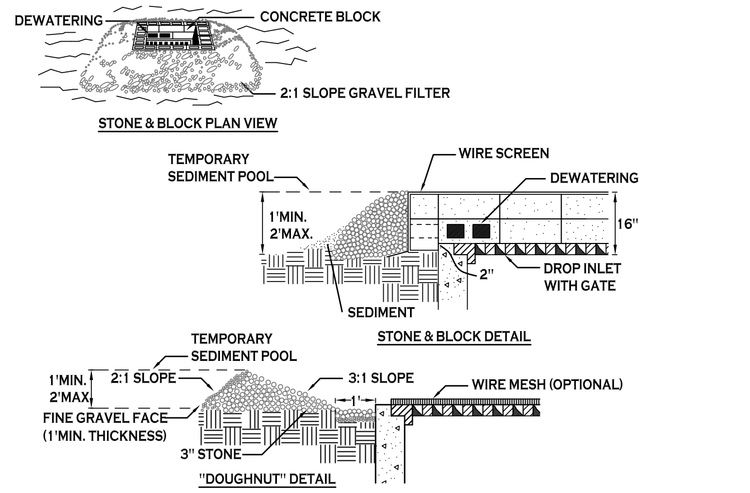


CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 2
NOT TO SCALE

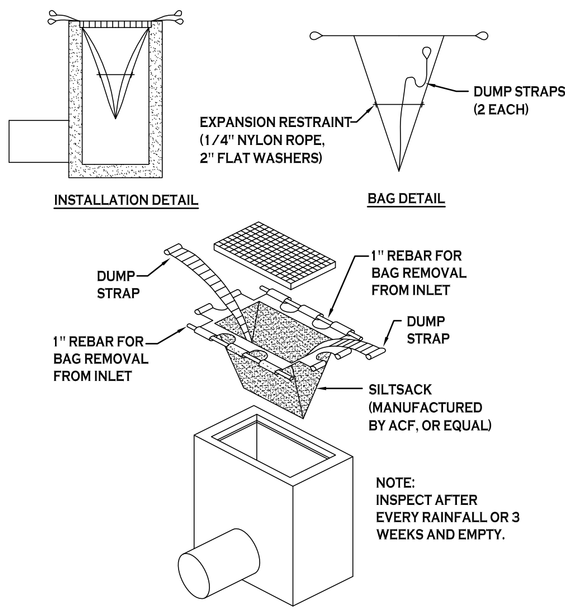


CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3
NOT TO SCALE



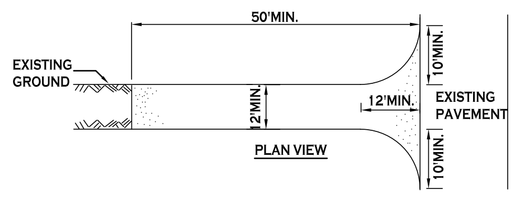
SILT SACK DETAIL
NOT TO SCALE

NOTE: INSTALL ONE OF THE INLET PROTECTION OPTIONS SHOWN PRIOR TO CONSTRUCTION

CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

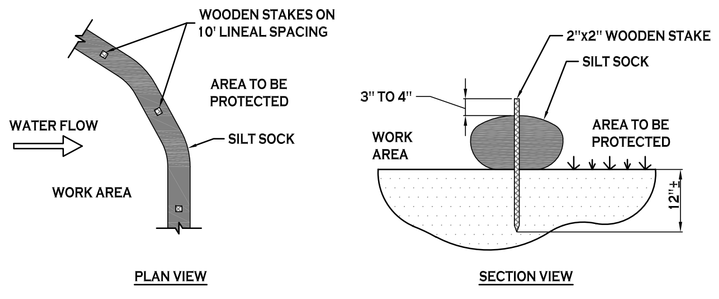
SILT FENCE DETAIL
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

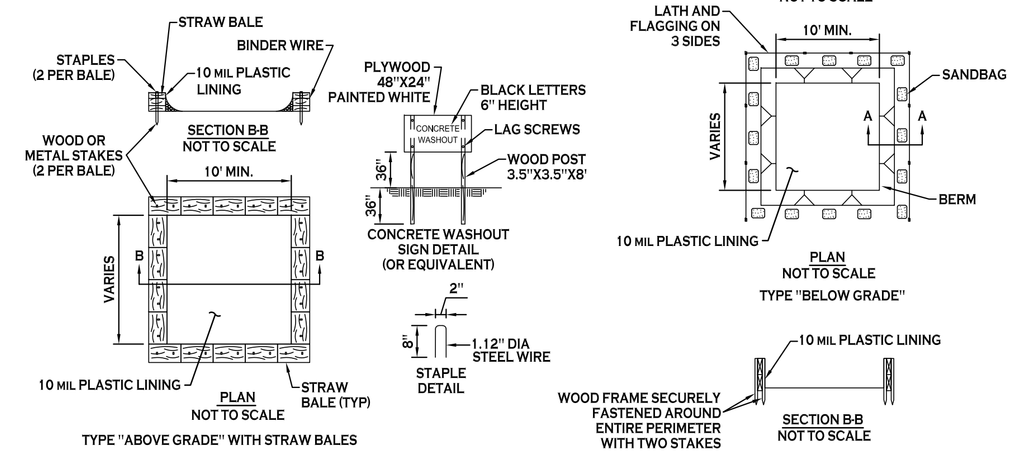


NOTES:

CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED ½ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

SILT SOCK DETAIL
NOT TO SCALE



NOTES

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

CONCRETE WASHOUT DETAIL
NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Details

DRAWING NO.

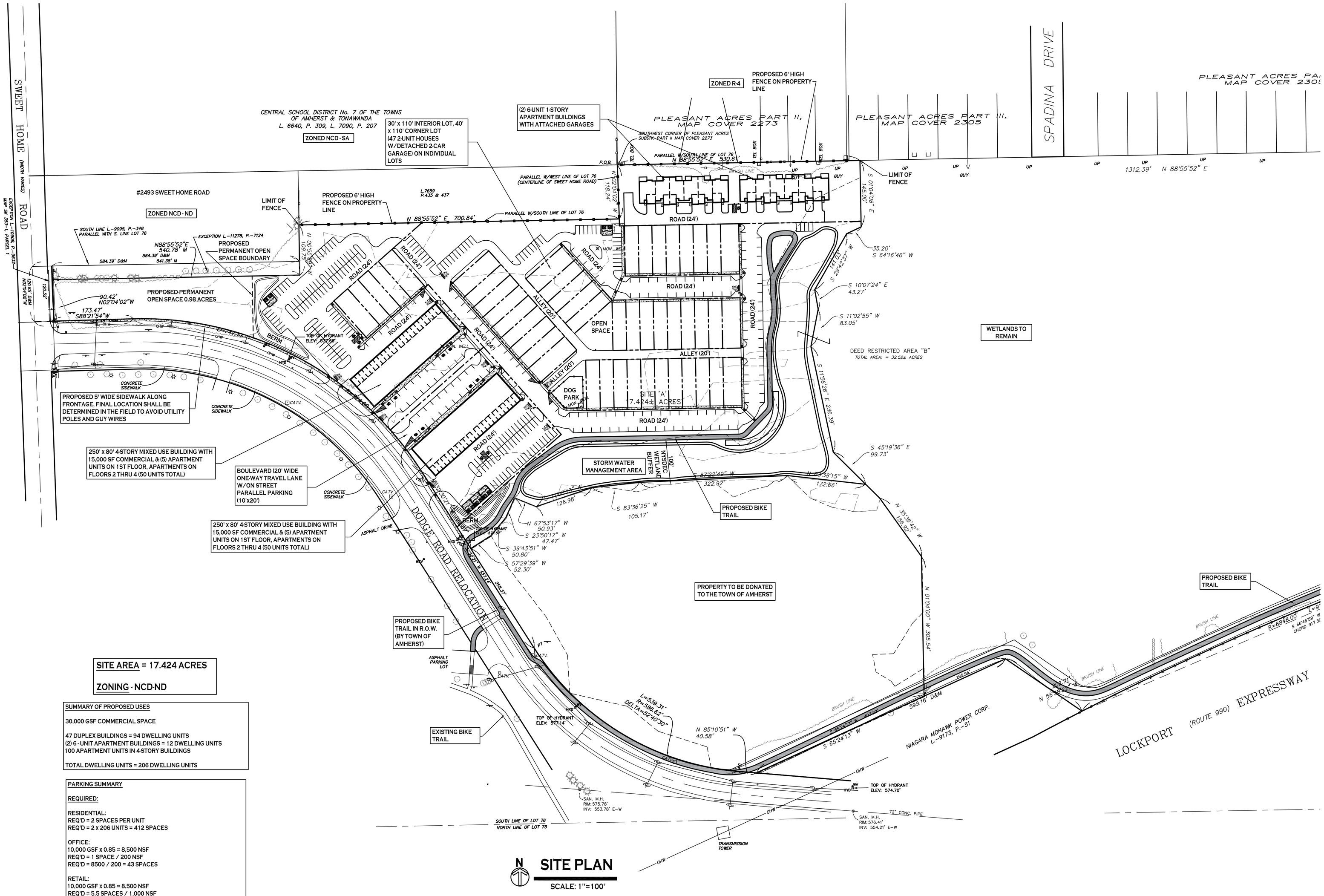
C-002

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



SITE PLAN

SCALE: 1"=100'

SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
505 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

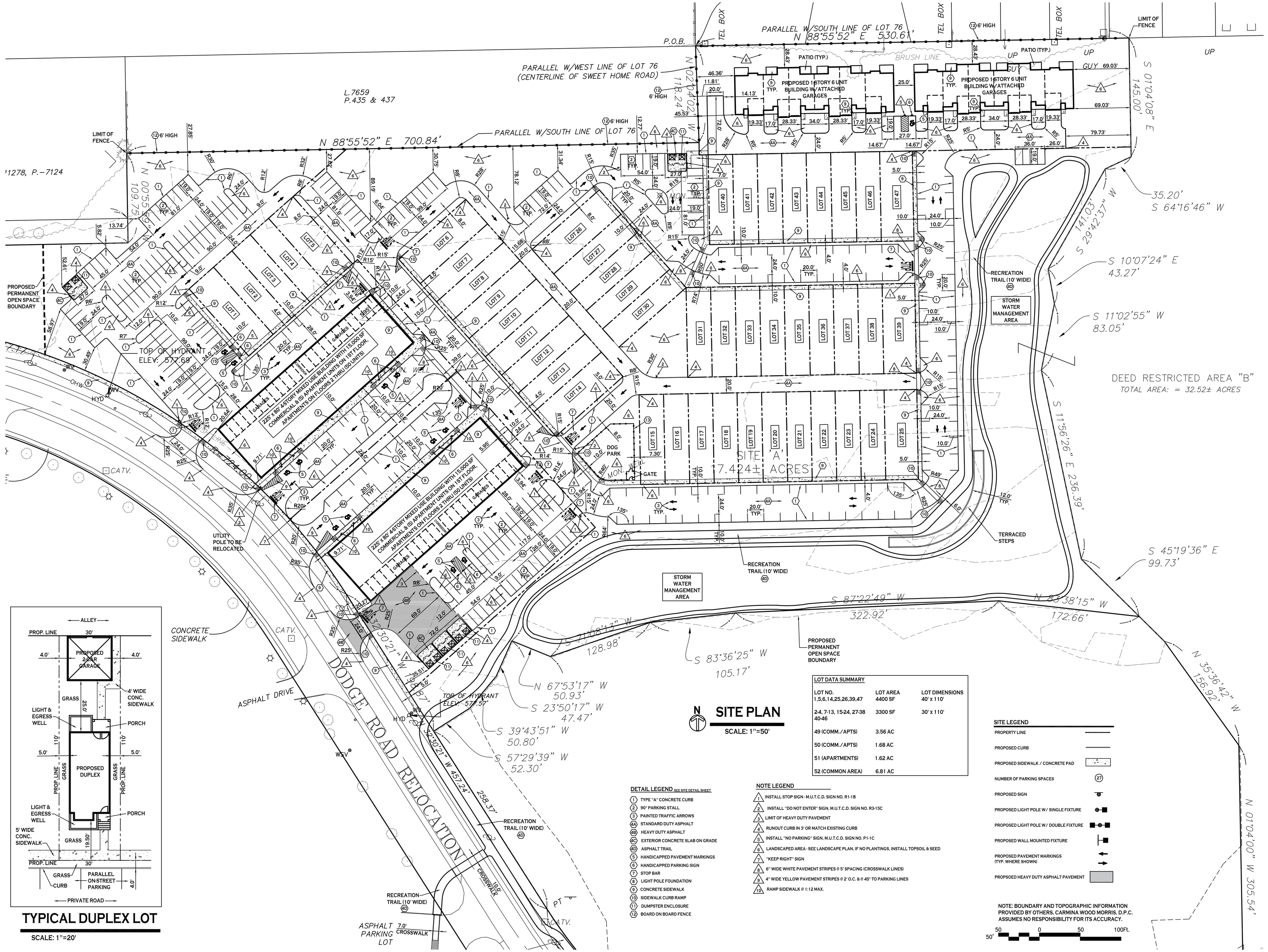
C-100

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (2305?: SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.



SITE PLAN

SCALE: 1"=50'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

DETAIL LEGEND SEE SITE DETAIL SHEET

1. TYPE "A" CONCRETE CURB
2. 90° PARKING STALL
3. PAINTED TRAFFIC ARROWS
4A. STANDARD DUTY ASPHALT
4B. HEAVY DUTY ASPHALT
4C. EXTERIOR CONCRETE SLAB ON GRADE
4D. ASPHALT TRAIL
5. HANDICAPPED PAVEMENT MARKINGS
6. HANDICAPPED PARKING SIGN
7. STOP BAR
8. LIGHT POLE FOUNDATION
9. CONCRETE SIDEWALK
10. SIDEWALK CURB RAMP
11. DUMPSTER ENCLOSURE
12. BOARD ON BOARD FENCE

NOTE LEGEND

1. INSTALL STOP SIGN - M.U.T.C.D. SIGN NO. R1-1 B
2. INSTALL "DO NOT ENTER" SIGN, M.U.T.C.D. SIGN NO. R3-15C
3. LIMIT OF HEAVY DUTY PAVEMENT
4. RUNOUT CURB IN 3' OR MATCH EXISTING CURB
5. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
6. LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
7. "KEEP RIGHT" SIGN
8. 6" WIDE WHITE PAVEMENT STRIPES @ 5' SPACING (CROSSWALK LINES)
9. 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45° TO PARKING LINES
10. RAMP SIDEWALK @ 1:12 MAX.

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN
- PROPOSED LIGHT POLE W/ SINGLE FIXTURE
- PROPOSED LIGHT POLE W/ DOUBLE FIXTURE
- PROPOSED WALL MOUNTED FIXTURE
- PROPOSED PAVEMENT MARKINGS (TYP. WHERE SHOWN)
- PROPSOED HEAVY DUTY ASPHALT PAVEMENT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

TYPICAL DUPLEX LOT

SCALE: 1"=20'

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site Plan

DRAWING NO.

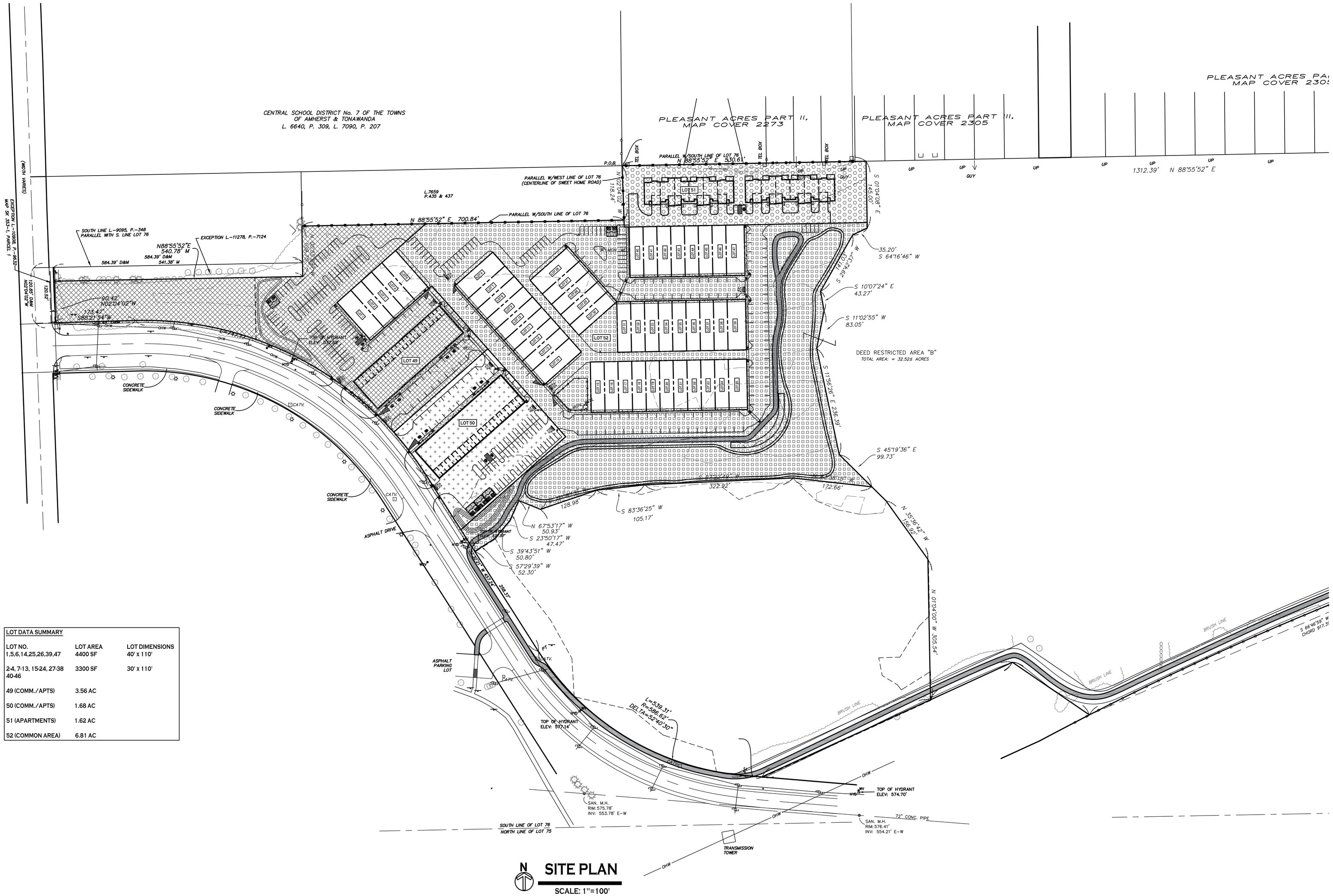
C-101

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



SITE PLAN

SCALE: 1"=100'

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Parcel Map

DRAWING NO.

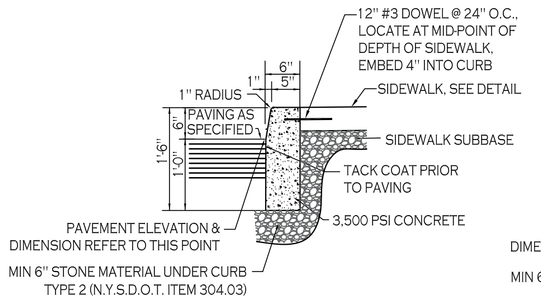
C-102

Project no.: 21.011

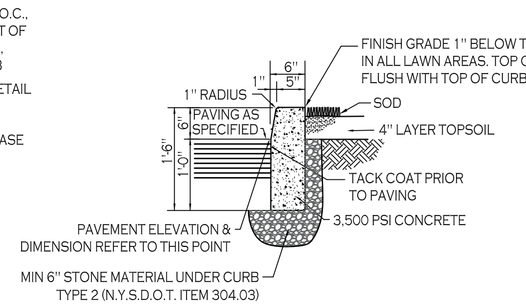
Attachment: SP-2021-05_drawings_061721 (2357 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



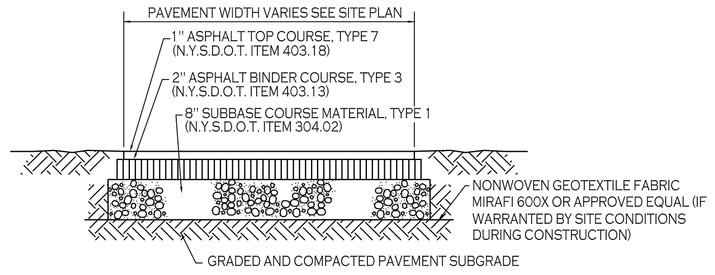
ABUTTING SIDEWALK



ABUTTING LANDSCAPE/GRASS

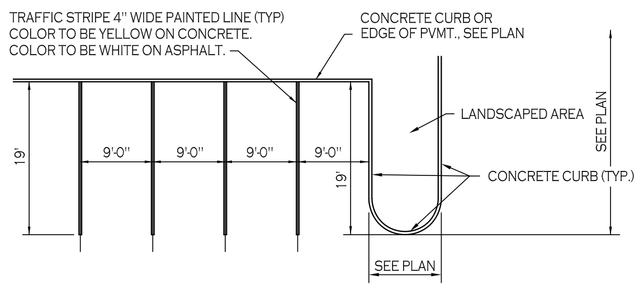
NOTES:
1. CONTROL JOINTS TO BE 2" DEEP AT 15'-0" O.C. - SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. WHERE THE CURB DROPS (IS FLUSH WITH ASPHALT) THE DEPTH OF CURB BELOW GRADE SHALL BE INCREASED TO 1'-6" AND OTHER DIMENSIONS ADJUSTED ACCORDINGLY.

TYPE "A" CONCRETE CURB - 1

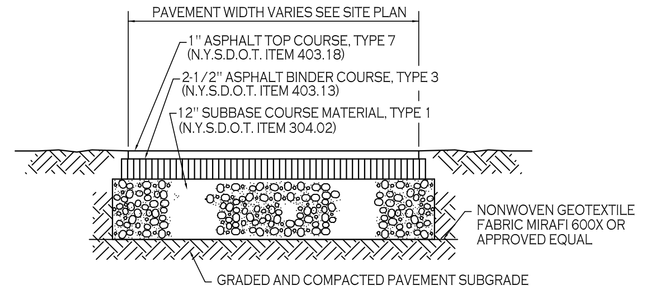


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

STANDARD DUTY ASPHALT SECTION - 4A

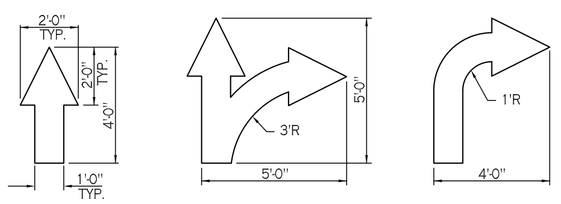


90° PARKING STALL LAYOUT - 2

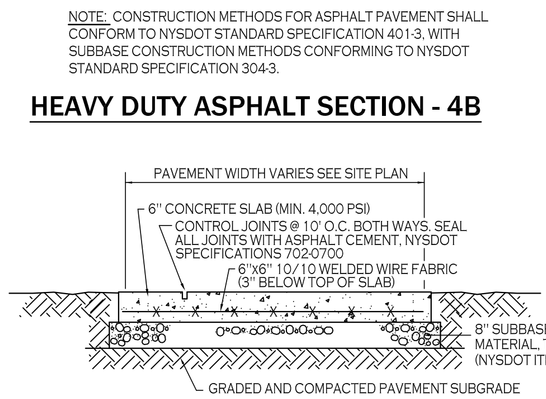


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

HEAVY DUTY ASPHALT SECTION - 4B

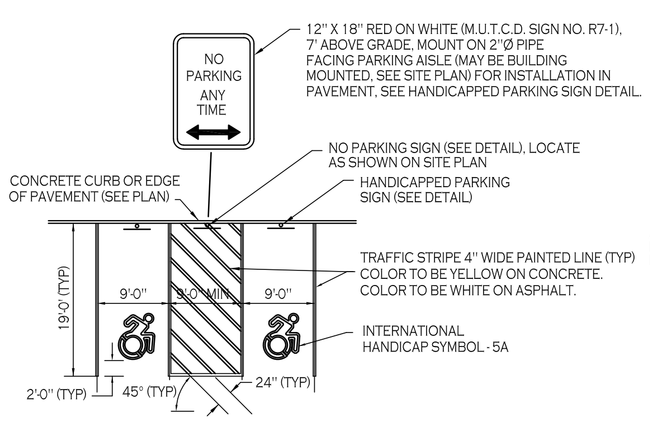


PAINTED TRAFFIC ARROWS - 3

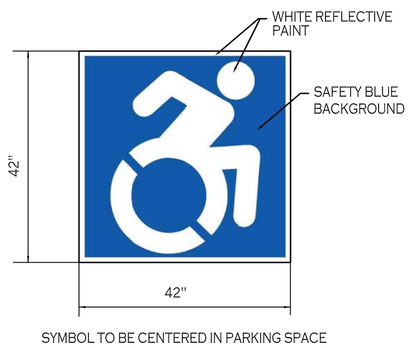


NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502-3.

EXTERIOR CONCRETE SLAB-ON-GRADE SECTION - 4C

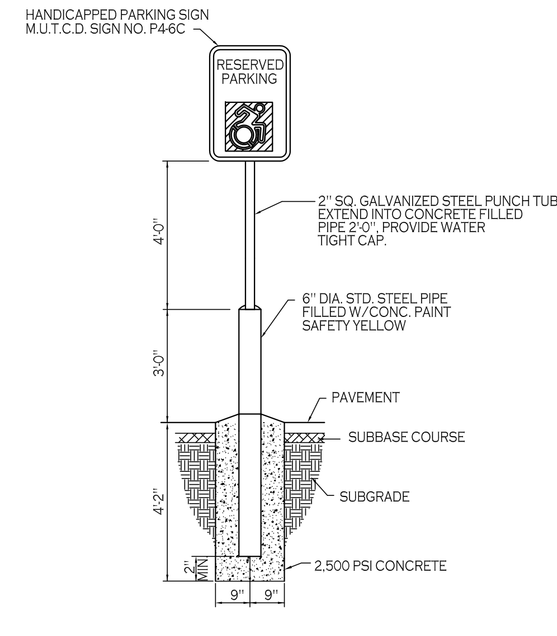


HANDICAPPED PAVEMENT MARKINGS & SIGNAGE - 5



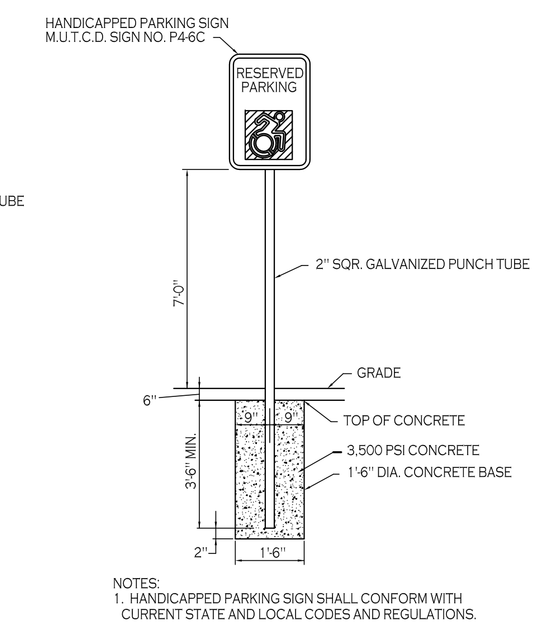
SYMBOL TO BE CENTERED IN PARKING SPACE

INTERNATIONAL HANDICAP SYMBOL - 5A



HANDICAPPED PARKING SIGN - 6

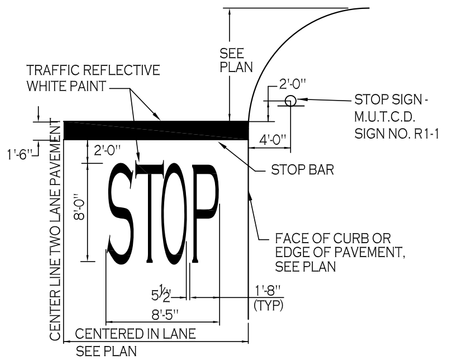
INSTALLED IN PAVEMENT



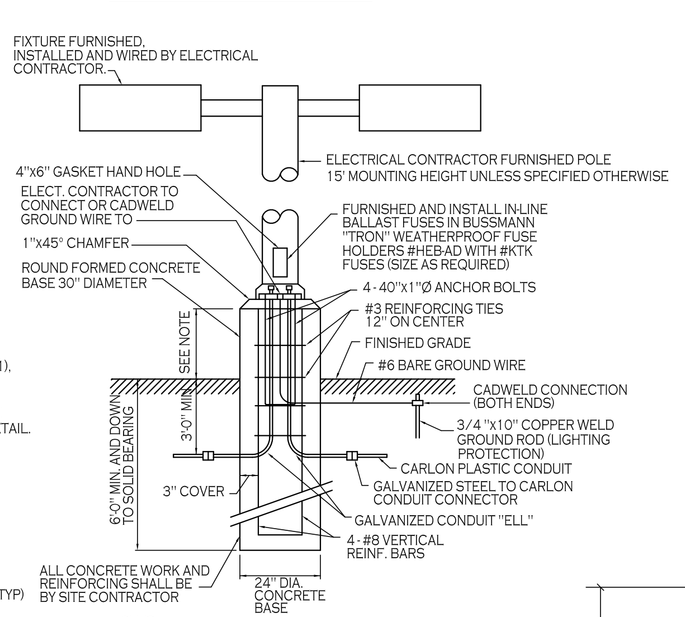
NOTES:
1. HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

HANDICAP PARKING SIGNS - 6

INSTALLED IN GRASS/LANDSCAPED AREA



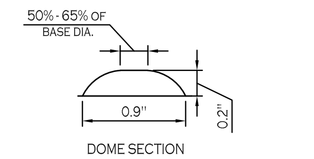
STOP BAR DETAIL - 7



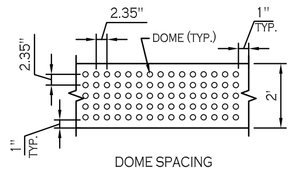
NOTES:
1. FOR LOCATIONS OF FOUNDATIONS SEE SITE PLAN
2. FOR LIGHT FIXTURE ORDERING INFORMATION SEE SITE LIGHTING PLAN
3. LIGHT POLE BASE EXPOSURE ABOVE GRADE SHALL BE:
   IN CURBED ISLANDS: 6" ABOVE TOP OF CURB ELEVATION
   IN PAVEMENT: 3" ABOVE GRADE
   IN NONCURBED GRASS AREAS: 6" ABOVE GRADE

LIGHT POLE FOUNDATION - 8

USE FOR 15' MOUNTING HEIGHT L.E.D. FIXTURES

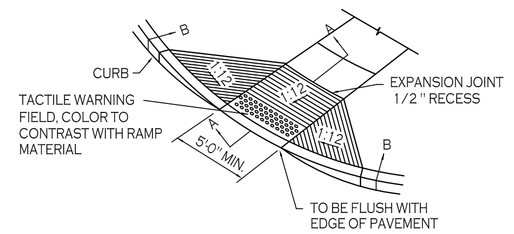


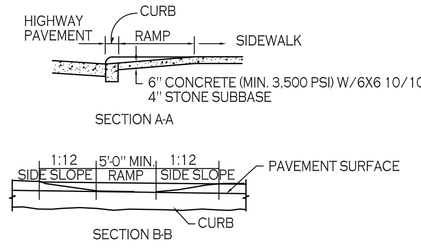
DOME SECTION



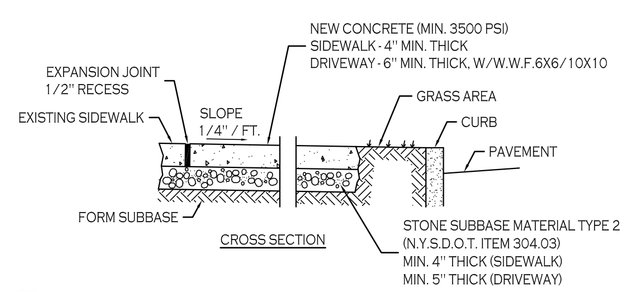
DOME SPACING

NOTE: TACTILE WARNING DEVICES SHALL BE PER ICC/ANSI A117.1-1998, SECTION 705.3.1.2 OR CURRENT UPDATE



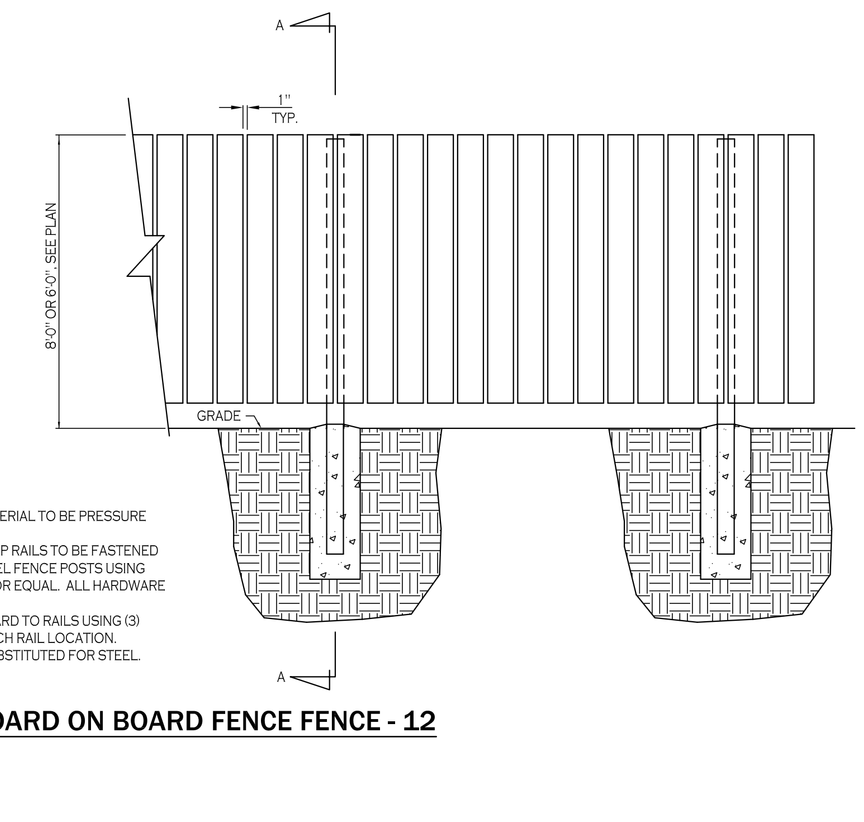


SIDEWALK CURB RAMP - 10



NOTES:
1. CONTROL JOINTS TO BE AT 5'-0" O.C., BOTH WAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3.
3. SUBBASE GRADE SHALL FOLLOW THE PROPOSED GRADE OF THE SIDEWALK AND SLOPE AWAY FROM BUILDING WHERE APPLICABLE, PROVIDE CONTINUOUS STONE PATH TO CURB UNDERDRAIN WHERE PROVIDED.
4. FULL DEPTH EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
5. SEE CURB DETAIL FOR DOWLING REQUIREMENTS WHERE ABUTTING CURB.
6. INSTALL 6" LONG #3 DOWELS @ 12" O.C. WHERE SIDEWALK ABUTS A BUILDING WALL AT AN ENTRANCE, THICKEN SIDEWALK TO 6" AT BUILDING WALL AND INSTALL DOWEL CENTERED IN THE 6" DEPTH. DOWELS AND THICKENING OF SIDEWALK SHALL EXTEND 18" EITHER SIDE OF ENTRANCE.
7. INSTALL 1/2" PREMOLDED EXPANSION JOINT WITH BACKER ROD & SEALANT WHERE SIDEWALK ABUTS BUILDING OR OTHER STRUCTURE.

CONCRETE SIDEWALK - 9



SECTION A-A

NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.

BOARD ON BOARD FENCE FENCE - 12

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Details

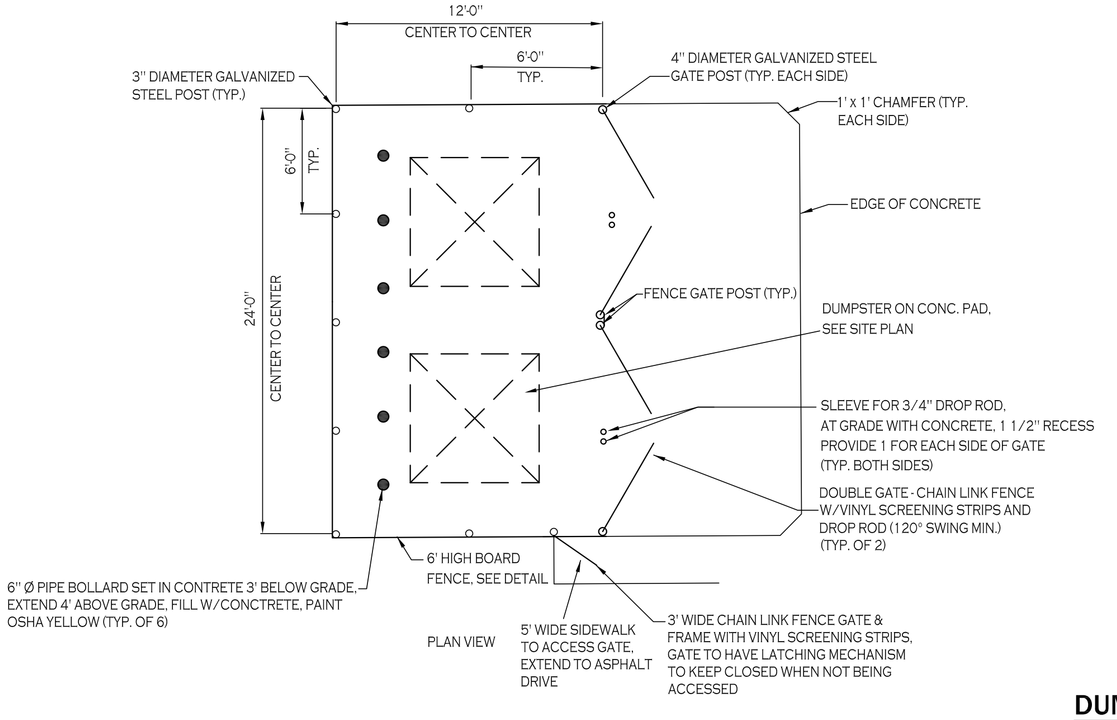
DRAWING NO.
C-103

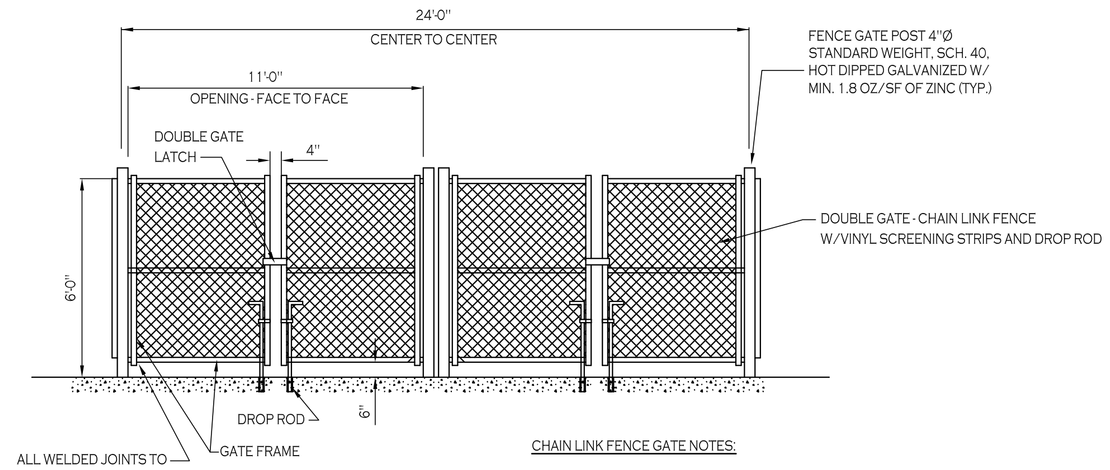
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (2305?) : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

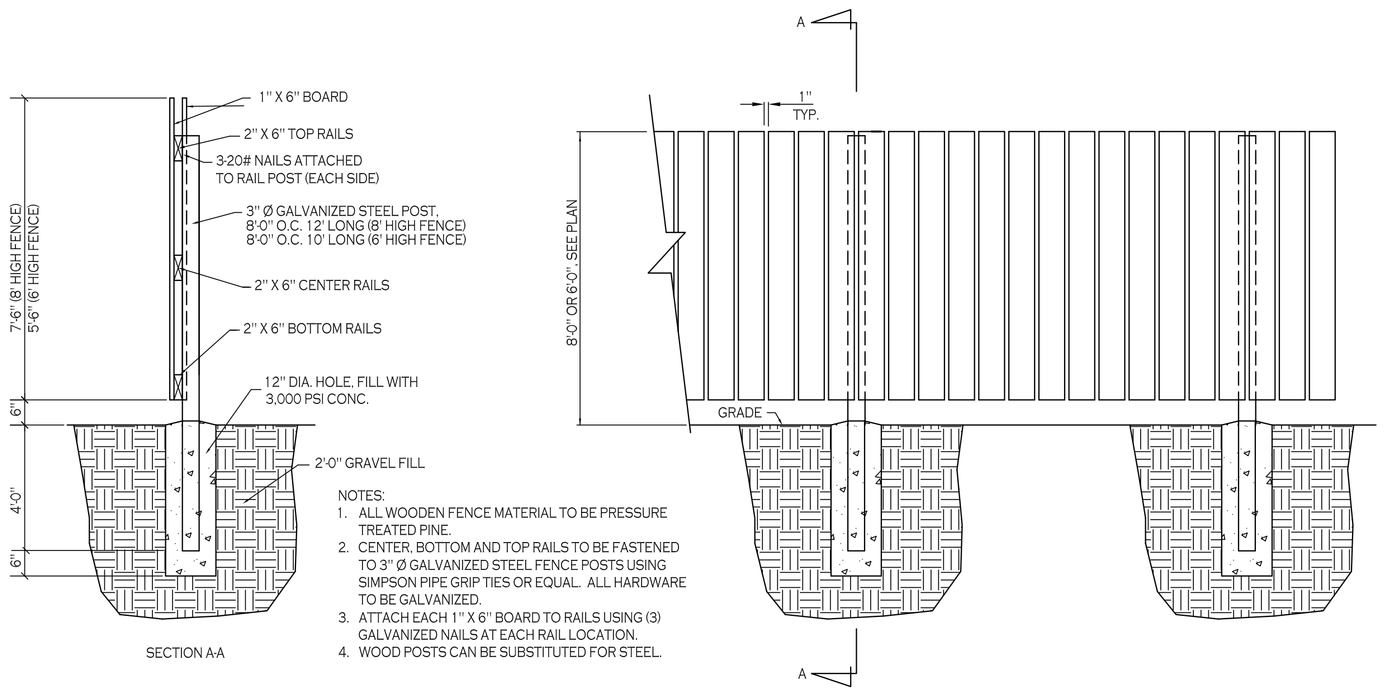




DUMPSTER ENCLOSURE - 11

CHAIN LINK FENCE GATE NOTES:

1. GATE POST FOOTINGS TO BE MIN. 36" DEEP x (4x) POST DIAMETER, EXTEND POST TO WITHIN 6" OF BOTTOM.
2. GATE FRAMES TO BE 2" SQ. GALVANIZED STEEL, WEIGHING 2.60 LB/FT IN ACCORDANCE WITH ASTM F 900.
3. CHAIN LINK FENCE FABRIC SHALL BE 2" MESH, 9 GAUGE, ZINC COATED STEEL CORE WIRE. INSTALL MESH WITH HOOK BOLTS AND TENSION BARS ON ALL 4 SIDES. ATTACH AT 15" MAX.
4. DOUBLE GATE LATCH TO BE FORKED TYPE CAPABLE OF RETAINING GATE IN CLOSED POSITION AND HAVE PROVISION FOR PAD LOCK. LATCH SHALL BE OPERABLE FROM EITHER SIDE OF GATE.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED STEEL TO SUIT GATE SIZE.



NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.

BOARD ON BOARD FENCE FENCE - FOR DUMPSTER ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

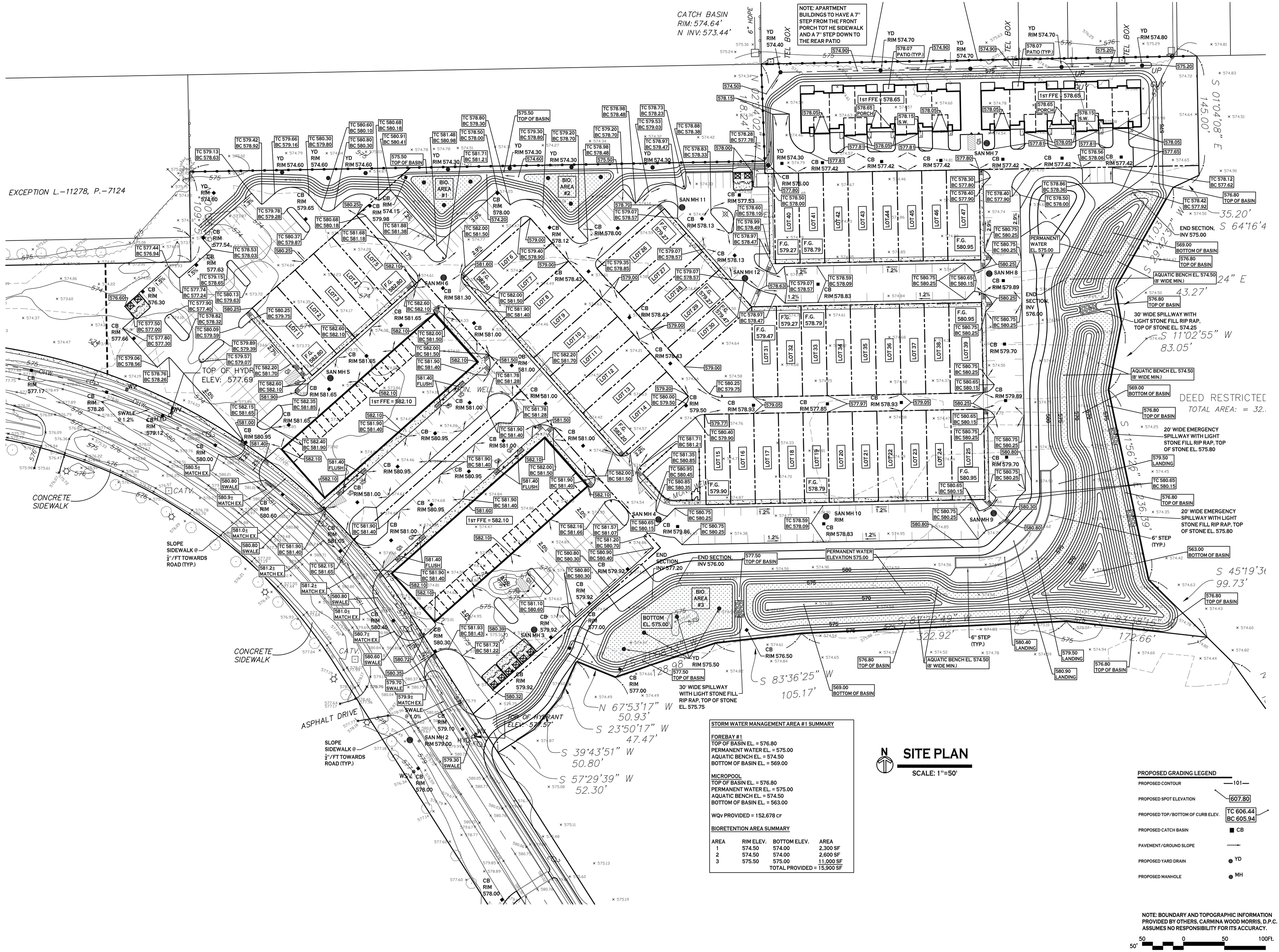
Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site
Details

DRAWING NO.
C-104
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



STORM WATER MANAGEMENT AREA #1 SUMMARY

FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00

MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00

WQv PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY

AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

SITE PLAN

SCALE: 1"=50'

PROPOSED GRADING LEGEND

PROPOSED CONTOUR	101
PROPOSED SPOT ELEVATION	607.80
PROPOSED TOP/BOTTOM OF CURB ELEV.	TC 606.44 / BC 605.94
PROPOSED CATCH BASIN	CB
PAVEMENT/GROUND SLOPE	
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

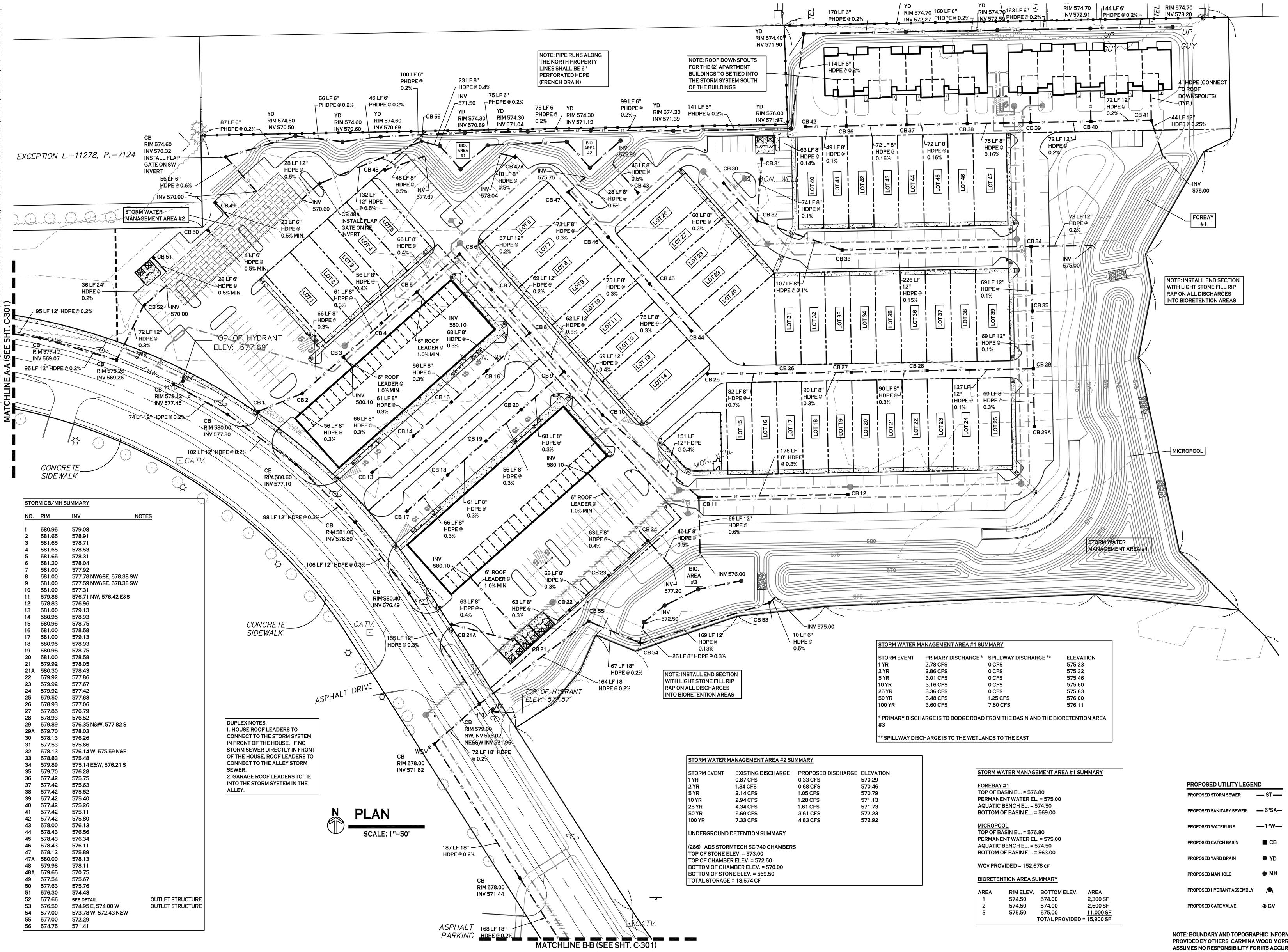
DRAWING NAME:
Grading Plan

DRAWING NO.
C-200
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



PLAN

SCALE: 1"=50'

STORM CB/MH SUMMARY			
NO.	RIM	INV	NOTES
1	580.95	579.08	
2	581.65	578.91	
3	581.65	578.71	
4	581.65	578.53	
5	581.65	578.31	
6	581.30	578.04	
7	581.00	577.92	
8	581.00	577.78 NW&SE, 578.38 SW	
9	581.00	577.59 NW&SE, 578.38 SW	
10	581.00	577.31	
11	579.86	576.71 NW, 576.42 E&S	
12	578.83	576.96	
13	581.00	579.13	
14	580.95	578.93	
15	580.95	578.75	
16	581.00	578.58	
17	581.00	579.13	
18	580.95	578.93	
19	580.95	578.75	
20	581.00	578.58	
21	579.92	578.05	
21A	580.30	578.43	
22	579.92	577.86	
23	579.92	577.67	
24	579.92	577.42	
25	579.50	577.63	
26	578.93	577.06	
27	577.85	576.79	
28	578.93	576.52	
29	579.89	576.35 N&W, 577.82 S	
29A	579.70	578.03	
30	578.13	576.26	
31	577.53	575.66	
32	578.13	576.14 W, 575.59 N&E	
33	578.83	575.48	
34	579.89	575.14 E&W, 576.21 S	
35	579.70	576.28	
36	577.42	575.75	
37	577.42	575.63	
38	577.42	575.52	
39	577.42	575.40	
40	577.42	575.26	
41	577.42	575.11	
42	577.42	575.80	
43	578.00	576.13	
44	578.43	576.56	
45	578.43	576.34	
46	578.43	576.11	
47	578.12	575.89	
47A	580.00	578.13	
48	579.98	578.11	
48A	579.65	570.75	
49	577.54	575.67	
50	577.63	575.76	
51	576.30	574.43	
52	577.66	SEE DETAIL	OUTLET STRUCTURE
53	576.50	574.95 E, 574.00 W	OUTLET STRUCTURE
54	577.00	573.78 W, 572.43 N&W	
55	577.00	572.29	
56	574.75	571.41	

DUPLEX NOTES:
1. HOUSE ROOF LEADERS TO CONNECT TO THE STORM SYSTEM IN FRONT OF THE HOUSE. IF NO STORM SEWER DIRECTLY IN FRONT OF THE HOUSE, ROOF LEADERS TO CONNECT TO THE ALLEY STORM SEWER.
2. GARAGE ROOF LEADERS TO TIE INTO THE STORM SYSTEM IN THE ALLEY.

STORM WATER MANAGEMENT AREA #1 SUMMARY			
STORM EVENT	PRIMARY DISCHARGE *	SPILLWAY DISCHARGE **	ELEVATION
1 YR	2.78 CFS	0 CFS	575.23
2 YR	2.86 CFS	0 CFS	575.32
5 YR	3.01 CFS	0 CFS	575.46
10 YR	3.16 CFS	0 CFS	575.60
25 YR	3.36 CFS	0 CFS	575.83
50 YR	3.48 CFS	1.25 CFS	576.00
100 YR	3.60 CFS	7.80 CFS	576.11

* PRIMARY DISCHARGE IS TO DODGE ROAD FROM THE BASIN AND THE BIORETENTION AREA #3

** SPILLWAY DISCHARGE IS TO THE WETLANDS TO THE EAST

STORM WATER MANAGEMENT AREA #2 SUMMARY			
STORM EVENT	EXISTING DISCHARGE	PROPOSED DISCHARGE	ELEVATION
1 YR	0.87 CFS	0.33 CFS	570.29
2 YR	1.34 CFS	0.68 CFS	570.46
5 YR	2.14 CFS	1.05 CFS	570.79
10 YR	2.94 CFS	1.28 CFS	571.13
25 YR	4.34 CFS	1.61 CFS	571.73
50 YR	5.69 CFS	3.61 CFS	572.23
100 YR	7.33 CFS	4.83 CFS	572.92

UNDERGROUND DETENTION SUMMARY

(286) ADS STORMTECH SC-740 CHAMBERS
TOP OF STONE ELEV. = 573.00
TOP OF CHAMBER ELEV. = 572.50
BOTTOM OF CHAMBER ELEV. = 570.00
BOTTOM OF STONE ELEV. = 569.50
TOTAL STORAGE = 18,574 CF

STORM WATER MANAGEMENT AREA #1 SUMMARY
FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00
MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00
WQv PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY			
AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

PROPOSED UTILITY LEGEND

- PROPOSED STORM SEWER — ST —
- PROPOSED SANITARY SEWER — 6"SA —
- PROPOSED WATERLINE — 1"W —
- PROPOSED CATCH BASIN ■ CB
- PROPOSED YARD DRAIN ● YD
- PROPOSED MANHOLE ● MH
- PROPOSED HYDRANT ASSEMBLY
- PROPOSED GATE VALVE ⊕ GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 0 50 100FT.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Plan

DRAWING NO.

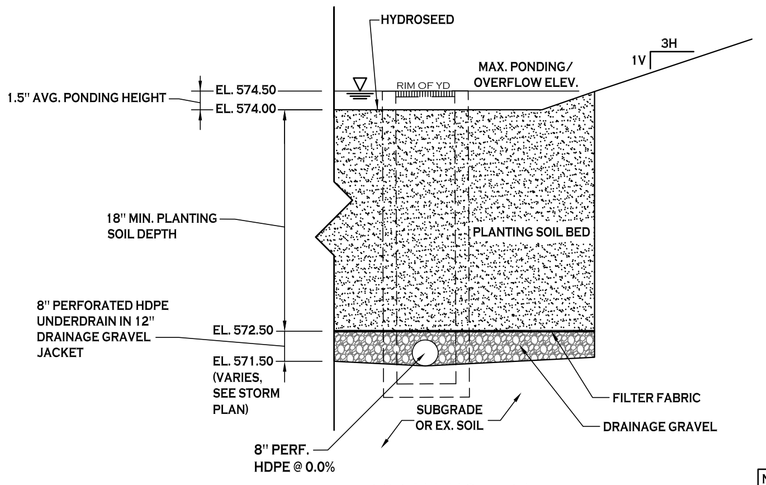
C-300

Project no.: 21.011

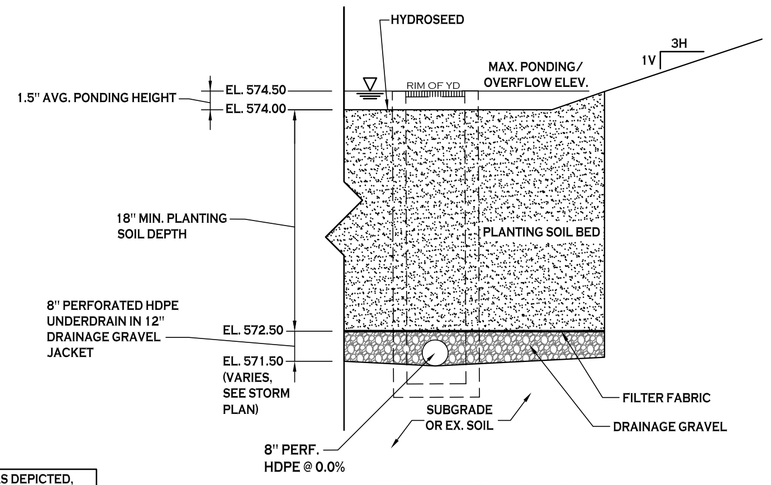
Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

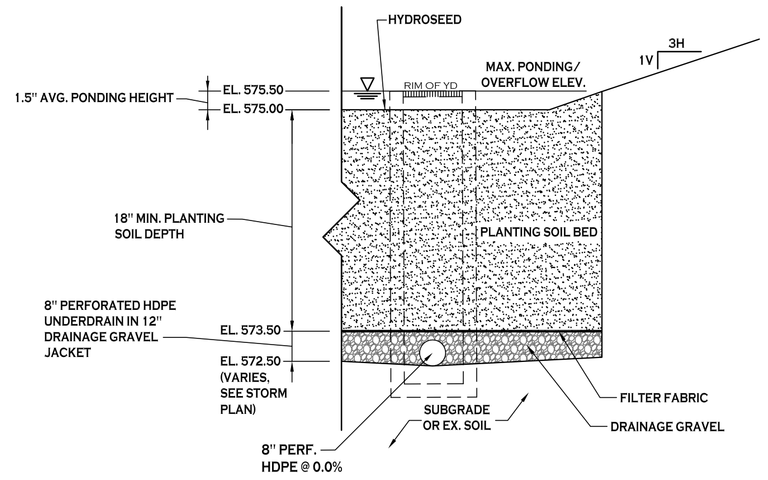


BIORETENTION AREA #1



BIORETENTION AREA #2

NOTE: AS DEPICTED, YARD DRAIN RIM ELEVATIONS ARE TO BE SET 6" ABOVE PROPOSED GRADE IN BIORETENTION AREAS.



BIORETENTION AREA #3

NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 180-N OR APPROVED EQUIVALENT
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43. NO.67, SIZE 0.25" TO 0.75"
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 60% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR ML WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHORUS: 75 LBS PER ACRE MIN.
POTASSIUM: 85 LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

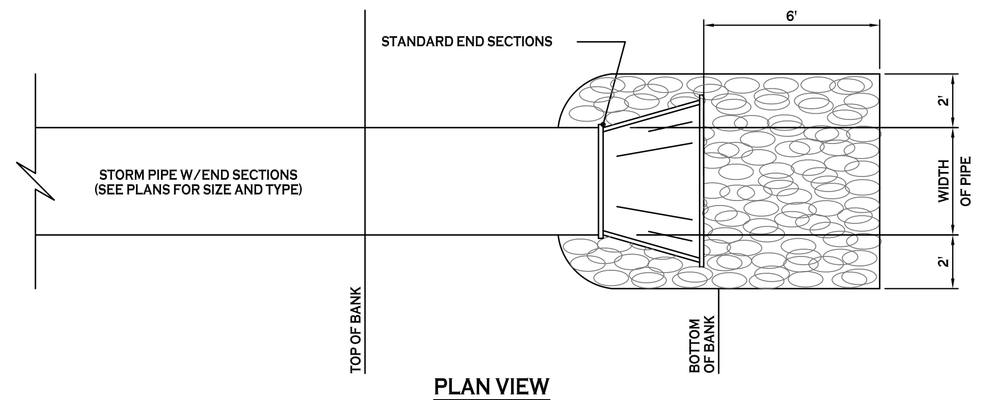
SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CREEPING BENTGRASS	AGROSTIS STOLONIFERA	63.0
ROUGH BLUEGRASS	POA TRIVIALIS	17.0
MEADOW FOXTAIL	ALOPECURUS ARUNDINACEUS	11.0
ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	4.5
DEERTONGUE	PANICUM CLANDESTINUM	4.5

BIORETENTION AREA - TYPICAL SECTIONS

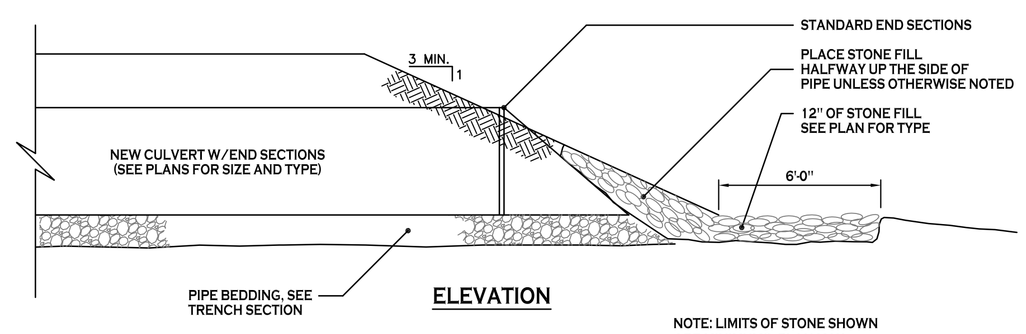
NOT TO SCALE

NOTE:
SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



PLAN VIEW

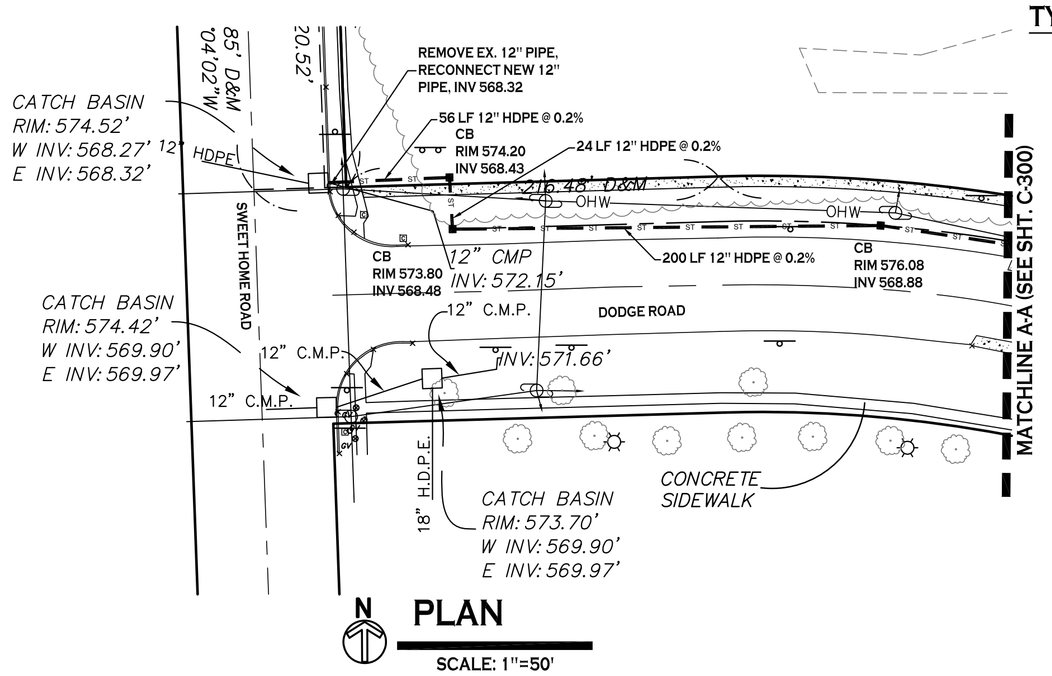


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS, PLAN MAY INDICATE GREATER LIMITS

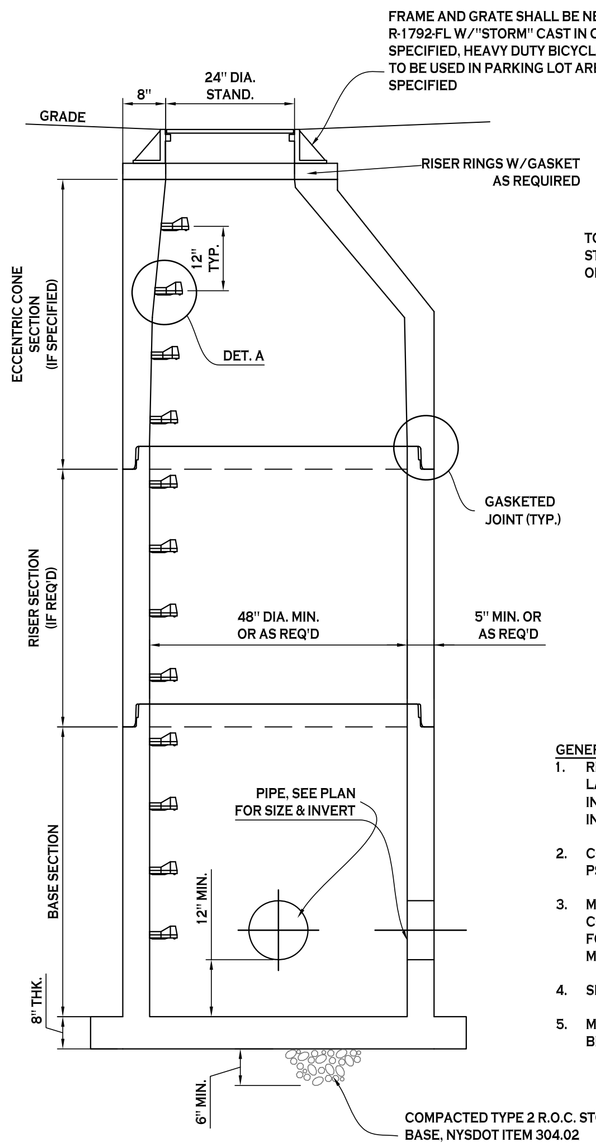
TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

NOT TO SCALE



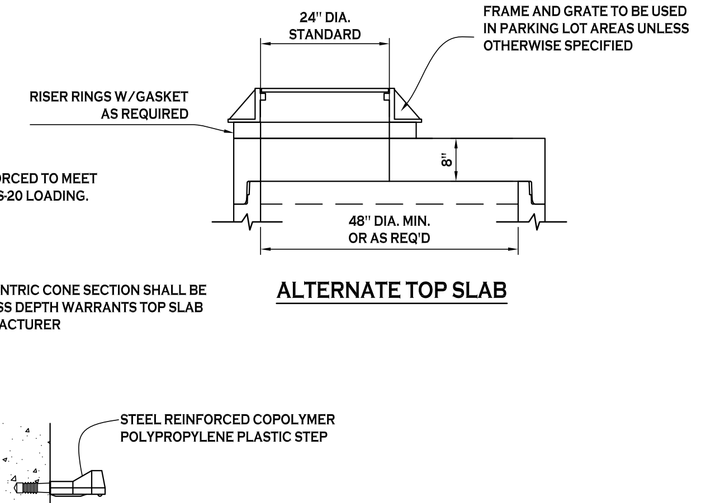
N PLAN

SCALE: 1"=50'



TYPICAL STORM MANHOLE DETAIL

NOT TO SCALE

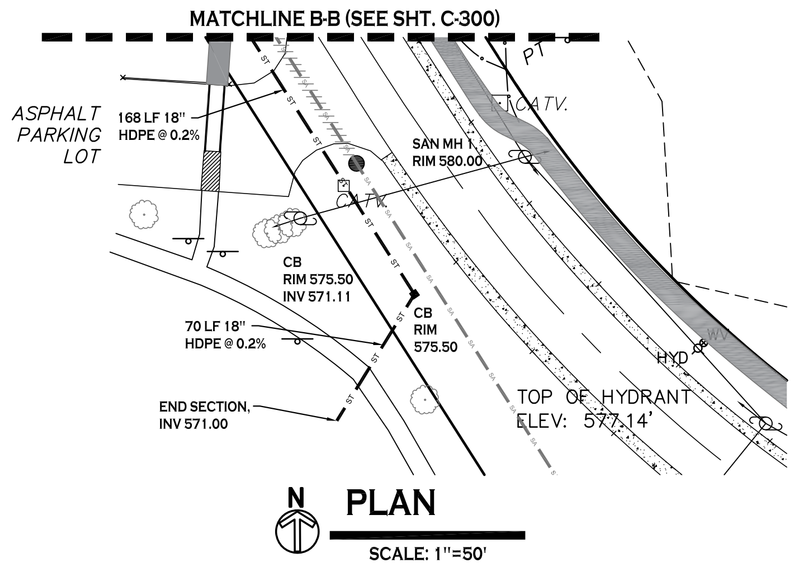


ALTERNATE TOP SLAB

NOTE: ECCENTRIC CONE SECTION SHALL BE USED UNLESS DEPTH WARRANTS TOP SLAB PER MANUFACTURER

DETAIL A

GENERAL NOTES:
1. REINFORCED STEEL TO CONFORM TO LATEST A.S.T.M. A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) IN BASE SLAB.
2. CONCRETE COMPRESSIVE STRENGTH - 4000 PSI MINIMUM.
3. MANHOLE DESIGN SPECIFICATIONS TO CONFORM TO LATEST A.S.T.M. C478 SPEC. FOR PRE-CAST REINFORCED CON-CRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.
5. MANHOLE TO BE COATED ON OUTSIDE WITH BITUMASTIC SEALER.



N PLAN

SCALE: 1"=50'

Carmina
Wood
Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-301

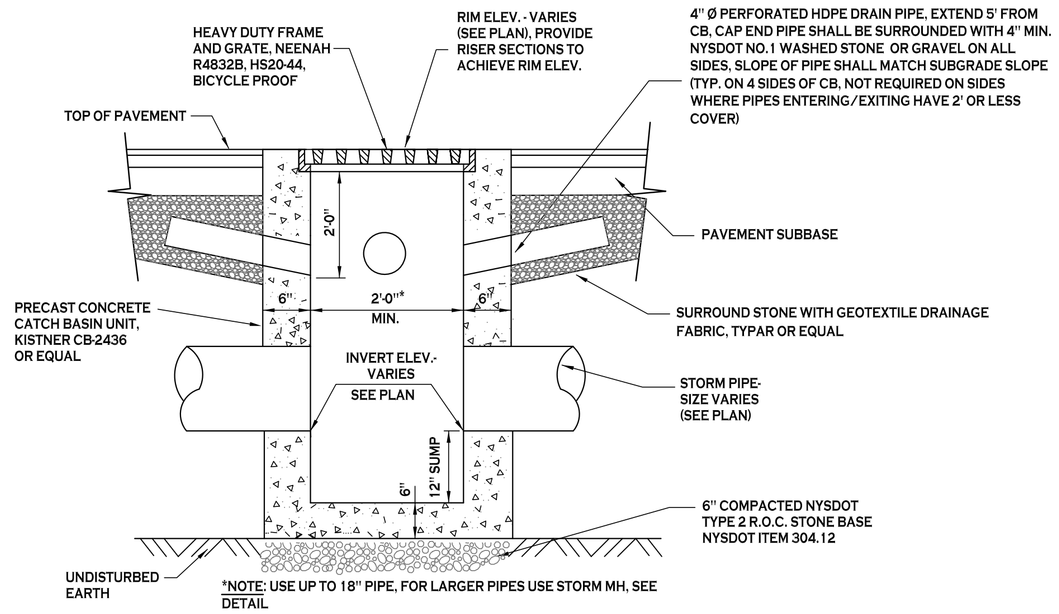
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

1.e

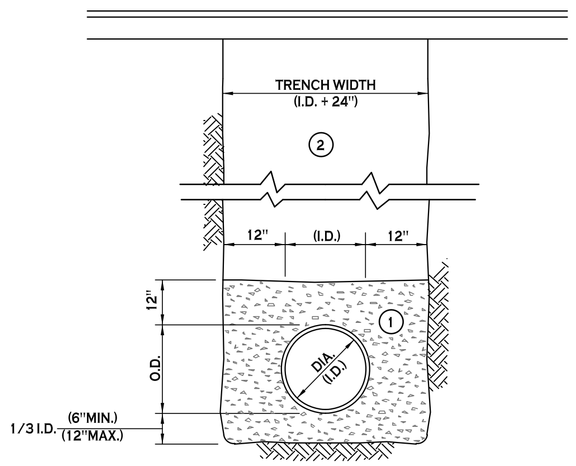
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



TYPICAL PRECAST CATCH BASIN

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

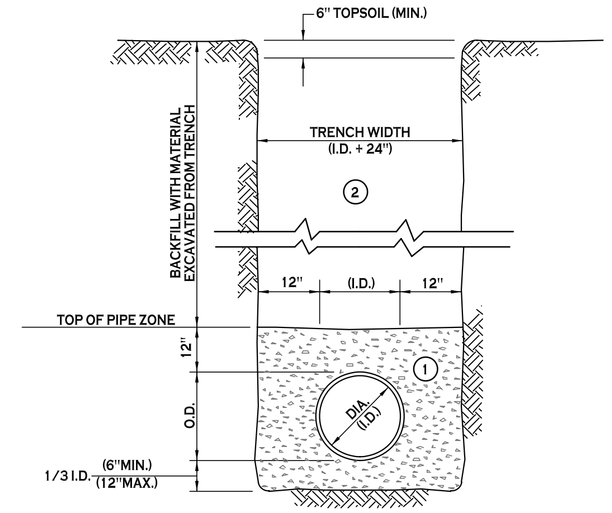
NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (2)

STORM SEWER TRENCH SECTION IN PAVED AREAS

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

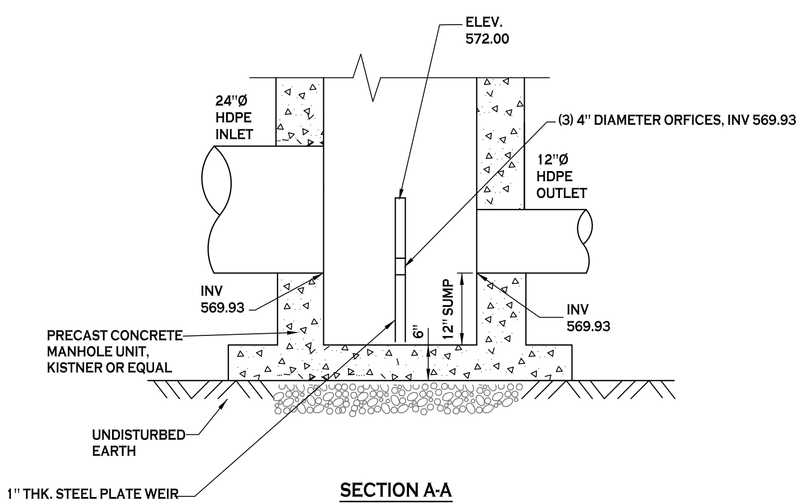
(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 6" LIFTS.

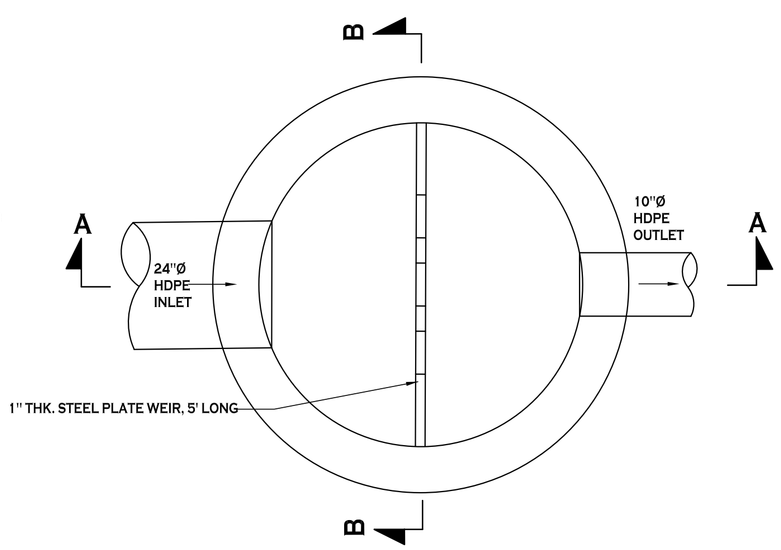
STORM SEWER TRENCH SECTION IN UNPAVED AREAS

NOT TO SCALE



SECTION A-A

NOTES:
1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED

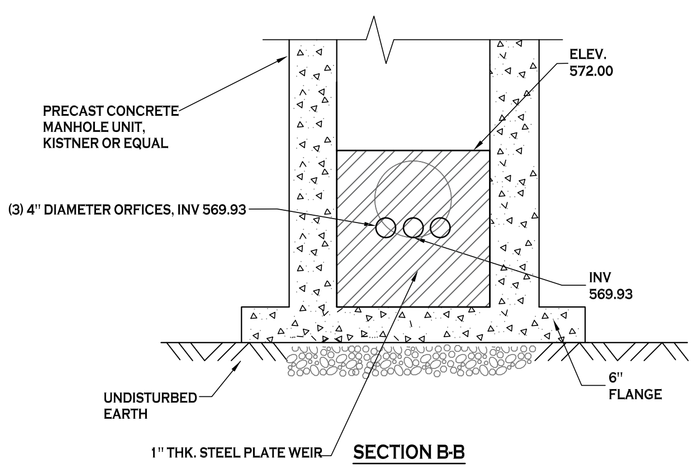


PLAN

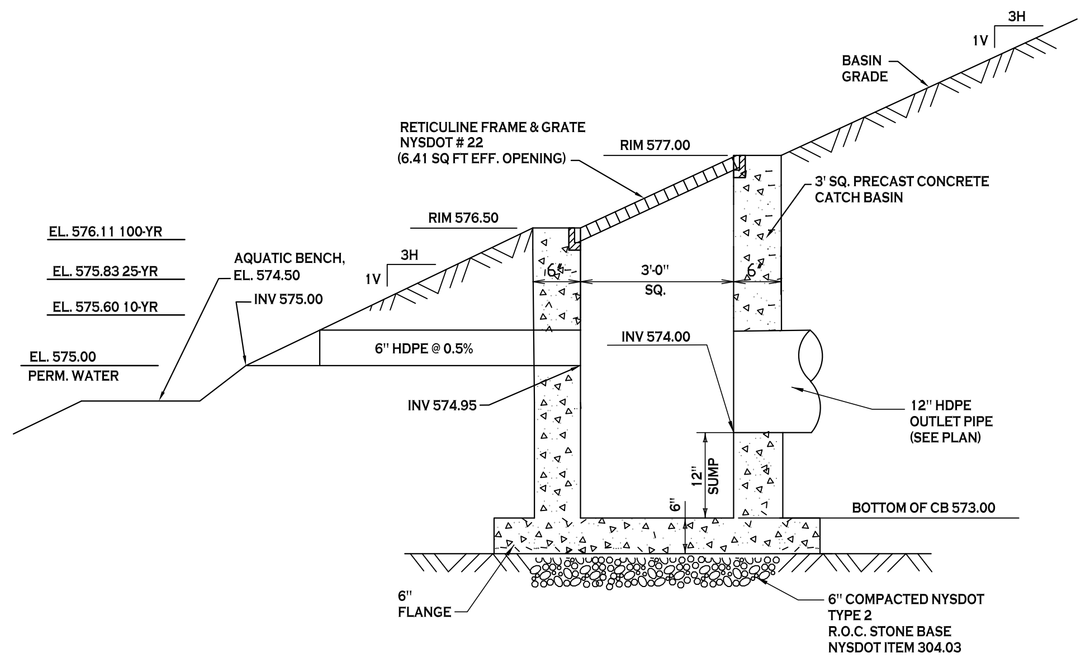
*NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52

NOT TO SCALE



SECTION B-B



DETENTION BASIN OUTLET STRUCTURE - CB 53

N.T.S.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

Packet Pg. 1458

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

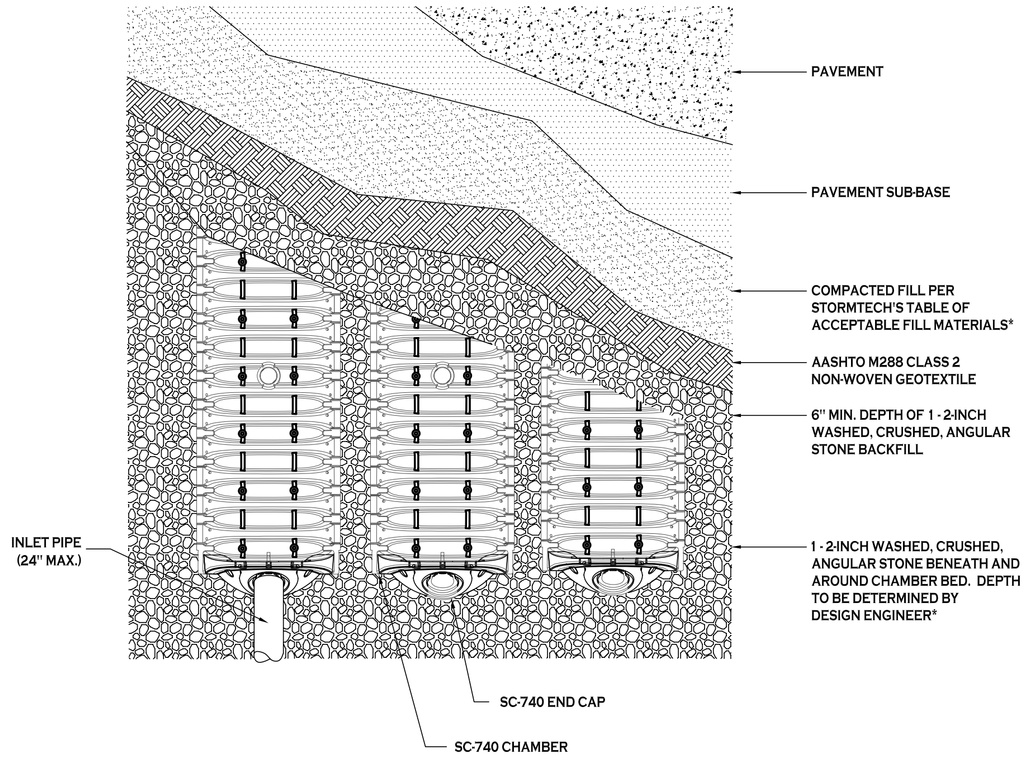
C-302

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209A and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)



STORMTECH SC-740 CHAMBER SYSTEM
PLAN VIEW DETAIL

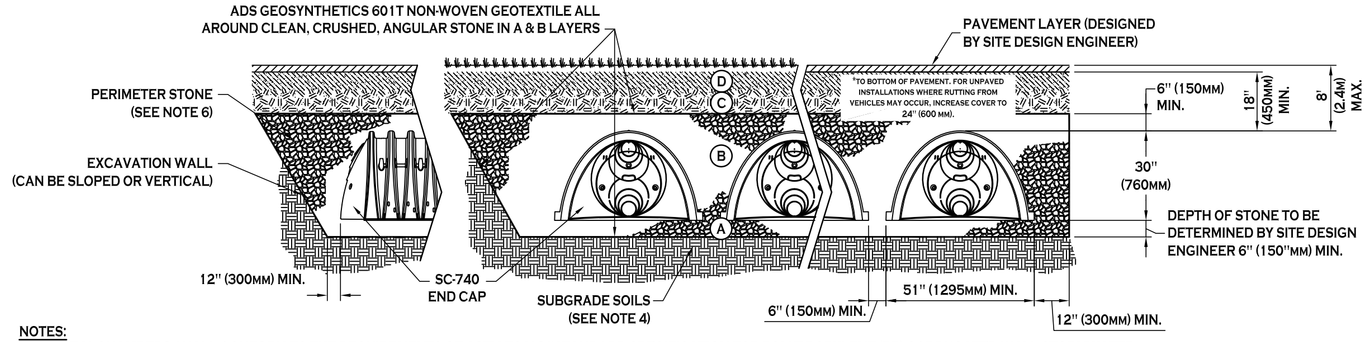
NOT TO SCALE

*SEE STORMTECH'S DESIGN MANUAL

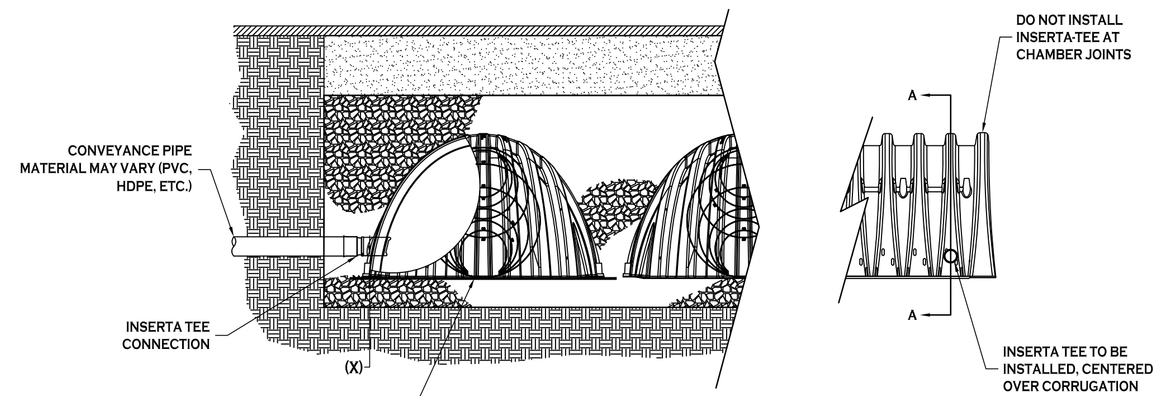
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 MM) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LATER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 MM) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 MM) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 LBS (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 MM) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 MM)	4" (100 MM)
SC-740	10" (250 MM)	4" (100 MM)
DC-780	10" (250 MM)	4" (100 MM)
MC-3500	12" (300 MM)	6" (150 MM)
MC-4500	12" (300 MM)	8" (200 MM)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

INSERTA TEE DETAIL

NOT TO SCALE

INSPECTION AND MAINTENANCE

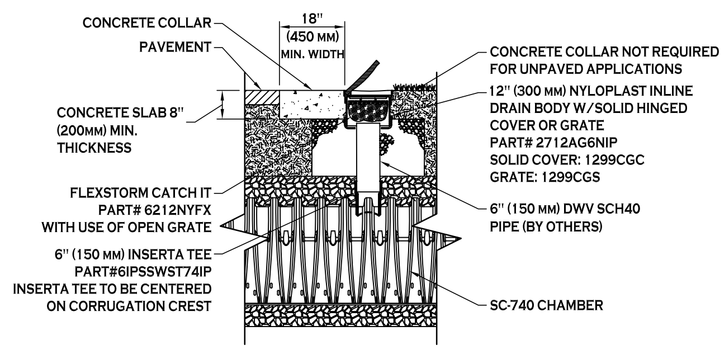
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 M) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/15/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-303

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

EXCEPTION L.–11278, P.–7124

TEL

BRUSH LINE

UP

GUY

F.F.E. = 578.65

INV 574.15

INSTALL C.O., TRAP & VENT

INV 574.15

6" SDR-35 PVC SANITARY LATERAL @ 1.0% MIN.

F.F.E. = 578.65

SAN MH 7

HYDRANT ASSEMBLY

2" TYPE "K" COPPER WATER SERVICE

2" TAP & CURB STOP/BOX

159 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

LOT 40 LOT 41 LOT 42 LOT 43 LOT 44 LOT 45 LOT 46 LOT 47

SAN MH 8

298 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

8" AWWA C-900 PVC PRIVATE WATER MAIN

8" G.V. (TYP. OF 3)

INSTALL FITTINGS AND BLOCKING (TYP.)

LOT 31 LOT 32 LOT 33 LOT 34 LOT 35 LOT 36 LOT 37 LOT 38 LOT 39

292 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

8" AWWA C-900 PRIVATE WATER MAIN

LOT 15 LOT 16 LOT 17 LOT 18 LOT 19 LOT 20 LOT 21 LOT 22 LOT 23 LOT 24 LOT 25

SAN MH 9

SAN MH 10

204 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

204 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

8" AWWA C-900 PVC PRIVATE WATER MAIN

SAN MH 4

8" G.V.

HYDRANT ASSEMBLY

202 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

SAN MH 3

202 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

SAN MH 2

INSTALL SELECT FILL ACROSS ROAD

INSTALL SELECT FILL ACROSS DRIVEWAY

328 LF 8" SDR-35 PVC PUBLIC SANITARY MAIN @ 0.4%

SAN MH 1

MATCHLINE A-A

HYDRANT ASSEMBLY

SAN MH 11

8" G.V.

MON. WELL

145 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

LOT 26 LOT 27 LOT 28 LOT 29 LOT 30

SAN MH 12

LOT 1 LOT 2 LOT 3 LOT 4 LOT 5

8" G.V. (TYP. OF 3)

SAN MH 6

LOT 6 LOT 7 LOT 8 LOT 9 LOT 10 LOT 11 LOT 12 LOT 13 LOT 14

394 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

SAN MH 5

184 LF 8" SDR-35 PVC PRIVATE SANITARY MAIN @ 0.4%

8" AWWA C-900 PVC PRIVATE WATER MAIN

INSULATED METER AND RPZ ENCLOSURE

8" D.I. COMBINED WATER SERVICE FROM MAIN IN AND THROUGH ENCLOSURE

TOP OF HYDRANT ELEV: 577.69'

F.F.E. = 582.10

INSTALL FITTINGS AND BLOCKING (TYP.)

F.F.E. = 582.10

MON. WELL

8" G.V. (BY ECWA)

EX. 12" WATER MAIN

INSTALL 12"x12"x8" TEE (BY ECWA)

OHW

HYD

CONCRETE SIDEWALK

CATV.

ELEVATION OF EXISTING HYDRANTS ALONG DODGE ROAD TO BE ADJUSTED TO ACCOMMODATE FILLING OF THE SITE, COORDINATE WITH ECWA

UTILITY POLES AND GUY WIRES ALONG DODGE ROAD TO BE EVALUATED AND ADJUSTED TO ACCOMMODATE FILLING OF THE SITE, COORDINATE WITH UTILITY COMPANIES

UTILITY POLE TO BE RELOCATED, COORDINATE WITH UTILITY COMPANIES

CONCRETE SIDEWALK

CATV.

ASPHALT DRIVE

TOP OF HYDRANT ELEV: 577.57'

WV

WSV

HYD

ASPHALT PARKING LOT

CATV.

SAN MH 1

MATCHLINE A-A

PARKING LOT

MATCHLINE A-A

SAN MH 1

CATV.

315 LF 8" SDR-35 PVC PUBLIC SANITARY MAIN @ 0.4%

TOP OF HYDRANT ELEV: 577.14'

WV

HYD

CORE DRILL & CONNECT TO EX. MANHOLE, INSTALL INSIDE DROP

SAN. M.H. RIM: 575.78' INV: 553.78' E–W

N

PLAN

SCALE: 1"=50'

N

PLAN

SCALE: 1"=50'

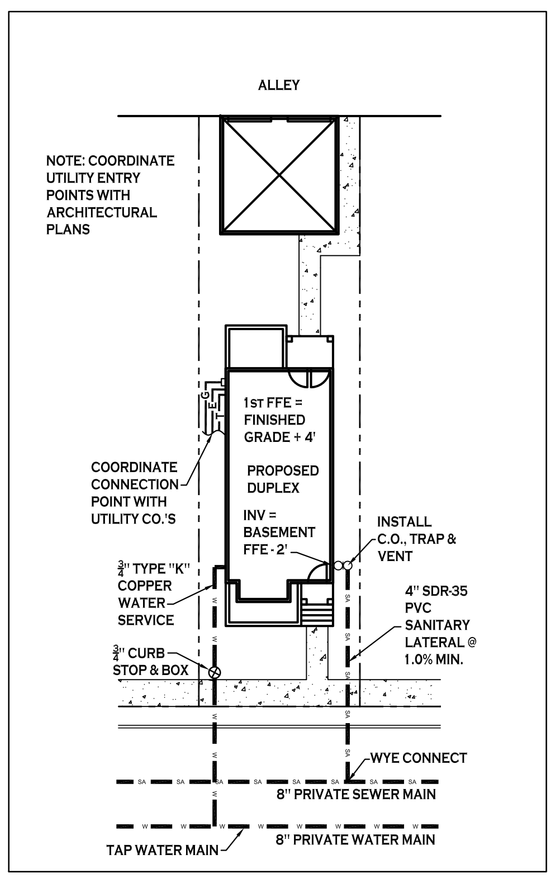
SANITARY MANHOLE CHART

SAN MH	RIM	INV IN	INV OUT
1	580.00	563.29	563.19
2	579.00	564.70	564.60
3	580.40	565.61	565.51
4	580.20	566.52 (E)	566.42
		574.88 (W)	
5	581.80	-	576.50
6	581.45	576.56	576.46
7	577.90	-	571.00
8	580.15	569.63 (W)	569.53
		570.36 (N)	
9	580.25	568.36	568.26
10	577.95	567.44	567.34
11	578.45	-	571.38
12	578.45	570.92	570.82

DUPLEX NOTES:

1. ALL DUPLEXES TO HAVE A ¾" TYPE "K" COPPER WATER SERVICE, SEE DETAIL

2. ALL DUPLEXES TO HAVE A 4" SDR-35 PVC SANITARY SEWER LATERAL, SEE DETAIL



TYPICAL DUPLEX LOT

SCALE: 1"=20'

PROPOSED UTILITY LEGEND

PROPOSED STORM SEWER	ST
PROPOSED SANITARY SEWER	6"SA
PROPOSED WATERLINE	1"W
PROPOSED CATCH BASIN	CB
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH
PROPOSED HYDRANT ASSEMBLY	
PROPOSED GATE VALVE	GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Utility Plan

DRAWING NO.

C-400

Project no.: 21.011

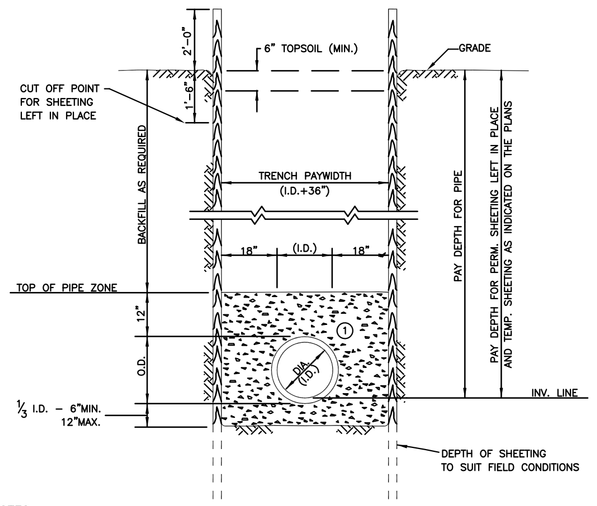
Attachment: SP-2021-05_drawings_061721 (2305?) : SP-2021-05)

1e

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

SHEETED TRENCH
(JANUARY 2012)



NOTES:

1. MAINTAIN 18" BETWEEN PIPE AND INSIDE FACE OF TEMPORARY SHEETING. IF SHEETING EXTENDS BELOW PIPE INVERT AS SHOWN, WHEN PVC PIPE MATERIAL IS USED, COMPACT MATERIAL ① BEFORE PULLING THE SHEETING.
2. SHEETED TRENCH OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING EQUIPMENT.
3. SHEETING DRIVEN BELOW THE INVERT OF THE PIPE FOR BEDDING MATERIAL AND TOE SUPPORT WILL NOT BE CONSIDERED IN THE FORMULA FOR PAYMENT BUT SHOULD BE FIGURED BY THE CONTRACTOR IN DETERMINING HIS UNIT BID PRICE PER SQUARE FOOT OF SHEETING.
4. WHERE INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER, TEMPORARY SHEETING WILL BE PAID FOR UNDER THE APPLICABLE BID ITEM. OTHER AREAS WHERE THE CONTRACTOR ELECTS TO USE TEMPORARY SHEETING NOT PREVIOUSLY AUTHORIZED BY THE ENGINEER SHALL BE AT HIS OPTION AND EXPENSE.

MATERIALS

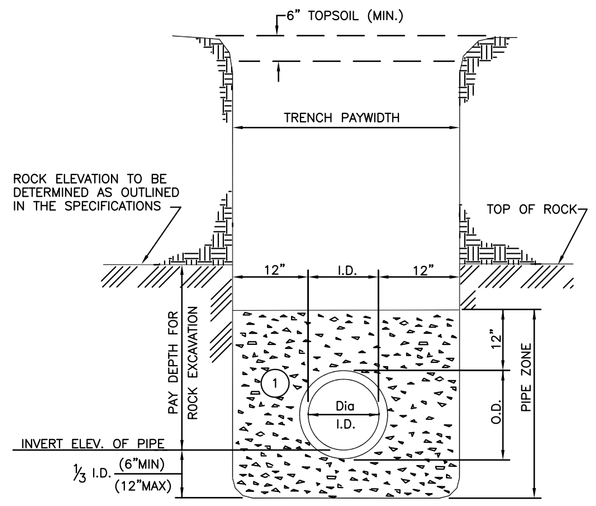
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED TOPSOIL DIMENSION	STD.DETAIL 2
	Rev. 2 6/5/06	UPDATED MATERIALS TO NYSDOT LATEST EDITION	
	File: d-02	Date: 3/1/91	

ROCK TRENCH DETAIL
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

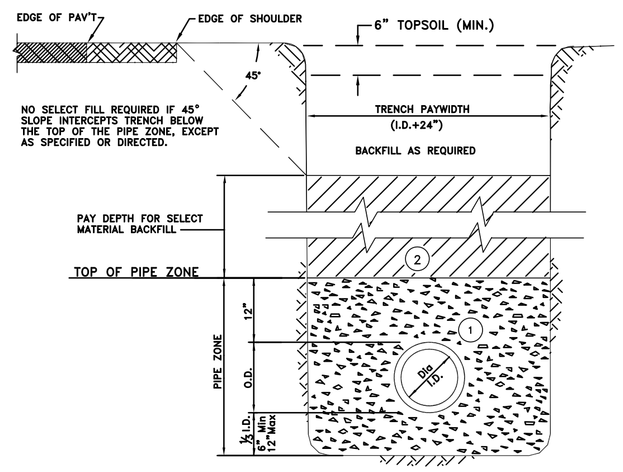
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 1/6/94	ADDED 6" TOPSOIL (MIN.)	STD.DETAIL 3
	Rev. 2 2/7/94	ADDED NOTES A & B	
	File: d-03	Date: 3/1/91	

SELECT BACKFILL FOR TRENCH PARALLEL TO ROADWAYS
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

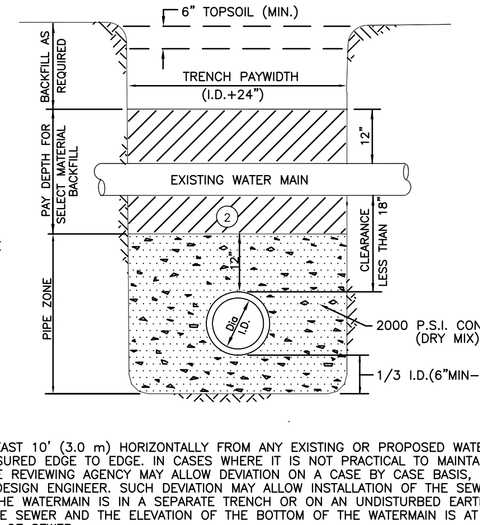
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO. 2 RUN OF CRUSHER STONE OR NO. 2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6" LIFTS TO 90% DENSITY)

NO SLAG SHALL BE ALLOWED FOR MATERIALS ① & ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 2 12/28/00	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 4
	Rev. 3 12/01	Updated NYS DOT Editions	
	File: d-04	Date: 3/1/91	

WATERMAIN CROSSING DETAIL TYPICAL FOR ENCASEMENT
(JANUARY 2012)



NOTES:

A. IN ALL CASES WHERE THERE IS LESS THAN 18" CLEARANCE BETWEEN EXISTING WATER MAIN AND PROPOSED SEWER (INCLUDING HOUSE LATERALS) THE NEW WORK SHALL BE ENCASED IN CONCRETE AS SHOWN. WHEN A CASING PIPE IS SPECIFIED, NO CONCRETE ENCASEMENT IS REQUIRED.

B. THE CONCRETE ENCASEMENT SHALL EXTEND 3'-0" EACH SIDE OF THE WATER MAIN.

C. SEWERS SHALL BE LAID AT LEAST 10' (3.0 m) HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A 10' SEPARATION, THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THE WATERMAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND THE ELEVATION OF THE BOTTOM OF THE WATERMAIN IS AT LEAST 18" (46 cm) ABOVE THE TOP OF SEWER.

D. SEWERS CROSSING WATERMAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46 CM) BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHEN THE WATERMAIN IS ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THE JOINTS OF THE SEWER PIPE WILL BE EQUIDISTANT FROM AND AS FAR AWAY FROM THE WATERMAIN JOINTS AS POSSIBLE. WHERE THE WATERMAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATERMAIN.

E. WHEN IT IS IMPOSSIBLE TO OBTAIN THE PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE SEWER SHALL BE EITHER ENCASED IN CONCRETE OR CONSTRUCTED OF PIPE MATERIAL EQUAL TO THE WATERMAIN AND PRESSURE TESTED AT 150 PSI TO ASSURE WATER TIGHTNESS.

F. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIALS PLACEMENT AND MAXIMUM PAY LIMITS.

G. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

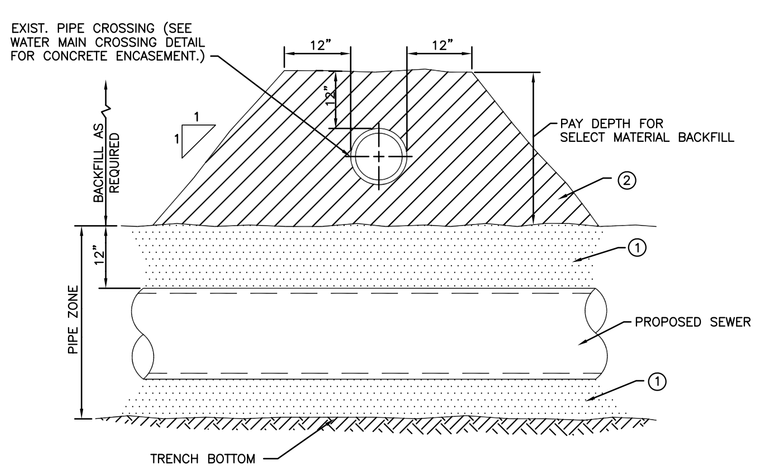
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY)

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Revisions 2/7/94	ADDED 6" TOPSOIL(MIN.) & NOTE F&G	STD.DETAIL 5
	01/03/01	REVISED NOTE A	
	12/01	Revised Note "A"	
	File: d-05	Date: 3/1/91	

PIPE CROSSING SUPPORT DETAIL
(JANUARY 2012)



MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

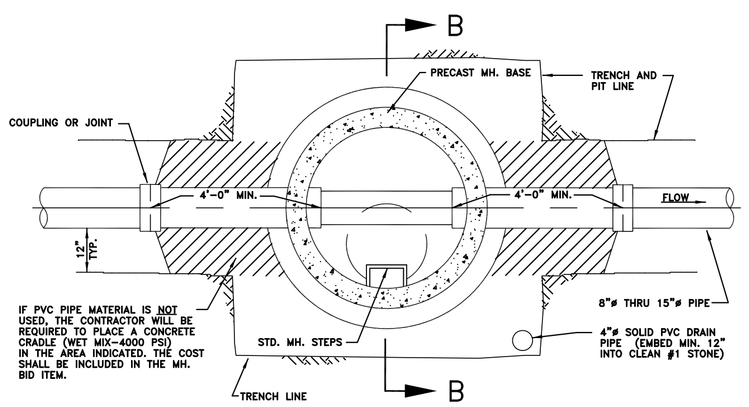
① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY) NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ① AND ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 9
	Rev. 2		
	File: d-09	Date: 3/1/91	

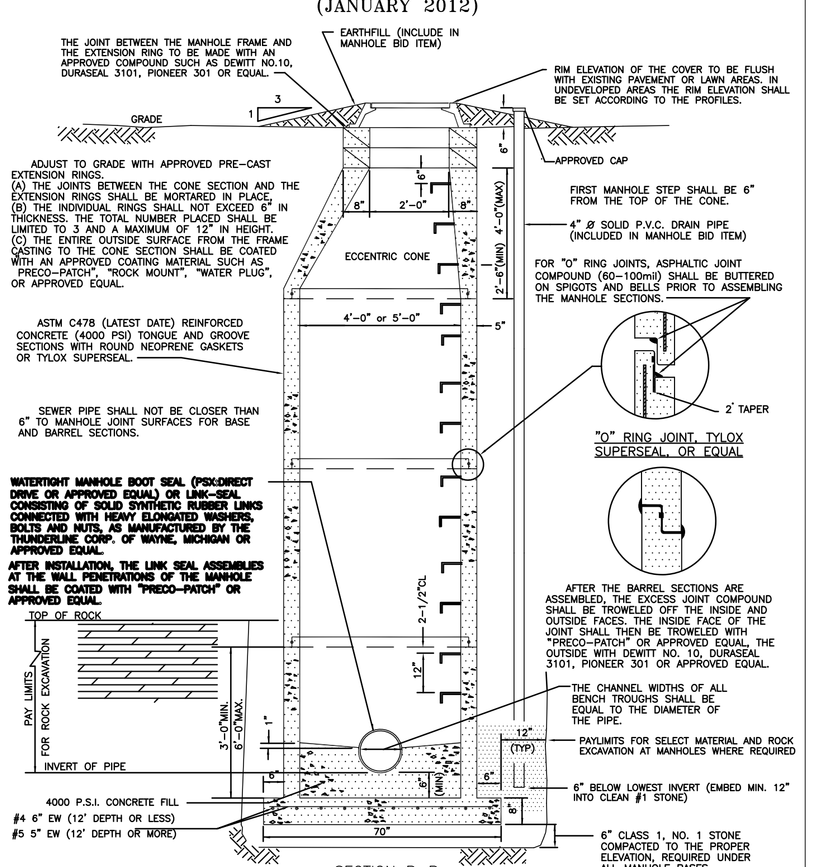
MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS
(JANUARY 2012)



PLAN

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED 4" PVC TO SOLID PIPE IN #1 STONE BED	STD.DETAIL 10
	Rev. 2		
	File: d-10	Date: 3/1/91	

MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS (SECTION B-B)
(JANUARY 2012)



SECTION B-B

Revisions

07/15/98	ADD ROCK EXCAVATION PAYLIMITS
11/23/98	ADD 4"x4"x9" MARKER AND NOTES
12/01	REVISED 4" P.V.C. TO SOLID PIPE
03/04/03	ADDED WATER TIGHT BOOT SEAL NOTE
06/22/05	ADDED TYLOX SUPERSEAL NOTES
02/27/07	REMOVED WOOD POST AND NOTES
	CHANGED THE NUMBER OF EXTENSION RINGS FROM 2 TO 3

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	STD.DETAIL 11
File: d-11 Date: 3/1/91	

STANDARD FRAME AND COVER (PRIVATE SEWER)
(JANUARY 2012)

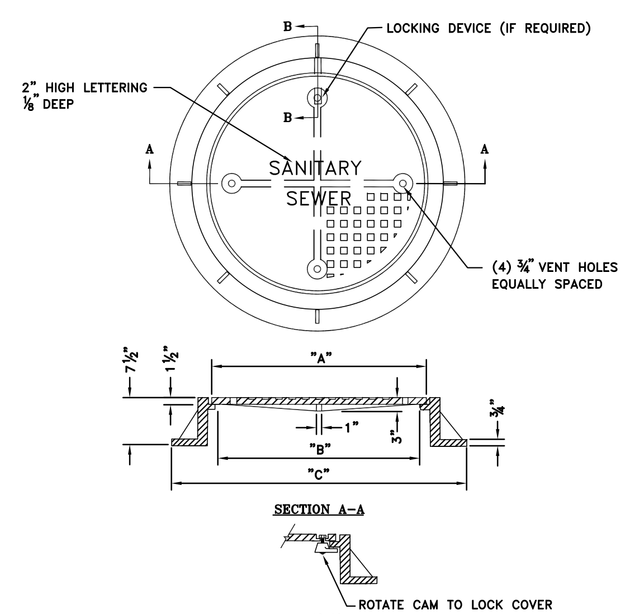


TABLE				
PIPE SIZE	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	WEIGHT OF COVER
8" THRU 18"	24"	22 1/4"	35"(MAX.)	150 LBS. ± 5%
OVER 18"	32"	30"	46"(MAX.)	200 LBS. ± 5%

STANDARD FRAME AND COVER NOTES

1. MATERIAL ASTM A48 CLASS 30B CAST IRON.
2. UNIT MUST WITHSTAND H-20 WHEEL LOADING.
3. ALL DIMENSIONS ARE TO BE CONSIDERED MINIMUM WITH THE EXCEPTION OF THE COVER, WHICH MUST CONFORM EXACTLY TO MAINTAIN INTERCHANGEABILITY WITHIN THE COUNTY.
4. COVER WEIGHT 210 LBS. (MAX)
5. COATING NOT REQUIRED.
6. FRAMES AND COVERS SHALL HAVE MACHINED BEARING SURFACES.
7. LOCKING DEVICE MUST BE SITUATED TO ALLOW EASY REMOVAL OF COVER.
8. NO COMMERCIAL "BRAND NAME" LETTERING WILL BE ALLOWED ON THE EXPOSED SURFACE OF THE COVER.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 13P
	Rev. 2		
	Rev. 3		
	Rev. 4		
	File: d-13P	Date: 2/05	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Sanitary Sewer Details

DRAWING NO.

C-401

Project no.: 21.011

Packet Pg. 1461

1e

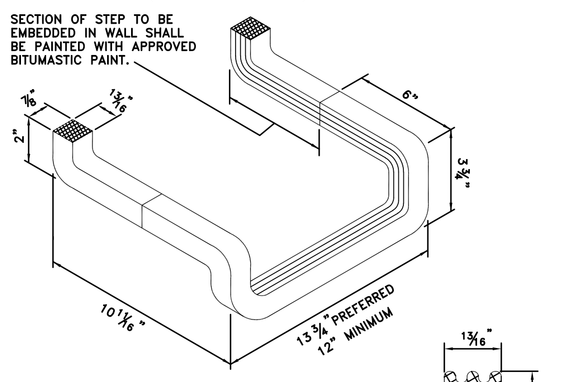
Attachment: SP-2021-05_drawings_061721 (2305?) : SP-2021-05)

Packet Pg. 1462

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

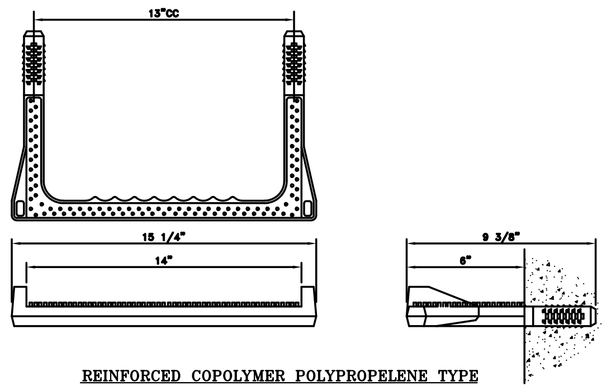
STANDARD MANHOLE STEP
(JANUARY 2012)



(DROP FRONT TYPE)

TYPICAL SECTION

NOTES:
1. MANHOLE STEPS SHALL BE OF FORGED ALUMINUM ALLOY.
2. AN ACCEPTABLE ALTERNATE IS THE STEEL REINFORCED COPOLYMER POLYPROPYLENE MANHOLE STEP.
3. THE STEPS SHALL BE EMBEDDED IN THE WALLS OF THE CONCRETE MANHOLE BARREL WHILE THE MANHOLE IS BEING CAST OR SECURELY GROUTED IN PLACE AFTER CASTING.



REINFORCED COPOLYMER POLYPROPELENE TYPE

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/9/08	ADDED REINFORCED COLPOLYMER TYPE STEP	STD.DETAIL 17
	Rev. 2		
	File: d-17	Date: 3/1/91	

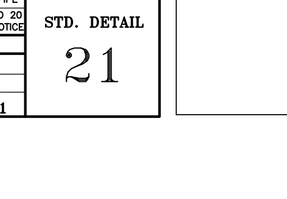
CONSTRUCTION SPECIFICATIONS FOR HOUSE LATERALS
(JANUARY 2012)

1. MATERIAL
   a. THICK WALL PVC – D – 3034, SDR–35
   b. EXTRA HEAVY CAST IRON
   c. DUCTILE IRON

2. FAR SIDE CROSSING
   a. LATERALS INSTALLED ACROSS TOWN ROADS MAY BE BY THE OPEN CUT METHOD WHERE ALLOWED BY THE HIGHWAY PERMIT.
   b. LATERALS INSTALLED ACROSS STATE OR COUNTY ROADS SHALL BE BY THE BORING AND JACKING METHOD (UNLESS OTHERWISE NOTED ON THE PLANS) USING A STEEL CASING PIPE. THE CARRIER PIPE SHALL CONFORM WITH THE MATERIAL SPECIFIED OR APPROVED BY THE ENGINEER.
   c. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
   d. ALL FAR SIDE CROSSINGS SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE R.O.W. LINE.
   e. THE CONTRACTOR SHALL SUPPLY A 2" X 4" WOOD MARKER EXTENDING FROM THE END OF THE CROSSING TO ONE FOOT BELOW GRADE. ALSO, RECORDS SHALL BE KEPT AS TO THE DEPTH OF THE HOUSE SERVICE AND A MINIMUM OF THREE (3) TIES SHALL BE ESTABLISHED FOR THE LOCATION OF THE SERVICE.
   f. LATERALS SHALL BE LAID AT A 2.0% MINIMUM GRADE. IN CASES OF A SHALLOW SEWER, A 1.0% SLOPE MAY BE APPROVED BY THE ENGINEER.

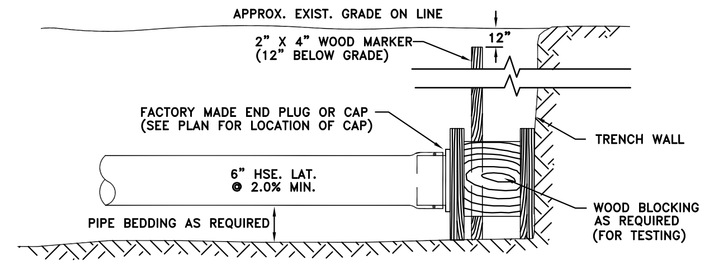
3. NEAR SIDE SERVICES
   a. THE CONTRACTOR SHALL SUPPLY WYE BRANCHES OF THE SAME MATERIAL AND CLASS AS THE SEWER MAIN.
   b. THE LOCATION OF THE WYE BRANCHES WILL BE DETERMINED BY THE CONTRACTOR AND ENGINEER IN THE FIELD AFTER CONFERRING WITH THE HOMEOWNER.
   c. THE LOCATION OF THE BRANCHES SHALL BE MEASURED FROM THE LAST DOWNSTREAM MANHOLE AND AT LEAST THREE (3) TIES FROM AN EXISTING STRUCTURE, NORMALLY THE HOME IT IS TO SERVICE.
   d. NEAR SIDE SERVICES SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE, R.O.W. LINE.
   e. THE CONTRACTOR SHALL PROVIDE A 2" X 4" WOOD MARKER EXTENDED FROM THE WYE BRANCH TO ONE (1) FOOT BELOW GRADE.
   f. ON ALL SERVICES WHERE THE MAIN IS GREATER THAN 8' IN DEPTH, THE CONTRACTOR SHALL PROVIDE A RISER PIPE TO AN ELEVATION 8' BELOW EXISTING GRADE.

NOTES:
1. RECORDS OF THE DEPTH OF COVER SHALL BE KEPT FOR ALL HOUSE LATERALS BUILT ACROSS PAVEMENTS. SUCH RECORDS SHALL IDENTIFY THE LATERALS BY THE USE OF HOUSE NUMBERS AND SHALL SHOW LOCATION OF THE END OF THE HOUSE LATERAL WITH A MINIMUM OF THREE(3) TIES AS SHOWN IN EXAMPLE BELOW.
2. THE CONTRACTOR SHALL OBTAIN ALL HIGHWAY/R.O.W. PERMITS PRIOR TO START OF WORK.
3. VENTS AND CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.

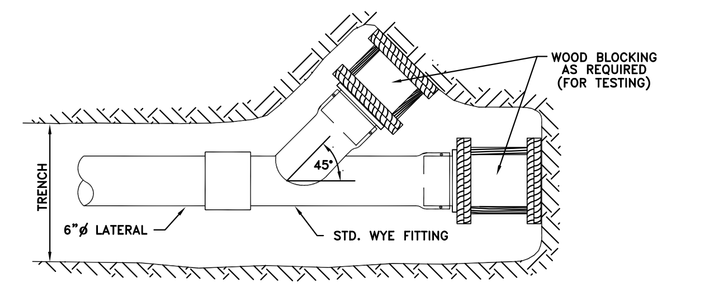


ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 7/17/85	NOTE 2c: DEPTH 4'–0"	STD.DETAIL 23
	Rev. 2 12/8/86	CHANGED NOTE 1 TO THREE(3) TIES	
	Rev. 3 7/14/99	ADDED TITLE	
	Rev. 4 12/01	ADDED NOTE 5 REGARDING LOCATION OF VENTS AND CLEAN OUTS	
	File: d-23	Date: 3/1/91	

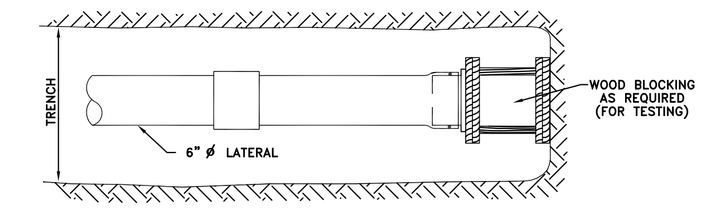
CAP & BLOCKING METHODS FOR AIR TESTING
(JANUARY 2012)



TYPICAL SECTION



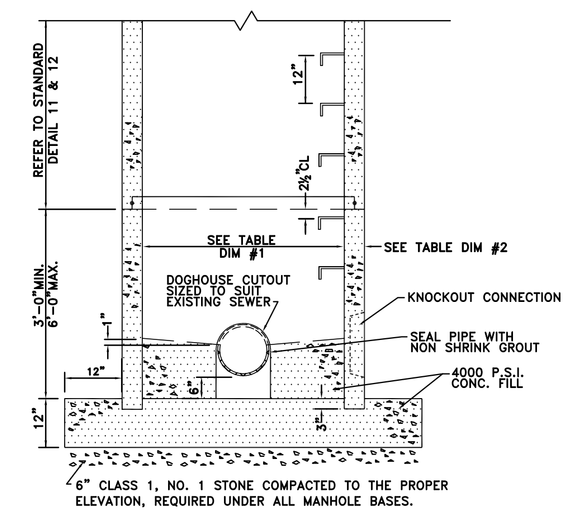
TYPE 2" SERVICE LATERAL FITTING



TYPE "1" SERVICE LATERAL FITTING

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 26
	Rev. 2		
	File: d-26	Date: 3/1/91	

PRECAST DOGHOUSE BASE MANHOLE
(JANUARY 2012)



6" CLASS 1, NO. 1 STONE COMPACTED TO THE PROPER ELEVATION, REQUIRED UNDER ALL MANHOLE BASES.

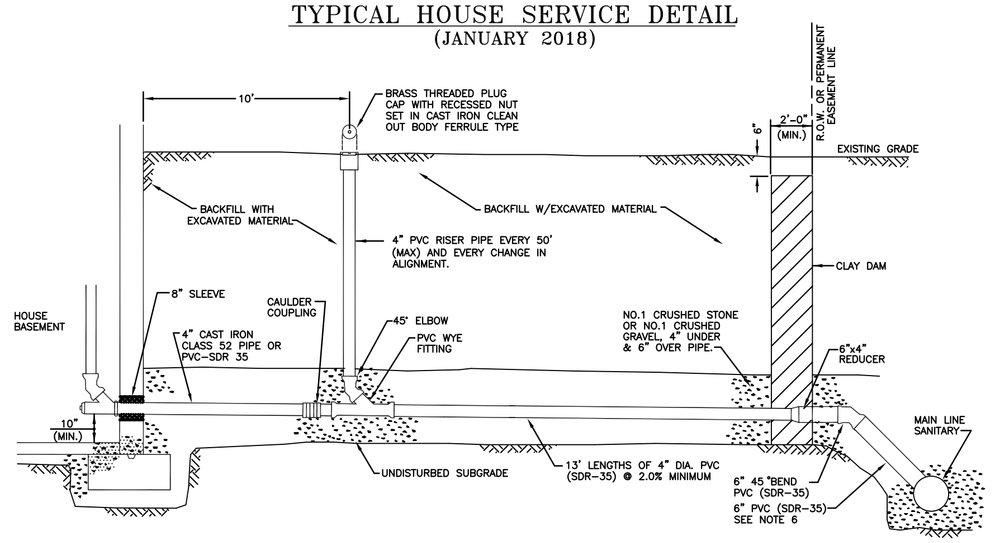
PIPE SIZE	DIMENSION #1	DIMENSION #2
8"–16"	4'–0"*	5"
18"	5'–0"	6"
21"–27"	5'–0"	6"
30"–36"	6'–0"	7"

* FOR DROP CONNECTIONS INSIDE DIAMETER SHALL BE 5'–0"

NOTE:
AREA AROUND DOGHOUSE CUTOUT & PIPE TO BE MADE WATERTIGHT UTILIZING A HYDRAULIC CEMENT MIXTURE (WATERPLUG,PRECO–PATCH, OR APPROVED EQUAL).

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 11/08/91	ADDED PIPE SIZE CHART & NOTE	STD.DETAIL 35
	Rev. 2 2/7/94	REVISED STONE UNDER MANHOLE BASE TO CLASS 1, NO. 1	
	File: d-35	Date:10/16/91	

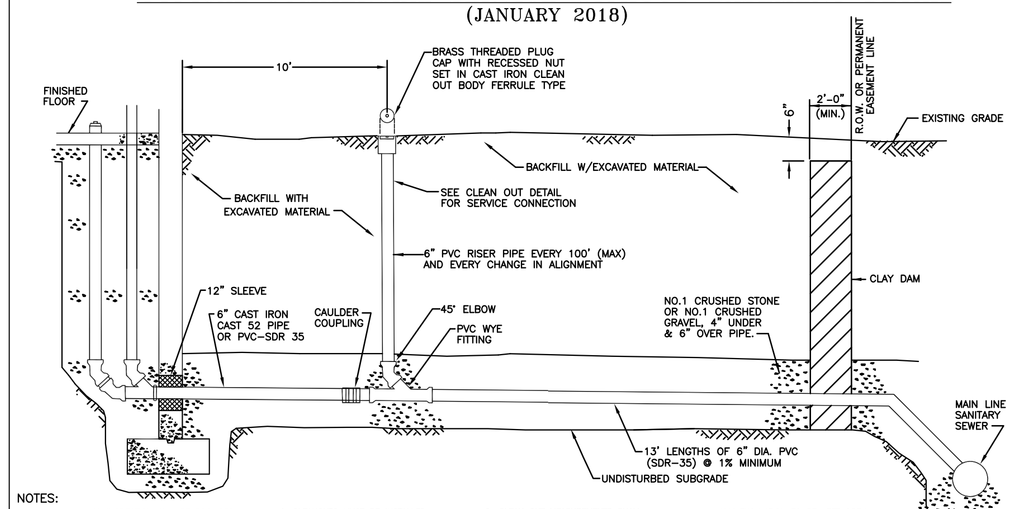
TYPICAL HOUSE SERVICE DETAIL
(JANUARY 2018)



NOTES:
1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. A MANUAL VALVE SHALL BE IN–STALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALKS OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
6. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION AN 8x6 WYE WITH 6" PVC TO 6" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 20 & CLASS 52 TYPE CI PIPE	STD. DETAIL 21
	Rev. 1/07	REMOVED OLD NOTES 1,3,8,10,12,13 AND 20 REVISED TO 6"PVC–DC/DI, 48 HR ADV NOTICE	
	Rev. 11/08	ADDED PVC TRAP AND SLEEVE	
	Rev. 01/12	REVISED 4" CAST IRON TRAP	
	Rev. 01/18	REMOVED TRAP AND RISER VENT	
	File: d-21	Date: 3/1/91	

TYPICAL COMMERCIAL SERVICE WITHOUT BASEMENT DETAIL
(JANUARY 2018)

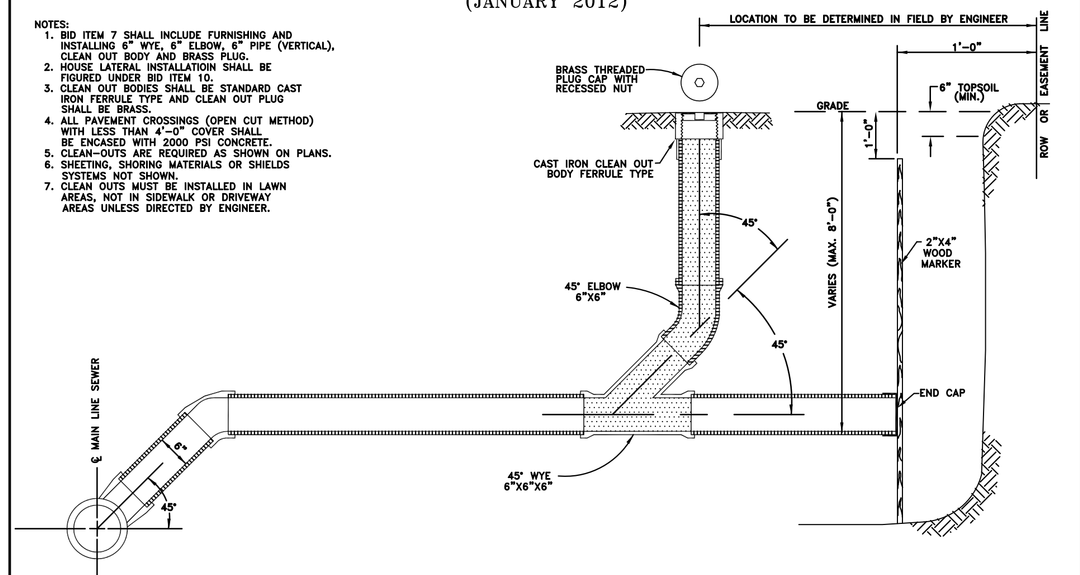


NOTES:
1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. CLEANOUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
5. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
6. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
7. MIN. DEPTH OF COVER 3'–0"
8. CLEAN OUT MEASUREMENTS SHALL START FROM CENTERLINE OF MAIN SEWER AND FROM THE CLEAN OUT FOR FAR SIDE CONNECTIONS. A CLEAN OUT MAY BE REQUIRED FOR ANY ABRUPT CHANGES IN LATERAL DIRECTION
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF OF PAVEMENT.
10. ANY SEWER LAID THROUGH OR OVER ROCK OR LEDGE SHALL BE LAID WITH SEPTIC TANK MUST BE FILLED WITH BANK RUN GRAVEL).
11. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
12. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE LATERAL.
13. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 18 & CLASS 52 TYPE CI PIPE	STD. DETAIL 22
	Rev. 1/07	REMOVED OLD NOTES 2 AND 18 ADDED 18 MIN. TO SERVICE PIPE DETAIL	
	Rev. 11/08	ADDED SLEEVE AND PVC–SDR 35	
	Rev. 1/12	REVISED 6" CAST IRON TRAP NOTE	
	Rev. 1/18	REMOVED TRAP AND RISER VENT	
	File: d-22	Date: 3/1/91	

CLEAN–OUT DETAIL FOR SERVICE CONNECTION
(JANUARY 2012)

NOTES:
1. BID ITEM 7 SHALL INCLUDE FURNISHING AND INSTALLING 6" WYE, 8" ELBOW, 6" PIPE (VERTICAL), CLEAN OUT BODY AND BRASS PLUG.
2. HOUSE LATERAL INSTALLATION SHALL BE FIGURED UNDER BID ITEM 10.
3. CLEAN OUT BODIES SHALL BE STANDARD CAST IRON FERRULE TYPE AND CLEAN OUT PLUG SHALL BE BRASS.
4. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
5. CLEAN–OUTS ARE REQUIRED AS SHOWN ON PLANS.
6. SHEETING, SHORING MATERIALS OR SHIELDS SYSTEMS NOT SHOWN.
7. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS UNLESS DIRECTED BY ENGINEER.



ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 5/03	4'–0" COVER, C.I. CAP "RECESSED NUT	STD. DETAIL 28
	Rev. 2 2/94	CHANGED DIM LINE FOR MAX. DEPTH	
	Rev. 3 12/01	ADDED NOTE 7	
	Rev. 4 5/02	CHANGED C.I. CAP TO BRASS	
	Rev. 5 2/05	1' MIN. FROM EDGE OF WALK NOTE	
	Rev. 6 1/12	CHANGED CI. TO BRASS NOTES 1 & 3	
	File: d-28	Date: 3/1/91	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Details

DRAWING NO.
C-402

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

GENERAL NOTES FOR
SANITARY SEWER CONSTRUCTION
WITHIN ERIE COUNTY SEWER DISTRICTS

1. The Erie County Division of Sewerage Management (DSM), who operates and maintains the existing sewer lines and appurtenances within Erie County Sewer Districts (ECSD), is to be notified at least 48 hours in advance of the start of construction.

2. Construction shall be in accordance with the Rules and Regulations for Erie County Sewer Districts.

3. All permits required by the Federal, State, County, City and/or Town governments to perform work must be obtained prior to the start of work, and paid for by the Contractor.

4. If easement and/or Out of District Agreements are required, they must be complete and ready to be filed before the project will be approved for construction.

5. The contractor shall comply in all respects to the Industrial Code Part (Rule No.) 53 relating to construction, excavation, and demolition operations at or near underground facilities, as issued by the State of New York Department of Labor, Board of Standard and Appeals.

6. The construction of the sanitary sewer facilities shall be under the supervision of a person or firm qualified to practice professional engineering in New York State under the Education Law of the State, whenever engineering services are required by such law for such purposes.

7. Where such sanitary sewer facilities are under the supervision of a professional engineer, he/she shall certify to the DSM and to the applicant that the constructed facilities have been under his/her supervision and that the work has been fully completed in accordance with the approved engineering reports, plans, specifications, and approvals.

8. The Contractor is solely responsible for all site safety. The Contractor's equipment and methods of operation shall be in full compliance with OSHA Standards and satisfy all Federal, State and Local Health and Safety Regulations.

9. The Contractor is advised a trench shield and/or shoring designed in accordance with OSHA Standards shall be used in all open trench excavations.

10. Any contractor and/or plumber performing work in a confined space (i.e. manholes, wetwells, and chambers) owned by an Erie County Sewer District, must certify to the County that they have their own Confined Space Entry Program that meets or exceeds OSHA's regulations. Certification must be notarized by a notary public.

11. The contractor shall expose existing utilities ahead of the pipe laying operation, so if minor adjustments must be made in the pipe elevation and/or alignment due to interference from these utilities, said changes can be made in advance of the work.

12. The contractor shall retain the services of a qualified tree expert to remove, where necessary, branches which interfere with the construction operation, or to repair trees having suffered damage by construction activities. The cost involved is to be included in the various items of the contract.

13. The proposed 8 through 12 inch diameter sanitary sewer pipe shall be polyvinyl chloride (PVC) sewer pipe conforming to the latest revisions of American Society for Testing and Materials (ASTM) designation D-3034, SDR-35, installed in accordance with the ASTM designation D-2321-83a or the latest revision thereof, or approved equal. Larger diameter pipes will be reviewed on a case by case basis.

14. Sewers shall be laid with straight alignment between manholes and shall be checked by using a laser beam or lamping.

15. Should a fluid condition be encountered at the trench bottom, the contractor is to undercut the trench and provide suitable fill material (stone & fabric) to stabilize the trench bottom.

16. Sanitary sewer bedding material shall be No. 1 crushed stone with a gradation conforming to the *DSM Specifications for Subdivisions and Sanitary Sewer Extensions.*

17. Backfill shall be of a suitable material removed from the excavation except where other material is specified. Debris, frozen material, large clods or stones, organic matter, or other unstable materials shall not be used for backfill within two (2') feet of the top of the pipe.

18. All pipes crossing under paved areas are to be backfilled to sub-grade with compacted select material (No. 2 crushed stone) to five (5') feet outside the pavement edges or as required by the highway permit. If any proposed sewer runs under paved areas and has less than four (4) feet of cover, then concrete encasement is required as shown on the DSM Typical Concrete Encasement Detail.

19. Sewers parallel to watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.31, and Page 30-11:* Sewers shall be laid at least ten (10') feet (three (3) meters) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten (10') foot separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18-inches (460 mm) above the top of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the regulatory agency and be pressure tested to 150 pounds per square inch (psi) (1034 kPa) to assure water tightness prior to backfilling.

20. Sewers crossing watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.32, Page 30-11 to 30-12:* Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18-inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

21. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods must be specified:

    a. The sewer shall be designed and constructed equal to water pipe, and shall be pressure tested at 150 psi (1034 kPa) to assure water tightness prior to backfilling.
    b. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends ten (10') feet (three (3) meters) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the regulatory agency for use in water main construction.
    c. The sewer shall be encased in concrete per the DSM Watermain Crossing Detail Typical For Encasement

22. The manhole covers are to bear the inscription "ECSD SANITARY" and comply with the DSM Standard Frame and Cover detail. For private projects the covers shall bear the inscription "SANITARY SEWER" and comply with the DSM Standard Frame and Cover (Private Sewer) detail.

23. Building sanitary sewer vents must be installed six (6) inches above finished grade in a grassy area with a mushroom cap. If the vent is in a sidewalk or paved area, then protect with 6" diameter bollards (2 minimum).

24. Cleanouts (c.o.) are required on 4" and 6" building sewers every fifty feet and one hundred feet respectively, and at every change of alignment.

25. Abandoned building sewer connections from the site, if any, require proof of a District Permit for Disconnection prior to the new connection being made.

26. The following pertains only for direct replacement of in service sanitary sewers:
    a. Each new pipe joint shall be ultrasonic tested after it is laid, but before the next pipe is laid. All tests shall be in accordance with the testing equipment manufacture recommendations.

    b. The ultrasonic test shall be performed in lieu of the hydrostatic and air tests.
    c. A video inspection of the entire sewer shall be performed. Forward the video inspection tape and related paperwork to DSM for review and approval.
    d. A deflection test is required in all cases.

27. For all sanitary sewer installations, a written certificate of construction completeness and compliance, including the results of the hydrostatic leakage test, lamp test, deflection test, air test, etc. shall be submitted to the Erie County Health Department and DSM within thirty (30) days after completion of construction.

28. For all public and private 8" diameter pipe or larger sanitary sewer installations, the developer/contractor must provide one (1) set of record drawings on "D" size paper (24" x 36") and in an electronic file format (CD or flash drive) compatible with the latest AutoCAD release.

29. All public sewer extension projects that consist of more than 750 LF of 8" diameter pipe or larger, shall furnish a 2 year maintenance bond to the DSM.

30. Final Certification will be issued upon the full completeness and compliance of the project including any requirement(s) of I&I remedial work.

Carmina
Wood
Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer
General Notes

DRAWING NO.
C-403

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

1e

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

A. Requirements

1. After backfilling and prior to the final acceptance of the project, the Contractor will be required to perform the following three tests on all sewers built under this project:

a) Air Tests
b) Infiltration or Exfiltration
c) Deflection Test (15" dia. and smaller).

2. No more than 1,000 linear feet of installed sewer shall be allowed to remain untested.

3. In view of the fact that house laterals and riser pipes often contribute considerable infiltration, such laterals and risers are to be installed and capped, tied and blocked as the work progresses, prior to the air testing of the lines.

4. The Contractor's testing procedures shall be completed in accordance with OSHA Standards for confined space entry. The Contractor will be required to provide and operate all equipment necessary for full compliance for his operation. Equipment such as gas detectors, safety harnesses, ventilating blowers, respirators etc. shall be provided by the Contractor.

B. Air Tests (Required for All Diameters up to and including 36") 10 State Standards Section, 33.94

1) This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2) The procedure for air testing shall be as specified herein. The minimum allowable time for the test pressure to decrease from 3.5 psi to 3.0 psi shall be not less than as called for in the following table:

Minimum Acceptance Times* For Length Shown (min:sec)

Pipe Diameter	Up to 100'	100 - 200'	200 - 300'	300 - 400'
6"	2:50	2:50	2:50	2:51
8"	3:47	3:47	3:48	5:04
12"	5:40	5:42	8:33	11:24
15"	7:05	8:54	13:21	17:48
18"	8:30	12:49	19:14	25:38
21"	9:55	17:27	26:11	34:54
24"	11:24	22:48	34:11	45:35
27"	14:25	28:51	43:16	57:42
30"	17:48	35:37	53:25	71:13
33"	21:33	43:56	64:38	86:10
36"	25:39	51:17	76:55	102:34

* Erie County Sewer District Inspector will extend time to the next full minute during the test.

3. Pipe lines in sizes up to 36 inches in diameter can be air tested from manhole to manhole for distances not to exceed 400 feet.

4. In wet trenches where pumping to lower the water table is impractical, approved 4" diameter, solid PVC drain pipe (with approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole in order to calculate the groundwater pressure acting on the pipe exterior. The initial air test pressure shall be increased as necessary to overcome the calculated groundwater pressure.

5. The testing procedures outlined shall be strictly adhered to.

6. All testing equipment shall be supplied by the Contractor and be in good working condition. Some of the major equipment required for air tests is:

a) Stop watch graduated in tenths of a second.
b) Compressor of 50 to 100 psi capacity.
c) Bulkheads for pipe.
d) Approximately 100 feet of 3/8" diameter air hose.
e) Pressure gauge - 0 to 5 psi graduated in 1/16th of a pound increments.
f) Three 3/8 inch diameter check valves.

C. Infiltration Tests (Applicable Only if Ground Water is Two Feet Above the Top of the Pipe)

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. Infiltration tests for all sewers constructed under this project shall not exceed 100 gallons per inch diameter per mile of sewer, per 24 hours. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration. All equipment for the tests shall be furnished by the Contractor and be in good working condition.

3. The allowable rate of infiltration given in gallons per mile is not to be construed as a commitment on the part of the District to accept an entire line, where overall infiltration is less than the allowable, while one or more runs contribute excessive infiltration.

4. The infiltration test is intended to measure the water tightness of a sewer as related to the infiltration of ground water and is only applicable if the water table level is 2 feet or higher above the top of the pipe for the entire length of the test section.

RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES, 2014 EDITION

38.3 Relation to Water Mains

38.31 Horizontal and Vertical Separation

Sewers shall be laid at least 10 feet (3 m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. For gravity sewers where it is not practical to maintain a 10 foot (3 m) separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the gravity sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the gravity sewer and at an elevation so the bottom of the water main is at least 18 inches (460 mm) above the top of the sewer.
If it is impossible to obtain proper horizontal and vertical separation as described above for gravity sewers, both the water main and gravity sewer shall be constructed of slip-on or mechanical joint pipe complying with Section 8.1 and Section 8.7 of the 'Recommended Standards for Water Works - 2012 Edition' and shall be pressure rated to at least 150 psi (1034 kPa) and pressure tested to ensure watertightness.

38.32 Crossings

Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.
When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:
30-11
a. The sewer shall be designed and constructed equal to water pipe, as described in Paragraph 38.31.
b. Either the water main or the sewer line may be encased in a watertight carrier pipe that extends 10 feet (3 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be made of materials approved by the regulatory agency for use in water main construction.

a) Approved 4" diameter solid PVC drain pipe (with an approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole so that the ground water level can be correlated with the infiltration measurements.

b) Before conducting the tests, the water table should be allowed to stabilize at its normal level and verified that it is 2 feet above the top of the pipe during the test period. The test is usually conducted between adjacent manholes with the upstream end of the sewer bulkheaded in a suitable manner to isolate the test section. All service laterals, stubs and fittings should be properly plugged or capped at the connections to the test pipe section to prevent the entrance of ground water at these locations.

c) A V-notch weir or other suitable measuring device should be installed in the inlet pipe of the downstream manhole. Infiltrating water is then allowed to build up and level off behind the weir until a steady, uniform flow occurs over the weir. Leakage is determined by direct reading from graduations on the weir consecutively for five (5) days and converting the flow quantity to gallons per unit length of pipe per unit of time.

d) An important factor in applying the test criteria is to properly correlate the variable water head over the length of the sewer being tested to the high ground water level. A minimum of 2 feet of water over the pipe is required at the upper manhole before the infiltration test will be allowed.

5. When a sewer run between two consecutive manholes or chambers is found to contribute infiltration at a rate above the allowable, inspection by television or other cameras may be made by the Contractor so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

D. Exfiltration Tests

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. The exfiltration test for all diameter sewers shall be as described below. Although actual infiltration will normally be less than that indicated by the water exfiltration test, the test does provide a positive means of subjecting the completed sewer system to an actual pressure test. Since sanitary sewers are not designed or expected to operate as a pressure system, care must be exercised in conducting the test and correlating the results with the allowable exfiltration limits.

a) The test is usually conducted between adjacent manholes. Prior to the test, all service laterals, stubs and fittings within the test section should be plugged or capped and adequately braced or blocked to withstand the water pressure resulting from the test.

b) If manholes are to be included in the test, the inlet pipe to each manhole should be bulkheaded and the test section filled with water through the upstream manhole. To allow air to escape from the sewer, the flow should be at a steady rate until the water level in the upstream manhole provides an average pressure of 5 psi (11.6' head) at the center point of the test section or the upstream manhole is filled. If necessary, provisions should be made to bleed off entrapped air during the filling of the test section.

c) Once the test section is filled, the water should be allowed to stand for an adequate period of time (one day minimum) to allow for water absorption by the pipe and manhole. After water absorption has stabilized, the water level in the upstream manhole is brought up to the proper test level and this level established by measuring down from the manhole rim or other convenient datum point. After 24 hours, the water elevation should be measured from the same reference point and the loss of water during the test period calculated, or the water can be restored to the level existing at the beginning of the test, and the amount added used to determine the leakage.

d) To exclude both manholes from the test,it is necessary to bulkhead the outlet pipe of the upstream manhole. Provision must be made in the bulkhead for filling the pipe and expelling trapped air.

e) The water level at the upstream manhole shall be computed and varies above the top of the pipe. Since the sewer is installed on a grade, the test section downstream will most likely be subjected to a greater pressure. Therefore, the test pressure head at the upstream manhole should be adjusted such that the maximum pressure on the pipe being tested is no greater than 10 psi, (23 feet of head).

3. When a sewer run between two consecutive manholes or chambers is found to exfiltrate at a rate above the allowable, inspection by television or other cameras may be made by the Contractor during wet weather, so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

E. Deflection Test

1. This test shall be performed no earlier than 30 calendar days after the trenches are backfilled.

2. All flexible (PVC) sewers 8" diameter or larger constructed under this project shall be internally checked with a five percent (5%) deflection "go-no-go pig" or Mandrel to determine if the pipes are deflecting excessively. Any section of pipe unable to pass the deflection test "pig test" shall be removed and replaced at the Contractor's expense.

3. Deflection testing mandrels or pig shall be pulled thru the pipe by hand or hand operated winch. Power winches or drives are not permitted.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Testing Notes

DRAWING NO.
C-404

Project no.: 21.011

Packet Pg. 1464

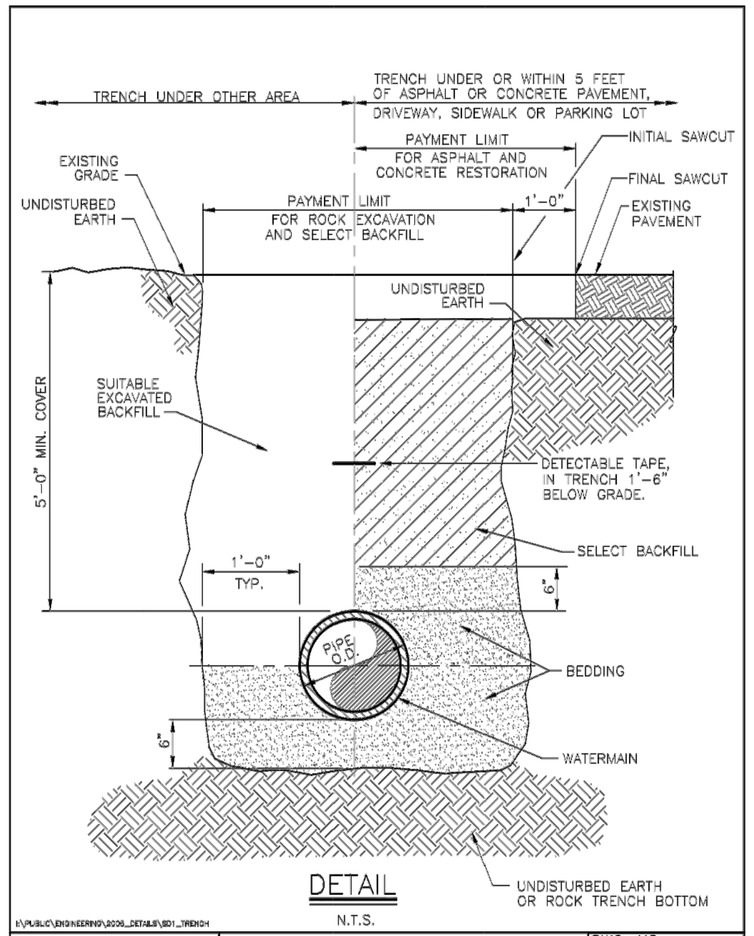
1e

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

Attachment: SP-2021-05_drawings_061721 (2305?: SP-2021-05)

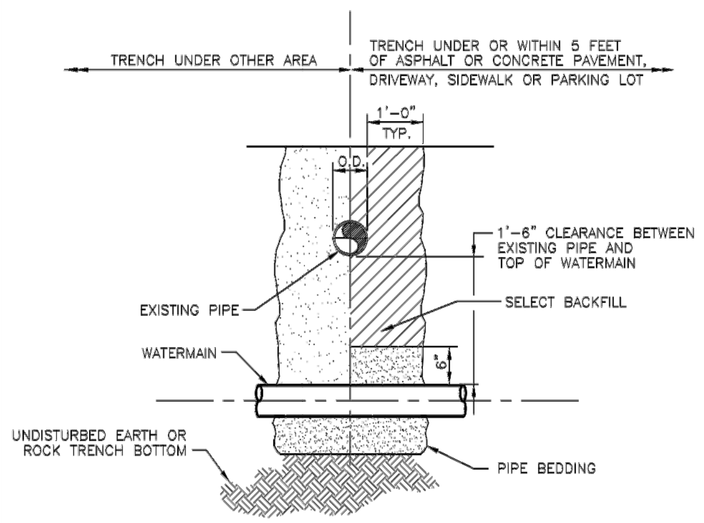
Packet Pg. 1465



DETAIL
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD1_TRENCH

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TRENCH THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD1	
		DATE 4/28/92	REVISED 10/05



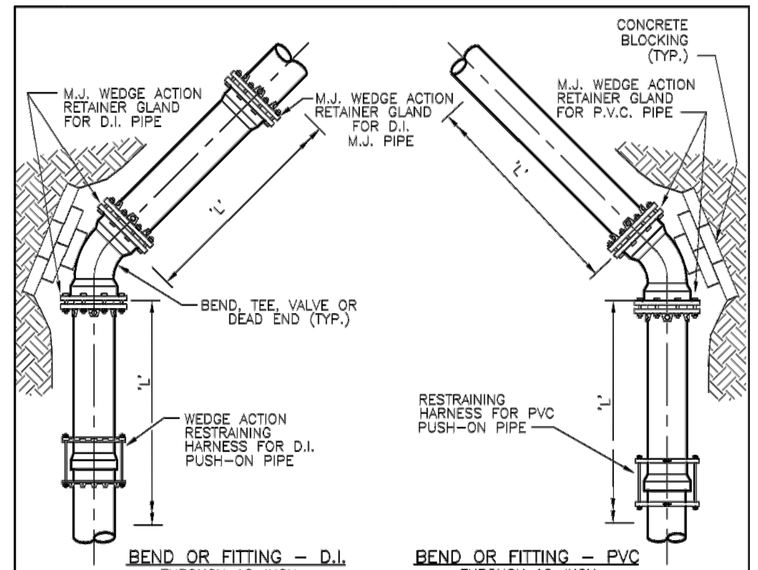
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18 FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2	
		DATE 4/28/92	REVISED 10/05



BEND OR FITTING – D.I.
THROUGH 12–INCH

BEND OR FITTING – PVC
THROUGH 10–INCH

RESTRAINED JOINT SCHEDULE					
PIPE SIZE	PIPE TYPE	11.25° ELBOW 'L'	22.5° ELBOW 'L'	45° ELBOW 'L'	TEE BRANCH, 90° BEND, VALVE OR DEAD END 'L'
6"	PVC	13'	25'	50'	120' MIN.
8"	PVC	15'	30'	59'	122' MIN.
8"	D.I.P.	15'	30'	59'	122' MIN.

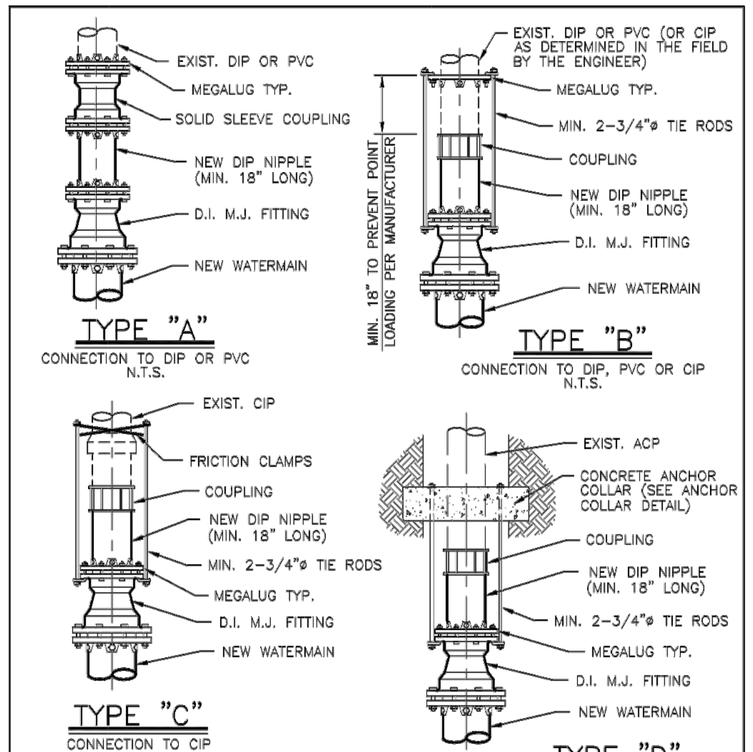
NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD4_REST_JOINT_SCHED

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL RESTRAINED JOINT SCHEDULE	DWG. NO. SD4	
		DATE 4/28/92	REVISED 10/05

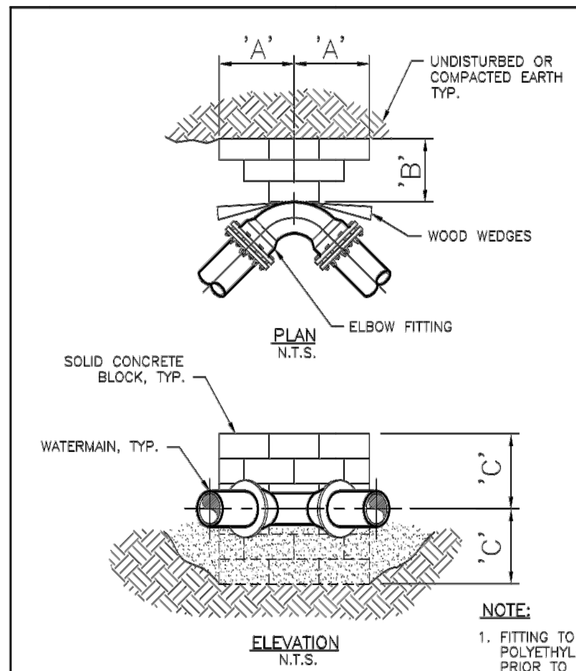


NOTES:

1. VALVES AND TEES MAY BE HARNESSED SIMILARLY.
2. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURE–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
3. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
4. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD5_CONN_EXIST_WMAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TYPICAL CONNECTION TO EXISTING WATERMAIN THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD5	
		DATE 3/05	REVISED 10/05



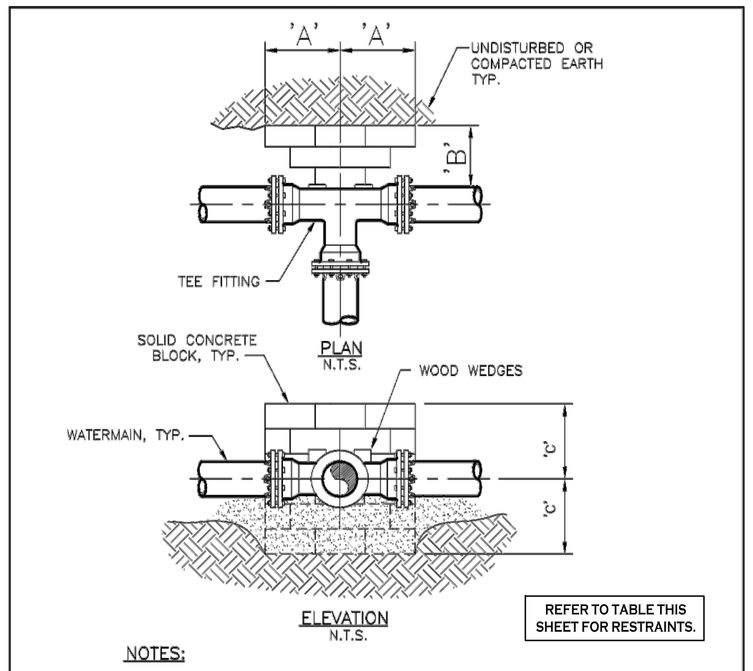
NOTE:

1. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

DIMENSION SCHEDULE												
PIPE SIZE	11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'
8"	1.5'	1.5'	2.5'	2.5'	1.5'	2.5'	3.0'	1.5'	3.5'	3.5'	1.5'	5.0'

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD6_THRUST_BLOCKS_ELBOW

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR ELBOW FITTING	DWG. NO. SD6	
		DATE 4/28/92	REVISED 10/05



REFER TO TABLE THIS SHEET FOR RESTRAINTS.

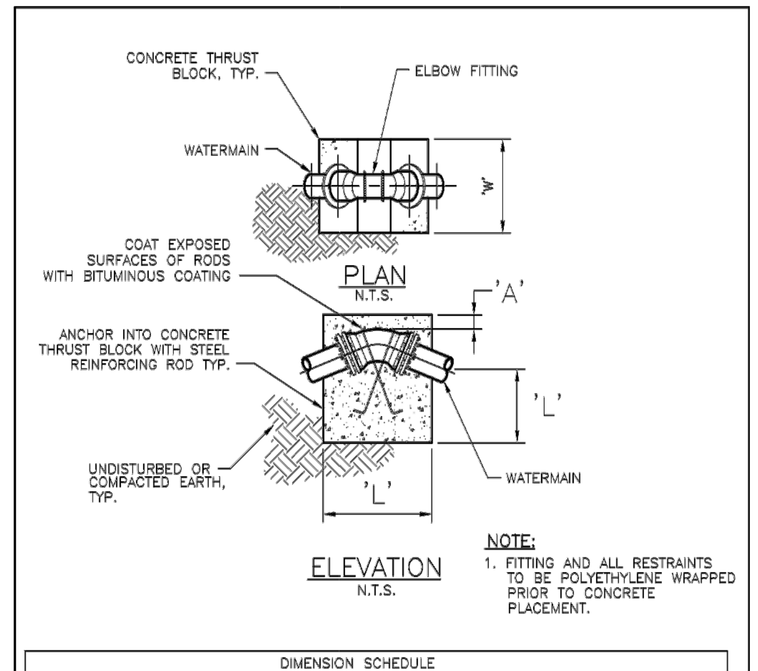
NOTES:

1. THRUST BLOCK REQUIRED FOR TEES, HYDRANT LATERAL TEES AND TAPPING SLEEVE INSTALLATIONS.
2. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

BRANCH TEE SIZE	DIMENSION SCHEDULE		
	'A'	'B'	'C'
6"	1'-0"	1'-0"	0'-6"
8"	1'-6"	1'-0"	0'-6"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD7_THRUST_BLOCKS_TEE

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR TEE OR "DEAD END" FITTING	DWG. NO. SD7	
		DATE 4/28/92	REVISED 10/05



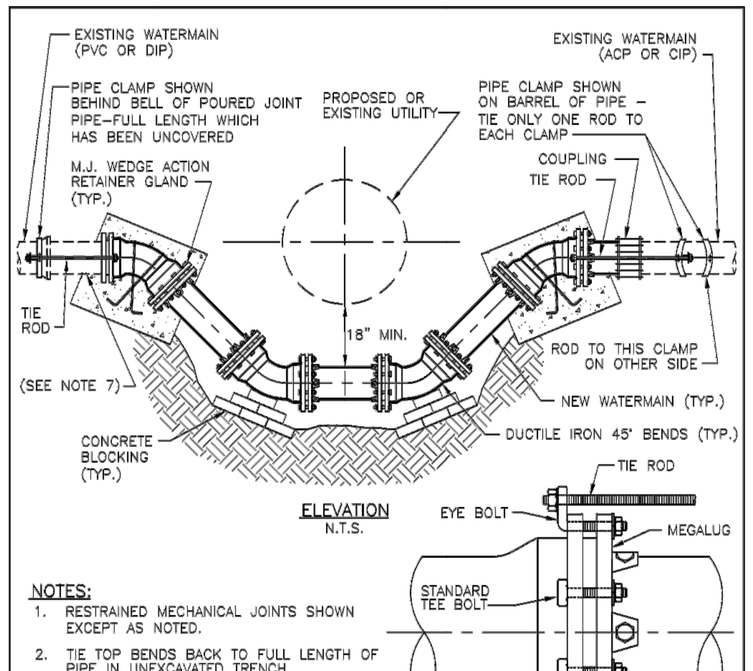
NOTE:

1. FITTING AND ALL RESTRAINTS TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.

DIMENSION SCHEDULE													
PIPE SIZE	PIPE TYPE	11.25° ELBOW				22.5° ELBOW				45° ELBOW			
		'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø
8"	D.I.P	12"	1'-0"	1'-0"	1/2"	12"	1'-9"	1'-9"	1/2"	1'-6"	2'-0"	2'-0"	1/2"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD8_THRUST_BLOCKS_VBEND

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR VERTICAL BEND	DWG. NO. SD8	
		DATE 4/28/92	REVISED 10/05



NOTES:

1. RESTRAINED MECHANICAL JOINTS SHOWN EXCEPT AS NOTED.
2. TIE TOP BENDS BACK TO FULL LENGTH OF PIPE IN UNEXCAVATED TRENCH.
3. VALVES, TEES AND HYDRANTS MAY BE HARNESSED SIMILARLY.
4. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURES–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
5. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
6. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.
7. IF EXISTING PIPE IS CIP OR PVC, CONNECT TO NEW FITTING ONLY WHEN ALLOWED BY ENGINEER.

TIE ROD SCHEDULE			
PIPE SIZE	PIPE TYPE	ROD ø	NUMBER OF RODS
8"	PVC	3/4"	2

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD10_HARN_OFFSET_EXIST_WMAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL HARNESSING DETAILS–INSTALL OFFSET IN EXISTING WATERMAIN	DWG. NO. SD10	
		DATE 6/00	REVISED 10/05

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Water Details

DRAWING NO.

C-405

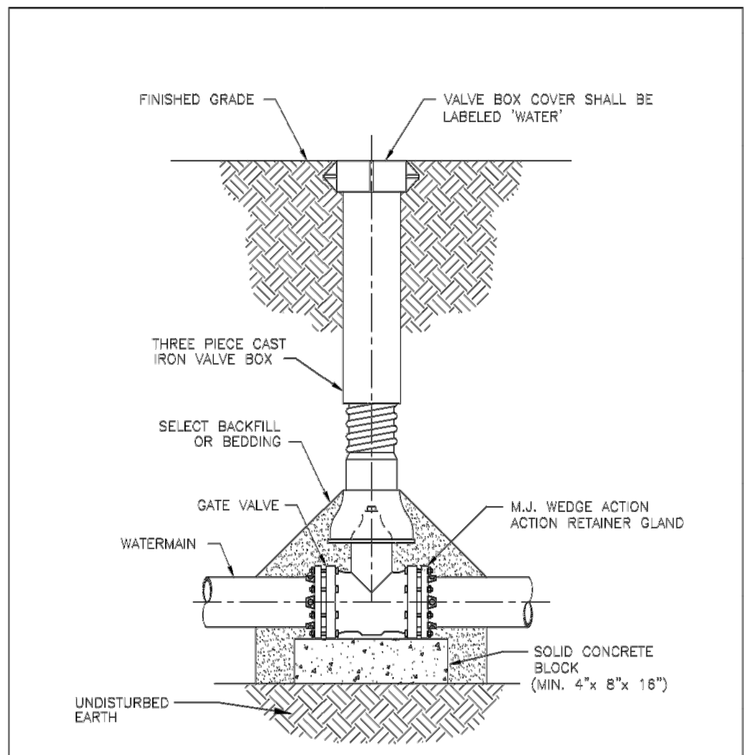
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

1.e

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

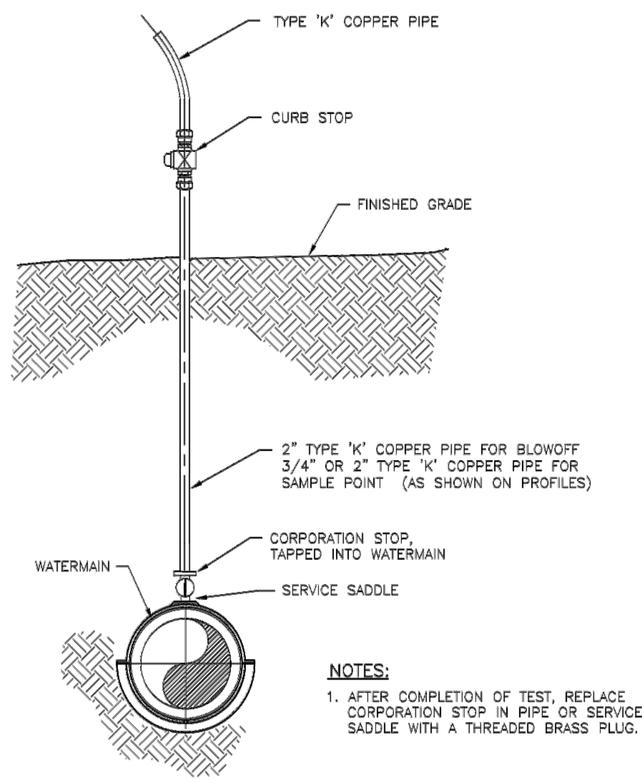


NOTES:
1. VALVE SHALL NOT SUPPORT VALVE BOX.
2. GATE VALVE SHALL BE INSTALLED LEVEL.
3. VALVE BOX SHALL BE PLUMB TO GRADE, WITH OPERATING NUT CENTERED IN BOX.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD11_GATE_VALVE_SET

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GATE VALVE SETTING	DWG. NO. SD11	
		DATE 4/28/92	REVISED 02/17

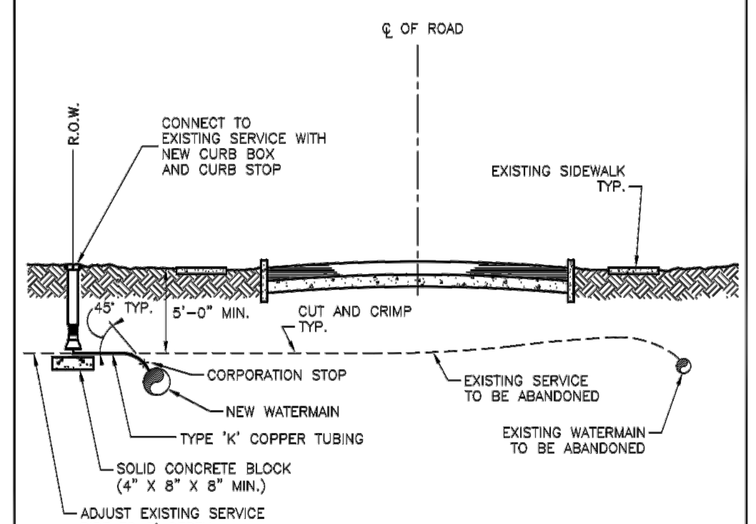


NOTES:
1. AFTER COMPLETION OF TEST, REPLACE CORPORATION STOP IN PIPE OR SERVICE SADDLE WITH A THREADED BRASS PLUG.

ELEVATION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD17_TEMP_BO_SAMP_PT

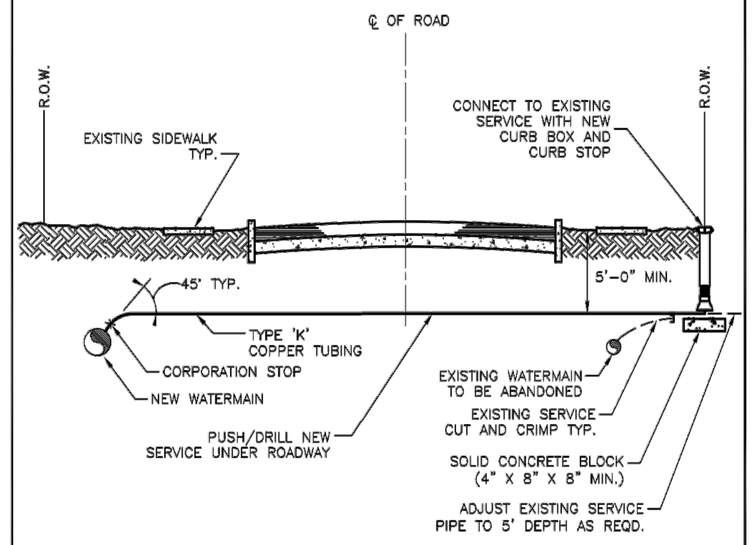
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TEMPORARY BLOW-OFF/SAMPLING POINT	DWG. NO. SD17	
		DATE 4/28/92	REVISED 10/05



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD15_WS_SERV_REPLACE

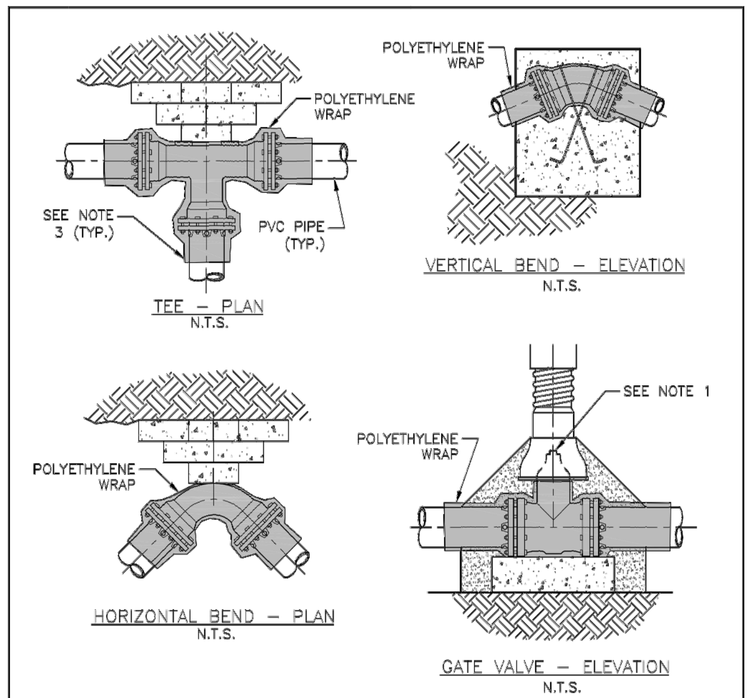
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL NEAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD15	
		DATE 4/92	REVISED 09/16



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_FS_SERV_REPLACE

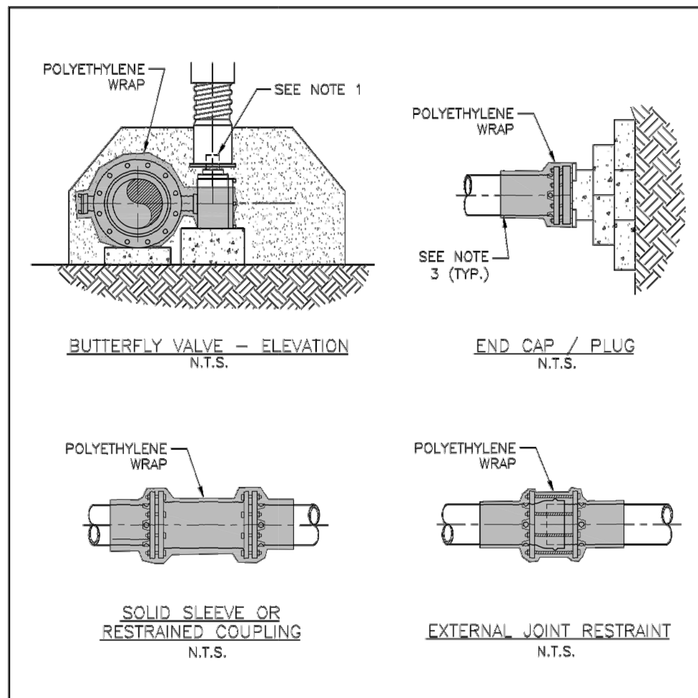
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16	
		DATE 4/92	REVISED 09/16



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39A_POLYWRAPPING_FITTINGS

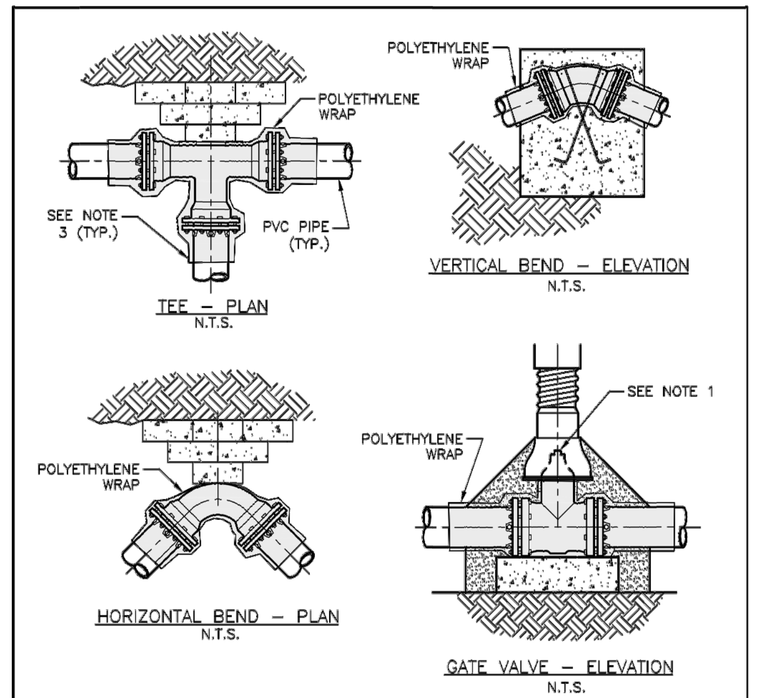
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39A	
		DATE 3/18	REVISED 12/18



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39B_POLYWRAPPING_FITTINGS

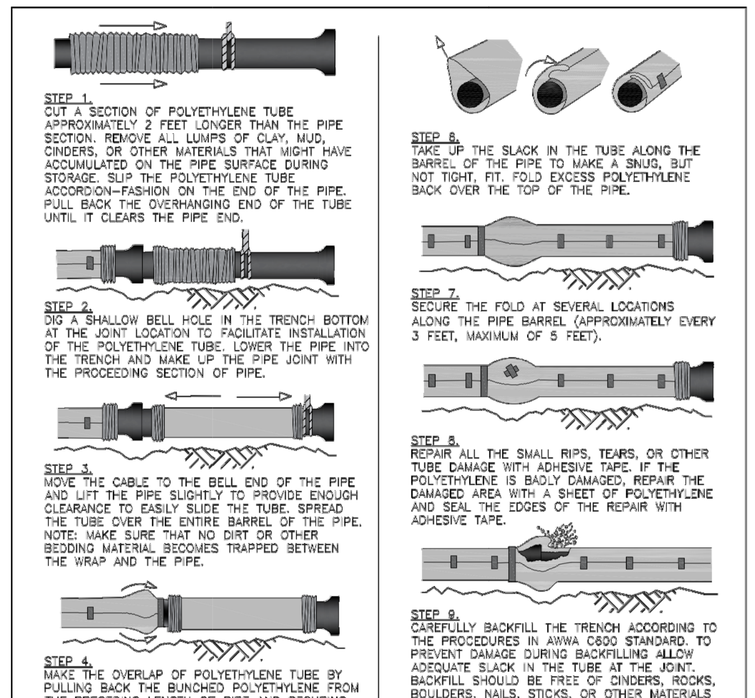
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39B	
		DATE 12/18	REVISED



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON GATE VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PVC PIPE WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39_POLYWRAPPING_FITTINGS

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING DUCTILE IRON FITTINGS ON PVC PIPE	DWG. NO. SD39	
		DATE 3/18	REVISED



NOTES:
1 - POLYETHYLENE WRAP (POLYWRAP) SHALL BE OF PROPER DIAMETER TO FIT OVER BELLS AND EXTERNAL WEDGE-ACTION RETAINER GLANDS.
2 - CAST AND DUCTILE IRON FITTINGS (BENDS, TEES, VALVES, ETC.) ARE TO BE WRAPPED IN POLYWRAP AND SECURED IN PLACE.
3 - DO NOT USE CHAINS, METAL WIRE, OR OTHER SUPPORTING SYSTEMS WHICH MAY DAMAGE THE POLYETHYLENE ENCASEMENT. REPLACE DAMAGED POLYWRAP ACCORDINGLY.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD32_POLY_WRAP

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYETHYLENE ENCASEMENT OF DUCTILE IRON PIPE	DWG. NO. SD32	
		DATE 08/16	REVISED 02/19

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details

DRAWING NO.
C-406

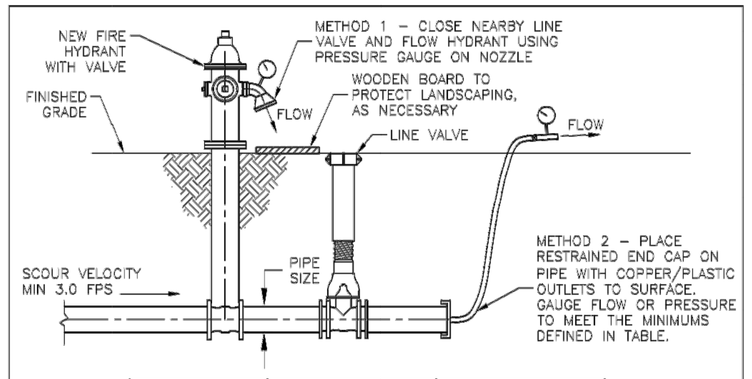
Project no.: 21.011

Packet Pg. 1466

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



PIPE SIZE (IN)	REQUIRED FLOW (GPM)	METHOD 1 HYDRANT FLOW		METHOD 2 END CAP FLOW	
		2 1/2" NOZZLE PRESSURE (PSI)	4" NOZZLE PRESSURE (PSI)	2" I.D. PRESSURE (PSI)	3" I.D. PRESSURE (PSI)
6	275	7	1	7	2
8	500	9	2	22	5
10	750	20	4	50	10
12	1100	44	7	–	22
16	1900	–	20	–	62
20	3000	–	50	–	–

I.D. = INNER DIAMETER

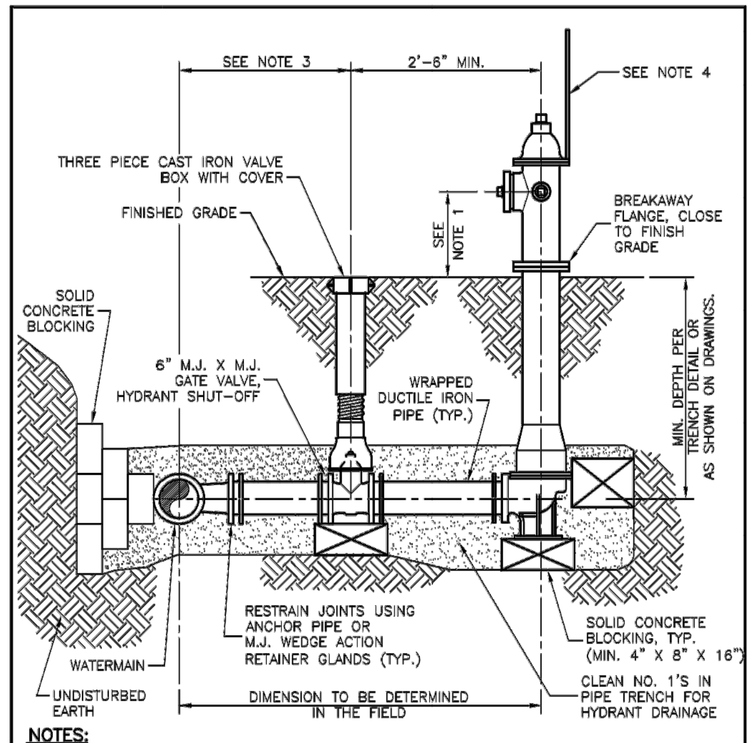
NOTES:

1. TO OBTAIN SCOUR VELOCITY (3.0 FPS) IN THE WATERLINE, CONTRACTOR SHALL ACHIEVE FLOWRATE AT NOZZLE DEFINED IN TABLE. PRESSURE GAUGE USED SHALL SHOW A HIGHER PRESSURE THAN THE MINIMUMS DEFINED IN THE TABLE.
2. OUTLET PRESSURE MEASURED BY PITOT GAUGE.
3. ENGINEER SHALL PROVIDE CALCULATIONS IF CONNECTIONS ARE OTHER THAN THOSE SHOWN, IF MULTIPLE CONNECTIONS ARE USED, OR AS REQUESTED BY ECWA.
4. TO FLUSH THREE PIPE VOLUMES, MINIMUM FLUSHING TIME (IN SECONDS) EQUALS THE LENGTH OF PIPE BEING FLUSHED, IN FEET.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD36_WATERLINE_FLUSHING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL WATERLINE FLUSHING	DWG. NO. SD36	
		DATE 6/16	REVISED 3/18



NOTES:

1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT.
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.
5. HYDRANT FACE TO BE A MINIMUM OF 3' FROM THE BACK FACE OF ALL CURBS OR A MINIMUM OF 5' FROM ALL EDGES OF PAVEMENT (IF NO CURB).

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD13_HYD_INST

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FIRE HYDRANT INSTALLATION	DWG. NO. SD13	
		DATE 6/00	REVISED 11/16

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR'S work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed, or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install the watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as-needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority shall only operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers in writing of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD29	
		DATE 3/05	REVISED 7/17

11. All watermain piping shall be installed with a minimum of 5'-0" of cover.
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment, and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be scheduled and returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York 14227.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict access for school buses or any emergency vehicles.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for review prior to the start of testing.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants, and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30	
		DATE 3/05	REVISED 7/17

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details & Notes

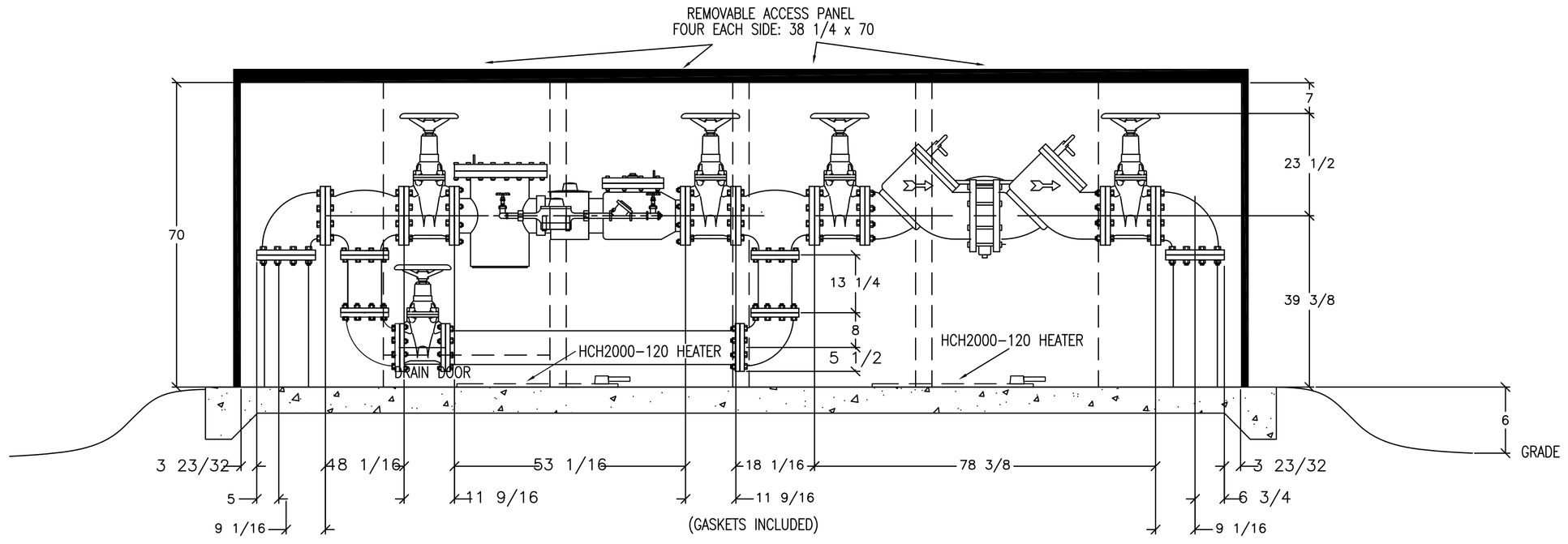
DRAWING NO.
C-407

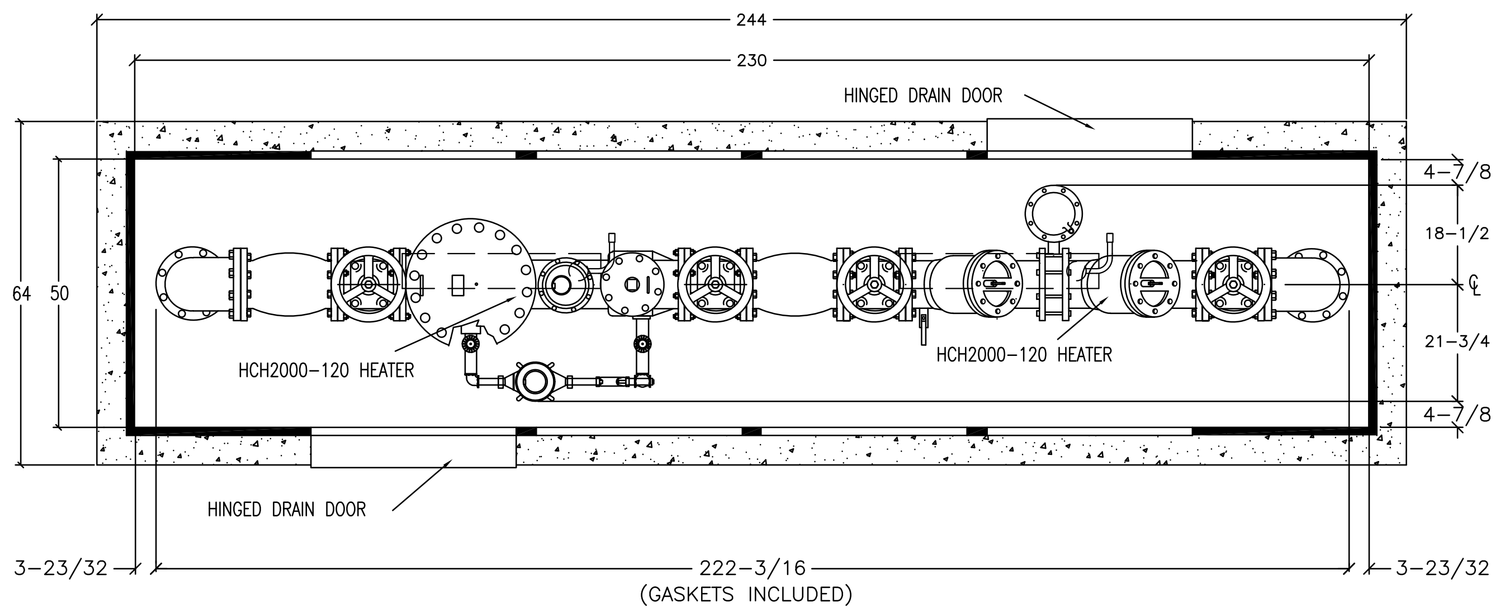
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.





NOTES:

1. BACKFLOW PREVENTER DIMENSIONS FURNISHED BY WATTS
2. ALL DIMENSIONS ARE IN INCHES
3. WALL & INSULATION THICKNESS IS 1 1/2"
4. ROOF & INSULATION THICKNESS IS 3"
5. ENCLOSURE SHOWN IS SAFE-T-COVER MODEL 1000D-ALC00-17
6. EXTERIOR ENCLOSURE DIMENSIONS: 53"W x 233"L x 73" H
7. CONCRETE PAD IS 64"W x 244"L x 6"THK W/W.W.F. 6X6/10X10
8. METER SHOWN: 8" PROTECTUS III, SPOOL PIECE & METER SUPPLIED BY ECWA, VERIFY DIMENSIONS PRIOR TO ORDERING
9. RPZ SHOWN: 8" WATTS 909 NRS
10. CONTRACTOR TO INSTALL ELECTRIC SERVICE TO ENCLOSURE, COORDINATE SOURCE WITH OWNER
11. INSTALL A 120V GFI OUTLET IN THE ENCLOSURE
12. HEATERS TO HAVE THERMOSTAT CONTROL
13. ALL PIPING WITHIN THE ENCLOSURE SHALL BE DUCTILE IRON

LEGEND:

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H w/DRAIN DOOR

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H

8"METER & RPZ INSULATED ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Insulated Enclosure Detail

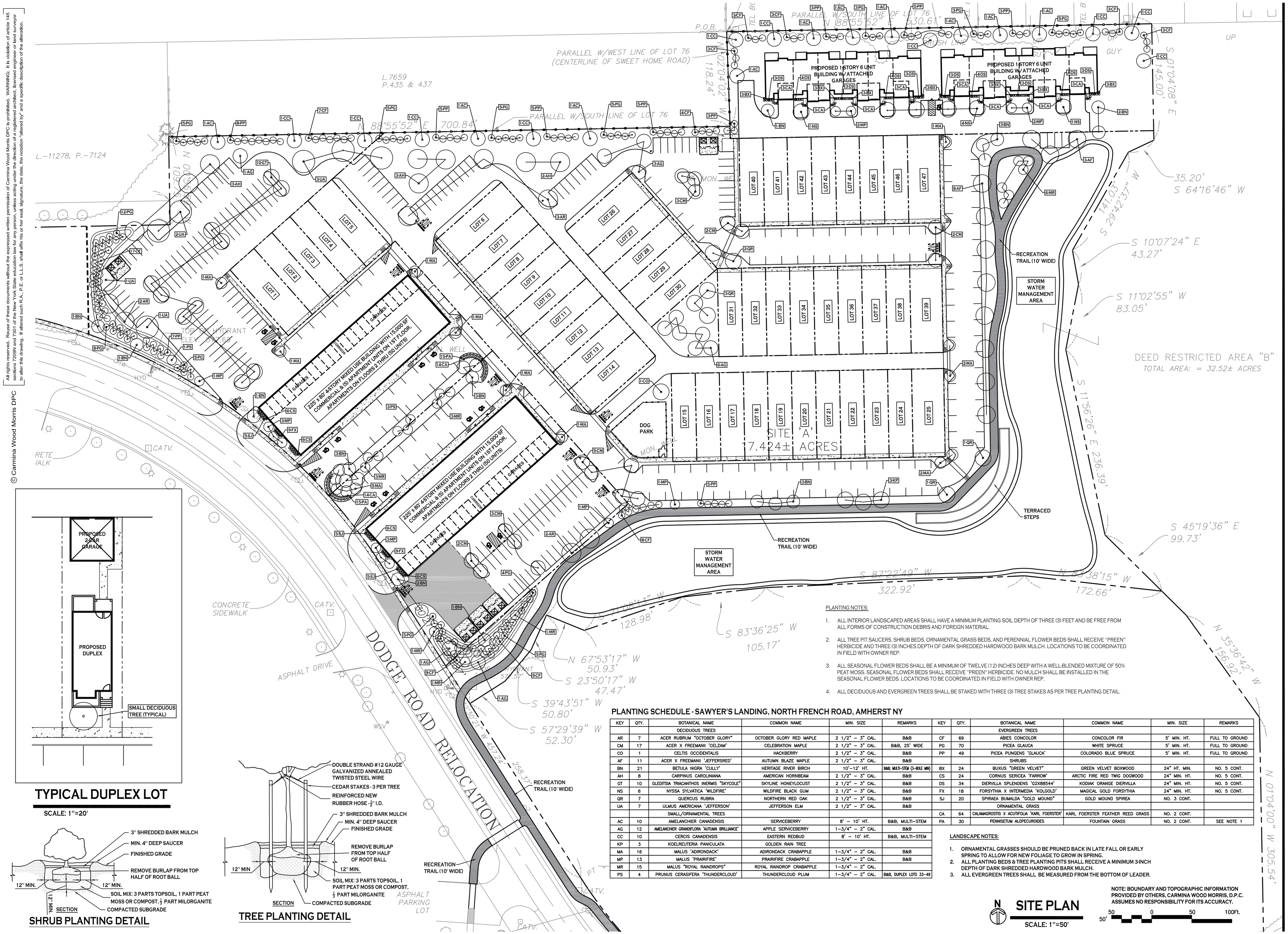
DRAWING NO.
C-408

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



TYPICAL DUPLEX LOT

SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND PERENNIAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X. FREEMANII "CELZAM"	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII "JEFFERSRED"	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA "CULLY"	HERITAGE RIVER BIRCH	10'–12' HT.	B&B; MULTI-STEM (3-BOLE MIN)
AH	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	10	GLEDITSIA TRIACANTHOS INERMIS "SKYCOLE"	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
NS	6	NYSSA SYLVATICA "WILDFIRE"	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL/ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	12	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1–3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	16	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1–3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1–3/4" – 2" CAL.	B&B
MR	15	MALUS "ROYAL RAINDROPS"	ROYAL RAINDROP CRABAPPLE	1–3/4" – 2" CAL.	
PS	4	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1–3/4" – 2" CAL.	B&B, DUPLEX LOTS 33–49
		EVERGREEN TREES			
CF	69	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	70	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	49	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	24	BUXUS "GREEN VELVET"	GREEN VELVET BOXWOOD	24" HT. MIN.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DIERVILLA SPLENDENS 'G2X88544'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	20	SPIRAEA BUMALDA "GOLD MOUND"	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	64	CALAMAGROSTIS X ACUTIFOLIA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

SITE PLAN

SCALE: 1"=50'

50' 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Landscape Plan

DRAWING NO.

L-100

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–631–7051

LAND SURVEYOR
NAME/TITLE: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
COMPANY/DEPT: 4950 GENESEE STREET, SUITE 100
ADDRESS: BUFFALO, NEW YORK 14225
TELEPHONE 716–633–4844

UTILITIES

NATURAL GAS
COMPANY/DEPT:. NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716–857–7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203
TELEPHONE 716–840–8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK
TELEPHONE 716–558–8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214
TELEPHONE 716–236–2738

WATER
COMPANY/DEPT:. ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
TELEPHONE 716–684–1510

DIG SAFELY NEW YORK
TELEPHONE 1–800–962–7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086
TELEPHONE 716 818-0207

ENGINEER

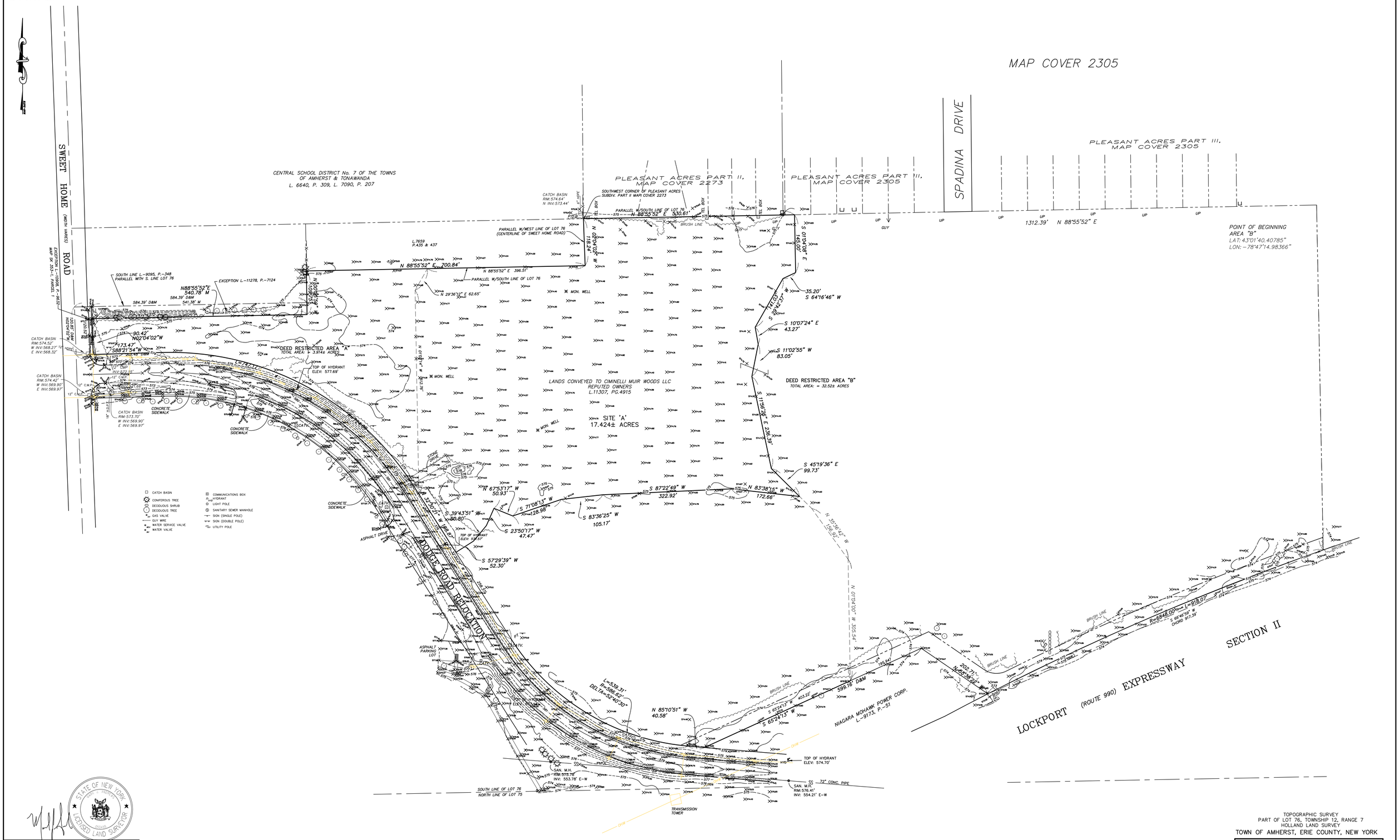
Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

FEBRUARY 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C–001	DEMOLITION & EROSION CONTROL PLAN
C–002	DEMOLITION & EROSION CONTROL DETAILS
C–100	OVERALL SITE PLAN
C–101	SITE PLAN
C–102	PARCEL MAP
C–103	SITE DETAILS
C–104	SITE DETAILS
C–200	GRADING PLAN
C–300	STORM DRAINAGE PLAN
C–301	STORM DRAINAGE DETAILS
C–302	STORM DRAINAGE DETAILS
C–303	STORM DRAINAGE DETAILS
C–400	UTILITY PLAN
C–401	SANITARY SEWER DETAILS
C–402	SANITARY SEWER DETAILS
C–403	SANITARY SEWER GENERAL NOTES
C–404	SANITARY SEWER TESTING NOTES
C–405	WATER DETAILS
C–406	WATER DETAILS
C–407	WATER DETAILS & NOTES
C–408	INSULATED ENCLOSURE DETAIL
L–100	LANDSCAPE PLAN

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
● SET OR EX. 5/8" REBAR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.



STATE OF NEW YORK
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE

TOPOGRAPHIC SURVEY
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: DECEMBER 22, 2020
Scale: 1" = 100' TAX No. 40.08-3-13.1 (PART OF)

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SWEET HOME (WIDTH VARIES) ROAD

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

P.O.B.

TEL BOX

UP

GUY

N 88°55'52" E 530.61'
PARALLEL W/SOUTH LINE OF LOT 76

PARALLEL W/WEST LINE OF LOT 76
(CENTERLINE OF SWEET HOME ROAD)

N 02°04'02" W
118.24'

L.7659
P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'12" E 62.65'

S 01°04'08" E
145.00'

35.20'
S 64°16'46" W

141.03'
S 29°42'37" W

S 10°07'24" E
43.27'

S 11°02'55" W
83.05'

S 11°56'26" E 236.39'

S 45°19'36" E
98.73'

SOUTH LINE L.-9095, P.-348
PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

584.39' D&M
541.38' M

N88°55'52"E
540.78' M

N 00°55'59" W
109.75'

EXCEPTION L.-10808, P.-9632
MAP SK 353-1, PARCEL 1

120.85' D&M
N02°04'02"W

120.52'

N02°04'02"W
90.42'

173.47'
S88°21'54"W
216.48' D&M

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.914± ACRES

N 01°03'14" W 512.26'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

L=747.17
R=724.00

N 32°30'21" W 198.87'

N 67°53'17" W
50.93'

S 39°43'51" W
50.80'

S 71°08'13" W
128.98'

S 83°36'25" W
105.17'

S 87°22'49" W
322.92'

N 83°38'15" W
172.66'

S 23°50'17" W
47.47'

S 57°29'39" W
52.30'

N 32°30'21" W 457.24'

258.37'

DODGE ROAD RELOCATION

PT

L=539.31'
R=586.62'
DELTA=52°40'30"

PC

N 85°10'51" W
40.58'

N 35°36'42" W
136.92'

N 01°04'00" W 305.54'

195.94'

599.16' D&M

S 65°24'13" W 403.22'

S 65°24'13" W

NIAGARA MOHAWK POWER CORP.
L.-9173, P.-51

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

STATE OF NEW YORK
MARK J. ANDREWS
050455
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE
12/4/20	REVISE PARCEL BOUNDARY

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
● SET OR EX. 5/8" REBAR

SURVEY OF
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

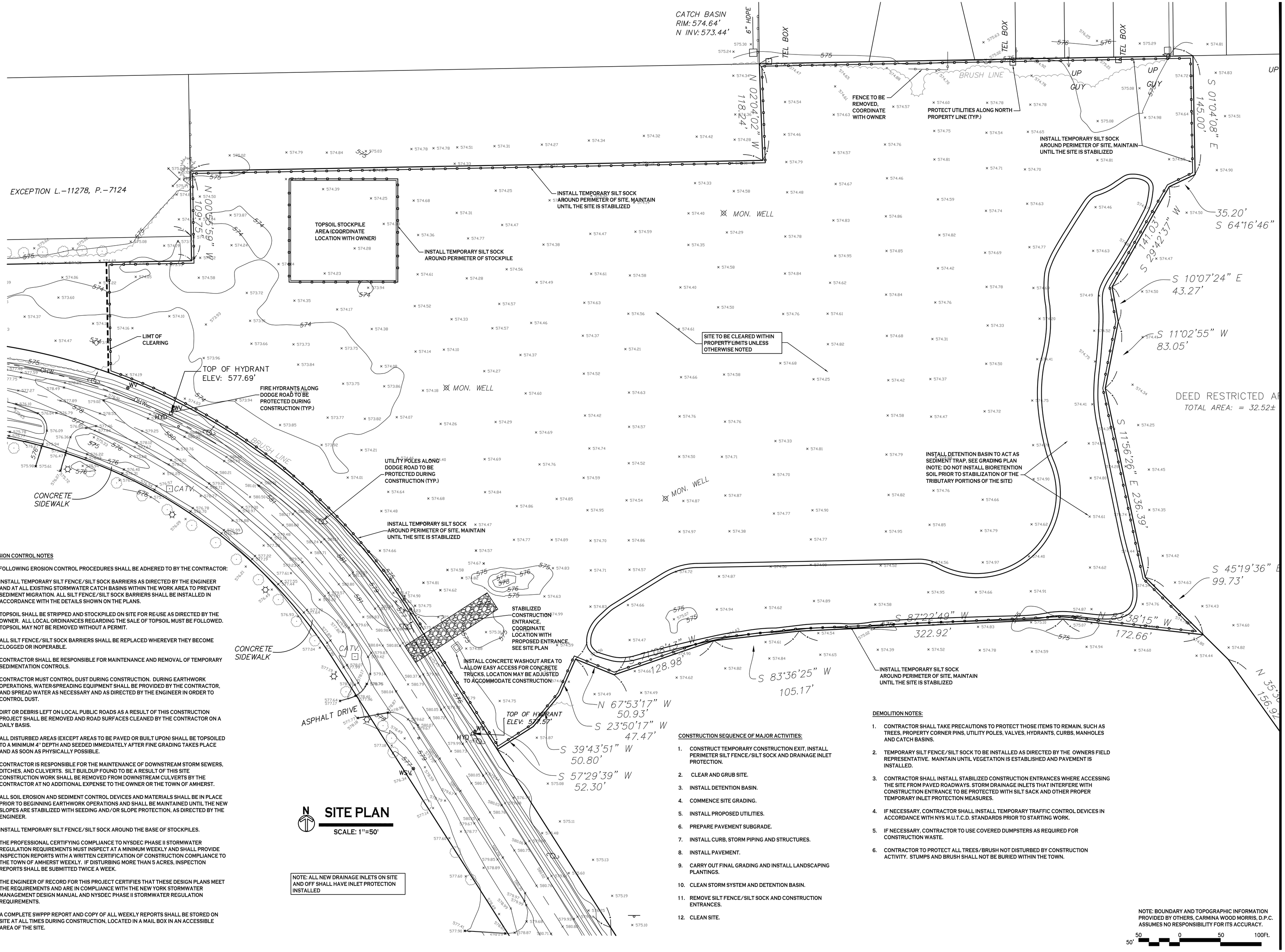
Job No. 2013062-SITE A Date: JUNE 27, 2019
Scale: 1" = 100' TAX No.

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



SITE PLAN

SCALE: 1"=50'

NOTE: ALL NEW DRAINAGE INLETS ON SITE AND OFF SHALL HAVE INLET PROTECTION INSTALLED

EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL PROCEDURES SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE/SILT SOCK BARRIERS AS DIRECTED BY THE ENGINEER AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.
2. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE OF TOPSOIL MUST BE FOLLOWED. TOPSOIL MAY NOT BE REMOVED WITHOUT A PERMIT.
3. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE REPLACED WHEREVER THEY BECOME CLOGGED OR INOPERABLE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.
5. CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER-SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR, AND SPREAD WATER AS NECESSARY AND AS DIRECTED BY THE ENGINEER IN ORDER TO CONTROL DUST.
6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED AND ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.
7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH AND SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE AND AS SOON AS PHYSICALLY POSSIBLE.
8. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES, AND CULVERTS. SILT BUILDUP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN OF AMHERST.
9. ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS SHALL BE IN PLACE PRIOR TO BEGINNING EARTHWORK OPERATIONS AND SHALL BE MAINTAINED UNTIL THE NEW SLOPES ARE STABILIZED WITH SEEDING AND/OR SLOPE PROTECTION, AS DIRECTED BY THE ENGINEER.
10. INSTALL TEMPORARY SILT FENCE/SILT SOCK AROUND THE BASE OF STOCKPILES.
11. THE PROFESSIONAL CERTIFYING COMPLIANCE TO NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS MUST INSPECT AT A MINIMUM WEEKLY AND SHALL PROVIDE INSPECTION REPORTS WITH A WRITTEN CERTIFICATION OF CONSTRUCTION COMPLIANCE TO THE TOWN OF AMHERST WEEKLY. IF DISTURBING MORE THAN 5 ACRES, INSPECTION REPORTS SHALL BE SUBMITTED TWICE A WEEK.
12. THE ENGINEER OF RECORD FOR THIS PROJECT CERTIFIES THAT THESE DESIGN PLANS MEET THE REQUIREMENTS AND ARE IN COMPLIANCE WITH THE NEW YORK STORMWATER MANAGEMENT DESIGN MANUAL AND NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS.
13. A COMPLETE SWPPP REPORT AND COPY OF ALL WEEKLY REPORTS SHALL BE STORED ON SITE AT ALL TIMES DURING CONSTRUCTION, LOCATED IN A MAIL BOX IN AN ACCESSIBLE AREA OF THE SITE.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CONSTRUCT TEMPORARY CONSTRUCTION EXIT, INSTALL PERIMETER SILT FENCE/SILT SOCK AND DRAINAGE INLET PROTECTION.
2. CLEAR AND GRUB SITE.
3. INSTALL DETENTION BASIN.
4. COMMENCE SITE GRADING.
5. INSTALL PROPOSED UTILITIES.
6. PREPARE PAVEMENT SUBGRADE.
7. INSTALL CURB, STORM PIPING AND STRUCTURES.
8. INSTALL PAVEMENT.
9. CARRY OUT FINAL GRADING AND INSTALL LANDSCAPING PLANTINGS.
10. CLEAN STORM SYSTEM AND DETENTION BASIN.
11. REMOVE SILT FENCE/SILT SOCK AND CONSTRUCTION ENTRANCES.
12. CLEAN SITE.

DEMOLITION NOTES:

1. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT THOSE ITEMS TO REMAIN, SUCH AS TREES, PROPERTY CORNER PINS, UTILITY POLES, VALVES, HYDRANTS, CURBS, MANHOLES AND CATCH BASINS.
2. TEMPORARY SILT FENCE/SILT SOCK TO BE INSTALLED AS DIRECTED BY THE OWNERS FIELD REPRESENTATIVE. MAINTAIN UNTIL VEGETATION IS ESTABLISHED AND PAVEMENT IS INSTALLED.
3. CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCES WHERE ACCESSING THE SITE FROM PAVED ROADWAYS. STORM DRAINAGE INLETS THAT INTERFERE WITH CONSTRUCTION ENTRANCE TO BE PROTECTED WITH SILT SACK AND OTHER PROPER TEMPORARY INLET PROTECTION MEASURES.
4. IF NECESSARY, CONTRACTOR SHALL INSTALL TEMPORARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH NYS M.U.T.C.D. STANDARDS PRIOR TO STARTING WORK.
5. IF NECESSARY, CONTRACTOR TO USE COVERED DUMPSTERS AS REQUIRED FOR CONSTRUCTION WASTE.
6. CONTRACTOR TO PROTECT ALL TREES/BRUSH NOT DISTURBED BY CONSTRUCTION ACTIVITY. STUMPS AND BRUSH SHALL NOT BE BURIED WITHIN THE TOWN.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Plan

DRAWING NO.

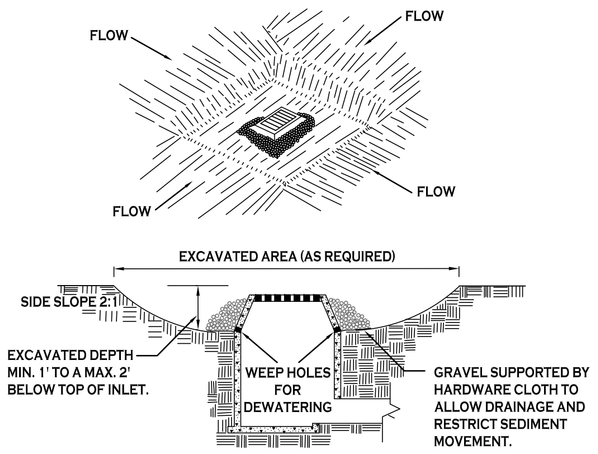
C-001

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (2305?: SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



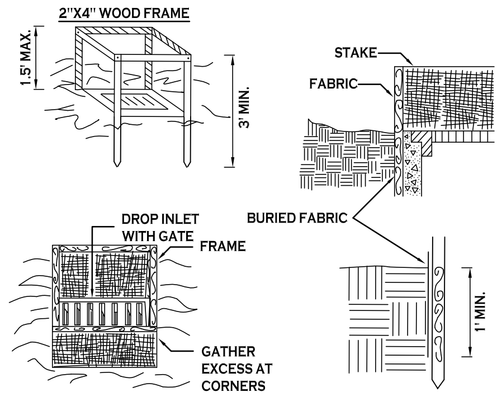
CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE



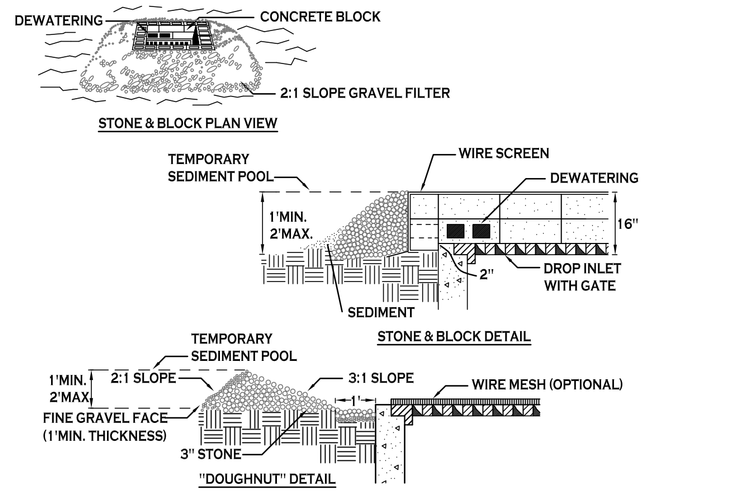
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 2

NOT TO SCALE



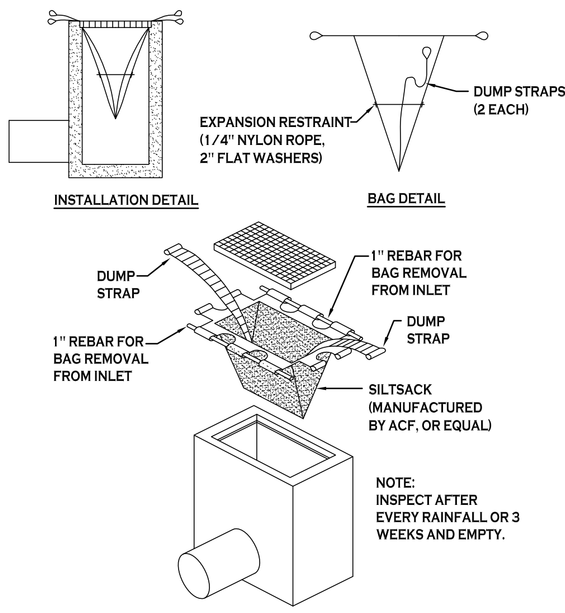
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

NOT TO SCALE



SILT SACK DETAIL

NOT TO SCALE

NOTE: INSTALL ONE OF THE INLET PROTECTION OPTIONS SHOWN PRIOR TO CONSTRUCTION

CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

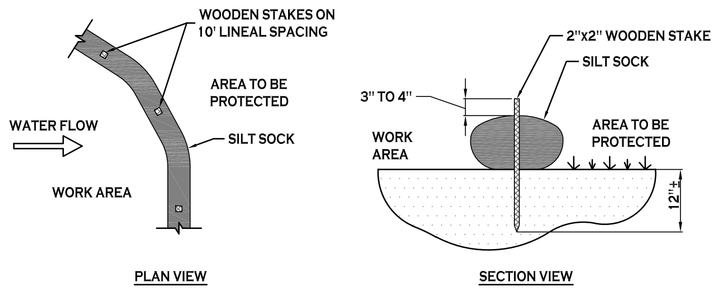
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



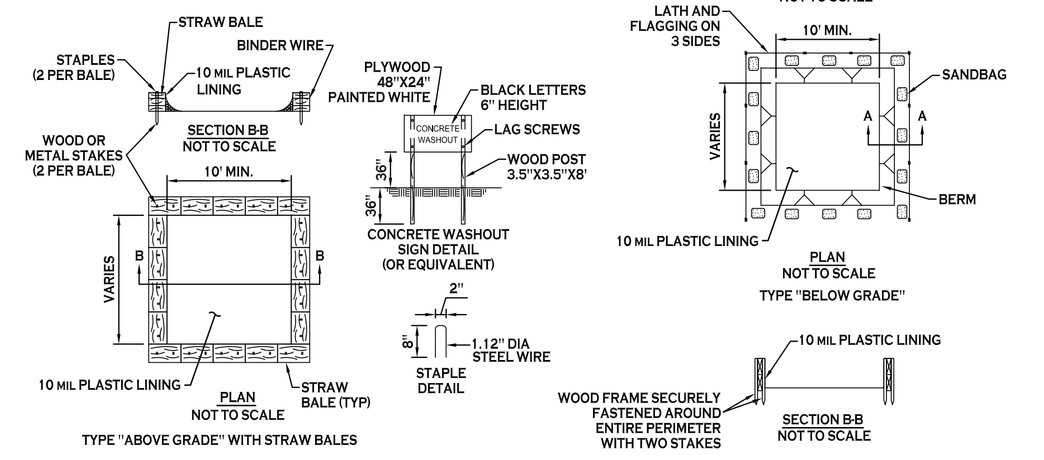
NOTES:

CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED ½ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

SILT SOCK DETAIL

NOT TO SCALE



NOTES

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

CONCRETE WASHOUT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Details

DRAWING NO.

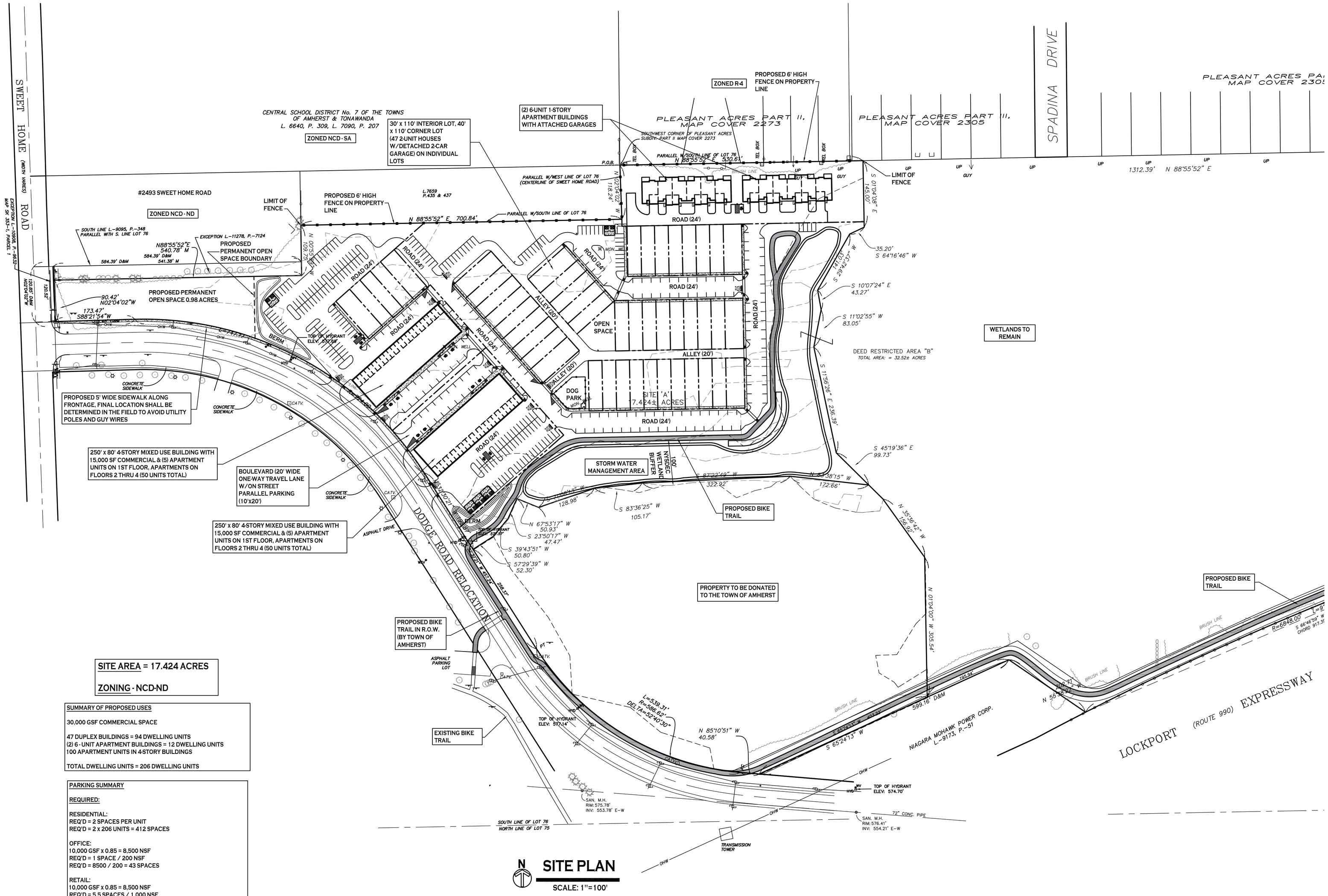
C-002

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



N

SITE PLAN

SCALE: 1"=100'

SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
505 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

C-100

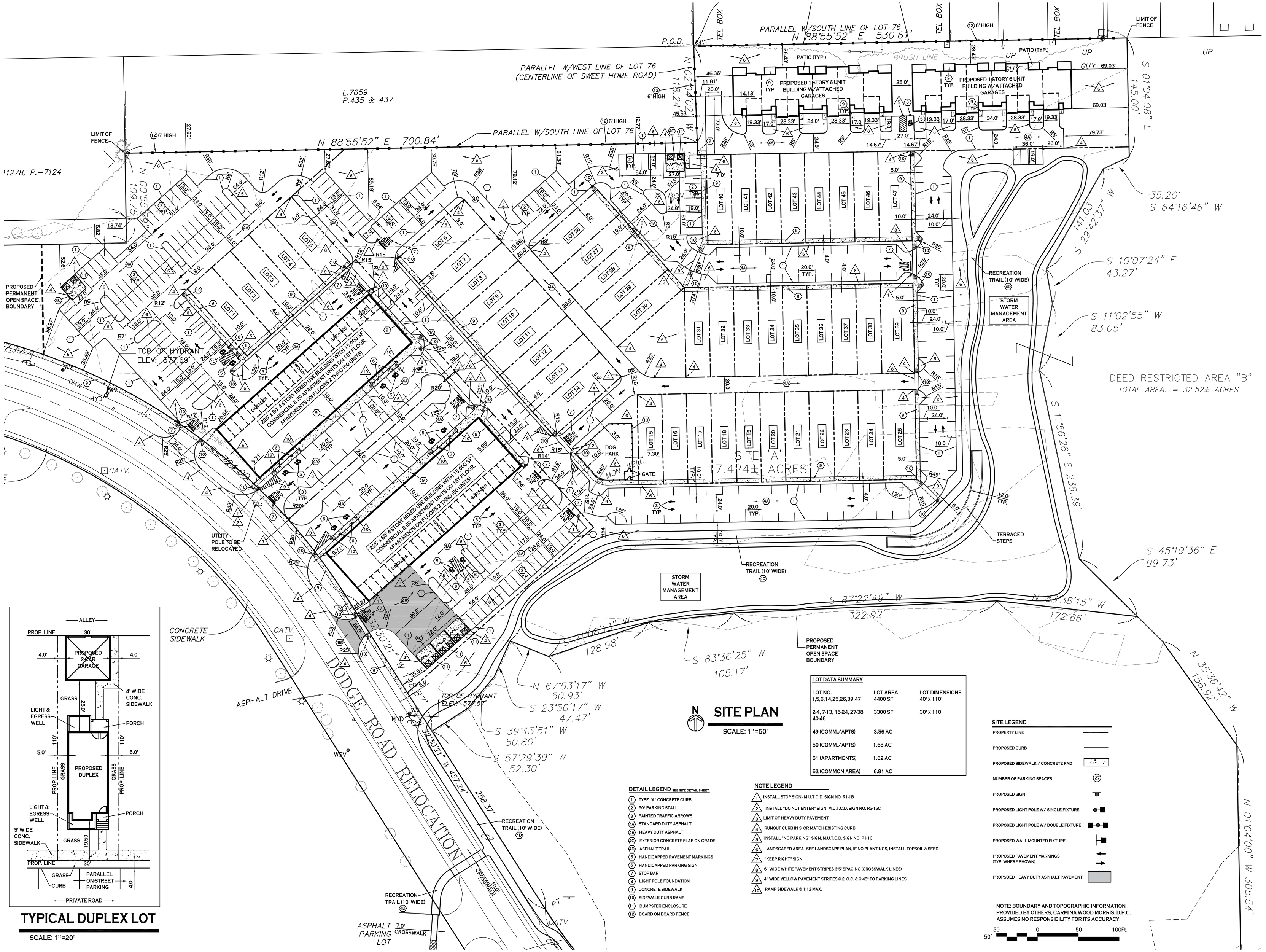
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (2305?) : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263



TYPICAL DUPLEX LOT

SCALE: 1"=20'

SITE PLAN

SCALE: 1"=50'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

DETAIL LEGEND SEE SITE DETAIL SHEET

1. TYPE "A" CONCRETE CURB
2. 90° PARKING STALL
3. PAINTED TRAFFIC ARROWS
4A. STANDARD DUTY ASPHALT
4B. HEAVY DUTY ASPHALT
4C. EXTERIOR CONCRETE SLAB ON GRADE
4D. ASPHALT TRAIL
5. HANDICAPPED PAVEMENT MARKINGS
6. HANDICAPPED PARKING SIGN
7. STOP BAR
8. LIGHT POLE FOUNDATION
9. CONCRETE SIDEWALK
10. SIDEWALK CURB RAMP
11. DUMPSTER ENCLOSURE
12. BOARD ON BOARD FENCE

NOTE LEGEND

1. INSTALL STOP SIGN - M.U.T.C.D. SIGN NO. R1-1 B
2. INSTALL "DO NOT ENTER" SIGN, M.U.T.C.D. SIGN NO. R3-15C
3. LIMIT OF HEAVY DUTY PAVEMENT
4. RUNOUT CURB IN 3' OR MATCH EXISTING CURB
5. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
6. LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
7. "KEEP RIGHT" SIGN
8. 6" WIDE WHITE PAVEMENT STRIPES @ 5' SPACING (CROSSWALK LINES)
9. 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45° TO PARKING LINES
10. RAMP SIDEWALK @ 1:12 MAX.

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN
- PROPOSED LIGHT POLE W/ SINGLE FIXTURE
- PROPOSED LIGHT POLE W/ DOUBLE FIXTURE
- PROPOSED WALL MOUNTED FIXTURE
- PROPOSED PAVEMENT MARKINGS (TYP. WHERE SHOWN)
- PROPSOED HEAVY DUTY ASPHALT PAVEMENT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site Plan

DRAWING NO.

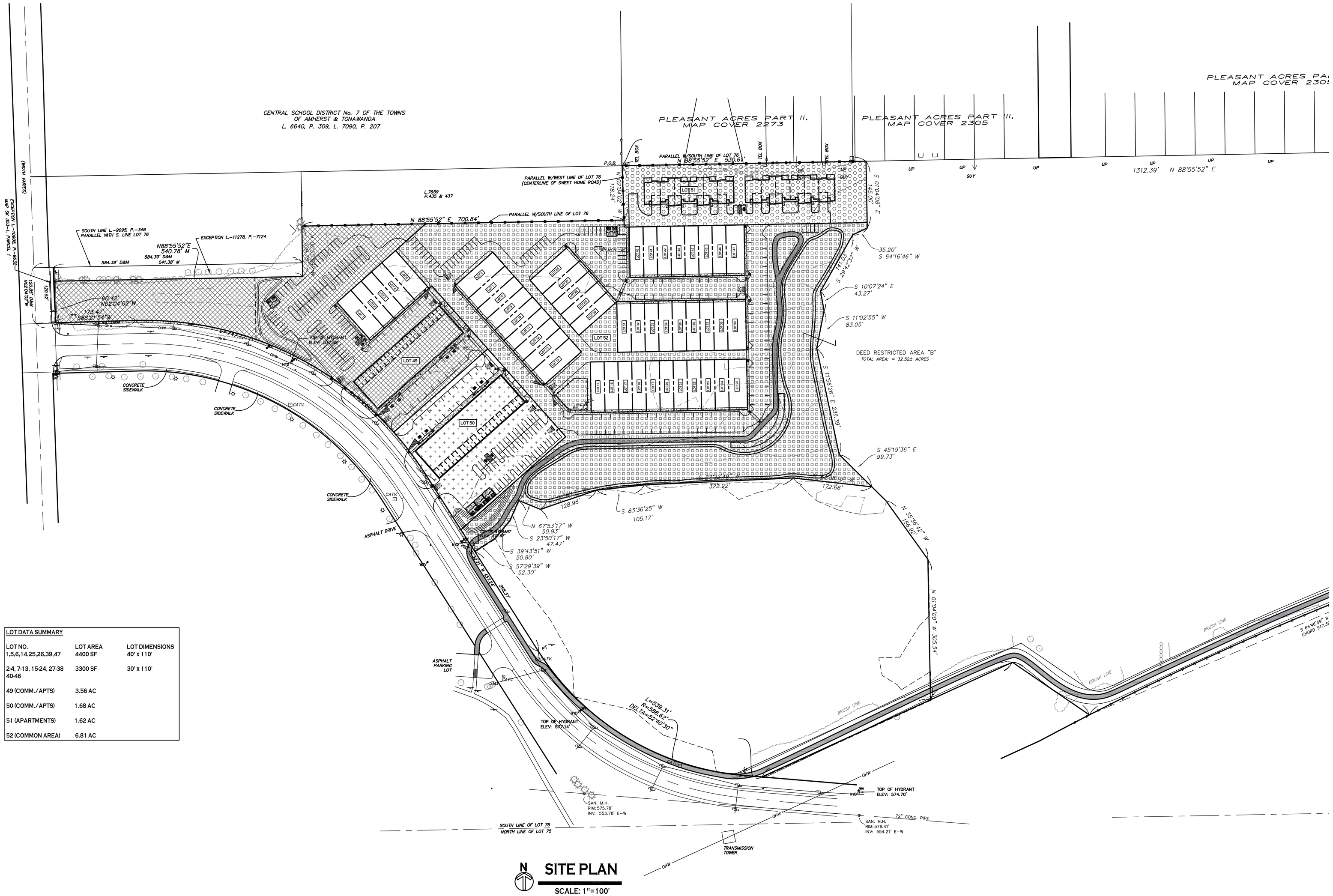
C-101

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



N

SITE PLAN

SCALE: 1"=100'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Parcel Map

DRAWING NO.

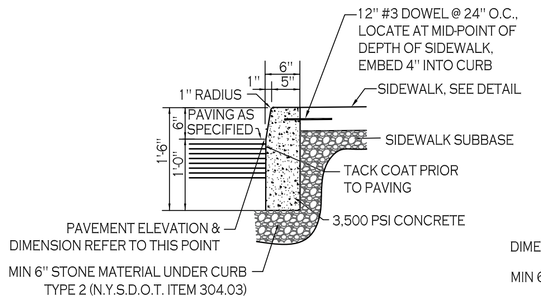
C-102

Project no.: 21.011

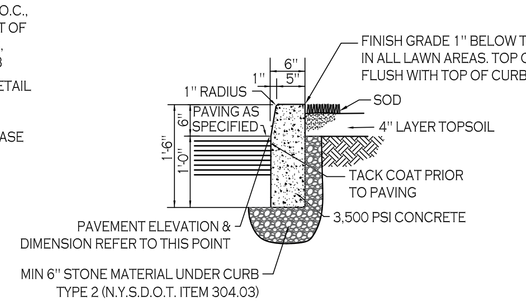
Attachment: SP-2021-05_drawings_061721 (2357 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



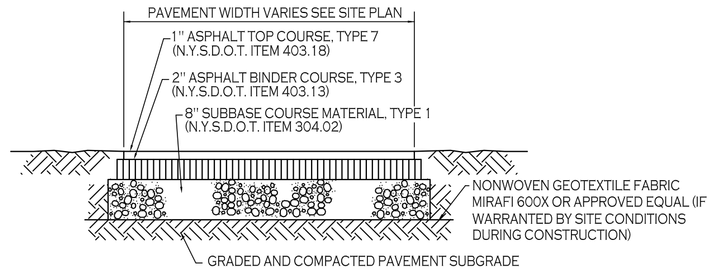
ABUTTING SIDEWALK



ABUTTING LANDSCAPE/GRASS

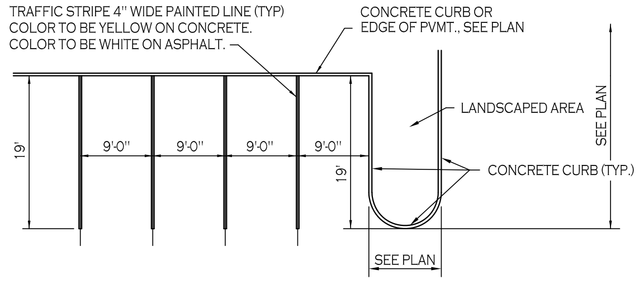
NOTES:
1. CONTROL JOINTS TO BE 2" DEEP AT 15'-0" O.C. - SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. WHERE THE CURB DROPS (IS FLUSH WITH ASPHALT) THE DEPTH OF CURB BELOW GRADE SHALL BE INCREASED TO 1'-6" AND OTHER DIMENSIONS ADJUSTED ACCORDINGLY.

TYPE "A" CONCRETE CURB - 1

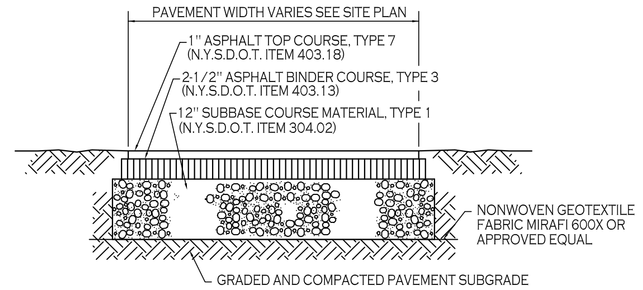


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

STANDARD DUTY ASPHALT SECTION - 4A

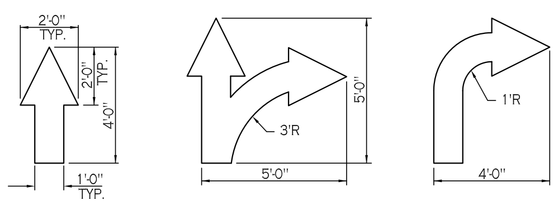


90° PARKING STALL LAYOUT - 2

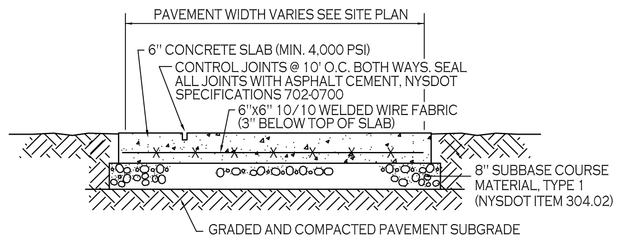


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

HEAVY DUTY ASPHALT SECTION - 4B

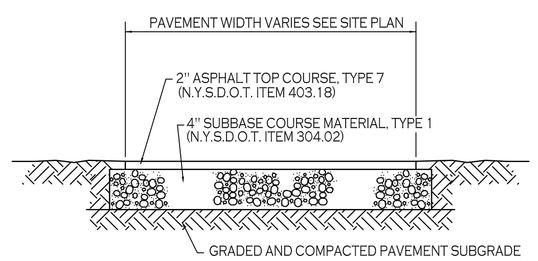


PAINTED TRAFFIC ARROWS - 3



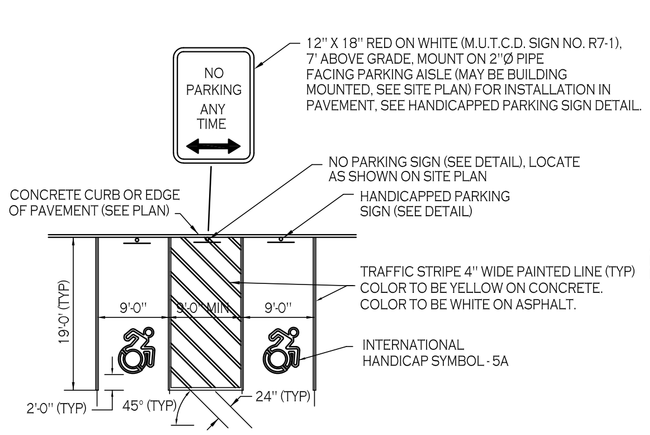
NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502-3.

EXTERIOR CONCRETE SLAB-ON-GRADE SECTION - 4C

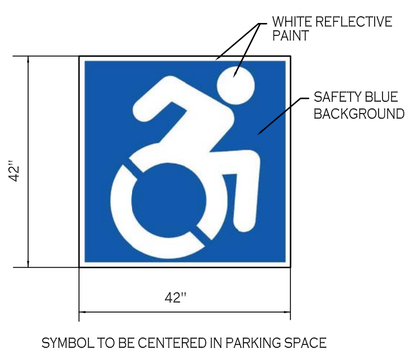


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

ASPHALT TRAIL SECTION - 4D

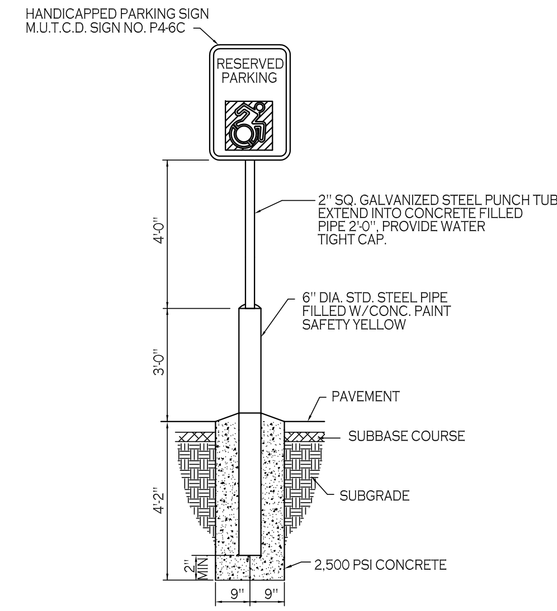


HANDICAPPED PAVEMENT MARKINGS & SIGNAGE - 5



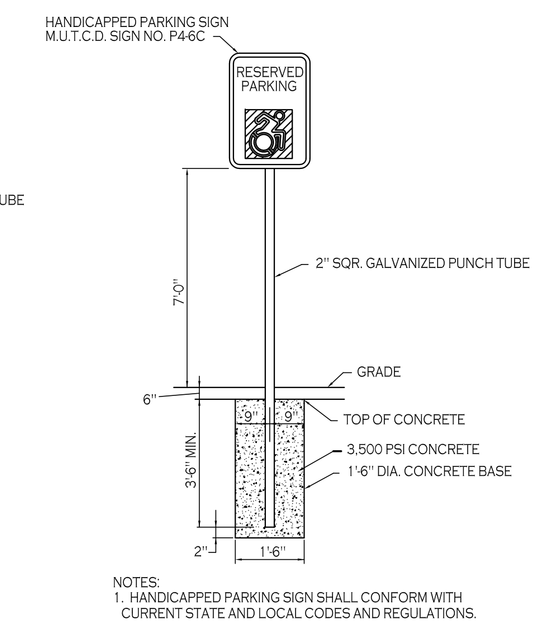
SYMBOL TO BE CENTERED IN PARKING SPACE

INTERNATIONAL HANDICAP SYMBOL - 5A



HANDICAPPED PARKING SIGN - 6

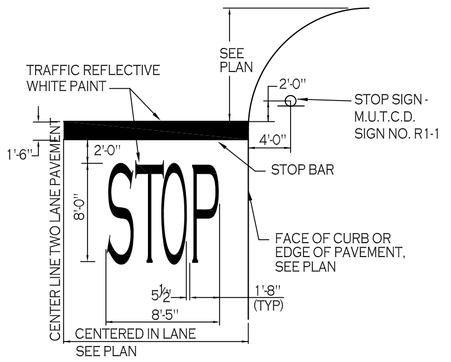
INSTALLED IN PAVEMENT



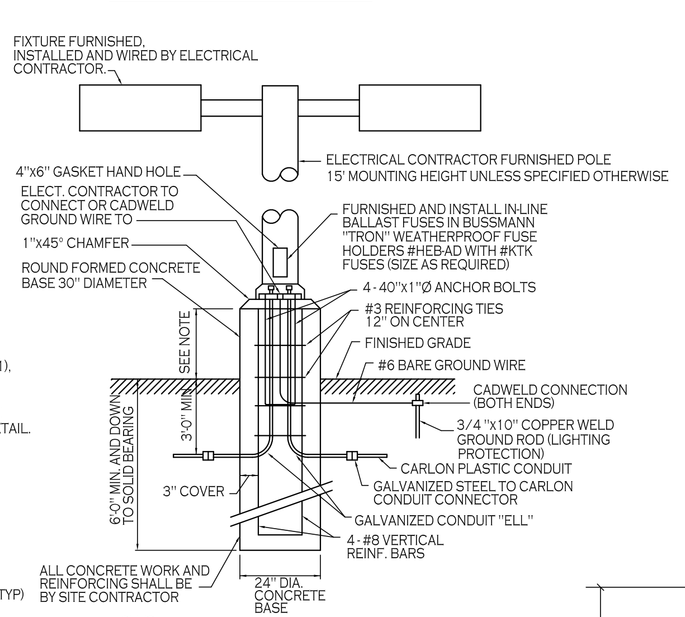
NOTES:
1. HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

HANDICAP PARKING SIGNS - 6

INSTALLED IN GRASS/LANDSCAPED AREA



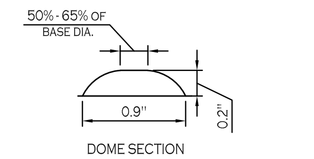
STOP BAR DETAIL - 7



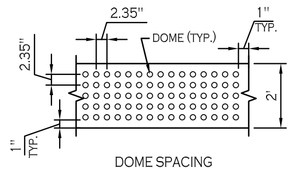
NOTES:
1. FOR LOCATIONS OF FOUNDATIONS SEE SITE PLAN
2. FOR LIGHT FIXTURE ORDERING INFORMATION SEE SITE LIGHTING PLAN
3. LIGHT POLE BASE EXPOSURE ABOVE GRADE SHALL BE:
   IN CURBED ISLANDS: 6" ABOVE TOP OF CURB ELEVATION
   IN PAVEMENT: 3" ABOVE GRADE
   IN NONCURBED GRASS AREAS: 6" ABOVE GRADE

LIGHT POLE FOUNDATION - 8

USE FOR 15' MOUNTING HEIGHT L.E.D. FIXTURES

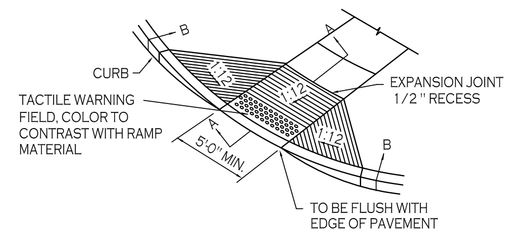


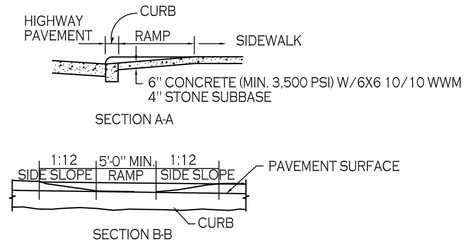
DOME SECTION



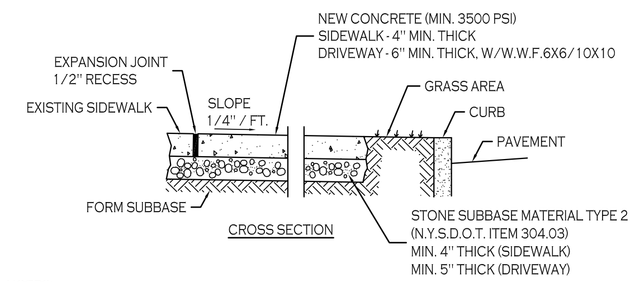
DOME SPACING

NOTE: TACTILE WARNING DEVICES SHALL BE PER ICC/ANSI A117.1-1998, SECTION 705.3.1.2 OR CURRENT UPDATE



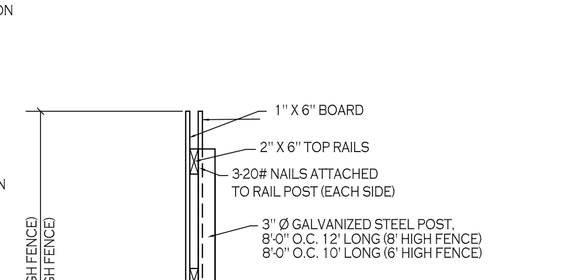


SIDEWALK CURB RAMP - 10



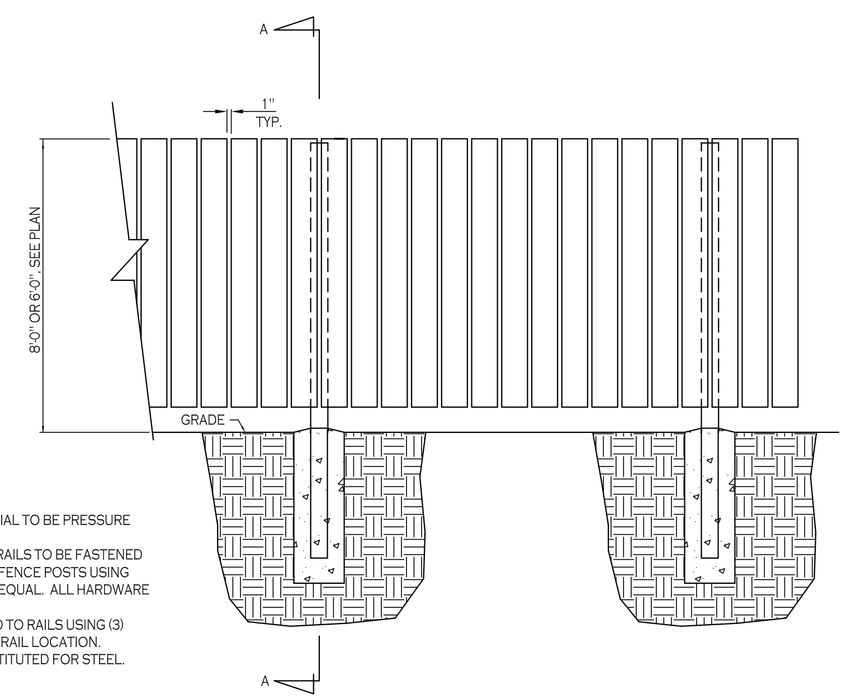
NOTES:
1. CONTROL JOINTS TO BE AT 5'-0" O.C., BOTH WAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3.
3. SUBBASE GRADE SHALL FOLLOW THE PROPOSED GRADE OF THE SIDEWALK AND SLOPE AWAY FROM BUILDING WHERE APPLICABLE, PROVIDE CONTINUOUS STONE PATH TO CURB UNDERDRAIN WHERE PROVIDED.
4. FULL DEPTH EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
5. SEE CURB DETAIL FOR DOWLING REQUIREMENTS WHERE ABUTTING CURB.
6. INSTALL 6" LONG #3 DOWELS @ 12" O.C. WHERE SIDEWALK ABUTS A BUILDING WALL AT AN ENTRANCE, THICKEN SIDEWALK TO 6" AT BUILDING WALL AND INSTALL DOWEL CENTERED IN THE 6" DEPTH. DOWELS AND THICKENING OF SIDEWALK SHALL EXTEND 18" EITHER SIDE OF ENTRANCE.
7. INSTALL 1/2" PREMOLDED EXPANSION JOINT WITH BACKER ROD & SEALANT WHERE SIDEWALK ABUTS BUILDING OR OTHER STRUCTURE.

CONCRETE SIDEWALK - 9



SECTION A-A

NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.



BOARD ON BOARD FENCE FENCE - 12

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site Details

DRAWING NO.

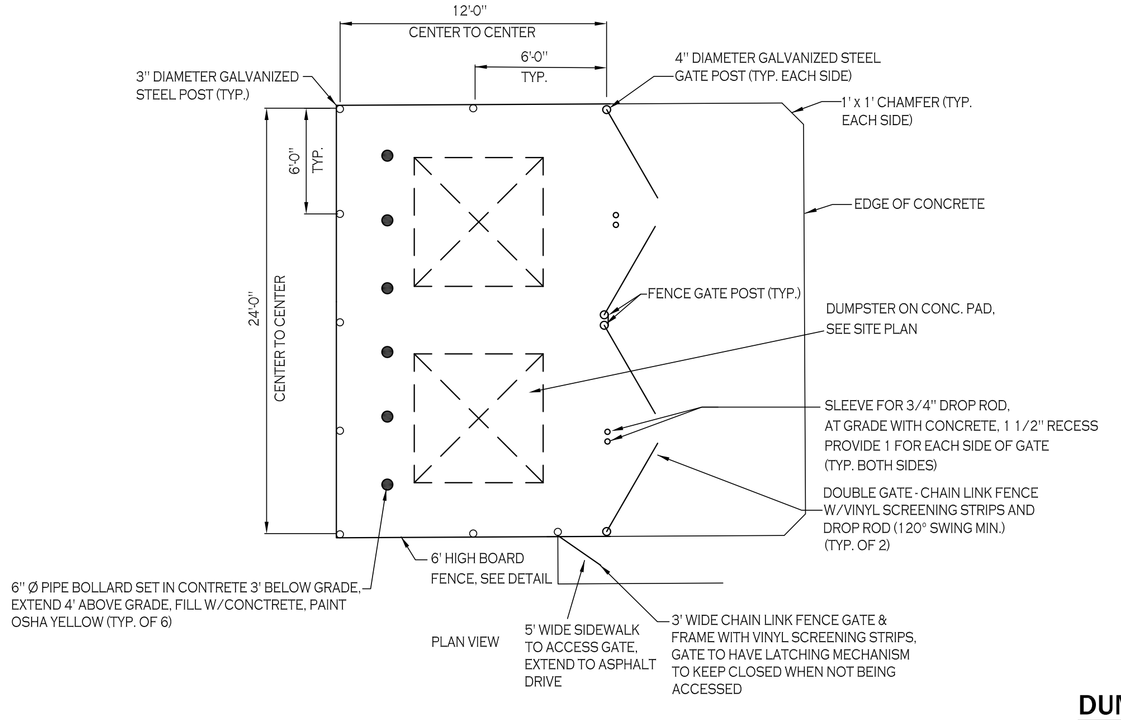
C-103

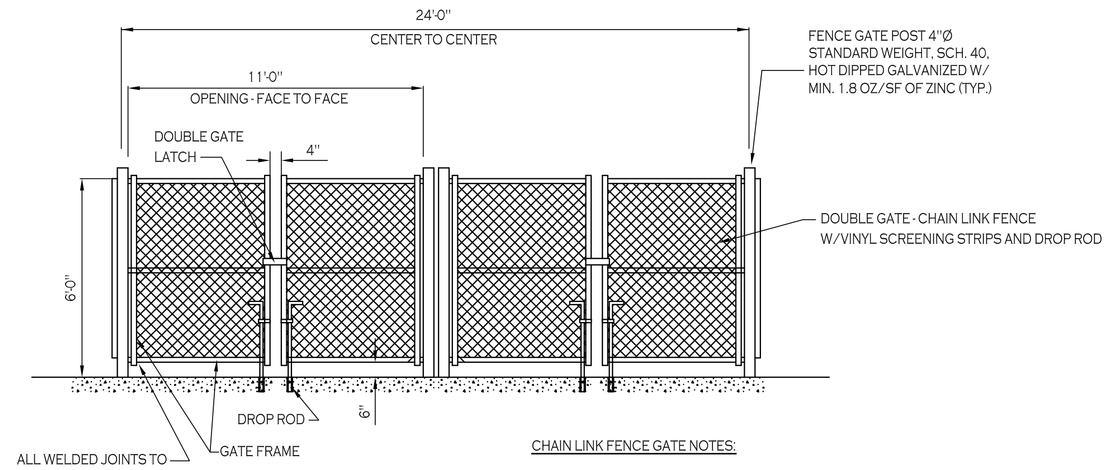
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (2305?) : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

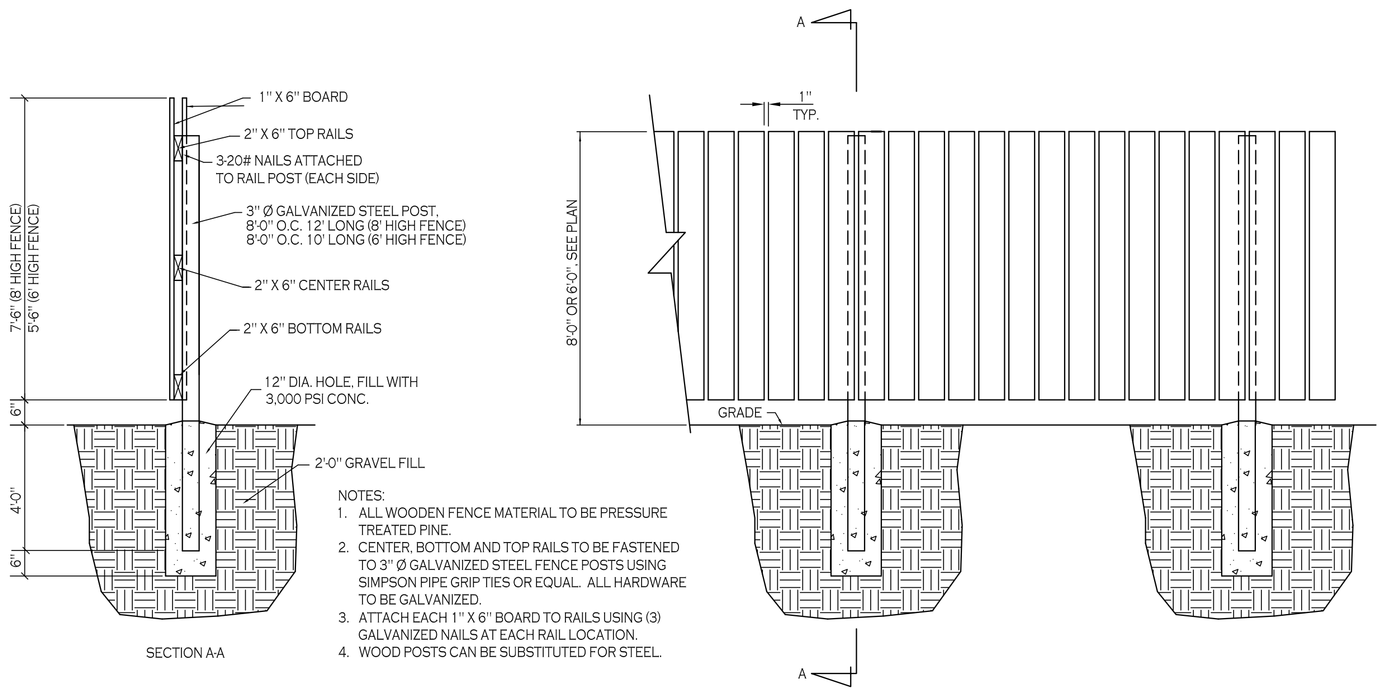




DUMPSTER ENCLOSURE - 11

CHAIN LINK FENCE GATE NOTES:

1. GATE POST FOOTINGS TO BE MIN. 36" DEEP x (4x) POST DIAMETER, EXTEND POST TO WITHIN 6" OF BOTTOM.
2. GATE FRAMES TO BE 2" SQ. GALVANIZED STEEL, WEIGHING 2.60 LB/FT IN ACCORDANCE WITH ASTM F 900.
3. CHAIN LINK FENCE FABRIC SHALL BE 2" MESH, 9 GAUGE, ZINC COATED STEEL CORE WIRE. INSTALL MESH WITH HOOK BOLTS AND TENSION BARS ON ALL 4 SIDES. ATTACH AT 15" MAX.
4. DOUBLE GATE LATCH TO BE FORKED TYPE CAPABLE OF RETAINING GATE IN CLOSED POSITION AND HAVE PROVISION FOR PAD LOCK. LATCH SHALL BE OPERABLE FROM EITHER SIDE OF GATE.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED STEEL TO SUIT GATE SIZE.



NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.

BOARD ON BOARD FENCE FENCE - FOR DUMPSTER ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site
Details

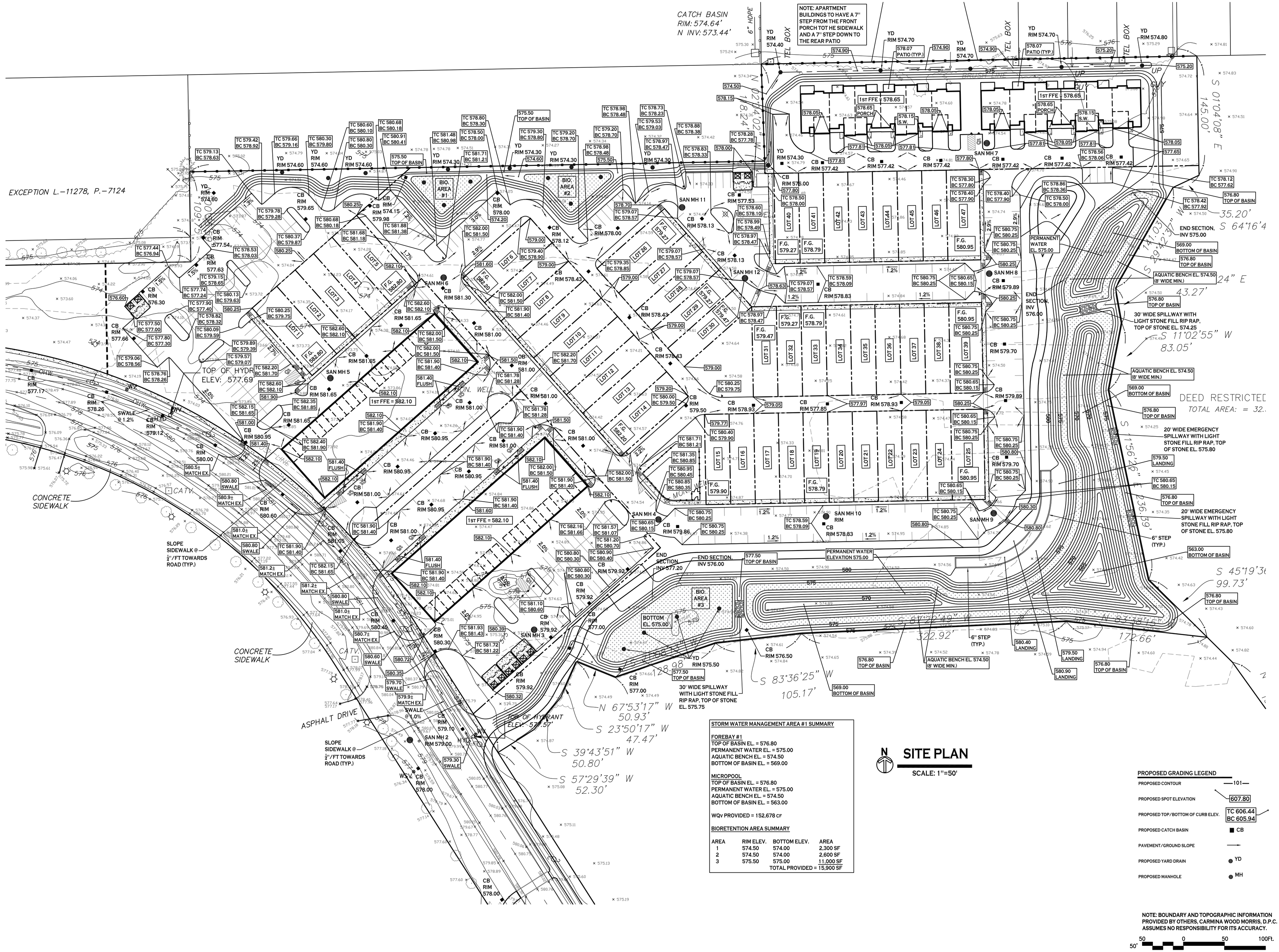
DRAWING NO.

C-104

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (2305?: SP-2021-05)

© Carmina Wood Morris DPC All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



STORM WATER MANAGEMENT AREA #1 SUMMARY

FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00

MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00

WQv PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY

AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

SITE PLAN

SCALE: 1"=50'

PROPOSED GRADING LEGEND

PROPOSED CONTOUR	101
PROPOSED SPOT ELEVATION	607.80
PROPOSED TOP/BOTTOM OF CURB ELEV.	TC 606.44 / BC 605.94
PROPOSED CATCH BASIN	CB
PAVEMENT/GROUND SLOPE	
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Grading Plan

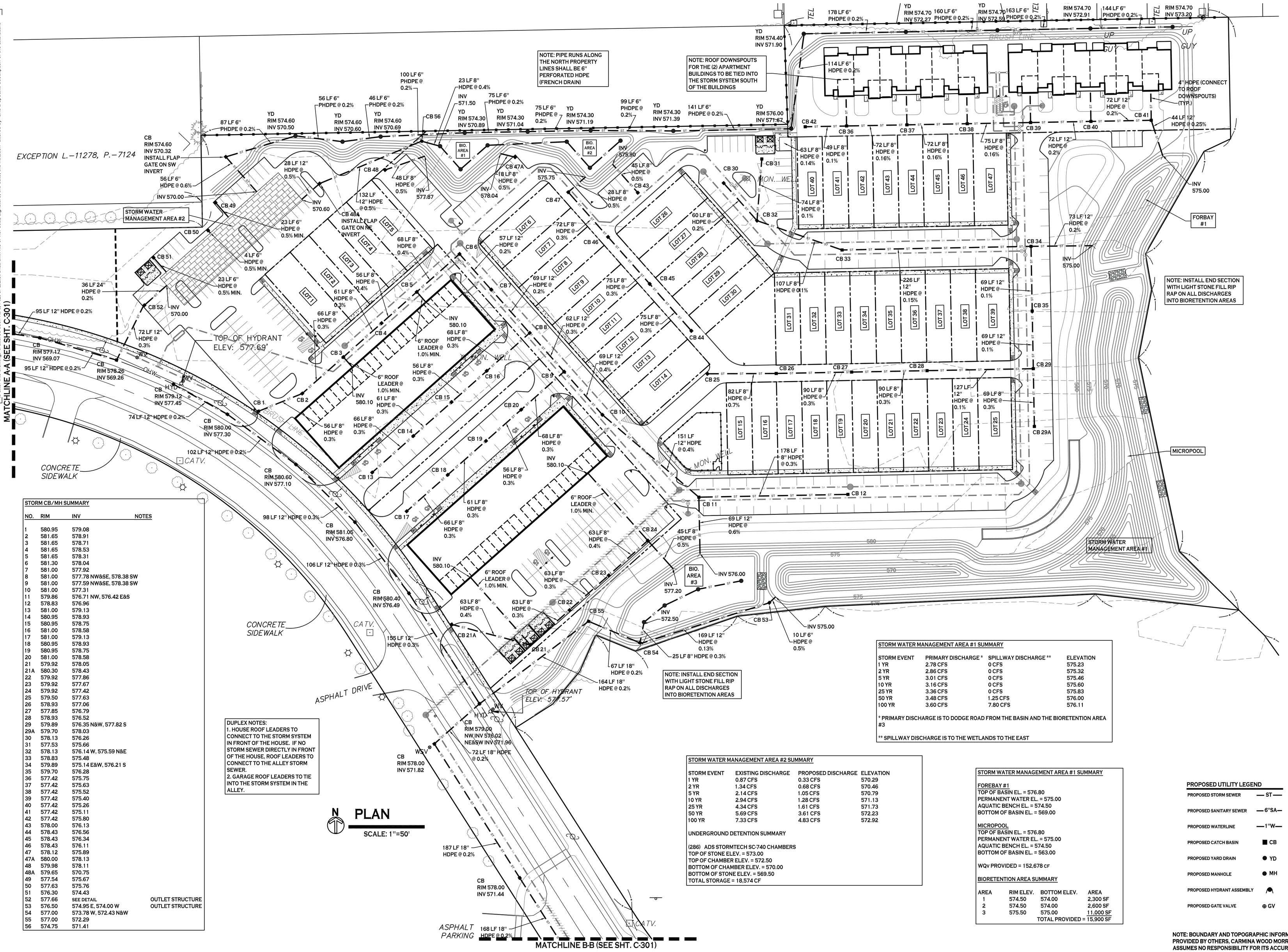
DRAWING NO.
C-200

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



STORM CB/MH SUMMARY

NO.	RIM	INV	NOTES
1	580.95	579.08	
2	581.65	578.91	
3	581.65	578.71	
4	581.65	578.53	
5	581.65	578.31	
6	581.30	578.04	
7	581.00	577.92	
8	581.00	577.78 NW&SE, 578.38 SW	
9	581.00	577.59 NW&SE, 578.38 SW	
10	581.00	577.31	
11	579.86	576.71 NW, 576.42 E&S	
12	578.83	576.96	
13	581.00	579.13	
14	580.95	578.93	
15	580.95	578.75	
16	581.00	578.58	
17	581.00	579.13	
18	580.95	578.93	
19	580.95	578.75	
20	581.00	578.58	
21	579.92	578.05	
21A	580.30	578.43	
22	579.92	577.86	
23	579.92	577.67	
24	579.92	577.42	
25	579.50	577.63	
26	578.93	577.06	
27	577.85	576.79	
28	578.93	576.52	
29	579.89	576.35 N&W, 577.82 S	
29A	579.70	578.03	
30	578.13	576.26	
31	577.53	575.66	
32	578.13	576.14 W, 575.59 N&E	
33	578.83	575.48	
34	579.89	575.14 E&W, 576.21 S	
35	579.70	576.28	
36	577.42	575.75	
37	577.42	575.63	
38	577.42	575.52	
39	577.42	575.40	
40	577.42	575.26	
41	577.42	575.11	
42	577.42	575.80	
43	578.00	576.13	
44	578.43	576.56	
45	578.43	576.34	
46	578.43	576.11	
47	578.12	575.89	
47A	580.00	578.13	
48	579.98	578.11	
48A	579.65	570.75	
49	577.54	575.67	
50	577.63	575.76	
51	576.30	574.43	
52	577.66	SEE DETAIL	OUTLET STRUCTURE
53	576.50	574.95 E, 574.00 W	OUTLET STRUCTURE
54	577.00	573.78 W, 572.43 N&W	
55	577.00	572.29	
56	574.75	571.41	

DUPLEX NOTES:
1. HOUSE ROOF LEADERS TO CONNECT TO THE STORM SYSTEM IN FRONT OF THE HOUSE. IF NO STORM SEWER DIRECTLY IN FRONT OF THE HOUSE, ROOF LEADERS TO CONNECT TO THE ALLEY STORM SEWER.
2. GARAGE ROOF LEADERS TO TIE INTO THE STORM SYSTEM IN THE ALLEY.

N

PLAN

SCALE: 1"=50'

STORM WATER MANAGEMENT AREA #2 SUMMARY

STORM EVENT	EXISTING DISCHARGE	PROPOSED DISCHARGE	ELEVATION
1 YR	0.87 CFS	0.33 CFS	570.29
2 YR	1.34 CFS	0.68 CFS	570.46
5 YR	2.14 CFS	1.05 CFS	570.79
10 YR	2.94 CFS	1.28 CFS	571.13
25 YR	4.34 CFS	1.61 CFS	571.73
50 YR	5.69 CFS	3.61 CFS	572.23
100 YR	7.33 CFS	4.83 CFS	572.92

UNDERGROUND DETENTION SUMMARY

(286) ADS STORMTECH SC-740 CHAMBERS
TOP OF STONE ELEV. = 573.00
TOP OF CHAMBER ELEV. = 572.50
BOTTOM OF CHAMBER ELEV. = 570.00
BOTTOM OF STONE ELEV. = 569.50
TOTAL STORAGE = 18,574 CF

STORM WATER MANAGEMENT AREA #1 SUMMARY

STORM EVENT	PRIMARY DISCHARGE *	SPILLWAY DISCHARGE **	ELEVATION
1 YR	2.78 CFS	0 CFS	575.23
2 YR	2.86 CFS	0 CFS	575.32
5 YR	3.01 CFS	0 CFS	575.46
10 YR	3.16 CFS	0 CFS	575.60
25 YR	3.36 CFS	0 CFS	575.83
50 YR	3.48 CFS	1.25 CFS	576.00
100 YR	3.60 CFS	7.80 CFS	576.11

* PRIMARY DISCHARGE IS TO DODGE ROAD FROM THE BASIN AND THE BIORETENTION AREA #3

** SPILLWAY DISCHARGE IS TO THE WETLANDS TO THE EAST

STORM WATER MANAGEMENT AREA #1 SUMMARY

FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00

MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00

WQV PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY

AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

PROPOSED UTILITY LEGEND

- PROPOSED STORM SEWER — ST —
- PROPOSED SANITARY SEWER — 6"SA —
- PROPOSED WATERLINE — 1"W —
- PROPOSED CATCH BASIN ■ CB
- PROPOSED YARD DRAIN ● YD
- PROPOSED MANHOLE ● MH
- PROPOSED HYDRANT ASSEMBLY
- PROPOSED GATE VALVE ⊕ GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100FT.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Plan

DRAWING NO.

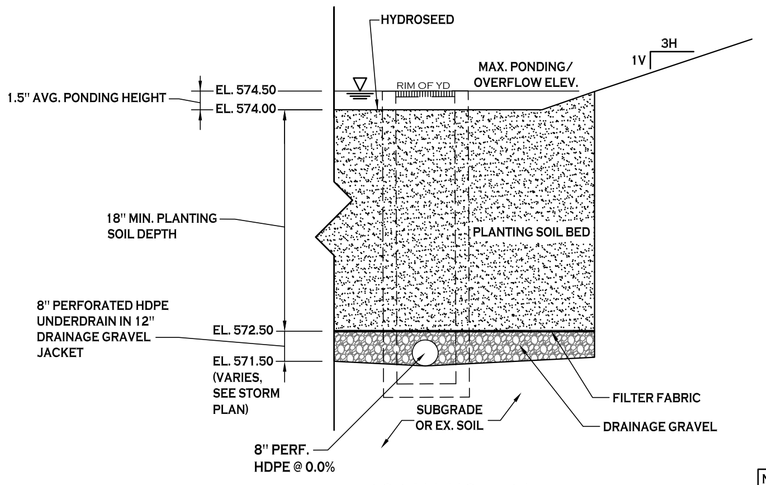
C-300

Project no.: 21.011

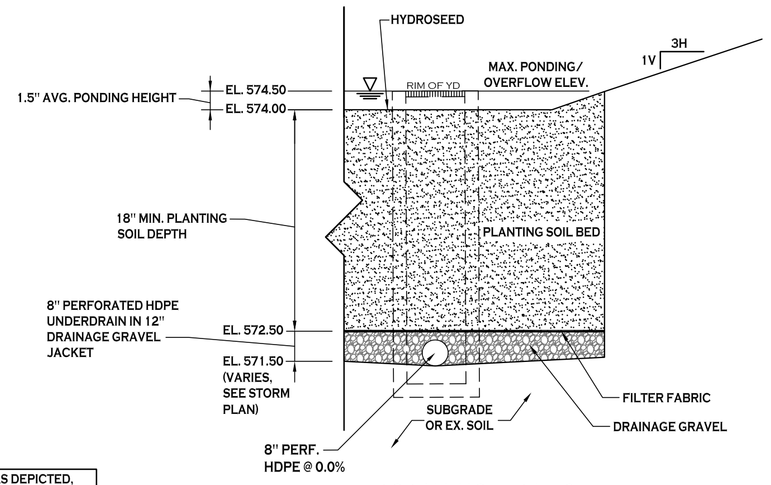
Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

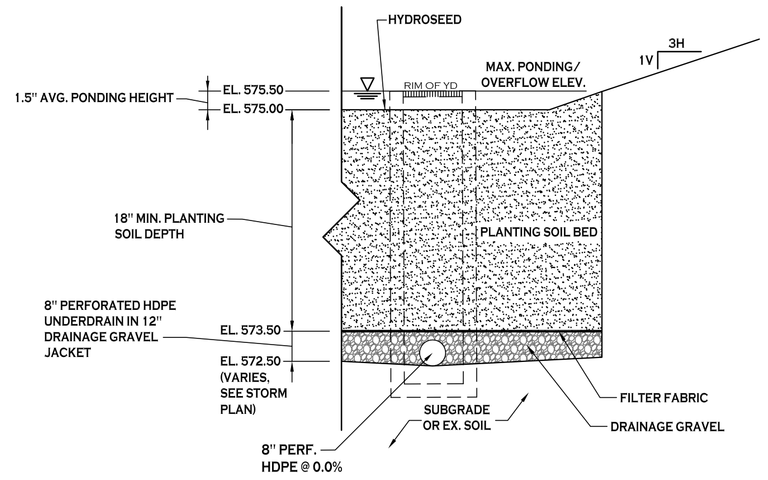


BIORETENTION AREA #1



BIORETENTION AREA #2

NOTE: AS DEPICTED, YARD DRAIN RIM ELEVATIONS ARE TO BE SET 6" ABOVE PROPOSED GRADE IN BIORETENTION AREAS.



BIORETENTION AREA #3

NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 180-N OR APPROVED EQUIVALENT
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43. NO.67, SIZE 0.25" TO 0.75"
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 60% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR ML WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

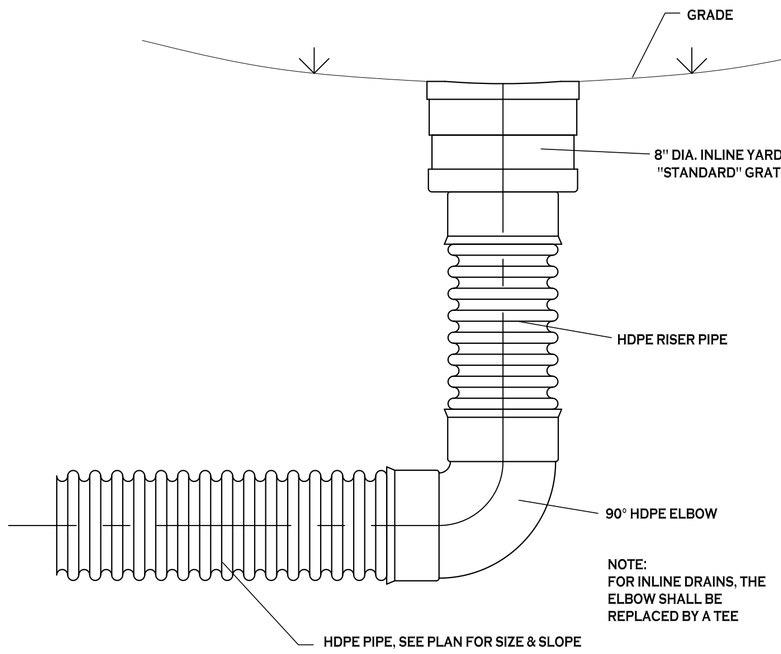
CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHORUS: 75 LBS PER ACRE MIN.
POTASSIUM: 85 LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CREEPING BENTGRASS	AGROSTIS STOLONIFERA	63.0
ROUGH BLUEGRASS	POA TRIVIALIS	17.0
MEADOW FOXTAIL	ALOPECURUS ARUNDINACEUS	11.0
ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	4.5
DEERTONGUE	PANICUM CLANDESTINUM	4.5

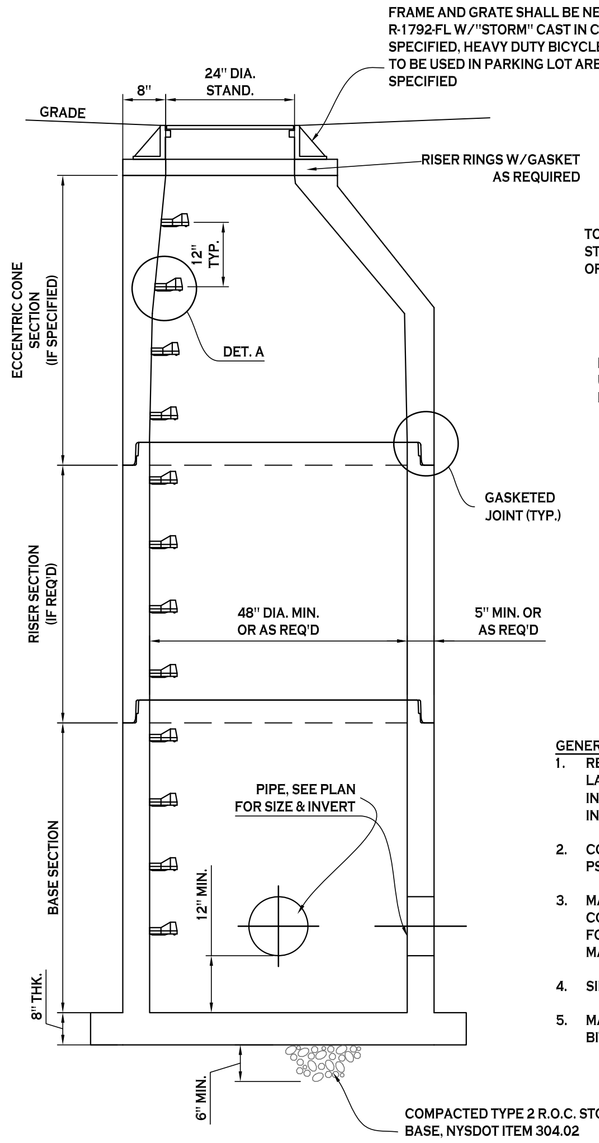
BIORETENTION AREA - TYPICAL SECTIONS

NOT TO SCALE



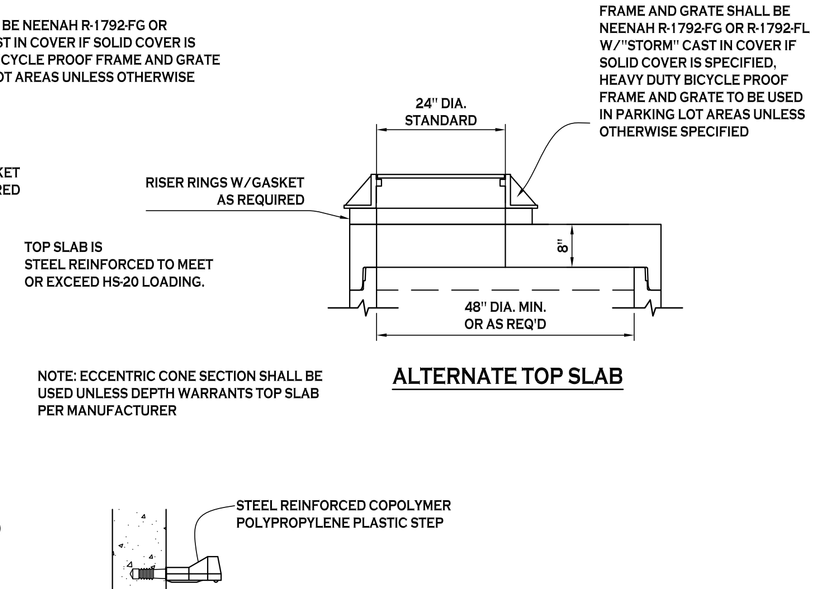
NOTE:
SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



TYPICAL STORM MANHOLE DETAIL

NOT TO SCALE

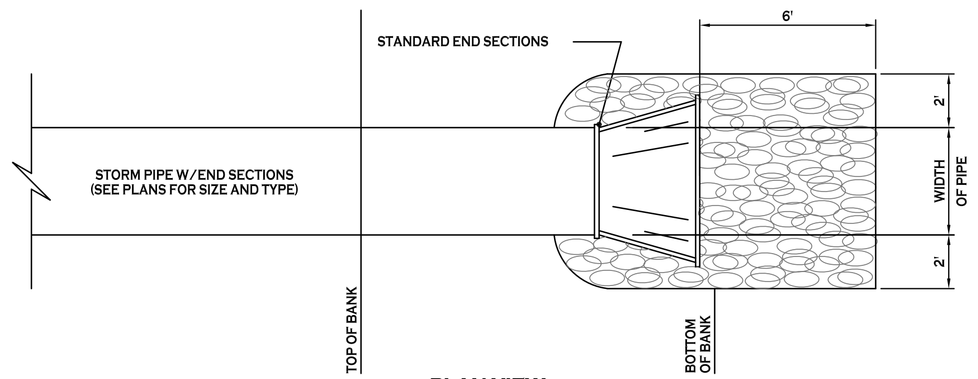


ALTERNATE TOP SLAB

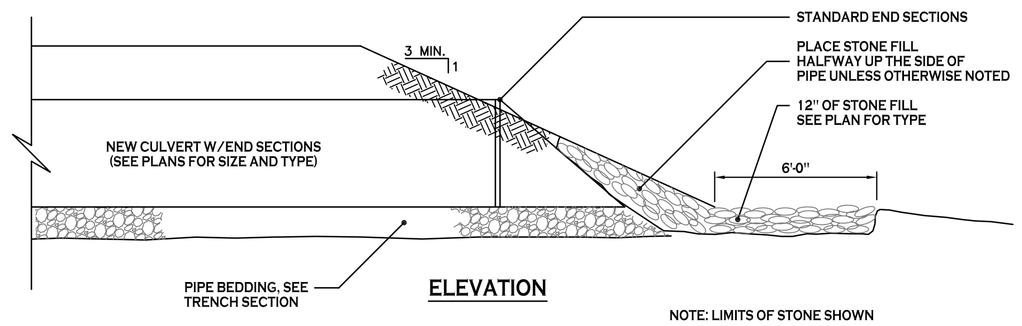
NOTE: ECCENTRIC CONE SECTION SHALL BE USED UNLESS DEPTH WARRANTS TOP SLAB PER MANUFACTURER

DETAIL A

GENERAL NOTES:
1. REINFORCED STEEL TO CONFORM TO LATEST A.S.T.M. A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) IN BASE SLAB.
2. CONCRETE COMPRESSIVE STRENGTH - 4000 PSI MINIMUM.
3. MANHOLE DESIGN SPECIFICATIONS TO CONFORM TO LATEST A.S.T.M. C478 SPEC. FOR PRE-CAST REINFORCED CON-CRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.
5. MANHOLE TO BE COATED ON OUTSIDE WITH BITUMASTIC SEALER.



PLAN VIEW

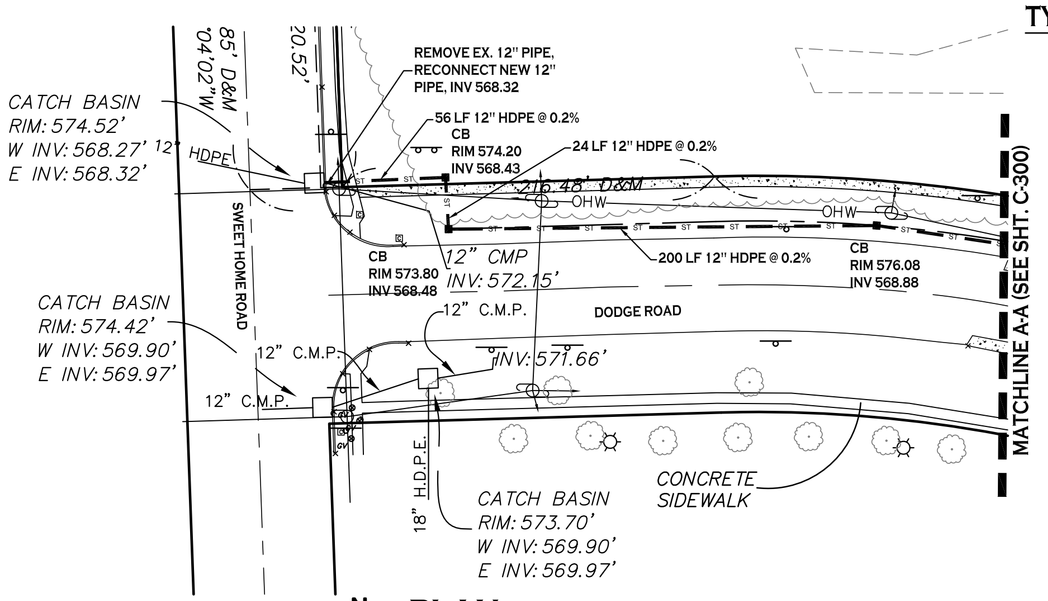


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS, PLAN MAY INDICATE GREATER LIMITS

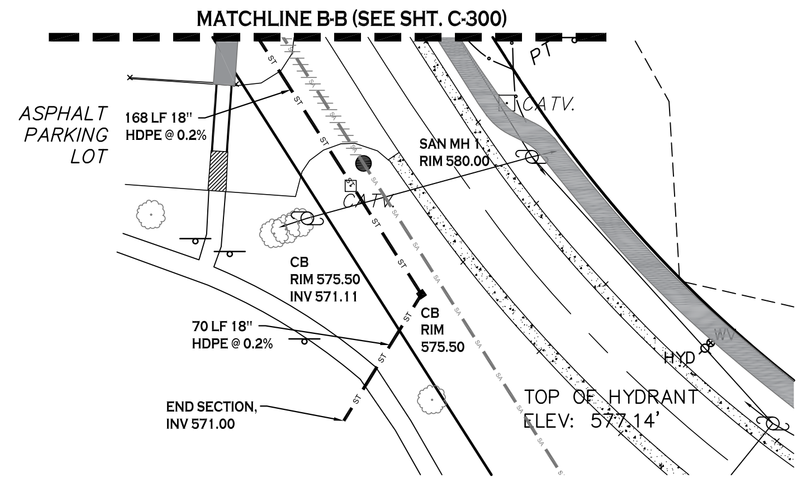
TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

NOT TO SCALE



PLAN

SCALE: 1"=50'



PLAN

SCALE: 1"=50'

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-301

Project no.: 21.011

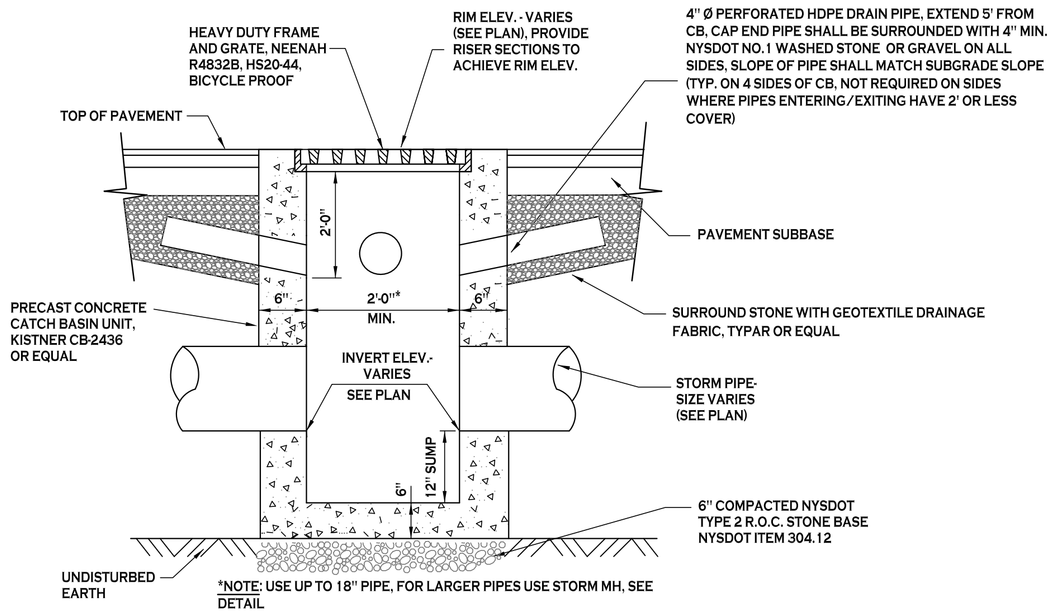
Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

1.e

Packet Pg. 1483

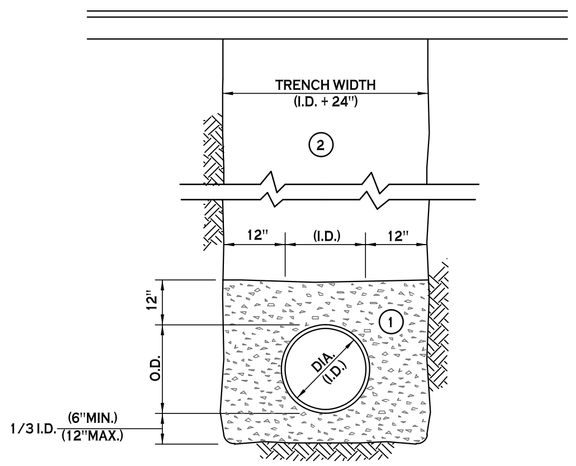
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. "WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



TYPICAL PRECAST CATCH BASIN

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

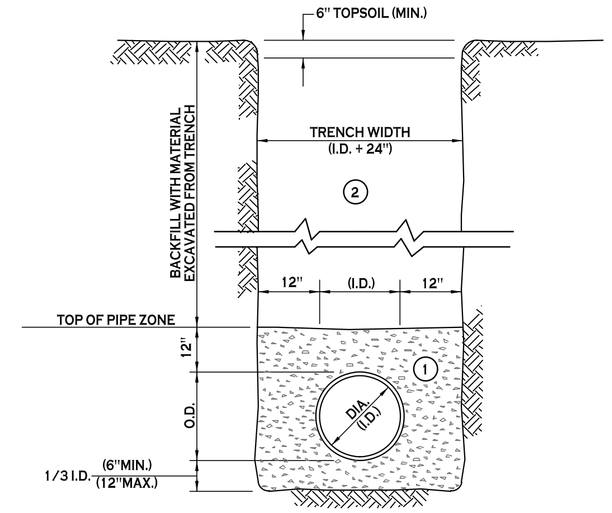
NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (2)

STORM SEWER TRENCH SECTION IN PAVED AREAS

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

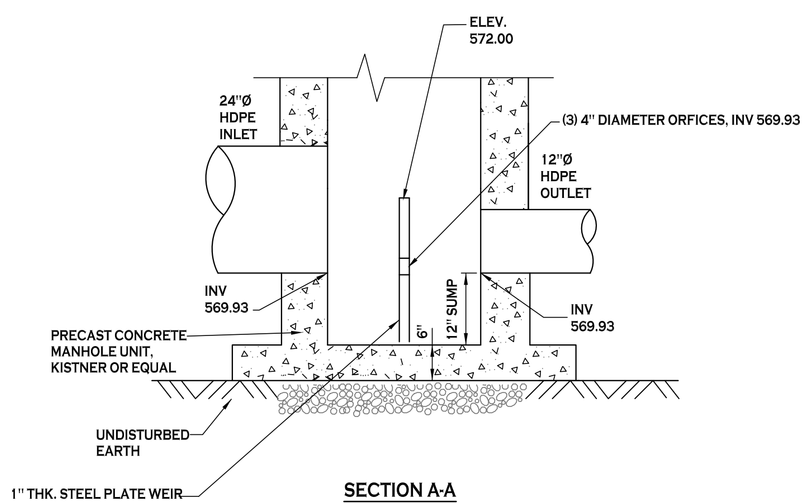
(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 6" LIFTS.

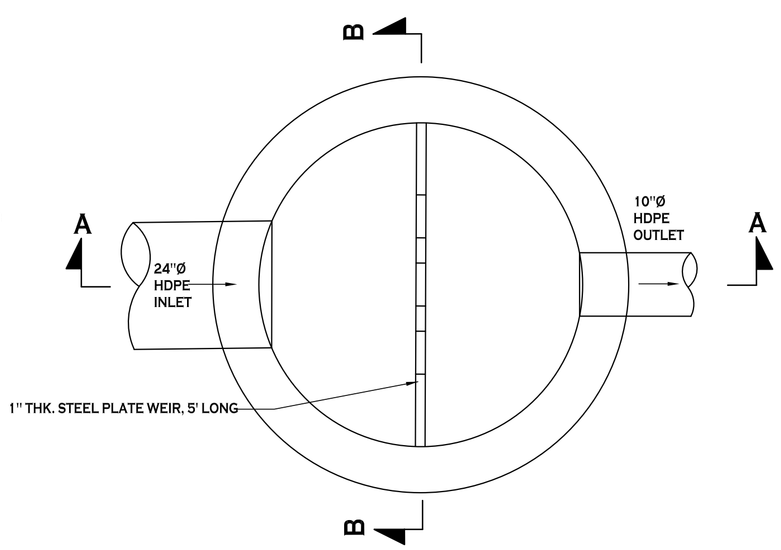
STORM SEWER TRENCH SECTION IN UNPAVED AREAS

NOT TO SCALE



SECTION A-A

NOTES:
1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED

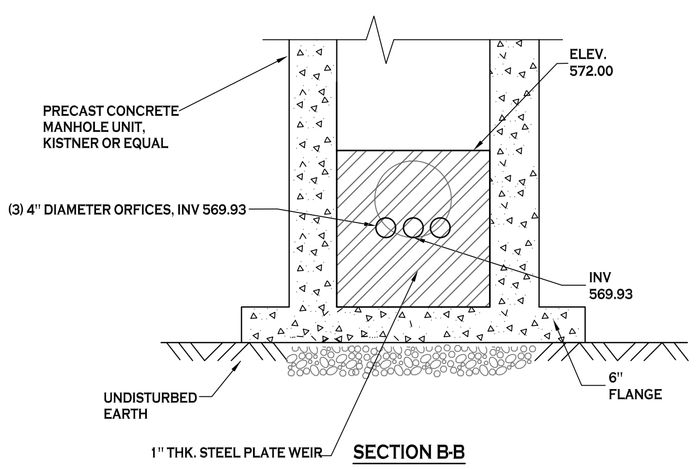


PLAN

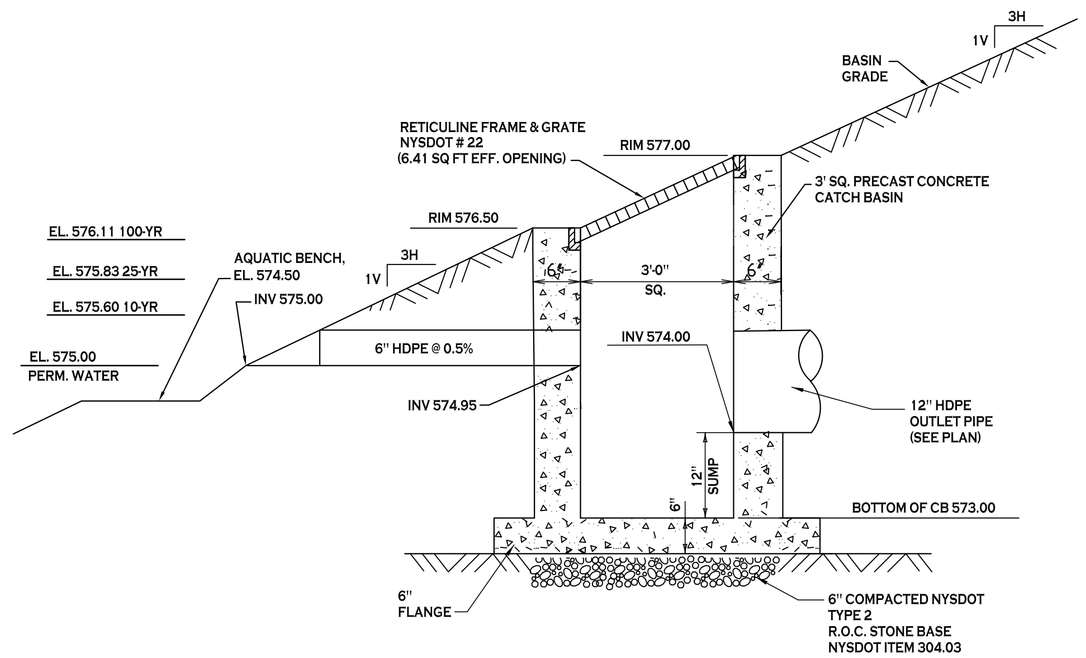
*NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52

NOT TO SCALE



SECTION B-B



DETENTION BASIN OUTLET STRUCTURE - CB 53

N.T.S.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

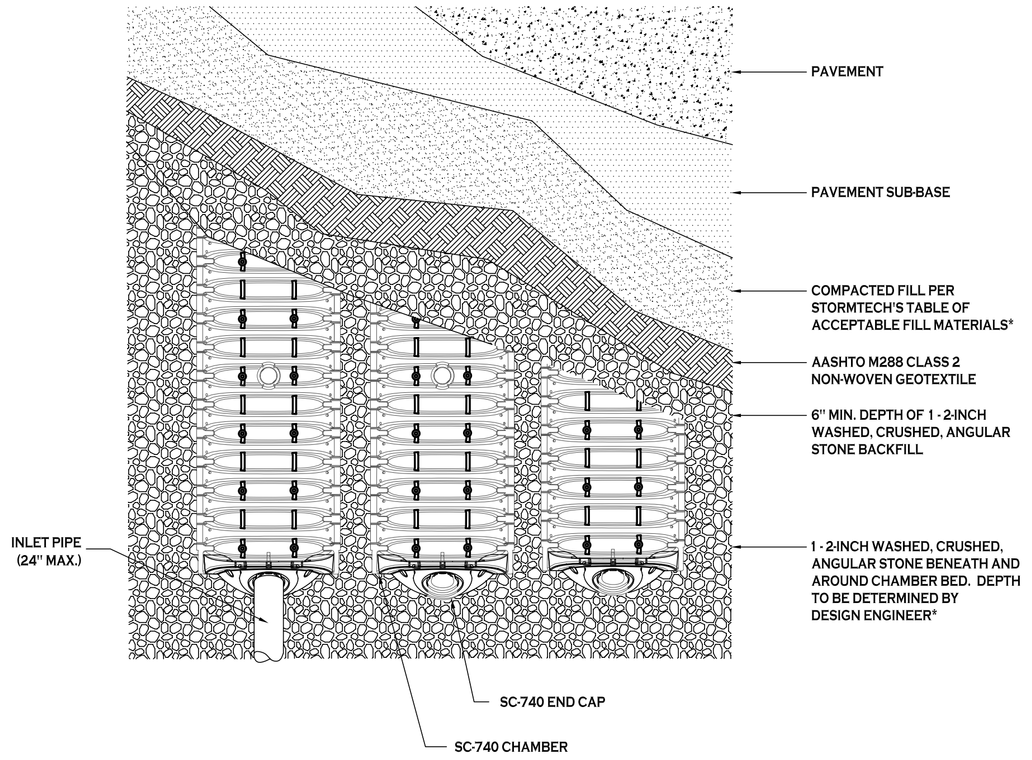
C-302

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)



STORMTECH SC-740 CHAMBER SYSTEM
PLAN VIEW DETAIL

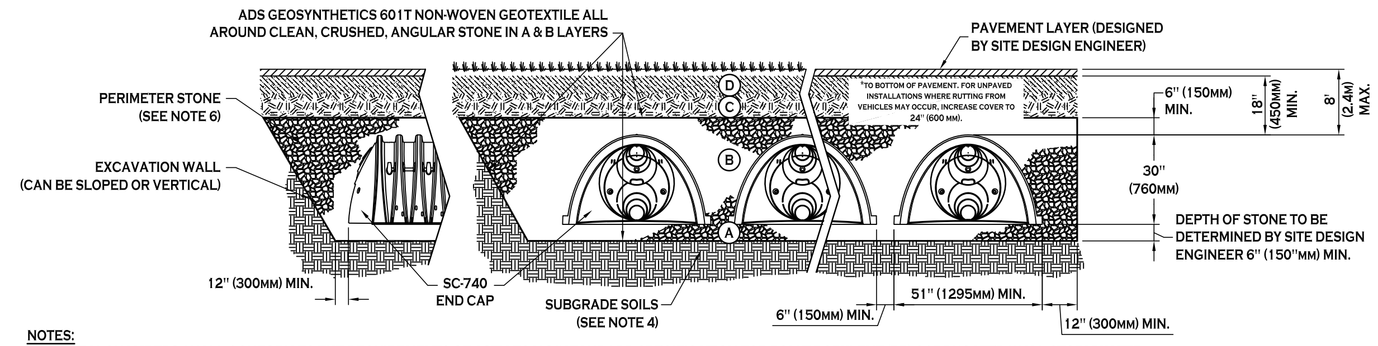
NOT TO SCALE

*SEE STORMTECH'S DESIGN MANUAL

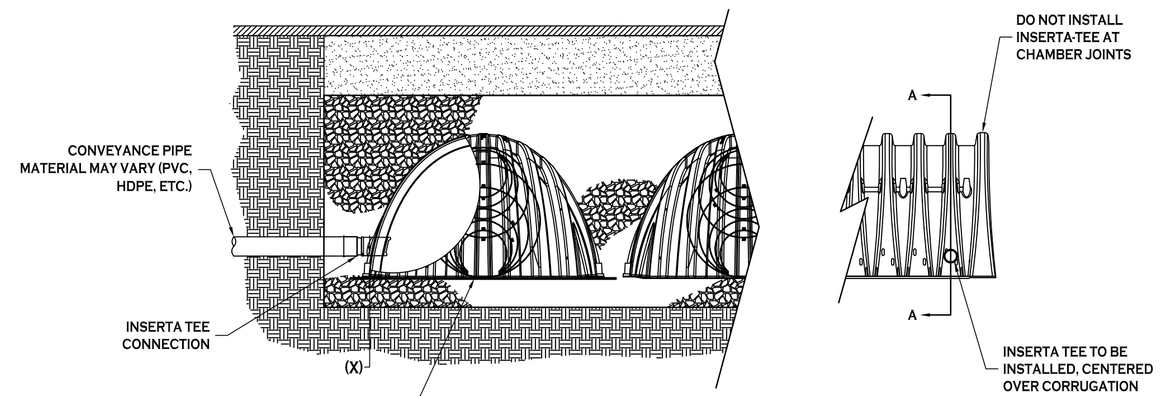
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 MM) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LATER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 MM) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 MM) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS (53 KN). DYNAMIC FORCE NOT TO EXCEED 20,000 LBS (89 KN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 MM) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 MM)	4" (100 MM)
SC-740	10" (250 MM)	4" (100 MM)
DC-780	10" (250 MM)	4" (100 MM)
MC-3500	12" (300 MM)	6" (150 MM)
MC-4500	12" (300 MM)	8" (200 MM)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

INSERTA TEE DETAIL

NOT TO SCALE

INSPECTION AND MAINTENANCE

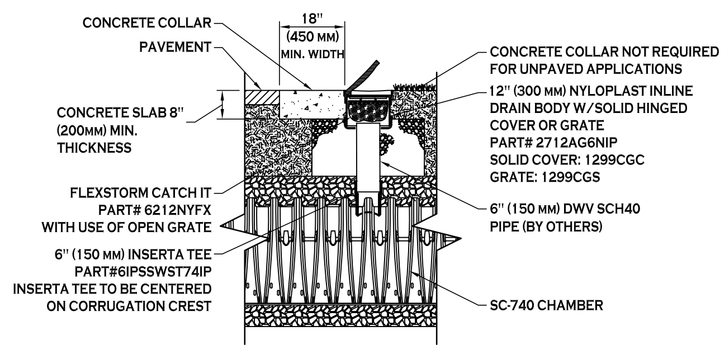
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 M) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/15/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

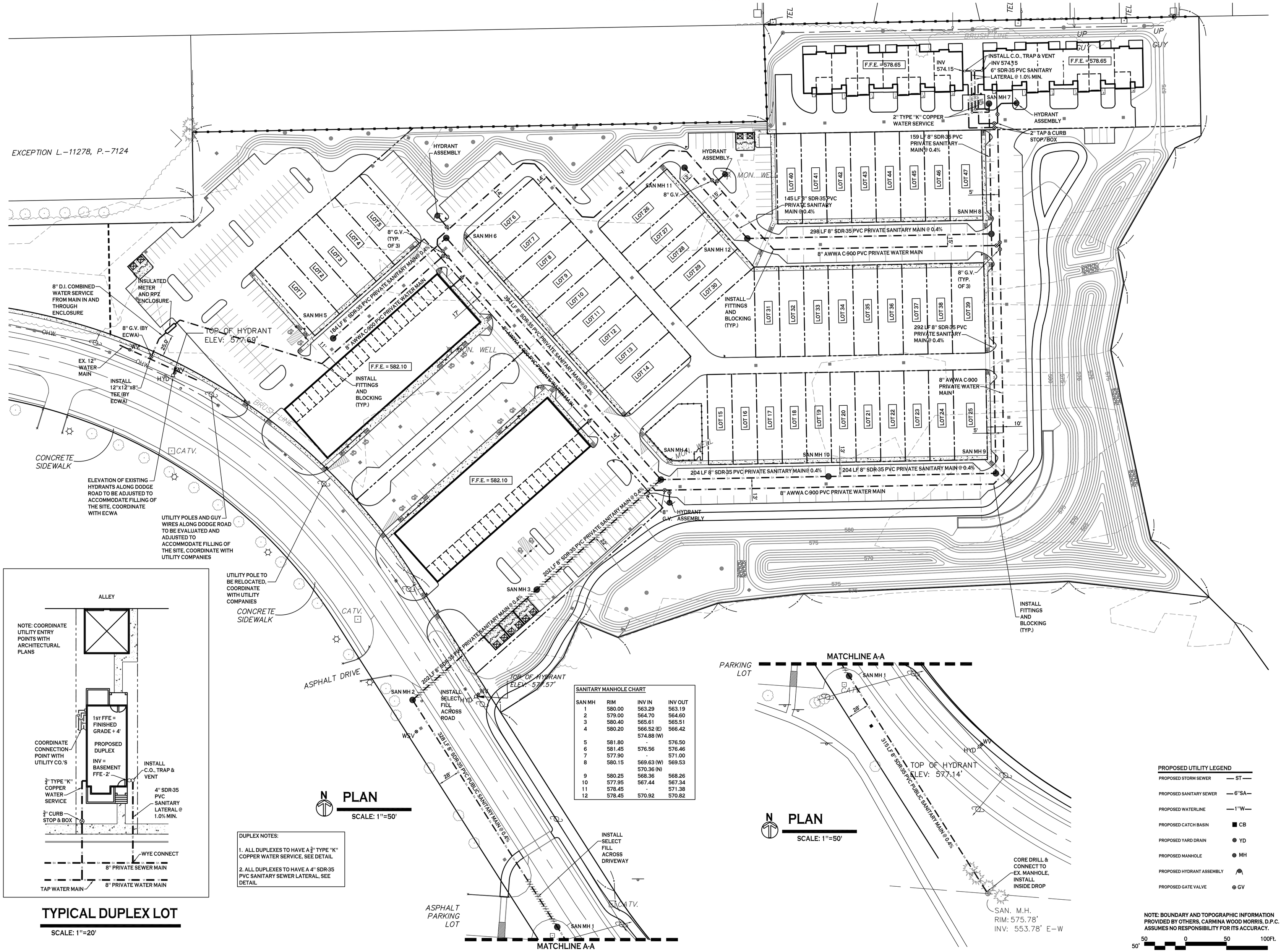
C-303

Project no.: 21.011

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

© Carmina Wood Morris DPC

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)



PLAN

SCALE: 1"=50'

PLAN

SCALE: 1"=50'

TYPICAL DUPLEX LOT

SCALE: 1"=20'

DUPLEX NOTES:

1. ALL DUPLEXES TO HAVE A ¾" TYPE "K" COPPER WATER SERVICE, SEE DETAIL
2. ALL DUPLEXES TO HAVE A 4" SDR-35 PVC SANITARY SEWER LATERAL, SEE DETAIL

SANITARY MANHOLE CHART

SAN MH	RIM	INV IN	INV OUT
1	580.00	563.29	563.19
2	579.00	564.70	564.60
3	580.40	565.61	565.51
4	580.20	566.52 (E)	566.42
		574.88 (W)	
5	581.80	-	576.50
6	581.45	576.56	576.46
7	577.90	-	571.00
8	580.15	569.63 (W)	569.53
		570.36 (N)	
9	580.25	568.36	568.26
10	577.95	567.44	567.34
11	578.45	-	571.38
12	578.45	570.92	570.82

PROPOSED UTILITY LEGEND

PROPOSED STORM SEWER	ST
PROPOSED SANITARY SEWER	6"SA
PROPOSED WATERLINE	1"W
PROPOSED CATCH BASIN	CB
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH
PROPOSED HYDRANT ASSEMBLY	
PROPOSED GATE VALVE	GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Utility Plan

DRAWING NO.

C-400

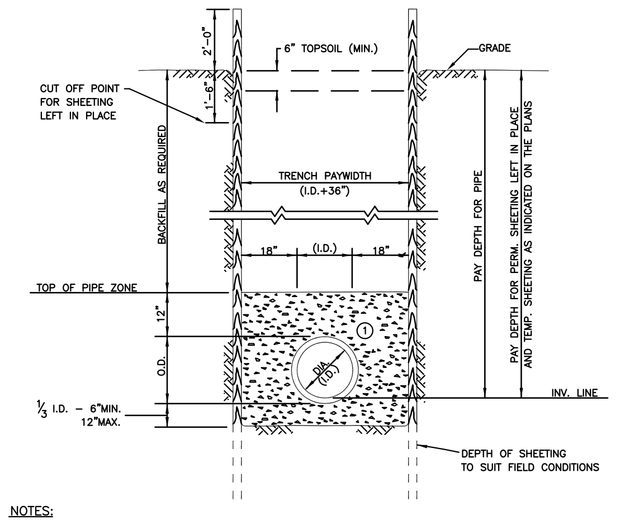
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

SHEETED TRENCH
(JANUARY 2012)



NOTES:

1. MAINTAIN 18" BETWEEN PIPE AND INSIDE FACE OF TEMPORARY SHEETING. IF SHEETING EXTENDS BELOW PIPE INVERT AS SHOWN, WHEN PVC PIPE MATERIAL IS USED, COMPACT MATERIAL ① BEFORE PULLING THE SHEETING.
2. SHEETED TRENCH OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING EQUIPMENT.
3. SHEETING DRIVEN BELOW THE INVERT OF THE PIPE FOR BEDDING MATERIAL AND TOE SUPPORT WILL NOT BE CONSIDERED IN THE FORMULA FOR PAYMENT BUT SHOULD BE FIGURED BY THE CONTRACTOR IN DETERMINING HIS UNIT BID PRICE PER SQUARE FOOT OF SHEETING.
4. WHERE INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER, TEMPORARY SHEETING WILL BE PAID FOR UNDER THE APPLICABLE BID ITEM. OTHER AREAS WHERE THE CONTRACTOR ELECTS TO USE TEMPORARY SHEETING NOT PREVIOUSLY AUTHORIZED BY THE ENGINEER SHALL BE AT HIS OPTION AND EXPENSE.

MATERIALS

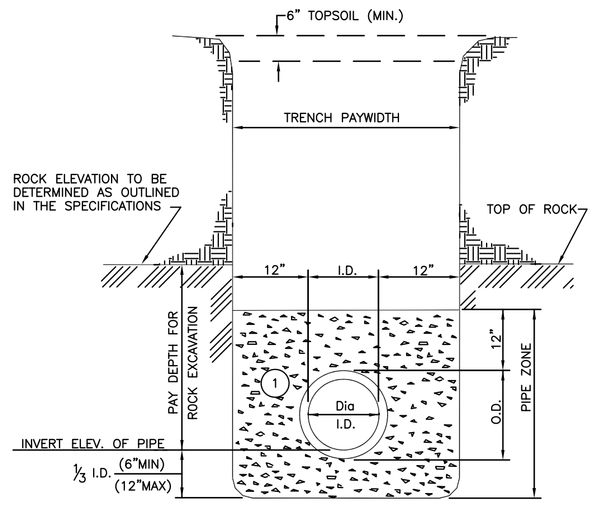
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED TOPSOIL DIMENSION	STD.DETAIL 2
	Rev. 2 6/5/06	UPDATED MATERIALS TO NYSDOT LATEST EDITION	
	File: d-02	Date: 3/1/91	

ROCK TRENCH DETAIL
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

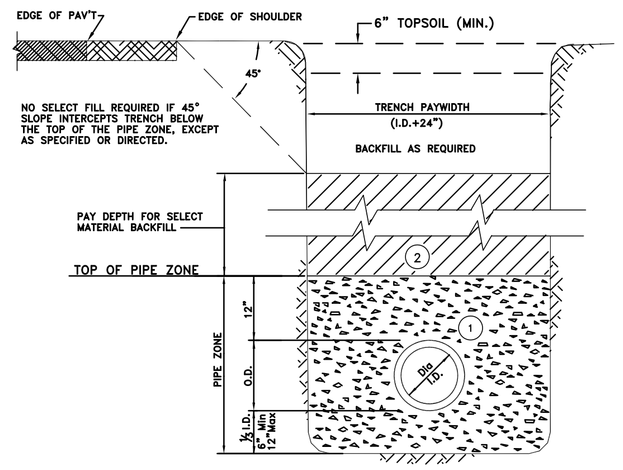
PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ①

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 1/6/94	ADDED 6" TOPSOIL (MIN.)	STD.DETAIL 3
	Rev. 2 2/7/94	ADDED NOTES A & B	
	File: d-03	Date: 3/1/91	

SELECT BACKFILL FOR TRENCH PARALLEL TO ROADWAYS
(JANUARY 2012)



NOTE:

A. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

B. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

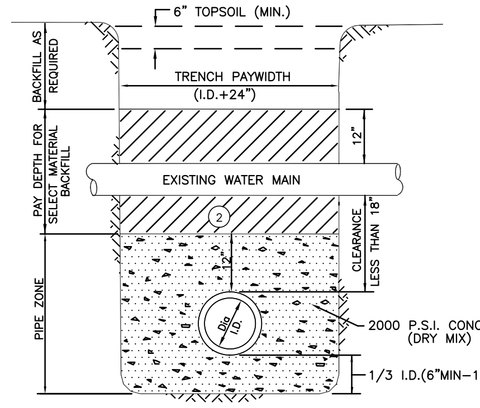
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO. 2 RUN OF CRUSHER STONE OR NO. 2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6" LIFTS TO 90% DENSITY)

NO SLAG SHALL BE ALLOWED FOR MATERIALS ① & ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 2 12/28/00	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 4
	Rev. 3 12/01	Updated NYS DOT Editions	
	File: d-04	Date: 3/1/91	

WATERMAIN CROSSING DETAIL TYPICAL FOR ENCASEMENT
(JANUARY 2012)



NOTES:

A. IN ALL CASES WHERE THERE IS LESS THAN 18" CLEARANCE BETWEEN EXISTING WATER MAIN AND PROPOSED SEWER (INCLUDING HOUSE LATERALS) THE NEW WORK SHALL BE ENCASED IN CONCRETE AS SHOWN. WHEN A CASING PIPE IS SPECIFIED, NO CONCRETE ENCASEMENT IS REQUIRED.

B. THE CONCRETE ENCASEMENT SHALL EXTEND 3'-0" EACH SIDE OF THE WATER MAIN.

C. SEWERS SHALL BE LAID AT LEAST 10' (3.0 m) HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A 10' SEPARATION, THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THE WATERMAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND THE ELEVATION OF THE BOTTOM OF THE WATERMAIN IS AT LEAST 18" (46 cm) ABOVE THE TOP OF SEWER.

D. SEWERS CROSSING WATERMAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46 CM) BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHEN THE WATERMAIN IS ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THE JOINTS OF THE SEWER PIPE WILL BE EQUIDISTANT FROM AND AS FAR AWAY FROM THE WATERMAIN JOINTS AS POSSIBLE. WHERE THE WATERMAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATERMAIN.

E. WHEN IT IS IMPOSSIBLE TO OBTAIN THE PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE SEWER SHALL BE EITHER ENCASED IN CONCRETE OR CONSTRUCTED OF PIPE MATERIAL EQUAL TO THE WATERMAIN AND PRESSURE TESTED AT 150 PSI TO ASSURE WATER TIGHTNESS.

F. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIALS PLACEMENT AND MAXIMUM PAY LIMITS.

G. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

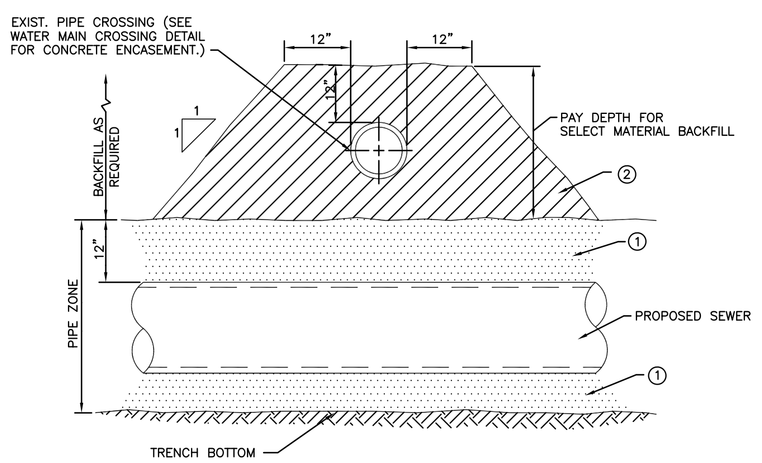
SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY)

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Revisions		STD.DETAIL 5
	2/7/94	ADDED 6" TOPSOIL(MIN.) & NOTE F&G	
	01/03/01	REVISED NOTE A	
	12/01	Revised Note "A"	
	File: d-05	Date: 3/1/91	

PIPE CROSSING SUPPORT DETAIL
(JANUARY 2012)



MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

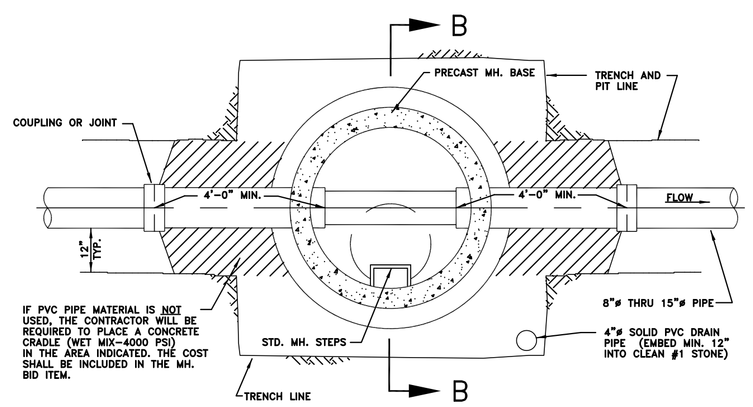
① NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

SELECT MATERIAL BACKFILL (NYSDOT LATEST EDITION)

② NO.2 RUN OF CRUSHER STONE OR NO.2 RUN OF CRUSHER GRAVEL WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 4 AND NYSDOT SECTION 703-02. (COMPACTED IN 6"LIFTS TO 90% DENSITY) NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS ① AND ②

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	UPDATED MATERIALS TO NYSDOT LATEST EDITION	STD.DETAIL 9
	Rev. 2		
	File: d-09	Date: 3/1/91	

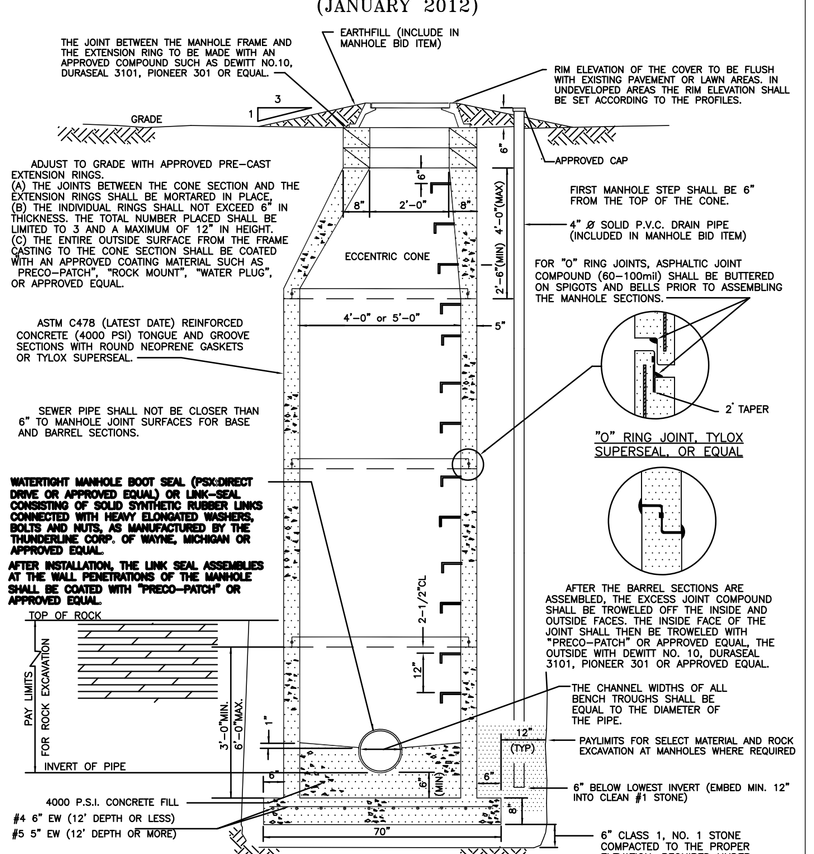
MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS
(JANUARY 2012)



PLAN

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/01	REVISED 4" PVC TO SOLID PIPE IN #1 STONE BED	STD.DETAIL 10
	Rev. 2		
	File: d-10	Date: 3/1/91	

MONOLITHIC PRECAST BASE MANHOLES 4'-5' DIA. BASE FOR 15"ø SEWERS OR LESS (SECTION B-B)
(JANUARY 2012)



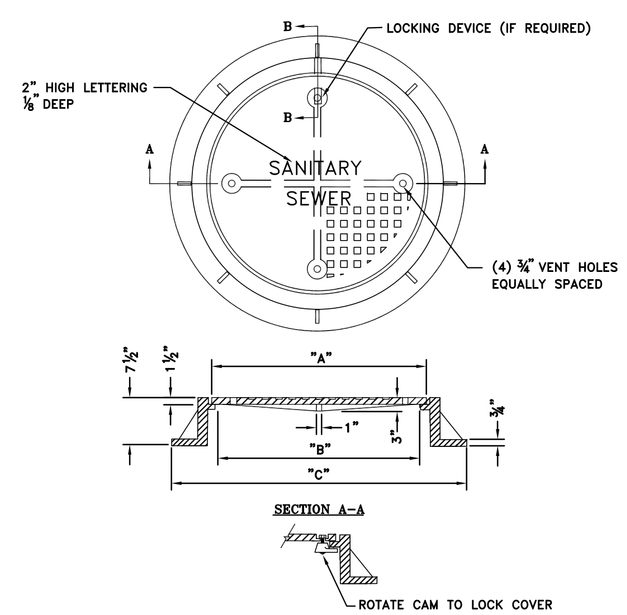
SECTION B-B

Revisions

07/15/98	ADD ROCK EXCAVATION PAYLIMITS
11/23/98	ADD 4"x4"x9" MARKER AND NOTES
12/01	REVISED 4" P.V.C. TO SOLID PIPE
03/04/03	ADDED WATER TIGHT BOOT SEAL NOTE
06/22/05	ADDED TYLOX SUPERSEAL NOTES
02/27/07	REMOVED WOOD POST AND NOTES
	CHANGED THE NUMBER OF EXTENSION RINGS FROM 2 TO 3

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT			STD.DETAIL 11
	File: d-11	Date: 3/1/91	

STANDARD FRAME AND COVER (PRIVATE SEWER)
(JANUARY 2012)



LOCKING DEVICE

TABLE				
PIPE SIZE	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	WEIGHT OF COVER
8" THRU 18"	24"	22 1/4"	35"(MAX.)	150 LBS. ± 5%
OVER 18"	32"	30"	46"(MAX.)	200 LBS. ± 5%

STANDARD FRAME AND COVER NOTES

1. MATERIAL ASTM A48 CLASS 30B CAST IRON.
2. UNIT MUST WITHSTAND H-20 WHEEL LOADING.
3. ALL DIMENSIONS ARE TO BE CONSIDERED MINIMUM WITH THE EXCEPTION OF THE COVER, WHICH MUST CONFORM EXACTLY TO MAINTAIN INTERCHANGEABILITY WITHIN THE COUNTY.
4. COVER WEIGHT 210 LBS. (MAX)
5. COATING NOT REQUIRED.
6. FRAMES AND COVERS SHALL HAVE MACHINED BEARING SURFACES.
7. LOCKING DEVICE MUST BE SITUATED TO ALLOW EASY REMOVAL OF COVER.
8. NO COMMERCIAL "BRAND NAME" LETTERING WILL BE ALLOWED ON THE EXPOSED SURFACE OF THE COVER.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 13P
	Rev. 2		
	Rev. 3		
	Rev. 4		
	File: d-13P	Date: 2/05	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Sanitary Sewer Details

DRAWING NO.

C-401

Project no.: 21.011

1e

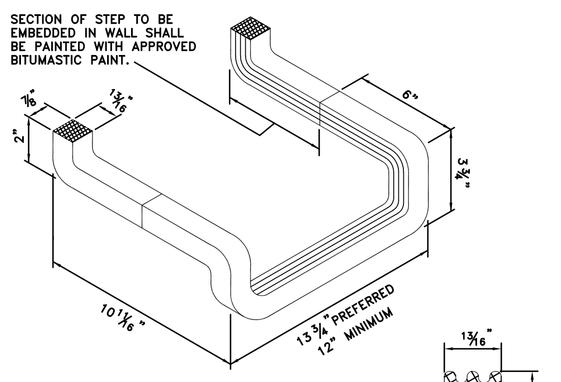
Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

Packet Pg. 1487

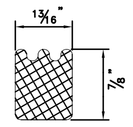
© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

STANDARD MANHOLE STEP
(JANUARY 2012)



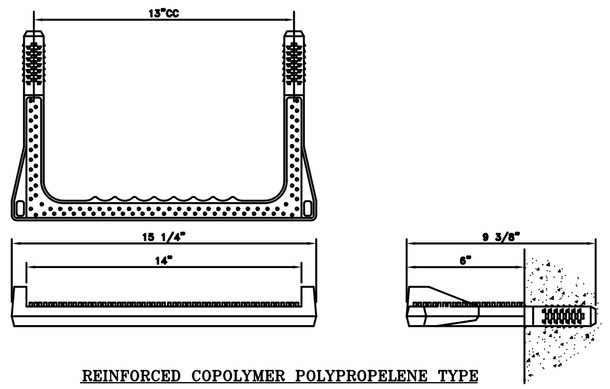
(DROP FRONT TYPE)



TYPICAL SECTION

NOTES:

1. MANHOLE STEPS SHALL BE OF FORGED ALUMINUM ALLOY.
2. AN ACCEPTABLE ALTERNATE IS THE STEEL REINFORCED COPOLYMER POLYPROPYLENE MANHOLE STEP.
3. THE STEPS SHALL BE EMBEDDED IN THE WALLS OF THE CONCRETE MANHOLE BARREL WHILE THE MANHOLE IS BEING CAST OR SECURELY GROUTED IN PLACE AFTER CASTING.



REINFORCED COPOLYMER POLYPROPELENE TYPE

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 12/9/08	ADDED REINFORCED COLPOLYMER TYPE STEP	STD.DETAIL 17
	Rev. 2		
	File: d-17	Date: 3/1/91	

CONSTRUCTION SPECIFICATIONS FOR HOUSE LATERALS
(JANUARY 2012)

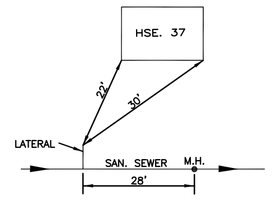
1. MATERIAL
   a. THICK WALL PVC – D – 3034, SDR–35
   b. EXTRA HEAVY CAST IRON
   c. DUCTILE IRON

2. FAR SIDE CROSSING
   a. LATERALS INSTALLED ACROSS TOWN ROADS MAY BE BY THE OPEN CUT METHOD WHERE ALLOWED BY THE HIGHWAY PERMIT.
   b. LATERALS INSTALLED ACROSS STATE OR COUNTY ROADS SHALL BE BY THE BORING AND JACKING METHOD (UNLESS OTHERWISE NOTED ON THE PLANS) USING A STEEL CASING PIPE. THE CARRIER PIPE SHALL CONFORM WITH THE MATERIAL SPECIFIED OR APPROVED BY THE ENGINEER.
   c. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
   d. ALL FAR SIDE CROSSINGS SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE R.O.W. LINE.
   e. THE CONTRACTOR SHALL SUPPLY A 2" X 4" WOOD MARKER EXTENDING FROM THE END OF THE CROSSING TO ONE FOOT BELOW GRADE. ALSO, RECORDS SHALL BE KEPT AS TO THE DEPTH OF THE HOUSE SERVICE AND A MINIMUM OF THREE (3) TIES SHALL BE ESTABLISHED FOR THE LOCATION OF THE SERVICE.
   f. LATERALS SHALL BE LAID AT A 2.0% MINIMUM GRADE. IN CASES OF A SHALLOW SEWER, A 1.0% SLOPE MAY BE APPROVED BY THE ENGINEER.

3. NEAR SIDE SERVICES
   a. THE CONTRACTOR SHALL SUPPLY WYE BRANCHES OF THE SAME MATERIAL AND CLASS AS THE SEWER MAIN.
   b. THE LOCATION OF THE WYE BRANCHES WILL BE DETERMINED BY THE CONTRACTOR AND ENGINEER IN THE FIELD AFTER CONFERRING WITH THE HOMEOWNER.
   c. THE LOCATION OF THE BRANCHES SHALL BE MEASURED FROM THE LAST DOWNSTREAM MANHOLE AND AT LEAST THREE (3) TIES FROM AN EXISTING STRUCTURE, NORMALLY THE HOME IT IS TO SERVICE.
   d. NEAR SIDE SERVICES SHALL BE INSTALLED UP TO ONE (1) FOOT OF THE, R.O.W. LINE.
   e. THE CONTRACTOR SHALL PROVIDE A 2" X 4" WOOD MARKER EXTENDED FROM THE WYE BRANCH TO ONE (1) FOOT BELOW GRADE.
   f. ON ALL SERVICES WHERE THE MAIN IS GREATER THAN 8' IN DEPTH, THE CONTRACTOR SHALL PROVIDE A RISER PIPE TO AN ELEVATION 8' BELOW EXISTING GRADE.

NOTES:

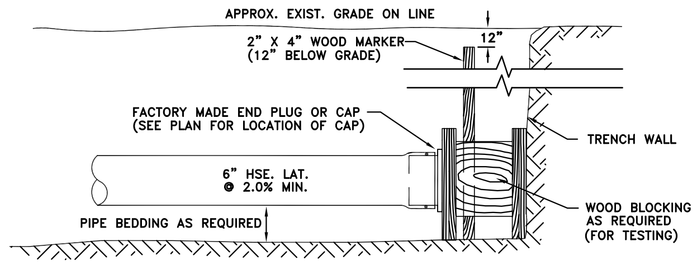
1. RECORDS OF THE DEPTH OF COVER SHALL BE KEPT FOR ALL HOUSE LATERALS BUILT ACROSS PAVEMENTS. SUCH RECORDS SHALL IDENTIFY THE LATERALS BY THE USE OF HOUSE NUMBERS AND SHALL SHOW LOCATION OF THE END OF THE HOUSE LATERAL WITH A MINIMUM OF THREE(3) TIES AS SHOWN IN EXAMPLE BELOW.



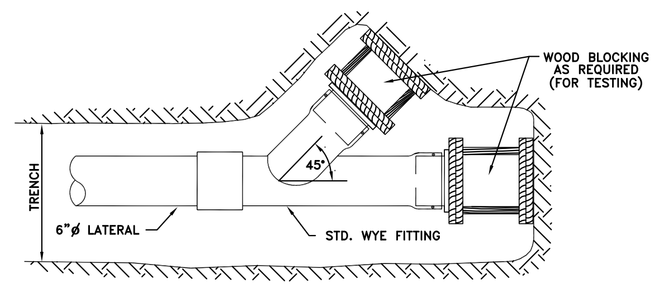
2. THE CONTRACTOR SHALL OBTAIN ALL HIGHWAY/R.O.W. PERMITS PRIOR TO START OF WORK.
3. VENTS AND CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 7/17/85	NOTE 2c: DEPTH 4'–0"	STD.DETAIL 23
	Rev. 2 12/9/96	CHANGED NOTE 1 TO THREE(3) TIES	
	Rev. 3 7/14/99	ADDED TITLE	
	Rev. 4 12/01	ADDED NOTE 5 REGARDING LOCATION OF VENTS AND CLEAN OUTS	
	File: d-23	Date: 3/1/91	

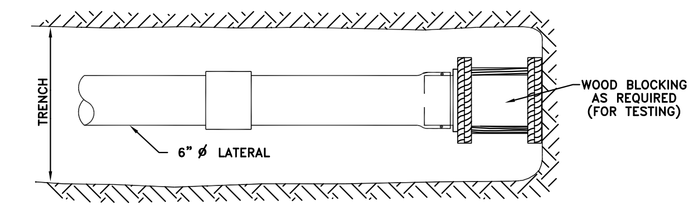
CAP & BLOCKING METHODS FOR AIR TESTING
(JANUARY 2012)



TYPICAL SECTION



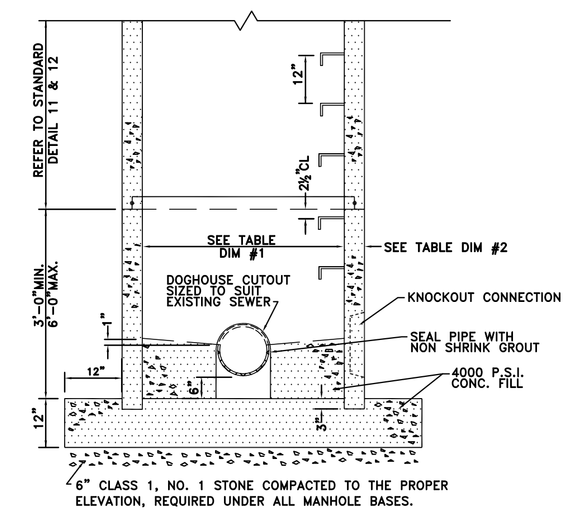
TYPE 2" SERVICE LATERAL FITTING



TYPE "1" SERVICE LATERAL FITTING

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1		STD.DETAIL 26
	Rev. 2		
	File: d-26	Date: 3/1/91	

PRECAST DOGHOUSE BASE MANHOLE
(JANUARY 2012)



6" CLASS 1, NO. 1 STONE COMPACTED TO THE PROPER ELEVATION, REQUIRED UNDER ALL MANHOLE BASES.

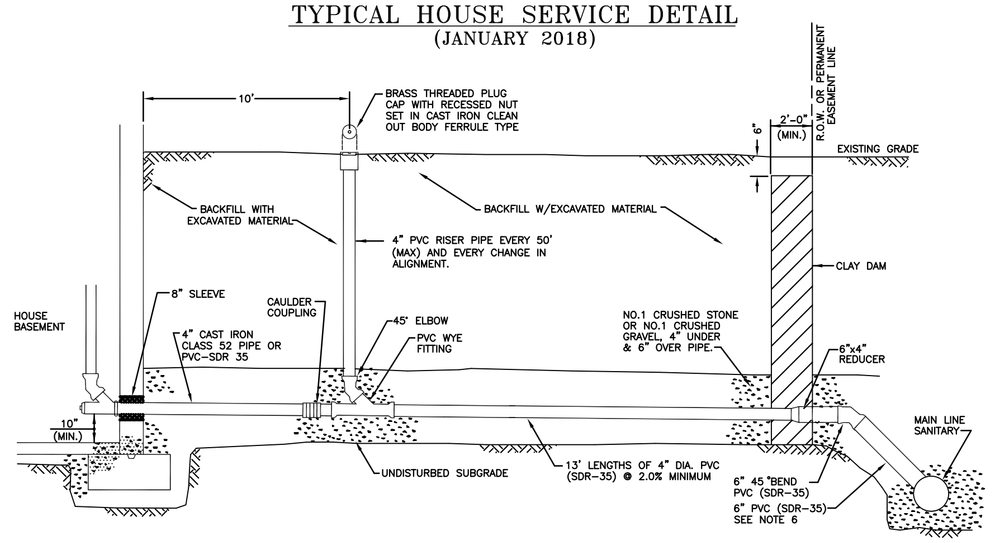
PIPE SIZE	DIMENSION #1	DIMENSION #2
8"–16"	4'–0"*	5"
18"	5'–0"	6"
21"–27"	5'–0"	6"
30"–36"	6'–0"	7"

* FOR DROP CONNECTIONS INSIDE DIAMETER SHALL BE 5'–0"

NOTE:
AREA AROUND DOGHOUSE CUTOUT & PIPE TO BE MADE WATERTIGHT UTILIZING A HYDRAULIC CEMENT MIXTURE (WATERPLUG,PRECO–PATCH, OR APPROVED EQUAL).

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 11/08/91	ADDED PIPE SIZE CHART & NOTE	STD.DETAIL 35
	Rev. 2 2/7/94	REVISED STONE UNDER MANHOLE BASE TO CLASS 1, NO. 1	
	File: d-35	Date:10/16/91	

TYPICAL HOUSE SERVICE DETAIL
(JANUARY 2018)

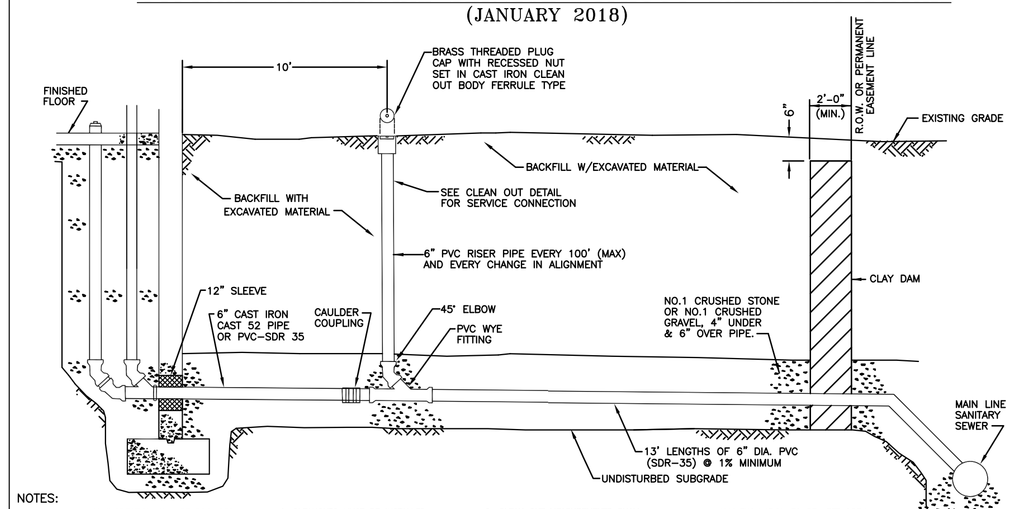


NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. A MANUAL VALVE SHALL BE IN–STALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
6. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION AN 8x6 WYE WITH 6" PVC TO 6" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE HOUSE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 20 & CLASS 52 TYPE CI PIPE	STD. DETAIL 21
	Rev. 1/07	REMOVED OLD NOTES 1,3,8,10,12,13 AND 20 REVISED TO 6"PVC–DC/DI, 48 HR ADV NOTICE	
	Rev. 11/08	ADDED PVC TRAP AND SLEEVE	
	Rev. 01/12	REVISED 4" CAST IRON TRAP	
	Rev. 01/18	REMOVED TRAP AND RISER VENT	
	File: d-21	Date: 3/1/91	

TYPICAL COMMERCIAL SERVICE WITHOUT BASEMENT DETAIL
(JANUARY 2018)



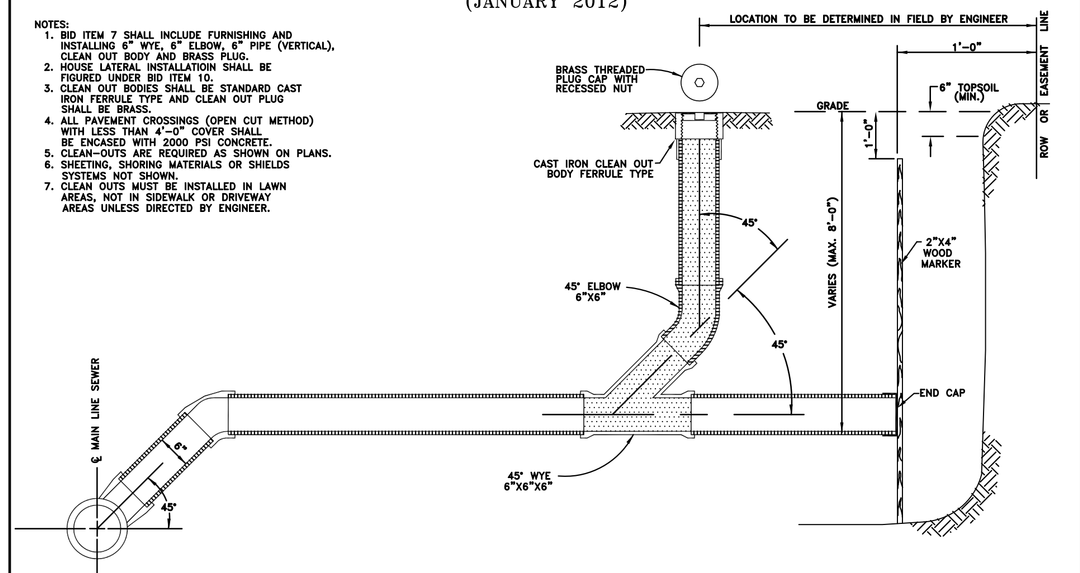
NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST ASTM SPECIFICATION D–3033/D–3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74–42.
4. CLEANOUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS, PREFERABLY BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE SIDEWALK.
5. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
6. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'–0" UNDER PAVED AREAS
7. MIN. DEPTH OF COVER 3'–0"
8. CLEAN OUT MEASUREMENTS SHALL START FROM CENTERLINE OF MAIN SEWER AND FROM THE CLEAN OUT FOR FAR SIDE CONNECTIONS. A CLEAN OUT MAY BE REQUIRED FOR ANY ABRUPT CHANGES IN LATERAL DIRECTION
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF OF PAVEMENT.
10. ANY SEWER LAID THROUGH OR OVER ROCK OR LEDGE SHALL BE LAID WITH SEPTIC TANK MUST BE FILLED WITH BANK RUN GRAVEL).
11. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
12. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE LATERAL.
13. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 6/05	ADDED NOTE 18 & CLASS 52 TYPE CI PIPE	STD. DETAIL 22
	Rev. 1/07	REMOVED OLD NOTES 2 AND 18 ADDED 18 MIN. TO SERVICE PIPE DETAIL	
	Rev. 11/08	ADDED SLEEVE AND PVC–SDR 35	
	Rev. 1/12	REVISED 6" CAST IRON TRAP NOTE	
	Rev. 1/18	REMOVED TRAP AND RISER VENT	
	File: d-22	Date: 3/1/91	

CLEAN–OUT DETAIL FOR SERVICE CONNECTION
(JANUARY 2012)

NOTES:
1. BID ITEM 7 SHALL INCLUDE FURNISHING AND INSTALLING 6" WYE, 8" ELBOW, 6" PIPE (VERTICAL), CLEAN OUT BODY AND BRASS PLUG.
2. HOUSE LATERAL INSTALLATION SHALL BE FIGURED UNDER BID ITEM 10.
3. CLEAN OUT BODIES SHALL BE STANDARD CAST IRON FERRULE TYPE AND CLEAN OUT PLUG SHALL BE BRASS.
4. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'–0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
5. CLEAN–OUTS ARE REQUIRED AS SHOWN ON PLANS.
6. SHEETING, SHORING MATERIALS OR SHIELDS SYSTEMS NOT SHOWN.
7. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS UNLESS DIRECTED BY ENGINEER.



ERIE COUNTY DEPT. OF ENVIRONMENT & PLANNING DIVISION OF SEWERAGE MANAGEMENT	Rev. 1 5/03	4'–0" COVER, C.I. CAP "RECESSED NUT	STD. DETAIL 28
	Rev. 2 2/94	CHANGED DIM LINE FOR MAX. DEPTH	
	Rev. 3 12/01	ADDED NOTE 7	
	Rev. 4 5/02	CHANGED C.I. CAP TO BRASS	
	Rev. 5 2/05	1' MIN. FROM EDGE OF WALK NOTE	
	Rev. 6 1/12	CHANGED CI. TO BRASS NOTES 1 & 3	
	File: d-28	Date: 3/1/91	

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Details

DRAWING NO.
C-402

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

GENERAL NOTES FOR
SANITARY SEWER CONSTRUCTION
WITHIN ERIE COUNTY SEWER DISTRICTS

1. The Erie County Division of Sewerage Management (DSM), who operates and maintains the existing sewer lines and appurtenances within Erie County Sewer Districts (ECSD), is to be notified at least 48 hours in advance of the start of construction.

2. Construction shall be in accordance with the Rules and Regulations for Erie County Sewer Districts.

3. All permits required by the Federal, State, County, City and/or Town governments to perform work must be obtained prior to the start of work, and paid for by the Contractor.

4. If easement and/or Out of District Agreements are required, they must be complete and ready to be filed before the project will be approved for construction.

5. The contractor shall comply in all respects to the Industrial Code Part (Rule No.) 53 relating to construction, excavation, and demolition operations at or near underground facilities, as issued by the State of New York Department of Labor, Board of Standard and Appeals.

6. The construction of the sanitary sewer facilities shall be under the supervision of a person or firm qualified to practice professional engineering in New York State under the Education Law of the State, whenever engineering services are required by such law for such purposes.

7. Where such sanitary sewer facilities are under the supervision of a professional engineer, he/she shall certify to the DSM and to the applicant that the constructed facilities have been under his/her supervision and that the work has been fully completed in accordance with the approved engineering reports, plans, specifications, and approvals.

8. The Contractor is solely responsible for all site safety. The Contractor's equipment and methods of operation shall be in full compliance with OSHA Standards and satisfy all Federal, State and Local Health and Safety Regulations.

9. The Contractor is advised a trench shield and/or shoring designed in accordance with OSHA Standards shall be used in all open trench excavations.

10. Any contractor and/or plumber performing work in a confined space (i.e. manholes, wetwells, and chambers) owned by an Erie County Sewer District, must certify to the County that they have their own Confined Space Entry Program that meets or exceeds OSHA's regulations. Certification must be notarized by a notary public.

11. The contractor shall expose existing utilities ahead of the pipe laying operation, so if minor adjustments must be made in the pipe elevation and/or alignment due to interference from these utilities, said changes can be made in advance of the work.

12. The contractor shall retain the services of a qualified tree expert to remove, where necessary, branches which interfere with the construction operation, or to repair trees having suffered damage by construction activities. The cost involved is to be included in the various items of the contract.

13. The proposed 8 through 12 inch diameter sanitary sewer pipe shall be polyvinyl chloride (PVC) sewer pipe conforming to the latest revisions of American Society for Testing and Materials (ASTM) designation D-3034, SDR-35, installed in accordance with the ASTM designation D-2321-83a or the latest revision thereof, or approved equal. Larger diameter pipes will be reviewed on a case by case basis.

14. Sewers shall be laid with straight alignment between manholes and shall be checked by using a laser beam or lamping.

15. Should a fluid condition be encountered at the trench bottom, the contractor is to undercut the trench and provide suitable fill material (stone & fabric) to stabilize the trench bottom.

16. Sanitary sewer bedding material shall be No. 1 crushed stone with a gradation conforming to the *DSM Specifications for Subdivisions and Sanitary Sewer Extensions.*

17. Backfill shall be of a suitable material removed from the excavation except where other material is specified. Debris, frozen material, large clods or stones, organic matter, or other unstable materials shall not be used for backfill within two (2') feet of the top of the pipe.

18. All pipes crossing under paved areas are to be backfilled to sub-grade with compacted select material (No. 2 crushed stone) to five (5') feet outside the pavement edges or as required by the highway permit. If any proposed sewer runs under paved areas and has less than four (4) feet of cover, then concrete encasement is required as shown on the DSM Typical Concrete Encasement Detail.

19. Sewers parallel to watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.31, and Page 30-11:* Sewers shall be laid at least ten (10') feet (three (3) meters) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten (10') foot separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18-inches (460 mm) above the top of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the regulatory agency and be pressure tested to 150 pounds per square inch (psi) (1034 kPa) to assure water tightness prior to backfilling.

20. Sewers crossing watermains - *Ten State Standards, Latest Edition, Chapter 30, Section 38.32, Page 30-11 to 30-12:* Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18-inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

21. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods must be specified:

    a. The sewer shall be designed and constructed equal to water pipe, and shall be pressure tested at 150 psi (1034 kPa) to assure water tightness prior to backfilling.
    b. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends ten (10') feet (three (3) meters) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the regulatory agency for use in water main construction.
    c. The sewer shall be encased in concrete per the DSM Watermain Crossing Detail Typical For Encasement

22. The manhole covers are to bear the inscription "ECSD SANITARY" and comply with the DSM Standard Frame and Cover detail. For private projects the covers shall bear the inscription "SANITARY SEWER" and comply with the DSM Standard Frame and Cover (Private Sewer) detail.

23. Building sanitary sewer vents must be installed six (6) inches above finished grade in a grassy area with a mushroom cap. If the vent is in a sidewalk or paved area, then protect with 6" diameter bollards (2 minimum).

24. Cleanouts (c.o.) are required on 4" and 6" building sewers every fifty feet and one hundred feet respectively, and at every change of alignment.

25. Abandoned building sewer connections from the site, if any, require proof of a District Permit for Disconnection prior to the new connection being made.

26. The following pertains only for direct replacement of in service sanitary sewers:
    a. Each new pipe joint shall be ultrasonic tested after it is laid, but before the next pipe is laid. All tests shall be in accordance with the testing equipment manufacture recommendations.

    b. The ultrasonic test shall be performed in lieu of the hydrostatic and air tests.
    c. A video inspection of the entire sewer shall be performed. Forward the video inspection tape and related paperwork to DSM for review and approval.
    d. A deflection test is required in all cases.

27. For all sanitary sewer installations, a written certificate of construction completeness and compliance, including the results of the hydrostatic leakage test, lamp test, deflection test, air test, etc. shall be submitted to the Erie County Health Department and DSM within thirty (30) days after completion of construction.

28. For all public and private 8" diameter pipe or larger sanitary sewer installations, the developer/contractor must provide one (1) set of record drawings on "D" size paper (24" x 36") and in an electronic file format (CD or flash drive) compatible with the latest AutoCAD release.

29. All public sewer extension projects that consist of more than 750 LF of 8" diameter pipe or larger, shall furnish a 2 year maintenance bond to the DSM.

30. Final Certification will be issued upon the full completeness and compliance of the project including any requirement(s) of I&I remedial work.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer
General Notes

DRAWING NO.
C-403

Project no.: 21.011

1e

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

A. Requirements

1. After backfilling and prior to the final acceptance of the project, the Contractor will be required to perform the following three tests on all sewers built under this project:

a) Air Tests
b) Infiltration or Exfiltration
c) Deflection Test (15" dia. and smaller).

2. No more than 1,000 linear feet of installed sewer shall be allowed to remain untested.

3. In view of the fact that house laterals and riser pipes often contribute considerable infiltration, such laterals and risers are to be installed and capped, tied and blocked as the work progresses, prior to the air testing of the lines.

4. The Contractor's testing procedures shall be completed in accordance with OSHA Standards for confined space entry. The Contractor will be required to provide and operate all equipment necessary for full compliance for his operation. Equipment such as gas detectors, safety harnesses, ventilating blowers, respirators etc. shall be provided by the Contractor.

B. Air Tests (Required for All Diameters up to and including 36") 10 State Standards Section, 33.94

1) This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2) The procedure for air testing shall be as specified herein. The minimum allowable time for the test pressure to decrease from 3.5 psi to 3.0 psi shall be not less than as called for in the following table:

Minimum Acceptance Times* For Length Shown (min:sec)

Pipe Diameter	Up to 100'	100 - 200'	200 - 300'	300 - 400'
6"	2:50	2:50	2:50	2:51
8"	3:47	3:47	3:48	5:04
12"	5:40	5:42	8:33	11:24
15"	7:05	8:54	13:21	17:48
18"	8:30	12:49	19:14	25:38
21"	9:55	17:27	26:11	34:54
24"	11:24	22:48	34:11	45:35
27"	14:25	28:51	43:16	57:42
30"	17:48	35:37	53:25	71:13
33"	21:33	43:56	64:38	86:10
36"	25:39	51:17	76:55	102:34

* Erie County Sewer District Inspector will extend time to the next full minute during the test.

3. Pipe lines in sizes up to 36 inches in diameter can be air tested from manhole to manhole for distances not to exceed 400 feet.

4. In wet trenches where pumping to lower the water table is impractical, approved 4" diameter, solid PVC drain pipe (with approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole in order to calculate the groundwater pressure acting on the pipe exterior. The initial air test pressure shall be increased as necessary to overcome the calculated groundwater pressure.

5. The testing procedures outlined shall be strictly adhered to.

6. All testing equipment shall be supplied by the Contractor and be in good working condition. Some of the major equipment required for air tests is:

a) Stop watch graduated in tenths of a second.
b) Compressor of 50 to 100 psi capacity.
c) Bulkheads for pipe.
d) Approximately 100 feet of 3/8" diameter air hose.
e) Pressure gauge - 0 to 5 psi graduated in 1/16th of a pound increments.
f) Three 3/8 inch diameter check valves.

C. Infiltration Tests (Applicable Only if Ground Water is Two Feet Above the Top of the Pipe)

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. Infiltration tests for all sewers constructed under this project shall not exceed 100 gallons per inch diameter per mile of sewer, per 24 hours. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration. All equipment for the tests shall be furnished by the Contractor and be in good working condition.

3. The allowable rate of infiltration given in gallons per mile is not to be construed as a commitment on the part of the District to accept an entire line, where overall infiltration is less than the allowable, while one or more runs contribute excessive infiltration.

4. The infiltration test is intended to measure the water tightness of a sewer as related to the infiltration of ground water and is only applicable if the water table level is 2 feet or higher above the top of the pipe for the entire length of the test section.

RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES, 2014 EDITION

38.3 Relation to Water Mains

38.31 Horizontal and Vertical Separation

Sewers shall be laid at least 10 feet (3 m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. For gravity sewers where it is not practical to maintain a 10 foot (3 m) separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the gravity sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the gravity sewer and at an elevation so the bottom of the water main is at least 18 inches (460 mm) above the top of the sewer.
If it is impossible to obtain proper horizontal and vertical separation as described above for gravity sewers, both the water main and gravity sewer shall be constructed of slip-on or mechanical joint pipe complying with Section 8.1 and Section 8.7 of the "Recommended Standards for Water Works - 2012 Edition" and shall be pressure rated to at least 150 psi (1034 kPa) and pressure tested to ensure watertightness.

38.32 Crossings

Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.
When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:
30-11
a. The sewer shall be designed and constructed equal to water pipe, as described in Paragraph 38.31.
b. Either the water main or the sewer line may be encased in a watertight carrier pipe that extends 10 feet (3 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be made of materials approved by the regulatory agency for use in water main construction.

a) Approved 4" diameter solid PVC drain pipe (with an approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Embed the pipe a minimum of 12" into clean #1 stone. Ground water elevations will be measured at each manhole so that the ground water level can be correlated with the infiltration measurements.

b) Before conducting the tests, the water table should be allowed to stabilize at its normal level and verified that it is 2 feet above the top of the pipe during the test period. The test is usually conducted between adjacent manholes with the upstream end of the sewer bulkheaded in a suitable manner to isolate the test section. All service laterals, stubs and fittings should be properly plugged or capped at the connections to the test pipe section to prevent the entrance of ground water at these locations.

c) A V-notch weir or other suitable measuring device should be installed in the inlet pipe of the downstream manhole. Infiltrating water is then allowed to build up and level off behind the weir until a steady, uniform flow occurs over the weir. Leakage is determined by direct reading from graduations on the weir consecutively for five (5) days and converting the flow quantity to gallons per unit length of pipe per unit of time.

d) An important factor in applying the test criteria is to properly correlate the variable water head over the length of the sewer being tested to the high ground water level. A minimum of 2 feet of water over the pipe is required at the upper manhole before the infiltration test will be allowed.

5. When a sewer run between two consecutive manholes or chambers is found to contribute infiltration at a rate above the allowable, inspection by television or other cameras may be made by the Contractor so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole if greater than 100 feet) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

D. Exfiltration Tests

1. This test shall be performed no earlier than 14 calendar days after the trenches are backfilled.

2. The exfiltration test for all diameter sewers shall be as described below. Although actual infiltration will normally be less than that indicated by the water exfiltration test, the test does provide a positive means of subjecting the completed sewer system to an actual pressure test. Since sanitary sewers are not designed or expected to operate as a pressure system, care must be exercised in conducting the test and correlating the results with the allowable exfiltration limits.

a) The test is usually conducted between adjacent manholes. Prior to the test, all service laterals, stubs and fittings within the test section should be plugged or capped and adequately braced or blocked to withstand the water pressure resulting from the test.

b) If manholes are to be included in the test, the inlet pipe to each manhole should be bulkheaded and the test section filled with water through the upstream manhole. To allow air to escape from the sewer, the flow should be at a steady rate until the water level in the upstream manhole provides an average pressure of 5 psi (11.6' head) at the center point of the test section or the upstream manhole is filled. If necessary, provisions should be made to bleed off entrapped air during the filling of the test section.

c) Once the test section is filled, the water should be allowed to stand for an adequate period of time (one day minimum) to allow for water absorption by the pipe and manhole. After water absorption has stabilized, the water level in the upstream manhole is brought up to the proper test level and this level established by measuring down from the manhole rim or other convenient datum point. After 24 hours, the water elevation should be measured from the same reference point and the loss of water during the test period calculated, or the water can be restored to the level existing at the beginning of the test, and the amount added used to determine the leakage.

d) To exclude both manholes from the test,it is necessary to bulkhead the outlet pipe of the upstream manhole. Provision must be made in the bulkhead for filling the pipe and expelling trapped air.

e) The water level at the upstream manhole shall be computed and varies above the top of the pipe. Since the sewer is installed on a grade, the test section downstream will most likely be subjected to a greater pressure. Therefore, the test pressure head at the upstream manhole should be adjusted such that the maximum pressure on the pipe being tested is no greater than 10 psi, (23 feet of head).

3. When a sewer run between two consecutive manholes or chambers is found to exfiltrate at a rate above the allowable, inspection by television or other cameras may be made by the Contractor during wet weather, so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

E. Deflection Test

1. This test shall be performed no earlier than 30 calendar days after the trenches are backfilled.

2. All flexible (PVC) sewers 8" diameter or larger constructed under this project shall be internally checked with a five percent (5%) deflection "go-no-go pig" or Mandrel to determine if the pipes are deflecting excessively. Any section of pipe unable to pass the deflection test "pig test" shall be removed and replaced at the Contractor's expense.

3. Deflection testing mandrels or pig shall be pulled thru the pipe by hand or hand operated winch. Power winches or drives are not permitted.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Testing Notes

DRAWING NO.
C-404

Project no.: 21.011

Packet Pg. 1489

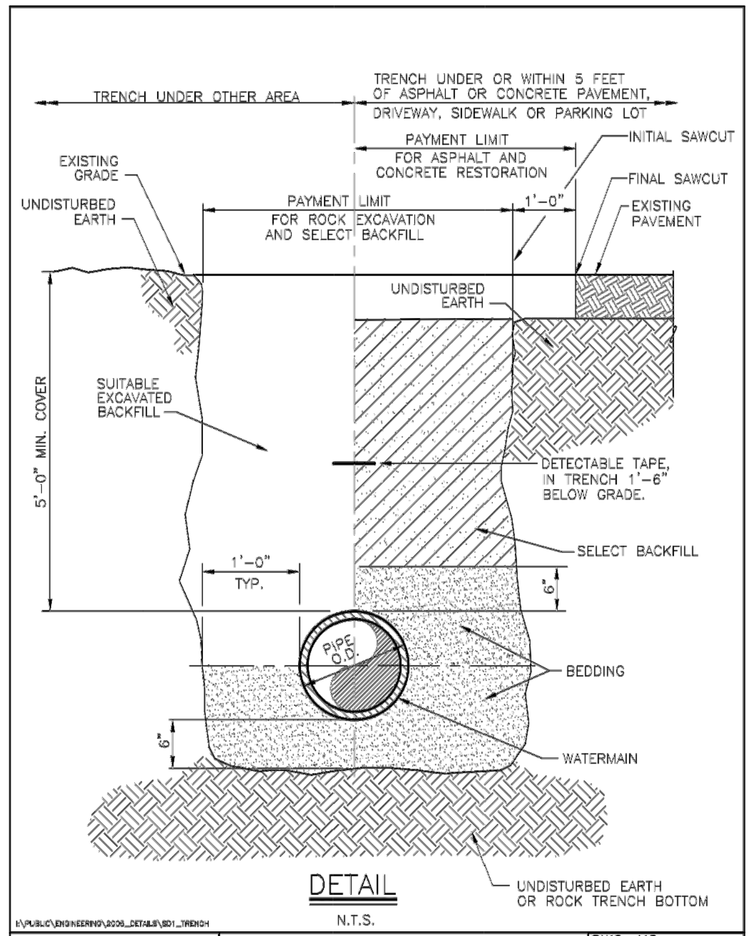
1e

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

Attachment: SP-2021-05_drawings_061721 (2305?) : SP-2021-05)

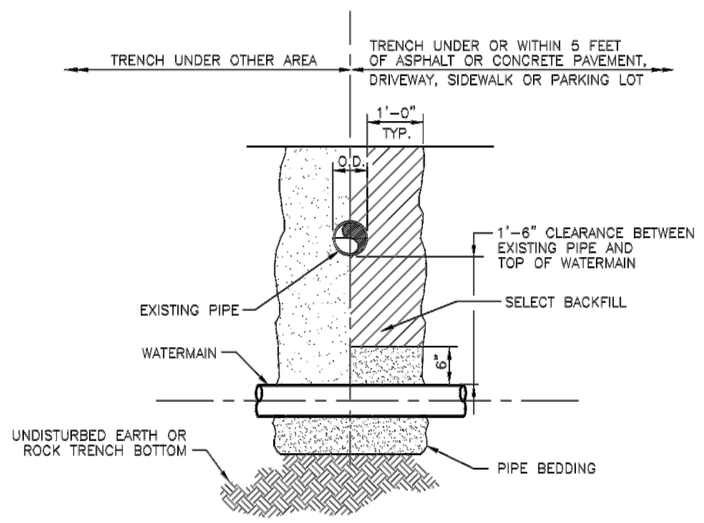
Packet Pg. 1490



DETAIL
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD1_TRENCH

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TRENCH THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD1	
		DATE 4/28/92	REVISED 10/05



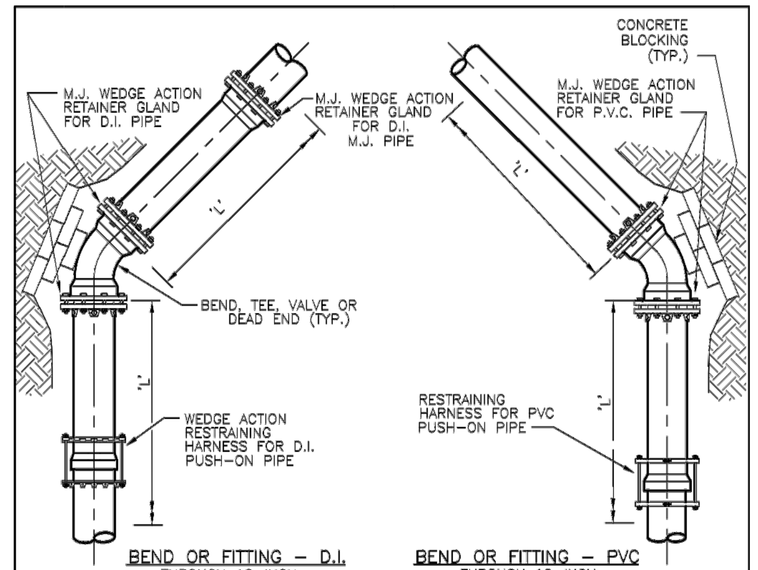
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18 FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2	
		DATE 4/28/92	REVISED 10/05



BEND OR FITTING – D.I.
THROUGH 12–INCH

BEND OR FITTING – PVC
THROUGH 10–INCH

RESTRAINED JOINT SCHEDULE					
PIPE SIZE	PIPE TYPE	11.25° ELBOW 'L'	22.5° ELBOW 'L'	45° ELBOW 'L'	TEE BRANCH, 90° BEND, VALVE OR DEAD END 'L'
6"	PVC	13'	25'	50'	120' MIN.
8"	PVC	15'	30'	59'	122' MIN.
8"	D.I.P.	15'	30'	59'	122' MIN.

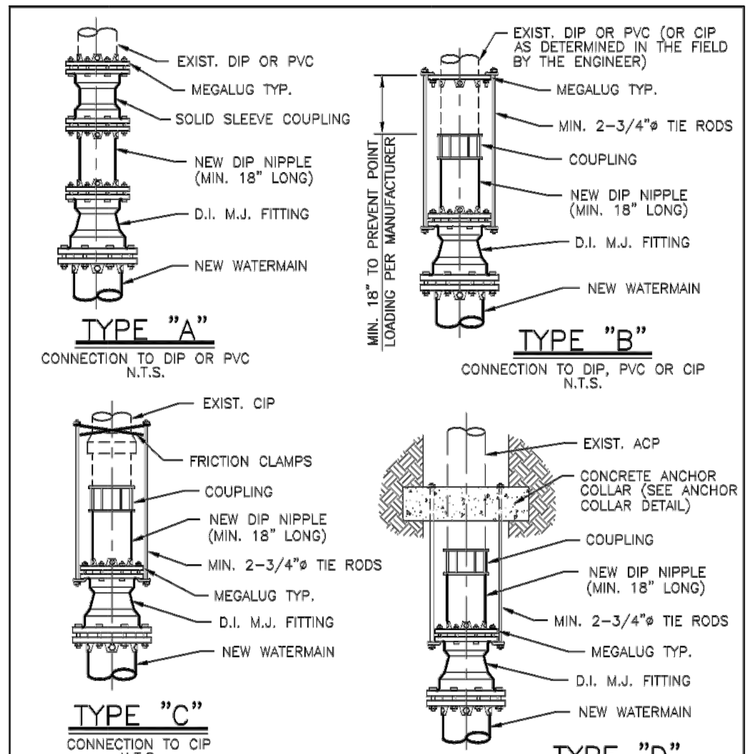
NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD4_REST_JOINT_SCHED

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL RESTRAINED JOINT SCHEDULE	DWG. NO. SD4	
		DATE 4/28/92	REVISED 10/05

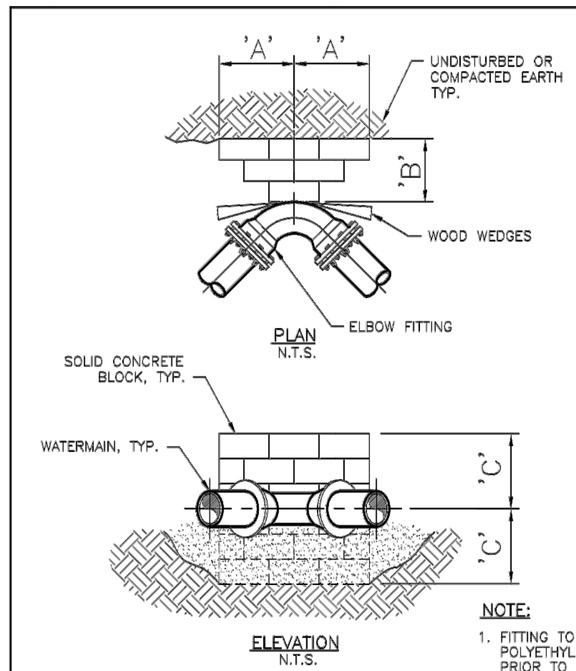


NOTES:

1. VALVES AND TEES MAY BE HARNESSED SIMILARLY.
2. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURE–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
3. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
4. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD5_CONN_EXIST_MAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TYPICAL CONNECTION TO EXISTING WATERMAIN THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD5	
		DATE 3/05	REVISED 10/05



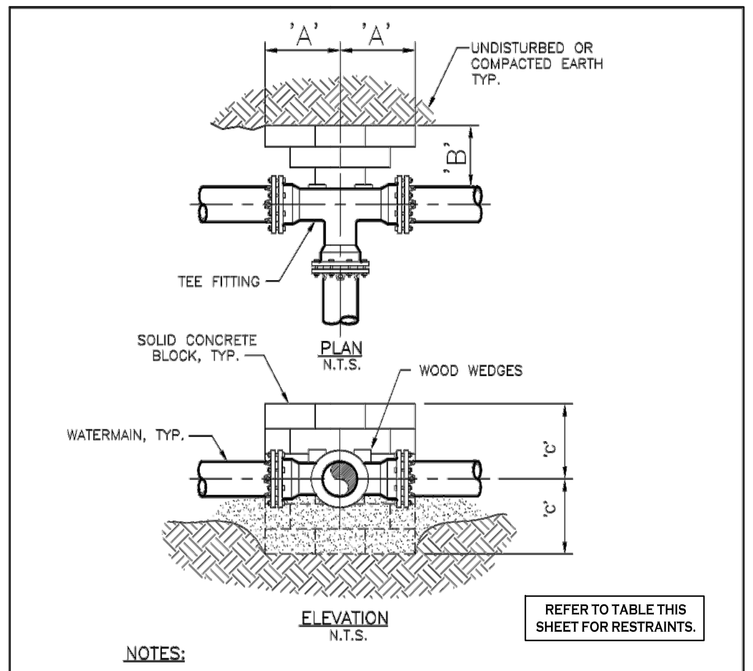
NOTE:

1. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

DIMENSION SCHEDULE												
PIPE SIZE	11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'
8"	1.5'	1.5'	2.5'	2.5'	1.5'	2.5'	3.0'	1.5'	3.5'	3.5'	1.5'	5.0'

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD6_THRUST_BLOCKS_ELBOW

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR ELBOW FITTING	DWG. NO. SD6	
		DATE 4/28/92	REVISED 10/05



REFER TO TABLE THIS SHEET FOR RESTRAINTS.

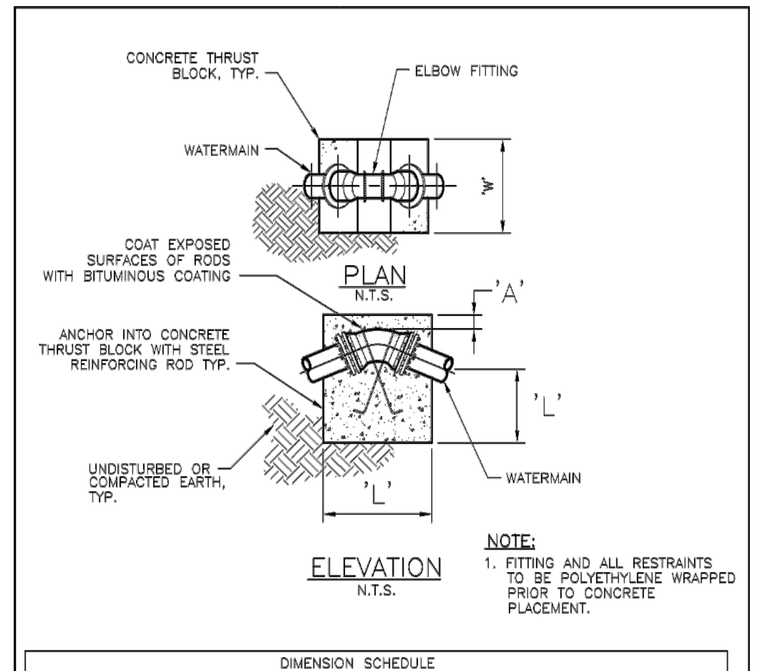
NOTES:

1. THRUST BLOCK REQUIRED FOR TEES, HYDRANT LATERAL TEES AND TAPPING SLEEVE INSTALLATIONS.
2. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

BRANCH TEE SIZE	DIMENSION SCHEDULE 'A'	'B'	'C'
6"	1'-0"	1'-0"	0'-6"
8"	1'-6"	1'-0"	0'-6"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD7_THRUST_BLOCKS_TEE

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR TEE OR "DEAD END" FITTING	DWG. NO. SD7	
		DATE 4/28/92	REVISED 10/05



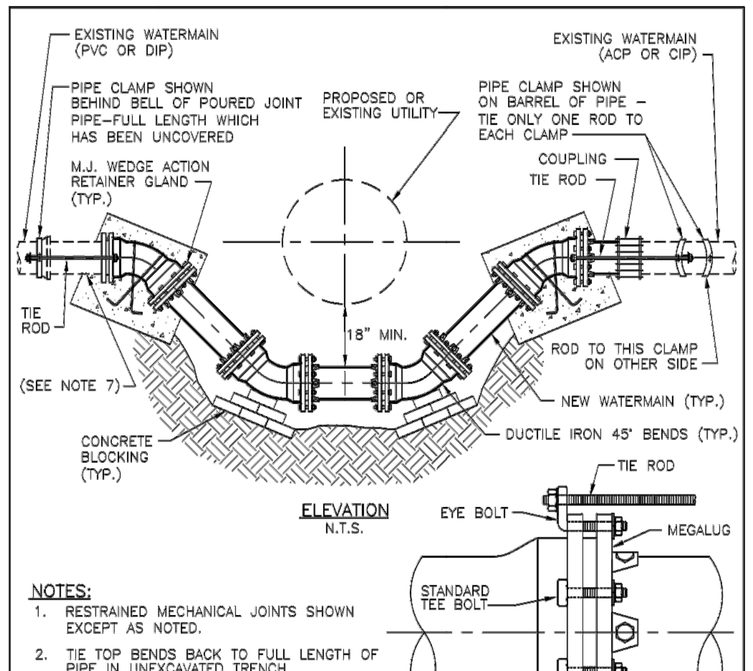
NOTE:

1. FITTING AND ALL RESTRAINTS TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.

DIMENSION SCHEDULE													
PIPE SIZE	PIPE TYPE	11.25° ELBOW				22.5° ELBOW				45° ELBOW			
		'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø
8"	D.I.P	12"	1'-0"	1'-0"	1/2"	12"	1'-9"	1'-9"	1/2"	1'-6"	2'-0"	2'-0"	1/2"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD8_THRUST_BLOCKS_VBEND

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR VERTICAL BEND	DWG. NO. SD8	
		DATE 4/28/92	REVISED 10/05



NOTES:

1. RESTRAINED MECHANICAL JOINTS SHOWN EXCEPT AS NOTED.
2. TIE TOP BENDS BACK TO FULL LENGTH OF PIPE IN UNEXCAVATED TRENCH.
3. VALVES, TEES AND HYDRANTS MAY BE HARNESSED SIMILARLY.
4. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURES–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
5. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
6. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.
7. IF EXISTING PIPE IS CIP OR PVC, CONNECT TO NEW FITTING ONLY WHEN ALLOWED BY ENGINEER.

TIE ROD SCHEDULE			
PIPE SIZE	PIPE TYPE	ROD ø	NUMBER OF RODS
8"	PVC	3/4"	2

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD10_HARN_OFFSET_EXIST_WMAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL HARNESSING DETAILS–INSTALL OFFSET IN EXISTING WATERMAIN	DWG. NO. SD10	
		DATE 6/00	REVISED 10/05

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Water Details

DRAWING NO.

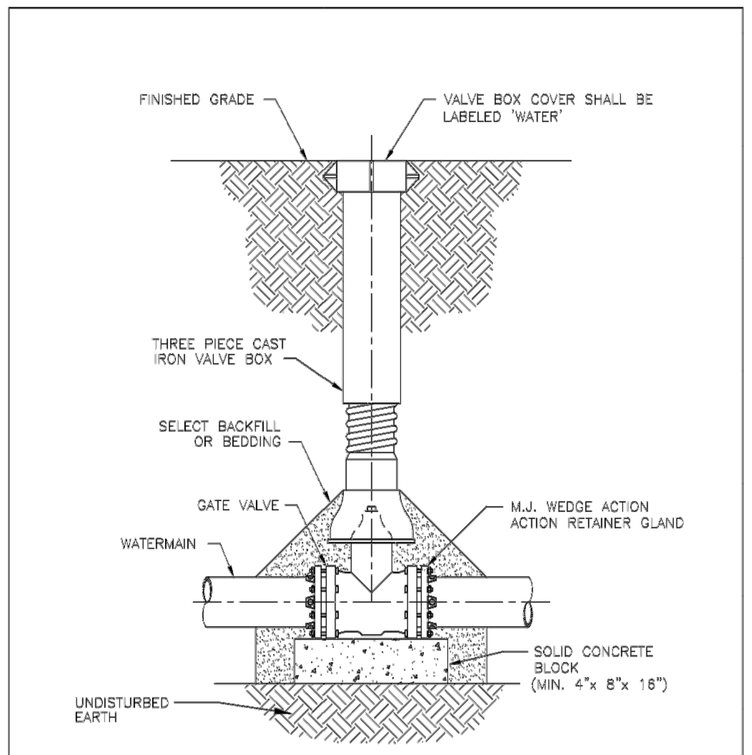
C-405

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

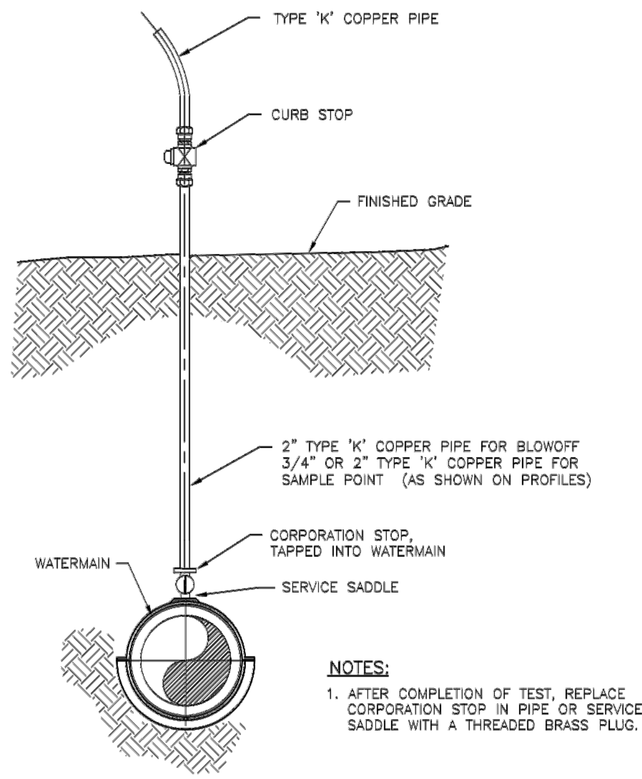


NOTES:
1. VALVE SHALL NOT SUPPORT VALVE BOX.
2. GATE VALVE SHALL BE INSTALLED LEVEL.
3. VALVE BOX SHALL BE PLUMB TO GRADE, WITH OPERATING NUT CENTERED IN BOX.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD11_GATE_VALVE_SET

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GATE VALVE SETTING	DWG. NO. SD11	
		DATE 4/28/92	REVISED 02/17

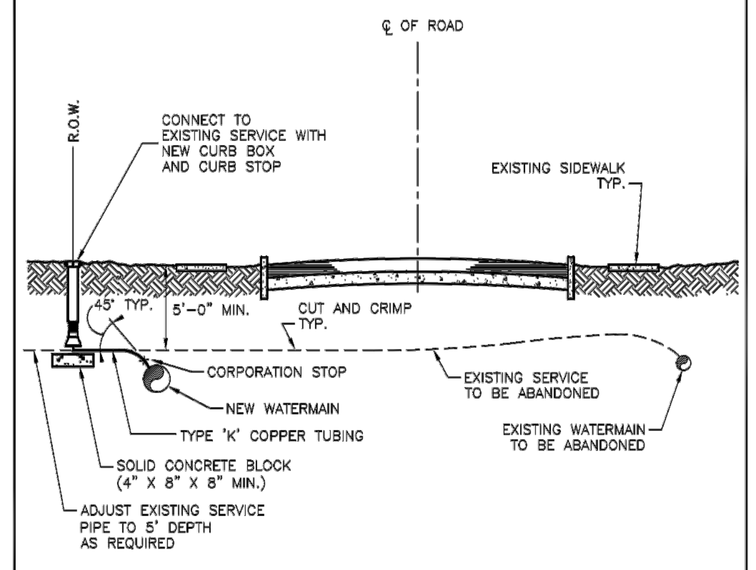


NOTES:
1. AFTER COMPLETION OF TEST, REPLACE CORPORATION STOP IN PIPE OR SERVICE SADDLE WITH A THREADED BRASS PLUG.

ELEVATION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD17_TEMP_BO_SAMP_PT

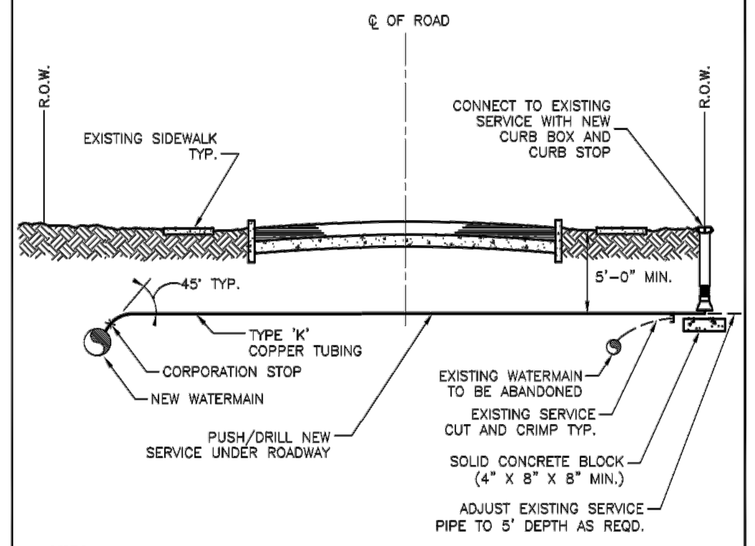
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TEMPORARY BLOW-OFF/SAMPLING POINT	DWG. NO. SD17	
		DATE 4/28/92	REVISED 10/05



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD15_WS_SERV_REPLACE

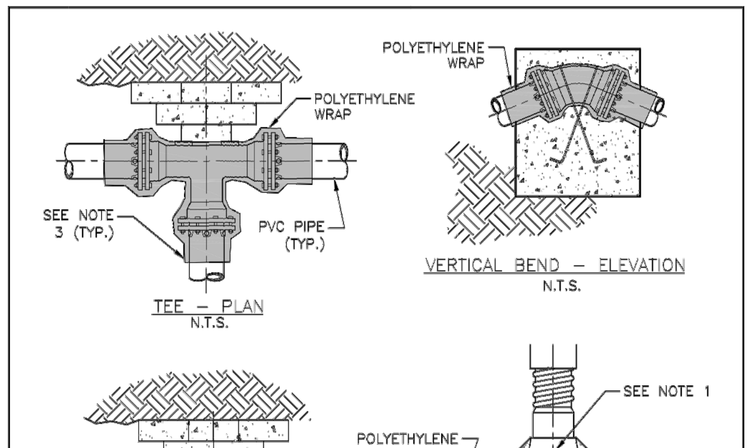
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL NEAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD15	
		DATE 4/92	REVISED 09/16



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

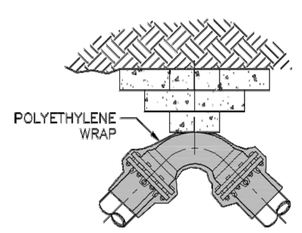
I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_FS_SERV_REPLACE

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16	
		DATE 4/92	REVISED 09/16

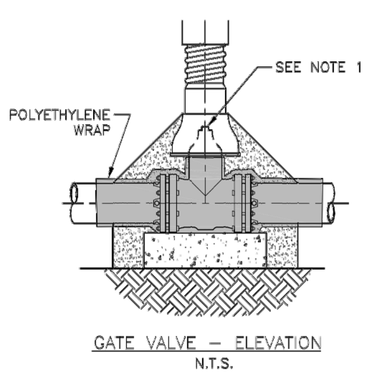


TEE - PLAN
N.T.S.

VERTICAL BEND - ELEVATION
N.T.S.



HORIZONTAL BEND - PLAN
N.T.S.

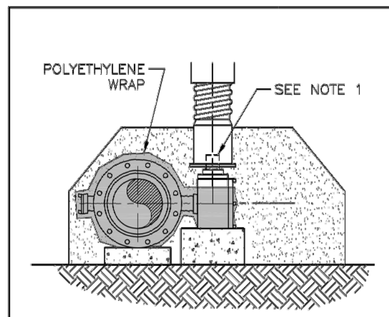


GATE VALVE - ELEVATION
N.T.S.

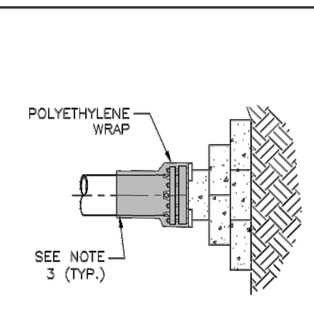
NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39A_POLYWRAPPING_FITTINGS

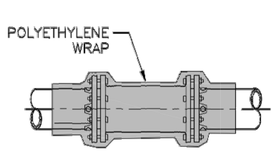
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39A	
		DATE 3/18	REVISED 12/18



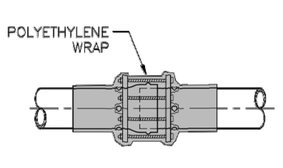
BUTTERFLY VALVE - ELEVATION
N.T.S.



END CAP / PLUG
N.T.S.



SOLID SLEEVE OR RESTRAINED COUPLING
N.T.S.

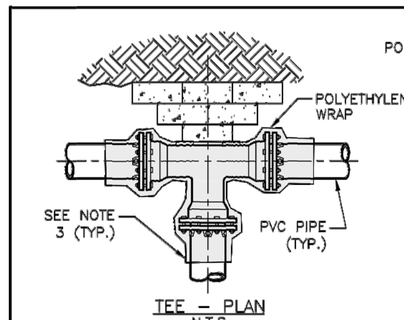


EXTERNAL JOINT RESTRAINT
N.T.S.

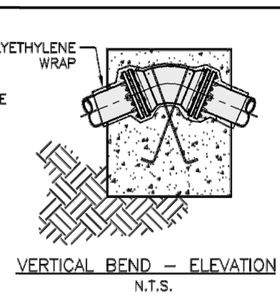
NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD38_POLYWRAPPING_FITTINGS

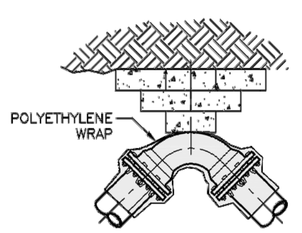
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39B	
		DATE 12/18	REVISED



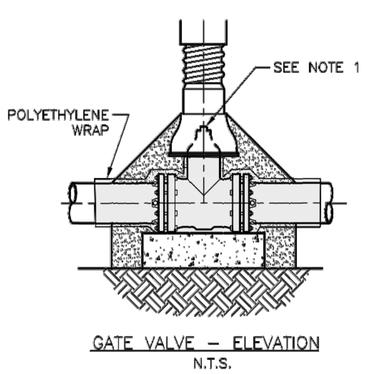
TEE - PLAN
N.T.S.



VERTICAL BEND - ELEVATION
N.T.S.



HORIZONTAL BEND - PLAN
N.T.S.

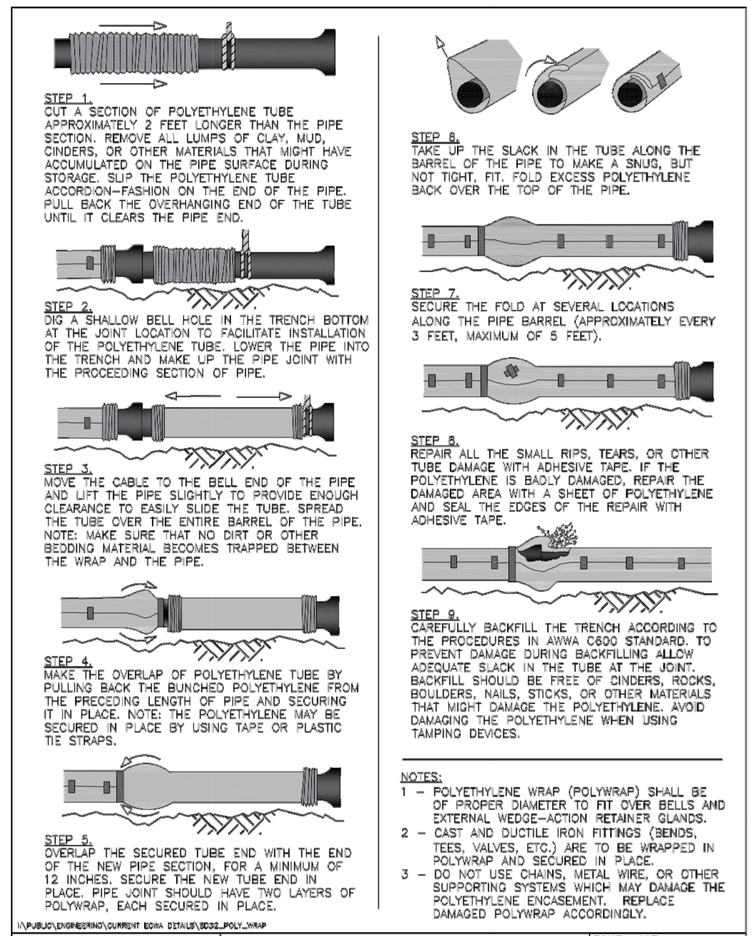


GATE VALVE - ELEVATION
N.T.S.

NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON GATE VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PVC PIPE WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD39_POLYWRAPPING_FITTINGS

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING DUCTILE IRON FITTINGS ON PVC PIPE	DWG. NO. SD39	
		DATE 3/18	REVISED



NOTES:
1 - POLYETHYLENE WRAP (POLYWRAP) SHALL BE OF PROPER DIAMETER TO FIT OVER BELLS AND EXTERNAL WEDGE-ACTION RETAINER GLANDS.
2 - CAST AND DUCTILE IRON FITTINGS (BENDS, TEES, VALVES, ETC.) ARE TO BE WRAPPED IN POLYWRAP AND SECURED IN PLACE.
3 - DO NOT USE CHAINS, METAL WIRE, OR OTHER SUPPORTING SYSTEMS WHICH MAY DAMAGE THE POLYETHYLENE ENCASEMENT. REPLACE DAMAGED POLYWRAP ACCORDINGLY.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD32_POLY_WRAP

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYETHYLENE ENCASEMENT OF DUCTILE IRON PIPE	DWG. NO. SD32	
		DATE 08/16	REVISED 02/19

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details

DRAWING NO.
C-406

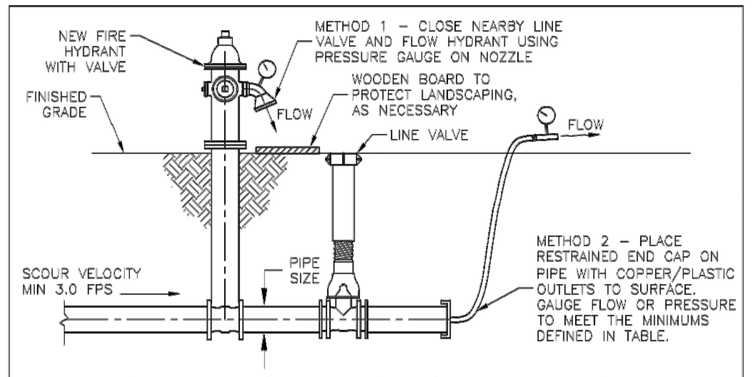
Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

1e

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



PIPE SIZE (IN)	REQUIRED FLOW (GPM)	METHOD 1 HYDRANT FLOW		METHOD 2 END CAP FLOW	
		2 1/2" NOZZLE PRESSURE (PSI)	4" NOZZLE PRESSURE (PSI)	2" I.D. PRESSURE (PSI)	3" I.D. PRESSURE (PSI)
6	275	7	1	7	2
8	500	9	2	22	5
10	750	20	4	50	10
12	1100	44	7	–	22
16	1900	–	20	–	62
20	3000	–	50	–	–

I.D. = INNER DIAMETER

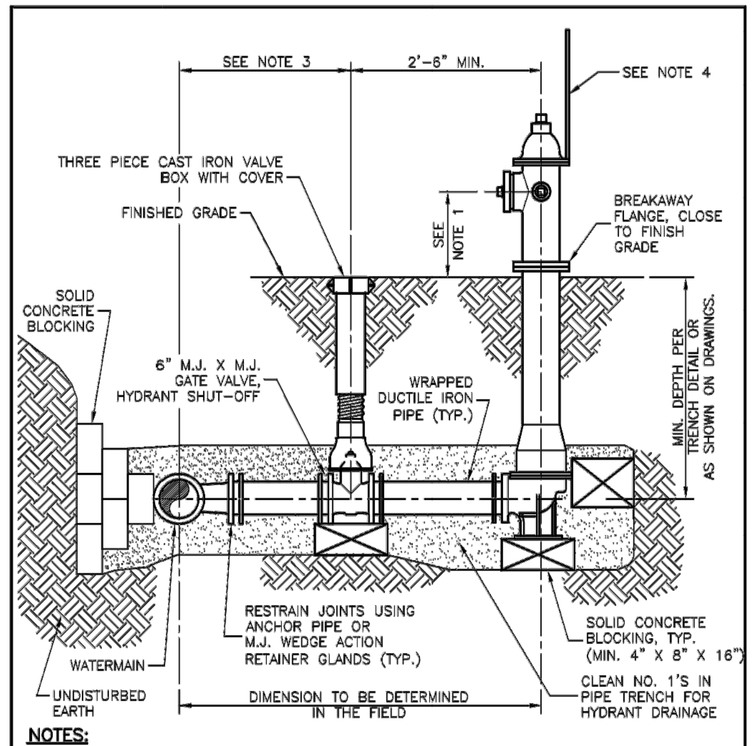
NOTES:

1. TO OBTAIN SCOUR VELOCITY (3.0 FPS) IN THE WATERLINE, CONTRACTOR SHALL ACHIEVE FLOWRATE AT NOZZLE DEFINED IN TABLE. PRESSURE GAUGE USED SHALL SHOW A HIGHER PRESSURE THAN THE MINIMUMS DEFINED IN THE TABLE.
2. OUTLET PRESSURE MEASURED BY PITOT GAUGE.
3. ENGINEER SHALL PROVIDE CALCULATIONS IF CONNECTIONS ARE OTHER THAN THOSE SHOWN, IF MULTIPLE CONNECTIONS ARE USED, OR AS REQUESTED BY ECWA.
4. TO FLUSH THREE PIPE VOLUMES, MINIMUM FLUSHING TIME (IN SECONDS) EQUALS THE LENGTH OF PIPE BEING FLUSHED, IN FEET.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD36_WATERLINE_FLUSHING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL WATERLINE FLUSHING	DWG. NO. SD36	
		DATE 6/16	REVISED 3/18



NOTES:

1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT.
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.
5. HYDRANT FACE TO BE A MINIMUM OF 3' FROM THE BACK FACE OF ALL CURBS OR A MINIMUM OF 5' FROM ALL EDGES OF PAVEMENT (IF NO CURB).

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD13_HYD_INST

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FIRE HYDRANT INSTALLATION	DWG. NO. SD13	
		DATE 6/00	REVISED 11/16

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR'S work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed, or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install the watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as-needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority shall only operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers in writing of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD29	
		DATE 3/05	REVISED 7/17

11. All watermain piping shall be installed with a minimum of 5'-0" of cover.
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment, and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be scheduled and returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York 14227.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict access for school buses or any emergency vehicles.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for review prior to the start of testing.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants, and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30	
		DATE 3/05	REVISED 7/17

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details & Notes

DRAWING NO.
C-407

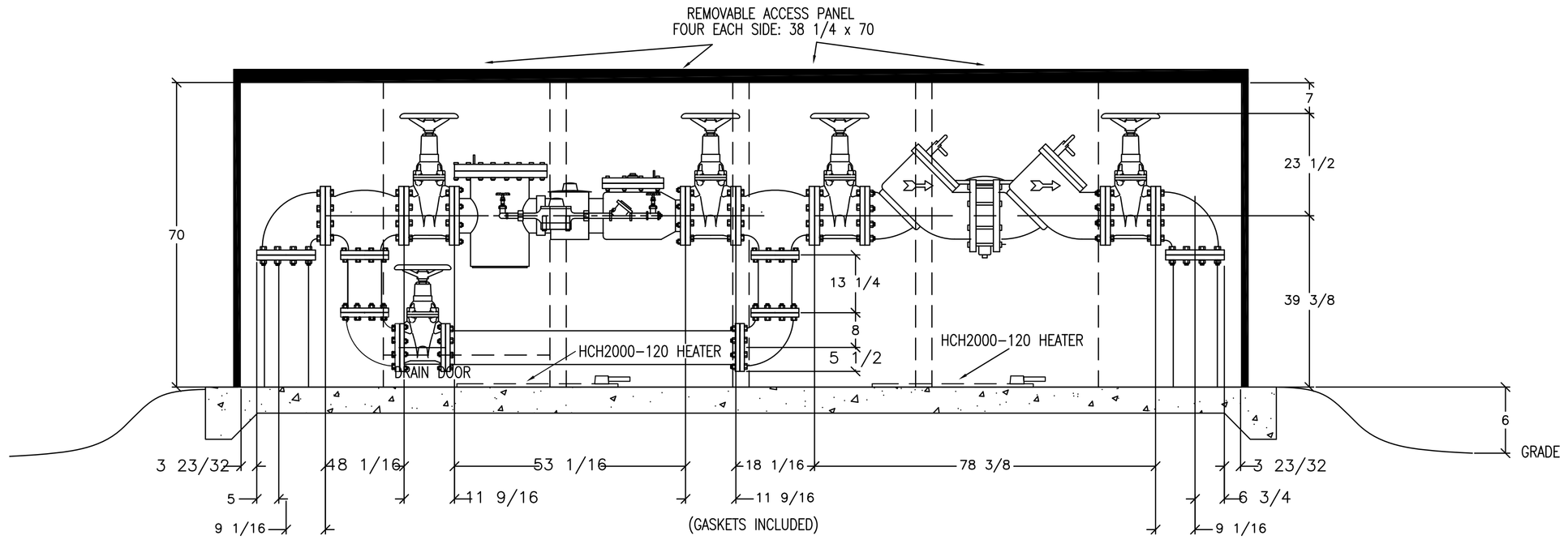
Project no.: 21.011

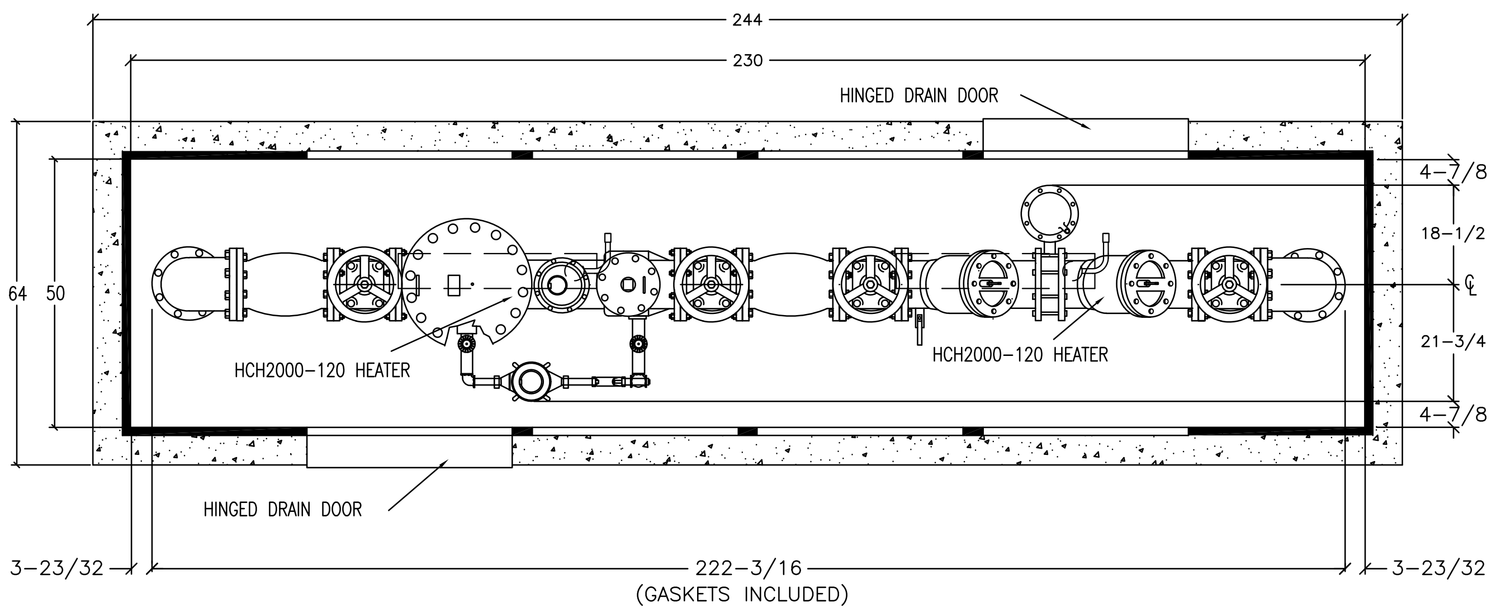
Packet Pg. 1492

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.





NOTES:

1. BACKFLOW PREVENTER DIMENSIONS FURNISHED BY WATTS
2. ALL DIMENSIONS ARE IN INCHES
3. WALL & INSULATION THICKNESS IS 1 1/2"
4. ROOF & INSULATION THICKNESS IS 3"
5. ENCLOSURE SHOWN IS SAFE-T-COVER MODEL 1000D-ALC00-17
6. EXTERIOR ENCLOSURE DIMENSIONS: 53"W x 233"L x 73" H
7. CONCRETE PAD IS 64"W x 244"L x 6"THK W/W.W.F. 6X6/10X10
8. METER SHOWN: 8" PROTECTUS III, SPOOL PIECE & METER SUPPLIED BY ECWA, VERIFY DIMENSIONS PRIOR TO ORDERING
9. RPZ SHOWN: 8" WATTS 909 NRS
10. CONTRACTOR TO INSTALL ELECTRIC SERVICE TO ENCLOSURE, COORDINATE SOURCE WITH OWNER
11. INSTALL A 120V GFI OUTLET IN THE ENCLOSURE
12. HEATERS TO HAVE THERMOSTAT CONTROL
13. ALL PIPING WITHIN THE ENCLOSURE SHALL BE DUCTILE IRON

LEGEND:

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H w/DRAIN DOOR

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H

8"METER & RPZ INSULATED ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Insulated Enclosure Detail

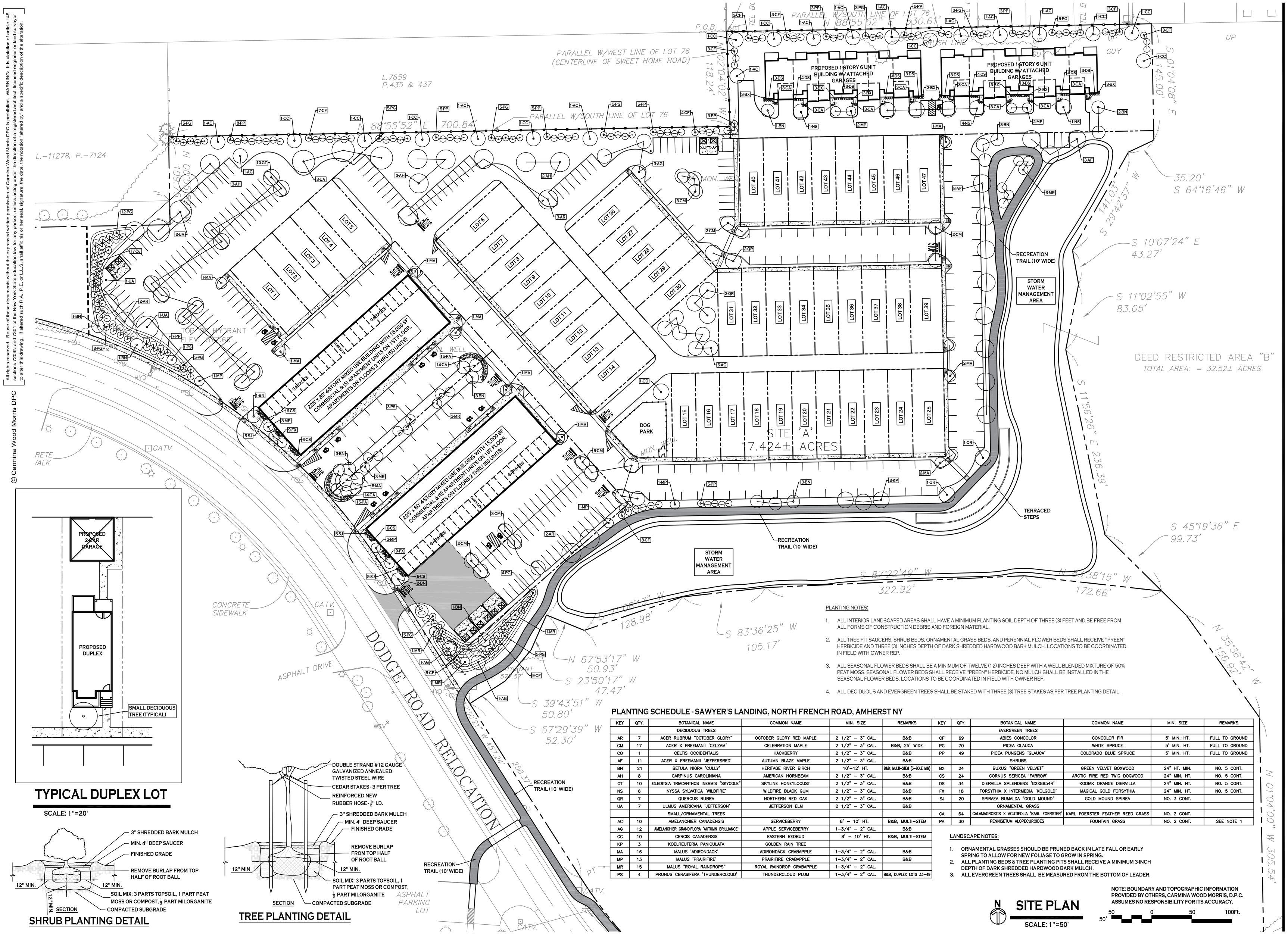
DRAWING NO.
C-408

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



TYPICAL DUPLEX LOT

SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND PERENNIAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X. FREEMANII "CELZAM"	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII "JEFFERSRED"	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA "CULLY"	HERITAGE RIVER BIRCH	10'–12' HT.	B&B; MULTI-STEM (3-BOLE MIN)
AH	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	10	GLEDITSIA TRIACANTHOS INERMIS "SKYCOLE"	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
NS	6	NYSSA SYLVATICA "WILDFIRE"	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL/ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	12	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1–3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	16	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1–3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1–3/4" – 2" CAL.	B&B
MR	15	MALUS "ROYAL RAINDROPS"	ROYAL RAINDROP CRABAPPLE	1–3/4" – 2" CAL.	
PS	4	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1–3/4" – 2" CAL.	B&B, DUPLEX LOTS 33–49
		EVERGREEN TREES			
CF	69	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	70	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	49	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	24	BUXUS "GREEN VELVET"	GREEN VELVET BOXWOOD	24" HT. MIN.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DIERVILLA SPLENDENS 'G2X88544'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	20	SPIRAEA BUMALDA "GOLD MOUND"	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	64	CALAMAGROSTIS X ACUTIFOLIA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

N

SITE PLAN

SCALE: 1"=50'

50' 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Landscape Plan

DRAWING NO.

L-100

Project no.: 21.011



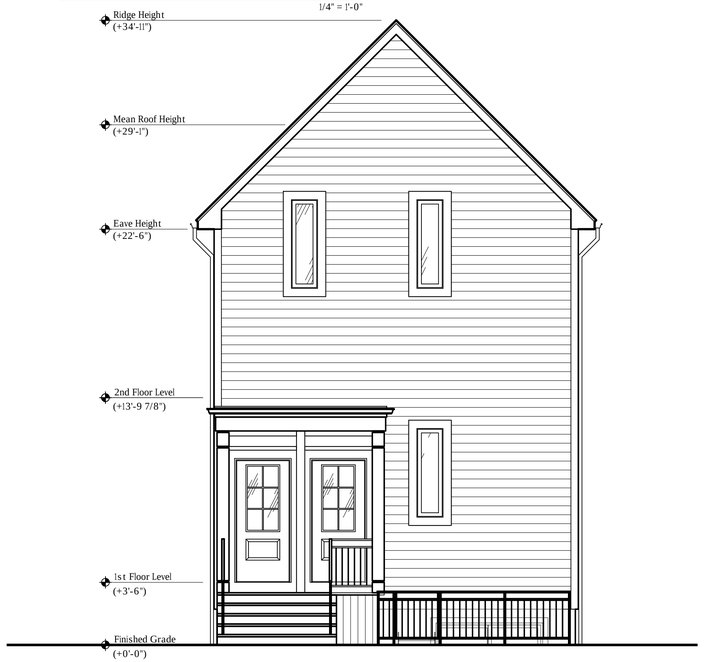
Front Elevation

1/4" = 1'-0"



Right Elevation

1/4" = 1'-0"



Rear Elevation

1/4" = 1'-0"



Left Elevation

1/4" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
Two Family

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)



South Elevation

1/8" = 1'-0"



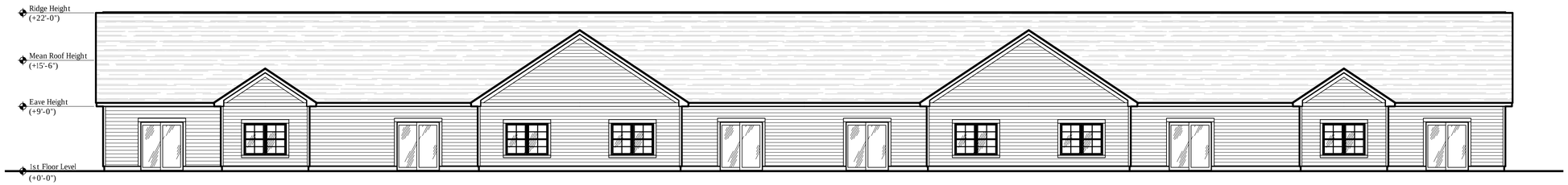
East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"



North Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
6 Unit Multifamily

Portion Of 1081 North French Road Amherst, NY
2/23/21

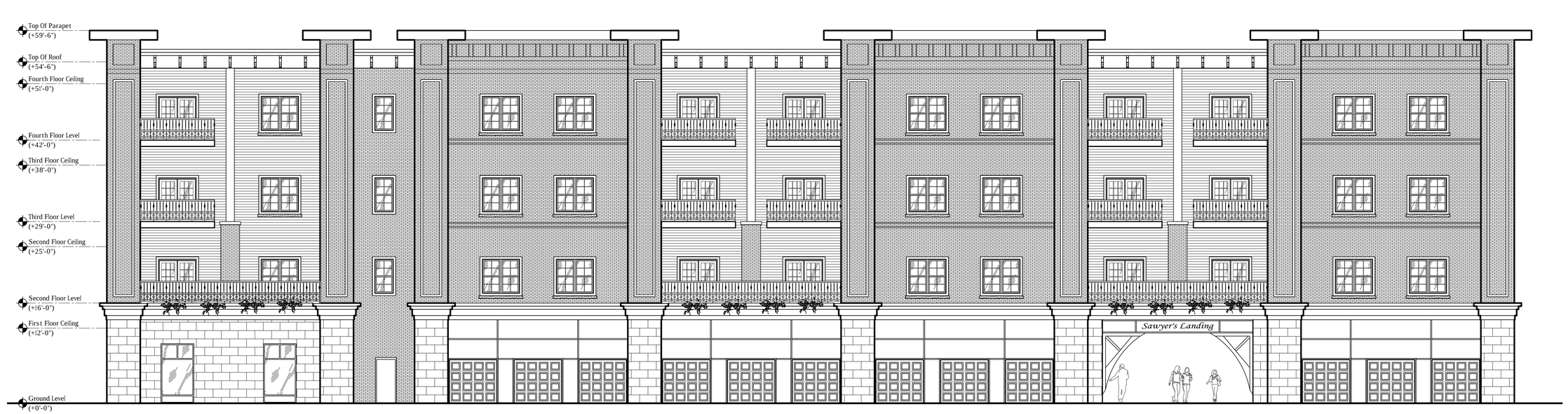
SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)



North Elevation

1/8" = 1'-0"



South Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY
2/23/21

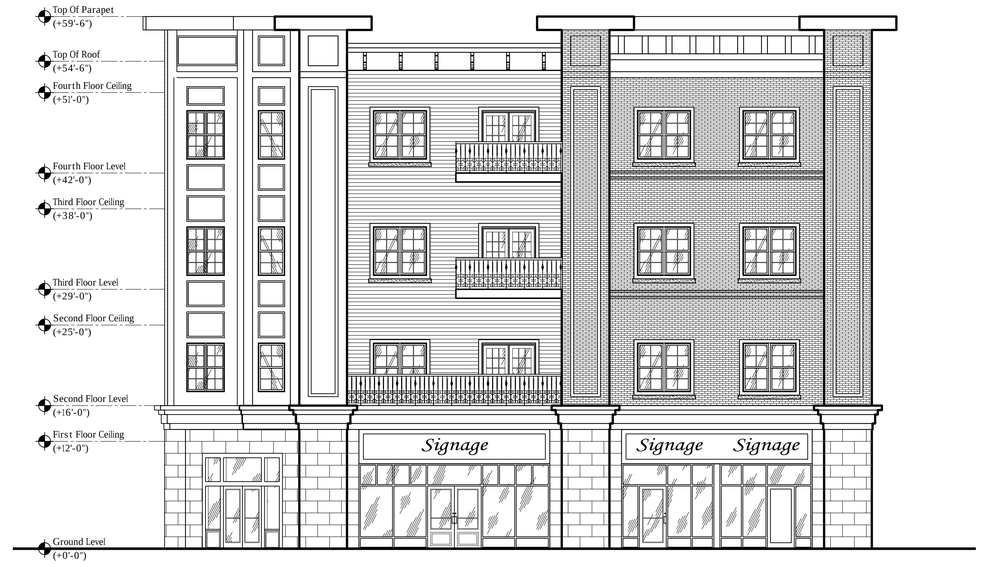
SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)



East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY
2/23/21

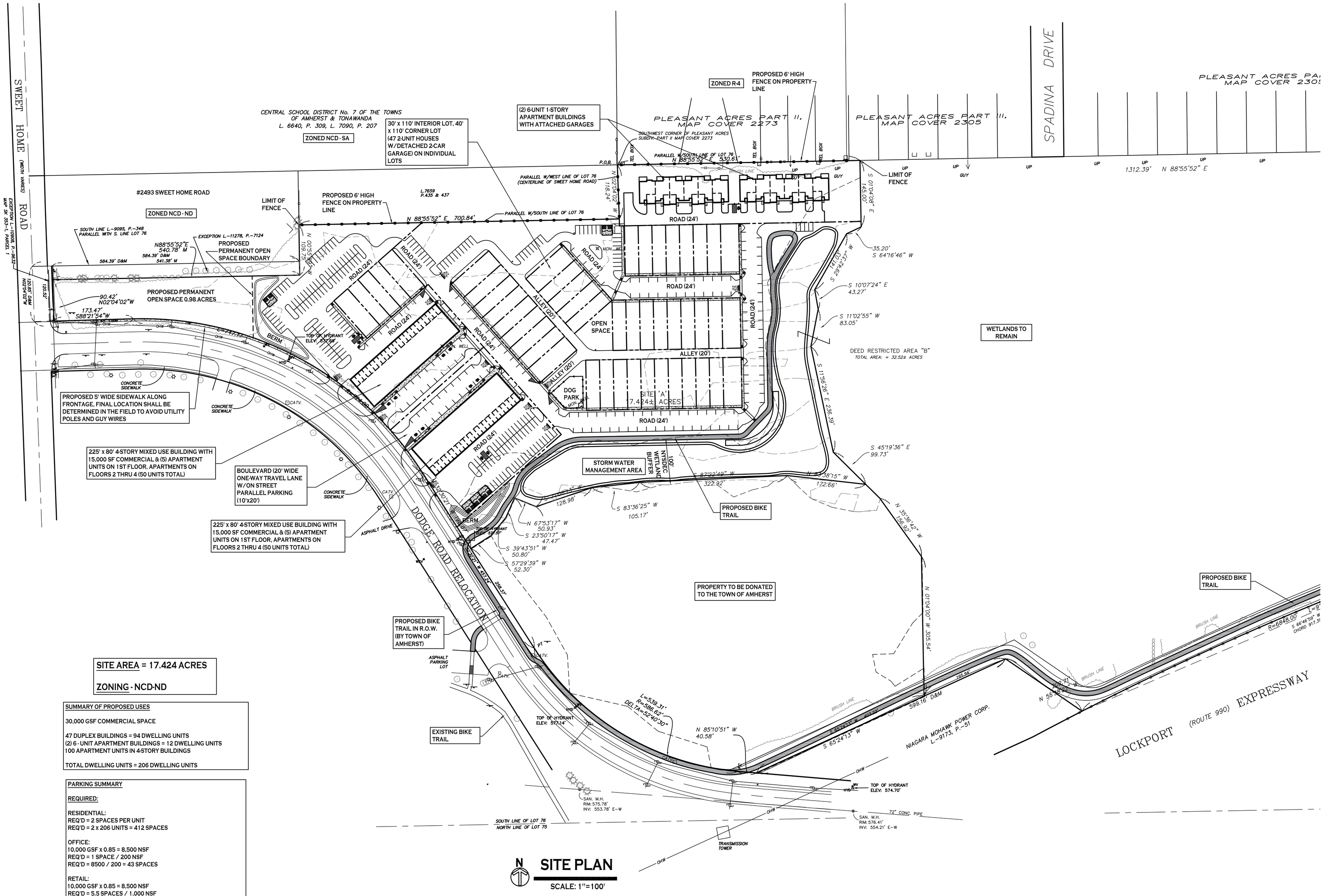
SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



N

SITE PLAN

SCALE: 1"=100'

SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
505 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/22/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

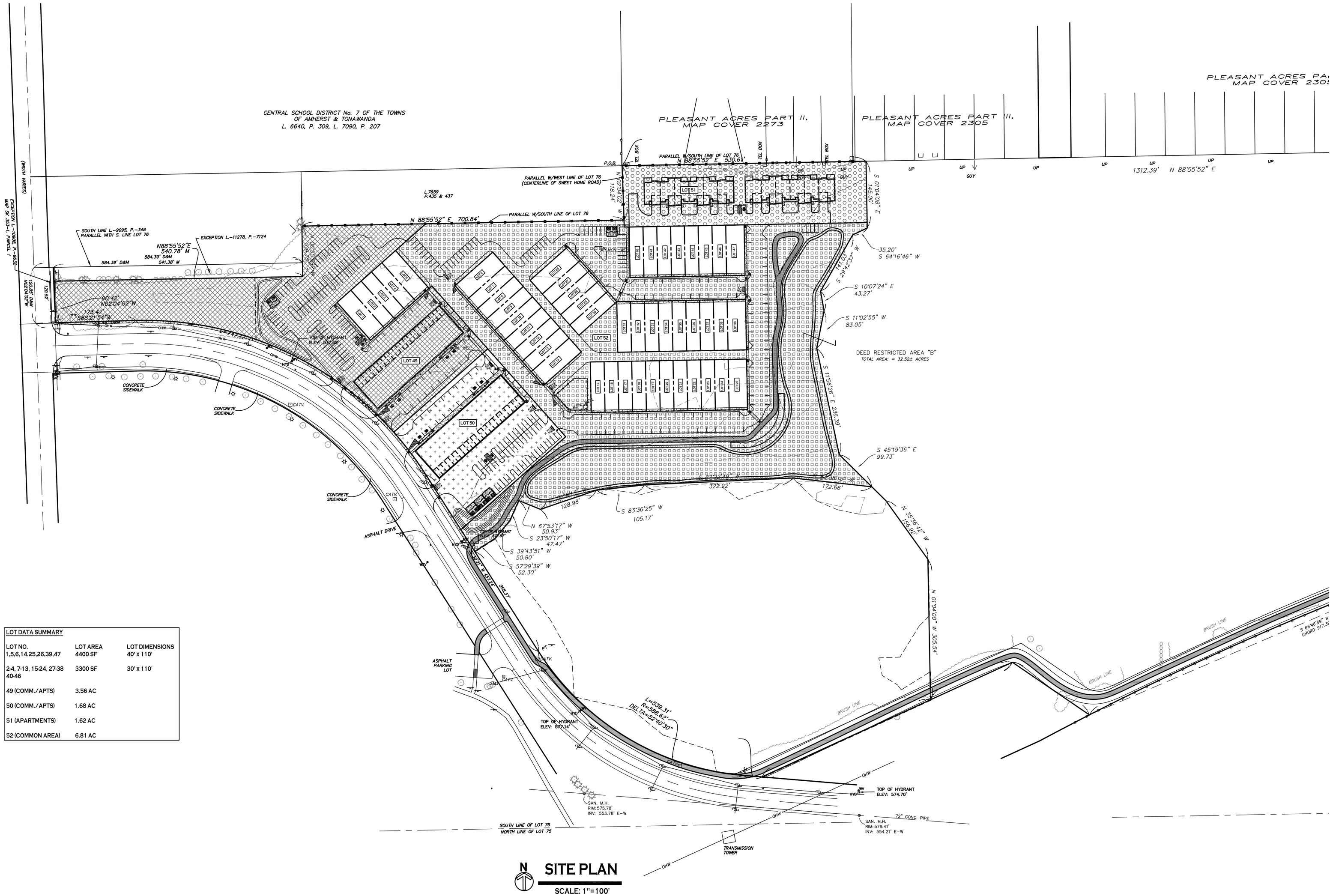
C-100

Project no.: 21.011

Attachment: SP-2021-05_drawings_061721 (23057 : SP-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



N

SITE PLAN

SCALE: 1"=100'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
1,5,6,14,25,26,39,47	4400 SF	40' x 110'
2-4, 7-13, 15-24, 27-38 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.68 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.81 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/22/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Parcel Map

DRAWING NO.

C-102

Project no.: 21.011

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.

● SET OR EX. 5/8" REBAR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

MAP COVER 2305

SWEET HOME ROAD (NORTH VARIES)

EXCEPTION L-10908, P-363
MAP 39 353-1 PARCEL 1

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SPADINA DRIVE

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

PARALLEL W/SOUTH LINE OF LOT 76

N 88°55'52" E 530.61'

1312.39' N 88°55'52" E

POINT OF BEGINNING
AREA "B"
LAT: 43°01'40.40785"
LON: -78°47'14.98366"

PARALLEL W/WEST LINE OF LOT 76
(CENTERLINE OF SWEET HOME ROAD)

L.7659 P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

N 20°40'24" W 118.24'

S 10°40'10" E 145.00'

SOUTH LINE L.-9095, P.-348
PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

N88°55'52"E 540.78' M
584.39' D&M
541.38' M

N 00°04'08" W 1180.00'

PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'17" E 62.65'

MON. WELL

S 41°03'37" W 202.37'

S 64°16'46" W 35.20'

S 10°07'24" E 43.27'

S 11°02'55" W 83.05'

S 11°56'26" E 236.98'

S 45°19'36" E 99.73'

N 35°56'42" W 159.92'

N 10°40'10" W 305.54'

N 02°04'02"W 90.42'

S88°21'54"W 173.47'

120.85' D&M
N02°04'02" W

CATCH BASIN
RIM:574.52'
W INV:568.27' 12"
E INV:568.32'

CATCH BASIN
RIM:574.42'
W INV:569.90' 12" CMP
E INV:569.97' 12" CMP

CATCH BASIN
RIM:573.70'
W INV:569.90' 12" CMP
E INV:569.97' 12" CMP

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.9146 ACRES

TOP OF HYDRANT
ELEV: 577.69'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

CONCRETE SIDEWALK

CONCRETE SIDEWALK

CONCRETE SIDEWALK

ASPHALT DRIVE

ASPHALT PARKING LOT

STONE DRIVE

DOUGH ROAD RELOCATION

N 67°53'17" W 50.93'

S 71°08'13" W 128.98'

S 83°36'25" W 105.17'

S 87°22'49" W 322.92'

N 83°38'15" W 172.66'

S 39°43'51" W 50.80'

S 23°50'17" W 47.47'

S 57°29'39" W 52.30'

L=539.31'
R=598.60'
DELTA=52°01'30"

N 85°10'51" W 40.58'

S 85°24'13" W 405.22'

599.16' D&M

NIAGARA MOHAWK POWER CORP.
L.-9173, P.-51

TOP OF HYDRANT
ELEV: 574.70'

SAN. M.H.
RIM: 573.78'
INV: 553.78' E-W

SAN. M.H.
RIM:576.41'
INV: 554.21' E-W

72" CONC. PIPE

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

TRANSMISSION TOWER

BRUSH LINE

L=918.07'
R=6848.00'
S 65°48'39" W
CHORD 917.39'

N 41°39'22" W 202.71'

SECTION II

LOCKPORT (ROUTE 990) EXPRESSWAY

- CATCH BASIN
- CONIFEROUS TREE
- DECIDUOUS SHRUB
- DECIDUOUS TREE
- GAS VALVE
- GUY WIRE
- WATER SERVICE VALVE
- WATER VALVE
- COMMUNICATIONS BOX
- HYDRANT
- LIGHT POLE
- SANITARY SEWER MANHOLE
- SIGN (SINGLE POLE)
- SIGN (DOUBLE POLE)
- UTILITY POLE

STATE OF NEW YORK
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE

TOPOGRAPHIC SURVEY
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: DECEMBER 22, 2020
Scale: 1" = 100' TAX No. 40.08-3-13.1 (PART OF)

Attachment: SP-2021-05_drawings_061721 (23057 : Sp-2021-05)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Ellen M. Kost, AICP
Assistant Planning Director

May 27, 2021

Sawyer's Landing LLC
c/o Sean W. Hopkins, Esq.
Hopkins Sorgi & McCarthy
5500 Main Street, Suite 343
Williamsville, New York 14221

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2021-05**; PROPOSED SAWYERS LANDING MIXED-USE DEVELOPMENT; PROPERTY LOCATED AT **1081 NORTH FRENCH ROAD (PORTION) (MUIR WOODS SITE A)**; SAWYERS LANDING LLC, PETITIONER.

Dear Mr. Hopkins:

At its meeting of May 20, 2021 the Planning Board voted to **adjourn** the subject site plan at your request pending resolution of the secondary emergency access issue.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-05_(1081 N_FrenchRd)_2021\SP-2021-05_Adjournment Letter_052021.doc
cc: William Severyn, Severyn Development, 43 Central Ave. Suite 300, Lancaster, NY 14086
Adam Faeth, Ciminelli Real Estate Corp., 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Chris Wood, Carmina Wood Morris, 487 Main St, Suite 500, Buffalo, NY 14203
David Sutton, Sutton Architects, 5409 Main St, 2nd Floor, Williamsville, NY 14221

Attachment: SP-2021-05_adjournment_052021 (23057 : Sp-2021-05)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Ellen M. Kost, AICP
Assistant Planning Director

July 1, 2021

Sawyer's Landing LLC
c/o Sean W Hopkins, Esq.
Hopkins Sorgi & McCarthy
5500 Main Street, Suite 343
Williamsville, New York 14221

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2021-05**; PROPOSED SAWYERS LANDING MIXED-USE DEVELOPMENT; PROPERTY LOCATED AT **1081 NORTH FRENCH ROAD (PORTION) (MUIR WOODS SITE A)**; SAWYERS LANDING LLC, PETITIONER.

Dear Mr. Hopkins:

At its meeting of June 24, 2021 the Planning Board voted to **adjourn** the subject site plan at your request pending resolution of the secondary emergency access issue.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

for Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-05_(1081 N_FrenchRd)_2021\SP-2021-05_Adjournment Letter_062421.doc
cc: William Severyn, Severyn Development, 43 Central Ave. Suite 300, Lancaster, NY 14086
Adam Faeth, Ciminelli Real Estate Corp., 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Chris Wood, Carmina Wood Morris, 487 Main St, Suite 500, Buffalo, NY 14203
David Sutton, Sutton Architects, 5409 Main St, 2nd Floor, Williamsville, NY 14221

JUL 02 '21 AM 10:01 RCVD

Attachment: SP-2021-05_adjournment_062421 (23057 : Sp-2021-05)

Application for Site Plan Approval 1021 North French Road [Including Subdivision of Project Site] - Proposed Mixed-Use Project - Site "A" of Muir Woods Property
Applicant: Sawyers Landing LLC

Prepared By: Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 510-4338
E-mail: shopkins@hsr-legal.com

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: SP-2021-05 **Acreage** 17.42 **Fee $** 13,315.00

Address Verified by Assessor's Office
VERIFIED BY DATE

Site Plan Review

		Fill In Applicable Fees
1 acre or less	$1,250.00	$1,250.00
Each Additional acre or fraction thereof	$ 650.00/acre	$11,050.00
Amendments to Site Plans	$1,200.00	
Request for Relief of / or Change to Conditions of Site Plan Approval	$1,200.00	
Request for Extension of Site Plan Approval	$ 450.00	
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	
5-10 Acres	$ 750.00	
>10 Acres	$1,000.00	$1,000.00
Affidavit Fee for Public Hearing	$ 15.00	$15.00
	TOTAL FEE:	$ 13,315.00

Materials Received by Planning Department
RECEIVED BY DATE

RECEIVED FEB 22 2021 TOWN OF AMHERST PLANNING DEPT.

Materials Accepted by Town Clerk & Fee Paid
ACCEPTED BY DATE

To Be Completed By Applicant

Petitioner: Name: Sawyers Landing LLC c/o Sean W. Hopkins, Esq.

Address: 5500 Main Street, Suite 343

Williamsville, New York 14221

city state zip code

Phone: 510-4338 Fax: _____ E Mail: shopkins@hsr-legal.com

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Name: Christopher Wood, P.E.

Address: Carmina Wood Morris DPC

483 Main Street, Suite 600

Buffalo (city) New York (state) 14203 (zip code)

Phone: 842-3165 [Ext. 103] Fax: 842-0263

E Mail: cwood@cwm-ae.com

Project Location (must be verified by Town Assessor's Office):

Address: Portion of 1081 North French Road

SBL No(s): 40.08-3-13.1/A

Project Name: Proposed Mixed-Use Project

Project Description:

See attached Exhibit "2" for Project Description. The layout of the proposed mixed-use project to be located on the New Community District - General Commercial ("NCD-GC") zoned property at 1081 North French Road as depicted on the Overall Site Plan [Drawing C-100] prepared by Carmina Wood Morris DPC. A reduced size copy of the Overall Site Plan is provided at Exhibit "3". and a reduced size copy of the Site Plan [Drawing C-101] is provided at Exhibit "4". The proposed mixed-use project includes the subdivision of the 17.42 acre Project Site into 52 parcels as depicted on the Parcel Map [Drawing C-102] prepared by Carmina Wood Morris DPC. A reduced size copy of the Parcel Map [Drawing C-102] is provided at Exhibit "5".

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

Not Applicable.

Gross Floor Area (non-residential):	0 existing	30,000 sq. ft. proposed	30,000 sq. ft. total
Number of Residential Units:	0 existing	206 proposed	206 total
Number of Parking Spaces:	0 existing	505 proposed	505 total

Acreage of Parcel: 17.42 Acres

Frontage on Public Roads: The proposed parcel will have approximately 1,120 ft. on Dodge Road and approximately 120 ft. of frontage on Sweet Home Road.

Existing Zoning District(s) NCD-GC

[Note: A completed Part 1 of the Full Environmental Assessment Form prepared pursuant to the State Environmental Quality Review Act ("SEQRA") is attached as Exhibit "1" of this Site Plan Application.]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Exhibit 1 – Part 1 of the Full Environmental Assessment Form prepared pursuant to the State Environmental Quality Review Act ("SEQRA") with attached Page 5[a] and Attachments "A" and "B"

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Full Environmental Assessment Form Part 1 - Project and Setting

Prepared By: Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 716.510-4338
E-mail: shopkins@hsr-legal.com

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Proposed Mixed-Use Project - Site A of Muir Woods		
Project Location (describe, and attach a general location map): Portion of 1081 North French Road - Town of Amherst - Erie County		
Brief Description of Proposed Action (include purpose or need): The proposed action consists of a request for Site Plan Approval [including the subdivision of the Project Site] for a mixed use project consisting of 2 four story mixed-use buildings [15,000 sq. ft of commercial space and 50 units per building], 47 two-family town homes on individual lots and 2 single-story apartment buildings [6 units per building] along with all related site improvements depicted on the fully engineered plans prepared by Carmina Wood Morris DPC. A reduced size copy of the Overall Site Plan [Drawing C-100] is provided at Exhibit "3". The action has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed driveway connections to Dodge Road, access aisles, parking spaces, driveways, wetland impacts, lighting, landscaping, on-site storm water management improvements, sanitary sewer and water lines and connections and all other required utility improvements. The project purpose is to develop Site "A" of overall Muir Woods Project Site as a mixed-use project. The proposed mixed-use project is a Type I action pursuant to SEQRA and the Town Board issued an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") on October 19, 2020 to allow mixed-use development of the Project Site. On October 19, 2020, the Town Board also adopted a resolution to amend the Town's Comprehensive to designate the Project Site as appropriate for mixed-use.		
Name of Applicant/Sponsor: Sawyers Landing LLC c/o Sean Hopkins, Esq.	Telephone: 716.510-4338 E-Mail: shopkins@hsr-legal.com	
Address: 5500 Main Street, Suite 343		
City/PO: Williamsville, NY	State: NY	Zip Code: 14221
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor): Ciminelli Muir Woods, LLC c/o Adam Faeth, Esq.	Telephone: 716.631-8000 E-Mail: afaeth@ciminelli.com	
Address: 50 Fountain Plaza, Suite 500		
City/PO: Buffalo	State: NY	Zip Code: 14202

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Sewage Works Corporation and PIPs	To be determined
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Planning Board - Site Plan Approval [includes Subdivision Approval - 52 lots]	February 22, 2021
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Building Department - Building Permits; Amherst IDA [PILOT, etc.]	To be determined
e. County agencies ☑Yes ☐No	ECPDW - Highway Work Permit; ECWA - Water; ECHD - Sewer and Water	To be determined
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC - Amended Wetland Permit; DSCA Approval, Sewage Work Corp. & SPDES Permit	Amended Wetland Permit issued on 12/24/20; To be determined.
h. Federal agencies ☑Yes ☐No	USACE - Amended Wetland Permit [Pending]	July 1, 2020

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

NYS Heritage Areas:West Erie Canal Corridor [Note: The project will not have any impacts on the West Erie Canal Corridor.]

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Site "A" of the Muir Woods property is zoned New Community District - Neighborhood District ("NCD-ND") pursuant to the Town of Amherst Zoning Map.

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police Department

c. Which fire protection and emergency medical services serve the project site?
Volunteer Fire Department

d. What parks serve the project site?
Various Town Parks including Nature View Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?Mixed-use project consisting of 2 four-story buildings with 15,000 sq. ft. of 1st floor commercial space and 50 apartments per building; 47 two-family townhomes; and two six-unit single-story apartment buildings.

b. a. Total acreage of the site of the proposed action? 28.47 acres
b. Total acreage to be physically disturbed? 17.0 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 326 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % Units:

d. Is the proposed action a subdivision, or does it include a subdivision? ☑ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
The 45 two-family townhome buildings will consist of individual lots and mixed-use buildings may consist of separate parcels.
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? 52 [47 lots for the two-family townhomes]
iv. Minimum and maximum proposed lot sizes? Minimum 3300 sf Maximum 6.81 Acres

e. Will the proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: ____ months
ii. If Yes:
- Total number of phases anticipated 3-4
- Anticipated commencement date of phase 1 (including demolition) Fall month 2021 year
- Anticipated completion date of final phase July month 2024 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:
The infrastructure necessary for each phase will be installed to ensure compliance with applicable technical standards including those for stormwater management.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

f. Does the project include new residential uses? ☑ Yes ☐ No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase		20		50
At completion of all phases		47		112

The build-out of the residential components will be based on market conditions.

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No
If Yes, There will be 15,000 sq. ft. of commercial space in each of the two 4-story mixed-use buildings.
i. Total number of structures 2
ii. Dimensions (in feet) of largest proposed structure: 55' height; 80' width; and 225' length
iii. Approximate extent of building space to be heated or cooled: 30,000 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑ Yes ☐ No
If Yes,
i. Purpose of the impoundment: Storm water management
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☑ Other specify: Storm water runoff from impervious surfaces.
iii. If other than water, identify the type of impounded/contained liquids and their source.
N/A
iv. Approximate size of the proposed impoundment. Volume: ____ million gallons; surface area: 1.5 acres
v. Dimensions of the proposed dam or impounding structure: N/A height; ____ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):
Impoundment area is an excavation consisting of earth fill.

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No
If Yes:
i. What is the purpose of the excavation or dredging?
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No
If yes, describe.
v. What is the total area to be dredged or excavated? ____ acres
vi. What is the maximum area to be worked at any one time? ____ acres
vii. What would be the maximum depth of excavation or dredging? ____ feet
viii. Will the excavation require blasting? ☐ Yes ☐ No
ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑ Yes ☐ No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of of the NYSDEC Freshwater Wetlands (reduction of .55 acres).

[The New York State Department of Environmental Conservation issued an Amended Wetland Permit on December 24, 2020. A copy of the Amended Wetland Permit is provided at Exhibit "8".]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☑No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☑No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑Yes ☐No
If Yes:

i. Total anticipated water usage/demand per day: 50,820 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑Yes ☐No
If Yes:

- Name of district or service area: ECWA Consolidated Water District
- Does the existing public water supply have capacity to serve the proposal? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No
- Do existing lines serve the project site? ☑Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☑No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑Yes ☐No
If Yes:

i. Total anticipated liquid waste generation per day: 50,820 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used: Tonawanda Creek Wastewater Treatment Plant
- Name of district: Town of Amherst Consolidated Sanitary Sewer District
- Does the existing wastewater treatment plant have capacity to serve the project? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

- Do existing sewer lines serve the project site? ☑Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☑No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 8.0 acres (impervious surface)

_____ Square feet or 28.47 acres (parcel size)

ii. Describe types of new point sources. Parking lots and roof tops

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be conveyed into the on-site stormwater management system to be installed per the applicable stringent stormwater quality and quantity standards of the NYS Department of Environmental Conservation ("NYSDEC")

- If to surface waters, identify receiving water bodies or wetlands: NYSDEC & Federal wetlands on the east portion of the Project Site.
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

1.h

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No A Traffic Impact Study was prepared by SRF Associates DPC dated August 3, 2020 and 4 copies have been submitted with the Site Plan Application dated February 22, 2020.

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

To be determined

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

National Grid

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7:00 to 7:00
- Saturday: 8:00 to 6:00
- Sunday: As needed
- Holidays: Not Applicable

ii. During Operations:

- Monday - Friday: 8:00 to 11:00
- Saturday: 8:00 to 11:00
- Sunday: 8:00 to 10:00
- Holidays: 8:00 to 10:00

The hours of operation during "During Operations" as listed above apply to the first floor commercial space in the two mixed-use buildings. The hours are estimates since the tenants that will lease the first floor commercial space including both office and retail tenants have not yet been identified.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Construction activities will include the use of construction equipment during daytime hours that will exceed ambient background noise levels. The construction related noise impacts are a temporary unavoidable impact.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe:

n. Will the proposed action **have outdoor lighting?** ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Lighting will be installed in compliance with the lighting standards contained in the Town of Amherst Zoning Code. There will not be any lighting spillover onto contiguous properties.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☑ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

Potential use of lawn fertilizer and pesticides on maintained portions of property in accordance with applicable standards for application and use of lawn fertilizer and pesticides.

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☑ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: 2 tons per week (unit of time)
- Operation : 2 tons per week (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: wood and metal waste may be recycled by the contract at their discretion
- Operation: Town of Amherst recycling program will be followed

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: approved NYSDEC landfill via contractor or private disposal company
- Operation: approved NYSDEC landfill via private disposal company

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☑ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Wetlands

ii. If mix of uses, generally describe:

There are mixture of uses in the vicinity of the Project Site including residential uses to the north in the Bucyrus Heights Subdivision, an elementary school, apartments and office buildings on Sweet Home Road and permanent open space to the east of Site "A".

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	8.0	+ 8.0
• Forested	12.17	1.87	-10.3
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	16.3	10.2	- 6.1
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: Greenspace, Landscaping, Pond	0	8.4	+8.4

The categories as listed above include the large wetland area subject to the jurisdiction of both the NYSDEC and USACE consisting of approximately 9.81 acres that was previously approved for development by the Town Board that will consist of Permanent Open Space to be donated to the Town of Amherst.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑Yes ☐No
If Yes,
i. Identify Facilities:
1. Heritage Heights Elementary School (Sweet Home School District- 2545 Sweet Home Road); 2. Creative Play Learning Center (Private Day Care Facility- 647 Dodge Road); and 3. Four Seasons Child Care & Preschool (Private Day Care Facility- 1639 North French Road).

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____

iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☐No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____
_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? >5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

Getzville silt loam	94 %
Swormville clay loam	6 %
	%

d. What is the average depth to the water table on the project site? Average: >5 feet

e. Drainage status of project site soils:
☐ Well Drained: _____ % of site
☐ Moderately Well Drained: _____ % of site
☑ Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____ % of site
☐ 15% or greater: _____ % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No
ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters, NYS Wetland Approximate Size NYS Wetland (in a...
- Wetland No. (if regulated by DEC) TE-33

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No
If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:
i. Name of aquifer: _____

The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of NYSDEC Freshwater Wetlands (reduction of .55 acres). A copy of the Amended Wetland Permit issued by the New York State Department of Environmental Conservation authorizing the impacts to the NYSDEC Freshwater Wetlands and the regulated 100 ft. Adjacent Area to accommodate the proposed mixed-use project on Site A of the Muir Woods property is provided at Attachment "A" of this Part 1 of the Full Environmental Assessment Form.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

m. Identify the predominant wildlife species that occupy or use the project site:
Typical suburban species

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No

If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑Yes ☐No

If Yes:
i. Species and listing:
Spiny Softshell - The Project Sponsor does not believe that Spiny Softshell is present on Site A of the Muir Woods property.

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: Eligible property:Heritage Heights Elementary School

iii. Brief description of attributes on which listing is based:

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

[Ccopy of the No Impact Determination letter issued by the NYSOPRP dated October 10, 2001 is provided at Attachment "B".]

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s):

ii. Basis for identification:

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource:

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.):

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation:

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

Documentation evaluating potential adverse environmental impacts pursuant to the State Environmental Quality Review Act ("SEQRA") including the fully engineered plans prepared by Carmina Wood Morris DPC have been submitted with the Site Plan Application.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name: Sawyers Landing LLC Date: February 22, 2021

Signature _____ Title Attorney for Project Sponsor

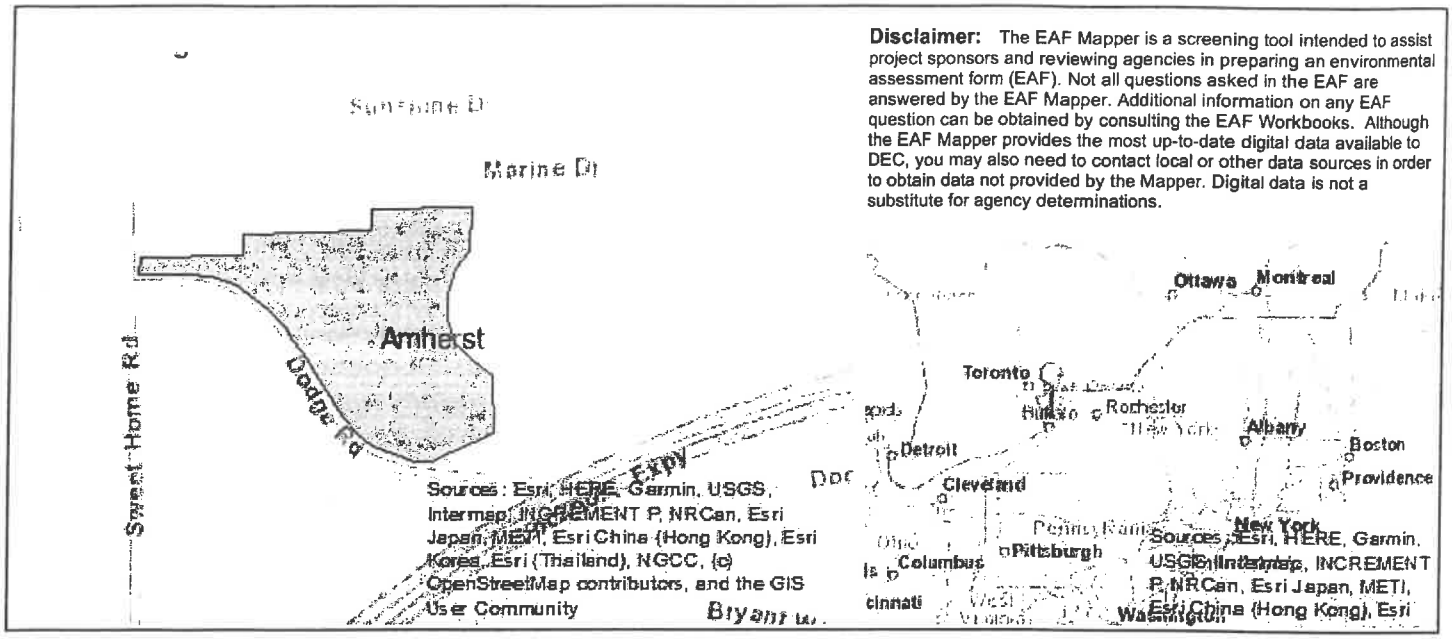
Sean W. Hopkins, Esq.

PRINT FORM

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

EAF Mapper Summary Report

Thursday, June 18, 2020 8:50 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):34.6
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	TE-33
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	Yes
E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:Heritage Heights Elementary School
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TOWN OF AMHERST ATTACHMENT
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
Proposed Mixed-Use Project - Portion of 1081 North French Road

1. For each applicable category of proposed new structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Getzville Silt Loam	Severe	Severe	Severe	Severe	Moderate
Swormville Clay Loam	Severe	Severe	Severe	Severe	Severe

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   _____ Geotechnical report attached _____ Not applicable

   [Note: 3 copies of the Geotechnical Report that has been ordered for the relevant portion of 1081 North French Road to be developed as a mixed-use project will be submitted to the Planning Department. A comprehensive Geotechnical Report for the entire overall Muir Woods Property was previously submitted.

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ■ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ■ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? ☐ Yes ■ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   X Not Applicable

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ■ Yes No

   Describe A student housing community is proposed on property to the east of the Project Site commonly referred to as Site "B" of Muir Woods.

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 106
   Source: Traffic Impact Study prepared by SRF Associates DPC dated August 3, 2020. 3 copies of the Traffic Impact Study have been submitted with the Site Plan Application.

8. Will blasting occur during construction? ☐ Yes ■ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ■ Yes ☐ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    50,820 average flow 203,280 peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? Yes ■ No
    [There are not any buildings located on the Project Site.]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Attachment "A" of Part 1 of Full Environmental Assessment Form - Amended Wetland Permit Issued by the New York State Separtment of Environmental Conservation dated December 24, 2020

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT

Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. Relationship of this Permit to Other Department Orders and Determinations Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. Applications For Permit Renewals, Modifications or Transfers The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. Submission of Renewal Application The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. Permit Modifications, Suspensions and Revocations by the Department The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. Permit Transfer Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Attachment "B" of Part 1 of Full Environmental Assessment Form - No Impact Determination Letter Issued by Ruth Pierpont, Director, New York State Office of Parks, Recreation and Historic Preservation, dated October 10, 2001

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE
Bernadette Castro
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 2 – Description of the Proposed Mixed-Use Project on a Portion of 1081 North French Road [Site "A" of the Muir Woods Property]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

EXHIBIT 2 OF SITE PLAN APPLICATION

DESCRIPTION OF PROPOSED MIXED-USE PROJECT TO BE LOCATION ON A PORTION OF 1081 NORTH FRENCH ROAD [SITE "A" OF MUIR WOODS PROPERTY]

The proposed project consists of a mixed-use project on a portion of 1081 North French Road [Site "A" of Muir Woods Property] (the "Project Site"). The Project Site is properly zoned for the proposed mixed-use project. The mixed-use project consists of 2 four-story mixed-use buildings [15,000 sq. ft. of 1st floor commercial space and 50 units per building], 47 two-family town homes on individual lots, and 2 single-story apartment buildings [6 units per building] along with all related site improvements depicted on the fully engineered plans prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC submitted with this Site Plan Application. A reduced size copy of the Overall Site Plan [Drawing C-100] is provided at Exhibit "3". The Elevation Plans as prepared by Sutton Architecture PLLC are provided at Exhibit "8". The fully engineered plans for the mixed-use project consist of the following:

- Cover Sheet;
- Topographic Survey;
- Boundary Survey;
- Demolition & Erosion Control Plan [Drawing C-001];
- Demolition & Erosion Control Details Plan [Drawing C-002];
- Overall Site Plan [Drawing C-100];
- Site Plan [Drawing C-101];
- Parcel Map [Drawing C-102];
- Site Details Plan [Drawing C-103];
- Site Details Plan [Drawing C-104];
- Grading Plan [Drawing C-200];
- Storm Drainage Plan [Drawing C-300];
- Storm Drainage Details Plan [Drawing C-301];

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

- Storm Drainage Plan [Drawing C-302];
- Storm Drainage Details Plan [Drawing C-303];
- Storm Drainage Details Plan [Drawing C-304];
- Utility Plan [Drawing C-400];
- Sanitary Sewer Details Plan [Drawing C-401];
- Sanitary Sewer Details Plan [Drawing C-402];
- Sanitary Sewer General Notes Plan [Drawing C-403];
- Sanitary Sewer Testing Notes Plan [Drawing C-404];
- Water Details Plan [Drawing C-405];
- Water Details & Notes Plan [Drawing C-407];
- Insulated Enclosure Detail Plan [Drawing C-408]; and
- Landscape Plan as Prepared by Robert Walter, RLA [Drawing L-100]

For purposes of the review process, the proposed mixed-use project has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed driveway connections to Dodge Road, access aisles, parking spaces, driveways, wetland impacts, lighting, landscaping, on-site storm water management improvements, sanitary sewer and water lines and connections and all other required utility improvements.[1] The project purpose is to develop Site "A" of overall Muir Woods Project Site as an innovative mixed-use project on property that has been designated for development for several decades. The proposed mixed-use project is a Type I action pursuant to SEQRA. The Town Board issued an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") on October 19, 2020 to allow mixed-use development of the Project Site.[2]

[1] A completed Part 1 of the Full Environmental Assessment Form with attached Page 5[a] and Attachments "A" and "B" is provided at Exhibit "1".

[2] A copy Resolution 2020-791 as adopted by the Town of Amherst Town Board on October 19, 2020 for the purpose of Issuing an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") for allowing mixed-use development on the Project Site is provided at Exhibit "9".

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

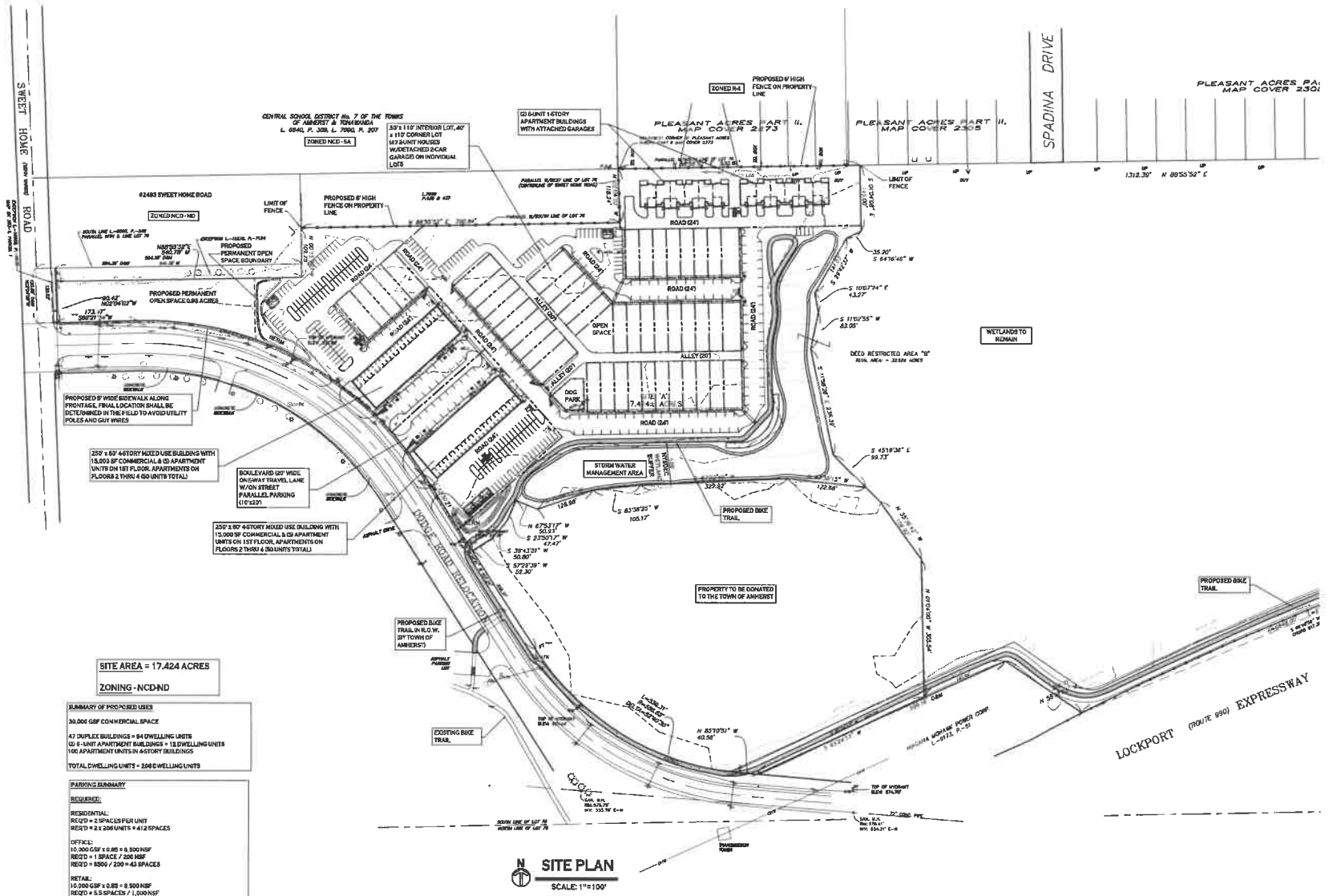
Additionally, on October 19, 2020, the Town Board also adopted a resolution to amend the Town's Comprehensive to designate the Project Site as appropriate for mixed-use.[3]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

[3] A copy of Resolution 2020-792 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the purpose of approving an Amendment to the Town of Amherst Comprehensive Plan to accommodate mixed-use development on the Project Site is provided at Exhibit "10".

Exhibit 3 – Reduced Size Copy of Overall Site Plan [Drawing C-100] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



SITE AREA = 17.424 ACRES

ZONING - NCD/ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

47 DUPLEX BUILDINGS = 94 DWELLING UNITS
(2) 6-UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN 4-STORY BUILDINGS

TOTAL DWELLING UNITS = 206 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 206 UNITS = 412 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 540 SPACES

PROVIDED:

158 PARALLEL PARKING SPACES
213 PVI'S* SPACES *
49 GARAGE SPACES IN 4-STORY BLDGS
94 GARAGE SPACES IN DETACHED GARAGES
TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 0.98 ACRES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASED)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 8.48 AC
DECREASE = 8.20 AC (87% DECREASED)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASED)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

N

SITE PLAN

SCALE: 1"=100'

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 0 100 200FT

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 section 7209 of the New York State Education Law for any person, unless acting under the direction of a licensed engineer, to alter this survey map, or any copy thereof. If an item bearing the stamp of a licensed engineer is altered, the altering engineer shall affix to the survey map a notation stating "Altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Carmina Wood Morris DPC
497 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0283

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

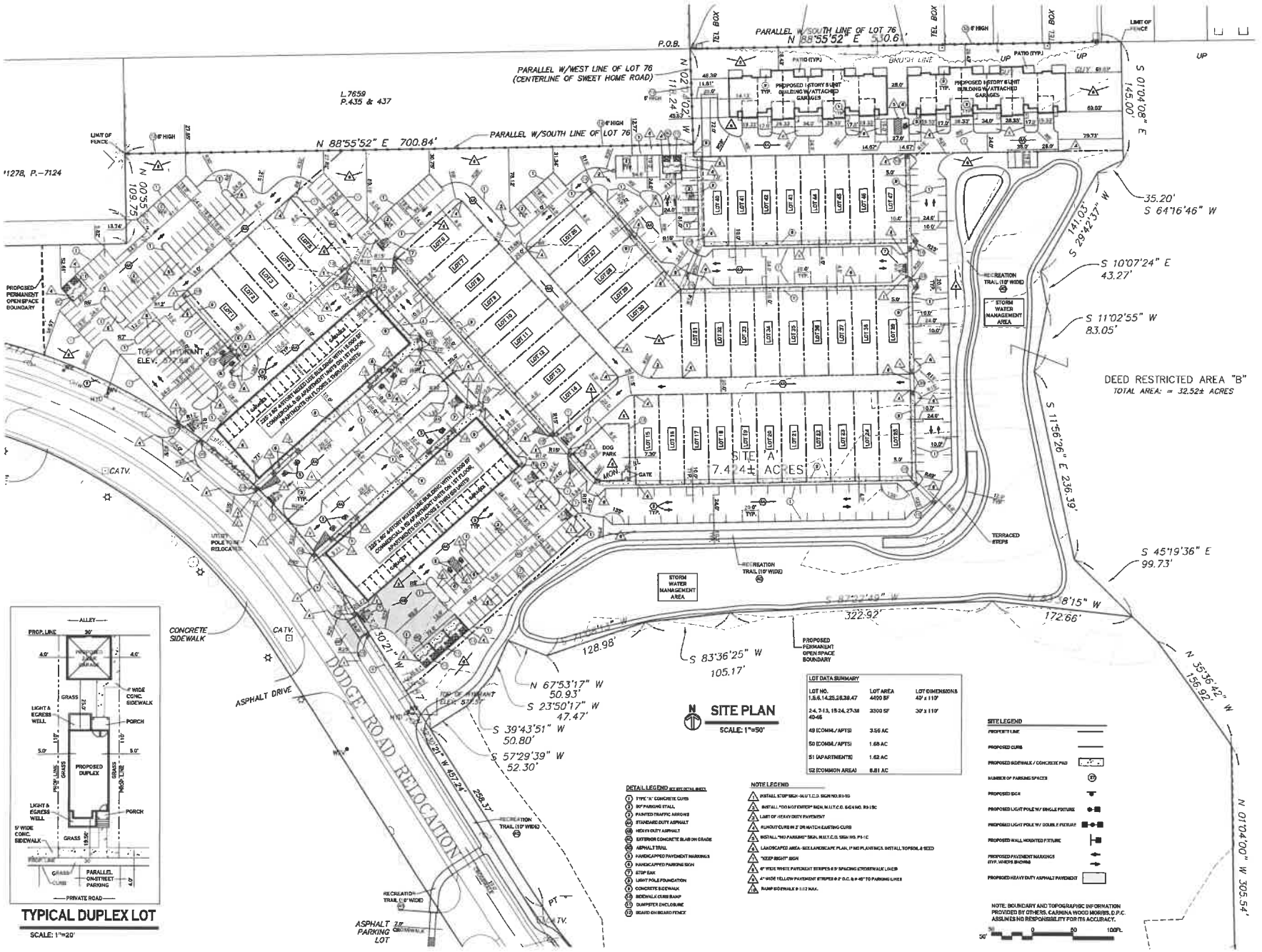
C-100

Project no.: 21.011

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 4 – Reduced Size Copy of Site Plan [Drawing C-101] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris, D.P.C. is prohibited. WARNING: It is violation of article 145 section 7209 and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.
© Carmina Wood Morris DPC

Carmina Wood Morris
487 Main Street, Suite 500
Buffalo, New York 14203
P 716.842.2185
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

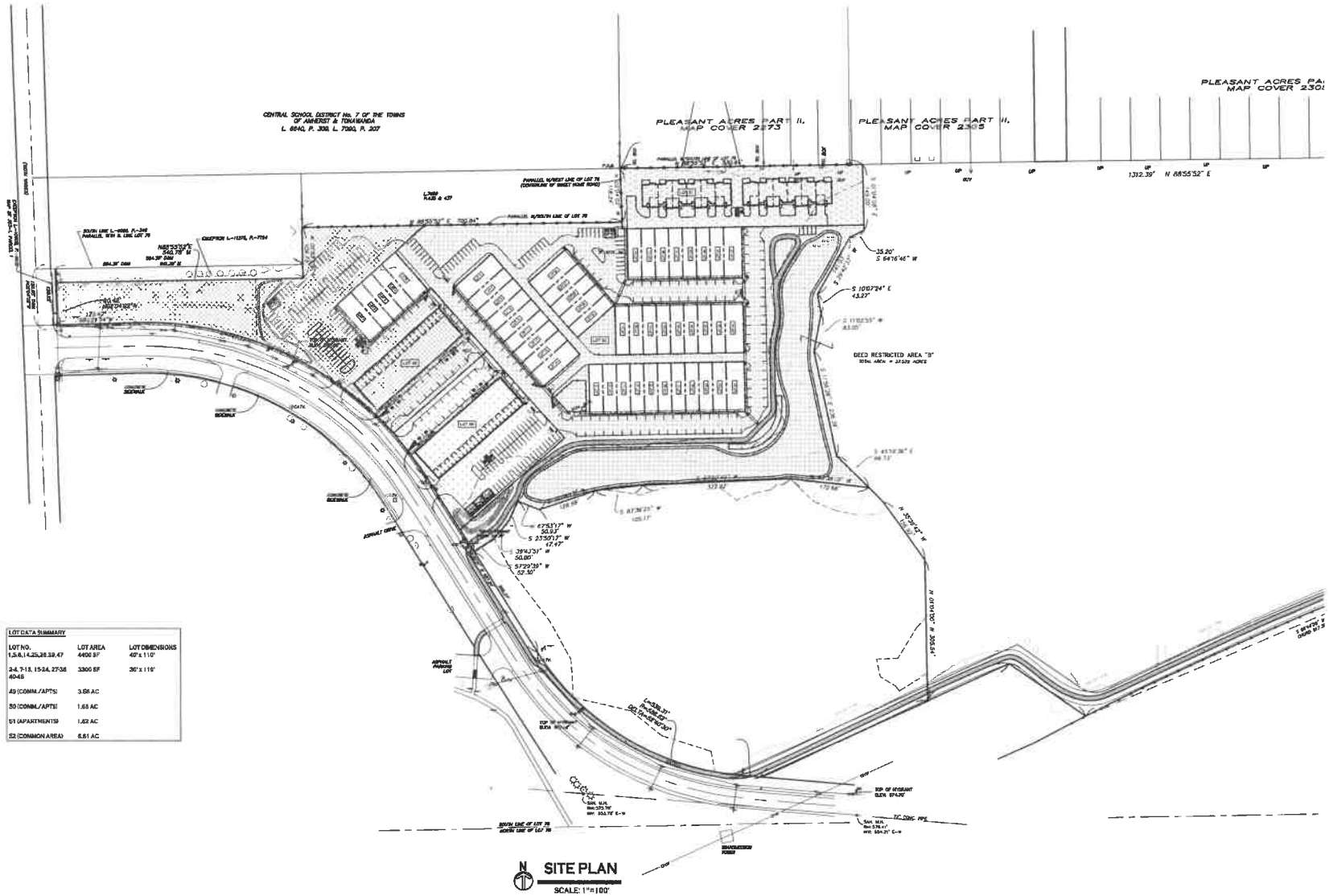
DRAWING NAME:
Site Plan

DRAWING NO.
C-101
Project no.: 21.011

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 5 – Reduced Size Copy of Parcel Map [Drawing C-102] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



LOT DATA SUMMARY		
LOT NO. 1,5,6,14,25,26,39,47	LOT AREA 4400 SF	LOT DIMENSIONS 40' x 110'
2-4, 7-13, 15-24, 27-38, 40-46	3300 SF	30' x 110'
49 (COMM./APTS)	3.56 AC	
50 (COMM./APTS)	1.65 AC	
51 (APARTMENTS)	1.62 AC	
52 (COMMON AREA)	6.51 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200FL

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 section 7209-b and 7321 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter any drawings. If altered such P.A., P.E. or L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

Carmina Wood Morris DPC
437 Main Street Suite 500
Buffalo, New York, 14203
P 716.842.3148
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

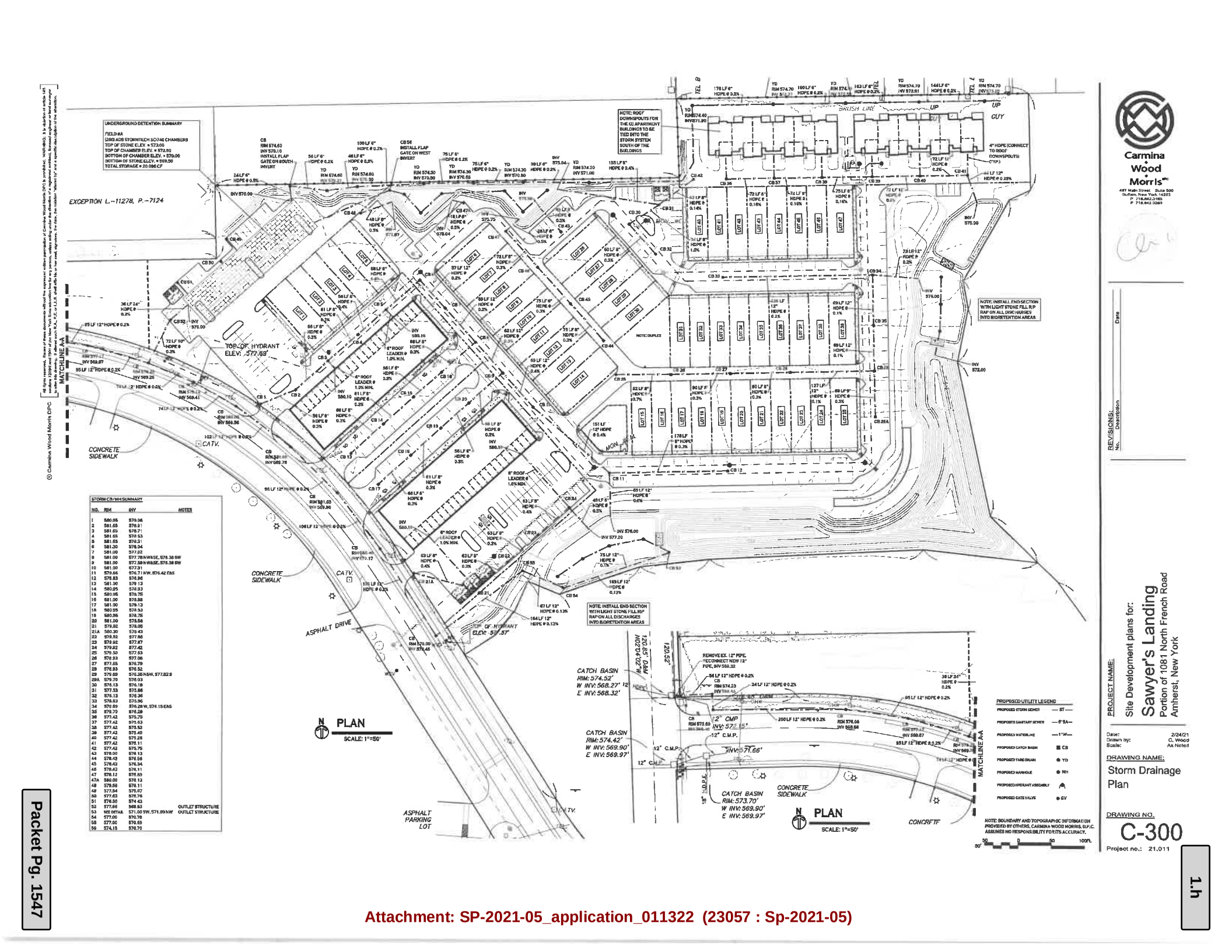
DRAWING NAME:
Parcel Map

DRAWING NO.
C-102

Project no.: 21.011

Exhibit 6 – Reduced Size Copy of Storm Drainage Plan [Drawing C-300] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

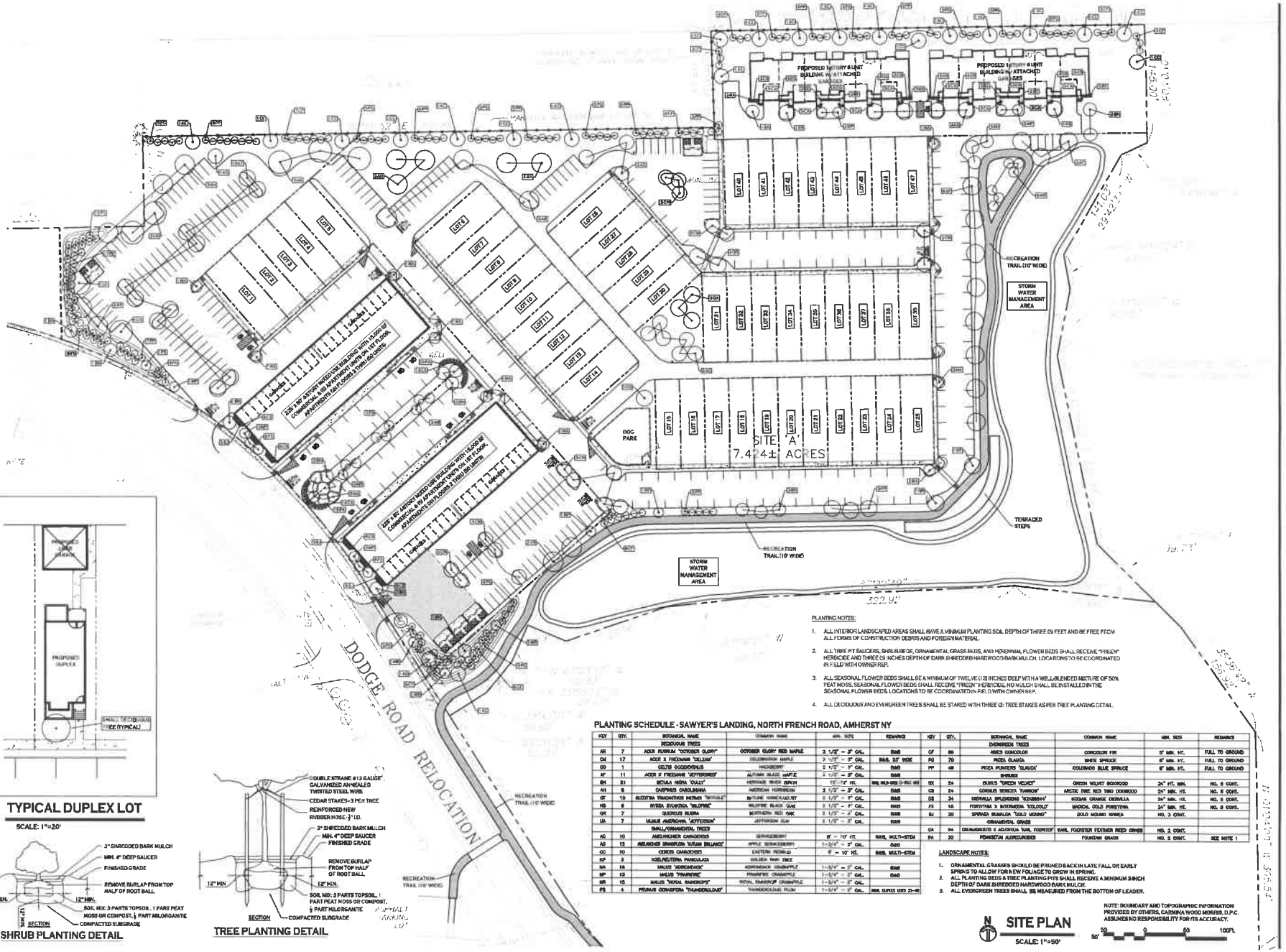


© Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 7 – Reduced Size Copy of Landscape Plan [Drawing L-100] as Prepared by Robert Walter, Registered Landscape Architect

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND HERENNIAL FLOWER BEDS SHALL RECEIVE "PRIEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PRIEN" HERBICIDE, NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X FREEMANII 'CELZAM'	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 12' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
KF	11	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
GH	21	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B, MULTI-STEM
NS	8	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	7	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	12	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1-3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	16	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1-3/4" – 2" CAL.	B&B
MF	12	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1-3/4" – 2" CAL.	B&B
MR	15	MALUS 'ROYAL RAINDROPS'	ROYAL RAINDROPS CRABAPPLE	1-3/4" – 2" CAL.	
PS	4	PRUNUS SERRASFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1-3/4" – 2" CAL.	B&B, SUPER VARS 25-45
		EVERGREEN TREES			
CF	80	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	70	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	48	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	24	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD	24" MIN. HT.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DEUTZIA SPLENDENS 'KOMSPLEN'	KOSMIK ORANGE DEUTZIA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	20	SPIRAEA JAPONICA 'GOLD MOUND'	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	84	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

N

SITE PLAN
SCALE: 1"=50'

50' 0 50' 100'FT.

TYPICAL DUPLEX LOT
SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

© Carmina Wood Morris DPC
All rights reserved. Re-use of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 section 7209-2 and 7209 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered each P.E., L.S., shall affix his or her seal, signature, the term, the notation 'Altered by' and a specific description of the alteration.

Carmina Wood Morris DPC
497 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0251

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

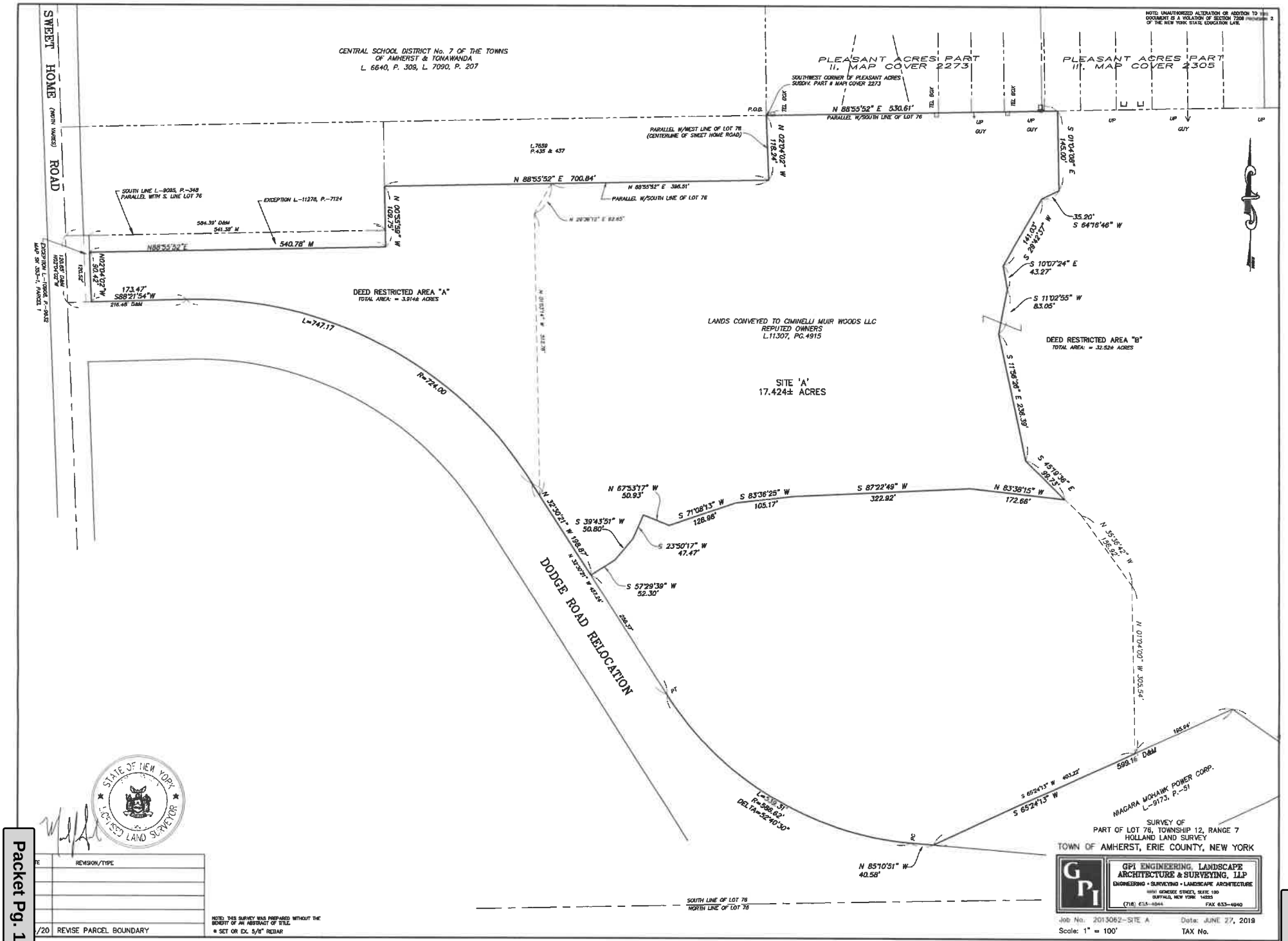
DRAWING NAME:
Landscape Plan

DRAWING NO.
L-100
Project no.: 21.011

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 6 – Reduced Size Copy of Storm Drainage Plan [Drawing C-300] as Prepared by Christopher Wood, P.E., of Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)


SWEET HOME (MAIN MARKS) ROAD
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L 6640, P. 309, L 7090, P. 207
PLEASANT ACRES I PART II, MAP COVER 2273
PLEASANT ACRES I PART III, MAP COVER 2305
SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273
P.O.B.
N 88°55'52" E 530.61'
PARALLEL W/SOUTH LINE OF LOT 76
PARALLEL W/WEST LINE OF LOT 76 (CENTERLINE OF SWEET HOME ROAD)
L.7659 P.435 & 437
N 88°55'52" E 700.84'
N 88°55'52" E 396.51'
PARALLEL W/SOUTH LINE OF LOT 76
N 02°04'02" W 118.24'
S 01°04'08" E 145.00'
35.20'
S 64°16'46" W
141.03'
S 29°42'57" W
S 10°07'24" E 43.27'
S 11°02'55" W 83.05'
SOUTH LINE L.-9085, P.-348 PARALLEL WITH S. LINE LOT 76
EXCEPTION L.-11278, P.-7124
584.39' D&M 541.38' M
540.78' M
N88°55'52"E
N 00°55'59" W 109.75'
N 02°04'02" W 120.36'
120.35'
EXCEPTION L.-10808, P.-9832 MAP SH 353-1, PARCEL 1
180.65' D&M N02°04'02"W
173.47' S88°21'54"W 216.48' D&M
DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.914± ACRES
L=747.17
R=724.00
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, PG.4915
SITE 'A' 17.424± ACRES
DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES
S 11°36'26" E 238.39'
S 45°19'36" E 99.73'
N 67°53'17" W 50.93'
S 71°08'13" W 128.86'
S 83°36'25" W 105.17'
S 87°22'49" W 322.92'
N 83°38'15" W 172.66'
N 35°15'42" W 126.92'
S 39°43'51" W 50.80'
S 23°50'17" W 47.47'
S 57°29'39" W 52.30'
N 32°30'21" W 198.87'
N 32°30'21" W 452.24'
DODGE ROAD RELOCATION
PT
PC
L=318.31' R=388.62' DELTA=52°40'30"
N 01°04'00" W 325.54'
185.84'
599.16' D&M
S 65°24'13" W 403.22'
S 65°24'13" W
NIAGARA MOHAWK POWER CORP. L.-9173, P.-51
N 85°10'51" W 40.58'
SOUTH LINE OF LOT 76
NORTH LINE OF LOT 76
STATE OF NEW YORK LICENSED LAND SURVEYOR
NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
REVISION/TYPE
/20 REVISE PARCEL BOUNDARY
NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.
⊕ SET OR EX. 5/8" REBAR
SURVEY OF PART OF LOT 76, TOWNSHIP 12, RANGE 7 HOLLAND LAND SURVEY TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
(716) 856-0599 FAX 853-4040
Job No. 2013062-SITE A
Date: JUNE 27, 2019
Scale: 1" = 100'
TAX No.

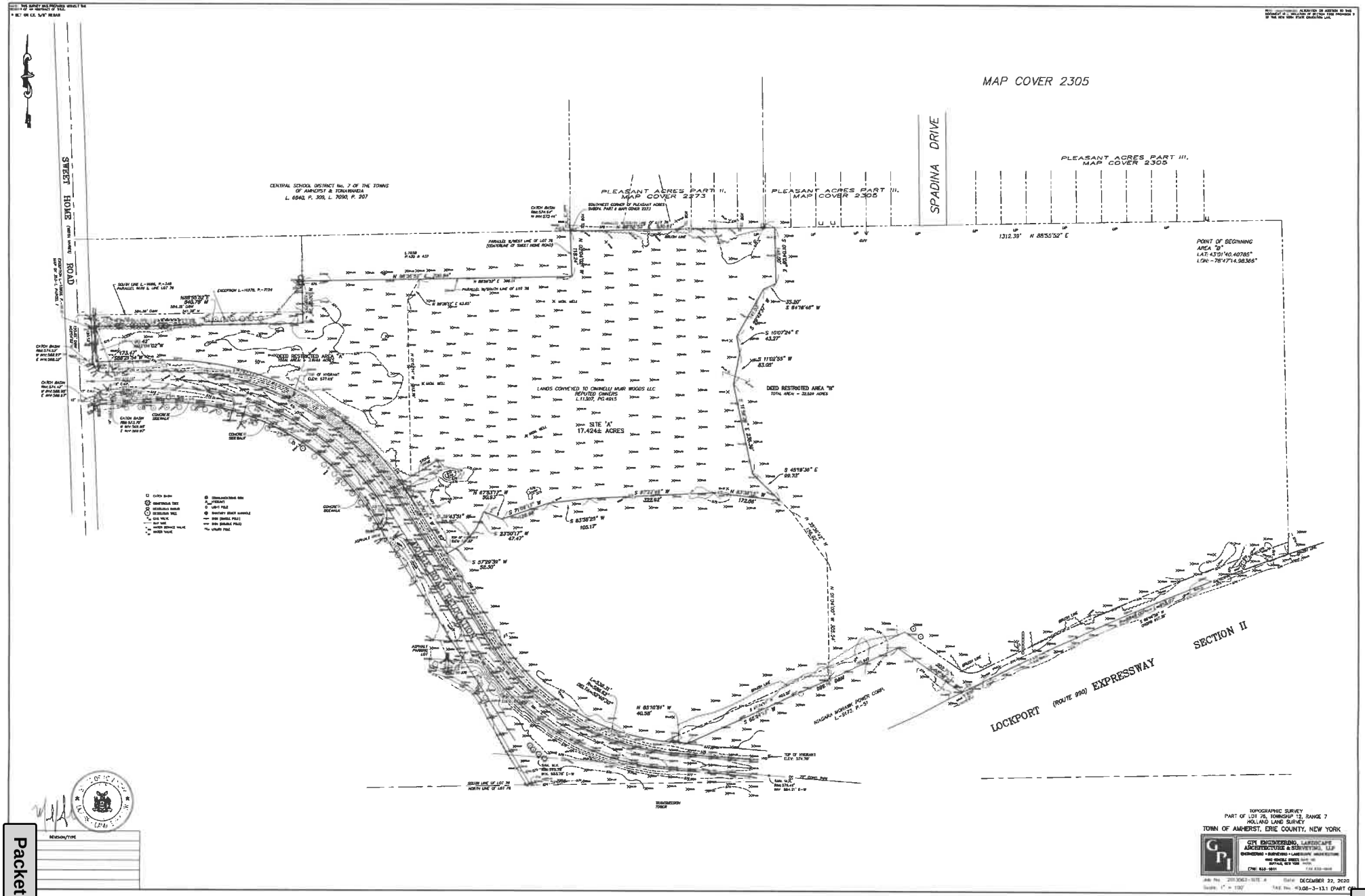
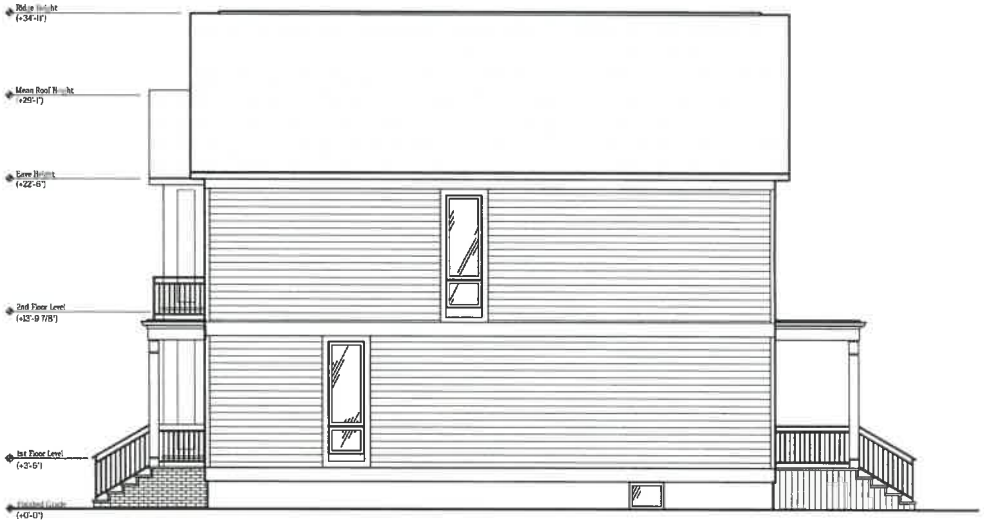

MAP COVER 2305
SPADINA DRIVE
SHEET HOLMES ROAD
PLEASANT ACRES PART II, MAP COVER 2273
PLEASANT ACRES PART III, MAP COVER 2305
PLEASANT ACRES PART III, MAP COVER 2305
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA L. 6840, P. 309, L. 7090, P. 207
POINT OF BEGINNING AREA "B" LAT: 43°01'40.40785" LON: -78°47'14.98386"
DEED RESTRICTED AREA "B" TOTAL AREA = 32,529 ACRES
SITE "A" 17.424± ACRES
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, Pg.4915
DEED RESTRICTED AREA "A" TOTAL AREA = 2.844 ACRES
LOCKPORT (ROUTE 990) EXPRESSWAY
SECTION II
NIAGARA MOHAWK POWER CORP. L.-9173, P.-51
TOPOGRAPHIC SURVEY
PART OF LOT 78, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
DECEMBER 22, 2020

Exhibit 8 – 11” x 17” Size Copies of Elevation Plans for Two-Family Townhomes on Individual Lots, Six-Unit Single-Story Buildings and Four-Story Mixed Use Buildings as Prepared by Sutton Architecture PLLC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Front Elevation



Right Elevation

1/4" = 1'-0"



Rear Elevation

1/4" = 1'-0"



Left Elevation

1/4" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
Two Family

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



South Elevation

1/8" = 1'-0"



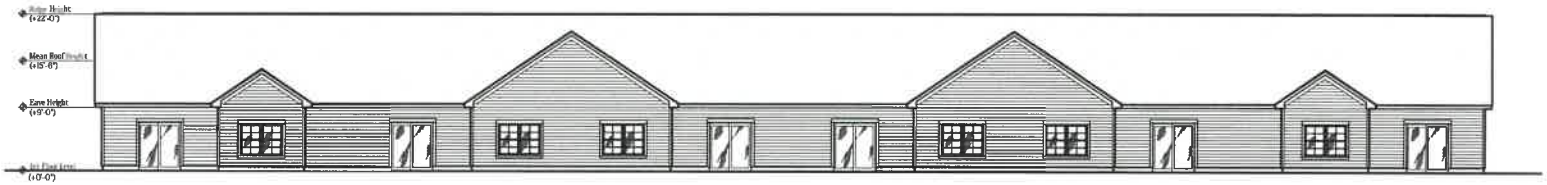
East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"



North Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES

Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
6 Unit Multifamily

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-992-7156

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



North Elevation

1/8" = 1'-0"



South Elevation

1/8" = 1'-0"

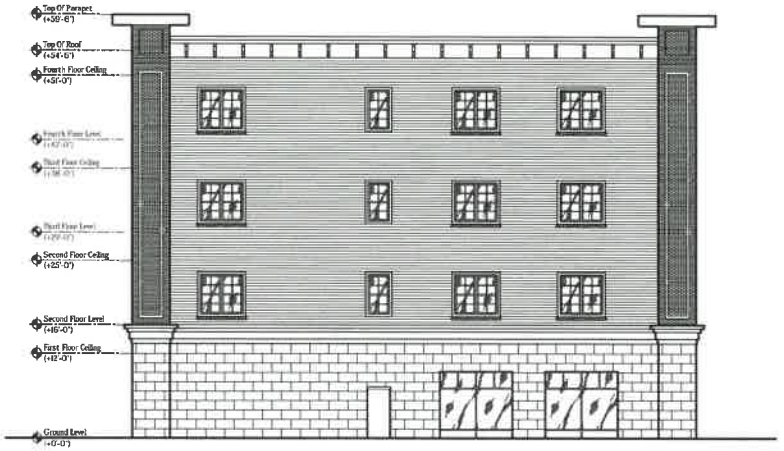
SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing
4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY
2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-832-7158

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



East Elevation

1/8" = 1'-0"



West Elevation

1/8" = 1'-0"

SEVERYN DEVELOPMENT
BETTER BUILT HOMES
Severyn Development, Inc.
43 Central Ave Suite 300
Lancaster, NY 14086
Office Phone: 716-818-0207

Sawyer's Landing

4 Story Mixed Use

Portion Of 1081 North French Road Amherst, NY

2/23/21

SUTTON architecture
"Design 2 Build"
5409 Main Street
716-932-7156

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 9 – Resolution 2020-791 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the Purpose of Issuing an Amended Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") for Mixed-Use Development on 1081 North French Road [Site "A" of Muir Woods Property]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 10/19/20 07:00 PM
Department: Town Clerk
Initiated by: **Kathleen Cooper**
Co-Sponsored by:

DOC ID: 22383 **RESOLUTION 2020-791** **ROLL CALL VOTE (ADOPTED)**

Amendment to the SEQR Findings Statement for "Muir Woods - Site A" (1081 N. French Road)

Amendment to the SEQR Findings Statement for
"Muir Woods - Site A"
[1081 North French Road (NCD); Z-2002-09C]

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, that the requirements of SEQR have been completed, and be it further

RESOLVED, that pursuant to NYS Town Law Section 272-a, the Town Board concurs with the findings of the Planning Board as stated in their resolution of August 20, 2020 to amend the "Development Program" within the SEQR Findings Statement approved by the Town Board on August 5, 2020 to permit "Site A" located at the western end of the overall Muir Woods site located at 1081 North French Road (NCD) to be developed as a mixed-use residential/commercial project instead of flex office/R&D buildings.

RESOLVED, that Ciminelli Muir Woods, LLC has offered to donate to the Town approximately 43 acres of Permanent Open Space located between Site "A" and Site "B" of the Overall Muir Wood Property as depicted on a plan prepared by Greenman-Pedersen Consulting Engineers Inc. dated October 13, 2020;

RESOLVED, the approximately 43 acres of Permanent Open Space includes a portion of the Muir Woods Project with frontage on Dodge Road and is also contiguous to the southern boundary of a portion of the Bucyrus Heights Subdivision and the approximately 43 acres of Permanent Open Space includes extensive existing vegetation and also includes wetlands subject to the jurisdiction of the United States Army Corps of Engineers ("USACE") and wetlands and regulated 100 ft. adjacent areas subject to the jurisdiction of the New York State Department of Environmental Conservation ("NYSDEC"); and

RESOLVED, the Town Board hereby finds as follows: i.) Acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site is consistent with the Conceptual Land Use Plan for the Town contained at Figure 6 of the adopted Bicentennial Comprehensive Plan that designates this acreage as "Recreation, Open Space & Gateways"; and, ii.) Acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site as described herein will result in benefits to the Town and its residents including homeowners in the Bucyrus Heights Subdivision.

RESOLVED, the Town Board has evaluated the potential adverse environmental impacts associated with the acquisition of the 43 acres of Permanent Open Space and determined that such acquisition will not result in any potentially significant adverse environmental impacts.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

RESOLVED, that the Town Board hereby authorizes the acquisition of the approximately 43 acres of Permanent Open Space on the Muir Woods Project Site as described herein via a donation from Ciminelli Muir Woods, LLC subject to the following terms and conditions:

1. The adoption of this resolution by the Town Board for the purpose of acquiring the Permanent Open Space described herein does not include the Town Board designating the Permanent Open Space as "parkland". The Town Board shall adopt a separate resolution in the future if it determines designating the Permanent Open Space as "parkland" is appropriate.

2. Ciminelli Muir Woods, LLC, its successors and assigns, shall retain an easement with respect to the approximately 43 acres of Permanent Open Space for the purpose of completing required wetland mitigation and wetland mitigation monitoring in accordance with the terms and conditions contained in wetland permits issued by the USACE and the NYSDEC. Upon the USACE and the NYSDEC determining that the required wetland mitigation has been completed to their satisfaction and the expiration of the monitoring period, the easement shall terminate.

3. Prior to the recording of a deed from Ciminelli Muir Woods, LLC to the Town of Amherst for the purpose of conveying ownership of the Permanent Open Space as described herein, a Declaration of Restrictive Covenants shall be recorded at the Erie County Clerk's Office for the restricting the use of the approximately 43 acres of Permanent Open Space in accordance with the terms and conditions of wetland permits issued by the USACE and the NYSDEC and also for the purpose of prohibiting future development of the approximately 43 acres of Permanent Open Space.

4. Ciminelli Muir Woods, LLC shall be responsible for the expenses associated with the preparation of a survey and an Abstract of Title for the Permanent Open Space as described herein and the recording fees for the deed to be recorded at the Erie County Clerk's Office.

5. The documentation required to effectuate the transfer of the Permanent Open Space as described herein and to comply with the above conditions shall be subject to review and approval by the Town Attorney's Office.

6. The Supervisor is authorized to execute any documentation required to effectuate the acquisition of the 43 acres of Permanent Open Space in accordance with the terms and conditions contained in this resolution.

10/06/2020

A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was opened at 7:51 PM.

Sean W. Hopkins, Esq., presented for both resolution #791 and #792 and answered questions from the Board.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

There were no speakers from the public, therefore Supervisor Kulpa moved to adjourn the public hearing and set a Decision Date for October 19th. The motion was seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was adjourned at 8:13 PM.

10/19/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was opened at 7:18 PM.

Sean W. Hopkins, Esq., presented under Res #792.

There were no speakers from the public, therefore Supervisor Kulpa moved to close the public hearing, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was closed at 7:20 PM.

A motion to adopt the amended SEQR Findings Statement was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved via Roll Call vote 4-1 (nay, Bucki).

RESULT:	**ROLL CALL VOTE (ADOPTED) [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 10 – Resolution 2020-792 as Adopted by the Town of Amherst Town Board on October 19, 2020 for the Purpose of Approving an Amendment to the Town of Amherst Comprehensive Plan

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 10/19/20 07:00 PM
Department: Town Clerk
Initiated by: **Kathleen Cooper**
Co-Sponsored by:

DOC ID: 22366 **RESOLUTION 2020-792** **ROLL CALL VOTE (ADOPTED)**

Amendment to the Comprehensive Plan for "Muir Woods - Site A" (1081 N. French Road)

Amendment to the Comprehensive Plan for
"Muir Woods - Site A"
[1081 North French Road (NCD); BCPA-2020-02]

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, that the requirements of SEQR have been completed, and be it further

RESOLVED, that pursuant to NYS Town Law Section 272-a and Section 11.6 of the Town Comprehensive Plan, the Town Board concurs with the findings of the Planning Board as stated in their resolution of August 20, 2020 to amend the Conceptual Land Use Plan (Figure 6) and the University Focal Planning Area (Figure 21) of the Comprehensive Plan for "Muir Woods - Site A" located at 1081 North French Road (NCD) to permit mixed-use residential/commercial use on Site A.

For additional information (copy & paste link):
https://share.amherst.ny.us:443/docman/doc_files_list.php?hash=uaaidrb0hpn0mkelzsugvr62

10/06/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was opened at 7:51 PM.

Sean W. Hopkins, Esq., presented for both resolution #791 and #792 and answered questions from the Board.

There were no speakers from the public, therefore Supervisor Kulpa moved to adjourn the public hearing and set a Decision Date for October 19th. The motion was seconded by Councilmember Lavin and unanimously approved 4-0. The public hearing was adjourned at 8:13 PM.

10/19/2020
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was opened at 7:07 PM.

Sean W. Hopkins, Esq., presented.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

There were no speakers from the public, therefore Supervisor Kulpa moved to close the public hearing, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was closed at 7:18 PM.

A motion to approve the Negative Declaration was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved 4-1 (nay, Bucki). A motion to adopt the resolution was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved via Roll Call vote 4-1 (nay, Bucki).

RESULT:	**ROLL CALL VOTE (ADOPTED) [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

HSM

February 26, 2021

Ellen Kost, AICP, Assistant Planning Director
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

Re: Proposed Mixed Use Project - Site A of Muir Woods [SP-2021-05]
Portion of 1081 North French Road – Town of Amherst
File No. 10024.12

Dear Ellen:

Attached as Exhibit "1" is a copy of the Amended Wetland Permit [LRB-2001-00067] issued by the United States Army Corps of Engineers ("USACE") on February 25, 2021 authorizing impacts to 6.089 acres of federal wetlands [reduction of 6.921 acres of previously authorized impacts to federal wetlands] in order to accommodate the mixed-use development of Site "A" of the Muir Woods Property in accordance with the project layout depicted on the Concept Site Plan prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC attached as Sheet 1 of 3.

Please feel free to call me at 510-4338 or via e-mail if you have any questions regarding this letter or the Amended Wetland Permit issued by the USACE on February 25, 2021 or the status of the pending request for Major Site Plan Approval for the proposed mixed-use project.

Thank you for your continued cooperation.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: Adam Faeth, Esq., Ciminelli Real Estate Corporation [Via e-mail and mail]
William Severyn, Severyn Development Inc. [Via e-mail and mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]
Scott J. Livingstone, Earth Dimensions, Inc. [Via e-mail]
Jody Celeste, Earth Dimensions, Inc. [Via e-mail]

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 1 – Amended Wetland Permit Issued by the United States Army Corps of Engineers dated February 25, 2021

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

February 25, 2021

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Mr. Adam Faeth
Development Manager
Ciminelli Muir Woods LLC
350 Essjay Road Suite 101
Williamsville, NY 14221

Dear Mr. Faeth:

This is in reply to your submittal dated July 20, 2020 in which you requested a modification of Department of the Army Permit No. LRB-2001-00067. The project is located on a 326-acre parcel in the Town of Amherst, Erie County, New York. Specifically, you seek authorization to change the proposed use of an area identified as Site A from research and development and flex office space to a mixed-use commercial and residential development. This includes two 4-story mixed-use buildings, two-family townhouses, 6-unit apartment buildings, and a recreational trail to connect Site A with Site B. Wetland impacts have been reduced from 13.01 acres to 6.089 acres in Site A. A reduction of 6.921 acres. In addition, because of the reconfigured project including the significant reduction of wetland impacts, you have requested that the requirement of off-site compensatory mitigation be removed. Lastly, you have requested that 134 acres of the overall Muir Woods site located northeast of Site B, is donated to the Town of Amherst. This area will remain as open space in perpetuity. Permit compliance with mitigation requirements will remain as it currently is on the 134-acre site as a responsibility of Ciminelli Muir Woods LLC.

A Public Notice was published and coordinated with agencies and adjacent property owners using standard procedures. No comments were received as a result of the Public Notice. Based upon our evaluation, I concluded your request will not result in any unacceptable environmental or navigational impacts. Therefore, I am modifying Department of the Army permit No. LRB-2001-00067 to reflect the changes outlined in your request and identified on the attached drawings. All other terms and conditions of Permit No. LRB-2001-00067 remain in full force and effect.

Sheets 1, 2, and 3 of 3 are hereby made part of Permit No. LRB-2001-00067. Sheet 1 of 3 of this modification is an update to Sheets 2, 3, and 5 of 6 of the original permit. Sheet 2 and 3 of 3 of this modification are updates to Sheet 5 of 6 of the original permit. In addition, the following Special Conditions No. 6 and 8 of Permit No. LRB-2001-00067 are modified so that they no

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

longer include the requirement of off-site compensatory mitigation, as indicated below with the original and the following modified condition:

1. Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 17.83 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site, and 27.37 acres of wetland off-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site and off-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

   Modified Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 10.91 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

2. Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan, and the Proposed Off-Site Wetland Mitigation Plan dated November 16, 2009. The stated mitigation plans are hereby incorporated into and made part of the permit as Attachments 1 and 2. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

   Modified Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan dated November 16, 2009. The stated on-site mitigation plan is hereby incorporated into and made part of the permit as Attachments 1. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Questions pertaining to this matter should be directed to Martin Crosson at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207 or by E-mail at: martin.h.crosson@usace.army.mil

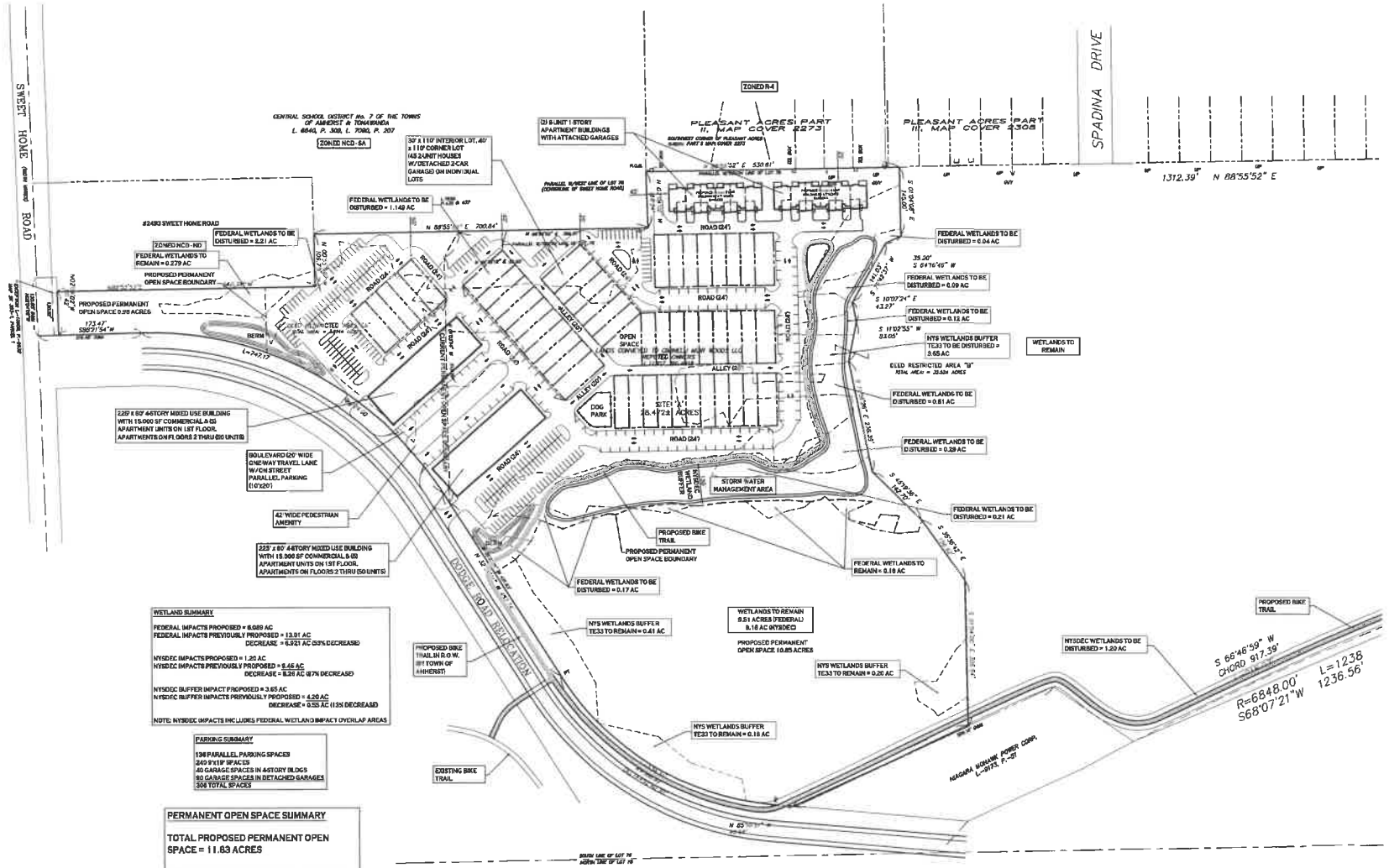
BY AUTHORITY OF THE SECRETARY OF THE ARMY

Steven V. Metivier

For: Mark Scalabrino
Acting Chief, Regulatory Branch

Enclosures

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 1 of 3

© Camina Wood Morris DPC
All rights reserved. Reuse of these documents without the expressed written permission of Camina Wood Morris DPC is prohibited. WARNING: It is a violation of article 145 sections 7209(2) and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the letter "altered by" and a specific description of the alteration.

Camina Wood Morris
467 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0061

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 7/1/20
Drawn by: C. Wood
Scale: As Noted

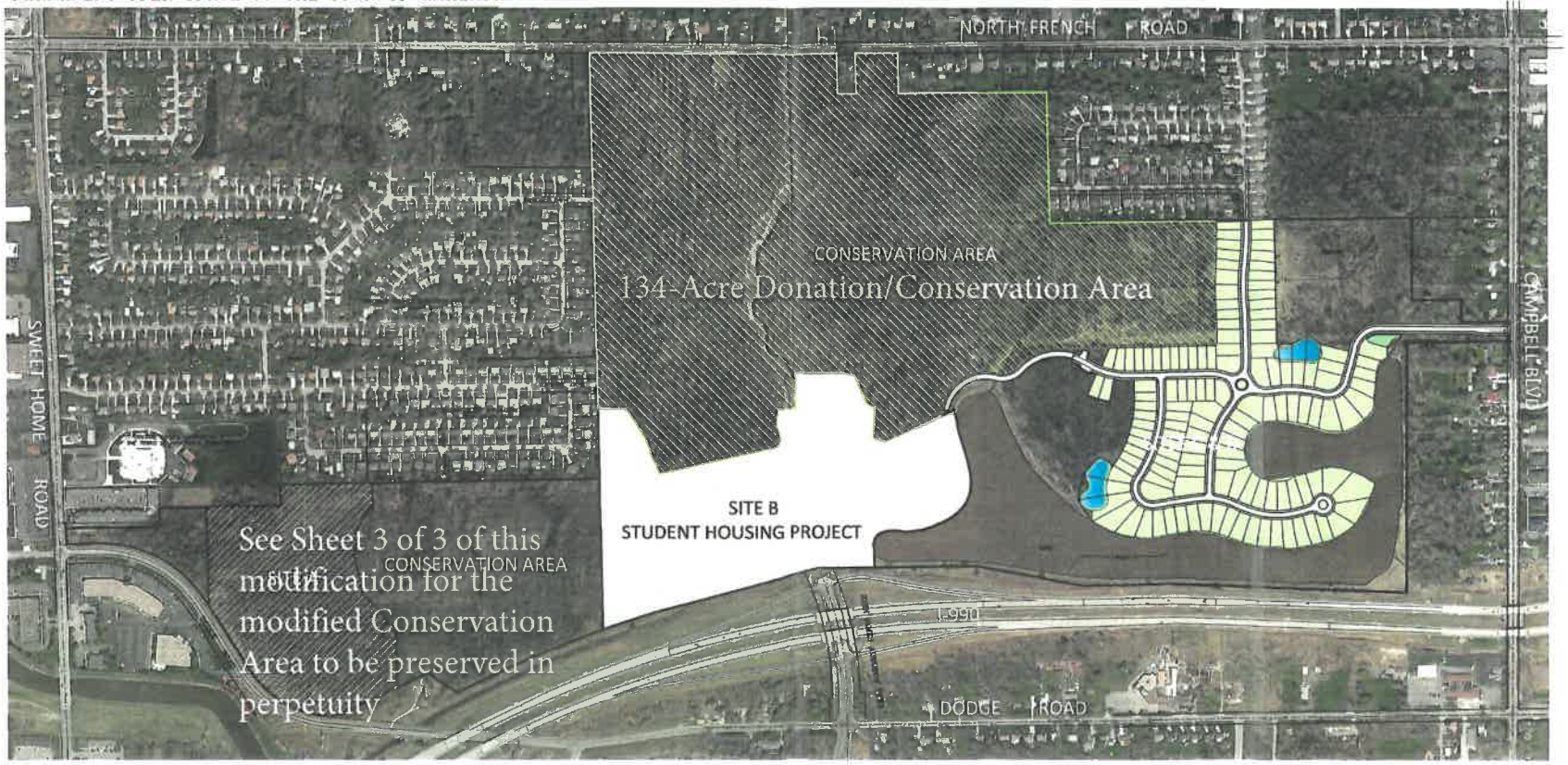
DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100
Project no.: 19.192

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

MUIR WOODS OVERALL PROJECT AREA

PROPOSED DONATION OF APPROXIMATELY 134 ACRES OF
PERMANENT OPEN SPACE TO THE TOWN OF AMHERST

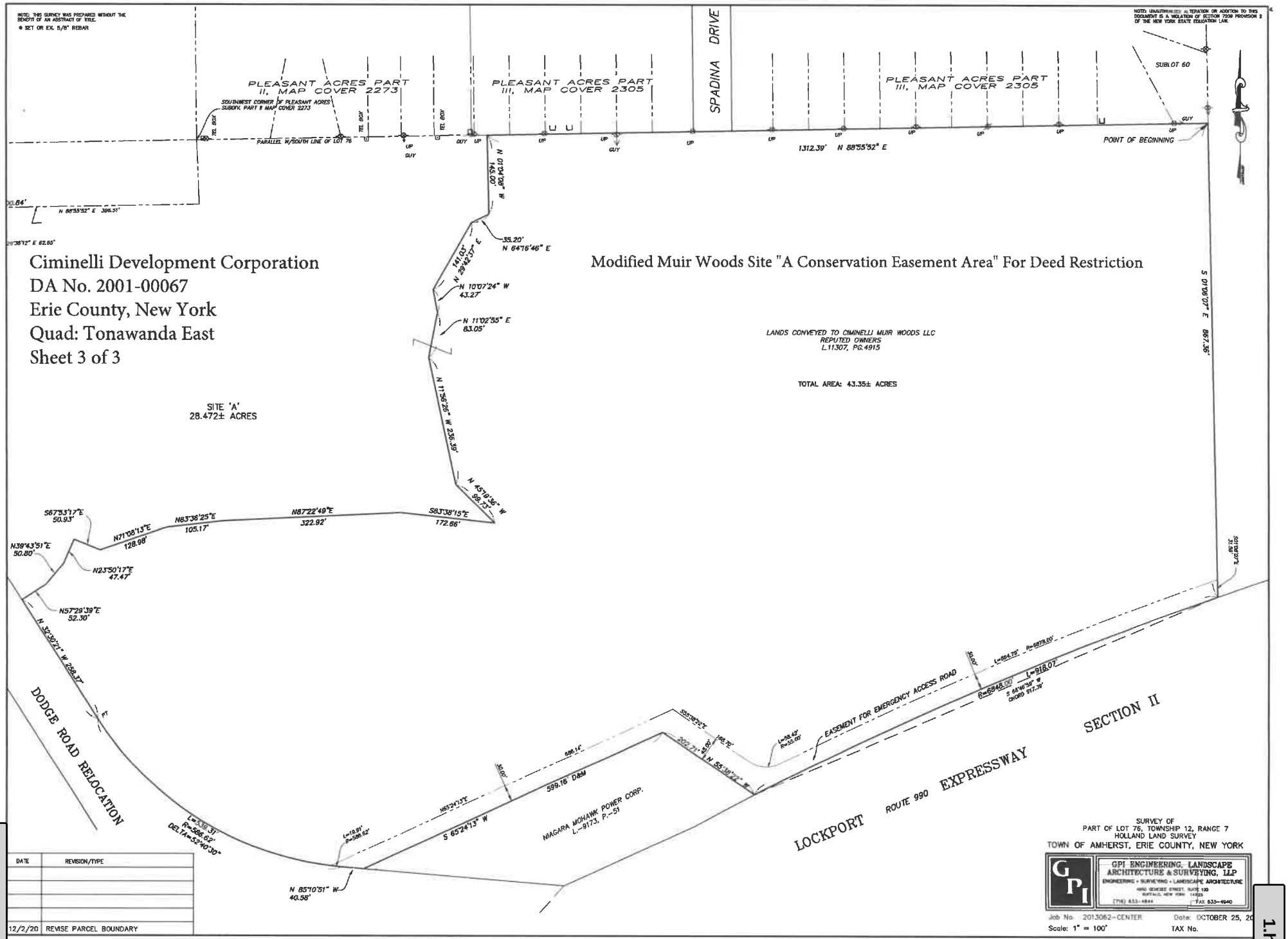


CONSERVATION AREA TO BE DONATED

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 2 of 3

GPI GREENMAN-PEDERSEN, INC. CONSULTING ENGINEERS ENGINEERING • SURVEYING • PLANNING

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

HSM

December 26, 2020

Ellen Kost, AICP, Assistant Planning Director
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

Re: Proposed Mixed Use Project - Site A of Muir Woods [Z-2002-09C & BCPA-2020-02]
Portion of 1081 North French Road
Applicant/Project Sponsor: Ciminelli Real Estate Corporation
File No. 10024.12

Dear Ellen:

Attached as Exhibit "1" is a copy of the Amended Wetland Permit [Permit No. 9-1422-00398/0001] issued by the New York State Department of Environmental Conservation ("NYSDEC") on December 24, 2020 authorizing the impacts to NYSDEC Freshwater Wetlands and the associated regulated 100 ft. Adjacent Area in order to accommodate the mixed-use development of Site "A" of the Muir Woods Property in accordance with the project layout depicted on the Concept Site Plan prepared by Christopher Wood, P.E. of Carmina Wood Morris DPC.

Attached as Exhibit "2" is a copy of the Public Notice of the United States Army Corps of Engineers ("USACE") dated December 21, 2020. The comment period on the pending requested Amended Wetland Permit being sought from the USACE expires on January 11, 2021. The Project Sponsor anticipates receiving an Amended Wetland Permit from the USACE by the end of January.

Please feel free to call me at 510-4338 or via e-mail if you have any questions regarding this letter or the Amended Wetland Permit issued by the NYSDEC on December 24, 2020 or the status of the mixed-use project.

Thank you for your continued cooperation.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: Adam Faeth, Esq., Ciminelli Real Estate Corporation [Via e-mail and mail]
William Severyn, Severyn Development Inc. [Via e-mail and mail]
Christopher Wood, P.E., Carmina Wood Morris DPC [Via e-mail]

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Scott J. Livingstone, Earth Dimensions, Inc. [Via e-mail]
Jody Celeste, Earth Dimensions, Inc. [Via e-mail]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 1 – Amended Wetland Permit Issued by the NYS Department of Environmental Conservation dated December 24, 2020

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7165 I F: (716) 851-7168
www.dec.ny.gov

December 24, 2020

Mr. Adam Faeth
Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Muir Woods Development – "Site A"
Permit Transmittal Letter
Permit No. 9-1422-00398/00001

Dear Mr. Faeth:

Enclosed is your permit which was issued in accordance with applicable provisions of the Environmental Conservation Law. The permit is valid for only that project, activity or operation expressly authorized. If modifications are desired after permit issuance, you must submit the proposed revisions and receive written approval from the Permit Administrator prior to initiating any change. If the Department determines that the modification represents a material change in the scope of the authorized project, activity, operation or permit conditions, you will be required to submit a new application for permit.

Please review all permit conditions carefully. In particular, identify your initial responsibilities under this permit in order to assure timely action if required. Since failure to comply precisely with permit conditions may be treated as a violation of the environmental conservation law, you are requested to provide a copy of the permit to the project contractor, facility operator, and other persons directly responsible for permit implementation (if any).

If you have any questions, please contact this office at the above address.

Respectfully,
David S. Denk
Regional Permit Administrator

Enclosure
ecc: NYSDEC Law Enforcement
Maureen Brady, NYSDEC Office of General Counsel
Mr. Chuck Rosenburg, NYSDEC Division of Fish and Wildlife
Mr. Martin Crossen, USACOE
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Exhibit 2 – Public Notice as Published by the United States Army Corps of Engineers dated December 21, 2020

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Public Notice

U.S. Army Corps
of Engineers
Buffalo District
CELRB-TDR

Applicant: Ciminelli Real Estate Corporation

Published: December 21, 2020
Expires: January 11, 2021

Application No: 2001-00067 (2020 Site A Modification)
Section: New York

All written comments should reference the above Application No. and be addressed to:
Attn: Martin Crosson
U.S. Army Corps of Engineers, Buffalo District
1776 Niagara Street
Buffalo, NY 14207

THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.

Application for Permit Modification under Authority of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (33 U.S.C. 1344).

APPLICANT: Ciminelli Real Estate Corporation/Ciminelli Muir Woods, LLC ("Ciminelli"). Ciminelli has requested a modification to an existing permit described below.

WATERWAY & LOCATION: approximately 98 acres of Federal wetlands, a 32 acre lake and approximately 4.4 acres of tributaries have been previously identified as jurisdictional on the 326 acre parcel permitted for development known as "Muir Woods". The permitted project is located in the Town of Amherst, County of Erie and State of New York.

LATITUDE & LONGITUDE: Latitude North: 43°01'46"
Longitude West: -78°46'33"

EXISTING CONDITIONS: On May 14, 2012 a permit was issued to Ciminelli for placement of fill into 17.83 acres of Federal wetland and 1.29 acres of federally regulated tributaries for the multi-use development known as "Muir Woods". The current jurisdictional determination remains valid until the existing permit expiration date of November 30, 2024.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

PROPOSED MODIFICATION: Ciminelli proposes to modify the existing permit to change the proposed use of the area identified as Site A of the "Muir Woods" site. Under the existing permit, Site A was to consist of research and development and flex office space. The applicant is currently proposing to change the previously proposed use of Site A to a mixed-use commercial and residential development. The concept plan for the proposed project includes two 4-story mixed-use buildings, in addition to two-family townhouses and 6-unit apartment buildings. Also in association with the proposed changes, a new recreational bike/walking trail that will enter Site A from the southeast connection with Site B ultimately connecting to the rest of the on-site trail system and the Town's recreational trail that connects to the North Campus of the University of Buffalo and the Ellicott Creek Trailway system. The applicant has indicated these modifications are necessary due to changes in economic conditions in the real estate market, and also due to their consideration of input from the Town of Amherst municipal boards and the local public.

PROJECT PURPOSE
Basic: Construction of a multi-use development.
Overall: Modification of an existing permitted Ciminelli construction project by changing the proposed use of Site A of the Muir Woods site to the planned development from Research and Development and flex office space to mixed-use commercial and residential development with associated amenities on Site A due to market changes and consideration of the Town of Amherst municipal boards and local public input.

Water Dependency Determination: As with the existing permit, this newly proposed modification resulting in changes in project purpose and use within Site A, impacts to waters of the US have been determined to not be water dependent. Therefore, alternatives that do not require impacts to US waters are presumed to exist. The applicant adequately demonstrated that US waters have been avoided and minimized to the greatest extent practicable. As a result, wetland impacts have been reduced from the currently permitted 13.010 acres to 6.089 in Site A.

Mitigation: The currently permitted wetland impact in Site A is 13.010 acres. The new proposed impact to Site A wetlands are 6.089 acres resulting in a reduction in wetland impacts by 6.921 acres. As a result of the decrease in wetland impacts in Site A, the previously approved off-site mitigation consisting of creation of 27.37 acres of wetland habitat in the Town of Newstead has been proposed to be removed as a permit requirement. The previously approved and currently permitted on-site mitigation for Site A consisting of creation of approximately 10.47 acres of wetland remains unchanged. In addition, the increase in avoided wetland area and the reduction in developed area proposed in Site A results in an increase to the amount of wetland area to be preserved on-site as permanent open space from 3.91 acres to 11.83 acres.

Location and details of the above described work are shown on the attached maps and drawings.

Comments or questions pertaining to the work described in this notice should reference the Application Number and be directed to the attention of Martin Crosson, who can be contacted at the above address, by calling (716) 879-4346, or by e-mail at: martin.h.crosson@usace.army.mil. A lack of response will be interpreted as meaning that there is no objection to the work as proposed.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Comments submitted in response to this notice will be fully considered during the public interest review for this permit application. All written comments will be made a part of the administrative record which is available to the public under the Freedom of Information Act. The Administrative Record, or portions thereof, may also be posted on a Corps of Engineers internet web site. Due to resource limitations, this office will normally not acknowledge the receipt of comments or respond to individual letters of comment.

Any individual may request a public hearing by submitting their written request, stating the specific reasons for holding a hearing, in the same manner and time period as other comments.

Pursuant to Section 106 of the National Historic Preservation Act, this proposed modification to Site A does not constitute an action that requires additional consultation with the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP). In a letter dated September 10, 2009 NYSOPRHP indicated the proposed project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places. The proposed modification does not change the previously considered permit area or determination.

Pursuant to Section 7 of the Endangered Species Act (16 U.S.C. 1531), the Corps of Engineers has concluded consultation with the USFWS to evaluate potential impacts to the northern long-eared bat (NLEB). The Corps has previously determined that the project may affect the NLEB, but that the scope of the work falls within the parameters of the 4(d) Rule. Therefore, consultation has concluded. The existing permit for the project included the entire Site A area. This proposed modification does not constitute an action that requires further coordination or consideration under the Endangered Species Act (16 U.S.C. 1531).

Pursuant to Section 401(d) of the Clean Water Act, A Water Quality Certification will be issued or waived for this proposed project modification by the State of New.

Public hearings for the purposes of the Corps permit program will be held when the District Commander determines he can obtain additional information, not available in written comments, that will aid him in the decision-making process for this application. A Corps hearing is not a source of information for the general public, nor a forum for the resolution of issues or conflicting points of view (witnesses are not sworn, and cross examination is prohibited). Hearings will not be held to obtain information on issues unrelated to the work requiring a permit, such as property ownership, neighbor disputes, or the behavior or actions of the public or applicant on upland property not regulated by the Department of the Army. Information obtained from a public hearing is given no greater weight than that obtained from written comments. Therefore, you should not fail to make timely written comments because a hearing might be held.

The decision to approve or deny this permit modification request will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

be relevant to the proposal will be considered including the cumulative effects thereof; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

SIGNED

Diane C. Kozlowski
Chief, Regulatory Branch

NOTICE TO POSTMASTER: It is requested that this notice be posted continuously and conspicuously for 20 days from the date of issuance.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Traffic Impact Study

for the proposed

Muir Woods - Site A
Proposed Mixed-Use Project
1081 North French Road

Town of Amherst
Erie County, New York
August 3, 2020

Project No. 40027

Prepared For:

Ciminelli Real Estate Corporation
350 Essjay Road
Williamsville, New York 14221

Prepared By:

SRF Associates
www.srfa.net
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TABLE OF CONTENTS

LIST OF TABLES i
LIST OF FIGURES ii
LIST OF APPENDICES ii
LIST OF REFERENCES ii
EXECUTIVE SUMMARY iii

I. INTRODUCTION 1
II. LOCATION 1
III. EXISTING HIGHWAY SYSTEM 1
IV. EXISTING TRAFFIC CONDITIONS 2
A. Peak Intervals for Analysis 2
B. Existing Traffic Volume Data 2
C. Field Observations 2
D. Existing Crash History Analysis 2
V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH 3
VI. PROPOSED DEVELOPMENT 3
A. Description 3
B. Site Traffic Generation 3
C. Site Traffic Distribution 4
VII. FULL DEVELOPMENT VOLUMES 4
VIII. CAPACITY ANALYSIS 5
IX. CONCLUSIONS 7
X. FIGURES 7

LIST OF TABLES

TABLE I EXISTING HIGHWAY SYSTEM 1
TABLE II SITE GENERATED TRIPS 4
TABLE III CAPACITY ANALYSIS RESULTS 6

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

LIST OF FIGURES

FIGURE 1 SITE LOCATION & STUDY AREA
FIGURE 2 LANE GEOMETRY & AVERAGE DAILY TRAFFIC
FIGURE 3 PEAK HOUR VOLUMES – 2020 ADJUSTED BASE VOLUMES
FIGURE 4 PEAK HOUR VOLUMES – 2022 BACKGROUND CONDITIONS
FIGURE 5 CONCEPT SITE PLAN
FIGURE 6 TRIP DISTRIBUTION
FIGURE 7 SITE GENERATED TRIPS
FIGURE 8 PEAK HOUR VOLUMES – FULL DEVELOPMENT CONDITIONS

LIST OF APPENDICES

A1. COLLECTED TRAFFIC VOLUME DATA
A2. MISCELLANEOUS TRAFFIC DATA AND CALCULATIONS
A3. LOS CRITERIA/DEFINITIONS
A4. LEVEL OF SERVICE CALCULATIONS – 2020 ADJUSTED BASE CONDITIONS
A5. LEVEL OF SERVICE CALCULATIONS – 2022 BACKGROUND CONDITIONS
A6. LEVEL OF SERVICE CALCULATIONS – FULL DEVELOPMENT CONDITIONS

LIST OF REFERENCES

1. Highway Capacity Manual, Sixth Edition. Transportation Research Board. National Research Council, Washington, DC. 2016.
2. New York State Department of Transportation (NYSDOT) Traffic Data Viewer. 2020. Retrieved from https://www.dot.ny.gov/tdv.
3. Trip Generation, Tenth Edition. Institute of Transportation Engineers. Washington, DC. 2017.
4. Traffic Impact Study for Submittal to Town of Amherst The Hub Amherst. Kimley-Horn of New York, P.C. 2017.
5. Traffic Impact Study for Access Modification Report For Break in Access Application For Northerly Extension of John James Audubon Parkway As A Town of Amherst Roadway. GPI Engineering. 2020.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to identify and evaluate the potential traffic impacts associated with the proposed development of Site "A" of the overall Muir Woods Property as a mixed-use project. Site "A" of the Muir Woods Property consists of approximately 28.47 acres located 1081 North French Road in the Town of Amherst, Erie County, New York ("Project Site"). The Applicant is seeking to amend the Amended Findings Statement issued by the Town of Amherst Town Board ("Town Board") pursuant to the State Environmental Quality Review Act ("SEQRA") on August 5, 2019 to accommodate a change of the previously proposed use of the Project Site as 237,000 sq. ft. of flex office and R&D space to a mixed-use project as described in this report and depicted on the Concept Site Plan prepared by Carmina Wood Morris DPC.

The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified and mitigating measures, if any, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes existing base traffic conditions, projects background traffic flow including area growth and/or additional traffic resulting from new development in the area, and determines the traffic operations that would result the full development of the proposed mixed-use project.

The Project Site consists of vacant land and is located along the north side of Dodge Road, west of Interstate 990, in the Town of Amherst, Erie County, New York. Surrounding the proposed development is residential development and Heritage Heights Elementary School to the north, vacant land to the east, offices to the south, and a medical plaza to the west. Land uses in the vicinity of the Project Site include residential, office, medical, and educational uses. The study area consists of the following intersections:

- Dodge Road/Sweet Home Road
- Dodge Road/ North Forest Road

Access to the Project Site will be provided via three proposed driveways connecting to Dodge Road as follows: one full access driveway located at the southerly/easterly end of the Project Site, one full access driveway located at the northerly/westerly end of the Project Site, and a driveway separated by a 42 ft. wide median which has been designed to be a pedestrian amenity area (i.e. one driveway is enter-only and the other is exit only).

Construction of the proposed mixed-use project is anticipated to be completed within two years. Town of Amherst officials were contacted to discuss projects within the study area that are under construction and/or approved. Three projects were identified that are either under construction, approved for construction, or completed after data was collected in 2017: The Hub Amherst at 2949 North Forest Road, a student housing community on Site "B" of the overall Muir Woods Property, and a mixed-use building at 315 Campbell Boulevard.

Traffic related to full build out of The Hub Development was used to develop the 2020 base traffic volumes. Additional traffic related to the proposed student housing community on Site "B" of the Muir Woods Property has been added to the base traffic volumes at the study area intersections. To account for normal increases in background traffic growth including the mixed-use building 315 Campbell @ Dodge, as well as any other unforeseen developments in the project study area, a growth rate of 1% per year has been applied to the base traffic volumes. This growth rate is

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

based upon historical traffic growth derived from NYSDOT traffic volume data for the area as well as consideration of the approved projects previously mentioned.

CONCLUSIONS & RECOMMENDATIONS

This study evaluates the potential traffic impacts resulting from the Muir Woods Site A Development. This study also provides the Town of Amherst and other governmental agencies with detailed information providing a hard look at potential traffic impacts for the purpose of the environmental review of the proposed mixed-use project pursuant to the State Environmental Quality Review Act ("SEQRA").

Based upon the analyses, the results indicate that the proposed mixed-use project will not have significant adverse traffic impacts on the existing roadway network. The following sets forth conclusions based upon the results of the analyses:

1. The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM peak hour and 106 entering/82 exiting vehicle trips during the PM peak hour.

2. The proposed mixed-use project will not result in any potentially significant adverse traffic impacts to the study area intersections. No mitigation is warranted at the study area intersections as a result of the proposed mixed-use project.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

I. INTRODUCTION

The purpose of this report is to identify the potential traffic impacts associated with the proposed Muir Woods Site A Development in the Town of Amherst, Erie County, New York. The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified and mitigating measures, if any, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes 2020 existing base traffic conditions, projects background traffic flow including area growth and/or additional traffic resulting from new development in the area, and determines the traffic operations that would result from full development of the proposed project.

II. LOCATION

The proposed mixed-use project is located along the north side of Dodge Road, west of Interstate 990, in the Town of Amherst, Erie County, New York. The site is currently vacant. Surrounding the proposed development is residential development and Heritage Heights Elementary School to the north, vacant land to the east, offices to the south, and a medical plaza to the west. Land uses in the vicinity of the project site include residential, office, medical, and educational uses. The study area consists of the following existing intersections:

- Dodge Road/Sweet Home Road
- Dodge Road/ North Forest Road

The site location and study area are shown in **Figure 1** (all figures are included at the end of the report).

III. EXISTING HIGHWAY SYSTEM

The following information outlined in **Table I** provides a description of the existing roadway network within the project study area.

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY	ROUTE[1]	FUNC. CLASS[2]	JURIS.[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. AADT[6]	AADT SOURCE[7]
Dodge Road (from Sweet Home Road to Campbell Road)	CR 45	Minor Arterial	ECDPW	40	2	Two-way/ East-West	7,058	NYSDOT (2016)
Sweet Home Road (from N Ellicott Road to Commerce Drive)	CR 301	Minor Arterial	ECDPW	45	4	Two-way/ North-South	22,713	NYSDOT (2016)
Sweet Home Road (from Commerce Drive to N French Road)	CR 301	Minor Arterial	ECDPW	45	4	Two-way/ North-South	16,008	NYSDOT (2016)

Notes:

1. "CR" = County Route.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

2. State Functional Classification of Roadway: Urban.
3. Jurisdiction: "ECDPW" = Erie County Department of Public Works.
4. Posted or Statewide Limit in Miles per Hour (MPH).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated Annual Average Daily Traffic (AADT) in Vehicles per Day (vpd).
7. "NYSDOT" = New York Department of Transportation. Source (Year). Obtained volumes represent the most recent available data.

Figure 2 illustrates the lane geometry at each of the study intersections and the AADT/ADT volumes on the study roadways.

IV. EXISTING TRAFFIC CONDITIONS

A. Peak Intervals for Analysis

Given the functional characteristics of the land uses proposed for the Project Site (residential, office and retail), the peak hours selected for analysis are the weekday commuter AM and PM peaks. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. Existing Traffic Volume Data

Historical weekday commuter AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak hour volumes were obtained from the Greater Buffalo Niagara Regional Transportation Council (GRBNRTC) and the Traffic Impact Statement for The Hub Amherst at the study area intersections, as noted in *Section II*, on Tuesday February 28, 2017 and Monday, July 17, 2017. The peak hour traffic periods generally occurred between 7:30-8:30 AM and 4:45-5:45 PM at the study intersections. Given the current traffic situation due to business restrictions resulting from COVID-19, it is not possible to collect more current traffic data.

All turning movement count data was collected on a typical weekday. The traffic volumes were reviewed to confirm the accuracy and relative balance of the collective traffic counts. Traffic volumes were adjusted to reflect 2020 traffic conditions by adding traffic associated with any developments (e.g. The Hub residential development) that have been constructed or are currently under construction since the data collection in 2017. The 2020 weekday AM and PM peak hour base volumes used for analysis purposes in this study are reflected in **Figure 3**.

C. Field Observations

Signal timing information was obtained by the Town of Amherst at the signalized intersection within the study area to determine peak hour phasing plans and phase durations during each interval.

D. Existing Crash History Analysis

Crash data has been requested from local agencies and an analysis will be provided once all data is received.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of the proposed mixed-use project is anticipated to be completed within two years. Town of Amherst officials were contacted to discuss projects within the study area that are under construction and/or approved. Three projects were identified that are either under construction, approved for construction, or completed after data was collected in 2017: The Hub Amherst at 2949 North Forest Road, a student housing project on Site "B" of the Muir Woods Property , and a mixed-use building at 315 Campbell Boulevard.

Traffic related to full build out of The Hub Development was used to develop the 2020 base traffic volumes. Additional traffic related to the proposed student housing project on Site "B" of the Muir Woods Property has been added to the base traffic volumes at the study area intersections. To account for normal increases in background traffic growth including the mixed-use building 315 Campbell Boulevard, as well as any other unforeseen developments in the project study area, a growth rate of one percent (1%) per year has been applied to the base traffic volumes. This growth rate is based upon historical traffic growth derived from NYSDOT traffic volume data for the area as well as consideration of the approved projects previously mentioned. The 2022 background traffic volumes are depicted in **Figure 4** for the build out time period.

VI. PROPOSED DEVELOPMENT

A. Description

The proposed mixed-use project will construct:

- (45) 2-unit attached townhomes
- (2) 6-unit 1-story apartment buildings
- (2) 4-story mixed-use buildings with (12) commercial units and (5) apartment units on the 1st floor; apartments on floors 2-4 (50 units total)

An estimated 1,875 square feet (SF) per commercial tenant for the 12 commercial units. Of the 12 units, it is estimated that 8 units will consist of retail use and 4 units will consist of general office space. Access to the Project Site will be provided via three proposed driveways connecting to Dodge Road as follows: one full access driveway located at the southerly/easterly end of the site, one full access driveway located at the northerly/westerly end of the site, and a one-way couple separated by a 42 ft wide pedestrian amenity area (i.e. one driveway is enter-only and the other is exit only).

B. Site Traffic Generation

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation, 10th Edition is used as a reference for this information. Data published by the ITE is the nationally accepted standard for generating trips for new uses. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of adjacent street traffic, in this case, the weekday AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis. All trip generation information has been included in the appendix.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Table II summarizes the volume of projected site trips during the weekday AM and PM peak hours.

TABLE II
SITE GENERATED TRIPS

DESCRIPTION	ITE LUC	SIZE/ UNITS	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Houses w/ 2- Car Detached Garage	210	90 units	17	50	56	33
1-Story Apartments	220	12 units	1	5	6	3
4-Story Apartment Units	221	100 units	9	25	27	17
General Office Building	710	15,000 SF	14	2	2	14
Variety/Retail Store	814	15,000 SF	6	3	15	15
		Total Site Trips	***47***	***85***	***106***	***82***

Notes:
1. "ITE LUC" = ITE Land Use Code.

The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM weekday peak hour and 106 entering/82 exiting vehicle trips during the PM weekday peak hour.

C. Site Traffic Distribution

The cumulative effect of site traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drive serving the Project Site.

The proposed arrival/departure distribution of traffic to be generated at this site is considered a function of several parameters, including the following:

- Employment centers in the local area and region;
- Population centers in the local area and region;
- Proximity and access to Interstate 990;
- Proximity to the North Campus of the University at Buffalo;
- Site access drive locations and internal roadway circulation;
- Existing highway network;
- Existing traffic patterns; and
- Existing traffic conditions and controls

Based on these parameters, **Figure 6** shows the anticipated trip distribution patterns for the proposed development. **Figure 7** illustrates the peak hour of site-generated traffic based on those percentages for the proposed development.

VII. FULL DEVELOPMENT VOLUMES

The projected design hour traffic volumes were developed for the weekday AM and PM peak hours by combining the future background traffic conditions (Figure 4), and projected site generated for the proposed development (Figure 7) to yield the total traffic conditions expected under full development conditions. **Figure 8** illustrate the total weekday AM and PM peak hour

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

volumes anticipated for the proposed mixed-use project under full development conditions respectively.

VIII. CAPACITY ANALYSIS

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis typically focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the best conditions and LOS "F" the worst. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendix.

The standard procedure for capacity analysis of signalized and un-signalized intersections is outlined in the Highway Capacity Manual (HCM 2016) published by the Transportation Research Board. Traffic analysis software, Synchro 10, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service (LOS) based on the HCM as an indicator of how well intersections operate.

Existing base and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The future traffic conditions generated by the proposed development under Phase I and full build out were analyzed to assess the operations of the intersections in the study area. Capacity results for existing, background, and full development conditions are listed in **Table III**. The discussion following the table summarizes capacity conditions. All capacity analysis calculations are included in the Appendices.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TABLE III: CAPACITY ANALYSIS RESULTS

INTERSECTION	2020 BASE CONDITIONS				2022 BACKGROUND CONDITIONS				FULL BUILD CONDITIONS			
	AM		PM		AM		PM		AM		PM	
Sweet Home Road / Commerce Drive/Dodge Road (S)												
EB left - Commerce Road	D	40.5	C	30.3	D	41.1	C	30.9	D	41.1	C	32.1
EB thru/right - Commerce Drive	B	14.2	E	77.7	B	14.3	F	88.5	B	15.0	F	100.2
WB left- Dodge Road	C	27.7	F	191.3	C	28.0	F	*	C	29.3	F	*
WB thru/right - Dodge Road	E	76.4	B	19.3	F	86.8	B	19.9	F	106.8	C	22.9
NB left - Sweet Home Road	C	31.5	C	32.4	C	33.3	C	34.3	C	33.3	C	34.8
NB thru/right - Sweet Home Road	C	20.9	B	18.8	C	21.0	B	19.2	C	21.2	C	20.5
SB left - Sweet Home Road	B	17.6	B	10.1	B	19.0	B	10.3	C	21.2	B	11.9
SB thru/right - Sweet Home Road	C	30.0	C	32.2	C	30.8	C	33.8	C	30.7	C	33.7
Overall LOS	***C***	***34.0***	***D***	***37.6***	***D***	***36.3***	***D***	***40.3***	***D***	***40.4***	***D***	***47.7***
Dodge Road / Proposed North Driveway (U)												
SEB thru/left - Dodge Road	N/A				N/A				A	8.3	A	8.5
SWB - Proposed North Driveway									B	14.9	B	14.9
Dodge Road / Proposed Middle Exit Only Driveway (U)												
SWB - Proposed Middle Exit Only Driveway	N/A				N/A				B	13.3	B	13.4
Dodge Road / Proposed South Driveway (U)												
SEB thru/left - Dodge Road	N/A				N/A				A	8.2	A	8.5
SWB - Proposed South Driveway									C	16.2	C	16.1
Dodge Road / North ForestRoad (U)												
WB thru/left - Dodge Road	A	9.2	A	8.3	A	9.3	A	8.4	A	9.5	A	8.6
NB - North Forest Road	D	27.5	D	28.6	D	31.1	E	35.9	E	39.6	F	59.6

NOTES:

1. A(2.8) = Level of Service (Delay in seconds per vehicle)
2. (U) = Unsignalized
3. N/A = Approach does not exist and/or was not analyzed during this condition
4. F(*) = Delay greater than 200 seconds per vehicle

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Sweet Home Rd/Commerce Drive-Dodge Road
All approaches operate at LOS "D" or better during the AM and PM peak hours under all conditions with the exception of the westbound through/right turn movement which operates at LOS "F" under background and future conditions during the AM peak hour; in addition the westbound left turn and the eastbound through/right turn movements also operate at LOS "F" under background conditions during the PM peak hour. The southbound left turn movement is projected to change from LOS "B" to "C" between background and full development conditions during the AM peak hour. No other changes in LOS are projected as a result of the development. The existing traffic signal is fully actuated and will automatically adjust, within the set parameters, to accommodate the additional traffic. No mitigation is warranted or recommended at this intersection as a result of the proposed development.

Dodge Road/Proposed Driveways
All of the proposed driveways are projected to operate at LOS "C" or better during both peak hours under full development conditions.

Dodge Road/North Forest Road
All approaches operate at LOS "D" or better during the AM peak hour under the existing base and background conditions. During the PM peak hour, the northbound approach operates at LOS "E" under background conditions. Under full development conditions, the northbound approach is projected to operate at LOS "E" during the AM peak hour and LOS "F" with delays on the order of 59.6 seconds per vehicle during the PM peak hour. The development will add 7(16) northbound left turns during the AM(PM) peak hours. The traffic volumes that are exiting northbound North Forest Road are relatively small and a traffic signal is not warranted at this location. No mitigation is warranted or recommended at this intersection as a result of the proposed development.

IX. CONCLUSIONS

This study evaluates the potential traffic impacts resulting from the Muir Woods Site A Development. This study also provides the Town of Amherst and other governmental agencies with detailed information providing a hard look at potential traffic impacts for the purpose of the environmental review of the proposed mixed-use project pursuant to the State Environmental Quality Review Act ("SEQRA").

Based upon the analyses, the results indicate that the proposed mixed-use project will not have significant adverse traffic impacts on the existing roadway network. The following sets forth conclusions based upon the results of the analyses:

1. The proposed mixed-use project is expected to generate approximately 47 entering/85 exiting vehicle trips during the AM peak hour and 106 entering/82 exiting vehicle trips during the PM peak hour.

2. The proposed mixed-use project will not result in any potentially significant adverse traffic impacts to the study area intersections. No mitigation is warranted at the study area intersections as a result of the proposed mixed-use project.

X. FIGURES

Figures 1 through 8 are included on the following pages.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

FIGURE 1 - SITE LOCATION AND STUDY AREA



Legend

- Study Intersection
- Proposed Driveway
- Site Location
- Study Area

PROPOSED MUIR WOODS SITE A DEVELOPMENT

TOWN OF AMHERST, NY

0 250 500 1000

Feet

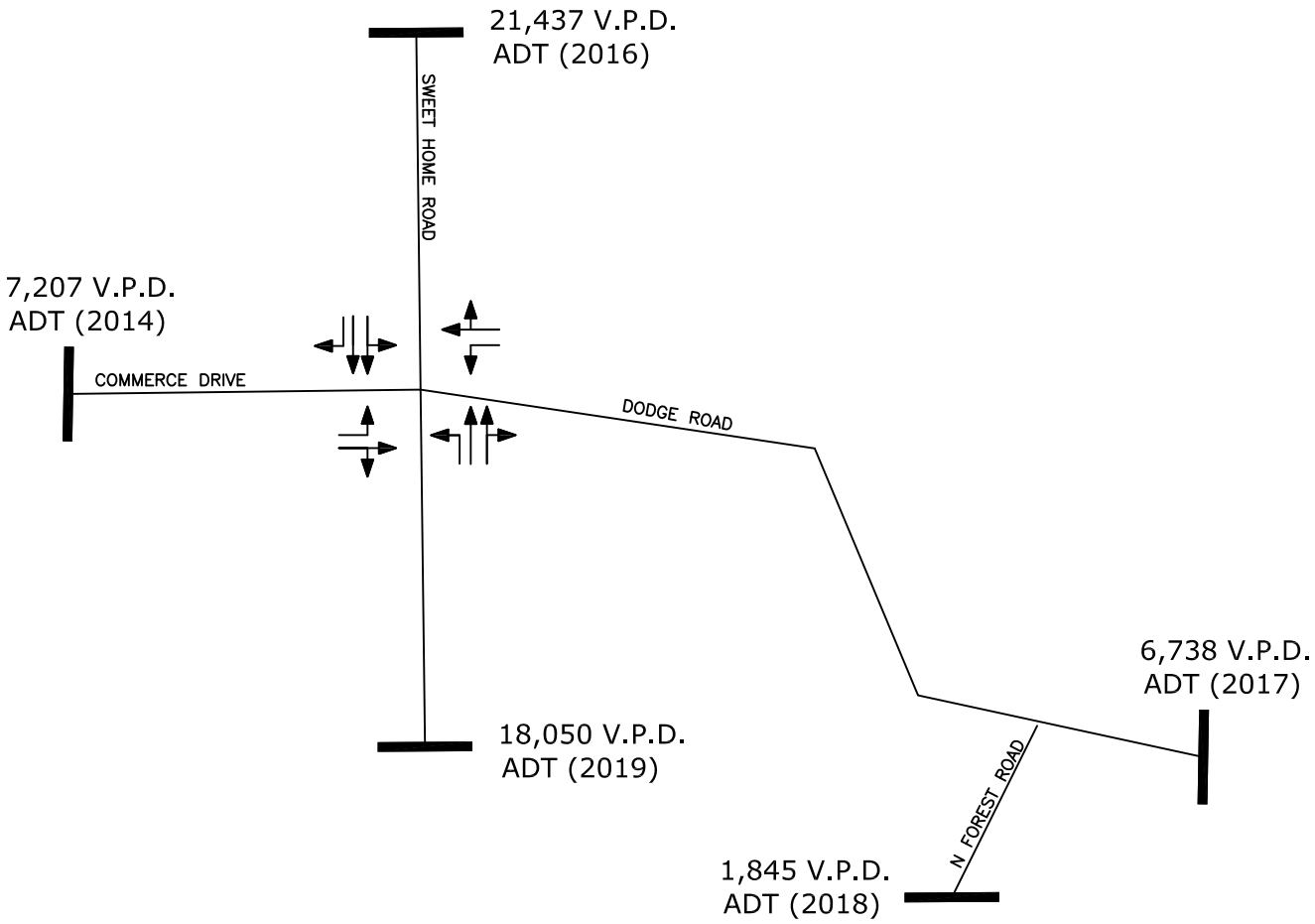
N

SRF ASSOCIATES

www.srfa.net

Transportation

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



NOTES:
1. All counts by NYSDOT
2. V.P.D. = Vehicles per Day

PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

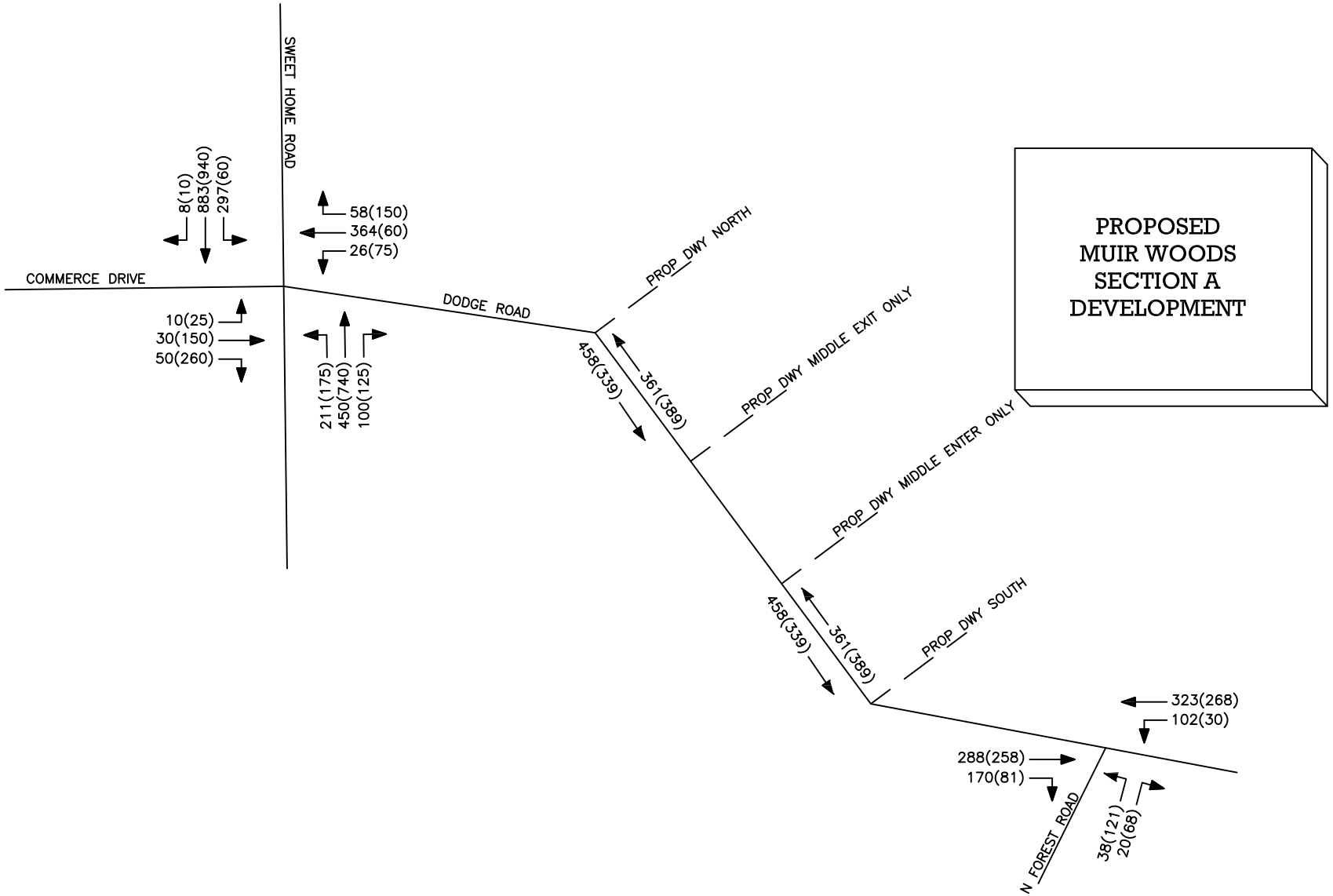
FIGURE 2

LANE GEOMETRY &
AVERAGE DAILY TRAFFIC

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 3

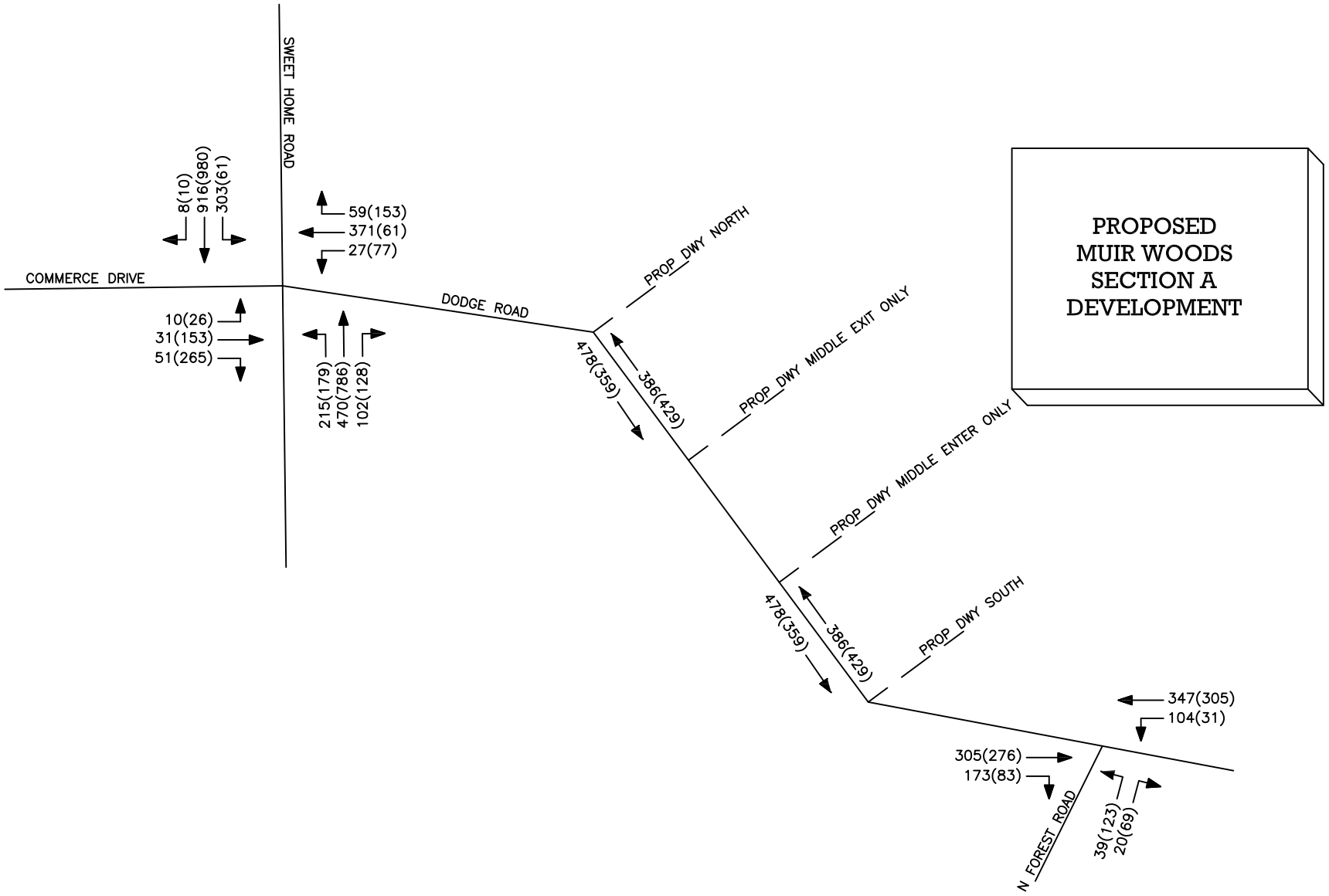
PEAK HOUR VOLUMES
2020 BASE CONDITIONS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design

N
NOT TO SCALE

FIGURE 4

PEAK HOUR VOLUMES
2022 BACKGROUND CONDITIONS

PROPOSED MUIR WOODS SITE A,

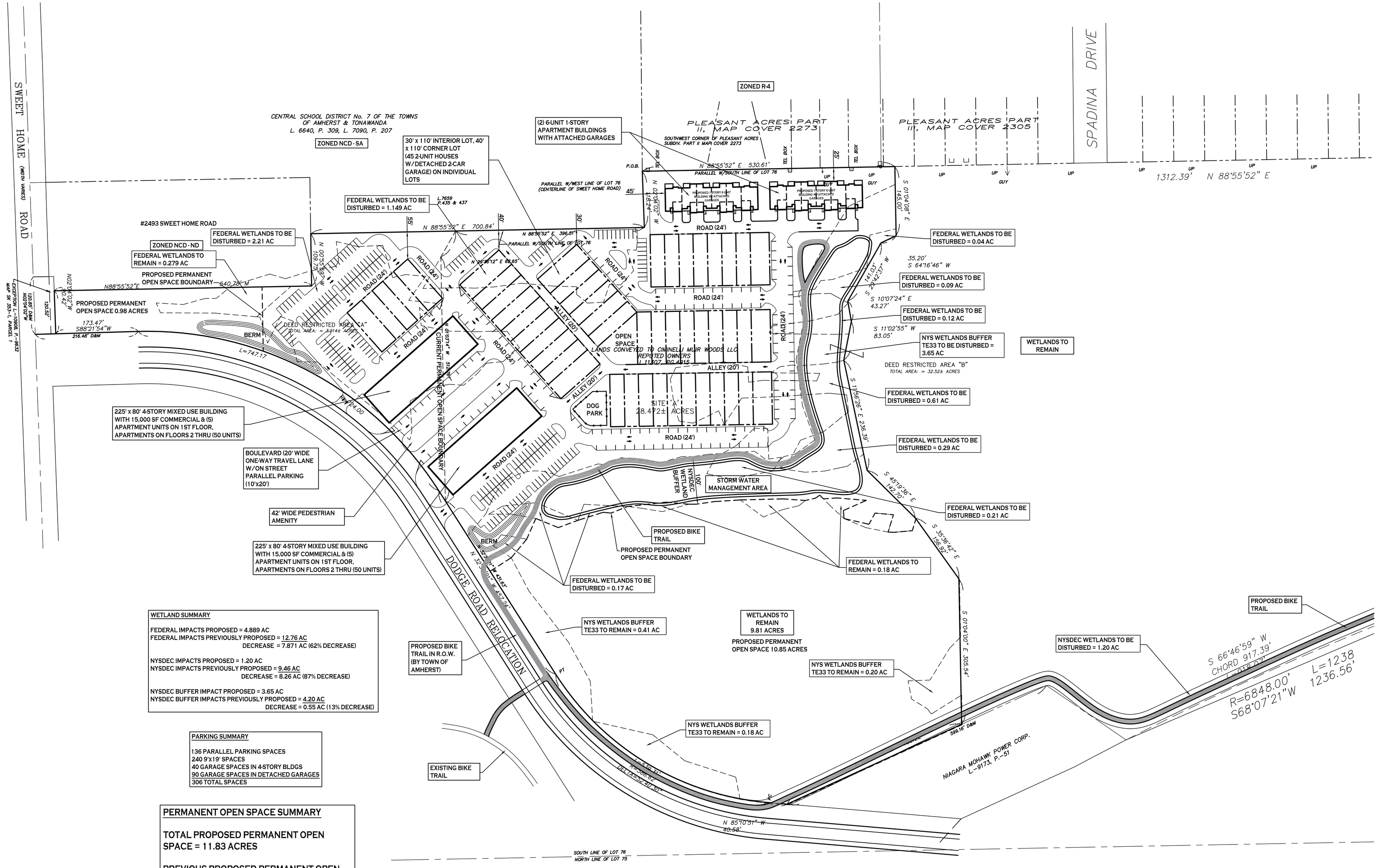
KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

© Carmina Wood Morris DPC



WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 4.889 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 12.76 AC
DECREASE = 7.871 AC (62% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

PARKING SUMMARY

136 PARALLEL PARKING SPACES
240 9'x19' SPACES
40 GARAGE SPACES IN 4-STORY BLDGS
90 GARAGE SPACES IN DETACHED GARAGES
306 TOTAL SPACES

PERMANENT OPEN SPACE SUMMARY

TOTAL PROPOSED PERMANENT OPEN SPACE = 11.83 ACRES

PREVIOUS PROPOSED PERMANENT OPEN SPACE = 3.91 ACRES

NET INCREASE = 7.92 ACRES

SITE DATA

28.47 ACRES TOTAL
ZONED: NCD - ND

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 7/1/20
Drawn by: C. Wood
Scale: As Noted

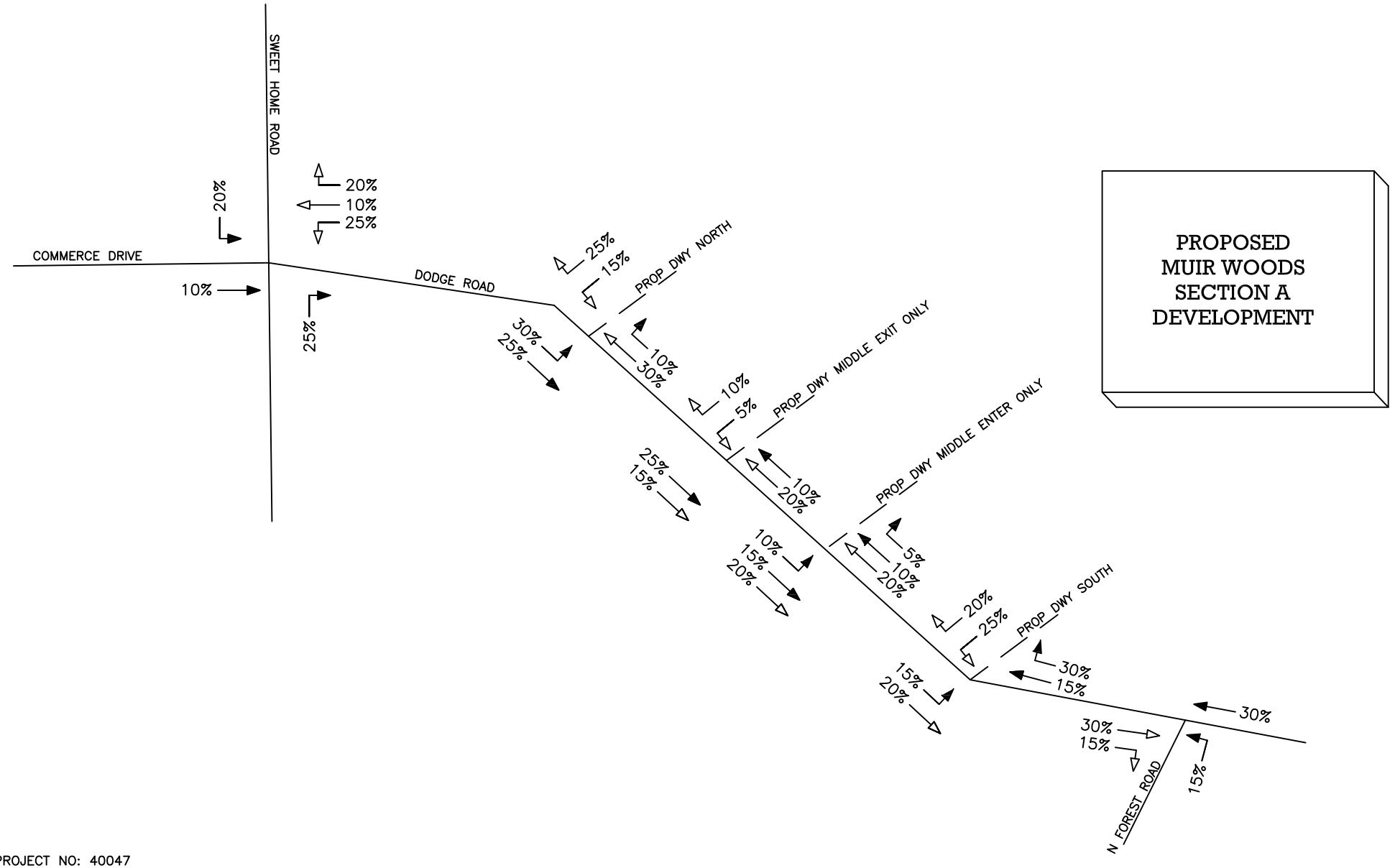
DRAWING NAME:
Concept Site Plan

DRAWING NO.
C-100

Project no.: 19.192

Packet Pg. 1607

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 6

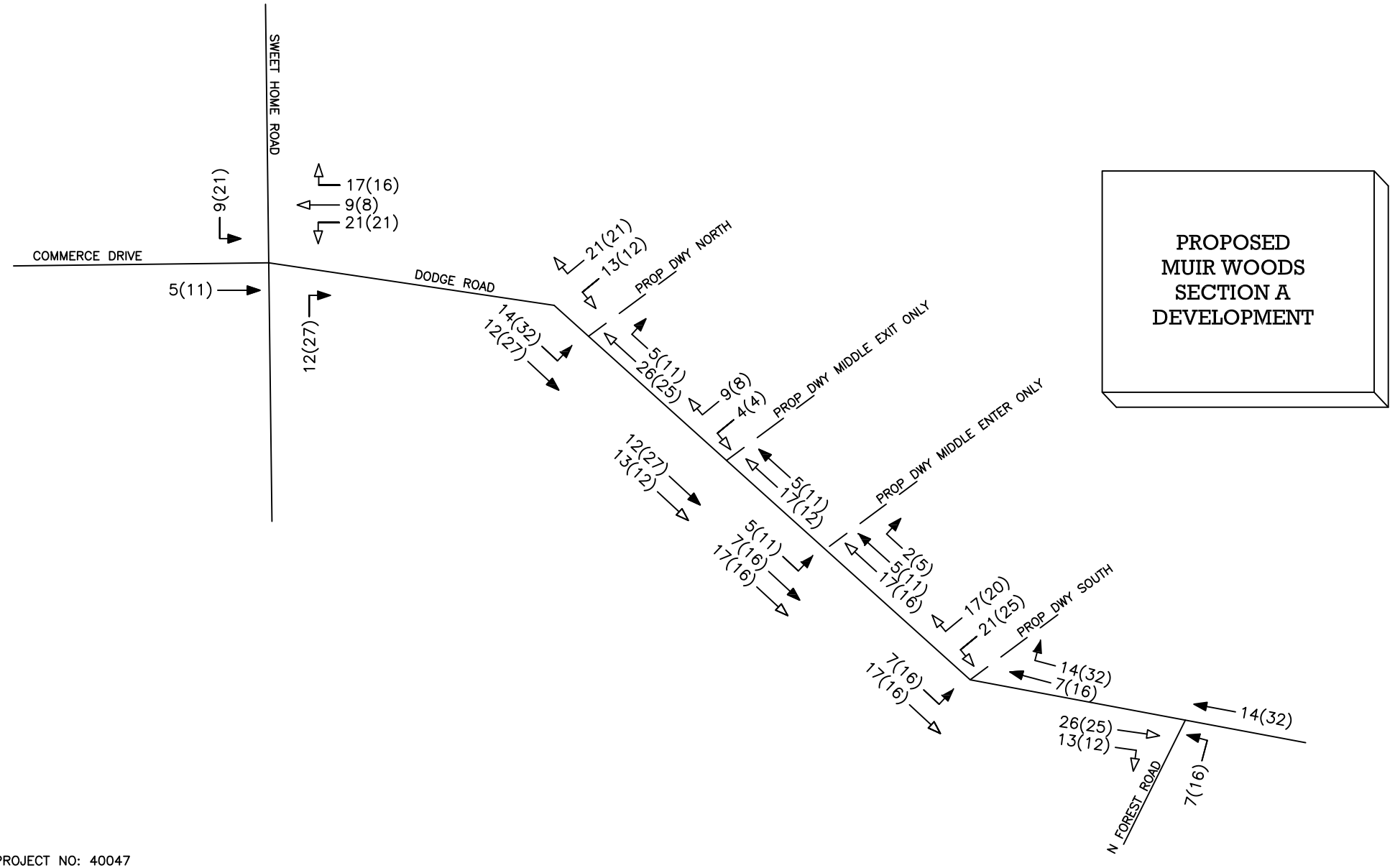
TRIP DISTRIBUTION

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
ENTERING TRIPS →
EXITING TRIPS →

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 7

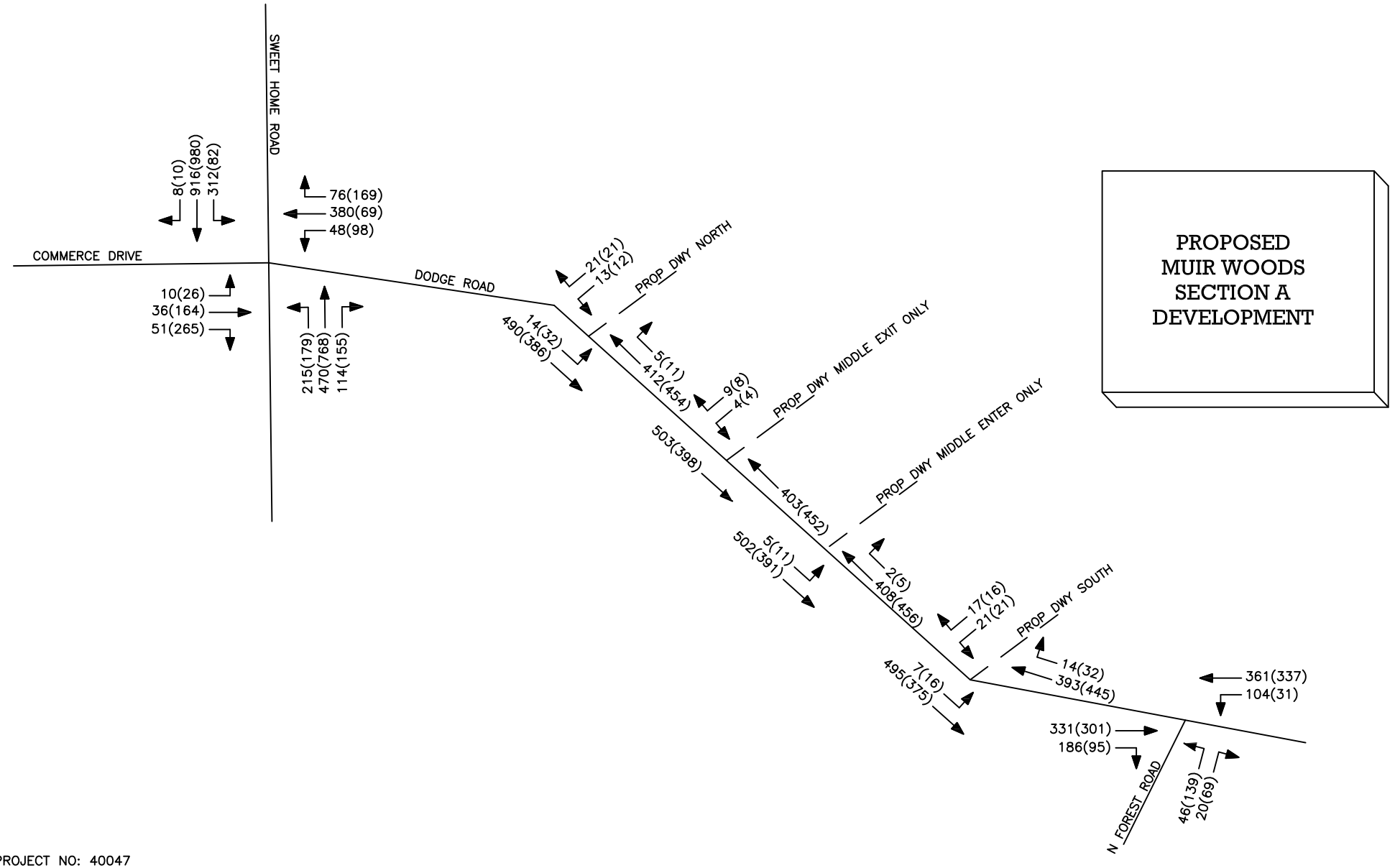
SITE GENERATED TRIPS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
ENTERING TRIPS →
EXITING TRIPS →

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PROJECT NO: 40047

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 8

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

PROPOSED MUIR WOODS SITE A,
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

APPENDICES

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

A1

Collected Traffic Volume Data

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA

www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 1

Turning Movement Data

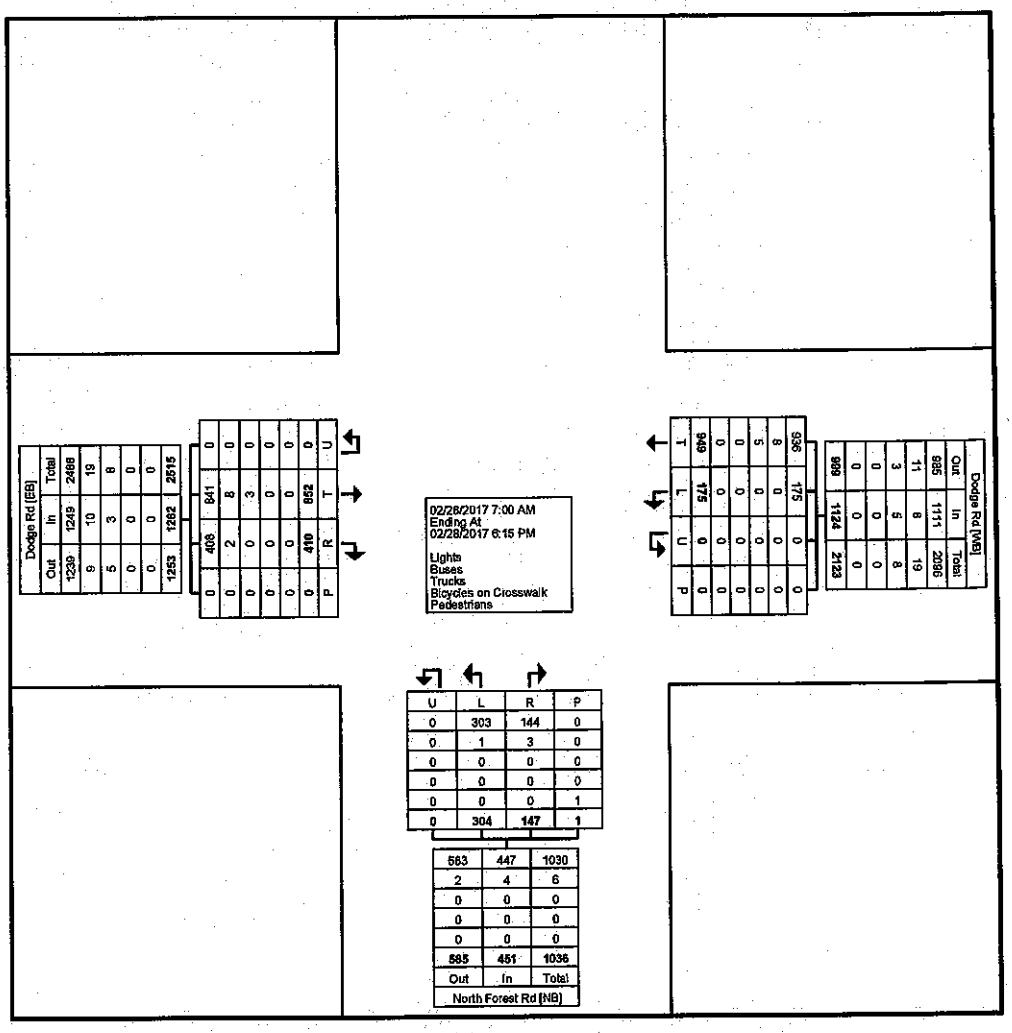
Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	Int. Total
7:00 AM	32	3	0	0	35	2	12	0	0	14	21	30	0	0	51	100
7:15 AM	51	5	0	0	56	1	8	0	0	9	23	37	0	0	60	125
7:30 AM	77	15	0	0	92	4	10	0	0	14	54	55	0	0	109	215
7:45 AM	101	41	0	0	142	5	5	0	0	10	53	85	0	0	138	290
Hourly Total	261	64	0	0	325	12	35	0	0	47	151	207	0	0	358	730
8:00 AM	83	19	0	0	102	2	5	0	0	7	37	53	0	0	90	199
8:15 AM	59	25	0	0	84	6	14	0	0	20	24	59	0	0	83	187
8:30 AM	37	10	0	0	47	3	12	0	0	15	32	45	0	0	77	139
8:45 AM	44	14	0	0	58	4	14	0	1	18	26	50	0	0	76	152
Hourly Total	223	68	0	0	291	15	45	0	1	60	119	207	0	0	326	677
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	56	8	0	0	64	35	35	0	0	70	20	37	0	0	57	191
4:15 PM	51	2	0	0	53	13	30	0	0	43	16	44	0	0	60	156
4:30 PM	58	5	0	0	63	16	34	0	0	50	19	51	0	0	70	183
4:45 PM	45	5	0	0	50	7	25	0	0	32	18	61	0	0	79	161
Hourly Total	210	20	0	0	230	71	124	0	0	195	73	193	0	0	266	691
5:00 PM	84	6	0	0	90	32	38	0	0	70	22	86	0	0	108	268
5:15 PM	78	11	0	0	89	10	22	0	0	32	19	55	0	0	74	195
5:30 PM	39	3	0	0	42	4	23	0	0	27	11	67	0	0	78	147
5:45 PM	53	3	0	0	56	3	17	0	0	20	15	37	0	0	52	128
Hourly Total	254	23	0	0	277	49	100	0	0	149	67	245	0	0	312	738
6:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	949	175	0	0	1124	147	304	0	1	451	410	852	0	0	1262	2837
Approach %	84.4	15.6	0.0	-	-	32.6	67.4	0.0	-	-	32.5	67.5	0.0	-	-	-
Total %	33.5	6.2	0.0	-	39.6	5.2	10.7	0.0	-	15.9	14.5	30.0	0.0	-	44.5	-
Lights	936	175	0	-	1111	144	303	0	-	447	408	841	0	-	1249	2807
% Lights	98.6	100.0	-	-	98.8	98.0	99.7	-	-	99.1	99.5	98.7	-	-	99.0	98.9
Buses	8	0	0	-	8	3	1	0	-	4	2	8	0	-	10	22
% Buses	0.8	0.0	-	-	0.7	2.0	0.3	-	-	0.9	0.5	0.9	-	-	0.8	0.8
Trucks	5	0	0	-	5	0	0	0	-	0	0	3	0	-	3	8
% Trucks	0.5	0.0	-	-	0.4	0.0	0.0	-	-	0.0	0.0	0.4	-	-	0.2	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 2



Dodge Rd (EB)	U	L	R	P	Total
Out	0	408	410	0	1239
In	0	841	852	0	1249
Total	0	1249	1262	0	2488
	0	10	19	0	29
	0	3	8	0	11
	0	0	0	0	0
	0	0	0	0	0
	0	1253	1262	0	2515

	T	L	U	P	
	936	175	0	0	
	8	0	0	0	
	5	0	0	0	
	0	0	0	0	
	0	0	0	0	
Dodge Rd (WB)	949	175	0	0	1124
In	1111	8	5	0	1129
Out	885	11	3	0	899
Total	2096	19	8	0	2123

U	L	R	P
0	303	144	0
0	1	3	0
0	0	0	0
0	0	0	0
0	0	0	1
0	304	147	1

583	447	1030
2	4	6
0	0	0
0	0	0
0	0	0
585	451	1036
Out	In	Total
North Forest Rd (NB)		

Turning Movement Data Plot

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

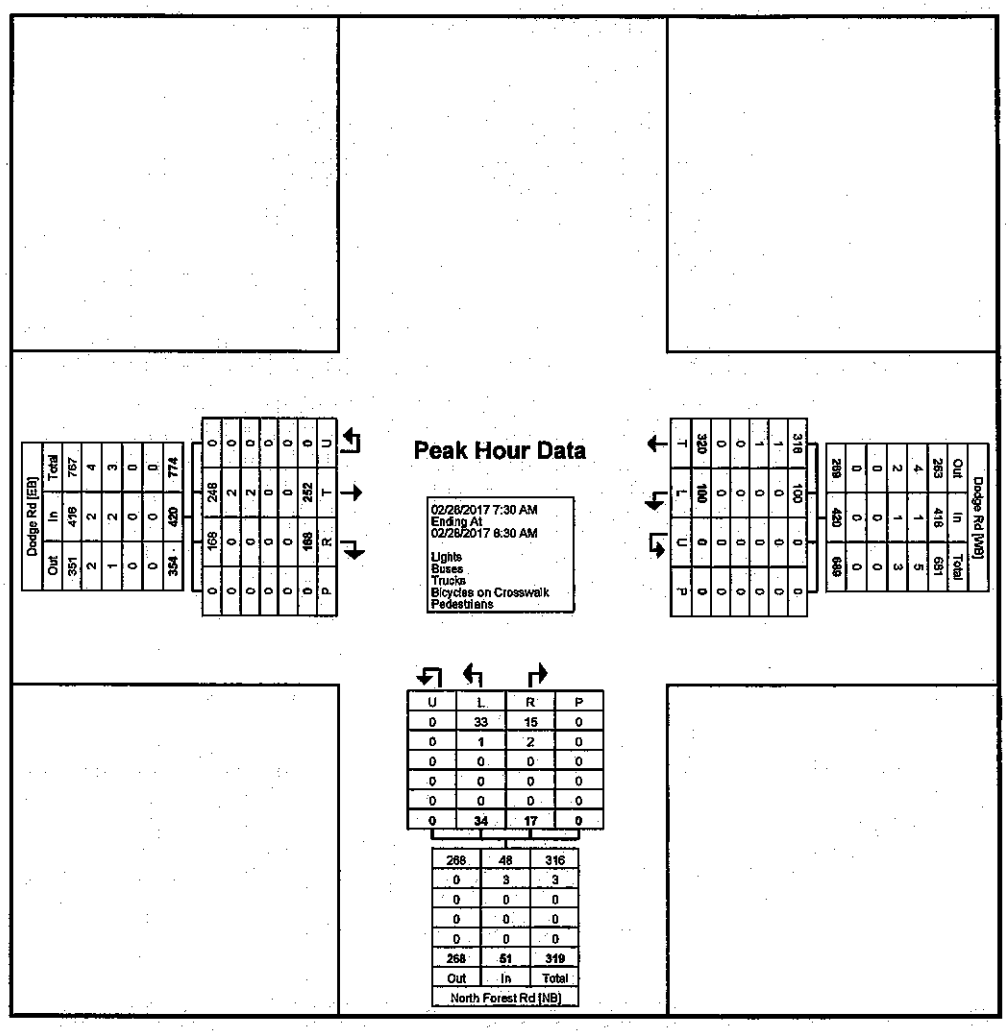
Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:30 AM	77	15	0	0	92	4	10	0	0	14	54	55	0	0	109	215
7:45 AM	101	41	0	0	142	5	5	0	0	10	53	85	0	0	138	290
8:00 AM	83	19	0	0	102	2	5	0	0	7	37	53	0	0	90	199
8:15 AM	59	25	0	0	84	6	14	0	0	20	24	59	0	0	83	187
Total	320	100	0	0	420	17	34	0	0	51	168	252	0	0	420	891
Approach %	76.2	23.8	0.0	-	-	33.3	66.7	0.0	-	-	40.0	60.0	0.0	-	-	-
Total %	35.9	11.2	0.0	-	47.1	1.9	3.8	0.0	-	5.7	18.9	28.3	0.0	-	47.1	-
PHF	0.792	0.610	0.000	-	0.739	0.708	0.607	0.000	-	0.638	0.778	0.741	0.000	-	0.761	0.768
Lights	318	100	0	-	418	15	33	0	-	48	168	248	0	-	416	882
% Lights	99.4	100.0	-	-	99.5	88.2	97.1	-	-	94.1	100.0	98.4	-	-	99.0	99.0
Buses	1	0	0	-	1	2	1	0	-	3	0	2	0	-	2	6
% Buses	0.3	0.0	-	-	0.2	11.8	2.9	-	-	5.9	0.0	0.8	-	-	0.5	0.7
Trucks	1	0	0	-	1	0	0	0	-	0	0	2	0	-	2	3
% Trucks	0.3	0.0	-	-	0.2	0.0	0.0	-	-	0.0	0.0	0.8	-	-	0.5	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 4



Turning Movement Peak Hour Data Plot (7:30 AM)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017

Turning Movement Peak Hour Data (4:30 PM)

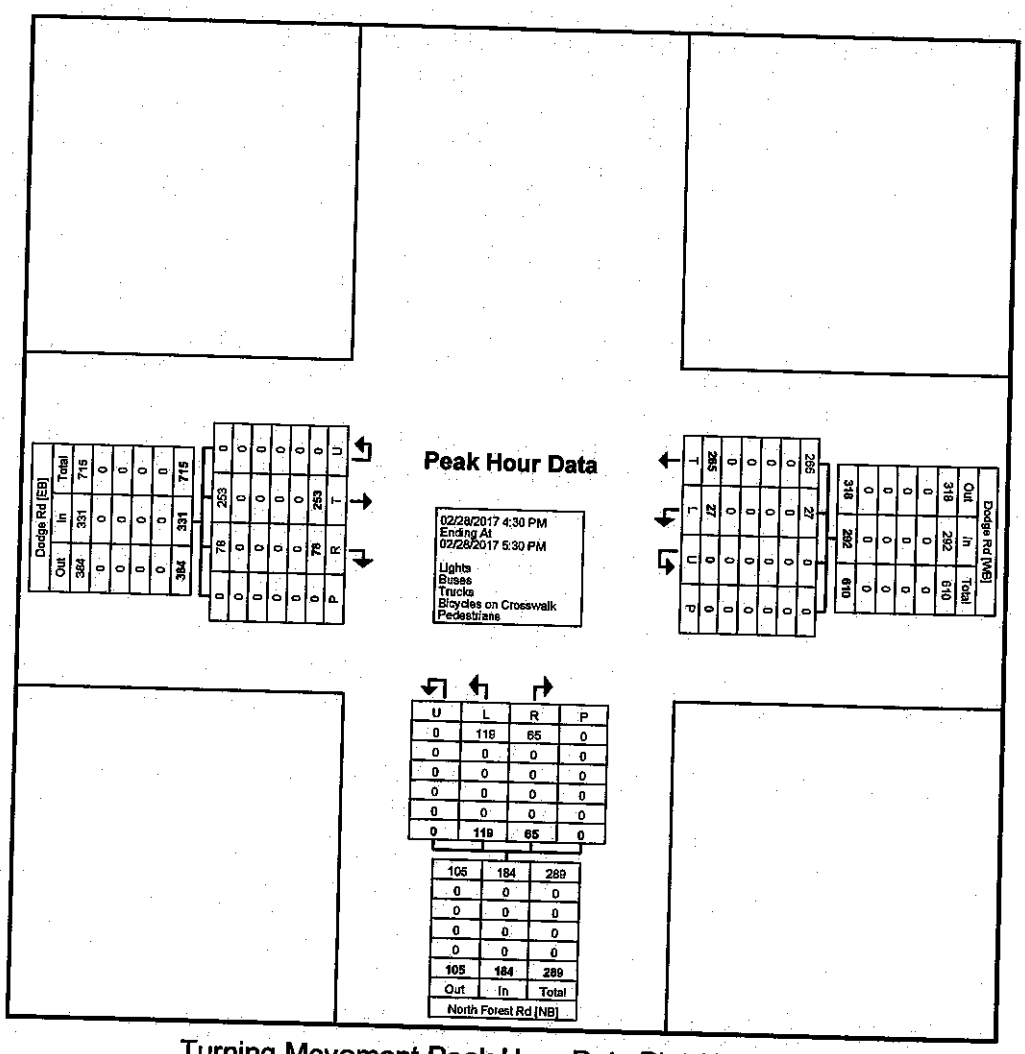
Start Time	Dodge Rd Westbound					North Forest Rd Northbound					Dodge Rd Eastbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
4:30 PM	58	5	0	0	63	16	34	0	0	50	19	51	0	0	70	183
4:45 PM	45	5	0	0	50	7	25	0	0	32	18	61	0	0	79	161
5:00 PM	84	6	0	0	90	32	38	0	0	70	22	86	0	0	108	268
5:15 PM	78	11	0	0	89	10	22	0	0	32	19	55	0	0	74	195
Total	265	27	0	0	292	65	119	0	0	184	78	253	0	0	331	807
Approach %	90.8	9.2	0.0	-	-	35.3	64.7	0.0	-	-	23.6	76.4	0.0	-	-	-
Total %	32.8	3.3	0.0	-	36.2	8.1	14.7	0.0	-	22.8	9.7	31.4	0.0	-	41.0	-
PHF	0.789	0.614	0.000	-	0.811	0.508	0.783	0.000	-	0.657	0.886	0.735	0.000	-	0.766	0.753
Lights	265	27	0	-	292	65	119	0	-	184	78	253	0	-	331	807
% Lights	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TRI-STATE TRAFFIC DATA
www.TSTData.com
184 Baker Rd
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Amherst, NY
N Forest Rd/Dodge Rd
Tuesday, February 28, 2017
Location: 43.023716, -78.788008

Count Name: N Forest Rd/Dodge Rd
Site Code:
Start Date: 02/28/2017
Page No: 6



Turning Movement Peak Hour Data Plot (4:30 PM)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TIS - THE HUB - 2949 N. FOREST
KIMLEY-HORN, 3/2017

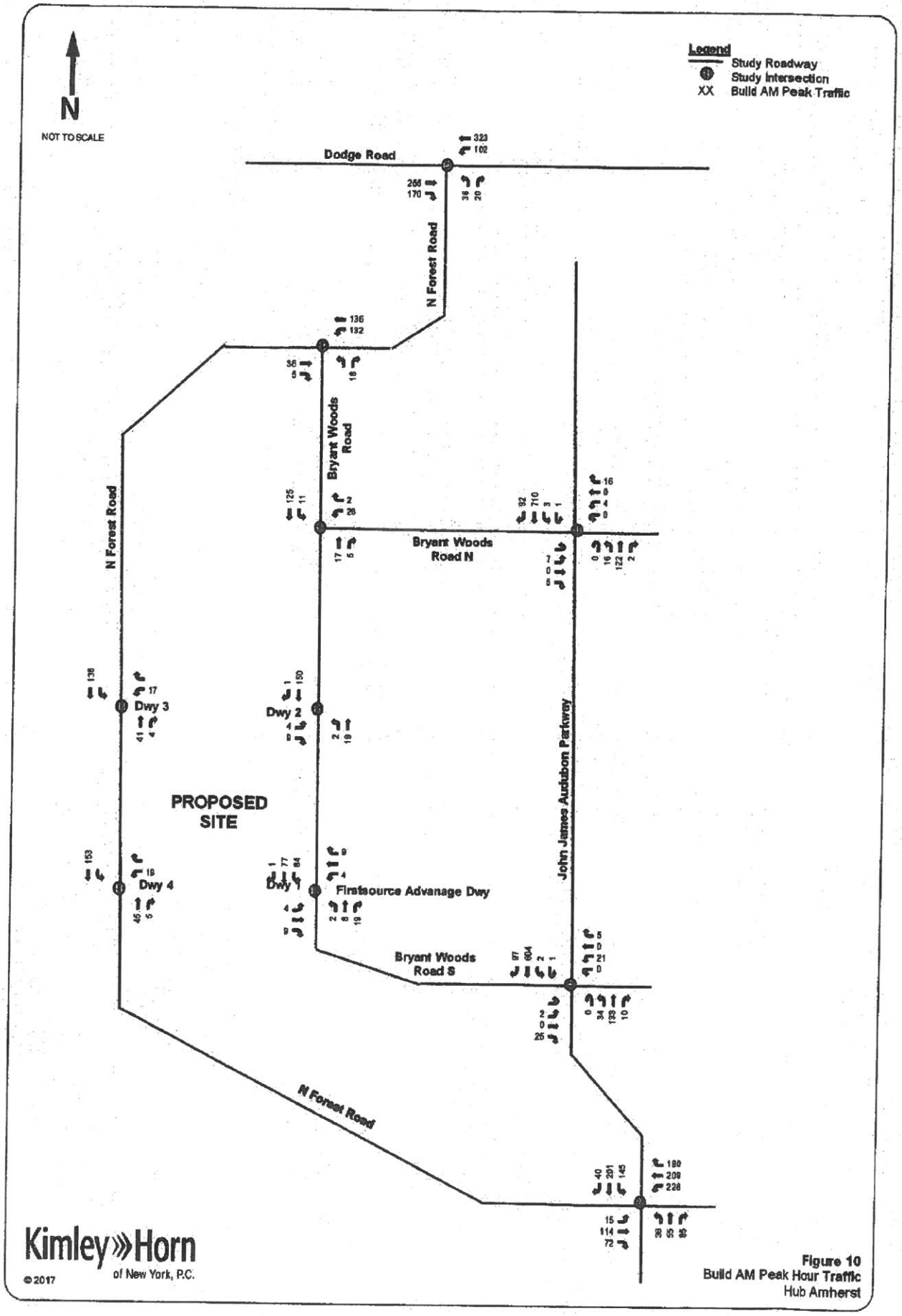
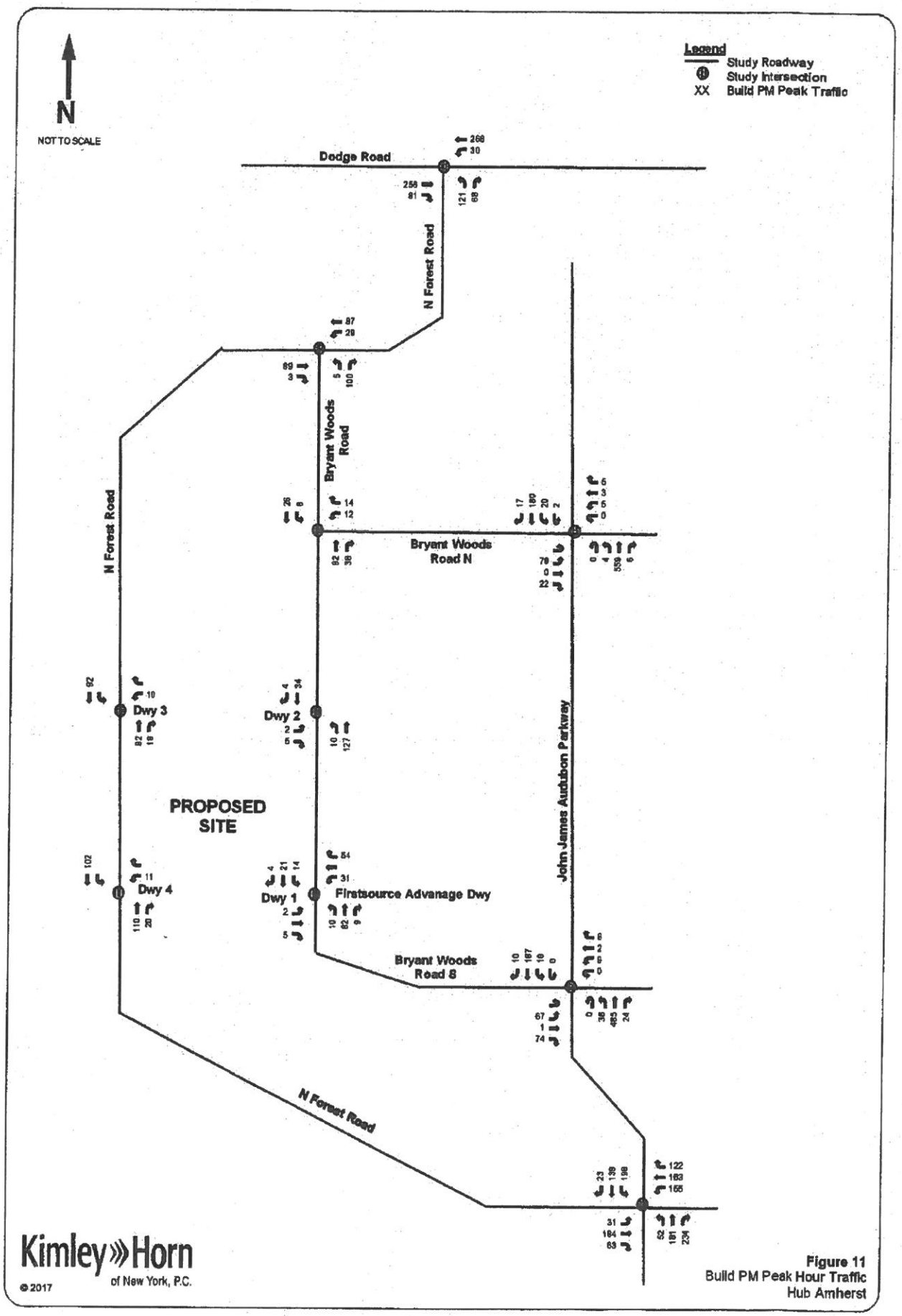


Figure 10
Build AM Peak Hour Traffic
Hub Amherst

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Kimley»Horn
of New York, P.C.
© 2017

Figure 11
Build PM Peak Hour Traffic
Hub Amherst

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Peak Hour Data for Intersection

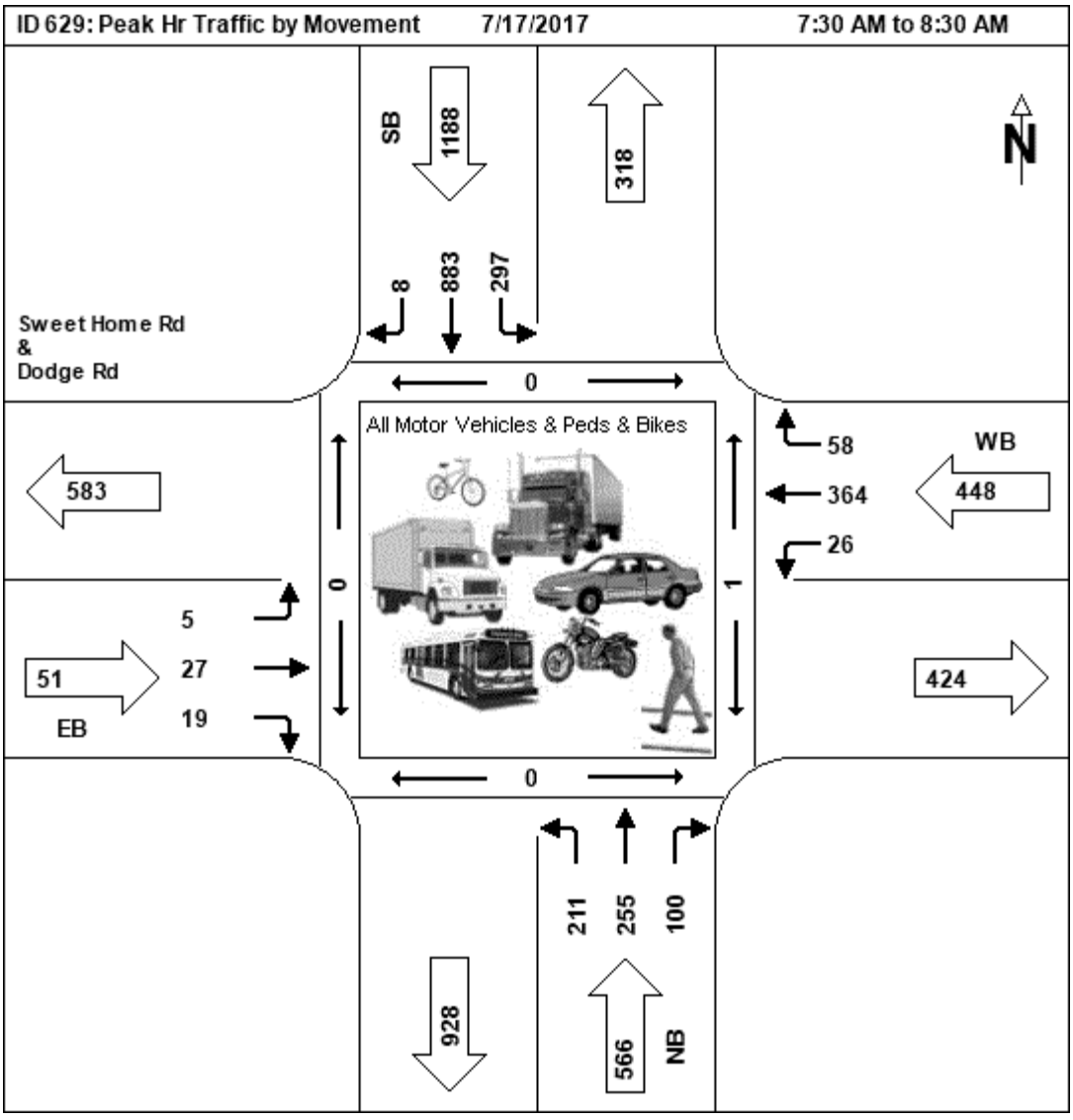
Int ID:	629		
Community:	Amherst	**Corridor:**	NA
Road 1:	Sweet Home Rd	**Road 3:**	Commerce Dr
Road 2:	Dodge Rd	**Road 4:**	

|<< < > >>| 1-2 of 2

AM Peak Hour
07/17/2017

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:30 AM	65	54	17	1	136	3	14	4	0	21	60	290	2	0	352	3	97	11	0	111	620
7:45 AM	50	69	31	0	150	0	3	0	0	3	75	196	0	0	271	6	120	8	0	134	558
8:00 AM	49	66	25	0	140	1	5	4	0	10	66	175	2	0	243	10	72	22	0	104	497
8:15 AM	47	66	27	0	140	1	5	11	0	17	96	222	4	0	322	7	75	17	0	99	578
Total	211	255	100	1	566	5	27	19	0	51	297	883	8	0	1188	26	364	58	0	448	2253
PHF	0.81	0.92	0.81		0.94	0.42	0.48	0.43		0.61	0.77	0.76	0.50		0.84	0.65	0.76	0.66		0.84	
HV %	6	4	6			60	0	32			1	3	0			12	1	2			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



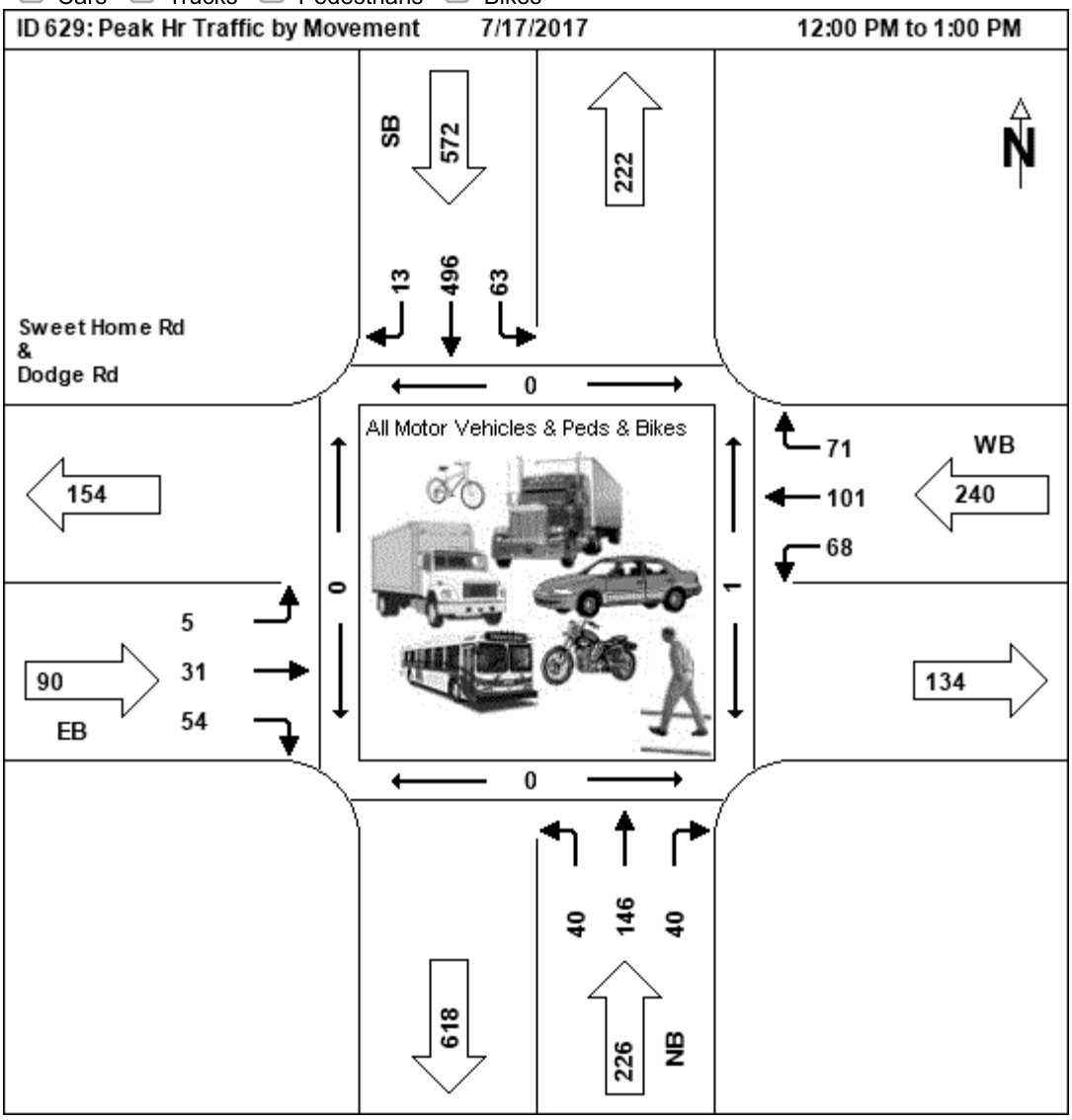
Midday Peak Hour
07/17/2017

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

12:00 PM	6	34	11	1	51	0	6	12	0	18	20	127	4	0	151	26	19	26	0	71	291
12:15 PM	10	15	4	0	29	5	16	13	0	34	17	110	2	0	129	12	23	26	0	61	253
12:30 PM	3	34	10	0	47	0	5	14	0	19	19	120	3	0	142	11	24	11	0	46	254
12:45 PM	21	63	15	0	99	0	4	15	0	19	7	139	4	0	150	19	35	8	0	62	330
Total	40	146	40	1	226	5	31	54	0	90	63	496	13	0	572	68	101	71	0	240	1128
PHF	0.48	0.58	0.67		0.57	0.25	0.48	0.90		0.66	0.79	0.89	0.81		0.95	0.65	0.72	0.68		0.85	
HV %	13	8	5			20	3	4			2	2	0			1	0	1			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

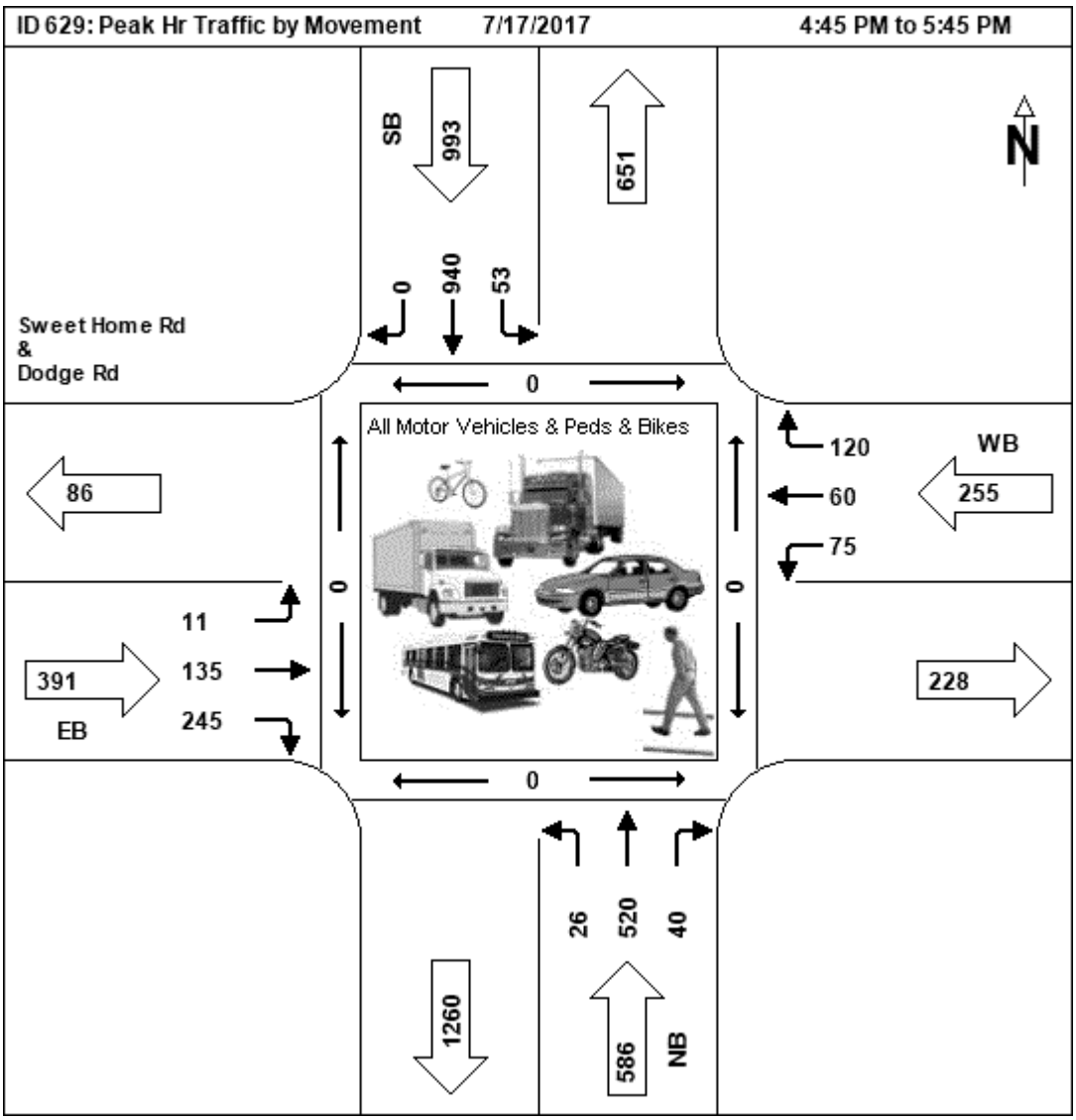


PM Peak Hour
07/17/2017

	NB					EB					SB					WB					
Start Time	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Int Total
4:45 PM	8	132	12	0	152	2	28	51	0	81	24	190	0	0	214	30	22	21	0	73	520
5:00 PM	5	119	6	0	130	4	51	116	0	171	10	258	0	0	268	20	22	50	0	92	661
5:15 PM	7	149	10	0	166	4	27	34	0	65	14	266	0	0	280	18	10	21	0	49	560
5:30 PM	6	119	12	0	137	1	27	44	0	72	5	226	0	0	231	7	6	28	0	41	481
Total	26	519	40	0	585	11	133	245	0	389	53	940	0	0	993	75	60	120	0	255	2222
PHF	0.81	0.87	0.83		0.88	0.69	0.65	0.53		0.57	0.55	0.88			0.89	0.63	0.68	0.60		0.69	
HV %	12	1	5			18	2	1			0	1				0	2	1			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

A2

Miscellaneous Traffic Data and Calculations

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

STATION: **531020**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
DIRECTION: Northbound FACTOR GROUP: 30 REC. SERIAL #: W699 FUNC. CLASS: 16 TOWN: **AMHERST**
STATE DIR CODE: 6 WK OF YR: 16 PLACEMENT: .57m S of Bryant Woods S NHS: no LION#:
DATE OF COUNT: 04/19/2015 @ REF MARKER: JURIS: Village BIN:
NOTES LANE 1: North ADDL DATA: Class Speed CC Stn: RR CROSSING:
COUNT TYPE: VEHICLES BATCH ID: DOT-SJWR5Cww17a CLASS HPMS SAMPLE: 3010446
COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS PROCESSED BY: ORG CODE: DOT INITIALS: SJW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
8	W																											
9	T																											
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M	**2**	**0**	**0**	**0**	**1**	**4**	**12**	**48**	**64**	**42**	**59**	**47**	**74**	**74**	**68**	**100**	**94**	**82**	**63**	**32**	**41**	**20**	**17**	**11**	955	100	15
21	T	**3**	**0**	**1**	**0**	**0**	**1**	**11**	**48**	**43**	**39**	**47**	**66**	**77**	**69**	**81**	**114**	**96**	**98**	**72**	**37**	**40**	**22**	**13**	**8**	986	114	15
22	W	**5**	**1**	**1**	**2**	**2**	**1**	**12**	**48**	**55**	**42**	**46**	**58**	**81**	**59**	**79**	**97**	**98**	**82**	**56**	**47**	**35**	**27**	**23**				
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																								ADT
4	**0**	**1**	**1**	**1**	**1**	**12**	**48**	**54**	**41**	**51**	**57**	**77**	**67**	**76**	**104**	**96**	**87**	**64**	**39**	**39**	**23**	**18**	**10**	**971**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
3	71	2	65	104	11%	1.000	1.047	**AADT 927**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

STATION: **531020**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR294** ROAD NAME: **NORTH FOREST RD** FROM: **1.0 N OF NY263** TO: **DODGE RD** COUNTY: **Erie**
DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: W805 FUNC. CLASS: 16 TOWN: **AMHERST**
STATE DIR CODE: 7 WK OF YR: 16 PLACEMENT: .57m S of Bryant Woods S NHS: no LION#:
DATE OF COUNT: 04/19/2015 @ REF MARKER: JURIS: Village BIN:
NOTES LANE 1: South ADDL DATA: Class Speed CC Stn: RR CROSSING:
COUNT TYPE: VEHICLES BATCH ID: DOT-SJWR5Cww17a CLASS HPMS SAMPLE: 3010446
COUNT TAKEN BY: ORG CODE: TTG INITIALS: dks PROCESSED BY: ORG CODE: DOT INITIALS: SJW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
8	W																											
9	T																											
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M	**1**	**1**	**1**	**1**	**1**	**11**	**42**	**77**	**104**	**51**	**48**	**44**	**53**	**52**	**71**	**69**	**104**	**79**	**50**	**23**	**18**	**13**	**12**	**3**	929	104	8
21	T	**1**	**1**	**2**	**0**	**0**	**12**	**42**	**84**	**91**	**53**	**56**	**55**	**67**	**63**	**60**	**56**	**85**	**97**	**44**	**28**	**15**	**10**	**7**	**9**	938	97	17
22	W	**1**	**1**	**1**	**2**	**1**	**13**	**41**	**72**	**87**	**57**	**51**	**55**	**63**	**51**	**54**	**66**	**79**	**96**	**56**	**31**	**16**	**15**	**12**				
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
1	**1**	**2**	**1**	**0**	**12**	**42**	**78**	**94**	**54**	**52**	**51**	**61**	**55**	**62**	**64**	**89**	**91**	**50**	**27**	**16**	**13**	**10**	**6**	**932**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
3	71	2	65	94	10%	1.000	1.047	**AADT 890**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

STATION: **534232**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD** FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD** COUNTY: **Erie**

DIRECTION: Eastbound FACTOR GROUP: 30 REC. SERIAL #: Y110 FUNC. CLASS: 16 TOWN:

STATE DIR CODE: 6 WK OF YR: 32 PLACEMENT: 450 FEET EAST OF AUDUBON PK NHS: no LION#:

DATE OF COUNT: 08/07/2017 @ REF MARKER: JURIS: Village BIN:

NOTES LANE 1: EB 1 Lane - 40 mph ADDL DATA: Class Speed CC Stn: RR CROSSING:

COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R05c32aMBN0000-2017 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: MBN INITIALS: APV PROCESSED BY: ORG CODE: DOT INITIALS: CW

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M																		472	223	157	142	81	43	41			
8	T	23	10	6	6	4	17	55	207	272	174	158	216	271	230	243	301	447	457	249	168	165	116	61	41	3897	457	17
9	W	27	14	6	7	3	13	69	195	244	172	177	212	283	268	250	319	412	437	234	185	162	133	51	37	3910	437	17
10	T	18	10	7	5	6	8	60	158	204	154	182	202	301	264	267	326	438	436	228	158	152	114	66	46	3810	438	16
11	F	27	8	13	8	6	16	64	172																			
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

24	10	8	6	5	14	62	183	240	167	172	210	285	254	253	315	432	450	234	167	155	111	55	41	ADT 3853

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
4	87	4	87	450	12%	1.000	1.100	**AADT 3503**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Westbound FACTOR GROUP: 30
STATE DIR CODE: 7 WK OF YR: 32
DATE OF COUNT: 08/07/2017
NOTES LANE 1: WB 1 Lane - 40 mph

COUNT TAKEN BY: ORG CODE: MBN INITIALS: APV

FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD**
REC. SERIAL #: Y110 FUNC. CLASS: 16
PLACEMENT: 450 FEET EAST OF AUDUBON PK NHS: no
@ REF MARKER: JURIS: Village
ADDL DATA: Class Speed BIN:
CC Stn: RR CROSSING:
COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R05c32aMBN0000-2017 SAMPLE:
PROCESSED BY: ORG CODE: DOT INITIALS: CW

COUNTY: **Erie**
TOWN:
LION#:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M																		250	150	104	92	61	38	18			
8	T	**17**	**5**	**2**	**7**	**8**	**27**	**124**	**380**	**419**	**243**	**185**	**169**	**293**	**250**	**231**	**233**	**211**	**287**	**189**	**121**	**109**	**66**	**54**	**17**	3647	419	8
9	W	**9**	**5**	**6**	**6**	**13**	**22**	**125**	**348**	**424**	**225**	**194**	**200**	**202**	**243**	**280**	**212**	**234**	**268**	**206**	**133**	**102**	**68**	**59**	**15**	3599	424	8
10	T	**16**	**3**	**1**	**7**	**9**	**31**	**120**	**335**	**390**	**219**	**208**	**208**	**208**	**243**	**285**	**225**	**252**	**261**	**187**	**127**	**106**	**68**	**50**	**26**	3585	390	8
11	F	**11**	**5**	**5**	**3**	**11**	**27**	**111**	**302**																			
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											
31	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
13	**4**	**4**	**6**	**10**	**27**	**120**	**341**	**411**	**229**	**196**	**192**	**234**	**245**	**265**	**223**	**232**	**266**	**183**	**121**	**102**	**66**	**50**	**19**	**3559**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	87	5	87	411	12%	1.000	1.100

ESTIMATED

AADT
3235

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

1.h

STATION: **534822**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 23
DATE OF COUNT: 06/03/2019
NOTES LANE 0: North

FROM: **COMMERCE DRIVE**
REC. SERIAL #: W807
PLACEMENT: 151' N of Sunshine Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V23aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS
PROCESSED BY: ORG CODE: DOT INITIALS: JH

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																**774**	**1037**	**1082**	**627**	**443**	**469**	**345**	**209**	**140**			
4	T	**69**	**39**	**23**	**11**	**18**	**46**	**199**	**447**	**506**	**431**	**399**	**484**	**556**	**524**	**607**	**754**	**1009**	**977**	**661**	**468**	**428**	**347**	**201**	**141**	9345	1009	16
5	W	**83**	**50**	**29**	**19**	**27**	**43**	**207**	**467**	**509**	**430**	**409**	**541**	**597**	**521**	**671**	**841**	**1058**	**958**	**630**	**444**	**451**	**358**	**195**	**135**	9673	1058	16
6	T	**89**	**37**	**19**	**18**	**19**	**69**	**186**	**466**	**515**	**474**	**403**	**509**	**563**	**563**	**658**	**825**	**1015**	**1079**	**699**	**549**	**498**	**378**	**235**				
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																											
25	T																											
26	W																											
27	T																											
28	F																											
29	S																											
30	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
79	**41**	**24**	**16**	**21**	**52**	**194**	**454**	**503**	**439**	**399**	**504**	**565**	**529**	**637**	**788**	**1017**	**1011**	**645**	**470**	**456**	**352**	**207**	**137**	**9540**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	80	4	80	1017	11%	0.987	1.113

ESTIMATED (one way)

AADT
8571

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 23
DATE OF COUNT: 06/03/2019
NOTES LANE 0: South

FROM: **COMMERCE DRIVE**
REC. SERIAL #: R314
PLACEMENT: 151' N of Sunshine Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V23aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS
PROCESSED BY: ORG CODE: DOT INITIALS: JH

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																**699**	**811**	**832**	**567**	**382**	**321**	**258**	**169**	**84**			
4	T	**43**	**33**	**20**	**20**	**51**	**171**	**524**	**1071**	**994**	**566**	**536**	**553**	**542**	**550**	**618**	**636**	**794**	**850**	**622**	**297**	**303**	**219**	**180**	**95**	10288	1071	7
5	W	**55**	**29**	**17**	**25**	**42**	**175**	**509**	**1093**	**1076**	**641**	**534**	**616**	**658**	**581**	**586**	**741**	**804**	**788**	**592**	**379**	**319**	**248**	**132**	**88**	10728	1093	7
6	T	**51**	**28**	**12**	**19**	**45**	**168**	**510**	**1095**	**978**	**632**	**570**	**657**	**697**	**639**	**635**	**714**	**823**	**897**	**616**	**377**	**315**	**308**	**189**				
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																											
25	T																											
26	W																											
27	T																											
28	F																											
29	S																											
30	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
49	**30**	**16**	**21**	**45**	**169**	**507**	**1072**	**1003**	**605**	**540**	**601**	**624**	**582**	**605**	**689**	**797**	**831**	**591**	**354**	**310**	**255**	**166**	**88**	**10550**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	80	4	80	1072	10%	0.987	1.113

ESTIMATED (one way)

AADT
9479

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**

DIRECTION: Northbound FACTOR GROUP: 30 REC. SERIAL #: W796 FUNC. CLASS: 16 TOWN:

STATE DIR CODE: 1 WK OF YR: 15 PLACEMENT: 605ft N of N Ellicott Creek NHS: no LION#:

DATE OF COUNT: 04/06/2020 @ REF MARKER: JURIS: Village BIN: 3367090

NOTES LANE 1: North ADDL DATA: Class Speed CC Stn: RR CROSSING:

NOTES LANE 2: North COUNT TYPE: VEHICLES BATCH ID: DOT-R05C15cTTG5196 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: JB PROCESSED BY: ORG CODE: DOT INITIALS: CPA

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M															**393**	**465**	**479**	**413**	**323**	**216**	**173**	**102**	**83**	**53**			
7	T	**35**	**23**	**26**	**24**	**22**	**64**	**243**	**301**	**262**	**259**	**316**	**328**	**380**	**389**	**430**	**478**	**462**	**403**	**294**	**237**	**166**	**120**	**81**	**65**	5408	478	15
8	W	**30**	**26**	**25**	**16**	**18**	**87**	**235**	**303**	**264**	**225**	**242**	**286**	**320**	**329**	**353**	**467**	**400**	**397**	**318**	**242**	**183**	**135**	**90**	**75**	5066	467	15
9	T	**40**	**22**	**24**	**22**	**23**	**78**	**231**	**270**	**258**	**239**	**266**	**294**	**346**	**309**	**418**	**419**	**477**	**421**	**284**	**231**	**146**	**114**	**96**	**72**	5100	477	16
10	F	**44**	**29**	**25**	**26**	**19**	**53**	**164**	**213**	**248**	**199**																	
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

37	**25**	**25**	**22**	**20**	**70**	**218**	**272**	**258**	**230**	**275**	**303**	**349**	**342**	**398**	**457**	**454**	**408**	**305**	**232**	**167**	**118**	**88**	**66**

ADT **5139**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	**ESTIMATED**
5	92	5	92	457	9%	1.000	1.054	**AADT 4876**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**

DIRECTION: Southbound FACTOR GROUP: 30 REC. SERIAL #: JH88 FUNC. CLASS: 16 TOWN:

STATE DIR CODE: 2 WK OF YR: 15 PLACEMENT: 605ft N of N Ellicott Creek NHS: no LION#:

DATE OF COUNT: 04/06/2020 @ REF MARKER: JURIS: Village BIN: 3367090

NOTES LANE 1: South ADDL DATA: Class Speed CC Stn: RR CROSSING:

NOTES LANE 2: South COUNT TYPE: VEHICLES BATCH ID: DOT-R05C15cTTG5196 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: JB PROCESSED BY: ORG CODE: DOT INITIALS: CPA

DATE	DAY	AM 12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	PM 12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M															**404**	**497**	**481**	**434**	**284**	**212**	**129**	**97**	**72**	**69**			
7	T	**31**	**29**	**9**	**16**	**27**	**86**	**208**	**320**	**270**	**294**	**276**	**331**	**371**	**388**	**428**	**472**	**470**	**384**	**262**	**229**	**133**	**86**	**70**	**82**	5272	472	15
8	W	**35**	**21**	**15**	**15**	**28**	**88**	**220**	**300**	**264**	**272**	**320**	**266**	**314**	**227**	**248**	**298**	**282**	**248**	**187**	**129**	**97**	**70**	**44**	**58**	4046	320	10
9	T	**25**	**17**	**11**	**12**	**17**	**52**	**122**	**173**	**154**	**137**	**186**	**198**	**222**	**212**	**224**	**308**	**256**	**281**	**165**	**153**	**91**	**74**	**41**	**48**	3179	308	15
10	F	**25**	**9**	**13**	**13**	**20**	**38**	**116**	**194**	**135**	**149**																	
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F																											
25	S																											
26	S																											
27	M																											
28	T																											
29	W																											
30	T																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																								ADT
29	**19**	**12**	**14**	**23**	**66**	**166**	**247**	**206**	**213**	**261**	**265**	**302**	**276**	**326**	**394**	**372**	**337**	**224**	**181**	**112**	**82**	**57**	**64**	**4248**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
5	92	5	92	394	9%	1.000	1.054	**AADT 4030**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 28
DATE OF COUNT: 07/05/2016
NOTES LANE 0: NB 2 lane - 45 mph

COUNT TAKEN BY: ORG CODE: CSE INITIALS: CDM

FROM: **COMMERCE DRIVE**
REC. SERIAL #: 1867
PLACEMENT: 525 ft N of Bucyrus Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: MBN INITIALS: AHL

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05MBN-28-5-July-6-2016

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	F																											
2	S																											
3	S																											
4	M																											
5	T											**397**	**468**	**580**	**510**	**566**	**692**	**905**	**889**	**578**	**443**	**430**	**359**	**229**	**159**			
6	W	**73**	**44**	**20**	**17**	**22**	**45**	**168**	**374**	**471**	**384**	**409**	**448**	**529**	**483**	**557**	**696**	**887**	**1021**	**711**	**498**	**442**	**371**	**225**	**192**	9087	1021	17
7	T	**96**	**51**	**22**	**20**	**21**	**60**	**154**	**375**	**494**	**367**	**368**	**439**	**526**	**522**	**602**	**639**	**856**	**931**	**582**	**459**	**434**	**361**	**270**	**167**	8816	931	17
8	F	**105**	**57**	**27**	**25**	**36**	**53**	**138**	**358**	**407**																		
9	S																											
10	S																											
11	M																											
12	T																											
13	W																											
14	T																											
15	F																											
16	S																											
17	S																											
18	M																											
19	T																											
20	W																											
21	T																											
22	F																											
23	S																											
24	S																											
25	M																											
26	T																											
27	W																											
28	T																											
29	F																											
30	S																											
31	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
91	**51**	**23**	**21**	**26**	**53**	**153**	**369**	**457**	**376**	**391**	**452**	**545**	**505**	**575**	**676**	**883**	**947**	**624**	**467**	**435**	**364**	**241**	**173**	**8898**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	71	4	71	947	11%	1.000	1.093

ESTIMATED (one way)

AADT
8141

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

STATION: **534822**

New York State Department of Transportation
Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 28
DATE OF COUNT: 07/05/2016
NOTES LANE 0: SB 2 lane - 45 mph

COUNT TAKEN BY: ORG CODE: CSE INITIALS: CDM

FROM: **COMMERCE DRIVE**
REC. SERIAL #: 1867
PLACEMENT: 525 ft N of Bucyrus Dr
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: MBN INITIALS: AHL

TO: **N FRENCH RD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05MBN-28-5-July-6-2016

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	F																											
2	S																											
3	S																											
4	M																											
5	T											470	454	539	500	503	502	618	686	463	376	257	240	176	126			
6	W	56	33	9	16	32	135	372	705	742	499	460	444	525	530	497	544	627	705	507	365	306	289	206	108	8712	742	8
7	T	60	32	19	17	33	124	387	685	746	501	501	484	551	523	521	558	629	700	497	385	286	255	203	103	8800	746	8
8	F	65	31	30	28	35	111	354	655	571																		
9	S																											
10	S																											
11	M																											
12	T																											
13	W																											
14	T																											
15	F																											
16	S																											
17	S																											
18	M																											
19	T																											
20	W																											
21	T																											
22	F																											
23	S																											
24	S																											
25	M																											
26	T																											
27	W																											
28	T																											
29	F																											
30	S																											
31	S																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
60	32	19	20	33	123	371	682	686	500	477	461	538	518	507	535	625	697	489	375	283	261	195	112	8599

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	71	4	71	697	8%	1.000	1.093

ESTIMATED (one way)

AADT
7867

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **COMMERCE DRIVE** TO: **N FRENCH RD** COUNTY: **Erie**
STATION: **534822** STATE DIR CODE: **2** PLACEMENT: **525 ft N of Bucyrus Dr** **DATE OF COUNT: 07/05/2016**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD**
DIRECTION: Eastbound FACTOR GROUP: 30
STATE DIR CODE: 6 WK OF YR: 46
DATE OF COUNT: 11/07/2016
NOTES LANE 1: One Lane EB - 35 MPH

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS

FROM: **SWEET HOME RD**
REC. SERIAL #: EZ53
PLACEMENT: 850' E of Audubon Pkwy
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: R05 INITIALS: RPJ

TO: **NY 270 CAMPBELL BLVD**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05V46aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M															**269**	**339**	**457**		**259**	**156**		**60**	**53**	**27**			
8	T	**37**	**11**	**6**	**3**	**4**	**20**												**482**	**264**	**153**	**114**	**75**	**55**	**30**			
9	W	**16**	**11**	**5**	**6**	**6**	**19**	**47**	**184**	**175**	**128**	**138**	**211**	**256**	**193**	**233**	**330**	**484**	**513**	**212**	**143**	**134**	**76**	**61**	**45**	3626	513	17
10	T	**16**	**7**	**2**	**6**	**5**	**17**	**53**	**204**	**170**	**144**	**152**	**213**	**250**	**220**	**268**	**365**	**466**	**447**	**226**	**159**	**141**	**94**	**62**	**43**	3730	466	16
11	F	**30**																										
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
25	**10**	**4**	**5**	**5**	**19**	**49**	**191**	**170**	**134**	**143**	**209**	**250**	**203**	**254**	**341**	**463**	**475**	**237**	**151**	**128**	**75**	**57**	**36**	**3634**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
5	70	5	70	475	13%	0.987	1.017

ESTIMATED

AADT
3573

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR45** ROAD NAME: **DODGE RD** FROM: **SWEET HOME RD** TO: **NY 270 CAMPBELL BLVD** COUNTY: **Erie**

DIRECTION: Westbound FACTOR GROUP: 30 REC. SERIAL #: EZ96 FUNC. CLASS: 16 TOWN:

STATE DIR CODE: 7 WK OF YR: 46 PLACEMENT: 850' E of Audubon Pkwy NHS: no LION#:

DATE OF COUNT: 11/07/2016 @ REF MARKER: JURIS: Village BIN:

NOTES LANE 1: One Lane WB - 35 MPH ADDL DATA: CC Stn: RR CROSSING:

COUNT TYPE: AXLE PAIRS BATCH ID: DOT-R05V46aTTG5196 HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: TTG INITIALS: DKS PROCESSED BY: ORG CODE: R05 INITIALS: RPJ

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	T																											
2	W																											
3	T																											
4	F																											
5	S																											
6	S																											
7	M															**233**	**227**	**267**		**162**	**127**		**54**	**33**	**19**			
8	T	**9**	**6**	**2**	**10**	**9**	**34**												**329**	**165**	**105**	**91**	**48**	**40**	**21**			
9	W	**7**	**7**	**2**	**14**	**7**	**38**	**138**	**416**	**453**	**239**	**188**	**168**	**207**	**226**	**250**	**227**	**241**	**275**	**178**	**103**	**81**	**63**	**43**	**14**	3585	453	8
10	T	**10**	**5**	**1**	**9**	**14**	**37**	**144**	**421**	**469**	**222**	**187**	**175**	**209**	**212**	**227**	**213**	**250**	**254**	**178**	**120**	**70**	**64**	**38**	**16**	3545	469	8
11	F	**9**																										
12	S																											
13	S																											
14	M																											
15	T																											
16	W																											
17	T																											
18	F																											
19	S																											
20	S																											
21	M																											
22	T																											
23	W																											
24	T																											
25	F																											
26	S																											
27	S																											
28	M																											
29	T																											
30	W																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
9	**6**	**2**	**11**	**10**	**36**	**139**	**413**	**455**	**227**	**186**	**170**	**205**	**216**	**234**	**219**	**250**	**282**	**169**	**113**	**80**	**56**	**38**	**18**	**3544**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
5	70	5	70	455	13%	0.987	1.017	**AADT 3485**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

STATION: 535024

New York State Department of Transportation
Roadway Traffic Count Hourly Report

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	3, 7	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 East 1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**82**	**77**	**96**	**81**	**42**	**34**	**28**	**12**	452		
9/22, Mon	**13**	**7**	**4**	**3**	**28**	**66**	**336**	**761**	**730**	**393**	**330**	**457**	**486**	**431**	**429**	**673**	**855**	**684**	**321**	**185**	**154**	**82**	**34**	**35**	7497	855	16-17
9/23, Tue	**28**	**5**	**45**	**6**	**36**	**69**	**347**	**783**	**739**	**414**	**319**	**330**	**491**	**397**	**374**	**650**	**842**	**707**	**351**	**226**	**137**	**72**	**35**	**28**	7431	842	16-17
9/24, Wed	**24**	**14**	**42**	**6**	**31**	**61**	**351**	**761**	**721**	**414**	**288**	**355**	**467**	**408**	**447**	**646**	**785**	**759**	**322**	**215**	**127**	**88**	**39**	**36**	7407	785	16-17
9/25, Thu	**22**	**11**	**37**	**8**	**27**	**77**	**336**																		518		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	25	**10**	**41**	**7**	**31**	**69**	**343**	**768**	**730**	**407**	**312**	**381**	**481**	**412**	**417**	**656**	**827**	**717**	**331**	**209**	**139**	**81**	**36**	**33**	7463		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
4	87	3	73	827	11.1	578	14.2	431	12.7	7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

EB Traffic Count Hourly Report

STATION: 535024

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	3	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 East	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**39**	**33**	**38**	**49**	**21**	**12**	**10**	**5**	207		
9/22, Mon	**5**	**1**	**2**	**1**	**9**	**26**	**65**	**334**	**289**	**185**	**176**	**304**	**261**	**213**	**214**	**406**	**583**	**509**	**192**	**123**	**78**	**31**	**13**	**21**	4041	583	16-17
9/23, Tue	**22**	**4**	**41**	**1**	**14**	**25**	**74**	**351**	**315**	**193**	**149**	**186**	**266**	**208**	**179**	**402**	**602**	**534**	**213**	**132**	**68**	**31**	**11**	**16**	4037	602	16-17
9/24, Wed	**20**	**12**	**39**	**1**	**13**	**20**	**80**	**354**	**292**	**192**	**147**	**199**	**258**	**203**	**224**	**402**	**550**	**577**	**179**	**132**	**67**	**40**	**18**	**20**	4039	577	17-18
9/25, Thu	**17**	**7**	**34**	**2**	**10**	**32**	**72**																		174		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	20	**8**	**38**	**1**	**12**	**26**	**73**	**346**	**299**	**190**	**157**	**230**	**262**	**208**	**206**	**403**	**578**	**540**	**195**	**129**	**71**	**34**	**14**	**19**	4058		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day
4	87	3	73	827	11.1	578	14.2	431	12.7

ESTIMATED AADT		
Roadway	East	West
7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

WB Traffic Count Hourly Report

STATION: 535024

ROUTE/ROAD:	COMMERCE DR	FROM:	WOODRIDGE DR	TO:	SWEET HOME RD	REGION-COUNTY:	5-ERIE
FED DIR CODE:	7	REF. MARKER:		FUNC. CLASS:	19 - U Local System	MUNI:	Amherst-Town-0019
ST DIR CODE:	7	END MILEPOST:	.82	FACTOR GROUP:	30	BIN:	
DOT ID:	157446	LANES BY DIR:	1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	9/21/2014	WEEK OF YEAR:	38	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	West	PLACEMENT:	.2m E of John Glenn DR	JURISDICTION:	03-Town	1 WAY CODE:	
NOTES 2:						COUNT TYPE:	Vehicle
TAKEN BY:	TTG-DKS	PROCESSED BY:	DOT-VJR	BATCH ID:	DOT-R5 WW39A	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
9/21, Sun																	**43**	**44**	**58**	**32**	**21**	**22**	**18**	**7**	245		
9/22, Mon	**8**	**6**	**2**	**2**	**19**	**40**	**271**	**427**	**441**	**208**	**154**	**153**	**225**	**218**	**215**	**267**	**272**	**175**	**129**	**62**	**76**	**51**	**21**	**14**	3456	441	08-09
9/23, Tue	**6**	**1**	**4**	**5**	**22**	**44**	**273**	**432**	**424**	**221**	**170**	**144**	**225**	**189**	**195**	**248**	**240**	**173**	**138**	**94**	**69**	**41**	**24**	**12**	3394	432	07-08
9/24, Wed	**4**	**2**	**3**	**5**	**18**	**41**	**271**	**407**	**429**	**222**	**141**	**156**	**209**	**205**	**223**	**244**	**235**	**182**	**143**	**83**	**60**	**48**	**21**	**16**	3368	429	08-09
9/25, Thu	**5**	**4**	**3**	**6**	**17**	**45**	**264**																		344		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	5	**2**	**3**	**5**	**19**	**43**	**270**	**422**	**431**	**217**	**155**	**151**	**220**	**204**	**211**	**253**	**249**	**177**	**137**	**80**	**68**	**47**	**22**	**14**	3405		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
4	87	3	73	827	11.1	578	14.2	431	12.7	7027	3821	3206

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
9	1.06	1.00	1.00	1.00	1.00	1.00			1.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Northbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 44
DATE OF COUNT: 10/24/2016
NOTES LANE 1: North
NOTES LANE 2: North
COUNT TAKEN BY: ORG CODE: TTG INITIALS: JM

FROM: **N ELLICOTT RD**
REC. SERIAL #: GC47
PLACEMENT: 654ft N of N Ellicott Creek
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: SJW

TO: **COMMERCE DRIVE**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05C44aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN: 3367090
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																											
4	T																											
5	W																											
6	T																											
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																				**551**	**457**	**315**	**218**	**155**			
25	T	**95**	**35**	**29**	**38**	**46**	**131**	**528**	**977**	**1072**	**621**	**470**	**562**	**659**	**616**	**761**	**837**	**1028**	**1036**	**714**	**520**	**461**	**360**	**232**	**156**	11984	1072	8
26	W	**87**	**42**	**14**	**36**	**41**	**120**	**507**	**931**	**1085**	**628**	**527**	**554**	**618**	**722**	**758**	**852**	**1058**	**1061**	**744**	**555**	**425**	**426**	**251**	**161**	12203	1085	8
27	T	**93**	**37**	**25**	**42**	**40**	**142**	**488**	**951**	**1036**	**600**	**492**	**506**	**588**	**599**	**693**	**862**	**982**	**1040**	**630**	**540**	**454**	**365**	**282**	**188**	11675	1040	17
28	F	**98**	**56**	**37**	**43**	**40**	**111**	**446**	**959**	**988**	**626**																	
29	S																											
30	S																											
31	M																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
93	**42**	**26**	**40**	**42**	**126**	**492**	**954**	**1045**	**619**	**496**	**541**	**622**	**646**	**737**	**850**	**1023**	**1046**	**696**	**542**	**449**	**366**	**246**	**165**	**11904**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	87	4	87	1046	9%	1.000	1.074

ESTIMATED

AADT
11084

ROAD #: **CR301** ROAD NAME: **SWEET HOME RD** FROM: **N ELLICOTT RD** TO: **COMMERCE DRIVE** COUNTY: **Erie**
STATION: **536335** STATE DIR CODE: **1** PLACEMENT: **654ft N of N Ellicott Creek** **DATE OF COUNT: 10/24/2016**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **CR CR301** ROAD NAME: **SWEET HOME RD**
DIRECTION: Southbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 44
DATE OF COUNT: 10/24/2016
NOTES LANE 1: South
NOTES LANE 2: South
COUNT TAKEN BY: ORG CODE: TTG INITIALS: MJ

FROM: **N ELLICOTT RD**
REC. SERIAL #: L442
PLACEMENT: 654ft N of N Ellicott Creek
@ REF MARKER:
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: SJW

TO: **COMMERCE DRIVE**
FUNC. CLASS: 16
NHS: no
JURIS: Village
CC Stn:
BATCH ID: DOT-R05C44aTTG5196

COUNTY: **Erie**
TOWN:
LION#:
BIN: 3367090
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
1	S																											
2	S																											
3	M																											
4	T																											
5	W																											
6	T																											
7	F																											
8	S																											
9	S																											
10	M																											
11	T																											
12	W																											
13	T																											
14	F																											
15	S																											
16	S																											
17	M																											
18	T																											
19	W																											
20	T																											
21	F																											
22	S																											
23	S																											
24	M																				**399**	**311**	**182**	**134**	**102**			
25	T	**69**	**25**	**16**	**24**	**51**	**179**	**474**	**943**	**769**	**596**	**571**	**643**	**718**	**609**	**625**	**1000**	**1321**	**1416**	**779**	**448**	**300**	**211**	**146**	**121**	12054	1416	17
26	W	**57**	**23**	**24**	**40**	**51**	**179**	**485**	**1005**	**901**	**661**	**630**	**647**	**771**	**713**	**752**	**1206**	**1380**	**1346**	**870**	**459**	**302**	**274**	**166**	**118**	13060	1380	16
27	T	**83**	**42**	**20**	**29**	**70**	**156**	**527**	**1040**	**912**	**650**	**572**	**592**	**808**	**663**	**688**	**983**	**1331**	**1307**	**742**	**489**	**337**	**227**	**167**	**125**	12560	1331	16
28	F	**58**	**43**	**18**	**35**	**45**	**162**	**447**	**952**	**841**	**664**																	
29	S																											
30	S																											
31	M																											

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

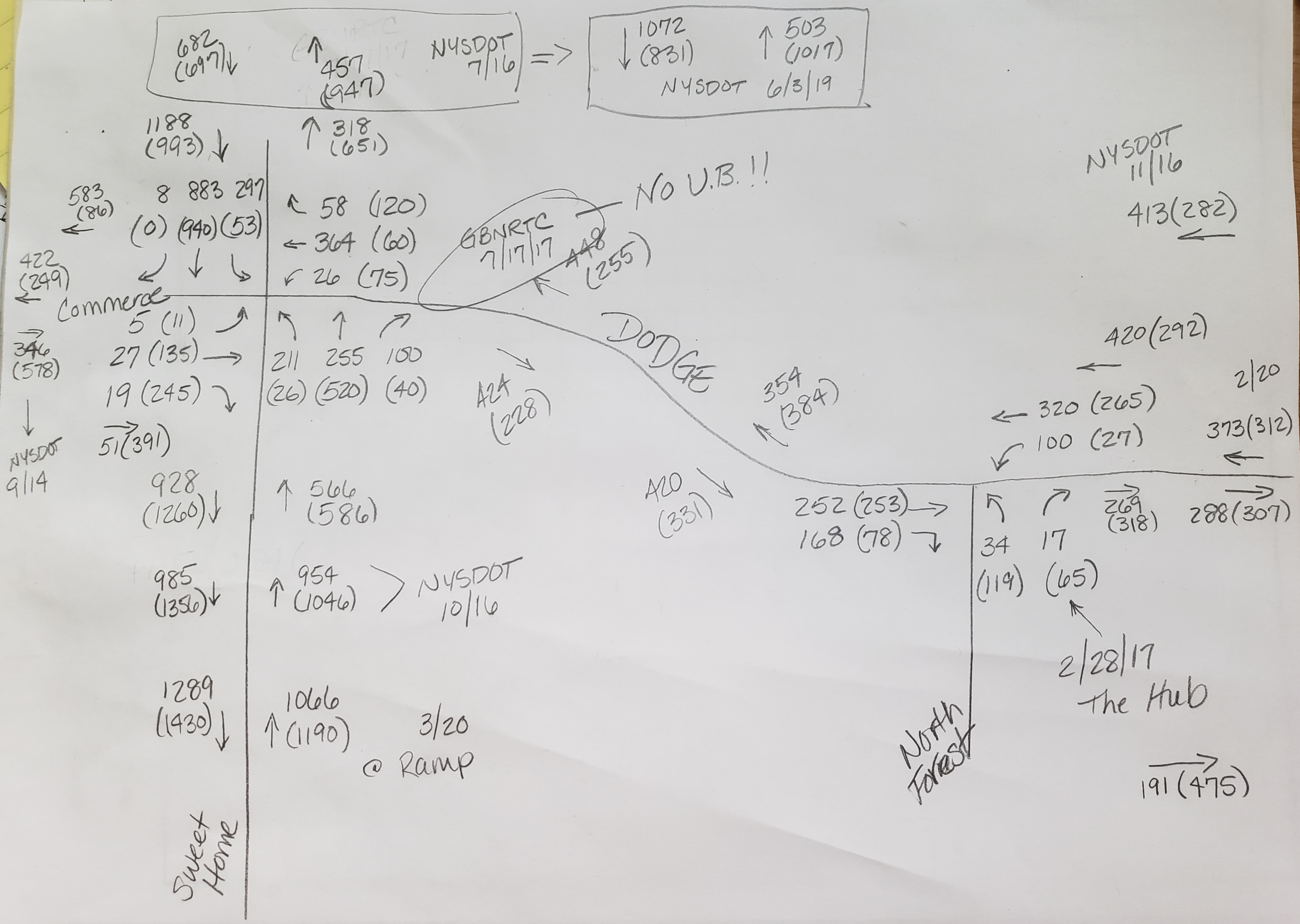
12 TO 1 AM	1 TO 2 AM	2 TO 3 AM	3 TO 4 AM	4 TO 5 AM	5 TO 6 AM	6 TO 7 AM	7 TO 8 AM	8 TO 9 AM	9 TO 10 AM	10 TO 11 AM	11 TO 12 AM	12 TO 1 PM	1 TO 2 PM	2 TO 3 PM	3 TO 4 PM	4 TO 5 PM	5 TO 6 PM	6 TO 7 PM	7 TO 8 PM	8 TO 9 PM	9 TO 10 PM	10 TO 11 PM	11 TO 12 PM	ADT
67	**33**	**20**	**32**	**54**	**169**	**483**	**985**	**856**	**643**	**591**	**627**	**766**	**662**	**688**	**1063**	**1344**	**1356**	**797**	**449**	**312**	**224**	**153**	**116**	**12490**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor
4	87	4	87	1356	11%	1.000	1.074

ESTIMATED

AADT
11629

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



682 (697)
457 (947)
NYSDOT 7/16
1072 (831)
503 (1017)
NYSDOT 6/3/19
1188 (993)
318 (651)
583 (86)
8 883 297
(0) (940) (53)
58 (120)
364 (60)
26 (75)
GBNRTC 7/17/17
NO U.B.!!
448 (255)
NYSDOT 11/16
413 (282)
422 (249)
Commerce
5 (11)
27 (135)
19 (245)
346 (578)
211 255 100
(26) (520) (40)
DODGE
424 (228)
354 (384)
420 (292)
2/20
320 (265)
100 (27)
373 (312)
51 (391)
NYSDOT 9/14
928 (1260)
566 (586)
420 (331)
252 (253)
168 (78)
34 (119)
17 (65)
269 (318)
288 (307)
985 (1356)
954 (1046)
NYSDOT 10/16
2/28/17
The Hub
1289 (1430)
1066 (1190)
3/20
@ Ramp
North Forest
191 (475)
Sweet Home

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

Muir Woods Site A, Town of Amherst, NY

Documentation of Ambient Traffic Volume Growth

Roadway	Segment starts at	Segment end at	2004	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Growth
North Forest Road	1.0 N of NY263/Turtle Creek Apt DWY	Dodge Road								2,189			1,809		1,825	1,845		-2.81%
Dodge Road	Sweet Home Road	NY270 Campbell Road					6,363			5,440				7,058	6,738			0.72%
Sweet Home Road	Commerce Drive	North French Road			16,280				16,606		15,052			16,008			18,050	0.86%
Sweet Home Road	N Ellicott Road	Commerce Drive	23,552		21,115			21,021						21,437				-0.78%
Commerce Drive	Woodbridge Road	Sweet Home Road										7,027						

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

PROJECT DETAILS

Project Name:	Muir Woods	Type of Project:	
Project No:		City:	
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Amy Dake	Clients Name:	
Date:	6/22/2020	ZIP/Postal Code:	
State/Province:		No. of Scenarios:	2
Analysis Region:			

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	AM Peak Hour	5	1	0		47	85	132
Scenario - 2	PM Peak Hour	5	1	0		106	82	181

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Scenario - 1

Scenario Name: AM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	90	Weekday, Peak Hour of Adjacent Street Traffic,	Average	17	50	67
Data Source: Trip Gen Manual, 10th Ed +					0.74	25%	75%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	12	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	1	5	6
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.95Ln(X) - 0.51	23%	77%	
221 - Multifamily Housing (Mid-Rise) [Private]	General Urban/Suburban	Dwelling Units	100	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	9	25	34
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.98Ln(X) - 0.98	26%	74%	
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street Traffic,	Average	14	2	17
Data Source: Trip Gen Manual, 10th Ed +					1.16	86%	14%	
875 - Department Store	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street	Average	6	3	9
Data Source: Trip Gen Manual, 10th Ed +					0.58	64%	36%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	25	75
220 - Multifamily Housing (Low-Rise)	100	100	1	1	23	77
221 - Multifamily Housing (Mid-Rise) [Private]	100	100	1	1	26	74
710 - General Office Building	100	100	1	1	86	14
875 - Department Store	100	100	1	1	64	36

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	17	50	0	0	17	50
	67		0		67	
220 - Multifamily Housing (Low-Rise)	1	5	0	0	1	5
	6		0		6	
221 - Multifamily Housing (Mid-Rise) [Private]	9	25	0	0	9	25
	34		0		34	
710 - General Office Building	15	2	0	0	14	2
	17		0		17	
875 - Department Store	6	3	0	0	6	3
	9		0		9	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	17	50	67
220 - Multifamily Housing (Low-Rise)	1	5	6

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

221 - Multifamily Housing (Mid-Rise) [Private]	9	25	34
710 - General Office Building	14	2	17
875 - Department Store	6	3	9

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	47	85	132
External Vehicle Trips	47	85	132
New Vehicle Trips	47	85	132

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Scenario - 2

Scenario Name: PM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	90	Weekday, Peak Hour of Adjacent Street Traffic,	Average	56	33	89
Data Source: Trip Gen Manual, 10th Ed +					0.99	63%	37%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	12	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	6	3	9
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.89Ln(X) - 0.02	63%	37%	
221 - Multifamily Housing (Mid-Rise)	General Urban/Suburban	Dwelling Units	100	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	27	17	44
Data Source: Trip Gen Manual, 10th Ed +					Ln(T) =0.96Ln(X) - 0.63	61%	39%	
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street Traffic,	Average	2	14	17
Data Source: Trip Gen Manual, 10th Ed +					1.15	16%	84%	
875 - Department Store [Private]	General Urban/Suburban	1000 Sq. Ft. GFA	15	Weekday, Peak Hour of Adjacent Street	Average	15	15	30
Data Source: Trip Gen Manual, 10th Ed +					1.95	50%	50%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37
220 - Multifamily Housing (Low-Rise)	100	100	1	1	63	37
221 - Multifamily Housing (Mid-Rise)	100	100	1	1	61	39
710 - General Office Building	100	100	1	1	16	84
875 - Department Store [Private]	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	56	33	0	0	56	33
	89		0		89	
220 - Multifamily Housing (Low-Rise)	6	3	0	0	6	3
	9		0		9	
221 - Multifamily Housing (Mid-Rise)	27	17	0	0	27	17
	44		0		44	
710 - General Office Building	3	14	0	0	2	14
	17		0		17	
875 - Department Store [Private]	15	15	0	0	15	15
	30		0		30	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	56	33	89
220 - Multifamily Housing (Low-Rise)	6	3	9

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

221 - Multifamily Housing (Mid-Rise)	27	17	44
710 - General Office Building	2	14	17
875 - Department Store [Private]	15	15	30

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	106	82	188
External Vehicle Trips	106	82	188
New Vehicle Trips	106	82	188

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

PROPOSED MUIR WOODS SECTION A
TOWN OF AMHERST, NY
AM PEAK

Fig 3 Fig 4 Fig 6 Fig 7 Fig 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2020 Existing Volume	2022 Bkgd Vol 1.00%	Muir Woods Site B	2022 Bkgrd Volume	Proposed Muir Woods Section A Enter Dist. %	Exit Dist. %	Trips IN 47	Trips OUT 85	Total Site Trips	FULL Build Volumes
1	Sweet Home Road Dodge Road/Commerce Drive										
	SR	8	8		8						8
	ST	883	901	15	916						916
	SL	297	303		303	20%		9		9	312
	WR	58	59		59		20%		17	17	76
	WT	364	371		371		10%		9	9	380
	WL	26	27		27		25%		21	21	48
	NR	100	102		102	25%		12		12	114
	NT	450	459	11	470						470
	NL	211	215		215						215
	ER	50	51		51						51
	ET	30	31		31	10%		5		5	36
	EL	10	10		10						10
2	Dodge Road Proposed North Driveway										
	SR						25%		21	21	21
	ST										
	SL						15%		13	13	13
	WR					10%		5		5	5
	WT	361	368	18	386		30%		26	26	412
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	25%		12		12	490
	EL					30%		14		14	14
3	Dodge Road Proposed Middle Out Driveway										
	SR						10%		9	9	9
	ST										
	SL						5%		4	4	4
	WR										
	WT	361	368	18	386	10%	15%	5	13	17	403
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	25%	15%	12	13	25	503
	EL										
4	Dodge Road Proposed Middle In Driveway										
	SR										
	ST										
	SL										
	WR					5%		2		2	2
	WT	361	368	18	386	10%	20%	5	17	22	408
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478	15%	20%	7	17	24	502
	EL					10%		5		5	5
5	Dodge Road Proposed South Driveway										
	SR						20%		17	17	17
	ST										
	SL						25%		21	21	21
	WR					30%		14		14	14
	WT	361	368	18	386	15%		7		7	393
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	458	467	11	478		20%		17	17	495
	EL					15%		7		7	7
6	Dodge Road North Forest Road										
	SR										
	ST										
	SL										
	WR										
	WT	323	329	18	347	30%		14		14	361
	WL	102	104		104						104
	NR	20	20		20						20
	NT										
	NL	38	39		39	15%		7		7	46
	ER	170	173		173		15%		13	13	186
	ET	288	294	11	305		30%		26	26	331
	EL										

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

PROPOSED MUIR WOODS SECTION A
TOWN OF AMHERST, NY
PM PEAK

Fig 3 Fig 4 Fig 6 Fig 7 Fig 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2020 Existing Volume	2022 Bkgd Vol 1.00%	Muir Woods Site B	2022 Bkgrd Volume	Proposed Muir Woods Section A Enter Dist. %	Proposed Muir Woods Section A Exit Dist. %	Proposed Muir Woods Section A Trips IN 106	Proposed Muir Woods Section A Trips OUT 82	Total Site Trips	FULL Build Volumes
1	Sweet Home Road Dodge Road/Commerce Drive										
	SR	10	10		10						10
	ST	940	959	21	980						980
	SL	60	61		61	20%		21		21	82
	WR	150	153		153		20%		16	16	169
	WT	60	61		61		10%		8	8	69
	WL	75	77		77		25%		21	21	98
	NR	125	128		128	25%		27		27	155
	NT	740	755	13	768						768
	NL	175	179		179						179
	ER	260	265		265						265
	ET	150	153		153	10%		11		11	164
	EL	25	26		26						26
2	Dodge Road Proposed North Driveway										
	SR						25%		21	21	21
	ST										
	SL						15%		12	12	12
	WR					10%		11		11	11
	WT	389	397	32	429		30%		25	25	454
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	25%		27		27	386
	EL					30%		32		32	32
3	Dodge Road Proposed Middle Out Driveway										
	SR						10%		8	8	8
	ST										
	SL						5%		4	4	4
	WR										
	WT	389	397	32	429	10%	15%	11	12	23	452
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	25%	15%	27	12	39	398
	EL										
4	Dodge Road Proposed Middle In Driveway										
	SR										
	ST										
	SL										
	WR					5%		5		5	5
	WT	389	397	32	429	10%	20%	11	16	27	456
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359	15%	20%	16	16	32	391
	EL					10%		11		11	11
5	Dodge Road Proposed South Driveway										
	SR						20%		16	16	16
	ST										
	SL						25%		21	21	21
	WR					30%		32		32	32
	WT	389	397	32	429	15%		16		16	445
	WL										
	NR										
	NT										
	NL										
	ER										
	ET	339	346	13	359		20%		16	16	375
	EL					15%		16		16	16
6	Dodge Road North Forest Road										
	SR										
	ST										
	SL										
	WR										
	WT	268	273	32	305	30%		32		32	337
	WL	30	31		31						31
	NR	68	69		69						69
	NT										
	NL	121	123		123	15%		16		16	139
	ER	81	83		83		15%		12	12	95
	ET	258	263	13	276		30%		25	25	301
	EL										

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

SWEET HOME/DODGE/COMMERCE

Phase Times (next/2/2/2, next/2/2/7/6) E/W									
	1	2	3	4	5	6 SB	7	8	
Movement	SBL	NB			NBL	[redacted]		[redacted]	
Minimum Green	10	40	0	0	10	40	0	15	0 - 255 sec.
Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Yellow	3.2	4.3	0.0	0.0	3.2	4.3	0.0	3.9	0.0 - 25.5 sec.
Red Clearance	1.1	1.4	0.0	0.0	1.1	1.4	0.0	1.8	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	20	45	0	0	20	45	0	30	0 - 255 sec
Max 2	0	0	0	0	0	0	0	0	0 - 255 sec
Walk	0	7	0	0	0	7	0	7	0 - 255 sec
Ped Clear	0	15	0	0	0	15	0	15	0 - 255 sec
Seconds Per Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	0	0	0	0	0	0	0	0 - 255 sec
Time to Reduce	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Gap	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0 - 25.5 sec.
Max Variable Initial	0	0	0	0	0	0	0	0	0 - 255 sec
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Other Controller Functions (next/2/2/9)									
Phase -->	1	2	3	4	5	6	7	8	
Inhibit Simultaneous Gap Out									X = On
Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage							
Red Revert (+2seconds)	0.0	0 - 25.5 sec.							
Auto Ped Clear		X = On							
Flashing Don't Walk Thru Yellow		X = On							
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec.							
Change Sequence	X	X = On (After a download with a power on - off cycle)							
Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

A3

Level of Service: Criteria and Definitions

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

A4

Level of Service Calculations: Existing Conditions

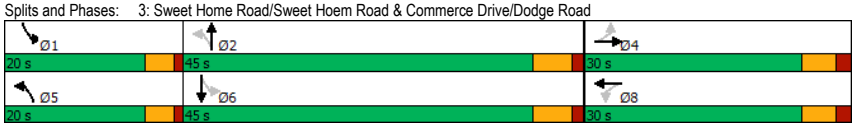
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	30	50	26	364	58	211	450	100	297	883	8
Future Volume (vph)	10	30	50	26	364	58	211	450	100	297	883	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.906			0.979			0.973			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1434	0	1612	1839	0	1703	3366	0	1787	3502	0
Flt Permitted	0.163			0.693			0.117			0.308		
Satd. Flow (perm)	194	1434	0	1176	1839	0	210	3366	0	579	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			8			34			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	37	62	32	449	72	260	556	123	367	1090	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	99	0	32	521	0	260	679	0	367	1100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		49.5	34.2		49.0	34.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.56	0.39		0.56	0.39	
v/c Ratio	0.23	0.22		0.10	1.01		0.74	0.51		0.72	0.82	
Control Delay	40.5	14.2		27.7	76.4		31.5	20.9		17.6	30.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.5	14.2		27.7	76.4		31.5	20.9		17.6	30.0	
LOS	D	B		C	E		C	C		B	C	
Approach Delay		17.0			73.5			23.8			26.9	
Approach LOS		B			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 88.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	288	170	102	323	38	20
Future Volume (vph)	288	170	102	323	38	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950				0.953	
Flt Protected				0.988	0.968	
Satd. Flow (prot)	1783	0	0	1863	1753	0
Flt Permitted				0.988	0.968	
Satd. Flow (perm)	1783	0	0	1863	1753	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	374	221	132	419	49	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	595	0	0	551	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	288	170	102	323	38	20
Future Vol, veh/h	288	170	102	323	38	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	374	221	132	419	49	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	595	0	1168	485
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	683	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	991	-	216	586
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	991	-	178	586
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	417	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	27.5
HCM LOS			D

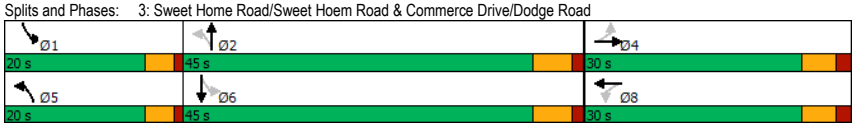
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	991	-
HCM Lane V/C Ratio	0.322	-	-	0.134	-
HCM Control Delay (s)	27.5	-	-	9.2	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	150	260	75	60	150	175	740	125	60	940	10
Future Volume (vph)	25	150	260	75	60	150	175	740	125	60	940	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.905			0.893			0.978			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1696	0	1805	1675	0	1612	3476	0	1805	3567	0
Flt Permitted	0.435			0.164			0.095			0.188		
Satd. Flow (perm)	700	1696	0	312	1675	0	161	3476	0	357	3567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			127			24			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	33	197	342	99	79	197	230	974	164	79	1237	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	539	0	99	276	0	230	1138	0	79	1250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		55.8	45.4		45.0	36.6	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.50		0.50	0.41	
v/c Ratio	0.17	1.03		1.18	0.51		0.73	0.65		0.27	0.86	
Control Delay	30.3	77.7		191.3	19.3		32.4	18.8		10.1	32.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.3	77.7		191.3	19.3		32.4	18.8		10.1	32.2	
LOS	C	E		F	B		C	B		B	C	
Approach Delay		75.0			64.7			21.1			30.9	
Approach LOS		E			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 90.3			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 37.6		Intersection LOS: D	
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	258	81	30	268	121	68
Future Volume (vph)	258	81	30	268	121	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968				0.951	
Flt Protected				0.995	0.969	
Satd. Flow (prot)	1839	0	0	1890	1751	0
Flt Permitted				0.995	0.969	
Satd. Flow (perm)	1839	0	0	1890	1751	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	344	108	40	357	161	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	452	0	0	397	252	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	258	81	30	268	121	68
Future Vol, veh/h	258	81	30	268	121	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	344	108	40	357	161	91

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	452	0	835	398
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	437	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1119	-	340	656
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1119	-	325	656
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	626	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	28.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	397	-	-	1119	-
HCM Lane V/C Ratio	0.635	-	-	0.036	-
HCM Control Delay (s)	28.6	-	-	8.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	4.2	-	-	0.1	-

A5

Level of Service Calculations: Background Conditions

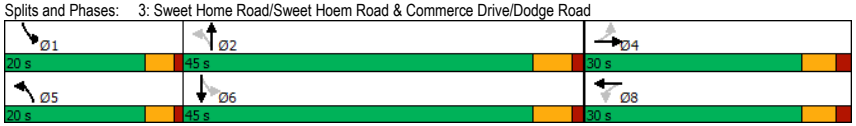
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	31	51	27	371	59	215	470	102	303	916	8
Future Volume (vph)	10	31	51	27	371	59	215	470	102	303	916	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.906			0.979			0.973			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1435	0	1612	1839	0	1703	3366	0	1787	3502	0
Flt Permitted	0.163			0.692			0.112			0.298		
Satd. Flow (perm)	194	1435	0	1174	1839	0	201	3366	0	561	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			8			33			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	38	63	33	458	73	265	580	126	374	1131	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	101	0	33	531	0	265	706	0	374	1141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		51.2	35.6		50.2	35.1	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.57	0.40		0.56	0.39	
v/c Ratio	0.23	0.23		0.10	1.05		0.75	0.52		0.75	0.83	
Control Delay	41.1	14.3		28.0	86.8		33.3	21.0		19.0	30.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	14.3		28.0	86.8		33.3	21.0		19.0	30.8	
LOS	D	B		C	F		C	C		B	C	
Approach Delay		17.1			83.4			24.3			27.9	
Approach LOS		B			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 36.3		Intersection LOS: D	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	305	173	104	347	39	20
Future Volume (vph)	305	173	104	347	39	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951				0.954	
Flt Protected				0.989	0.968	
Satd. Flow (prot)	1784	0	0	1865	1755	0
Flt Permitted				0.989	0.968	
Satd. Flow (perm)	1784	0	0	1865	1755	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	396	225	135	451	51	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	0	586	77	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.0%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	305	173	104	347	39	20
Future Vol, veh/h	305	173	104	347	39	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	396	225	135	451	51	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	621	0	1230	509
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	721	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	969	-	198	568
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	485	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	969	-	161	568
Mov Cap-2 Maneuver	-	-	-	-	161	-
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	395	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	31.1
HCM LOS			D

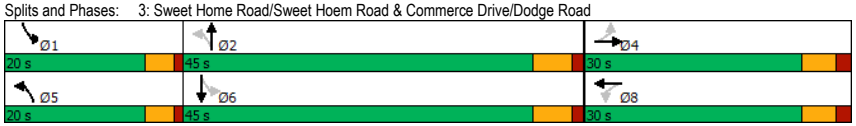
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	213	-	-	969	-
HCM Lane V/C Ratio	0.36	-	-	0.139	-
HCM Control Delay (s)	31.1	-	-	9.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	153	265	77	61	153	179	768	128	61	980	10
Future Volume (vph)	26	153	265	77	61	153	179	768	128	61	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.905			0.893			0.979			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1696	0	1805	1675	0	1612	3480	0	1805	3571	0
Flt Permitted	0.421			0.164			0.093			0.174		
Satd. Flow (perm)	678	1696	0	312	1675	0	158	3480	0	331	3571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			128			24			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	34	201	349	101	80	201	236	1011	168	80	1289	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	550	0	101	281	0	236	1179	0	80	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		57.2	46.6		46.2	37.7	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.51		0.50	0.41	
v/c Ratio	0.19	1.07		1.23	0.52		0.75	0.66		0.29	0.89	
Control Delay	30.9	88.5		206.8	19.9		34.3	19.2		10.3	33.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.9	88.5		206.8	19.9		34.3	19.2		10.3	33.8	
LOS	C	F		F	B		C	B		B	C	
Approach Delay		85.1			69.3			21.7			32.5	
Approach LOS		F			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 91.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	276	83	31	305	123	69
Future Volume (vph)	276	83	31	305	123	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969				0.951	
Flt Protected				0.995	0.969	
Satd. Flow (prot)	1841	0	0	1890	1751	0
Flt Permitted				0.995	0.969	
Satd. Flow (perm)	1841	0	0	1890	1751	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	368	111	41	407	164	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	479	0	0	448	256	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	8.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	276	83	31	305	123	69
Future Vol, veh/h	276	83	31	305	123	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	368	111	41	407	164	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	479	0	913	424
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1094	-	306	634
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1094	-	291	634
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	591	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	35.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	-	-	1094	-
HCM Lane V/C Ratio	0.709	-	-	0.038	-
HCM Control Delay (s)	35.9	-	-	8.4	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	5.2	-	-	0.1	-

A6

Level of Service Calculations: Full Build Conditions

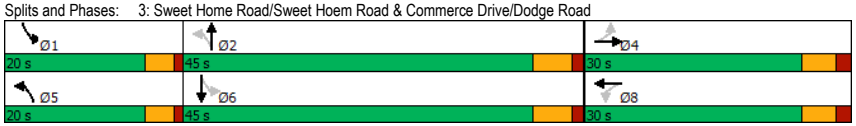
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	36	51	48	380	76	215	470	114	312	916	8
Future Volume (vph)	10	36	51	48	380	76	215	470	114	312	916	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		150	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.912			0.975			0.971			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1128	1458	0	1612	1831	0	1703	3358	0	1787	3502	0
Flt Permitted	0.163			0.688			0.113			0.285		
Satd. Flow (perm)	194	1458	0	1167	1831	0	203	3358	0	536	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			10			38			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	60%	0%	32%	12%	1%	2%	6%	4%	6%	1%	3%	0%
Adj. Flow (vph)	12	44	63	59	469	94	265	580	141	385	1131	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	107	0	59	563	0	265	721	0	385	1141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.5	24.5		24.5	24.5		50.8	35.3		50.5	35.1	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.57	0.39		0.56	0.39	
v/c Ratio	0.23	0.24		0.18	1.11		0.75	0.54		0.77	0.83	
Control Delay	41.1	15.0		29.3	106.8		33.3	21.2		21.2	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	15.0		29.3	106.8		33.3	21.2		21.2	30.7	
LOS	D	B		C	F		C	C		C	C	
Approach Delay		17.7			99.5			24.5			28.3	
Approach LOS		B			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 89.6			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 40.4		Intersection LOS: D	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	331	186	104	361	46	20
Future Volume (vph)	331	186	104	361	46	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951				0.959	
Flt Protected				0.989	0.966	
Satd. Flow (prot)	1784	0	0	1865	1760	0
Flt Permitted				0.989	0.966	
Satd. Flow (perm)	1784	0	0	1865	1760	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	430	242	135	469	60	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	672	0	0	604	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	186	104	361	46	20
Future Vol, veh/h	331	186	104	361	46	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	430	242	135	469	60	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	672	0	1290	551
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	928	-	182	538
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	476	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	928	-	146	538
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	382	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	39.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	187	-	-	928	-
HCM Lane V/C Ratio	0.458	-	-	0.146	-
HCM Control Delay (s)	39.6	-	-	9.5	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.5	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	14	490	412	5	13	21
Future Volume (vph)	14	490	412	5	13	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.916	
Flt Protected		0.999			0.981	
Satd. Flow (prot)	0	1861	1861	0	1674	0
Flt Permitted		0.999			0.981	
Satd. Flow (perm)	0	1861	1861	0	1674	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	235		405	
Travel Time (s)		5.5	5.3		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	533	448	5	14	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	548	453	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	14	490	412	5	13	21
Future Vol, veh/h	14	490	412	5	13	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	533	448	5	14	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	453	0	-	0	1014	451
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	563	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1108	-	-	-	264	608
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1108	-	-	-	259	608
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	570	-

Approach	SE	NW	SW
HCM Control Delay, s	0.2	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)	-	-	1108	-	401
HCM Lane V/C Ratio	-	-	0.014	-	0.092
HCM Control Delay (s)	-	-	8.3	0	14.9
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	503	403	0	4	9
Future Volume (vph)	0	503	403	0	4	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.904	
Flt Protected					0.986	
Satd. Flow (prot)	0	1863	1863	0	1660	0
Flt Permitted					0.986	
Satd. Flow (perm)	0	1863	1863	0	1660	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		235	240		378	
Travel Time (s)		5.3	5.5		8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	547	438	0	4	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	547	438	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	503	403	0	4	9
Future Vol, veh/h	0	503	403	0	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	547	438	0	4	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	985	438
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	547	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	275	619
Stage 1	0	-	-	0	651	-
Stage 2	0	-	-	0	580	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	275	619
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	580	-

Approach	SE	NW	SW
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NWT	SETSWLn1
Capacity (veh/h)	-	- 447
HCM Lane V/C Ratio	-	- 0.032
HCM Control Delay (s)	-	- 13.3
HCM Lane LOS	-	- B
HCM 95th %tile Q(veh)	-	- 0.1

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	5	502	408	2	0	0
Future Volume (vph)	5	502	408	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected						
Satd. Flow (prot)	0	1863	1861	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1863	1861	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	291		382	
Travel Time (s)		5.5	6.6		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	546	443	2	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	551	445	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	7	495	393	14	21	17
Future Volume (vph)	7	495	393	14	21	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.941	
Flt Protected		0.999			0.973	
Satd. Flow (prot)	0	1861	1853	0	1706	0
Flt Permitted		0.999			0.973	
Satd. Flow (perm)	0	1861	1853	0	1706	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		291	117		311	
Travel Time (s)		6.6	2.7		7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	538	427	15	23	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	546	442	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	7	495	393	14	21	17
Future Vol, veh/h	7	495	393	14	21	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	538	427	15	23	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	442	0	-	0	989	435
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	554	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1118	-	-	-	274	621
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1118	-	-	-	271	621
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	575	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	16.2
HCM LOS			C

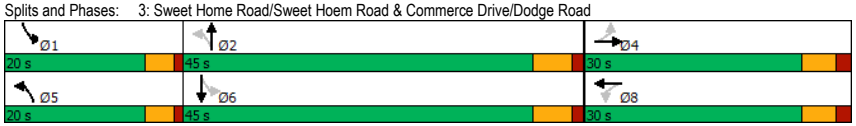
Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)	-	-	1118	-	362
HCM Lane V/C Ratio	-	-	0.007	-	0.114
HCM Control Delay (s)	-	-	8.2	0	16.2
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	164	265	98	69	169	179	768	155	82	980	10
Future Volume (vph)	26	164	265	98	69	169	179	768	155	82	980	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		150	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.907			0.894			0.975			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1530	1700	0	1805	1677	0	1612	3462	0	1805	3571	0
Flt Permitted	0.369			0.164			0.093			0.153		
Satd. Flow (perm)	594	1700	0	312	1677	0	158	3462	0	291	3571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		82			124			30			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		287			420			308			340	
Travel Time (s)		6.5			9.5			7.0			7.7	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	18%	2%	1%	0%	2%	1%	12%	1%	5%	0%	1%	0%
Adj. Flow (vph)	34	216	349	129	91	222	236	1011	204	108	1289	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	565	0	129	313	0	236	1215	0	108	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		10.3	27.7		9.5	27.7	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	45.0		20.0	45.0	
Total Split (%)	31.6%	31.6%		31.6%	31.6%		21.1%	47.4%		21.1%	47.4%	
Maximum Green (s)	24.3	24.3		24.3	24.3		15.7	39.3		15.7	39.3	
Yellow Time (s)	3.9	3.9		3.9	3.9		3.2	4.3		3.2	4.3	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.1	1.4		1.1	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		4.3	5.7		4.3	5.7	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0			15.0			15.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	24.4	24.4		24.4	24.4		57.1	45.8		47.0	37.7	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.62	0.50		0.51	0.41	
v/c Ratio	0.22	1.10		1.57	0.58		0.75	0.70		0.39	0.88	
Control Delay	32.1	100.2		333.9	22.9		34.8	20.5		11.9	33.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.1	100.2		333.9	22.9		34.8	20.5		11.9	33.7	
LOS	C	F		F	C		C	C		B	C	
Approach Delay		96.4			113.7			22.8			32.0	
Approach LOS		F			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 91.5			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 47.7		Intersection LOS: D	
Intersection Capacity Utilization 85.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Sweet Home Road/Sweet Hoem Road & Commerce Drive/Dodge Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	301	95	31	337	139	69
Future Volume (vph)	301	95	31	337	139	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968				0.955	
Flt Protected				0.996	0.968	
Satd. Flow (prot)	1839	0	0	1892	1756	0
Flt Permitted				0.996	0.968	
Satd. Flow (perm)	1839	0	0	1892	1756	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	314			290	218	
Travel Time (s)	7.1			6.6	5.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	401	127	41	449	185	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	528	0	0	490	277	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.0%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	13

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	301	95	31	337	139	69
Future Vol, veh/h	301	95	31	337	139	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	401	127	41	449	185	92

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	528	0	996	465
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1049	-	273	602
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	594	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1049	-	259	602
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	59.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	-	-	1049	-
HCM Lane V/C Ratio	0.869	-	-	0.039	-
HCM Control Delay (s)	59.6	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	7.9	-	-	0.1	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	32	386	454	11	12	21
Future Volume (vph)	32	386	454	11	12	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.914	
Flt Protected		0.996			0.982	
Satd. Flow (prot)	0	1855	1857	0	1672	0
Flt Permitted		0.996			0.982	
Satd. Flow (perm)	0	1855	1857	0	1672	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	235		405	
Travel Time (s)		5.5	5.3		9.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	420	493	12	13	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	455	505	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	32	386	454	11	12	21
Future Vol, veh/h	32	386	454	11	12	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	420	493	12	13	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	505	0	-	0	989	499
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	490	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1060	-	-	-	274	572
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1060	-	-	-	262	572
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	616	-

Approach	SE	NW	SW
HCM Control Delay, s	0.7	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)	-	-	1060	-	400
HCM Lane V/C Ratio	-	-	0.033	-	0.09
HCM Control Delay (s)	-	-	8.5	0	14.9
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.3

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		Y	
Traffic Volume (vph)	0	398	452	0	4	8
Future Volume (vph)	0	398	452	0	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.907	
Flt Protected					0.985	
Satd. Flow (prot)	0	1863	1863	0	1664	0
Flt Permitted					0.985	
Satd. Flow (perm)	0	1863	1863	0	1664	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		235	240		378	
Travel Time (s)		5.3	5.5		8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	433	491	0	4	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	433	491	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↑		Y	
Traffic Vol, veh/h	0	398	452	0	4	8
Future Vol, veh/h	0	398	452	0	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	433	491	0	4	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	924	491
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	433	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	299	578
Stage 1	0	-	-	0	615	-
Stage 2	0	-	-	0	654	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	299	578
Mov Cap-2 Maneuver	-	-	-	-	299	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	654	-

Approach	SE	NW	SW
HCM Control Delay, s	0	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NWT	SETSWLn1
Capacity (veh/h)	-	- 441
HCM Lane V/C Ratio	-	- 0.03
HCM Control Delay (s)	-	- 13.4
HCM Lane LOS	-	- B
HCM 95th %tile Q(veh)	-	- 0.1

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	11	391	456	5	0	0
Future Volume (vph)	11	391	456	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected		0.999				
Satd. Flow (prot)	0	1861	1861	0	0	0
Flt Permitted		0.999				
Satd. Flow (perm)	0	1861	1861	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		240	291		382	
Travel Time (s)		5.5	6.6		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	425	496	5	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	437	501	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.8%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	16	375	445	32	21	16
Future Volume (vph)	16	375	445	32	21	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991		0.943	
Flt Protected		0.998			0.972	
Satd. Flow (prot)	0	1859	1846	0	1707	0
Flt Permitted		0.998			0.972	
Satd. Flow (perm)	0	1859	1846	0	1707	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		291	117		311	
Travel Time (s)		6.6	2.7		7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	408	484	35	23	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	425	519	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	16	375	445	32	21	16
Future Vol, veh/h	16	375	445	32	21	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	408	484	35	23	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	944	502
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1047	-	-	-	291	569
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1047	-	-	-	285	569
Mov Cap-2 Maneuver	-	-	-	-	285	-
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	648	-

Approach	SE	NW	SW
HCM Control Delay, s	0.3	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1047	-	363
HCM Lane V/C Ratio	-	-	0.017	-	0.111
HCM Control Delay (s)	-	-	8.5	0	16.1
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

STORMWATER POLLUTION PREVENTION PLAN for CONSTRUCTION ACTIVITIES

Sawyer's Landing

Dodge & Sweet Home Road
Town of Amherst, Erie County, New York

Prepared for

Sawyer's Landing LLC

c/o Severyn Development
43 Central Ave Suite #300
Lancaster, NY 14086

Prepared by

Carmina Wood Morris, D.P.C.

487 Main Street, Suite 500
Buffalo, NY 14203

Telephone: (716) 842-3165
Fax: (716) 842-0263

February 2021



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Table of Contents

Section 101 - Scope

Section 102 - Project Name and Location

Section 103 - Operator's Name and Address

Section 104 - Project Description

Section 105 - Runoff Coefficient, Soils and Rainfall Information

Section 106 - Name of Receiving Waters

Section 107 - Indian Country Lands

Section 108 - Endangered or Threatened Species

Section 109 - Critical Habitat

Section 110 - Historic Places

Section 111 - Wetlands and/or Other Surface Waters

Section 112 - Erosion and Sediment Controls

- **Section 112.1** - Stabilization Practices
- **Section 112.2** - Structural Practices
- **Section 112.3** - Sequence of Major Activities
- **Section 112.4** - Storm Water Management

Section 113 - Other Controls

Section 114 - Compliance with Federal, State and Local Regulations

Section 115 - Inspection and Maintenance Procedures

Section 116 - Inspection and Maintenance Report Forms

Section 117 - Other Record-Keeping Requirements

Section 118 - Spill Prevention Control and Countermeasures (SPCC) Plan

- **Section 118.1** - Materials Covered
- **Section 118.2** - Material Management Practices
- **Section 118.3** - Spill Prevention and Response Procedures

Section 119 - Control of Non-Storm Water Discharges

Section 120 – Storm Water Control Facility Maintenance

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Table of Contents (con't)

Appendix A Site Location Map

Appendix B NYSDEC Notice of Intent (NOI)

Appendix C MS4 SWPPP Acceptance Form

Appendix D NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001

Appendix E Forms

- Contractor's Certification
- Owner/Operator Certification
- SWPPP Preparer Certification

Appendix F NYSDEC Notice of Termination (NOT)

Appendix G Construction Documents

Appendix H Soils Information

Appendix I NYSHPO Information

Appendix J Standard Erosion Control Details

Appendix K Wetland Permits

Appendix L NYSDEC Letter of Acknowledgement

Appendix M 5 Acre Disturbance Letter

Appendix N Engineer's Report

Appendix O NYSDEC Stormwater Management Inspection Lists

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

101 SCOPE

A. **PURPOSE:** Sawyer's Landing LLC (SL) has placed an emphasis on following the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction Activity governing storm water discharges during construction, and in accordance with erosion control practices. The Contractor's participation in this program is mandatory and its non-compliance is subject to various remedies, including without limitation, monetary set-offs, withholding payments; reimbursement for costs, expenses (including reasonable attorney's fees), fines and civil penalties incurred by SL; and/or liquidated damages. This section provides a descriptive explanation of SL's Storm Water Pollution Prevention Program and required Contractor participation.

The Engineer of record for this project certifies that this SWPPP meets the requirements and is in compliance with the New York State Stormwater Management Design Manual and latest NYSDEC Phase II stormwater regulation requirements.

B. **SPDES General Permit for Stormwater Discharges from Construction Activity:** Regulations promulgated by the NYSDEC to regulate the discharge of storm water from construction activities on sites where more than one (1) acre of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities for New York State. In order to use the General Permit, a Notice of Intent (NOI) form must be completed and electronically submitted to the NYSDEC at least 5 business days prior to any earth-disturbing activities (this time frame may increase to 60 business days if a full review of the SWPPP is determined necessary by the NYSDEC) and a Storm Water Pollution Prevention Plan (SWPPP) for the site must be prepared and followed during the construction activities. Once a copy of the SPDES permit is received from NYSDEC after filing, it will be included in Appendix L of this report.

Approval from a regulated, traditional land use control MS4:

1. An **owner or operator** of a construction activity that is <u>not</u> subject to the requirements of a regulated, traditional land use control MS4 must first develop a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the NYSDEC.

2. An **owner or operator** of a construction activity that is subject to the requirements of a regulated, traditional land use control MS4 must first

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

develop a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the MS4 prior to submitting the NOI to the NYSDEC. The **owner or operator** shall have the "MS4 SWPPP Acceptance" form signed by the principal executive officer or ranking elected official from the regulated, traditional land use control MS4, or by a duly authorized representative of that person, and then submit that form along with the NOI to the address referenced under "Notice of Intent (NOI) Submittal".

C. **RESPONSIBILITIES OF THE CONTRACTOR:** The Contractor shall manage the discharge of storm water from the site in accordance with the NYSDEC General Permit for Construction Activities conditions and the following provisions of this section. The Operator shall be responsible for conducting the storm water management practices in accordance with the permit. The Contractor shall be responsible for providing **qualified inspector**s to conduct the inspections required by the SWPPP. The Contractor shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the Contractor's failure to comply with the permit provisions. It shall be the responsibility of the Contractor to make any changes to the SWPPP necessary when the Contractor or any of his subcontractors elects to use borrow or fill or material storage sites, either contiguous to or remote from the construction site, when such sites are used solely for this construction site. Such sites are considered to be part of the construction site covered by the permit and this SWPPP. Off-site borrow, fill, or material storage sites which are used for multiple construction projects are not subject to this requirement, unless specifically required by state or local jurisdictional entity regulations. The Contractor should consider this requirement in negotiating with earthwork subcontractors, since the choice of an off-site borrow, fill, or material storage site may impact their duty to implement, make changes to, and perform inspections required by the SWPPP for the site.

D. **NOTICE OF INTENT:** The Operator has petitioned the NYSDEC for coverage under the storm water discharges during construction at this site to be covered by the SPDES General Permit for Construction Activity for the State of New York. A Notice of Intent (NOI) for coverage under this permit has been filed by the Operator. The SWPPP must be prepared prior to submittal of the NOI form. The Operator will require the Contractor to be a co-permittee with the Operator. The Contractor will be required to post the NOI at the construction site along with any building permits.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

E. **CONTRACTOR CERTIFICATION & TRAINING:** Proof of Training/Certification of the Contractor's Designated individual shall be kept on site at all times.

F. **REQUIREMENTS FOR THE GENERAL CONTRACTOR AND SUBCONTRACTOR(S):** The General Contractor and Subcontractor(s) shall sign the "Contractor's Certification Statement" (located in the Appendix of this report) verifying they have been instructed on how to comply with and fully understand the requirements of the SPDES General Permit for Construction Activity for the State of New York and the SWPPP. These certifications must be signed, by a responsible corporate officer or other party meeting the "Signatory Requirements" of the SPDES General Permit, on behalf of each entity, prior to the beginning of any construction activities.

G. **STORM WATER POLLUTION PREVENTION PROGRAM LOCATION REQUIREMENTS:** The SWPPP is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the project, shall be readily available upon request by the Operator's personnel or NYSDEC or any other agency with regulatory authority over storm water issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. A sign or other notice must be posted near the main entrance of the construction site which contains a completed NOI, the location of the SWPPP and the name and phone number of a contact person responsible for scheduling SWPPP viewing times, and any other state specific requirements.

H. **INSPECTIONS AND RECORD-KEEPING:**

A. **General Construction Site Inspection and Maintenance Requirements**

1. The **owner or operator** must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. **Owner or operator Maintenance Inspection Requirements**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

1. The **owner or operator** shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the **owner or operator** can stop conducting the maintenance inspections. The **owner or operator** shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of the General Permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the **owner or operator** can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. **Qualified inspector Inspection Requirements**

The **owner or operator** shall have a **qualified inspector** conduct site inspections in conformance with the following requirements:

Note: The **trained contractor** identified in Part III.A.6 of the General Permit **cannot** conduct the **qualified inspector** site inspections unless they meet the **qualified inspector** qualifications included in Appendix A of the General Permit. In order to perform these inspections, the trained contractor would have to be a:

- Licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- Someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity.

1. A **qualified inspector** shall conduct site inspections for all construction activities identified in Tables 1 and 2 of Appendix B of the General Permit, with the exception of:

   a. The construction of a single family residential subdivision with 25% or less impervious cover at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C of the General Permit and not directly discharging to one of the 303(d) segments listed in Appendix E of the General Permit;

   b. The construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E of the General Permit;

   c. Construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

   d. Construction activities located in the watersheds identified in Appendix D of the General Permit that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the **qualified inspector** shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the **qualified inspector** shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the **owner or operator** has received authorization in accordance with Part II.C.3 of the General Permit to **disturb greater than five (5) acres** of soil at any one time, the **qualified inspector**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been **temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas**, the **qualified inspector** shall conduct a site inspection at least once every thirty (30) calendar days. The **owner or operator** shall notify the Regional Office stormwater contact person (see contact information in Appendix F of the General Permit) or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4 (provided the MS4 is not the **owner or operator** of the construction activity) in writing prior to reducing the frequency of inspections.

d. For construction sites where **soil disturbance activities have been shut down with partial project completion**, the **qualified inspector** can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The **owner or operator** shall notify the Regional Office stormwater contact person or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4 (provided the MS4 is not the **owner or operator** of the construction activity). in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the **owner or operator** shall have the **qualified inspector** perform a final inspection and certify that all disturbed areas have achieved final stabilization, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The **owner or operator** shall then submit the completed NOT form to the address in Part II.A.1 of the General Permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

3. At a minimum, the **qualified inspector** shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

4. The **qualified inspector** shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

   a. Date and time of inspection;

   b. Name and title of person(s) performing inspection;

   c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

   d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

   e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody;

   f. Identification of all erosion and sediment control practices that need repair or maintenance;

   g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

   h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and

k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The **qualified inspector** shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The **qualified inspector** shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The **qualified inspector** shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the **qualified inspector** shall notify the **owner or operator** and appropriate contractor or subcontractor identified in Part III.A.6. of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the **qualified inspector**. Pursuant to Part II.C.2 of the General Permit, the inspection reports shall be maintained on site with the SWPPP.

Record Retention - The **owner or operator** shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves final stabilization. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

l. **SWPPP MODIFICATIONS:** The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

to be a dynamic working guide that is to be kept current and amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants or when the plan proves to be ineffective in eliminating or significantly minimizing pollutant discharges. The Contractor's failure to modify or report deficiencies to the Operator will result in the Contractor being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

J. **FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE:** A site can be considered finally stabilized when all soil disturbing activities have been completed and a uniform perennial vegetative cover with a density of **85%** for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established and the facility no longer discharges storm water associated with construction activities and a Notice of Termination (NOT) form filed by the Operator(s) with the NYSDEC. The Operator's Project Manager must complete the NOT. The NOT must be signed by the signatory (or equivalent position) on the NOI and subsequently submitted to the appropriate agency. The Operator's Project Manager must provide a completed copy of the NOT to the Contractor for inclusion in the SWPPP, which will then be optically scanned into the final SWPPP document as required. This filing terminates coverage under the General Permit and terminates the Contractor's responsibility to implement the SWPPP, but the requirements of the SWPPP, including periodic inspections, must be continued until the NOT is filed. The **owner or operator** shall also have the **qualified inspector** perform a final site inspection prior to signing and submitting the NOT to the Department. The local MS4/Stormwater Management Officer must also sign the NOT and may require a final site inspection to be completed prior to. Final payment and/or the release of retainage will be withheld until all provisions of the SWPPP have been submitted, completed and accepted by the Operator.

102 PROJECT NAME AND LOCATION

Sawyer's Landing

Dodge Road

Town of Amherst, County of Erie, New York

Easting: 190681.1

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Northing: 4770798.8

Estimated Area of Site ≈ 17.4 acres

Estimated Area to be disturbed by Construction Activities ≈ 16.4 acres

A general location map is included as Appendix A.

103 OPERATOR'S NAME AND ADDRESS

Sawyer's Landing LLC

c/o Severyn Development

43 Central Avenue

Lancaster, NY 14086

Contact Person: William Severyn

Telephone: 716–818-0207

104 PROJECT DESCRIPTION

This project is a development of a 17.4 acre site located on the north side of Dodge Road, west of Sweet Home Road in the Town of Amherst. Both Dodge Road and Sweet Home Road are Erie County roads. Proposed is the construction of a mixed use development to include (2) 4-story buildings with a total of 30,000 sf of commercial and 100 apartments, (47) duplex lots and (2) 1-story apartment buildings with a total of 12 units. A bike trail will be constructed on site, this trail will connect to the existing Town of Amherst bike trail on the south side of Dodge Road. The approximately 1 acre westerly portion will remain undisturbed and be deed restricted as permanent open space. The site is currently undeveloped consisting of woods and overgrown brush/grass. NYSDEC and Federal wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The proposed site development area to be disturbed for this project is approximately 16.4 acres.

Soil disturbing activities will include:

A. Construction of temporary construction exit points

B. Clearing & grubbing of the site within disturbance limits

C. Installation of detention basins, bioretention areas including topsoil & seed

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

D. Installation of storm sewer pipes and inlets

E. Construction of utilities

F. Construction of curb and parking lot

G. Final grading & landscaping

H. Construction of building

This project is owned by Sawyer's Landing LLC and will be developed by the same. The work area consists of approximately 16.4 acres for which erosion and sediment controls have been developed and fully addressed in this written plan and the Erosion and Sediment Control Plans. See the construction documents for additional details.

105 RUNOFF COEFFICIENT, SOILS, AND RAINFALL INFORMATION

The initial runoff curve number for the pre-construction site is "CN" = 78. The post-construction runoff curve number for the site will be "CN" = 91. The site is 17.4 acres of which approximately 16.4 acres will be disturbed by construction activities.

See soils information located in Appendix H.

The site is in Erie County, which receives an average of approximately 45 inches rainfall annually with the highest amounts of rainfall received in the months of May thru September. Annual snow for this area is approximately 120 inches.

106 WATERS

The runoff generated from this site will discharge to the storm system on Dodge Road which is tributary to Ellicott Creek.

107 INDIAN COUNTRY LANDS

This project is not located on Indian Lands.

108 ENDANGERED AND THREATENED SPECIES

No endangered or threatened species have been determined to be on the site.

109 CRITICAL HABITAT

See section 108 above.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

110 HISTORIC PLACES

The assessed property is shown on the NYSHPO map as an archeologically sensitive area. A NYSHPO "no effect" letter is included in Appendix I.

111 WETLANDS AND/OR OTHER SURFACE WATERS

Federal and NYSDEC wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The USACOE and NYSDEC wetland permits are included in Appendix K of this report.

112 EROSION AND SEDIMENT CONTROLS

112.1 STABILIZATION PRACTICES

Stabilization practices for this site include:

A. Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed.

B. Use of stabilization method for all slopes with a slope greater than 1V:3H.

C. Permanent seeding and planting of all unpaved areas using the hydromulching grass seeding technique.

D. Mulching exposed areas.

E. Vegetation preservation in undisturbed areas.

F. Frequent watering to minimize wind erosion during construction.

a. **For sites where 5 acres or more are disturbed at any one time**: In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the New York Standards and Specifications for Erosion and Sediment Control.

b. The **owner or operator** shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

c. The **owner or operator** shall install any additional measures needed to protect water quality.

112.2 STRUCTURAL PRACTICES

Structural practices for this site include:

A. Inlet protection using a method detailed in the Construction Documents.

B. Perimeter protection using temporary silt fence/silt sock or silt sock.

C. Outlet protection using rip-rap stone and end sections.

D. Stabilized Construction Entrance.

E. Temporary stone wash off areas.

F. Storm sewer, curb/gutter.

G. Sediment traps and basins.

112.3 SEQUENCE OF MAJOR ACTIVITIES

The Contractor will be responsible for implementing the following erosion control and storm water management control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor. The order of activities will be as follows:

A. Construct temporary construction exits at locations shown on the Demolition & Erosion Control Plan Sheet.

B. Install perimeter silt fence/silt socks/silt sock in the locations shown on the Demolition & Erosion Control Plan Sheet.

C. Clear & Grub site.

D. Installation of detention basin to act as sediment basin.

E. Commence site grading.

F. If less than 5 acres of the site have been disturbed and construction activity has ceased for more than 14 days, temporarily seed and water to stabilize this area. If more than 5 acres of the site have been disturbed and construction activity has ceased for more than 7 days, temporarily seed and water to stabilize this area.

G. Installation of proposed utilities.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

H. Install base material as required for pavement/buildings.

I. Finalize pavement subgrade preparation.

J. Construction of buildings.

K. Construct all curb, drainage inlets, storm sewer pipes and storm sewer manholes, as shown on the plans. Install temporary inlet protection at the locations of all inlets.

L. Dust control.

L. Remove inlet protection around inlets and manholes no more than 48 hours prior to placing stabilized base course.

N. Carry out final grading and seeding and planting.

O. Install bioretention areas (do not install bioretention soil or underdrains until surrounding area is stabilized).

P. Clean storm system following construction, clean detention basin of any silt and return to design grades.

Q. Remove silt fencing/silt sock only after all paving is complete and exposed surfaces are stabilized.

R. Remove temporary construction exits only prior to pavement construction in these areas.

Note: Sediment control storage during construction (traps & basins) during construction shall be 134 cy per acre of disturbance per NYSDEC requirements.

112.4 STORM WATER MANAGEMENT

The existing site is generally flat and slopes west with portions sloping east. The portion that slopes west settles in a low area and once the capacity of that area is exceeded, sheet flow continues towards Sweet Home Road and is collected by an existing 12" pipe on the north side of Dodge Road. This pipe flows to the Erie County system on Sweet Home Road. The portion that flows east flows to the offsite wetlands.

Currently Dodge Road does not have a drainage system. A series of catch basins and pipes will be installed in the green area on the north side of Dodge Road to collect the road drainage. The west portion of this system will connect to the existing closed drainage system on Sweet Home Road. The east portion will discharge to the Ellicott Creek diversion channel using and existing discharge point. This new system will also convey the proposed discharge from the site as described below.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

The proposed onsite storm sewer system consists of smooth interior and perforated HDPE pipes connected by a series of catch basins, manholes and yard drains. The site is split into a storm water management area on the east and west sides.

West Side

The west side of the site has (2) bioretention areas which portions of the westerly area will discharge to. These bioretention areas along with the remainder of the west portion of the site will discharge to the underground detention area. Note that the yard drains installed along the north property line discharge to the underground detention area. An outlet structure in the SW portion of this area will control runoff to at or below existing runoff flow rates. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Sweet Home Road system.

Underground Detention Summary

(286) ADS Stormtech SC-740 chambers
Top of stone elev. = 573.00
Top of chamber elev. = 572.50
Bottom of chamber elev. = 570.00
Bottom of stone elev. = 569.50
Total storage = 18,574 CF

Event	Ex. Discharge	Pro. Discharge	Elev.
1 yr	0.87 cfs	0.33 cfs	570.29
2 yr	1.34 cfs	0.68 cfs	570.46
5 yr	2.14 cfs	1.05 cfs	570.79
10 yr	2.94 cfs	1.28 cfs	571.13
25 yr	4.34 cfs	1.61 cfs	571.73
50 yr	5.69 cfs	3.61 cfs	572.23
100 yr	7.33 cfs	4.83 cfs	572.92

East Side

The east side of the site has a bioretention area and wet detention pond which this portion of the site discharges to. The NE portion of the site discharges to a forebay which spills into the main micropool portion of the wet detention basin. The SE portion of the site discharges to the bioretention area which also spills into the main micropool portion of the site. An outlet control structure is located in

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

the SE portion of the micropool and controls the discharge from this storm water management area. Spillways are also located on the east portion of the micropool which will discharge to the existing wetlands to the east in order to not cut off all flow from this site into this area. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Ellicott Creek diversion channel.

The bioretention areas and wet detention pond for the project area are sized to provide 100% of the required Runoff Reduction Volume (RRv) and Water Quality Volume (WQv) treatment for the overall site in accordance with Chapter 4 of the NYSDEC Stormwater design manual. The soils in the vicinity of the bioretention areas are mainly USDA hydrologic group 'D' and therefore the system will be installed with underdrains per NYSDEC requirements. The bioretention areas will consist of 6" and 8" perforated HDPE underdrains in 12" of drainage gravel, followed by filter fabric and 18" minimum of planting soil. Overflow yard drains will be installed to allow 6" maximum temporary ponding for RRv treatment. The east bioretention area (area #3) spills into the wet detention pond and the underdrain pipe ties together with the pond discharge and flows to Dodge Road. The east bioretention areas (areas #1 & #2) have a catch basin to act as the spillway and this catch basin and the underdrain pipes discharge to the underground detention area.

Storm Water Management Area Summary

Forebay
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 569.00

Micropool
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 563.00

Overall Storm Water Summary

WQv Provided = 152,678 cf (pond)
WQv Provided = 6,948 cf (bioretention)
WQv Provided = 159,626 cf (total)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Bioretention Area Summary:

Area	Rim Elev.	Bottom Elev.	Area
1	574.50	574.00	2,300 sf
2	574.50	574.00	2,600 sf
3	575.50	575.00	11,000 sf
		Total Provided =	15,900 sf

Water Quality Summary:
WQv req'd = 28,804 cf (0.661 ac-ft)
RRv min. req'd = 5,518 cf (0.127 ac-ft)
RRv provided = 8,662 cf (0.199 ac-ft)
WQv provided = 159,626 cf (3.665 ac-ft)
Total RRv + WQv provided = 8,662 cf + 159,626 cf = 168,287 cf (3.868 ac-ft)

Detention: Comparison of the existing 1-year vs. the proposed 1-year runoff
Comparison of the existing 10-year vs. the proposed 10-year runoff
Comparison of the existing 100-year vs. the proposed 100-year runoff

Storm pipes: 10-year storm

Refer to the engineer's report in Appendix N for additional details.

113 OTHER CONTROLS

113.1 OFF-SITE VEHICLE TRACKING

A stabilized construction exit will be provided to help reduce vehicle tracking of sediments. Existing paved areas will remain as long as possible and will be used for vehicle wash areas and to further aid in the reduction of vehicle tracking of sediments. The paved streets adjacent to the site entrance shall be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material to/from the construction site will be covered with a tarpaulin. The job site superintendent will be responsible for seeing that these procedures are followed.

113.2 EXCAVATION SPOIL MATERIALS

Excavation spoil materials are generated during the excavation of the development's building and utilities installation. These materials must be properly managed to prevent them from contributing to storm water discharges. The materials generated from the development of this project will be hauled off-site or stockpiled for re-use in designated areas which will have temporary erosion &

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

sediment control measures installed. Any removal from site will be done under the necessary permits required by the local governing agencies.

113.3 DUST CONTROL

Minimizing wind erosion and controlling dust will be accomplished by one or more of the following methods:

A. Frequent watering of excavation and fill areas.

B. Providing gravel or paving at entrance/exit drives, parking areas and transit paths.

113.4 WASTE DISPOSAL

If needed, all waste materials will be collected and stored in securely lidded metal dumpsters rented from an approved waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpsters. The dumpsters will be emptied when full and then hauled to a NYSDEC approved landfill for proper disposal. No construction waste will be buried on-site. All personnel will be instructed regarding the correct procedures for waste disposal.

113.5 SANITARY WASTE

If needed, portable toilet units or field offices with toilet facilities connected to the municipal sanitary sewer will be used for sanitary purposes. All portable toilet units will be emptied a minimum of once per week by a licensed portable facility provided in compliance with local and state regulations.

113.6 CONCRETE WASTE FROM CONCRETE TRUCKS

A. Emptying of excess unhardened concrete and/or washout from concrete delivery trucks will be allowed on the job site, but in either (1) specifically designated diked areas which have been prepared to prevent contact between concrete and/or washout and storm water which will be discharged from the site or (2) in locations where waste concrete will be poured into forms to make rip-rap or other useful concrete products.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

B. Hardened waste concrete from the designated diked areas described above will be disposed of in accordance with applicable local and state regulations with regards to disposal of construction debris.

113.7 HAZARDOUS SUBSTANCES & HAZARDOUS WASTE

A. All hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job superintendent, who will also be responsible for seeing these practices are followed. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such products are stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

B. The contractor will implement the Spill Prevention Control and Countermeasures (SPCC) Plan found within this SWPPP and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials of hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge shall be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job superintendent to properly train all personnel in the use of the SPCC plan.

C. Any spills of hazardous materials which are in excess of the Reportable Quantities as defined by the EPA regulations shall be immediately reported to the EPA National Response Center at 1-100-424-1102. From SWPPP-9 "Reportable Quantity Release Form" must be filled out.

D. In order to minimize the potential for a spill of hazardous materials to come in contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals,

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on the job site.

3. A spill control and containment kit (containing for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

4. All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

5. All products will be stored in and used from the original container with the original product label.

6. All products will be used in strict compliance with instructions on the product label.

7. The disposal of excess or used products will be in strict compliance with instructions on the product label.

113.8 CONTAMINATED SOILS

A. Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

B. The job site superintendent will be responsible for seeing that these procedures are followed.

114 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The Contractor will obtain copies of any and all local and state regulations which are applicable to storm water management, erosion control, and

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

pollution minimization at this job site and will comply fully with such regulations. The Contractor will submit written evidence of such compliance if requested by the Operator or any agent of a regulatory body. The Contractor will comply with all conditions of the SPDES General Permit for Construction Activity for the State of New York, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the job site and allowing regulatory personnel access to the job site and to records in order to determine compliance.

The SWPPP for this site development project requires regulated MS4 approval from the Town of Amherst. All changes to the SWPPP must be approved by the Town of Amherst prior to applying changes to the SWPPP in the field.

115 INSPECTION AND MAINTENANCE PROCEDURES

The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

1. All control measures will be inspected by the owner/operator at least weekly and shall continue until the site complies with the Final Stabilization section of this document (See Section 116).

2. All control measures will be inspected by a Qualified Professional at least weekly and shall continue until the site complies with the Final Stabilization section of this document (See Section 116).

3. All measures will be maintained in good working order; if repairs or other measures are found to be necessary, they will be initiated within 24 hours of report.

4. Built up sediment will be removed from silt fence/silt sock when it has reached one-third the height of the fence.

5. Silt fence/silt socks will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.

6. Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.

7. A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

8. The job site superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.

9. Personnel selected for the inspection and maintenance responsibilities will receive training from the job site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept on site with the SWPPP.

10. Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

11. Report to the NYSDEC within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event. The following events require 24 hour reporting: a) any unanticipated bypass which exceeds any effluent limitation in the permit, b) any upset which exceeds any effluent limitation in the permit, and c) a violation of a maximum daily discharge limitation for any of the pollutants listed by the NYSDEC in the permit to be reported within 24 hours. The written submission must contain a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times, and if the non-compliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance.

12. Releases of hazardous substances or oil in excess of reportable quantities (as established under 40 CFR 110, 40 CFR 117 or 40 CFR 302) must be reported.

Upon completion of construction, the property owner is responsible for ensuring that the stormwater facilities are regularly inspected and maintained. Maintenance and inspection procedures are as follows.

1. On a quarterly basis and following significant rainfall events or snow-melts, perform the following:

    - Inspect catch basins, storm manholes, yard drains, storm piping and stormwater pond for debris and accumulation of sediment.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

- Remove and properly dispose of any collected debris and sediment in accordance with applicable state, federal and local regulations.
- Flush piping with water if necessary to remove accumulated sediment.
- Bioretention areas shall be maintained per the NYSDEC Maintenance and Management Checklist included in this SWPPP.
- Check all stone outfall structures for erosion and re-stone if necessary to prevent further erosion.
- Inspect grassed/landscaped areas for un-vegetated areas or areas with less than 85% healthy stand of grass and reseed and mulch as necessary. Water daily if reseeded in July and August.
- A record of all inspections should be kept.

2. Maintain all lawn areas by regular mowing, including the grassed slopes of the stormwater pond and any grass swales. Any eroded areas shall be regarded, seeded and mulched immediately.

116 INSPECTION AND MAINTENANCE REPORT FORMS

Once installation of any required or optional erosion control device or measure has been implemented, inspections shall be performed by a Qualified Professional at least once every seven (7) calendar days. For construction sites where soil disturbance activities are on-going and the **owner or operator** has received authorization in accordance with Part II.C.3 of the General Permit to disturb greater than five (5) acres of soil at any one time, the **qualified inspector** shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days. The owner and contractor shall obtain from the MS4 an approval for disturbing more than five-acres at any given time. For construction sites where active construction has been suspended, inspection frequency under the general permit can be reduced to once every 30 days, provided temporary stabilization measures have been applied to all disturbed areas. The forms found in this SWPPP shall be used by the inspectors to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the Operator's Engineer, and the Operator for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the permittee for five years following the final stabilization of the site.

117 OTHER RECORD-KEEPING REQUIREMENTS

The Contractor shall keep the following records related to construction activities at the site:

- Dates when major grading activities occur and the areas which were graded
- Dates and details concerning the installation of structural controls
- Dates when construction activities cease in an area
- Dates when an areas is stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of hazardous materials
- Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

118 SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

118.1 MATERIALS COVERED

The following materials or substances are expected to be present onsite during construction:

- Concrete/Additives/Wastes
- Cleaning solvents
- Sanitary wastes
- Detergents
- Petroleum based products
- Paints/Solvents
- Pesticides
- Solid and construction wastes
- Acids

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

- Fertilizers
- Soil stabilization additives

118.2 MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The job site superintendent will be responsible for ensuring that these procedures are followed.

A. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

1. An effort will be made to store only enough products required to do the job.

2. All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.

3. Products will be kept in their original containers with the original manufacturer's label in legible condition.

4. Substances will not be mixed with one another unless recommended by the manufacturer.

5. Whenever possible, all of a product will be used up before disposing of the container.

6. Manufacturer's recommendations for proper use and disposal will be followed.

7. The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

1. Products will be kept in original containers with the original labels in legible condition.

2. Original labels and material safety data sheets (MSDS's) will be procured and used for each material.

3. If surplus product must be disposed of, manufacturer's or local/state/federal recommended methods for proper disposal will be followed.

4. A spill control and containment kit (containing for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

5. All of the product in a container will be used before the container is disposed of. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with storm water discharges.

C. Hazardous Waste

All hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed.

D. Product Specific Practices

The following product specific practices will be followed on the job site.

1. Petroleum Products

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on a plan by the contractor once the locations have been determined.

2. Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

3. Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Concrete Wastes

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or wash out and storm water which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

The hardened residue from the concrete wash out diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

as deemed appropriate by the Contractor. The job site superintendent will be responsible for seeing that these procedures are followed.

All concrete wash out areas will be located in an area where the likelihood of the area contributing to storm water discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to storm water discharges. The location of concrete wash out area(s) must be identified on a plan by the contractor once the locations have been determined. In addition, a standard detail on the construction of the concrete wash out shall be included on this plan.

E. Solid and Construction Wastes

All waste materials will be collected and stored in an appropriately covered container and/or securely lidded metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in New York and the Town of Amherst. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of twice per week or more often if necessary, and the trash will be hauled to a landfill approved by the NYSDEC. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges. The location of waste dumpsters and roll-off containers must be identified on a plan by the contractor once the locations have been determined.

F. Sanitary Wastes

Portable toilet units or field offices with toilet facilities connected to the municipal sanitary sewer will be used for sanitary purposes. All portable

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

toilet units will be emptied a minimum of once per week by a licensed portable facility provided in compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges. The location of sanitary waste units must be identified on a plan by the contractor once the locations have been determined.

G. Contaminated Soils

Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations.

118.3 SPILL PREVENTION AND RESPONSE PROCEDURES

The Contractor will train all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job site superintendent to properly train all personnel in spill prevention and clean up procedures.

A. In order to minimize the potential for a spill of hazardous materials to come into contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on the job site.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

B. In the event of a spill, the following procedures should be followed

1. All spills will be cleaned up immediately after discovery.

2. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.

3. The project manager and the Engineer of Record will be notified immediately.

   Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. Spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 110, 40 CFR 117, and 40 CFR 302) must be immediately reported to the EPA National Response Center, telephone 1-100-424-1102. From SWPPP-9 "Reportable Quantity Release Form" must be filled out.

4. If the spill exceeds a Reportable Quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The plans must identify measures to prevent the recurrence of such releases and to respond to such releases.

C. The job site superintendent will be the spill prevention and response coordinator. He will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

of these personnel will be posted in the material storage area and in the office trailer onsite.

119 CONTROL OF NON-STORM WATER DISCHARGES

Certain types of discharges are allowable under the NYSDEC SPDES General Permit for Construction Activity for the State of New York, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this SWPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. The following allowable non-storm water discharges which may occur at the job site include:

A. Discharges from firefighting activities.

B. Fire hydrant flushings (see note below)

C. Waters used to wash vehicles or control dust in order to minimize offsite sediment tracking.

D. Routine external building washdown which does not use detergents.

E. Pavement wash waters where spills or leaks of hazardous materials have not occurred or detergents have not been used.

F. Air conditioning condensate.

G. Springs or other uncontaminated groundwater, including dewatering ground water infiltration.

H. Foundation or footing drains where no contamination with process materials such as solvents is present.

Note: The Contractor shall discharge any super-chlorinated water from water distribution pipe disinfection activities into sanitary sewer system.

120 STORM WATER CONTROL FACILITY MAINTENANCE

Upon completion of construction, SL shall be responsible for maintenance of the storm sewer system and all ponds, bioretention areas, etc. per a Stormwater Maintenance Agreement to the Town of Amherst that shall be filed with the County of Erie.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

The frequency of inspections for the bioretention areas shall match the frequencies listed on the "Bioretention Operation, Maintenance and Management Inspection Checklist" in Appendix O of the SWPPP.

The proposed catch basins, as per section 115, shall be inspected 4 times per year for removal of floatable debris. Any silt buildup over 6" in depth shall be removed and disposed of properly off-site.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix A

Site Location Map

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stormwater Interactive Map



The coordinates of the point you clicked on are:

UTM 18	**Easting:**	190681.063	**Northing:**	4770798.806
Longitude/Latitude	**Longitude:**	-78.796	**Latitude:**	43.027

The approximate address of the point you clicked on is:
26-42 Dodge Rd, Getzville, New York, 14068

County: Erie
Town: Amherst
USGS Quad: TONAWANDA EAST

DEC Administrative Boundaries

Region 9:
(Western New York) Allegany, Chautauqua, Cattaraugus, Erie, Niagara and Wyoming counties. For more information visit http://www.dec.ny.gov/about/617.html.

Regulated MS4s

UA 2000: 11350
Standard: Buffalo
Municipality: AMHERST
SWIS: 142200
Regulated: Automatic

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix B

NYSDEC Notice of Intent (NOI)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Sawyer's Landing LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Severyn

Owner/Operator Contact Person First Name
Will

Owner/Operator Mailing Address
43 Central Ave

City
Lancaster

State
NY

Zip
14086 -

Phone (Owner/Operator)
716 - 912 - 0969

Fax (Owner/Operator)
___ - ___ - ____

Email (Owner/Operator)
william.severyn.ny@gmail.com

FED TAX ID
__ - _____ (not required for individuals)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

6401089828

Project Site Information

Project/Site Name
Sawyer's Landing

Street Address (NOT P.O. BOX)
Dodge Road

Side of Street
● North ○ South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Amherst

State: NY
Zip: 14228 -
County: Erie
DEC Region: 9

Name of Nearest Cross Street
Sweet Home Road

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
○ North ○ South ● East ○ West

Tax Map Numbers
Section-Block-Parcel
40.08-3-13.1

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
-7 8796
Ex. -73.749

Y Coordinates (Northing)
43027
Ex. 42.652

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

4107089829

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
● FOREST	○ SINGLE FAMILY HOME
○ PASTURE/OPEN LAND	○ SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	● OTHER

Number of Lots

Mixed use

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
17.4	16.4	0.0	8.0

5. Do you plan to disturb more than 5 acres of soil at any one time? ● **Yes** ○ **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	100 %

7. Is this a phased project? ○ **Yes** ● **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date 7/1/2021 - **End Date** 7/1/2022

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

8600089821

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Ellicott Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ● Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ Yes ● No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ Yes ● No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ Yes ● No
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ Yes ● No
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ Yes ● No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

6403089820

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Erie County

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

0251089825

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Carmina Wood Morris DPC

Contact Name (Last, Space, First)
Wood Christopher

Mailing Address
487 Main St

City
Buffalo

State Zip
NY 14127-

Phone
716-842-3165

Fax
716-842-0263

Email
cwood@cwm-ae.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name
Christopher

MI

Last Name
Wood

Signature

Date
03/03/2021

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

0005089822

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ● Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

0182089828

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ● **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

0.661 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

7738089822

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
RR Techniques (Area Reduction)			
● Conservation of Natural Areas (RR-1)	1.0	and/or	0.0
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
○ Tree Planting/Tree Pit (RR-3)		and/or	
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			
● Bioretention (F-5)	4.3		
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
○ Wet Pond (P-2)			
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
● Pocket Pond (P-5)	3.4		
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

0762089822

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.199 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ● **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.127 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

1766089827

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

3.664 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). 3.863

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

0.42 **acre-feet**

CPv Provided

0.42 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

4.34 **CFS**

Post-development

3.63 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

7.33 **CFS**

Post-development

4.38 **CFS**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

1310089822

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Sawyer's Landing LLC

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

4285089826

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ● Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP NYR
- ○ Other
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ● Yes ○ No
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● Yes ○ No
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● Yes ○ No

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

3547089826

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name: Will

MI:

Print Last Name: Severyn

Owner/Operator Signature: William T Severyn

Date: 03/03/2021

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix C

MS4 SWPPP Acceptance Form

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Sawyer's Landing LLC
2. Contact Person:	Will Severyn
3. Street Address:	43 Central Ave
4. City/State/Zip:	Lancaster, NY 14086
II. Project Site Information	
5. Project/Site Name:	Sawyer's Landing
6. Street Address:	Dodge Road
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix D

NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS 1
A. Permit Application 1
B. Effluent Limitations Applicable to Discharges from Construction Activities 1
C. Post-construction Stormwater Management Practice Requirements 4
D. Maintaining Water Quality 8
E. Eligibility Under This General Permit 9
F. Activities Which Are Ineligible for Coverage Under This General Permit 9
Part II. PERMIT COVERAGE 12
A. How to Obtain Coverage 12
B. Notice of Intent (NOI) Submittal 13
C. Permit Authorization 13
D. General Requirements For Owners or Operators With Permit Coverage 15
E. Permit Coverage for Discharges Authorized Under GP-0-15-002 17
F. Change of Owner or Operator 17
Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) 18
A. General SWPPP Requirements 18
B. Required SWPPP Contents 20
C. Required SWPPP Components by Project Type 24
Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS 24
A. General Construction Site Inspection and Maintenance Requirements 24
B. Contractor Maintenance Inspection Requirements 24
C. Qualified Inspector Inspection Requirements 25
Part V. TERMINATION OF PERMIT COVERAGE 29
A. Termination of Permit Coverage 29
Part VI. REPORTING AND RETENTION RECORDS 31
A. Record Retention 31
B. Addresses 31
Part VII. STANDARD PERMIT CONDITIONS 31
A. Duty to Comply 31
B. Continuation of the Expired General Permit 32
C. Enforcement 32
D. Need to Halt or Reduce Activity Not a Defense 32
E. Duty to Mitigate 33
F. Duty to Provide Information 33
G. Other Information 33
H. Signatory Requirements 33
I. Property Rights 35
J. Severability 35

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

K. Requirement to Obtain Coverage Under an Alternative Permit 35
L. Proper Operation and Maintenance 36
M. Inspection and Entry 36
N. Permit Actions 37
O. Definitions 37
P. Re-Opener Clause 37
Q. Penalties for Falsification of Forms and Reports 37
R. Other Permits 38
APPENDIX A – Acronyms and Definitions 39
Acronyms 39
Definitions 40
APPENDIX B – Required SWPPP Components by Project Type 48
Table 1 48
Table 2 50
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal 52
APPENDIX D – Watersheds with Lower Disturbance Threshold 58
APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s) 59
APPENDIX F – List of NYS DEC Regional Offices 65

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* ("SWPPP") the reason(s) for the

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards.* At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharges* are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharges* directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges* from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

   a. Background information about the scope of the project, including the location, type and size of project

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

(Part IV.C.4.a)

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities*" and "*Larger Common Plan of Development or Sale*" *also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

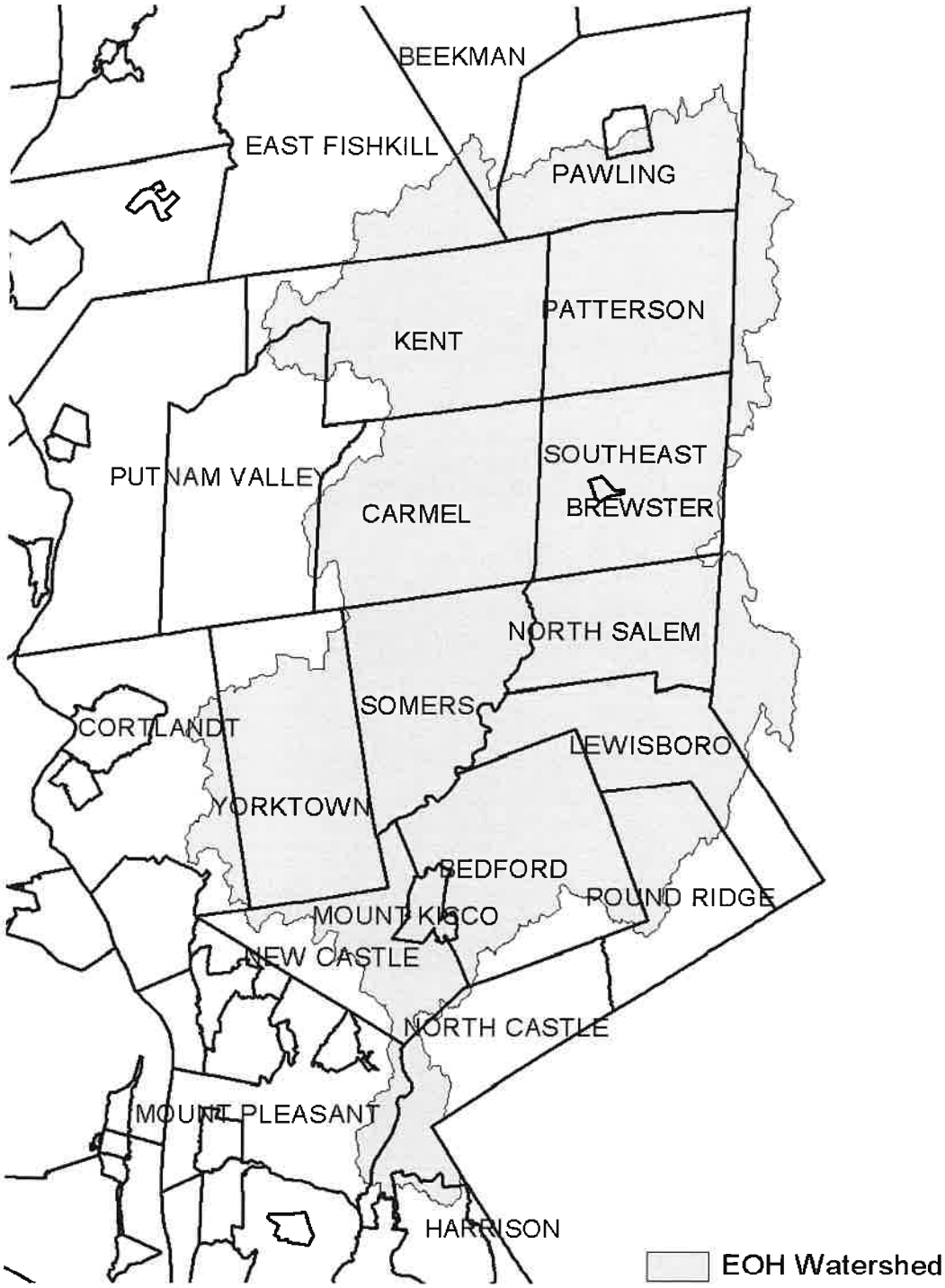
Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix C

Figure 1 - New York City Watershed East of the Hudson



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Figure 2 - Onondaga Lake Watershed



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

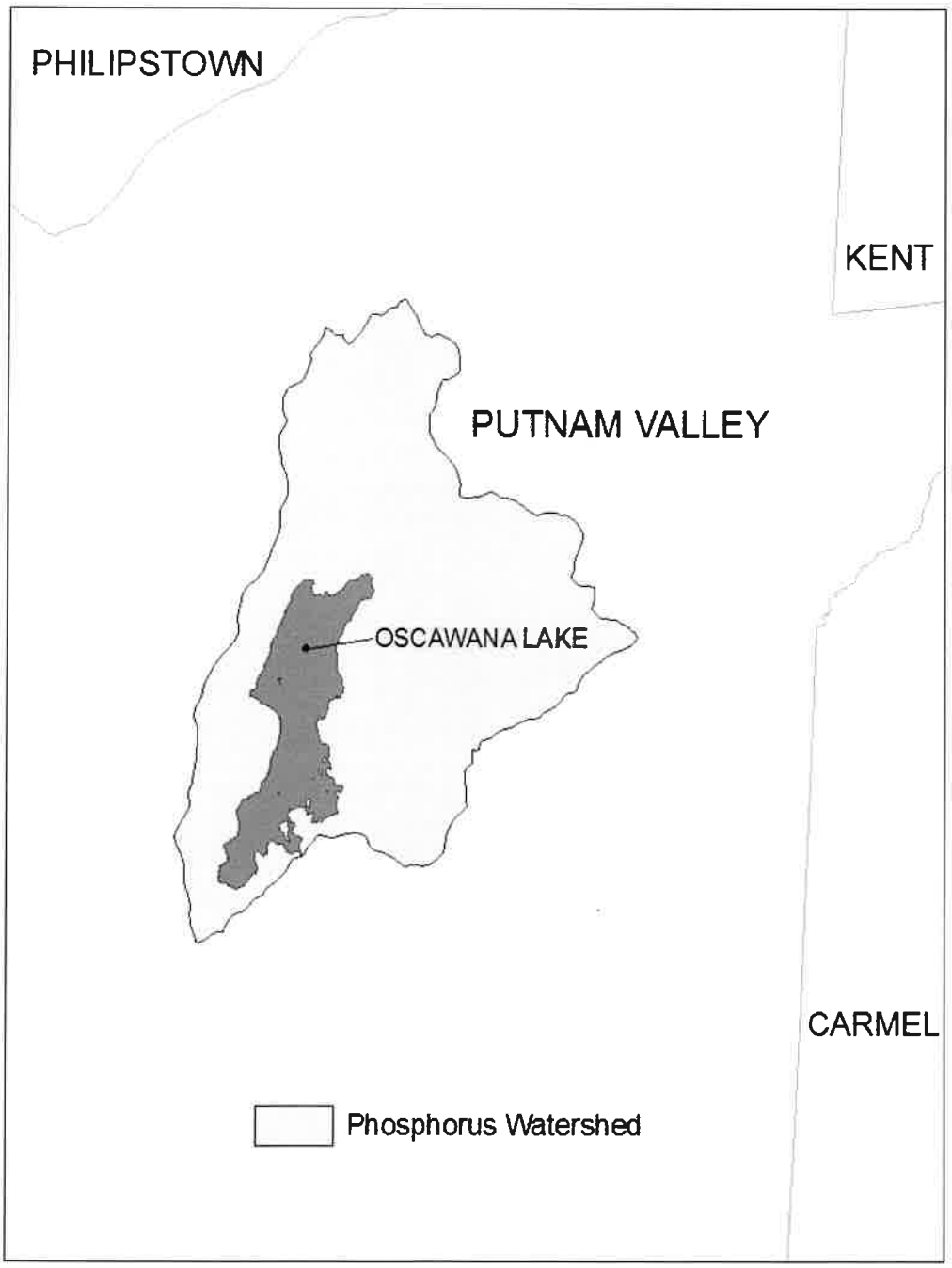
Appendix C

Figure 3 - Greenwood Lake Watershed



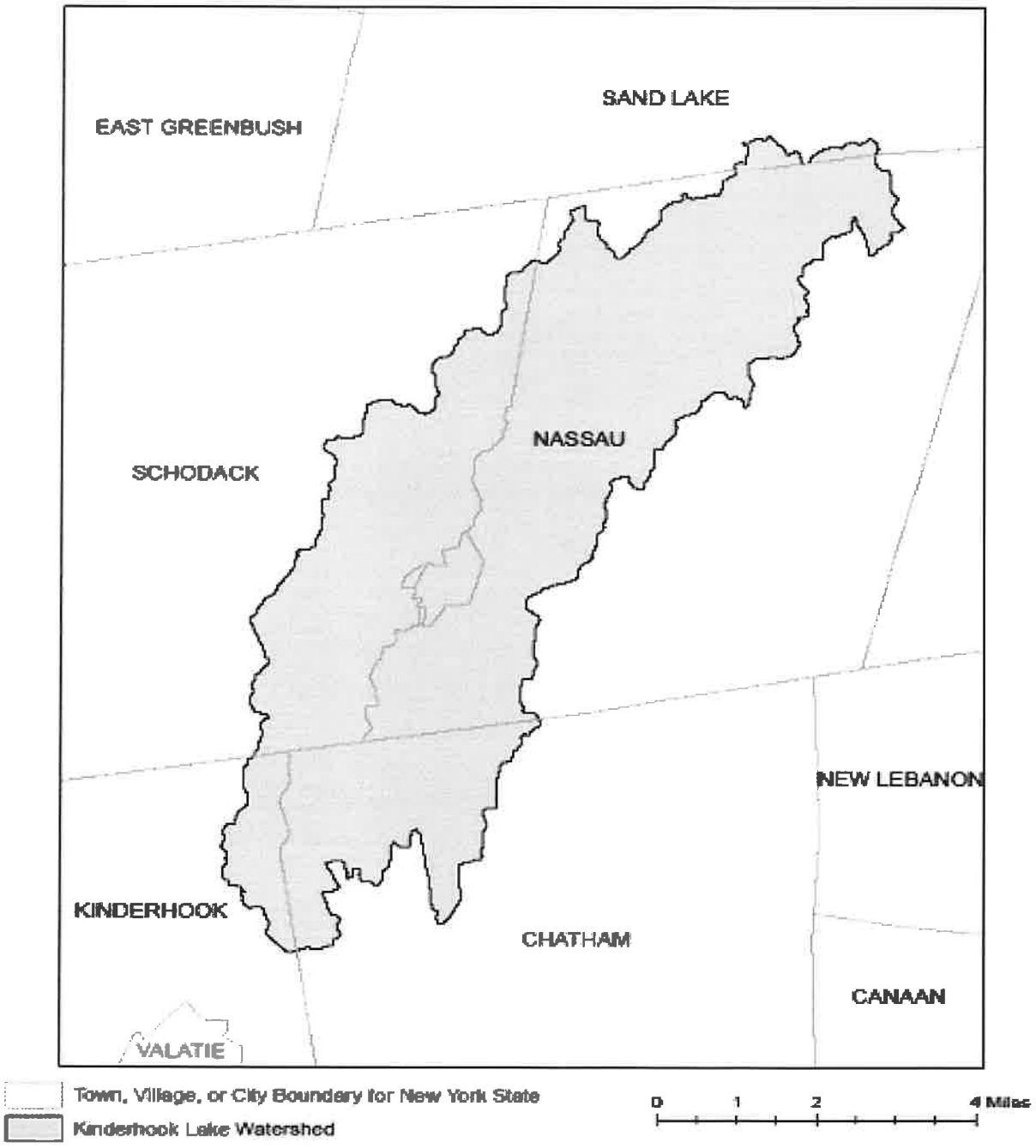
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Figure 4 - Oscawana Lake Watershed



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Figure 5 - Kinderhook Lake Watershed



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	Division of Environmental Permits (DEP) Permit Administrators	Division of Water (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix E

Forms

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

STORM WATER POLLUTION PREVENTION PLAN
CONTRACTOR'S CERTIFICATION STATEMENT

Sawyer's Landing

CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge storm water. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Note: The contractor shall have at least one NYSDEC trained individual onsite at all times when earthwork and other SWPPP associated work is being performed from each contractor(s) and subcontractor(s). Each contractor(s) and subcontractor(s) shall provide copies of these individuals' certifications to the Town of Amherst.

Name: _____
(Print)

Signature: _____

Title: _____

Company Name: _____

Address: _____

Telephone Number: _____

Date: _____

Scope of Services: _____

Trained Individual(s) Responsible for Implementation: _____

This form must be signed by a responsible corporate officer or other party meeting the "Signatory Requirements" of the NYSDEC SPDES General Permit

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

Sawyer's Landing

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

Sawyer's Landing LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Christopher		Wood
First name	MI	Last Name

Signature

3/3/21
Date

Revised: January 2020

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: Sawyer's Landing

eNOI Submission Number: _____

eNOI Submitted by: ☐ Owner/Operator ☑ SWPPP Preparer ☐ Other

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

William T Severyn

Signature

3/3/21

Date

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix F

NYSDEC Notice of Termination (NOT)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued	
VII. Qualified Inspector Certification - Final Stabilization:	
I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix G

Construction Documents

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-631-7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-631-7051

LAND SURVEYOR
NAME/TITLE:
COMPANY/DEPT: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
ADDRESS: 4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
TELEPHONE 716-633-4844

UTILITIES

NATURAL GAS
COMPANY/DEPT: NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
TELEPHONE 716-857-7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203
TELEPHONE 716-840-8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK
TELEPHONE 716-558-8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214
TELEPHONE 716-236-2738

WATER
COMPANY/DEPT: ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
TELEPHONE 716-684-1510

DIG SAFELY NEW YORK
TELEPHONE 1-800-962-7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086

TELEPHONE 716 818-0207

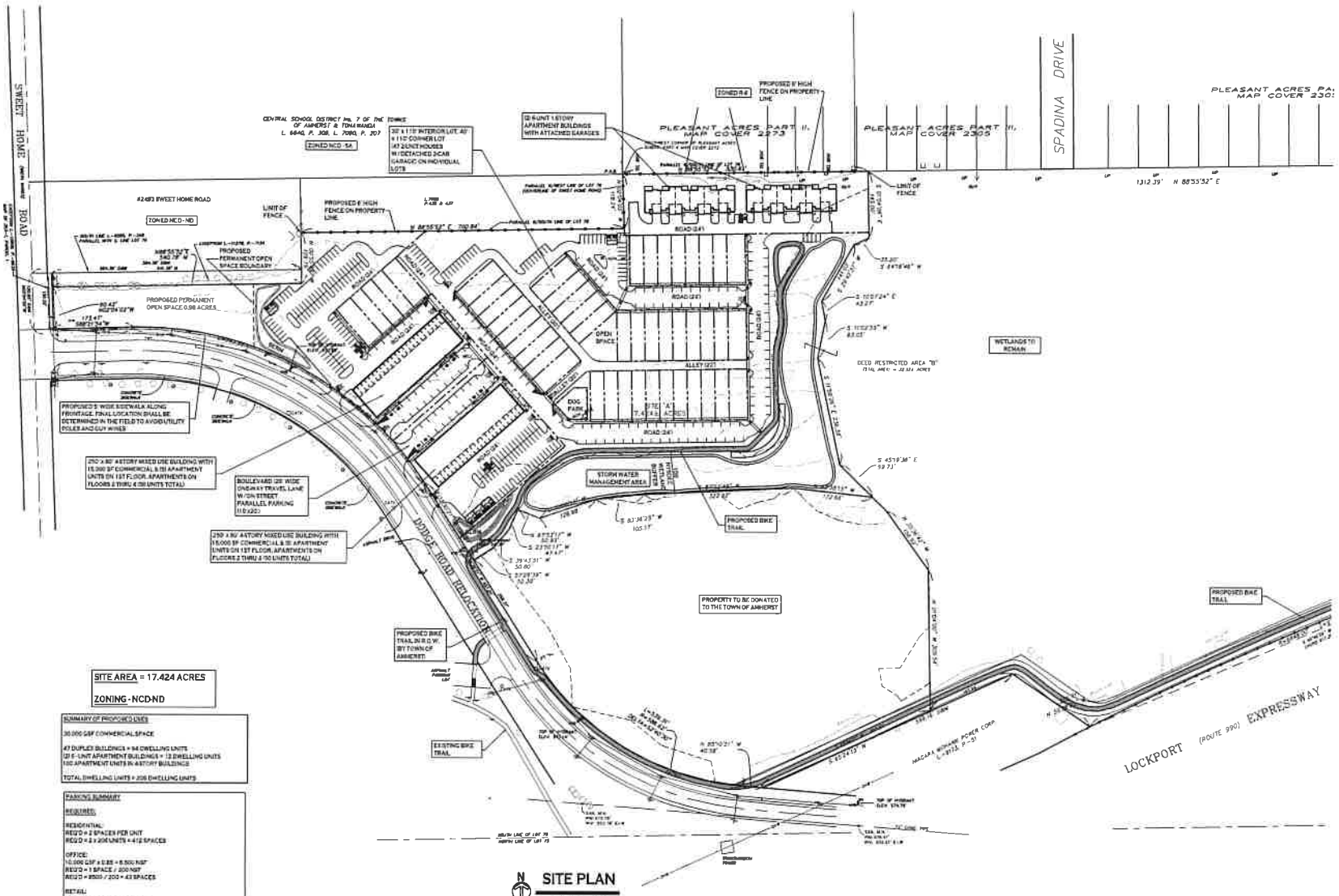
ENGINEER

Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

FEBRUARY 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C-001	DEMOLITION & EROSION CONTROL PLAN
C-002	DEMOLITION & EROSION CONTROL DETAILS
C-100	OVERALL SITE PLAN
C-101	SITE PLAN
C-102	PARCEL MAP
C-103	SITE DETAILS
C-104	SITE DETAILS
C-200	GRADING PLAN
C-300	STORM DRAINAGE PLAN
C-301	STORM DRAINAGE DETAILS
C-302	STORM DRAINAGE DETAILS
C-303	STORM DRAINAGE DETAILS
C-400	UTILITY PLAN
C-401	SANITARY SEWER DETAILS
C-402	SANITARY SEWER DETAILS
C-403	SANITARY SEWER GENERAL NOTES
C-404	SANITARY SEWER TESTING NOTES
C-405	WATER DETAILS
C-406	WATER DETAILS
C-407	WATER DETAILS & NOTES
C-408	INSULATED ENCLOSURE DETAIL
L-100	LANDSCAPE PLAN

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



SITE PLAN
SCALE: 1"=100'

© Carmina Wood Morris DPC

Carmina Wood Morris
487 Main Street Suite 300
Buffalo, New York 14203
P 716.842.2185
F 716.842.0761

REVISIONS:
No. Description Date
Nil.

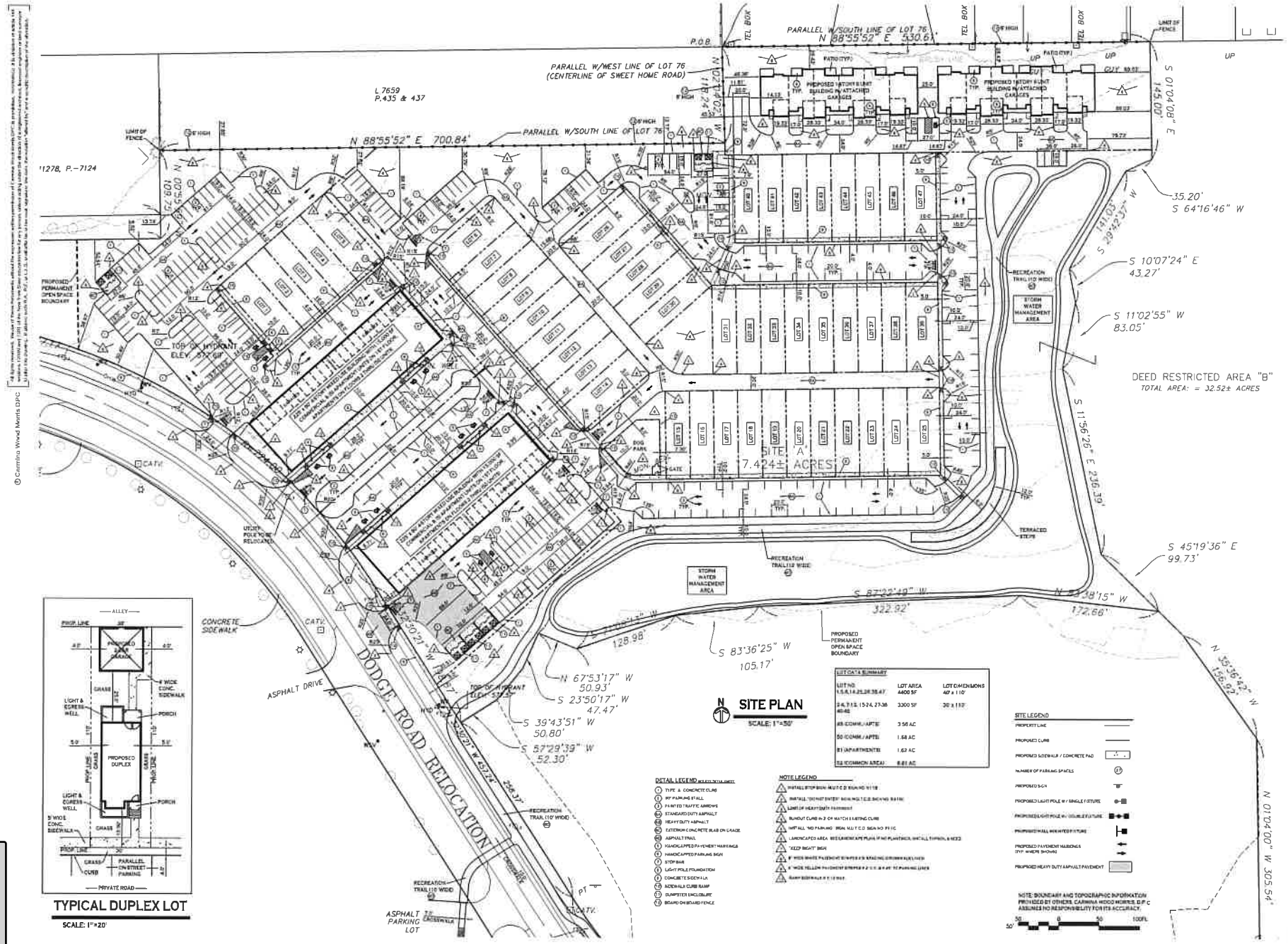
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Overall Site Plan

DRAWING NO.
C-100
Project no.: 21.011

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Carmina Wood Morris

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Plan

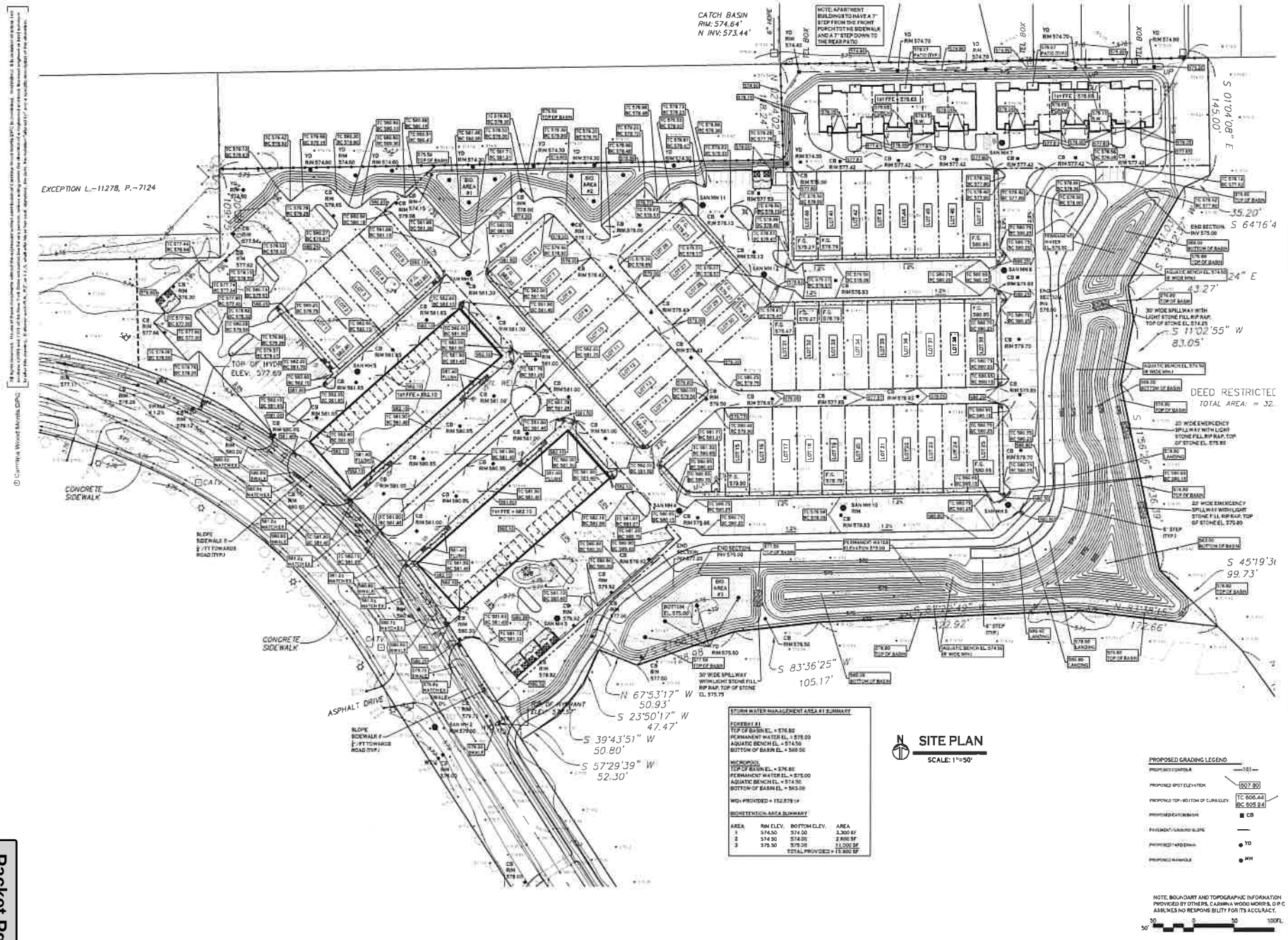
DRAWING NO.
C-101

Project no.: 21.01

REVISIONS:

© Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Carmina Wood Morris

487 Main Street - Suite 500
Buffalo, New York 14203
P 716.842.3185
F 716.842.0961

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As noted

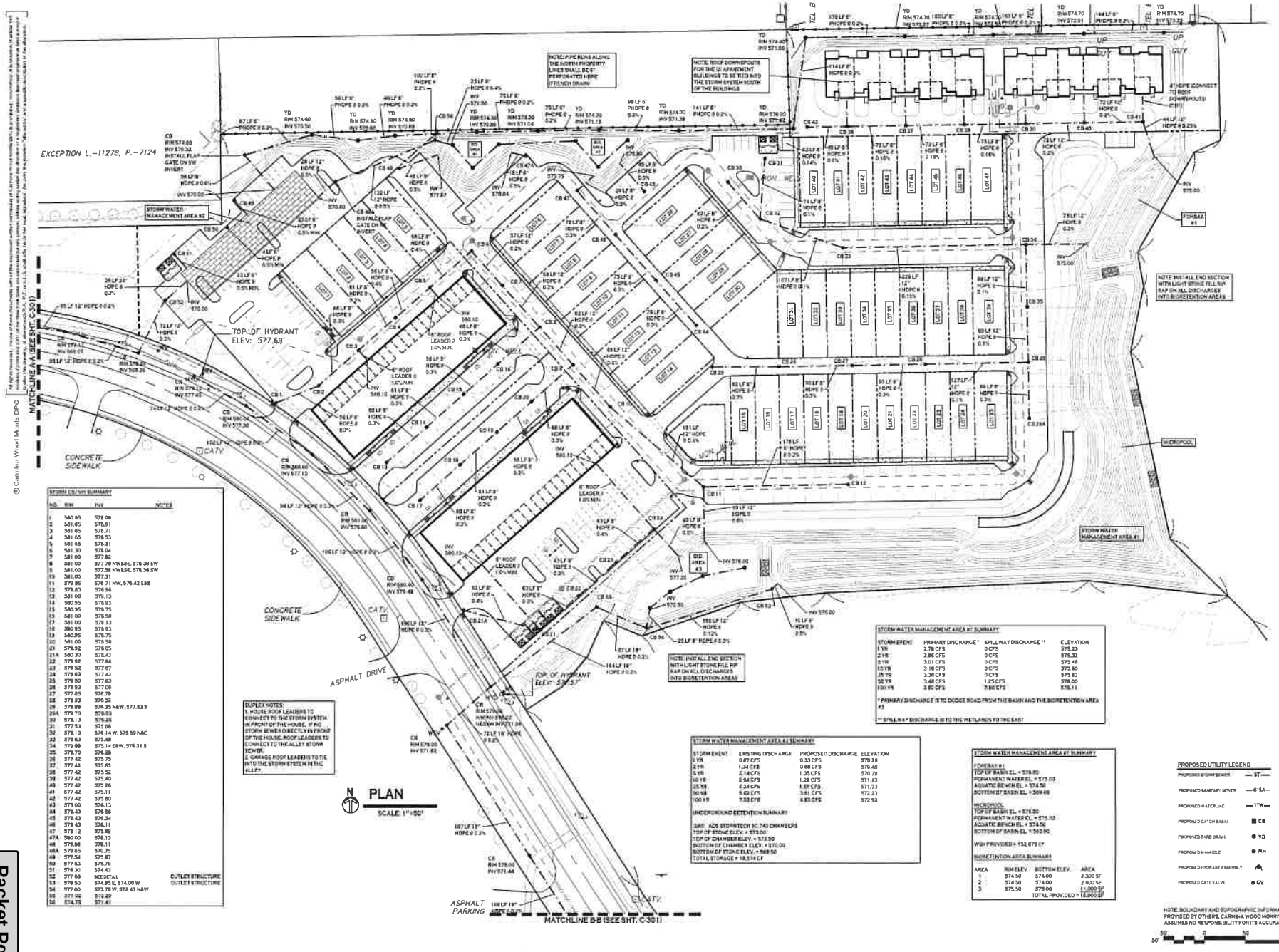
DRAWING NAME:
Grading Plan

DRAWING NO.
C-200

Project no.: 21.011

© Carmina Wood Morris, DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



Carmina Wood Morris DPC

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3186
F 716.842.0761

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

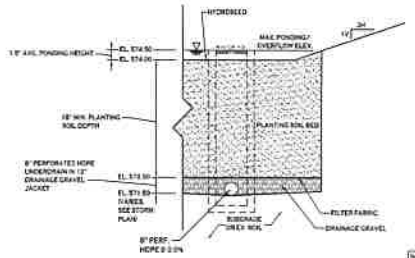
DRAWING NAME:
Storm Drainage Plan

DRAWING NO.
C-300

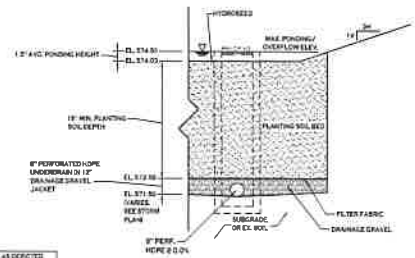
Project no.: 21.011

Packet Pg. 1815

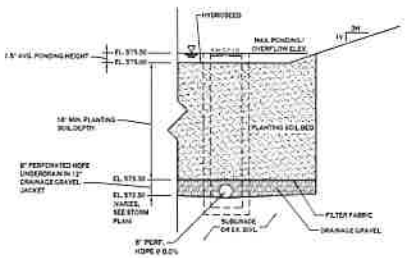
1.h



BIORETENTION AREA #1



BIORETENTION AREA #2



BIORETENTION AREA #3

NOTE: AS DEPICTED TYPICALLY IN BIORETENTION AREAS

BIORETENTION AREA - TYPICAL SECTIONS

NOT TO SCALE

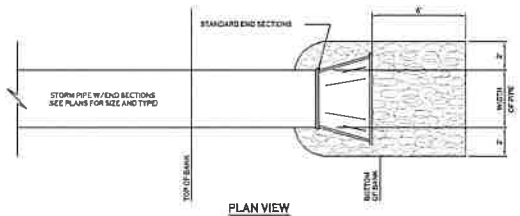
NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 140 N OR APPROVED EQUIVALENT.
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43, NO.67, SIZE 0.25" TO 0.75"
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 99% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR SL WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

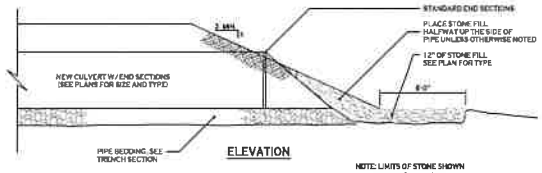
CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHERUS: 75 LBS PER ACRE MIN
POTASSIUM: 85LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CALOPHIS BICOLOR	AGROSTIS STOLONIFERA	83.0
TALL BLUEGRASS	POA TRIVIALIS	17.0
MEADOW FOXTAIL	ALOPECURUS PRATENSIS	11.0
ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	4.5
DEERTONGUE	PANICUM CLANDESTINUM	4.5



PLAN VIEW

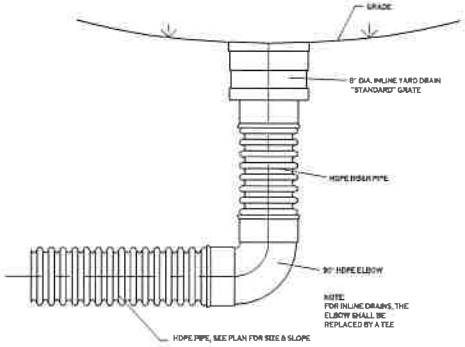


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS. PLAN MAY INDICATE GREATER LIMITS

TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

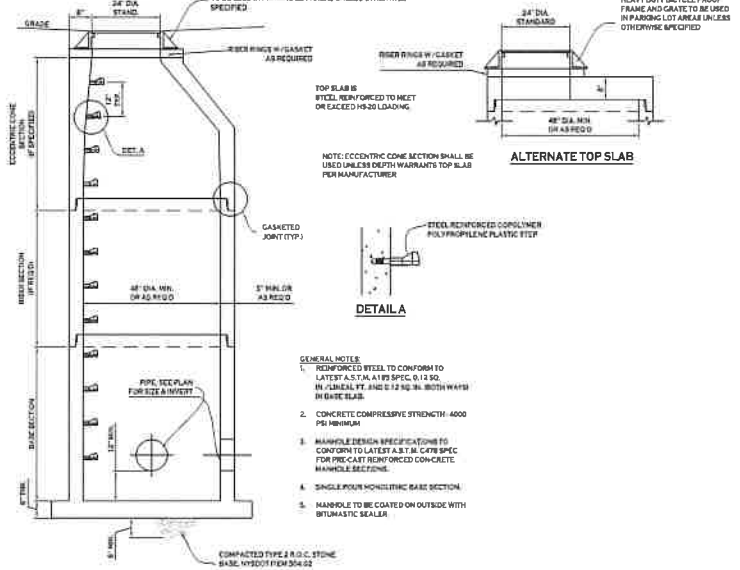
NOT TO SCALE



NOTE: FOR INLINE DRAINS, THE ELBOW SHALL BE REPLACED BY A TEE

NOTE: SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



TOP SLAB IS 8"CEL REINFORCED TO MEET OR EXCEED H-20 LOADING

NOTE: ECCENTRIC CONE SECTION SHALL BE USED UNLESS DEPTH WARRANTS TOP SLAB PER MANUFACTURER

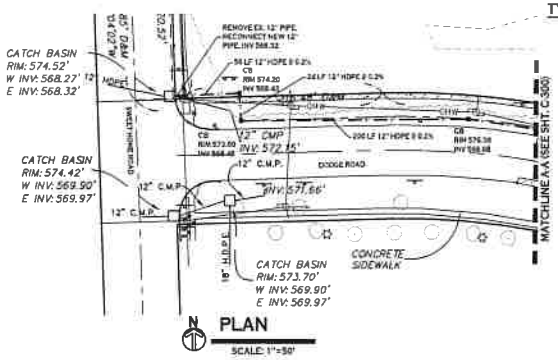
ALTERNATE TOP SLAB

DETAIL A

GENERAL NOTES:
1. REINFORCED STEEL TO CONFORM TO LATEST A.S.T.M. A185 SPEC., 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. BOTH WAYS IN BASE SLAB.
2. CONCRETE COMPRESSIVE STRENGTH: 4000 PSI MINIMUM
3. MANHOLE DESIGN SPECIFICATIONS TO CONFORM TO LATEST A.S.T.M. C478 SPEC FOR PRE-CAST REINFORCED CONCRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.
5. MANHOLE TO BE COATED ON OUTSIDE WITH BITUMASTIC SEALER

TYPICAL STORM MANHOLE DETAIL

NOT TO SCALE



N PLAN

SCALE: 1"=50'



N PLAN

SCALE: 1"=50'

Carmina Wood Morris
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

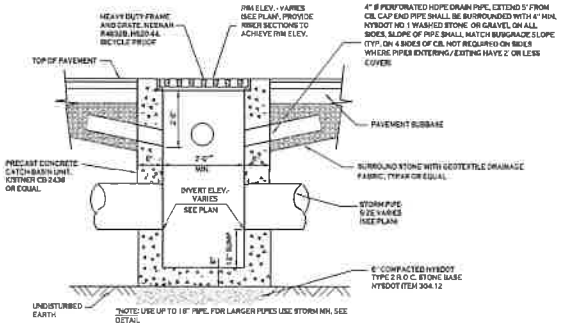
Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

DRAWING NO.
C-301
Project no.: 21.011

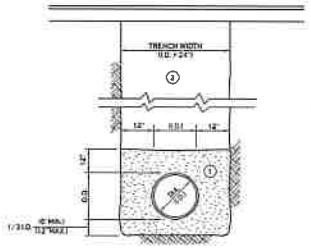
© Carmina Wood Morris DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



TYPICAL PRECAST CATCH BASIN

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT | 985 EDITION)

① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703.02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

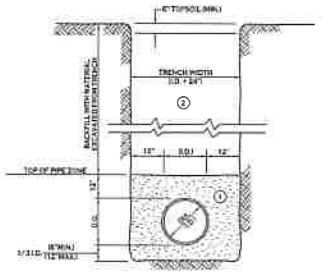
NO SLAG SHALL BE ALLOWED FOR MATERIAL ①

② TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYDOT SECTION 304.2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL ②

STORM SEWER TRENCH SECTION IN PAVED AREAS

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT | 985 EDITION)

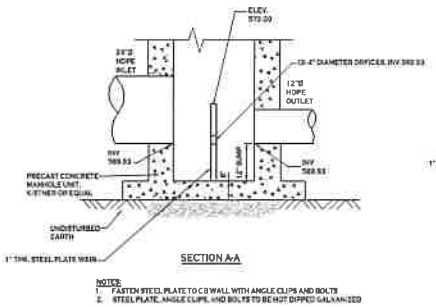
① NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703.02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL ①

② BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 8" LIFTS.

STORM SEWER TRENCH SECTION IN UNPAVED AREAS

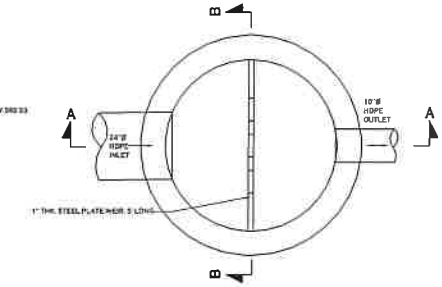
NOT TO SCALE



SECTION A-A

NOTES:

1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED

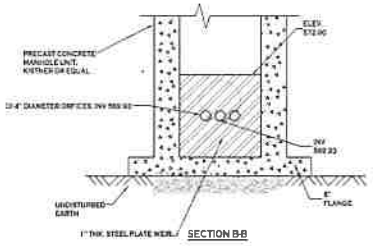


PLAN

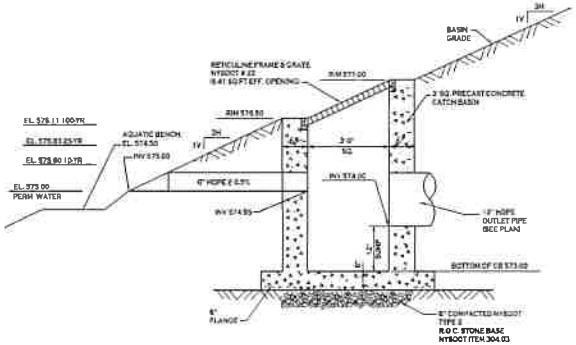
*NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52

NOT TO SCALE



SECTION B-B



DETENTION BASIN OUTLET STRUCTURE - CB 53

N.T.S.

© Carmina Wood Morris DPC

Carmina Wood Morris DPC
Buffalo, New York 14203
P: 716.842.0162
F: 716.842.0287

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road

Amherst, New York

Date: 3/3/21

Drawn by: C. Wood

Scale: As Noted

DRAWING NAME:

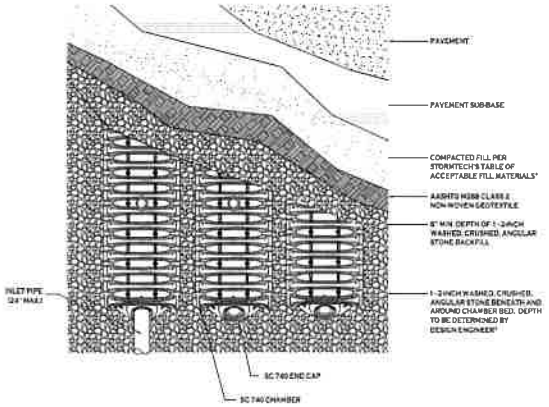
Storm Drainage Details

DRAWING NO.

C-302

Project no.: 21,011

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



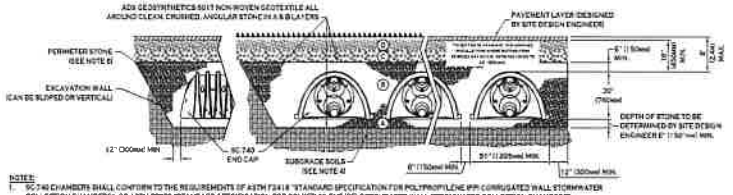
STORMTECH SC-740 CHAMBER SYSTEM PLAN VIEW DETAIL

NOT TO SCALE

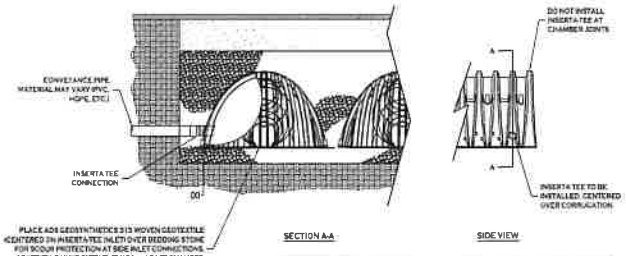
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,500 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[4]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43 STONE)".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION



NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)

INSERTA TEE FITTINGS AVAILABLE FOR SOR-26, SOR-35, SCH-40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON

INSERTA TEE DETAIL

NOT TO SCALE

INSPECTION AND MAINTENANCE

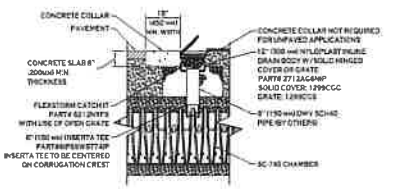
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - () MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - () FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 rad) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

© Carmina Wood Morris DPC
All rights reserved. Unauthorized use of this drawing without the express written permission of Carmina Wood Morris DPC is prohibited. Originality, copyright and all other intellectual property rights in these designs and drawings and in any works executed from them are the property of Carmina Wood Morris DPC. Do not scale from this drawing. All dimensions must be checked on site before any work is put in hand. Any discrepancies to be reported immediately. All persons working in relation to this drawing must comply with the Construction (Design and Management) Regulations 2015 and any relevant Local Authority requirements. Any breach of copyright will be enforced against.

Carmina Wood Morris
487 Main Street Suite 500
Buffalo, New York 14203
P: 716.842.3180
F: 716.842.0293

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/15/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

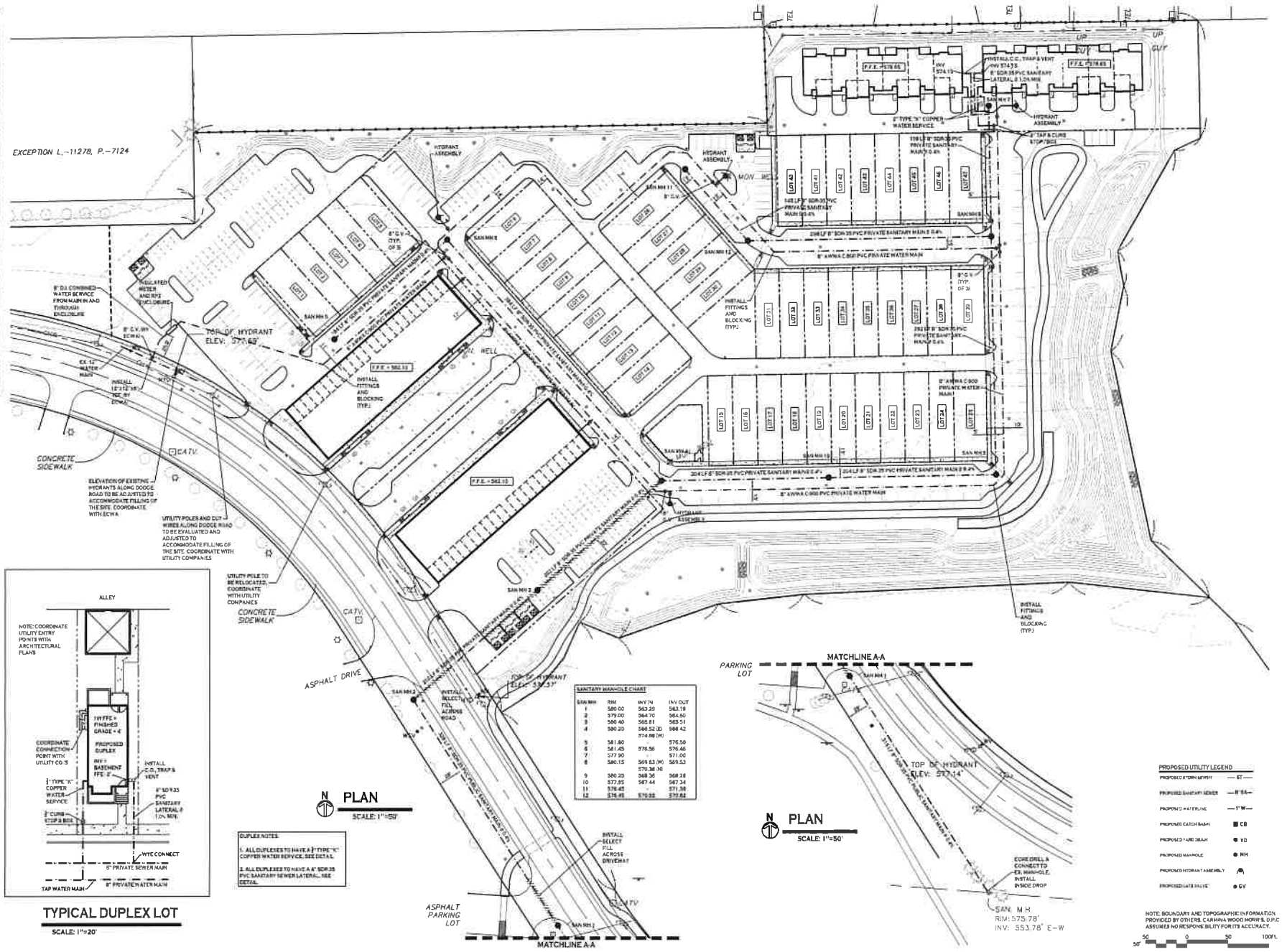
DRAWING NO.
C-303

Project no: 21.011

Packet Pg. 1818

1.h

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



© Carmina Wood Morris DPC

Carmina Wood Morris DPC

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

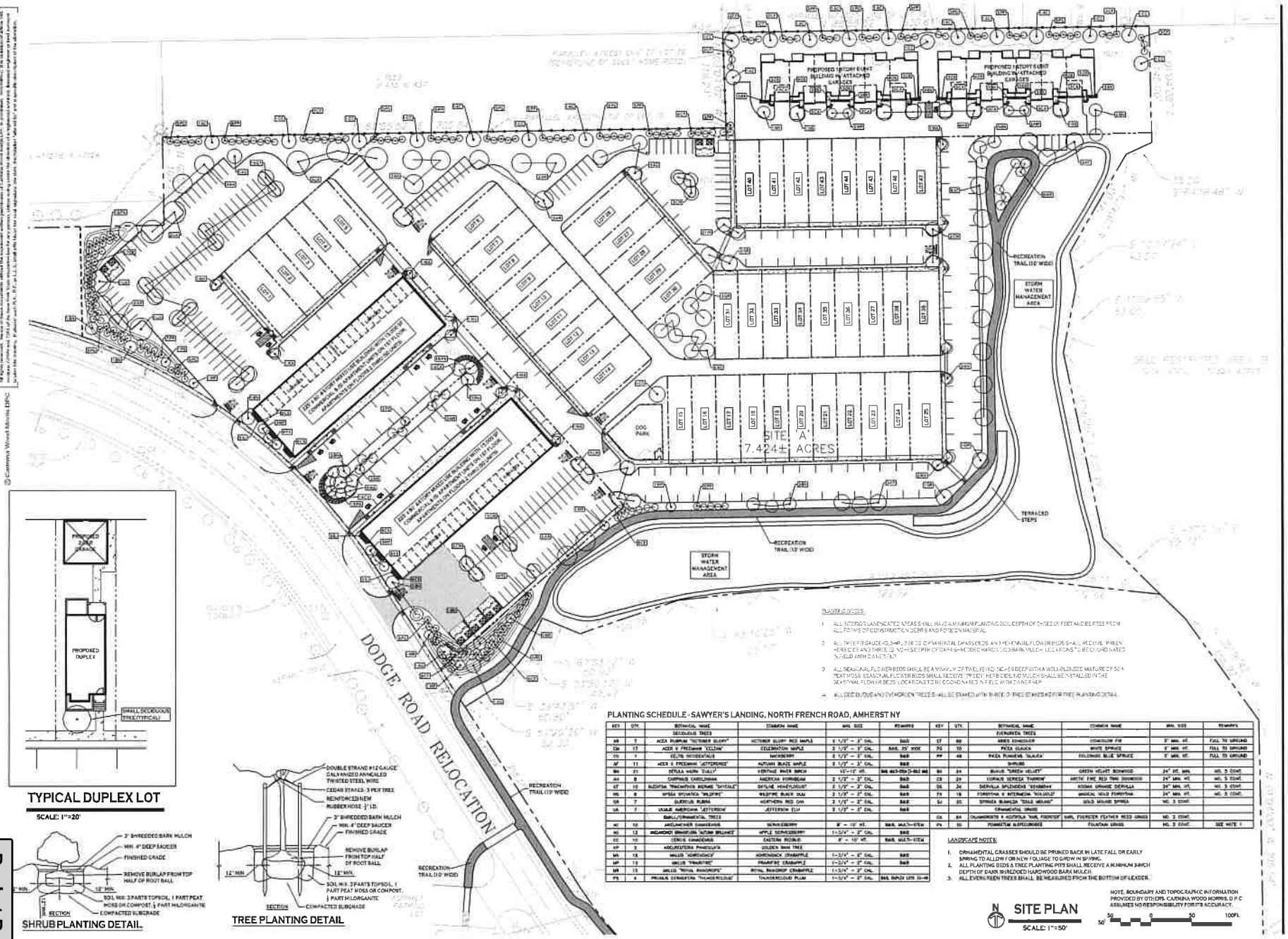
Date: 3/3/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Utility Plan

DRAWING NO.
C-400

Project no.: 21,011

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PITS AND SHRUB BEDS, ORNAMENTAL GRASS BEDS AND PERENNIAL FLOWER BEDS SHALL RECEIVE THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE TWENTY HERBICIDES. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AND TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
AR	7	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.	B&B
CM	17	ACER X FREEMANII 'CELZAM'	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	11	ACER X FREEMANII 'AUTUMN BLAZE'	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA 'DURA-1'	HERITAGE RIVER BIRCH	10'-12' HT.	B&B MULTI-STEM
AA	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
KT	10	KOELREUTERIA PANICULATA 'FIRECRACKER'	GOLDEN RAIN TREE	2 1/2" – 3" CAL.	B&B
HS	8	SYRINGA RETICULATA 'IVORY SILK'	IVORY SILK JAPANESE TREE LILAC	2 1/2" – 3" CAL.	B&B
UP	7	ULMUS PARVIFOLIA 'ALLEE'	ALLEE LACEBARK ELM	2 1/2" – 3" CAL.	B&B
UA	7	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		EARLY/ORNAMENTAL TREES			
AC	12	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
MS	13	MALUS SPECTACULAR 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1-3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	6' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	18	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1-3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1-3/4" – 2" CAL.	B&B
MR	13	MALUS 'ROYAL RAINDROPS'	ROYAL RAINDROP CRABAPPLE	1-3/4" – 2" CAL.	
PS	4	PRUNUS SERRULATA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1-3/4" – 2" CAL.	B&B, SAMPLE LOTS 33-44
		EVERGREEN TREES			
AB	69	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	10	PICEA GLAUCA	WHITE SPRUCE	6' MIN. HT.	FULL TO GROUND
PP	48	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BM	24	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD	24" HT. MIN.	MO. 3 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	MO. 3 CONT.
DS	24	DIERVILLA SPLENDENS 'SEIBERT4'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	MO. 3 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'BOUCLE'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	MO. 3 CONT.
SJ	35	SPIRAEA JAPONICA 'GOLD MOUND'	GOLD MOUND SPIREA	MO. 3 CONT.	
		ORNAMENTAL GRASS			
CK	84	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	MO. 2 CONT.	
PA	30	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	MO. 3 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR IT'S ACCURACY.

N SITE PLAN
SCALE: 1"=50'

50 0 50 100FT.

TYPICAL DUPLEX LOT
SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

Carmina Wood Morris DPC
437 Main Street, Suite 500
Buffalo, New York 14203
P 716.842.3185
F 716.842.0263

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/9/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Landscape Plan

DRAWING NO.
L-100
Project no.: 21.011

© Carmina Wood Morris, DPC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix H

Soils Information

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Soil Map—Erie County, New York



Map Scale: 1:3,590 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 20, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2019—Oct 10, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ge	Getzville silt loam	27.2	87.5%
Ld	Lamson mucky very fine sandy loam	1.8	5.7%
Sw	Swormville clay loam	2.1	6.8%
Totals for Area of Interest		**31.1**	**100.0%**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix I

SHPO Information

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643

Bernadette Castro
Commissioner

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

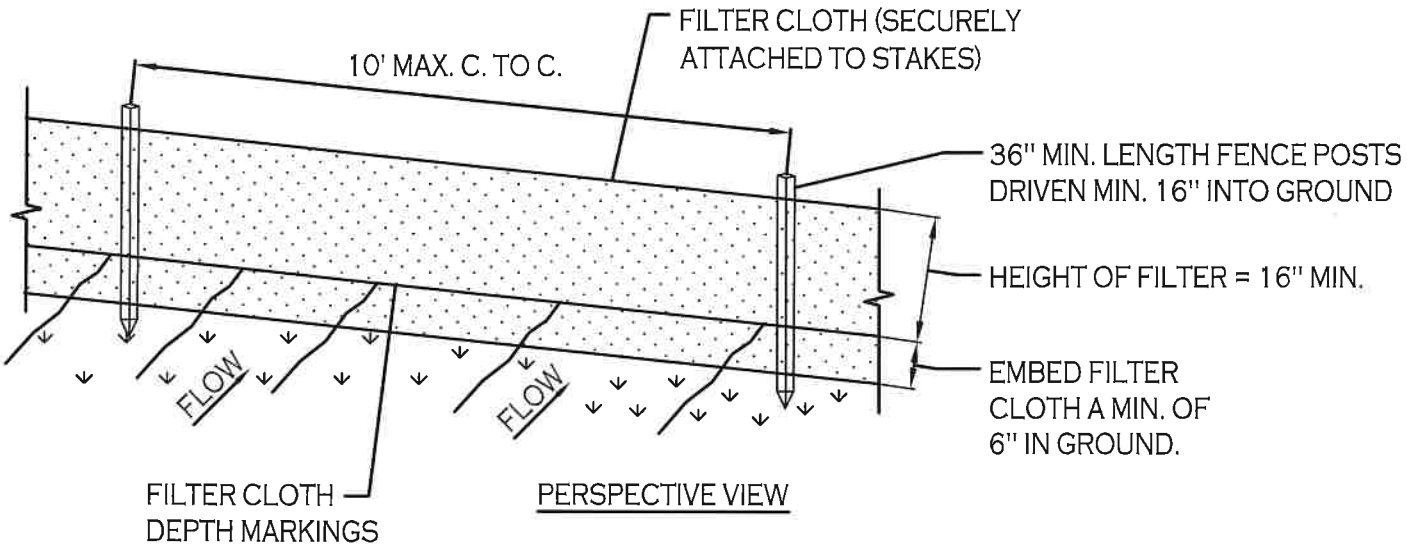
An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

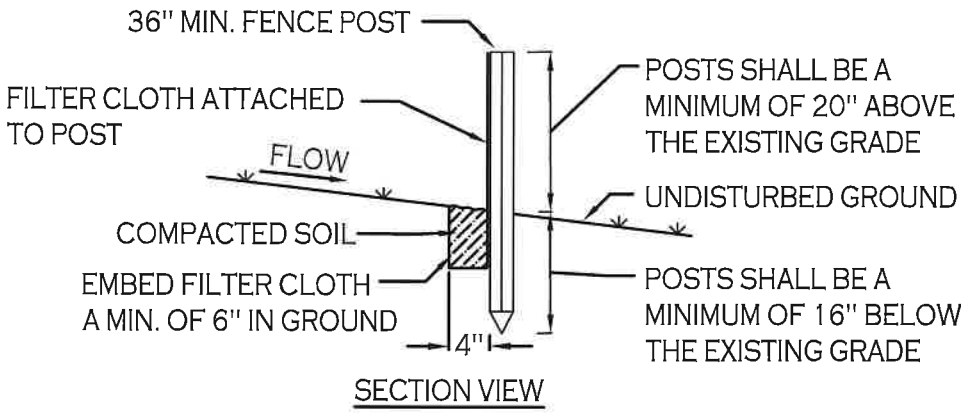
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix J

Standard Erosion Control Details

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)





CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.

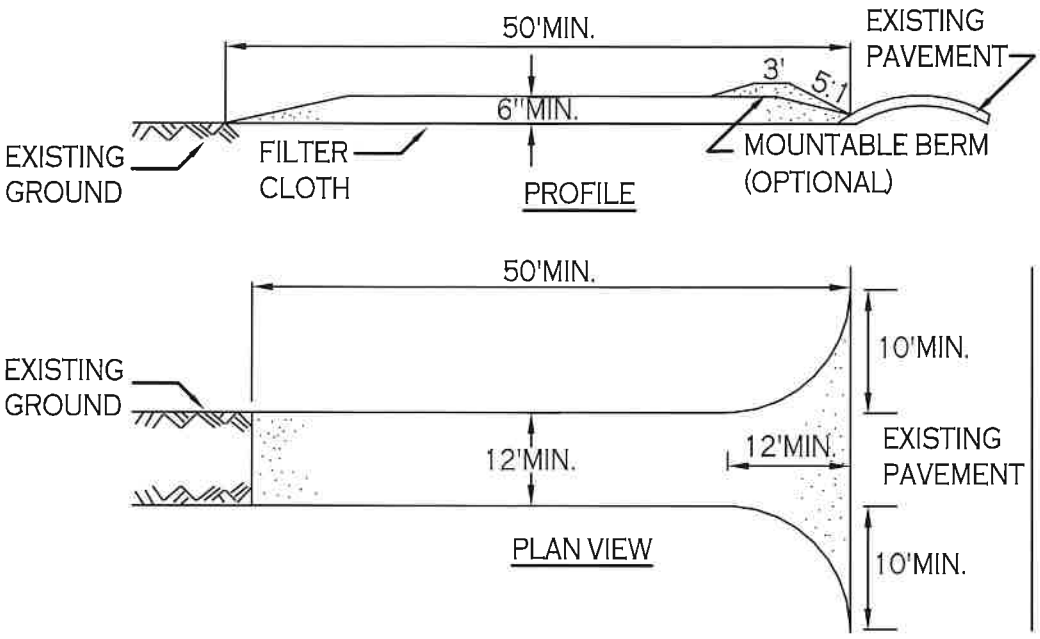
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.

3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



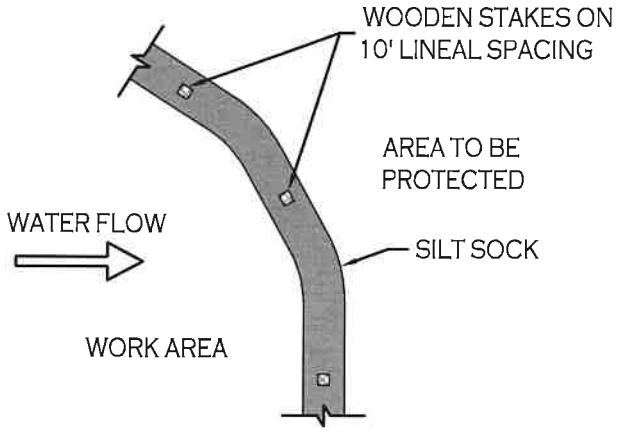
CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

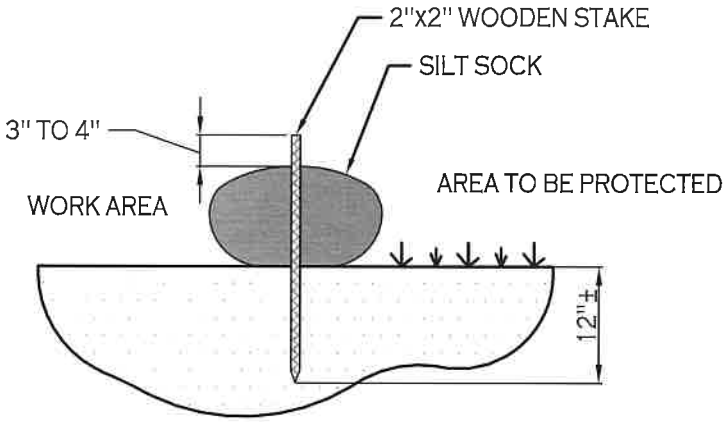
STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



PLAN VIEW



SECTION VIEW

NOTES:

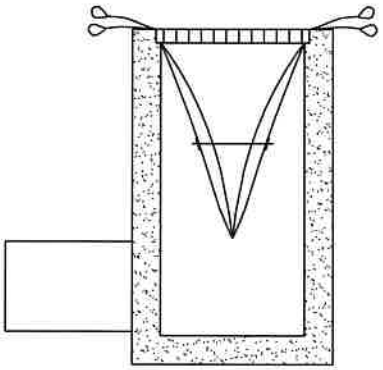
CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED $\frac{1}{2}$ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

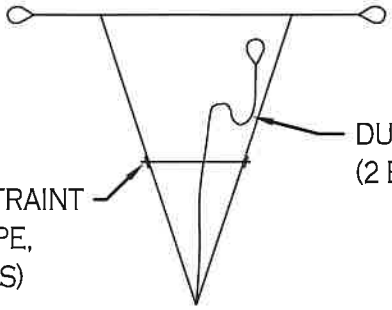
SILT SOCK DETAIL

NOT TO SCALE

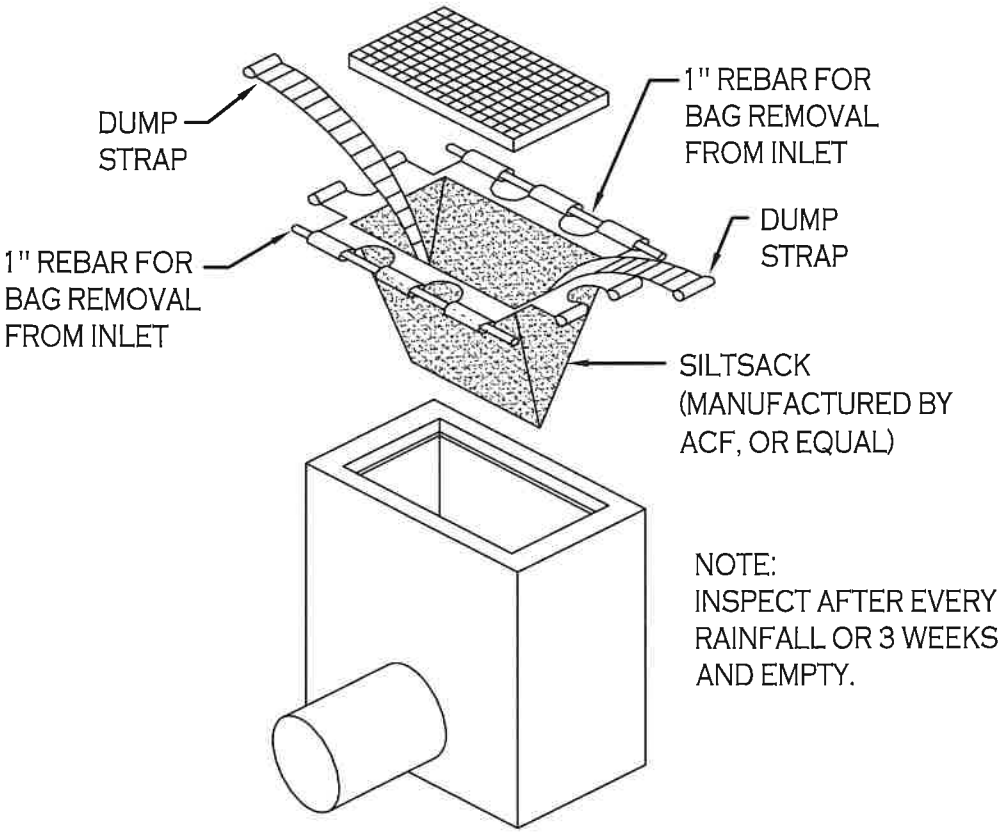
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



INSTALLATION DETAIL



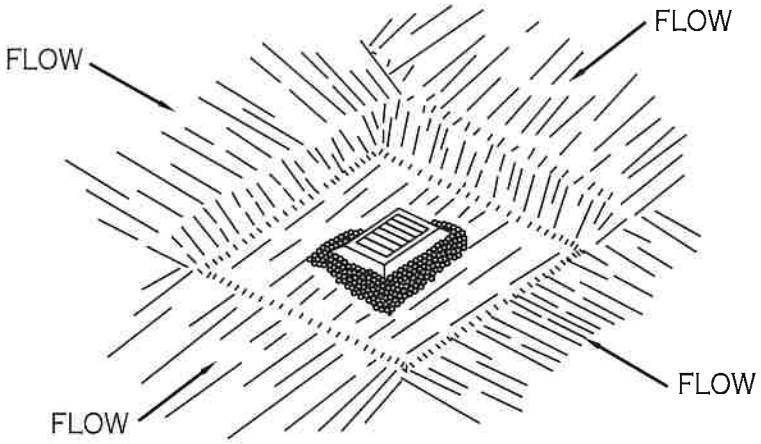
BAG DETAIL

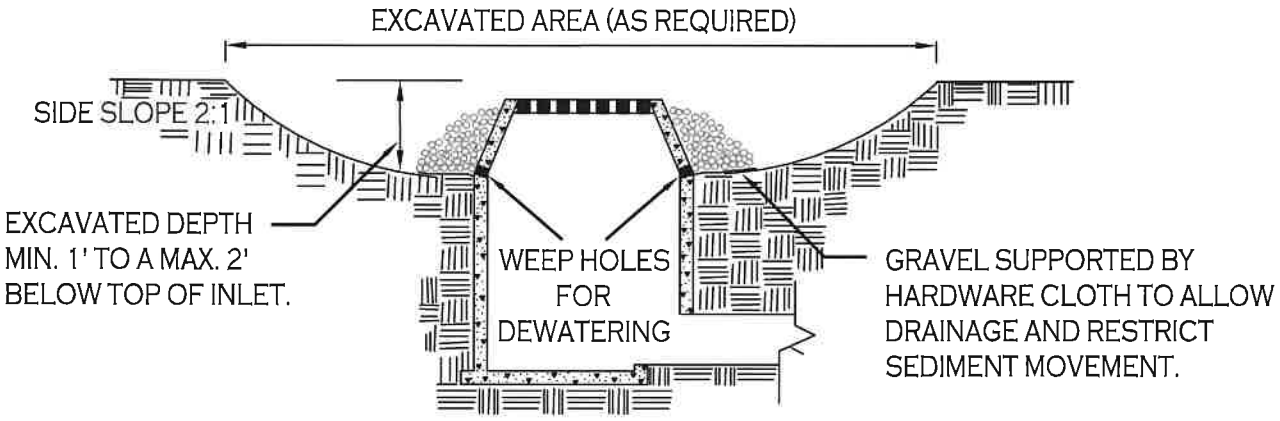


SILT SACK DETAIL

NOT TO SCALE

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)





CONSTRUCTION SPECIFICATIONS

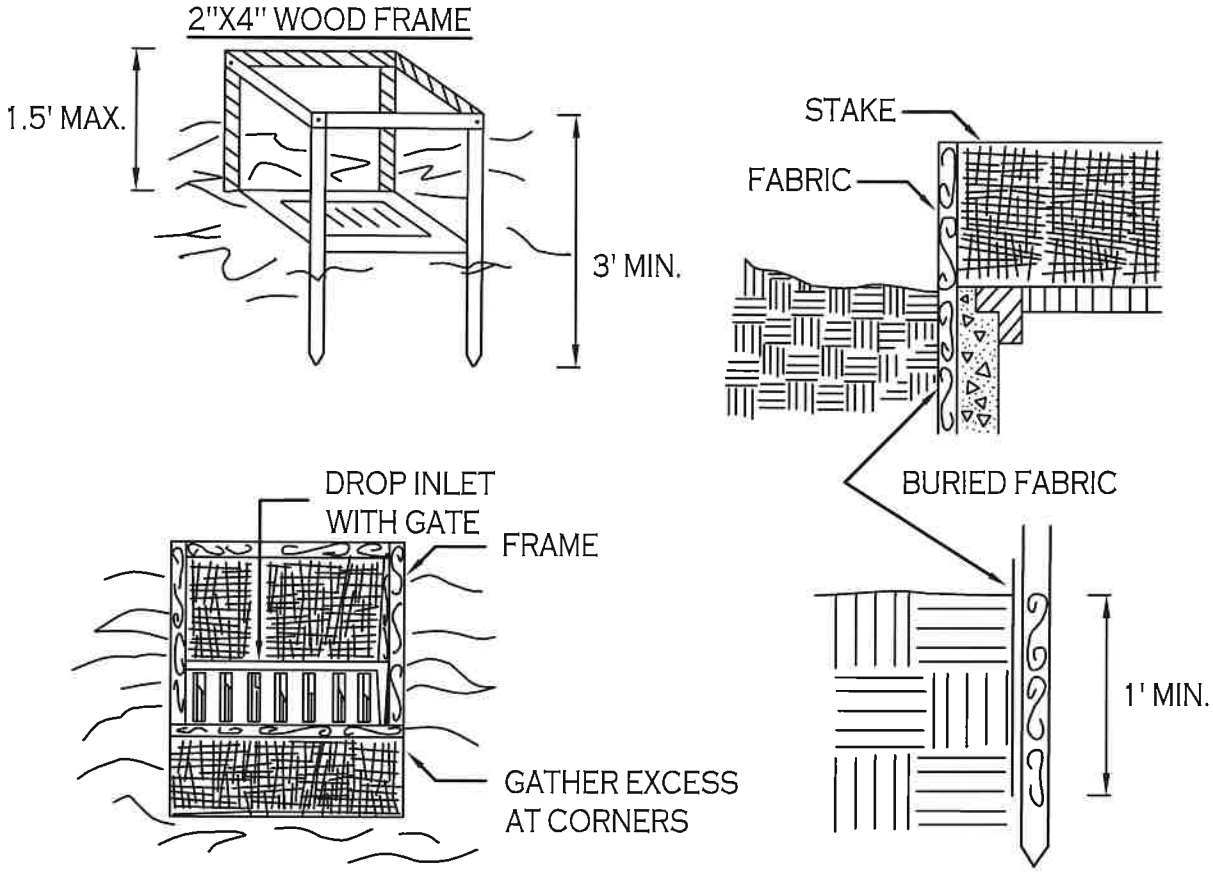
1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.

2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.

3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.

4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.

5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.

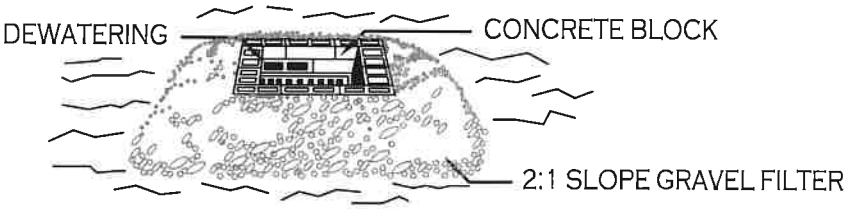
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

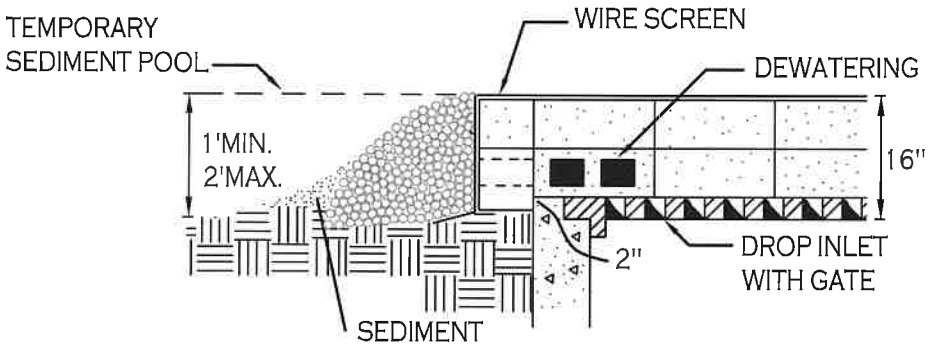
INLET PROTECTION DETAIL 2

NOT TO SCALE

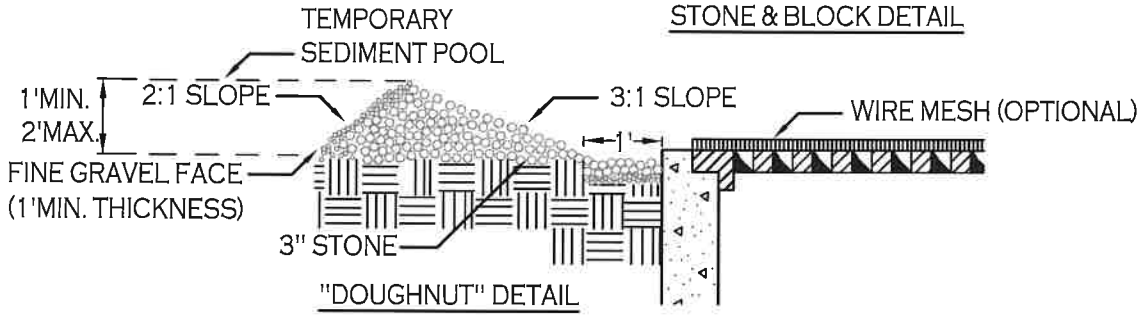
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



STONE & BLOCK PLAN VIEW



STONE & BLOCK DETAIL



"DOUGHNUT" DETAIL

CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.

2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.

3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.

4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

NOT TO SCALE

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix K

Wetland Permits

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7165 I F: (716) 851-7168
www.dec.ny.gov

December 24, 2020

Mr. Adam Faeth
Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Muir Woods Development – "Site A"
Permit Transmittal Letter
Permit No. 9-1422-00398/00001

Dear Mr. Faeth:

Enclosed is your permit which was issued in accordance with applicable provisions of the Environmental Conservation Law. The permit is valid for only that project, activity or operation expressly authorized. If modifications are desired after permit issuance, you must submit the proposed revisions and receive written approval from the Permit Administrator prior to initiating any change. If the Department determines that the modification represents a material change in the scope of the authorized project, activity, operation or permit conditions, you will be required to submit a new application for permit.

Please review all permit conditions carefully. In particular, identify your initial responsibilities under this permit in order to assure timely action if required. Since failure to comply precisely with permit conditions may be treated as a violation of the environmental conservation law, you are requested to provide a copy of the permit to the project contractor, facility operator, and other persons directly responsible for permit implementation (if any).

If you have any questions, please contact this office at the above address.

Respectfully,
David S. Denk
Regional Permit Administrator

Enclosure
ecc: NYSDEC Law Enforcement
Maureen Brady, NYSDEC Office of General Counsel
Mr. Chuck Rosenburg, NYSDEC Division of Fish and Wildlife
Mr. Martin Crossen, USACOE
Sean Hopkins, Esq., Hopkins Sorgi & McCarthy PLLC

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202
(716) 631-8000

Facility:
MUIR WOODS DEVELOPMENT
1121 N French Rd
Amherst, NY 14228

Facility Location: in AMHERST in ERIE COUNTY
Facility Principal Reference Point: NYTM-E: 191.586 NYTM-N: 4770.823
Latitude: 43°01'38.9" Longitude: 78°47'07.2"

Authorized Activity: Construction of a mixed-use project named "Muir Woods" consisting of approximately two 4-story mixed-use buildings consisting of commercial space and residential units, 90 two-family townhouses and 2 six-unit apartment buildings, approximately 133 detached single-family residential units and 515 cottage-style and apartment-style housing units with various amenities; and gas, electric, sanitary, potable water and storm water (the necessary infrastructure), while maintaining open space on approximately 224 acres in the Audubon New Community District. The Muir Woods project property is a 326 acre site bounded by the Lockport Expressway (Interstate Route 990) and Dodge Road on the south, Sweet Home Road on the west, North French Road on the north and Campbell Boulevard on the east. The project will result in permanent impacts to approximately 2.39 acres of State regulated wetlands (TE-22, TE-23 and TE-34), and 11.38 acres of State regulated 100 foot wide wetland adjacent area. As mitigation for those impacts the project includes creation of 19.58 acres of in-kind and out-of-kind wetlands on-site, in six areas, to replace the functions and benefits of the impacted wetlands. There will be 4.3 acres of stream channel enhancement on-site as mitigation for State wetland regulated adjacent area impacts. The project also includes construction at 520 Campbell Road property as detailed on plan sheets referenced in Natural Resource Condition No. 4.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Permit Authorizations

Freshwater Wetlands - Under Article 24
Permit ID 9-1422-00398/00001

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Facility DEC ID 9-1422-00398

Water Quality Certification - Under Section 401 - Clean Water Act
Permit ID 9-1422-00398/00002

Renewal	Effective Date: 1/10/2019	Expiration Date: 11/30/2024
Modification # 1	Effective Date: 12/17/2019	Expiration Date: 11/30/2024
Modification # 2	Effective Date: 12/24/2020	Expiration Date: 11/30/2024

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: DAVID S DENK, Regional Permit Administrator
Address: NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY 14203 -2915

Authorized Signature: David S. Denk Digitally signed by David S. Denk DN: cn=David S. Denk, o=NYS DEC, ou=Div. of Env. Permits, email=david.denk@dec.ny.gov, c=US Date: 2020.12.24 10:29:47 -05'00' Date ___/___/___

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

WATER QUALITY CERTIFICATION SPECIFIC CONDITION

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: FRESHWATER WETLANDS; WATER QUALITY CERTIFICATION

1. **No Work Prior to Approval of Legal Instrument for Preservation of Undeveloped Areas of Site** No work authorized by this permit may begin until the Department approves a legal instrument, such as a deed restriction and/or conservation easement, that will preserve in perpetuity the natural resource values of the undeveloped areas of the site. This condition does not apply to the 520 Campbell Boulevard property.

2. **Declaration of Restrictions 520 Campbell Boulevard Property** A Declaration of Restrictions permanently prohibiting any future development of the 6.88 acres of jurisdictional federal wetlands and portion of the upland area on 520 Campbell Boulevard as depicted on the Wetland Restriction Exhibit Map must be incorporated into the deeds for lots 1 – 12 and 21. By 60 days after Water Quality Certification issuance, the permittee shall file with the real property records of the Erie County Clerk`s Office, the deed for each applicable lot containing this notice. The permittee shall within two weeks following the filing of the deed(s) submit proof of filing from the County Clerk's Office

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

showing the Liber and page number at which the deed notice was filed and the date of filing for one of the affected lots to: Regional Permit Administrator, NYSDEC Region 9 Headquarters, 270 Michigan Ave, Buffalo, NY 14203-2915.

3. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Ciminelli Development Company, Inc. and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009.

4. **Conformance with Plans Site B** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include the "Concept Plan - Muir Woods" dated 08 November 2019 amended to show Conifer Planting Area (attached).

5. **Conformance with Plans - 520 Campbell Boulevard** All activities authorized by this permit for the 520 Campbell Boulevard property must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans include those sheets entitled: The Preserve at Muir Woods (DEC Planting Exhibit, DEC Earthwork Exhibit and the Wetland Restriction Exhibit) by Greenman-Pedersen, Inc. dated May 2018.

6. **Conformance with Plans Site A** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or the applicant's agent as part of the permit application. Such approved plans include Drawing C-100 dated July 20, 2020 and received by this Department on August 10, 2020.

7. **Future Phases** Prior to development of Muir Woods Sites A and B, the permittee must obtain specific approval of engineered plans for Sites A and B to ensure compliance with the terms and condition of this permit, the approved wetland mitigation plans and the most current Findings Statement for the overall Muir Woods Project issued pursuant to the State Environmental Quality Review Act. The permittee shall submit the engineered plans for the development of Sites A and B for review by the Department simultaneous with submission of such engineered plans to the Town of Amherst. If required by the Department, the permittee shall make any necessary modifications to the engineered plans to ensure compliance with the terms and conditions of this permit, the approved wetland mitigation plans and the most current Findings Statement.

8. **Permit Conditions Prevail over Plans** If any condition of this permit conflicts with the approved plans noted in Condition Number 1, the permit conditions shall prevail over the plans unless specific written approval for such a change is obtained from this Department prior to implementation.

9. **Pre-construction Meeting to Review Permit** Prior to commencing work at the project site, the permittee shall schedule a pre-construction meeting with Department staff (Contact: Mr. David Denk, Regional Permit Administrator, NYSDEC, Division of Environmental Permits, Telephone : 716/851- 7165 and/or Mr. Charles P. Rosenburg, NYSDEC, Division of Fish and Wildlife, Telephone: 716/851-7010) and selected contractors to review the conditions contained in this permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

10. Mark Areas of No Disturbance on the Muir Woods Site Grade stakes and/or other appropriate measures (substantial contractor fencing, perhaps in combination with necessary silt fencing) shall be used to ensure that no equipment enters identified areas of no disturbance within the immediate area under construction (i.e.- Site A, Site B, Site C or Site D) on the Muir Woods project site. Boundaries of the on-site mitigation areas shall likewise be marked to define the limits of that work.

11. Install Controls Along Limits of Disturbance Before any soil is disturbed within a specific Site Development Area, as detailed in Condition #6 above, the permittee shall install securely anchored silt fencing and/or continuous staked hay bales along the limits-of-disturbance as shown on the plans or drawings referenced in this permit. Such erosion and sedimentation controls shall be maintained until unpaved portions of the subject site are stabilized by a self-sustaining cover of vegetation that is adequate to prevent erosion and sedimentation on and off the site. Sediment which has accumulated at the controls shall be removed periodically as necessary during the construction period. Before the controls are removed, the permittee shall remove all sediment that has accumulated at the controls.

12. Work Within Ares Depicted on Plans All construction activity, including operation of machinery, excavation, filling, grading, clearing of vegetation, disposal of waste, street paving and stockpiling of material must take place within the Site Development Areas or mitigation areas as depicted on the project plans referenced by this permit. Construction activity is prohibited within areas to be left in a natural condition or locations on the property not within the Site Development Areas or mitigation areas designated by this permit. Disturbance to the wetlands and their regulated 100 foot wide adjacent areas shall be strictly limited to the work areas identified in the plans, and specifically the MAP SHOWING WETLAND IMPACT AREAS - NEW YORK STATE WETLANDS, and APPENDIX M - PROPOSED ON-SITE MITIGATION PLAN.

13. Invasive Species (Non-Native Vegetation) To prevent the unintentional introduction or spread of invasive species, the permittee must ensure that all construction equipment is cleaned of mud, seeds, vegetation and other debris before entering any approved Site Development Areas within State regulated wetlands or their 100 foot wide adjacent areas, as well as all on-site wetland mitigation areas.

14. Prevention of Invasive Species The permittee shall prevent the establishment of invasive species (purple loosestrife, Phragmites, reed canary-grass, Japanese knotweed, glossy buckthorn and common buckthorn) across all disturbed areas within the wetland mitigation area for five growing seasons. If any of these invasive species become established, monitoring and treatment may be extended for an additional 5 years at the Department's discretion.

15. Wetland Mitigation is Mandatory Completion of all freshwater wetland mitigation is mandatory regardless of whether or not construction proceeds to completion. The required mitigation must be completed by the expiration date of this permit. Mitigation will be subject to remediation, if necessary, pursuant to Condition #16 below. All mitigation areas shall be monitored for a period of ten (10) years or until the mitigation is deemed successful by this Department. Monitoring reports shall be prepared for the first four (4) years after construction of the mitigation areas and every other year (years 6, 8 and 10) thereafter. This Department may, at its discretion, modify the 10-year monitoring period and/or monitoring report requirement at any time. Monitoring reports shall be submitted to Mr. Charles P. Rosenburg, Habitat Manager, NYSDEC, Bureau of Ecosystem Health, 270 Michigan Avenue, Buffalo, NY 14203-2915 Telephone: 716/851-7024.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

16. **On-Site Mitigation to be in Accordance with Mitigation Plan** The on-site mitigation shall be in accordance with Appendix M - Proposed On-Site Wetland Mitigation for Muir Woods prepared by Earth Dimensions, Inc. revised May 25, 2009 and with the modifications shown in Exhibit 22 of the July 20, 2020 application binder.

17. **Planting Row of Native Conifers** The permittee shall plant a row of native conifer trees in the location shown on the attached plan. The tree plantings must be a minimum of 6 feet tall, spaced 15 feet apart, and must be planted no later than October 15th following the completion of construction of the adjacent apartment units.

18. **Survival Rate for Mitigation Plantings** The permittee shall prepare a care, maintenance, inspection, and replacement schedule for the tree and shrub plantings described in the mitigation plan to ensure an 85% survival rate for five growing seasons. This condition includes all on-site landscape "buffer" plantings.

19. **Herbicides, Pesticides in Wetland or Adjacent Area** The use of herbicides and other pesticides in State regulated wetlands or their 100 foot wide adjacent areas is a regulated activity and may only be conducted pursuant to a valid Article 33 Pesticides Permit.

20. **Requirement for SPDES General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities** Since development of the Muir Woods site in the Town of Amherst will involve land disturbance of one (1) or more acres, the permittee is required to obtain coverage under State Pollutant Discharge Elimination System (SPDES) General Permit GP-0-15-002 for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Division of Water, 625 Broadway, 4th Floor, Albany, New York 12233-3505, Telephone: 518/402-8111 and approved before construction commences. Alternatively, an eNOI may be filed electronically as described on the Department's website. The General Permit GP-0-15-002 and NOI form are available on the Department's website at www.dec.state.ny.us.

21. **Visibly Turbid Discharges Prohibited** Visibly turbid discharges from project dewatering operations, excavation and grading activities are strictly prohibited to any "water body" (pond, wetland, stream or water course). Any such discharges shall be (1) retained in an appropriately maintained upland settling basin, filtered through crushed stone, sand, filter fabric fences, hay bales etc., or (2) directed to a grassy area sufficiently distant from any water body to preclude such entry.

22. **Stockpiling of Soil** Stockpiling of excavated soil is prohibited at locations within any portion of the TE-22, TE-23 and TE-34 Wetlands or their regulated 100 foot wide adjacent areas, or within any mapped 100-year floodplain beyond the Site Development Areas or mitigation areas identified in the plans.

23. **Stabilize Disturbed Areas** All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with straw, or hydro-seeded. Mulch shall be maintained until suitable vegetative cover is established.

24. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

25. **Disposal of Material** Any non-merchantable tree and brush debris, demolition debris, excess construction materials, and/or excess excavated materials shall be immediately and completely disposed of on an approved upland site more than 100 feet from any regulated freshwater wetland. These materials shall be suitably stabilized so as not to re-enter any water body, wetland, or wetland adjacent area; and must be disposed of in accordance with all local, state, and federal statutes, regulations, or ordinances.

26. **Placement of Interpretive Signs Required** Permanent interpretive signs shall be placed at various wetland boundary locations throughout the Muir Woods project site . The permittee shall submit a proposal for the signs to the Department for approval. The interpretive signs shall be a minimum of 12 inches by 12 inches and shall be placed on permanent posts.

27. **Annual Project Inspection / Meeting** The permittee shall schedule an annual inspection/meeting to update Department staff on project progress and compliance with conditions of this permit for the on-site wetland mitigation area.

28. **Wetland Monuments** Monuments shall be placed every 200 feet along the outer edge of the wetland preservation areas. The monuments shall be 30" long, 5/8" rebar and cap embedded flush and in the center of the top exposed surface of concrete in a minimum 4 inch diameter, 4.5 foot long section of PVC Schedule 40 drain pipe filled with concrete, extending vertically1.5 to 2 feet above existing grade at each location. The caps shall say "Conservation Area Marker, Do Not Disturb". These monuments are to be permanently maintained.

29. **Wetland Boundaries** The boundaries of the TE-22, TE-23 and TE-34 Wetlands shall be fixed for the period of this permit (expires November 30, 2024). At that time, new boundary delineations for those wetlands will be required by this Department (to be performed or confirmed by a Department Biologist). Since project activities will be subject to the updated wetland boundary delineations and pertinent regulations at that time, any future permit modification (if necessary) would be reviewed based on the updated delineations and pertinent regulations. As such, modifications to the current project plan may be necessary depending upon the updated wetland delineations and permit regulations in effect at that time.

30. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

31. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

32. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

33. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

WATER QUALITY CERTIFICATION SPECIFIC CONDITIONS

1. **Water Quality Certification** The authorized project, as conditioned pursuant to the Certificate, complies with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). The authorized project, as conditioned, will also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 9 Headquarters
270 Michigan Ave
Buffalo, NY14203 -2915

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Freshwater Wetlands, Water Quality Certification.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. **Permit Transfer** Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

February 25, 2021

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Mr. Adam Faeth
Development Manager
Ciminelli Muir Woods LLC
350 Essjay Road Suite 101
Williamsville, NY 14221

Dear Mr. Faeth:

This is in reply to your submittal dated July 20, 2020 in which you requested a modification of Department of the Army Permit No. LRB-2001-00067. The project is located on a 326-acre parcel in the Town of Amherst, Erie County, New York. Specifically, you seek authorization to change the proposed use of an area identified as Site A from research and development and flex office space to a mixed-use commercial and residential development. This includes two 4-story mixed-use buildings, two-family townhouses, 6-unit apartment buildings, and a recreational trail to connect Site A with Site B. Wetland impacts have been reduced from 13.01 acres to 6.089 acres in Site A. A reduction of 6.921 acres. In addition, because of the reconfigured project including the significant reduction of wetland impacts, you have requested that the requirement of off-site compensatory mitigation be removed. Lastly, you have requested that 134 acres of the overall Muir Woods site located northeast of Site B, is donated to the Town of Amherst. This area will remain as open space in perpetuity. Permit compliance with mitigation requirements will remain as it currently is on the 134-acre site as a responsibility of Ciminelli Muir Woods LLC.

A Public Notice was published and coordinated with agencies and adjacent property owners using standard procedures. No comments were received as a result of the Public Notice. Based upon our evaluation, I concluded your request will not result in any unacceptable environmental or navigational impacts. Therefore, I am modifying Department of the Army permit No. LRB-2001-00067 to reflect the changes outlined in your request and identified on the attached drawings. All other terms and conditions of Permit No. LRB-2001-00067 remain in full force and effect.

Sheets 1, 2, and 3 of 3 are hereby made part of Permit No. LRB-2001-00067. Sheet 1 of 3 of this modification is an update to Sheets 2, 3, and 5 of 6 of the original permit. Sheet 2 and 3 of 3 of this modification are updates to Sheet 5 of 6 of the original permit. In addition, the following Special Conditions No. 6 and 8 of Permit No. LRB-2001-00067 are modified so that they no

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

longer include the requirement of off-site compensatory mitigation, as indicated below with the original and the following modified condition:

1. Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 17.83 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site, and 27.37 acres of wetland off-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site and off-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

   Modified Special Condition Number 6: As mitigation to compensate for unavoidable and permanent impacts to 10.91 acres of Federal wetlands and 1.29 acres of Federal tributaries (approximately 5227 linear feet), the permittee shall create, at a minimum; 26.91 acres of wetland on-site. In addition, the permittee shall enhance 4.3 acres of tributary (approximately 2630 linear feet) on-site, all in accordance with the approved on-site mitigation plan that is made part of this permit. The mitigation area must be constructed in accordance with the approved plan as well as all permit conditions.

2. Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan, and the Proposed Off-Site Wetland Mitigation Plan dated November 16, 2009. The stated mitigation plans are hereby incorporated into and made part of the permit as Attachments 1 and 2. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

   Modified Special Condition Number 8: The approved compensatory mitigation must be in strict conformance with the plans approved by the Corps of Engineers. Such approved plans were prepared by Ciminelli Development Company, Incorporated and titled "Supplement #4 to the Wetland Permit Application for Muir Woods Development Project" dated June 2009, including the Proposed On-Site Wetland Mitigation Plan dated November 16, 2009. The stated on-site mitigation plan is hereby incorporated into and made part of the permit as Attachments 1. The permittee shall implement the mitigation in accordance with the plans and all permit conditions. Where permit conditions differ from the mitigation plan, the permit conditions shall be the ruling condition.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Regulatory Branch

SUBJECT: Request for Modification of Department of the Army Permit No. LRB-2001-00067, New York State Department of Environmental Conservation No. 9-1422-00398/00002.

Questions pertaining to this matter should be directed to Martin Crosson at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207 or by E-mail at: martin.h.crosson@usace.army.mil

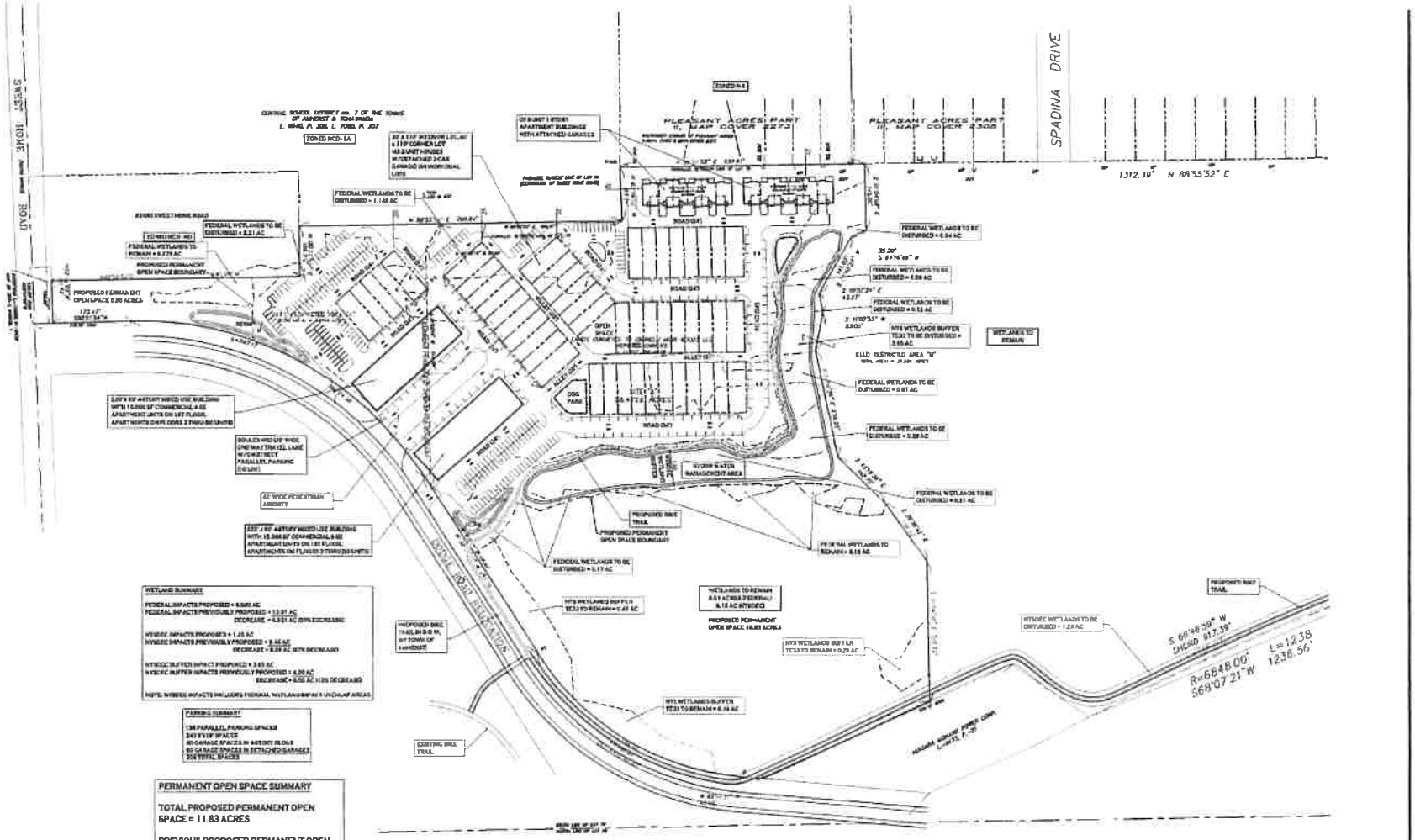
BY AUTHORITY OF THE SECRETARY OF THE ARMY

Steven V. Metivier

For: Mark Scalabrino
Acting Chief, Regulatory Branch

Enclosures

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



SITE PLAN
SCALE: 1"=100'

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 1 of 3

Camina Wood Morris

PROJECT NAME:
Site Development plans for:
Muir Woods Site "A"
Sweet Home & Dodge Road
Amherst, New York

Date: 11/20
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Concept Site Plan

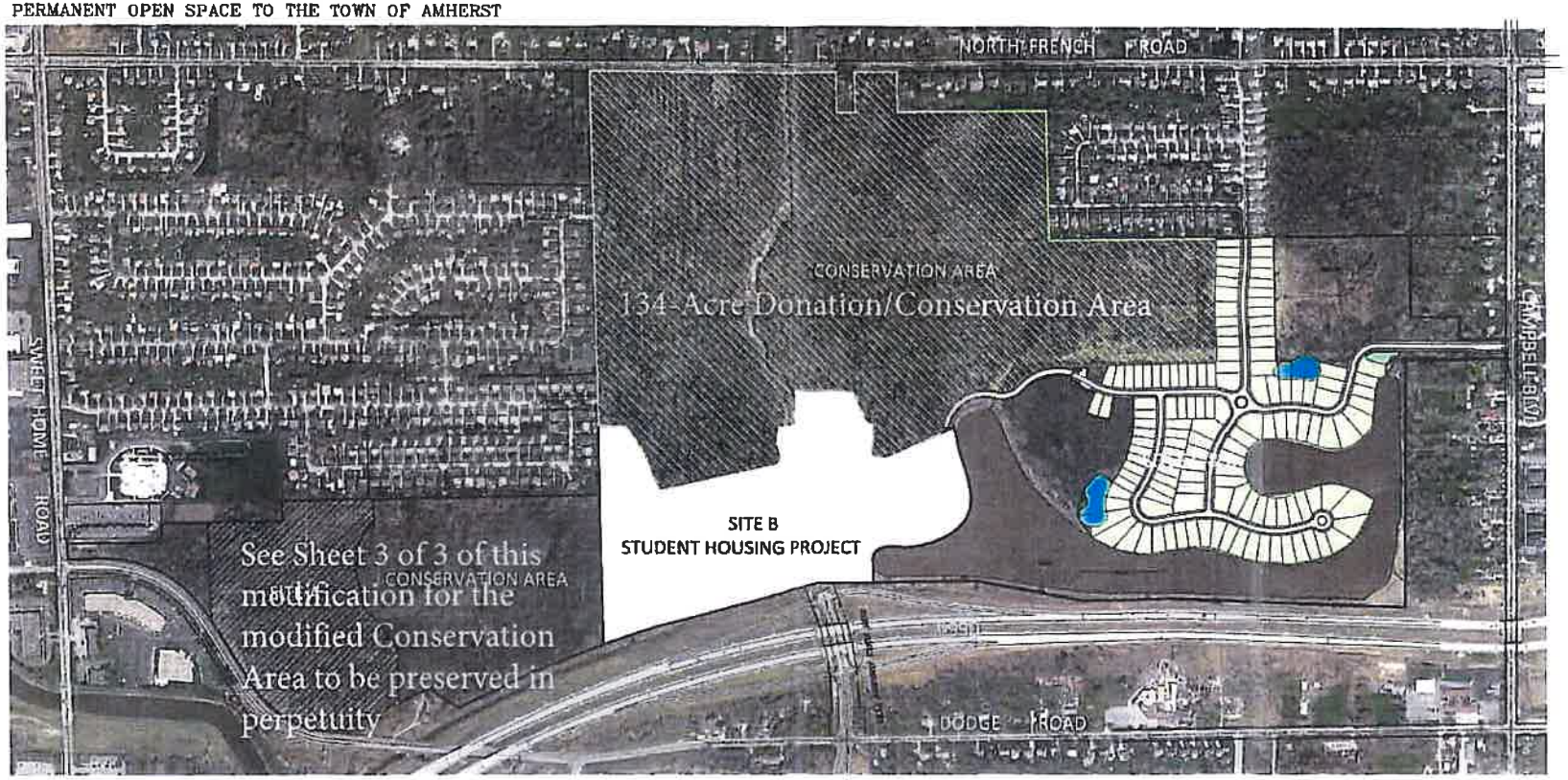
DRAWING NO.
C-100

Project no.: 19.192

© Camina Wood Morris D.P.C.

MUIR WOODS OVERALL PROJECT AREA

PROPOSED DONATION OF APPROXIMATELY 134 ACRES OF PERMANENT OPEN SPACE TO THE TOWN OF AMHERST

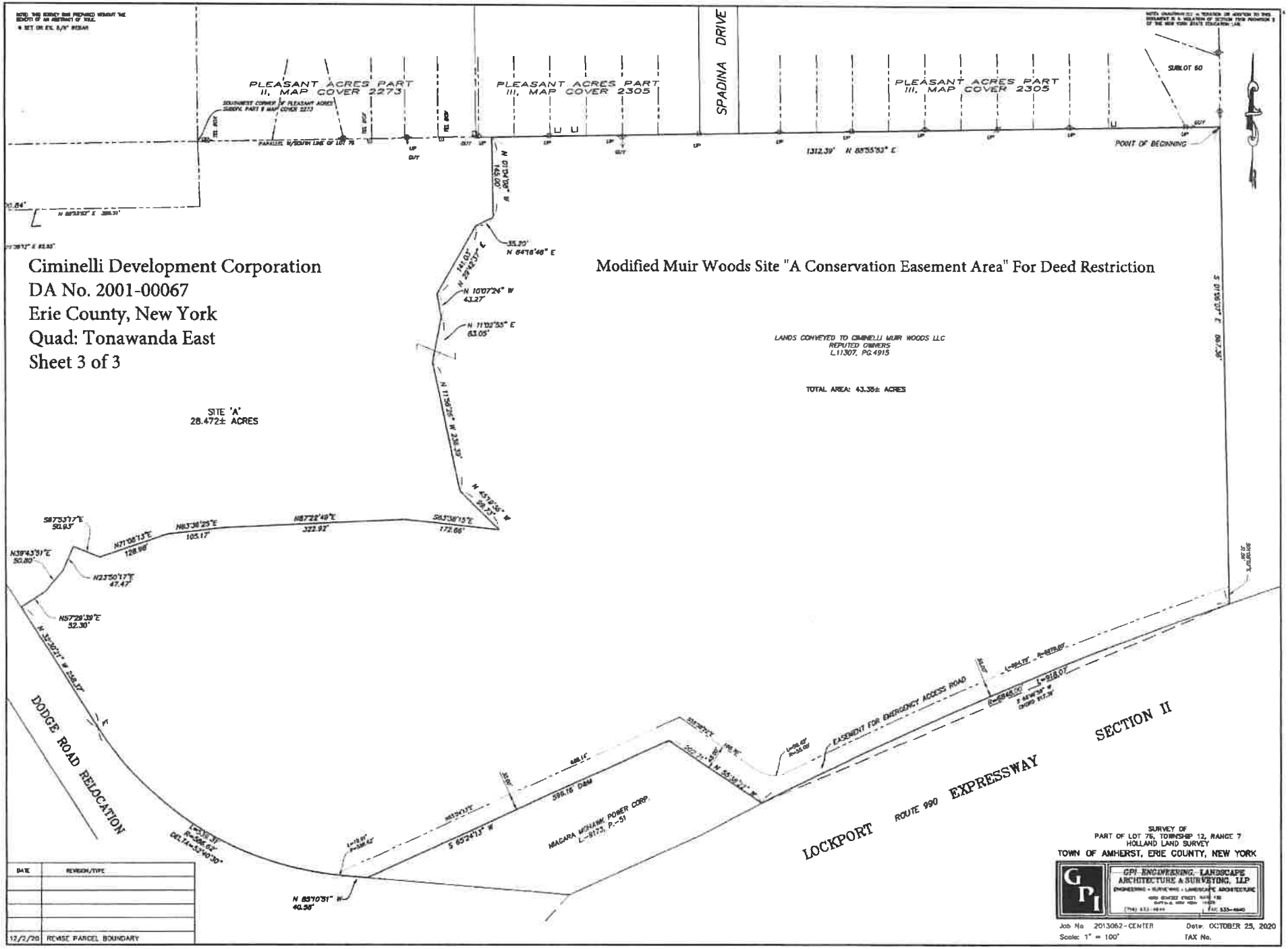


CONSERVATION AREA TO BE DONATED

Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 2 of 3

GPI GREENMAN-PEDERSEN, INC. CONSULTING ENGINEERS

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)


Ciminelli Development Corporation
DA No. 2001-00067
Erie County, New York
Quad: Tonawanda East
Sheet 3 of 3
Modified Muir Woods Site "A Conservation Easement Area" For Deed Restriction
PLEASANT ACRES PART II, MAP COVER 2273
PLEASANT ACRES PART III, MAP COVER 2305
PLEASANT ACRES PART III, MAP COVER 2305
SPADINA DRIVE
SUBLOT 60
POINT OF BEGINNING
1312.39' N 88°55'52" E
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915
TOTAL AREA: 43.35± ACRES
SITE 'A'
28.472± ACRES
DODGE ROAD RELOCATION
LOCKPORT ROUTE 990 EXPRESSWAY
SECTION II
EASEMENT FOR EMERGENCY ACCESS ROAD
NIAGARA MOHAWK POWER CORP.
L.-8173, P.-51
SURVEY OF
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
Job No. 2013062-CENTER
Date: OCTOBER 25, 2020
Scale: 1" = 100'
TAX No.
DATE
REVISION/TYPE
12/2/20
REVISE PARCEL BOUNDARY

Appendix L

NYSDEC Letter of Acknowledgement

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix M

5 Acre Disturbance Letter

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

March 4, 2021

Vaishali Reberholt, PE, CPESC
Town of Amherst Engineering Department
1100 North Forest Road
Amherst, NY 14221

Re: **Sawyer's Landing**
Amherst, NY

Dear Vaishali:

This letter shall serve as our request to have a total of 5 acres disturbed at one time at the above site. Per the NYSDEC General Permit, our site inspections will increase to 2 times per week when 5 acres is reached and will continue until the time the total disturbance is under 5 acres.

If you have any questions regarding the above, please feel free to contact me at 842-3165 [Ext 103] or via e-mail at cwood@cwm-ae.com.

Sincerely,
Carmina Wood Morris, D.P.C.

Christopher Wood, PE

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix N

Engineer's Report

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Carmina · Wood · Morris DPC

487 Main Street Suite 600 Buffalo, New York 14203 P: 716.842.3165 F: 716.842.0263 W: cwm-ae.com

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

ENGINEER'S REPORT

for

Sawyer's Landing

Dodge & Sweet Home Road
Town of Amherst, Erie County, New York

Prepared for

Sawyer's Landing LLC

c/o Severyn Development
43 Central Ave Suite #300
Lancaster, NY 14086

Prepared by

Carmina Wood Morris, D.P.C.

487 Main Street, Suite 500
Buffalo, NY 14203

Telephone: (716) 842-3165
Fax: (716) 842-0263

February 2021



Table of Contents

Written Engineer's Report

Section 1 - Location & Description
Section 2 - Water Service
Section 3 - Sanitary Sewer Service
Section 4 - Storm Sewer Service

Appendices

Appendix A Sanitary Sewer and Water Demand Calculations

Appendix B Storm Sewer System Drainage Calculations

- Existing Runoff
- Proposed Runoff – East
- Proposed Runoff - West
- Green Infrastructure & Water Quality Calculations

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Section 1 - Location & Description

This project is a development of a 17.4 acre site located on the north side of Dodge Road, west of Sweet Home Road in the Town of Amherst. Both Dodge Road and Sweet Home Road are Erie County roads. Proposed is the construction of a mixed use development to include (2) 4-story buildings with a total of 30,000 sf of commercial and 100 apartments, (47) duplex lots and (2) 1-story apartment buildings with a total of 12 units. A bike trail will be constructed on site, this trail will connect to the existing Town of Amherst bike trail on the south side of Dodge Road. The approximately 1 acre westerly portion will remain undisturbed and be deed restricted as permanent open space. The site is currently undeveloped consisting of woods and overgrown brush/grass. NYSDEC and Federal wetlands were delineated on site by Earth Dimensions, Inc. Approximately 6.1 acres of Federal and 1.2 acres of NYSDEC wetlands have been permitted to be impacted. The proposed site development area to be disturbed for this project is approximately 16.4 acres.

Section 2 - Water Service

A new 8" D.I. combined service will be tapped off the existing 24" D.I.P. ECWA water main along the north side of Dodge Road. Following the tap, the 8" D.I. service will continue north into the site where it will enter into a Hot-Box enclosure. Within the Hot-Box enclosure an 8" meter (by ECWA) and an 8" Watts 957 RPZ will be installed. The service will exit the Hot-Box enclosure and then transition into 8" AWWA C-900 PVC. The service will run throughout the site to provide both domestic and fire service to the proposed buildings. Heat & light for testing will be provided in the area of the meter & RPZ to prevent freezing. Drainage due to testing or failure will be to the exterior through a drain, drainage will be away from the enclosure. The owner will be responsible for keeping the drainage ports clear of snow and debris. A total of 4 (four) proposed fire hydrants shall be installed around the site to provide fire protection coverage. There are no existing water services to this site, and therefor none to be killed/abandoned per ECWA requirements.

Domestic Summary:

Peak Operating Demand:	140.6 gpm
Water Main:	24" on Dodge Road
Static Pressure:	105 psi (per ECWA, 98 psi residual)
Friction Loss:	0.0 psi
Loss through meter/RPZ:	13.0 psi
Elevation Loss:	0.0 psi
Pressure after RPZ & Meter:	92 psi
Pressure at 4th floor:	77 psi

Repairs to all devices will be made during off hours, dual backflow preventers are not required. The site is not located in a 100-year flood plain. Disinfection of the

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

water service following installation will be continuous feed, according to AWWA C-651, latest revision.

Section 3 - Sanitary Sewer Service

The proposed sanitary sewer service will connect to the existing 60" sanitary sewer (peanut line) located on the south side of Dodge Road. In order to connect to this sewer, a public sewer extension along the south side of Dodge Road will be required. This public extension will consist of a total of 643 LF of 8" SDR-35 PVC at a minimum slope of 0.4%.

The proposed private on site sewer mains will consist of 8" SDR-35 PVC at a minimum slope of 0.4%. Each of the proposed commercial buildings and apartment buildings will have a 6" SDR-35 PVC sanitary sewer lateral at a minimum slope of 1.0% tied into the private main. The duplex units will have a 4" SDR-35 PVC sanitary sewer lateral at a minimum slope of 1.0% tied into the private main. The 8" private main will tie into the proposed public extension on the south side of Dodge Road across from the SE portion of the project site.

A downstream sanitary sewer capacity analysis (DSCA) is required to be prepared for the site given the flows will exceed 2,500 gpd. This report is included in Appendix A.

Design Parameters

Housing: use 110/gpd/bedroom
Q = 412 bedrooms x 110 gpd/bed = 45,320 gpd

Commercial: use 0.1 gpd/sf
Q = 20,000 sf x 0.1 gpd/sf = 2,000 gpd

use 15 gpd/employee
Q = 20 employees x 15 gpd/emp = 300 gpd

Restaurant: use 35 gpd/seat
Q = 100 seats x 35 gpd/seat = 3,500 gpd

Total = 51,120 gpd (average)

using a 3.97 PF (see appendix A for calc)

Total = 51,120 x 3.97 = 202,908 gpd = 140.91 gpm = 0.314 cfs

The hydraulic loading rates per "Design Standard for Wastewater Treatment Works" 2014, NYSDEC. See attached Sanitary Sewer & Water Calculations for additional information.

I/I Mitigation:

Peak Flow = 140.91 gpm

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

4:1 offset = 140.91 x 4 = 563.63 gpm
Mitigation Credit = $250/gpm
I/I Mitigation = 563.63 gpm x $250/gpm = $140,908.66
Refer to Appendix A for additional information.

Section 4 - Storm Sewer Service

The existing site is generally flat and slopes west with portions sloping east. The portion that slopes west settles in a low area and once the capacity of that area is exceeded, sheet flow continues towards Sweet Home Road and is collected by an existing 12" pipe on the north side of Dodge Road. This pipe flows to the Erie County system on Sweet Home Road. The portion that flows east flows to the offsite wetlands.

Currently Dodge Road does not have a drainage system. A series of catch basins and pipes will be installed in the green area on the north side of Dodge Road to collect the road drainage. The west portion of this system will connect to the existing closed drainage system on Sweet Home Road. The east portion will discharge to the Ellicott Creek diversion channel using and existing discharge point. This new system will also convey the proposed discharge from the site as described below.

The proposed onsite storm sewer system consists of smooth interior and perforated HDPE pipes connected by a series of catch basins, manholes and yard drains. The site is split into a storm water management area on the east and west sides.

West Side

The west side of the site has (2) bioretention areas which portions of the westerly area will discharge to. These bioretention areas along with the remainder of the west portion of the site will discharge to the underground detention area. Note that the yard drains installed along the north property line discharge to the underground detention area. An outlet structure in the SW portion of this area will control runoff to at or below existing runoff flow rates. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Sweet Home Road system.

Underground Detention Summary

(286) ADS Stormtech SC-740 chambers
Top of stone elev. = 573.00
Top of chamber elev. = 572.50
Bottom of chamber elev. = 570.00
Bottom of stone elev. = 569.50
Total storage = 18,574 CF

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Sawyer's Landing
3/4/2021
4 of 5

Event	Ex. Discharge	Pro. Discharge	Elev.
1 yr	0.87 cfs	0.33 cfs	570.29
2 yr	1.34 cfs	0.68 cfs	570.46
5 yr	2.14 cfs	1.05 cfs	570.79
10 yr	2.94 cfs	1.28 cfs	571.13
25 yr	4.34 cfs	1.61 cfs	571.73
50 yr	5.69 cfs	3.61 cfs	572.23
100 yr	7.33 cfs	4.83 cfs	572.92

East Side

The east side of the site has a bioretention area and wet detention pond which this portion of the site discharges to. The NE portion of the site discharges to a forebay which spills into the main micropool portion of the wet detention basin. The SE portion of the site discharges to the bioretention area which also spills into the main micropool portion of the site. An outlet control structure is located in the SE portion of the micropool and controls the discharge from this storm water management area. Spillways are also located on the east portion of the micropool which will discharge to the existing wetlands to the east in order to not cut off all flow from this site into this area. The discharge from the outlet control structure will discharge to the new system on Dodge Road which flows to the Ellicott Creek diversion channel.

The bioretention areas and wet detention pond for the project area are sized to provide 100% of the required Runoff Reduction Volume (RRv) and Water Quality Volume (WQv) treatment for the overall site in accordance with Chapter 4 of the NYSDEC Stormwater design manual. The soils in the vicinity of the bioretention areas are mainly USDA hydrologic group 'D' and therefore the system will be installed with underdrains per NYSDEC requirements. The bioretention areas will consist of 6" and 8" perforated HDPE underdrains in 12" of drainage gravel, followed by filter fabric and 18" minimum of planting soil. Overflow yard drains will be installed to allow 6" maximum temporary ponding for RRv treatment. The east bioretention area (area #3) spills into the wet detention pond and the underdrain pipe ties together with the pond discharge and flows to Dodge Road. The east bioretention areas (areas #1 & #2) have a catch basin to act as the spillway and this catch basin and the underdrain pipes discharge to the underground detention area.

Storm Water Management Area Summary

Forebay
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 569.00

Micropool
Top of basin elev. = 576.80
Permanent water elev. = 575.00
Aquatic bench elev. = 574.50
Bottom of basin elev. = 563.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Sawyer's Landing
3/4/2021
5 of 5

Overall Storm Water Summary

WQv Provided = 152,678 cf (pond)
WQv Provided = 6,948 cf (bioretention)
WQv Provided = 159,626 cf (total)

Bioretention Area Summary:

Area	Rim Elev.	Bottom Elev.	Area
1	574.50	574.00	2,300 sf
2	574.50	574.00	2,600 sf
3	575.50	575.00	11,000 sf
		Total Provided =	15,900 sf

Water Quality Summary:
WQv req'd = 28,804 cf (0.661 ac-ft)
RRv min. req'd = 5,518 cf (0.127 ac-ft)
RRv provided = 8,662 cf (0.199 ac-ft)
WQv provided = 159,626 cf (3.665 ac-ft)
Total RRv + WQv provided = 8,662 cf + 159,626 cf = 168,287 cf (3.868 ac-ft)

Detention: Comparison of the existing 1-year vs. the proposed 1-year runoff
Comparison of the existing 10-year vs. the proposed 10-year runoff
Comparison of the existing 100-year vs. the proposed 100-year runoff

Storm pipes: 10-year storm

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix A

Sanitary Sewer and Water Demand Calculations

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 21.011 Date: 2/19/2021
Project Name: Sawyer's Landing
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer Demand Calcs
Sheet: 1 of 1

1.h

Sanitary Sewage Demand Calculations:

West - Mixed Use Buildings							
0.1	gal/d/sf	x 20,000	sf	=	2,000	gpd	*use 0.1 gallons per day per square foot
35.0	gal/d/seat	x 100	seats	=	3,500	gpd	*use 35 gallons per day per seat (fast food)
15	gal/d/employee	x 20	employees	=	300	gpd	*use 15 gallons per day per employee
West - Apartments							
220	gal/d/unit	x 100	units	=	22,000	gpd	*use 220 gallons per day per 2-bedroom unit
North - Apartments and Duplex Buildings							
220	gal/d/unit	x 94	units	=	20,680	gpd	*use 220 gallons per day per 2-bedroom unit
220	gal/d/unit	x 12	units	=	2,640	gpd	*use 220 gallons per day per 2-bedroom unit
Total Site Sanitary Demand:				=	51,120	gpd	
				=	0.051	MGD	
Find Peak Sanitary Demand:				=	0.079	cfs	

Peaking Factor based on Population:
Total demand: 51,120 gpd / 100 gpcd = 511 per capita

Population (P) = 511 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 3.97

Peak Sanitary Demand = 51,120 x 3.97 = 202,908 gpd
= 0.203 MGD
= 0.314 cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow	=	202,908 gpd	=	140.91 gpm
4:1 offset flow per NYSDEC requirements	=	140.9 x 4	=	563.63 gpm req'd
Mitigation Credit	=	$250 / gpm		
Mitigation Agreement Amount	=	**$140,908.66**		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 21.011 Date: 2/19/2021
Project Name: Sawyer's Landing
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer & Water Demand Calcs
Sheet: 2 of 2

Water Demand Calculations (domestic):

Site

51,120 gpd x 1.1 = 56,232 gpd *use 110% of sewage demand

*use 1.8 peaking factor and assume a 12 hour day

56,232 gpm x 1day/12hr x 1hr/60min = 78.10 gpm

78.10 gpm x 1.8 = 140.58 gpm Q_{peak}

Headlosses:

Q_{peak} = 140.58 gpm
Pipe = 8 inch Ductile Iron C = 140
Length = 20 LF (approx. distance from tap to RPZ)

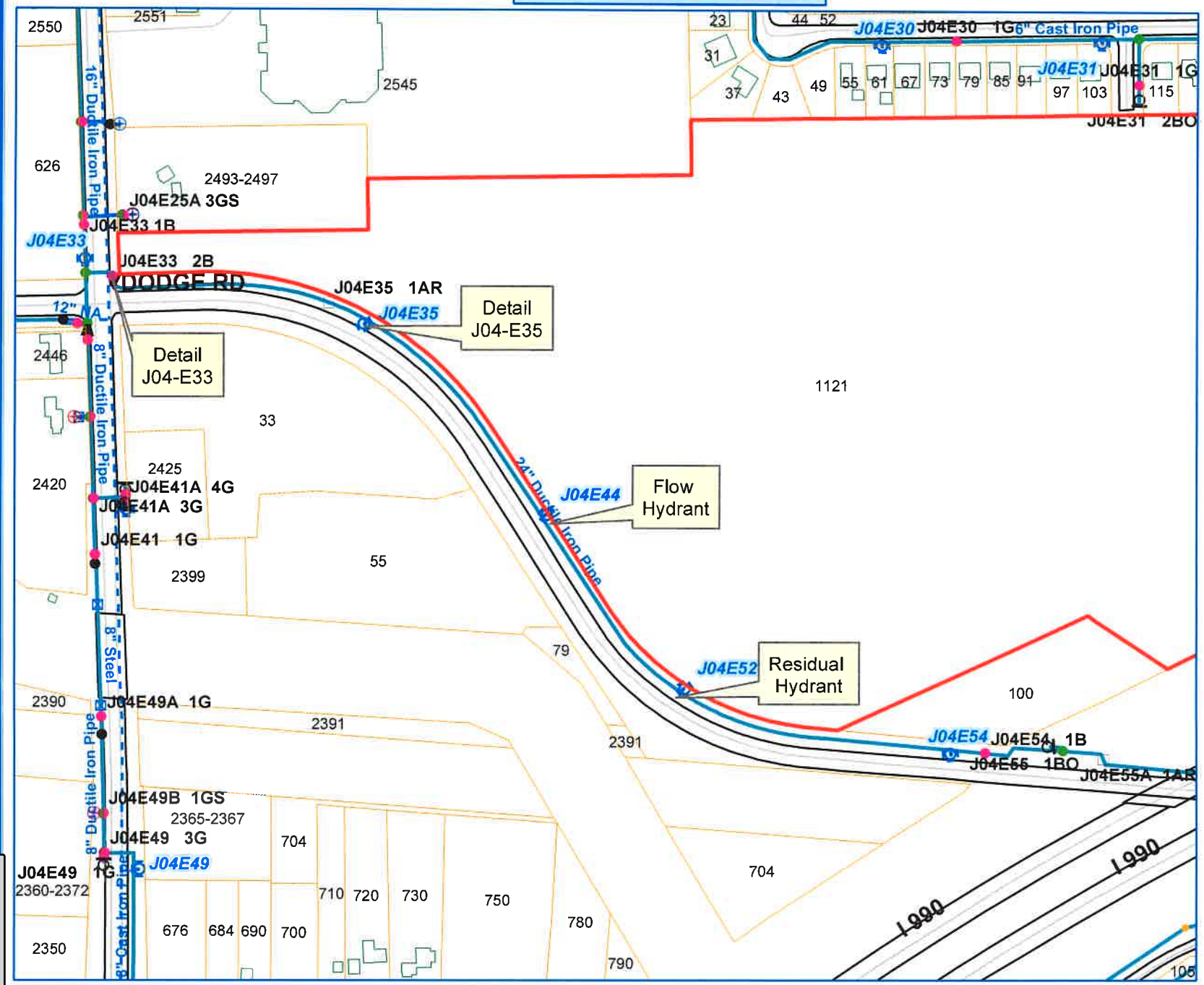
$$H_L = \frac{10.44\, L\, Q^{1.85}}{C^{1.85}\, D^{4.866}} = \frac{10.44(20)(21.51)^{1.85}}{(140)^{1.85}\,(6)^{4.866}} = 0.01 \text{ ft} = 0.00 \text{ psi}$$

Δ elev = 0 ft = 0.00 psi
Loss through meter = 1 psi
Loss through RPZ = 12 psi
Total Losses = 13.0 psi
Static Pressure = 105 psi (per ECWA - residual pressure 98 psi)
Residual Pressure Following RPZ = 105 - 13.0 = 92.0 psi (available after rpz & meter)

Residual Pressure 30" above 4th Floor
Δ elev = 35 ft = 15.16 psi
Residual Pressure 30" above 4th Floor = 76.8 psi

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

1121 Dodge Rd., AMTN



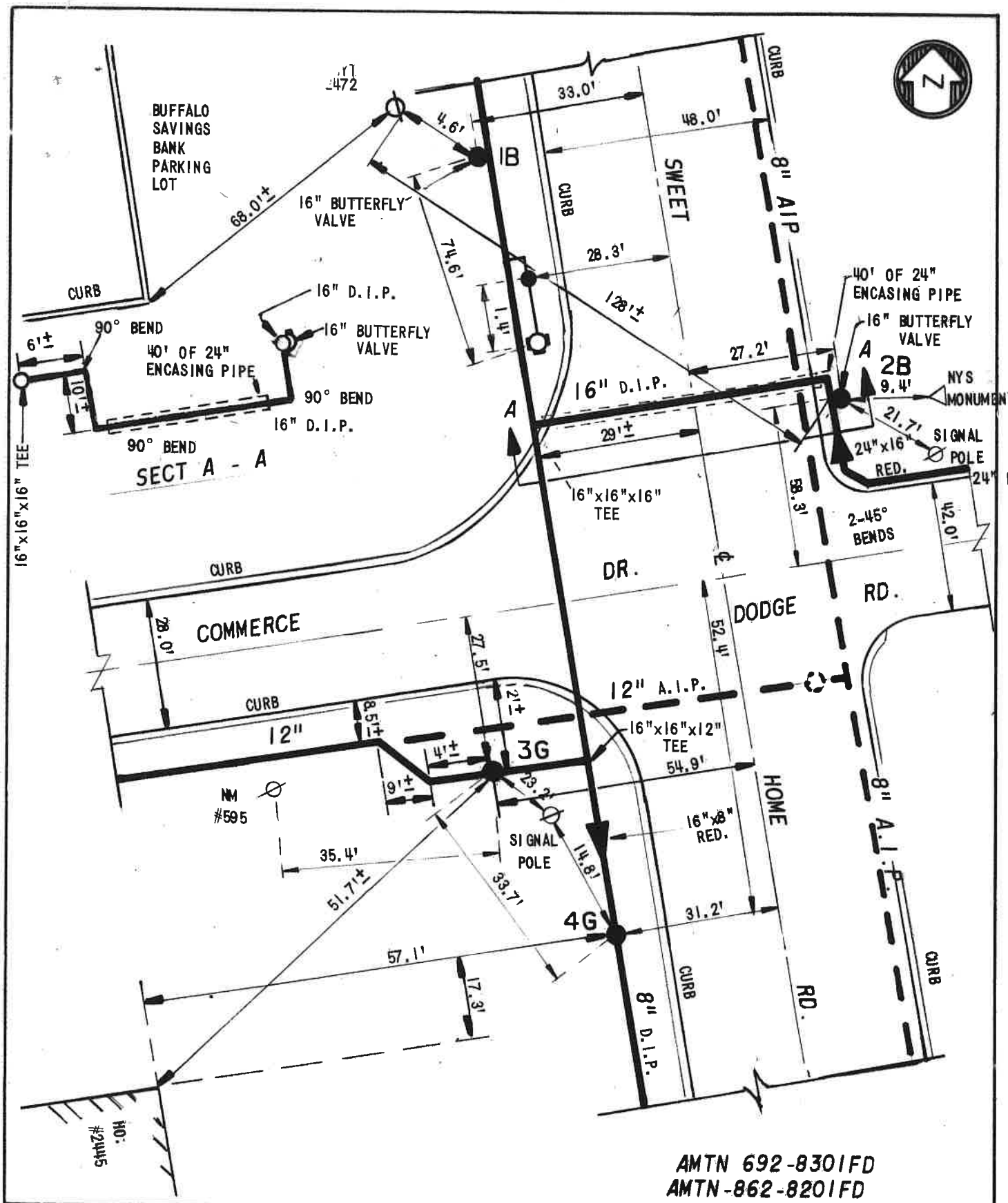
N

1 inch = 300 feet

Legend:

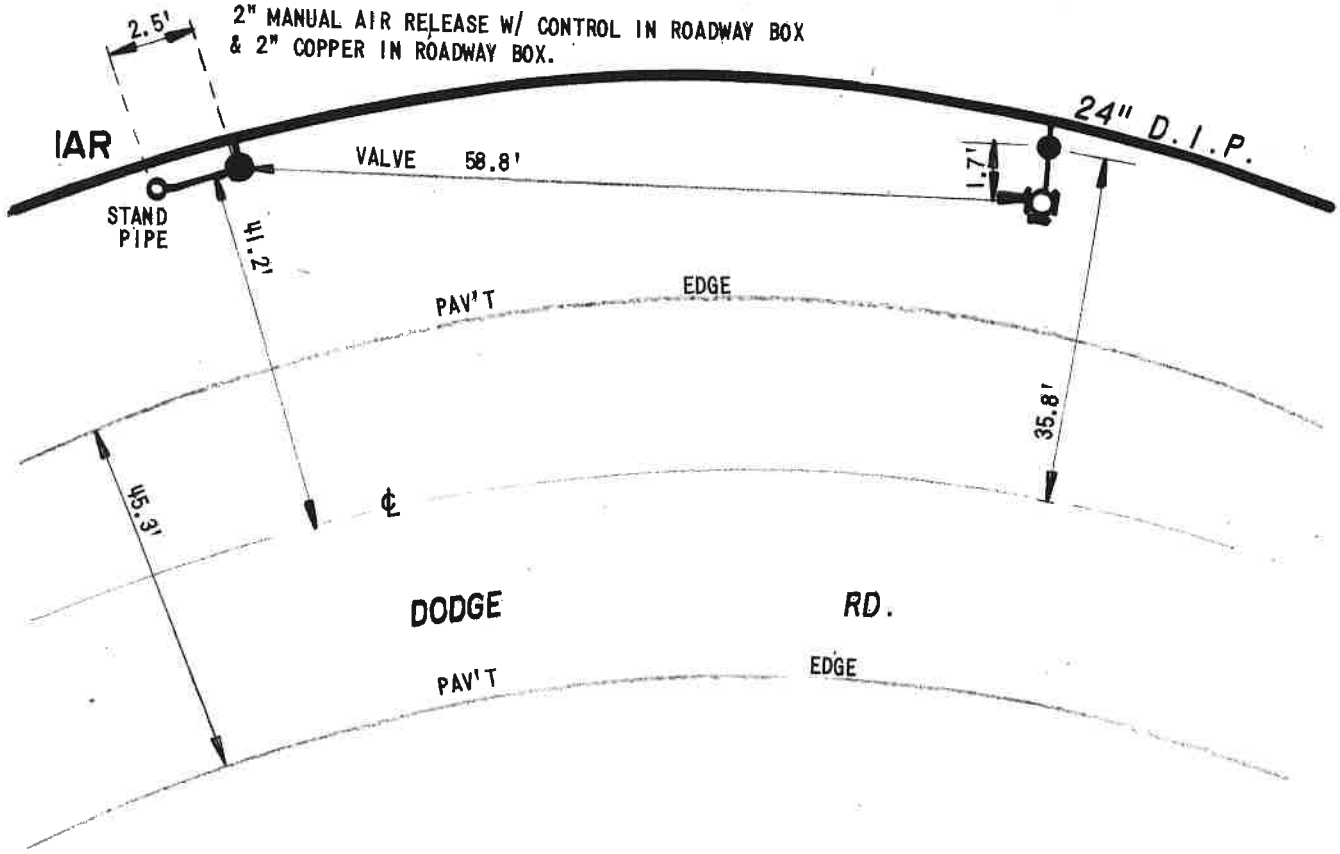
Parcels





ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	REVISED DR. BY: RLS DATE: 6-30-06 NOT TO SCALE	TOWN OF AMHERST W.D 15C	J04-E33 DETAIL SHEET NO.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



AMTN-692-8301-FD

SHEET 1

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	REVISED DR. BY: RLS DATE: 6-30-06 NOT TO SCALE	TOWN OF AMHERST W.D. 15C	J04-E35 DETAIL SHEET NO.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

AMHERST
Size of Main/Branch: 24"/6" Fire District: 22028 GETZVILLE FD 11 Water District: 315 AMHERST DISTRICT 15C

Performed By: JRS & DPZ

Comments: HYDRANT FLOW TEST REQUESTED BY BILL GROFF
PRATT & HUTH, PHONE: 633-4844, FAX: 633-4940

Dischrge Coef: .90 Elvtn Usgs(ft): Static(psi): 105 Residual(psi): 98 Required Residual Pressure(psi): 20
Gallons Used..: 7,680 Total Flow(gpm): 2,558 Flow at Reqd Resid Pressure: 9,850

Flow Hydrants:

C	Flow Hyd	Flow Hydrant Address	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
_	J04 E44	DODGE RD	24"/6"	1:	2.50	58.0	1,279	
		2ND HYD E/O SWEET HOME RD		2:	2.50	58.0	1,279	
				3:			Tot Flow:	2,558

Bottom

I=Flow Hydrant Inquiry
ENTER=Continue F3=Exit F6=Maintain Test F7=Test Hydrant Inquiry F15=Print Test Information

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Downstream Sewer Capacity Analysis

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Muir Woods Site

Sweet Home & Dodge Road, Amherst New York

Downstream Sewer Capacity Analysis Report

Project Description

This new site development project will consist of the construction of apartment buildings, duplexes, office, restaurant, and retail space. Construction will also include on-site utility, landscaping improvements, and associated roads and parking. The overall acreage of the site is 28.47 acres. The site is located at Sweet Home Road and Dodge Road on a western portion of parcel 40.08-3-13.1 in the Town of Amherst.

The proposed sewer for this project will tie into the existing 60" RCP Peanut line along Dodge Road. Sewage will then be conveyed west and then eventually north through the 84" West Side Interceptor to the Town of Amherst Wastewater Treatment Facility #16.

Node 1 – Dodge Road (60"):

Existing Peak Flow measured (wet weather event)	=	40.602 cfs (21.851 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	40.939 cfs

Theoretical capacity of existing 60" RCP pipe @ 0.07% = 81.366 cfs

Conclusion: The proposed peak flow is less than the capacity of the 60" pipe, therefore there is sufficient capacity. At no time during the monitoring did the flow depth exceed the pipe diameter at Node 1 of the downstream monitoring points during the rain events monitored.

Node 2 – North Ellicott Creek Rd (60")

Existing Peak Flow measured (wet weather event)	=	99.524 cfs (53.561 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	99.861 cfs

Theoretical capacity of existing 60" pipe = 82.873 cfs (44.60 mgd)

Conclusion: Current flows the day following the 1.21" rainfall event exceeded the capacity of the existing 60" sewer pipe, but at no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole. In addition, Sanitary Sewer Overflow (SSD) did not occur. I/I mitigation shall be required for the contribution proposed for this project.

Notes:

Pipe slopes, sizes and materials provided by Town of Amherst Engineering Department Sewer Maintenance Division

* Converted from measurements in TECSmith report dated 8/12/20

** See Sanitary Sewage Demand Calculations

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Node 3 – Sweet Home (66")

Existing Peak Flow measured (overall)	=	69.058 cfs (39.601 mgd)*
Proposed Muir Woods Peak Flow	=	0.337 cfs **
Proposed Peak Flow	=	69.395 cfs

Capacity of existing 66" pipe = 106.657 cfs (57.40 mgd)

Conclusion: The proposed peak flow is less than the capacity of the 66" pipe, therefore there is sufficient capacity. At no time during the monitoring did the flow depth exceed the pipe diameter at Node 3 of the downstream monitoring points during the rain events monitored.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Notes:

Pipe slopes, sizes and materials provided by Town of Amherst Engineering Department Sewer Maintenance Division

* Converted from measurements in TECSmith report dated 8/12/20

** See Sanitary Sewage Demand Calculations

Location Map

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Muir Woods Site - Sweet Home and Dodge Rd



8/18/2020, 8:51:26 AM

Parcels

Municipal Boundaries

1:9,028

0 300 600 1,200 ft

0 90 180 360 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, :GIS .gov

Sanitary Demand Calculations

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

CARMINA WOOD MORRIS, D.P.C.
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 19.192 Date: 8/24/2020
Project Name: Muir Woods
Project Address: Sweet Home Road and Dodge Road - Amherst, NY
Subject: Sanitary Sewer Demand Calcs
Sheet: 1 of 1

1.h

Sanitary Sewage Demand Calculations:

West - Mixed Use Buildings							
0.1 gal/d/sf	x	15,000	sf	=	1,500	gpd	*use 0.1 gallons per day per square foot
35.0 gal/d/seat	x	200	seats	=	7,000	gpd	*use 35 gallons per day per seat (fast food)
15 gal/d/employee	x	20	employees	=	300	gpd	*use 15 gallons per day per employee
West - Apartments							
220 gal/d/unit	x	110	units	=	24,200	gpd	*use 220 gallons per day per 2-bedroom unit
North - Apartments and Duplex Buildings							
220 gal/d/unit	x	90	units	=	19,800	gpd	*use 220 gallons per day per 2-bedroom unit
220 gal/d/unit	x	12	units	=	2,640	gpd	*use 220 gallons per day per 2-bedroom unit

Total Site Sanitary Demand: = 55,440 gpd
= 0.055 MGD
Find Peak Sanitary Demand: = 0.086 cfs

Peaking Factor based on Population:
Total demand: 55,440 gpd / 100 gpcd = 554 per capita

Population (P) = 554 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 3.95

Peak Sanitary Demand = 55,440 x 3.95 = 219,029 gpd
= 0.219 MGD
= 0.339 cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow	=	219,029 gpd	=	152.10 gpm	
4:1 offset flow per NYSDEC requirements	=	152.1 x 4	=	608.41 gpm req'd	
Mitigation Credit	=	$250 / gpm			
Mitigation Agreement Amount	=	**$152,103.30**			

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TECSmith Monitoring Report

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Date	Node 1			Node 2			Node 3			Rain:
	Dodge Rd 60" (60")			North Ellicott Creek Rd. (60")			Sweethome 66 (66")			
	FLOW (GAL x 1,000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1,000)	PEAK FLOW (MDG)	PEAK LEVEL (IN)	FLOW (GAL x 1	PEAK FLOW (MDG)	PEAK LEVEL (IN)	(inches)
7/8/2020	4186.283	8.161	14.473	7265.409	8.598	16.319	4800986323.2	8.025	19.770	0
7/9/2020	6195.964	8.253	14.556	7387.504	8.661	16.273	6645115872.8	8.044	19.590	0
7/10/2020	6231.790	8.143	14.521	7625.321	9.362	16.873	6667623530.3	8.079	19.790	0
7/11/2020	10033.769	21.851	39.526	20780.607	53.561	76.701	10540796680.3	28.096	66.000	1.21
7/12/2020	9184.078	14.374	22.474	11292.759	17.205	23.420	9306202243.7	13.750	25.810	0
7/13/2020	7070.585	9.115	15.714	11243.925	29.525	33.420	7609650153.8	9.108	20.730	0.47
7/14/2020	6974.494	9.101	15.869	9685.896	13.288	20.168	7274548275.2	9.280	20.720	0
7/15/2020	6591.385	8.845	15.512	8174.879	9.503	17.013	6975378581.5	8.831	20.460	0
7/16/2020	9916.241	20.532	27.213	18886.012	44.070	43.892	12067803314.2	39.601	32.990	0.86
7/17/2020	10096.644	16.639	23.493	12451.728	18.137	24.043	10307997546.4	14.224	26.250	0.03
7/18/2020	8256.593	10.757	17.307	9766.538	11.556	18.960	8664937727.1	10.772	22.350	0
7/19/2020	7589.558	11.382	18.060	10166.964	17.245	24.128	8331695207.5	24.048	23.030	0.21
7/20/2020	7269.757	9.235	16.144	8853.911	10.160	18.118	7730113857.4	9.669	20.890	0
7/21/2020	6681.658	8.895	15.365	8179.097	9.991	17.880	1603593925.8	9.197	20.330	0
7/22/2020	8633.887	15.390	22.402	15950.443	42.105	43.300	16326027301.0	29.736	27.790	0.42
7/23/2020	7327.211	9.216	16.027	9664.310	11.130	18.508	6916249204.1	19.172	20.800	0
7/24/2020	6764.464	8.779	15.317	8434.117	9.760	17.405	8296938032.2	15.723	20.360	0
7/25/2020	6426.122	8.861	15.407	8159.333	9.969	17.608	6871634377.4	12.359	20.320	0
7/26/2020	6409.255	8.667	15.297	8027.060	9.774	17.372	6816880470.0	9.106	20.360	0
7/27/2020	6487.339	8.269	15.107	7871.954	9.244	16.902	6854655651.9	8.336	20.100	0.03
7/28/2020	6298.427	8.016	14.780	7696.223	9.134	16.757	6692447010.5	8.080	19.740	0.01
7/29/2020	8340.302	16.584	23.592	12134.192	36.728	39.530	9170179156.5	20.222	29.310	0.18
7/30/2020	6969.955	8.785	15.769	8383.294	9.650	17.268	7523641190.2	9.272	20.460	0
7/31/2020	6450.443	8.415	15.050	7762.583	9.287	16.964	7145517425.5	9.079	20.020	0
8/1/2020	6190.340	8.162	14.979	7900.808	9.762	17.305	6954528215.3	13.188	20.010	0
8/2/2020	7093.727	10.270	17.033	9801.968	15.922	22.240	7827565960.7	17.585	22.270	0.29
8/3/2020	6767.967	8.538	15.346	8117.853	9.663	17.172	7374180322.3	9.104	20.460	0
8/4/2020	6796.062	10.365	17.180	8920.731	24.649	28.896	7717920498.0	19.489	24.920	0.9
8/5/2020	4464.403	13.072	20.203	5583.196	26.407	31.097	3896577334.0	14.011	25.600	0
---	---	---	---	---	---	---	---	---	---	4.61

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Date: August 12, 2020

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: Muir Woods Capacity Analysis

Christopher Wood
487 Main Street, Suite 600
Buffalo, New York 14203
P: (716) 842-3165
F: (716) 842-0263

Project Name: Muir Woods Capacity Analysis

Flow Monitoring Period: July 8, 2020 to August 5, 2020

Rain Events (> 0.5-inches) Monitored: July 11 (1.21"), July 16 (0.86"), and August (0.90")

Number of Monitoring Nodes: Three (3) downstream manholes

Node Locations and Descriptions:

- Node 1 Dodge Rd 60" (60")
- Node 2 North Ellicott Creek Rd. (60")
- Node 3 Sweethome 66 (66")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below)

- At no time did the flow depth exceed pipe diameter at Node 1 and Node3 of the downstream monitoring points during the rain events monitored.
- One time the flow depth exceed pipe diameter at Node 2 of the downstream monitoring points during the rain events monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

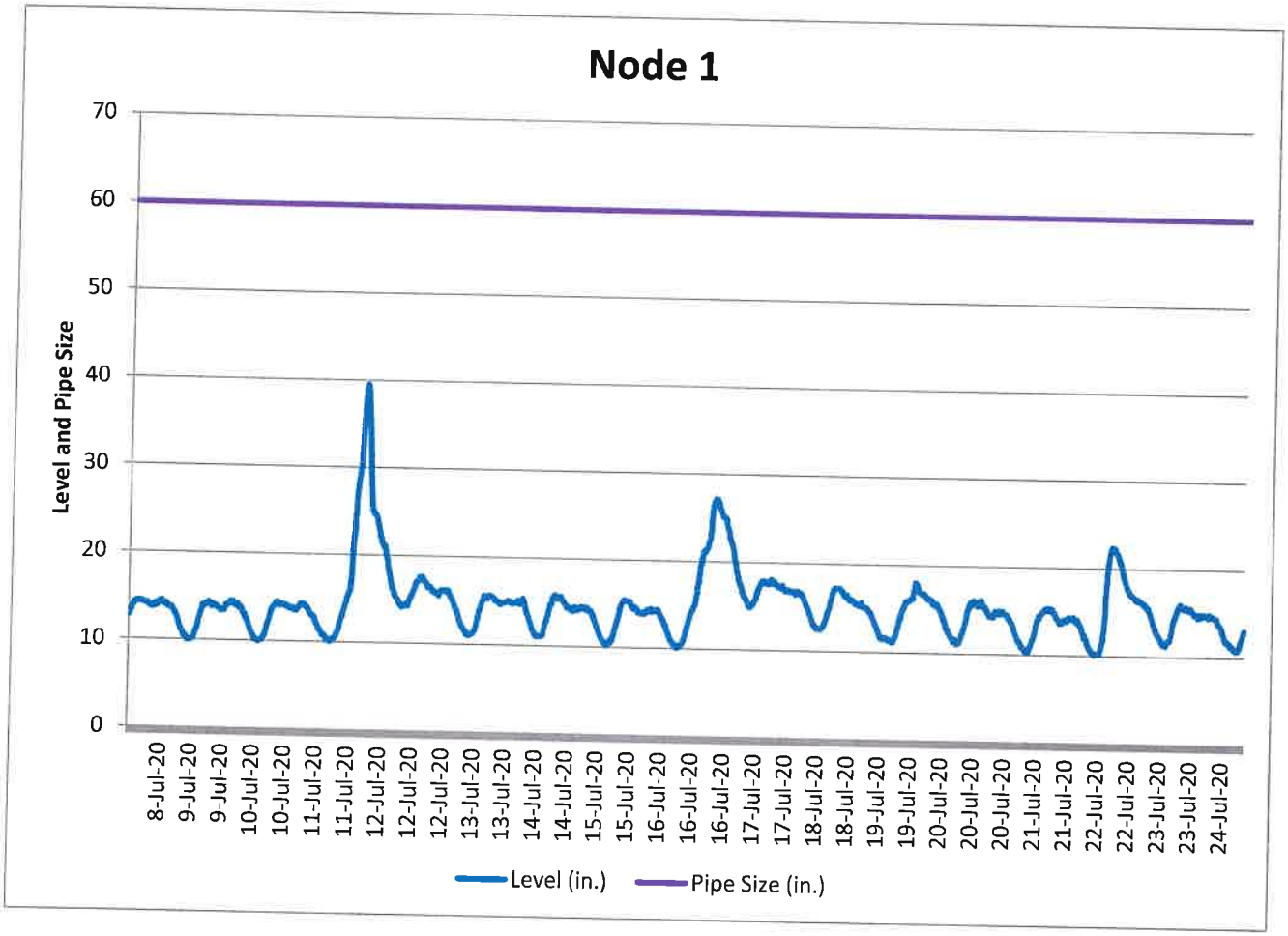
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 1.

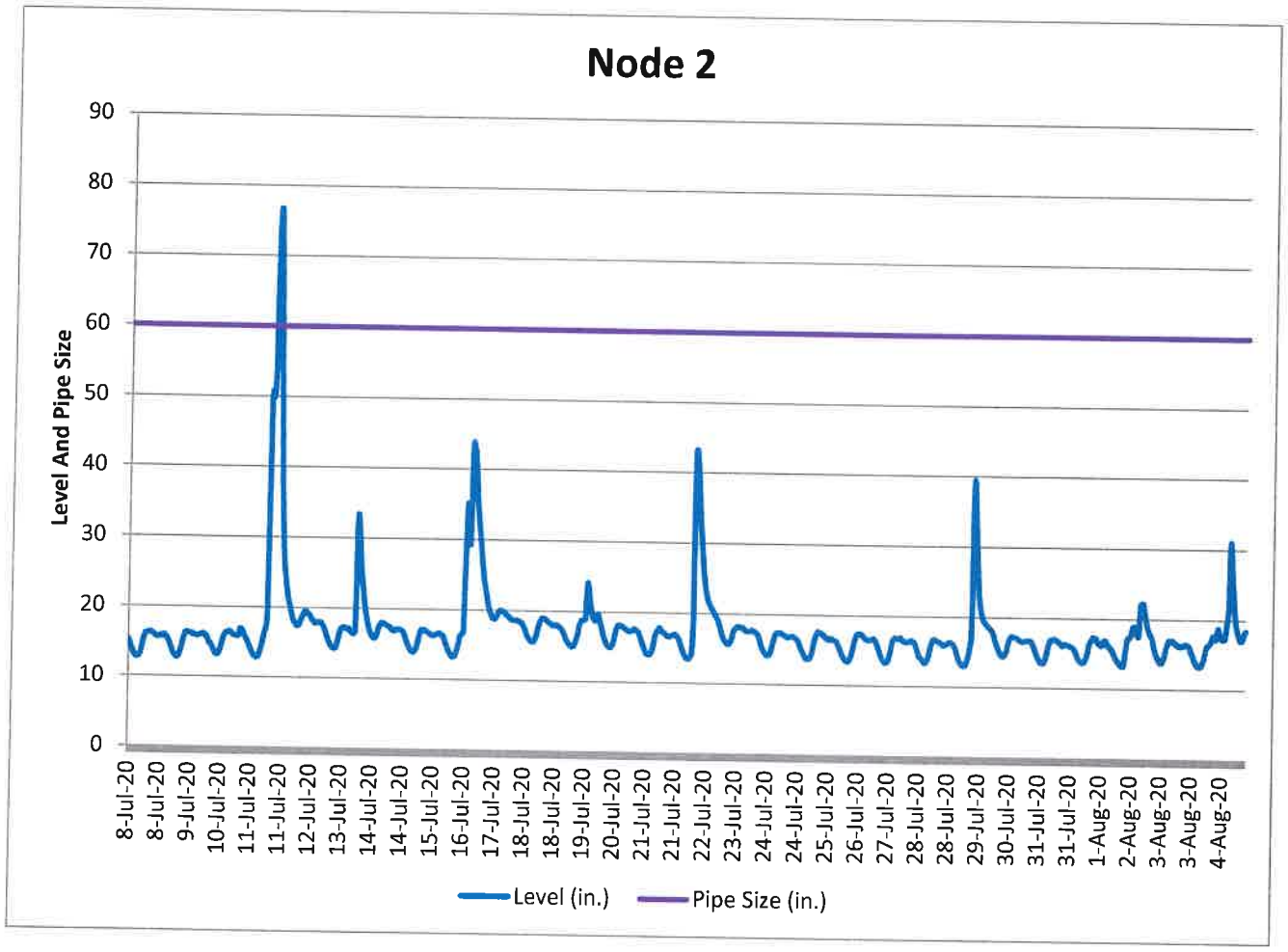


Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

- One time during the monitoring period did depth of flow exceed pipe diameter at Node 2.

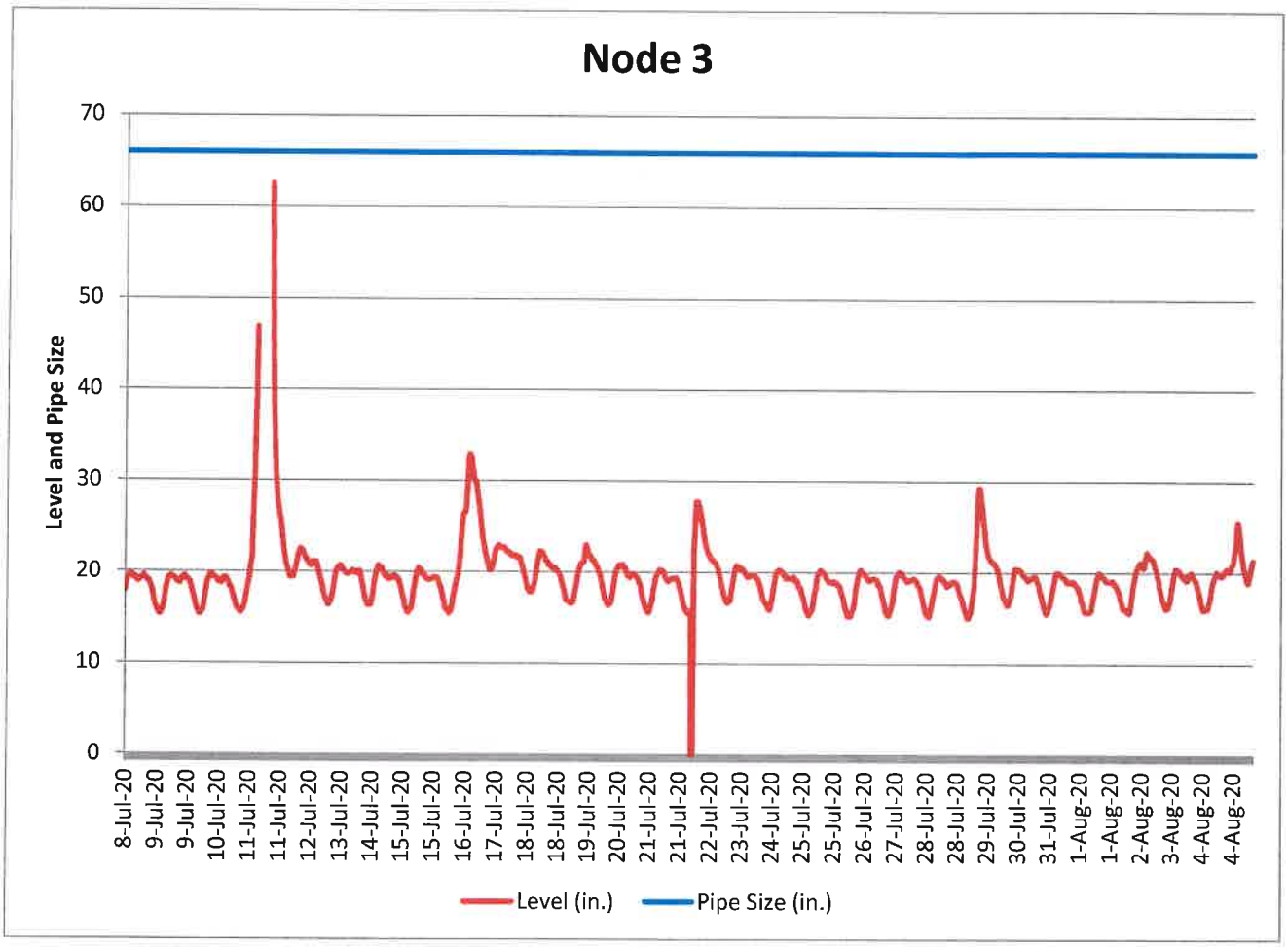


Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 3.



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

(T) Amherst Engineering Department Sewer Maintenance Division Downstream Routing Map

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER

AMHERST PEANUT LINE & WEST SIDE INTERCEPTOR

460 Dodge Road - Proposed 26 Unit Apartment Building - Amherst Consolidated Sewer District

Project Location

Sanitary Routing

May 2020

FLOW LOCATION POINT

Flows Updated: 1/18/19

84-Inch West Side Interceptor
Capacity: 104.10 mgd
21.1 mgd Avg. Daily Flow
26.85 mgd Daily Peak Flow
92.00 mgd 2 yr.-6 hr. Flow

66-Inch Peanut Line
Capacity: 57.4 mgd
8.37 mgd Avg. Daily Flow
11.55 mgd Daily Peak Flow
36.50 mgd 2 yr.-6 hr. Flow

54-Inch Peanut Line
Capacity: 36.0 mgd
3.55 mgd Avg. Daily Flow
5.06 mgd Daily Peak Flow
19.15 mgd 2 yr.-6 hr. Flow

48-Inch Peanut Line
Capacity: 24.6 mgd
1.90 mgd Avg. Daily Flow
2.82 mgd Daily Peak Flow
5.98 mgd 2 yr.-6 hr. Flow

18-Inch Peanut Line
Capacity: 2.84 mgd
0.62 mgd Avg. Daily Flow
0.95 mgd Daily Peak Flow
1.55 mgd 2 yr.-6 hr. Flow

Project Location
460 Dodge Rd.

60-Inch Peanut Line
Capacity: 44.6 mgd
6.71 mgd Avg. Daily Flow
9.10 mgd Daily Peak Flow
26.45 mgd 2 yr.-6 hr. Flow

60-Inch West Side Interceptor
Capacity: 49.1 mgd
12.64 mgd Avg. Daily Flow
15.33 mgd Daily Peak Flow
54.10 mgd 2 yr.-6 hr. Flow
Chestnut Ridge B.P. 5.0 mgd

54-Inch Peanut Line
Capacity: 36.0 mgd
3.01 mgd Avg. Daily Flow
4.35 mgd Daily Peak Flow
18.50 mgd 2 yr.-6 hr. Flow

30-Inch Peanut Line
Capacity: 8.71 mgd
1.25 mgd Avg. Daily Flow
1.83 mgd Daily Peak Flow
3.72 mgd 2 yr.-6 hr. Flow

30-Inch Stahl Road Trunk
Capacity: 7.35 mgd
3.65 mgd Avg. Daily Flow
4.55 mgd Daily Peak Flow
7.30 mgd 2 yr.-6 hr. Flow

State University of New York at Buffalo

18-Inch Tonawanda Road
Capacity: 2.02 mgd
0.55 mgd Avg. Daily Flow
0.90 mgd Daily Peak Flow
2.20 mgd 2 yr.-6 hr. Flow

54-Inch West Side Interceptor
Capacity: 38.5 mgd
11.27 mgd Avg. Daily Flow
13.88 mgd Daily Peak Flow
56.65 mgd 2 yr.-6 hr. Flow

48-Inch West Side Interceptor
Capacity: 24.6 mgd
3.10 mgd Avg. Daily Flow
4.15 mgd Daily Peak Flow
19.75 mgd 2 yr.-6 hr. Flow

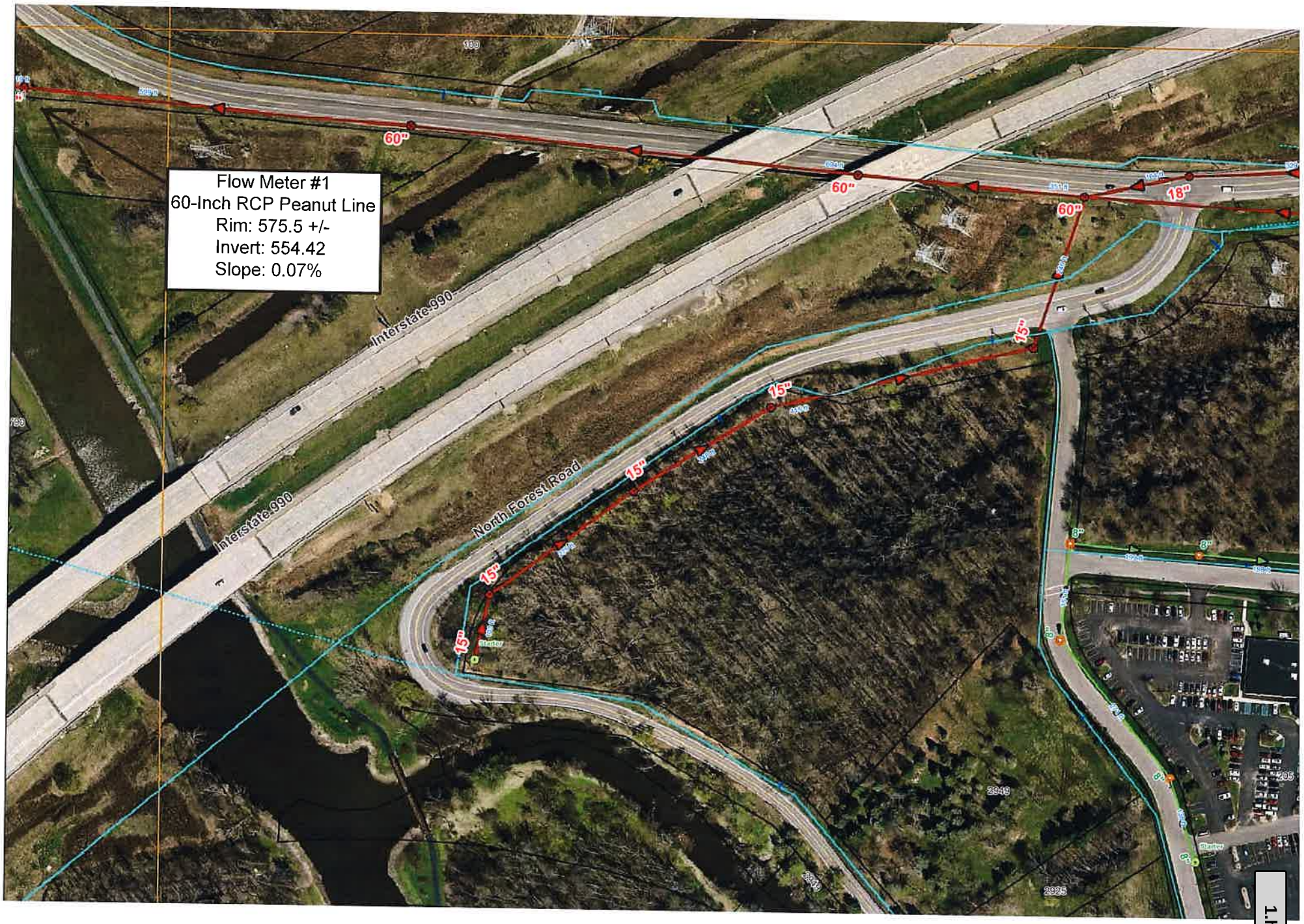
54-Inch West Side Interceptor
Capacity: 36.5 mgd
8.05 mgd Avg. Daily Flow
9.55 mgd Daily Peak Flow
36.50 mgd 2 yr.-6 hr. Flow

30-Inch Reist Street Trunk
Capacity: 7.55 mgd
1.55 mgd Avg. Daily Flow
2.05 mgd Daily Peak Flow
6.50 mgd 2 yr.-6 hr. Flow
6.95 mgd 5 yr.-6 hr. Flow

Village of Williamsville

1 0 1 Miles

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)


Flow Meter #1
60-Inch RCP Peanut Line
Rim: 575.5 +/-
Invert: 554.42
Slope: 0.07%
Interstate 990
Interstate 990
North Forest Road
60"
60"
60"
18"
15"
15"
15"
15"
15"


348 N Ellicott Creek Rd
Buffalo, New York
Google
Street View
Flow Meter #2

Flow Meter #3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix B

Storm Sewer System Drainage Calculations

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Existing Runoff

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

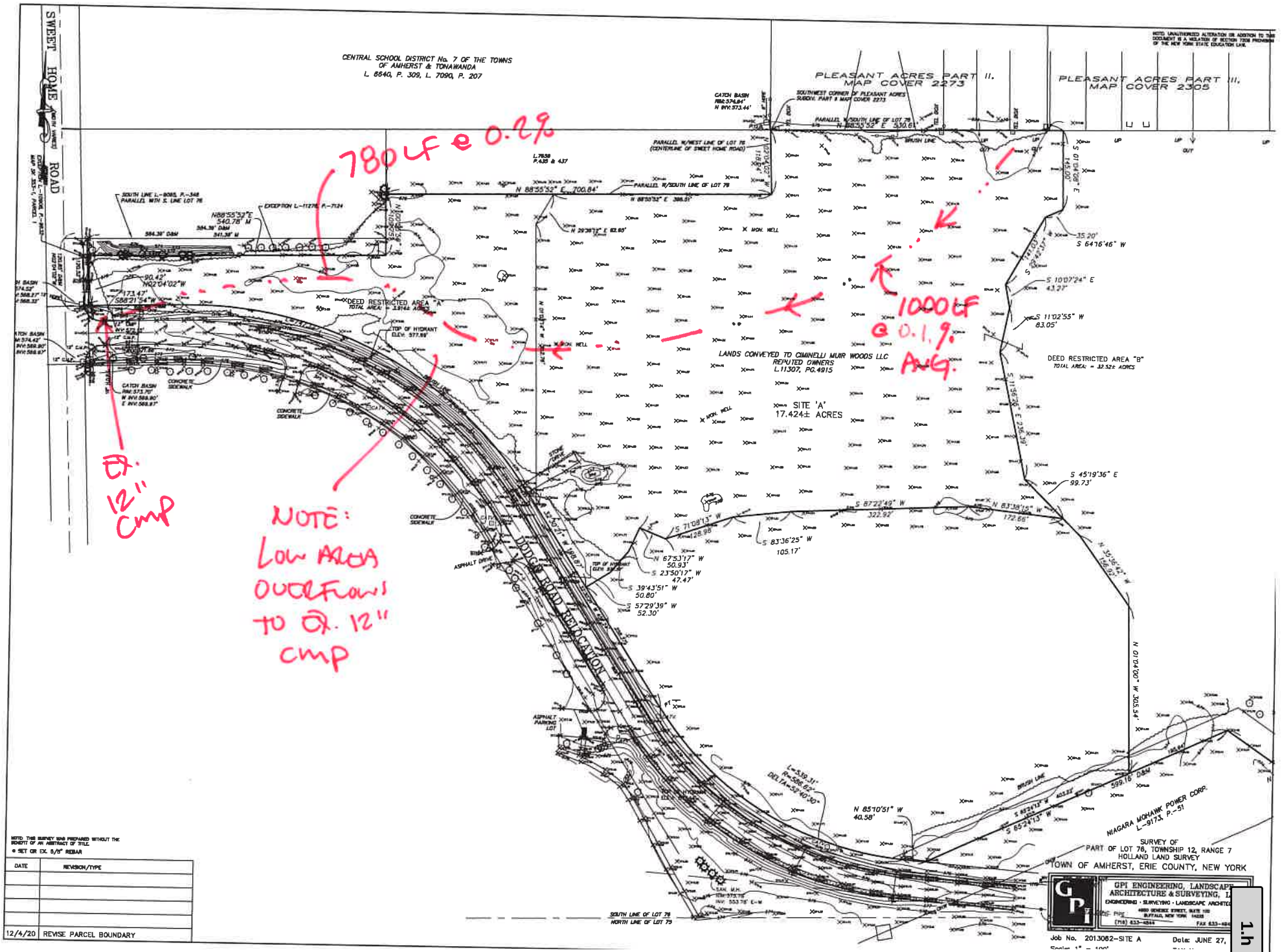


Existing

Subcat Reach Pond Link

Routing Diagram for 21.011 Existing
Prepared by Hewlett-Packard Company, Printed 3/1/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)


780 LF @ 0.2%
1000 LF @ 0.1% AVG.
EX. 12" CMP
NOTE: LOW AREA OVERFLOWS TO EX. 12" CMP
SWEET HOME ROAD
CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 8640, P. 309, L. 7090, P. 207
PLEASANT ACRES PART II. MAP COVER 2273
PLEASANT ACRES PART III. MAP COVER 2305
LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC REPUTED OWNERS L.11307, PG.4915
SITE 'A' 17.424± ACRES
DEED RESTRICTED AREA "A" TOTAL AREA: = 3.8144 ACRES
DEED RESTRICTED AREA "B" TOTAL AREA: = 32.52± ACRES
DODGE ROAD RELOCATION
NIAGARA MOHAWK POWER CORP. L.-9173, P.-51
SURVEY OF PART OF LOT 78, TOWNSHIP 12, RANGE 7 HOLLAND LAND SURVEY TOWN OF AMHERST, ERIE COUNTY, NEW YORK
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, L
Job No. 2013082-SITE A
Date: JUNE 27,
DATE | REVISION/TYPE
12/4/20 | REVISE PARCEL BOUNDARY

Events for Subcatchment 1S: Existing

Event	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	0.87	0.578	0.41
2-Year	1.34	0.851	0.60
5-Year	2.14	1.304	0.92
10-Year	2.94	1.752	1.24
25-Year	4.34	2.527	1.78
50-Year	5.69	3.272	2.31
100-Year	**7.33**	**4.181**	**2.95**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.830	77	Brush, Fair, HSG D (1S)
12.170	79	Woods, Fair, HSG D (1S)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
17.000	HSG D	1S
0.000	Other	

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	4.830	0.000	4.830	Brush, Fair	1S
0.000	0.000	0.000	12.170	0.000	12.170	Woods, Fair	1S

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

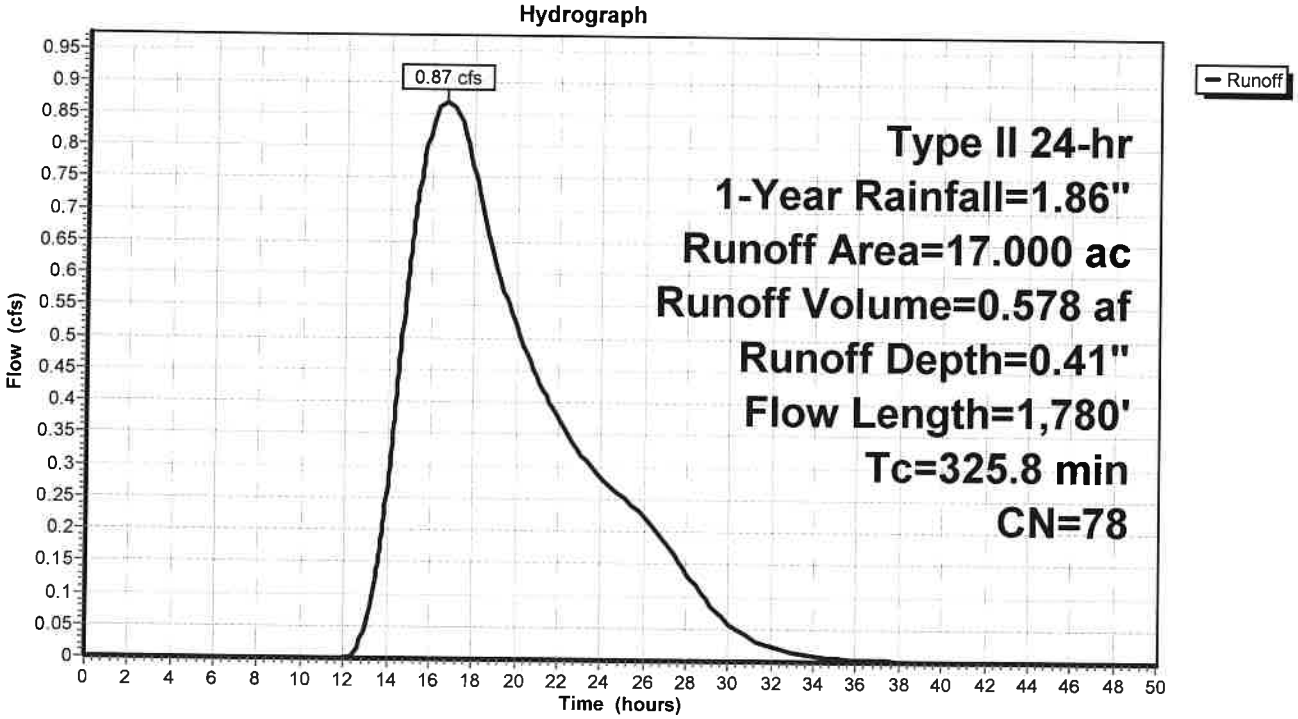
Runoff = 0.87 cfs @ 16.65 hrs, Volume= 0.578 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

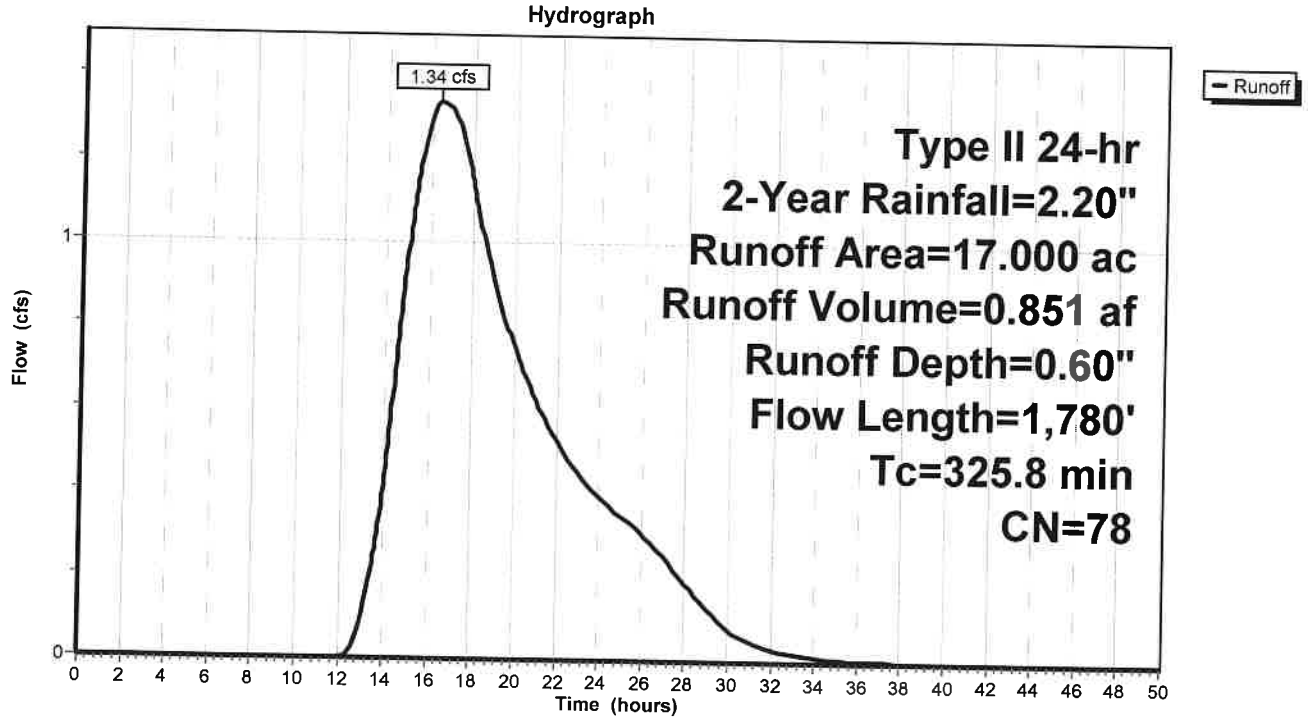
Runoff = 1.34 cfs @ 16.35 hrs, Volume= 0.851 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

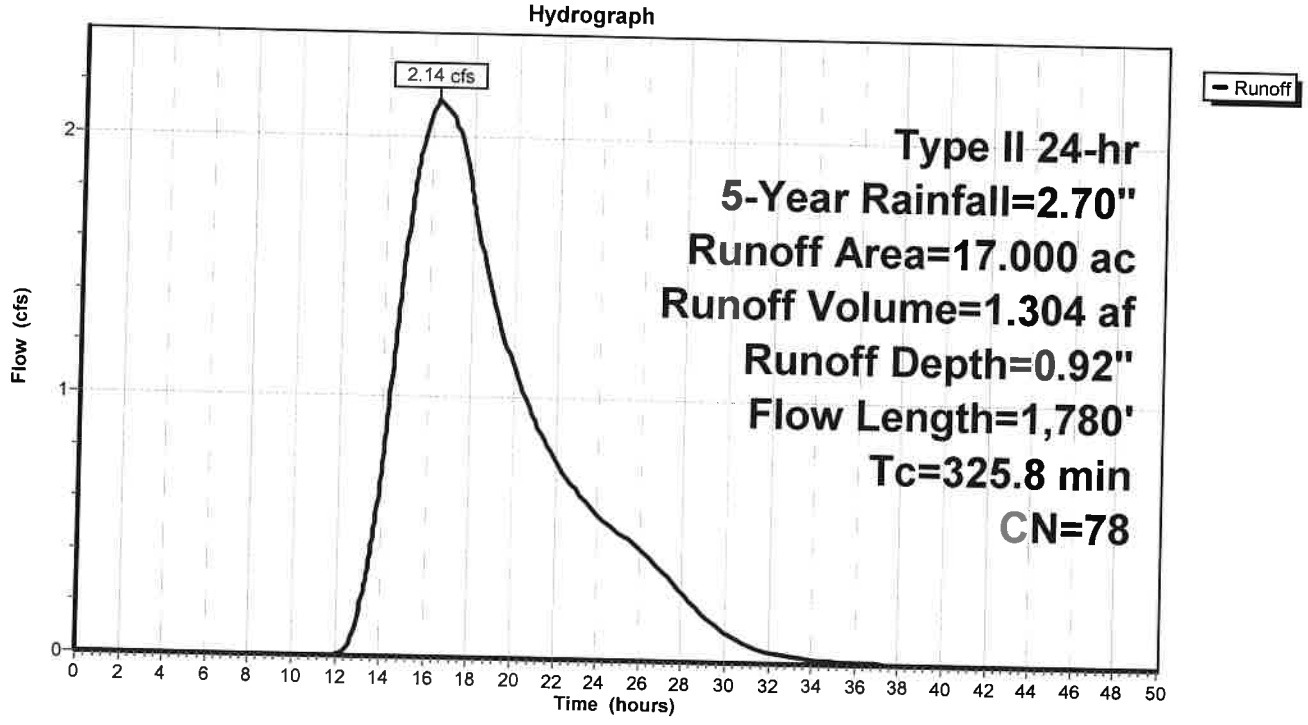
Runoff = 2.14 cfs @ 16.31 hrs, Volume= 1.304 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

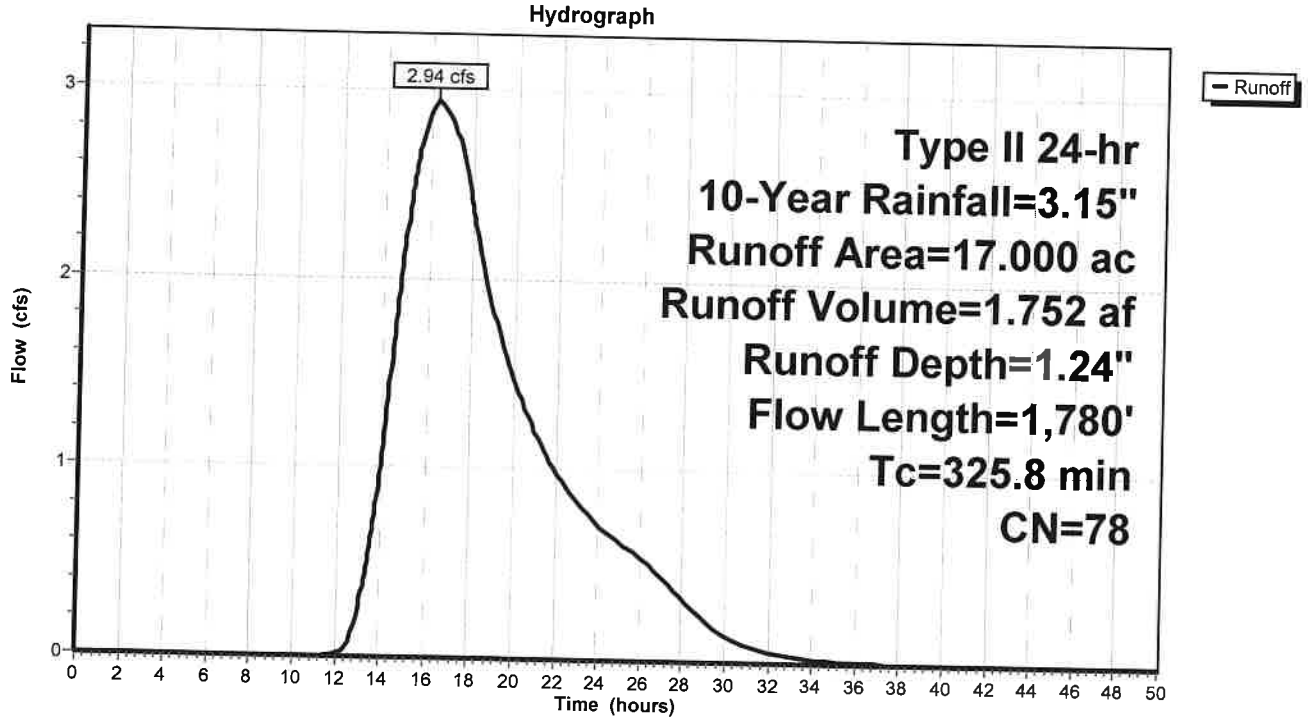
Runoff = 2.94 cfs @ 16.31 hrs, Volume= 1.752 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

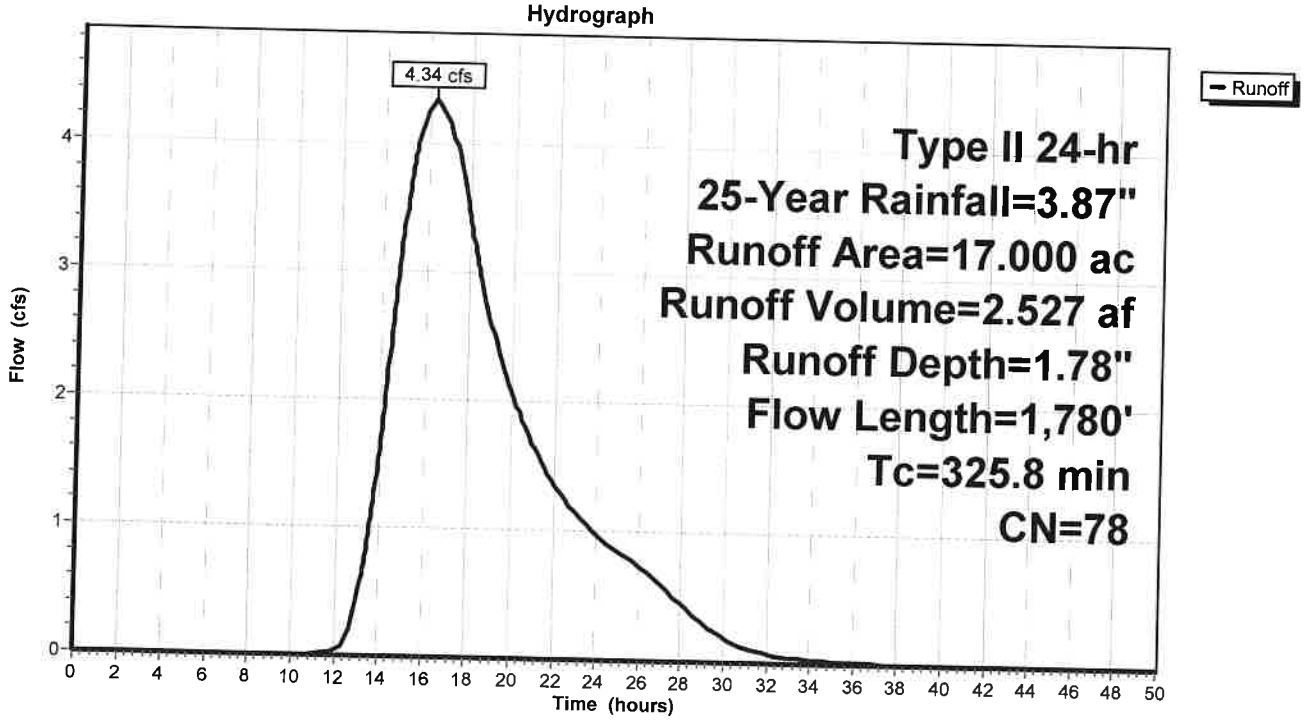
Runoff = 4.34 cfs @ 16.30 hrs, Volume= 2.527 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

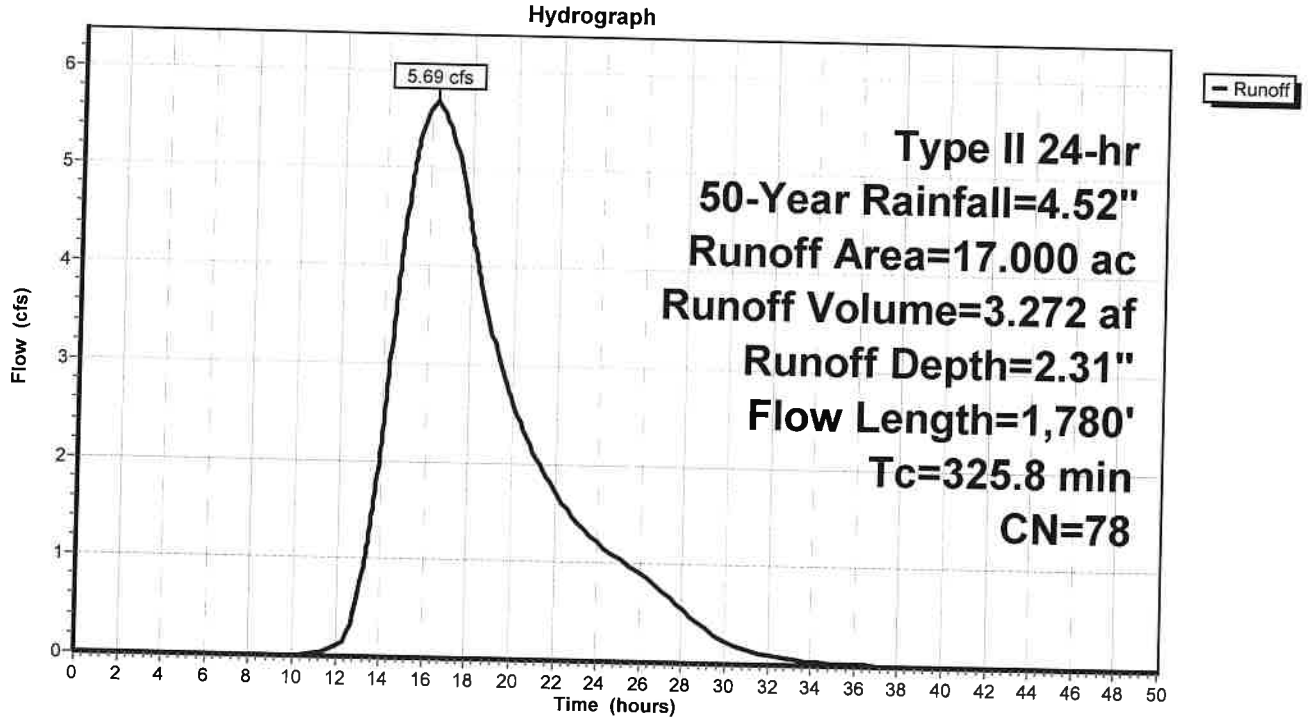
Runoff = 5.69 cfs @ 16.29 hrs, Volume= 3.272 af, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Existing

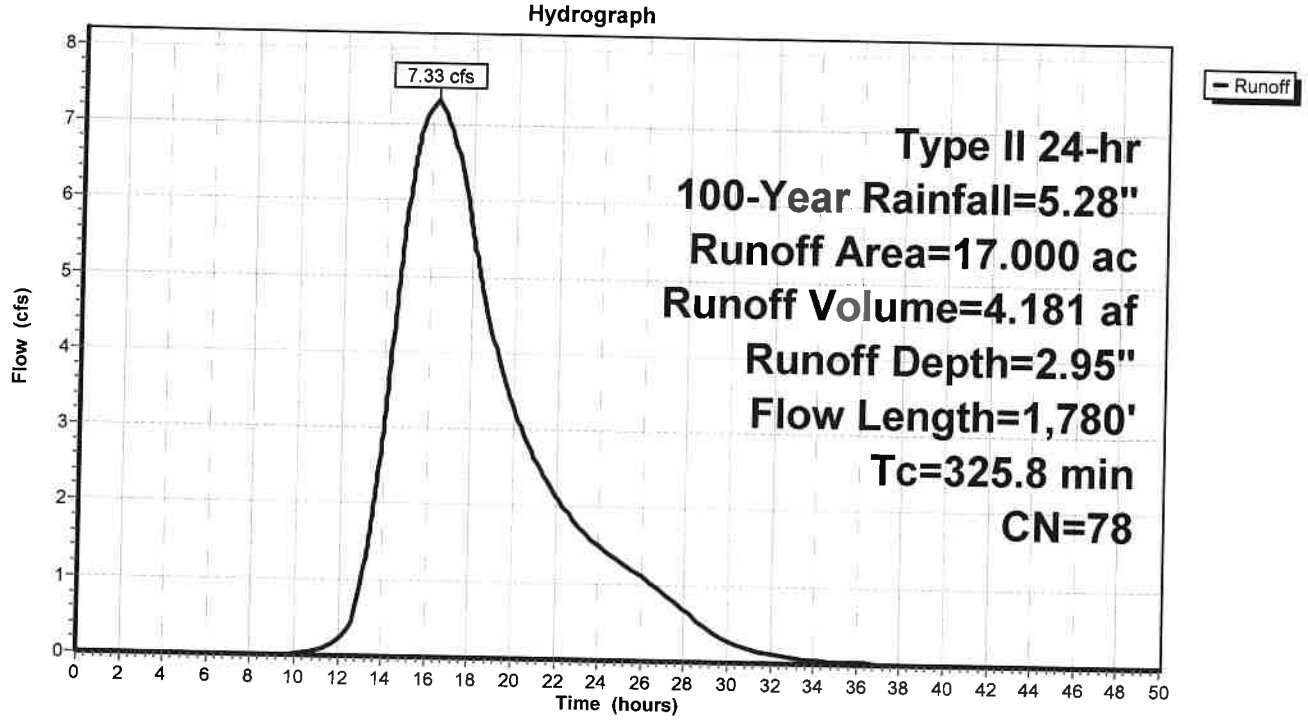
Runoff = 7.33 cfs @ 16.29 hrs, Volume= 4.181 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
12.170	79	Woods, Fair, HSG D
4.830	77	Brush, Fair, HSG D
17.000	78	Weighted Average
17.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
193.9	300	0.0010	0.03		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 2.50"
73.8	700	0.0010	0.16		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
58.1	780	0.0020	0.22		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
325.8	1,780	Total			

Subcatchment 1S: Existing



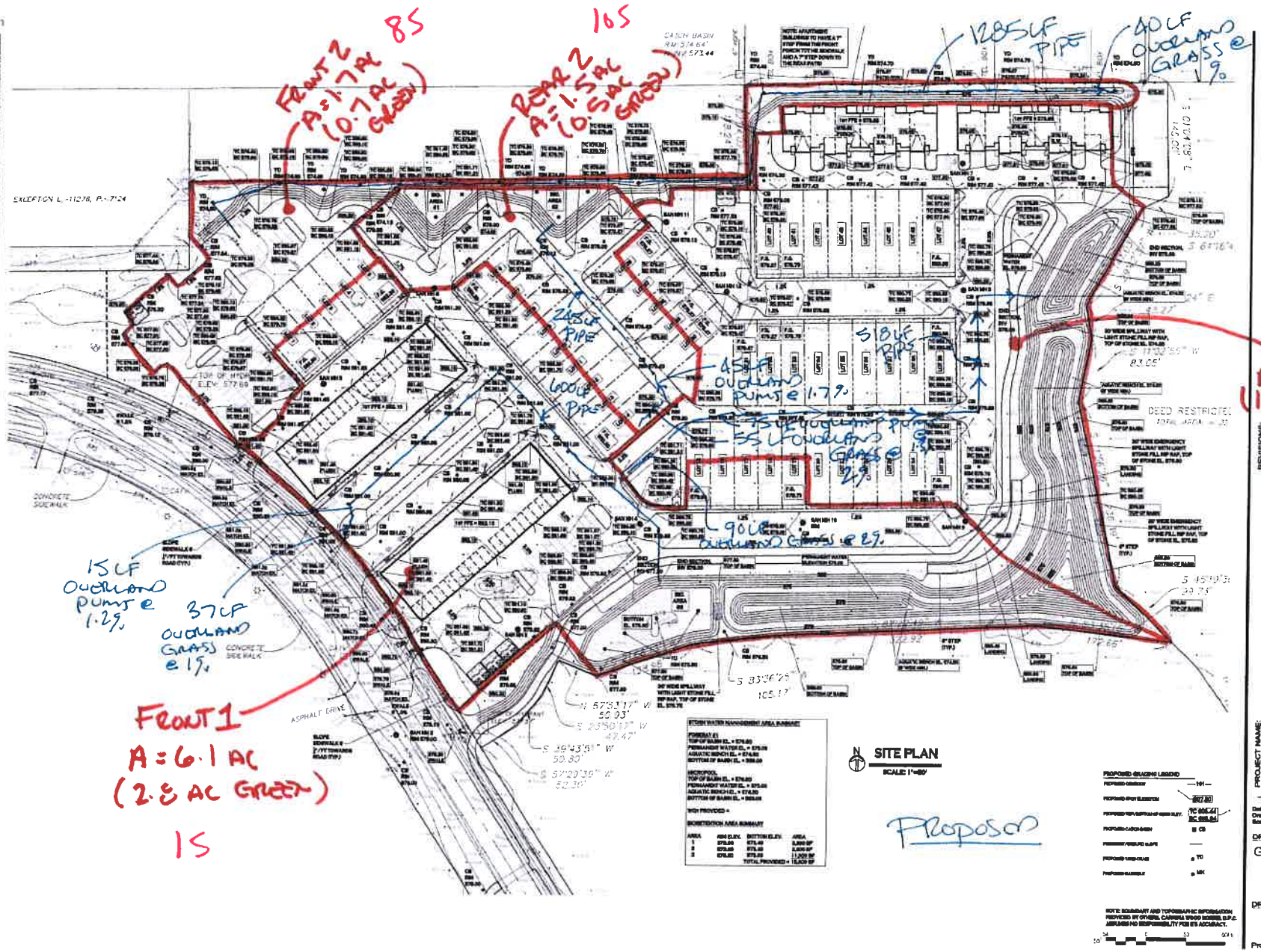
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Proposed Runoff

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

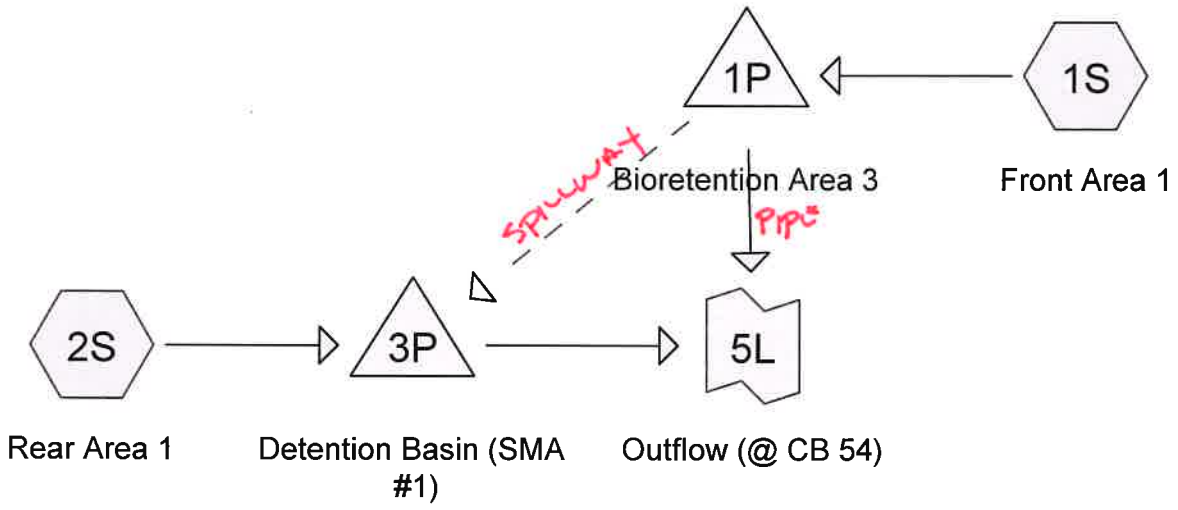
Proposed Runoff - East

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)



FRONT 2
A=1.7AC
(0.7AC GREEN)
85
REAR 2
A=1.5AC
(0.5AC GREEN)
105
1285LF PIPE
40LF OVERLAND GRASS @ 1%
REAR 1
A=4.4AC
(1.7AC GREEN)
2
245LF PIPE
600LF PIPE
45LF OVERLAND PUMP @ 1.7%
518LF PIPE
55LF OVERLAND PUMP GRASS @ 1.3%
2%
90LF OVERLAND GRASS @ 2%
15LF OVERLAND PUMP @ 1.2%
37LF OVERLAND GRASS @ 1%
FRONT 1
A=6.1AC
(2.8AC GREEN)
15
SITE PLAN
SCALE: 1"=80'
PROPOSED
Carmina Wood Morris
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York
DRAWING NAME:
Grading Plan
DRAWING NO.
C-200
Project no.: 21.011

1.h



Subcat Reach Pond Link

Routing Diagram for 21.011 Proposed
Prepared by Hewlett-Packard Company, Printed 3/4/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Events for Link 5L: Outflow (@ CB 54)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-Year	2.78	2.78	**0.00**
2-Year	2.86	2.86	0.00
5-Year	3.01	3.01	0.00
10-Year	3.16	3.16	0.00
25-Year	3.36	3.36	0.00
50-Year	3.48	3.48	0.00
100-Year	**3.60**	**3.60**	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Events for Pond 3P: Detention Basin (SMA #1)

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	6.05	0.10	0.10	0.00	575.23	13,685
2-Year	12.29	0.18	0.18	0.00	575.32	19,129
5-Year	20.08	0.33	0.33	0.00	575.46	28,218
10-Year	26.01	0.47	0.47	0.00	575.60	37,117
25-Year	34.94	0.64	0.64	0.00	575.83	51,964
50-Year	42.93	1.97	0.72	1.25	576.00	62,935
100-Year	**52.24**	**8.57**	**0.78**	**7.80**	**576.11**	**70,722**

TO DUDLEE RD

TO WETLANDS

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Events for Pond 1P: Bioretention Area 3

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	8.17	4.38	2.74	1.63	575.82	7,520
2-Year	10.57	8.19	2.79	5.41	575.91	8,359
5-Year	14.18	12.91	2.83	10.09	575.99	9,153
10-Year	17.46	16.45	2.85	13.60	576.04	9,672
25-Year	22.74	21.73	2.89	18.84	576.11	10,375
50-Year	27.50	26.43	2.91	23.52	576.17	10,954
100-Year	**33.05**	**31.92**	**2.94**	**28.98**	**576.23**	**11,585**

↑ TO DOUGE RD

↑ TO BASIN

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.500	80	>75% Grass cover, Good, HSG D (1S, 2S)
3.200	98	Paved parking, HSG D (1S, 2S)
2.800	98	Roofs, HSG D (1S, 2S)
10.500	**90**	**TOTAL AREA**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
10.500	HSG D	1S, 2S
0.000	Other	
10.500		**TOTAL AREA**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	4.500	0.000	4.500	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.000	3.200	0.000	3.200	Paved parking	1S, 2S
0.000	0.000	0.000	2.800	0.000	2.800	Roofs	1S, 2S
0.000	**0.000**	**0.000**	**10.500**	**0.000**	**10.500**	**TOTAL AREA**	

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=0.98"
Flow Length=652' Tc=13.3 min CN=90 Runoff=8.17 cfs 0.496 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.04"
Flow Length=683' Tc=14.4 min CN=91 Runoff=6.05 cfs 0.382 af

Pond 1P: Bioretention Area 3 Peak Elev=575.82' Storage=7,520 cf Inflow=8.17 cfs 0.496 af
Primary=2.74 cfs 0.475 af Secondary=1.63 cfs 0.021 af Outflow=4.38 cfs 0.496 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.23' Storage=13,685 cf Inflow=6.05 cfs 0.403 af
Primary=0.10 cfs 0.249 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.249 af

Link 5L: Outflow (@ CB 54) Inflow=2.78 cfs 0.724 af
Primary=2.78 cfs 0.724 af

Total Runoff Area = 10.500 ac Runoff Volume = 0.878 af Average Runoff Depth = 1.00"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

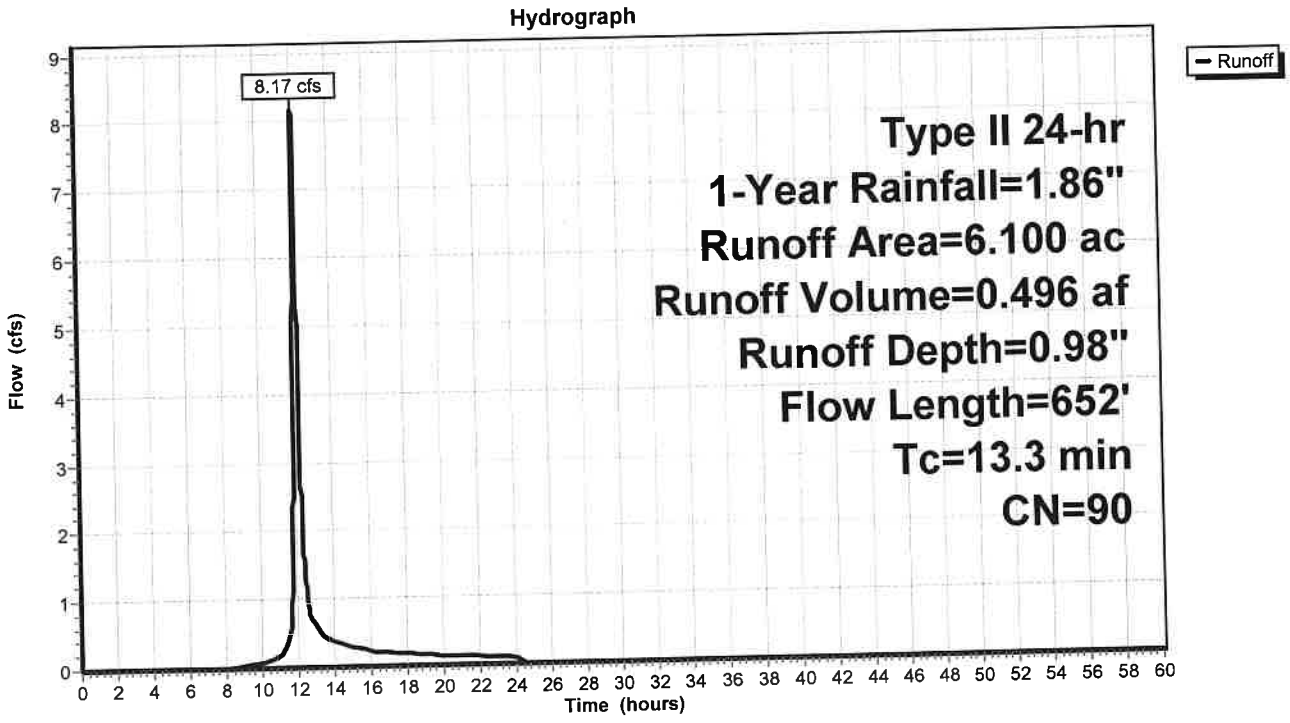
Runoff = 8.17 cfs @ 12.05 hrs, Volume= 0.496 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.02
10.00	0.34	0.01	0.07
11.00	0.44	0.03	0.20
12.00	1.23	0.48	**7.23**
13.00	1.44	0.63	**0.63**
14.00	1.53	0.70	0.37
15.00	1.59	0.75	0.29
16.00	1.64	0.79	0.23
17.00	1.68	0.83	0.20
18.00	1.71	0.85	0.17
19.00	1.74	0.88	0.15
20.00	1.77	0.90	0.13
21.00	1.79	0.92	0.12
22.00	1.82	0.94	0.12
23.00	1.84	0.96	0.11
24.00	**1.86**	**0.98**	0.11
25.00	1.86	0.98	0.00
26.00	1.86	0.98	0.00
27.00	1.86	0.98	0.00
28.00	1.86	0.98	0.00
29.00	1.86	0.98	0.00
30.00	1.86	0.98	0.00
31.00	1.86	0.98	0.00
32.00	1.86	0.98	0.00
33.00	1.86	0.98	0.00
34.00	1.86	0.98	0.00
35.00	1.86	0.98	0.00
36.00	1.86	0.98	0.00
37.00	1.86	0.98	0.00
38.00	1.86	0.98	0.00
39.00	1.86	0.98	0.00
40.00	1.86	0.98	0.00
41.00	1.86	0.98	0.00
42.00	1.86	0.98	0.00
43.00	1.86	0.98	0.00
44.00	1.86	0.98	0.00
45.00	1.86	0.98	0.00
46.00	1.86	0.98	0.00
47.00	1.86	0.98	0.00
48.00	1.86	0.98	0.00
49.00	1.86	0.98	0.00
50.00	1.86	0.98	0.00
51.00	1.86	0.98	0.00
52.00	1.86	0.98	0.00
53.00	1.86	0.98	0.00
54.00	1.86	0.98	0.00
55.00	1.86	0.98	0.00
56.00	1.86	0.98	0.00
57.00	1.86	0.98	0.00
58.00	1.86	0.98	0.00
59.00	1.86	0.98	0.00
60.00	1.86	0.98	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

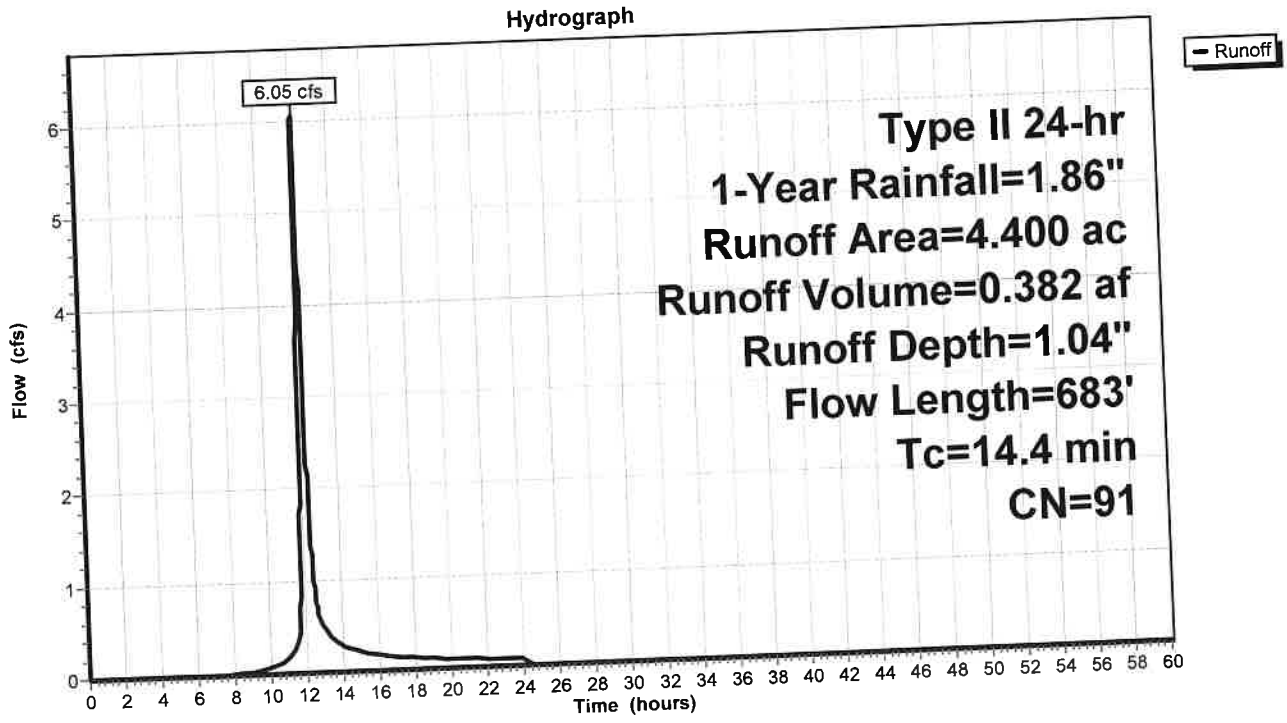
Runoff = 6.05 cfs @ 12.06 hrs, Volume= 0.382 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.01
9.00	0.27	0.01	0.03
10.00	0.34	0.02	0.06
11.00	0.44	0.05	0.17
12.00	1.23	0.53	**5.18**
13.00	1.44	0.69	**0.48**
14.00	1.53	0.76	0.28
15.00	1.59	0.81	0.21
16.00	1.64	0.85	0.17
17.00	1.68	0.89	0.15
18.00	1.71	0.92	0.13
19.00	1.74	0.94	0.11
20.00	1.77	0.97	0.10
21.00	1.79	0.99	0.09
22.00	1.82	1.01	0.09
23.00	1.84	1.02	0.08
24.00	**1.86**	**1.04**	0.08
25.00	1.86	1.04	0.00
26.00	1.86	1.04	0.00
27.00	1.86	1.04	0.00
28.00	1.86	1.04	0.00
29.00	1.86	1.04	0.00
30.00	1.86	1.04	0.00
31.00	1.86	1.04	0.00
32.00	1.86	1.04	0.00
33.00	1.86	1.04	0.00
34.00	1.86	1.04	0.00
35.00	1.86	1.04	0.00
36.00	1.86	1.04	0.00
37.00	1.86	1.04	0.00
38.00	1.86	1.04	0.00
39.00	1.86	1.04	0.00
40.00	1.86	1.04	0.00
41.00	1.86	1.04	0.00
42.00	1.86	1.04	0.00
43.00	1.86	1.04	0.00
44.00	1.86	1.04	0.00
45.00	1.86	1.04	0.00
46.00	1.86	1.04	0.00
47.00	1.86	1.04	0.00
48.00	1.86	1.04	0.00
49.00	1.86	1.04	0.00
50.00	1.86	1.04	0.00
51.00	1.86	1.04	0.00
52.00	1.86	1.04	0.00
53.00	1.86	1.04	0.00
54.00	1.86	1.04	0.00
55.00	1.86	1.04	0.00
56.00	1.86	1.04	0.00
57.00	1.86	1.04	0.00
58.00	1.86	1.04	0.00
59.00	1.86	1.04	0.00
60.00	1.86	1.04	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 0.98" for 1-Year event
Inflow = 8.17 cfs @ 12.05 hrs, Volume= 0.496 af
Outflow = 4.38 cfs @ 12.19 hrs, Volume= 0.496 af, Atten= 46%, Lag= 8.2 min
Primary = 2.74 cfs @ 12.19 hrs, Volume= 0.475 af
Secondary = 1.63 cfs @ 12.19 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.82' @ 12.19 hrs Surf.Area= 9,695 sf Storage= 7,520 cf

Plug-Flow detention time= 319.4 min calculated for 0.496 af (100% of inflow)
Center-of-Mass det. time= 319.4 min (1,152.7 - 833.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

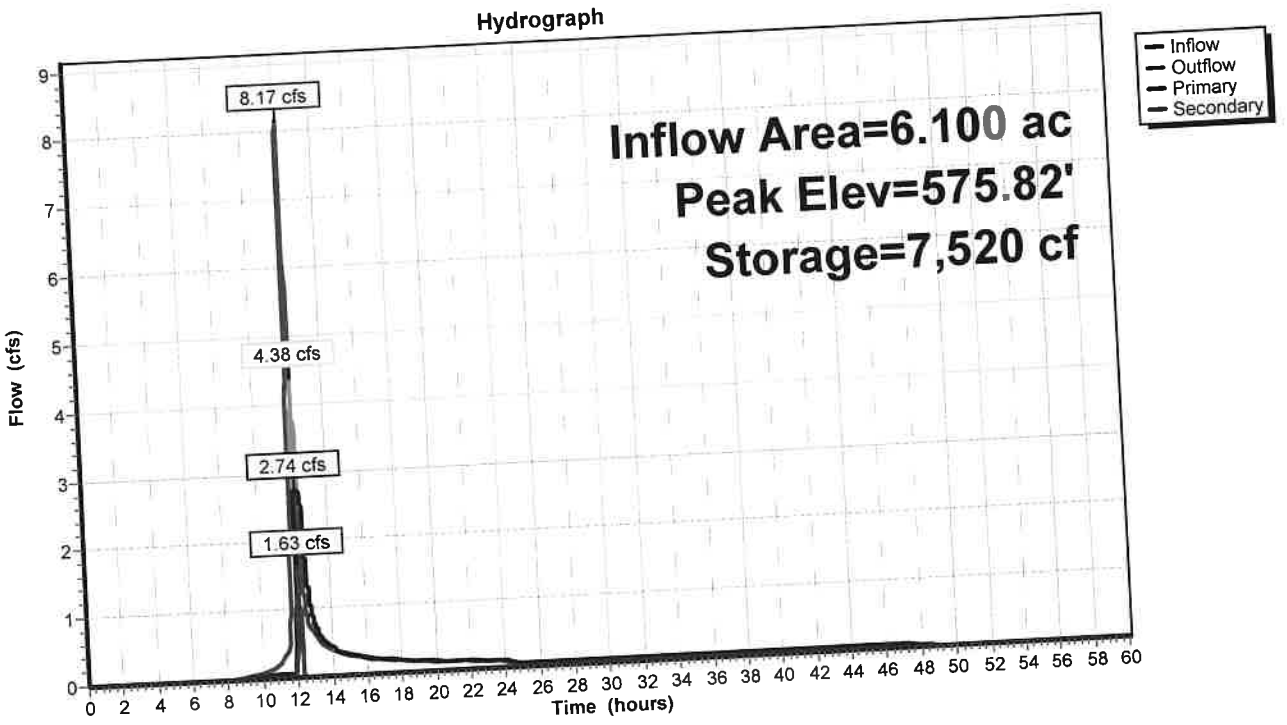
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.74 cfs @ 12.19 hrs HW=575.82' (Free Discharge)
↑—**1=8" pipe** (Barrel Controls 2.74 cfs @ 7.86 fps)
↑—**2=Grate** (Passes < 3.80 cfs potential flow)
└—**3=Exfiltration** (Passes < 0.06 cfs potential flow)

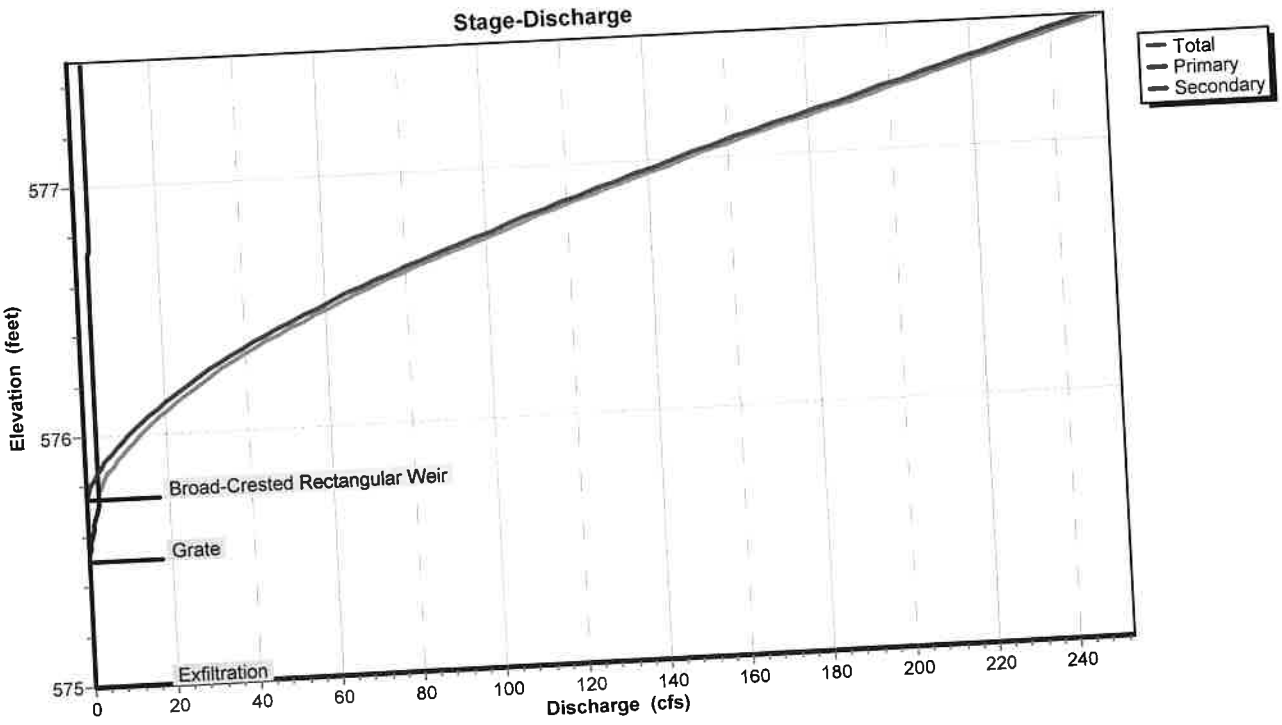
Secondary OutFlow Max=1.62 cfs @ 12.19 hrs HW=575.82' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 1.62 cfs @ 0.77 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

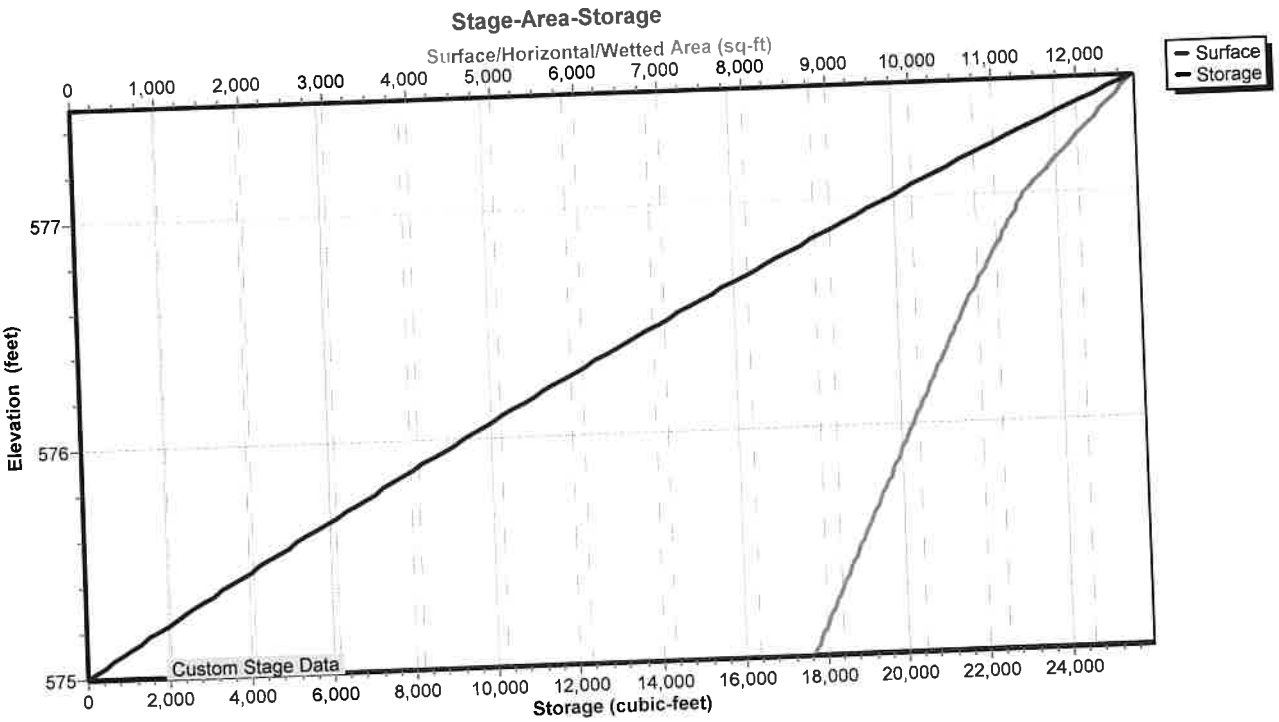


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.00	0	575.00	0.00	0.00	0.00
10.00	0.07	121	575.01	0.03	0.03	0.00
12.00	**7.23**	**4,533**	**575.51**	**0.08**	**0.08**	**0.00**
14.00	**0.37**	**5,004**	**575.56**	**0.42**	**0.42**	**0.00**
16.00	0.23	4,812	575.54	0.25	0.25	0.00
18.00	0.17	4,735	575.53	0.18	0.18	0.00
20.00	0.13	4,666	575.52	0.14	0.14	0.00
22.00	0.12	4,618	575.51	0.12	0.12	0.00
24.00	0.11	4,598	575.51	0.11	0.11	0.00
26.00	0.00	4,207	575.47	0.06	0.06	0.00
28.00	0.00	3,812	575.43	0.05	0.05	0.00
30.00	0.00	3,420	575.38	0.05	0.05	0.00
32.00	0.00	3,031	575.34	0.05	0.05	0.00
34.00	0.00	2,646	575.30	0.05	0.05	0.00
36.00	0.00	2,264	575.26	0.05	0.05	0.00
38.00	0.00	1,885	575.21	0.05	0.05	0.00
40.00	0.00	1,510	575.17	0.05	0.05	0.00
42.00	0.00	1,138	575.13	0.05	0.05	0.00
44.00	0.00	769	575.09	0.05	0.05	0.00
46.00	0.00	404	575.05	0.05	0.05	0.00
48.00	0.00	96	575.01	0.02	0.02	0.00
50.00	0.00	18	575.00	0.00	0.00	0.00
52.00	0.00	3	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 1.10" for 1-Year event
Inflow = 6.05 cfs @ 12.06 hrs, Volume= 0.403 af
Outflow = 0.10 cfs @ 19.66 hrs, Volume= 0.249 af, Atten= 98%, Lag= 455.7 min
Primary = 0.10 cfs @ 19.66 hrs, Volume= 0.249 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.23' @ 19.66 hrs Surf.Area= 60,952 sf Storage= 13,685 cf

Plug-Flow detention time= 1,134.7 min calculated for 0.249 af (62% of inflow)
Center-of-Mass det. time= 1,028.3 min (1,852.6 - 824.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

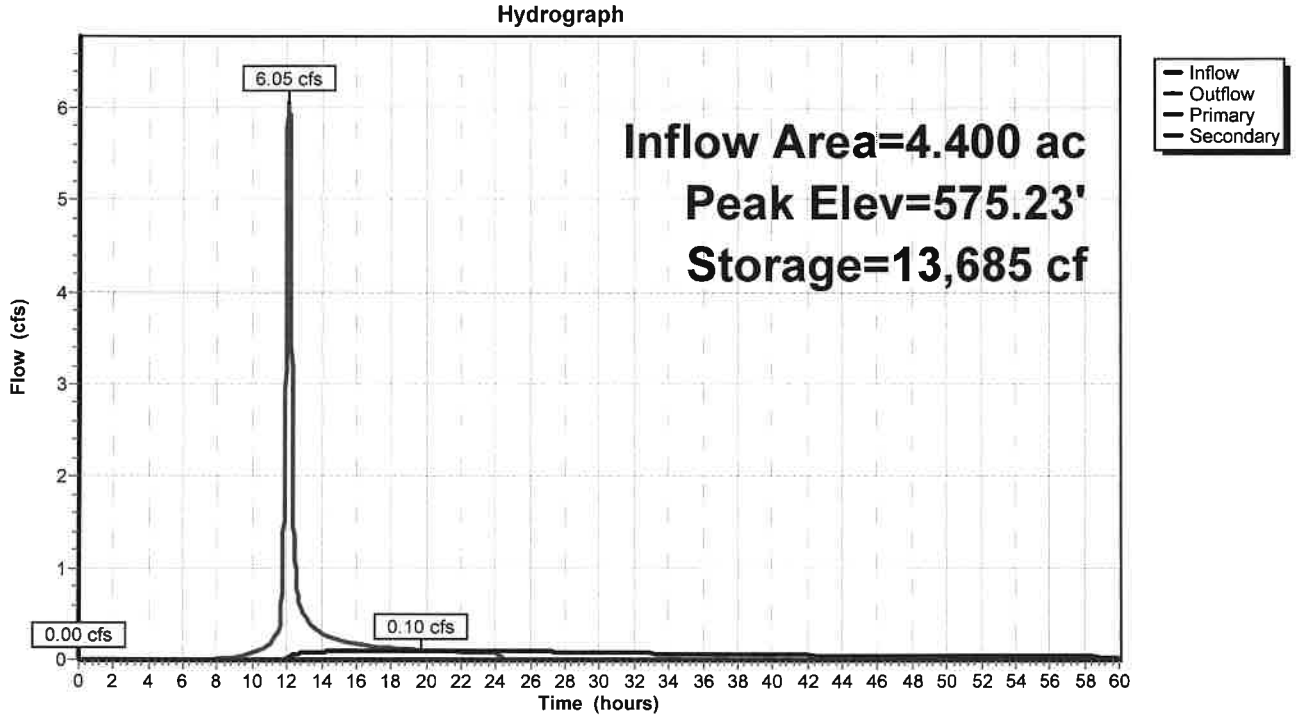
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.10 cfs @ 19.66 hrs HW=575.23' (Free Discharge)
└**1=12" outlet pipe** (Passes 0.10 cfs of 1.85 cfs potential flow)
  ├**2=low flow outlet pipe** (Barrel Controls 0.10 cfs @ 1.70 fps)
  └**3=Grate** (Controls 0.00 cfs)

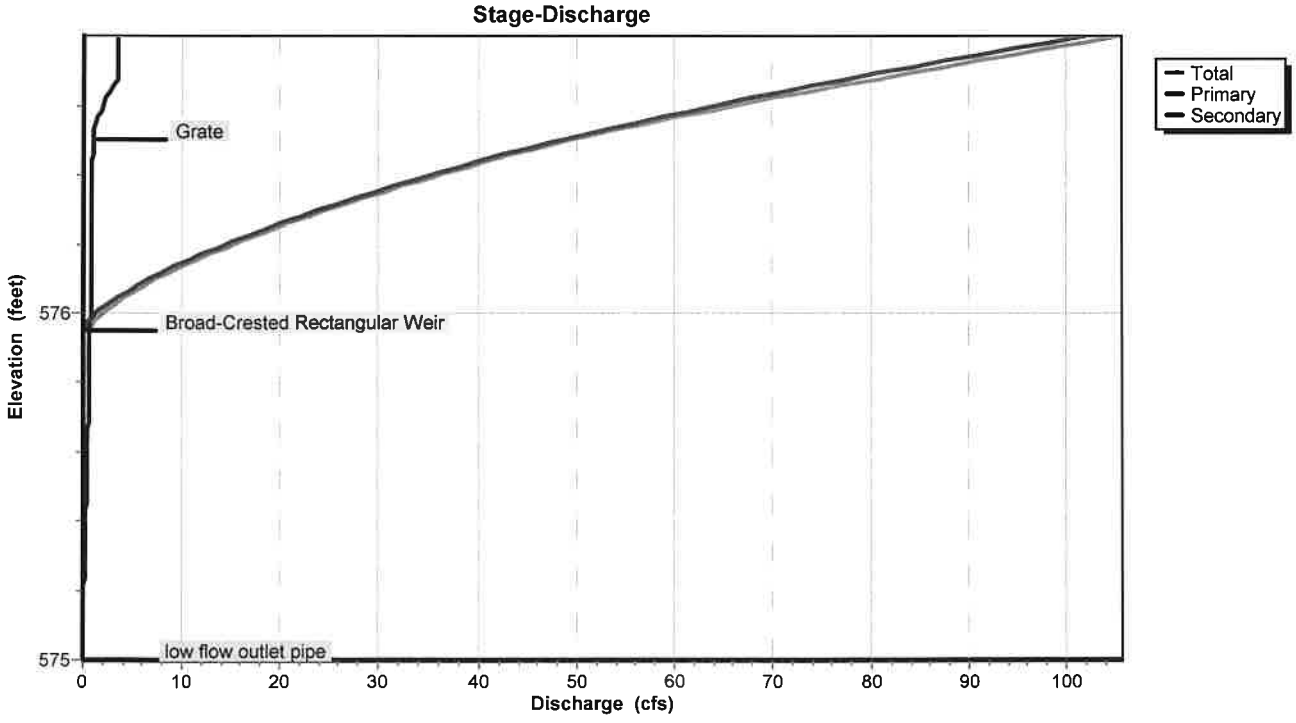
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

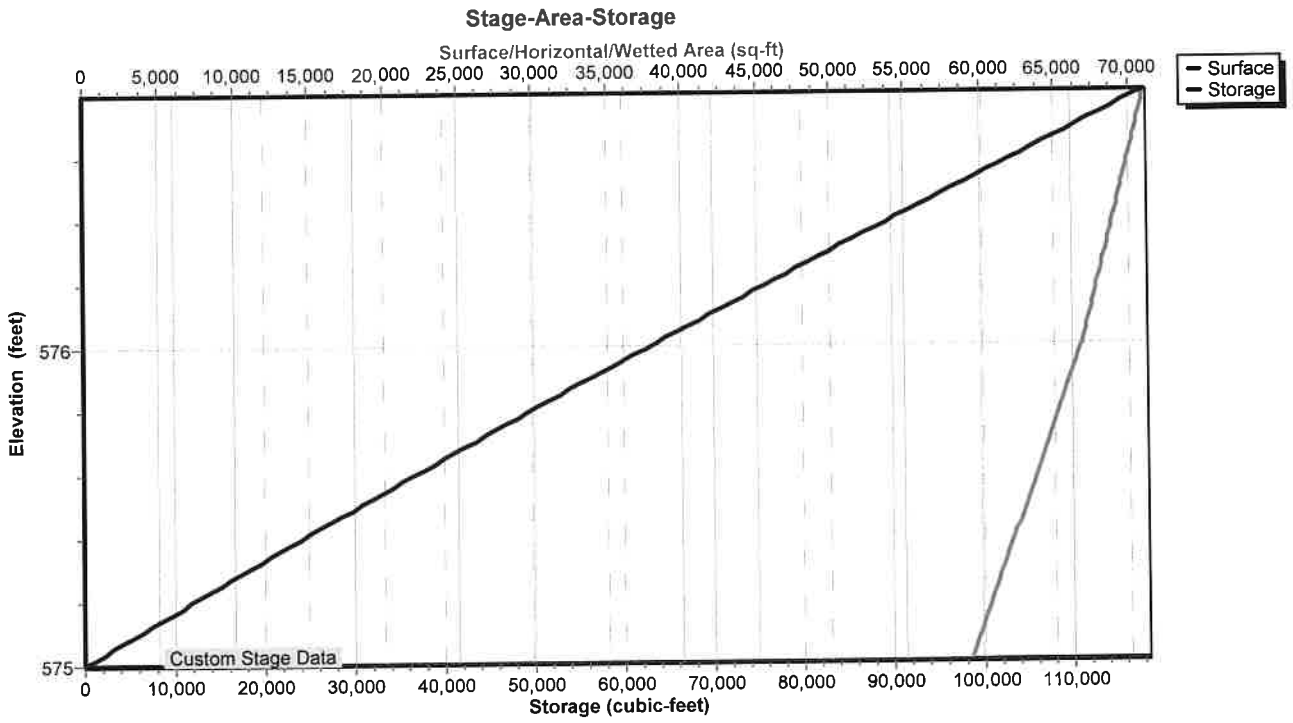


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.01	5	575.00	0.00	0.00	0.00
10.00	0.06	218	575.00	0.00	0.00	0.00
12.00	**5.18**	3,798	575.06	0.01	0.01	0.00
14.00	**0.28**	12,350	575.21	0.08	0.08	0.00
16.00	0.17	13,252	575.22	0.10	0.10	0.00
18.00	0.13	**13,599**	**575.23**	**0.10**	**0.10**	0.00
20.00	0.10	**13,682**	**575.23**	**0.10**	**0.10**	0.00
22.00	0.09	13,599	575.23	0.10	0.10	0.00
24.00	0.08	13,477	575.22	0.10	0.10	0.00
26.00	0.00	12,859	575.21	0.09	0.09	0.00
28.00	0.00	12,236	575.20	0.08	0.08	0.00
30.00	0.00	11,664	575.19	0.08	0.08	0.00
32.00	0.00	11,139	575.19	0.07	0.07	0.00
34.00	0.00	10,655	575.18	0.06	0.06	0.00
36.00	0.00	10,207	575.17	0.06	0.06	0.00
38.00	0.00	9,792	575.16	0.06	0.06	0.00
40.00	0.00	9,408	575.16	0.05	0.05	0.00
42.00	0.00	9,050	575.15	0.05	0.05	0.00
44.00	0.00	8,716	575.15	0.04	0.04	0.00
46.00	0.00	8,404	575.14	0.04	0.04	0.00
48.00	0.00	8,113	575.14	0.04	0.04	0.00
50.00	0.00	7,839	575.13	0.04	0.04	0.00
52.00	0.00	7,582	575.13	0.03	0.03	0.00
54.00	0.00	7,341	575.12	0.03	0.03	0.00
56.00	0.00	7,114	575.12	0.03	0.03	0.00
58.00	0.00	6,899	575.12	0.03	0.03	0.00
60.00	0.00	6,696	575.11	0.03	0.03	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

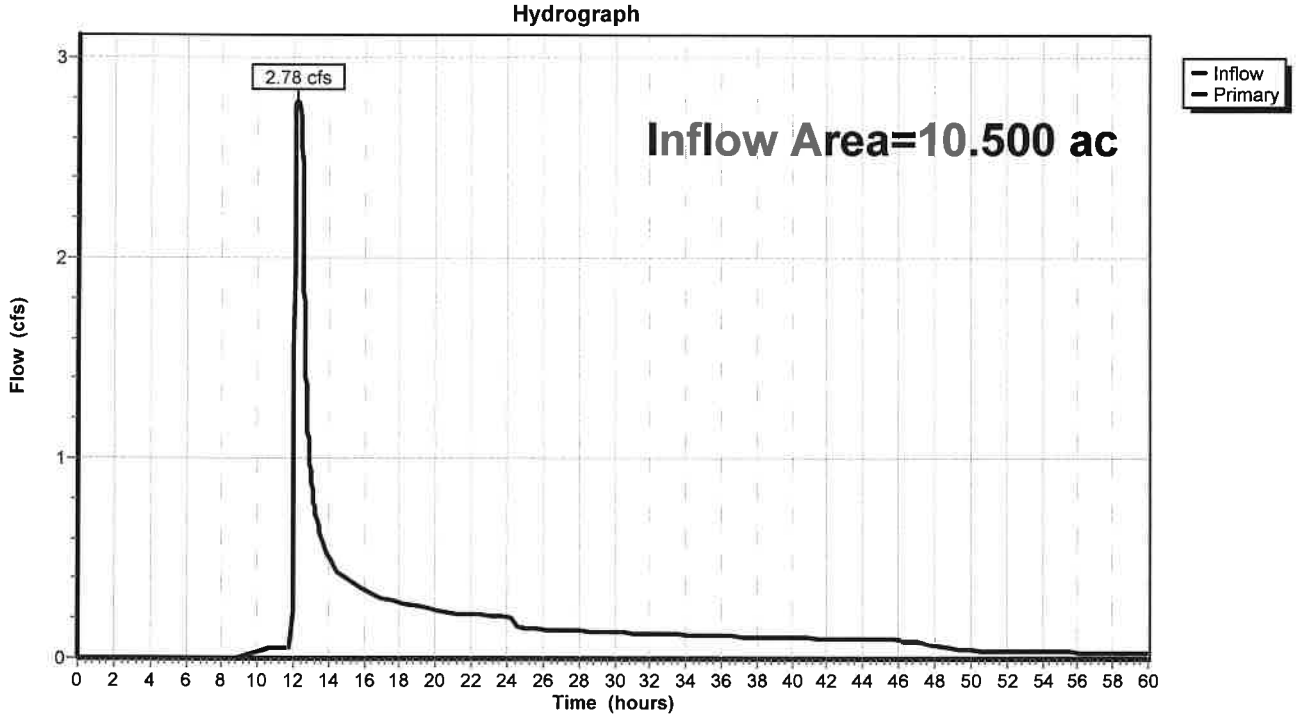
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 0.83" for 1-Year event
Inflow = 2.78 cfs @ 12.22 hrs, Volume= 0.724 af
Primary = 2.78 cfs @ 12.22 hrs, Volume= 0.724 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.04	0.00	0.04
1.00	0.00	0.00	0.00	53.00	0.03	0.00	0.03
2.00	0.00	0.00	0.00	54.00	0.03	0.00	0.03
3.00	0.00	0.00	0.00	55.00	0.03	0.00	0.03
4.00	0.00	0.00	0.00	56.00	0.03	0.00	0.03
5.00	0.00	0.00	0.00	57.00	0.03	0.00	0.03
6.00	0.00	0.00	0.00	58.00	0.03	0.00	0.03
7.00	0.00	0.00	0.00	59.00	0.03	0.00	0.03
8.00	0.00	0.00	0.00	60.00	0.03	0.00	0.03
9.00	0.01	0.00	0.01				
10.00	0.03	0.00	0.03				
11.00	0.05	0.00	0.05				
12.00	**0.09**	0.00	**0.09**				
13.00	**0.91**	0.00	**0.91**				
14.00	0.51	0.00	0.51				
15.00	0.40	0.00	0.40				
16.00	0.34	0.00	0.34				
17.00	0.30	0.00	0.30				
18.00	0.28	0.00	0.28				
19.00	0.26	0.00	0.26				
20.00	0.24	0.00	0.24				
21.00	0.23	0.00	0.23				
22.00	0.22	0.00	0.22				
23.00	0.21	0.00	0.21				
24.00	0.21	0.00	0.21				
25.00	0.15	0.00	0.15				
26.00	0.15	0.00	0.15				
27.00	0.14	0.00	0.14				
28.00	0.14	0.00	0.14				
29.00	0.13	0.00	0.13				
30.00	0.13	0.00	0.13				
31.00	0.13	0.00	0.13				
32.00	0.12	0.00	0.12				
33.00	0.12	0.00	0.12				
34.00	0.12	0.00	0.12				
35.00	0.12	0.00	0.12				
36.00	0.11	0.00	0.11				
37.00	0.11	0.00	0.11				
38.00	0.11	0.00	0.11				
39.00	0.11	0.00	0.11				
40.00	0.10	0.00	0.10				
41.00	0.10	0.00	0.10				
42.00	0.10	0.00	0.10				
43.00	0.10	0.00	0.10				
44.00	0.10	0.00	0.10				
45.00	0.09	0.00	0.09				
46.00	0.09	0.00	0.09				
47.00	0.09	0.00	0.09				
48.00	0.06	0.00	0.06				
49.00	0.05	0.00	0.05				
50.00	0.04	0.00	0.04				
51.00	0.04	0.00	0.04				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=1.27"
Flow Length=652' Tc=13.3 min CN=90 Runoff=10.57 cfs 0.644 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.34"
Flow Length=683' Tc=14.4 min CN=91 Runoff=7.75 cfs 0.491 af

Pond 1P: Bioretention Area 3 Peak Elev=575.91' Storage=8,359 cf Inflow=10.57 cfs 0.644 af
Primary=2.79 cfs 0.556 af Secondary=5.41 cfs 0.088 af Outflow=8.19 cfs 0.644 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.32' Storage=19,128 cf Inflow=12.29 cfs 0.579 af
Primary=0.18 cfs 0.400 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.400 af

Link 5L: Outflow (@ CB 54) Inflow=2.86 cfs 0.956 af
Primary=2.86 cfs 0.956 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.135 af Average Runoff Depth = 1.30"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

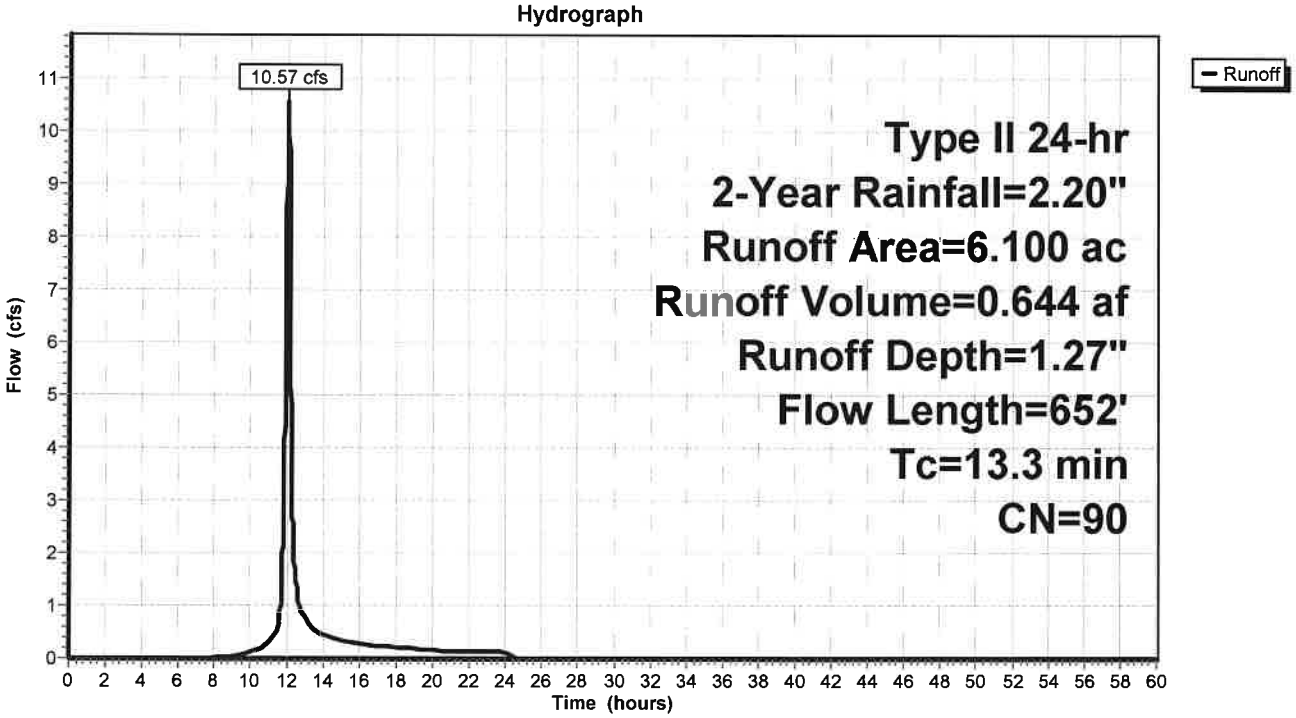
Runoff = 10.57 cfs @ 12.05 hrs, Volume= 0.644 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.02
9.00	0.32	0.01	0.06
10.00	0.40	0.02	0.12
11.00	0.52	0.06	0.30
12.00	1.46	0.65	**9.45**
13.00	1.70	0.84	**0.79**
14.00	1.80	0.93	0.46
15.00	1.88	0.99	0.36
16.00	1.94	1.04	0.28
17.00	1.98	1.08	0.24
18.00	2.03	1.12	0.21
19.00	2.06	1.15	0.19
20.00	2.09	1.17	0.16
21.00	2.12	1.20	0.15
22.00	2.15	1.22	0.14
23.00	2.18	1.24	0.14
24.00	**2.20**	**1.27**	0.13
25.00	2.20	1.27	0.00
26.00	2.20	1.27	0.00
27.00	2.20	1.27	0.00
28.00	2.20	1.27	0.00
29.00	2.20	1.27	0.00
30.00	2.20	1.27	0.00
31.00	2.20	1.27	0.00
32.00	2.20	1.27	0.00
33.00	2.20	1.27	0.00
34.00	2.20	1.27	0.00
35.00	2.20	1.27	0.00
36.00	2.20	1.27	0.00
37.00	2.20	1.27	0.00
38.00	2.20	1.27	0.00
39.00	2.20	1.27	0.00
40.00	2.20	1.27	0.00
41.00	2.20	1.27	0.00
42.00	2.20	1.27	0.00
43.00	2.20	1.27	0.00
44.00	2.20	1.27	0.00
45.00	2.20	1.27	0.00
46.00	2.20	1.27	0.00
47.00	2.20	1.27	0.00
48.00	2.20	1.27	0.00
49.00	2.20	1.27	0.00
50.00	2.20	1.27	0.00
51.00	2.20	1.27	0.00
52.00	2.20	1.27	0.00
53.00	2.20	1.27	0.00
54.00	2.20	1.27	0.00
55.00	2.20	1.27	0.00
56.00	2.20	1.27	0.00
57.00	2.20	1.27	0.00
58.00	2.20	1.27	0.00
59.00	2.20	1.27	0.00
60.00	2.20	1.27	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

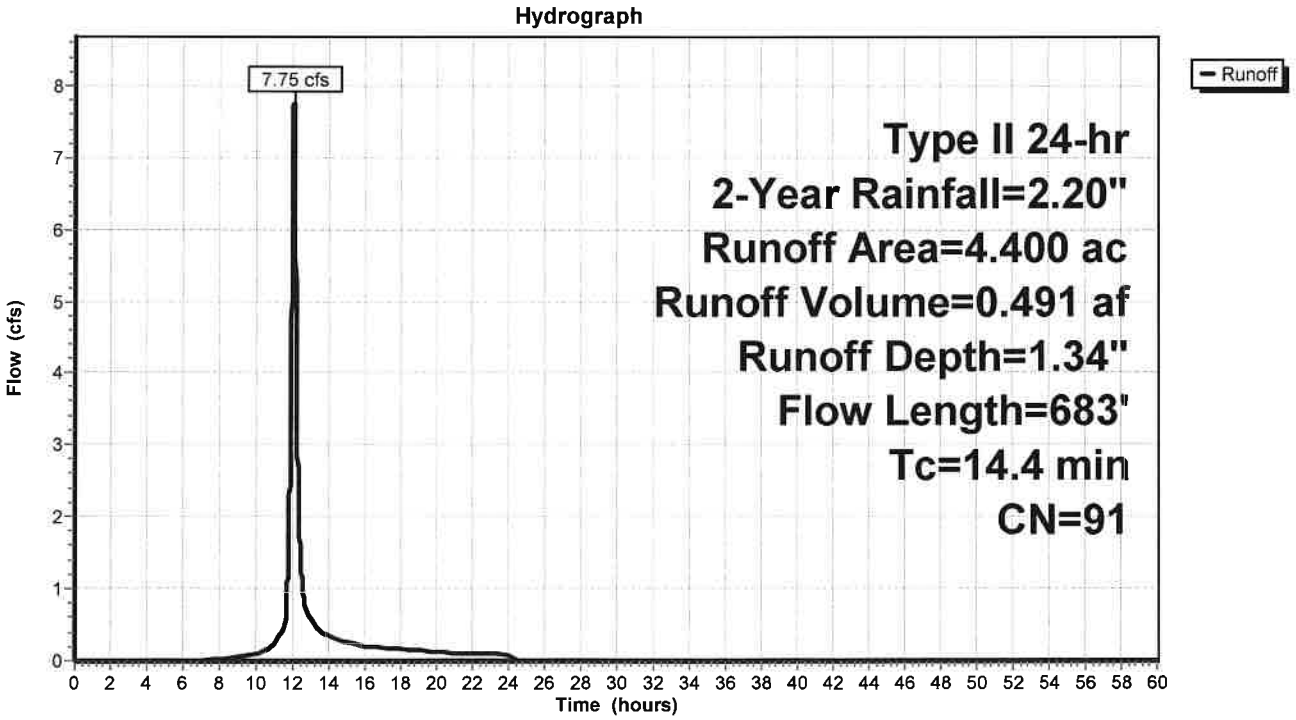
Runoff = 7.75 cfs @ 12.06 hrs, Volume= 0.491 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.02
9.00	0.32	0.01	0.06
10.00	0.40	0.03	0.10
11.00	0.52	0.08	0.25
12.00	1.46	0.71	**6.69**
13.00	1.70	0.90	**0.60**
14.00	1.80	0.99	0.35
15.00	1.88	1.06	0.27
16.00	1.94	1.11	0.21
17.00	1.98	1.15	0.18
18.00	2.03	1.19	0.16
19.00	2.06	1.22	0.14
20.00	2.09	1.25	0.12
21.00	2.12	1.27	0.11
22.00	2.15	1.30	0.10
23.00	2.18	1.32	0.10
24.00	**2.20**	**1.34**	0.10
25.00	2.20	1.34	0.00
26.00	2.20	1.34	0.00
27.00	2.20	1.34	0.00
28.00	2.20	1.34	0.00
29.00	2.20	1.34	0.00
30.00	2.20	1.34	0.00
31.00	2.20	1.34	0.00
32.00	2.20	1.34	0.00
33.00	2.20	1.34	0.00
34.00	2.20	1.34	0.00
35.00	2.20	1.34	0.00
36.00	2.20	1.34	0.00
37.00	2.20	1.34	0.00
38.00	2.20	1.34	0.00
39.00	2.20	1.34	0.00
40.00	2.20	1.34	0.00
41.00	2.20	1.34	0.00
42.00	2.20	1.34	0.00
43.00	2.20	1.34	0.00
44.00	2.20	1.34	0.00
45.00	2.20	1.34	0.00
46.00	2.20	1.34	0.00
47.00	2.20	1.34	0.00
48.00	2.20	1.34	0.00
49.00	2.20	1.34	0.00
50.00	2.20	1.34	0.00
51.00	2.20	1.34	0.00
52.00	2.20	1.34	0.00
53.00	2.20	1.34	0.00
54.00	2.20	1.34	0.00
55.00	2.20	1.34	0.00
56.00	2.20	1.34	0.00
57.00	2.20	1.34	0.00
58.00	2.20	1.34	0.00
59.00	2.20	1.34	0.00
60.00	2.20	1.34	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 10.57 cfs @ 12.05 hrs, Volume= 0.644 af
Outflow = 8.19 cfs @ 12.13 hrs, Volume= 0.644 af, Atten= 22%, Lag= 4.9 min
Primary = 2.79 cfs @ 12.13 hrs, Volume= 0.556 af
Secondary = 5.41 cfs @ 12.13 hrs, Volume= 0.088 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.91' @ 12.13 hrs Surf.Area= 9,805 sf Storage= 8,359 cf

Plug-Flow detention time= 252.3 min calculated for 0.644 af (100% of inflow)
Center-of-Mass det. time= 252.2 min (1,078.1 - 825.9)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

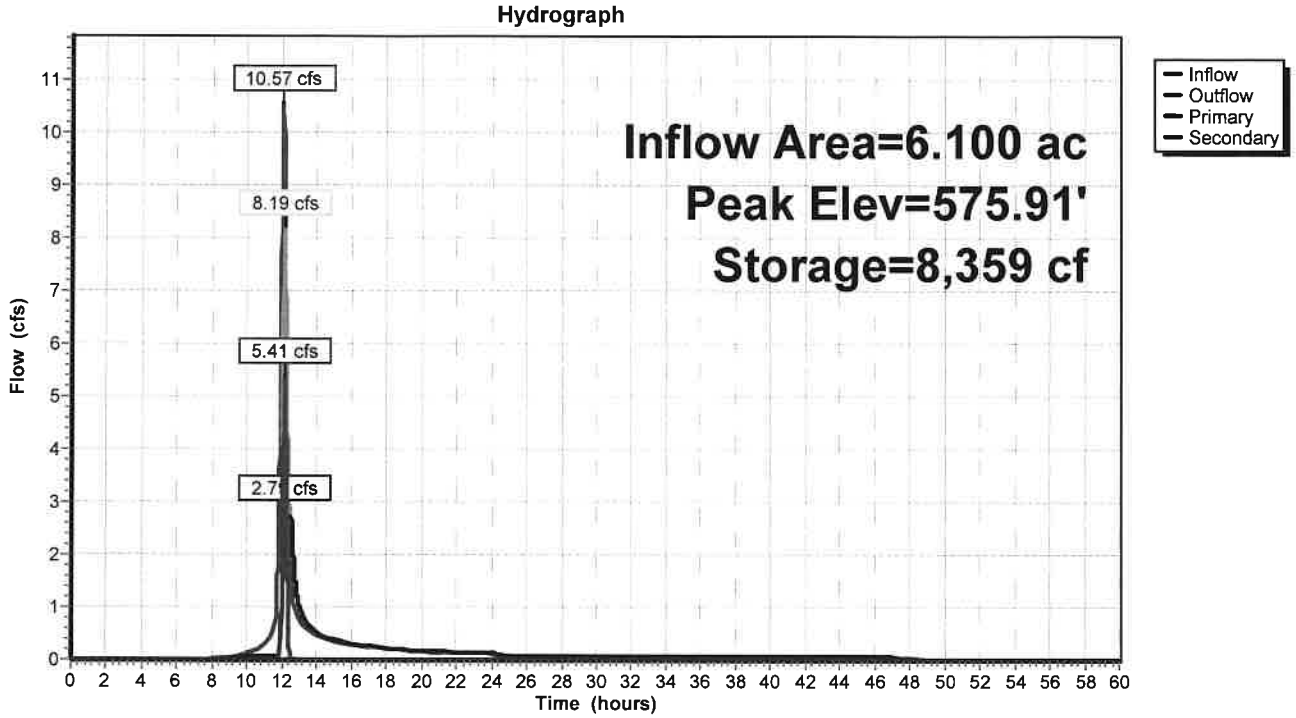
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.79 cfs @ 12.13 hrs HW=575.91' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.79 cfs @ 7.98 fps)
└**2=Grate** (Passes < 4.28 cfs potential flow)
└**3=Exfiltration** (Passes < 0.06 cfs potential flow)

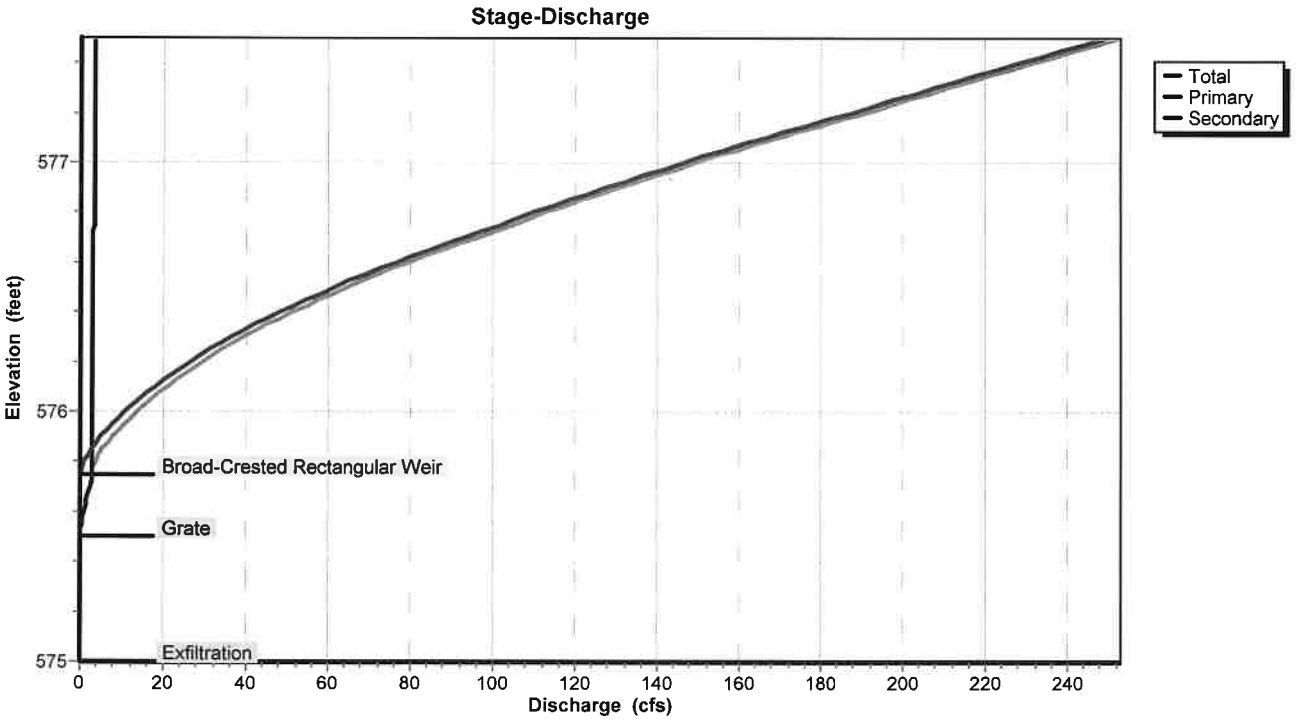
Secondary OutFlow Max=5.39 cfs @ 12.13 hrs HW=575.91' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 5.39 cfs @ 1.15 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

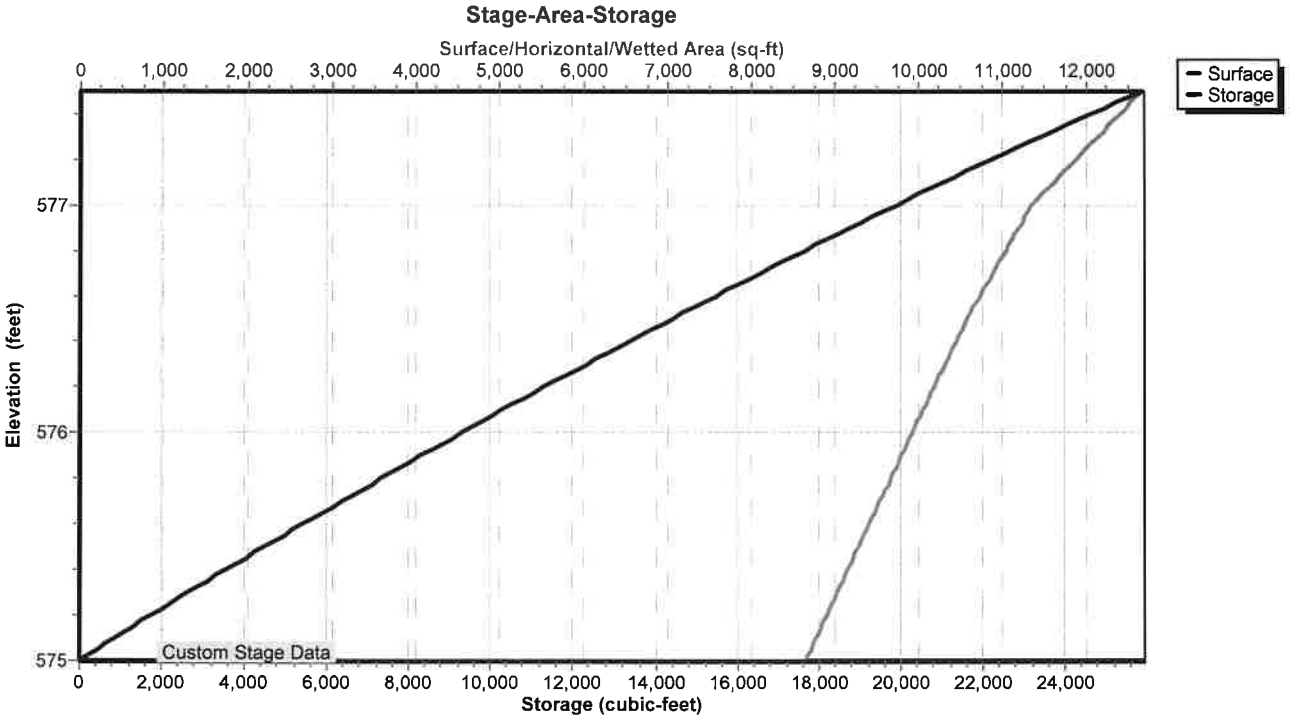


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.02	17	575.00	0.00	0.00	0.00
10.00	0.12	257	575.03	0.05	0.05	0.00
12.00	**9.45**	**6,253**	**575.69**	**2.30**	**2.30**	**0.00**
14.00	**0.46**	**5,096**	**575.57**	**0.52**	**0.52**	**0.00**
16.00	0.28	4,881	575.54	0.30	0.30	0.00
18.00	0.21	4,786	575.53	0.22	0.22	0.00
20.00	0.16	4,719	575.53	0.17	0.17	0.00
22.00	0.14	4,676	575.52	0.15	0.15	0.00
24.00	0.13	4,652	575.52	0.13	0.13	0.00
26.00	0.00	4,232	575.47	0.06	0.06	0.00
28.00	0.00	3,836	575.43	0.05	0.05	0.00
30.00	0.00	3,444	575.39	0.05	0.05	0.00
32.00	0.00	3,055	575.34	0.05	0.05	0.00
34.00	0.00	2,670	575.30	0.05	0.05	0.00
36.00	0.00	2,287	575.26	0.05	0.05	0.00
38.00	0.00	1,909	575.22	0.05	0.05	0.00
40.00	0.00	1,533	575.18	0.05	0.05	0.00
42.00	0.00	1,161	575.13	0.05	0.05	0.00
44.00	0.00	792	575.09	0.05	0.05	0.00
46.00	0.00	426	575.05	0.05	0.05	0.00
48.00	0.00	107	575.01	0.02	0.02	0.00
50.00	0.00	20	575.00	0.00	0.00	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 1.58" for 2-Year event
Inflow = 12.29 cfs @ 12.11 hrs, Volume= 0.579 af
Outflow = 0.18 cfs @ 17.01 hrs, Volume= 0.400 af, Atten= 99%, Lag= 293.7 min
Primary = 0.18 cfs @ 17.01 hrs, Volume= 0.400 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.32' @ 17.01 hrs Surf.Area= 61,630 sf Storage= 19,128 cf

Plug-Flow detention time= 1,051.7 min calculated for 0.400 af (69% of inflow)
Center-of-Mass det. time= 962.0 min (1,770.2 - 808.1)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

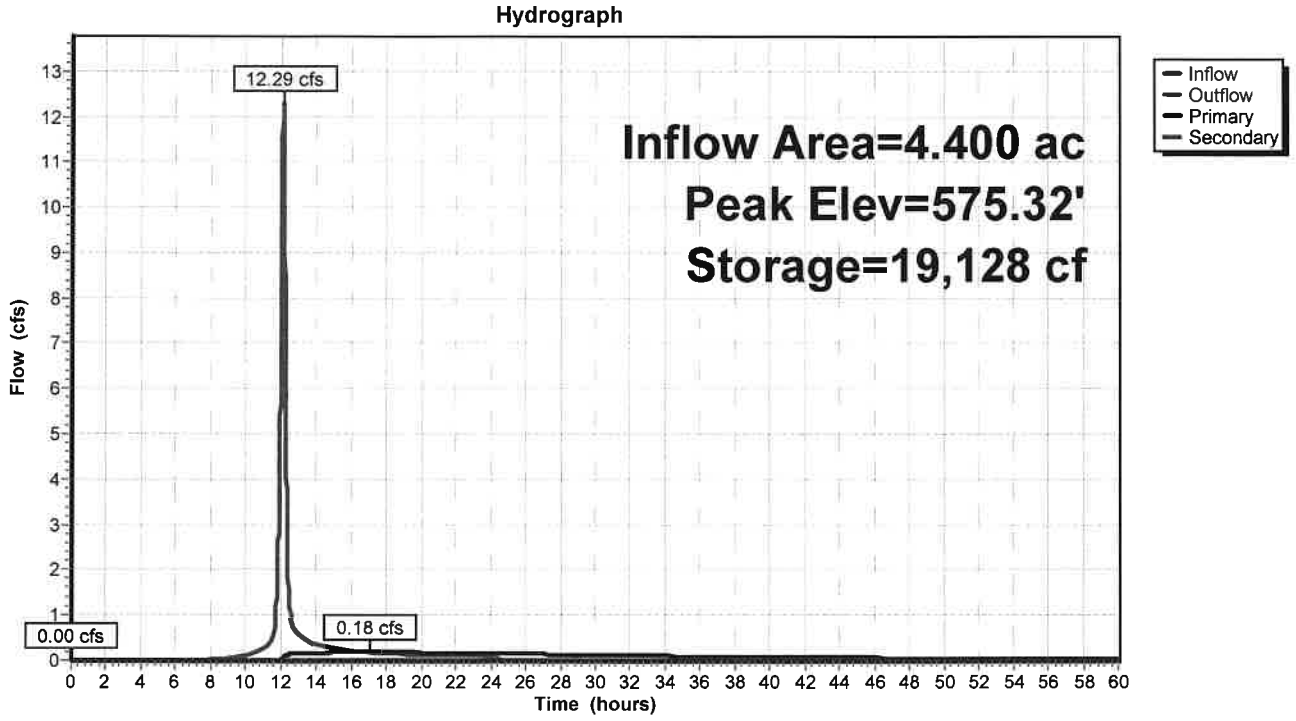
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.18 cfs @ 17.01 hrs HW=575.32' (Free Discharge)
└─**1=12" outlet pipe** (Passes 0.18 cfs of 1.87 cfs potential flow)
  ├─**2=low flow outlet pipe** (Barrel Controls 0.18 cfs @ 1.95 fps)
  └─**3=Grate** (Controls 0.00 cfs)

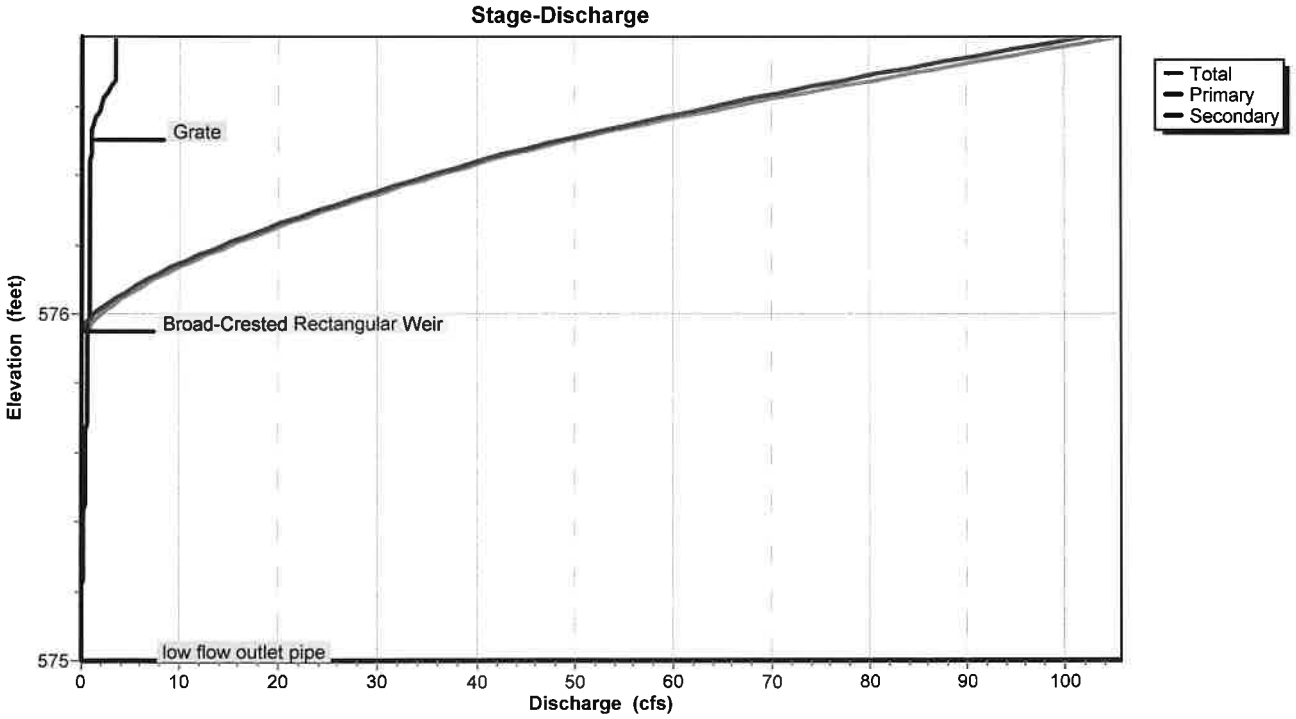
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

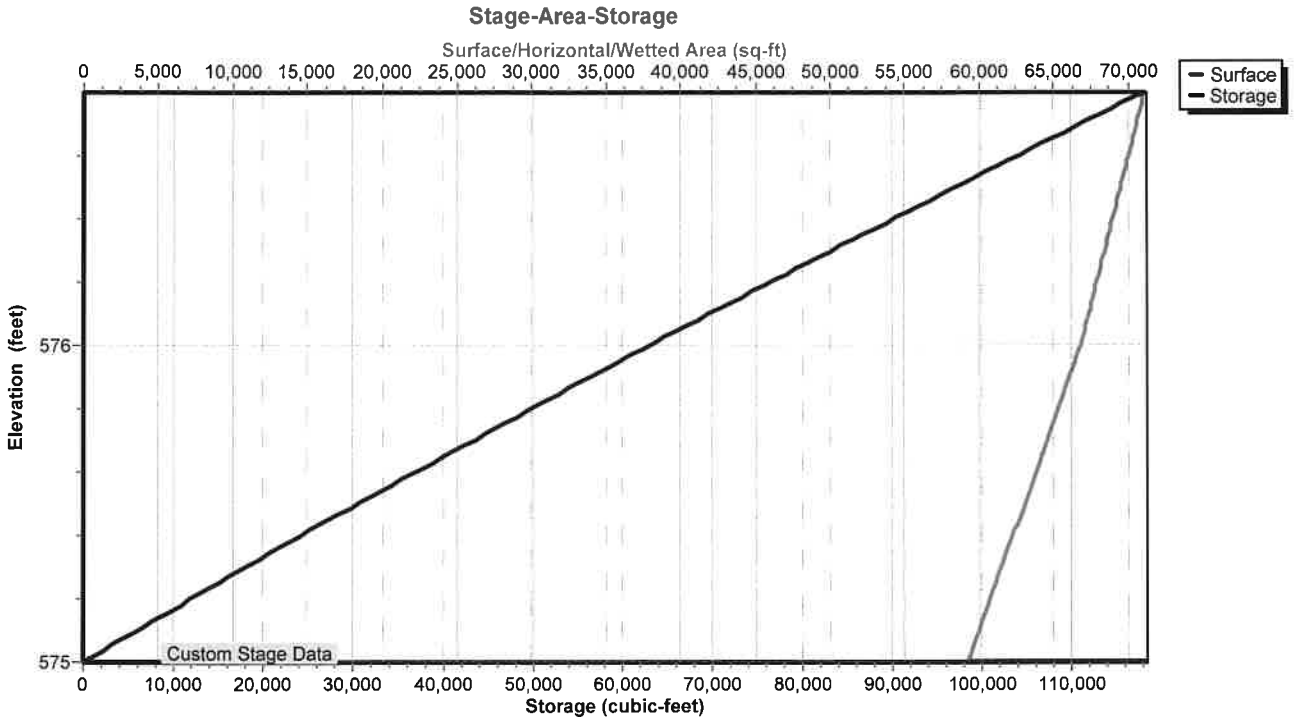


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.02	48	575.00	0.00	0.00	0.00
10.00	0.10	451	575.01	0.00	0.00	0.00
12.00	**6.69**	5,327	575.09	0.02	0.02	0.00
14.00	**0.35**	18,425	575.31	0.17	0.17	0.00
16.00	0.21	**19,087**	**575.32**	**0.18**	**0.18**	0.00
18.00	0.16	**19,093**	**575.32**	**0.18**	**0.18**	0.00
20.00	0.12	18,812	575.31	0.17	0.17	0.00
22.00	0.10	18,367	575.30	0.17	0.17	0.00
24.00	0.10	17,912	575.30	0.16	0.16	0.00
26.00	0.00	16,886	575.28	0.15	0.15	0.00
28.00	0.00	15,893	575.26	0.13	0.13	0.00
30.00	0.00	14,996	575.25	0.12	0.12	0.00
32.00	0.00	14,184	575.24	0.11	0.11	0.00
34.00	0.00	13,445	575.22	0.10	0.10	0.00
36.00	0.00	12,772	575.21	0.09	0.09	0.00
38.00	0.00	12,156	575.20	0.08	0.08	0.00
40.00	0.00	11,591	575.19	0.08	0.08	0.00
42.00	0.00	11,071	575.18	0.07	0.07	0.00
44.00	0.00	10,592	575.18	0.06	0.06	0.00
46.00	0.00	10,149	575.17	0.06	0.06	0.00
48.00	0.00	9,739	575.16	0.05	0.05	0.00
50.00	0.00	9,358	575.16	0.05	0.05	0.00
52.00	0.00	9,003	575.15	0.05	0.05	0.00
54.00	0.00	8,673	575.15	0.04	0.04	0.00
56.00	0.00	8,364	575.14	0.04	0.04	0.00
58.00	0.00	8,075	575.14	0.04	0.04	0.00
60.00	0.00	7,803	575.13	0.04	0.04	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

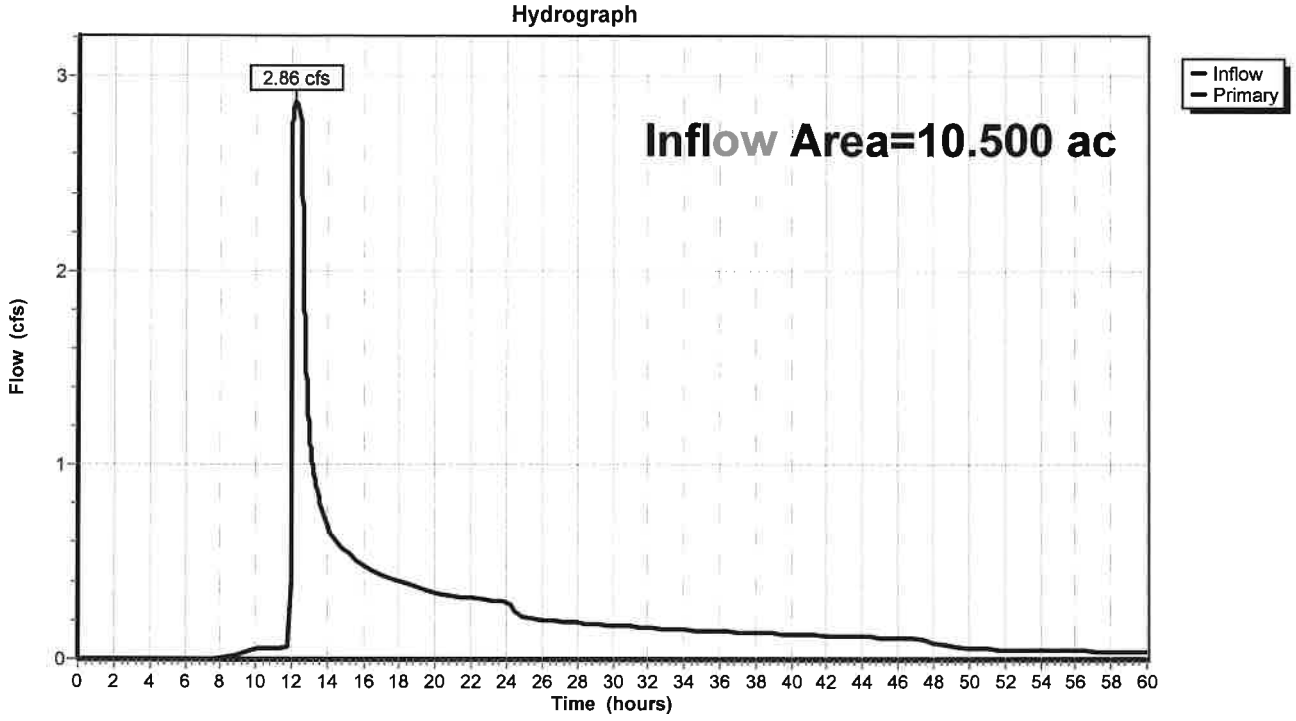
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.09" for 2-Year event
Inflow = 2.86 cfs @ 12.23 hrs, Volume= 0.956 af
Primary = 2.86 cfs @ 12.23 hrs, Volume= 0.956 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.05	0.00	0.05
1.00	0.00	0.00	0.00	53.00	0.05	0.00	0.05
2.00	0.00	0.00	0.00	54.00	0.04	0.00	0.04
3.00	0.00	0.00	0.00	55.00	0.04	0.00	0.04
4.00	0.00	0.00	0.00	56.00	0.04	0.00	0.04
5.00	0.00	0.00	0.00	57.00	0.04	0.00	0.04
6.00	0.00	0.00	0.00	58.00	0.04	0.00	0.04
7.00	0.00	0.00	0.00	59.00	0.04	0.00	0.04
8.00	0.00	0.00	0.00	60.00	0.04	0.00	0.04
9.00	0.02	0.00	0.02				
10.00	0.05	0.00	0.05				
11.00	0.05	0.00	0.05				
12.00	**2.31**	0.00	**2.31**				
13.00	**1.18**	0.00	**1.18**				
14.00	0.69	0.00	0.69				
15.00	0.55	0.00	0.55				
16.00	0.48	0.00	0.48				
17.00	0.43	0.00	0.43				
18.00	0.40	0.00	0.40				
19.00	0.37	0.00	0.37				
20.00	0.34	0.00	0.34				
21.00	0.32	0.00	0.32				
22.00	0.31	0.00	0.31				
23.00	0.30	0.00	0.30				
24.00	0.29	0.00	0.29				
25.00	0.21	0.00	0.21				
26.00	0.20	0.00	0.20				
27.00	0.19	0.00	0.19				
28.00	0.19	0.00	0.19				
29.00	0.18	0.00	0.18				
30.00	0.17	0.00	0.17				
31.00	0.17	0.00	0.17				
32.00	0.16	0.00	0.16				
33.00	0.16	0.00	0.16				
34.00	0.15	0.00	0.15				
35.00	0.15	0.00	0.15				
36.00	0.14	0.00	0.14				
37.00	0.14	0.00	0.14				
38.00	0.13	0.00	0.13				
39.00	0.13	0.00	0.13				
40.00	0.13	0.00	0.13				
41.00	0.12	0.00	0.12				
42.00	0.12	0.00	0.12				
43.00	0.12	0.00	0.12				
44.00	0.11	0.00	0.11				
45.00	0.11	0.00	0.11				
46.00	0.11	0.00	0.11				
47.00	0.11	0.00	0.11				
48.00	0.08	0.00	0.08				
49.00	0.06	0.00	0.06				
50.00	0.06	0.00	0.06				
51.00	0.05	0.00	0.05				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=1.71"
Flow Length=652' Tc=13.3 min CN=90 Runoff=14.18 cfs 0.870 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=1.79"
Flow Length=683' Tc=14.4 min CN=91 Runoff=10.29 cfs 0.658 af

Pond 1P: Bioretention Area 3 Peak Elev=575.99' Storage=9,153 cf Inflow=14.18 cfs 0.870 af
Primary=2.83 cfs 0.666 af Secondary=10.09 cfs 0.203 af Outflow=12.91 cfs 0.870 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.46' Storage=28,218 cf Inflow=20.08 cfs 0.861 af
Primary=0.33 cfs 0.652 af Secondary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.652 af

Link 5L: Outflow (@ CB 54) Inflow=3.01 cfs 1.318 af
Primary=3.01 cfs 1.318 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.527 af Average Runoff Depth = 1.75"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

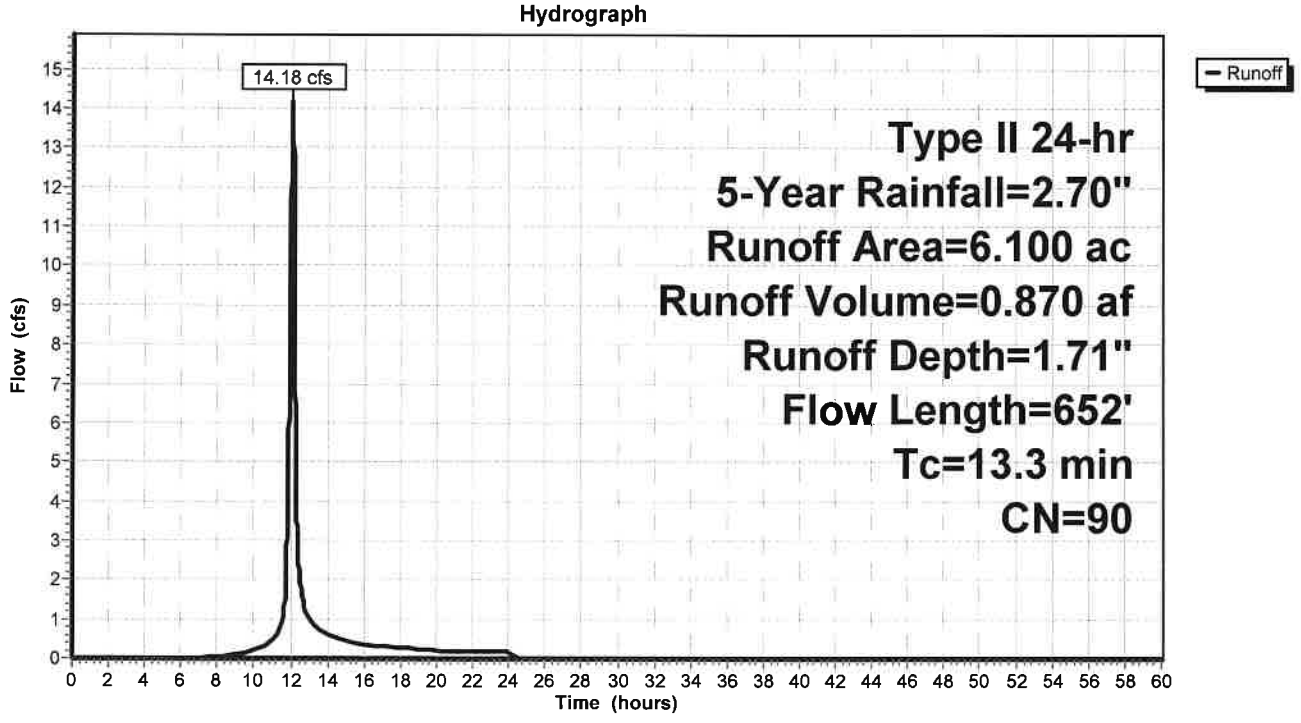
Runoff = 14.18 cfs @ 12.05 hrs, Volume= 0.870 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.02
8.00	0.32	0.01	0.05
9.00	0.40	0.02	0.12
10.00	0.49	0.05	0.20
11.00	0.63	0.11	0.47
12.00	1.79	0.92	**12.79**
13.00	2.08	1.17	**1.02**
14.00	2.21	1.28	0.59
15.00	2.30	1.36	0.46
16.00	2.38	1.42	0.36
17.00	2.43	1.47	0.31
18.00	2.49	1.52	0.27
19.00	2.53	1.56	0.24
20.00	2.57	1.59	0.20
21.00	2.60	1.62	0.19
22.00	2.64	1.65	0.18
23.00	2.67	1.68	0.17
24.00	**2.70**	**1.71**	0.17
25.00	2.70	1.71	0.00
26.00	2.70	1.71	0.00
27.00	2.70	1.71	0.00
28.00	2.70	1.71	0.00
29.00	2.70	1.71	0.00
30.00	2.70	1.71	0.00
31.00	2.70	1.71	0.00
32.00	2.70	1.71	0.00
33.00	2.70	1.71	0.00
34.00	2.70	1.71	0.00
35.00	2.70	1.71	0.00
36.00	2.70	1.71	0.00
37.00	2.70	1.71	0.00
38.00	2.70	1.71	0.00
39.00	2.70	1.71	0.00
40.00	2.70	1.71	0.00
41.00	2.70	1.71	0.00
42.00	2.70	1.71	0.00
43.00	2.70	1.71	0.00
44.00	2.70	1.71	0.00
45.00	2.70	1.71	0.00
46.00	2.70	1.71	0.00
47.00	2.70	1.71	0.00
48.00	2.70	1.71	0.00
49.00	2.70	1.71	0.00
50.00	2.70	1.71	0.00
51.00	2.70	1.71	0.00
52.00	2.70	1.71	0.00
53.00	2.70	1.71	0.00
54.00	2.70	1.71	0.00
55.00	2.70	1.71	0.00
56.00	2.70	1.71	0.00
57.00	2.70	1.71	0.00
58.00	2.70	1.71	0.00
59.00	2.70	1.71	0.00
60.00	2.70	1.71	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

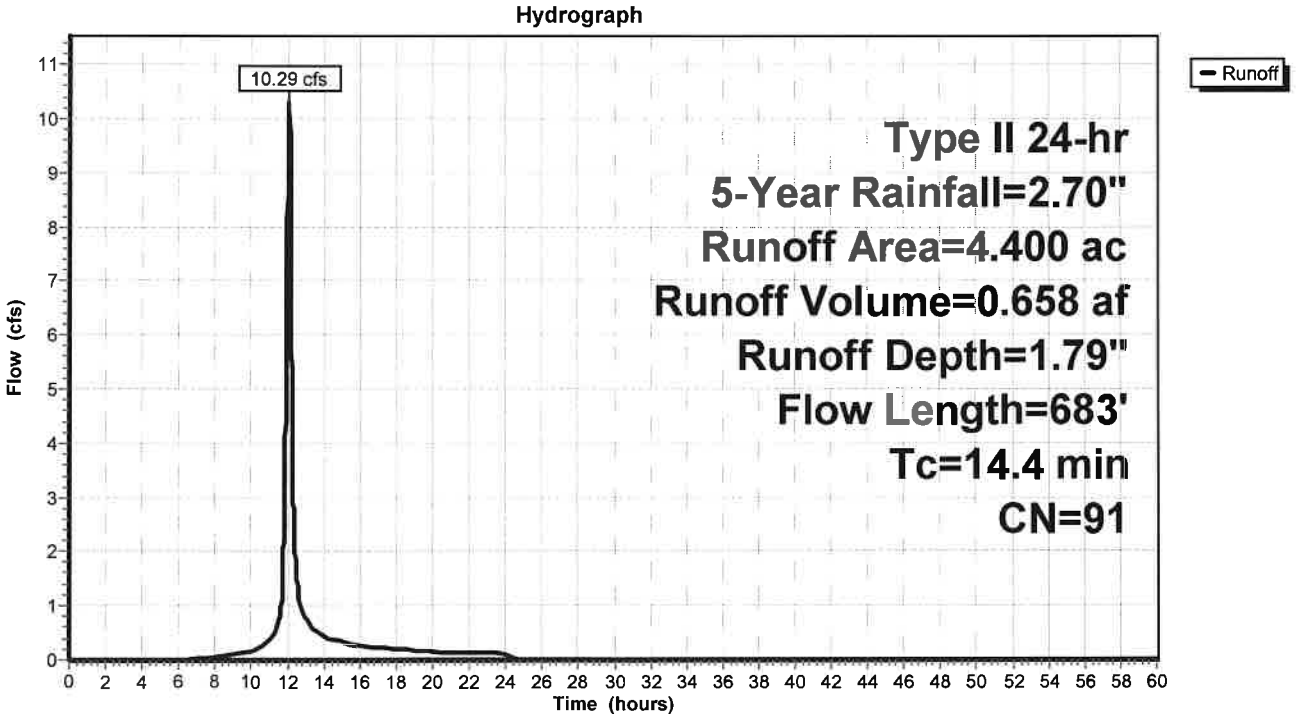
Runoff = 10.29 cfs @ 12.06 hrs, Volume= 0.658 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.03
8.00	0.32	0.01	0.05
9.00	0.40	0.03	0.10
10.00	0.49	0.07	0.17
11.00	0.63	0.13	0.37
12.00	1.79	0.98	**8.97**
13.00	2.08	1.24	**0.77**
14.00	2.21	1.35	0.44
15.00	2.30	1.43	0.34
16.00	2.38	1.50	0.27
17.00	2.43	1.55	0.23
18.00	2.49	1.60	0.20
19.00	2.53	1.64	0.18
20.00	2.57	1.67	0.15
21.00	2.60	1.71	0.14
22.00	2.64	1.74	0.13
23.00	2.67	1.77	0.13
24.00	**2.70**	**1.79**	0.12
25.00	2.70	1.79	0.00
26.00	2.70	1.79	0.00
27.00	2.70	1.79	0.00
28.00	2.70	1.79	0.00
29.00	2.70	1.79	0.00
30.00	2.70	1.79	0.00
31.00	2.70	1.79	0.00
32.00	2.70	1.79	0.00
33.00	2.70	1.79	0.00
34.00	2.70	1.79	0.00
35.00	2.70	1.79	0.00
36.00	2.70	1.79	0.00
37.00	2.70	1.79	0.00
38.00	2.70	1.79	0.00
39.00	2.70	1.79	0.00
40.00	2.70	1.79	0.00
41.00	2.70	1.79	0.00
42.00	2.70	1.79	0.00
43.00	2.70	1.79	0.00
44.00	2.70	1.79	0.00
45.00	2.70	1.79	0.00
46.00	2.70	1.79	0.00
47.00	2.70	1.79	0.00
48.00	2.70	1.79	0.00
49.00	2.70	1.79	0.00
50.00	2.70	1.79	0.00
51.00	2.70	1.79	0.00
52.00	2.70	1.79	0.00
53.00	2.70	1.79	0.00
54.00	2.70	1.79	0.00
55.00	2.70	1.79	0.00
56.00	2.70	1.79	0.00
57.00	2.70	1.79	0.00
58.00	2.70	1.79	0.00
59.00	2.70	1.79	0.00
60.00	2.70	1.79	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 1.71" for 5-Year event
Inflow = 14.18 cfs @ 12.05 hrs, Volume= 0.870 af
Outflow = 12.91 cfs @ 12.10 hrs, Volume= 0.870 af, Atten= 9%, Lag= 2.9 min
Primary = 2.83 cfs @ 12.10 hrs, Volume= 0.666 af
Secondary = 10.09 cfs @ 12.10 hrs, Volume= 0.203 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.99' @ 12.10 hrs Surf.Area= 9,908 sf Storage= 9,153 cf

Plug-Flow detention time= 193.1 min calculated for 0.869 af (100% of inflow)
Center-of-Mass det. time= 193.4 min (1,010.7 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

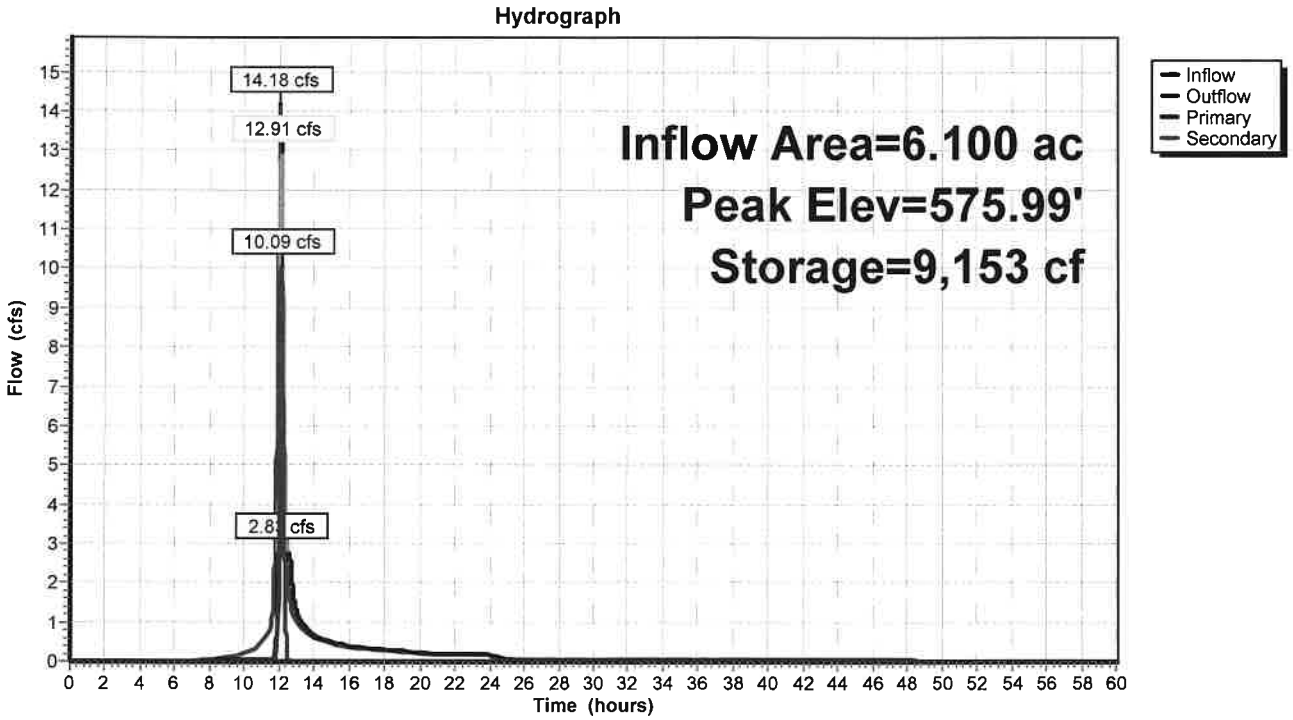
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.83 cfs @ 12.10 hrs HW=575.99' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.83 cfs @ 8.10 fps)
  ├**2=Grate** (Passes < 4.69 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

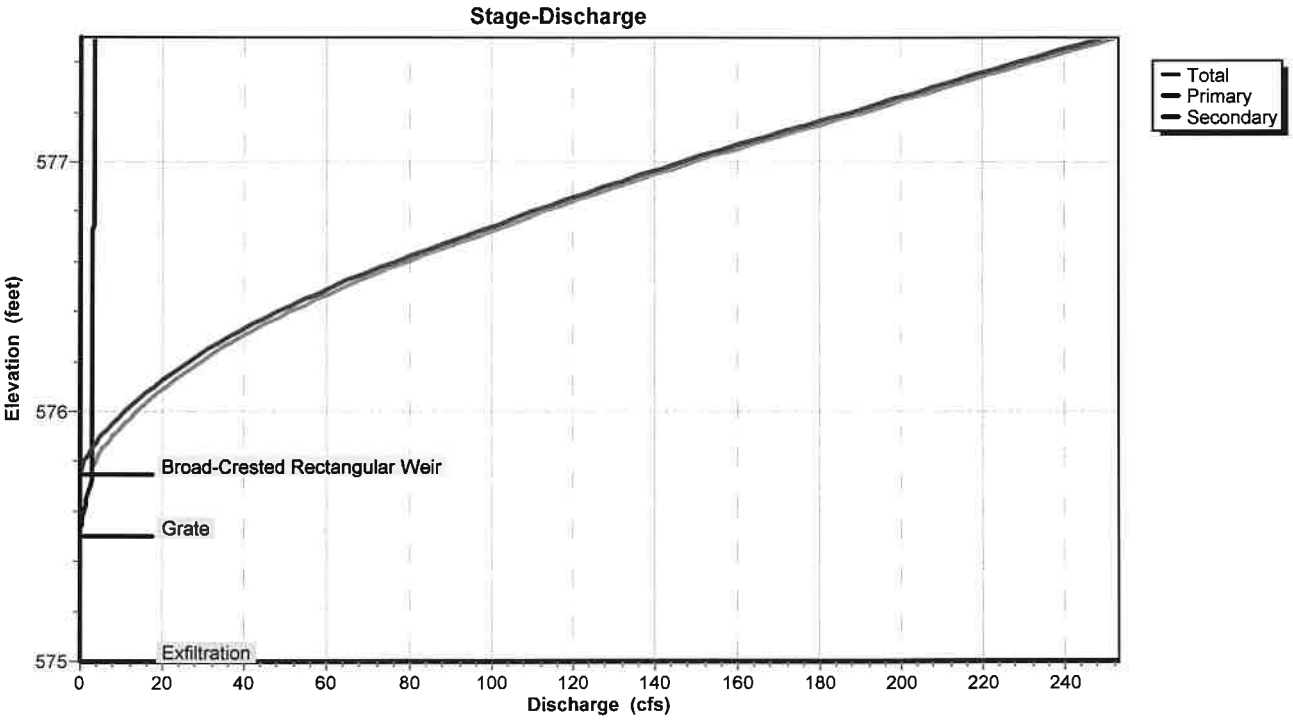
Secondary OutFlow Max=10.07 cfs @ 12.10 hrs HW=575.99' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 10.07 cfs @ 1.42 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

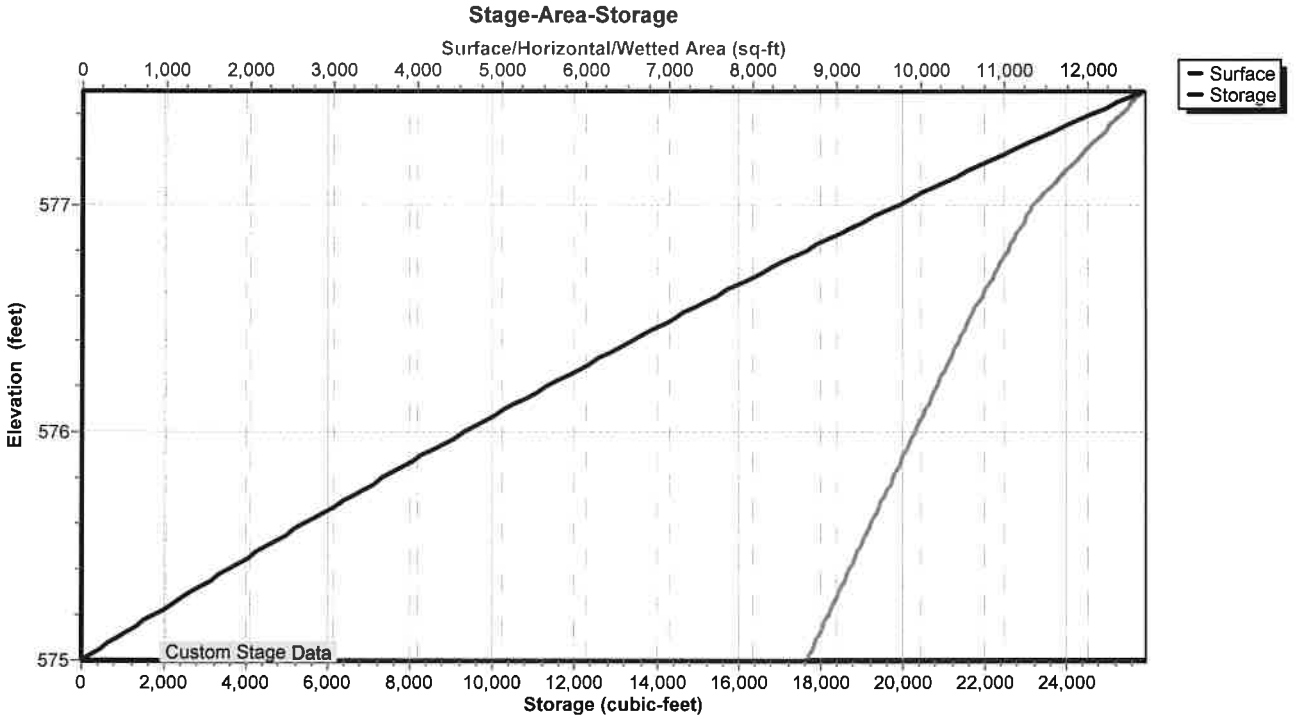


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	0	575.00	0.00	0.00	0.00
8.00	0.05	99	575.01	0.02	0.02	0.00
10.00	0.20	617	575.07	0.05	0.05	0.00
12.00	**12.79**	**8,183**	**575.89**	**7.28**	**2.78**	**4.50**
14.00	**0.59**	**5,218**	**575.58**	**0.66**	**0.66**	**0.00**
16.00	0.36	4,969	575.55	0.38	0.38	0.00
18.00	0.27	4,859	575.54	0.29	0.29	0.00
20.00	0.20	4,774	575.53	0.21	0.21	0.00
22.00	0.18	4,739	575.53	0.18	0.18	0.00
24.00	0.17	4,722	575.53	0.17	0.17	0.00
26.00	0.00	4,258	575.48	0.06	0.06	0.00
28.00	0.00	3,862	575.43	0.05	0.05	0.00
30.00	0.00	3,470	575.39	0.05	0.05	0.00
32.00	0.00	3,081	575.35	0.05	0.05	0.00
34.00	0.00	2,695	575.30	0.05	0.05	0.00
36.00	0.00	2,313	575.26	0.05	0.05	0.00
38.00	0.00	1,934	575.22	0.05	0.05	0.00
40.00	0.00	1,558	575.18	0.05	0.05	0.00
42.00	0.00	1,186	575.14	0.05	0.05	0.00
44.00	0.00	816	575.09	0.05	0.05	0.00
46.00	0.00	450	575.05	0.05	0.05	0.00
48.00	0.00	119	575.01	0.03	0.03	0.00
50.00	0.00	22	575.00	0.01	0.01	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 2.35" for 5-Year event
Inflow = 20.08 cfs @ 12.08 hrs, Volume= 0.861 af
Outflow = 0.33 cfs @ 15.13 hrs, Volume= 0.652 af, Atten= 98%, Lag= 182.5 min
Primary = 0.33 cfs @ 15.13 hrs, Volume= 0.652 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.46' @ 15.13 hrs Surf.Area= 62,747 sf Storage= 28,218 cf

Plug-Flow detention time= 974.3 min calculated for 0.652 af (76% of inflow)
Center-of-Mass det. time= 898.6 min (1,692.2 - 793.6)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

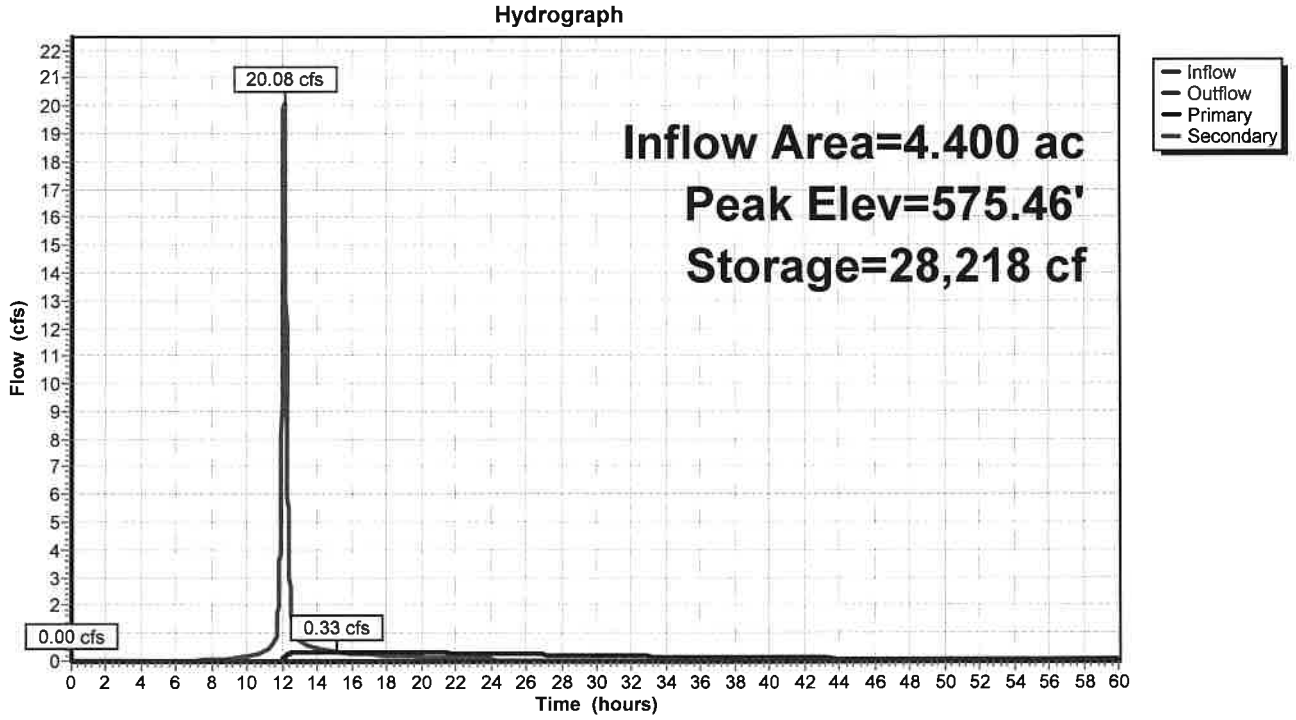
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.33 cfs @ 15.13 hrs HW=575.46' (Free Discharge)
└**1=12" outlet pipe** (Passes 0.33 cfs of 2.02 cfs potential flow)
  └**2=low flow outlet pipe** (Barrel Controls 0.33 cfs @ 2.27 fps)
  └**3=Grate** (Controls 0.00 cfs)

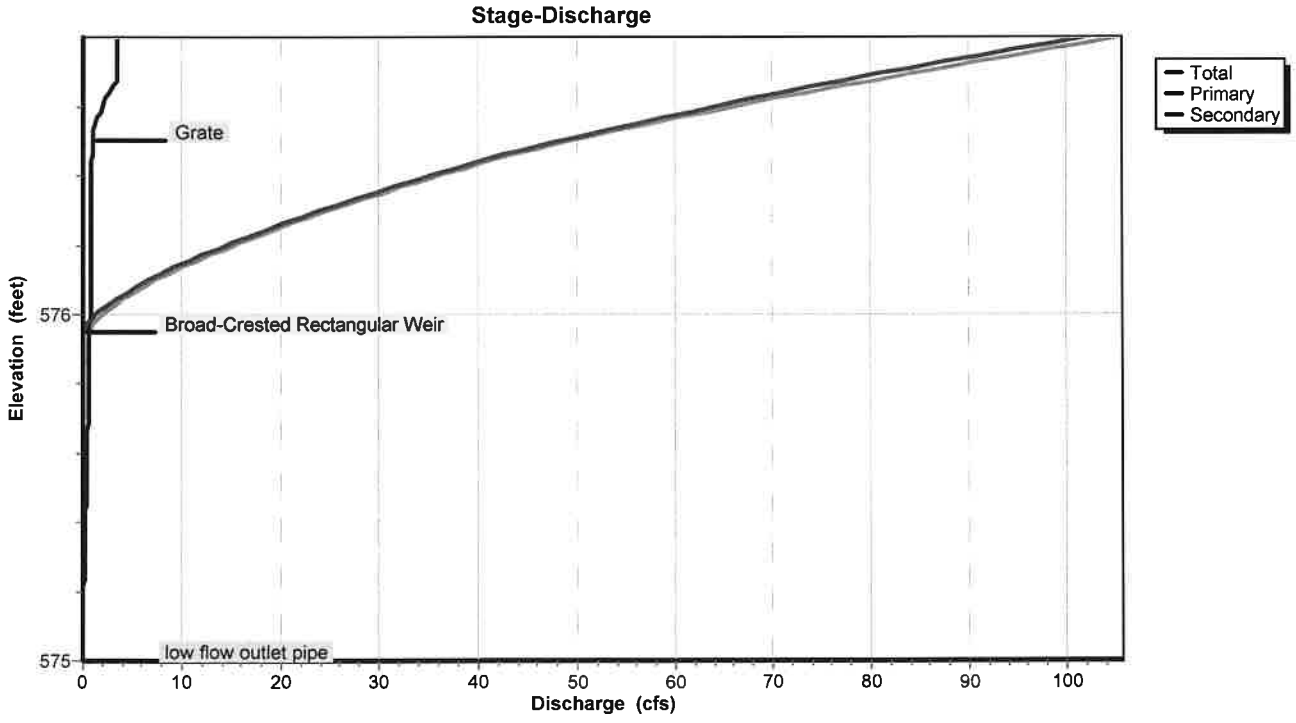
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

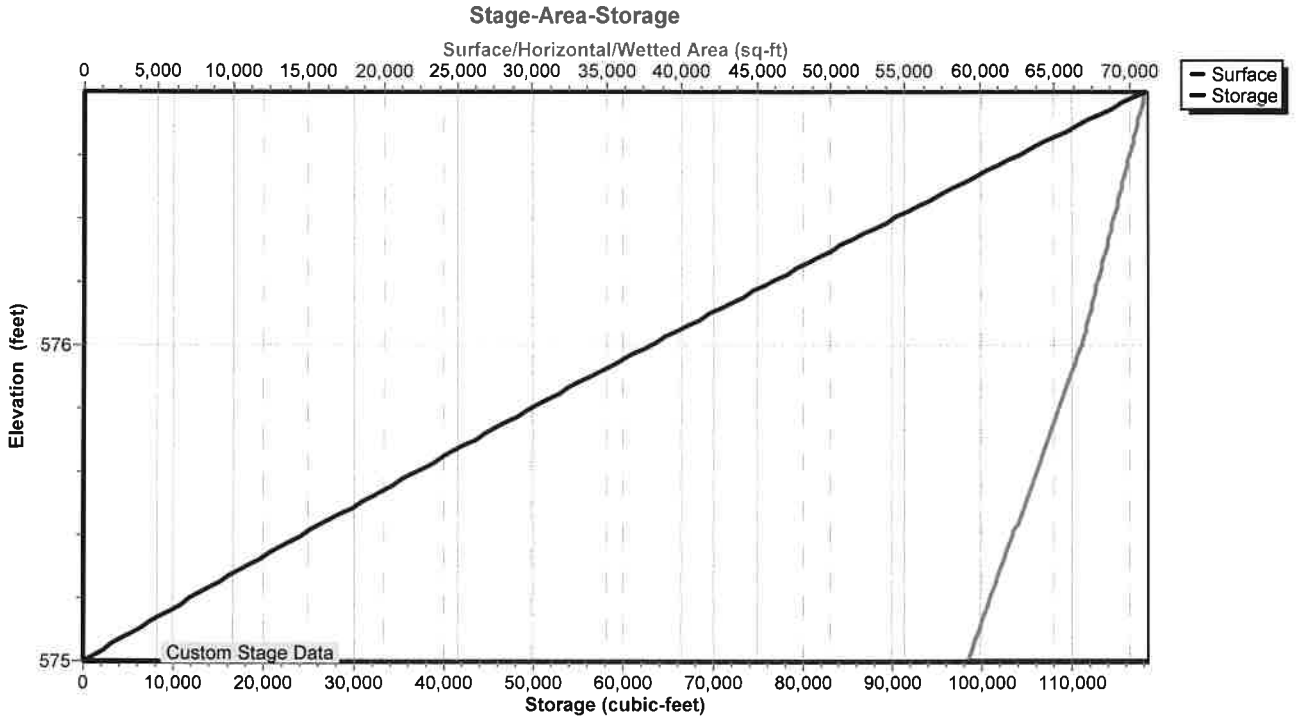


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.00	1	575.00	0.00	0.00	0.00
8.00	0.05	186	575.00	0.00	0.00	0.00
10.00	0.17	912	575.02	0.00	0.00	0.00
12.00	**13.47**	8,186	575.14	0.04	0.04	0.00
14.00	**0.44**	**28,034**	**575.46**	**0.33**	**0.33**	0.00
16.00	0.27	**28,118**	**575.46**	**0.33**	**0.33**	0.00
18.00	0.20	27,442	575.45	0.32	0.32	0.00
20.00	0.15	26,479	575.43	0.30	0.30	0.00
22.00	0.13	25,382	575.42	0.28	0.28	0.00
24.00	0.12	24,337	575.40	0.26	0.26	0.00
26.00	0.00	22,633	575.37	0.24	0.24	0.00
28.00	0.00	21,033	575.35	0.21	0.21	0.00
30.00	0.00	19,609	575.32	0.19	0.19	0.00
32.00	0.00	18,338	575.30	0.17	0.17	0.00
34.00	0.00	17,199	575.29	0.15	0.15	0.00
36.00	0.00	16,175	575.27	0.13	0.13	0.00
38.00	0.00	15,251	575.25	0.12	0.12	0.00
40.00	0.00	14,415	575.24	0.11	0.11	0.00
42.00	0.00	13,655	575.23	0.10	0.10	0.00
44.00	0.00	12,964	575.22	0.09	0.09	0.00
46.00	0.00	12,331	575.21	0.08	0.08	0.00
48.00	0.00	11,752	575.20	0.08	0.08	0.00
50.00	0.00	11,220	575.19	0.07	0.07	0.00
52.00	0.00	10,729	575.18	0.07	0.07	0.00
54.00	0.00	10,276	575.17	0.06	0.06	0.00
56.00	0.00	9,856	575.16	0.06	0.06	0.00
58.00	0.00	9,467	575.16	0.05	0.05	0.00
60.00	0.00	9,105	575.15	0.05	0.05	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

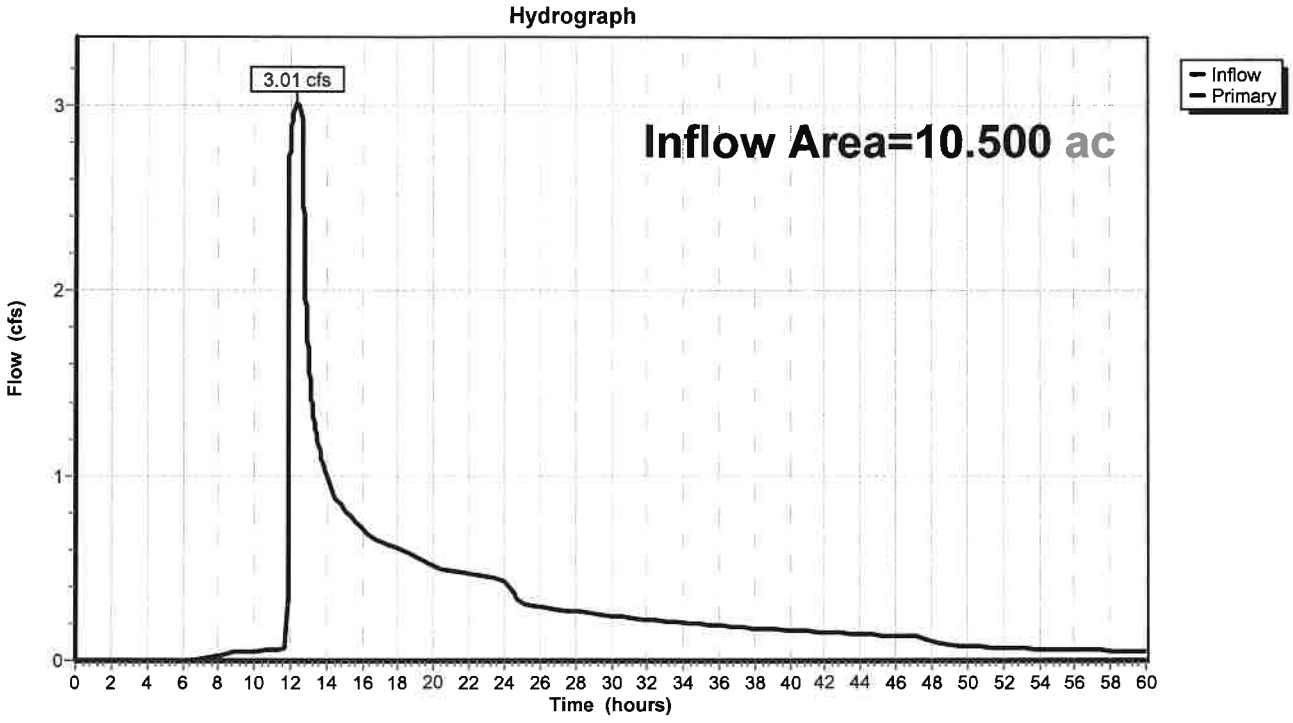
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.51" for 5-Year event
Inflow = 3.01 cfs @ 12.34 hrs, Volume= 1.318 af
Primary = 3.01 cfs @ 12.34 hrs, Volume= 1.318 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.07	0.00	0.07
1.00	0.00	0.00	0.00	53.00	0.06	0.00	0.06
2.00	0.00	0.00	0.00	54.00	0.06	0.00	0.06
3.00	0.00	0.00	0.00	55.00	0.06	0.00	0.06
4.00	0.00	0.00	0.00	56.00	0.06	0.00	0.06
5.00	0.00	0.00	0.00	57.00	0.05	0.00	0.05
6.00	0.00	0.00	0.00	58.00	0.05	0.00	0.05
7.00	0.00	0.00	0.00	59.00	0.05	0.00	0.05
8.00	0.02	0.00	0.02	60.00	0.05	0.00	0.05
9.00	0.05	0.00	0.05				
10.00	0.05	0.00	0.05				
11.00	0.05	0.00	0.05				
12.00	**2.82**	0.00	**2.82**				
13.00	**1.62**	0.00	**1.62**				
14.00	0.99	0.00	0.99				
15.00	0.81	0.00	0.81				
16.00	0.71	0.00	0.71				
17.00	0.65	0.00	0.65				
18.00	0.60	0.00	0.60				
19.00	0.56	0.00	0.56				
20.00	0.51	0.00	0.51				
21.00	0.48	0.00	0.48				
22.00	0.47	0.00	0.47				
23.00	0.45	0.00	0.45				
24.00	0.43	0.00	0.43				
25.00	0.31	0.00	0.31				
26.00	0.29	0.00	0.29				
27.00	0.28	0.00	0.28				
28.00	0.26	0.00	0.26				
29.00	0.25	0.00	0.25				
30.00	0.24	0.00	0.24				
31.00	0.23	0.00	0.23				
32.00	0.22	0.00	0.22				
33.00	0.21	0.00	0.21				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.19	0.00	0.19				
37.00	0.18	0.00	0.18				
38.00	0.17	0.00	0.17				
39.00	0.17	0.00	0.17				
40.00	0.16	0.00	0.16				
41.00	0.16	0.00	0.16				
42.00	0.15	0.00	0.15				
43.00	0.15	0.00	0.15				
44.00	0.14	0.00	0.14				
45.00	0.14	0.00	0.14				
46.00	0.13	0.00	0.13				
47.00	0.13	0.00	0.13				
48.00	0.10	0.00	0.10				
49.00	0.09	0.00	0.09				
50.00	0.08	0.00	0.08				
51.00	0.07	0.00	0.07				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=2.12"
Flow Length=652' Tc=13.3 min CN=90 Runoff=17.46 cfs 1.079 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=2.21"
Flow Length=683' Tc=14.4 min CN=91 Runoff=12.59 cfs 0.811 af

Pond 1P: Bioretention Area 3 Peak Elev=576.04' Storage=9,672 cf Inflow=17.46 cfs 1.079 af
Primary=2.85 cfs 0.765 af Secondary=13.60 cfs 0.314 af Outflow=16.45 cfs 1.079 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.60' Storage=37,117 cf Inflow=26.01 cfs 1.125 af
Primary=0.47 cfs 0.892 af Secondary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.892 af

Link 5L: Outflow (@ CB 54) Inflow=3.16 cfs 1.657 af
Primary=3.16 cfs 1.657 af

Total Runoff Area = 10.500 ac Runoff Volume = 1.890 af Average Runoff Depth = 2.16"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

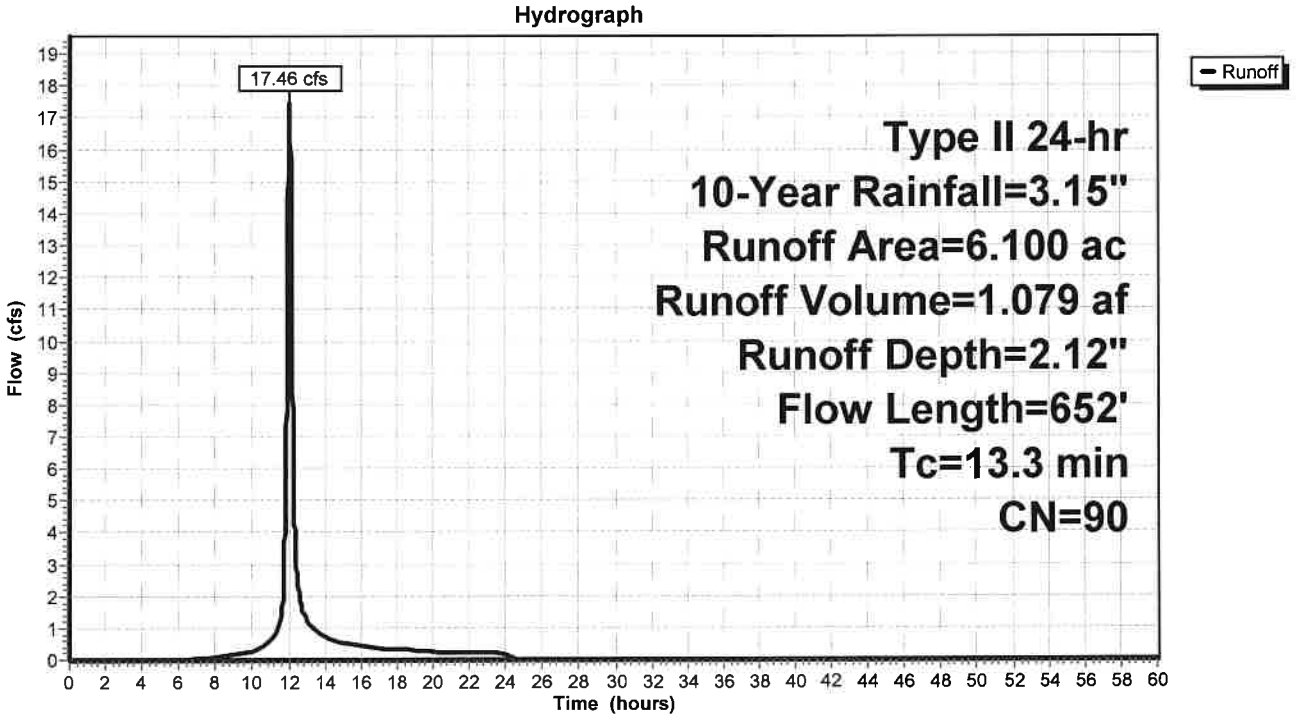
Runoff = 17.46 cfs @ 12.05 hrs, Volume= 1.079 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.01
7.00	0.31	0.01	0.05
8.00	0.38	0.02	0.09
9.00	0.46	0.04	0.18
10.00	0.57	0.08	0.28
11.00	0.74	0.16	0.63
12.00	2.09	1.17	**15.84**
13.00	2.43	1.47	**1.23**
14.00	2.58	1.61	0.71
15.00	2.69	1.70	0.55
16.00	2.77	1.78	0.43
17.00	2.84	1.84	0.37
18.00	2.90	1.89	0.33
19.00	2.95	1.94	0.28
20.00	3.00	1.98	0.24
21.00	3.04	2.02	0.22
22.00	3.08	2.06	0.22
23.00	3.11	2.09	0.21
24.00	**3.15**	**2.12**	0.20
25.00	3.15	2.12	0.00
26.00	3.15	2.12	0.00
27.00	3.15	2.12	0.00
28.00	3.15	2.12	0.00
29.00	3.15	2.12	0.00
30.00	3.15	2.12	0.00
31.00	3.15	2.12	0.00
32.00	3.15	2.12	0.00
33.00	3.15	2.12	0.00
34.00	3.15	2.12	0.00
35.00	3.15	2.12	0.00
36.00	3.15	2.12	0.00
37.00	3.15	2.12	0.00
38.00	3.15	2.12	0.00
39.00	3.15	2.12	0.00
40.00	3.15	2.12	0.00
41.00	3.15	2.12	0.00
42.00	3.15	2.12	0.00
43.00	3.15	2.12	0.00
44.00	3.15	2.12	0.00
45.00	3.15	2.12	0.00
46.00	3.15	2.12	0.00
47.00	3.15	2.12	0.00
48.00	3.15	2.12	0.00
49.00	3.15	2.12	0.00
50.00	3.15	2.12	0.00
51.00	3.15	2.12	0.00
52.00	3.15	2.12	0.00
53.00	3.15	2.12	0.00
54.00	3.15	2.12	0.00
55.00	3.15	2.12	0.00
56.00	3.15	2.12	0.00
57.00	3.15	2.12	0.00
58.00	3.15	2.12	0.00
59.00	3.15	2.12	0.00
60.00	3.15	2.12	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

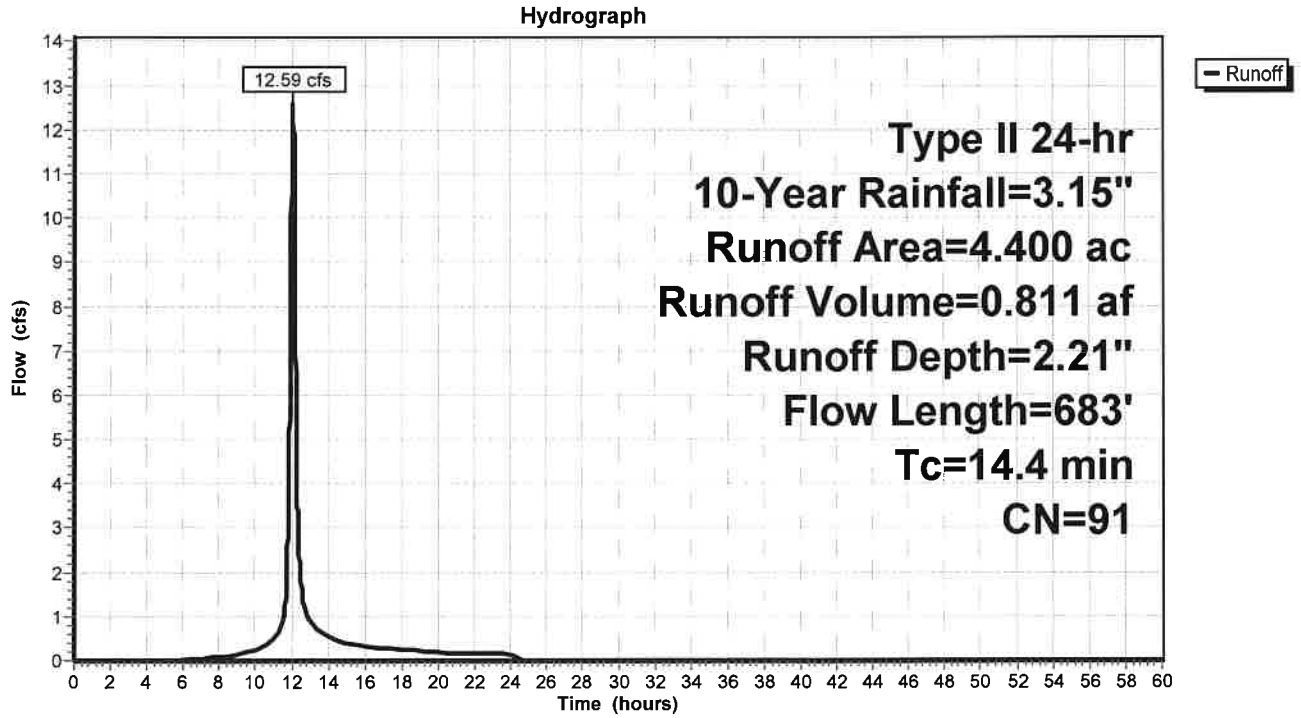
Runoff = 12.59 cfs @ 12.06 hrs, Volume= 0.811 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.02
7.00	0.31	0.01	0.05
8.00	0.38	0.03	0.08
9.00	0.46	0.06	0.15
10.00	0.57	0.10	0.23
11.00	0.74	0.19	0.49
12.00	2.09	1.24	**11.04**
13.00	2.43	1.55	**0.92**
14.00	2.58	1.69	0.53
15.00	2.69	1.78	0.40
16.00	2.77	1.86	0.32
17.00	2.84	1.92	0.27
18.00	2.90	1.98	0.24
19.00	2.95	2.03	0.21
20.00	3.00	2.07	0.18
21.00	3.04	2.11	0.16
22.00	3.08	2.14	0.16
23.00	3.11	2.18	0.15
24.00	**3.15**	**2.21**	0.15
25.00	3.15	2.21	0.00
26.00	3.15	2.21	0.00
27.00	3.15	2.21	0.00
28.00	3.15	2.21	0.00
29.00	3.15	2.21	0.00
30.00	3.15	2.21	0.00
31.00	3.15	2.21	0.00
32.00	3.15	2.21	0.00
33.00	3.15	2.21	0.00
34.00	3.15	2.21	0.00
35.00	3.15	2.21	0.00
36.00	3.15	2.21	0.00
37.00	3.15	2.21	0.00
38.00	3.15	2.21	0.00
39.00	3.15	2.21	0.00
40.00	3.15	2.21	0.00
41.00	3.15	2.21	0.00
42.00	3.15	2.21	0.00
43.00	3.15	2.21	0.00
44.00	3.15	2.21	0.00
45.00	3.15	2.21	0.00
46.00	3.15	2.21	0.00
47.00	3.15	2.21	0.00
48.00	3.15	2.21	0.00
49.00	3.15	2.21	0.00
50.00	3.15	2.21	0.00
51.00	3.15	2.21	0.00
52.00	3.15	2.21	0.00
53.00	3.15	2.21	0.00
54.00	3.15	2.21	0.00
55.00	3.15	2.21	0.00
56.00	3.15	2.21	0.00
57.00	3.15	2.21	0.00
58.00	3.15	2.21	0.00
59.00	3.15	2.21	0.00
60.00	3.15	2.21	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 2.12" for 10-Year event
Inflow = 17.46 cfs @ 12.05 hrs, Volume= 1.079 af
Outflow = 16.45 cfs @ 12.09 hrs, Volume= 1.079 af, Atten= 6%, Lag= 2.3 min
Primary = 2.85 cfs @ 12.09 hrs, Volume= 0.765 af
Secondary = 13.60 cfs @ 12.09 hrs, Volume= 0.314 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.04' @ 12.09 hrs Surf.Area= 9,976 sf Storage= 9,672 cf

Plug-Flow detention time= 160.8 min calculated for 1.079 af (100% of inflow)
Center-of-Mass det. time= 160.7 min (971.9 - 811.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

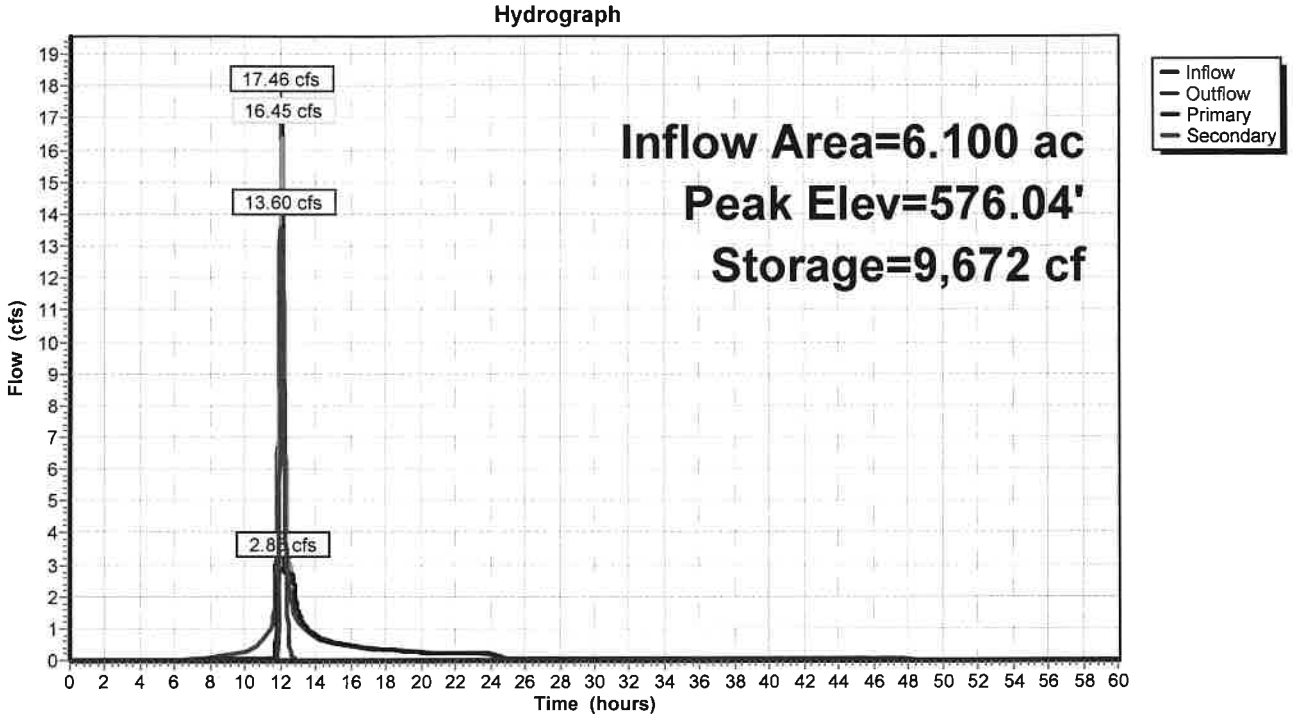
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.85 cfs @ 12.09 hrs HW=576.04' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.85 cfs @ 8.17 fps)
  ├**2=Grate** (Passes < 4.93 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

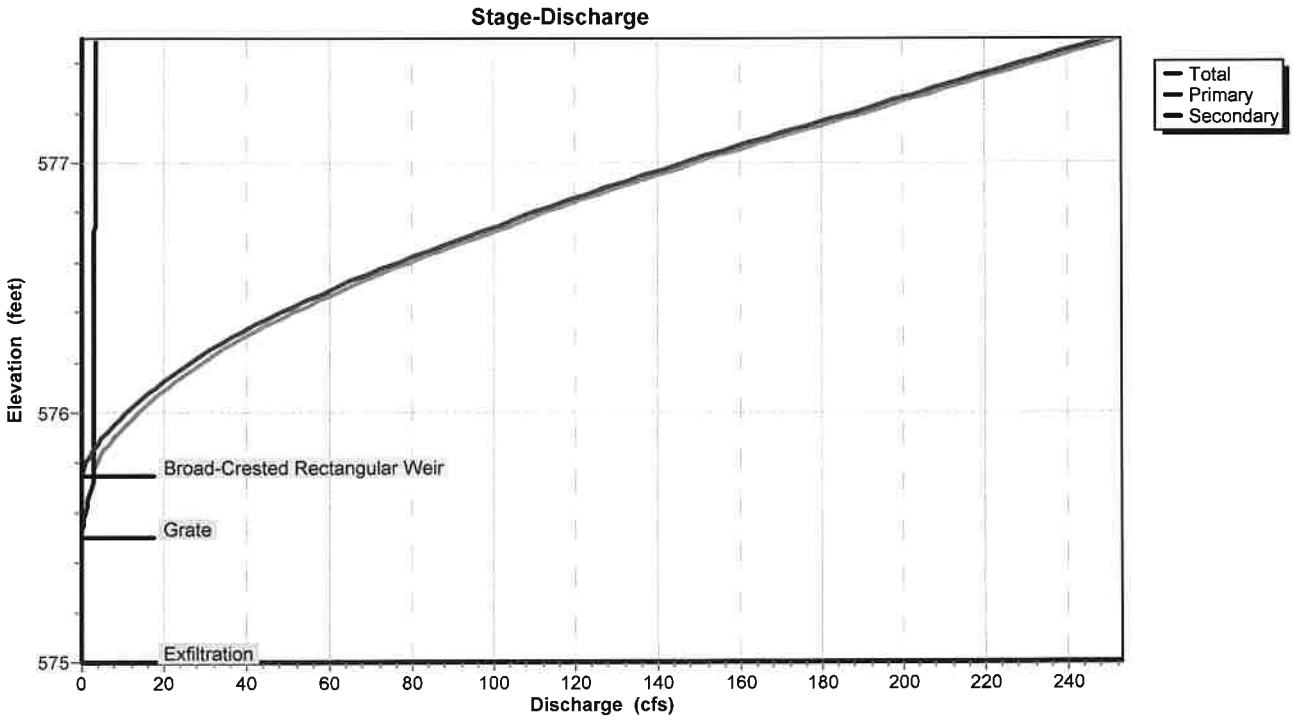
Secondary OutFlow Max=13.58 cfs @ 12.09 hrs HW=576.04' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 13.58 cfs @ 1.57 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

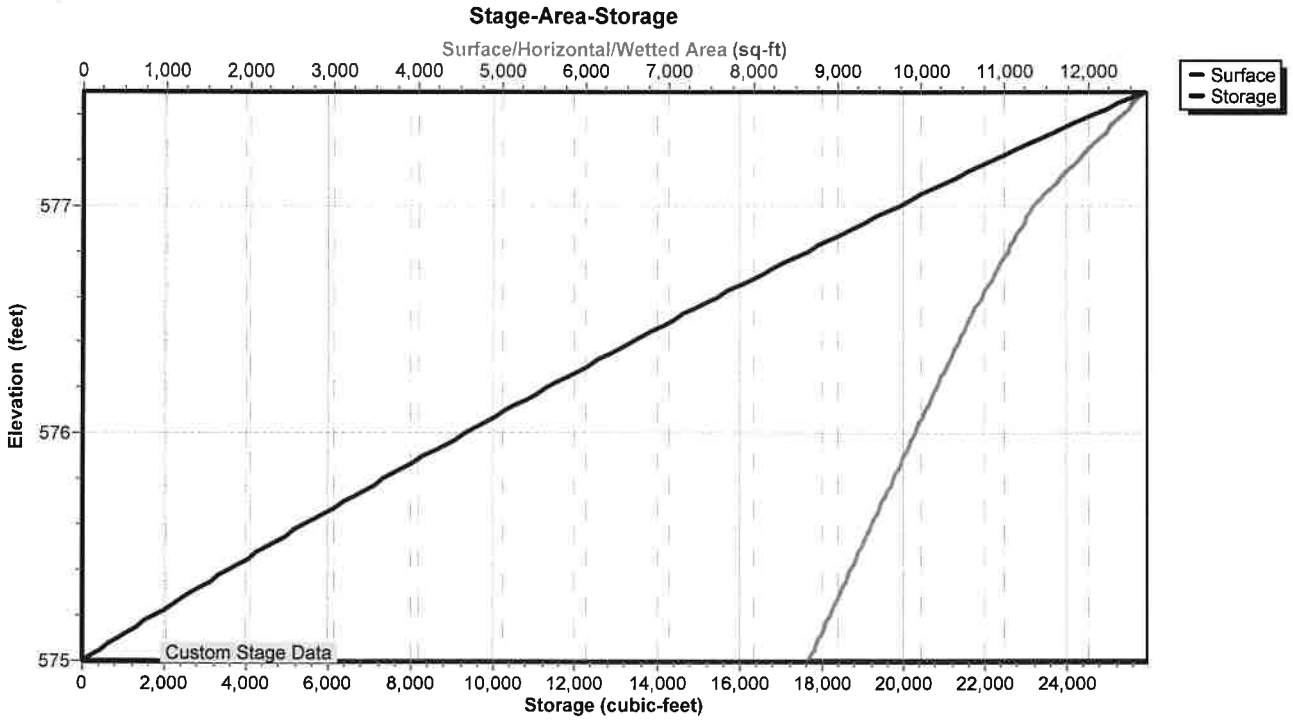


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.01	6	575.00	0.00	0.00	0.00
8.00	0.09	207	575.02	0.05	0.05	0.00
10.00	0.28	1,102	575.13	0.05	0.05	0.00
12.00	**15.84**	**9,006**	**575.97**	**11.97**	**2.82**	**9.15**
14.00	**0.71**	**5,320**	**575.59**	**0.79**	**0.79**	**0.00**
16.00	0.43	5,039	575.56	0.46	0.46	0.00
18.00	0.33	4,925	575.55	0.34	0.34	0.00
20.00	0.24	4,823	575.54	0.25	0.25	0.00
22.00	0.22	4,781	575.53	0.22	0.22	0.00
24.00	0.20	4,760	575.53	0.20	0.20	0.00
26.00	0.00	4,270	575.48	0.06	0.06	0.00
28.00	0.00	3,874	575.43	0.05	0.05	0.00
30.00	0.00	3,482	575.39	0.05	0.05	0.00
32.00	0.00	3,093	575.35	0.05	0.05	0.00
34.00	0.00	2,707	575.31	0.05	0.05	0.00
36.00	0.00	2,324	575.26	0.05	0.05	0.00
38.00	0.00	1,945	575.22	0.05	0.05	0.00
40.00	0.00	1,569	575.18	0.05	0.05	0.00
42.00	0.00	1,197	575.14	0.05	0.05	0.00
44.00	0.00	828	575.10	0.05	0.05	0.00
46.00	0.00	461	575.05	0.05	0.05	0.00
48.00	0.00	126	575.01	0.03	0.03	0.00
50.00	0.00	24	575.00	0.01	0.01	0.00
52.00	0.00	4	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 3.07" for 10-Year event
Inflow = 26.01 cfs @ 12.08 hrs, Volume= 1.125 af
Outflow = 0.47 cfs @ 14.32 hrs, Volume= 0.892 af, Atten= 98%, Lag= 134.6 min
Primary = 0.47 cfs @ 14.32 hrs, Volume= 0.892 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.60' @ 14.32 hrs Surf.Area= 63,820 sf Storage= 37,117 cf

Plug-Flow detention time= 942.6 min calculated for 0.892 af (79% of inflow)
Center-of-Mass det. time= 874.9 min (1,660.4 - 785.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

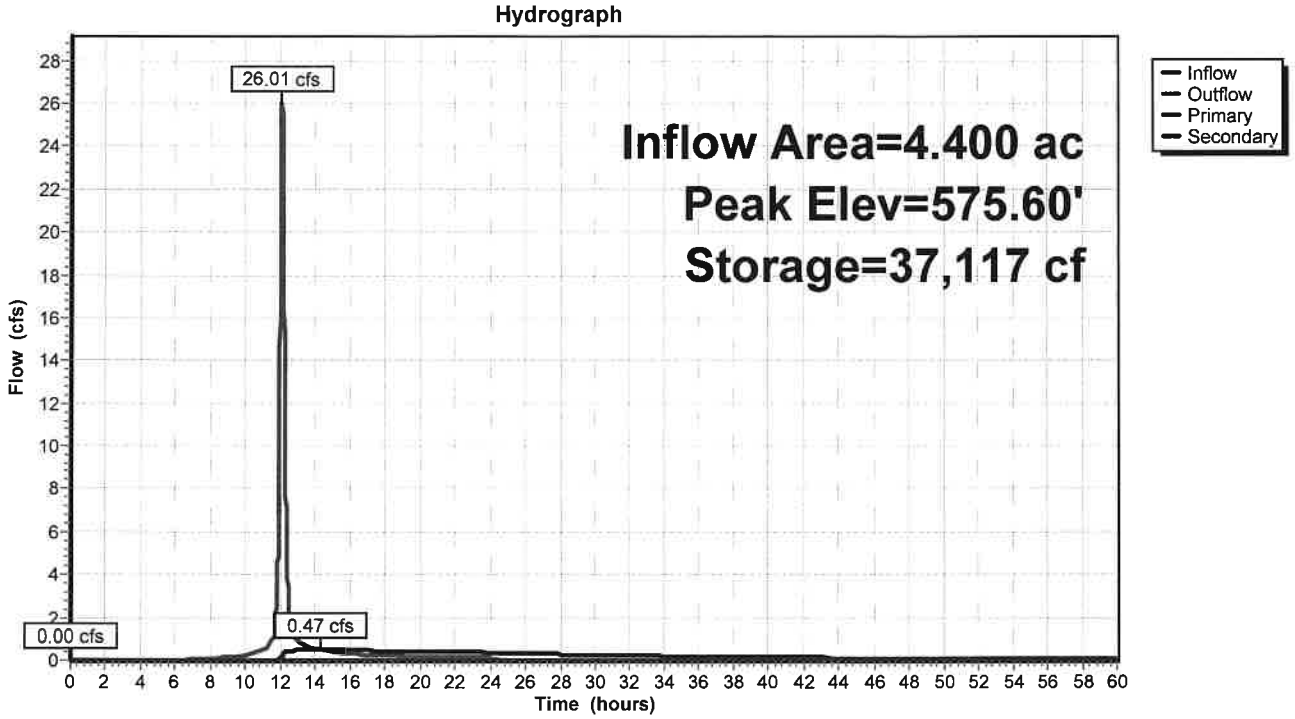
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.47 cfs @ 14.32 hrs HW=575.60' (Free Discharge)
└**1=12" outlet pipe** (Passes 0.47 cfs of 2.23 cfs potential flow)
  ├**2=low flow outlet pipe** (Barrel Controls 0.47 cfs @ 2.50 fps)
  └**3=Grate** (Controls 0.00 cfs)

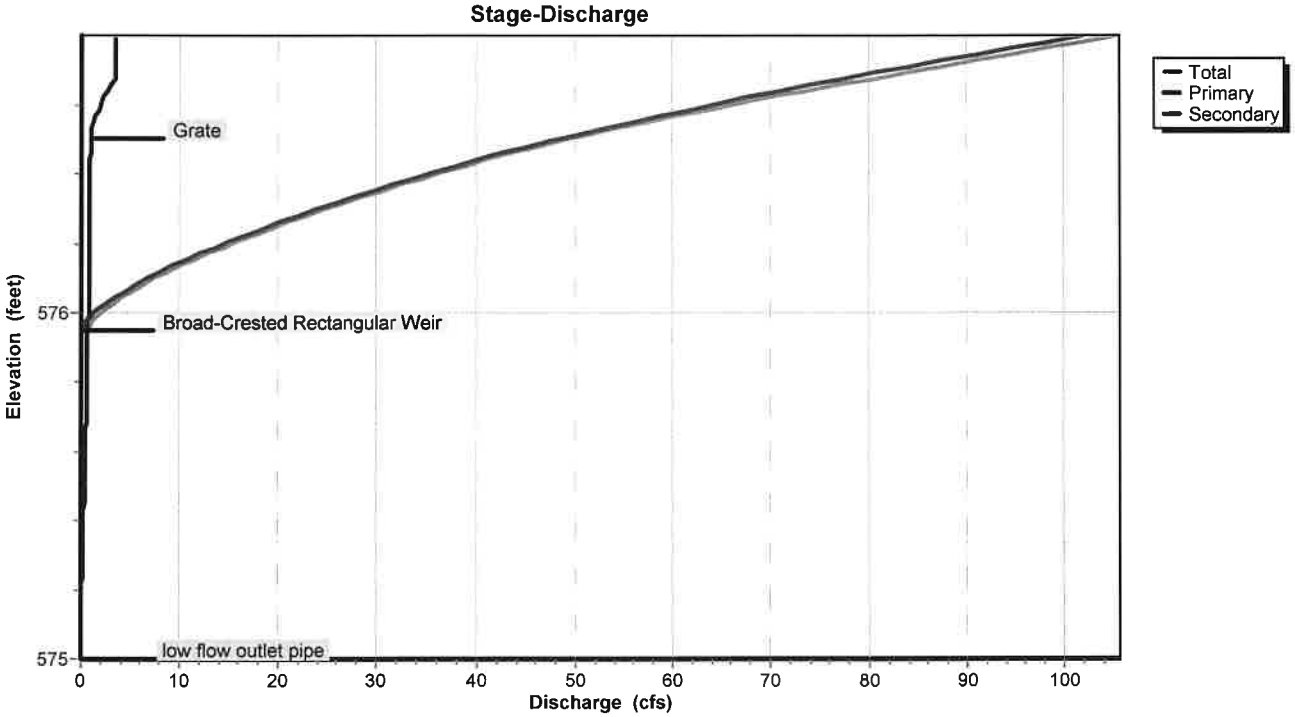
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

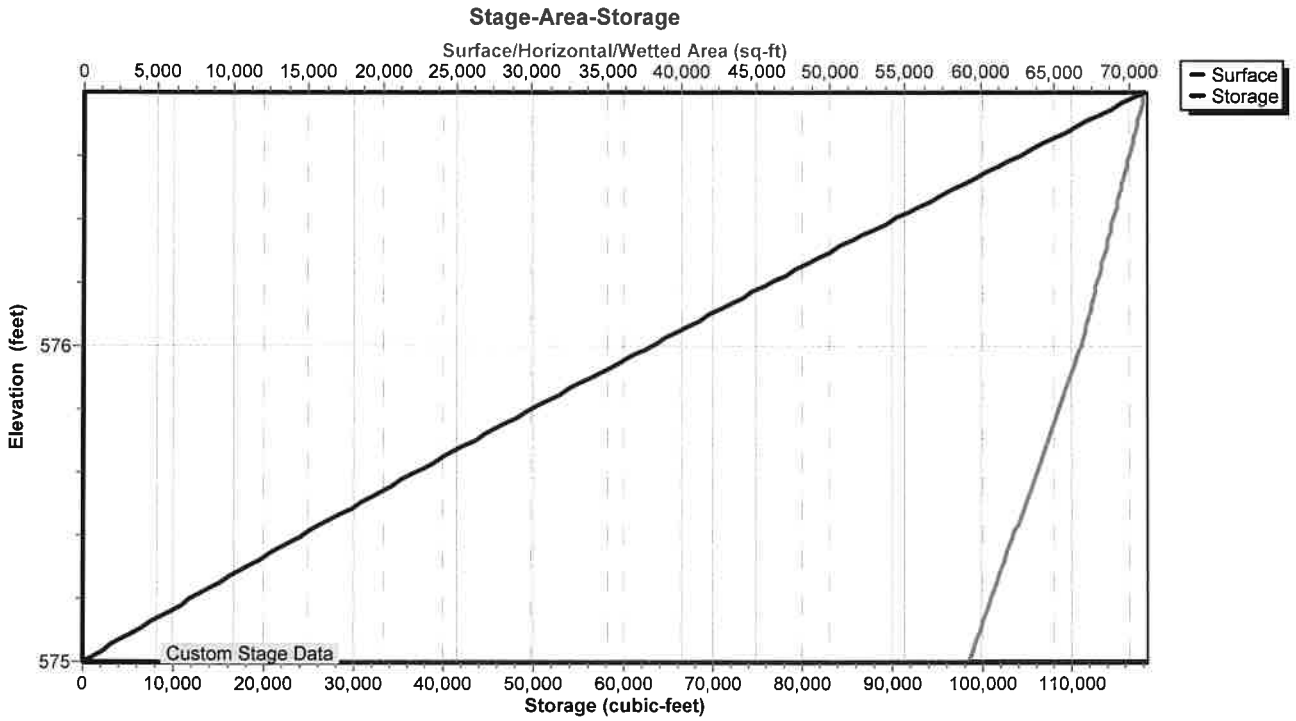


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.02	28	575.00	0.00	0.00	0.00
8.00	0.08	376	575.01	0.00	0.00	0.00
10.00	0.23	1,427	575.02	0.00	0.00	0.00
12.00	**20.19**	11,922	575.20	0.08	0.08	0.00
14.00	**0.53**	**37,087**	**575.60**	**0.47**	**0.47**	0.00
16.00	0.32	**36,669**	**575.60**	**0.46**	**0.46**	0.00
18.00	0.24	35,374	575.58	0.44	0.44	0.00
20.00	0.18	33,764	575.55	0.42	0.42	0.00
22.00	0.16	32,024	575.52	0.39	0.39	0.00
24.00	0.15	30,385	575.50	0.37	0.37	0.00
26.00	0.00	28,005	575.46	0.33	0.33	0.00
28.00	0.00	25,794	575.42	0.29	0.29	0.00
30.00	0.00	23,836	575.39	0.26	0.26	0.00
32.00	0.00	22,102	575.36	0.23	0.23	0.00
34.00	0.00	20,561	575.34	0.20	0.20	0.00
36.00	0.00	19,188	575.32	0.18	0.18	0.00
38.00	0.00	17,961	575.30	0.16	0.16	0.00
40.00	0.00	16,860	575.28	0.14	0.14	0.00
42.00	0.00	15,870	575.26	0.13	0.13	0.00
44.00	0.00	14,975	575.25	0.12	0.12	0.00
46.00	0.00	14,165	575.24	0.11	0.11	0.00
48.00	0.00	13,428	575.22	0.10	0.10	0.00
50.00	0.00	12,756	575.21	0.09	0.09	0.00
52.00	0.00	12,141	575.20	0.08	0.08	0.00
54.00	0.00	11,578	575.19	0.08	0.08	0.00
56.00	0.00	11,059	575.18	0.07	0.07	0.00
58.00	0.00	10,581	575.18	0.06	0.06	0.00
60.00	0.00	10,139	575.17	0.06	0.06	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

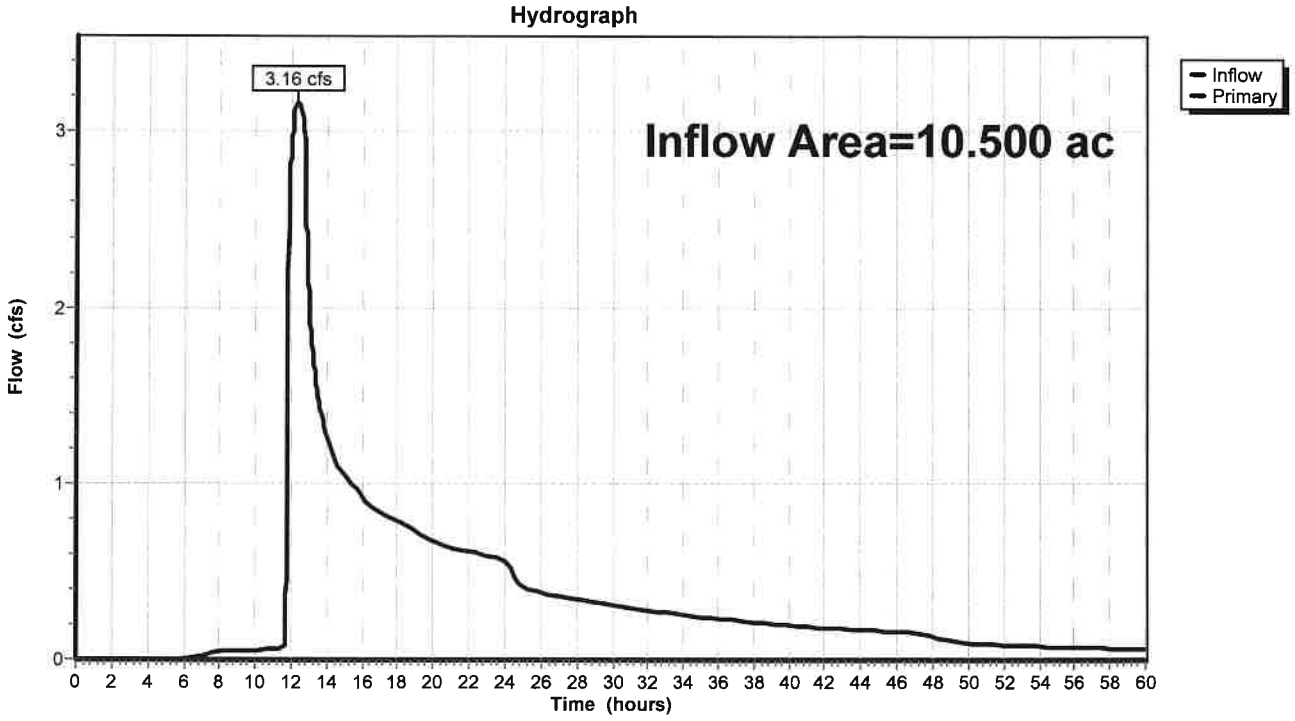
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 1.89" for 10-Year event
Inflow = 3.16 cfs @ 12.39 hrs, Volume= 1.657 af
Primary = 3.16 cfs @ 12.39 hrs, Volume= 1.657 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.08	0.00	0.08
1.00	0.00	0.00	0.00	53.00	0.08	0.00	0.08
2.00	0.00	0.00	0.00	54.00	0.08	0.00	0.08
3.00	0.00	0.00	0.00	55.00	0.07	0.00	0.07
4.00	0.00	0.00	0.00	56.00	0.07	0.00	0.07
5.00	0.00	0.00	0.00	57.00	0.07	0.00	0.07
6.00	0.00	0.00	0.00	58.00	0.06	0.00	0.06
7.00	0.02	0.00	0.02	59.00	0.06	0.00	0.06
8.00	0.05	0.00	0.05	60.00	0.06	0.00	0.06
9.00	0.05	0.00	0.05				
10.00	0.05	0.00	0.05				
11.00	0.06	0.00	0.06				
12.00	**2.90**	0.00	**2.90**				
13.00	**2.02**	0.00	**2.02**				
14.00	1.26	0.00	1.26				
15.00	1.05	0.00	1.05				
16.00	0.92	0.00	0.92				
17.00	0.84	0.00	0.84				
18.00	0.78	0.00	0.78				
19.00	0.73	0.00	0.73				
20.00	0.67	0.00	0.67				
21.00	0.63	0.00	0.63				
22.00	0.61	0.00	0.61				
23.00	0.59	0.00	0.59				
24.00	0.57	0.00	0.57				
25.00	0.40	0.00	0.40				
26.00	0.38	0.00	0.38				
27.00	0.36	0.00	0.36				
28.00	0.34	0.00	0.34				
29.00	0.33	0.00	0.33				
30.00	0.31	0.00	0.31				
31.00	0.29	0.00	0.29				
32.00	0.28	0.00	0.28				
33.00	0.27	0.00	0.27				
34.00	0.26	0.00	0.26				
35.00	0.24	0.00	0.24				
36.00	0.23	0.00	0.23				
37.00	0.22	0.00	0.22				
38.00	0.21	0.00	0.21				
39.00	0.20	0.00	0.20				
40.00	0.20	0.00	0.20				
41.00	0.19	0.00	0.19				
42.00	0.18	0.00	0.18				
43.00	0.18	0.00	0.18				
44.00	0.17	0.00	0.17				
45.00	0.16	0.00	0.16				
46.00	0.16	0.00	0.16				
47.00	0.15	0.00	0.15				
48.00	0.13	0.00	0.13				
49.00	0.11	0.00	0.11				
50.00	0.09	0.00	0.09				
51.00	0.09	0.00	0.09				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=2.80"
Flow Length=652' Tc=13.3 min CN=90 Runoff=22.74 cfs 1.421 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=2.89"
Flow Length=683' Tc=14.4 min CN=91 Runoff=16.27 cfs 1.061 af

Pond 1P: Bioretention Area 3 Peak Elev=576.11' Storage=10,375 cf Inflow=22.74 cfs 1.421 af
Primary=2.89 cfs 0.934 af Secondary=18.84 cfs 0.487 af Outflow=21.73 cfs 1.421 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=575.83' Storage=51,963 cf Inflow=34.94 cfs 1.548 af
Primary=0.64 cfs 1.276 af Secondary=0.00 cfs 0.000 af Outflow=0.64 cfs 1.276 af

Link 5L: Outflow (@ CB 54) Inflow=3.36 cfs 2.210 af
Primary=3.36 cfs 2.210 af

Total Runoff Area = 10.500 ac Runoff Volume = 2.482 af Average Runoff Depth = 2.84"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

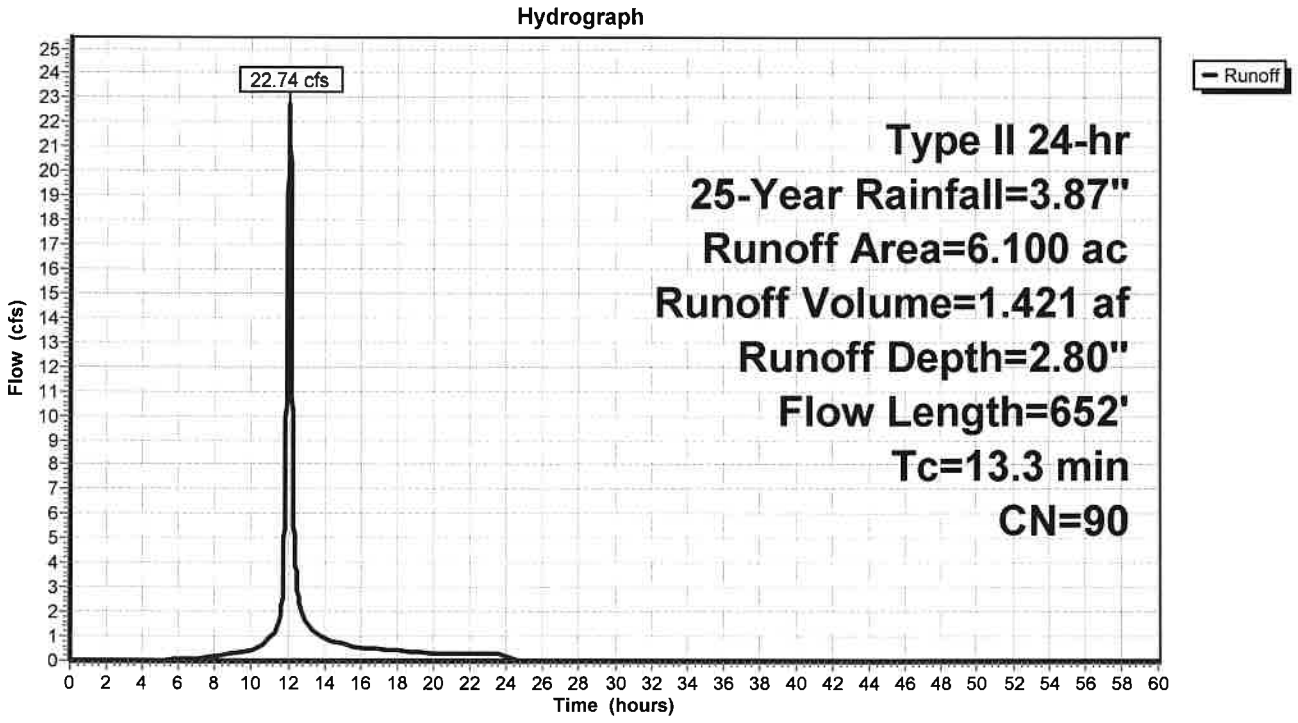
Runoff = 22.74 cfs @ 12.05 hrs, Volume= 1.421 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.87	2.80	0.00
1.00	0.04	0.00	0.00	53.00	3.87	2.80	0.00
2.00	0.09	0.00	0.00	54.00	3.87	2.80	0.00
3.00	0.13	0.00	0.00	55.00	3.87	2.80	0.00
4.00	0.19	0.00	0.00	56.00	3.87	2.80	0.00
5.00	0.24	0.00	0.01	57.00	3.87	2.80	0.00
6.00	0.31	0.01	0.05	58.00	3.87	2.80	0.00
7.00	0.38	0.02	0.10	59.00	3.87	2.80	0.00
8.00	0.46	0.04	0.16	60.00	3.87	2.80	0.00
9.00	0.57	0.08	0.28				
10.00	0.70	0.14	0.43				
11.00	0.91	0.26	0.90				
12.00	2.57	1.59	**20.75**				
13.00	2.99	1.97	**1.57**				
14.00	3.17	2.14	0.90				
15.00	3.30	2.26	0.70				
16.00	3.41	2.36	0.54				
17.00	3.49	2.44	0.47				
18.00	3.56	2.51	0.41				
19.00	3.63	2.57	0.36				
20.00	3.68	2.62	0.30				
21.00	3.73	2.67	0.28				
22.00	3.78	2.71	0.27				
23.00	3.83	2.75	0.26				
24.00	**3.87**	**2.80**	0.25				
25.00	3.87	2.80	0.00				
26.00	3.87	2.80	0.00				
27.00	3.87	2.80	0.00				
28.00	3.87	2.80	0.00				
29.00	3.87	2.80	0.00				
30.00	3.87	2.80	0.00				
31.00	3.87	2.80	0.00				
32.00	3.87	2.80	0.00				
33.00	3.87	2.80	0.00				
34.00	3.87	2.80	0.00				
35.00	3.87	2.80	0.00				
36.00	3.87	2.80	0.00				
37.00	3.87	2.80	0.00				
38.00	3.87	2.80	0.00				
39.00	3.87	2.80	0.00				
40.00	3.87	2.80	0.00				
41.00	3.87	2.80	0.00				
42.00	3.87	2.80	0.00				
43.00	3.87	2.80	0.00				
44.00	3.87	2.80	0.00				
45.00	3.87	2.80	0.00				
46.00	3.87	2.80	0.00				
47.00	3.87	2.80	0.00				
48.00	3.87	2.80	0.00				
49.00	3.87	2.80	0.00				
50.00	3.87	2.80	0.00				
51.00	3.87	2.80	0.00				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

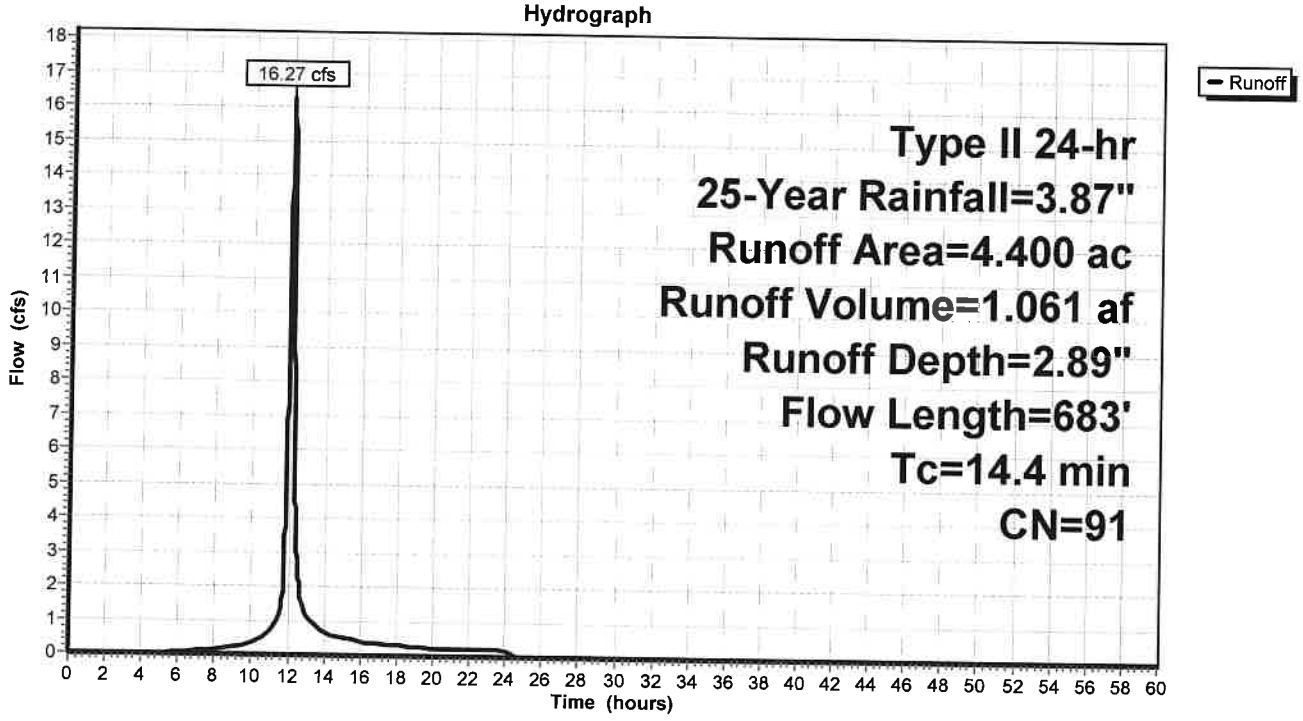
Runoff = 16.27 cfs @ 12.06 hrs, Volume= 1.061 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.02
6.00	0.31	0.01	0.05
7.00	0.38	0.03	0.09
8.00	0.46	0.06	0.13
9.00	0.57	0.10	0.23
10.00	0.70	0.17	0.34
11.00	0.91	0.30	0.69
12.00	2.57	1.67	**14.36**
13.00	2.99	2.06	**1.16**
14.00	3.17	2.23	0.67
15.00	3.30	2.36	0.51
16.00	3.41	2.45	0.40
17.00	3.49	2.53	0.34
18.00	3.56	2.60	0.30
19.00	3.63	2.66	0.26
20.00	3.68	2.72	0.22
21.00	3.73	2.76	0.21
22.00	3.78	2.81	0.20
23.00	3.83	2.85	0.19
24.00	**3.87**	**2.89**	0.18
25.00	3.87	2.89	0.00
26.00	3.87	2.89	0.00
27.00	3.87	2.89	0.00
28.00	3.87	2.89	0.00
29.00	3.87	2.89	0.00
30.00	3.87	2.89	0.00
31.00	3.87	2.89	0.00
32.00	3.87	2.89	0.00
33.00	3.87	2.89	0.00
34.00	3.87	2.89	0.00
35.00	3.87	2.89	0.00
36.00	3.87	2.89	0.00
37.00	3.87	2.89	0.00
38.00	3.87	2.89	0.00
39.00	3.87	2.89	0.00
40.00	3.87	2.89	0.00
41.00	3.87	2.89	0.00
42.00	3.87	2.89	0.00
43.00	3.87	2.89	0.00
44.00	3.87	2.89	0.00
45.00	3.87	2.89	0.00
46.00	3.87	2.89	0.00
47.00	3.87	2.89	0.00
48.00	3.87	2.89	0.00
49.00	3.87	2.89	0.00
50.00	3.87	2.89	0.00
51.00	3.87	2.89	0.00
52.00	3.87	2.89	0.00
53.00	3.87	2.89	0.00
54.00	3.87	2.89	0.00
55.00	3.87	2.89	0.00
56.00	3.87	2.89	0.00
57.00	3.87	2.89	0.00
58.00	3.87	2.89	0.00
59.00	3.87	2.89	0.00
60.00	3.87	2.89	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 2.80" for 25-Year event
Inflow = 22.74 cfs @ 12.05 hrs, Volume= 1.421 af
Outflow = 21.73 cfs @ 12.08 hrs, Volume= 1.421 af, Atten= 4%, Lag= 2.0 min
Primary = 2.89 cfs @ 12.08 hrs, Volume= 0.934 af
Secondary = 18.84 cfs @ 12.08 hrs, Volume= 0.487 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.11' @ 12.08 hrs Surf.Area= 10,069 sf Storage= 10,375 cf

Plug-Flow detention time= 127.9 min calculated for 1.421 af (100% of inflow)
Center-of-Mass det. time= 128.1 min (931.5 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

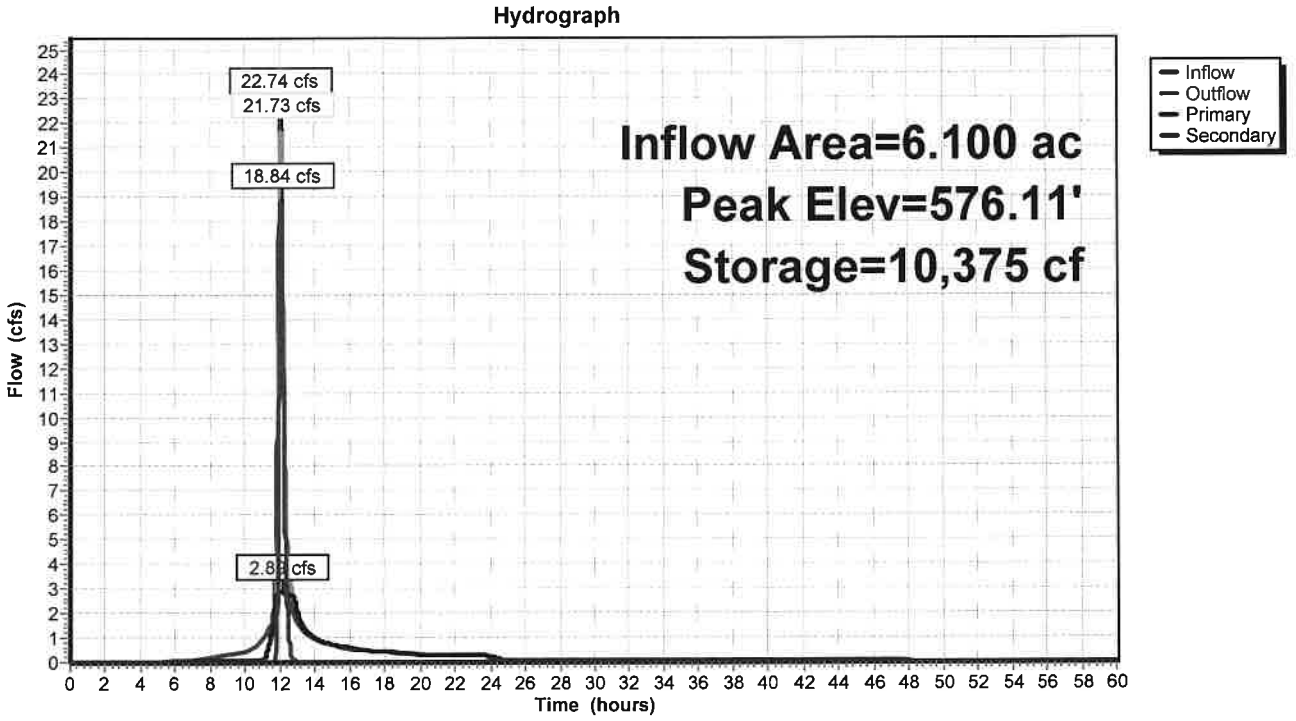
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.89 cfs @ 12.08 hrs HW=576.11' (Free Discharge)
└**1=8" pipe** (Barrel Controls 2.89 cfs @ 8.27 fps)
  └**2=Grate** (Passes < 5.25 cfs potential flow)
  └**3=Exfiltration** (Passes < 0.06 cfs potential flow)

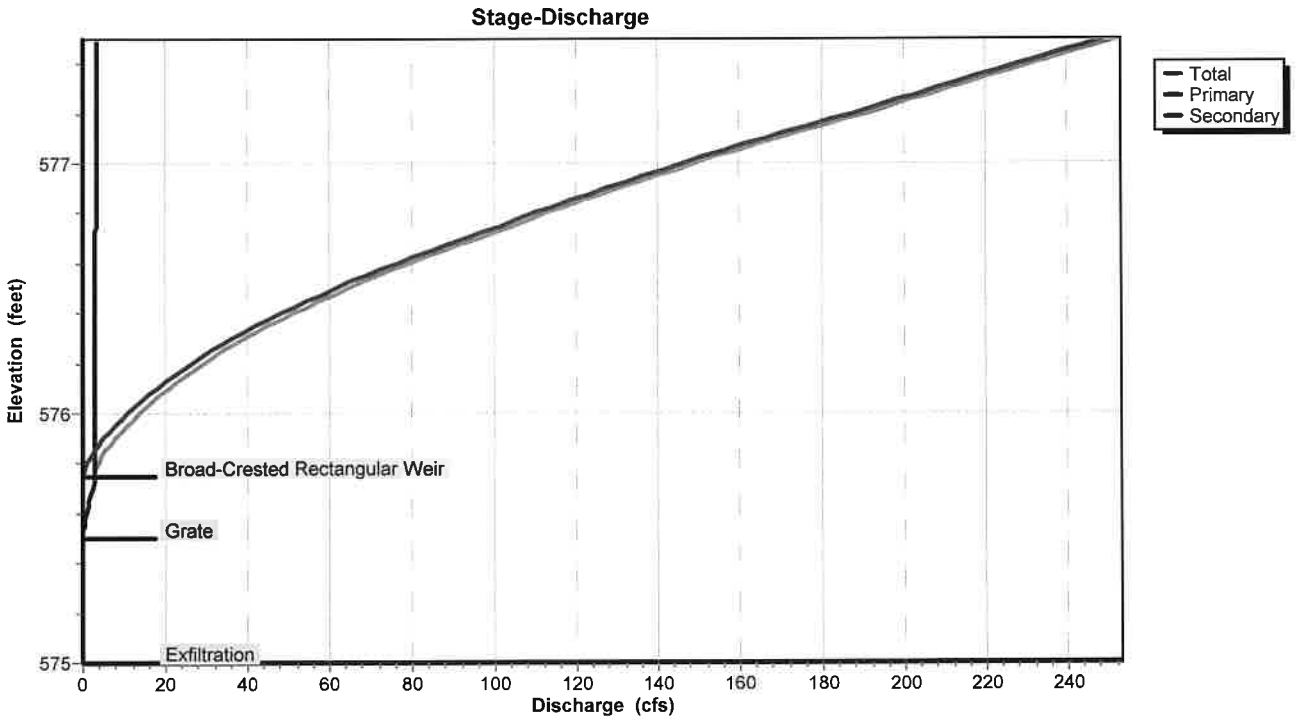
Secondary OutFlow Max=18.83 cfs @ 12.08 hrs HW=576.11' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 18.83 cfs @ 1.75 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

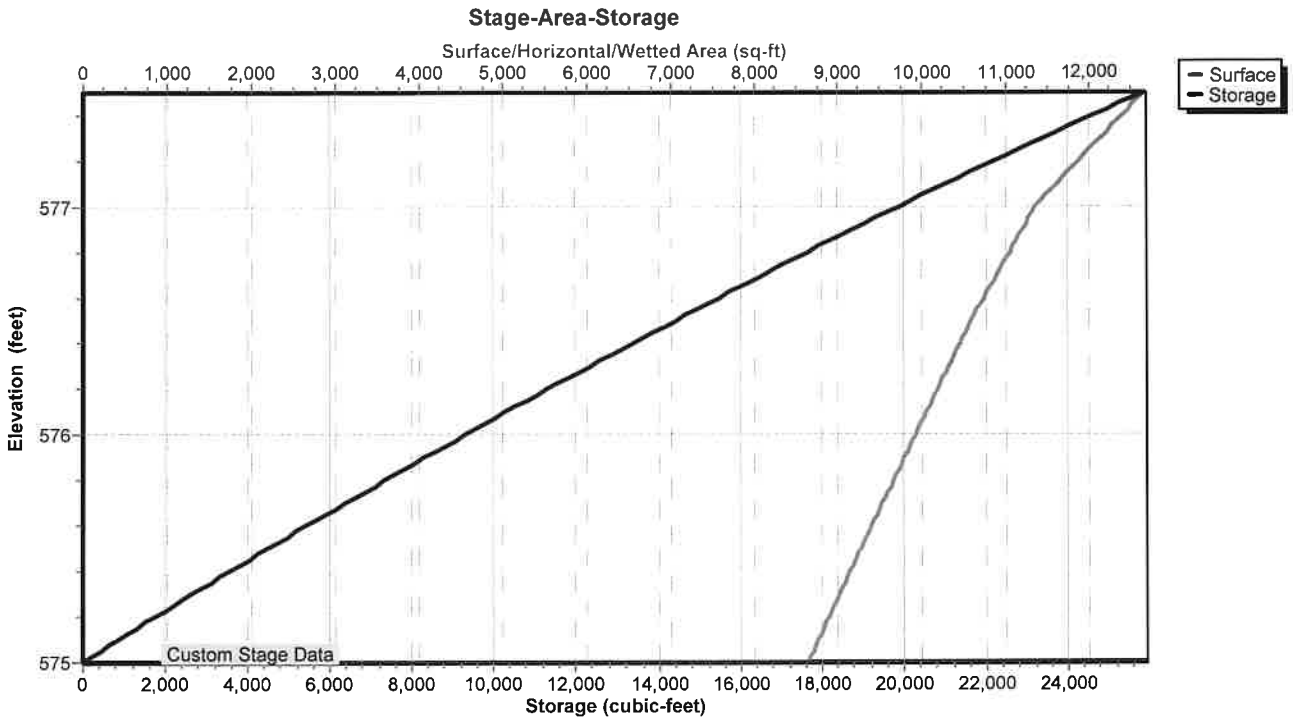


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.05	75	575.01	0.02	0.02	0.00
8.00	0.16	510	575.06	0.05	0.05	0.00
10.00	0.43	2,153	575.24	0.05	0.05	0.00
12.00	**20.75**	**9,748**	**576.05**	**16.99**	**2.86**	**14.14**
14.00	**0.90**	**5,469**	**575.61**	**1.00**	**1.00**	**0.00**
16.00	0.54	5,148	575.57	0.58	0.58	0.00
18.00	0.41	5,009	575.56	0.43	0.43	0.00
20.00	0.30	4,900	575.54	0.32	0.32	0.00
22.00	0.27	4,847	575.54	0.28	0.28	0.00
24.00	0.25	4,821	575.54	0.25	0.25	0.00
26.00	0.00	4,285	575.48	0.06	0.06	0.00
28.00	0.00	3,889	575.44	0.05	0.05	0.00
30.00	0.00	3,497	575.39	0.05	0.05	0.00
32.00	0.00	3,108	575.35	0.05	0.05	0.00
34.00	0.00	2,722	575.31	0.05	0.05	0.00
36.00	0.00	2,339	575.27	0.05	0.05	0.00
38.00	0.00	1,960	575.22	0.05	0.05	0.00
40.00	0.00	1,584	575.18	0.05	0.05	0.00
42.00	0.00	1,211	575.14	0.05	0.05	0.00
44.00	0.00	842	575.10	0.05	0.05	0.00
46.00	0.00	475	575.05	0.05	0.05	0.00
48.00	0.00	134	575.02	0.03	0.03	0.00
50.00	0.00	25	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 4.22" for 25-Year event
Inflow = 34.94 cfs @ 12.07 hrs, Volume= 1.548 af
Outflow = 0.64 cfs @ 14.10 hrs, Volume= 1.276 af, Atten= 98%, Lag= 121.4 min
Primary = 0.64 cfs @ 14.10 hrs, Volume= 1.276 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.83' @ 14.10 hrs Surf.Area= 65,573 sf Storage= 51,963 cf

Plug-Flow detention time= 951.6 min calculated for 1.276 af (82% of inflow)
Center-of-Mass det. time= 890.6 min (1,667.8 - 777.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

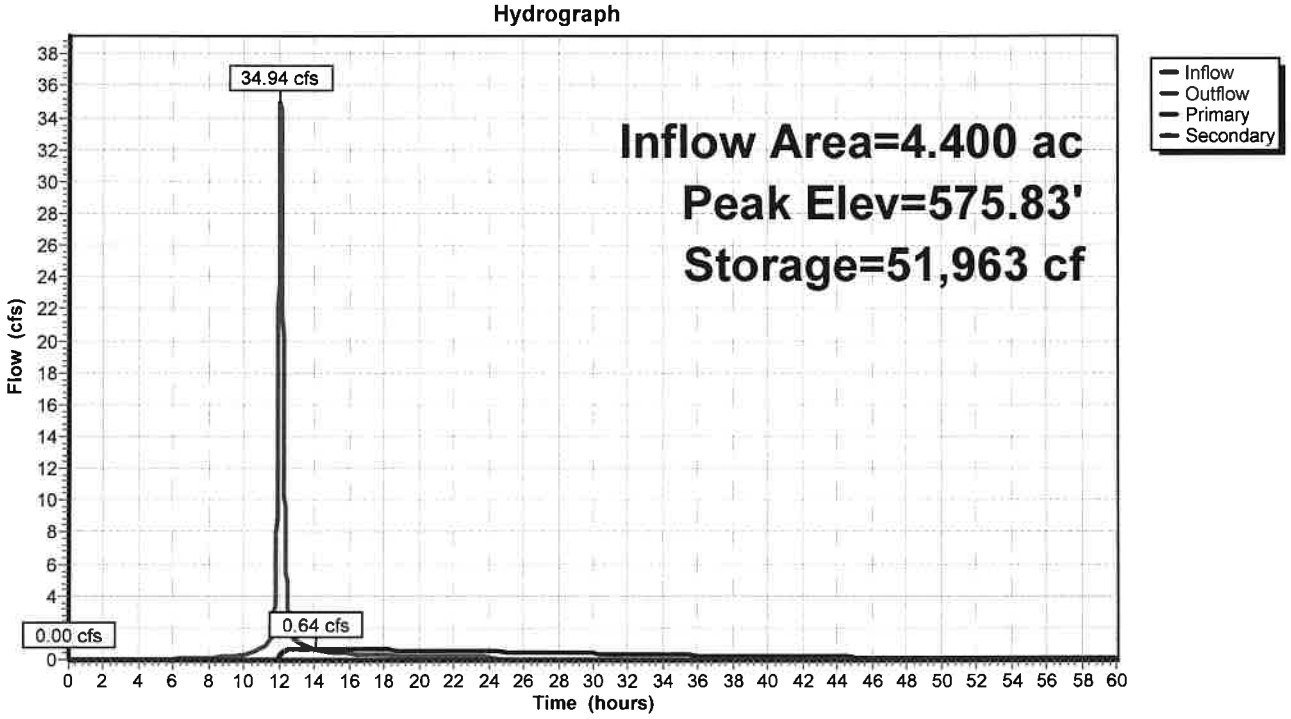
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.64 cfs @ 14.10 hrs HW=575.83' (Free Discharge)
↑—**1=12" outlet pipe** (Passes 0.64 cfs of 2.52 cfs potential flow)
↑—**2=low flow outlet pipe** (Inlet Controls 0.64 cfs @ 3.24 fps)
—**3=Grate** (Controls 0.00 cfs)

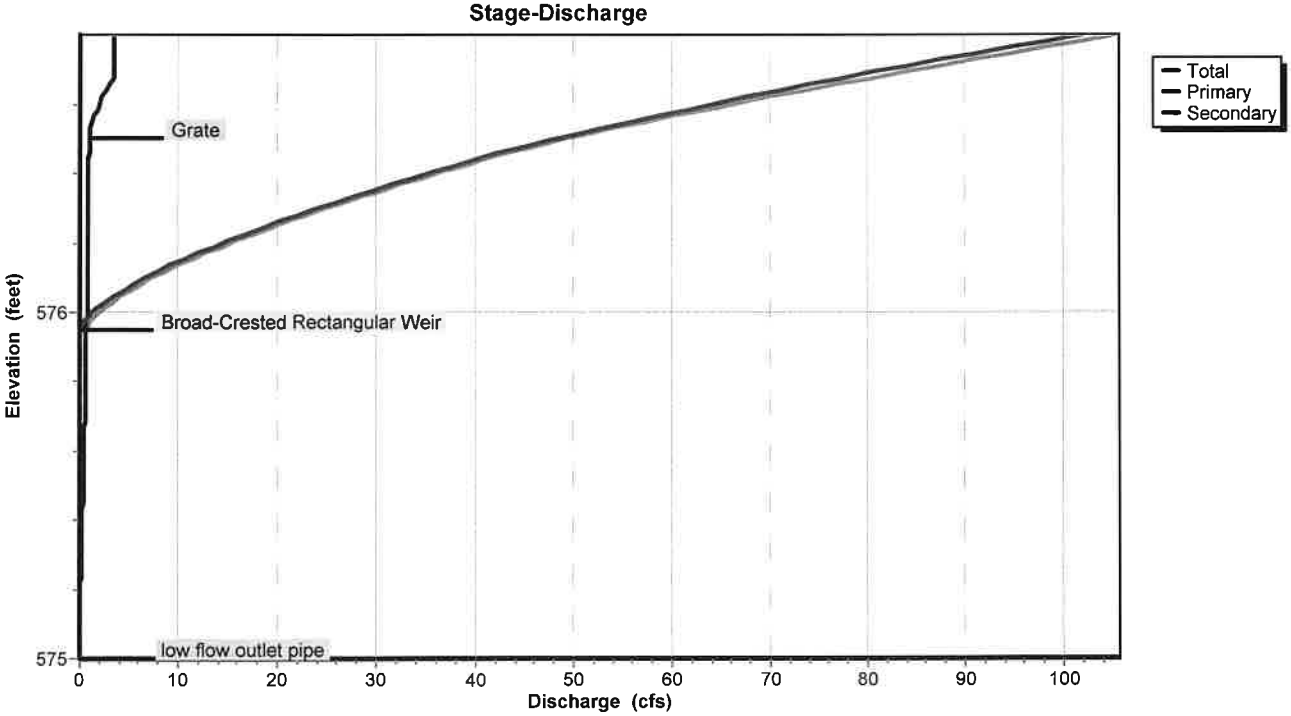
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=575.00' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

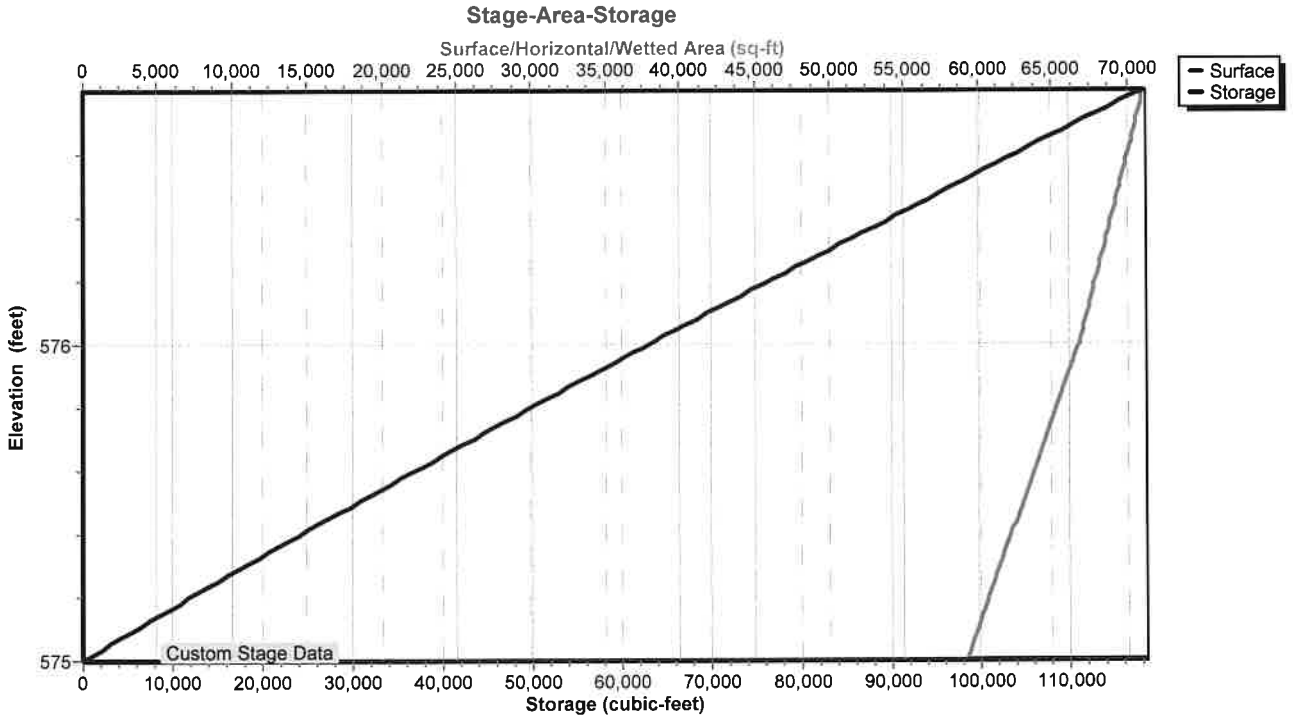


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	**0.00**
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.05	138	575.00	0.00	0.00	0.00
8.00	0.13	792	575.01	0.00	0.00	0.00
10.00	0.34	2,407	575.04	0.00	0.00	0.00
12.00	**28.50**	18,305	575.30	0.17	0.17	0.00
14.00	**0.67**	**51,959**	**575.83**	**0.64**	**0.64**	0.00
16.00	0.40	**51,083**	**575.82**	**0.63**	**0.63**	0.00
18.00	0.30	49,081	575.79	0.61	0.61	0.00
20.00	0.22	46,637	575.75	0.59	0.59	0.00
22.00	0.20	44,041	575.71	0.55	0.55	0.00
24.00	0.18	41,619	575.67	0.51	0.51	0.00
26.00	0.00	38,209	575.62	0.48	0.48	0.00
28.00	0.00	34,905	575.57	0.44	0.44	0.00
30.00	0.00	31,923	575.52	0.39	0.39	0.00
32.00	0.00	29,266	575.48	0.35	0.35	0.00
34.00	0.00	26,910	575.44	0.31	0.31	0.00
36.00	0.00	24,824	575.41	0.27	0.27	0.00
38.00	0.00	22,978	575.38	0.24	0.24	0.00
40.00	0.00	21,340	575.35	0.21	0.21	0.00
42.00	0.00	19,882	575.33	0.19	0.19	0.00
44.00	0.00	18,582	575.31	0.17	0.17	0.00
46.00	0.00	17,418	575.29	0.15	0.15	0.00
48.00	0.00	16,372	575.27	0.14	0.14	0.00
50.00	0.00	15,429	575.26	0.12	0.12	0.00
52.00	0.00	14,576	575.24	0.11	0.11	0.00
54.00	0.00	13,802	575.23	0.10	0.10	0.00
56.00	0.00	13,098	575.22	0.09	0.09	0.00
58.00	0.00	12,454	575.21	0.09	0.09	0.00
60.00	0.00	11,865	575.20	0.08	0.08	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

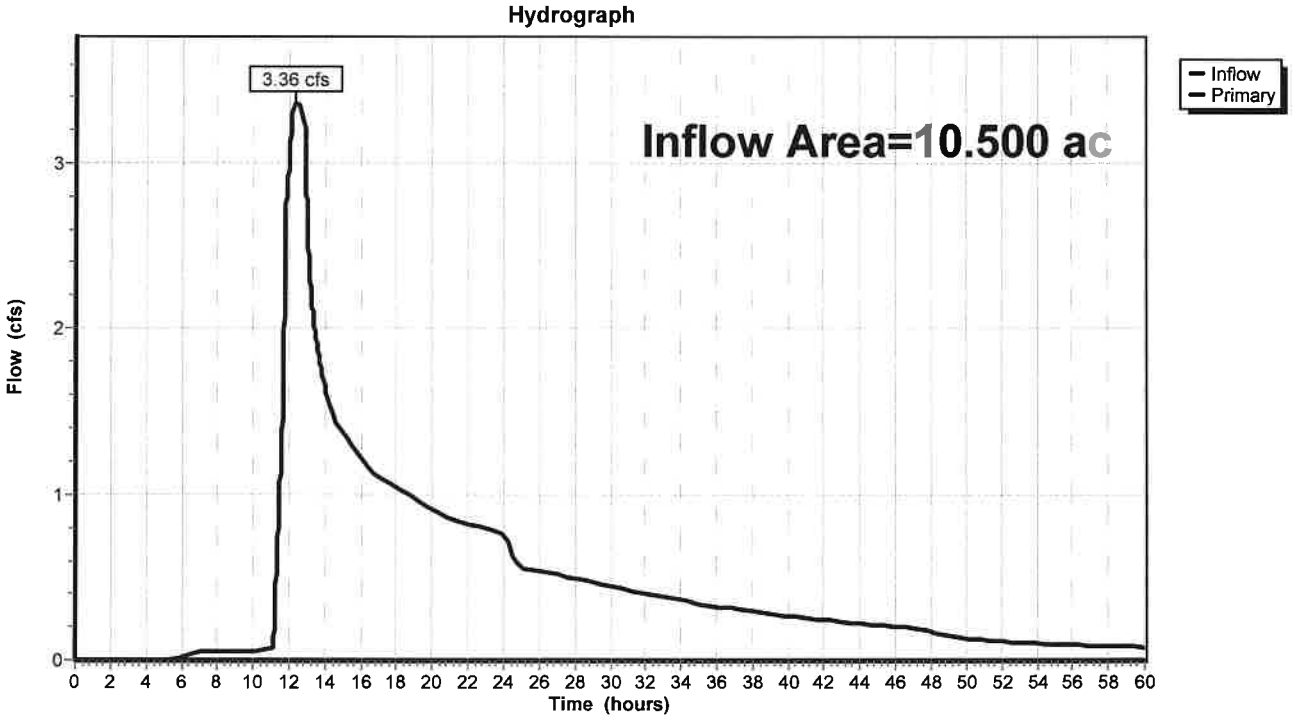
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 2.53" for 25-Year event
Inflow = 3.36 cfs @ 12.37 hrs, Volume= 2.210 af
Primary = 3.36 cfs @ 12.37 hrs, Volume= 2.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.11	0.00	0.11
1.00	0.00	0.00	0.00	53.00	0.11	0.00	0.11
2.00	0.00	0.00	0.00	54.00	0.10	0.00	0.10
3.00	0.00	0.00	0.00	55.00	0.10	0.00	0.10
4.00	0.00	0.00	0.00	56.00	0.09	0.00	0.09
5.00	0.00	0.00	0.00	57.00	0.09	0.00	0.09
6.00	0.02	0.00	0.02	58.00	0.09	0.00	0.09
7.00	0.05	0.00	0.05	59.00	0.08	0.00	0.08
8.00	0.05	0.00	0.05	60.00	0.08	0.00	0.08
9.00	0.05	0.00	0.05				
10.00	0.06	0.00	0.06				
11.00	0.07	0.00	0.07				
12.00	**3.02**	0.00	**3.02**				
13.00	**2.64**	0.00	**2.64**				
14.00	1.63	0.00	1.63				
15.00	1.36	0.00	1.36				
16.00	1.21	0.00	1.21				
17.00	1.10	0.00	1.10				
18.00	1.04	0.00	1.04				
19.00	0.97	0.00	0.97				
20.00	0.91	0.00	0.91				
21.00	0.85	0.00	0.85				
22.00	0.82	0.00	0.82				
23.00	0.79	0.00	0.79				
24.00	0.76	0.00	0.76				
25.00	0.55	0.00	0.55				
26.00	0.53	0.00	0.53				
27.00	0.51	0.00	0.51				
28.00	0.49	0.00	0.49				
29.00	0.47	0.00	0.47				
30.00	0.45	0.00	0.45				
31.00	0.42	0.00	0.42				
32.00	0.40	0.00	0.40				
33.00	0.38	0.00	0.38				
34.00	0.36	0.00	0.36				
35.00	0.34	0.00	0.34				
36.00	0.33	0.00	0.33				
37.00	0.31	0.00	0.31				
38.00	0.29	0.00	0.29				
39.00	0.28	0.00	0.28				
40.00	0.27	0.00	0.27				
41.00	0.25	0.00	0.25				
42.00	0.24	0.00	0.24				
43.00	0.23	0.00	0.23				
44.00	0.22	0.00	0.22				
45.00	0.21	0.00	0.21				
46.00	0.20	0.00	0.20				
47.00	0.20	0.00	0.20				
48.00	0.17	0.00	0.17				
49.00	0.14	0.00	0.14				
50.00	0.13	0.00	0.13				
51.00	0.12	0.00	0.12				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=3.41"
Flow Length=652' Tc=13.3 min CN=90 Runoff=27.50 cfs 1.736 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=3.52"
Flow Length=683' Tc=14.4 min CN=91 Runoff=19.58 cfs 1.290 af

Pond 1P: Bioretention Area 3 Peak Elev=576.17' Storage=10,953 cf Inflow=27.50 cfs 1.736 af
Primary=2.91 cfs 1.092 af Secondary=23.52 cfs 0.644 af Outflow=26.43 cfs 1.736 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=576.00' Storage=62,935 cf Inflow=42.93 cfs 1.933 af
Primary=0.72 cfs 1.504 af Secondary=1.25 cfs 0.131 af Outflow=1.97 cfs 1.635 af

Link 5L: Outflow (@ CB 54) Inflow=3.48 cfs 2.596 af
Primary=3.48 cfs 2.596 af

Total Runoff Area = 10.500 ac Runoff Volume = 3.026 af Average Runoff Depth = 3.46"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

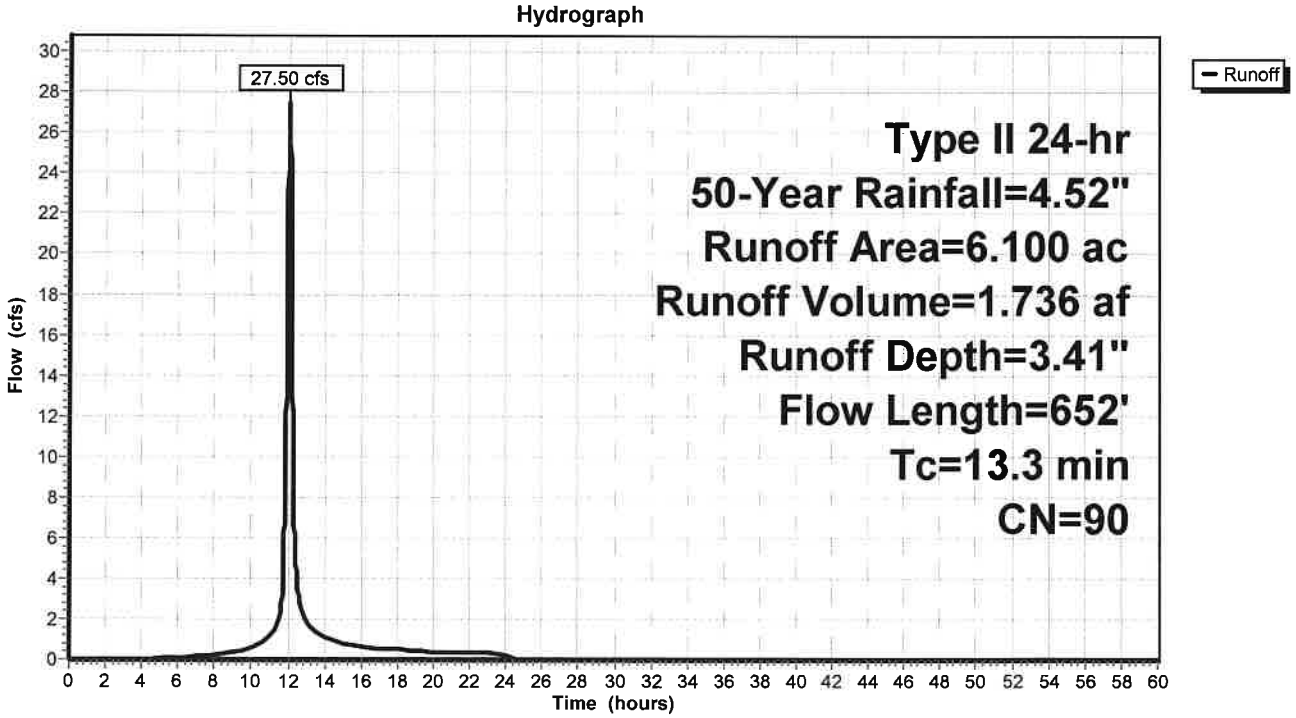
Runoff = 27.50 cfs @ 12.05 hrs, Volume= 1.736 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.52	3.41	0.00
1.00	0.05	0.00	0.00	53.00	4.52	3.41	0.00
2.00	0.10	0.00	0.00	54.00	4.52	3.41	0.00
3.00	0.16	0.00	0.00	55.00	4.52	3.41	0.00
4.00	0.22	0.00	0.00	56.00	4.52	3.41	0.00
5.00	0.28	0.00	0.04	57.00	4.52	3.41	0.00
6.00	0.36	0.02	0.09	58.00	4.52	3.41	0.00
7.00	0.45	0.04	0.16	59.00	4.52	3.41	0.00
8.00	0.54	0.07	0.23	60.00	4.52	3.41	0.00
9.00	0.66	0.13	0.39				
10.00	0.82	0.21	0.57				
11.00	1.06	0.36	1.16				
12.00	3.00	1.98	**25.18**				
13.00	3.49	2.44	**1.87**				
14.00	3.71	2.64	1.08				
15.00	3.86	2.78	0.83				
16.00	3.98	2.90	0.64				
17.00	4.08	2.99	0.55				
18.00	4.16	3.07	0.49				
19.00	4.24	3.15	0.42				
20.00	4.30	3.21	0.36				
21.00	4.36	3.26	0.33				
22.00	4.42	3.32	0.32				
23.00	4.47	3.37	0.31				
24.00	**4.52**	**3.41**	0.30				
25.00	4.52	3.41	0.00				
26.00	4.52	3.41	0.00				
27.00	4.52	3.41	0.00				
28.00	4.52	3.41	0.00				
29.00	4.52	3.41	0.00				
30.00	4.52	3.41	0.00				
31.00	4.52	3.41	0.00				
32.00	4.52	3.41	0.00				
33.00	4.52	3.41	0.00				
34.00	4.52	3.41	0.00				
35.00	4.52	3.41	0.00				
36.00	4.52	3.41	0.00				
37.00	4.52	3.41	0.00				
38.00	4.52	3.41	0.00				
39.00	4.52	3.41	0.00				
40.00	4.52	3.41	0.00				
41.00	4.52	3.41	0.00				
42.00	4.52	3.41	0.00				
43.00	4.52	3.41	0.00				
44.00	4.52	3.41	0.00				
45.00	4.52	3.41	0.00				
46.00	4.52	3.41	0.00				
47.00	4.52	3.41	0.00				
48.00	4.52	3.41	0.00				
49.00	4.52	3.41	0.00				
50.00	4.52	3.41	0.00				
51.00	4.52	3.41	0.00				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

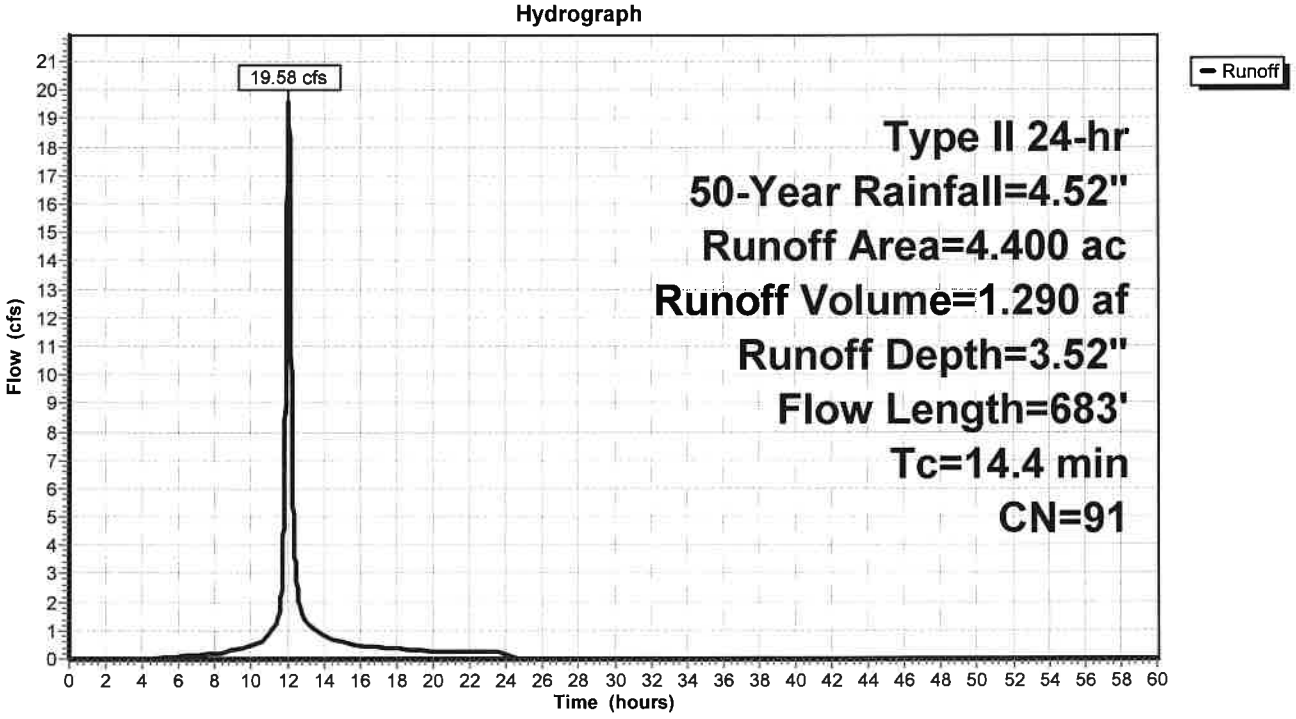
Runoff = 19.58 cfs @ 12.06 hrs, Volume= 1.290 af, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.01	0.04
6.00	0.36	0.02	0.08
7.00	0.45	0.05	0.13
8.00	0.54	0.09	0.19
9.00	0.66	0.15	0.31
10.00	0.82	0.24	0.44
11.00	1.06	0.40	0.88
12.00	3.00	2.07	**17.36**
13.00	3.49	2.53	**1.38**
14.00	3.71	2.74	0.79
15.00	3.86	2.88	0.60
16.00	3.98	3.00	0.47
17.00	4.08	3.09	0.40
18.00	4.16	3.17	0.36
19.00	4.24	3.25	0.31
20.00	4.30	3.31	0.26
21.00	4.36	3.36	0.24
22.00	4.42	3.42	0.23
23.00	4.47	3.47	0.22
24.00	**4.52**	**3.52**	0.21
25.00	4.52	3.52	0.00
26.00	4.52	3.52	0.00
27.00	4.52	3.52	0.00
28.00	4.52	3.52	0.00
29.00	4.52	3.52	0.00
30.00	4.52	3.52	0.00
31.00	4.52	3.52	0.00
32.00	4.52	3.52	0.00
33.00	4.52	3.52	0.00
34.00	4.52	3.52	0.00
35.00	4.52	3.52	0.00
36.00	4.52	3.52	0.00
37.00	4.52	3.52	0.00
38.00	4.52	3.52	0.00
39.00	4.52	3.52	0.00
40.00	4.52	3.52	0.00
41.00	4.52	3.52	0.00
42.00	4.52	3.52	0.00
43.00	4.52	3.52	0.00
44.00	4.52	3.52	0.00
45.00	4.52	3.52	0.00
46.00	4.52	3.52	0.00
47.00	4.52	3.52	0.00
48.00	4.52	3.52	0.00
49.00	4.52	3.52	0.00
50.00	4.52	3.52	0.00
51.00	4.52	3.52	0.00
52.00	4.52	3.52	0.00
53.00	4.52	3.52	0.00
54.00	4.52	3.52	0.00
55.00	4.52	3.52	0.00
56.00	4.52	3.52	0.00
57.00	4.52	3.52	0.00
58.00	4.52	3.52	0.00
59.00	4.52	3.52	0.00
60.00	4.52	3.52	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 3.41" for 50-Year event
Inflow = 27.50 cfs @ 12.05 hrs, Volume= 1.736 af
Outflow = 26.43 cfs @ 12.08 hrs, Volume= 1.736 af, Atten= 4%, Lag= 1.9 min
Primary = 2.91 cfs @ 12.08 hrs, Volume= 1.092 af
Secondary = 23.52 cfs @ 12.08 hrs, Volume= 0.644 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.17' @ 12.08 hrs Surf.Area= 10,144 sf Storage= 10,953 cf

Plug-Flow detention time= 109.3 min calculated for 1.736 af (100% of inflow)
Center-of-Mass det. time= 109.3 min (907.1 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

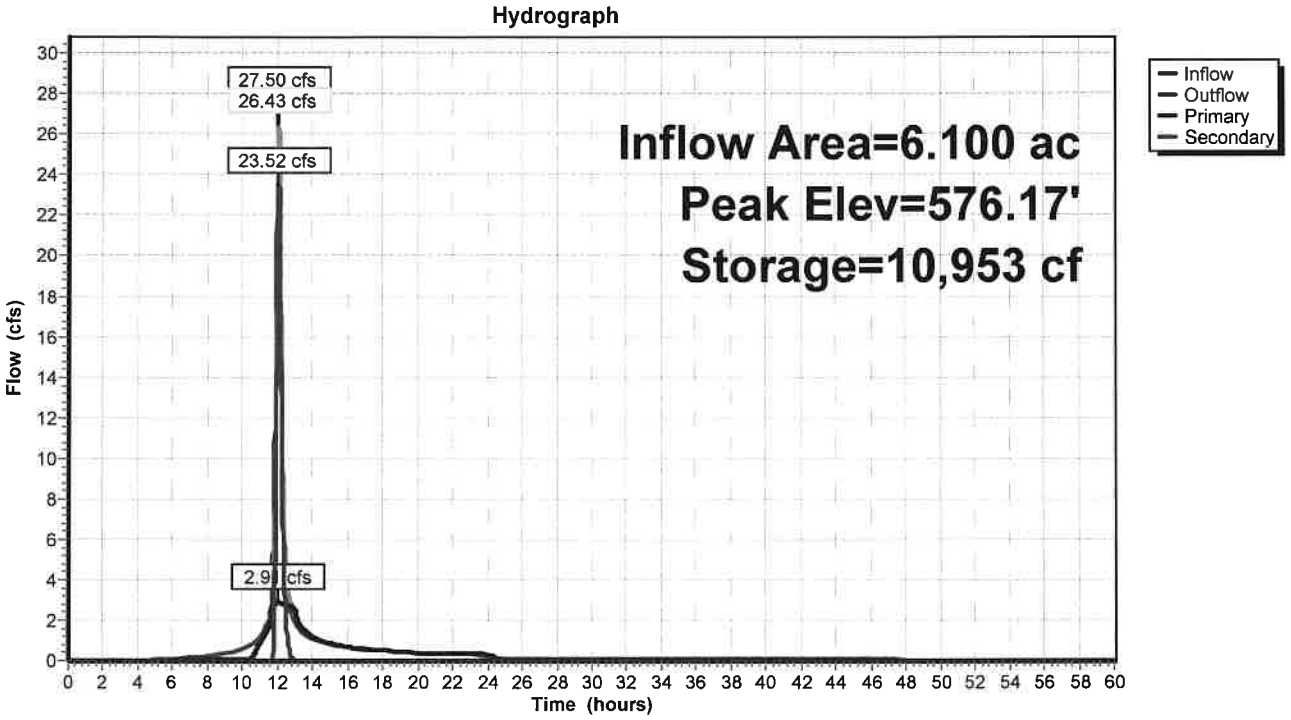
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.91 cfs @ 12.08 hrs HW=576.17' (Free Discharge)
└─**1=8" pipe** (Barrel Controls 2.91 cfs @ 8.34 fps)
  ├─**2=Grate** (Passes < 5.49 cfs potential flow)
  └─**3=Exfiltration** (Passes < 0.06 cfs potential flow)

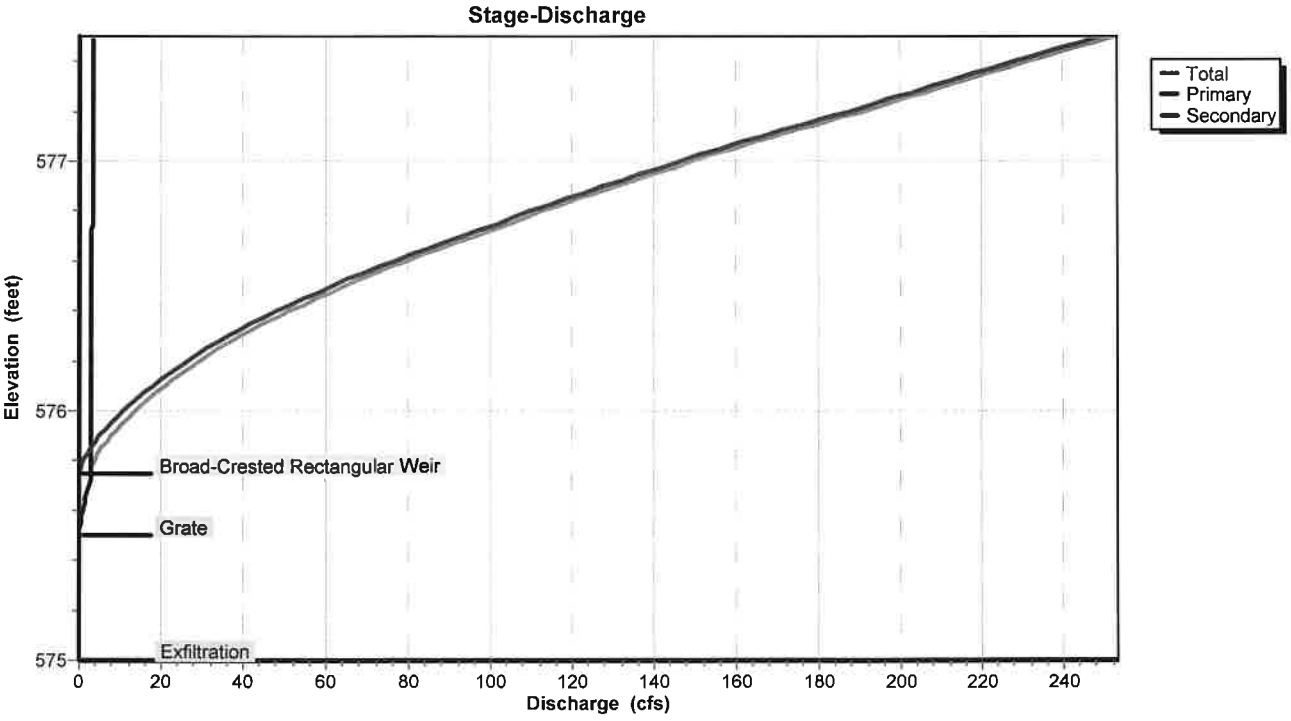
Secondary OutFlow Max=23.50 cfs @ 12.08 hrs HW=576.17' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 23.50 cfs @ 1.88 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

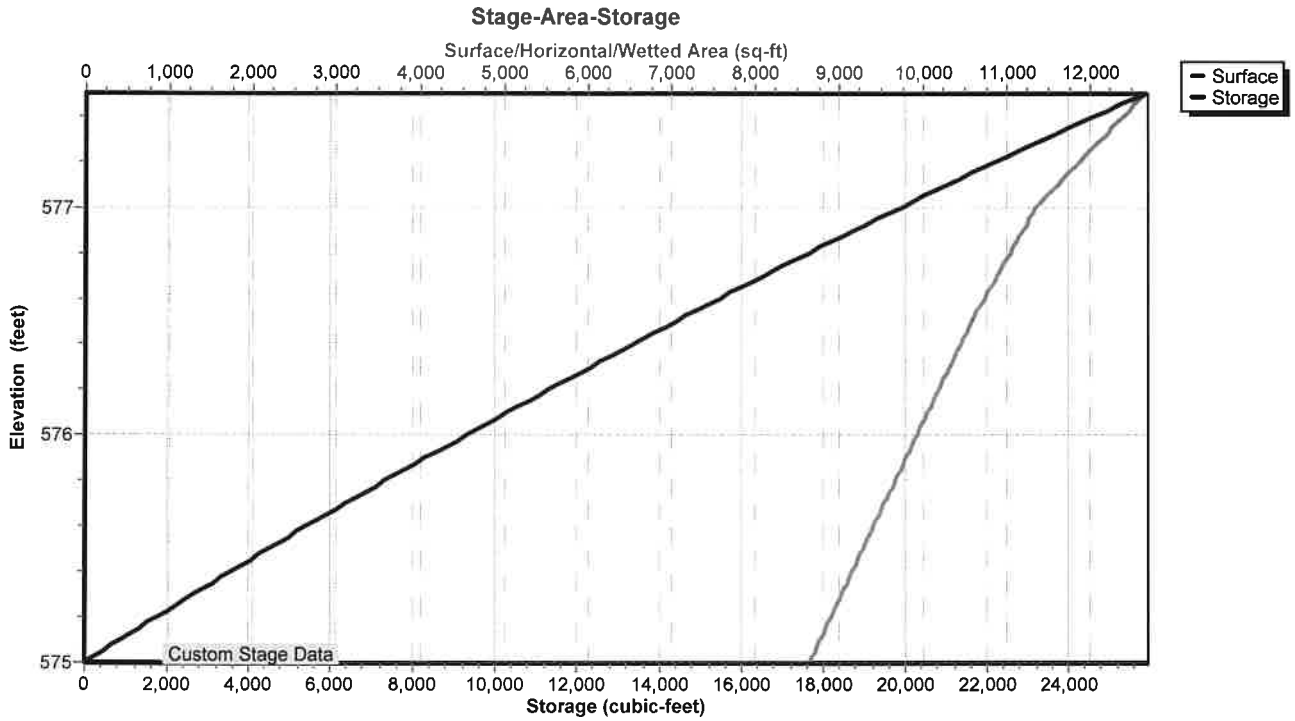


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	0	575.00	0.00	0.00	0.00
6.00	0.09	180	575.02	0.04	0.04	0.00
8.00	0.23	959	575.11	0.05	0.05	0.00
10.00	0.57	3,333	575.38	0.05	0.05	0.00
12.00	**25.18**	**10,302**	**576.10**	**21.15**	**2.88**	**18.27**
14.00	**1.08**	**5,594**	**575.62**	**1.18**	**1.18**	**0.00**
16.00	0.64	5,233	575.58	0.68	0.68	0.00
18.00	0.49	5,081	575.56	0.51	0.51	0.00
20.00	0.36	4,961	575.55	0.38	0.38	0.00
22.00	0.32	4,907	575.55	0.33	0.33	0.00
24.00	0.30	4,876	575.54	0.30	0.30	0.00
26.00	0.00	4,297	575.48	0.06	0.06	0.00
28.00	0.00	3,900	575.44	0.05	0.05	0.00
30.00	0.00	3,508	575.39	0.05	0.05	0.00
32.00	0.00	3,118	575.35	0.05	0.05	0.00
34.00	0.00	2,732	575.31	0.05	0.05	0.00
36.00	0.00	2,350	575.27	0.05	0.05	0.00
38.00	0.00	1,970	575.22	0.05	0.05	0.00
40.00	0.00	1,594	575.18	0.05	0.05	0.00
42.00	0.00	1,221	575.14	0.05	0.05	0.00
44.00	0.00	852	575.10	0.05	0.05	0.00
46.00	0.00	486	575.06	0.05	0.05	0.00
48.00	0.00	140	575.02	0.03	0.03	0.00
50.00	0.00	26	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 5.27" for 50-Year event
Inflow = 42.93 cfs @ 12.07 hrs, Volume= 1.933 af
Outflow = 1.97 cfs @ 12.73 hrs, Volume= 1.635 af, Atten= 95%, Lag= 39.8 min
Primary = 0.72 cfs @ 12.73 hrs, Volume= 1.504 af
Secondary = 1.25 cfs @ 12.73 hrs, Volume= 0.131 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.00' @ 12.73 hrs Surf.Area= 66,838 sf Storage= 62,935 cf

Plug-Flow detention time= 900.4 min calculated for 1.635 af (85% of inflow)
Center-of-Mass det. time= 844.0 min (1,616.3 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

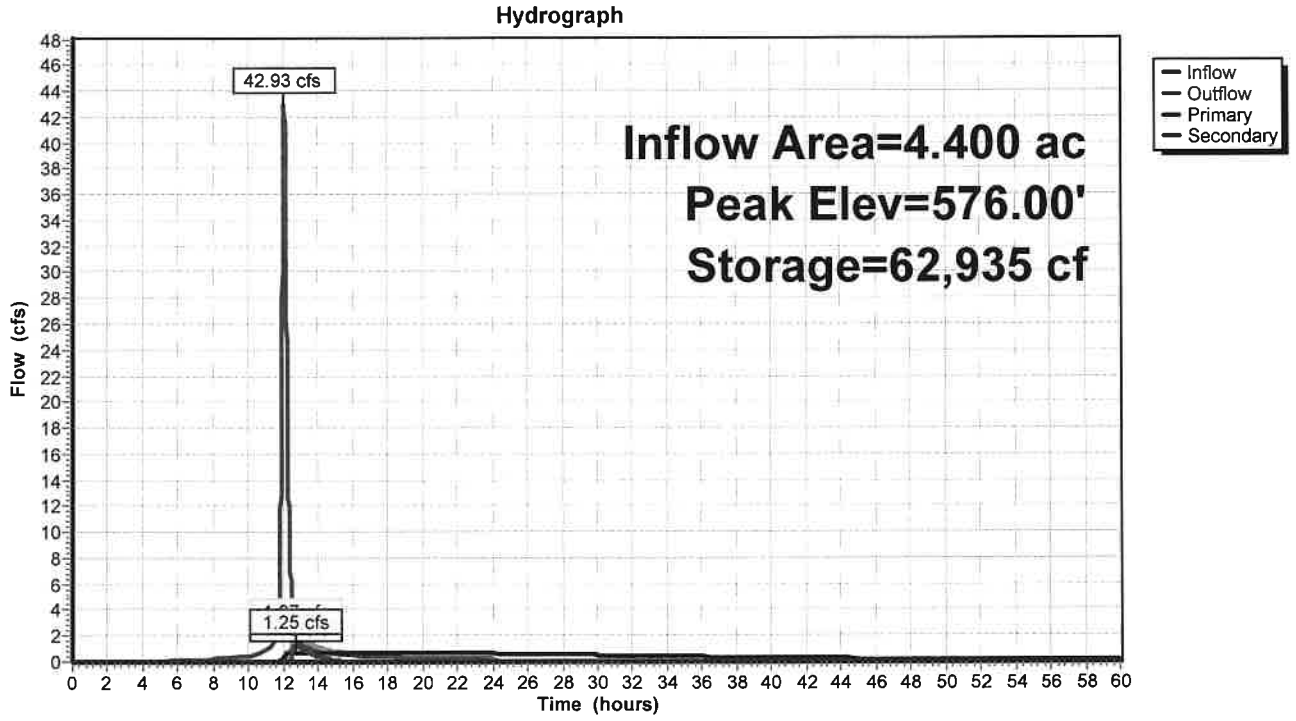
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.72 cfs @ 12.73 hrs HW=576.00' (Free Discharge)
↑—**1=12" outlet pipe** (Passes 0.72 cfs of 2.71 cfs potential flow)
↑—**2=low flow outlet pipe** (Inlet Controls 0.72 cfs @ 3.68 fps)
—**3=Grate** (Controls 0.00 cfs)

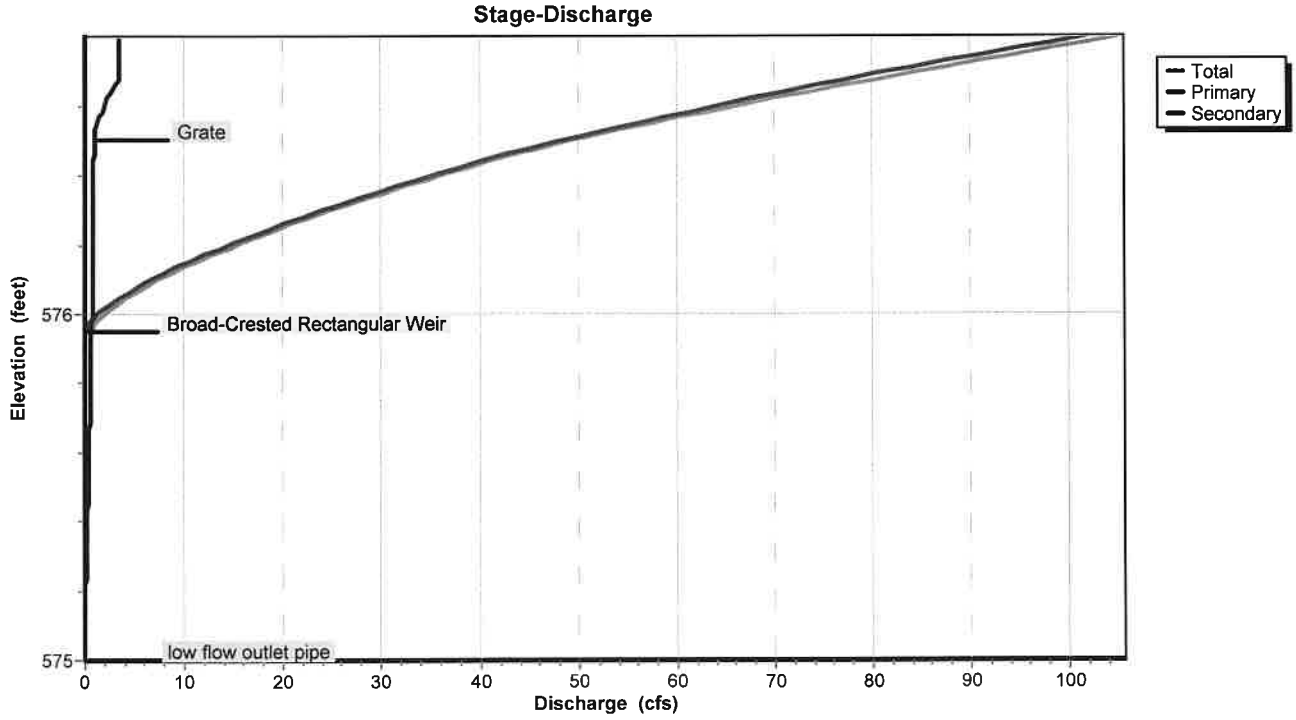
Secondary OutFlow Max=1.25 cfs @ 12.73 hrs HW=576.00' (Free Discharge)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 1.25 cfs @ 0.64 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

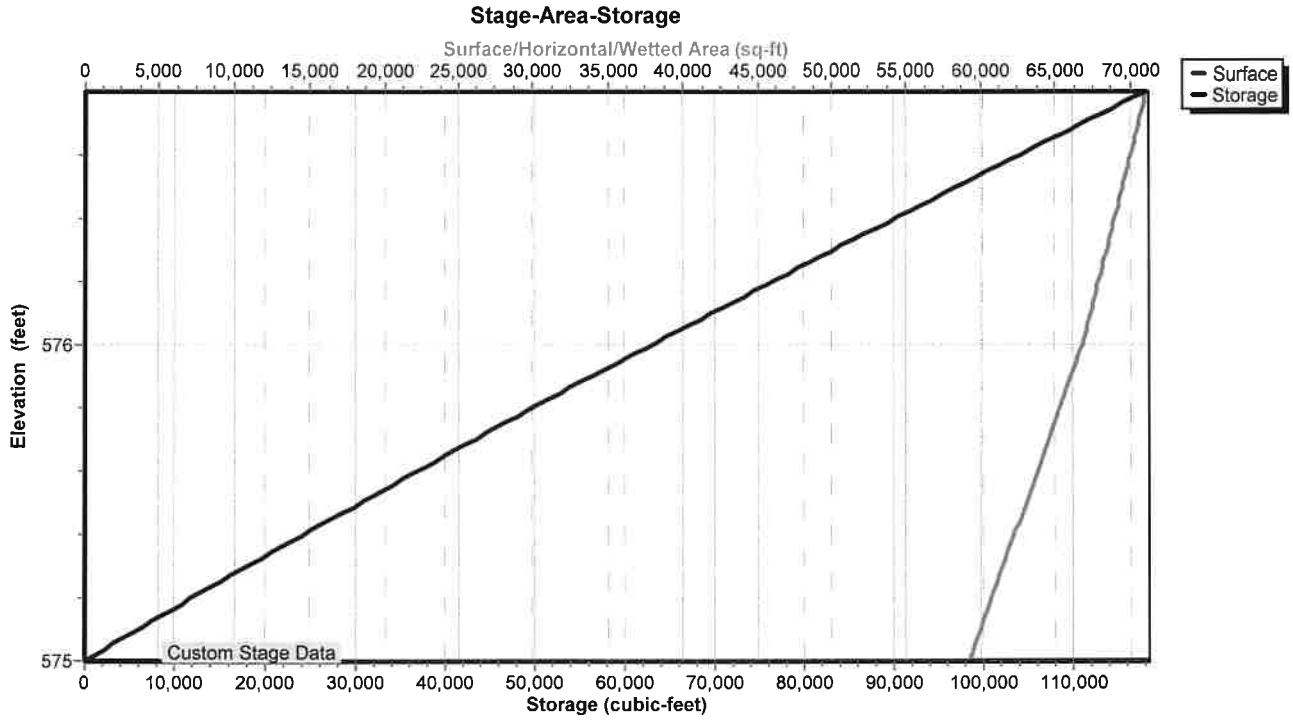


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.00	1	575.00	0.00	0.00	0.00
6.00	0.08	300	575.01	0.00	0.00	0.00
8.00	0.19	1,265	575.02	0.00	0.00	0.00
10.00	0.44	3,420	575.06	0.01	0.01	0.00
12.00	**35.63**	**24,163**	**575.40**	**0.26**	**0.26**	**0.00**
14.00	**0.79**	**61,204**	**575.97**	**1.11**	**0.71**	**0.40**
16.00	0.47	59,536	575.95	0.70	0.70	0.00
18.00	0.36	57,495	575.92	0.68	0.68	0.00
20.00	0.26	54,889	575.88	0.66	0.66	0.00
22.00	0.23	51,975	575.83	0.64	0.64	0.00
24.00	0.21	49,094	575.79	0.61	0.61	0.00
26.00	0.00	45,010	575.73	0.56	0.56	0.00
28.00	0.00	41,189	575.67	0.50	0.50	0.00
30.00	0.00	37,665	575.61	0.47	0.47	0.00
32.00	0.00	34,410	575.56	0.43	0.43	0.00
34.00	0.00	31,481	575.51	0.38	0.38	0.00
36.00	0.00	28,873	575.47	0.34	0.34	0.00
38.00	0.00	26,562	575.44	0.30	0.30	0.00
40.00	0.00	24,517	575.40	0.27	0.27	0.00
42.00	0.00	22,705	575.37	0.24	0.24	0.00
44.00	0.00	21,097	575.35	0.21	0.21	0.00
46.00	0.00	19,666	575.33	0.19	0.19	0.00
48.00	0.00	18,389	575.30	0.17	0.17	0.00
50.00	0.00	17,245	575.29	0.15	0.15	0.00
52.00	0.00	16,216	575.27	0.14	0.14	0.00
54.00	0.00	15,288	575.25	0.12	0.12	0.00
56.00	0.00	14,449	575.24	0.11	0.11	0.00
58.00	0.00	13,686	575.23	0.10	0.10	0.00
60.00	0.00	12,992	575.22	0.09	0.09	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

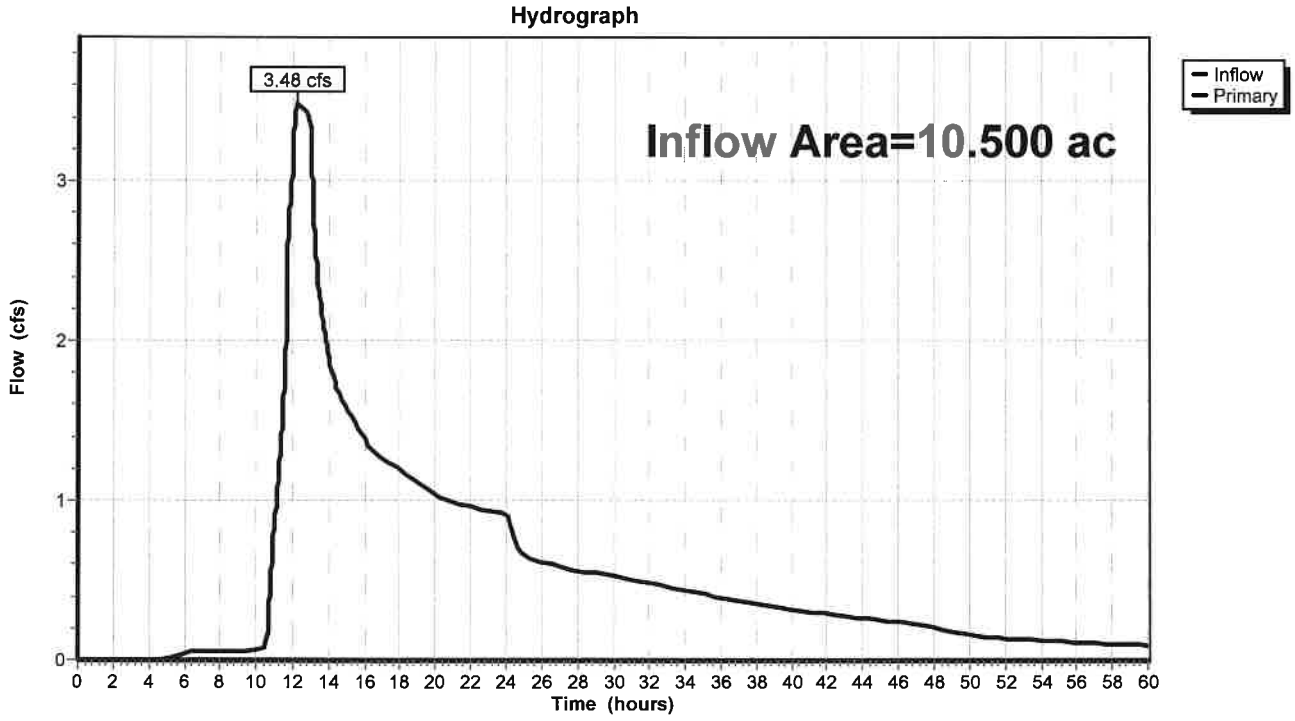
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 2.97" for 50-Year event
Inflow = 3.48 cfs @ 12.21 hrs, Volume= 2.596 af
Primary = 3.48 cfs @ 12.21 hrs, Volume= 2.596 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Link 5L: Outflow (@ CB 54)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.14	0.00	0.14
1.00	0.00	0.00	0.00	53.00	0.13	0.00	0.13
2.00	0.00	0.00	0.00	54.00	0.12	0.00	0.12
3.00	0.00	0.00	0.00	55.00	0.12	0.00	0.12
4.00	0.00	0.00	0.00	56.00	0.11	0.00	0.11
5.00	0.01	0.00	0.01	57.00	0.11	0.00	0.11
6.00	0.04	0.00	0.04	58.00	0.10	0.00	0.10
7.00	0.05	0.00	0.05	59.00	0.10	0.00	0.10
8.00	0.05	0.00	0.05	60.00	0.09	0.00	0.09
9.00	0.06	0.00	0.06				
10.00	0.06	0.00	0.06				
11.00	0.88	0.00	0.88				
12.00	**3.14**	0.00	**3.14**				
13.00	**3.25**	0.00	**3.25**				
14.00	1.89	0.00	1.89				
15.00	1.57	0.00	1.57				
16.00	1.38	0.00	1.38				
17.00	1.26	0.00	1.26				
18.00	1.19	0.00	1.19				
19.00	1.11	0.00	1.11				
20.00	1.04	0.00	1.04				
21.00	0.99	0.00	0.99				
22.00	0.96	0.00	0.96				
23.00	0.94	0.00	0.94				
24.00	0.91	0.00	0.91				
25.00	0.65	0.00	0.65				
26.00	0.62	0.00	0.62				
27.00	0.59	0.00	0.59				
28.00	0.56	0.00	0.56				
29.00	0.55	0.00	0.55				
30.00	0.53	0.00	0.53				
31.00	0.51	0.00	0.51				
32.00	0.48	0.00	0.48				
33.00	0.46	0.00	0.46				
34.00	0.44	0.00	0.44				
35.00	0.42	0.00	0.42				
36.00	0.39	0.00	0.39				
37.00	0.37	0.00	0.37				
38.00	0.35	0.00	0.35				
39.00	0.34	0.00	0.34				
40.00	0.32	0.00	0.32				
41.00	0.30	0.00	0.30				
42.00	0.29	0.00	0.29				
43.00	0.27	0.00	0.27				
44.00	0.26	0.00	0.26				
45.00	0.25	0.00	0.25				
46.00	0.24	0.00	0.24				
47.00	0.23	0.00	0.23				
48.00	0.20	0.00	0.20				
49.00	0.17	0.00	0.17				
50.00	0.16	0.00	0.16				
51.00	0.15	0.00	0.15				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Front Area 1 Runoff Area=6.100 ac 54.10% Impervious Runoff Depth=4.15"
Flow Length=652' Tc=13.3 min CN=90 Runoff=33.05 cfs 2.108 af

Subcatchment 2S: Rear Area 1 Runoff Area=4.400 ac 61.36% Impervious Runoff Depth=4.25"
Flow Length=683' Tc=14.4 min CN=91 Runoff=23.44 cfs 1.560 af

Pond 1P: Bioretention Area 3 Peak Elev=576.23' Storage=11,585 cf Inflow=33.05 cfs 2.108 af
Primary=2.94 cfs 1.275 af Secondary=28.98 cfs 0.833 af Outflow=31.92 cfs 2.108 af

Pond 3P: Detention Basin (SMA #1) Peak Elev=576.11' Storage=70,722 cf Inflow=52.24 cfs 2.392 af
Primary=0.78 cfs 1.554 af Secondary=7.80 cfs 0.534 af Outflow=8.57 cfs 2.088 af

Link 5L: Outflow (@ CB 54) Inflow=3.60 cfs 2.829 af
Primary=3.60 cfs 2.829 af

Total Runoff Area = 10.500 ac Runoff Volume = 3.668 af Average Runoff Depth = 4.19"
42.86% Pervious = 4.500 ac 57.14% Impervious = 6.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 1S: Front Area 1

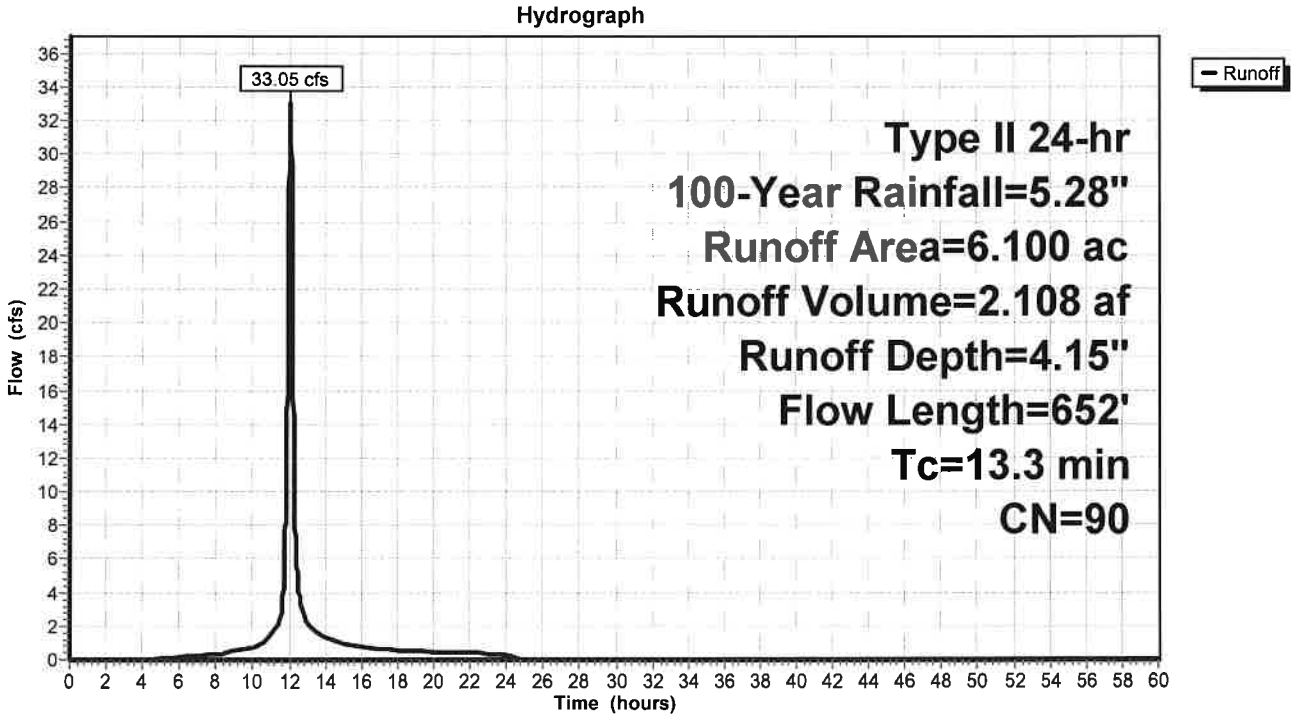
Runoff = 33.05 cfs @ 12.05 hrs, Volume= 2.108 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
1.800	98	Paved parking, HSG D
1.500	98	Roofs, HSG D
2.800	80	>75% Grass cover, Good, HSG D
6.100	90	Weighted Average
2.800		45.90% Pervious Area
3.300		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	37	0.0100	0.06		**Sheet Flow, grass** Grass: Dense n= 0.240 P2= 2.50"
0.4	15	0.0120	0.68		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
3.3	600		3.00		**Direct Entry, pipe flow**
13.3	652	Total			

Subcatchment 1S: Front Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 1S: Front Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.01
5.00	0.33	0.01	0.08
6.00	0.42	0.03	0.15
7.00	0.52	0.06	0.23
8.00	0.63	0.11	0.32
9.00	0.78	0.18	0.52
10.00	0.96	0.29	0.74
11.00	1.24	0.49	1.47
12.00	3.50	2.45	**30.36**
13.00	4.08	2.99	**2.21**
14.00	4.33	3.23	1.27
15.00	4.51	3.40	0.98
16.00	4.65	3.54	0.76
17.00	4.76	3.65	0.66
18.00	4.86	3.74	0.58
19.00	4.95	3.83	0.50
20.00	5.03	3.90	0.42
21.00	5.09	3.97	0.40
22.00	5.16	4.03	0.38
23.00	5.22	4.09	0.36
24.00	**5.28**	**4.15**	0.35
25.00	5.28	4.15	0.00
26.00	5.28	4.15	0.00
27.00	5.28	4.15	0.00
28.00	5.28	4.15	0.00
29.00	5.28	4.15	0.00
30.00	5.28	4.15	0.00
31.00	5.28	4.15	0.00
32.00	5.28	4.15	0.00
33.00	5.28	4.15	0.00
34.00	5.28	4.15	0.00
35.00	5.28	4.15	0.00
36.00	5.28	4.15	0.00
37.00	5.28	4.15	0.00
38.00	5.28	4.15	0.00
39.00	5.28	4.15	0.00
40.00	5.28	4.15	0.00
41.00	5.28	4.15	0.00
42.00	5.28	4.15	0.00
43.00	5.28	4.15	0.00
44.00	5.28	4.15	0.00
45.00	5.28	4.15	0.00
46.00	5.28	4.15	0.00
47.00	5.28	4.15	0.00
48.00	5.28	4.15	0.00
49.00	5.28	4.15	0.00
50.00	5.28	4.15	0.00
51.00	5.28	4.15	0.00
52.00	5.28	4.15	0.00
53.00	5.28	4.15	0.00
54.00	5.28	4.15	0.00
55.00	5.28	4.15	0.00
56.00	5.28	4.15	0.00
57.00	5.28	4.15	0.00
58.00	5.28	4.15	0.00
59.00	5.28	4.15	0.00
60.00	5.28	4.15	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 2S: Rear Area 1

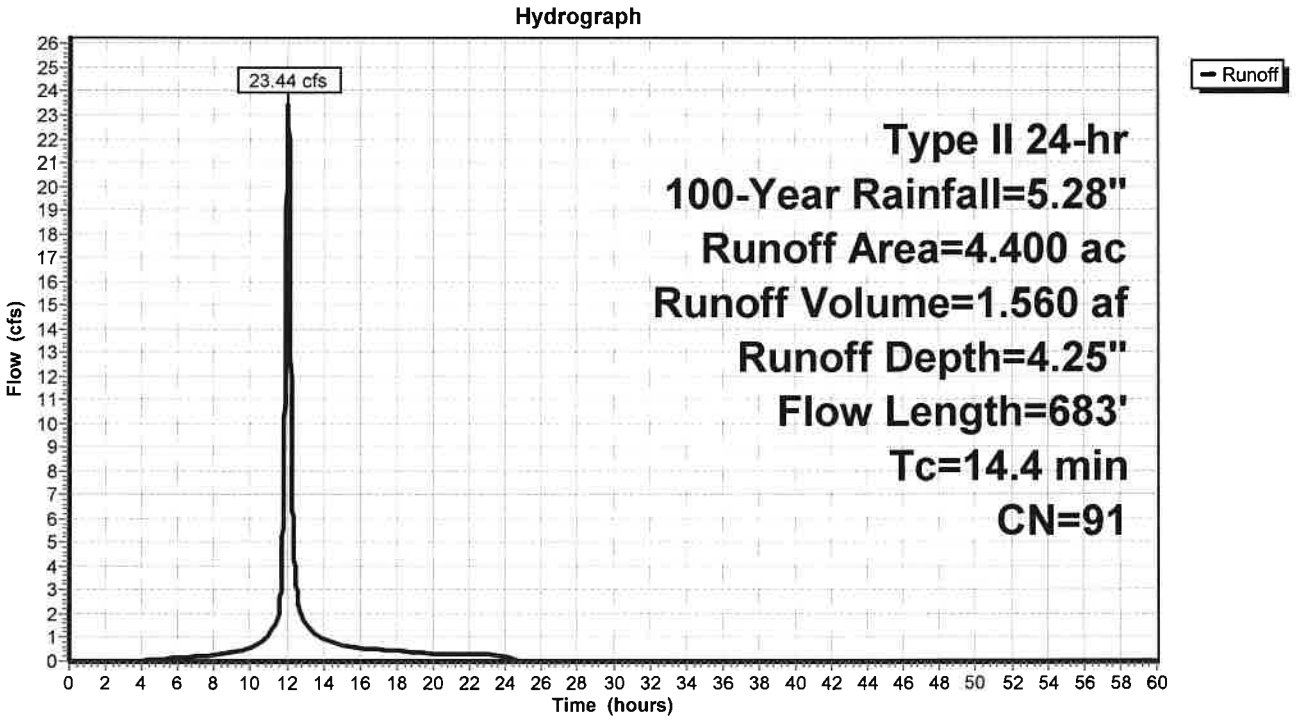
Runoff = 23.44 cfs @ 12.06 hrs, Volume= 1.560 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
1.400	98	Paved parking, HSG D
1.300	98	Roofs, HSG D
1.700	80	>75% Grass cover, Good, HSG D
4.400	91	Weighted Average
1.700		38.64% Pervious Area
2.700		61.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	90	0.0200	0.15		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.3	75	0.0130	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
2.9	518		3.00		**Direct Entry, Pipe flow**
14.4	683	Total			

Subcatchment 2S: Rear Area 1



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 2S: Rear Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.02
5.00	0.33	0.02	0.07
6.00	0.42	0.04	0.13
7.00	0.52	0.08	0.19
8.00	0.63	0.13	0.25
9.00	0.78	0.21	0.41
10.00	0.96	0.33	0.57
11.00	1.24	0.54	1.10
12.00	3.50	2.54	**20.85**
13.00	4.08	3.09	**1.64**
14.00	4.33	3.33	0.94
15.00	4.51	3.50	0.71
16.00	4.65	3.64	0.56
17.00	4.76	3.75	0.48
18.00	4.86	3.85	0.42
19.00	4.95	3.93	0.36
20.00	5.03	4.01	0.31
21.00	5.09	4.07	0.29
22.00	5.16	4.14	0.28
23.00	5.22	4.20	0.26
24.00	**5.28**	**4.25**	0.25
25.00	5.28	4.25	0.00
26.00	5.28	4.25	0.00
27.00	5.28	4.25	0.00
28.00	5.28	4.25	0.00
29.00	5.28	4.25	0.00
30.00	5.28	4.25	0.00
31.00	5.28	4.25	0.00
32.00	5.28	4.25	0.00
33.00	5.28	4.25	0.00
34.00	5.28	4.25	0.00
35.00	5.28	4.25	0.00
36.00	5.28	4.25	0.00
37.00	5.28	4.25	0.00
38.00	5.28	4.25	0.00
39.00	5.28	4.25	0.00
40.00	5.28	4.25	0.00
41.00	5.28	4.25	0.00
42.00	5.28	4.25	0.00
43.00	5.28	4.25	0.00
44.00	5.28	4.25	0.00
45.00	5.28	4.25	0.00
46.00	5.28	4.25	0.00
47.00	5.28	4.25	0.00
48.00	5.28	4.25	0.00
49.00	5.28	4.25	0.00
50.00	5.28	4.25	0.00
51.00	5.28	4.25	0.00
52.00	5.28	4.25	0.00
53.00	5.28	4.25	0.00
54.00	5.28	4.25	0.00
55.00	5.28	4.25	0.00
56.00	5.28	4.25	0.00
57.00	5.28	4.25	0.00
58.00	5.28	4.25	0.00
59.00	5.28	4.25	0.00
60.00	5.28	4.25	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 1P: Bioretention Area 3

Inflow Area = 6.100 ac, 54.10% Impervious, Inflow Depth = 4.15" for 100-Year event
Inflow = 33.05 cfs @ 12.05 hrs, Volume= 2.108 af
Outflow = 31.92 cfs @ 12.08 hrs, Volume= 2.108 af, Atten= 3%, Lag= 1.8 min
Primary = 2.94 cfs @ 12.08 hrs, Volume= 1.275 af
Secondary = 28.98 cfs @ 12.08 hrs, Volume= 0.833 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.23' @ 12.08 hrs Surf.Area= 10,226 sf Storage= 11,585 cf

Plug-Flow detention time= 93.7 min calculated for 2.108 af (100% of inflow)
Center-of-Mass det. time= 93.9 min (886.3 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	25,904 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	8,648	0	0
576.00	9,925	9,287	9,287
576.50	10,585	5,128	14,414
577.00	11,350	5,484	19,898
577.50	12,675	6,006	25,904

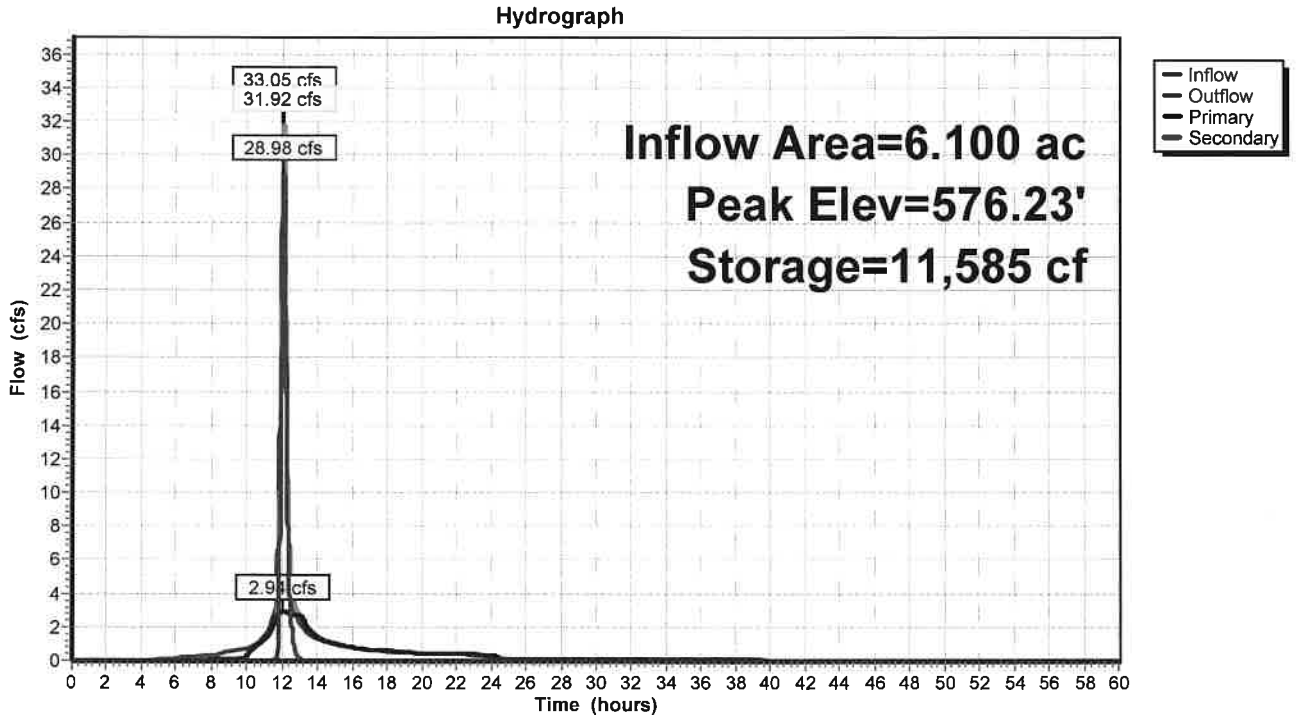
Device	Routing	Invert	Outlet Devices
#1	Primary	572.50'	**8.0" Round 8" pipe** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 572.50' / 572.42' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	575.50'	**8.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	575.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Secondary	575.75'	**30.0' long (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=2.94 cfs @ 12.08 hrs HW=576.23' (Free Discharge)
└─**1=8" pipe** (Barrel Controls 2.94 cfs @ 8.43 fps)
  ├─**2=Grate** (Passes < 5.74 cfs potential flow)
  └─**3=Exfiltration** (Passes < 0.06 cfs potential flow)

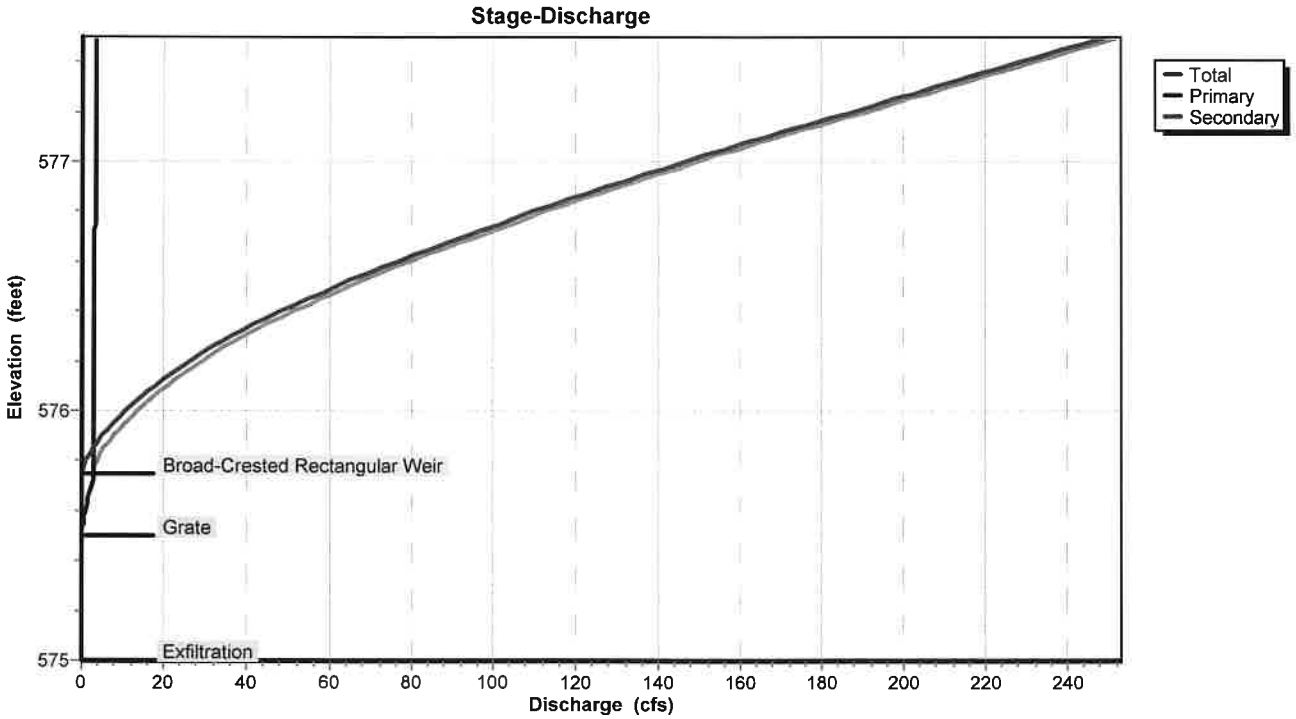
Secondary OutFlow Max=28.93 cfs @ 12.08 hrs HW=576.23' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 28.93 cfs @ 2.02 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3

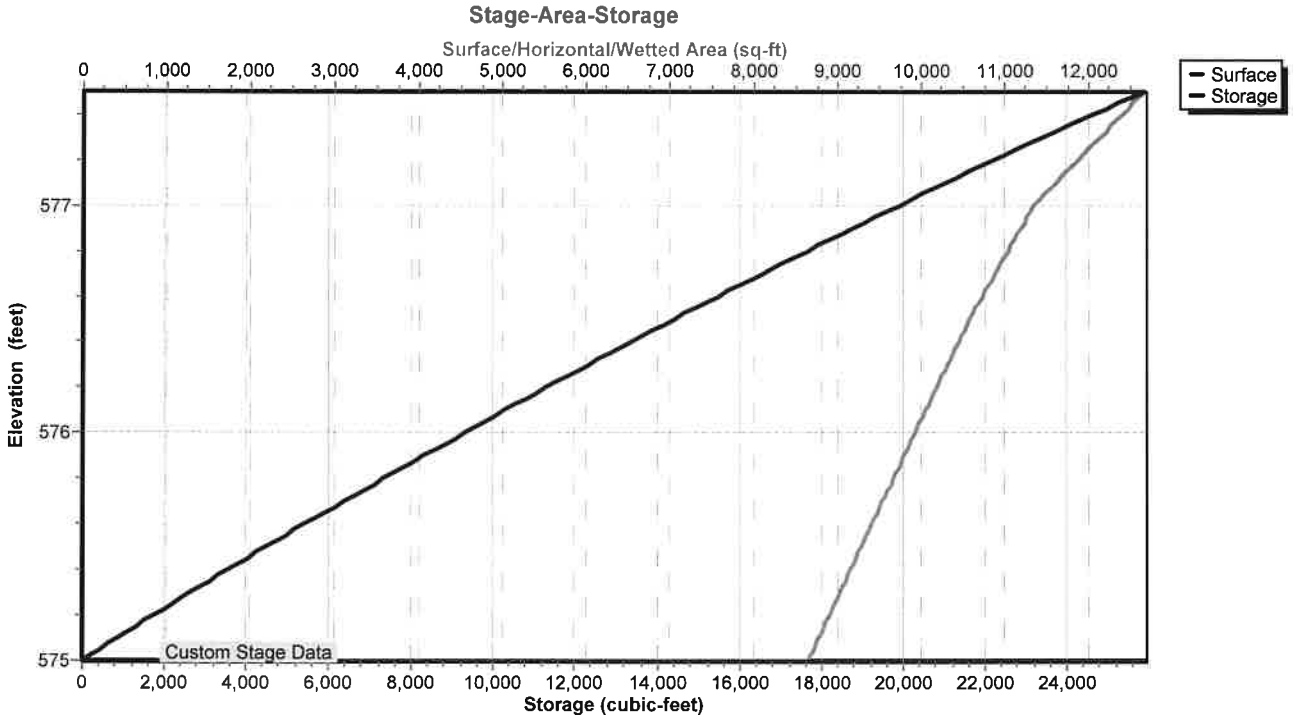


Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 1P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 1P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.01	6	575.00	0.00	0.00	0.00
6.00	0.15	359	575.04	0.05	0.05	0.00
8.00	0.32	1,651	575.19	0.05	0.05	0.00
10.00	0.74	4,857	575.54	0.28	0.28	0.00
12.00	**30.36**	**10,896**	**576.16**	**25.95**	**2.91**	**23.04**
14.00	**1.27**	**5,731**	**575.63**	**1.39**	**1.39**	**0.00**
16.00	0.76	5,329	575.59	0.81	0.81	0.00
18.00	0.58	5,164	575.57	0.60	0.60	0.00
20.00	0.42	5,023	575.56	0.44	0.44	0.00
22.00	0.38	4,969	575.55	0.38	0.38	0.00
24.00	0.35	4,939	575.55	0.35	0.35	0.00
26.00	0.00	4,307	575.48	0.06	0.06	0.00
28.00	0.00	3,911	575.44	0.05	0.05	0.00
30.00	0.00	3,518	575.40	0.05	0.05	0.00
32.00	0.00	3,129	575.35	0.05	0.05	0.00
34.00	0.00	2,743	575.31	0.05	0.05	0.00
36.00	0.00	2,360	575.27	0.05	0.05	0.00
38.00	0.00	1,981	575.23	0.05	0.05	0.00
40.00	0.00	1,604	575.18	0.05	0.05	0.00
42.00	0.00	1,232	575.14	0.05	0.05	0.00
44.00	0.00	862	575.10	0.05	0.05	0.00
46.00	0.00	496	575.06	0.05	0.05	0.00
48.00	0.00	147	575.02	0.03	0.03	0.00
50.00	0.00	28	575.00	0.01	0.01	0.00
52.00	0.00	5	575.00	0.00	0.00	0.00
54.00	0.00	1	575.00	0.00	0.00	0.00
56.00	0.00	0	575.00	0.00	0.00	0.00
58.00	0.00	0	575.00	0.00	0.00	0.00
60.00	0.00	0	575.00	0.00	0.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 1P: Bioretention Area 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.05	0.05	0.05	0.00
575.10	0.05	0.05	0.00
575.15	0.05	0.05	0.00
575.20	0.05	0.05	0.00
575.25	0.05	0.05	0.00
575.30	0.05	0.05	0.00
575.35	0.05	0.05	0.00
575.40	0.05	0.05	0.00
575.45	0.05	0.05	0.00
575.50	0.06	0.06	0.00
575.55	0.36	0.36	0.00
575.60	0.92	0.92	0.00
575.65	1.65	1.65	0.00
575.70	2.51	2.51	0.00
575.75	2.71	2.71	0.00
575.80	3.71	2.73	0.98
575.85	5.53	2.76	2.77
575.90	7.87	2.78	5.09
575.95	10.64	2.81	7.84
576.00	13.78	2.83	10.95
576.05	17.25	2.86	14.39
576.10	21.02	2.88	18.14
576.15	25.07	2.91	22.16
576.20	29.37	2.93	26.44
576.25	34.02	2.95	31.07
576.30	39.38	2.98	36.41
576.35	45.12	3.00	42.12
576.40	51.24	3.02	48.22
576.45	57.74	3.04	54.69
576.50	64.62	3.07	61.55
576.55	71.88	3.09	68.79
576.60	79.53	3.11	76.42
576.65	87.57	3.13	84.44
576.70	96.00	3.16	92.85
576.75	104.54	3.18	101.36
576.80	112.97	3.20	109.77
576.85	121.69	3.22	118.47
576.90	130.69	3.24	127.45
576.95	139.98	3.26	136.72
577.00	149.56	3.28	146.27
577.05	159.42	3.30	156.11
577.10	169.57	3.33	166.24
577.15	180.00	3.35	176.66
577.20	190.72	3.37	187.36
577.25	201.24	3.39	197.86
577.30	211.24	3.41	207.83
577.35	221.40	3.43	217.97
577.40	231.71	3.45	228.27
577.45	242.19	3.47	238.72
577.50	**252.82**	**3.49**	**249.33**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 1P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	8,648	0
575.05	8,712	434
575.10	8,776	871
575.15	8,840	1,312
575.20	8,903	1,755
575.25	8,967	2,202
575.30	9,031	2,652
575.35	9,095	3,105
575.40	9,159	3,561
575.45	9,223	4,021
575.50	9,287	4,484
575.55	9,350	4,950
575.60	9,414	5,419
575.65	9,478	5,891
575.70	9,542	6,366
575.75	9,606	6,845
575.80	9,670	7,327
575.85	9,733	7,812
575.90	9,797	8,300
575.95	9,861	8,792
576.00	9,925	9,287
576.05	9,991	9,784
576.10	10,057	10,286
576.15	10,123	10,790
576.20	10,189	11,298
576.25	10,255	11,809
576.30	10,321	12,323
576.35	10,387	12,841
576.40	10,453	13,362
576.45	10,519	13,886
576.50	10,585	14,414
576.55	10,661	14,945
576.60	10,738	15,480
576.65	10,814	16,019
576.70	10,891	16,562
576.75	10,968	17,108
576.80	11,044	17,658
576.85	11,121	18,212
576.90	11,197	18,770
576.95	11,274	19,332
577.00	11,350	19,898
577.05	11,482	20,469
577.10	11,615	21,046
577.15	11,747	21,630
577.20	11,880	22,221
577.25	12,013	22,818
577.30	12,145	23,422
577.35	12,278	24,033
577.40	12,410	24,650
577.45	12,543	25,274
577.50	**12,675**	**25,904**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 3P: Detention Basin (SMA #1)

Inflow Area = 4.400 ac, 61.36% Impervious, Inflow Depth = 6.52" for 100-Year event
Inflow = 52.24 cfs @ 12.07 hrs, Volume= 2.392 af
Outflow = 8.57 cfs @ 12.41 hrs, Volume= 2.088 af, Atten= 84%, Lag= 20.7 min
Primary = 0.78 cfs @ 12.41 hrs, Volume= 1.554 af
Secondary = 7.80 cfs @ 12.41 hrs, Volume= 0.534 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 576.11' @ 12.41 hrs Surf.Area= 67,462 sf Storage= 70,722 cf

Plug-Flow detention time= 739.0 min calculated for 2.088 af (87% of inflow)
Center-of-Mass det. time= 688.7 min (1,456.5 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	575.00'	118,224 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
575.00	59,213	0	0
576.00	66,849	63,031	63,031
576.80	71,134	55,193	118,224

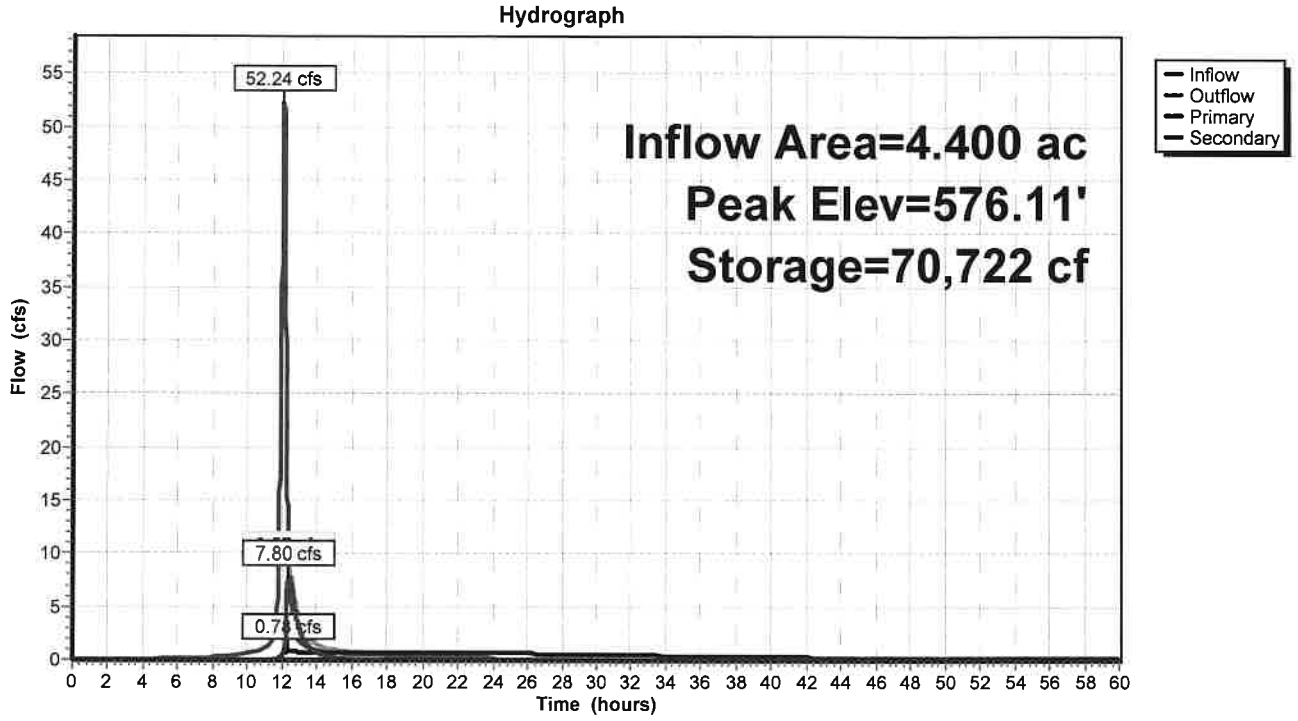
Device	Routing	Invert	Outlet Devices
#1	Primary	574.00'	**12.0" Round 12" outlet pipe** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 574.00' / 573.79' S= 0.0013 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	575.00'	**6.0" Round low flow outlet pipe** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 575.00' / 574.95' S= 0.0050 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	576.50'	**30.0" x 30.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	575.95'	**20.0' long (Profile 1) Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59

Primary OutFlow Max=0.78 cfs @ 12.41 hrs HW=576.11' (Free Discharge)
└─**1=12" outlet pipe** (Passes 0.78 cfs of 2.84 cfs potential flow)
  ├─**2=low flow outlet pipe** (Inlet Controls 0.78 cfs @ 3.95 fps)
  └─**3=Grate** (Controls 0.00 cfs)

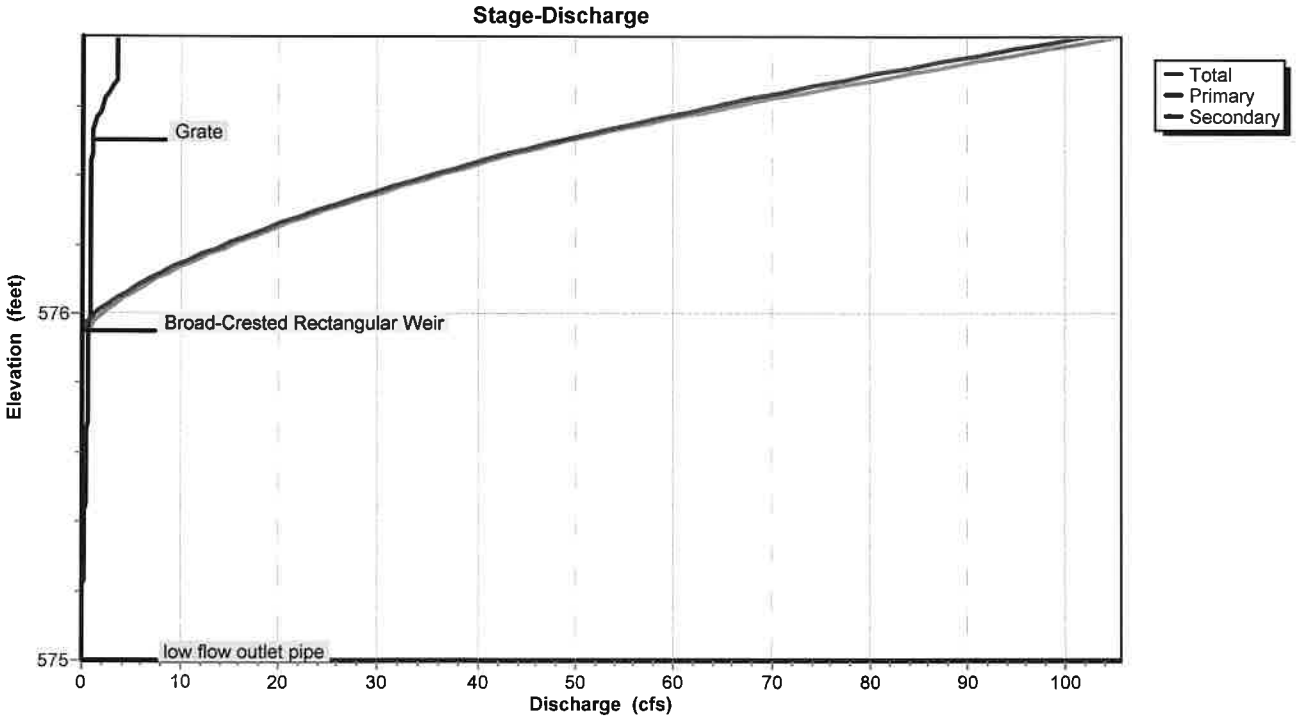
Secondary OutFlow Max=7.79 cfs @ 12.41 hrs HW=576.11' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 7.79 cfs @ 1.18 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)

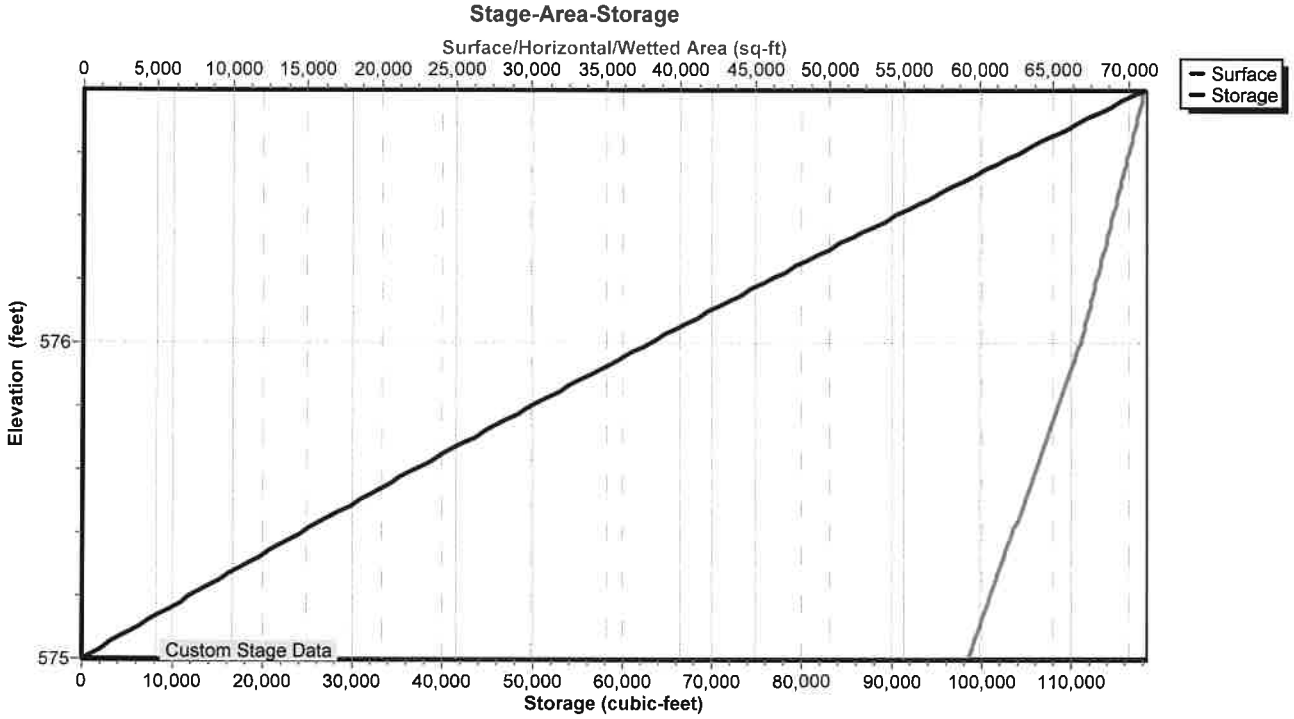


Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 3P: Detention Basin (SMA #1)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 3P: Detention Basin (SMA #1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	575.00	0.00	0.00	0.00
2.00	0.00	0	575.00	0.00	0.00	0.00
4.00	0.02	25	575.00	0.00	0.00	0.00
6.00	0.13	556	575.01	0.00	0.00	0.00
8.00	0.25	1,914	575.03	0.00	0.00	0.00
10.00	0.57	4,720	575.08	0.01	0.01	0.00
12.00	**43.89**	**31,253**	**575.51**	**0.38**	**0.38**	**0.00**
14.00	**0.94**	**61,894**	**575.98**	**1.43**	**0.71**	**0.72**
16.00	0.56	59,972	575.95	0.73	0.70	0.03
18.00	0.42	58,398	575.93	0.69	0.69	0.00
20.00	0.31	56,130	575.90	0.67	0.67	0.00
22.00	0.28	53,450	575.86	0.65	0.65	0.00
24.00	0.25	50,762	575.81	0.63	0.63	0.00
26.00	0.00	46,581	575.75	0.59	0.59	0.00
28.00	0.00	42,588	575.69	0.52	0.52	0.00
30.00	0.00	38,979	575.63	0.49	0.49	0.00
32.00	0.00	35,609	575.58	0.45	0.45	0.00
34.00	0.00	32,555	575.53	0.40	0.40	0.00
36.00	0.00	29,827	575.49	0.36	0.36	0.00
38.00	0.00	27,407	575.45	0.32	0.32	0.00
40.00	0.00	25,264	575.42	0.28	0.28	0.00
42.00	0.00	23,368	575.39	0.25	0.25	0.00
44.00	0.00	21,686	575.36	0.22	0.22	0.00
46.00	0.00	20,191	575.33	0.20	0.20	0.00
48.00	0.00	18,858	575.31	0.17	0.17	0.00
50.00	0.00	17,665	575.29	0.16	0.16	0.00
52.00	0.00	16,594	575.28	0.14	0.14	0.00
54.00	0.00	15,630	575.26	0.13	0.13	0.00
56.00	0.00	14,758	575.25	0.12	0.12	0.00
58.00	0.00	13,967	575.23	0.10	0.10	0.00
60.00	0.00	13,248	575.22	0.10	0.10	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
575.00	0.00	0.00	0.00
575.02	0.00	0.00	0.00
575.04	0.00	0.00	0.00
575.06	0.01	0.01	0.00
575.08	0.01	0.01	0.00
575.10	0.02	0.02	0.00
575.12	0.03	0.03	0.00
575.14	0.04	0.04	0.00
575.16	0.05	0.05	0.00
575.18	0.07	0.07	0.00
575.20	0.08	0.08	0.00
575.22	0.09	0.09	0.00
575.24	0.11	0.11	0.00
575.26	0.13	0.13	0.00
575.28	0.15	0.15	0.00
575.30	0.16	0.16	0.00
575.32	0.18	0.18	0.00
575.34	0.20	0.20	0.00
575.36	0.22	0.22	0.00
575.38	0.24	0.24	0.00
575.40	0.26	0.26	0.00
575.42	0.28	0.28	0.00
575.44	0.31	0.31	0.00
575.46	0.33	0.33	0.00
575.48	0.35	0.35	0.00
575.50	0.37	0.37	0.00
575.52	0.39	0.39	0.00
575.54	0.41	0.41	0.00
575.56	0.43	0.43	0.00
575.58	0.45	0.45	0.00
575.60	0.46	0.46	0.00
575.62	0.48	0.48	0.00
575.64	0.49	0.49	0.00
575.66	0.50	0.50	0.00
575.68	0.51	0.51	0.00
575.70	0.54	0.54	0.00
575.72	0.56	0.56	0.00
575.74	0.58	0.58	0.00
575.76	0.60	0.60	0.00
575.78	0.61	0.61	0.00
575.80	0.62	0.62	0.00
575.82	0.63	0.63	0.00
575.84	0.64	0.64	0.00
575.86	0.65	0.65	0.00
575.88	0.66	0.66	0.00
575.90	0.67	0.67	0.00
575.92	0.68	0.68	0.00
575.94	0.69	0.69	0.00
575.96	0.82	0.70	0.12
575.98	1.32	0.71	0.61
576.00	2.03	0.72	1.31
576.02	2.90	0.73	2.16
576.04	3.90	0.74	3.15
576.06	5.01	0.75	4.26
576.08	6.23	0.76	5.47
576.10	7.55	0.77	6.79
576.12	8.96	0.78	8.19
576.14	10.46	0.79	9.67
576.16	12.04	0.80	11.24
576.18	13.69	0.80	12.88
576.20	15.41	0.81	14.60
576.22	17.21	0.82	16.39
576.24	19.07	0.83	18.24
576.26	21.00	0.84	20.16
576.28	22.99	0.85	22.14
576.30	25.04	0.85	24.18
576.32	27.15	0.86	26.29
576.34	29.32	0.87	28.45
576.36	31.54	0.88	30.66
576.38	33.82	0.89	32.93
576.40	36.15	0.89	35.26
576.42	38.54	0.90	37.63
576.44	40.97	0.91	40.06
576.46	43.73	0.92	42.81
576.48	46.56	0.93	45.63
576.50	49.47	0.93	48.54
576.52	52.56	1.03	51.53
576.54	55.81	1.21	54.60
576.56	59.18	1.44	57.75
576.58	62.68	1.70	60.98
576.60	66.29	2.00	64.29
576.62	70.02	2.34	67.68
576.64	73.85	2.70	71.16
576.66	77.79	3.08	74.71
576.68	81.74	3.39	78.35
576.70	85.48	3.41	82.07
576.72	89.30	3.43	85.87
576.74	93.20	3.45	89.75
576.76	97.18	3.46	93.72
576.78	101.25	3.48	97.76
576.80	**105.39**	**3.50**	**101.90**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 3P: Detention Basin (SMA #1)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
575.00	59,213	0
575.02	59,366	1,186
575.04	59,518	2,375
575.06	59,671	3,567
575.08	59,824	4,761
575.10	59,977	5,959
575.12	60,129	7,161
575.14	60,282	8,365
575.16	60,435	9,572
575.18	60,587	10,782
575.20	60,740	11,995
575.22	60,893	13,212
575.24	61,046	14,431
575.26	61,198	15,653
575.28	61,351	16,879
575.30	61,504	18,108
575.32	61,657	19,339
575.34	61,809	20,574
575.36	61,962	21,811
575.38	62,115	23,052
575.40	62,267	24,296
575.42	62,420	25,543
575.44	62,573	26,793
575.46	62,726	28,046
575.48	62,878	29,302
575.50	63,031	30,561
575.52	63,184	31,823
575.54	63,336	33,088
575.56	63,489	34,357
575.58	63,642	35,628
575.60	63,795	36,902
575.62	63,947	38,180
575.64	64,100	39,460
575.66	64,253	40,744
575.68	64,405	42,030
575.70	64,558	43,320
575.72	64,711	44,613
575.74	64,864	45,908
575.76	65,016	47,207
575.78	65,169	48,509
575.80	65,322	49,814
575.82	65,475	51,122
575.84	65,627	52,433
575.86	65,780	53,747
575.88	65,933	55,064
575.90	66,085	56,384
575.92	66,238	57,708
575.94	66,391	59,034
575.96	66,544	60,363
575.98	66,696	61,696
576.00	66,849	63,031
576.02	66,956	64,369
576.04	67,063	65,709
576.06	67,170	67,052
576.08	67,278	68,396
576.10	67,385	69,743
576.12	67,492	71,091
576.14	67,599	72,442
576.16	67,706	73,795
576.18	67,813	75,151
576.20	67,920	76,508
576.22	68,027	77,867
576.24	68,135	79,229
576.26	68,242	80,593
576.28	68,349	81,959
576.30	68,456	83,327
576.32	68,563	84,697
576.34	68,670	86,069
576.36	68,777	87,444
576.38	68,884	88,820
576.40	68,992	90,199
576.42	69,099	91,580
576.44	69,206	92,963
576.46	69,313	94,348
576.48	69,420	95,736
576.50	69,527	97,125
576.52	69,634	98,517
576.54	69,741	99,910
576.56	69,848	101,306
576.58	69,956	102,704
576.60	70,063	104,105
576.62	70,170	105,507
576.64	70,277	106,911
576.66	70,384	108,318
576.68	70,491	109,727
576.70	70,598	111,138
576.72	70,706	112,551
576.74	70,813	113,966
576.76	70,920	115,383
576.78	71,027	116,803
576.80	**71,134**	**118,224**

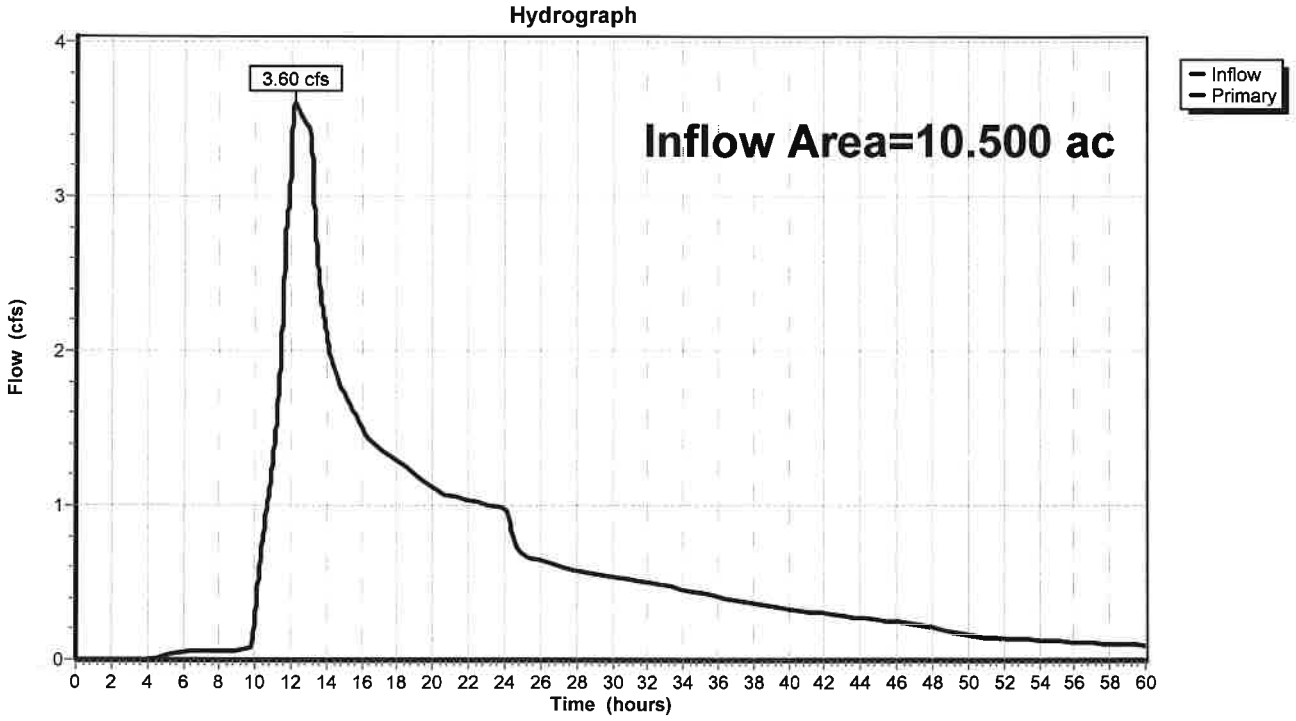
Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Link 5L: Outflow (@ CB 54)

Inflow Area = 10.500 ac, 57.14% Impervious, Inflow Depth > 3.23" for 100-Year event
Inflow = 3.60 cfs @ 12.19 hrs, Volume= 2.829 af
Primary = 3.60 cfs @ 12.19 hrs, Volume= 2.829 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 5L: Outflow (@ CB 54)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

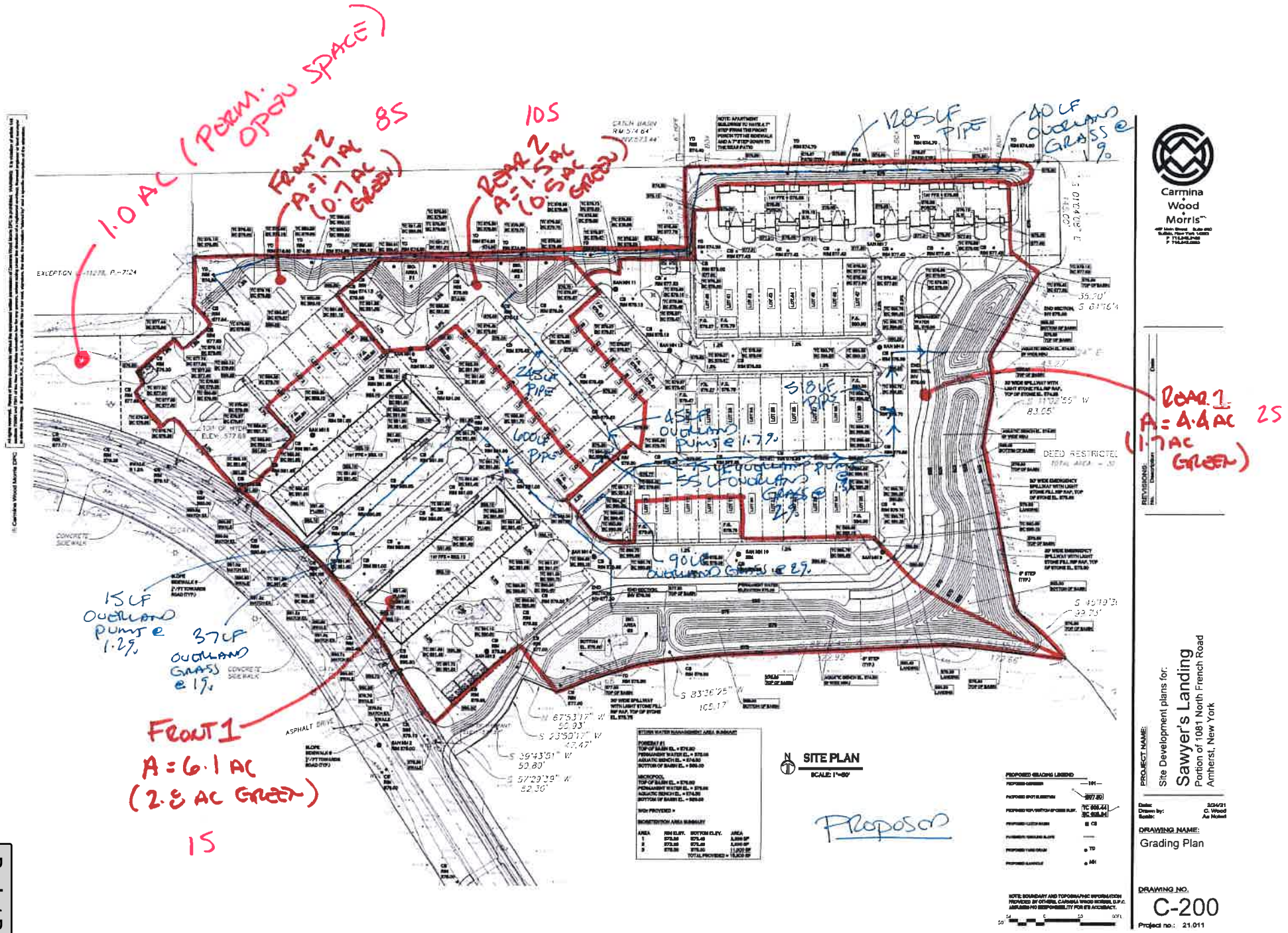
Hydrograph for Link 5L: Outflow (@ CB 54)

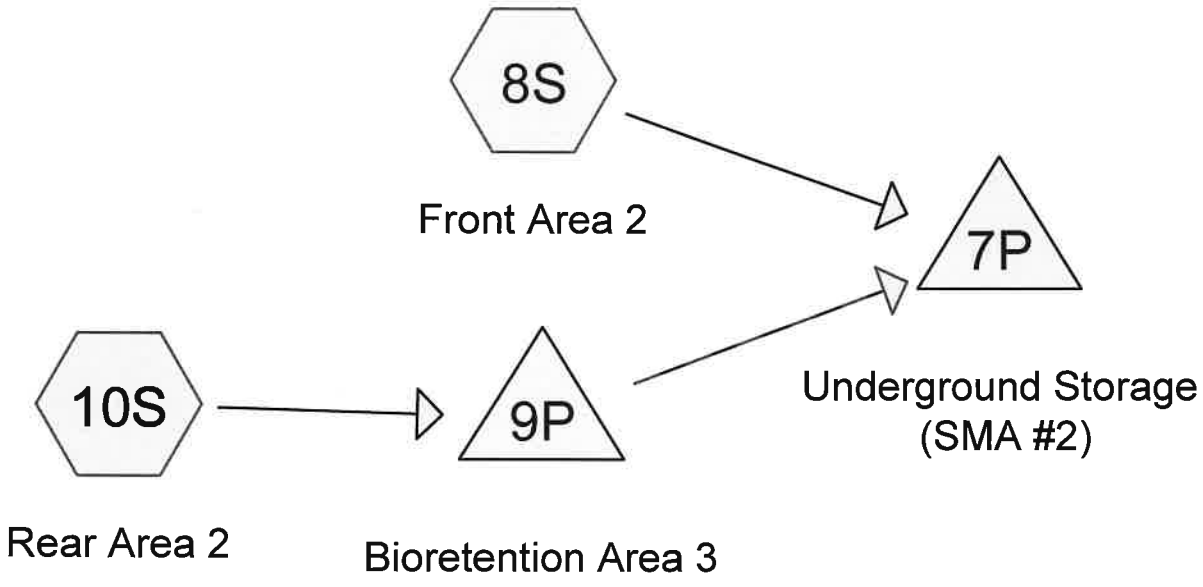
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.14	0.00	0.14
1.00	0.00	0.00	0.00	53.00	0.13	0.00	0.13
2.00	0.00	0.00	0.00	54.00	0.13	0.00	0.13
3.00	0.00	0.00	0.00	55.00	0.12	0.00	0.12
4.00	0.00	0.00	0.00	56.00	0.12	0.00	0.12
5.00	0.03	0.00	0.03	57.00	0.11	0.00	0.11
6.00	0.05	0.00	0.05	58.00	0.10	0.00	0.10
7.00	0.05	0.00	0.05	59.00	0.10	0.00	0.10
8.00	0.05	0.00	0.05	60.00	0.10	0.00	0.10
9.00	0.06	0.00	0.06				
10.00	0.30	0.00	0.30				
11.00	1.31	0.00	1.31				
12.00	**3.29**	0.00	**3.29**				
13.00	**3.44**	0.00	**3.44**				
14.00	2.10	0.00	2.10				
15.00	1.72	0.00	1.72				
16.00	1.51	0.00	1.51				
17.00	1.37	0.00	1.37				
18.00	1.29	0.00	1.29				
19.00	1.20	0.00	1.20				
20.00	1.11	0.00	1.11				
21.00	1.06	0.00	1.06				
22.00	1.03	0.00	1.03				
23.00	1.01	0.00	1.01				
24.00	0.98	0.00	0.98				
25.00	0.68	0.00	0.68				
26.00	0.64	0.00	0.64				
27.00	0.61	0.00	0.61				
28.00	0.58	0.00	0.58				
29.00	0.55	0.00	0.55				
30.00	0.54	0.00	0.54				
31.00	0.52	0.00	0.52				
32.00	0.50	0.00	0.50				
33.00	0.48	0.00	0.48				
34.00	0.45	0.00	0.45				
35.00	0.43	0.00	0.43				
36.00	0.41	0.00	0.41				
37.00	0.39	0.00	0.39				
38.00	0.37	0.00	0.37				
39.00	0.35	0.00	0.35				
40.00	0.33	0.00	0.33				
41.00	0.32	0.00	0.32				
42.00	0.30	0.00	0.30				
43.00	0.28	0.00	0.28				
44.00	0.27	0.00	0.27				
45.00	0.26	0.00	0.26				
46.00	0.25	0.00	0.25				
47.00	0.24	0.00	0.24				
48.00	0.21	0.00	0.21				
49.00	0.18	0.00	0.18				
50.00	0.16	0.00	0.16				
51.00	0.15	0.00	0.15				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Proposed Runoff - West

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)


1.0 AC (PERM. OPEN SPACE)
FRONT 2
A=1.7AC
(0.7AC GREEN)
85
REAR 2
A=1.5AC
(0.5AC GREEN)
105
1285LF PIPE
40LF OVERLAND GRASS @ 1%
245LF PIPE
600LF PIPE
45LF OVERLAND PUMP @ 1.7%
518LF PIPE
35LF OVERLAND PUMP
35LF OVERLAND GRASS @ 1.5%
90LF OVERLAND GRASS @ 2%
REAR 1
A=4.4AC
(1.7AC GREEN)
25
15LF OVERLAND PUMP @ 1.2%
37LF OVERLAND GRASS @ 1%
FRONT 1
A=6.1AC
(2.8AC GREEN)
15
SITE PLAN
SCALE: 1"=80'
PROPOSED
Carmina Wood Morris
PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York
DRAWING NAME:
Grading Plan
DRAWING NO.
C-200
Project no.: 21.011



Subcat Reach Pond Link

Routing Diagram for 21.011 Proposed
Prepared by Hewlett-Packard Company, Printed 3/4/2021
HydroCAD® 10.00-18 s/n 05019 © 2016 HydroCAD Software Solutions LLC

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Events for Pond 7P: Underground Storage

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	2.40	0.33	570.29	4,537
2-Year	4.15	0.68	570.46	5,990
5-Year	7.03	1.05	570.79	8,639
10-Year	9.17	1.28	571.13	11,342
25-Year	11.11	1.61	571.73	15,804
50-Year	12.80	3.61	572.23	18,836
100-Year	**14.92**	**4.83**	**572.92**	**21,772**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.200	80	>75% Grass cover, Good, HSG D (8S, 10S)
1.200	98	Paved parking, HSG D (8S, 10S)
0.800	98	Roofs, HSG D (8S, 10S)
3.200	**91**	**TOTAL AREA**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
3.200	HSG D	8S, 10S
0.000	Other	
3.200		**TOTAL AREA**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmer Numbers
0.000	0.000	0.000	1.200	0.000	1.200	>75% Grass cover, Good	8S, 10S
0.000	0.000	0.000	1.200	0.000	1.200	Paved parking	8S, 10S
0.000	0.000	0.000	0.800	0.000	0.800	Roofs	8S, 10S
0.000	**0.000**	**0.000**	**3.200**	**0.000**	**3.200**	**TOTAL AREA**	

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.04"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=2.36 cfs 0.148 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.11"
Flow Length=345' Tc=9.1 min CN=92 Runoff=2.63 cfs 0.139 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.29' Storage=4,537 cf Inflow=2.40 cfs 0.287 af
Outflow=0.33 cfs 0.243 af

Pond 9P: Bioretention Area 3 Peak Elev=574.54' Storage=2,922 cf Inflow=2.63 cfs 0.139 af
Outflow=0.43 cfs 0.139 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.287 af Average Runoff Depth = 1.08"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

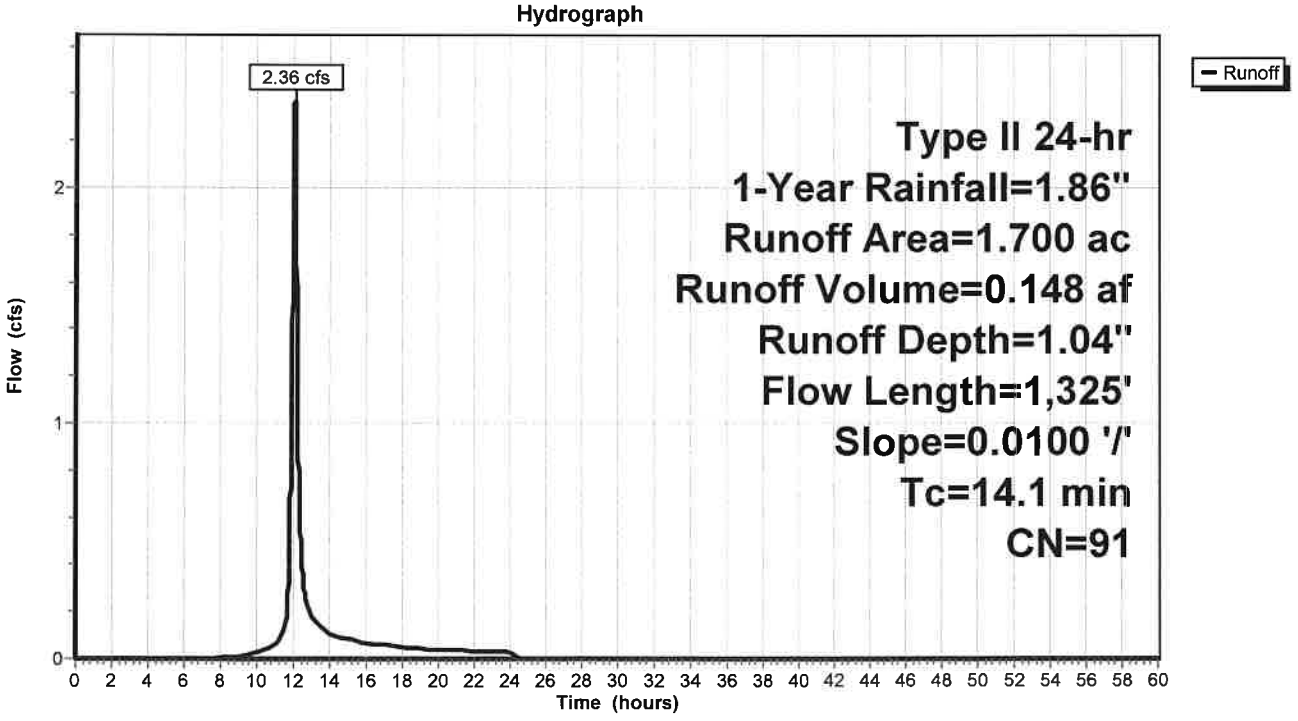
Runoff = 2.36 cfs @ 12.06 hrs, Volume= 0.148 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.01	0.01
10.00	0.34	0.02	0.02
11.00	0.44	0.05	0.07
12.00	1.23	0.53	**2.04**
13.00	1.44	0.69	**0.18**
14.00	1.53	0.76	0.11
15.00	1.59	0.81	0.08
16.00	1.64	0.85	0.07
17.00	1.68	0.89	0.06
18.00	1.71	0.92	0.05
19.00	1.74	0.94	0.04
20.00	1.77	0.97	0.04
21.00	1.79	0.99	0.03
22.00	1.82	1.01	0.03
23.00	1.84	1.02	0.03
24.00	**1.86**	**1.04**	0.03
25.00	1.86	1.04	0.00
26.00	1.86	1.04	0.00
27.00	1.86	1.04	0.00
28.00	1.86	1.04	0.00
29.00	1.86	1.04	0.00
30.00	1.86	1.04	0.00
31.00	1.86	1.04	0.00
32.00	1.86	1.04	0.00
33.00	1.86	1.04	0.00
34.00	1.86	1.04	0.00
35.00	1.86	1.04	0.00
36.00	1.86	1.04	0.00
37.00	1.86	1.04	0.00
38.00	1.86	1.04	0.00
39.00	1.86	1.04	0.00
40.00	1.86	1.04	0.00
41.00	1.86	1.04	0.00
42.00	1.86	1.04	0.00
43.00	1.86	1.04	0.00
44.00	1.86	1.04	0.00
45.00	1.86	1.04	0.00
46.00	1.86	1.04	0.00
47.00	1.86	1.04	0.00
48.00	1.86	1.04	0.00
49.00	1.86	1.04	0.00
50.00	1.86	1.04	0.00
51.00	1.86	1.04	0.00
52.00	1.86	1.04	0.00
53.00	1.86	1.04	0.00
54.00	1.86	1.04	0.00
55.00	1.86	1.04	0.00
56.00	1.86	1.04	0.00
57.00	1.86	1.04	0.00
58.00	1.86	1.04	0.00
59.00	1.86	1.04	0.00
60.00	1.86	1.04	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

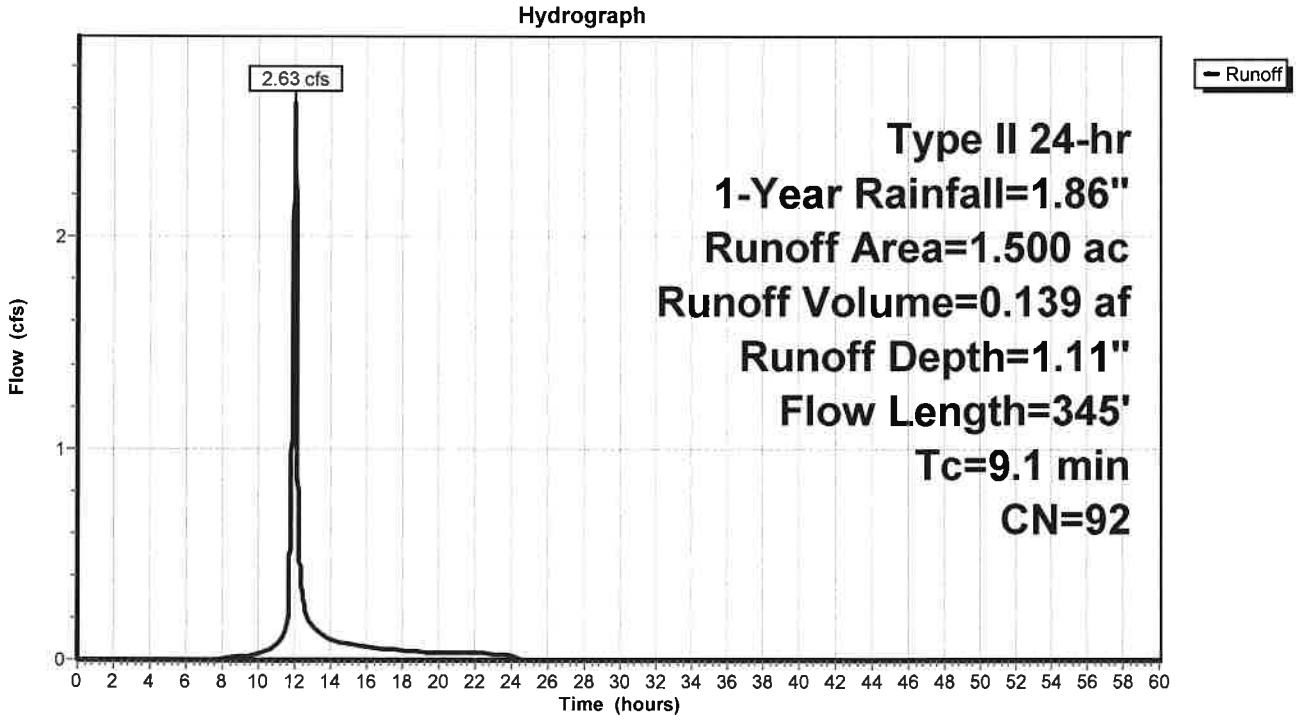
Runoff = 2.63 cfs @ 12.01 hrs, Volume= 0.139 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.01
9.00	0.27	0.01	0.02
10.00	0.34	0.03	0.03
11.00	0.44	0.06	0.07
12.00	1.23	0.58	**2.63**
13.00	1.44	0.75	**0.16**
14.00	1.53	0.82	0.09
15.00	1.59	0.88	0.07
16.00	1.64	0.92	0.06
17.00	1.68	0.95	0.05
18.00	1.71	0.98	0.04
19.00	1.74	1.01	0.04
20.00	1.77	1.03	0.03
21.00	1.79	1.05	0.03
22.00	1.82	1.07	0.03
23.00	1.84	1.09	0.03
24.00	**1.86**	**1.11**	0.03
25.00	1.86	1.11	0.00
26.00	1.86	1.11	0.00
27.00	1.86	1.11	0.00
28.00	1.86	1.11	0.00
29.00	1.86	1.11	0.00
30.00	1.86	1.11	0.00
31.00	1.86	1.11	0.00
32.00	1.86	1.11	0.00
33.00	1.86	1.11	0.00
34.00	1.86	1.11	0.00
35.00	1.86	1.11	0.00
36.00	1.86	1.11	0.00
37.00	1.86	1.11	0.00
38.00	1.86	1.11	0.00
39.00	1.86	1.11	0.00
40.00	1.86	1.11	0.00
41.00	1.86	1.11	0.00
42.00	1.86	1.11	0.00
43.00	1.86	1.11	0.00
44.00	1.86	1.11	0.00
45.00	1.86	1.11	0.00
46.00	1.86	1.11	0.00
47.00	1.86	1.11	0.00
48.00	1.86	1.11	0.00
49.00	1.86	1.11	0.00
50.00	1.86	1.11	0.00
51.00	1.86	1.11	0.00
52.00	1.86	1.11	0.00
53.00	1.86	1.11	0.00
54.00	1.86	1.11	0.00
55.00	1.86	1.11	0.00
56.00	1.86	1.11	0.00
57.00	1.86	1.11	0.00
58.00	1.86	1.11	0.00
59.00	1.86	1.11	0.00
60.00	1.86	1.11	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.08" for 1-Year event
Inflow = 2.40 cfs @ 12.06 hrs, Volume= 0.287 af
Outflow = 0.33 cfs @ 13.18 hrs, Volume= 0.243 af, Atten= 86%, Lag= 67.2 min
Primary = 0.33 cfs @ 13.18 hrs, Volume= 0.243 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.29' @ 13.18 hrs Surf.Area= 10,145 sf Storage= 4,537 cf

Plug-Flow detention time= 493.3 min calculated for 0.243 af (85% of inflow)
Center-of-Mass det. time= 283.3 min (1,405.6 - 1,122.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

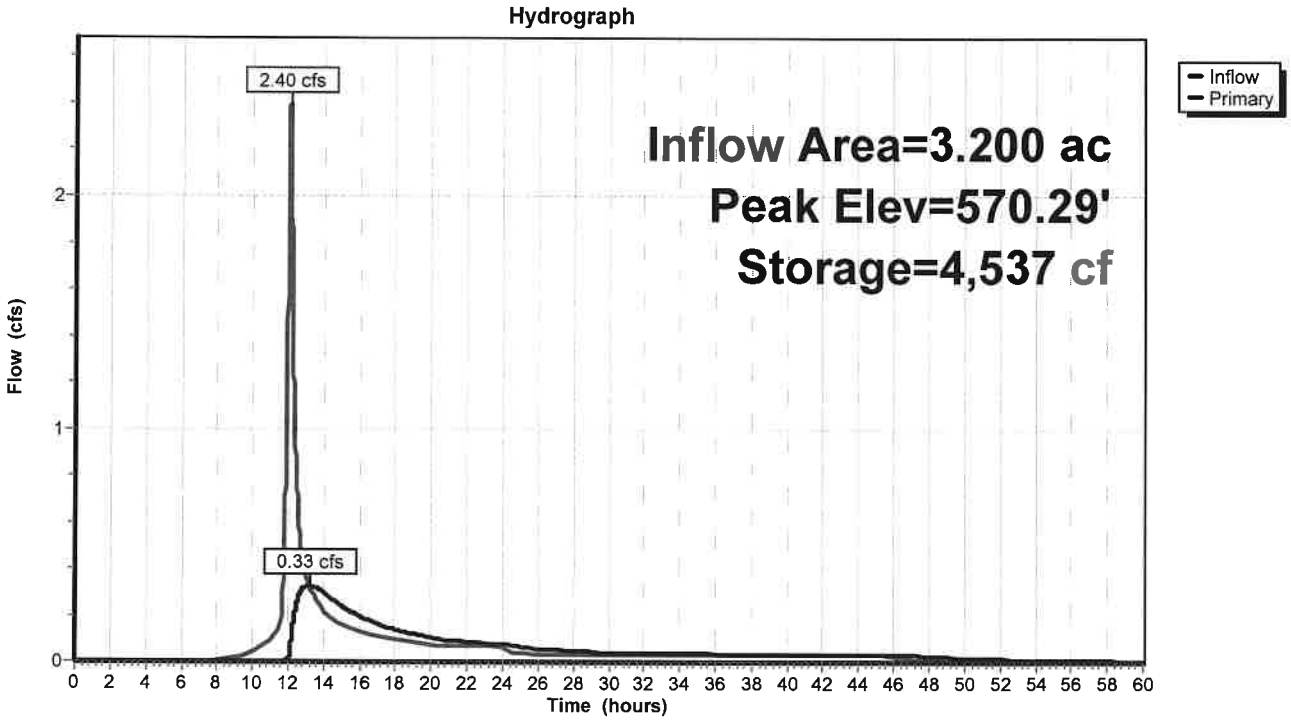
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

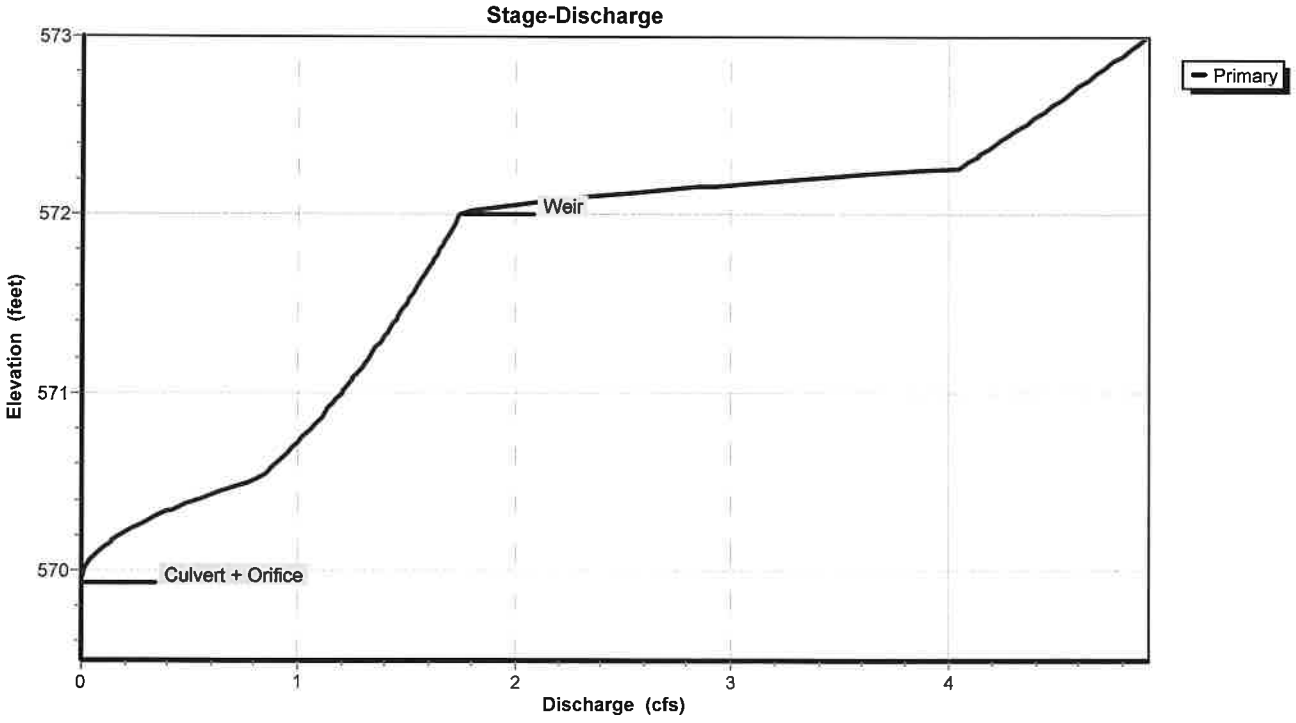
Primary OutFlow Max=0.32 cfs @ 13.18 hrs HW=570.29' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.32 cfs @ 1.88 fps)
  ├**2=Orifice** (Passes 0.32 cfs of 0.56 cfs potential flow)
  └**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

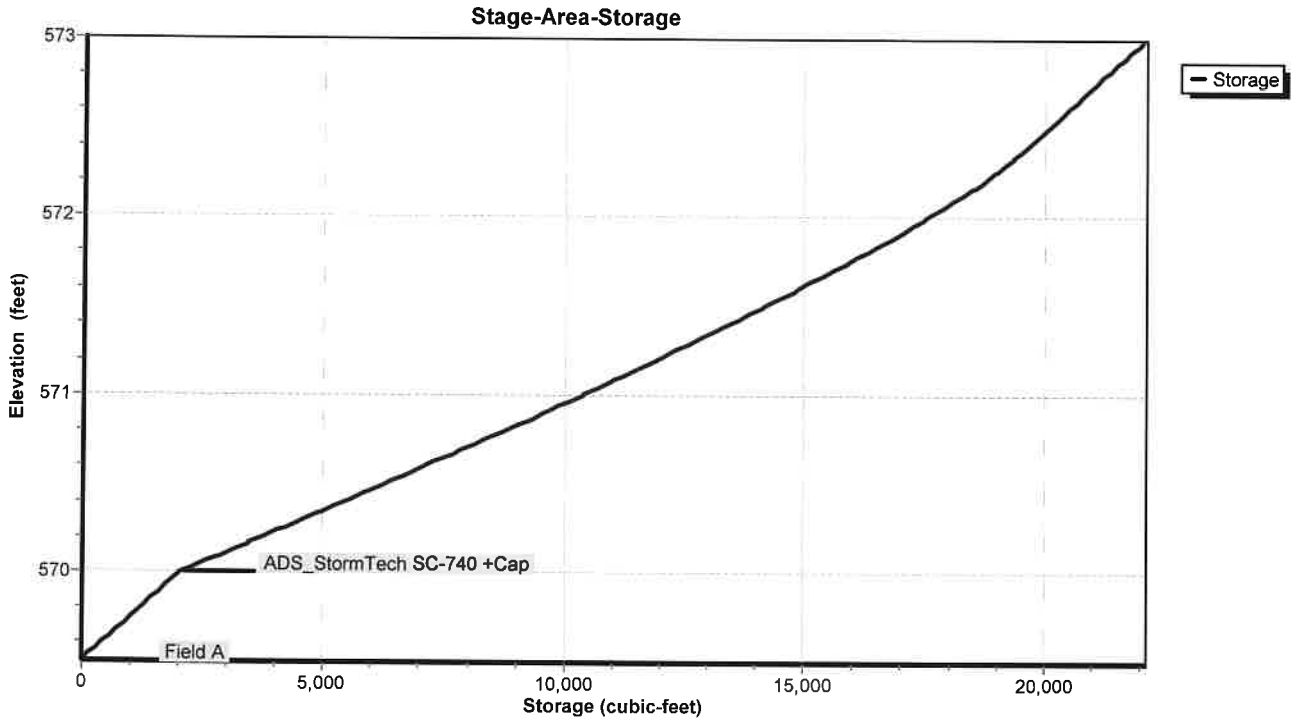


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	0	569.50	0.00
8.00	0.00	4	569.50	0.00
10.00	0.04	139	569.53	0.00
12.00	**2.08**	**1,735**	**569.93**	**0.00**
14.00	**0.22**	**4,393**	**570.28**	**0.30**
16.00	0.13	3,835	570.21	0.20
18.00	0.10	3,452	570.17	0.14
20.00	0.07	3,194	570.14	0.10
22.00	0.07	3,023	570.12	0.08
24.00	0.06	2,931	570.10	0.07
26.00	0.03	2,737	570.08	0.06
28.00	0.03	2,618	570.07	0.05
30.00	0.03	2,550	570.06	0.04
32.00	0.03	2,506	570.06	0.04
34.00	0.03	2,476	570.05	0.04
36.00	0.03	2,453	570.05	0.03
38.00	0.03	2,436	570.05	0.03
40.00	0.03	2,422	570.05	0.03
42.00	0.03	2,410	570.04	0.03
44.00	0.03	2,399	570.04	0.03
46.00	0.03	2,388	570.04	0.03
48.00	0.01	2,288	570.03	0.02
50.00	0.00	2,166	570.02	0.02
52.00	0.00	2,066	570.00	0.01
54.00	0.00	1,993	569.99	0.01
56.00	0.00	1,945	569.98	0.01
58.00	0.00	1,910	569.97	0.00
60.00	0.00	1,885	569.96	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)
569.50	0
569.55	203
569.60	406
569.65	609
569.70	812
569.75	1,014
569.80	1,217
569.85	1,420
569.90	1,623
569.95	1,826
570.00	2,029
570.05	2,459
570.10	2,889
570.15	3,318
570.20	3,746
570.25	4,173
570.30	4,598
570.35	5,022
570.40	5,444
570.45	5,865
570.50	6,284
570.55	6,701
570.60	7,116
570.65	7,529
570.70	7,940
570.75	8,349
570.80	8,756
570.85	9,160
570.90	9,562
570.95	9,962
571.00	10,359
571.05	10,754
571.10	11,145
571.15	11,534
571.20	11,919
571.25	12,301
571.30	12,680
571.35	13,056
571.40	13,428
571.45	13,797
571.50	14,161
571.55	14,522
571.60	14,879
571.65	15,230
571.70	15,577
571.75	15,917
571.80	16,252
571.85	16,582
571.90	16,906
571.95	17,224
572.00	17,535
572.05	17,838
572.10	18,133
572.15	18,417
572.20	18,690
572.25	18,946
572.30	19,188
572.35	19,417
572.40	19,637
572.45	19,850
572.50	20,057
572.55	20,260
572.60	20,463
572.65	20,665
572.70	20,868
572.75	21,071
572.80	21,274
572.85	21,477
572.90	21,680
572.95	21,883
573.00	**22,086**

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.11" for 1-Year event
Inflow = 2.63 cfs @ 12.01 hrs, Volume= 0.139 af
Outflow = 0.43 cfs @ 12.29 hrs, Volume= 0.139 af, Atten= 84%, Lag= 17.0 min
Primary = 0.43 cfs @ 12.29 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.54' @ 12.29 hrs Surf.Area= 5,881 sf Storage= 2,922 cf

Plug-Flow detention time= 615.0 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 615.0 min (1,433.7 - 818.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

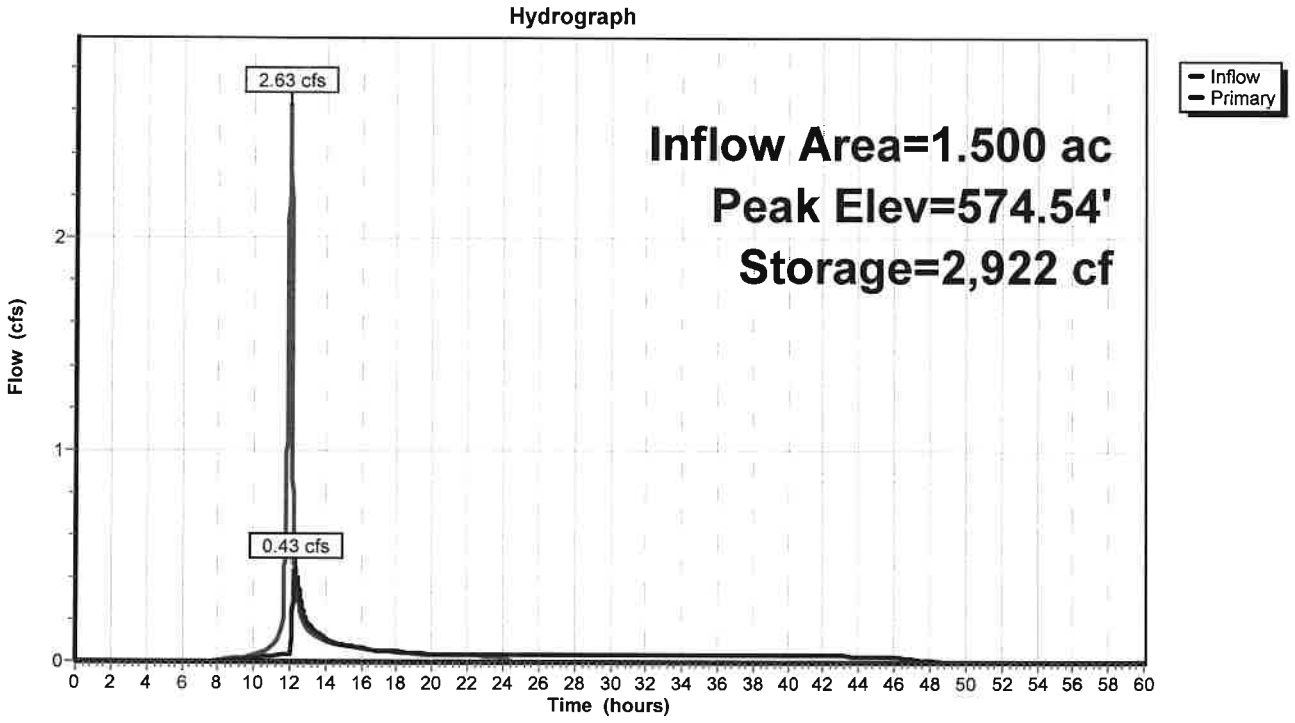
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

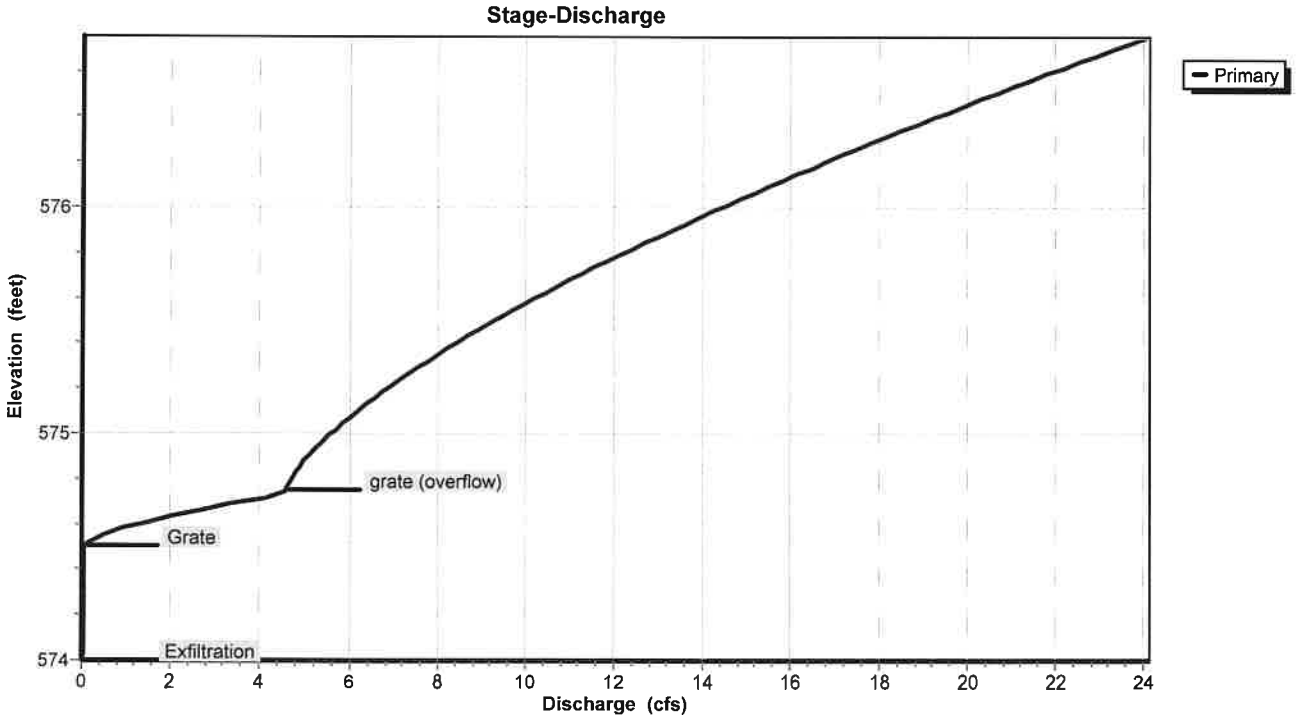
Primary OutFlow Max=0.42 cfs @ 12.29 hrs HW=574.54' (Free Discharge)
- **1=8" pipe** (Passes 0.42 cfs of 4.43 cfs potential flow)
  - **2=Grate** (Weir Controls 0.39 cfs @ 0.69 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

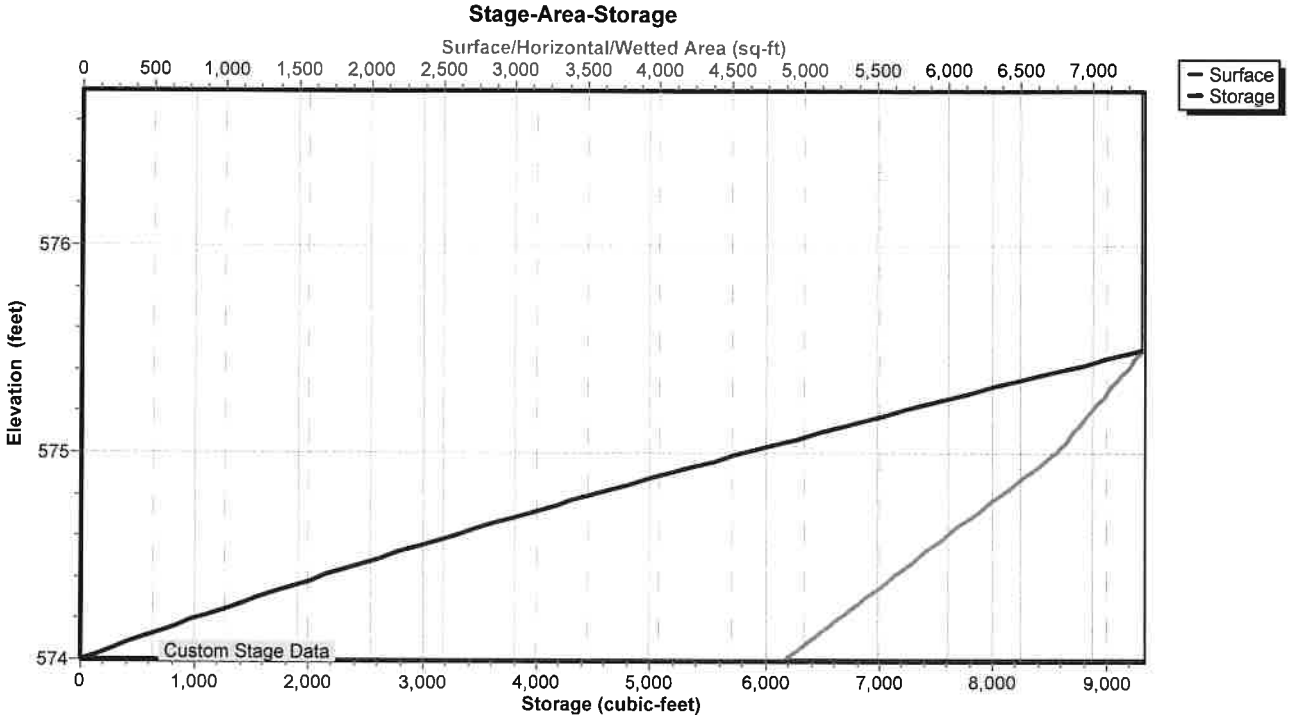


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.00	0	574.00	0.00
8.00	0.01	9	574.00	0.00
10.00	0.03	70	574.01	0.01
12.00	**2.63**	**1,806**	**574.35**	**0.03**
14.00	**0.09**	**2,731**	**574.51**	**0.11**
16.00	0.06	2,688	574.50	0.06
18.00	0.04	2,673	574.50	0.05
20.00	0.03	2,662	574.50	0.03
22.00	0.03	2,636	574.50	0.03
24.00	0.03	2,594	574.49	0.03
26.00	0.00	2,362	574.45	0.03
28.00	0.00	2,119	574.40	0.03
30.00	0.00	1,881	574.36	0.03
32.00	0.00	1,647	574.32	0.03
34.00	0.00	1,417	574.28	0.03
36.00	0.00	1,190	574.23	0.03
38.00	0.00	968	574.19	0.03
40.00	0.00	750	574.15	0.03
42.00	0.00	536	574.11	0.03
44.00	0.00	326	574.07	0.03
46.00	0.00	120	574.02	0.03
48.00	0.00	26	574.01	0.01
50.00	0.00	6	574.00	0.00
52.00	0.00	1	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.34"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=3.03 cfs 0.190 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.42"
Flow Length=345' Tc=9.1 min CN=92 Runoff=3.32 cfs 0.177 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.46' Storage=5,990 cf Inflow=4.15 cfs 0.367 af
Outflow=0.68 cfs 0.324 af

Pond 9P: Bioretention Area 3 Peak Elev=574.60' Storage=3,274 cf Inflow=3.32 cfs 0.177 af
Outflow=1.41 cfs 0.177 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.367 af Average Runoff Depth = 1.38"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

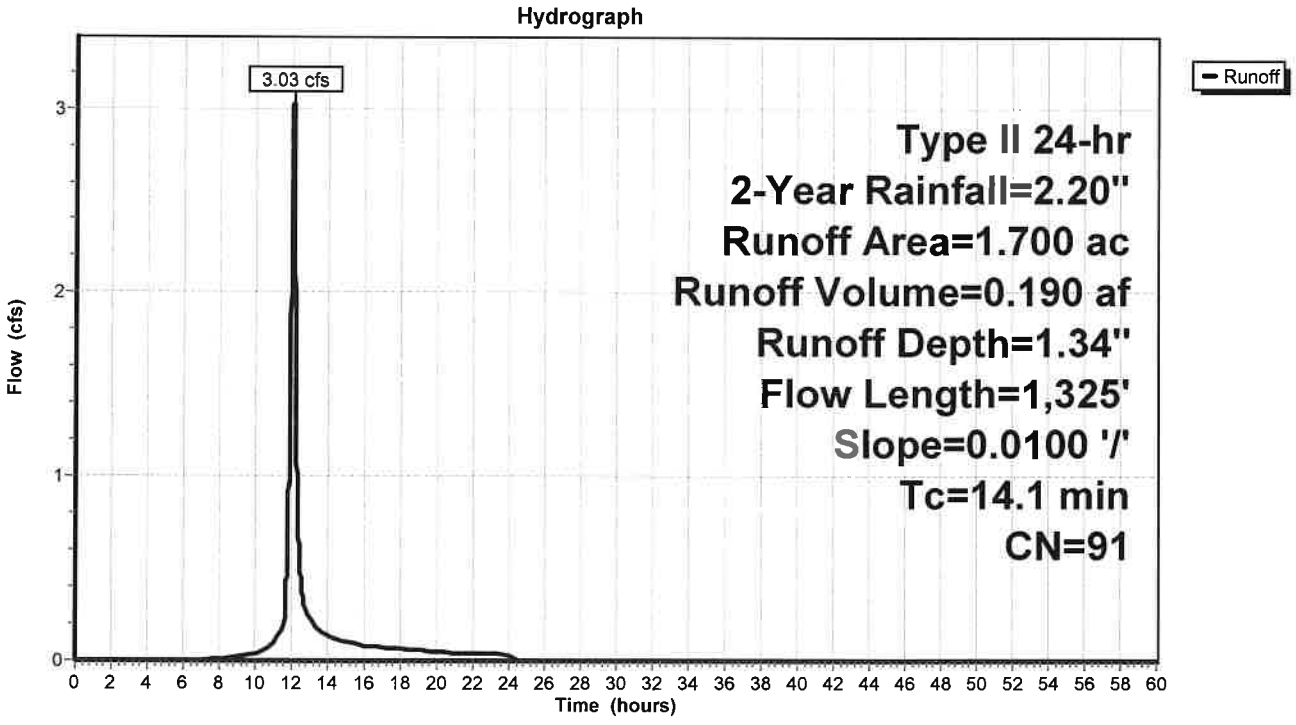
Runoff = 3.03 cfs @ 12.06 hrs, Volume= 0.190 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass**
					Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.01
9.00	0.32	0.01	0.02
10.00	0.40	0.03	0.04
11.00	0.52	0.08	0.10
12.00	1.46	0.71	**2.64**
13.00	1.70	0.90	**0.23**
14.00	1.80	0.99	0.13
15.00	1.88	1.06	0.10
16.00	1.94	1.11	0.08
17.00	1.98	1.15	0.07
18.00	2.03	1.19	0.06
19.00	2.06	1.22	0.05
20.00	2.09	1.25	0.05
21.00	2.12	1.27	0.04
22.00	2.15	1.30	0.04
23.00	2.18	1.32	0.04
24.00	**2.20**	**1.34**	0.04
25.00	2.20	1.34	0.00
26.00	2.20	1.34	0.00
27.00	2.20	1.34	0.00
28.00	2.20	1.34	0.00
29.00	2.20	1.34	0.00
30.00	2.20	1.34	0.00
31.00	2.20	1.34	0.00
32.00	2.20	1.34	0.00
33.00	2.20	1.34	0.00
34.00	2.20	1.34	0.00
35.00	2.20	1.34	0.00
36.00	2.20	1.34	0.00
37.00	2.20	1.34	0.00
38.00	2.20	1.34	0.00
39.00	2.20	1.34	0.00
40.00	2.20	1.34	0.00
41.00	2.20	1.34	0.00
42.00	2.20	1.34	0.00
43.00	2.20	1.34	0.00
44.00	2.20	1.34	0.00
45.00	2.20	1.34	0.00
46.00	2.20	1.34	0.00
47.00	2.20	1.34	0.00
48.00	2.20	1.34	0.00
49.00	2.20	1.34	0.00
50.00	2.20	1.34	0.00
51.00	2.20	1.34	0.00
52.00	2.20	1.34	0.00
53.00	2.20	1.34	0.00
54.00	2.20	1.34	0.00
55.00	2.20	1.34	0.00
56.00	2.20	1.34	0.00
57.00	2.20	1.34	0.00
58.00	2.20	1.34	0.00
59.00	2.20	1.34	0.00
60.00	2.20	1.34	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

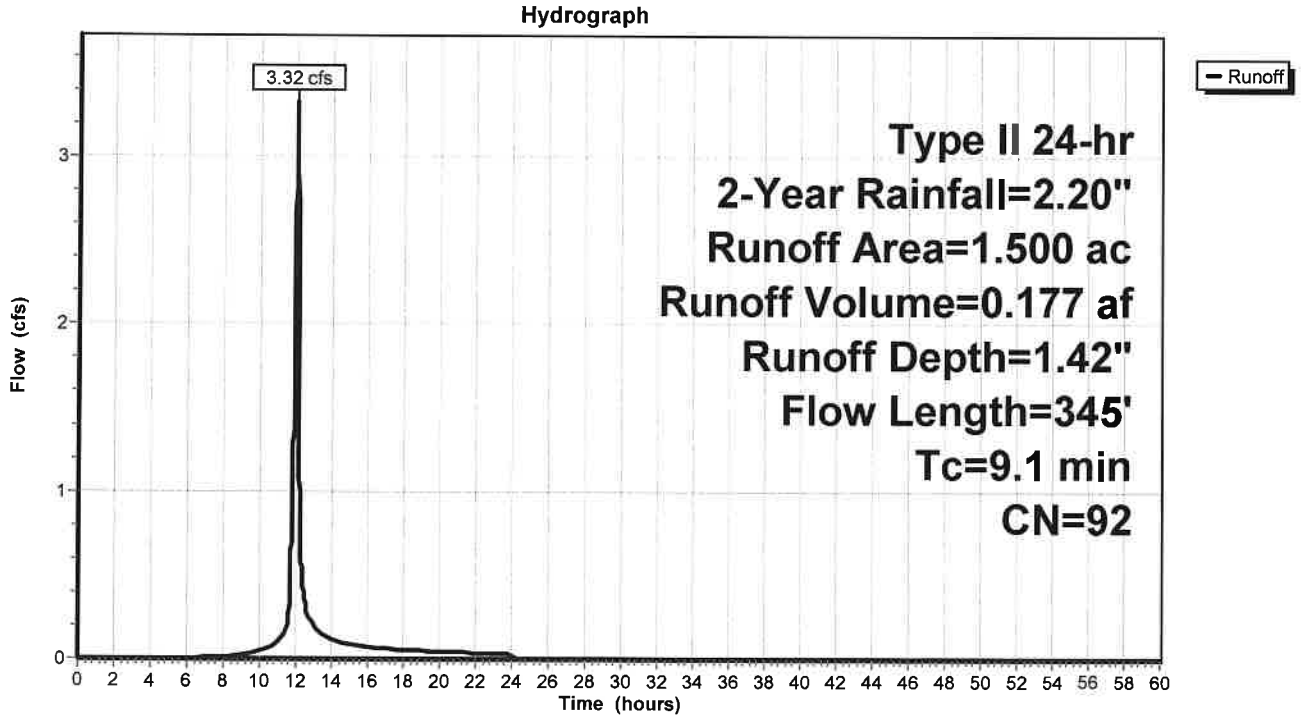
Runoff = 3.32 cfs @ 12.00 hrs, Volume= 0.177 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.20	1.42	0.00
1.00	0.02	0.00	0.00	53.00	2.20	1.42	0.00
2.00	0.05	0.00	0.00	54.00	2.20	1.42	0.00
3.00	0.08	0.00	0.00	55.00	2.20	1.42	0.00
4.00	0.11	0.00	0.00	56.00	2.20	1.42	0.00
5.00	0.14	0.00	0.00	57.00	2.20	1.42	0.00
6.00	0.18	0.00	0.00	58.00	2.20	1.42	0.00
7.00	0.22	0.00	0.01	59.00	2.20	1.42	0.00
8.00	0.26	0.01	0.01	60.00	2.20	1.42	0.00
9.00	0.32	0.02	0.03				
10.00	0.40	0.05	0.04				
11.00	0.52	0.10	0.10				
12.00	1.46	0.77	**3.32**				
13.00	1.70	0.97	0.20				
14.00	1.80	1.06	0.12				
15.00	1.88	1.13	0.09				
16.00	1.94	1.18	0.07				
17.00	1.98	1.22	0.06				
18.00	2.03	1.26	0.05				
19.00	2.06	1.29	0.05				
20.00	2.09	1.32	0.04				
21.00	2.12	1.35	0.04				
22.00	2.15	1.37	0.04				
23.00	2.18	1.40	0.03				
24.00	**2.20**	**1.42**	0.03				
25.00	2.20	1.42	0.00				
26.00	2.20	1.42	0.00				
27.00	2.20	1.42	0.00				
28.00	2.20	1.42	0.00				
29.00	2.20	1.42	0.00				
30.00	2.20	1.42	0.00				
31.00	2.20	1.42	0.00				
32.00	2.20	1.42	0.00				
33.00	2.20	1.42	0.00				
34.00	2.20	1.42	0.00				
35.00	2.20	1.42	0.00				
36.00	2.20	1.42	0.00				
37.00	2.20	1.42	0.00				
38.00	2.20	1.42	0.00				
39.00	2.20	1.42	0.00				
40.00	2.20	1.42	0.00				
41.00	2.20	1.42	0.00				
42.00	2.20	1.42	0.00				
43.00	2.20	1.42	0.00				
44.00	2.20	1.42	0.00				
45.00	2.20	1.42	0.00				
46.00	2.20	1.42	0.00				
47.00	2.20	1.42	0.00				
48.00	2.20	1.42	0.00				
49.00	2.20	1.42	0.00				
50.00	2.20	1.42	0.00				
51.00	2.20	1.42	0.00				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 4.15 cfs @ 12.10 hrs, Volume= 0.367 af
Outflow = 0.68 cfs @ 12.65 hrs, Volume= 0.324 af, Atten= 84%, Lag= 33.2 min
Primary = 0.68 cfs @ 12.65 hrs, Volume= 0.324 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.46' @ 12.65 hrs Surf.Area= 10,145 sf Storage= 5,990 cf

Plug-Flow detention time= 401.0 min calculated for 0.324 af (88% of inflow)
Center-of-Mass det. time= 229.7 min (1,287.9 - 1,058.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

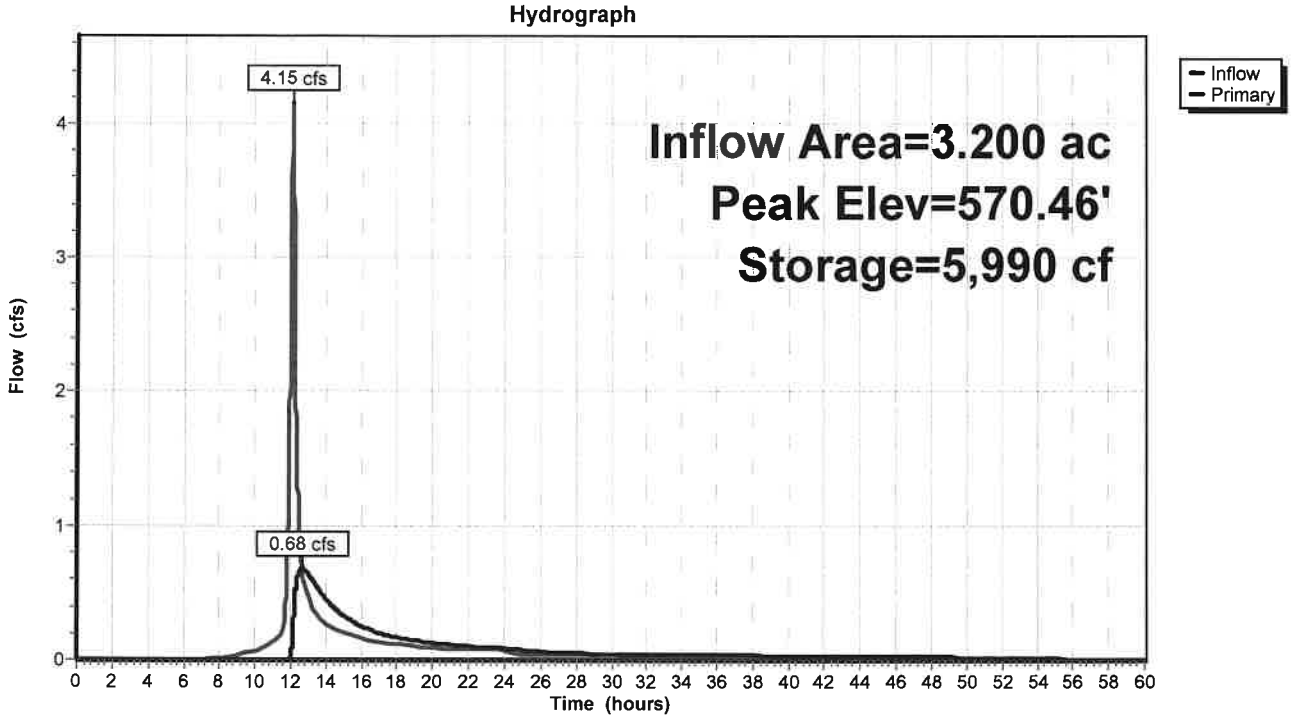
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

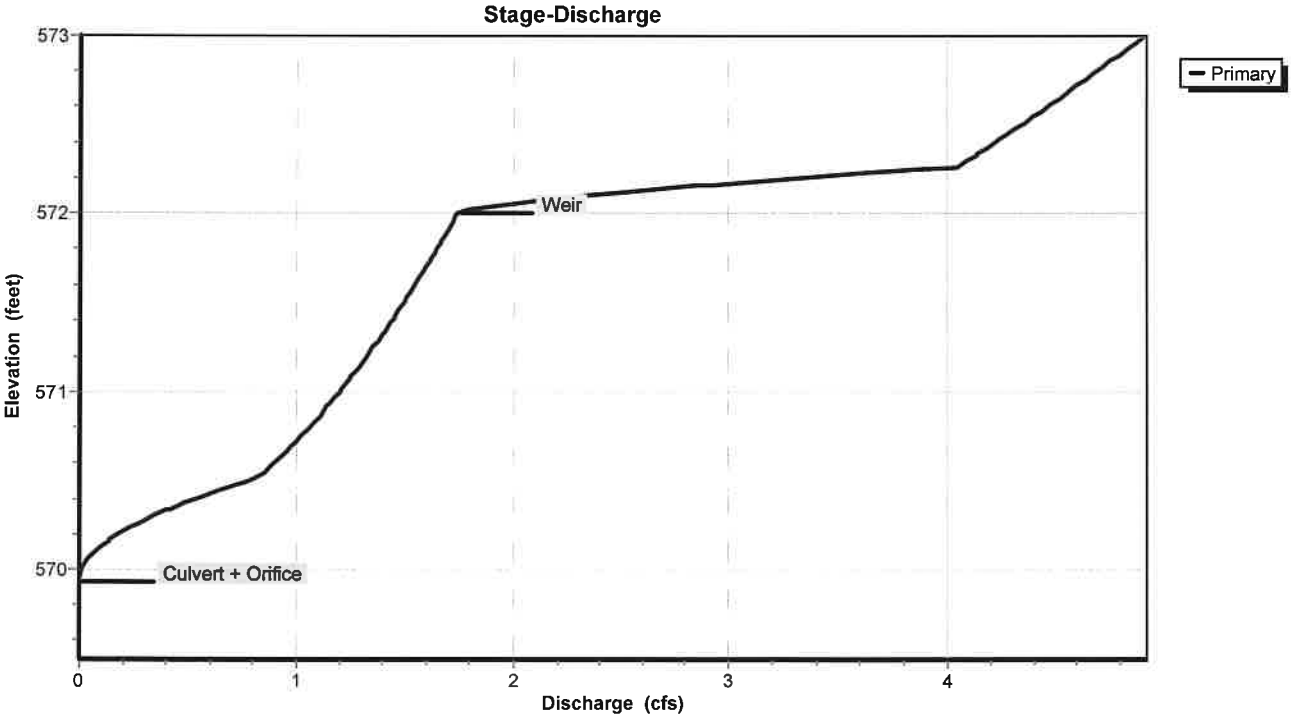
Primary OutFlow Max=0.68 cfs @ 12.65 hrs HW=570.46' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.68 cfs @ 2.31 fps)
└**2=Orifice** (Passes 0.68 cfs of 0.76 cfs potential flow)
└**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

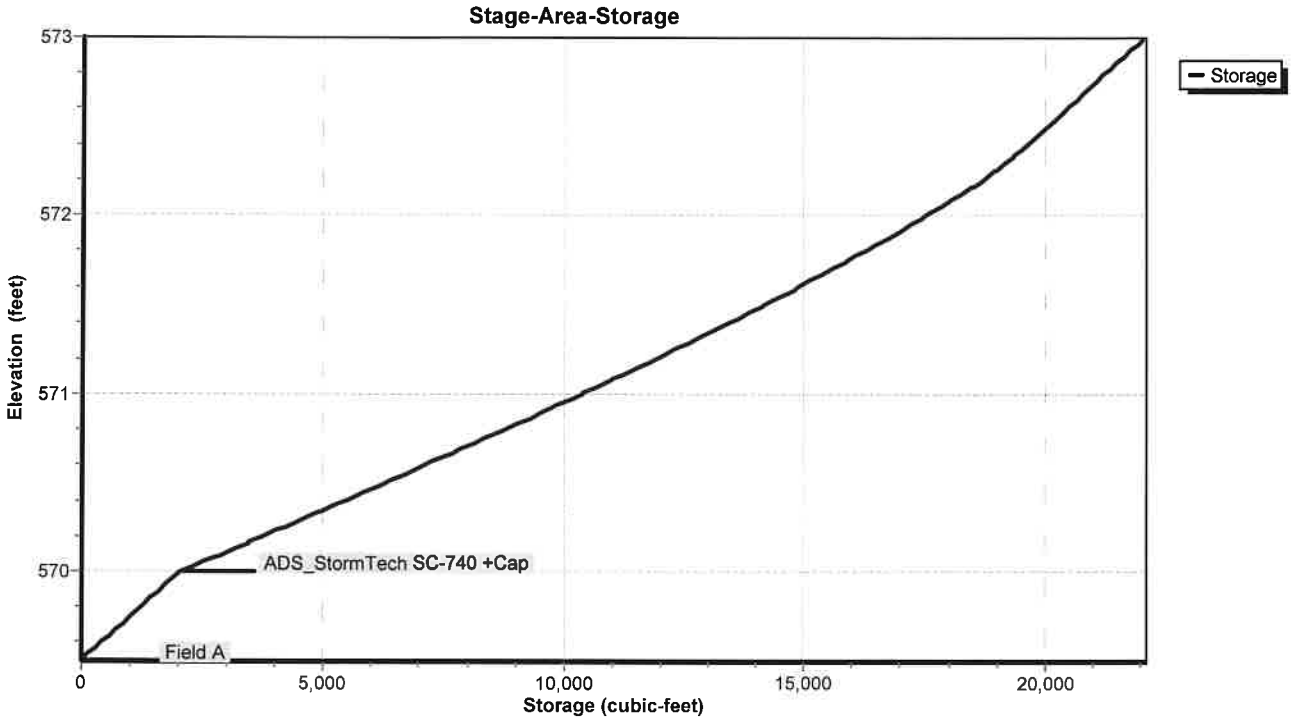


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	0	569.50	0.00
8.00	0.01	32	569.51	0.00
10.00	0.06	286	569.57	0.00
12.00	**2.68**	**2,414**	**570.04**	**0.03**
14.00	**0.27**	**5,111**	**570.36**	**0.45**
16.00	0.16	4,155	570.25	0.25
18.00	0.12	3,660	570.19	0.17
20.00	0.09	3,359	570.15	0.12
22.00	0.08	3,149	570.13	0.10
24.00	0.07	3,029	570.12	0.09
26.00	0.03	2,788	570.09	0.06
28.00	0.03	2,647	570.07	0.05
30.00	0.03	2,566	570.06	0.04
32.00	0.03	2,517	570.06	0.04
34.00	0.03	2,484	570.05	0.04
36.00	0.03	2,459	570.05	0.03
38.00	0.03	2,441	570.05	0.03
40.00	0.03	2,426	570.05	0.03
42.00	0.03	2,413	570.04	0.03
44.00	0.03	2,402	570.04	0.03
46.00	0.03	2,392	570.04	0.03
48.00	0.01	2,323	570.03	0.03
50.00	0.00	2,199	570.02	0.02
52.00	0.00	2,091	570.01	0.01
54.00	0.00	2,010	570.00	0.01
56.00	0.00	1,957	569.98	0.01
58.00	0.00	1,919	569.97	0.00
60.00	0.00	1,891	569.97	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.42" for 2-Year event
Inflow = 3.32 cfs @ 12.00 hrs, Volume= 0.177 af
Outflow = 1.41 cfs @ 12.13 hrs, Volume= 0.177 af, Atten= 58%, Lag= 7.6 min
Primary = 1.41 cfs @ 12.13 hrs, Volume= 0.177 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.60' @ 12.13 hrs Surf.Area= 5,993 sf Storage= 3,274 cf

Plug-Flow detention time= 499.6 min calculated for 0.177 af (100% of inflow)
Center-of-Mass det. time= 499.8 min (1,311.6 - 811.8)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

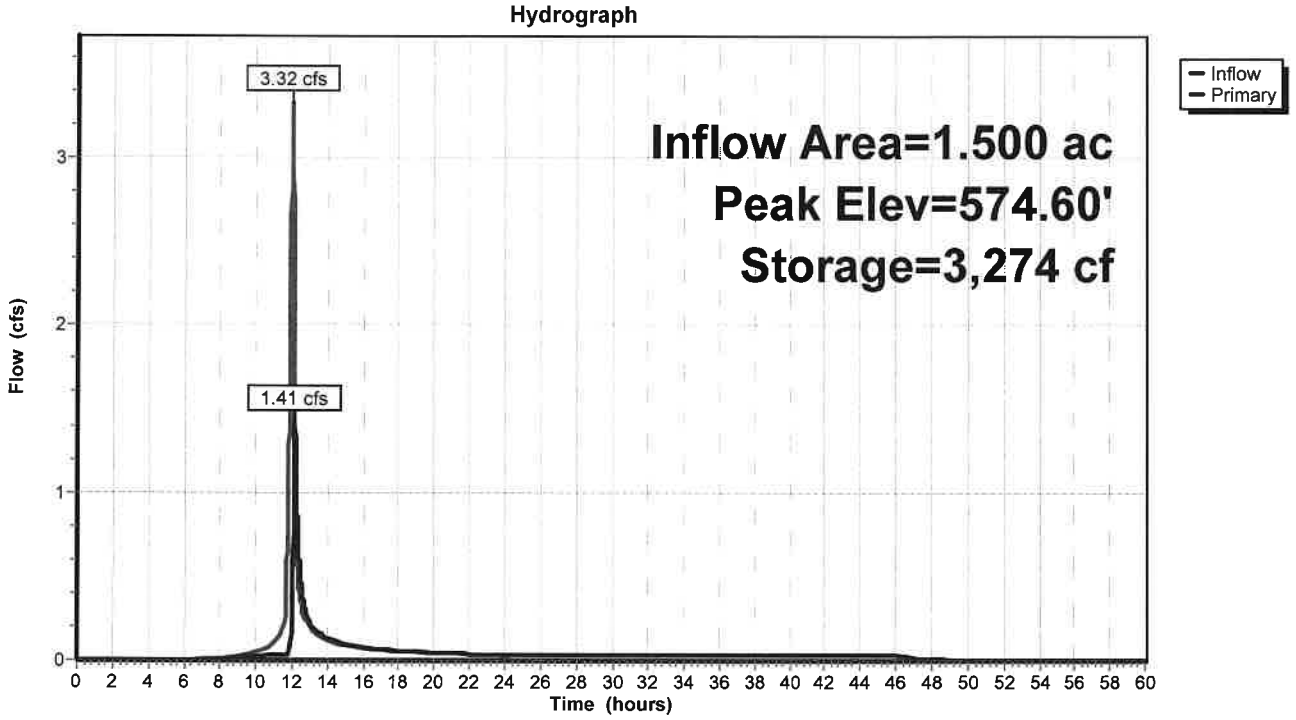
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

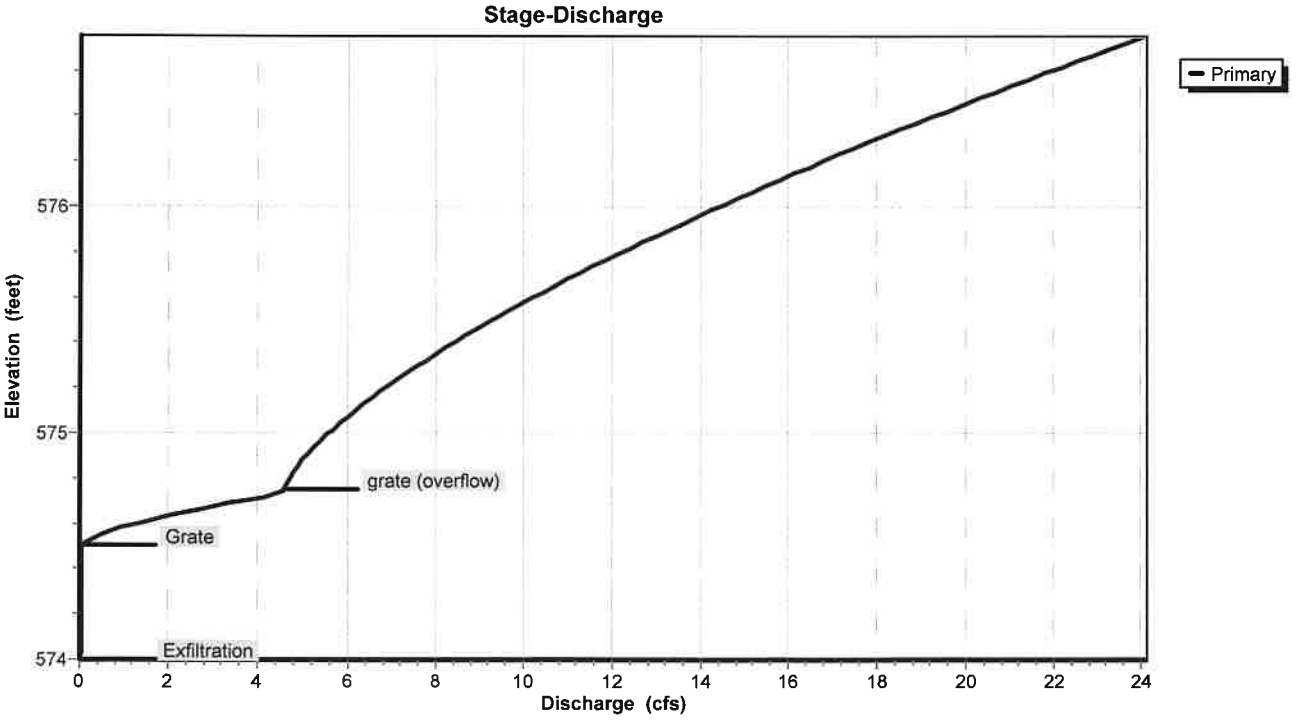
Primary OutFlow Max=1.41 cfs @ 12.13 hrs HW=574.60' (Free Discharge)
- **1=8" pipe** (Passes 1.41 cfs of 4.48 cfs potential flow)
  - **2=Grate** (Weir Controls 1.37 cfs @ 1.05 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

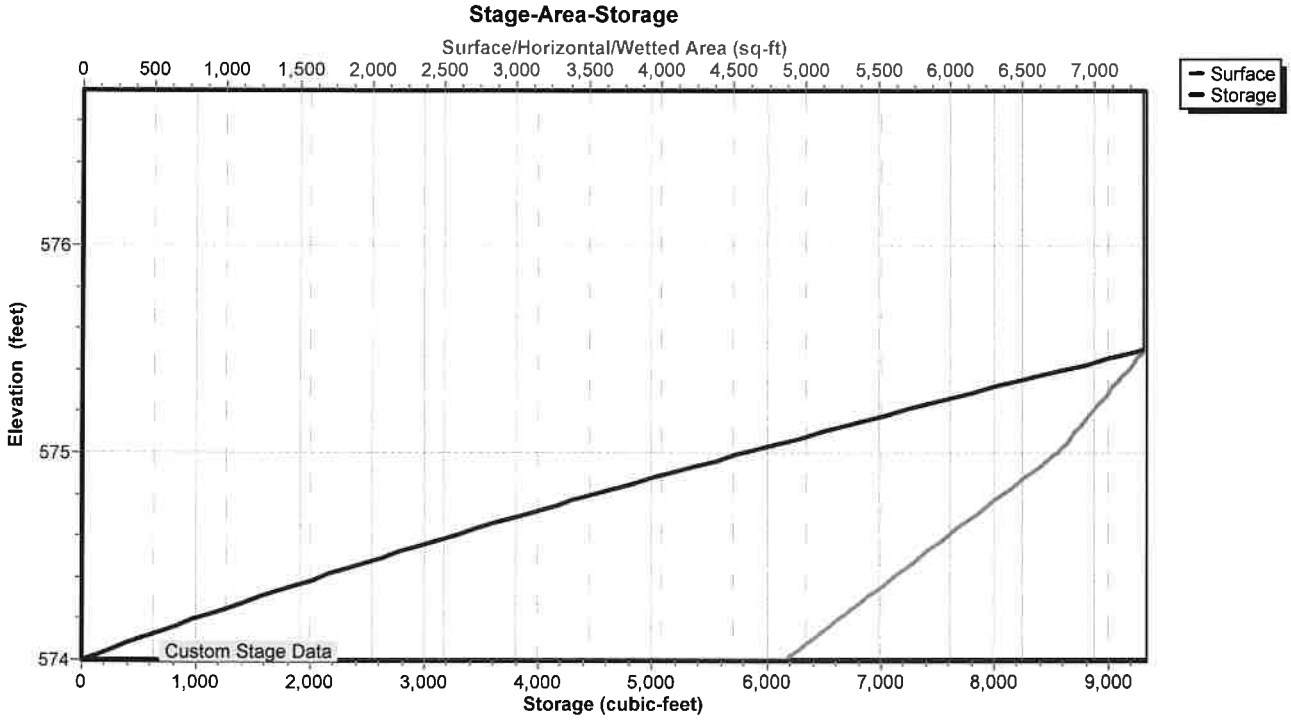


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.00	0	574.00	0.00
8.00	0.01	26	574.01	0.01
10.00	0.04	116	574.02	0.02
12.00	**3.32**	**2,442**	**574.46**	**0.03**
14.00	0.12	**2,754**	**574.52**	**0.13**
16.00	0.07	2,701	574.51	0.08
18.00	0.05	2,683	574.50	0.06
20.00	0.04	2,669	574.50	0.04
22.00	0.04	2,664	574.50	0.04
24.00	0.03	2,661	574.50	0.03
26.00	0.00	2,430	574.46	0.03
28.00	0.00	2,186	574.42	0.03
30.00	0.00	1,947	574.37	0.03
32.00	0.00	1,712	574.33	0.03
34.00	0.00	1,480	574.29	0.03
36.00	0.00	1,253	574.25	0.03
38.00	0.00	1,030	574.20	0.03
40.00	0.00	810	574.16	0.03
42.00	0.00	595	574.12	0.03
44.00	0.00	384	574.08	0.03
46.00	0.00	176	574.04	0.03
48.00	0.00	40	574.01	0.01
50.00	0.00	9	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=1.79"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=4.02 cfs 0.254 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=1.88"
Flow Length=345' Tc=9.1 min CN=92 Runoff=4.35 cfs 0.235 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=570.79' Storage=8,639 cf Inflow=7.03 cfs 0.489 af
Outflow=1.05 cfs 0.446 af

Pond 9P: Bioretention Area 3 Peak Elev=574.68' Storage=3,708 cf Inflow=4.35 cfs 0.235 af
Outflow=3.06 cfs 0.235 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.489 af Average Runoff Depth = 1.83"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

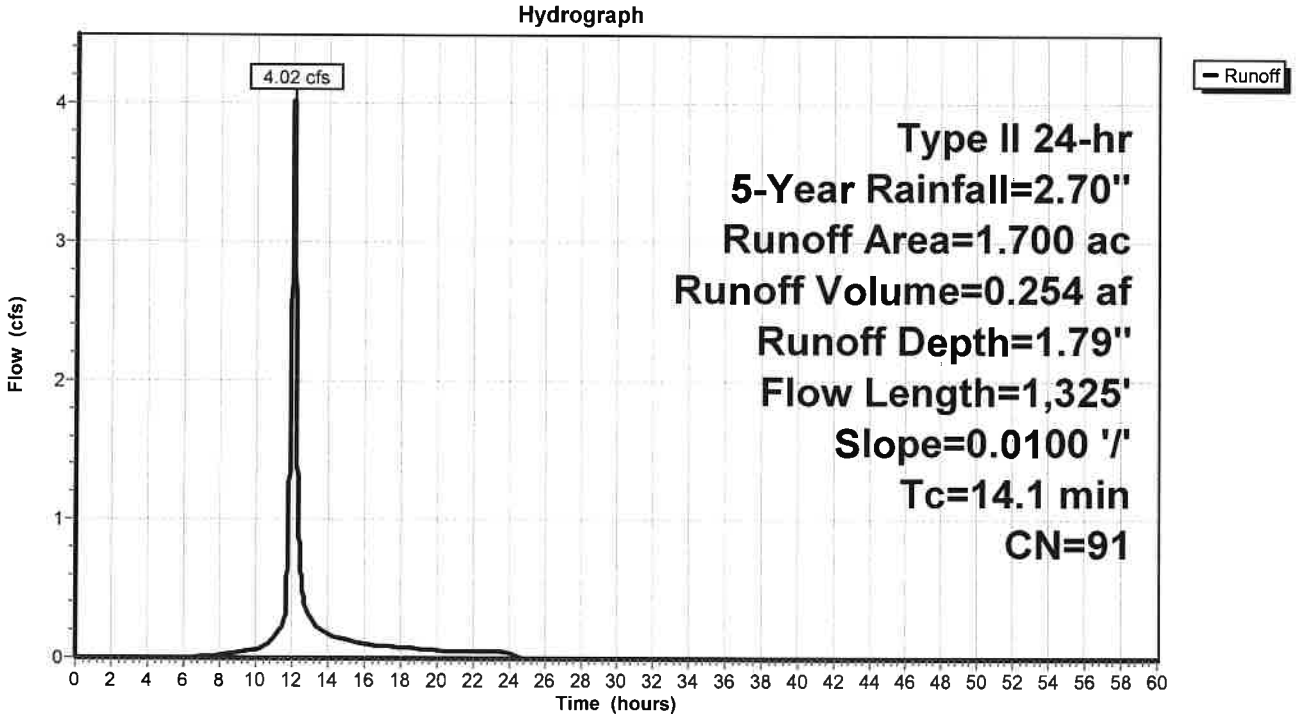
Runoff = 4.02 cfs @ 12.06 hrs, Volume= 0.254 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass**
					Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.01
8.00	0.32	0.01	0.02
9.00	0.40	0.03	0.04
10.00	0.49	0.07	0.06
11.00	0.63	0.13	0.14
12.00	1.79	0.98	**3.54**
13.00	2.08	1.24	**0.30**
14.00	2.21	1.35	0.17
15.00	2.30	1.43	0.13
16.00	2.38	1.50	0.10
17.00	2.43	1.55	0.09
18.00	2.49	1.60	0.08
19.00	2.53	1.64	0.07
20.00	2.57	1.67	0.06
21.00	2.60	1.71	0.05
22.00	2.64	1.74	0.05
23.00	2.67	1.77	0.05
24.00	**2.70**	**1.79**	0.05
25.00	2.70	1.79	0.00
26.00	2.70	1.79	0.00
27.00	2.70	1.79	0.00
28.00	2.70	1.79	0.00
29.00	2.70	1.79	0.00
30.00	2.70	1.79	0.00
31.00	2.70	1.79	0.00
32.00	2.70	1.79	0.00
33.00	2.70	1.79	0.00
34.00	2.70	1.79	0.00
35.00	2.70	1.79	0.00
36.00	2.70	1.79	0.00
37.00	2.70	1.79	0.00
38.00	2.70	1.79	0.00
39.00	2.70	1.79	0.00
40.00	2.70	1.79	0.00
41.00	2.70	1.79	0.00
42.00	2.70	1.79	0.00
43.00	2.70	1.79	0.00
44.00	2.70	1.79	0.00
45.00	2.70	1.79	0.00
46.00	2.70	1.79	0.00
47.00	2.70	1.79	0.00
48.00	2.70	1.79	0.00
49.00	2.70	1.79	0.00
50.00	2.70	1.79	0.00
51.00	2.70	1.79	0.00
52.00	2.70	1.79	0.00
53.00	2.70	1.79	0.00
54.00	2.70	1.79	0.00
55.00	2.70	1.79	0.00
56.00	2.70	1.79	0.00
57.00	2.70	1.79	0.00
58.00	2.70	1.79	0.00
59.00	2.70	1.79	0.00
60.00	2.70	1.79	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

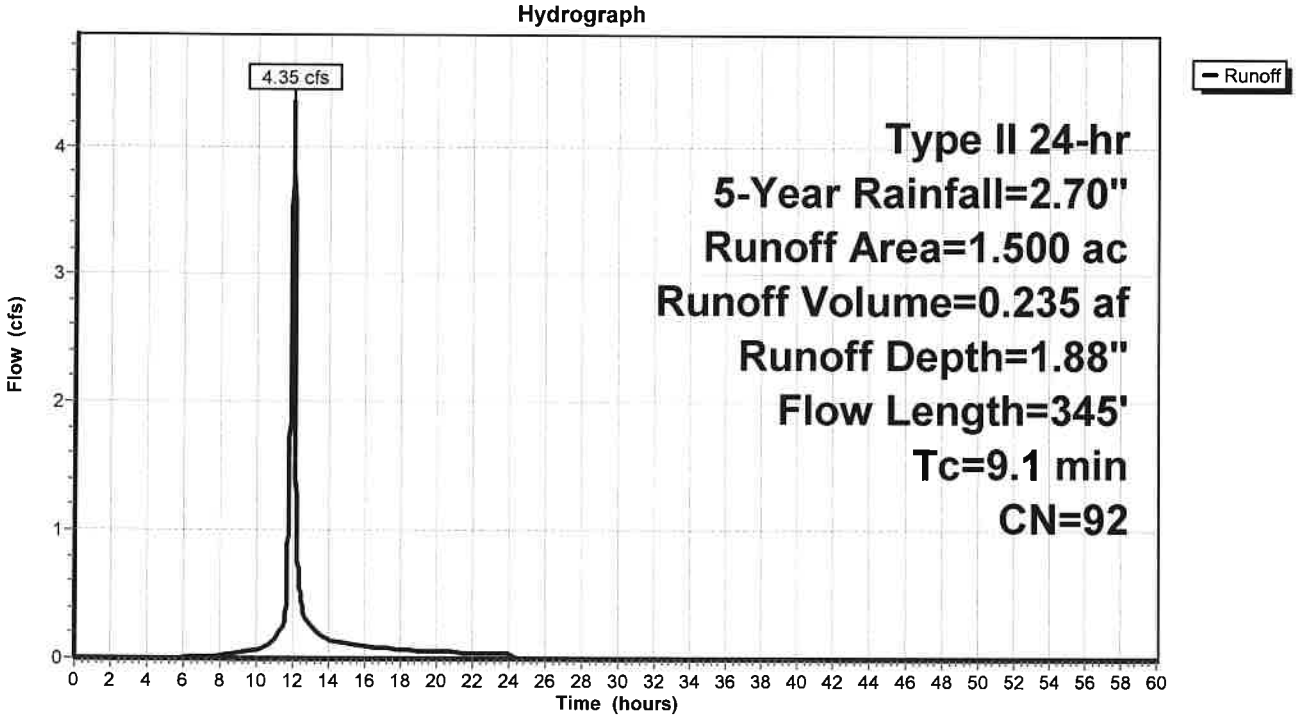
Runoff = 4.35 cfs @ 12.00 hrs, Volume= 0.235 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.01
7.00	0.27	0.01	0.01
8.00	0.32	0.02	0.02
9.00	0.40	0.05	0.04
10.00	0.49	0.08	0.07
11.00	0.63	0.16	0.15
12.00	1.79	1.05	**4.35**
13.00	2.08	1.31	0.25
14.00	2.21	1.43	0.15
15.00	2.30	1.51	0.12
16.00	2.38	1.58	0.09
17.00	2.43	1.63	0.08
18.00	2.49	1.68	0.07
19.00	2.53	1.72	0.06
20.00	2.57	1.76	0.05
21.00	2.60	1.79	0.05
22.00	2.64	1.82	0.05
23.00	2.67	1.85	0.04
24.00	**2.70**	**1.88**	0.04
25.00	2.70	1.88	0.00
26.00	2.70	1.88	0.00
27.00	2.70	1.88	0.00
28.00	2.70	1.88	0.00
29.00	2.70	1.88	0.00
30.00	2.70	1.88	0.00
31.00	2.70	1.88	0.00
32.00	2.70	1.88	0.00
33.00	2.70	1.88	0.00
34.00	2.70	1.88	0.00
35.00	2.70	1.88	0.00
36.00	2.70	1.88	0.00
37.00	2.70	1.88	0.00
38.00	2.70	1.88	0.00
39.00	2.70	1.88	0.00
40.00	2.70	1.88	0.00
41.00	2.70	1.88	0.00
42.00	2.70	1.88	0.00
43.00	2.70	1.88	0.00
44.00	2.70	1.88	0.00
45.00	2.70	1.88	0.00
46.00	2.70	1.88	0.00
47.00	2.70	1.88	0.00
48.00	2.70	1.88	0.00
49.00	2.70	1.88	0.00
50.00	2.70	1.88	0.00
51.00	2.70	1.88	0.00
52.00	2.70	1.88	0.00
53.00	2.70	1.88	0.00
54.00	2.70	1.88	0.00
55.00	2.70	1.88	0.00
56.00	2.70	1.88	0.00
57.00	2.70	1.88	0.00
58.00	2.70	1.88	0.00
59.00	2.70	1.88	0.00
60.00	2.70	1.88	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 1.83" for 5-Year event
Inflow = 7.03 cfs @ 12.07 hrs, Volume= 0.489 af
Outflow = 1.05 cfs @ 12.55 hrs, Volume= 0.446 af, Atten= 85%, Lag= 29.0 min
Primary = 1.05 cfs @ 12.55 hrs, Volume= 0.446 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 570.79' @ 12.55 hrs Surf.Area= 10,145 sf Storage= 8,639 cf

Plug-Flow detention time= 321.6 min calculated for 0.446 af (91% of inflow)
Center-of-Mass det. time= 190.4 min (1,183.7 - 993.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

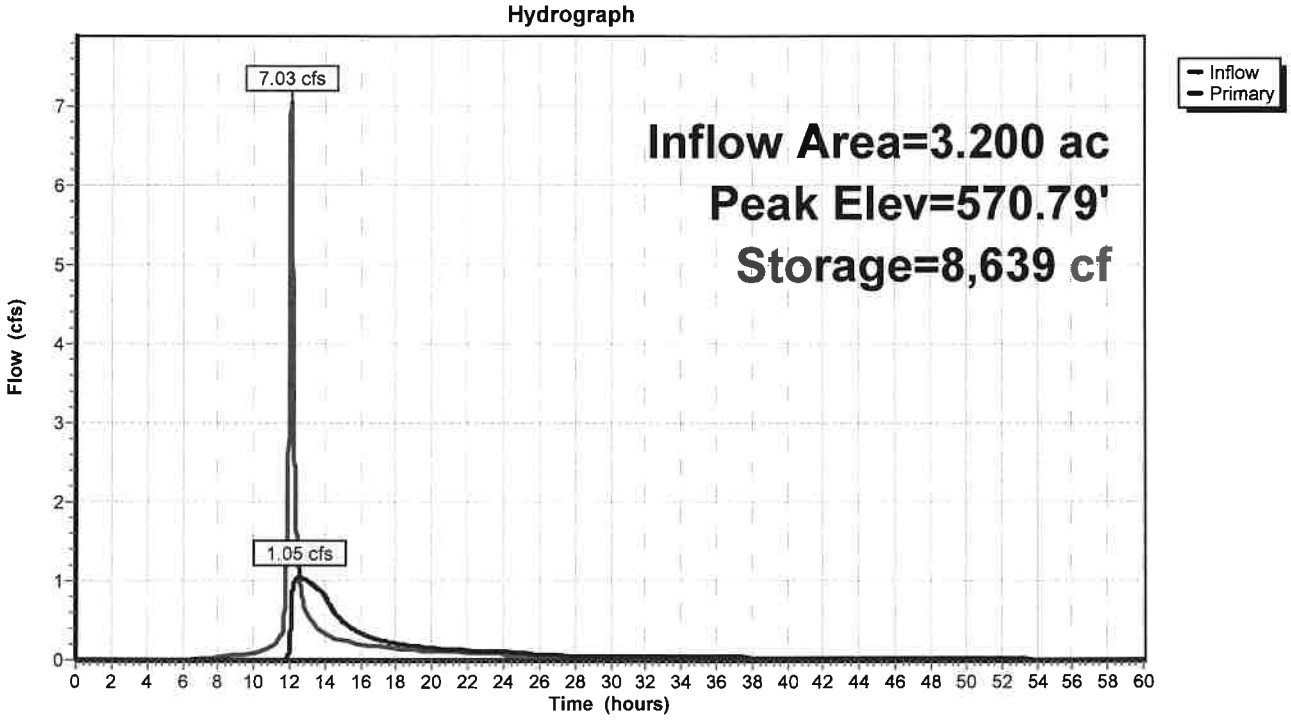
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

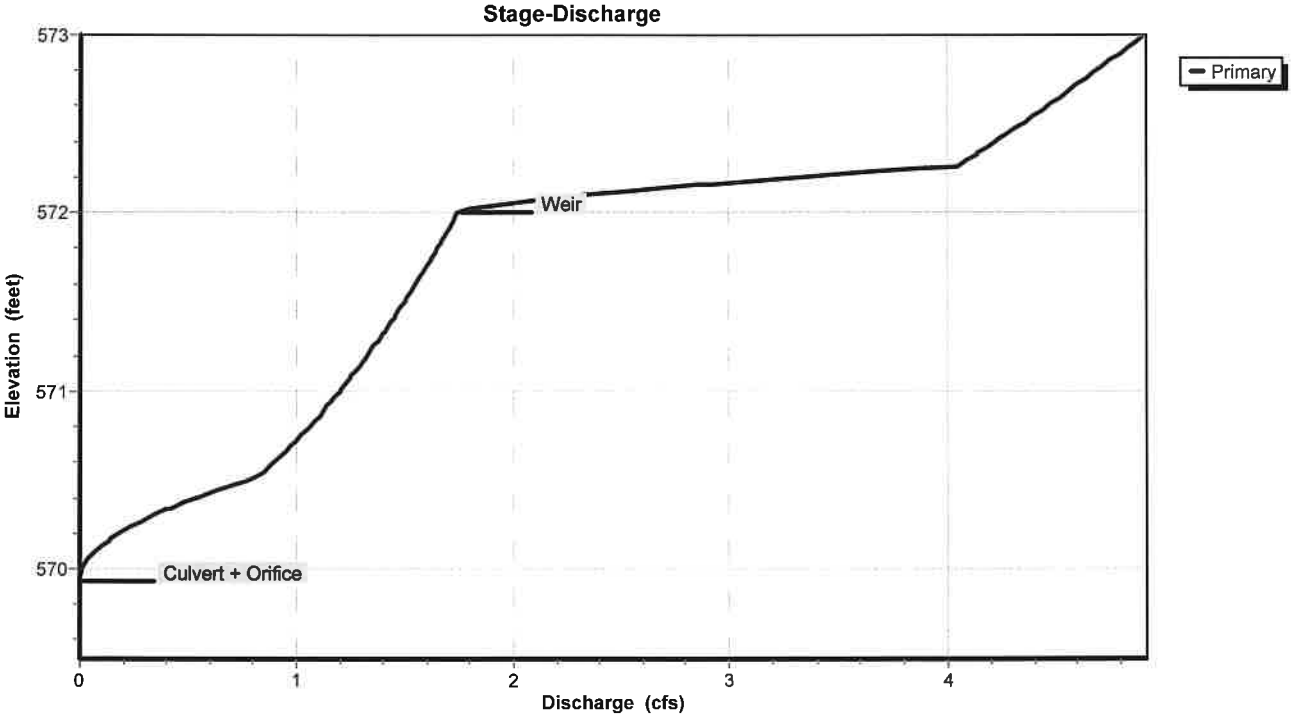
Primary OutFlow Max=1.05 cfs @ 12.55 hrs HW=570.79' (Free Discharge)
└**1=Culvert** (Passes 1.05 cfs of 1.53 cfs potential flow)
└**2=Orifice** (Orifice Controls 1.05 cfs @ 4.00 fps)
└**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

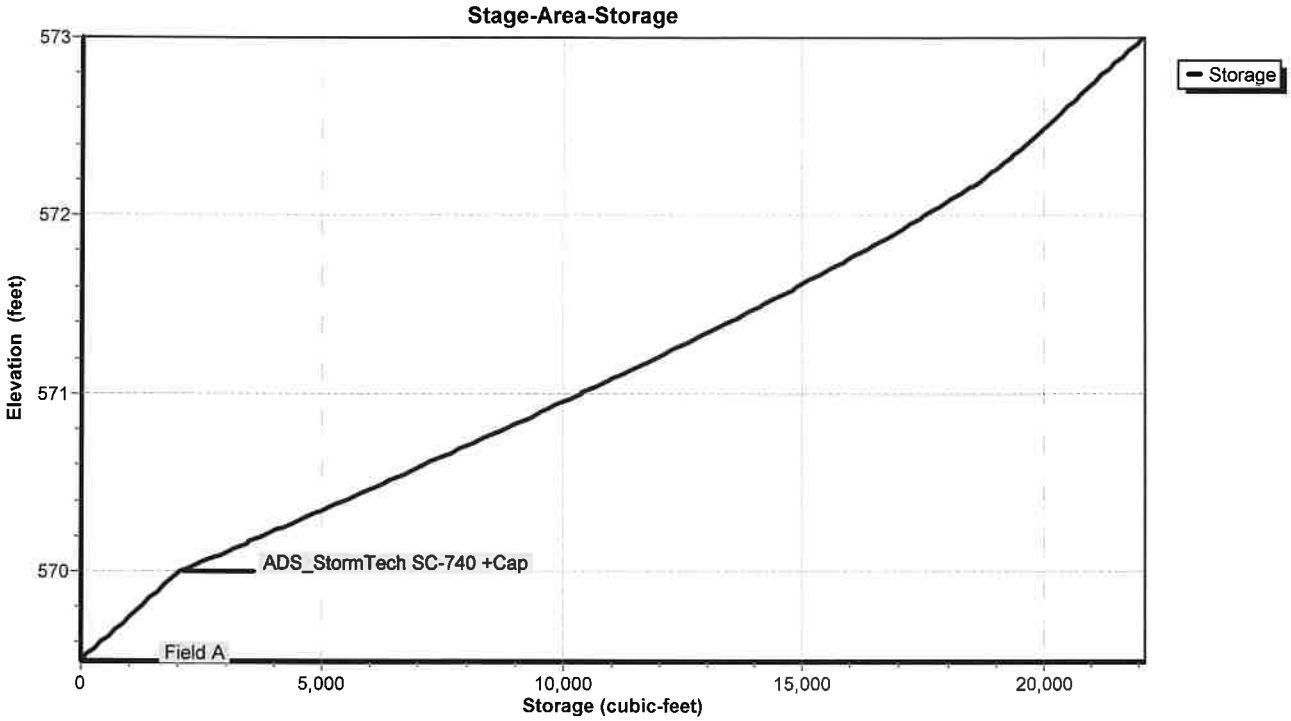


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.00	2	569.50	0.00
8.00	0.03	119	569.53	0.00
10.00	0.09	566	569.64	0.00
12.00	**5.13**	**3,593**	**570.18**	**0.16**
14.00	**0.33**	**6,444**	**570.52**	**0.81**
16.00	0.20	4,602	570.30	0.34
18.00	0.15	3,932	570.22	0.21
20.00	0.11	3,570	570.18	0.15
22.00	0.10	3,332	570.15	0.12
24.00	0.09	3,200	570.14	0.10
26.00	0.03	2,873	570.10	0.07
28.00	0.03	2,693	570.08	0.05
30.00	0.03	2,592	570.07	0.04
32.00	0.03	2,532	570.06	0.04
34.00	0.03	2,493	570.05	0.04
36.00	0.03	2,465	570.05	0.03
38.00	0.03	2,445	570.05	0.03
40.00	0.03	2,428	570.05	0.03
42.00	0.03	2,415	570.04	0.03
44.00	0.03	2,403	570.04	0.03
46.00	0.03	2,393	570.04	0.03
48.00	0.01	2,328	570.03	0.03
50.00	0.00	2,203	570.02	0.02
52.00	0.00	2,095	570.01	0.01
54.00	0.00	2,013	570.00	0.01
56.00	0.00	1,959	569.98	0.01
58.00	0.00	1,920	569.97	0.00
60.00	0.00	1,892	569.97	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 1.88" for 5-Year event
Inflow = 4.35 cfs @ 12.00 hrs, Volume= 0.235 af
Outflow = 3.06 cfs @ 12.08 hrs, Volume= 0.235 af, Atten= 30%, Lag= 4.6 min
Primary = 3.06 cfs @ 12.08 hrs, Volume= 0.235 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.68' @ 12.08 hrs Surf.Area= 6,129 sf Storage= 3,708 cf

Plug-Flow detention time= 384.2 min calculated for 0.235 af (100% of inflow)
Center-of-Mass det. time= 384.1 min (1,187.9 - 803.8)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

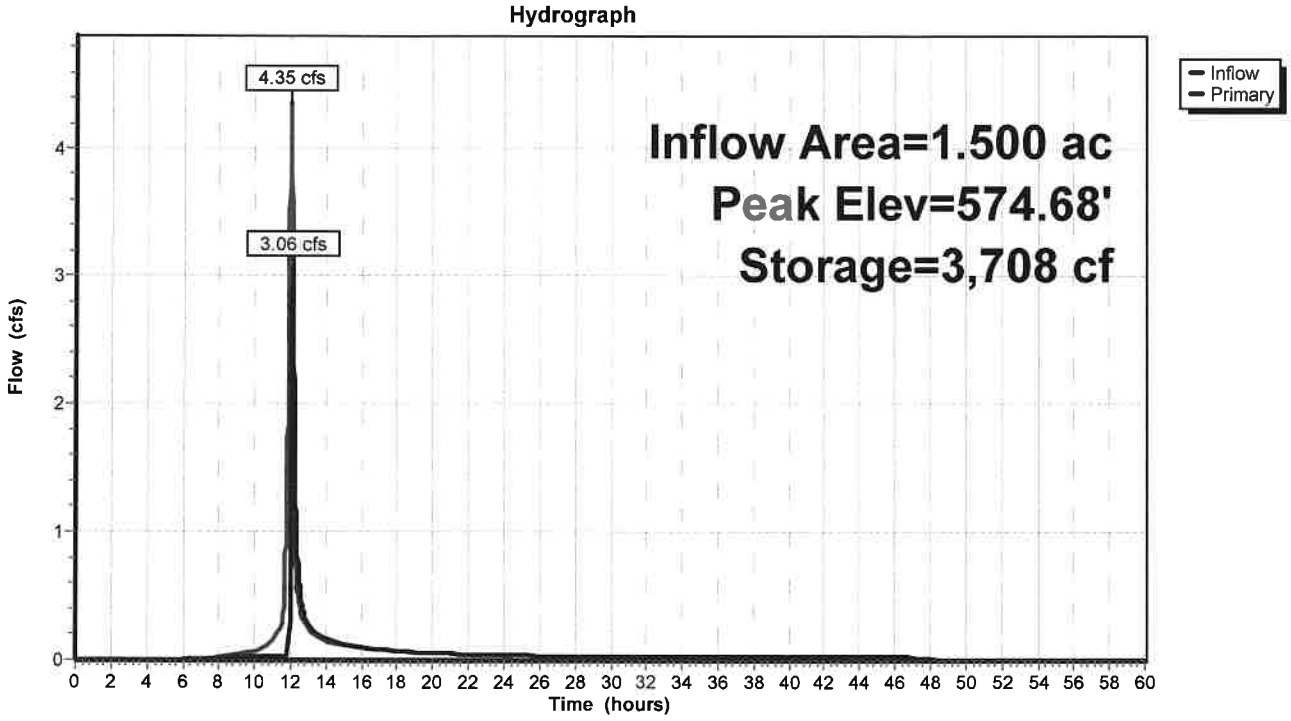
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

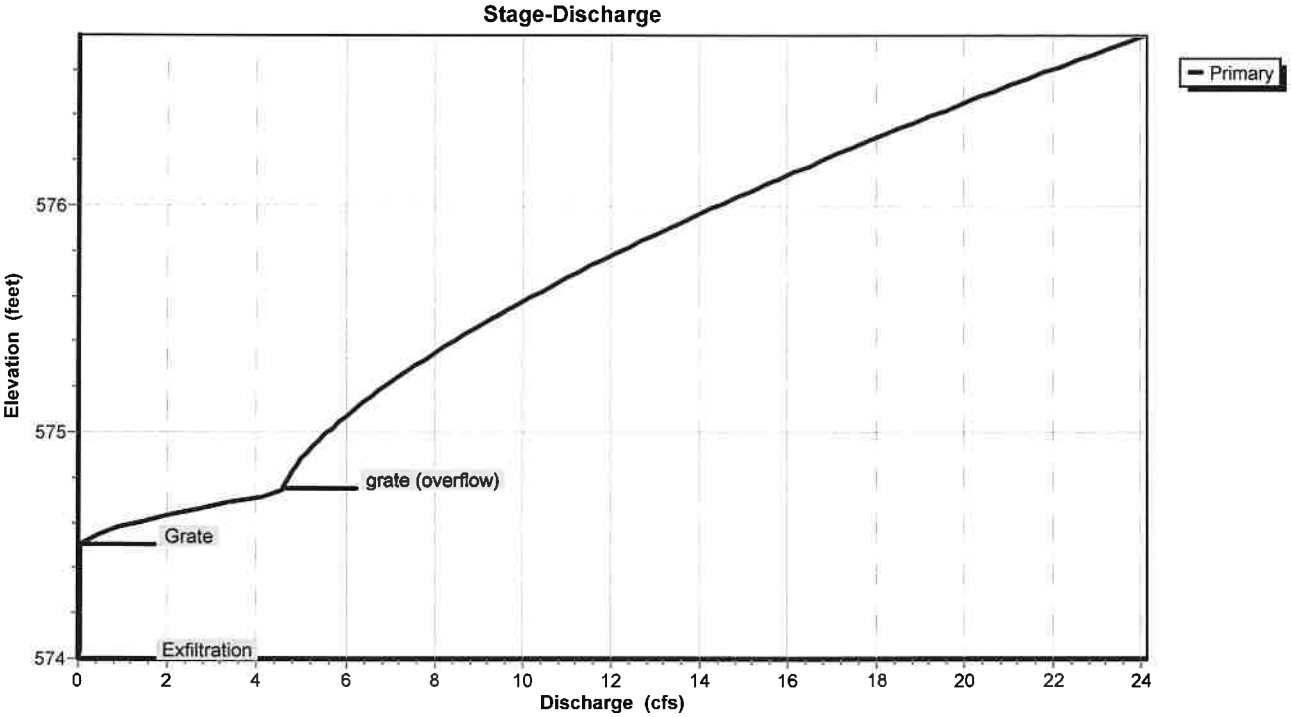
Primary OutFlow Max=3.05 cfs @ 12.08 hrs HW=574.68' (Free Discharge)
- **1=8" pipe** (Passes 3.05 cfs of 4.54 cfs potential flow)
  - **2=Grate** (Weir Controls 3.02 cfs @ 1.37 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

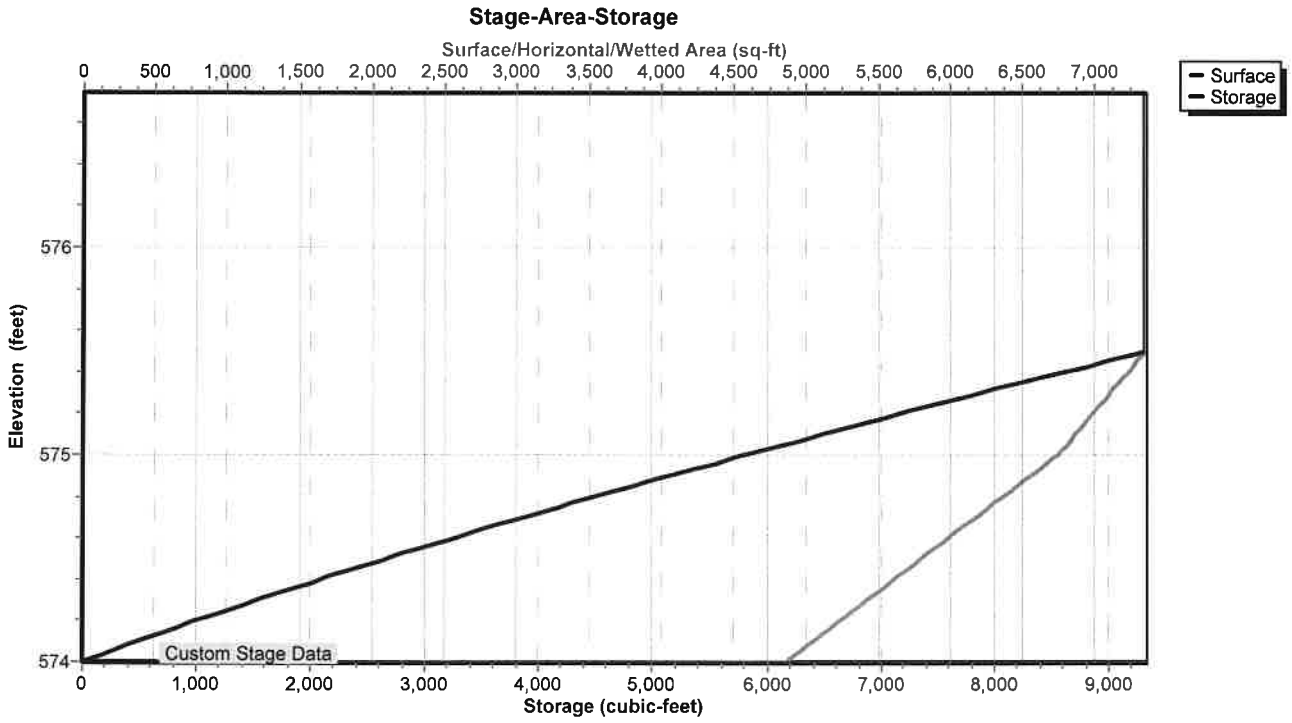


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.01	6	574.00	0.00
8.00	0.02	61	574.01	0.01
10.00	0.07	208	574.04	0.03
12.00	**4.35**	**3,326**	**574.61**	**1.59**
14.00	0.15	**2,783**	**574.52**	**0.16**
16.00	0.09	2,721	574.51	0.10
18.00	0.07	2,697	574.51	0.07
20.00	0.05	2,679	574.50	0.05
22.00	0.05	2,673	574.50	0.05
24.00	0.04	2,670	574.50	0.04
26.00	0.00	2,439	574.46	0.03
28.00	0.00	2,196	574.42	0.03
30.00	0.00	1,956	574.38	0.03
32.00	0.00	1,720	574.33	0.03
34.00	0.00	1,489	574.29	0.03
36.00	0.00	1,262	574.25	0.03
38.00	0.00	1,038	574.21	0.03
40.00	0.00	819	574.16	0.03
42.00	0.00	603	574.12	0.03
44.00	0.00	392	574.08	0.03
46.00	0.00	184	574.04	0.03
48.00	0.00	42	574.01	0.01
50.00	0.00	9	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=2.21"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=4.91 cfs 0.313 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=2.30"
Flow Length=345' Tc=9.1 min CN=92 Runoff=5.28 cfs 0.288 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=571.13' Storage=11,342 cf Inflow=9.17 cfs 0.601 af
Outflow=1.28 cfs 0.558 af

Pond 9P: Bioretention Area 3 Peak Elev=574.72' Storage=4,001 cf Inflow=5.28 cfs 0.288 af
Outflow=4.27 cfs 0.288 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.601 af Average Runoff Depth = 2.25"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

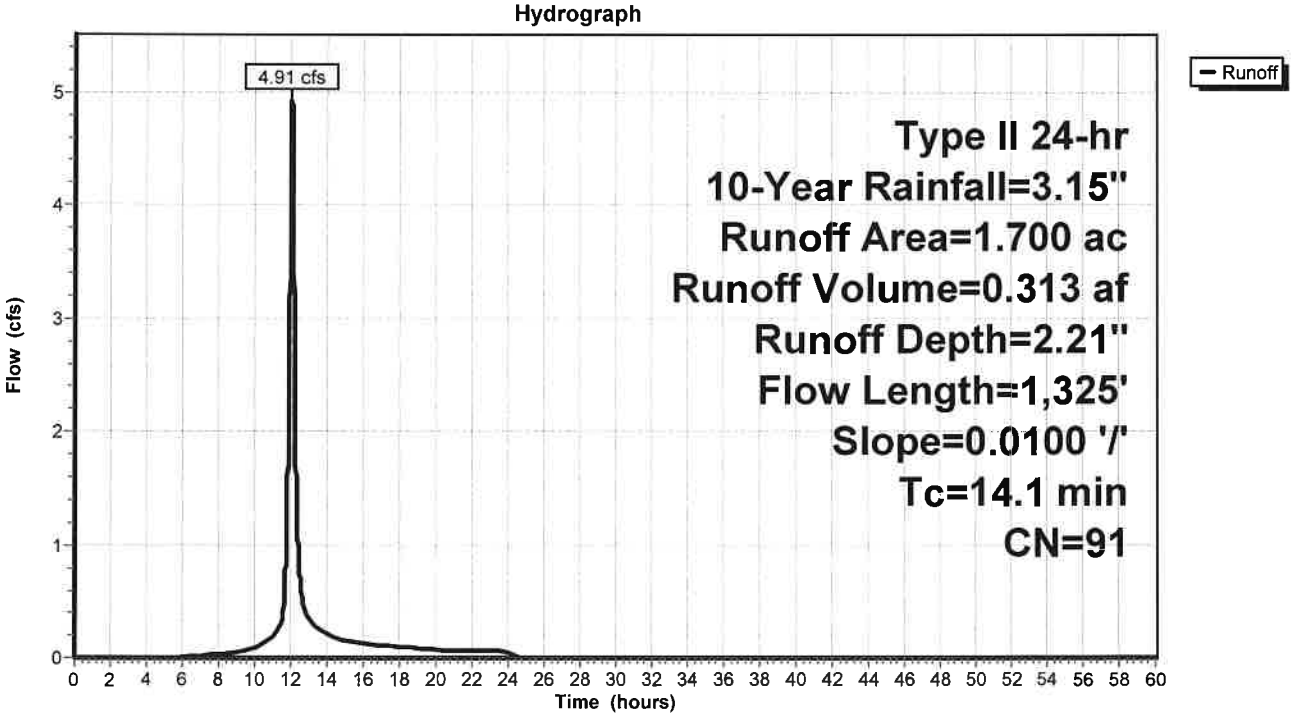
Runoff = 4.91 cfs @ 12.05 hrs, Volume= 0.313 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.15	2.21	0.00
1.00	0.03	0.00	0.00	53.00	3.15	2.21	0.00
2.00	0.07	0.00	0.00	54.00	3.15	2.21	0.00
3.00	0.11	0.00	0.00	55.00	3.15	2.21	0.00
4.00	0.15	0.00	0.00	56.00	3.15	2.21	0.00
5.00	0.20	0.00	0.00	57.00	3.15	2.21	0.00
6.00	0.25	0.00	0.01	58.00	3.15	2.21	0.00
7.00	0.31	0.01	0.02	59.00	3.15	2.21	0.00
8.00	0.38	0.03	0.03	60.00	3.15	2.21	0.00
9.00	0.46	0.06	0.06				
10.00	0.57	0.10	0.09				
11.00	0.74	0.19	0.19				
12.00	2.09	1.24	**4.35**				
13.00	2.43	1.55	**0.35**				
14.00	2.58	1.69	0.20				
15.00	2.69	1.78	0.16				
16.00	2.77	1.86	0.12				
17.00	2.84	1.92	0.11				
18.00	2.90	1.98	0.09				
19.00	2.95	2.03	0.08				
20.00	3.00	2.07	0.07				
21.00	3.04	2.11	0.06				
22.00	3.08	2.14	0.06				
23.00	3.11	2.18	0.06				
24.00	**3.15**	**2.21**	0.06				
25.00	3.15	2.21	0.00				
26.00	3.15	2.21	0.00				
27.00	3.15	2.21	0.00				
28.00	3.15	2.21	0.00				
29.00	3.15	2.21	0.00				
30.00	3.15	2.21	0.00				
31.00	3.15	2.21	0.00				
32.00	3.15	2.21	0.00				
33.00	3.15	2.21	0.00				
34.00	3.15	2.21	0.00				
35.00	3.15	2.21	0.00				
36.00	3.15	2.21	0.00				
37.00	3.15	2.21	0.00				
38.00	3.15	2.21	0.00				
39.00	3.15	2.21	0.00				
40.00	3.15	2.21	0.00				
41.00	3.15	2.21	0.00				
42.00	3.15	2.21	0.00				
43.00	3.15	2.21	0.00				
44.00	3.15	2.21	0.00				
45.00	3.15	2.21	0.00				
46.00	3.15	2.21	0.00				
47.00	3.15	2.21	0.00				
48.00	3.15	2.21	0.00				
49.00	3.15	2.21	0.00				
50.00	3.15	2.21	0.00				
51.00	3.15	2.21	0.00				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

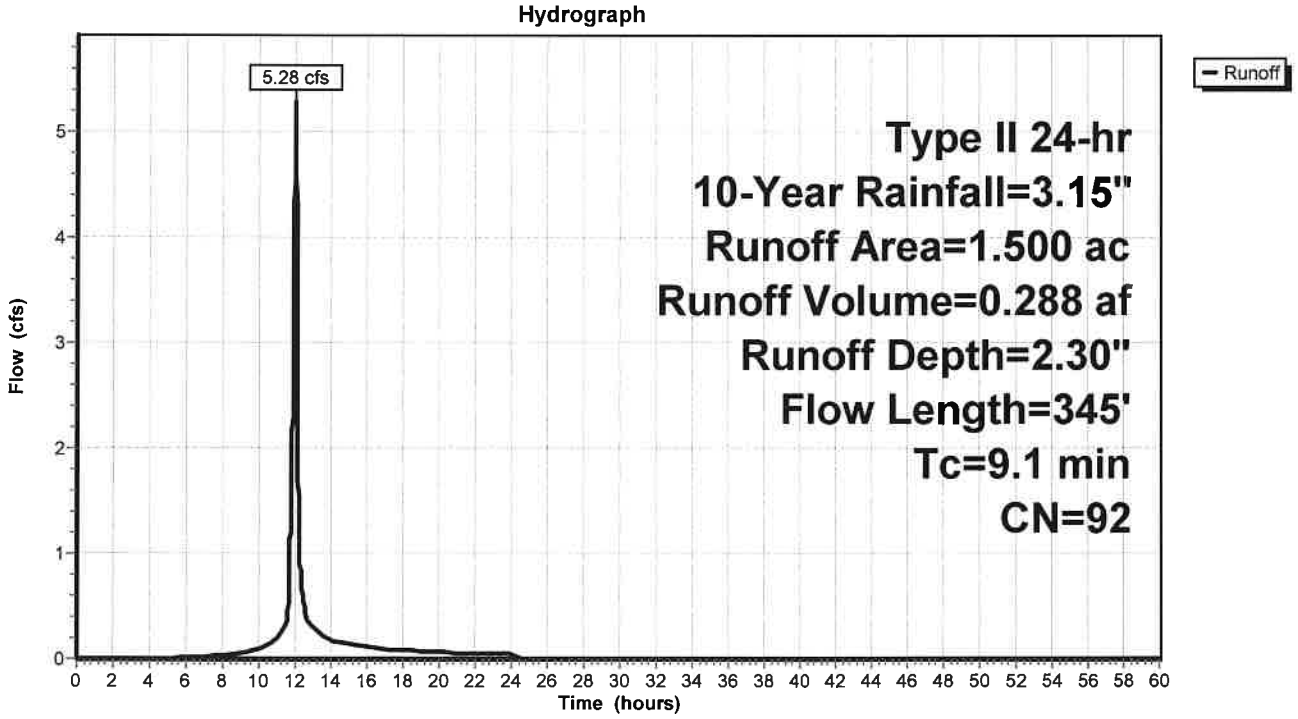
Runoff = 5.28 cfs @ 12.00 hrs, Volume= 0.288 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.15	2.30	0.00
1.00	0.03	0.00	0.00	53.00	3.15	2.30	0.00
2.00	0.07	0.00	0.00	54.00	3.15	2.30	0.00
3.00	0.11	0.00	0.00	55.00	3.15	2.30	0.00
4.00	0.15	0.00	0.00	56.00	3.15	2.30	0.00
5.00	0.20	0.00	0.00	57.00	3.15	2.30	0.00
6.00	0.25	0.01	0.01	58.00	3.15	2.30	0.00
7.00	0.31	0.02	0.02	59.00	3.15	2.30	0.00
8.00	0.38	0.04	0.03	60.00	3.15	2.30	0.00
9.00	0.46	0.07	0.06				
10.00	0.57	0.12	0.09				
11.00	0.74	0.22	0.20				
12.00	2.09	1.32	**5.27**				
13.00	2.43	1.63	0.30				
14.00	2.58	1.77	0.18				
15.00	2.69	1.87	0.14				
16.00	2.77	1.95	0.11				
17.00	2.84	2.01	0.09				
18.00	2.90	2.07	0.08				
19.00	2.95	2.12	0.07				
20.00	3.00	2.16	0.06				
21.00	3.04	2.20	0.06				
22.00	3.08	2.23	0.05				
23.00	3.11	2.27	0.05				
24.00	**3.15**	**2.30**	0.05				
25.00	3.15	2.30	0.00				
26.00	3.15	2.30	0.00				
27.00	3.15	2.30	0.00				
28.00	3.15	2.30	0.00				
29.00	3.15	2.30	0.00				
30.00	3.15	2.30	0.00				
31.00	3.15	2.30	0.00				
32.00	3.15	2.30	0.00				
33.00	3.15	2.30	0.00				
34.00	3.15	2.30	0.00				
35.00	3.15	2.30	0.00				
36.00	3.15	2.30	0.00				
37.00	3.15	2.30	0.00				
38.00	3.15	2.30	0.00				
39.00	3.15	2.30	0.00				
40.00	3.15	2.30	0.00				
41.00	3.15	2.30	0.00				
42.00	3.15	2.30	0.00				
43.00	3.15	2.30	0.00				
44.00	3.15	2.30	0.00				
45.00	3.15	2.30	0.00				
46.00	3.15	2.30	0.00				
47.00	3.15	2.30	0.00				
48.00	3.15	2.30	0.00				
49.00	3.15	2.30	0.00				
50.00	3.15	2.30	0.00				
51.00	3.15	2.30	0.00				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 2.25" for 10-Year event
Inflow = 9.17 cfs @ 12.06 hrs, Volume= 0.601 af
Outflow = 1.28 cfs @ 12.54 hrs, Volume= 0.558 af, Atten= 86%, Lag= 29.2 min
Primary = 1.28 cfs @ 12.54 hrs, Volume= 0.558 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 571.13' @ 12.54 hrs Surf.Area= 10,145 sf Storage= 11,342 cf

Plug-Flow detention time= 284.1 min calculated for 0.558 af (93% of inflow)
Center-of-Mass det. time= 176.3 min (1,132.0 - 955.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

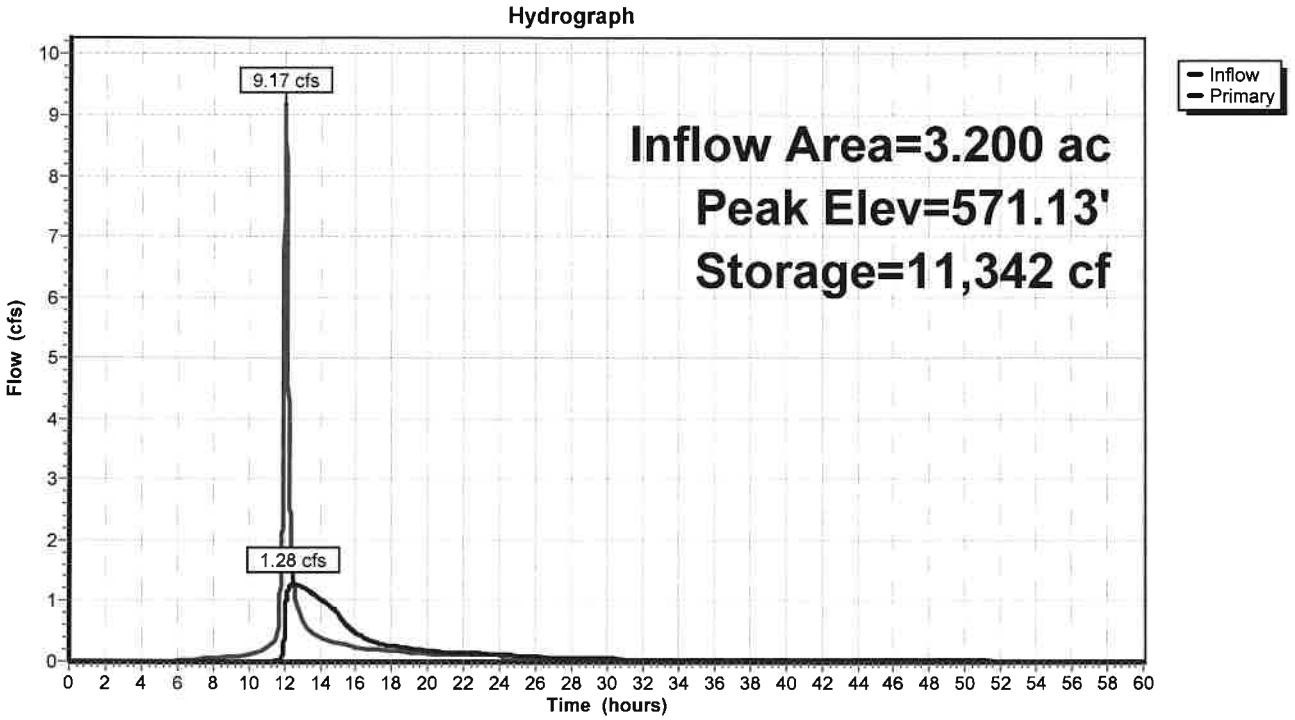
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

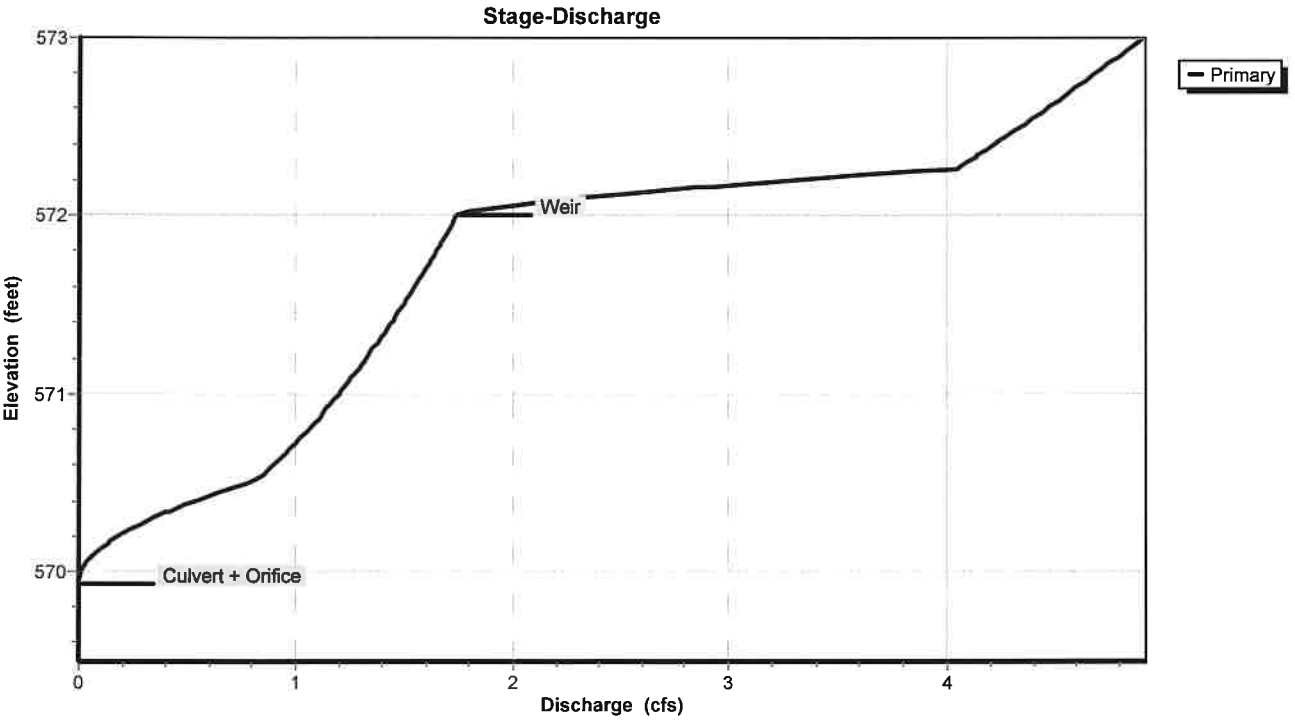
Primary OutFlow Max=1.28 cfs @ 12.54 hrs HW=571.13' (Free Discharge)
└─**1=Culvert** (Passes 1.28 cfs of 2.37 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.28 cfs @ 4.88 fps)
  └─**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

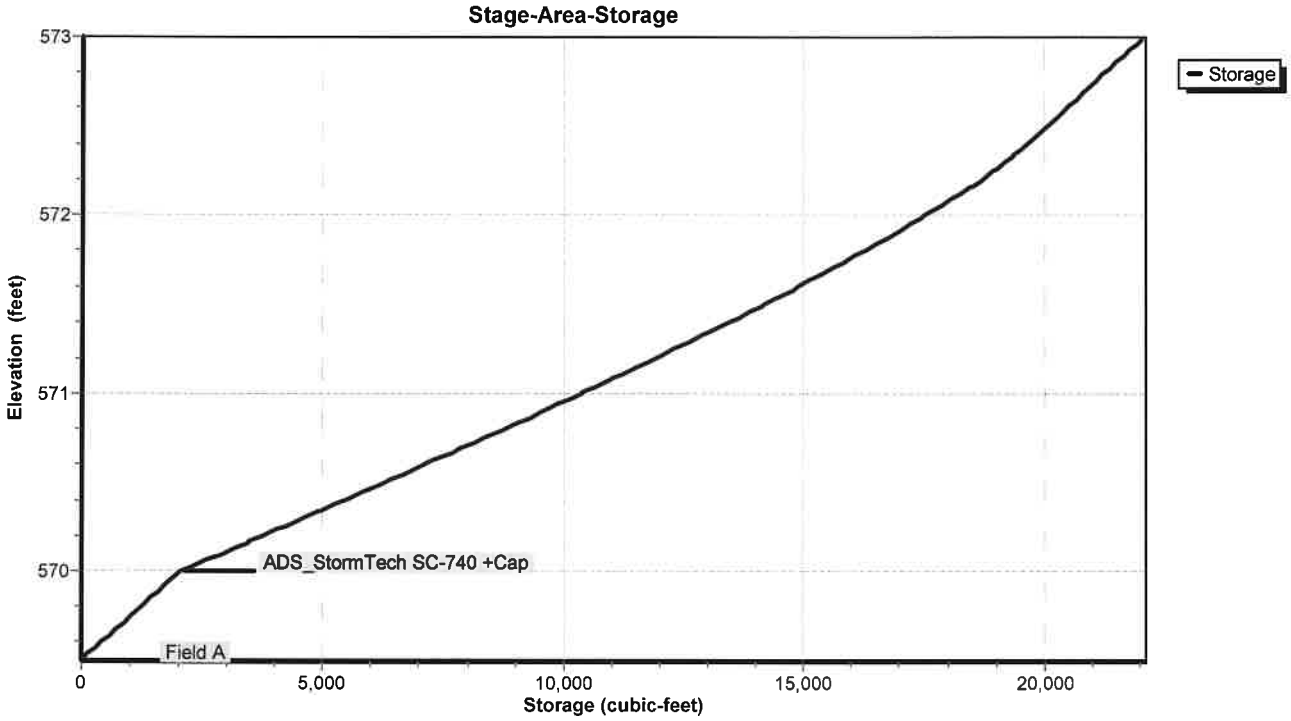


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.01	18	569.50	0.00
8.00	0.05	241	569.56	0.00
10.00	0.12	846	569.71	0.00
12.00	**7.80**	**5,030**	**570.35**	**0.43**
14.00	**0.39**	**8,504**	**570.77**	**1.03**
16.00	0.24	5,183	570.37	0.47
18.00	0.18	4,195	570.25	0.26
20.00	0.13	3,754	570.20	0.18
22.00	0.12	3,484	570.17	0.14
24.00	0.11	3,343	570.15	0.12
26.00	0.03	2,942	570.11	0.08
28.00	0.03	2,728	570.08	0.05
30.00	0.03	2,611	570.07	0.05
32.00	0.03	2,544	570.06	0.04
34.00	0.03	2,500	570.05	0.04
36.00	0.03	2,470	570.05	0.03
38.00	0.03	2,448	570.05	0.03
40.00	0.03	2,430	570.05	0.03
42.00	0.03	2,416	570.05	0.03
44.00	0.03	2,404	570.04	0.03
46.00	0.03	2,393	570.04	0.03
48.00	0.01	2,331	570.04	0.03
50.00	0.00	2,206	570.02	0.02
52.00	0.00	2,098	570.01	0.01
54.00	0.00	2,015	570.00	0.01
56.00	0.00	1,960	569.98	0.01
58.00	0.00	1,921	569.97	0.00
60.00	0.00	1,893	569.97	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 2.30" for 10-Year event
Inflow = 5.28 cfs @ 12.00 hrs, Volume= 0.288 af
Outflow = 4.27 cfs @ 12.06 hrs, Volume= 0.288 af, Atten= 19%, Lag= 3.5 min
Primary = 4.27 cfs @ 12.06 hrs, Volume= 0.288 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.72' @ 12.06 hrs Surf.Area= 6,219 sf Storage= 4,001 cf

Plug-Flow detention time= 318.6 min calculated for 0.288 af (100% of inflow)
Center-of-Mass det. time= 318.8 min (1,116.8 - 798.1)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

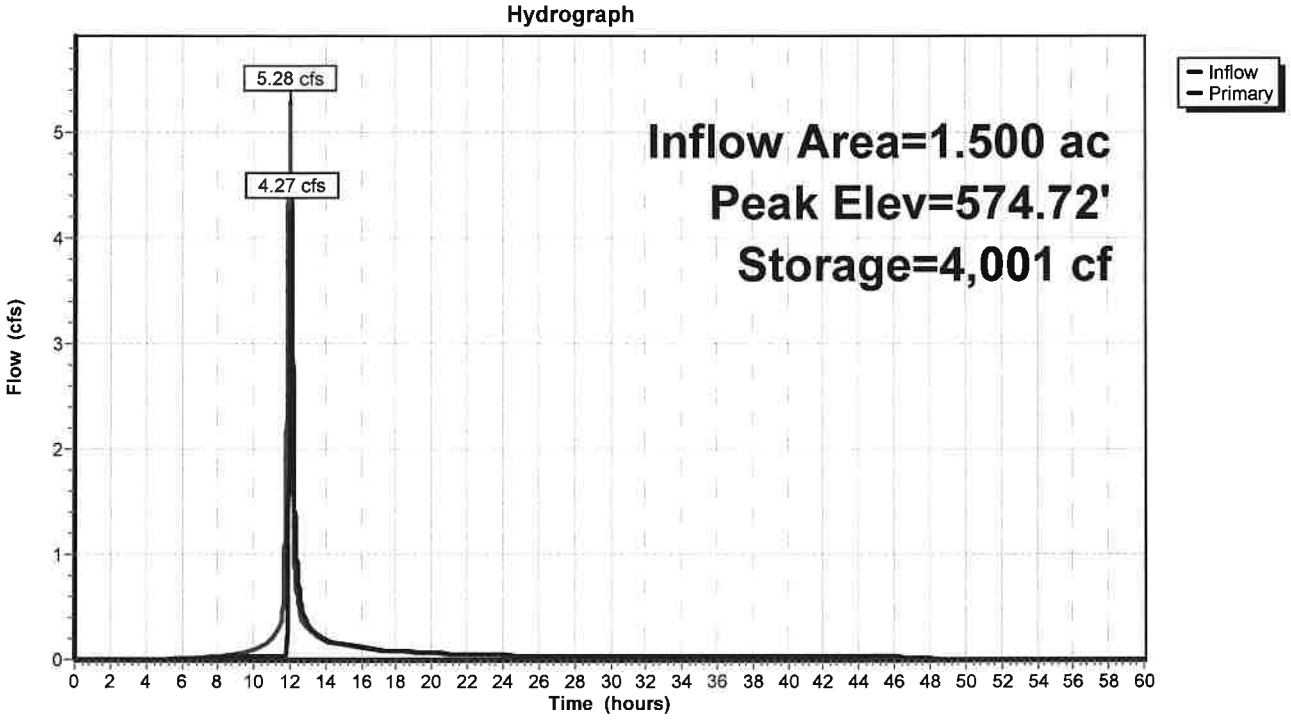
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

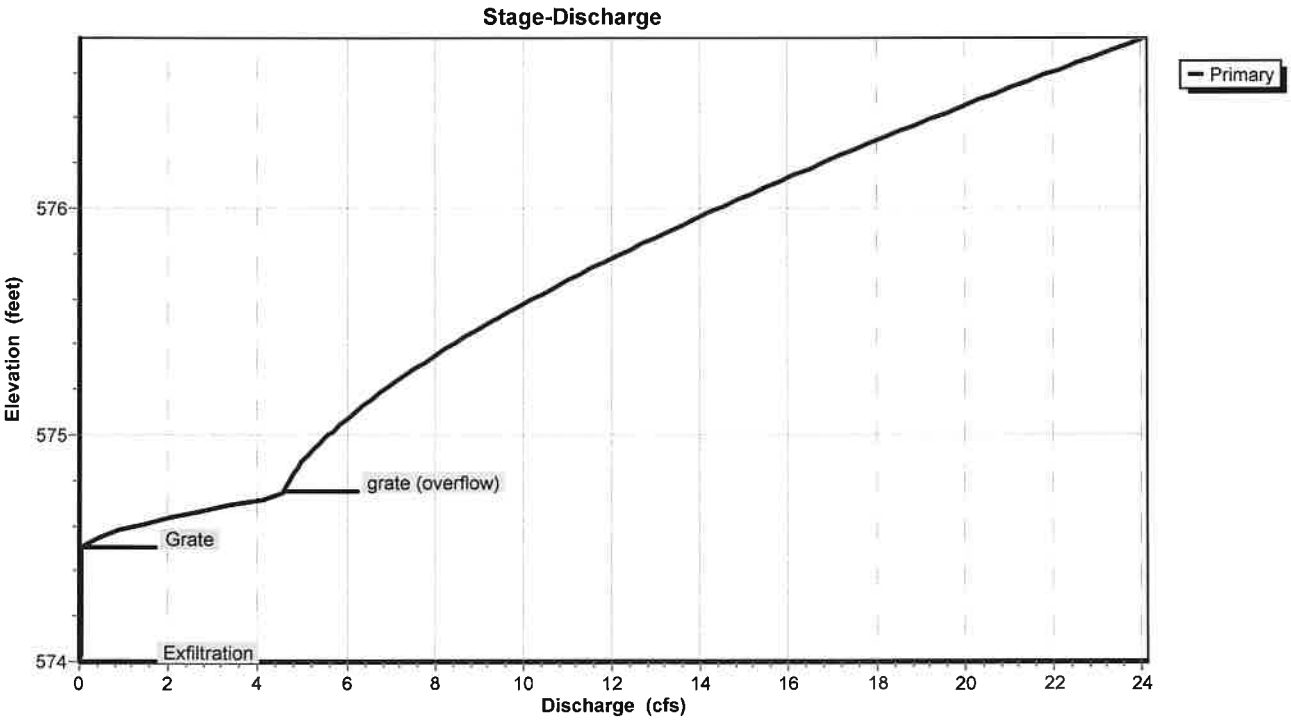
Primary OutFlow Max=4.36 cfs @ 12.06 hrs HW=574.72' (Free Discharge)
- **1=8" pipe** (Passes 4.36 cfs of 4.57 cfs potential flow)
  - **2=Grate** (Weir Controls 4.32 cfs @ 1.54 fps)
  - **3=Exfiltration** (Controls 0.04 cfs)
- **4=grate (overflow)** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

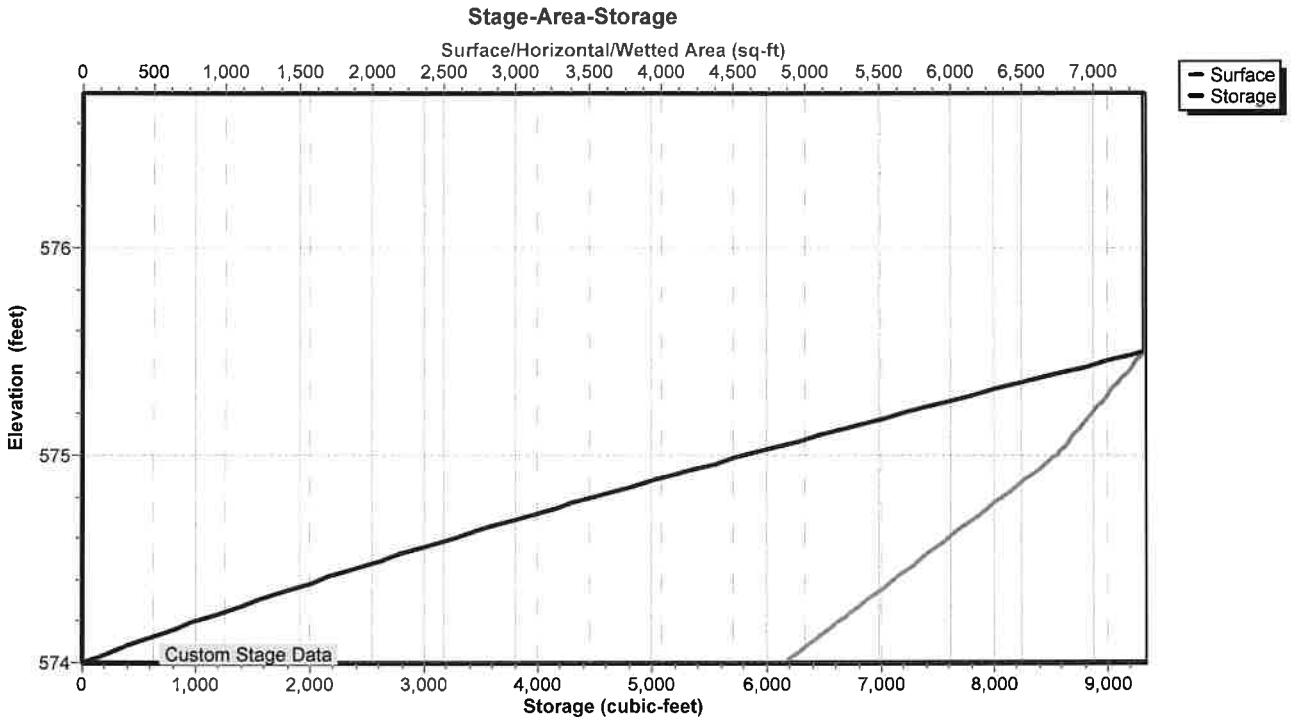


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.01	21	574.00	0.00
8.00	0.03	99	574.02	0.02
10.00	0.09	335	574.07	0.03
12.00	**5.27**	**3,799**	**574.69**	**3.45**
14.00	0.18	**2,801**	**574.52**	**0.19**
16.00	0.11	2,738	574.51	0.12
18.00	0.08	2,710	574.51	0.09
20.00	0.06	2,689	574.50	0.06
22.00	0.05	2,681	574.50	0.06
24.00	0.05	2,677	574.50	0.05
26.00	0.00	2,445	574.46	0.03
28.00	0.00	2,201	574.42	0.03
30.00	0.00	1,961	574.38	0.03
32.00	0.00	1,726	574.33	0.03
34.00	0.00	1,494	574.29	0.03
36.00	0.00	1,267	574.25	0.03
38.00	0.00	1,043	574.21	0.03
40.00	0.00	824	574.16	0.03
42.00	0.00	608	574.12	0.03
44.00	0.00	397	574.08	0.03
46.00	0.00	189	574.04	0.03
48.00	0.00	44	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=2.89"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=6.35 cfs 0.410 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=2.99"
Flow Length=345' Tc=9.1 min CN=92 Runoff=6.75 cfs 0.374 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=571.73' Storage=15,804 cf Inflow=11.11 cfs 0.784 af
Outflow=1.61 cfs 0.740 af

Pond 9P: Bioretention Area 3 Peak Elev=574.82' Storage=4,638 cf Inflow=6.75 cfs 0.374 af
Outflow=4.78 cfs 0.374 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.784 af Average Runoff Depth = 2.94"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

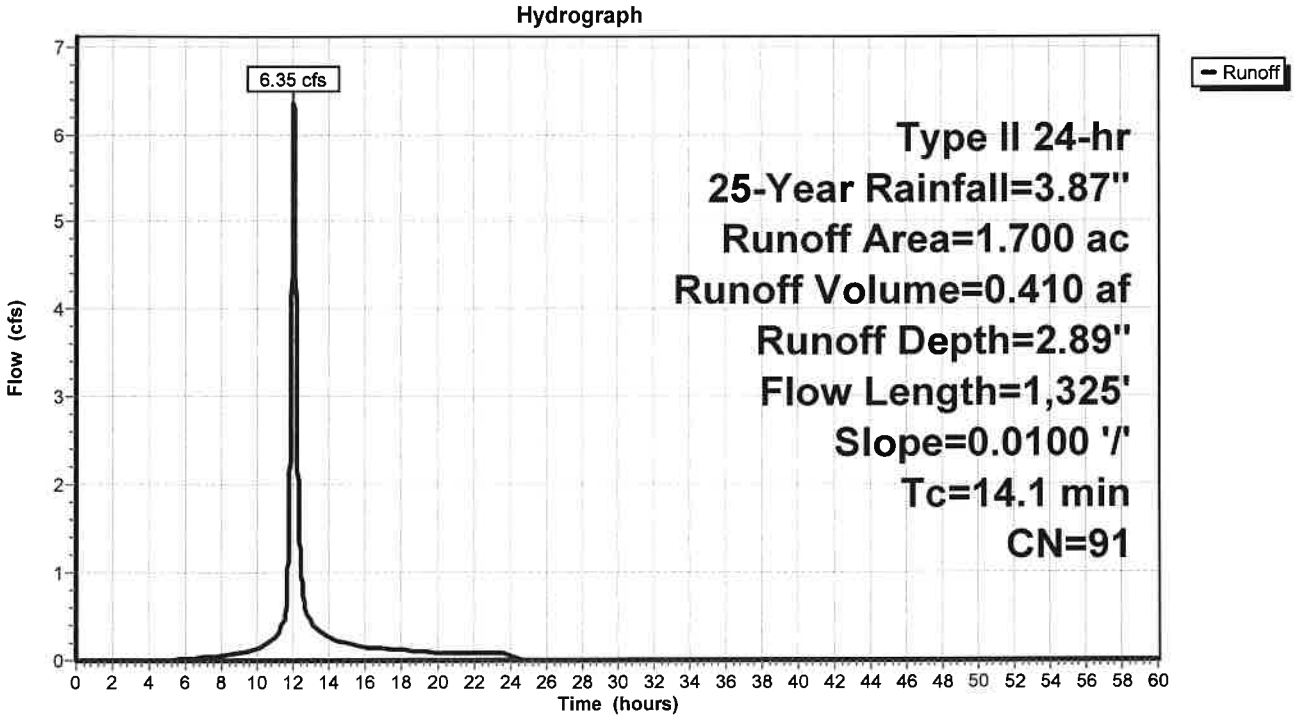
Runoff = 6.35 cfs @ 12.05 hrs, Volume= 0.410 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.01
6.00	0.31	0.01	0.02
7.00	0.38	0.03	0.04
8.00	0.46	0.06	0.05
9.00	0.57	0.10	0.09
10.00	0.70	0.17	0.13
11.00	0.91	0.30	0.27
12.00	2.57	1.67	**5.66**
13.00	2.99	2.06	**0.45**
14.00	3.17	2.23	0.26
15.00	3.30	2.36	0.20
16.00	3.41	2.45	0.15
17.00	3.49	2.53	0.13
18.00	3.56	2.60	0.12
19.00	3.63	2.66	0.10
20.00	3.68	2.72	0.09
21.00	3.73	2.76	0.08
22.00	3.78	2.81	0.08
23.00	3.83	2.85	0.07
24.00	**3.87**	**2.89**	0.07
25.00	3.87	2.89	0.00
26.00	3.87	2.89	0.00
27.00	3.87	2.89	0.00
28.00	3.87	2.89	0.00
29.00	3.87	2.89	0.00
30.00	3.87	2.89	0.00
31.00	3.87	2.89	0.00
32.00	3.87	2.89	0.00
33.00	3.87	2.89	0.00
34.00	3.87	2.89	0.00
35.00	3.87	2.89	0.00
36.00	3.87	2.89	0.00
37.00	3.87	2.89	0.00
38.00	3.87	2.89	0.00
39.00	3.87	2.89	0.00
40.00	3.87	2.89	0.00
41.00	3.87	2.89	0.00
42.00	3.87	2.89	0.00
43.00	3.87	2.89	0.00
44.00	3.87	2.89	0.00
45.00	3.87	2.89	0.00
46.00	3.87	2.89	0.00
47.00	3.87	2.89	0.00
48.00	3.87	2.89	0.00
49.00	3.87	2.89	0.00
50.00	3.87	2.89	0.00
51.00	3.87	2.89	0.00
52.00	3.87	2.89	0.00
53.00	3.87	2.89	0.00
54.00	3.87	2.89	0.00
55.00	3.87	2.89	0.00
56.00	3.87	2.89	0.00
57.00	3.87	2.89	0.00
58.00	3.87	2.89	0.00
59.00	3.87	2.89	0.00
60.00	3.87	2.89	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

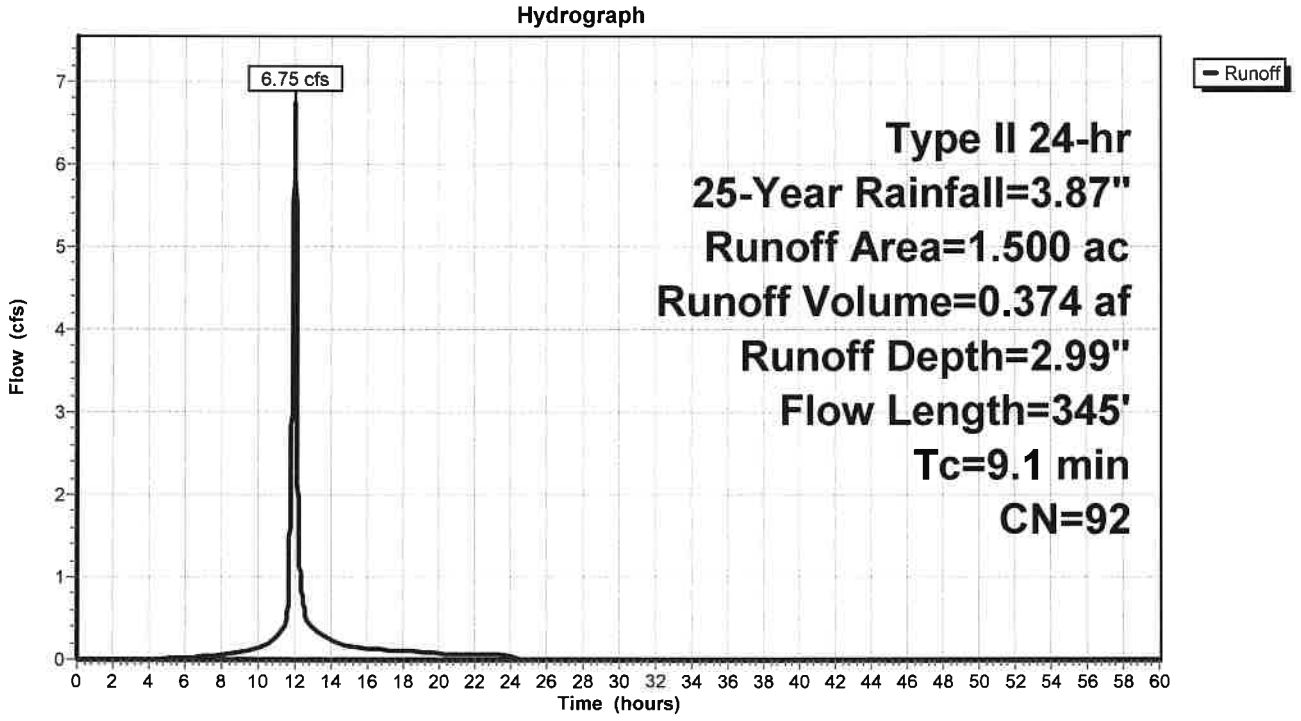
Runoff = 6.75 cfs @ 12.00 hrs, Volume= 0.374 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.87	2.99	0.00
1.00	0.04	0.00	0.00	53.00	3.87	2.99	0.00
2.00	0.09	0.00	0.00	54.00	3.87	2.99	0.00
3.00	0.13	0.00	0.00	55.00	3.87	2.99	0.00
4.00	0.19	0.00	0.00	56.00	3.87	2.99	0.00
5.00	0.24	0.01	0.01	57.00	3.87	2.99	0.00
6.00	0.31	0.02	0.02	58.00	3.87	2.99	0.00
7.00	0.38	0.04	0.04	59.00	3.87	2.99	0.00
8.00	0.46	0.07	0.05	60.00	3.87	2.99	0.00
9.00	0.57	0.12	0.09				
10.00	0.70	0.20	0.13				
11.00	0.91	0.34	0.27				
12.00	2.57	1.75	**6.75**				
13.00	2.99	2.15	0.38				
14.00	3.17	2.33	0.22				
15.00	3.30	2.45	0.17				
16.00	3.41	2.55	0.13				
17.00	3.49	2.63	0.12				
18.00	3.56	2.70	0.10				
19.00	3.63	2.76	0.09				
20.00	3.68	2.81	0.08				
21.00	3.73	2.86	0.07				
22.00	3.78	2.91	0.07				
23.00	3.83	2.95	0.07				
24.00	**3.87**	**2.99**	0.06				
25.00	3.87	2.99	0.00				
26.00	3.87	2.99	0.00				
27.00	3.87	2.99	0.00				
28.00	3.87	2.99	0.00				
29.00	3.87	2.99	0.00				
30.00	3.87	2.99	0.00				
31.00	3.87	2.99	0.00				
32.00	3.87	2.99	0.00				
33.00	3.87	2.99	0.00				
34.00	3.87	2.99	0.00				
35.00	3.87	2.99	0.00				
36.00	3.87	2.99	0.00				
37.00	3.87	2.99	0.00				
38.00	3.87	2.99	0.00				
39.00	3.87	2.99	0.00				
40.00	3.87	2.99	0.00				
41.00	3.87	2.99	0.00				
42.00	3.87	2.99	0.00				
43.00	3.87	2.99	0.00				
44.00	3.87	2.99	0.00				
45.00	3.87	2.99	0.00				
46.00	3.87	2.99	0.00				
47.00	3.87	2.99	0.00				
48.00	3.87	2.99	0.00				
49.00	3.87	2.99	0.00				
50.00	3.87	2.99	0.00				
51.00	3.87	2.99	0.00				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 2.94" for 25-Year event
Inflow = 11.11 cfs @ 12.06 hrs, Volume= 0.784 af
Outflow = 1.61 cfs @ 12.54 hrs, Volume= 0.740 af, Atten= 85%, Lag= 29.2 min
Primary = 1.61 cfs @ 12.54 hrs, Volume= 0.740 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 571.73' @ 12.54 hrs Surf.Area= 10,145 sf Storage= 15,804 cf

Plug-Flow detention time= 252.2 min calculated for 0.740 af (94% of inflow)
Center-of-Mass det. time= 168.6 min (1,084.7 - 916.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

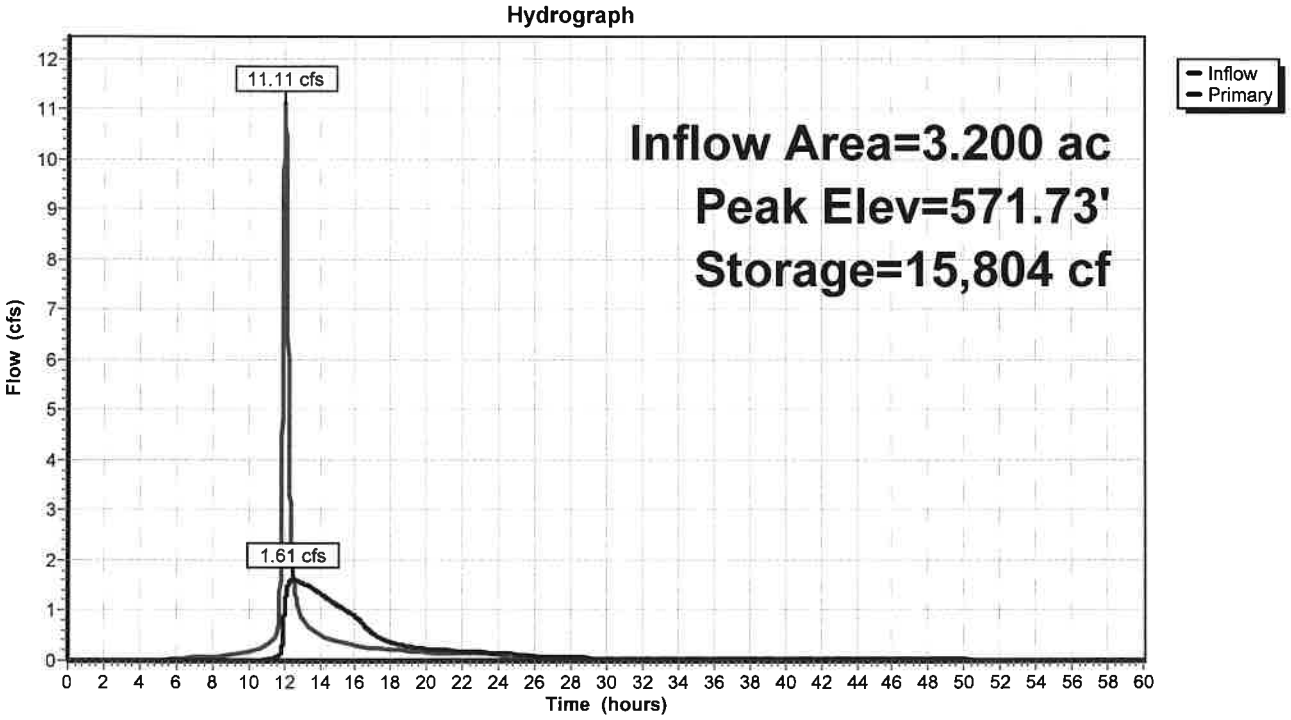
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

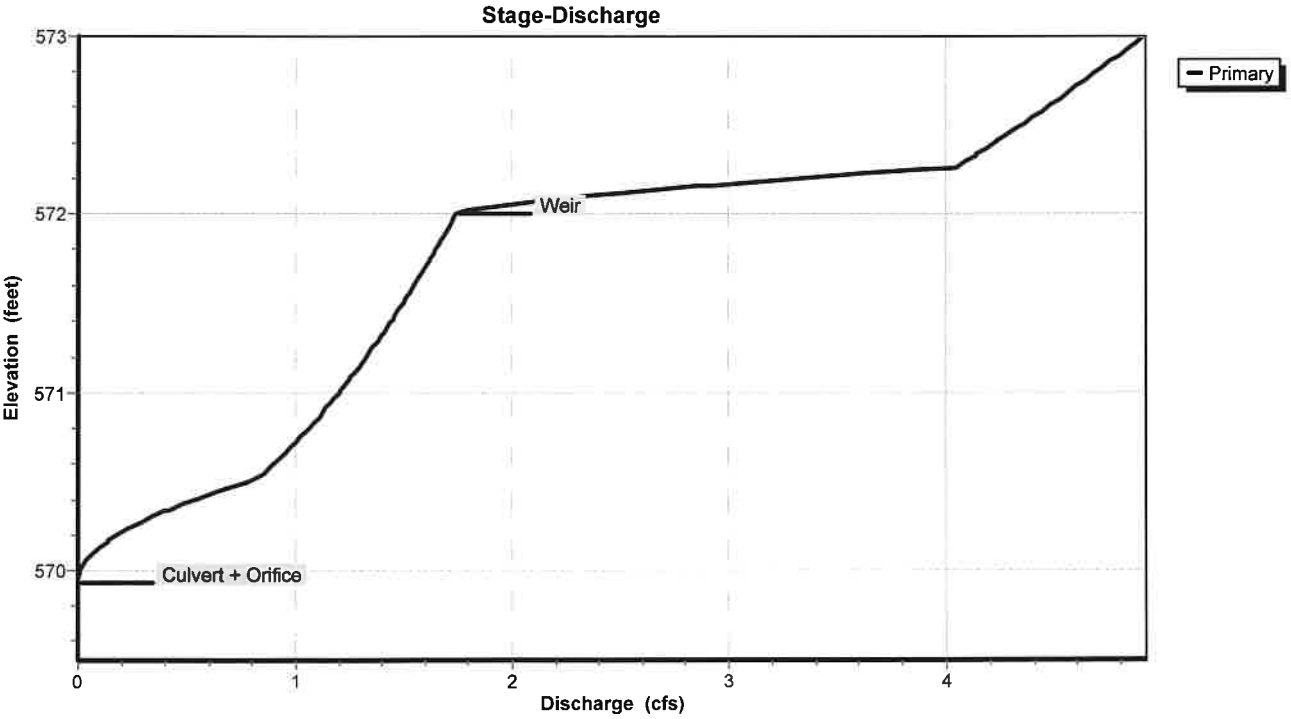
Primary OutFlow Max=1.61 cfs @ 12.54 hrs HW=571.73' (Free Discharge)
└**1=Culvert** (Passes 1.61 cfs of 3.29 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 1.61 cfs @ 6.16 fps)
  └**3=Weir** (Controls 0.00 cfs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

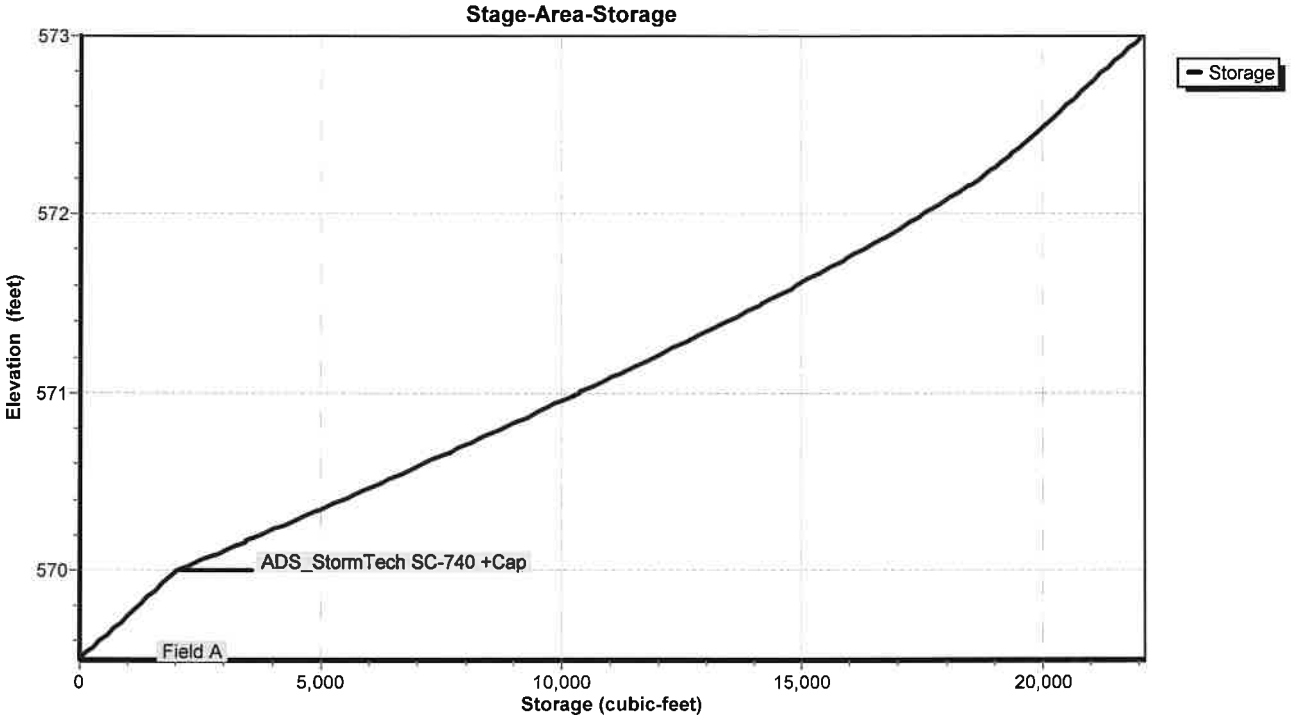


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	0	569.50	0.00
6.00	0.03	85	569.52	0.00
8.00	0.08	499	569.62	0.00
10.00	0.16	1,337	569.83	0.00
12.00	**10.28**	**7,562**	**570.65**	**0.94**
14.00	**0.49**	**12,132**	**571.23**	**1.34**
16.00	0.30	6,914	570.58	0.87
18.00	0.22	4,703	570.31	0.36
20.00	0.16	4,045	570.24	0.23
22.00	0.15	3,711	570.20	0.17
24.00	0.13	3,549	570.18	0.15
26.00	0.03	3,038	570.12	0.09
28.00	0.03	2,775	570.09	0.06
30.00	0.03	2,637	570.07	0.05
32.00	0.03	2,558	570.06	0.04
34.00	0.03	2,510	570.06	0.04
36.00	0.03	2,476	570.05	0.04
38.00	0.03	2,451	570.05	0.03
40.00	0.03	2,433	570.05	0.03
42.00	0.03	2,418	570.05	0.03
44.00	0.03	2,405	570.04	0.03
46.00	0.03	2,394	570.04	0.03
48.00	0.01	2,335	570.04	0.03
50.00	0.00	2,210	570.02	0.02
52.00	0.00	2,101	570.01	0.01
54.00	0.00	2,017	570.00	0.01
56.00	0.00	1,961	569.98	0.01
58.00	0.00	1,922	569.97	0.00
60.00	0.00	1,894	569.97	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 2.99" for 25-Year event
Inflow = 6.75 cfs @ 12.00 hrs, Volume= 0.374 af
Outflow = 4.78 cfs @ 12.08 hrs, Volume= 0.374 af, Atten= 29%, Lag= 4.5 min
Primary = 4.78 cfs @ 12.08 hrs, Volume= 0.374 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.82' @ 12.08 hrs Surf.Area= 6,409 sf Storage= 4,638 cf

Plug-Flow detention time= 252.6 min calculated for 0.374 af (100% of inflow)
Center-of-Mass det. time= 252.8 min (1,043.6 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

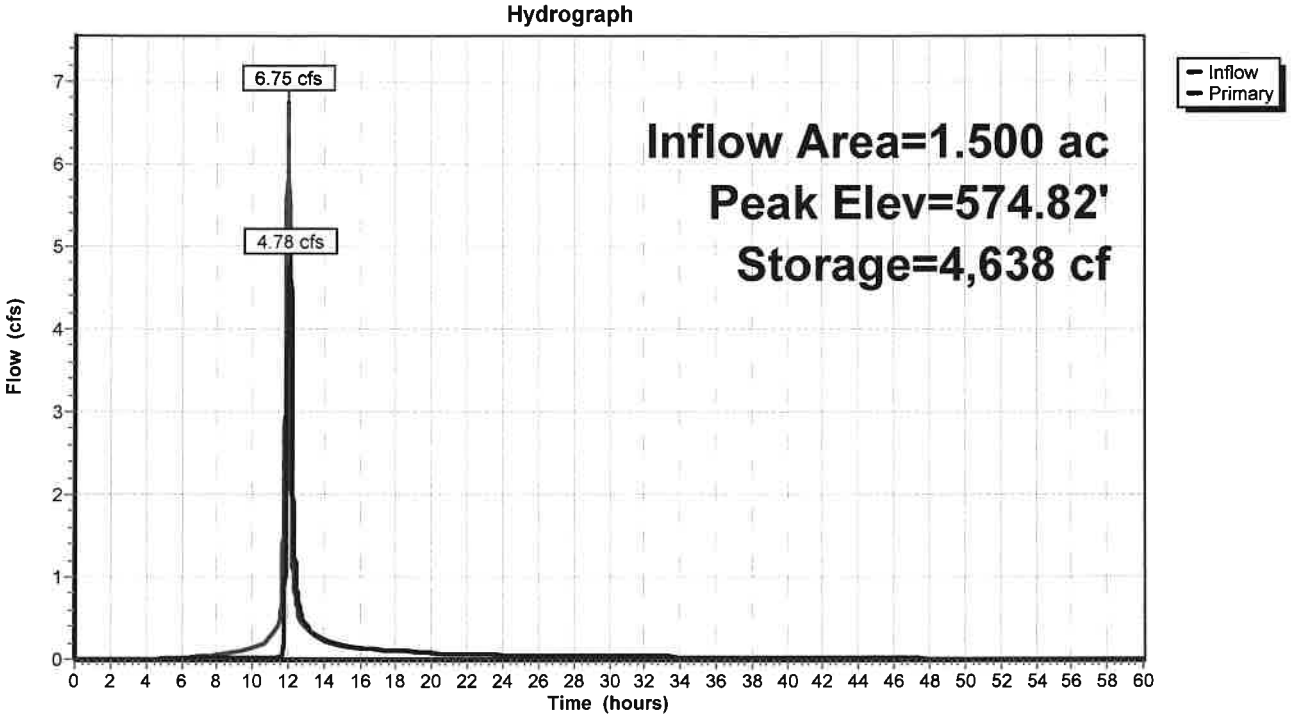
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

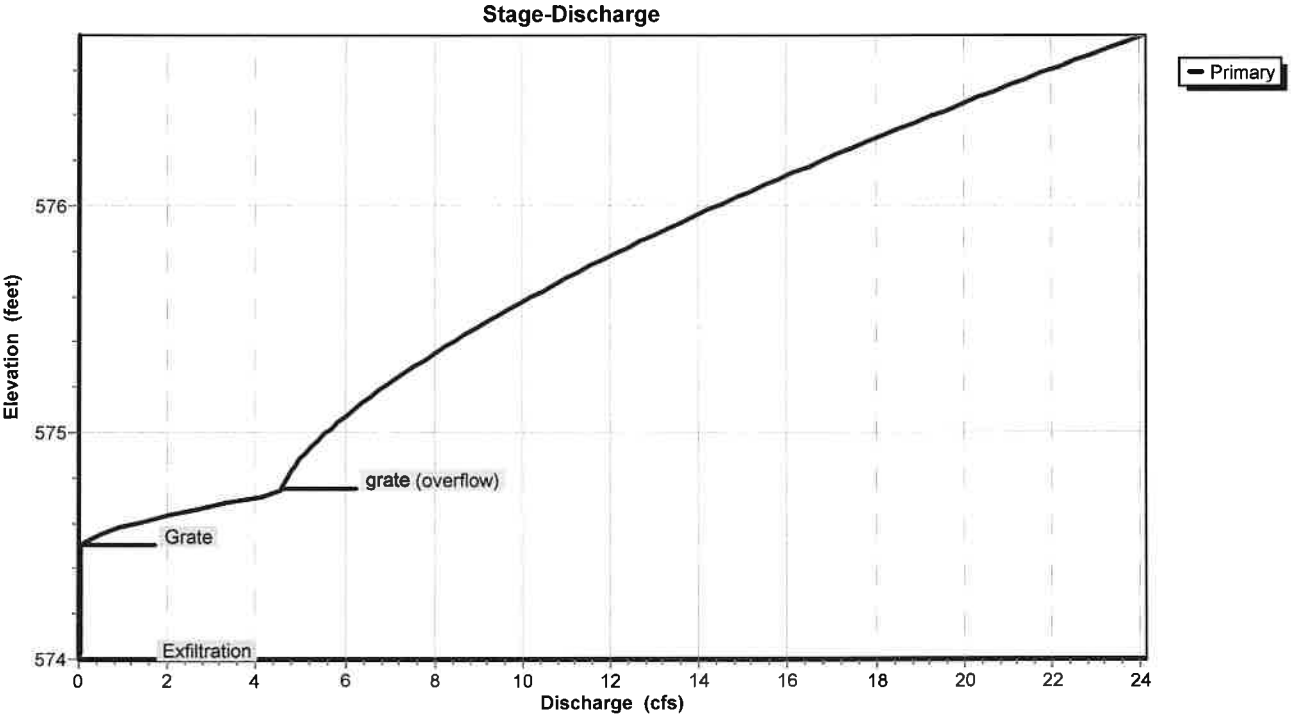
Primary OutFlow Max=4.78 cfs @ 12.08 hrs HW=574.82' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.65 cfs @ 5.92 fps)
  - **2=Grate** (Passes < 5.74 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 0.13 cfs @ 0.87 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

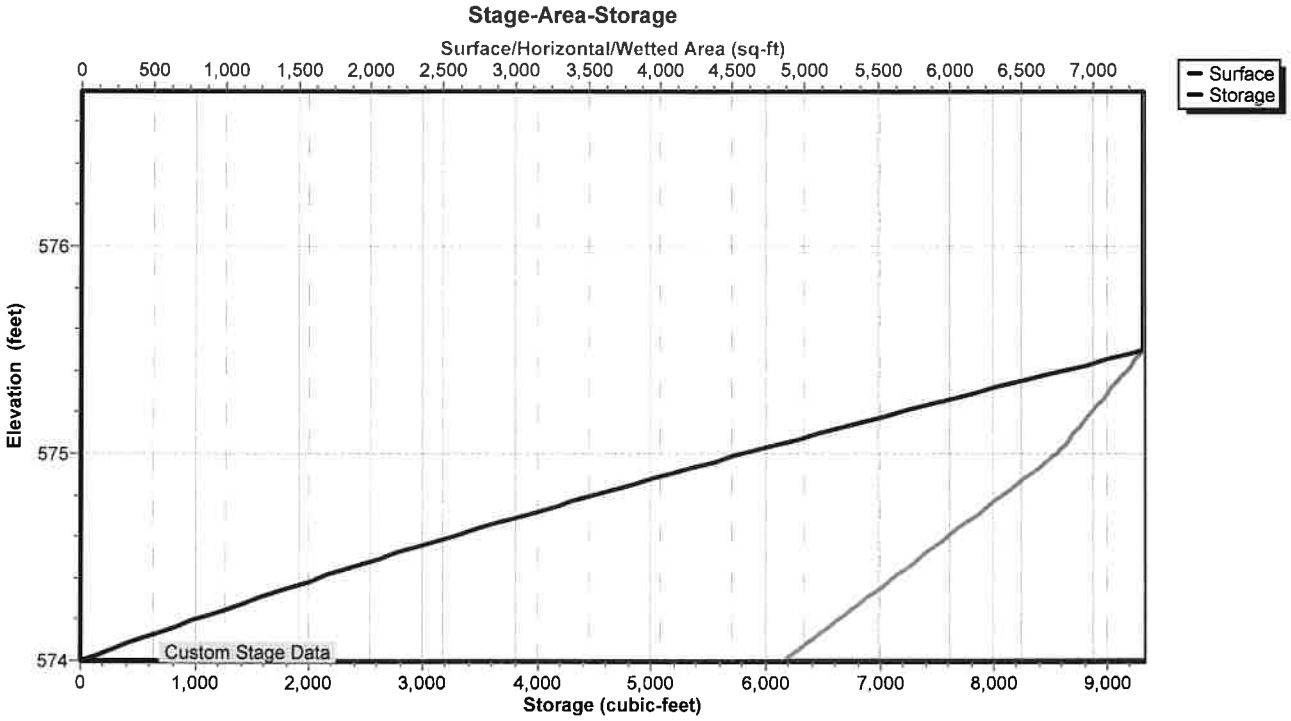


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.00	0	574.00	0.00
6.00	0.02	55	574.01	0.01
8.00	0.05	177	574.04	0.03
10.00	0.13	612	574.12	0.03
12.00	**6.75**	**4,265**	**574.77**	**4.62**
14.00	0.22	**2,825**	**574.53**	**0.24**
16.00	0.13	2,765	574.52	0.14
18.00	0.10	2,730	574.51	0.11
20.00	0.08	2,704	574.51	0.08
22.00	0.07	2,694	574.51	0.07
24.00	0.06	2,689	574.50	0.06
26.00	0.00	2,452	574.46	0.03
28.00	0.00	2,208	574.42	0.03
30.00	0.00	1,968	574.38	0.03
32.00	0.00	1,733	574.34	0.03
34.00	0.00	1,501	574.29	0.03
36.00	0.00	1,273	574.25	0.03
38.00	0.00	1,050	574.21	0.03
40.00	0.00	830	574.17	0.03
42.00	0.00	614	574.12	0.03
44.00	0.00	403	574.08	0.03
46.00	0.00	195	574.04	0.03
48.00	0.00	46	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=3.52"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=7.64 cfs 0.498 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=3.62"
Flow Length=345' Tc=9.1 min CN=92 Runoff=8.07 cfs 0.453 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=572.23' Storage=18,837 cf Inflow=12.80 cfs 0.951 af
Outflow=3.61 cfs 0.907 af

Pond 9P: Bioretention Area 3 Peak Elev=574.93' Storage=5,333 cf Inflow=8.07 cfs 0.453 af
Outflow=5.22 cfs 0.453 af

Total Runoff Area = 3.200 ac Runoff Volume = 0.951 af Average Runoff Depth = 3.57"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

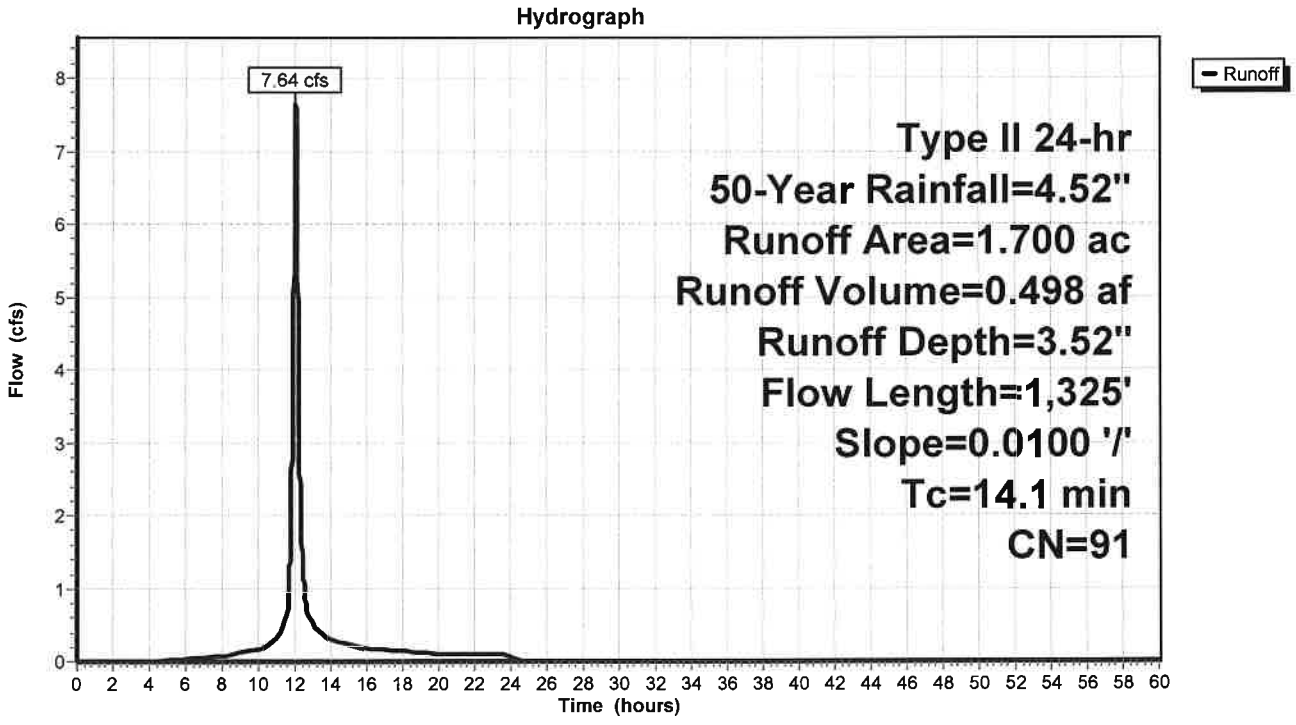
Runoff = 7.64 cfs @ 12.05 hrs, Volume= 0.498 af, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.01	0.02
6.00	0.36	0.02	0.03
7.00	0.45	0.05	0.05
8.00	0.54	0.09	0.07
9.00	0.66	0.15	0.12
10.00	0.82	0.24	0.17
11.00	1.06	0.40	0.34
12.00	3.00	2.07	**6.84**
13.00	3.49	2.53	**0.53**
14.00	3.71	2.74	0.30
15.00	3.86	2.88	0.23
16.00	3.98	3.00	0.18
17.00	4.08	3.09	0.16
18.00	4.16	3.17	0.14
19.00	4.24	3.25	0.12
20.00	4.30	3.31	0.10
21.00	4.36	3.36	0.09
22.00	4.42	3.42	0.09
23.00	4.47	3.47	0.09
24.00	**4.52**	**3.52**	0.08
25.00	4.52	3.52	0.00
26.00	4.52	3.52	0.00
27.00	4.52	3.52	0.00
28.00	4.52	3.52	0.00
29.00	4.52	3.52	0.00
30.00	4.52	3.52	0.00
31.00	4.52	3.52	0.00
32.00	4.52	3.52	0.00
33.00	4.52	3.52	0.00
34.00	4.52	3.52	0.00
35.00	4.52	3.52	0.00
36.00	4.52	3.52	0.00
37.00	4.52	3.52	0.00
38.00	4.52	3.52	0.00
39.00	4.52	3.52	0.00
40.00	4.52	3.52	0.00
41.00	4.52	3.52	0.00
42.00	4.52	3.52	0.00
43.00	4.52	3.52	0.00
44.00	4.52	3.52	0.00
45.00	4.52	3.52	0.00
46.00	4.52	3.52	0.00
47.00	4.52	3.52	0.00
48.00	4.52	3.52	0.00
49.00	4.52	3.52	0.00
50.00	4.52	3.52	0.00
51.00	4.52	3.52	0.00
52.00	4.52	3.52	0.00
53.00	4.52	3.52	0.00
54.00	4.52	3.52	0.00
55.00	4.52	3.52	0.00
56.00	4.52	3.52	0.00
57.00	4.52	3.52	0.00
58.00	4.52	3.52	0.00
59.00	4.52	3.52	0.00
60.00	4.52	3.52	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

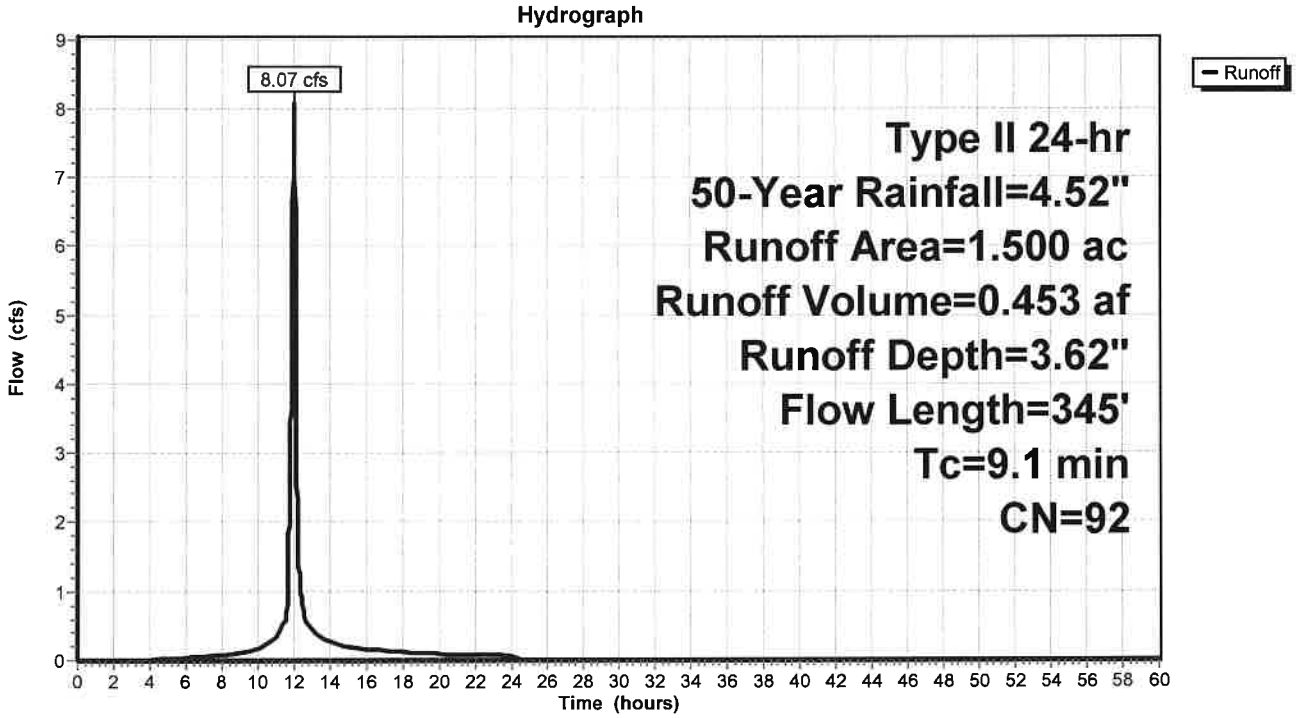
Runoff = 8.07 cfs @ 12.00 hrs, Volume= 0.453 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.01
5.00	0.28	0.01	0.02
6.00	0.36	0.03	0.04
7.00	0.45	0.07	0.06
8.00	0.54	0.11	0.07
9.00	0.66	0.18	0.12
10.00	0.82	0.27	0.17
11.00	1.06	0.45	0.34
12.00	3.00	2.16	**8.07**
13.00	3.49	2.63	0.45
14.00	3.71	2.83	0.26
15.00	3.86	2.98	0.20
16.00	3.98	3.10	0.16
17.00	4.08	3.19	0.14
18.00	4.16	3.28	0.12
19.00	4.24	3.35	0.11
20.00	4.30	3.41	0.09
21.00	4.36	3.47	0.08
22.00	4.42	3.52	0.08
23.00	4.47	3.57	0.08
24.00	**4.52**	**3.62**	0.07
25.00	4.52	3.62	0.00
26.00	4.52	3.62	0.00
27.00	4.52	3.62	0.00
28.00	4.52	3.62	0.00
29.00	4.52	3.62	0.00
30.00	4.52	3.62	0.00
31.00	4.52	3.62	0.00
32.00	4.52	3.62	0.00
33.00	4.52	3.62	0.00
34.00	4.52	3.62	0.00
35.00	4.52	3.62	0.00
36.00	4.52	3.62	0.00
37.00	4.52	3.62	0.00
38.00	4.52	3.62	0.00
39.00	4.52	3.62	0.00
40.00	4.52	3.62	0.00
41.00	4.52	3.62	0.00
42.00	4.52	3.62	0.00
43.00	4.52	3.62	0.00
44.00	4.52	3.62	0.00
45.00	4.52	3.62	0.00
46.00	4.52	3.62	0.00
47.00	4.52	3.62	0.00
48.00	4.52	3.62	0.00
49.00	4.52	3.62	0.00
50.00	4.52	3.62	0.00
51.00	4.52	3.62	0.00
52.00	4.52	3.62	0.00
53.00	4.52	3.62	0.00
54.00	4.52	3.62	0.00
55.00	4.52	3.62	0.00
56.00	4.52	3.62	0.00
57.00	4.52	3.62	0.00
58.00	4.52	3.62	0.00
59.00	4.52	3.62	0.00
60.00	4.52	3.62	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 3.57" for 50-Year event
Inflow = 12.80 cfs @ 12.06 hrs, Volume= 0.951 af
Outflow = 3.61 cfs @ 12.36 hrs, Volume= 0.907 af, Atten= 72%, Lag= 17.7 min
Primary = 3.61 cfs @ 12.36 hrs, Volume= 0.907 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 572.23' @ 12.36 hrs Surf.Area= 10,145 sf Storage= 18,837 cf

Plug-Flow detention time= 228.3 min calculated for 0.907 af (95% of inflow)
Center-of-Mass det. time= 158.8 min (1,051.4 - 892.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

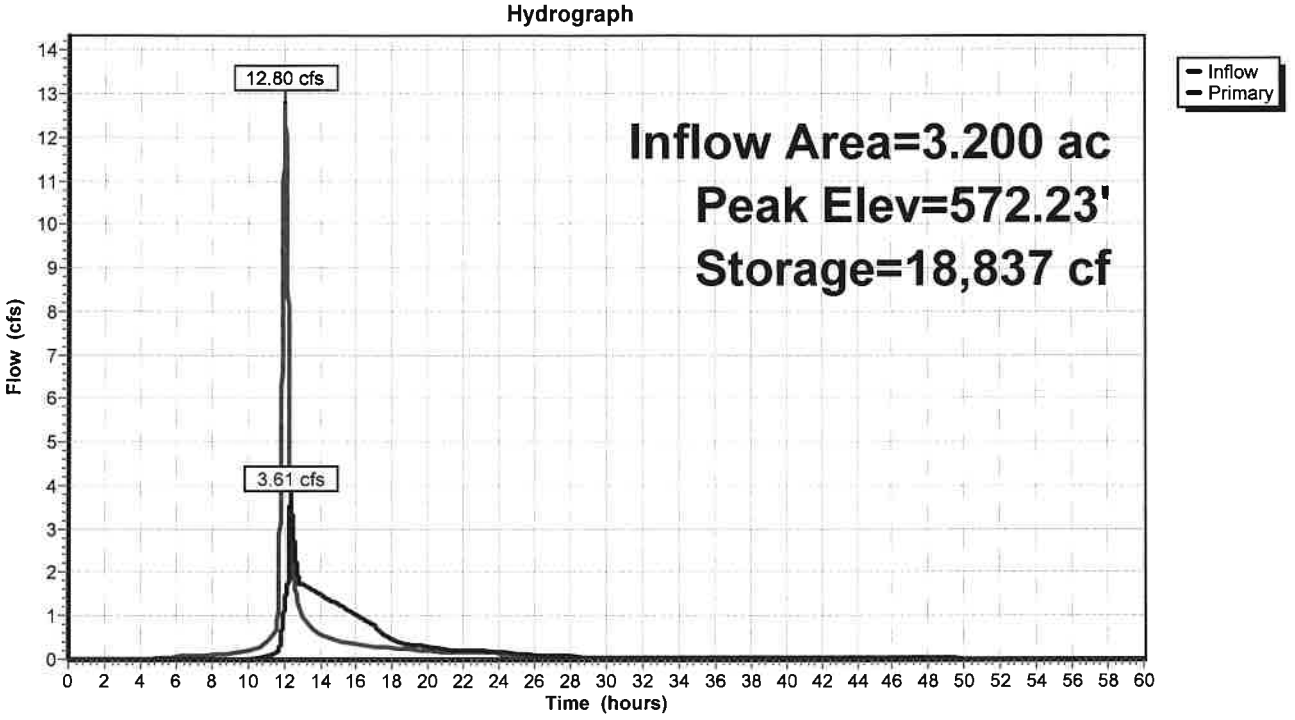
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

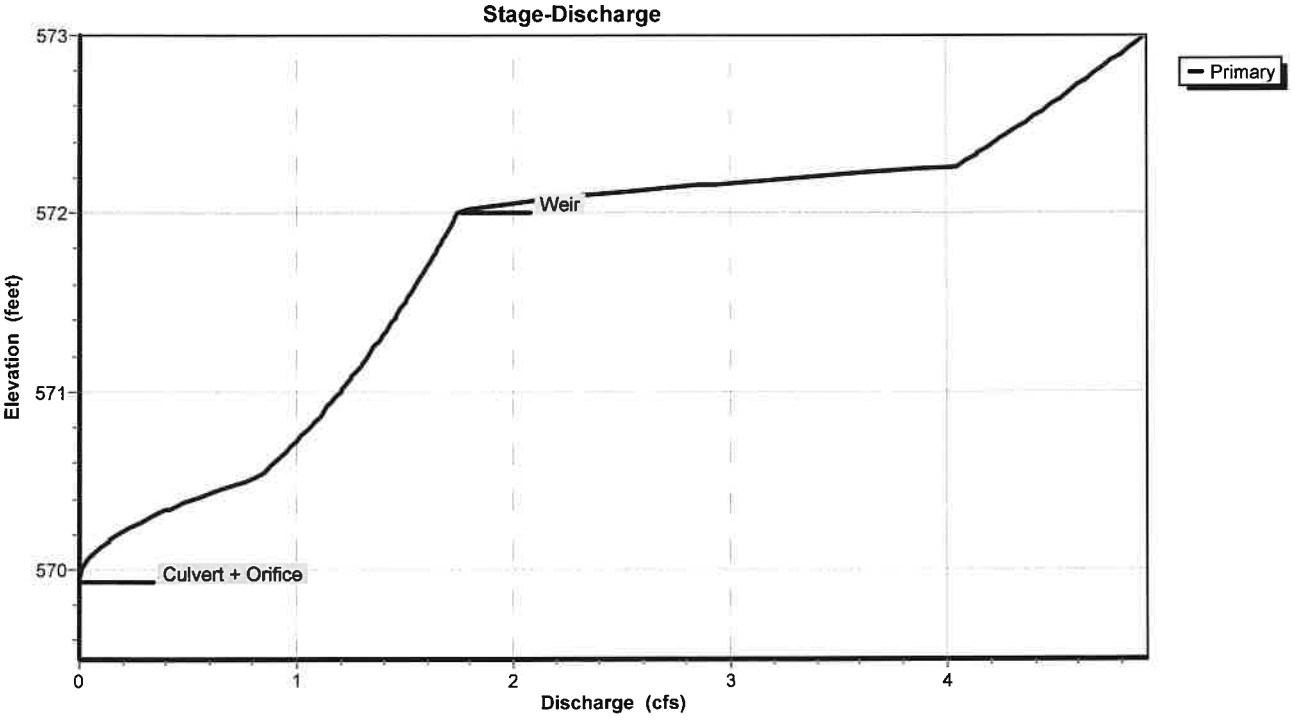
Primary OutFlow Max=3.60 cfs @ 12.36 hrs HW=572.23' (Free Discharge)
└**1=Culvert** (Passes 3.60 cfs of 4.00 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 1.84 cfs @ 7.03 fps)
  └**3=Weir** (Weir Controls 1.76 cfs @ 1.56 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

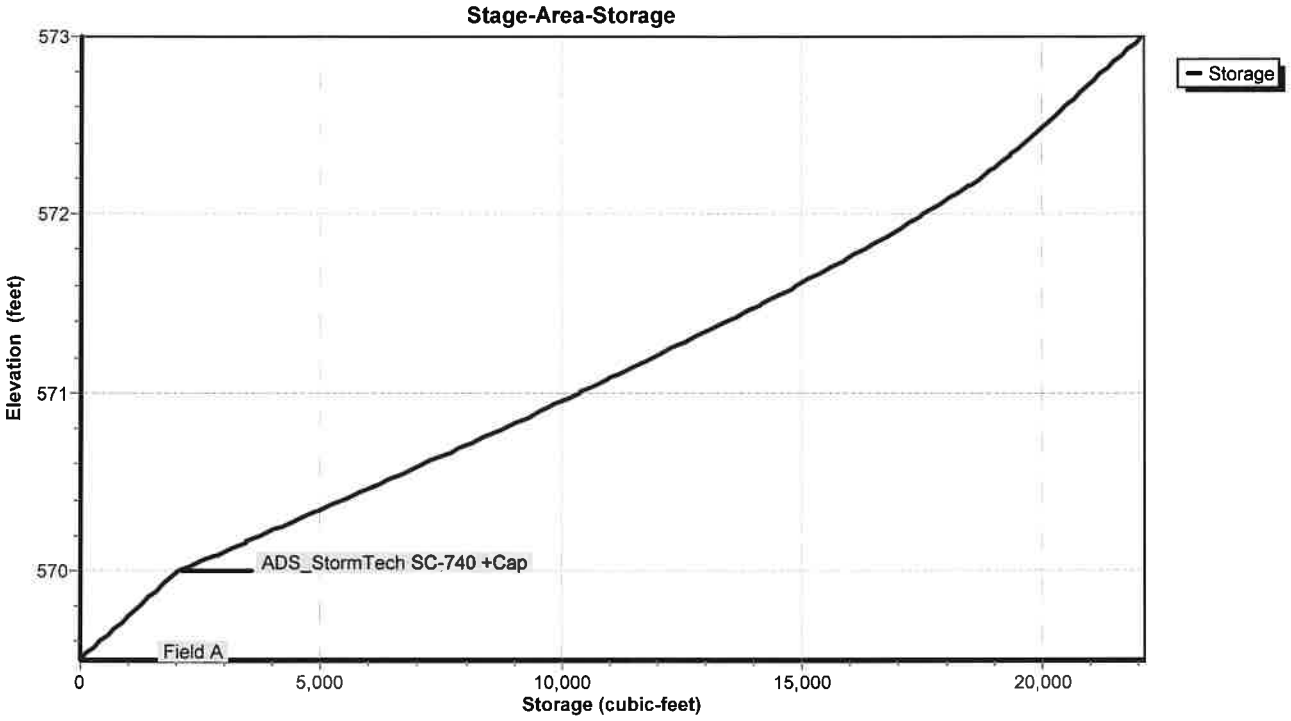


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.00	1	569.50	0.00
6.00	0.05	184	569.55	0.00
8.00	0.10	755	569.69	0.00
10.00	0.20	1,811	569.95	0.00
12.00	**11.66**	**9,752**	**570.92**	**1.15**
14.00	**0.59**	**14,219**	**571.51**	**1.50**
16.00	0.35	8,385	570.75	1.02
18.00	0.26	5,166	570.37	0.47
20.00	0.19	4,282	570.26	0.27
22.00	0.17	3,893	570.22	0.20
24.00	0.16	3,718	570.20	0.18
26.00	0.03	3,113	570.13	0.09
28.00	0.03	2,810	570.09	0.06
30.00	0.03	2,657	570.07	0.05
32.00	0.03	2,569	570.06	0.04
34.00	0.03	2,516	570.06	0.04
36.00	0.03	2,480	570.05	0.04
38.00	0.03	2,454	570.05	0.03
40.00	0.03	2,435	570.05	0.03
42.00	0.03	2,419	570.05	0.03
44.00	0.03	2,406	570.04	0.03
46.00	0.03	2,395	570.04	0.03
48.00	0.01	2,338	570.04	0.03
50.00	0.00	2,213	570.02	0.02
52.00	0.00	2,103	570.01	0.01
54.00	0.00	2,018	570.00	0.01
56.00	0.00	1,962	569.98	0.01
58.00	0.00	1,923	569.97	0.00
60.00	0.00	1,894	569.97	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 3.62" for 50-Year event
Inflow = 8.07 cfs @ 12.00 hrs, Volume= 0.453 af
Outflow = 5.22 cfs @ 12.09 hrs, Volume= 0.453 af, Atten= 35%, Lag= 5.1 min
Primary = 5.22 cfs @ 12.09 hrs, Volume= 0.453 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 574.93' @ 12.09 hrs Surf.Area= 6,611 sf Storage= 5,333 cf

Plug-Flow detention time= 214.9 min calculated for 0.453 af (100% of inflow)
Center-of-Mass det. time= 215.2 min (1,000.7 - 785.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

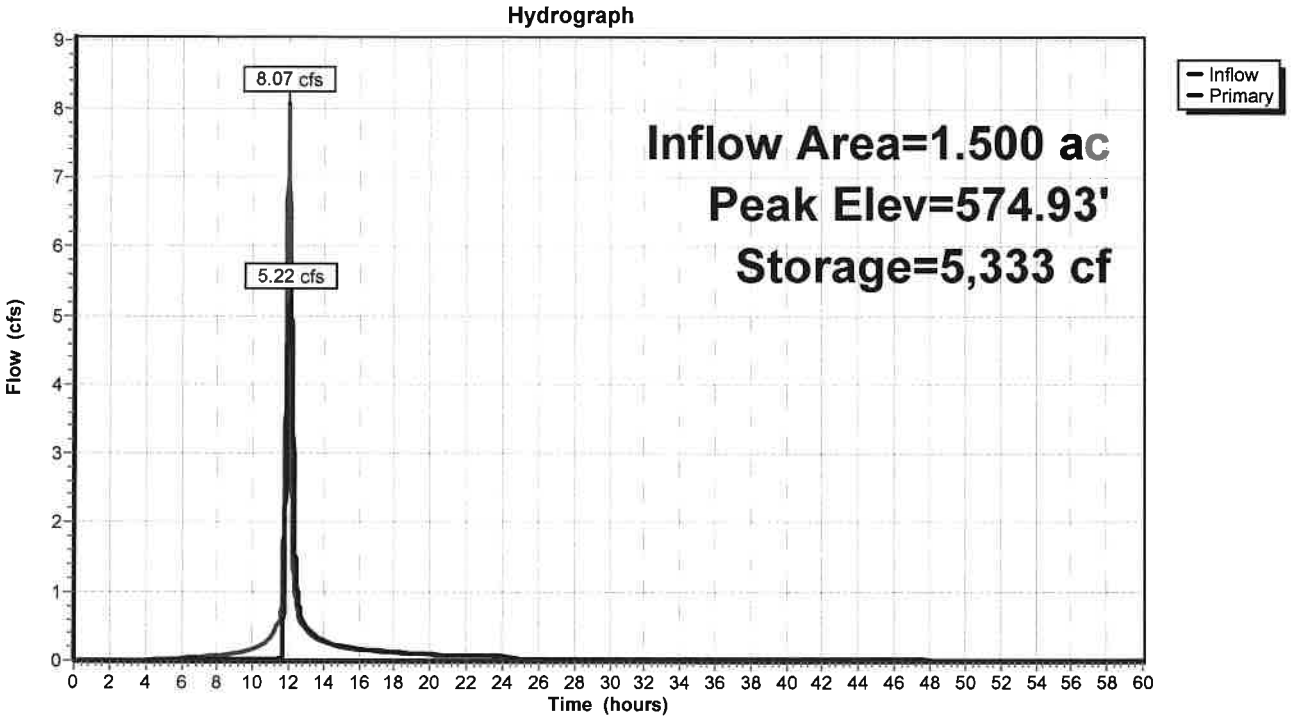
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

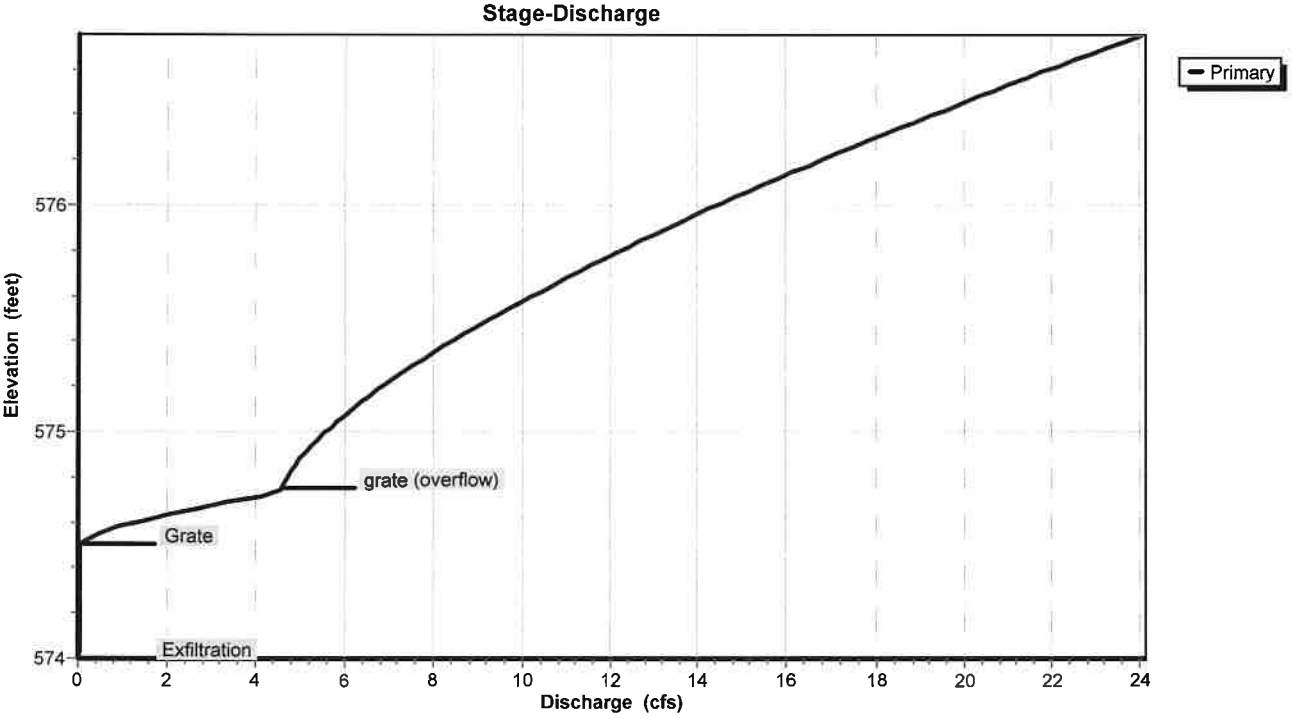
Primary OutFlow Max=5.22 cfs @ 12.09 hrs HW=574.93' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.73 cfs @ 6.02 fps)
  - **2=Grate** (Passes < 6.61 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 0.49 cfs @ 1.36 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

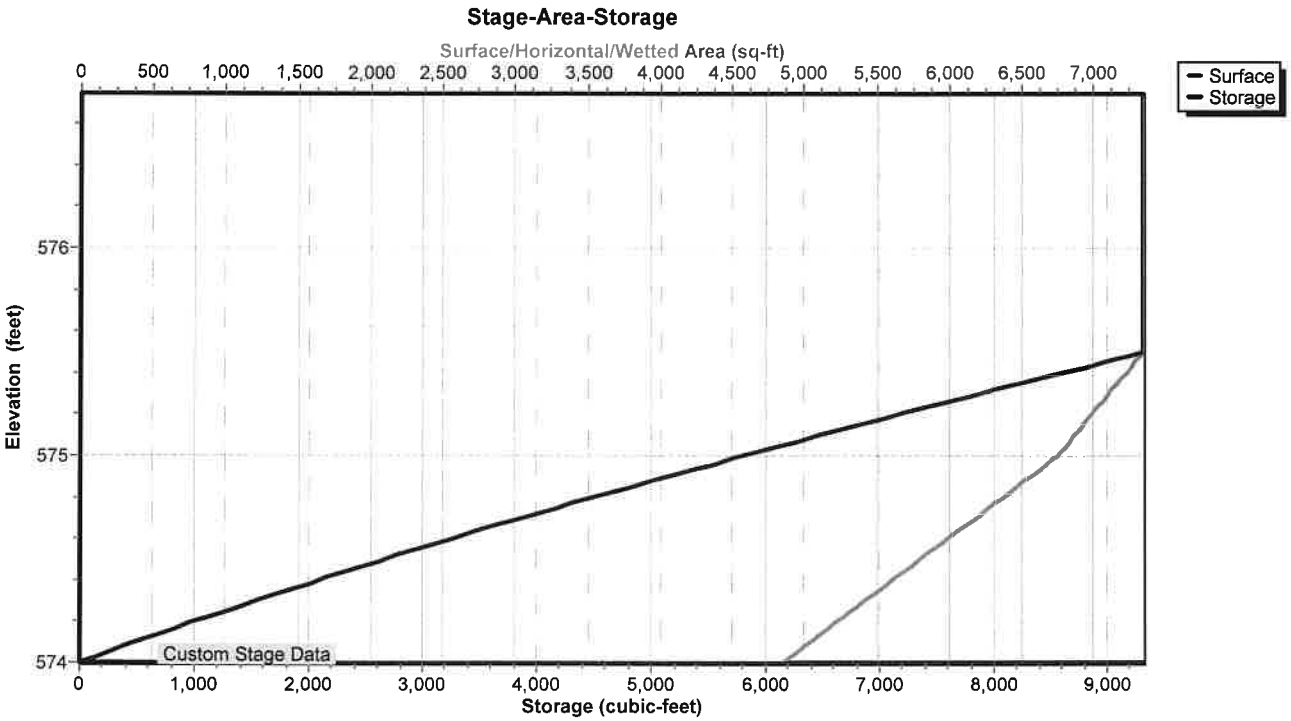


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.01	6	574.00	0.00
6.00	0.04	95	574.02	0.02
8.00	0.07	296	574.06	0.03
10.00	0.17	928	574.18	0.03
12.00	**8.07**	**4,720**	**574.84**	**4.83**
14.00	0.26	**2,846**	**574.53**	**0.28**
16.00	0.16	2,787	574.52	0.17
18.00	0.12	2,748	574.51	0.13
20.00	0.09	2,717	574.51	0.09
22.00	0.08	2,706	574.51	0.08
24.00	0.07	2,699	574.51	0.07
26.00	0.00	2,457	574.46	0.03
28.00	0.00	2,213	574.42	0.03
30.00	0.00	1,974	574.38	0.03
32.00	0.00	1,738	574.34	0.03
34.00	0.00	1,506	574.29	0.03
36.00	0.00	1,278	574.25	0.03
38.00	0.00	1,055	574.21	0.03
40.00	0.00	835	574.17	0.03
42.00	0.00	619	574.12	0.03
44.00	0.00	407	574.08	0.03
46.00	0.00	199	574.04	0.03
48.00	0.00	47	574.01	0.01
50.00	0.00	10	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	0	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Front Area 2 Runoff Area=1.700 ac 58.82% Impervious Runoff Depth=4.25"
Flow Length=1,325' Slope=0.0100 '/' Tc=14.1 min CN=91 Runoff=9.15 cfs 0.603 af

Subcatchment 10S: Rear Area 2 Runoff Area=1.500 ac 66.67% Impervious Runoff Depth=4.36"
Flow Length=345' Tc=9.1 min CN=92 Runoff=9.61 cfs 0.545 af

Pond 7P: Underground Storage (SMA #2) Peak Elev=572.92' Storage=21,772 cf Inflow=14.92 cfs 1.148 af
Outflow=4.83 cfs 1.105 af

Pond 9P: Bioretention Area 3 Peak Elev=575.05' Storage=6,150 cf Inflow=9.61 cfs 0.545 af
Outflow=5.89 cfs 0.545 af

Total Runoff Area = 3.200 ac Runoff Volume = 1.148 af Average Runoff Depth = 4.31"
37.50% Pervious = 1.200 ac 62.50% Impervious = 2.000 ac

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 8S: Front Area 2

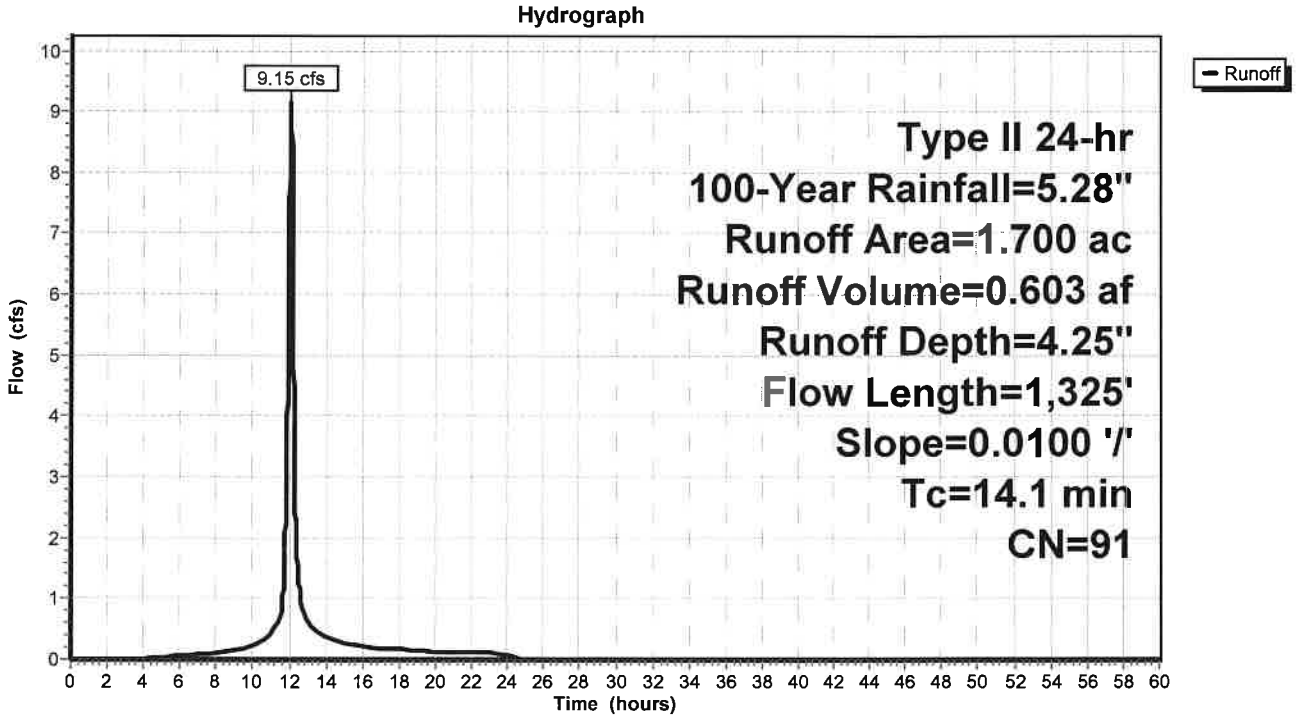
Runoff = 9.15 cfs @ 12.05 hrs, Volume= 0.603 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG D
0.300	98	Roofs, HSG D
0.700	80	>75% Grass cover, Good, HSG D
1.700	91	Weighted Average
0.700		41.18% Pervious Area
1.000		58.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0100	0.09		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
7.1	1,285		3.00		**Direct Entry, Pipe flow**
14.1	1,325	Total			

Subcatchment 8S: Front Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 8S: Front Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.28	4.25	0.00
1.00	0.06	0.00	0.00	53.00	5.28	4.25	0.00
2.00	0.12	0.00	0.00	54.00	5.28	4.25	0.00
3.00	0.18	0.00	0.00	55.00	5.28	4.25	0.00
4.00	0.25	0.00	0.01	56.00	5.28	4.25	0.00
5.00	0.33	0.02	0.03	57.00	5.28	4.25	0.00
6.00	0.42	0.04	0.05	58.00	5.28	4.25	0.00
7.00	0.52	0.08	0.07	59.00	5.28	4.25	0.00
8.00	0.63	0.13	0.10	60.00	5.28	4.25	0.00
9.00	0.78	0.21	0.16				
10.00	0.96	0.33	0.22				
11.00	1.24	0.54	0.43				
12.00	3.50	2.54	**8.21**				
13.00	4.08	3.09	**0.63**				
14.00	4.33	3.33	0.36				
15.00	4.51	3.50	0.28				
16.00	4.65	3.64	0.21				
17.00	4.76	3.75	0.18				
18.00	4.86	3.85	0.16				
19.00	4.95	3.93	0.14				
20.00	5.03	4.01	0.12				
21.00	5.09	4.07	0.11				
22.00	5.16	4.14	0.11				
23.00	5.22	4.20	0.10				
24.00	**5.28**	**4.25**	0.10				
25.00	5.28	4.25	0.00				
26.00	5.28	4.25	0.00				
27.00	5.28	4.25	0.00				
28.00	5.28	4.25	0.00				
29.00	5.28	4.25	0.00				
30.00	5.28	4.25	0.00				
31.00	5.28	4.25	0.00				
32.00	5.28	4.25	0.00				
33.00	5.28	4.25	0.00				
34.00	5.28	4.25	0.00				
35.00	5.28	4.25	0.00				
36.00	5.28	4.25	0.00				
37.00	5.28	4.25	0.00				
38.00	5.28	4.25	0.00				
39.00	5.28	4.25	0.00				
40.00	5.28	4.25	0.00				
41.00	5.28	4.25	0.00				
42.00	5.28	4.25	0.00				
43.00	5.28	4.25	0.00				
44.00	5.28	4.25	0.00				
45.00	5.28	4.25	0.00				
46.00	5.28	4.25	0.00				
47.00	5.28	4.25	0.00				
48.00	5.28	4.25	0.00				
49.00	5.28	4.25	0.00				
50.00	5.28	4.25	0.00				
51.00	5.28	4.25	0.00				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Subcatchment 10S: Rear Area 2

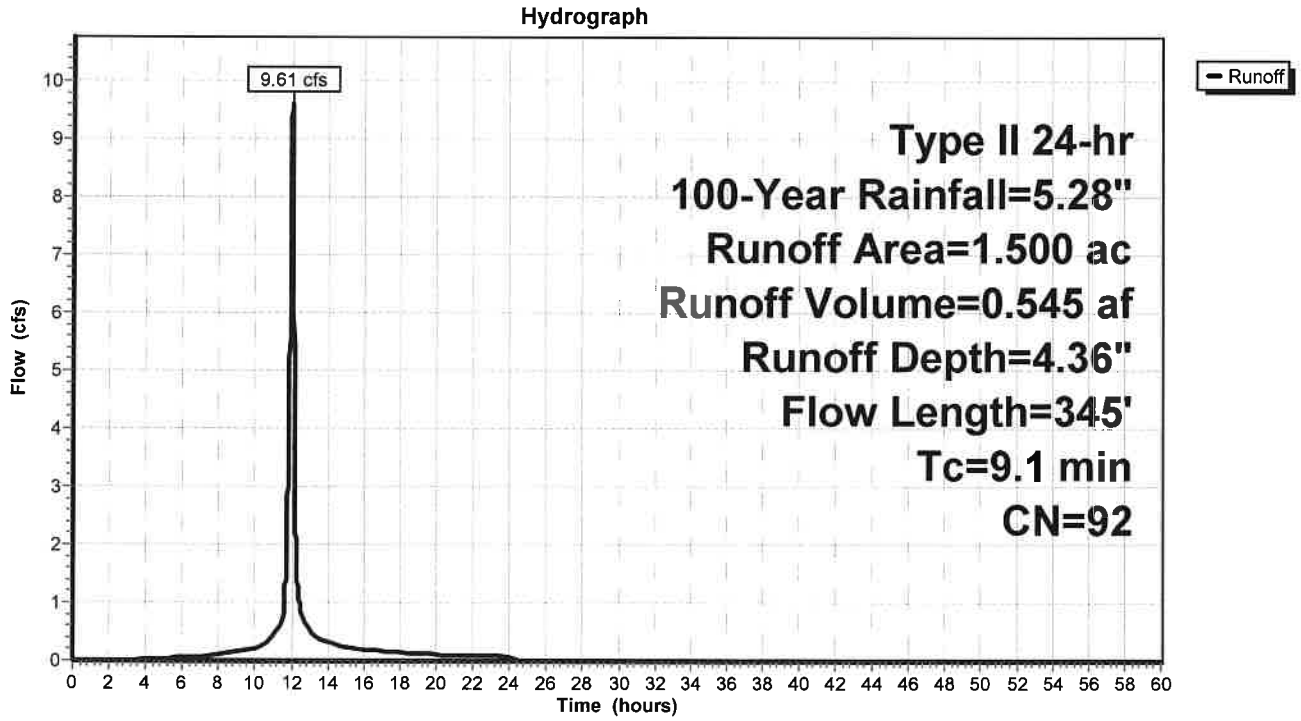
Runoff = 9.61 cfs @ 12.00 hrs, Volume= 0.545 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
0.500	98	Paved parking, HSG D
0.500	98	Roofs, HSG D
0.500	80	>75% Grass cover, Good, HSG D
1.500	92	Weighted Average
0.500		33.33% Pervious Area
1.000		66.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0200	0.13		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
0.8	45	0.0170	0.97		**Sheet Flow, pavement** Smooth surfaces n= 0.011 P2= 2.50"
1.4	245		3.00		**Direct Entry, Pipe flow**
9.1	345	Total			

Subcatchment 10S: Rear Area 2



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Subcatchment 10S: Rear Area 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.01	0.02
5.00	0.33	0.02	0.03
6.00	0.42	0.06	0.05
7.00	0.52	0.10	0.08
8.00	0.63	0.16	0.10
9.00	0.78	0.25	0.16
10.00	0.96	0.37	0.22
11.00	1.24	0.59	0.42
12.00	3.50	2.64	**9.61**
13.00	4.08	3.19	0.53
14.00	4.33	3.44	0.31
15.00	4.51	3.61	0.24
16.00	4.65	3.74	0.19
17.00	4.76	3.86	0.16
18.00	4.86	3.96	0.14
19.00	4.95	4.04	0.12
20.00	5.03	4.12	0.10
21.00	5.09	4.18	0.10
22.00	5.16	4.24	0.09
23.00	5.22	4.30	0.09
24.00	**5.28**	**4.36**	0.09
25.00	5.28	4.36	0.00
26.00	5.28	4.36	0.00
27.00	5.28	4.36	0.00
28.00	5.28	4.36	0.00
29.00	5.28	4.36	0.00
30.00	5.28	4.36	0.00
31.00	5.28	4.36	0.00
32.00	5.28	4.36	0.00
33.00	5.28	4.36	0.00
34.00	5.28	4.36	0.00
35.00	5.28	4.36	0.00
36.00	5.28	4.36	0.00
37.00	5.28	4.36	0.00
38.00	5.28	4.36	0.00
39.00	5.28	4.36	0.00
40.00	5.28	4.36	0.00
41.00	5.28	4.36	0.00
42.00	5.28	4.36	0.00
43.00	5.28	4.36	0.00
44.00	5.28	4.36	0.00
45.00	5.28	4.36	0.00
46.00	5.28	4.36	0.00
47.00	5.28	4.36	0.00
48.00	5.28	4.36	0.00
49.00	5.28	4.36	0.00
50.00	5.28	4.36	0.00
51.00	5.28	4.36	0.00
52.00	5.28	4.36	0.00
53.00	5.28	4.36	0.00
54.00	5.28	4.36	0.00
55.00	5.28	4.36	0.00
56.00	5.28	4.36	0.00
57.00	5.28	4.36	0.00
58.00	5.28	4.36	0.00
59.00	5.28	4.36	0.00
60.00	5.28	4.36	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 7P: Underground Storage (SMA #2)

Inflow Area = 3.200 ac, 62.50% Impervious, Inflow Depth = 4.31" for 100-Year event
Inflow = 14.92 cfs @ 12.06 hrs, Volume= 1.148 af
Outflow = 4.83 cfs @ 12.36 hrs, Volume= 1.105 af, Atten= 68%, Lag= 18.1 min
Primary = 4.83 cfs @ 12.36 hrs, Volume= 1.105 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 572.92' @ 12.36 hrs Surf.Area= 10,145 sf Storage= 21,772 cf

Plug-Flow detention time= 201.7 min calculated for 1.105 af (96% of inflow)
Center-of-Mass det. time= 143.6 min (1,016.5 - 873.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	569.50'	8,947 cf	**53.75'W x 188.74'L x 3.50'H Field A** 35,506 cf Overall - 13,139 cf Embedded = 22,367 cf x 40.0% Voids
#2A	570.00'	13,139 cf	**ADS_StormTech SC-740 +Cap** x 286 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 11 Rows of 26 Chambers
		22,086 cf	Total Available Storage

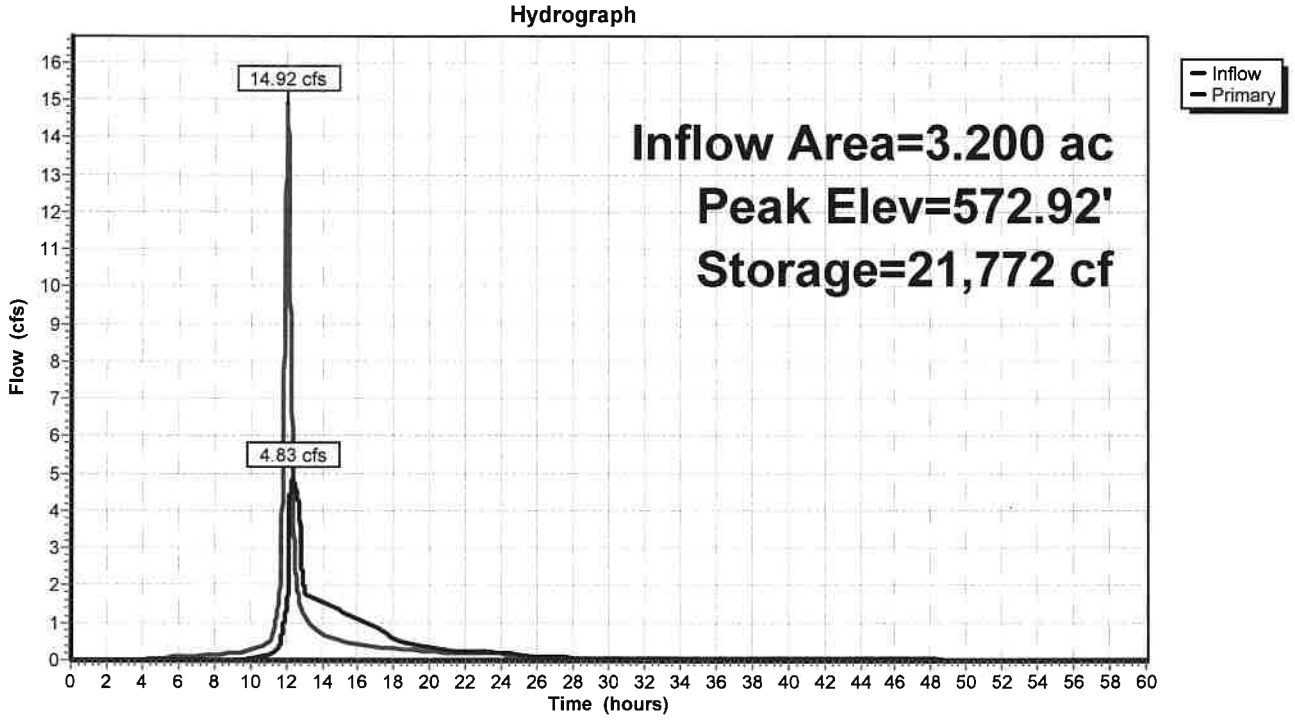
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	569.93'	**12.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 569.93' / 569.71' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	569.93'	**4.0" Vert. Orifice X 3.00** C= 0.600
#3	Device 1	572.00'	**5.0' long Weir** 2 End Contraction(s)

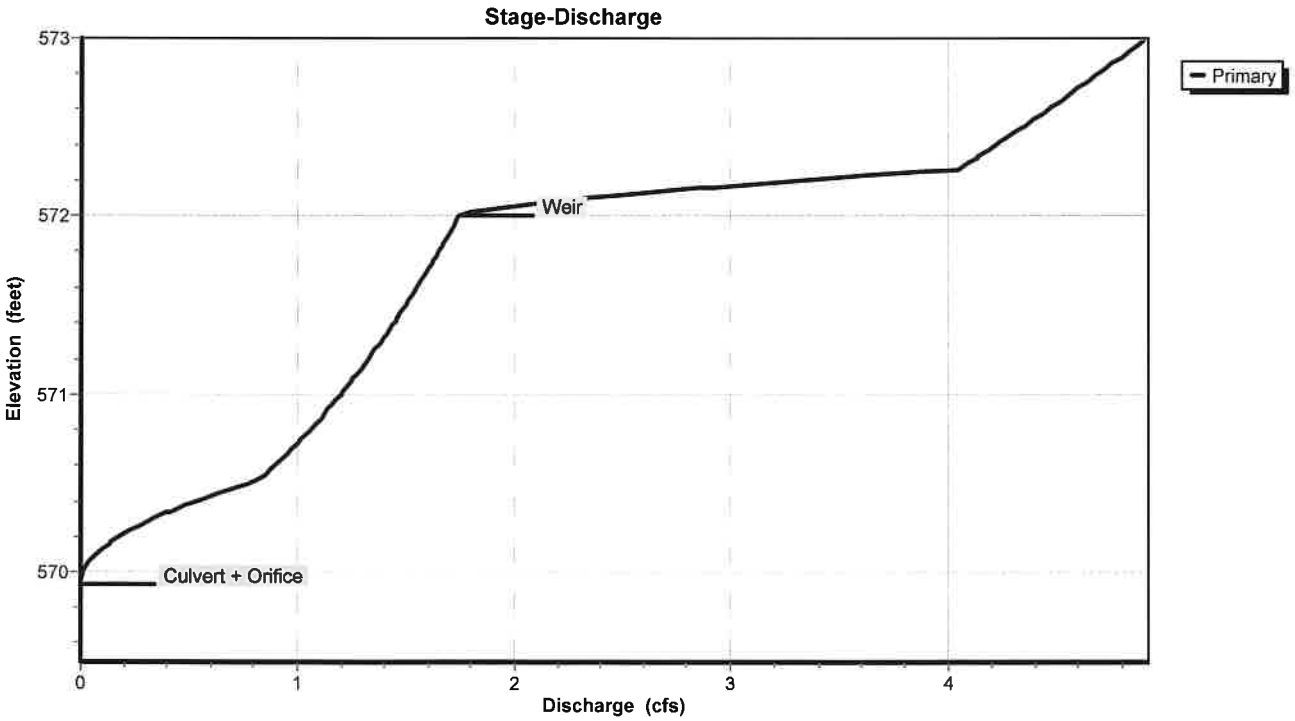
Primary OutFlow Max=4.83 cfs @ 12.36 hrs HW=572.92' (Free Discharge)
↑└**1=Culvert** (Barrel Controls 4.83 cfs @ 6.16 fps)
↑ ├**2=Orifice** (Passes < 2.12 cfs potential flow)
 └**3=Weir** (Passes < 13.95 cfs potential flow)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)

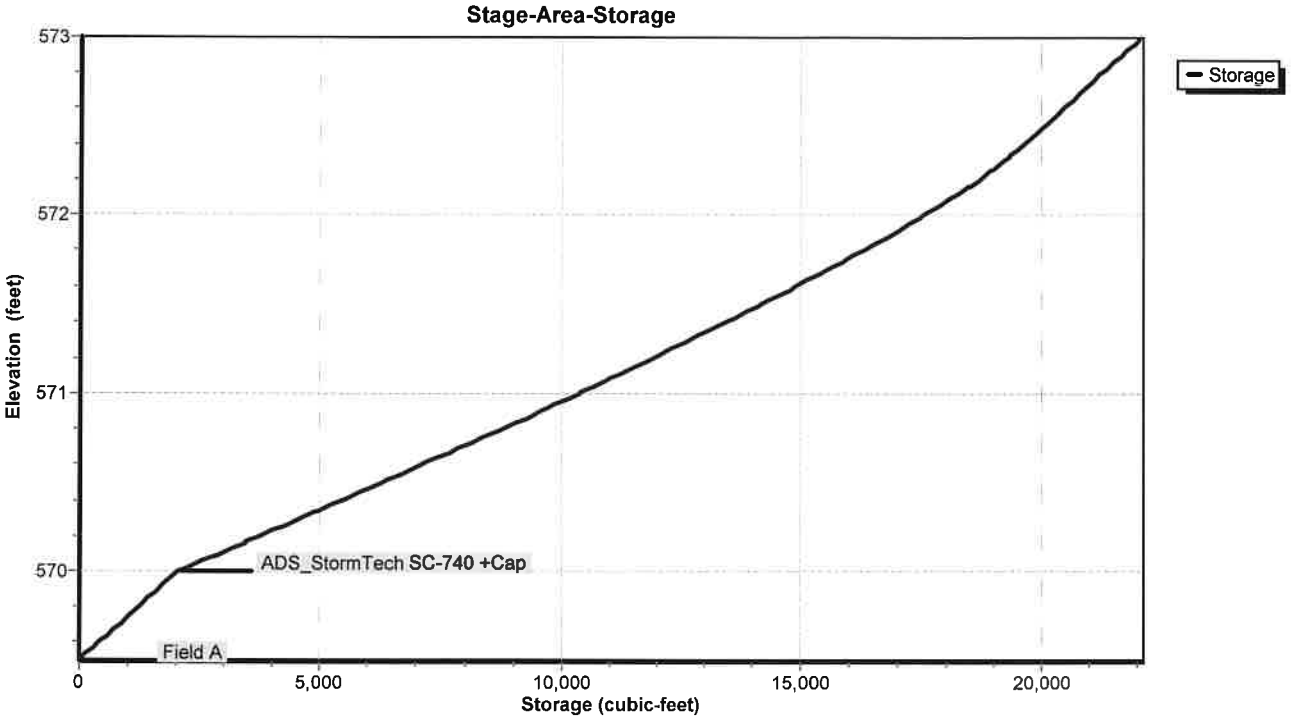


Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 7P: Underground Storage (SMA #2)



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 7P: Underground Storage (SMA #2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	569.50	0.00
2.00	0.00	0	569.50	0.00
4.00	0.01	16	569.50	0.00
6.00	0.08	340	569.58	0.00
8.00	0.13	1,076	569.77	0.00
10.00	0.25	2,364	570.04	0.03
12.00	**13.40**	**12,150**	**571.23**	**1.34**
14.00	**0.69**	**15,059**	**571.63**	**1.56**
16.00	0.41	9,280	570.86	1.10
18.00	0.31	5,592	570.42	0.57
20.00	0.23	4,514	570.29	0.32
22.00	0.20	4,084	570.24	0.24
24.00	0.19	3,896	570.22	0.21
26.00	0.03	3,188	570.13	0.10
28.00	0.03	2,846	570.09	0.07
30.00	0.03	2,675	570.08	0.05
32.00	0.03	2,579	570.06	0.04
34.00	0.03	2,522	570.06	0.04
36.00	0.03	2,484	570.05	0.04
38.00	0.03	2,457	570.05	0.03
40.00	0.03	2,436	570.05	0.03
42.00	0.03	2,420	570.05	0.03
44.00	0.03	2,407	570.04	0.03
46.00	0.03	2,395	570.04	0.03
48.00	0.01	2,341	570.04	0.03
50.00	0.00	2,216	570.02	0.02
52.00	0.00	2,105	570.01	0.01
54.00	0.00	2,020	570.00	0.01
56.00	0.00	1,963	569.98	0.01
58.00	0.00	1,923	569.97	0.00
60.00	0.00	1,895	569.97	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
569.50	0.00	570.54	0.84	571.58	1.54	572.62	4.49
569.52	0.00	570.56	0.86	571.60	1.55	572.64	4.52
569.54	0.00	570.58	0.88	571.62	1.56	572.66	4.54
569.56	0.00	570.60	0.89	571.64	1.57	572.68	4.56
569.58	0.00	570.62	0.91	571.66	1.58	572.70	4.58
569.60	0.00	570.64	0.93	571.68	1.59	572.72	4.61
569.62	0.00	570.66	0.95	571.70	1.60	572.74	4.63
569.64	0.00	570.68	0.96	571.72	1.61	572.76	4.65
569.66	0.00	570.70	0.98	571.74	1.62	572.78	4.68
569.68	0.00	570.72	1.00	571.76	1.63	572.80	4.70
569.70	0.00	570.74	1.01	571.78	1.64	572.82	4.72
569.72	0.00	570.76	1.03	571.80	1.65	572.84	4.74
569.74	0.00	570.78	1.04	571.82	1.65	572.86	4.77
569.76	0.00	570.80	1.06	571.84	1.66	572.88	4.79
569.78	0.00	570.82	1.07	571.86	1.67	572.90	4.81
569.80	0.00	570.84	1.09	571.88	1.68	572.92	4.83
569.82	0.00	570.86	1.10	571.90	1.69	572.94	4.85
569.84	0.00	570.88	1.12	571.92	1.70	572.96	4.88
569.86	0.00	570.90	1.13	571.94	1.71	572.98	4.90
569.88	0.00	570.92	1.14	571.96	1.72	573.00	**4.92**
569.90	0.00	570.94	1.16	571.98	1.73		
569.92	0.00	570.96	1.17	572.00	1.74		
569.94	0.00	570.98	1.18	572.02	1.79		
569.96	0.00	571.00	1.20	572.04	1.89		
569.98	0.01	571.02	1.21	572.06	2.01		
570.00	0.01	571.04	1.22	572.08	2.14		
570.02	0.02	571.06	1.24	572.10	2.30		
570.04	0.03	571.08	1.25	572.12	2.47		
570.06	0.04	571.10	1.26	572.14	2.65		
570.08	0.05	571.12	1.28	572.16	2.85		
570.10	0.07	571.14	1.29	572.18	3.06		
570.12	0.09	571.16	1.30	572.20	3.28		
570.14	0.11	571.18	1.31	572.22	3.51		
570.16	0.13	571.20	1.32	572.24	3.75		
570.18	0.15	571.22	1.34	572.26	4.00		
570.20	0.18	571.24	1.35	572.28	4.07		
570.22	0.21	571.26	1.36	572.30	4.10		
570.24	0.24	571.28	1.37	572.32	4.12		
570.26	0.27	571.30	1.38	572.34	4.15		
570.28	0.30	571.32	1.39	572.36	4.17		
570.30	0.34	571.34	1.41	572.38	4.20		
570.32	0.37	571.36	1.42	572.40	4.23		
570.34	0.41	571.38	1.43	572.42	4.25		
570.36	0.45	571.40	1.44	572.44	4.27		
570.38	0.49	571.42	1.45	572.46	4.30		
570.40	0.53	571.44	1.46	572.48	4.32		
570.42	0.58	571.46	1.47	572.50	4.35		
570.44	0.62	571.48	1.48	572.52	4.37		
570.46	0.67	571.50	1.49	572.54	4.40		
570.48	0.72	571.52	1.50	572.56	4.42		
570.50	0.76	571.54	1.51	572.58	4.44		
570.52	0.81	571.56	1.52	572.60	4.47		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 7P: Underground Storage (SMA #2)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
569.50	0	572.10	18,133
569.55	203	572.15	18,417
569.60	406	572.20	18,690
569.65	609	572.25	18,946
569.70	812	572.30	19,188
569.75	1,014	572.35	19,417
569.80	1,217	572.40	19,637
569.85	1,420	572.45	19,850
569.90	1,623	572.50	20,057
569.95	1,826	572.55	20,260
570.00	2,029	572.60	20,463
570.05	2,459	572.65	20,665
570.10	2,889	572.70	20,868
570.15	3,318	572.75	21,071
570.20	3,746	572.80	21,274
570.25	4,173	572.85	21,477
570.30	4,598	572.90	21,680
570.35	5,022	572.95	21,883
570.40	5,444	573.00	**22,086**
570.45	5,865		
570.50	6,284		
570.55	6,701		
570.60	7,116		
570.65	7,529		
570.70	7,940		
570.75	8,349		
570.80	8,756		
570.85	9,160		
570.90	9,562		
570.95	9,962		
571.00	10,359		
571.05	10,754		
571.10	11,145		
571.15	11,534		
571.20	11,919		
571.25	12,301		
571.30	12,680		
571.35	13,056		
571.40	13,428		
571.45	13,797		
571.50	14,161		
571.55	14,522		
571.60	14,879		
571.65	15,230		
571.70	15,577		
571.75	15,917		
571.80	16,252		
571.85	16,582		
571.90	16,906		
571.95	17,224		
572.00	17,535		
572.05	17,838		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Summary for Pond 9P: Bioretention Area 3

Inflow Area = 1.500 ac, 66.67% Impervious, Inflow Depth = 4.36" for 100-Year event
Inflow = 9.61 cfs @ 12.00 hrs, Volume= 0.545 af
Outflow = 5.89 cfs @ 12.09 hrs, Volume= 0.545 af, Atten= 39%, Lag= 5.5 min
Primary = 5.89 cfs @ 12.09 hrs, Volume= 0.545 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 575.05' @ 12.09 hrs Surf.Area= 6,805 sf Storage= 6,150 cf

Plug-Flow detention time= 184.7 min calculated for 0.545 af (100% of inflow)
Center-of-Mass det. time= 185.0 min (965.5 - 780.5)

Volume	Invert	Avail.Storage	Storage Description
#1	574.00'	9,318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

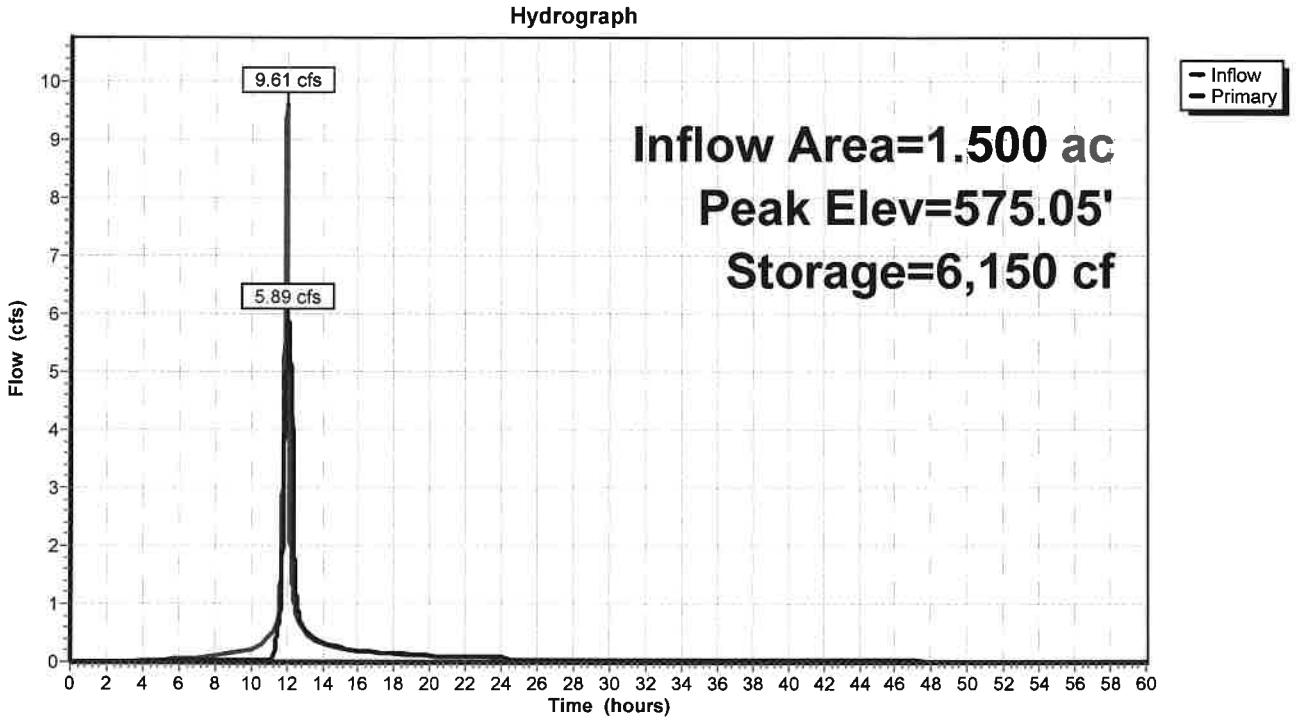
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
574.00	4,851	0	0
575.00	6,743	5,797	5,797
575.50	7,342	3,521	9,318

Device	Routing	Invert	Outlet Devices
#1	Primary	571.41'	**12.0" Round 8" pipe** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 571.41' / 570.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	574.50'	**8.0" Horiz. Grate X 6.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	574.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 560.00'
#4	Primary	574.75'	**24.0" W x 24.0" H Vert. grate (overflow)** C= 0.600

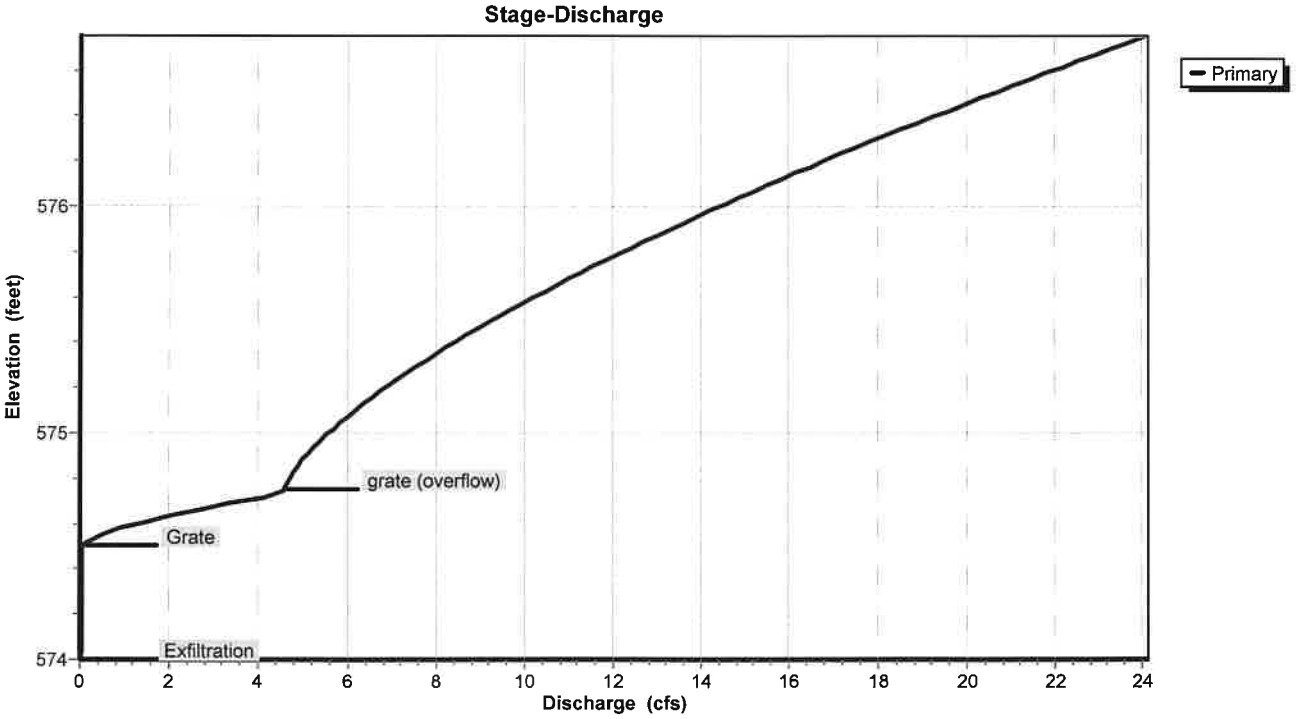
Primary OutFlow Max=5.88 cfs @ 12.09 hrs HW=575.05' (Free Discharge)
- **1=8" pipe** (Barrel Controls 4.82 cfs @ 6.14 fps)
  - **2=Grate** (Passes < 7.49 cfs potential flow)
  - **3=Exfiltration** (Passes < 0.04 cfs potential flow)
- **4=grate (overflow)** (Orifice Controls 1.06 cfs @ 1.76 fps)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3

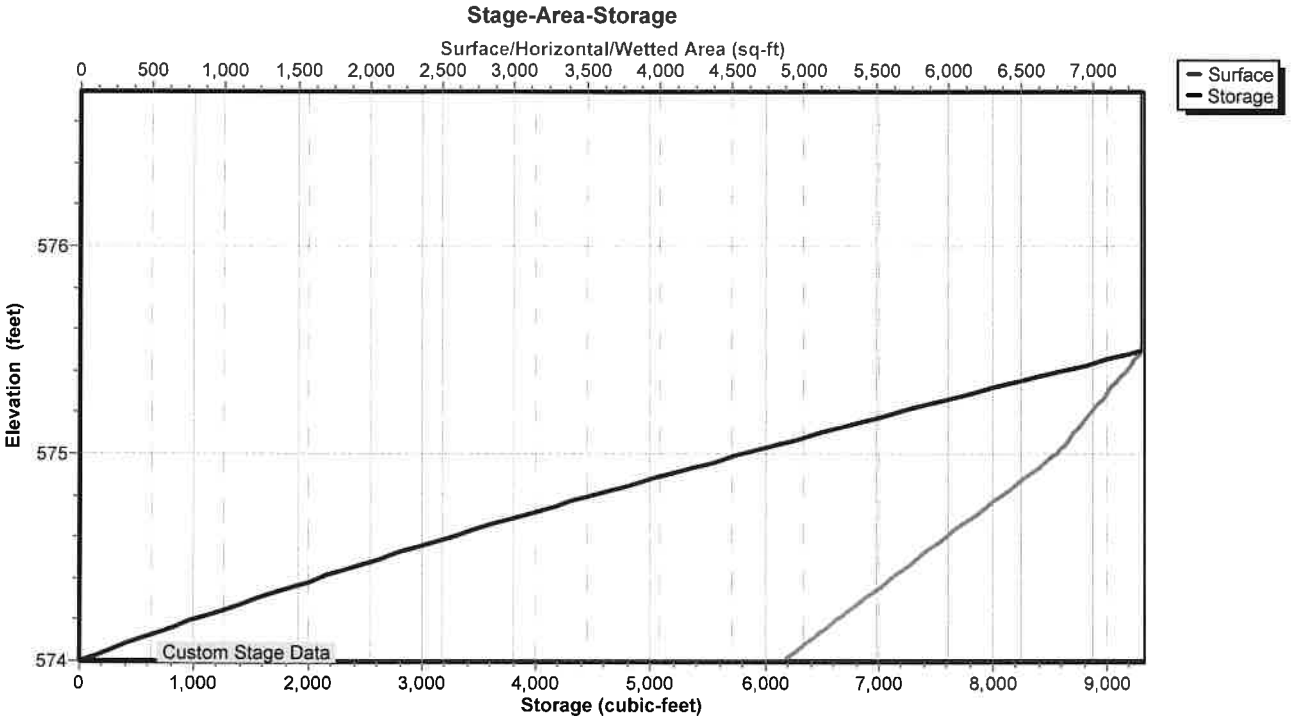


Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Pond 9P: Bioretention Area 3



Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Hydrograph for Pond 9P: Bioretention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	574.00	0.00
2.00	0.00	0	574.00	0.00
4.00	0.02	22	574.00	0.00
6.00	0.05	149	574.03	0.03
8.00	0.10	484	574.10	0.03
10.00	0.22	1,353	574.27	0.03
12.00	**9.61**	**5,288**	**574.92**	**5.19**
14.00	0.31	**2,872**	**574.54**	**0.33**
16.00	0.19	2,803	574.52	0.19
18.00	0.14	2,769	574.52	0.15
20.00	0.10	2,732	574.51	0.11
22.00	0.09	2,719	574.51	0.10
24.00	0.09	2,712	574.51	0.09
26.00	0.00	2,463	574.47	0.03
28.00	0.00	2,219	574.42	0.03
30.00	0.00	1,979	574.38	0.03
32.00	0.00	1,743	574.34	0.03
34.00	0.00	1,511	574.29	0.03
36.00	0.00	1,283	574.25	0.03
38.00	0.00	1,059	574.21	0.03
40.00	0.00	839	574.17	0.03
42.00	0.00	624	574.13	0.03
44.00	0.00	412	574.08	0.03
46.00	0.00	204	574.04	0.03
48.00	0.00	49	574.01	0.01
50.00	0.00	11	574.00	0.00
52.00	0.00	2	574.00	0.00
54.00	0.00	1	574.00	0.00
56.00	0.00	0	574.00	0.00
58.00	0.00	0	574.00	0.00
60.00	0.00	0	574.00	0.00

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Discharge for Pond 9P: Bioretention Area 3

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
574.00	0.00	575.04	5.81	576.08	15.37
574.02	0.03	575.06	5.93	576.10	15.60
574.04	0.03	575.08	6.06	576.12	15.84
574.06	0.03	575.10	6.18	576.14	16.08
574.08	0.03	575.12	6.31	576.16	16.32
574.10	0.03	575.14	6.45	576.18	16.56
574.12	0.03	575.16	6.58	576.20	16.81
574.14	0.03	575.18	6.72	576.22	17.05
574.16	0.03	575.20	6.87	576.24	17.30
574.18	0.03	575.22	7.01	576.26	17.55
574.20	0.03	575.24	7.16	576.28	17.80
574.22	0.03	575.26	7.31	576.30	18.05
574.24	0.03	575.28	7.46	576.32	18.30
574.26	0.03	575.30	7.62	576.34	18.56
574.28	0.03	575.32	7.78	576.36	18.81
574.30	0.03	575.34	7.94	576.38	19.07
574.32	0.03	575.36	8.10	576.40	19.33
574.34	0.03	575.38	8.26	576.42	19.59
574.36	0.03	575.40	8.43	576.44	19.85
574.38	0.03	575.42	8.60	576.46	20.11
574.40	0.03	575.44	8.78	576.48	20.38
574.42	0.03	575.46	8.95	576.50	20.64
574.44	0.03	575.48	9.13	576.52	20.91
574.46	0.03	575.50	9.31	576.54	21.18
574.48	0.03	575.52	9.49	576.56	21.45
574.50	0.03	575.54	9.67	576.58	21.72
574.52	0.15	575.56	9.86	576.60	22.00
574.54	0.36	575.58	10.05	576.62	22.27
574.56	0.64	575.60	10.24	576.64	22.55
574.58	0.97	575.62	10.43	576.66	22.83
574.60	1.34	575.64	10.62	576.68	23.10
574.62	1.74	575.66	10.82	576.70	23.38
574.64	2.19	575.68	11.02	576.72	23.67
574.66	2.67	575.70	11.22	576.74	**23.95**
574.68	3.18	575.72	11.42		
574.70	3.71	575.74	11.62		
574.72	4.28	575.76	11.83		
574.74	4.59	575.78	12.04		
574.76	4.61	575.80	12.25		
574.78	4.65	575.82	12.46		
574.80	4.70	575.84	12.67		
574.82	4.77	575.86	12.89		
574.84	4.84	575.88	13.10		
574.86	4.91	575.90	13.32		
574.88	4.99	575.92	13.54		
574.90	5.08	575.94	13.76		
574.92	5.17	575.96	13.99		
574.94	5.27	575.98	14.21		
574.96	5.37	576.00	14.44		
574.98	5.48	576.02	14.67		
575.00	5.59	576.04	14.90		
575.02	5.70	576.06	15.13		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 9P: Bioretention Area 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
574.00	4,851	0
574.05	4,946	245
574.10	5,040	495
574.15	5,135	749
574.20	5,229	1,008
574.25	5,324	1,272
574.30	5,419	1,540
574.35	5,513	1,814
574.40	5,608	2,092
574.45	5,702	2,375
574.50	5,797	2,662
574.55	5,892	2,954
574.60	5,986	3,251
574.65	6,081	3,553
574.70	6,175	3,859
574.75	6,270	4,170
574.80	6,365	4,486
574.85	6,459	4,807
574.90	6,554	5,132
574.95	6,648	5,462
575.00	6,743	5,797
575.05	6,803	6,136
575.10	6,863	6,477
575.15	6,923	6,822
575.20	6,983	7,170
575.25	7,043	7,520
575.30	7,102	7,874
575.35	7,162	8,230
575.40	7,222	8,590
575.45	7,282	8,953
575.50	**7,342**	**9,318**
575.55	7,342	9,318
575.60	7,342	9,318
575.65	7,342	9,318
575.70	7,342	9,318
575.75	7,342	9,318
575.80	7,342	9,318
575.85	7,342	9,318
575.90	7,342	9,318
575.95	7,342	9,318
576.00	7,342	9,318
576.05	7,342	9,318
576.10	7,342	9,318
576.15	7,342	9,318
576.20	7,342	9,318
576.25	7,342	9,318
576.30	7,342	9,318
576.35	7,342	9,318
576.40	7,342	9,318
576.45	7,342	9,318
576.50	7,342	9,318
576.55	7,342	9,318
576.60	7,342	9,318
576.65	7,342	9,318
576.70	7,342	9,318
576.75	7,342	9,318

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Green Infrastructure & Water Quality Calculations

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Version 1.7
Last Updated: 2/22/21

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	

Design Point:	1	
P=	1.00	*inch*

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	6.10	3.30	54%	0.54	11,888	
2	1.00	0.00	0%	0.05	182	
3	4.40	2.70	61%	0.60	9,620	
4	1.70	1.00	59%	0.58	3,576	
5	1.50	1.00	67%	0.65	3,539	
6						
7						
8						
9						
10						
Subtotal (1-30)	14.70	8.00	54%	0.54	**28,804**	**Subtotal 1**
Total	14.70	8.00	54%	0.54	**28,804**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	1.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**1.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	14.70	8.00	54%	0.54	28,804
Subtract Area	-1.00	0.00			
WQv adjusted after Area Reductions	**13.70**	**8.00**	58%	0.58	28,623
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	13.70	8.00	58%	0.58	**28,623**
WQv reduced by Area Reduction techniques					182

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Total Water Quality Volume Calculation

WQv(acre-feet) = [(P)(Rv)(A)] /12

All Subcatchments						
Catchment	**Total Area** *(Acres)*	**Impervious Cover** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient** *Rv*	**WQv** *(ft^3)*	**Description**
1	6.10	3.30	0.54	0.54	11888.25	
2	1.00	0.00	0.00	0.05	182	
3	4.40	2.70	0.61	0.60	9619.50	
4	1.70	1.00	0.59	0.58	3575.55	
5	1.50	1.00	0.67	0.65	3539.25	
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	6.10	3.30	0.54	0.54	11888.25	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	54%	0.54	11,888	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	D		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		11,888	*ft^3*	
Enter Depth of Soil Media	*df*	1.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**8916**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	100	*ft*	
Filter Length	110	*ft*	
Filter Area	11000	*ft^2*	
Actual Volume Provided	14667	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	5,867			
RRv applied	**5,867**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	6,022	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Bioretention Worksheet

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor & Schueler, 1996)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
5	1.50	1.00	0.67	0.65	3539.25	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	67%	0.65	3,539	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	D		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		3,539	*ft^3*	
Enter Depth of Soil Media	*df*	1.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**2654**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	49	*ft*	
Filter Length	100	*ft*	
Filter Area	4900	*ft^2*	
Actual Volume Provided	6533	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?		No	Select Practice	
RRv	2,613			
RRv applied	**2,613**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	926	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

(For use on HSG C or D Soils with underdrains)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Conservation of Natural Areas

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft^3)	Precipitation (in)	Description
2	1.00	0.00	0.00	0.05	181.50	1.00	

Design Elements

Is Contiguous Area ≥ 10,000 ft2?	*Yes*
Will limits of disturbance be clearly shown on all construction drawings and marked in field/project development site with structural barriers?	*Yes*
Is the Conservation area located in an acceptable conservation easement instrument that ensures perpetual protection of proposed area?	*Yes*
Does the easement specify how the natural area vegetation will be managed and boundaries will be marked?	*Yes*
Does the conservation area receive runoff from other contributing areas?	*No*
Does Conservation Area drain to a Design Point?	*No*
Is Sheet Flow to Riparian Buffer or another area based practice already being Used for this area?	*No*

Are All Criteria in Section 5.3.1 Met?	*Yes*

Area Reduction Adjustments

Subtract	***1.00***	***Acres from Total Area***
Subtract	***0.00***	***Acres from Total Impervious Area***

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C		30%
D	**17.40**	20%
Total Area	17.4	
Calculate the Minimum RRv		
S =	**0.20**	
Impervious =	8.00	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**5,518**	***ft3***
	0.13	af

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	28804	*0.661*
30	Total RRV Provided	8662	*0.199*
31	Is RRv Provided ≥WQv Required?	No	
32	Minimum RRv	5518	*0.127*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	159626	*3.664*
34	Sum of Volume Reduced & Treated	168287	*3.863*
34	Sum of Volume Reduced and Treated	168287	*3.863*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		Total Contributing Area	Total Contributing Impervious Area	WQv Reduced (RRv)	WQv Treated
			(acres)	(acres)	cf	cf
Area/Volume Reduction	Conservation of Natural Areas	RR-1	1.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00			
	Bioretention & Infiltration Bioretention	F-5	7.60	4.30	8480	6948
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5	9.8	3.40		152678.000
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			1.00	0.00	182	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			7.60	4.30	8480	6948
Totals by Standard SMP →			9.80	3.40		152678
Totals (Area + Volume + all SMPs) →			18.40	7.70	8,662	159,626
	Impervious Cover √	error				

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Stage-Area-Storage for Pond 6P: WQv

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
563.00	710	0
563.15	776	111
563.30	843	233
563.45	909	364
563.60	975	506
563.75	1,042	657
563.90	1,108	818
564.05	1,181	989
564.20	1,267	1,173
564.35	1,353	1,369
564.50	1,439	1,579
564.65	1,524	1,801
564.80	1,610	2,036
564.95	1,696	2,284
565.10	1,796	2,546
565.25	1,901	2,823
565.40	2,007	3,116
565.55	2,113	3,425
565.70	2,219	3,750
565.85	2,324	4,090
566.00	2,430	4,447
566.15	2,561	4,821
566.30	2,692	5,215
566.45	2,822	5,629
566.60	2,953	6,062
566.75	3,084	6,515
566.90	3,215	6,987
567.05	3,356	7,479
567.20	3,519	7,995
567.35	3,681	8,535
567.50	3,844	9,100
567.65	4,007	9,688
567.80	4,169	10,301
567.95	4,332	10,939
568.10	4,731	11,613
568.25	5,249	12,361
568.40	5,767	13,188
568.55	6,285	14,091
568.70	6,802	15,073
568.85	7,320	16,132
569.00	7,838	17,269
569.15	8,402	18,487
569.30	8,965	19,790
569.45	9,529	21,177
569.60	10,093	22,648
569.75	10,657	24,204
569.90	11,220	25,845
570.05	11,796	27,571
570.20	12,398	29,385
570.35	13,000	31,290
570.50	13,601	33,285
570.65	14,202	35,371
570.80	14,804	37,546
570.95	15,406	39,812
571.10	16,056	42,170
571.25	16,731	44,629
571.40	17,406	47,189
571.55	18,081	49,851
571.70	18,756	52,614
571.85	19,431	55,478
572.00	20,106	58,443
572.15	20,820	61,512
572.30	21,534	64,689
572.45	22,248	67,973
572.60	22,961	71,363
572.75	23,675	74,861
572.90	24,389	78,466
573.05	25,107	82,178
573.20	25,834	85,998
573.35	26,561	89,928
573.50	27,288	93,967
573.65	28,014	98,114
573.80	28,741	102,371
573.95	29,468	106,737
574.10	32,660	111,335
574.25	37,086	116,565
574.40	41,511	122,460
574.55	45,937	129,019
574.70	50,362	136,241
574.85	54,788	144,127
575.00	**59,213**	**152,678**

WQv

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Appendix O

NYSDEC Stormwater Management Inspection Lists

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Bioretetion Areas (F-5)



Description: Shallow stormwater basin or landscaped area which utilizes engineered soils and vegetation to capture and treat runoff. The practice is often located in parking lot islands, and can also be used to treat residential areas.

KEY CONSIDERATIONS

CONVEYANCE

- Provide overflow for the 10-year storm to the conveyance system.
- Conveyance to the system is typically overland flow delivered to the surface of the system, typically through curb cuts or over a concrete lip.

PRETREATMENT

- Pretreatment consists of a grass channel or grass filter strip, a gravel diaphragm, and a mulch layer, sized based on the methodologies described in Section 6.4.2.

TREATMENT

- Treatment area should have a four foot deep planting soil bed, a surface mulch layer, and a 6" ponding layer.
- Size the treatment area using equations provided in Chapter 6.

LANDSCAPING

- Detailed landscaping plan required.

MAINTENANCE

- Inspect and repair/replace treatment area components
- Stone drop (at least 6") provided at the inlet
- Remulch annually

STORMWATER MANAGEMENT SUITABILITY

- [X] Water Quality
- [ ] Channel Protection
- [ ] Overbank Flood Protection
- [ ] Extreme Flood Protection

Accepts Hotspot Runoff: *Yes*
(requires impermeable liner)

IMPLEMENTATION CONSIDERATIONS

- [M] Capital Cost
- [M] Maintenance Burden

Residential
Subdivision Use: *Yes*

High Density/Ultra-Urban: *Yes*

Drainage Area: *5 acres max.*

Soils: *Planting soils must meet specified criteria; No restrictions on surrounding soils*

Other Considerations:

- *Use of native plants is recommended*

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

	Key: **L**=Low **M**=Medium **H**=High **POLLUTANT REMOVAL** **G** Phosphorus **G** Nitrogen **G** Metals - Cadmium, Copper, Lead, and Zinc removal **F** Pathogens – Coliform, Streptococci, E.Coli removal Key: **G**=Good **F**=Fair **P**=Poor

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Bioretention Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
If designed as exfilter, soil testing for permeability		
Facility location staked out		
2. Excavation		
Size and location		
Lateral slopes completely level		
If designed as exfilter, ensure that excavation does not compact susoils.		
Longitudinal slopes within design range		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
3. Structural Components		
Stone diaphragm installed correctly		
Outlets installed correctly		
Underdrain		
Pretreatment devices installed		
Soil bed composition and texture		
4. Vegetation		
Complies with planting specs		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
5. Final Inspection		
Dimensions		
Proper stone diaphragm		
Proper outlet		
Soil/ filter bed permeability testing		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		
Contributing watershed stabilized before flow is diverted to the practice		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Comments:

Actions to be Taken:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Comments:

Actions to be Taken:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Amended Part 1 of Full EAF - Site Plan Application - Mixed-Use Project - Site "A" of Muir Woods
Date: December 1, 2021

Full Environmental Assessment Form Part 1 - Project and Setting

Prepared By: Sean Hopkins, Esq. Hopkins Sorgi & McCarthy PLLC 5500 Main Street, Suite 343 Williamsville, NY 14221
Tel: 716.510-4338
E-mail: shopkins@hsmlegal.com

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Proposed Mixed-Use Project - Site A of Muir Woods		
Project Location (describe, and attach a general location map): Portion of 1081 North French Road - Town of Amherst - Erie County		
Brief Description of Proposed Action (include purpose or need): The proposed action consists of an amendment of the Findings Statement issued by the Town of Amherst Town Board ("Town Board") on October 19, 2020 pursuant to the State Environmental Quality Review Act ("SEQRA") to accommodate the updated layout for the proposed mixed-use project to be on Site "A" of the overall Muir Woods Project Site. The layout of the mixed-use project is depicted on the Overall Site Plan [Drawing C-100] prepared by Carmina Wood Morris DPC. The residential density of the project has been increased from 204 units to 258 units. The action has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed mixed-use and residential buildings, driveway connections to Dodge Road, access aisles, parking spaces, driveways, wetland impacts, lighting, landscaping, an on-site storm water management improvements, sanitary sewer and water lines and connections and all other required utility improvements. The project purpose is to develop Site "A" of overall Muir Woods Project Site as a mixed-use project in a manner consistent with the Overall Site Plan for the project prepared by Carmina Wood Morris DPC prepared by Carmina Wood Morris DPC. The project is a Type I action pursuant to SEQRA and the Town Board issued an Amended Findings Statement pursuant to SEQRA on September 27, 2021 based on the increase of the number of residential units from		
Name of Applicant/Sponsor: Sawyers Landing LLC c/o Sean Hopkins, Esq.	Telephone: 716.510-4338 E-Mail: shopkins@hsmlegal.com	
Address: 5500 Main Street, Suite 343		
City/PO: Williamsville, NY	State: NY	Zip Code: 14221
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor): Ciminelli Muir Woods, LLC c/o Adam Faeth, Esq.	Telephone: 716.631-8000 E-Mail: afaeth@ciminelli.com	
Address: 50 Fountain Plaza, Suite 500		
City/PO: Buffalo	State: NY	Zip Code: 14202

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Town Board - Amended Findings Statement	Approved on September 27, 2021
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Planning Board - Site Plan Approval and Subdivision Approval	February 22, 2021
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Building Department - Building Permits; Town of Amherst IDA [PILOT, etc.	To be determined
e. County agencies ☑Yes ☐No	Highway Work Permit - ECDPW; Water - ECWA	To be determined
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC - Amended Wetland Permit; DSCA Approval and SPDES Permit	Amended wetland permit issued on 12/24/20 - DSCA & SPDES - To be determined
h. Federal agencies ☑Yes ☐No	USACE - Amended Wetland Permit	Issued on 02/25/21

i. Coastal Resources.
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):
NYS Heritage Areas:West Erie Canal Corridor [Note: The project will not have any impacts on the West Erie Canal Corridor.]

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Site "A" of the Muir Woods property is zoned New Community District - Neighborhood District ("NCD-ND") pursuant to the Town of Amherst Zoning Map.

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home Central School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police Department

c. Which fire protection and emergency medical services serve the project site?
Volunteer Fire Department

d. What parks serve the project site?
Various Town Parks including Nature View Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Mixed-use project consisting of commercial space and various residential unit types.

b. a. Total acreage of the site of the proposed action? 17.424 acres
b. Total acreage to be physically disturbed? 17 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 326 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % Units:

d. Is the proposed action a subdivision, or does it include a subdivision? ☑ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
33 lots
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? 33 lots
iv. Minimum and maximum proposed lot sizes? Minimum 3300 sf Maximum 7.25 acres

e. Will the proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: _____ months
ii. If Yes:
- Total number of phases anticipated 3-4
- Anticipated commencement date of phase 1 (including demolition) May month 2022 year
- Anticipated completion date of final phase Oct month 2025 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:
The infrastructure necessary for each phase will be installed to ensure compliance with applicable technical standards including those for stormwater management.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

f. Does the project include new residential uses? ☑ Yes ☐ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase		49		100
At completion of all phases		49		209

The build-out of the residential components will be based on market conditions.

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes, There will be 15,000 sq. ft. of commercial space in each of the two mixed-use buildings.

i. Total number of structures 2

ii. Dimensions (in feet) of largest proposed structure: 55' height; 80' width; and 225' length

iii. Approximate extent of building space to be heated or cooled: 30,000 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑ Yes ☐ No

If Yes,

i. Purpose of the impoundment: Storm water management

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☑ Other specify: Storm water runoff from impervious surfaces.

iii. If other than water, identify the type of impounded/contained liquids and their source.

N/A

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: 1.5 acres

v. Dimensions of the proposed dam or impounding structure: N/A height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

Impoundment area is an excavation consisting of earth fill.

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i .What is the purpose of the excavation or dredging?

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe.

v. What is the total area to be dredged or excavated? _____ acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑ Yes ☐ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of of the NYSDEC Freshwater Wetlands (reduction of .55 acres).

[Note: Copies of the Amended Wetland Permit Issued by the United States Army Corps of Engineers ("USACE") dated February 25, 2021 and the Amended Wetland Permit Issued by the New York State Department of Environmental Conservation ("NYSDEC") dated December 24, 2020 have previously been submitted to the Planning Department.]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☑No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☑No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑Yes ☐No
If Yes:

i. Total anticipated water usage/demand per day: 56,760 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑Yes ☐No
If Yes:

- Name of district or service area: ECWA Consolidated Water District
- Does the existing public water supply have capacity to serve the proposal? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No
- Do existing lines serve the project site? ☑Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☑No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑Yes ☐No
If Yes:

i. Total anticipated liquid waste generation per day: 56,760 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used: Tonawanda Creek Wastewater Treatment Plant
- Name of district: Town of Amherst Consolidated Sanitary Sewer District
- Does the existing wastewater treatment plant have capacity to serve the project? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

- Do existing sewer lines serve the project site? ☑Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☑No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 8.0 acres (impervious surface)

_____ Square feet or 17.42 acres (parcel size)

ii. Describe types of new point sources. Parking lots and roof tops

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Stormwater runoff will be conveyed into the on-site stormwater management system to be installed per the applicable stringent stormwater quality and quantity standards of the NYS Department of Environmental Conservation ("NYSDEC")

- If to surface waters, identify receiving water bodies or wetlands: NYSDEC & Federal wetlands on the east portion of the site
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐Morning ☐Evening ☐Weekend ☐Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: To be determined

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): National Grid

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7:00 to 7:00
- Saturday: 8:00 to 6:00
- Sunday: As needed
- Holidays: Not Applicable

ii. During Operations:

- Monday - Friday: 8:00 to 11:00
- Saturday: 8:00 to 11:00
- Sunday: 8:00 to 10:00
- Holidays: 8:00 to 10:00

The hours of operation during "During Operations" as listed above apply to the first floor commercial space in the two mixed-use buildings. The hours are estimates since the tenants that will lease the first floor commercial space including both office and retail tenants have not yet been identified.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Construction activities will include the use of construction equipment during daytime hours that will exceed ambient background noise levels. The construction related noise impacts are a temporary unavoidable impact.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe:

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Lighting will be installed in compliance with the lighting standards contained in the Town of Amherst Zoning Code. There will not be any lighting spillover onto contiguous properties. A Photometric Plan [Drawing LP-100] has been included with the updated engineered plans.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☑ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

Potential use of lawn fertilizer and pesticides on maintained portions of property in accordance with applicable standards for application and use of lawn fertilizer and pesticides.

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☑ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: 2 tons per week (unit of time)
- Operation : 2 tons per week (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: wood and metal waste may be recycled by the contract at their discretion
- Operation: Town of Amherst recycling program will be followed

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: approved NYSDEC landfill via contractor or private disposal company
- Operation: approved NYSDEC landfill via private disposal company

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☑ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Wetlands

ii. If mix of uses, generally describe:

There are mixture of uses in the vicinity of the Project Site including residential uses to the north in the Bucyrus Heights Subdivision, an elementary school, apartments and office buildings on Sweet Home Road and permanent open space to the east of Site "A".

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	8.0	+ 8.0
• Forested	12.17	1.87	-10.3
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	16.3	10.2	- 6.1
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: Greenspace, Landscaping, Pond	0	8.4	+8.4

The chart above includes Permanent Open to be donated to the Town of Amherst consisting of approximately 9.6 acres.]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑Yes ☐No
If Yes,
i. Identify Facilities:
1. Heritage Heights Elementary School (Sweet Home School District- 2545 Sweet Home Road); 2. Creative Play Learning Center (Private Day Care Facility- 647 Dodge Road); and 3. Four Seasons Child Care & Preschool (Private Day Care Facility- 1639 North French Road).

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____
iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☐No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____
_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? >5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

Getzville silt loam	94 %
Swormville clay loam	6 %
	%

d. What is the average depth to the water table on the project site? Average: >5 feet

e. Drainage status of project site soils:
☐ Well Drained: _____ % of site
☐ Moderately Well Drained: _____ % of site
☑ Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____ % of site
☐ 15% or greater: _____ % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No
ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters, NYS Wetland Approximate Size NYS Wetland (in a...
- Wetland No. (if regulated by DEC) TE-33

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No
If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:
i. Name of aquifer: _____

The proposed mixed-use project will result in 4.89 acres of impacts to federal wetlands (reduction of 7.87 acres), 1.20 acres of impacts to NYSDEC Freshwater Wetlands (reduction of 8.26 acres) and 3.65 acres of impacts to regulated 100 ft. Adjacent Areas of NYSDEC Freshwater Wetlands (reduction of .55 acres).

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

m. Identify the predominant wildlife species that occupy or use the project site:
Typical suburban species

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No
If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑Yes ☐No
If Yes:
i. Species and listing:
Spiny Softshell - The Project Sponsor does not believe that Spiny Softshell is present on Site A of the Muir Woods property.

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: Eligible property:Heritage Heights Elementary School

iii. Brief description of attributes on which listing is based:

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No [No impact letter issued by SHPO on October 10, 2001.]

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s):

ii. Basis for identification:

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource:

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.):

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation:

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

No impact letter issued by SHPO on October 10, 2001 provided at Attachment "A" of this Amended Part 1 of the Full EAF.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Sawyers Landing LLC Date December 1, 2021

Signature _____ Title Attorney for Project Sponsor

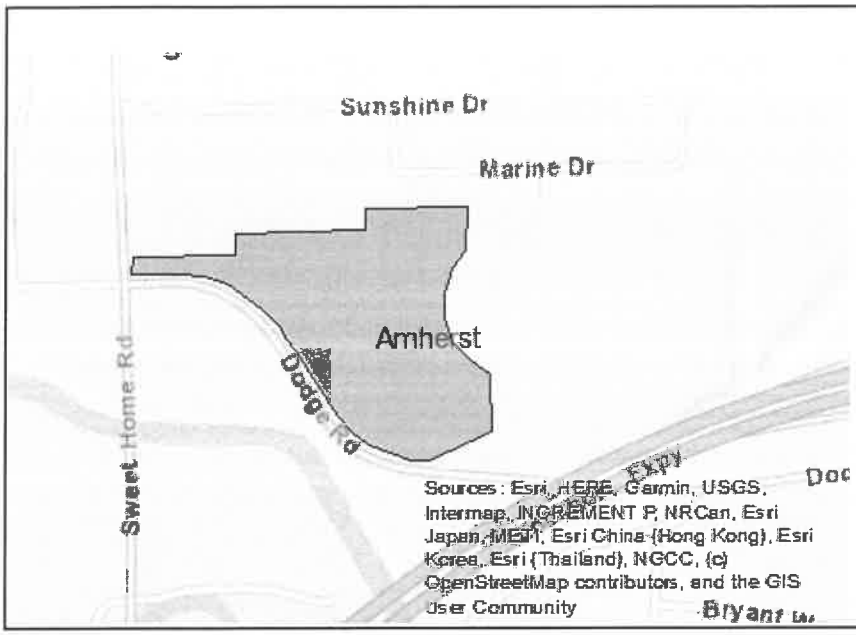
Sean W. Hopkins, Esq.

PRINT FORM

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

EAF Mapper Summary Report

Thursday, June 18, 2020 8:50 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):34.6
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	TE-33
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	Yes
E.2.p. [Rare Plants or Animals - Name]	Spiny Softshell
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:Heritage Heights Elementary School
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

TOWN OF AMHERST ATTACHMENT
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
Proposed Mixed-Use Project - Portion of 1081 North French Road

1. For each applicable category of proposed new structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Getzville Silt Loam	Severe	Severe	Severe	Severe	Moderate
Swormville Clay Loam	Severe	Severe	Severe	Severe	Severe

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   _____ Geotechnical report attached _____ Not applicable

   [Note: 3 copies of the comprehensive Geotechnical Report for the entire overall Muir Woods Property previously submitted.

3. Is your property located: On Youngs Road between Dodge and Klein Roads? □ Yes x No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? □ Yes x No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? □ Yes x No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   __Not Applicable

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ☒ Yes ☒ No

   Describe A student housing community is proposed on property to the east of the Project Site commonly referred to as Site "B" of Muir Woods.

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 120-130
   Source: Copies of the Traffic Impact Study prepared by SRF Associates DPC dated August 3, 2020 were previously submitted.

8. Will blasting occur during construction? □ Yes ☒ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ☒ Yes □ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    56,760 average flow 227,040 peak flow.
    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? x Yes □ No
    [There are not any buildings located on the Project Site.]
    [Note: A copy of the No Impact Determination letter issued by SHPO has previously been submitted.]

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Attachment "A" of Part 1 of Full Environmental Assessment Form - No Impact Determination Letter Issued by Ruth Pierpont, Director, New York State Office of Parks, Recreation and Historic Preservation, dated October 10, 2001

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643

NEW YORK STATE
Bernadette Castro
Commissioner

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT
COMPANY, INC.

Attachment: SP-2021-05_application_011322 (23057 : Sp-2021-05)

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York
SITE DEVELOPMENT DRAWINGS

AGENCIES

ENGINEERING DEPARTMENT
NAME/TITLE: JEFFERY BURROUGHS, P.E. – TOWN ENGINEER
COMPANY/DEPT: TOWN OF AMHERST ENGINEERING DEPARTMENT
ADDRESS: 1100 NORTH FOREST ROAD
WILLIAMSVILLE, NEW YORK 14221

TELEPHONE 716–631–7154

PLANNING & ZONING DEPARTMENT
NAME/TITLE: DANIEL HOWARD – PLANNING DIRECTOR
COMPANY/DEPT: TOWN OF AMHERST PLANNING DEPARTMENT
ADDRESS: 5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221

TELEPHONE 716–631–7051

LAND SURVEYOR
NAME/TITLE: GPI ENGINEERING, LANDSCAPE ARCHITECTURE SURVEYING, LLP
COMPANY/DEPT: 4950 GENESEE STREET, SUITE 100
ADDRESS: BUFFALO, NEW YORK 14225

TELEPHONE 716–633–4844

UTILITIES

NATURAL GAS
COMPANY/DEPT:. NATIONAL FUEL GAS CORP.
ADDRESS: 6363 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221

TELEPHONE 716–857–7000

TELEPHONE COMPANY
COMPANY/DEPT: VERIZON
ADDRESS: 65 FRANKLIN STREET
BUFFALO, NEW YORK 14203

TELEPHONE 716–840–8748

CABLE COMPANY
COMPANY/DEPT: TIME WARNER
ADDRESS: 789 CHURCH ROAD
WEST SENECA, NEW YORK

TELEPHONE 716–558–8615

ELECTRIC COMPANY
COMPANY/DEPT: NATIONAL GRID
ADDRESS: 144 KENSINGTON AVENUE
BUFFALO, NEW YORK 14214

TELEPHONE 716–236–2738

WATER
COMPANY/DEPT:. ERIE COUNTY WATER AUTHORITY
ADDRESS: 3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227

TELEPHONE 716–684–1510

DIG SAFELY NEW YORK

TELEPHONE 1–800–962–7962

OWNER/DEVELOPER

NAME: Sawyer's Landing LLC
ADDRESS 43 Central Ave Suite #300
Lancaster, NY 14086

TELEPHONE 716 818-0207

ENGINEER

Carmina • Wood • Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

December 2021

DWG NO.	DRAWING TITLE
–	COVER SHEET
–	TOPOGRAPHIC MAP
–	BOUNDARY SURVEY
C–001	DEMOLITION & EROSION CONTROL PLAN
C–002	DEMOLITION & EROSION CONTROL DETAILS
C–100	OVERALL SITE PLAN
C–101	SITE PLAN
C–102	PARCEL MAP
C–103	SITE DETAILS
C–104	SITE DETAILS
C–200	GRADING PLAN
C–300	STORM DRAINAGE PLAN
C–301	STORM DRAINAGE DETAILS
C–302	STORM DRAINAGE DETAILS
C–303	STORM DRAINAGE DETAILS
C–400	UTILITY PLAN
C–401	SANITARY SEWER DETAILS
C–402	SANITARY SEWER DETAILS
C–403	SANITARY SEWER GENERAL NOTES
C–404	WATER DETAILS
C–405	WATER DETAILS
C–406	WATER DETAILS & NOTES
C–407	INSULATED ENCLOSURE DETAIL
L–100	LANDSCAPE PLAN
LP–100	PHOTOMETRIC PLAN
TT–100	FIRE TRUCK PLAN

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.

● SET OR EX. 5/8" REBAR

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

MAP COVER 2305

SWEET HOME (NORTH VARIES) ROAD

SPADINA DRIVE

PLEASANT ACRES PART III, MAP COVER 2305

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

PARALLEL W/SOUTH LINE OF LOT 76
N 88°55'52" E 530.61'

PARALLEL W/WEST LINE OF LOT 76 (CENTERLINE OF SWEET HOME ROAD)

L.7659 P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'

PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'17" E 62.65'

MON. WELL

N 20°40'08" W 1187.24'

1312.39' N 88°55'52" E

POINT OF BEGINNING
AREA "B"
LAT: 43°01'40.40785"
LON: -78°47'14.98366"

S 80°10'01" E 145.00'

S 64°16'46" W 35.20'

S 10°07'24" E 43.27'

S 11°02'55" W 83.05'

S 17°56'26" E 236.39'

S 45°19'36" E 99.73'

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

SOUTH LINE L.-9095, P.-348
PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

EXCEPTION L.-10908, P.-362
MAP 36 353-1 PARCEL 1

N88°55'52"E 540.78' M
584.39' D&M
541.38' M

N02°04'02"W 90.42'

N02°04'02"W 120.85' D&M
N02°04'02"W 120.85' M

S88°21'54"W 173.47'
S88°21'54"W 205.48' D&M

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.9146 ACRES

TOP OF HYDRANT ELEV: 577.69'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

CATCH BASIN RIM:574.64' N INV:573.44'

CATCH BASIN RIM:574.52' W INV:568.27' 12" E INV:568.32'

CATCH BASIN RIM:574.42' W INV:569.90' E INV:569.97'

CATCH BASIN RIM:573.70' W INV:569.90' E INV:569.97'

12" CMP INV:572.14'

12" CMP

CONCRETE SIDEWALK

ASPHALT DRIVE

DOUGH ROAD RELOCATION

N 67°53'17" W 50.93'

S 71°08'13" W 128.98'

S 39°43'51" W 50.80'

S 23°50'17" W 47.47'

S 57°29'39" W 52.30'

S 87°22'49" W 322.92'

N 83°38'15" W 172.66'

S 83°36'25" W 105.17'

N 35°56'42" W 159.92'

N 10°10'00" W 305.54'

L=539.31'
R=598.60'
DELTA=52°00'30"

N 85°10'51" W 40.58'

S 85°24'13" W 405.22'

599.16' D&M

NIAGARA MOHAWK POWER CORP.
L.-9173, P.-51

202.71'
N 85°38'22" W

L=1145.94'
R=6848.00'
S 85°48'39" W
CHORD 917.39

TOP OF HYDRANT ELEV: 574.70'

SAN. M.H. RIM: 575.78' INV: 553.78' E-W

SAN. M.H. RIM:576.41' INV: 554.21' E-W

72" CONC. PIPE

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

TRANSMISSION TOWER

LOCKPORT (ROUTE 990) EXPRESSWAY

SECTION II

BRUSH LINE

STONE DRIVE

ASPHALT PARKING LOT

CONCRETE SIDEWALK

TOP OF HYDRANT ELEV: 577.37

TOP OF HYDRANT ELEV: 575.69

TOP OF HYDRANT ELEV: 574.70'

UP

GUY

CATCH BASIN
CONIFEROUS TREE
DECIDUOUS SHRUB
DECIDUOUS TREE
GAS VALVE
GUY WIRE
WATER SERVICE VALVE
WATER VALVE

COMMUNICATIONS BOX
HYDRANT
LIGHT POLE
SANITARY SEWER MANHOLE
SIGN (SINGLE POLE)
SIGN (DOUBLE POLE)
UTILITY POLE

STATE OF NEW YORK
LICENSED LAND SURVEYOR

DATE	REVISION/TYPE

TOPOGRAPHIC SURVEY
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: DECEMBER 22, 2020
Scale: 1" = 100' TAX No. 40.08-3-13.1 (PART OF)

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SWEET HOME (WIDTH VARIES) ROAD

CENTRAL SCHOOL DISTRICT No. 7 OF THE TOWNS OF AMHERST & TONAWANDA
L. 6640, P. 309, L. 7090, P. 207

PLEASANT ACRES PART II, MAP COVER 2273

PLEASANT ACRES PART III, MAP COVER 2305

SOUTHWEST CORNER OF PLEASANT ACRES SUBDIV. PART II MAP COVER 2273

P.O.B.

TEL BOX

UP

GUY

N 88°55'52" E 530.61'
PARALLEL W/SOUTH LINE OF LOT 76

PARALLEL W/WEST LINE OF LOT 76
(CENTERLINE OF SWEET HOME ROAD)

N 02°04'02" W
118.24'

L.7659
P.435 & 437

N 88°55'52" E 700.84'

N 88°55'52" E 396.51'
PARALLEL W/SOUTH LINE OF LOT 76

N 29°36'12" E 62.65'

S 01°04'08" E
145.00'

35.20'
S 64°16'46" W

141.03'
S 29°42'37" W

S 10°07'24" E
43.27'

S 11°02'55" W
83.05'

S 11°56'26" E 236.39'

S 45°19'36" E
99.73'

N 83°38'15" W
172.66'

S 87°22'49" W
322.92'

S 83°36'25" W
105.17'

S 71°08'13" W
128.98'

N 67°53'17" W
50.93'

S 39°43'51" W
50.80'

S 23°50'17" W
47.47'

N 32°30'21" W 198.87'

N 32°30'21" W 457.24'

S 57°29'39" W
52.30'

258.37'

PT

N 35°36'42" W
156.92'

N 01°04'00" W 305.54'

195.94'

599.16' D&M

S 65°24'13" W 403.22'

S 65°24'13" W

L=539.31'
R=586.62'
DELTA=52°40'30"

N 85°10'51" W
40.58'

SOUTH LINE OF LOT 76
NORTH LINE OF LOT 75

SOUTH LINE L.-9095, P.-348
PARALLEL WITH S. LINE LOT 76

EXCEPTION L.-11278, P.-7124

584.39' D&M
541.38' M

N88°55'52"E
540.78' M

N 00°55'59" W
109.75'

EXCEPTION L.-10808, P.-9632
MAP SK 353-1, PARCEL 1

120.85' D&M
N02°04'02"W

120.52'

N02°04'02"W
90.42'

173.47'
S88°21'54"W
216.48' D&M

DEED RESTRICTED AREA "A"
TOTAL AREA: = 3.914± ACRES

N 01°03'14" W 512.76'

LANDS CONVEYED TO CIMINELLI MUIR WOODS LLC
REPUTED OWNERS
L.11307, PG.4915

SITE 'A'
17.424± ACRES

DEED RESTRICTED AREA "B"
TOTAL AREA: = 32.52± ACRES

L=747.17

R=724.00

DODGE ROAD RELOCATION

NIAGARA MOHAWK POWER CORP.
L.-9173, P.-51

STATE OF NEW YORK
MARK J. ANDREWS
LICENSED LAND SURVEYOR
050455

DATE	REVISION/TYPE
12/4/20	REVISE PARCEL BOUNDARY

NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.

● SET OR EX. 5/8" REBAR

SURVEY OF
PART OF LOT 76, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

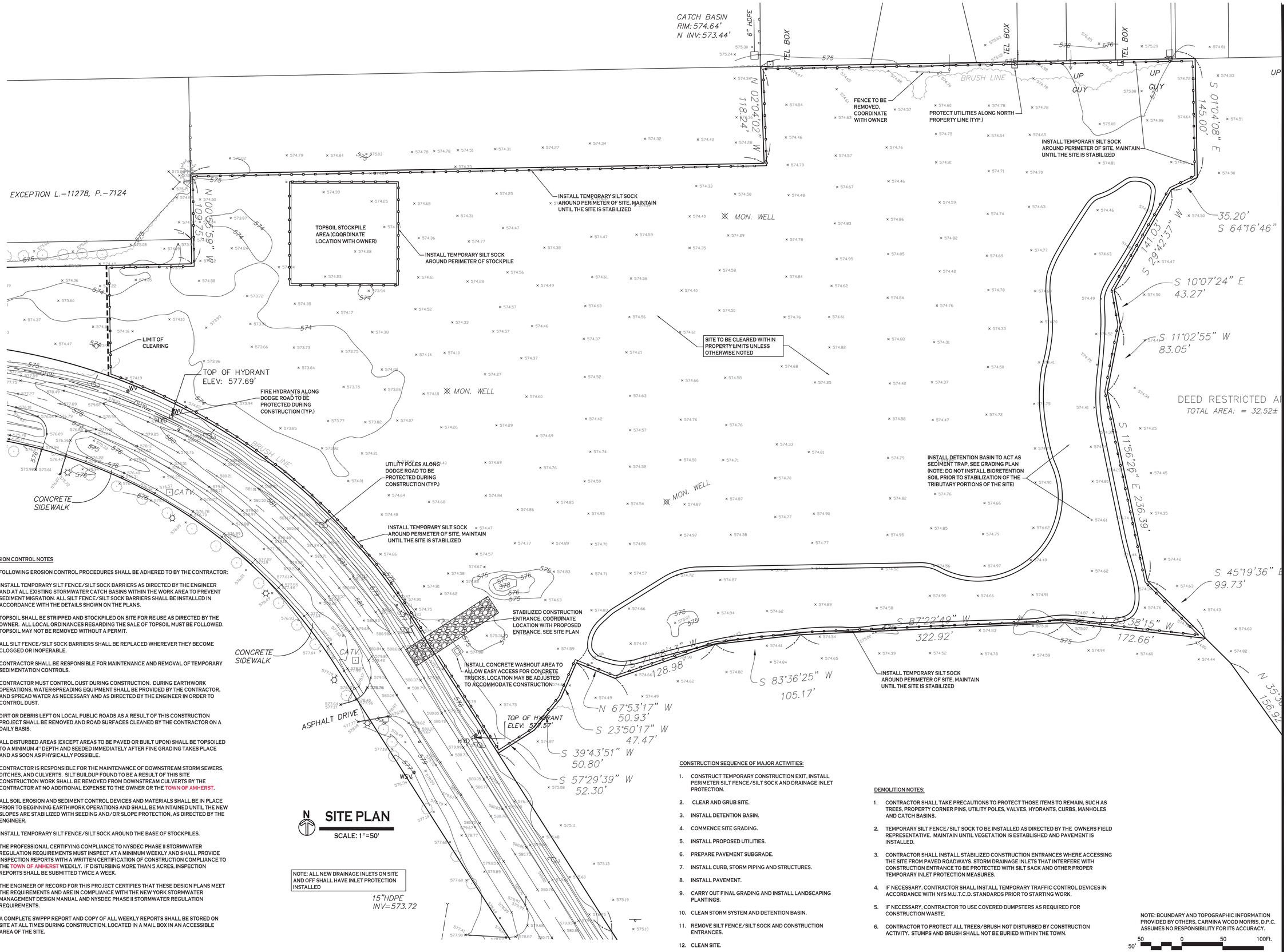
GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062-SITE A Date: JUNE 27, 2019
Scale: 1" = 100' TAX No.

Attachment: SP-2021-05 drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



SITE PLAN

SCALE: 1"=50'

NOTE: ALL NEW DRAINAGE INLETS ON SITE AND OFF SHALL HAVE INLET PROTECTION INSTALLED

15"HDPE INV=573.72

EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL PROCEDURES SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE/SILT SOCK BARRIERS AS DIRECTED BY THE ENGINEER AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.
2. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE OF TOPSOIL MUST BE FOLLOWED. TOPSOIL MAY NOT BE REMOVED WITHOUT A PERMIT.
3. ALL SILT FENCE/SILT SOCK BARRIERS SHALL BE REPLACED WHEREVER THEY BECOME CLOGGED OR INOPERABLE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.
5. CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER-SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR, AND SPREAD WATER AS NECESSARY AND AS DIRECTED BY THE ENGINEER IN ORDER TO CONTROL DUST.
6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED AND ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.
7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH AND SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE AND AS SOON AS PHYSICALLY POSSIBLE.
8. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES, AND CULVERTS. SILT BUILDUP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN OF AMHERST.
9. ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS SHALL BE IN PLACE PRIOR TO BEGINNING EARTHWORK OPERATIONS AND SHALL BE MAINTAINED UNTIL THE NEW SLOPES ARE STABILIZED WITH SEEDING AND/OR SLOPE PROTECTION, AS DIRECTED BY THE ENGINEER.
10. INSTALL TEMPORARY SILT FENCE/SILT SOCK AROUND THE BASE OF STOCKPILES.
11. THE PROFESSIONAL CERTIFYING COMPLIANCE TO NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS MUST INSPECT AT A MINIMUM WEEKLY AND SHALL PROVIDE INSPECTION REPORTS WITH A WRITTEN CERTIFICATION OF CONSTRUCTION COMPLIANCE TO THE TOWN OF AMHERST WEEKLY. IF DISTURBING MORE THAN 5 ACRES, INSPECTION REPORTS SHALL BE SUBMITTED TWICE A WEEK.
12. THE ENGINEER OF RECORD FOR THIS PROJECT CERTIFIES THAT THESE DESIGN PLANS MEET THE REQUIREMENTS AND ARE IN COMPLIANCE WITH THE NEW YORK STORMWATER MANAGEMENT DESIGN MANUAL AND NYSDEC PHASE II STORMWATER REGULATION REQUIREMENTS.
13. A COMPLETE SWPPP REPORT AND COPY OF ALL WEEKLY REPORTS SHALL BE STORED ON SITE AT ALL TIMES DURING CONSTRUCTION, LOCATED IN A MAIL BOX IN AN ACCESSIBLE AREA OF THE SITE.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CONSTRUCT TEMPORARY CONSTRUCTION EXIT, INSTALL PERIMETER SILT FENCE/SILT SOCK AND DRAINAGE INLET PROTECTION.
2. CLEAR AND GRUB SITE.
3. INSTALL DETENTION BASIN.
4. COMMENCE SITE GRADING.
5. INSTALL PROPOSED UTILITIES.
6. PREPARE PAVEMENT SUBGRADE.
7. INSTALL CURB, STORM PIPING AND STRUCTURES.
8. INSTALL PAVEMENT.
9. CARRY OUT FINAL GRADING AND INSTALL LANDSCAPING PLANTINGS.
10. CLEAN STORM SYSTEM AND DETENTION BASIN.
11. REMOVE SILT FENCE/SILT SOCK AND CONSTRUCTION ENTRANCES.
12. CLEAN SITE.

DEMOLITION NOTES:

1. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT THOSE ITEMS TO REMAIN, SUCH AS TREES, PROPERTY CORNER PINS, UTILITY POLES, VALVES, HYDRANTS, CURBS, MANHOLES AND CATCH BASINS.
2. TEMPORARY SILT FENCE/SILT SOCK TO BE INSTALLED AS DIRECTED BY THE OWNERS FIELD REPRESENTATIVE. MAINTAIN UNTIL VEGETATION IS ESTABLISHED AND PAVEMENT IS INSTALLED.
3. CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCES WHERE ACCESSING THE SITE FROM PAVED ROADWAYS. STORM DRAINAGE INLETS THAT INTERFERE WITH CONSTRUCTION ENTRANCE TO BE PROTECTED WITH SILT SACK AND OTHER PROPER TEMPORARY INLET PROTECTION MEASURES.
4. IF NECESSARY, CONTRACTOR SHALL INSTALL TEMPORARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH NYS M.U.T.C.D. STANDARDS PRIOR TO STARTING WORK.
5. IF NECESSARY, CONTRACTOR TO USE COVERED DUMPSTERS AS REQUIRED FOR CONSTRUCTION WASTE.
6. CONTRACTOR TO PROTECT ALL TREES/BRUSH NOT DISTURBED BY CONSTRUCTION ACTIVITY. STUMPS AND BRUSH SHALL NOT BE BURIED WITHIN THE TOWN.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK · CHRISTOPHER WOOD · 076394 · LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Plan

DRAWING NO.

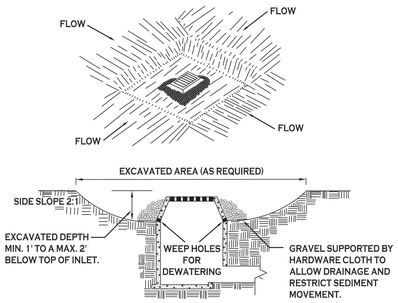
C-001

Project no.: 21.011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



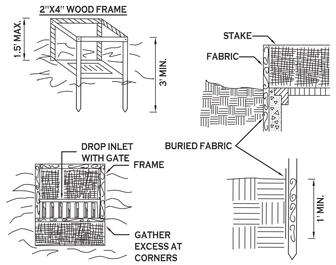
CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

   MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 1

NOT TO SCALE



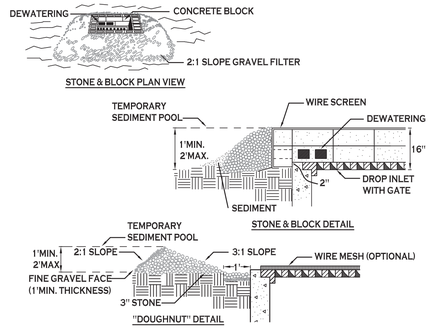
CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

   MAXIMUN DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 2

NOT TO SCALE



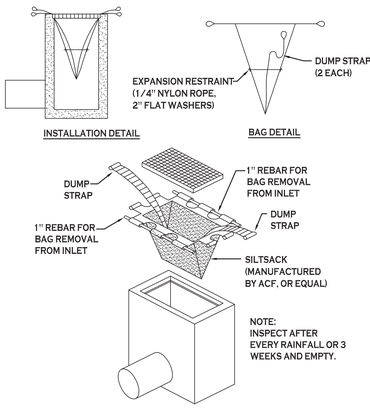
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

   MAXIMUM DRAINAGE AREA 1 ACRE

INLET PROTECTION DETAIL 3

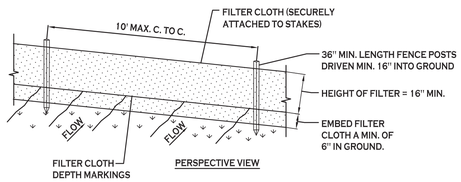
NOT TO SCALE



SILT SACK DETAIL

NOT TO SCALE

NOTE: INSTALL ONE OF THE INLET PROTECTION OPTIONS SHOWN PRIOR TO CONSTRUCTION

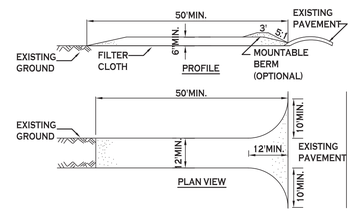


CONSTRUCTION SPECIFICATIONS

1. WOVEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL

NOT TO SCALE

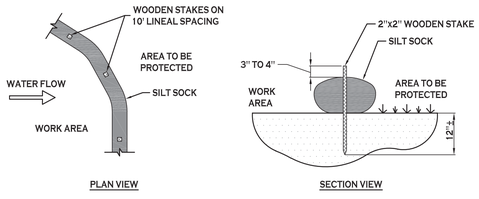


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



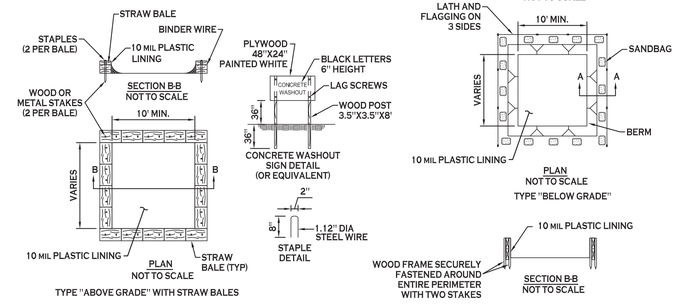
NOTES:

CONTRACTOR SHALL INSPECT AND MAINTAIN SILT SOCK AS NEEDED DURING THE DURATION OF CONSTRUCTION PROJECT.

CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK WHEN IT HAS REACHED ½ OF THE EXPOSED HEIGHT OF THE SILT SOCK. ALTERNATIVELY, RATHER THAN CREATE A SOIL DISTURBING ACTIVITY, THE ENGINEER MAY CALL FOR ADDITIONAL SILT SOCK TO BE ADDED AT AREAS OF HIGH SEDIMENTATION, PLACED IMMEDIATELY ON TOP OF THE EXISTING SEDIMENT LADEN SILT SOCK.

SILT SOCK DETAIL

NOT TO SCALE



NOTES

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

CONCRETE WASHOUT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Demolition & Erosion Control Details

DRAWING NO.

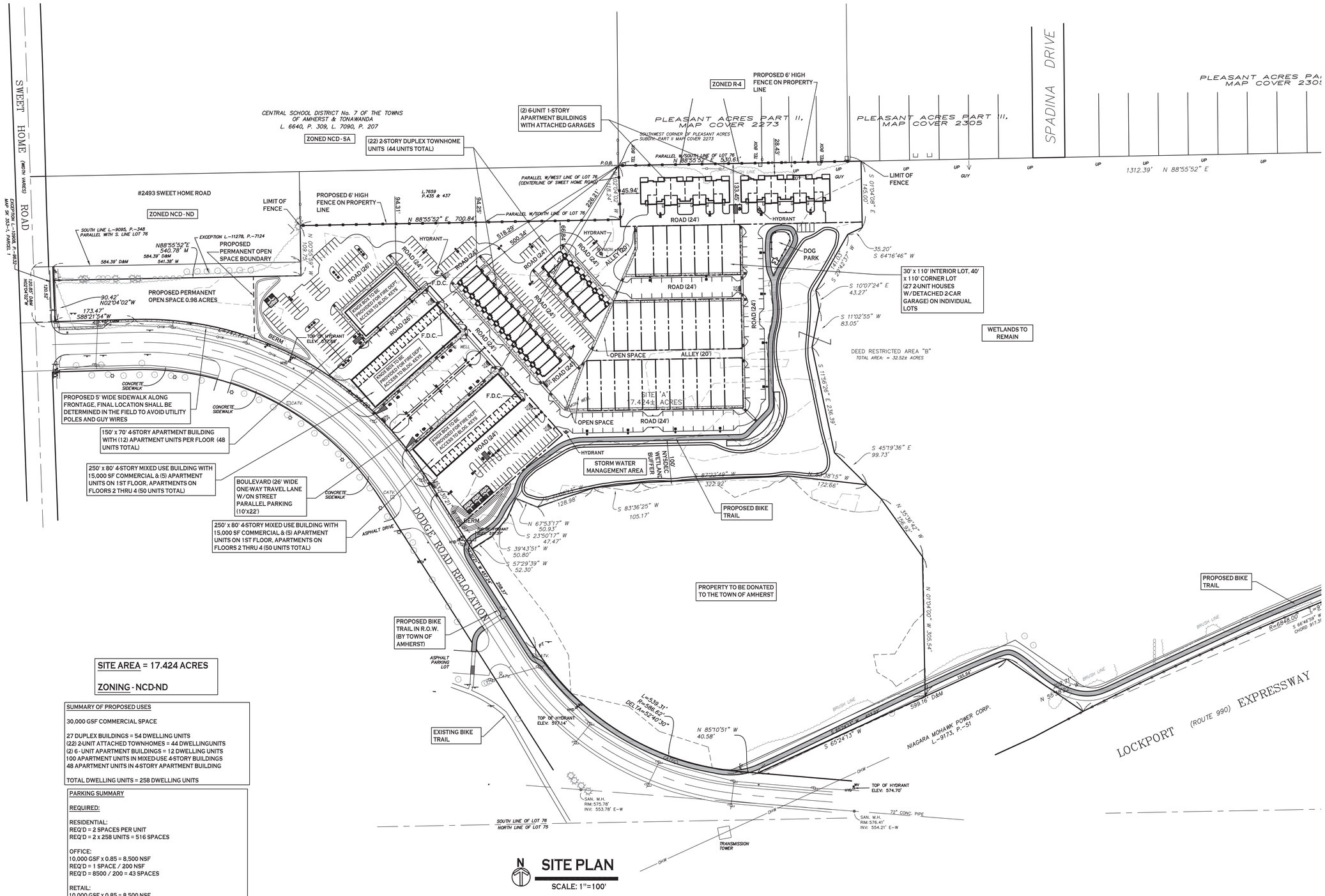
C-002

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

27 DUPLEX BUILDINGS = 54 DWELLING UNITS
(22) 2-UNIT ATTACHED TOWNHOMES = 44 DWELLINGUNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN MIXED-USE 4-STORY BUILDINGS
48 APARTMENT UNITS IN 4-STORY APARTMENT BUILDING

TOTAL DWELLING UNITS = 258 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 258 UNITS = 516 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 644 SPACES

PROVIDED:

134 PARALLEL PARKING SPACES
256 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
64 GARAGE SPACES IN DETACHED GARAGES
494 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

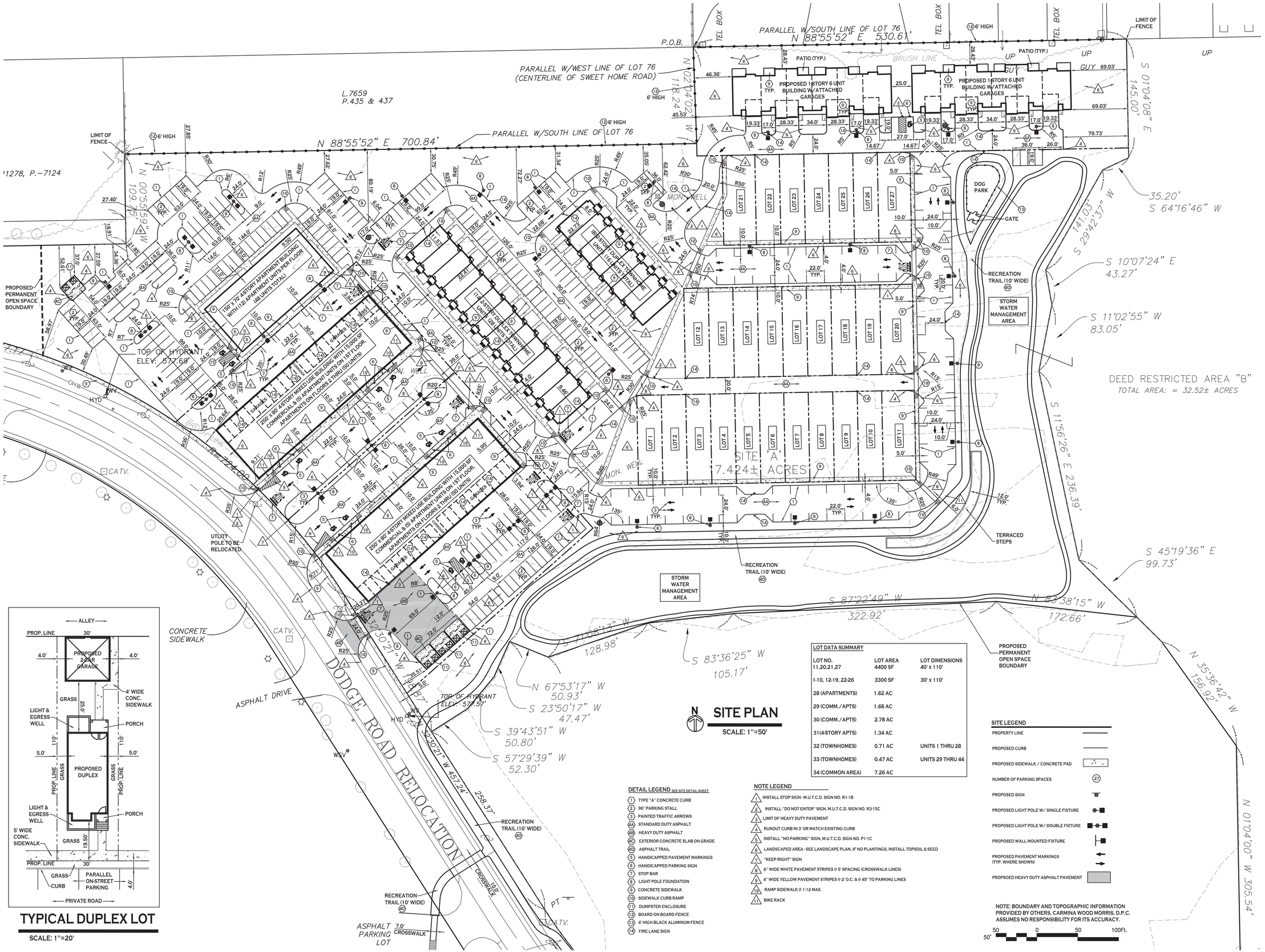
C-100

Project no.: 21 011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E., or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.



SITE PLAN

SCALE: 1"=50'

LOT DATA SUMMARY		
LOT NO. 11,20,21,27	LOT AREA 4400 SF	LOT DIMENSIONS 40' x 110'
1-10, 12-19, 22-26	3300 SF	30' x 110'
28 (APARTMENTS)	1.62 AC	
29 (COMM./APTS)	1.68 AC	
30 (COMM./APTS)	2.78 AC	
31(4-STORY APTS)	1.34 AC	
32 (TOWNHOMES)	0.71 AC	UNITS 1 THRU 28
33 (TOWNHOMES)	0.47 AC	UNITS 29 THRU 44
34 (COMMON AREA)	7.26 AC	

DETAIL LEGEND SEE SITE DETAIL SHEET

1. TYPE "A" CONCRETE CURB
2. 90° PARKING STALL
3. PAINTED TRAFFIC ARROWS
4A. STANDARD DUTY ASPHALT
4B. HEAVY DUTY ASPHALT
4C. EXTERIOR CONCRETE SLAB ON GRADE
4D. ASPHALT TRAIL
5. HANDICAPPED PAVEMENT MARKINGS
6. HANDICAPPED PARKING SIGN
7. STOP BAR
8. LIGHT POLE FOUNDATION
9. CONCRETE SIDEWALK
10. SIDEWALK CURB RAMP
11. DUMPSTER ENCLOSURE
12. BOARD ON BOARD FENCE
13. 4' HIGH BLACK ALUMINUM FENCE
14. FIRE LANE SIGN

NOTE LEGEND

1. INSTALL STOP SIGN - M.U.T.C.D. SIGN NO. R1-1 B
2. INSTALL "DO NOT ENTER" SIGN, M.U.T.C.D. SIGN NO. R3-15C
3. LIMIT OF HEAVY DUTY PAVEMENT
4. RUNOUT CURB IN 3' OR MATCH EXISTING CURB
5. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
6. LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
7. "KEEP RIGHT" SIGN
8. 6" WIDE WHITE PAVEMENT STRIPES @ 5' SPACING (CROSSWALK LINES)
9. 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45° TO PARKING LINES
10. RAMP SIDEWALK @ 1:12 MAX.
11. BIKE RACK

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN
- PROPOSED LIGHT POLE W/ SINGLE FIXTURE
- PROPOSED LIGHT POLE W/ DOUBLE FIXTURE
- PROPOSED WALL MOUNTED FIXTURE
- PROPOSED PAVEMENT MARKINGS (TYP. WHERE SHOWN)
- PROPSOED HEAVY DUTY ASPHALT PAVEMENT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

TYPICAL DUPLEX LOT

SCALE: 1"=20'

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site Plan

DRAWING NO.

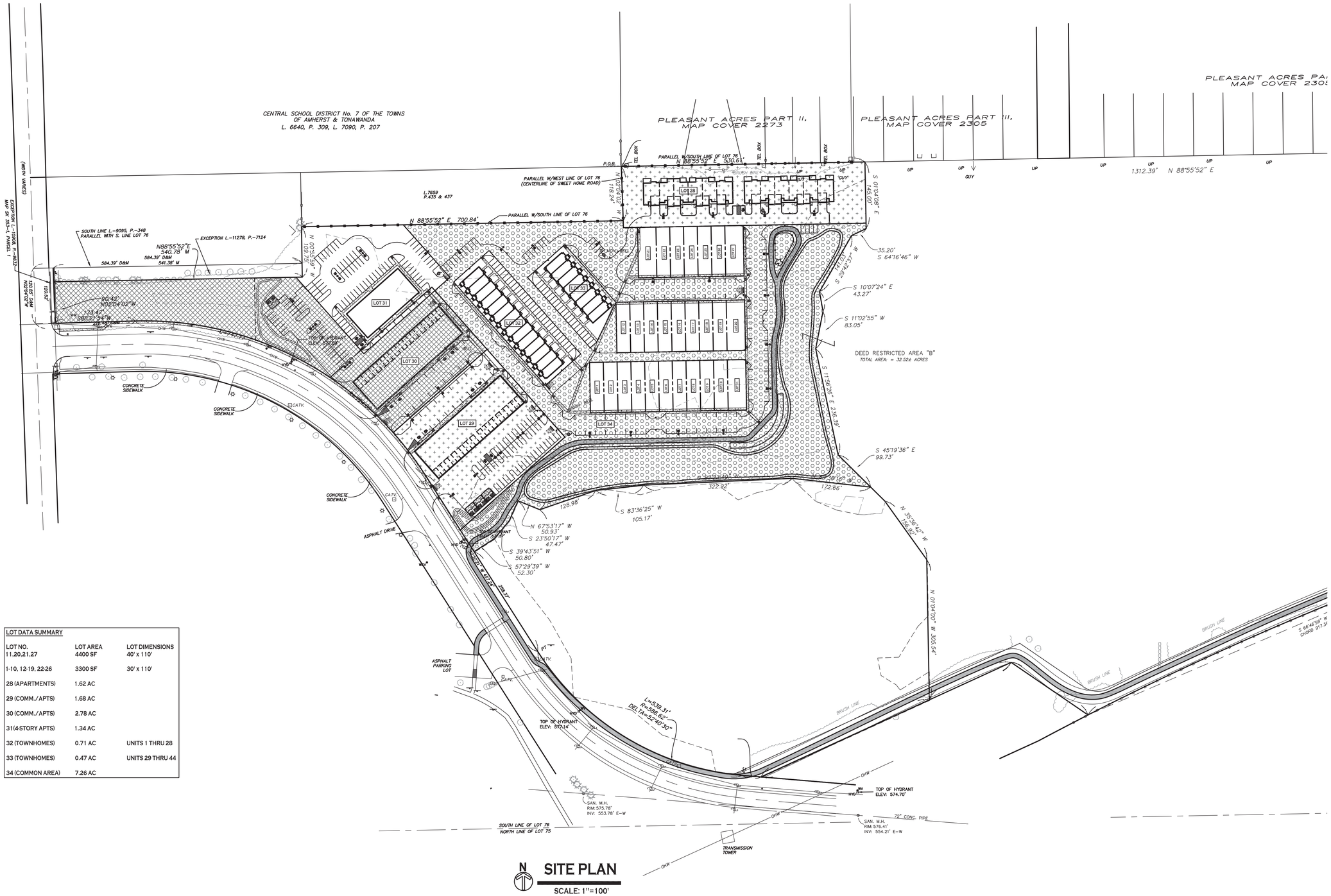
C-101

Project no.: 21-011

Attachment: SP-2021-05_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



N

SITE PLAN

SCALE: 1"=100'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
11,20,21,27	4400 SF	40' x 110'
1-10, 12-19, 22-26	3300 SF	30' x 110'
28 (APARTMENTS)	1.62 AC	
29 (COMM./APTS)	1.68 AC	
30 (COMM./APTS)	2.78 AC	
31 (4-STORY APTS)	1.34 AC	
32 (TOWNHOMES)	0.71 AC	UNITS 1 THRU 28
33 (TOWNHOMES)	0.47 AC	UNITS 29 THRU 44
34 (COMMON AREA)	7.26 AC	

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076304 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Parcel Map

DRAWING NO.

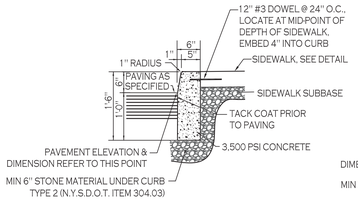
C-102

Project no.: 21 011

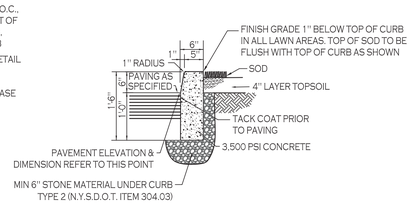
Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



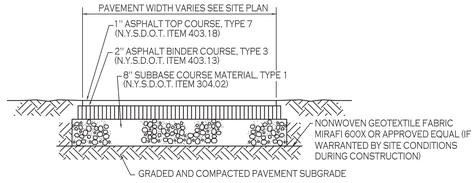
ABUTTING SIDEWALK



ABUTTING LANDSCAPE/GRASS

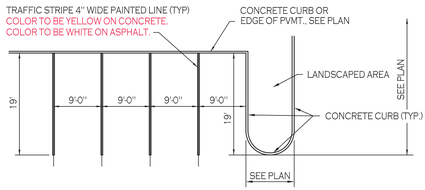
NOTES:
1. CONTROL JOINTS TO BE 2" DEEP AT 15'-0" O.C. - SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. WHERE THE CURB DROPS (IS FLUSH WITH ASPHALT) THE DEPTH OF CURB BELOW GRADE SHALL BE INCREASED TO 1'-6" AND OTHER DIMENSIONS ADJUSTED ACCORDINGLY.

TYPE "A" CONCRETE CURB - 1

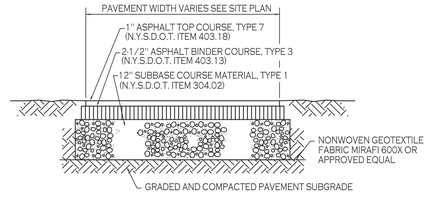


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

STANDARD DUTY ASPHALT SECTION - 4A

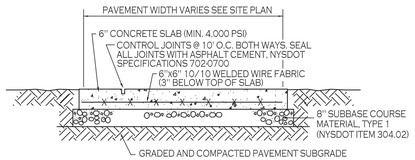


90° PARKING STALL LAYOUT - 2



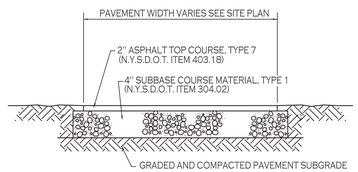
NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

HEAVY DUTY ASPHALT SECTION - 4B



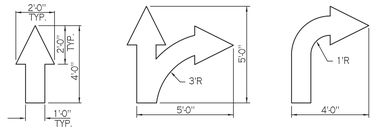
NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502-3.

EXTERIOR CONCRETE SLAB-ON-GRADE SECTION - 4C

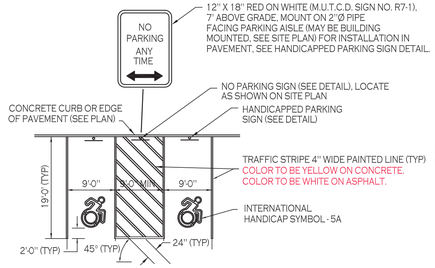


NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 401-3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304-3.

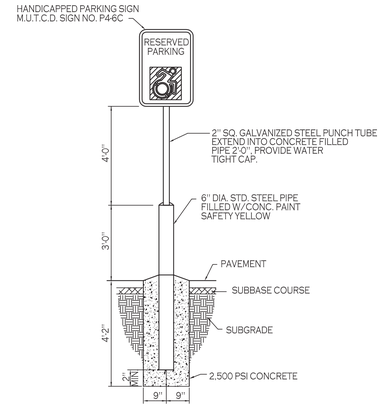
ASPHALT TRAIL SECTION - 4D



PAINTED TRAFFIC ARROWS - 3

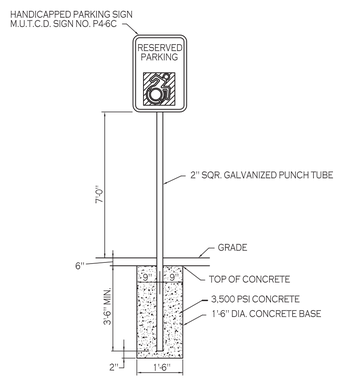


HANDICAPPED PAVEMENT MARKINGS & SIGNAGE - 5



HANDICAPPED PARKING SIGN - 6

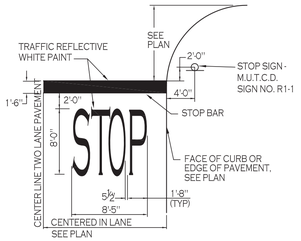
INSTALLED IN PAVEMENT



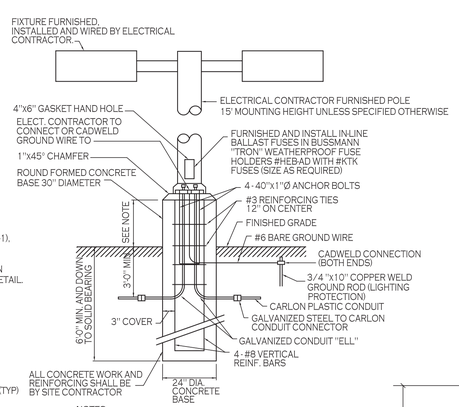
NOTES:
1. HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

HANDICAP PARKING SIGNS - 6

INSTALLED IN GRASS/LANDSCAPED AREA



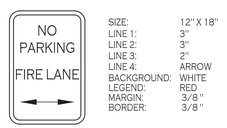
STOP BAR DETAIL - 7



NOTES:
1. FOR LOCATIONS OF FOUNDATIONS SEE SITE PLAN
2. FOR LIGHT FIXTURE ORDERING INFORMATION SEE SITE LIGHTING PLAN
3. LIGHT POLE BASE EXPOSURE ABOVE GRADE SHALL BE:
   IN CURBED ISLANDS: 6" ABOVE TOP OF CURB ELEVATION
   IN PAVEMENT: 3" ABOVE GRADE
   IN NONCURBED GRASS AREAS: 6" ABOVE GRADE

LIGHT POLE FOUNDATION - 8

USE FOR 15' MOUNTING HEIGHT L.E.D. FIXTURES

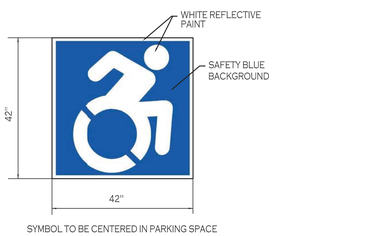


SIZE:	12" X 18"
LINE 1:	3"
LINE 2:	3"
LINE 3:	2"
LINE 4:	ARROW
BACKGROUND:	WHITE
LEGEND:	RED
MARGIN:	3/8"
BORDER:	3/8"

INSTALLATION

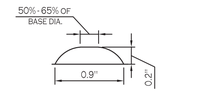
1) SIGNS SHALL BE LOCATED ON THE RIGHT SIDE OF THE ROADWAY FACING APPROACHING TRAFFIC.
2) SIGNS SHALL BE INSTALLED APPROXIMATELY TWO FEET OFF OF PAVEMENT EDGE OR FACE OF CURB.
3) THE HEIGHT OF THE SIGN SHALL BE A MINIMUM OF SEVEN (7) FEET, MEASURED FROM THE BOTTOM OF THE SIGN TO THE GROUND.
4) ALL SIGNS SHALL BE INSTALLED FACING TRAFFIC AT AN ANGLE OF BETWEEN 30 AND 45 DEGREES WITH A LINE PARALLEL TO THE FLOW OF TRAFFIC. THE SIGN LEGENDS SHALL INCLUDE SINGLE-HEADED ARROWS POINTING IN THE DIRECTION OF THE REGULATION IF THE SIGNS ARE AT THE END OF THE ZONE, OR DOUBLE-HEADED ARROWS POINTING IN BOTH DIRECTIONS IF THE SIGNS ARE AT INTERMEDIATE POINTS WITHIN A ZONE.
5) BUILDING MOUNT WHERE REQUIRED @ 50' O.C..

FIRE LANE SIGN - 14

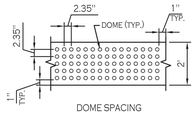


SYMBOL TO BE CENTERED IN PARKING SPACE

INTERNATIONAL HANDICAP SYMBOL - 5A

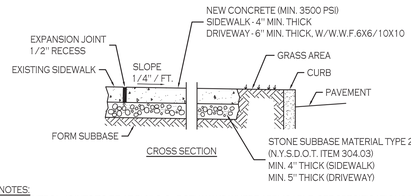


DOME SECTION



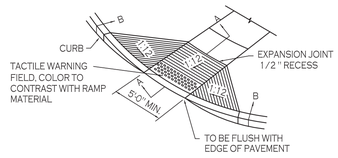
DOME SPACING

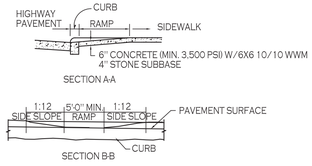
NOTE: TACTILE WARNING DEVICES SHALL BE PER ICC/ANSI A117.1-1998, SECTION 705.3.1.2 OR CURRENT UPDATE



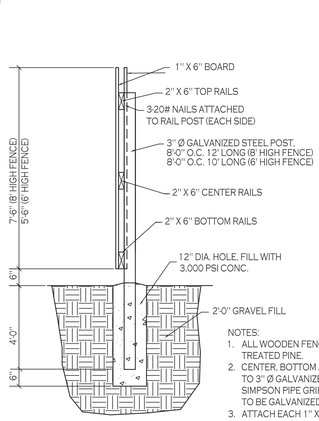
NOTES:
1. CONTROL JOINTS TO BE AT 5'-0" O.C., BOTH WAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3.
3. SUBBASE GRADE SHALL FOLLOW THE PROPOSED GRADE OF THE SIDEWALK AND SLOPE AWAY FROM BUILDING WHERE APPLICABLE, PROVIDE CONTINUOUS STONE PATH TO CURB UNDERDRAIN WHERE PROVIDED.
4. FULL DEPTH EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' O.C., BOTHWAYS WHERE APPLICABLE. SEE SPECIFICATIONS FOR FURTHER JOINT REQUIREMENTS NYSDOT 702-0700.
5. SEE CURB DETAIL FOR DOWLING REQUIREMENTS WHERE ABUTTING CURB.
6. INSTALL 6" LONG #3 DOWELS @ 12" O.C. WHERE SIDEWALK ABUTS A BUILDING WALL AT AN ENTRANCE, THICKEN SIDEWALK TO 6" AT BUILDING WALL AND INSTALL DOWEL CENTERED IN THE 6" DEPTH. DOWELS AND THICKENING OF SIDEWALK SHALL EXTEND 18" EITHER SIDE OF ENTRANCE.
7. INSTALL 1/2" PREMOLDED EXPANSION JOINT WITH BACKER ROD & SEALANT WHERE SIDEWALK ABUTS BUILDING OR OTHER STRUCTURE.

CONCRETE SIDEWALK - 9



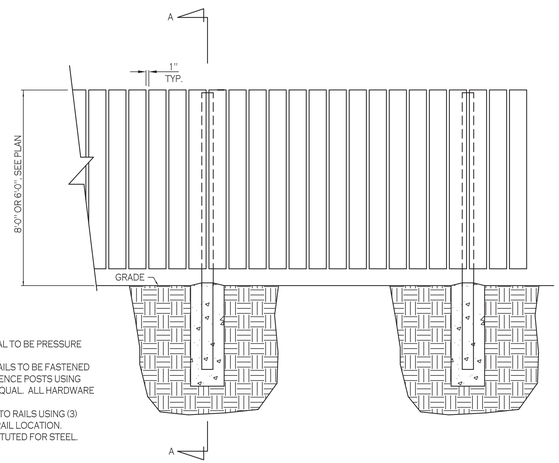


SIDEWALK CURB RAMP - 10



SECTION A-A

NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.



BOARD ON BOARD FENCE FENCE - 12

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076304 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Details

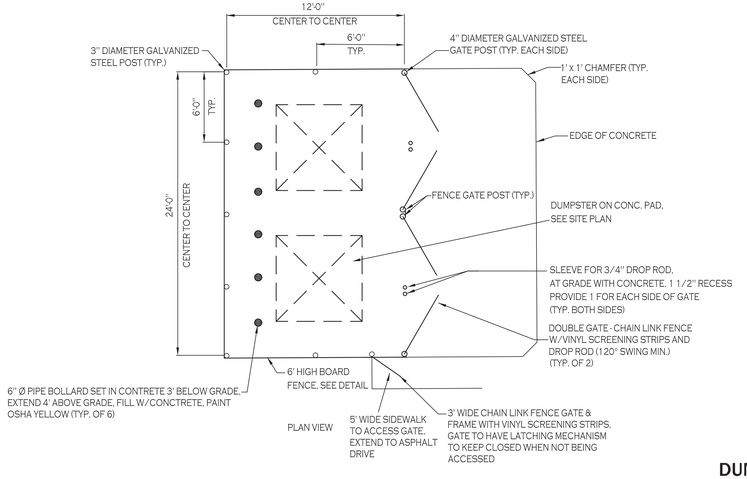
DRAWING NO.
C-103

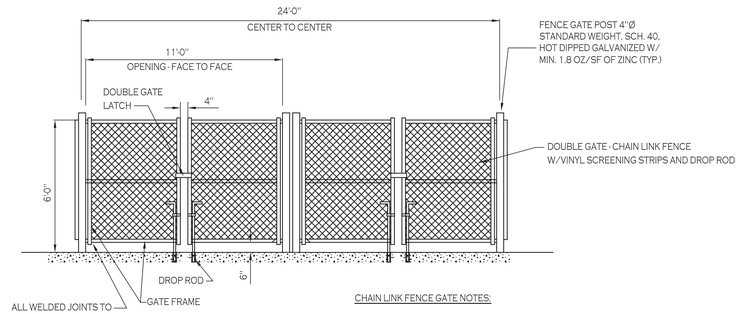
Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



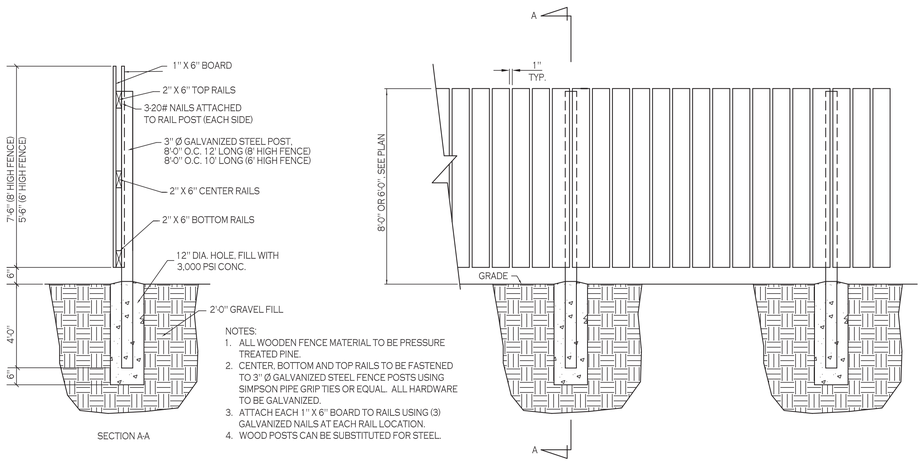


FRONT VIEW

DUMPSTER ENCLOSURE - 11

CHAIN LINK FENCE GATE NOTES:

1. GATE POST FOOTINGS TO BE MIN. 36" DEEP x (4x) POST DIAMETER, EXTEND POST TO WITHIN 6" OF BOTTOM.
2. GATE FRAMES TO BE 2" SQ. GALVANIZED STEEL, WEIGHING 2.60 LB/FT IN ACCORDANCE WITH ASTM F 900.
3. CHAIN LINK FENCE FABRIC SHALL BE 2" MESH, 9 GAUGE, ZINC COATED STEEL CORE WIRE. INSTALL MESH WITH HOOK BOLTS AND TENSION BARS ON ALL 4 SIDES, ATTACH AT 15" MAX.
4. DOUBLE GATE LATCH TO BE FORKED TYPE CAPABLE OF RETAINING GATE IN CLOSED POSITION AND HAVE PROVISION FOR PAD LOCK. LATCH SHALL BE OPERABLE FROM EITHER SIDE OF GATE.
5. ALL HARDWARE TO BE HOT DIPPED GALVANIZED STEEL TO SUIT GATE SIZE.



NOTES:
1. ALL WOODEN FENCE MATERIAL TO BE PRESSURE TREATED PINE.
2. CENTER, BOTTOM AND TOP RAILS TO BE FASTENED TO 3" Ø GALVANIZED STEEL FENCE POSTS USING SIMPSON PIPE GRIP TIES OR EQUAL. ALL HARDWARE TO BE GALVANIZED.
3. ATTACH EACH 1" X 6" BOARD TO RAILS USING (3) GALVANIZED NAILS AT EACH RAIL LOCATION.
4. WOOD POSTS CAN BE SUBSTITUTED FOR STEEL.

BOARD ON BOARD FENCE FENCE - FOR DUMPSTER ENCLOSURE

Carmina
Wood
Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK
CHRISTOPHER WOOD
076304
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

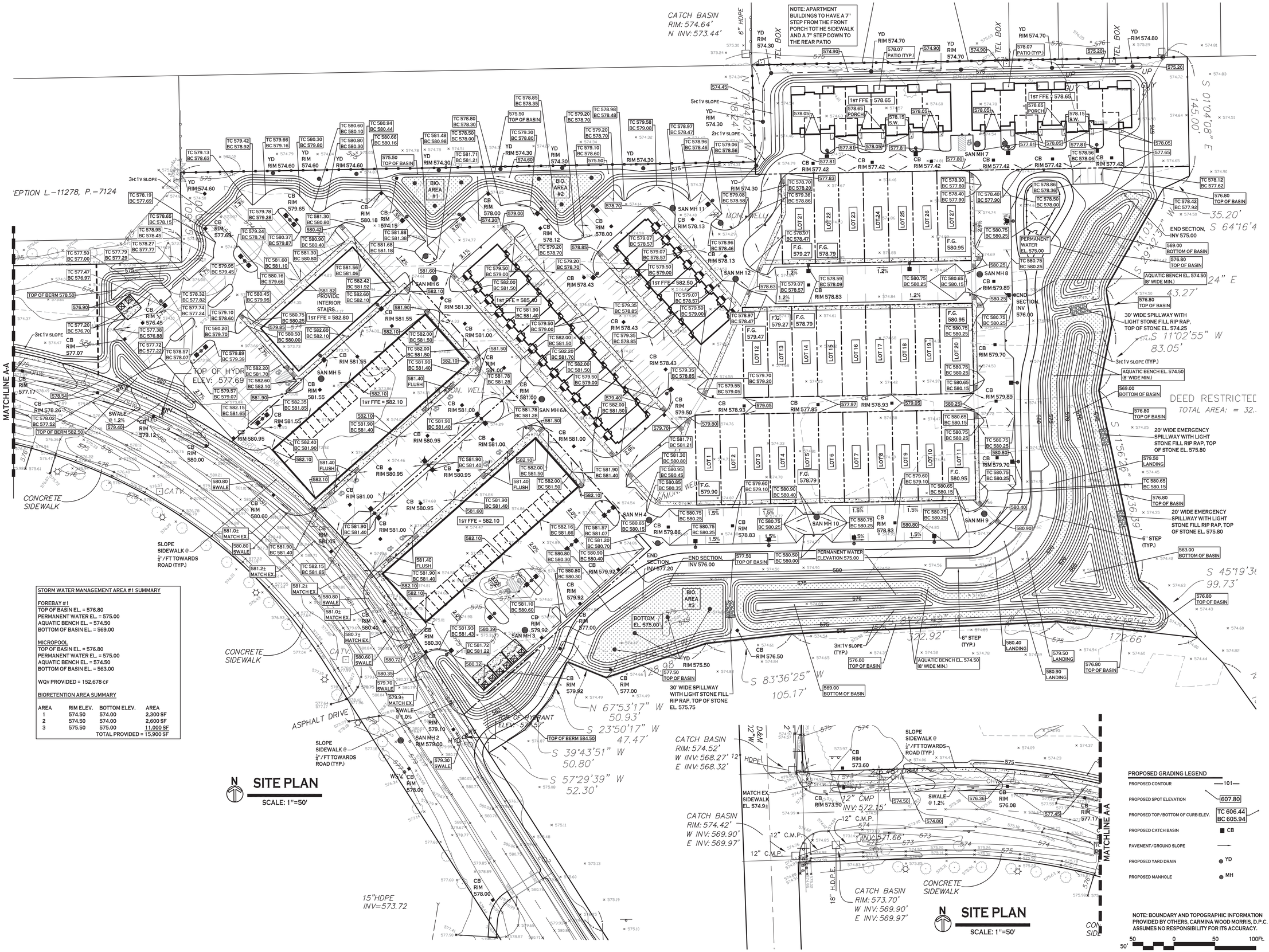
DRAWING NAME:
Site
Details

DRAWING NO.
C-104
Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



STORM WATER MANAGEMENT AREA #1 SUMMARY

FOREBAY #1
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 569.00

MICROPOOL
TOP OF BASIN EL. = 576.80
PERMANENT WATER EL. = 575.00
AQUATIC BENCH EL. = 574.50
BOTTOM OF BASIN EL. = 563.00

WQv PROVIDED = 152,678 CF

BIORETENTION AREA SUMMARY

AREA	RIM ELEV.	BOTTOM ELEV.	AREA
1	574.50	574.00	2,300 SF
2	574.50	574.00	2,600 SF
3	575.50	575.00	11,000 SF
		TOTAL PROVIDED =	15,900 SF

SITE PLAN
SCALE: 1"=50'

SITE PLAN
SCALE: 1"=50'

PROPOSED GRADING LEGEND

PROPOSED CONTOUR	101
PROPOSED SPOT ELEVATION	607.80
PROPOSED TOP/BOTTOM OF CURB ELEV.	TC 606.44 BC 605.94
PROPOSED CATCH BASIN	CB
PAVEMENT/GROUND SLOPE	
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

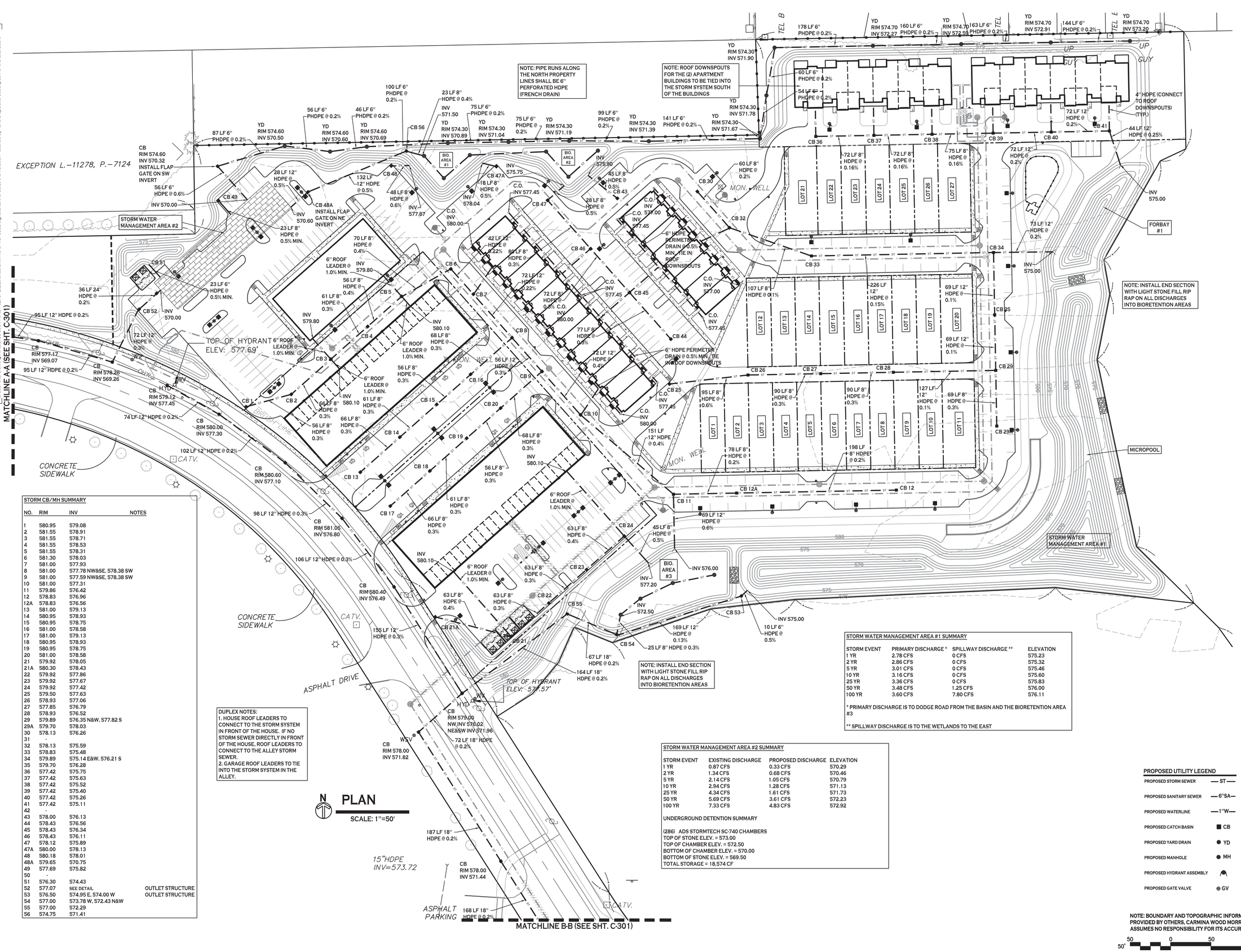
DRAWING NAME:
Grading Plan

DRAWING NO.
C-200

Project no.: 21-011

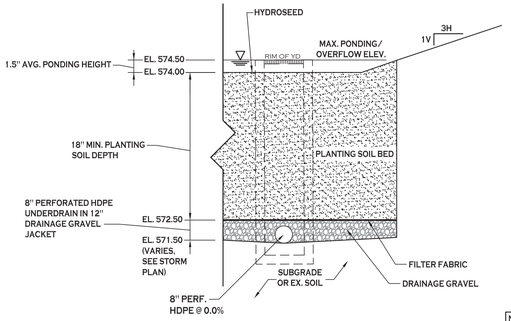
Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

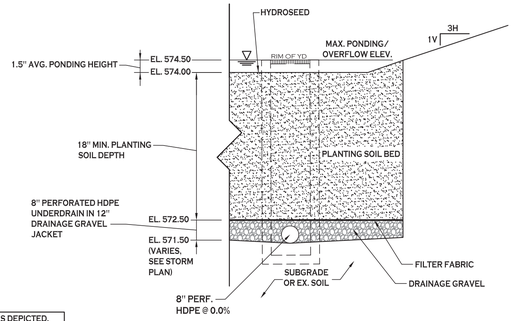

EXCEPTION L.–11278, P.–7124
MATCHLINE AA (SEE SHT. C-301)
MATCHLINE B-B (SEE SHT. C-301)
STORM WATER MANAGEMENT AREA #2
STORM WATER MANAGEMENT AREA #1
BIO. AREA #1
BIO. AREA #2
BIO. AREA #3
FORBAY #1
TOP OF HYDRANT ELEV: 577.69'
TOP OF HYDRANT ELEV: 577.57'
MON. WELL
CATV.
CONCRETE SIDEWALK
ASPHALT DRIVE
ASPHALT PARKING
BRUSHY LINE
TEL
UP
GUY
NOTE: PIPE RUNS ALONG THE NORTH PROPERTY LINES SHALL BE 6" PERFORATED HDPE (FRENCH DRAIN)
NOTE: ROOF DOWNSPOUTS FOR THE (2) APARTMENT BUILDINGS TO BE TIED INTO THE STORM SYSTEM SOUTH OF THE BUILDINGS
NOTE: INSTALL END SECTION WITH LIGHT STONE FILL RIP RAP ON ALL DISCHARGES INTO BIORETENTION AREAS
NOTE: INSTALL END SECTION WITH LIGHT STONE FILL RIP RAP ON ALL DISCHARGES INTO BIORETENTION AREAS
MICROPOOL
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19
LOT 20
LOT 21
LOT 22
LOT 23
LOT 24
LOT 25
LOT 26
LOT 27
CB 1
CB 2
CB 3
CB 4
CB 5
CB 6
CB 7
CB 8
CB 9
CB 10
CB 11
CB 12
CB 12A
CB 13
CB 14
CB 15
CB 16
CB 17
CB 18
CB 19
CB 20
CB 21
CB 21A
CB 22
CB 23
CB 24
CB 25
CB 26
CB 27
CB 28
CB 29
CB 29A
CB 30
CB 32
CB 33
CB 34
CB 35
CB 36
CB 37
CB 38
CB 39
CB 40
CB 41
CB 43
CB 44
CB 45
CB 46
CB 47
CB 47A
CB 48
CB 48A
CB 49
CB 51
CB 52
CB 53
CB 54
CB 55
CB 56
HYD
WV
WSV
GAS
OHW
SAN
STORM
INV 575.00
INV 576.00
INV 577.20
INV 572.50
INV 575.75
INV 575.90
INV 578.04
INV 577.87
INV 580.00
INV 577.45
INV 580.00
INV 577.45
INV 577.45
INV 577.45
INV 580.10
INV 580.10
INV 580.10
INV 579.80
INV 579.80
INV 570.00
INV 570.60
INV 580.00
INV 577.45
INV 577.45
INV 577.45
INV 577.45
INV 580.10
INV 580.10
INV 580.10

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

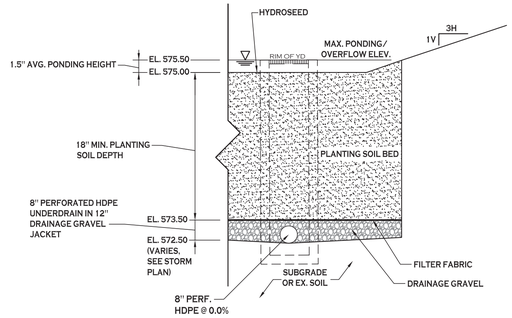


BIORETENTION AREA #1



BIORETENTION AREA #2

NOTE: AS DEPICTED, YARD DRAIN RIM ELEVATIONS ARE TO BE SET 6" ABOVE PROPOSED GRADE IN BIORETENTION AREAS.



BIORETENTION AREA #3

NOTES:
1. FILTER FABRIC TO BE NON-WOVEN CLASS 'C', MIRAFI 180-N OR APPROVED EQUIVALENT
2. MULCH TO BE SHREDDED HARDWOOD, AGED 12 MONTHS MIN.
3. DRAINAGE GRAVEL TO MEET AASHTO M-43. NO.67, SIZE 0.25" TO 0.75"
4. CONTRACTOR TO PROVIDE PLANTING SOIL SUBMITTAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

NOTE: PLANTING SOIL SHALL BE LOAM/SAND MIX CONTAINING A MINIMUM OF 35 TO 60% SAND BY VOLUME AND LESS THAN 25% CLAY. SOIL SHOULD FALL WITHIN USCS TYPES SM OR ML WITH PERMEABILITY OF AT LEAST 0.5 FEET PER DAY. SOIL SHOULD BE FREE FROM STONES, STUMPS, ROOTS OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED.

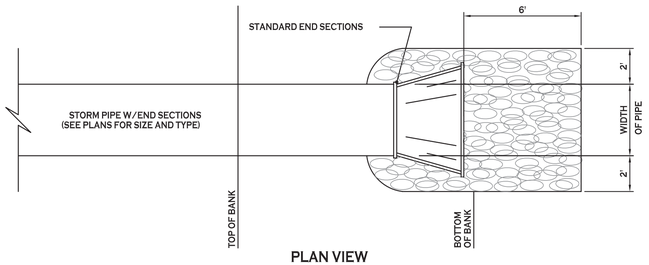
CHARACTERISTICS SHALL BE:
PH RANGE: 5.2 - 7.00
ORGANIC MATTER: 1.5 - 4.0%
MAGNESIUM: 35 LBS PER ACRE MIN.
PHOSPHORUS: 75 LBS PER ACRE MIN.
POTASSIUM: 85 LBS PER ACRE MIN.
SOLUBLE SALTS: 500 PPM
CLAY: 10 TO 25%
SILT: 30 TO 55%
SAND: 35 TO 60%

BIO-RETENTION AREA SEEDING SPEC (NORTHEAST WETLAND GRASS SEED MIX):

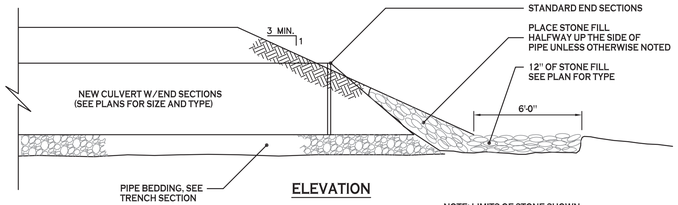
SEED MIXTURE	VARIETY	PERCENT BY NO. OF SEEDS
CREEPING BENTGRASS	AGROSTIS STOLONIFERA	63.0
ROUGH BLUEGRASS	POA TRIVIALIS	17.0
MEADOW FOXTAIL	ALOPECURUS ARUNDINACEUS	11.0
ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	4.5
DEERTONGUE	PANICUM CLANDESTINUM	4.5

BIORETENTION AREA - TYPICAL SECTIONS

NOT TO SCALE



PLAN VIEW

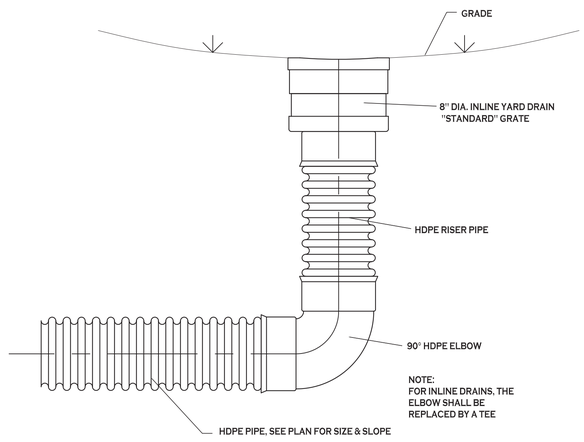


ELEVATION

NOTE: LIMITS OF STONE SHOWN ARE MINIMUMS, PLAN MAY INDICATE GREATER LIMITS

TYPICAL PIPE OUTLET W/ END SECTION & RIP RAP

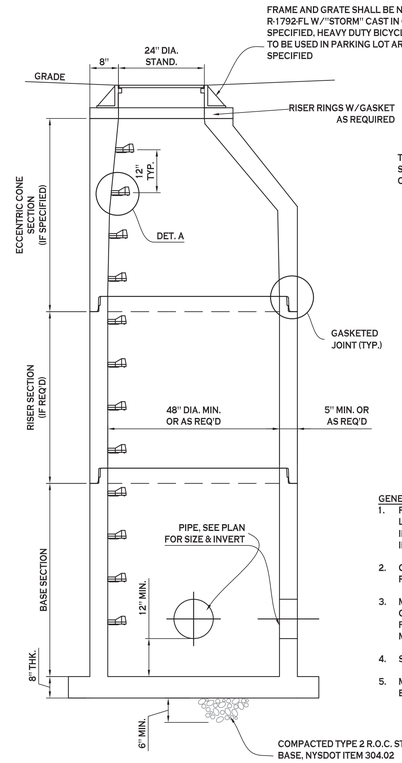
NOT TO SCALE



NOTE:
FOR INLINE DRAINS, THE ELBOW SHALL BE REPLACED BY A TEE

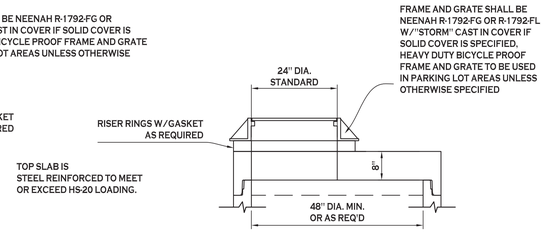
NOTE:
SEE TYPICAL TRENCH SECTION FOR BEDDING REQUIREMENTS

TYPICAL YARD DRAIN DETAIL



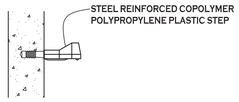
TYPICAL STORM MANHOLE DETAIL

NOT TO SCALE



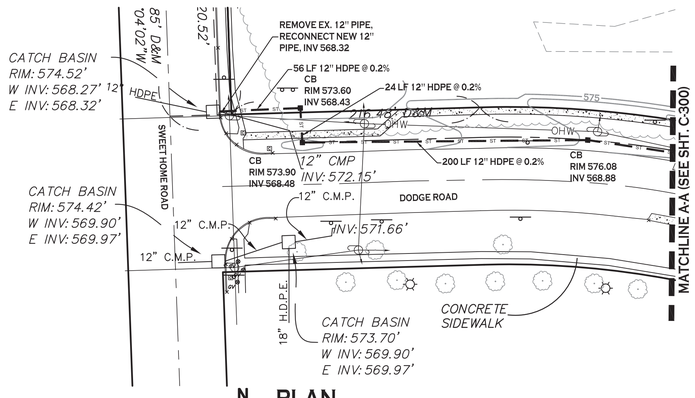
NOTE: ECCENTRIC CONE SECTION SHALL BE USED UNLESS DEPTH WARRANTS TOP SLAB PER MANUFACTURER

ALTERNATE TOP SLAB



DETAIL A

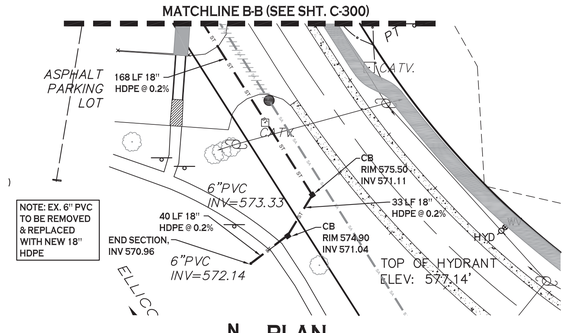
GENERAL NOTES:
1. REINFORCED STEEL TO CONFORM TO LATEST A.S.T.M. A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) IN BASE SLAB.
2. CONCRETE COMPRESSIVE STRENGTH - 4000 PSI MINIMUM.
3. MANHOLE DESIGN SPECIFICATIONS TO CONFORM TO LATEST A.S.T.M. C478 SPEC. FOR PRE-CAST REINFORCED CON-CRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.
5. MANHOLE TO BE COATED ON OUTSIDE WITH BITUMASTIC SEALER.



N

PLAN

SCALE: 1"=50'



N

PLAN

SCALE: 1"=50'

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK
CHRISTOPHER WOOD
076394
LICENSED PROFESSIONAL ENGINEER

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

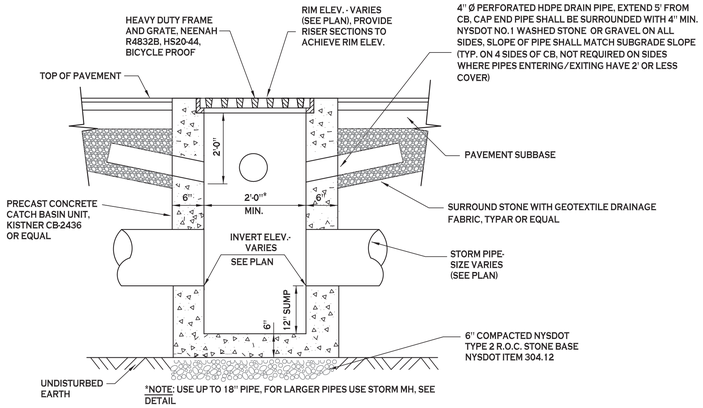
DRAWING NO.
C-301

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

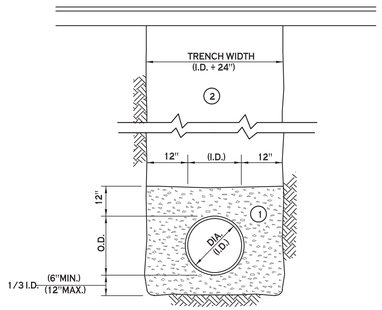
© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. "WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



TYPICAL PRECAST CATCH BASIN

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

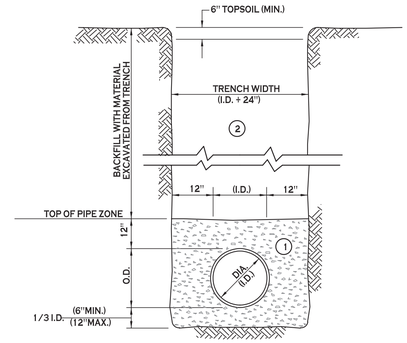
NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

(2) TYPE 2 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 304-2.02 TYPE 2. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN TWO INCHES AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (2)

STORM SEWER TRENCH SECTION IN PAVED AREAS

NOT TO SCALE



NOTES:

A. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. TRENCHING OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING.

C. TRENCH DETAILS ARE ONLY SHOWN FOR PURPOSES OF MATERIAL PLACEMENT AND MAXIMUM PAY LIMITS.

D. AN OSHA APPROVED MOVABLE PROTECTIVE TRENCH SHIELD SHALL BE USED IN ALL UNSHEETED TRENCH AREAS.

MATERIALS

PIPE BEDDING MATERIAL (NYSDOT 1985 EDITION)

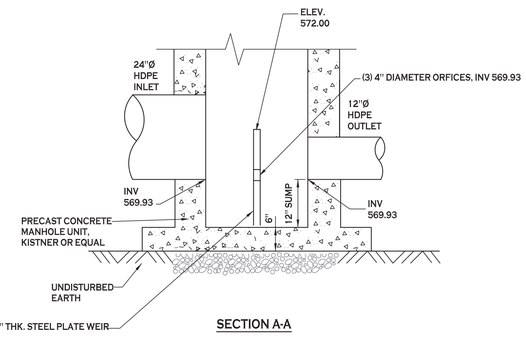
(1) NO. 1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE MATERIAL SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN ONE INCH AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NO SLAG SHALL BE ALLOWED FOR MATERIAL (1)

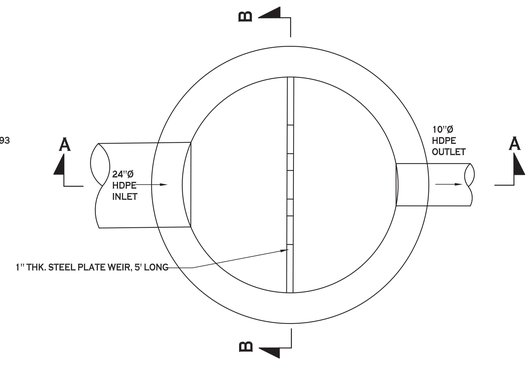
(2) BACKFILL MATERIAL SHALL BE NATIVE SOIL CONTAINING NO UNSUITABLE MATERIAL COMPACTED IN 6" LIFTS.

STORM SEWER TRENCH SECTION IN UNPAVED AREAS

NOT TO SCALE



SECTION A-A



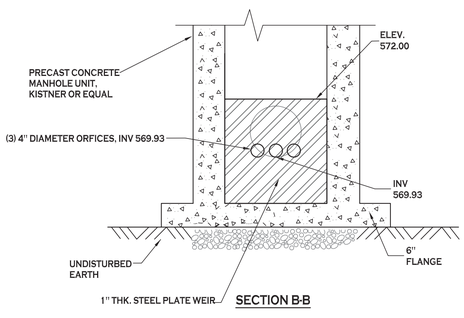
PLAN

NOTES:
1. FASTEN STEEL PLATE TO CB WALL WITH ANGLE CLIPS AND BOLTS
2. STEEL PLATE, ANGLE CLIPS, AND BOLTS TO BE HOT DIPPED GALVANIZED

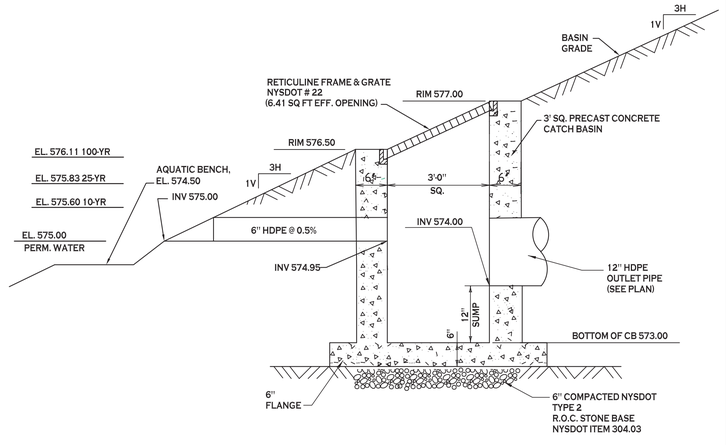
*NOTE: USE 5'-0" I.D. MANHOLE

OUTLET CONTROL STRUCTURE - CB 52

NOT TO SCALE



SECTION B-B



DETENTION BASIN OUTLET STRUCTURE - CB 53

N.T.S.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER M. GUY 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Storm Drainage Details

DRAWING NO.

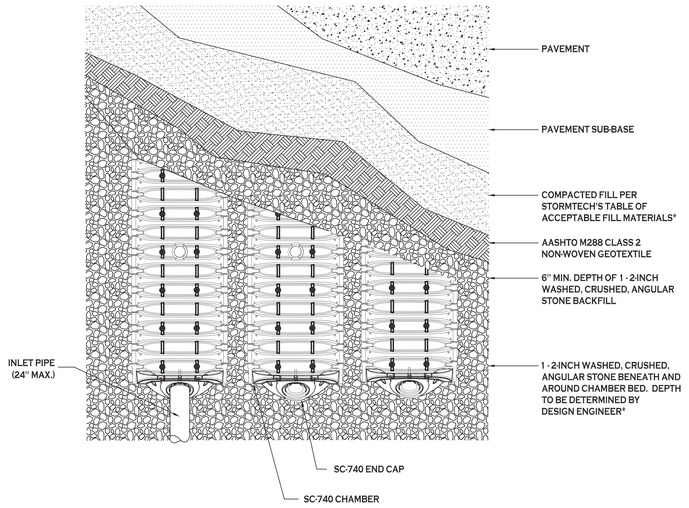
C-302

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



STORMTECH SC-740 CHAMBER SYSTEM
PLAN VIEW DETAIL

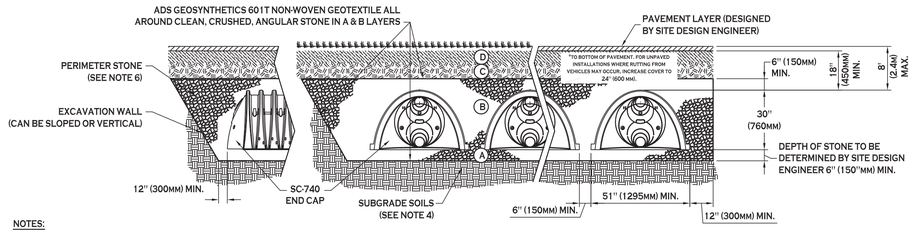
NOT TO SCALE

*SEE STORMTECH'S DESIGN MANUAL

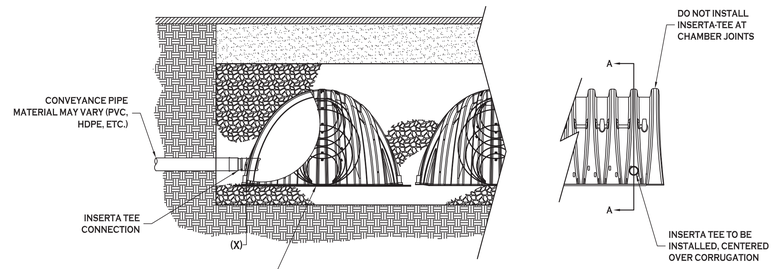
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION/DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 MM) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LATER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 MM) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 MM) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 LBS (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 MM) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:
1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



SECTION A-A

SIDE VIEW

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 MM)	4" (100 MM)
SC-740	10" (250 MM)	4" (100 MM)
DC-780	10" (250 MM)	4" (100 MM)
MC-3500	12" (300 MM)	6" (150 MM)
MC-4500	12" (300 MM)	8" (200 MM)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

INSERTA TEE DETAIL

NOT TO SCALE

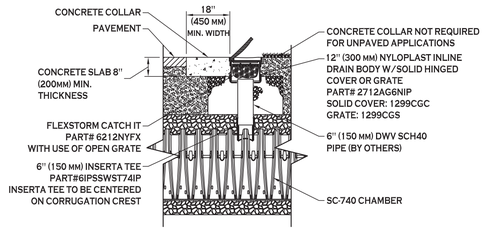
INSPECTION AND MAINTENANCE
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 MM) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 M) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-740 6" INSPECTION PORT DETAIL

NOT TO SCALE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK · CHRISTOPHER WOOD · 076398 · LICENSED PROFESSIONAL ENGINEER

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: 2/24/21
Scale: As Noted

DRAWING NAME:
Storm Drainage Details

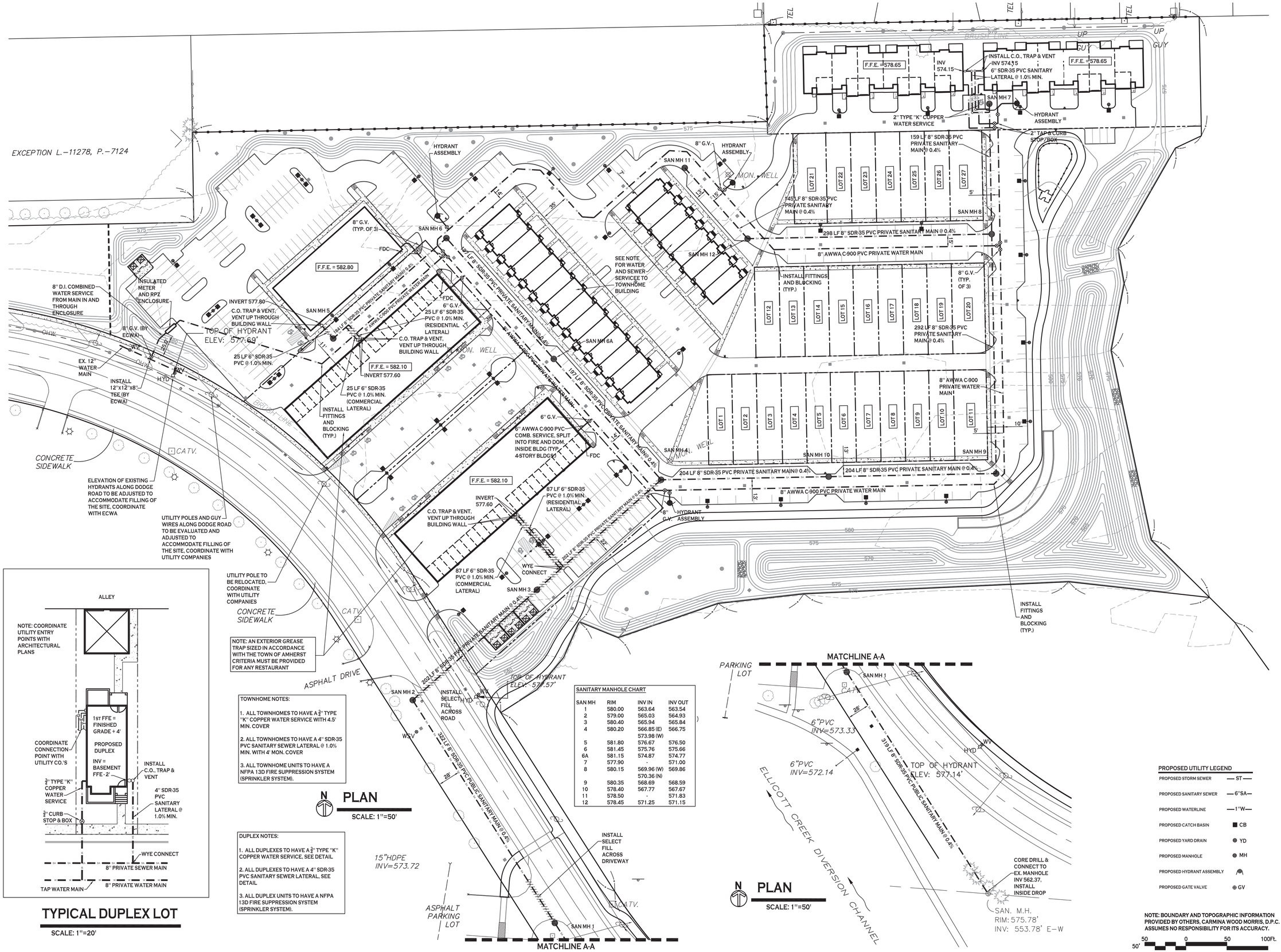
DRAWING NO.
C-303

Project no.: 21011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.



NOTE: AN EXTERIOR GREASE TRAP SIZED IN ACCORDANCE WITH THE TOWN OF AMHERST CRITERIA MUST BE PROVIDED FOR ANY RESTAURANT

TOWNHOME NOTES:

1. ALL TOWNHOMES TO HAVE A ¾" TYPE "K" COPPER WATER SERVICE WITH 4.5' MIN. COVER
2. ALL TOWNHOMES TO HAVE A 4" SDR-35 PVC SANITARY SEWER LATERAL @ 1.0% MIN. WITH 4' MON. COVER
3. ALL TOWNHOME UNITS TO HAVE A NFPA 13D FIRE SUPPRESSION SYSTEM (SPRINKLER SYSTEM).

DUPLEX NOTES:

1. ALL DUPLEXES TO HAVE A ¾" TYPE "K" COPPER WATER SERVICE, SEE DETAIL
2. ALL DUPLEXES TO HAVE A 4" SDR-35 PVC SANITARY SEWER LATERAL, SEE DETAIL
3. ALL DUPLEX UNITS TO HAVE A NFPA 13D FIRE SUPPRESSION SYSTEM (SPRINKLER SYSTEM).

SANITARY MANHOLE CHART

SAN MH	RIM	INV IN	INV OUT
1	580.00	563.64	563.54
2	579.00	565.03	564.93
3	580.40	565.94	565.84
4	580.20	566.85 (E) 573.98 (W)	566.75
5	581.80	576.67	576.50
6	581.45	575.76	575.66
6A	581.15	574.87	574.77
7	577.90	-	571.00
8	580.15	569.96 (W) 570.36 (N)	569.86
9	580.35	568.69	568.59
10	578.40	567.77	567.67
11	578.50	-	571.83
12	578.45	571.25	571.15

N **PLAN**
SCALE: 1"=50'

N **PLAN**
SCALE: 1"=50'

TYPICAL DUPLEX LOT
SCALE: 1"=20'

PROPOSED UTILITY LEGEND

PROPOSED STORM SEWER	ST
PROPOSED SANITARY SEWER	6"SA
PROPOSED WATERLINE	1"W
PROPOSED CATCH BASIN	CB
PROPOSED YARD DRAIN	YD
PROPOSED MANHOLE	MH
PROPOSED HYDRANT ASSEMBLY	
PROPOSED GATE VALVE	GV

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Utility Plan

DRAWING NO.
C-400

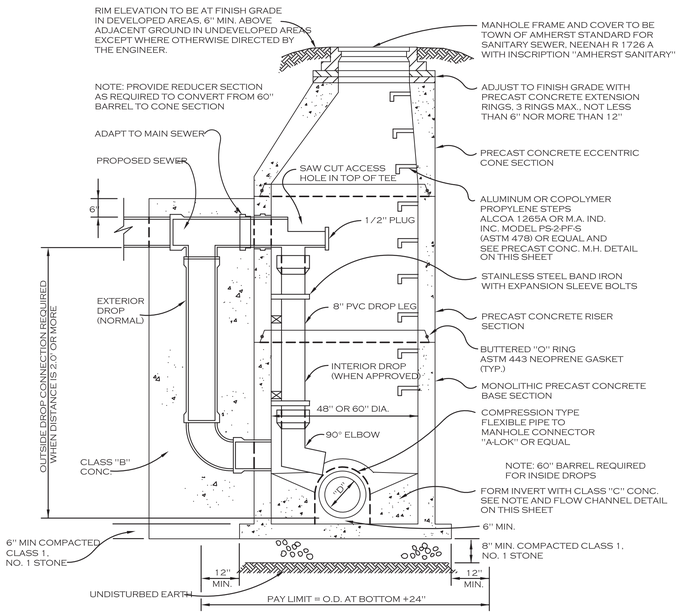
Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

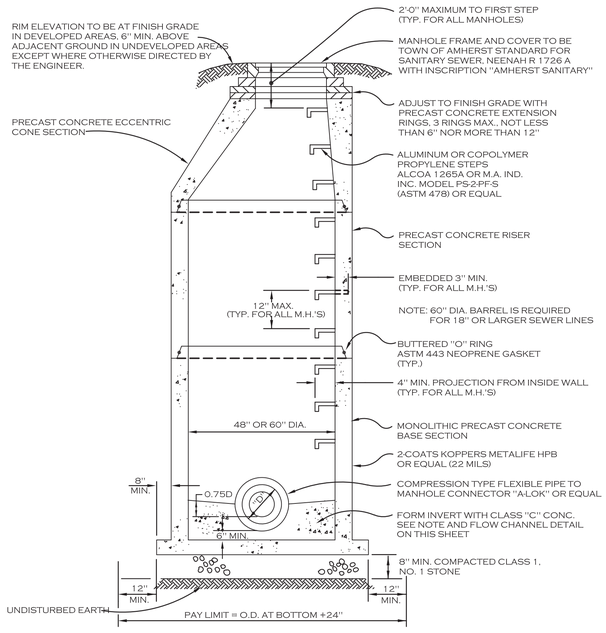
NOTIFY UNITED UNDERGROUND LOCATING SERVICE (U.U.L.S.) 72 HOURS BEFORE STARTING THE JOB

NOTIFY SUN OIL PIPELINE CORPORATION 72 HOURS BEFORE EXCAVATING (SEE DRAWING NO. 18)

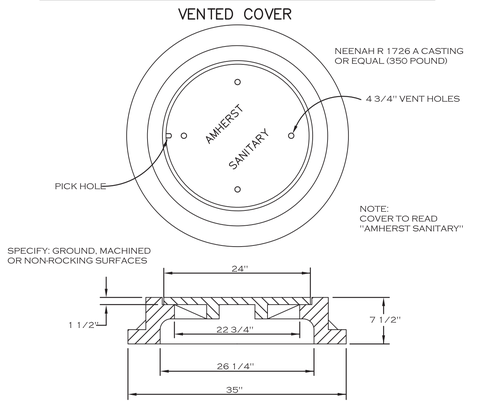
PRECAST CONCRETE DROP MANHOLE



PRECAST CONCRETE MANHOLE

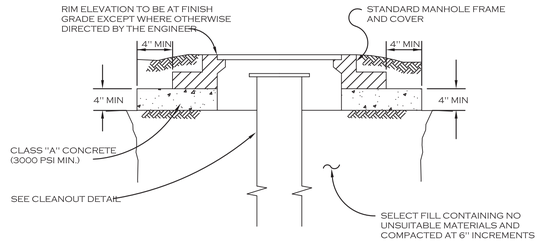


STANDARD MANHOLE FRAME AND COVER



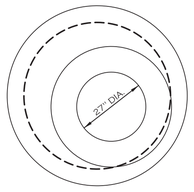
CLEANOUT WITH STANDARD MANHOLE FRAME AND COVER

(TO BE USED IN LOCATIONS ONLY AS APPROVED BY TOWN ENGINEER)

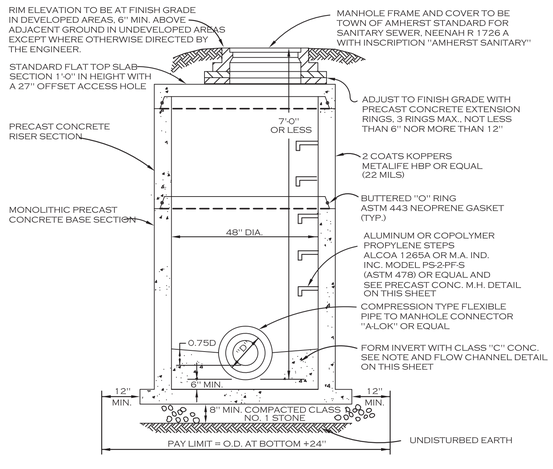


NOTE:
CLEANOUT NOT TO BE INSTALLED WHEN DISTANCE FROM M.H. EXCEEDS 150

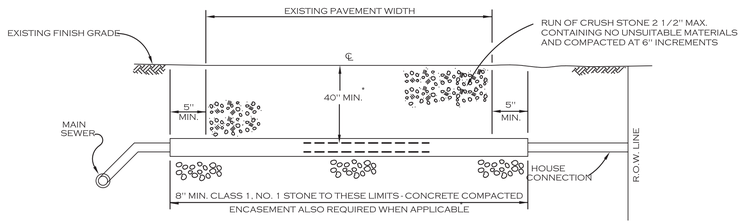
FLAT TOP MANHOLE ASSEMBLY



NOTE:
TO BE USED WHEN LOWEST INVERT TO RIM MEASUREMENT IS 7'-0" OR LESS

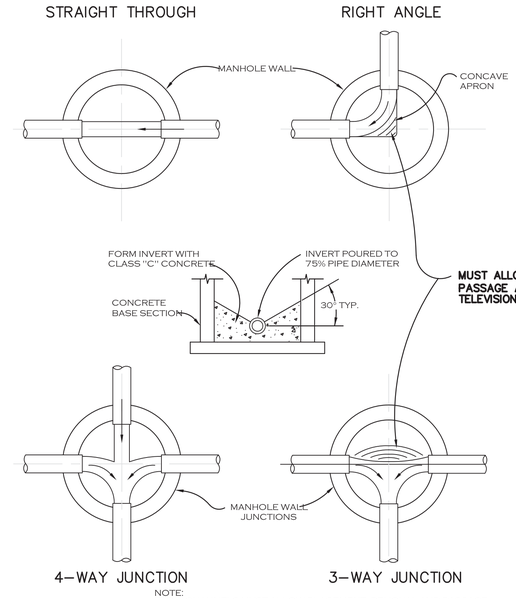


SANITARY TYPICAL PAVEMENT CROSSING FOR HOUSE CONNECTION



WHEN DEPTH FROM TOP OF HOUSE CONNECTION PIPE TO SURFACE IS LESS THAN 6.0 FEET, A CONCRETE ENCASEMENT WILL BE REQUIRED TO THE LIMITS SHOWN (SEE WATER CROSSING DETAIL SAN. SEWERS DWG. #4 - PG. #2 OF 4)

FLOW CHANNEL DETAIL SANITARY SEWERS



NOTE:
FLOW CHANNELS MUST ALLOW PLACEMENT, REMOVAL AND PASSAGE OF T.V. CAMERAS. THE CAMERA DIMENSIONS ARE APPROXIMATELY 26" LONG x 6 1/2" SQUARE. A BLOCK OF WOOD OF THESE DIMENSIONS MAY BE USED TO SIMULATE THE SIZE OF THE CAMERA. THIS WILL SIMPLIFY THE FORMATION OF FLOW CHANNELS AND INVERTS.

DEPTH OF ALL CHANNELS TO BE 75% OF PIPE DIAMETER.

FINISH ALL CHANNELS AT PROPER GRADE AS TO ALLOW SMOOTH & UN-OBSTRUCTED FLOW ALL INVERTS TO BE FLUSH WITH THE INSIDES.

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 2/24/21
Drawn by: 12/1/21
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Details

DRAWING NO.
C-401

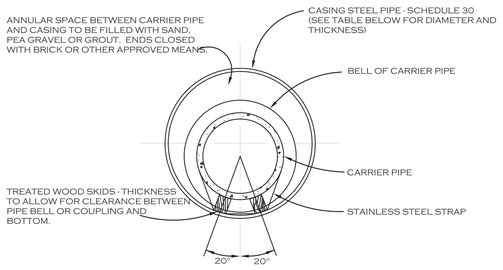
Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

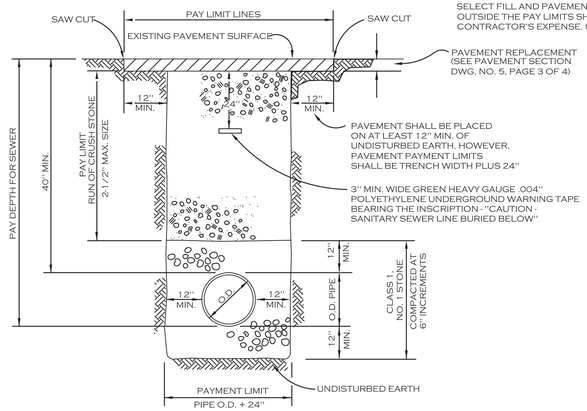
TOWN ROAD CROSSING BY JACKING AND BORING METHOD 8"–24" DIAMETER CARRIER PIPE



SCHEDULE FOR DIAMETER AND THICKNESS OF CASING PIPE		
CARRIER PIPE DIAMETER	CASING PIPE DIAMETER	CASING PIPE WALL THICKNESS
8"	16" OR 20"	0.375
10"	20"	0.375
12"	24"	0.375
15"	27"	0.375 MIN.
18"	30"	0.375
21"	36"	0.469
24"	42"	0.469

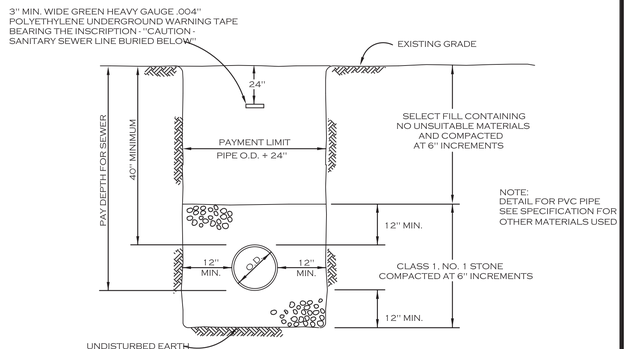
TYPICAL TRENCH DETAIL – TOWN ROAD CROSSING FOR MAIN SEWERS & HOUSE AND BUILDING CONNECTIONS

NOTE:
WHERE THE CONTRACTOR EXCAVATES BEYOND THE PAY LIMITS SHOWN; SELECT FILL AND PAVEMENT, SIDEWALK & DRIVEWAY REPLACEMENT OUTSIDE THE PAY LIMITS SHALL BE FURNISHED AND PLACED AT THE CONTRACTOR'S EXPENSE. (TYP.)



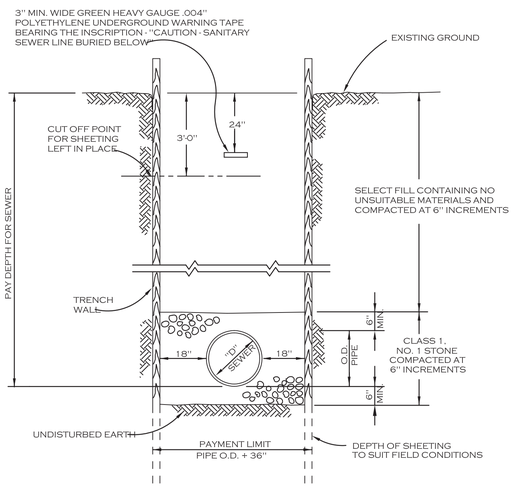
NOTE:
IF CONCRETE ENCASEMENT IS REQUIRED, IT SHALL BE INSTALLED IN PLACE OF (AND TO THE DIMENSIONS OF) THE PIPE BEDDING AND COVER TO 12" MIN. ABOVE AND BELOW THE PIPE (SEE WATER CROSSING DETAIL ON THIS SHEET)

TYPICAL EARTH TRENCH DETAIL UNPAVED AND UNTRAVELED AREAS

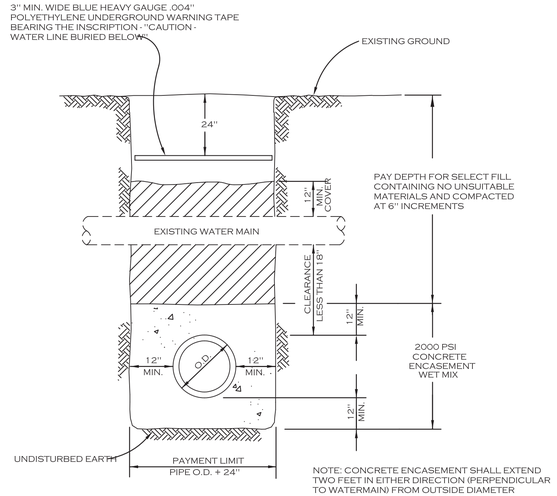


NOTE:
DETAIL FOR PVC PIPE SEE SPECIFICATION FOR OTHER MATERIALS USED

SHEETED TRENCH DETAIL

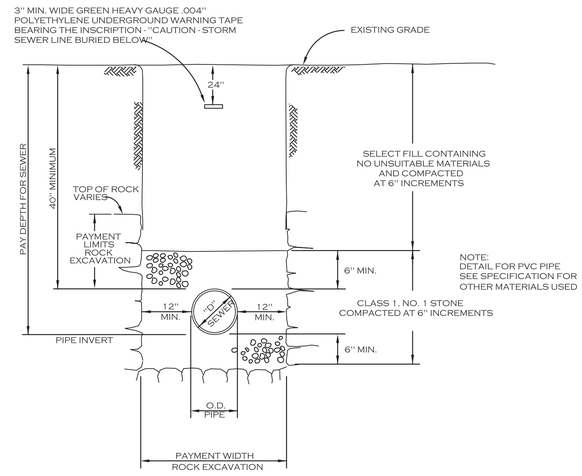


WATER CROSSING DETAIL CLEARANCE LESS THAN 18"



NOTE: CONCRETE ENCASEMENT SHALL EXTEND TWO FEET IN EITHER DIRECTION (PERPENDICULAR TO WATERMAIN) FROM OUTSIDE DIAMETER OF WATERMAIN.

TYPICAL ROCK TRENCH DETAIL



NOTE:
DETAIL FOR PVC PIPE SEE SPECIFICATION FOR OTHER MATERIALS USED

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer Details

DRAWING NO.
C-402

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC

GENERAL NOTES:

01. THE CONTRACTOR SHALL COMPLY WITH THE TOWN OF AMHERST STANDARD DRAWINGS AND SPECIFICATIONS.

02. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND THE TOWN OF AMHERST ENG. DEPT. OF ANY HAZARDOUS SUBSTANCE ENCOUNTERED DURING THE CONSTRUCTION OF THE WORK. HE SHALL AT HIS EXPENSE, CONFORM TO ALL LAWS, RULES, REGULATIONS AND DIRECTIONS AS PROMULGATED BY THE UNITED STATES DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, THE NEW YORK STATE DEPARTMENT OF HEALTH AND ANY SUCH LOCAL RULES, ORDINANCES AND LAWS WHEN ENCOUNTERING OR WORKING WITH ANY SUCH HAZARDOUS SUBSTANCE.

03. THE CONTRACTOR SHALL COMPLY IN ALL RESPECTS TO THE INDUSTRIAL CODE PART (RULE NO.) 53 RELATING TO CONSTRUCTION, EXCAVATION AND DEMOLITION OPERATIONS AT OR NEAR UNDERGROUND FACILITIES, AS ISSUED BY THE STATE OF NEW YORK DEPARTMENT OF LABOR, BOARD OF STANDARD AND APPEALS.

04. SINCE THE ERIE COUNTY WATER AUTHORITY OPERATES AND MAINTAINS THE EXISTING WATER LINES, THEY ARE TO BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF THE START OF CONSTRUCTION. ALL EXISTING VALVES ARE TO BE OPERATED BY THE ERIE COUNTY WATER AUTHORITY PERSONNEL.

05. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AHEAD OF THE PIPE LAYING OPERATION, SO THAT, IF MINOR ADJUSTMENTS MUST BE MADE IN ELEVATION AND/OR ALIGNMENT DUE TO INTERFERENCE FROM THESE UTILITIES, SAID CHANGES CAN BE MADE IN ADVANCE OF THE WORK.

06. WHERE SUCH FACILITIES ARE UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER, HE SHALL CERTIFY TO THE ENGINEERING DEPARTMENT OF THE TOWN OF AMHERST THAT SAID FACILITIES AS CONSTRUCTED WERE SUPERVISED BY HIMSELF (HERSELF) AND THAT THE WORKS HAVE BEEN FULLY COMPLETED IN ACCORDANCE WITH THE APPROVED ENGINEERING REPORTS, PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND ANY AND ALL ADDENDA TO SAME.

07. THE CONSTRUCTION OF THE FACILITIES SHALL BE UNDER THE SUPERVISION OF A PERSON OR FIRM QUALIFIED TO PRACTICE PROFESSIONAL ENGINEERING IN NEW YORK STATE UNDER THE EDUCATION LAW OF THE STATE, WHENEVER ENGINEERING SERVICES ARE REQUIRED BY SUCH LAW FOR SUCH PURPOSES.

08. A WRITTEN CERTIFICATE OF CONSTRUCTION COMPLIANCE, INCLUDING THE RESULTS OF HYDROSTATIC LEAKAGE TESTS, MADE BY THE PROFESSIONAL ENGINEER SUPERVISING THE CONSTRUCTION, SHALL BE SUBMITTED TO THE ERIE COUNTY DEPART. OF ENVIRONMENT PLANNING AND NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION WITHIN THIRTY (30) DAYS AFTER CONSTRUCTION COMPLETION.

09. UNSUITABLE MATERIALS SUCH AS FROZEN ORGANIC AND/OR VEGETABLE MATERIAL, DEBRIS, TREES, LUMBER, LARGE STONES OR CLODS (6.0" OR LARGER), MUCK, PEAT, ORGANIC SILT WILL NOT BE ACCEPTABLE FILL AND CERTAIN MAN-MADE DEPOSITS OF INDUSTRIAL WASTE, SLUDGE OR LANDFILL MAY ALSO BE DETERMINED AS UNSUITABLE HAZARDOUS MATERIAL.

10. THE COMPACTION OF ALL MATERIALS WILL OCCUR AT 6" INCREMENTS.

11. VERIFICATION OF ALL EXISTING EASEMENTS IS THE RESPONSIBILITY OF THE DESIGN ENGINEER AND THEY MUST BE SHOWN ALONG WITH ALL PROPOSED EASEMENTS ON PLAN DRAWINGS.

12. SHOULD A FLUID CONDITION BE ENCOUNTERED AT THE TRENCH BOTTOM, THE CONTRACTOR IS TO INSTALL ADDITIONAL STONE CRADLE AS ORDERED BY THE ENGINEER.

13. ALL PIPE CROSSING UNDER PAVED AREAS ARE TO BE BACKFILLED TO SUBGRADE WITH COMPACTED SELECT MATERIAL TO FIVE (5) FEET OUTSIDE THE PAVEMENT EDGES.

14. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A QUALIFIED TREE EXPERT TO REMOVE, WHERE NECESSARY, BRANCHES WHICH INTERFERE WITH THE CONSTRUCTION OPERATION, OR REPAIR TREES HAVING SUFFERED DAMAGE BY CONSTRUCTION ACTIVITIES. THE COST INVOLVED IN THE ABOVE IS TO BE INCLUDED IN THE VARIOUS ITEMS OF THE CONTRACT.

15. SEWERS SHALL BE LAID AT LEAST TEN (10) FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A TEN FOOT SEPARATION, THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THAT THE WATERMAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND AT AN ELEVATION SO THE BOTTOM OF THE WATERMAIN IS AT LEAST 18" (46CM) ABOVE THE TOP OF THE SEWER.

16. SEWERS CROSSING WATERMAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46CM) BETWEEN THE OUTSIDE OF A WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATERMAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATERMAIN JOINTS. WHERE A WATERMAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER, TO PREVENT DAMAGE TO THE WATERMAIN.

17. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER PIPE AND SHALL BE PRESSURE TESTED AS TO ASSURE WATERTIGHTNESS PRIOR TO BACKFILLING.

18. THE PIPE SHALL BE P.V.C. SEWER PIPE CONFORMING TO THE LATEST REVISIONS OF ASTM DESIGNATION D-3034, SDR-35, INSTALLED IN ACCORDANCE WITH ASTM.

19. THE MANHOLE COVERS ARE TO BEAR THE INSCRIPTION "AMHERST SANITARY".

SANITARY SEWER TESTING METHODS

GENERAL NOTES

(A) LEAKAGE TESTS

01. THE TEST PERIOD WHEREIN THE MEASUREMENTS ARE TAKEN SHALL NOT BE LESS THAN 24 HOURS, REGARDLESS OF THE TEST METHOD USED.

02. THE TOTAL LEAKAGE OF ANY SECTION TESTED BY ANY TEST METHOD SHALL NOT EXCEED THE RATE OF 200 GALLONS PER MILE OF PIPE PER 24 HOURS PER INCH OF NOMINAL PIPE DIAMETER.

03. MANHOLES SHALL BE CONSIDERED AS SECTIONS OF 48" DIAMETER PIPE AND THE EQUIVALENT LEAKAGE ALLOWANCE SHALL BE COMPUTED PER NOTE 02 USING THE SUBMERGED HEIGHT OF MANHOLE AS THE LENGTH.

04. WHEN MANHOLES ARE TESTED SEPARATELY, ALL PIPE OPENINGS SHALL BE PLUGGED AND THE TEST PROCEDURES AND CRITERIA SHALL BE APPLIED IN THE SAME MANNER AS FOR TESTS INVOLVING ONLY THE PIPE OR A COMBINATION OF PIPE AND MANHOLES.

(B) INFILTRATION TEST CRITERIA FOR USE

01. THIS TEST METHOD MAY ONLY BE USED WHEN GROUND WATER LEVELS ARE AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE FOR THE ENTIRE LENGTH OF THE SECTION TO BE TESTED DURING THE ENTIRE PERIOD OF THE TESTS.

02. GROUND WATER LEVELS MAY BE MEASURED IN AN OPEN TRENCH OR IN STANDPIPES PREVIOUSLY PLACED IN BACKFILLED TRENCHES DURING BACKFILLING.

03. THE NUMBER OF STANDPIPES REQUIRED AND LOCATION OF THE SAME ARE TO BE AS ORDERED BY THE ENGINEER. STANDPIPES MAY BE OF ANY PIPE MATERIAL BUT MUST BE OF SUCH DIAMETER (2-1/2" MINIMUM) AS TO PERMIT THE INSERTION OF A RULE OR LEVEL ROD. CRUSHED STONE SHALL BE PLACED AROUND THE LOWER OPEN ENDS OF THE STANDPIPES.

04. STANDPIPES ARE TO BE REMOVED AT THE SATISFACTORY COMPLETION OF THE TESTS.

05. IF IN LIEU OF STANDPIPES, THE TRENCH IS TO BE LEFT OPEN FOR GROUND WATER OBSERVATION, THE LENGTH OF UNBACKFILLED TRENCH AT ANY ONE TIME MAY HAVE TO BE LIMITED FOR REASONS OF SAFETY.

(C) EXFILTRATION TEST CRITERIA FOR USE

01. THIS TEST CONSISTS OF FILLING THE PIPE WITH WATER TO PROVIDE A HEAD OF AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE OR ABOVE GROUND WATER WHICHEVER IS HIGHER AT THE HIGHEST POINT OF THE PIPE LINE UNDER TEST, AND THEN MEASURING THE LOSS OF WATER TO MAINTAIN THE ORIGINAL LEVEL.

02. IN THIS TEST THE PIPE LINE MUST BE FILLED WITH WATER AND ALLOWED TO REMAIN SO FILLED FOR AT LEAST 24 HOURS PRIOR TO TAKING MEASUREMENTS.

03. REGARDING GROUND WATER MEASUREMENTS: SEE NOTES 02 THROUGH 05 ABOVE.

04. REGARDING THE TEST STANDPIPE: THERE MUST BE SOME POSITIVE METHOD OF RELEASING ENTRAPPED AIR IN THE SEWER PRIOR TO TAKING MEASUREMENTS.

(D) DEFLECTION TEST FOR PVC SEWER PIPE

01. DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE GRAVITY SEWER PIPE. TESTS SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS.

02. NO PIPE SHALL EXCEED DEFLECTION OF 5%. DEFLECTION GAGE MAY BE BORROWED FROM THE TOWN ENGINEER FOR 8" AND 10" PIPE. THE DEFLECTION TEST MUST BE EXECUTED AFTER 30 DAYS OF PLACEMENT OF FINAL BACKFILL. THE TEST WILL ALSO BE DONE WITHOUT MECHANICAL PULLING DEVICES.

MANHOLE PLACEMENT AND MAINTENANCE
DURING CONSTRUCTION AND DEVELOPMENT

CONTRACTOR AND/OR DEVELOPERS SHALL CONSTRUCT ALL MANHOLE STRUCTURES IN ACCORDANCE WITH THE TOWN OF AMHERST STANDARD SPECIFICATIONS OR THE SPECIFICATIONS OF THE DESIGN ENGINEER WHEN REQUIRED BY THE TOWN.

ALL MANHOLES ARE TO BE DESIGNED AND FURNISHED WITH RIM ELEVATIONS AT FINAL FINISHED GRADES. THE CONTRACTOR, DEVELOPER, OR HOME BUILDER SHALL BE RESPONSIBLE FOR ALL CORRECTIONS, ADJUSTMENTS, AND MODIFICATIONS NEEDED FOR RAISING, LOWERING, OR REPLACING ANY AND ALL MANHOLES AS PROPOSED FOR THE FACILITY.

ALL AS-BUILT STATIONING, LINE AND GRADE IMPROVEMENTS, INVERT AND RIM ELEVATIONS, "Y" LOCATIONS, INSPECTION REPORTS, ROADWAY OR STREET NAMES, RIGHT-OF-WAY WIDTHS, AND EASEMENT LINES SHALL BE FURNISHED TO THE TOWN ON A SET OF MYLAR DRAWINGS PRIOR TO TAP-IN APPROVAL, PIP ACCEPTANCE, AND/OR RELEASE OF FINAL PAYMENT.

ALL MANHOLE STRUCTURES SHALL BE MADE ACCESSIBLE TO THE TOWN OF AMHERST TELEVISION/MAINTENANCE CREWS. THE CONTRACTOR AND/OR DEVELOPER SHALL PROVIDE A DRY, WELL COMPACTED, STABLE SURFACE FREE FROM SHOW AND OBSTRUCTIONS FOR SAFE AND OPEN ACCESS WITH TOWN VEHICLES. SHOULD THE CONTRACTOR AND/OR DEVELOPER WISH TV INSPECTIONS DURING WET WEATHER/WET SOFT SOIL CONDITIONS, HE SHALL PROVIDE ALL NECESSARY GRANULAR BACKFILL, DISTRIBUTED AND COMPACTED TO SUPPLY ACCESS TO EACH MANHOLE. THE CONTRACTOR AND/OR DEVELOPER SHALL BEAR ALL COSTS OF TOWING, DOWN TIME, CREW TIME, AND DAMAGE ALONG WITH RESTORATION, SHOULD SUCH ACCESSWAYS FAIL.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK
CHRISTOPHER NOCE
076394
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Sanitary Sewer General Notes

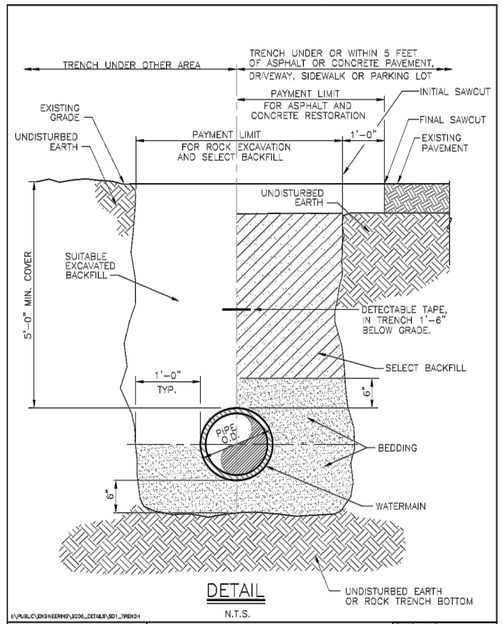
DRAWING NO.
C-403

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

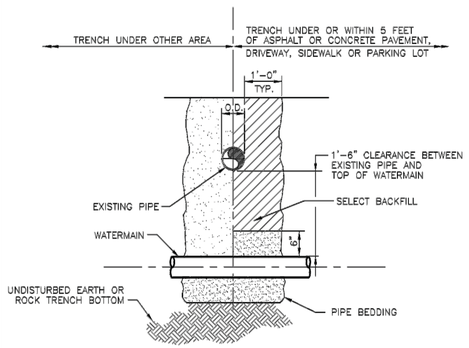
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.



DETAIL
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD1_TRENCH

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TRENCH THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD1	
		DATE 4/28/92	REVISED 10/05



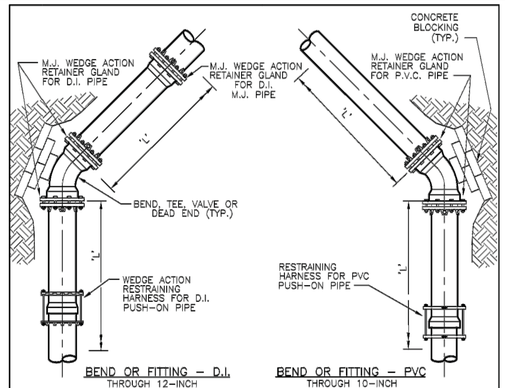
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18 FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2	
		DATE 4/28/92	REVISED 10/05



BEND OR FITTING – D.I.
THROUGH 12–INCH

BEND OR FITTING – PVC
THROUGH 10–INCH

RESTRAINED JOINT SCHEDULE					
PIPE SIZE	PIPE TYPE	11.25° ELBOW 'L'	22.5° ELBOW 'L'	45° ELBOW 'L'	TEE BRANCH, 90° BEND, VALVE OR DEAD END 'L'
6"	PVC	13'	25'	50'	120' MIN.
8"	PVC	15'	30'	59'	122' MIN.
8"	D.I.P.	15'	30'	59'	122' MIN.

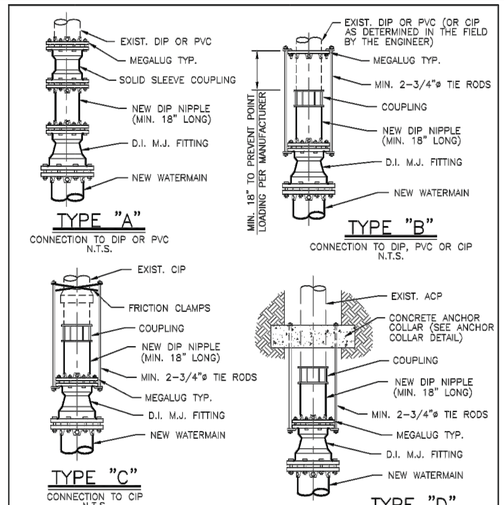
NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN
N.T.S.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD4_REST._JOINT_SCHED

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL RESTRAINED JOINT SCHEDULE	DWG. NO. SD4	
		DATE 4/28/92	REVISED 10/05

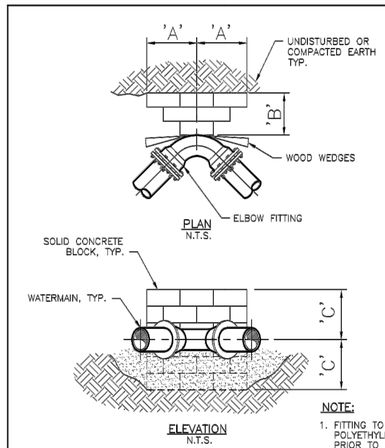


NOTES:

1. VALVES AND TEES MAY BE HARNESSED SIMILARLY.
2. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURE–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
3. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
4. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD5_CONN_EXIST_WMAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TYPICAL CONNECTION TO EXISTING WATERMAIN THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD5	
		DATE 3/05	REVISED 10/05



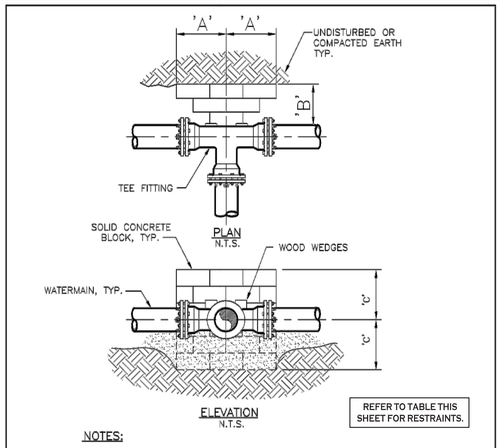
NOTE:

1. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

DIMENSION SCHEDULE												
PIPE SIZE	11.25° ELBOW			22.5° ELBOW			45° ELBOW			90° ELBOW		
	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'	'A'	'B'	'C'
8"	1.5'	1.5'	2.5'	2.5'	1.5'	2.5'	3.0'	1.5'	3.5'	3.5'	1.5'	5.0'

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD6_THRUST_BLOCKS_ELBOW

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR ELBOW FITTING	DWG. NO. SD6	
		DATE 4/28/92	REVISED 10/05



REFER TO TABLE THIS SHEET FOR RESTRAINTS.

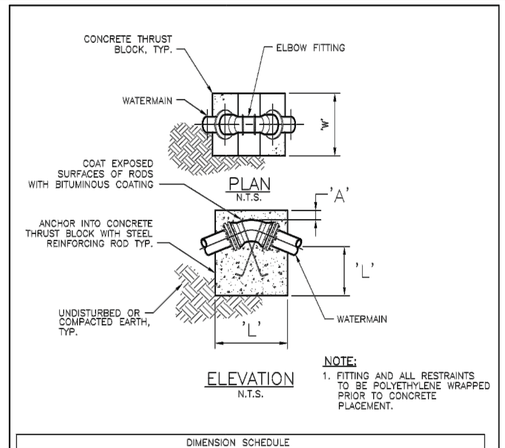
NOTES:

1. THRUST BLOCK REQUIRED FOR TEES, HYDRANT LATERAL TEES AND TAPPING SLEEVE INSTALLATIONS.
2. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

BRANCH TEE SIZE	DIMENSION SCHEDULE 'A'	'B'	'C'
6"	1'-0"	1'-0"	0'-6"
8"	1'-6"	1'-0"	0'-6"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD7_THRUST_BLOCKS_TEE

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR TEE OR "DEAD END" FITTING	DWG. NO. SD7	
		DATE 4/28/92	REVISED 10/05



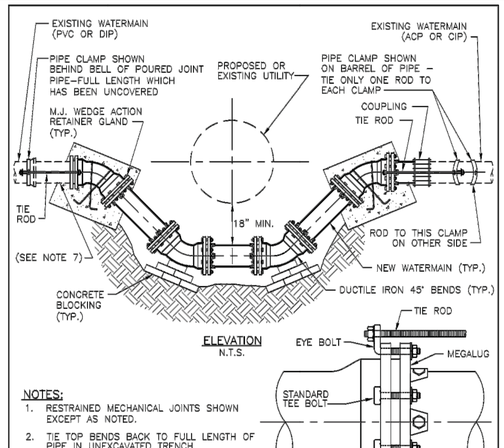
NOTE:

1. FITTING AND ALL RESTRAINTS TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.

DIMENSION SCHEDULE													
PIPE SIZE	PIPE TYPE	11.25° ELBOW				22.5° ELBOW				45° ELBOW			
		'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø	'A'	'W'	'L'	ROD ø
8"	D.I.P	12"	1'-0"	1'-0"	1/2"	12"	1'-9"	1'-9"	1/2"	1'-6"	2'-0"	2'-0"	1/2"

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD8_THRUST_BLOCKS_VBEND

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR VERTICAL BEND	DWG. NO. SD8	
		DATE 4/28/92	REVISED 10/05



NOTES:

1. RESTRAINED MECHANICAL JOINTS SHOWN EXCEPT AS NOTED.
2. TIE TOP BENDS BACK TO FULL LENGTH OF PIPE IN UNEXCAVATED TRENCH.
3. VALVES, TEES AND HYDRANTS MAY BE HARNESSED SIMILARLY.
4. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURES–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
5. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
6. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.
7. IF EXISTING PIPE IS CIP OR PVC, CONNECT TO NEW FITTING ONLY WHEN ALLOWED BY ENGINEER.

TIE ROD SCHEDULE			
PIPE SIZE	PIPE TYPE	ROD ø	NUMBER OF RODS
8"	PVC	3/4"	2

I:\PUBLIC\ENGINEERING\2006_DETAILS\SD10_HARN_OFFSET_EXIST_WMAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL HARNESSING DETAILS–INSTALL OFFSET IN EXISTING WATERMAIN	DWG. NO. SD10	
		DATE 6/00	REVISED 10/05

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 072384 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Water Details

DRAWING NO.

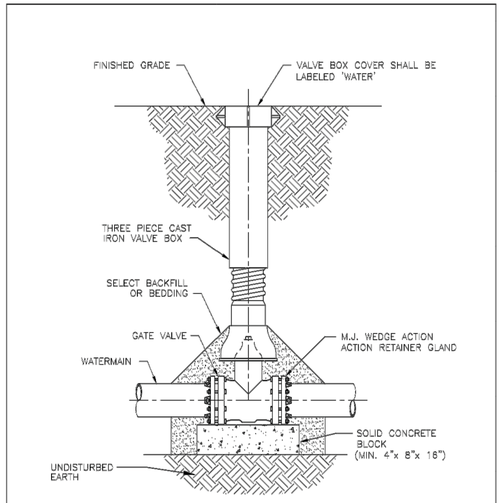
C-404

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

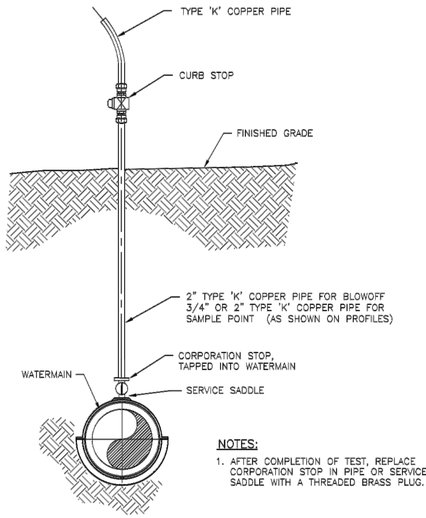


NOTES:
1. VALVE SHALL NOT SUPPORT VALVE BOX.
2. GATE VALVE SHALL BE INSTALLED LEVEL.
3. VALVE BOX SHALL BE PLUMB TO GRADE, WITH OPERATING NUT CENTERED IN BOX.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD11_GATE_VALVE_SET

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GATE VALVE SETTING	DWG. NO. SD11	
		DATE 4/28/92	REVISED 02/17

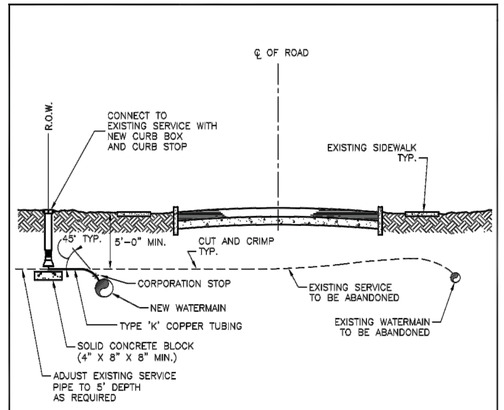


NOTES:
1. AFTER COMPLETION OF TEST, REPLACE CORPORATION STOP IN PIPE OR SERVICE SADDLE WITH A THREADED BRASS PLUG.

ELEVATION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD17_TEMP_BO_SAMP_PT

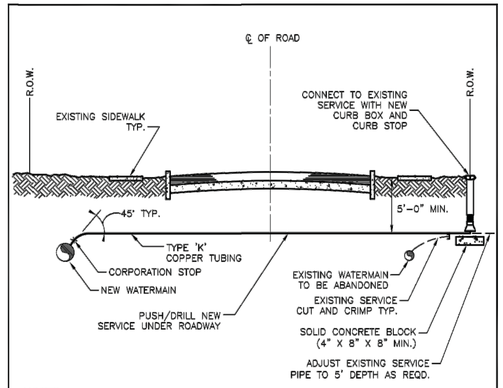
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TEMPORARY BLOW-OFF/SAMPLING POINT	DWG. NO. SD17	
		DATE 4/28/92	REVISED 10/05



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD15_NR_SERV_REPLACE

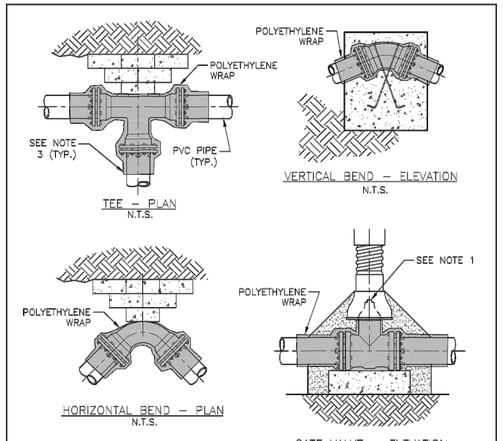
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL NEAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD15	
		DATE 4/92	REVISED 09/16



NOTES:
1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES ARE PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD16_FR_SERV_REPLACE

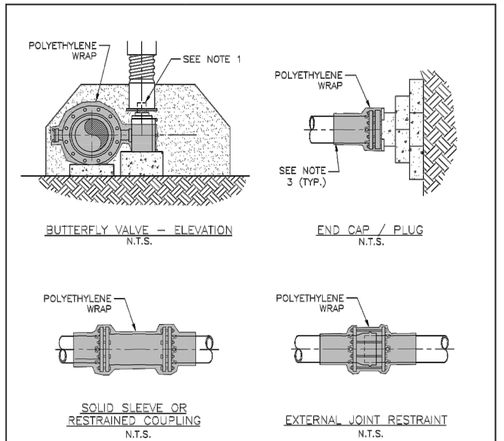
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FAR SIDE SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16	
		DATE 4/92	REVISED 09/16



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD39A_POLYWRAPPING_FITTINGS

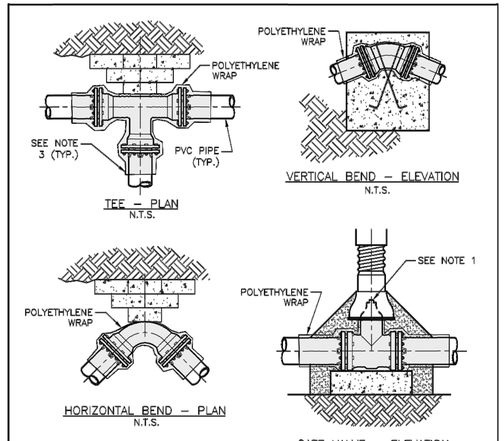
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39A	
		DATE 3/18	REVISED 12/18



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP IS NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PIPE. (OR POLYWRAP IF DIP) WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD39B_POLYWRAPPING_FITTINGS

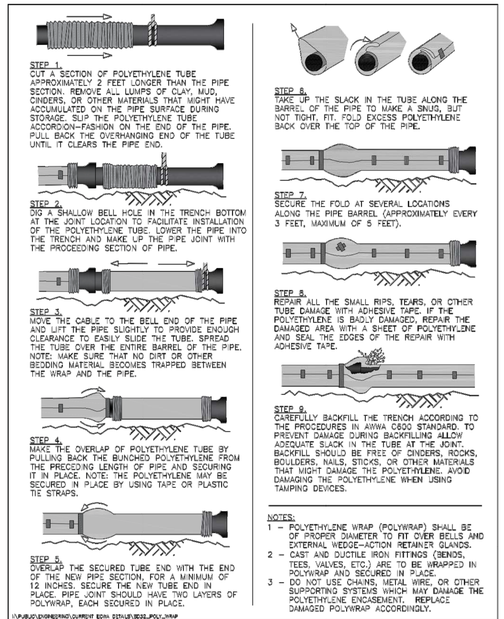
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING CAST/DUCTILE IRON FITTINGS	DWG. NO. SD39B	
		DATE 12/18	REVISED



NOTES:
1. POLYETHYLENE WRAP IS TO BE PLACED AROUND THE ENTIRE FITTING, AND SECURED IN PLACE WITH POLYETHYLENE TAPE. PROVIDE SUFFICIENT SLACK SO THAT POLYETHYLENE WRAP IS NOT PUNCTURED DURING BACKFILL AND DOES NOT ENTRAP AIR. POLYETHYLENE WRAP NOT TO BE INSTALLED WITHIN 6 INCHES OF VALVE OPERATING NUT ON GATE VALVES.
2. ALL FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.
3. POLYETHYLENE WRAP IS TO BE EXTENDED A MINIMUM OF 12" PAST THE FITTING ON EACH LEG AND SECURED TO THE PVC PIPE WITH AT LEAST TWO CIRCUMFERENTIAL WRAPS OF POLYETHYLENE TAPE.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD39_POLYWRAPPING_FITTINGS

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYWRAPPING DUCTILE IRON FITTINGS ON PVC PIPE	DWG. NO. SD39	
		DATE 3/18	REVISED



NOTES:
1 – POLYETHYLENE WRAP (POLYWRAP) SHALL BE OF PROPER DIAMETER TO FIT OVER BELLS AND EXTERNAL WEDGE-ACTION RETAINER GLANDS.
2 – CAST AND DUCTILE IRON FITTINGS (BENDS, TEES, VALVES, ETC.) ARE TO BE WRAPPED IN POLYWRAP AND SECURED IN PLACE.
3 – DO NOT USE CHAINS, METAL WIRE, OR OTHER SUPPORTING SYSTEMS WHICH MAY DAMAGE THE POLYETHYLENE ENCASEMENT. REPLACE DAMAGED POLYWRAP ACCORDINGLY.

I:\PUBLIC\ENGINEERING\CURRENT EDWA DETAILS\SD32_POLY_WRAP

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL POLYETHYLENE ENCASEMENT OF DUCTILE IRON PIPE	DWG. NO. SD32	
		DATE 08/16	REVISED 02/19

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076364 LICENSED PROFESSIONAL ENGINEER

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details

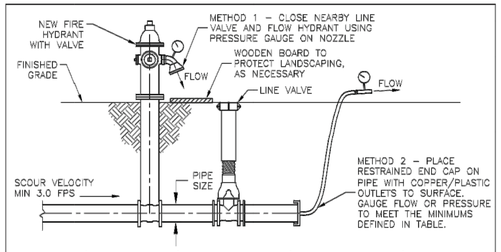
DRAWING NO.
C-405

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.



PIPE SIZE (IN)	REQUIRED FLOW (GPM)	METHOD 1 HYDRANT FLOW		METHOD 2 END CAP FLOW	
		2 1/2" NOZZLE PRESSURE (PSI)	4" NOZZLE PRESSURE (PSI)	2" I.D. PRESSURE (PSI)	3" I.D. PRESSURE (PSI)
6	275	7	1	7	2
8	500	9	2	22	5
10	750	20	4	50	10
12	1100	44	7	–	22
16	1900	–	20	–	62
20	3000	–	50	–	–

I.D. = INNER DIAMETER

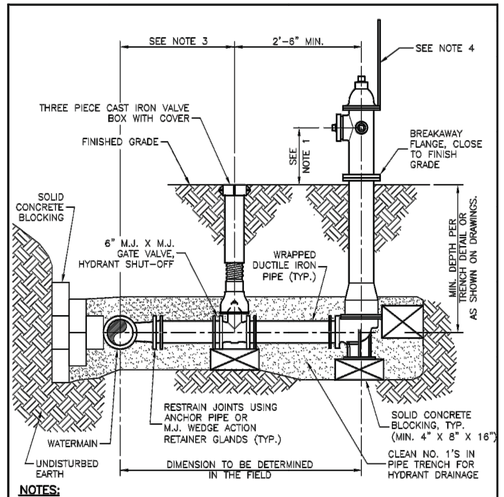
NOTES:

1. TO OBTAIN SCOUR VELOCITY (3.0 FPS) IN THE WATERLINE, CONTRACTOR SHALL ACHIEVE FLOWRATE AT NOZZLE DEFINED IN TABLE. PRESSURE GAUGE USED SHALL SHOW A HIGHER PRESSURE THAN THE MINIMUMS DEFINED IN THE TABLE.
2. OUTLET PRESSURE MEASURED BY PITOT GAUGE.
3. ENGINEER SHALL PROVIDE CALCULATIONS IF CONNECTIONS ARE OTHER THAN THOSE SHOWN, IF MULTIPLE CONNECTIONS ARE USED, OR AS REQUESTED BY ECWA.
4. TO FLUSH THREE PIPE VOLUMES, MINIMUM FLUSHING TIME (IN SECONDS) EQUALS THE LENGTH OF PIPE BEING FLUSHED, IN FEET.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD36_WATERLINE_FLUSHING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL WATERLINE FLUSHING	DWG. NO. SD36	
		DATE 6/16	REVISED 3/18



NOTES:

1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT.
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.
5. HYDRANT FACE TO BE A MINIMUM OF 3' FROM THE BACK FACE OF ALL CURBS OR A MINIMUM OF 5' FROM ALL EDGES OF PAVEMENT (IF NO CURB).

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD13_HYD_INST

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FIRE HYDRANT INSTALLATION	DWG. NO. SD13	
		DATE 6/00	REVISED 11/16

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR'S work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed, or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install the watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as-needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority shall only operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers in writing of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD29	
		DATE 3/05	REVISED 7/17

11. All watermain piping shall be installed with a minimum of 5'-0" of cover.
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment, and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be scheduled and returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York 14227.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict access for school buses or any emergency vehicles.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for review prior to the start of testing.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants, and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30	
		DATE 3/05	REVISED 7/17

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076304 PROFESSIONAL ENGINEER

REVISIONS:
No. Description Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Water Details & Notes

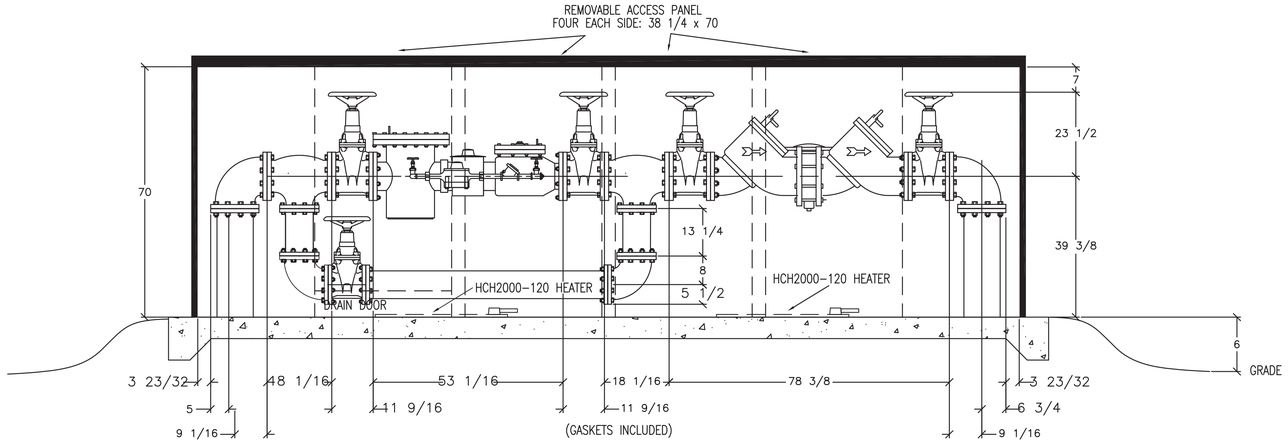
DRAWING NO.
C-406

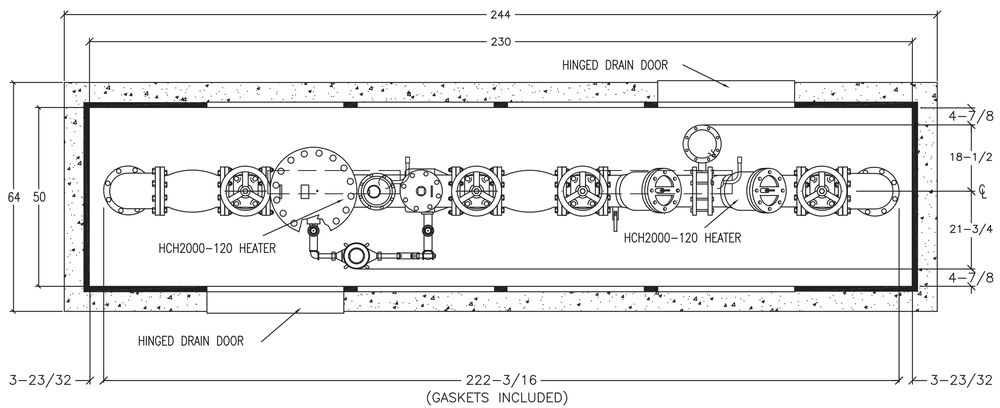
Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.





NOTES:

1. BACKFLOW PREVENTER DIMENSIONS FURNISHED BY WATTS
2. ALL DIMENSIONS ARE IN INCHES
3. WALL & INSULATION THICKNESS IS 1 1/2"
4. ROOF & INSULATION THICKNESS IS 3"
5. ENCLOSURE SHOWN IS SAFE-T-COVER MODEL 1000D-ALC00-17
6. EXTERIOR ENCLOSURE DIMENSIONS: 53"W x 233"L x 73" H
7. CONCRETE PAD IS 64"W x 244"L x 6"THK W/W.W.F. 6X6/10X10
8. METER SHOWN: 8" PROTECTUS III, SPOOL PIECE & METER SUPPLIED BY ECWA, VERIFY DIMENSIONS PRIOR TO ORDERING
9. RPZ SHOWN: 8" WATTS 909 NRS
10. CONTRACTOR TO INSTALL ELECTRIC SERVICE TO ENCLOSURE, COORDINATE SOURCE WITH OWNER
11. INSTALL A 120V GFI OUTLET IN THE ENCLOSURE
12. HEATERS TO HAVE THERMOSTAT CONTROL
13. ALL PIPING WITHIN THE ENCLOSURE SHALL BE DUCTILE IRON

LEGEND:

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H w/DRAIN DOOR

REMOVABLE ACCESS PANEL 38 1/4"W x 70"H

8"METER & RPZ INSULATED ENCLOSURE

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK
CHRISTOPHER WOOD
076394
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Insulated
Enclosure Detail

DRAWING NO.
C-407

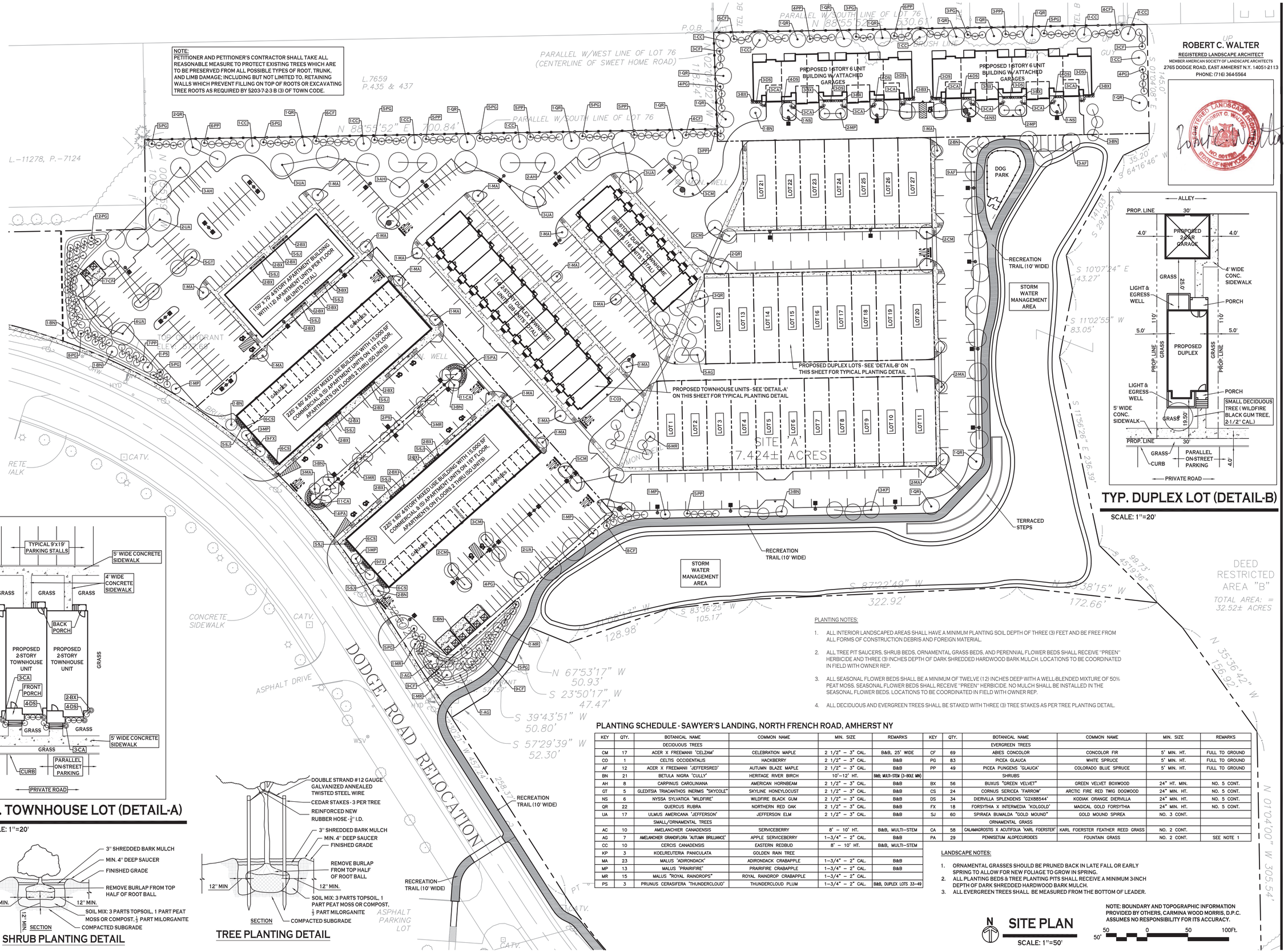
Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

NOTE:
PETITIONER AND PETITIONER'S CONTRACTOR SHALL TAKE ALL REASONABLE MEASURE TO PROTECT EXISTING TREES WHICH ARE TO BE PRESERVED FROM ALL POSSIBLE TYPES OF ROOT, TRUNK, AND LIMB DAMAGE; INCLUDING BUT NOT LIMITED TO, RETAINING WALLS WHICH PREVENT FILLING ON TOP OF ROOTS OR EXCAVATING TREE ROOTS AS REQUIRED BY §203-7-2-3 B (3) OF TOWN CODE.



TYP. TOWNHOUSE LOT (DETAIL-A)

SCALE: 1"=20'

TYP. DUPLEX LOT (DETAIL-B)

SCALE: 1"=20'

SHRUB PLANTING DETAIL

TREE PLANTING DETAIL

PLANTING NOTES:

1. ALL INTERIOR LANDSCAPED AREAS SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE PIT SAUCERS, SHRUB BEDS, ORNAMENTAL GRASS BEDS, AND PERENNIAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE AND THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
3. ALL SEASONAL FLOWER BEDS SHALL BE A MINIMUM OF TWELVE (12) INCHES DEEP WITH A WELL-BLENDED MIXTURE OF 50% PEAT MOSS. SEASONAL FLOWER BEDS SHALL RECEIVE "PREEN" HERBICIDE. NO MULCH SHALL BE INSTALLED IN THE SEASONAL FLOWER BEDS. LOCATIONS TO BE COORDINATED IN FIELD WITH OWNER REP.
4. ALL DECIDUOUS AND EVERGREEN TREES SHALL BE STAKED WITH THREE (3) TREE STAKES AS PER TREE PLANTING DETAIL.

PLANTING SCHEDULE - SAWYER'S LANDING, NORTH FRENCH ROAD, AMHERST NY

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		DECIDUOUS TREES			
CM	17	ACER X FREEMANII 'CELZAM'	CELEBRATION MAPLE	2 1/2" – 3" CAL.	B&B, 25' WIDE
CO	1	CELTIS OCCIDENTALIS	HACKBERRY	2 1/2" – 3" CAL.	B&B
AF	12	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE MAPLE	2 1/2" – 3" CAL.	B&B
BN	21	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH	10'–12' HT.	B&B, MULTI-STEM (3-BOLE MIN)
AH	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2" – 3" CAL.	B&B
GT	5	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE HONEYLOCUST	2 1/2" – 3" CAL.	B&B
NS	6	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE BLACK GUM	2 1/2" – 3" CAL.	B&B
QR	22	QUERCUS RUBRA	NORTHERN RED OAK	2 1/2" – 3" CAL.	B&B
UA	17	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2 1/2" – 3" CAL.	B&B
		SMALL/ORNAMENTAL TREES			
AC	10	AMELANCHIER CANADENSIS	SERVICEBERRY	8' – 10' HT.	B&B, MULTI-STEM
AG	7	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1–3/4" – 2" CAL.	B&B
CC	10	CERCIS CANADENSIS	EASTERN REDBUD	8' – 10' HT.	B&B, MULTI-STEM
KP	3	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE		
MA	23	MALUS 'ADIRONDACK'	ADIRONDACK CRABAPPLE	1–3/4" – 2" CAL.	B&B
MP	13	MALUS 'PRAIRIFIRE'	PRAIRIFIRE CRABAPPLE	1–3/4" – 2" CAL.	B&B
MR	15	MALUS "ROYAL RAINDROPS"	ROYAL RAINDROP CRABAPPLE	1–3/4" – 2" CAL.	
PS	3	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	1–3/4" – 2" CAL.	B&B, DUPLEX LOTS 33–49

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	REMARKS
		EVERGREEN TREES			
CF	69	ABIES CONCOLOR	CONCOLOR FIR	5' MIN. HT.	FULL TO GROUND
PG	83	PICEA GLAUCA	WHITE SPRUCE	5' MIN. HT.	FULL TO GROUND
PP	49	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	5' MIN. HT.	FULL TO GROUND
		SHRUBS			
BX	56	BUXUS "GREEN VELVET"	GREEN VELVET BOXWOOD	24" HT. MIN.	NO. 5 CONT.
CS	24	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" MIN. HT.	NO. 5 CONT.
DS	34	DIERVILLA SPLENDENS 'G2X88544'	KODIAK ORANGE DIERVILLA	24" MIN. HT.	NO. 5 CONT.
FX	18	FORSYTHIA X INTERMEDIA 'KOLGOLD'	MAGICAL GOLD FORSYTHIA	24" MIN. HT.	NO. 5 CONT.
SJ	60	SPIRAEA BUMALDA "GOLD MOUND"	GOLD MOUND SPIREA	NO. 3 CONT.	
		ORNAMENTAL GRASS			
CA	58	CALAMAGROSTIS X ACUTIFOLIA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	NO. 2 CONT.	
PA	29	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2 CONT.	SEE NOTE 1

LANDSCAPE NOTES:

1. ORNAMENTAL GRASSES SHOULD BE PRUNED BACK IN LATE FALL OR EARLY SPRING TO ALLOW FOR NEW FOLIAGE TO GROW IN SPRING.
2. ALL PLANTING BEDS & TREE PLANTING PITS SHALL RECEIVE A MINIMUM 3-INCH DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL EVERGREEN TREES SHALL BE MEASURED FROM THE BOTTOM OF LEADER.

N

SITE PLAN

SCALE: 1"=50'

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

ROBERT C. WALTER
REGISTERED LANDSCAPE ARCHITECT
MEMBER AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
2765 DODGE ROAD, EAST AMHERST N.Y. 14051-2113
PHONE: (716) 364-5564

REGISTERED LANDSCAPE ARCHITECT ROBERT C. WALTER NO. 001186 STATE OF NEW YORK

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:
Site Development plans for:
Sawyer's Landing
Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Landscape Plan

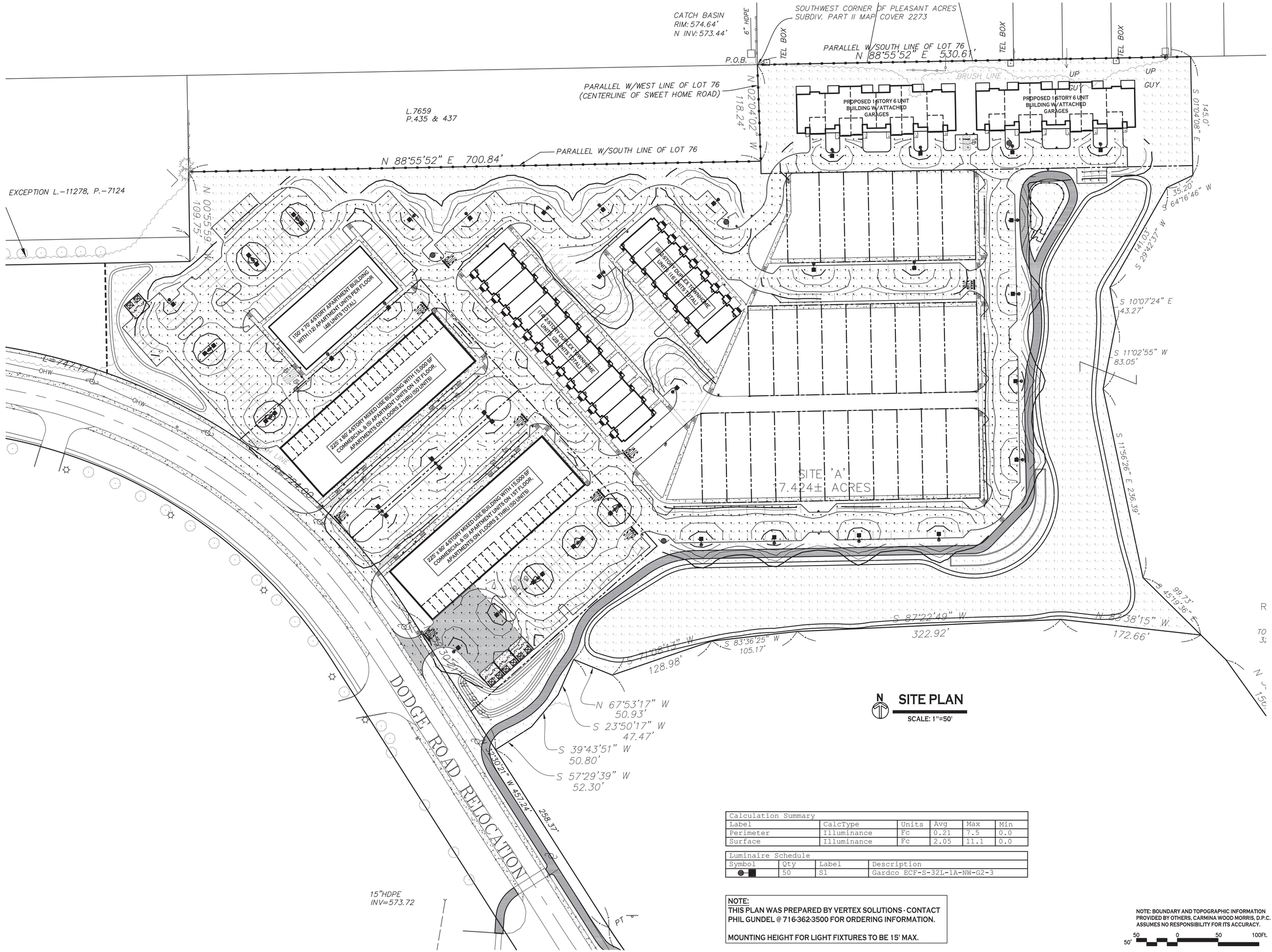
DRAWING NO.
L-100

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris DPC



SITE PLAN

SCALE: 1"=50'

Calculation Summary					
Label	CalcType	Units	Avg	Max	Min
Perimeter	Illuminance	Fc	0.21	7.5	0.0
Surface	Illuminance	Fc	2.05	11.1	0.0

Luminaire Schedule			
Symbol	Qty	Label	Description
	50	S1	Gardco ECF-S-32L-1A-NW-G2-3

NOTE:
THIS PLAN WAS PREPARED BY VERTEX SOLUTIONS - CONTACT PHIL GUNDEL @ 716-362-3500 FOR ORDERING INFORMATION.

MOUNTING HEIGHT FOR LIGHT FIXTURES TO BE 15' MAX.

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK CHRISTOPHER WOOD 076394 LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Site Photometric Plan

DRAWING NO.

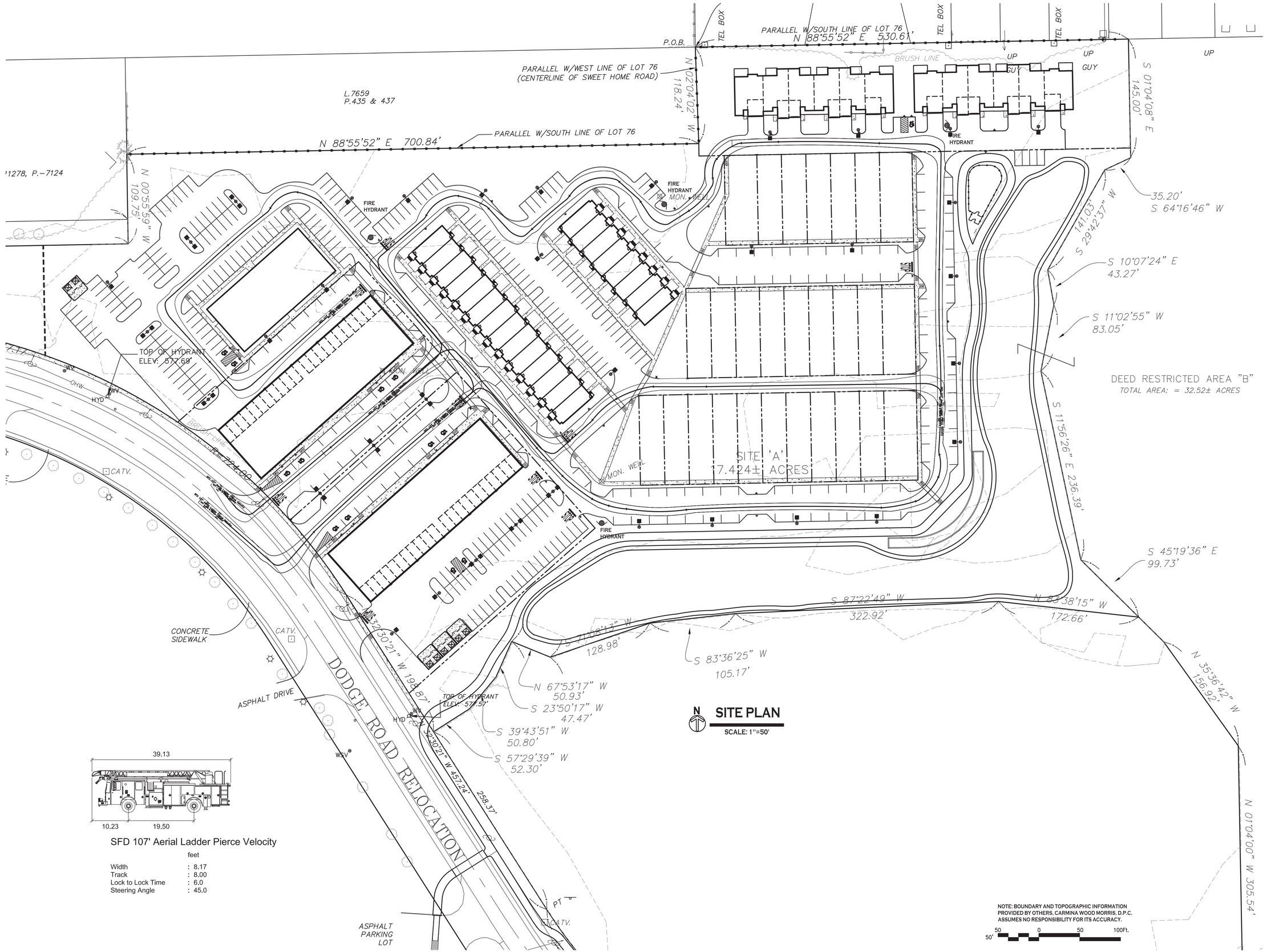
LP-100

Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation 'altered by' and a specific description of the alteration.



N **SITE PLAN**

SCALE: 1"=50'

SFD 107' Aerial Ladder Pierce Velocity

	feet
Width	: 8.17
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

STATE OF NEW YORK
CHRISTOPHER WOOD
076394
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Fire Truck Plan

DRAWING NO.

TT-100

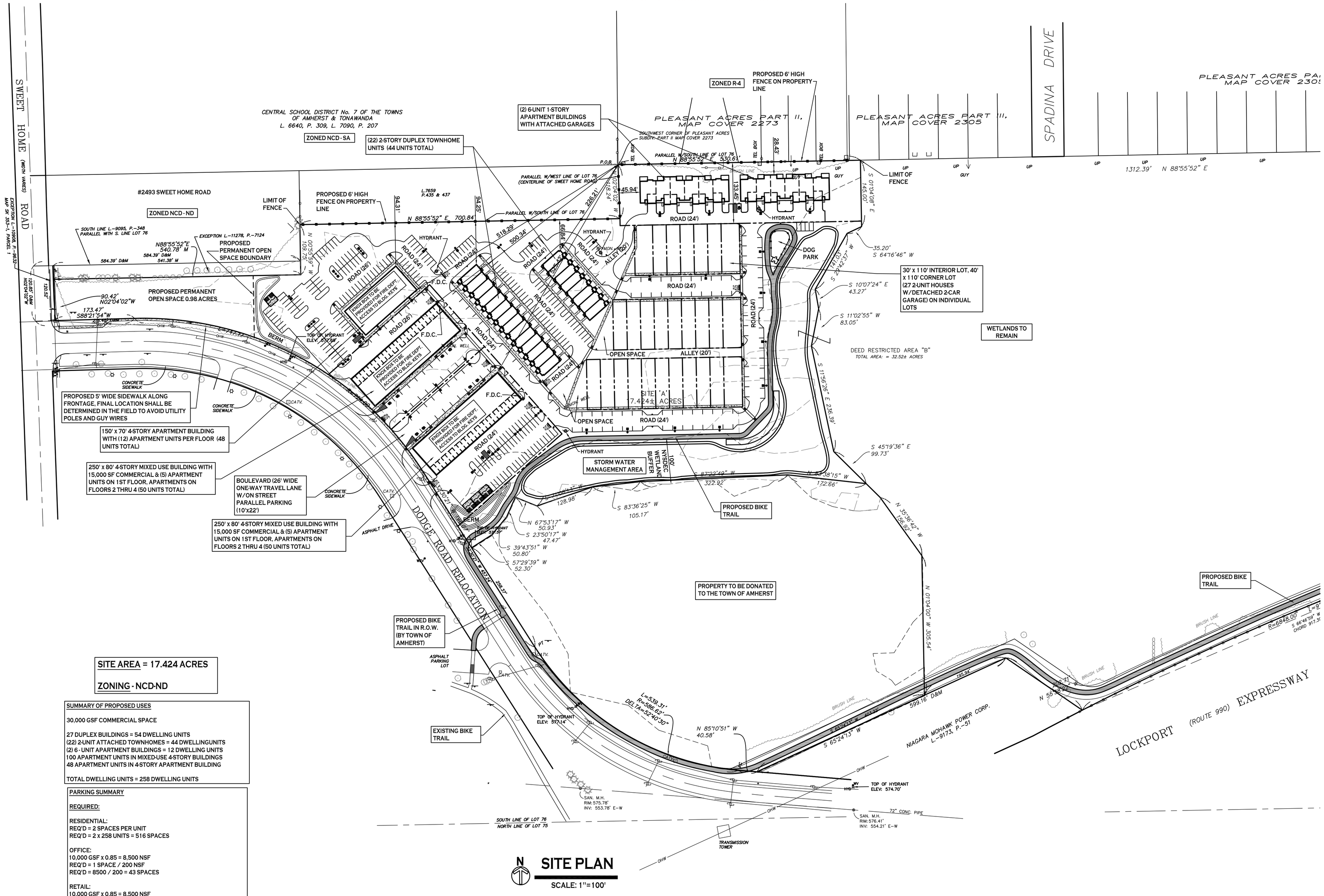
Project no.: 21-011

Attachment: SP-2021-05_drawings_011322 (23057 : Sp-2021-05)

Attachment: SP-2021-05_drawings_011322 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.



SITE AREA = 17.424 ACRES

ZONING - NCD-ND

SUMMARY OF PROPOSED USES

30,000 GSF COMMERCIAL SPACE

27 DUPLEX BUILDINGS = 54 DWELLING UNITS
(22) 2-UNIT ATTACHED TOWNHOMES = 44 DWELLINGUNITS
(2) 6 - UNIT APARTMENT BUILDINGS = 12 DWELLING UNITS
100 APARTMENT UNITS IN MIXED-USE 4-STORY BUILDINGS
48 APARTMENT UNITS IN 4-STORY APARTMENT BUILDING

TOTAL DWELLING UNITS = 258 DWELLING UNITS

PARKING SUMMARY

REQUIRED:

RESIDENTIAL:
REQ'D = 2 SPACES PER UNIT
REQ'D = 2 x 258 UNITS = 516 SPACES

OFFICE:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 1 SPACE / 200 NSF
REQ'D = 8500 / 200 = 43 SPACES

RETAIL:
10,000 GSF x 0.85 = 8,500 NSF
REQ'D = 5.5 SPACES / 1,000 NSF
REQ'D = 8500 / 1000 x 5.5 = 47 SPACES

RESTAURANT:
REQ'D = 1 SPACE / 3 SEATS + 1 SPACE / 100 SF TAKE OUT AREA
REQ'D = 100 SEAT / 3 + 500 SF / 100 = 38 SPACES

TOTAL REQ'D = 644 SPACES

PROVIDED:

134 PARALLEL PARKING SPACES
256 9'x19' SPACES *
40 GARAGE SPACES IN 4-STORY BLDGS
64 GARAGE SPACES IN DETACHED GARAGES
494 TOTAL SPACES

* INCLUDES SPACES IN FRONT OF APARTMENT GARAGES

WETLAND SUMMARY

FEDERAL IMPACTS PROPOSED = 6.089 AC
FEDERAL IMPACTS PREVIOUSLY PROPOSED = 13.01 AC
DECREASE = 6.921 AC (53% DECREASE)

NYSDEC IMPACTS PROPOSED = 1.20 AC
NYSDEC IMPACTS PREVIOUSLY PROPOSED = 9.46 AC
DECREASE = 8.26 AC (87% DECREASE)

NYSDEC BUFFER IMPACT PROPOSED = 3.65 AC
NYSDEC BUFFER IMPACTS PREVIOUSLY PROPOSED = 4.20 AC
DECREASE = 0.55 AC (13% DECREASE)

NOTE: NYSDEC IMPACTS INCLUDES FEDERAL WETLAND IMPACT OVERLAP AREAS

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

100' 100 0 100 200Ft.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:

Overall Site Plan

DRAWING NO.

C-100

Project no.: 21.011

Attachment: SP-2021-05_drawings_011322 (23057 : SP-2021-05)

© Carmina Wood Morris DPC

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris DPC is prohibited. WARNING. It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

Carmina Wood Morris DPC
487 Main Street Suite 500
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

PROJECT NAME:

Site Development plans for:

Sawyer's Landing

Portion of 1081 North French Road
Amherst, New York

Date: 12/1/21
Drawn by: C. Wood
Scale: As Noted

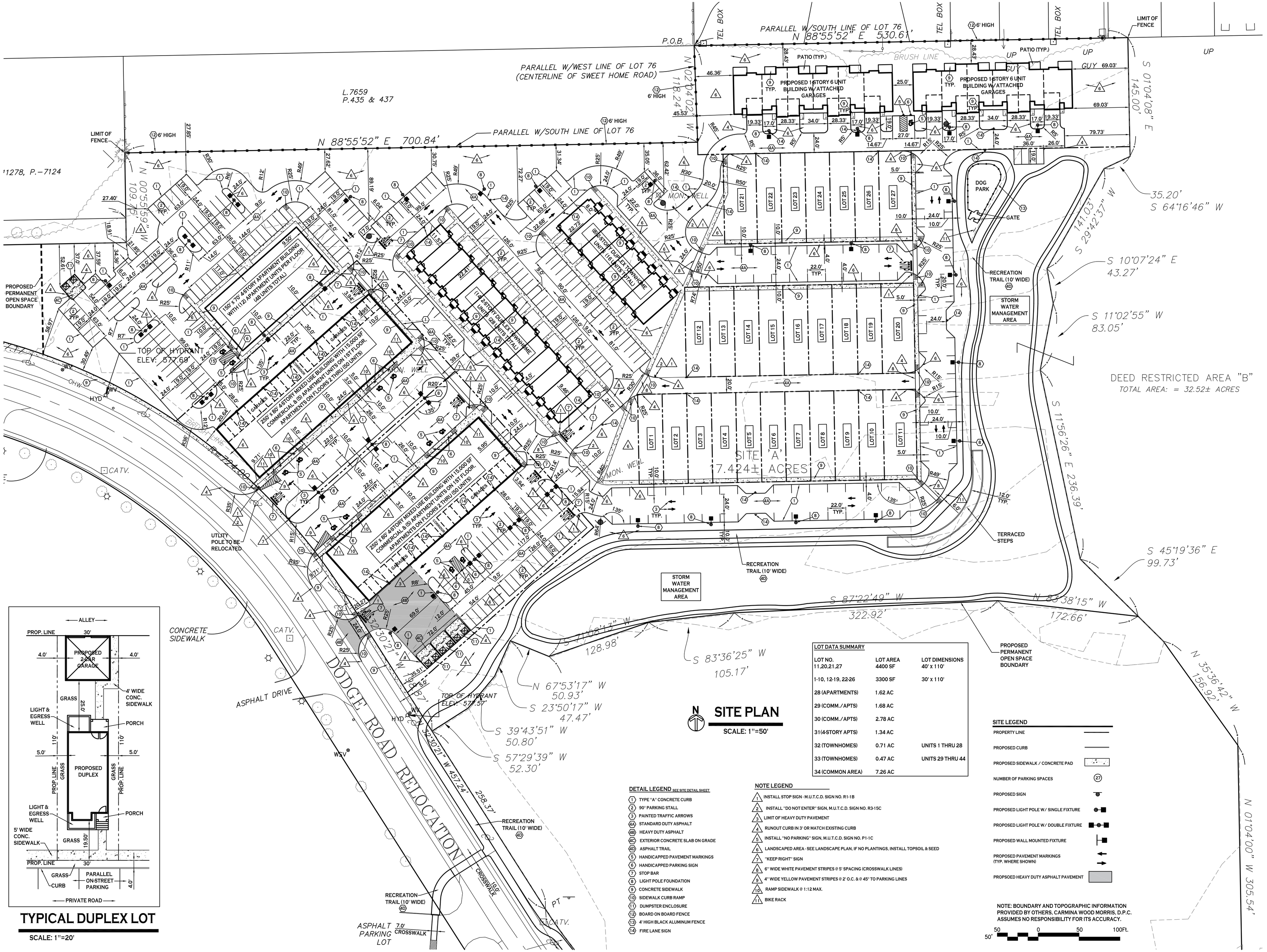
DRAWING NAME:

Site Plan

DRAWING NO.

C-101

Project no.: 21.011



SITE PLAN

SCALE: 1"=50'

LOT DATA SUMMARY		
LOT NO.	LOT AREA	LOT DIMENSIONS
11,20,21,27	4400 SF	40' x 110'
1-10, 12-19, 22-26	3300 SF	30' x 110'
28 (APARTMENTS)	1.62 AC	
29 (COMM./APTS)	1.68 AC	
30 (COMM./APTS)	2.78 AC	
31(4 STORY APTS)	1.34 AC	
32 (TOWNHOMES)	0.71 AC	UNITS 1 THRU 28
33 (TOWNHOMES)	0.47 AC	UNITS 29 THRU 44
34 (COMMON AREA)	7.26 AC	

DETAIL LEGEND SEE SITE DETAIL SHEET

1. TYPE "A" CONCRETE CURB
2. 90° PARKING STALL
3. PAINTED TRAFFIC ARROWS
4A. STANDARD DUTY ASPHALT
4B. HEAVY DUTY ASPHALT
4C. EXTERIOR CONCRETE SLAB ON GRADE
4D. ASPHALT TRAIL
5. HANDICAPPED PAVEMENT MARKINGS
6. HANDICAPPED PARKING SIGN
7. STOP BAR
8. LIGHT POLE FOUNDATION
9. CONCRETE SIDEWALK
10. SIDEWALK CURB RAMP
11. DUMPSTER ENCLOSURE
12. BOARD ON BOARD FENCE
13. 4' HIGH BLACK ALUMINUM FENCE
14. FIRE LANE SIGN

NOTE LEGEND

1. INSTALL STOP SIGN - M.U.T.C.D. SIGN NO. R1-1 B
2. INSTALL "DO NOT ENTER" SIGN, M.U.T.C.D. SIGN NO. R3-15C
3. LIMIT OF HEAVY DUTY PAVEMENT
4. RUNOUT CURB IN 3' OR MATCH EXISTING CURB
5. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
6. LANDSCAPED AREA - SEE LANDSCAPE PLAN, IF NO PLANTINGS, INSTALL TOPSOIL & SEED
7. "KEEP RIGHT" SIGN
8. 6" WIDE WHITE PAVEMENT STRIPES @ 5' SPACING (CROSSWALK LINES)
9. 4" WIDE YELLOW PAVEMENT STRIPES @ 2' O.C. & @ 45° TO PARKING LINES
10. RAMP SIDEWALK @ 1:12 MAX.
11. BIKE RACK

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN
- PROPOSED LIGHT POLE W/ SINGLE FIXTURE
- PROPOSED LIGHT POLE W/ DOUBLE FIXTURE
- PROPOSED WALL MOUNTED FIXTURE
- PROPOSED PAVEMENT MARKINGS (TYP. WHERE SHOWN)
- PROPSOED HEAVY DUTY ASPHALT PAVEMENT

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

50' 50 0 50 100Ft.

TYPICAL DUPLEX LOT

SCALE: 1"=20'

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-05

PETITIONER

Sawyer's Landing LLC
c/o Sean Hopkins, Esq.
5500 Main Street, Suite 343
Williamsville, NY 14221

PROPERTY LOCATION

1081 North French Road (portion) (NCD)

WHEREAS, the Town of Amherst Planning Board on Thursday, May 20, 2021 and January 13, 2022 held public hearings on a Site Plan for a mixed-use development, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-8 of the Zoning Ordinance, the Planning Board finds that:

A. The site plan includes usable space for active and passive recreation, including pedestrian connections.

B. The site plan includes open space lands for public ownership and use offered for dedication or other disposition to the Town or other public entity.

C. School sites and facilities are adequate to accommodate the proposed site plan.

D. The site plan does not include the extension of roadways to adjacent property.

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment. The previously undertaken SEQR process included a DEIS, FEIS and culminated in the Town Board's issuance of a SEQR Findings Statement on December 17, 2007. Lead Agency was re-established for review of the proposed amendment to the Findings Statement to

Attachment: SP-2021-05_draft resolution_011322 (23057 : Sp-2021-05)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-05

PETITIONER	PROPERTY LOCATION
Sawyer's Landing LLC	1081 North French Road (portion) (NCD)

allow the proposed mixed-use development, and the Findings Statement was revised on September 27, 2021.

F. Wetland permits were issued for this project by NYSDEC on December 17, 2019 and the US Army Corps of Engineers under Section 404 of the Clean Water Act on December 12, 2019. Both permits authorize work on the project until November 30, 2024.

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance **approves/denies** said Site Plan subject to the following conditions:

1. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

2. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

3. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by _____; seconded by _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-05_(1081 N_FrenchRd_NCD)_2021\SP-2021-05_draft resolution_011322.doc

cc: Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221
William Severyn, Severyn Development, 43 Central Ave. Suite 300, Lancaster, NY 14086
Adam Faeth, Ciminelli Real Estate Corp., 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Chris Wood, Carmina Wood Morris, 487 Main St, Suite 500, Buffalo, NY 14203
David Sutton, Sutton Architects, 5409 Main St, 2nd Floor, Williamsville, NY 14221

Approved Plan: _____
Received: _____

Attachment: SP-2021-05_draft resolution_011322 (23057 : Sp-2021-05)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

January 20, 2021

Sawyer's Landing LLC
c/o Sean W. Hopkins, Esq.
Hopkins Sorgi & McCarthy
5500 Main Street, Suite 343
Williamsville, New York 14221

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2021-05**; PROPOSED SAWYERS LANDING MIXED-USE DEVELOPMENT; PROPERTY LOCATED AT **1081 NORTH FRENCH ROAD (PORTION) (MUIR WOODS SITE A) NCD.**

Dear Mr. Hopkins:

At its meeting of January 13, 2022 the Planning Board voted to **adjourn** the subject site plan at your request.

This request will be placed on the Planning Board agenda for the February 17, 2022 meeting.

Please submit revised plans or required materials by Monday, January 31, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

for Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-05_(1081 N_FrenchRd_NCD)_2021\SP-2021-05_Adjournment Letter_011322.doc
cc: William Severyn, Severyn Development, 43 Central Ave. Suite 300, Lancaster, NY 14086
Adam Faeth, Ciminelli Real Estate Corp., 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Chris Wood, Carmina Wood Morris, 487 Main St, Suite 500, Buffalo, NY 14203
David Sutton, Sutton Architects, 5409 Main St, 2nd Floor, Williamsville, NY 14221

Attachment: SP-2021-05_adjournment_011322 (23057 : Sp-2021-05)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

ADOPTED

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25066

PLANNING BOARD ITEM (ID # 25066)

Proposed Solar Farm - Site Layout Changes, SP-2020-14A

Property located at 595 Schoelles Road
Amherst Community Solar LLC, Petitioner

Proposed amendments to the originally approved site plan include modifications to the fence layout at the northwest corner, installation of a temporary stone access road, relocation of equipment pads from the north side to the west side of the compound within the fenced area, and elimination of proposed central culvert crossing to accommodate the change in array configuration. The project is a 15± acre solar energy development consisting of a maximum of 13,260 solar panels that will be post mounted in a southerly orientation with a potential output of 3.5 - 4 mw of energy. A 75 ft. paved access driveway will be located at the west end of the frontage along Schoelles Road. A 6 ft. tall, black vinyl coated chain link fence and high impact screening will be required on all four sides of the solar array enclosure and adjacent property lines. An additional agricultural use will be included in the project to be determined at a later date.

Jason Burford, Greenman-Pedersen, Inc. represented the petitioner, explained the proposal and was available to answer questions from the Board. Jeff Palumbo, Barclay Damon, and Steve Ramsaur, Amherst Community Solar , were also present.

In response to the Board's questions, Mr. Burford stated the base of the temporary road will remain but vegetation will grow over it.

Gabrielle Heim, 620 Schoelles Road, spoke regarding landscaping and Ann Taylor, 553 Schoelles Road, spoke regarding drainage concerns.

No further comments were heard on this proposal.

No further comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Giuliani moved to approve the Negative Declaration. The motion was seconded by Ms. Penberthy and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

Following the approval of the Negative Declaration, Mr. Giuliani moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ATTACHMENTS:

- SP-2020-14A application 011322 (PDF)
- SP-2020-14A drawings 011322(PDF)
- SP-2020-14_A_draft neg dec_011322 (PDF)
- SP-2020-14_A_draft resolution_011322(PDF)
- SP-2020-14A_signed_Neg_Declaration_011322 (PDF)
- SP-2020-14A_signed_Resolution_011322 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	_____
Each additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Site Plans	$1,200.00	_____
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	_____
Request for Extension of Site Plan Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	_____
5-10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
	TOTAL FEE:	**$**_____

To Be Completed By Applicant

Petitioner:

Name: Amherst Community Solar, LLC c/o Catalyze Holdings LLC

Address: 6325 Gunpark Drive

Suite C

Boulder (city) CO (state) 80301 (zip code)

Phone: 970-305-2739 Fax: _____

E Mail: steve.ramsaur@catalyze.net

Attachment: SP-2020-14A application 011322 (25066 : Sp-2020-14A)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: Greenman-Pedersen, Inc.

Address: 4950 Genesee Street

Suite 100

Buffalo (city) NY (state) 14225 (zip code)

Phone: 716-989-3336 Fax: 716-633-4940

E Mail: jasonburford@gpinet.com

Project Location (must be verified by Town Assessor's Office)**:**

Address: 595 Schoelles Road

Amherst, NY

SBL No(s): 28-1-1.11

Project Name: Amherst Solar Farm

Project Description: Development of a solar energy farm on a parcel of approximately 21.5 acres.

Attachment: SP-2020-14A application 011322 (25066 : Sp-2020-14A)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

Changes to previously approved site plan:

1. Perimeter fence layout to setback limits along the east, south, and west sides.
2. Fence layout in northwest corner to accommodate utility company owned equipment to be outside of perimeter fence as required by National Grid.
3. Location of equipment pad locations from north side of solar compound to west side of compound within the fenced area.
4. Installation of a temporary stone access road along the west side of the area within the fence to access equipment pads.
5. Arrangement of solar panels to accommodate the change in equipment pads.
6. Removal of central culvert crossing to accommodate change in array configuration.

	existing	proposed	total
Gross Floor Area (non-residential):	n/a		
Gross Floor Area Residential:	n/a		
Number of Residential Units:	n/a		
Number of Parking Spaces:	n/a		

Acreage of Parcel: 21.5

(list each parcel separately)

Frontage on Public Roads: 690'

(list each road separately)

Existing Zoning District(s) SA - Suburban Agricultural

Attachment: SP-2020-14A application 011322 (25066 : Sp-2020-14A)

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Amherst Solar Farm site plan modification

Name of Action or Project:
Amherst Solar Farm

Project Location (describe, and attach a location map):
595 Schoelles Road, Amherst, NY SBL 28.00-1-1.11

Brief Description of Proposed Action:
modification of proposed fence layout
temporary stone access road
equipment pad relocations
proposed culvert elimination

Name of Applicant or Sponsor:	Telephone: 970-305-2739
Amherst Community Solar, LLC c/o Catalyze Holdings LLC	E-Mail: steve.ramsaur@catalyze.net

Address:
6325 Gunpark Drive Suite C

City/PO:	State:	Zip Code:
Boulder	CO	80301

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: site plan modification approval for Town of Amherst	☐	☑

3. a. Total acreage of the site of the proposed action? 32.3 acres
   b. Total acreage to be physically disturbed? < 5.0 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 32.3 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☑ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☑ Residential (suburban)
   ☐ Forest ☑ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

Attachment: SP-2020-14A application 011322 (25066 : Sp-2020-14A)

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES
If Yes, identify: _____	☑	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO	YES
	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	☐	☑
10. Will the proposed action connect to an existing public/private water supply?	NO	YES
If No, describe method for providing potable water: _____ _____	☑	☐
11. Will the proposed action connect to existing wastewater utilities?	NO	YES
If No, describe method for providing wastewater treatment: _____ _____	☑	☐
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	NO	YES
	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☐	☑
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO	YES
	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☐	☑
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ non-regulated federal wetlands _____ _____		

Attachment: SP-2020-14A application 011322 (25066 : Sp-2020-14A)

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☑ Agricultural/grasslands ☐ Early mid-successional

☑ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☐	☑
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes, a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe: bio-retention facility and drainage swale		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment:	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe:	☑	☐

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: Amherst Community Solar LLC Date: 11/8/2021

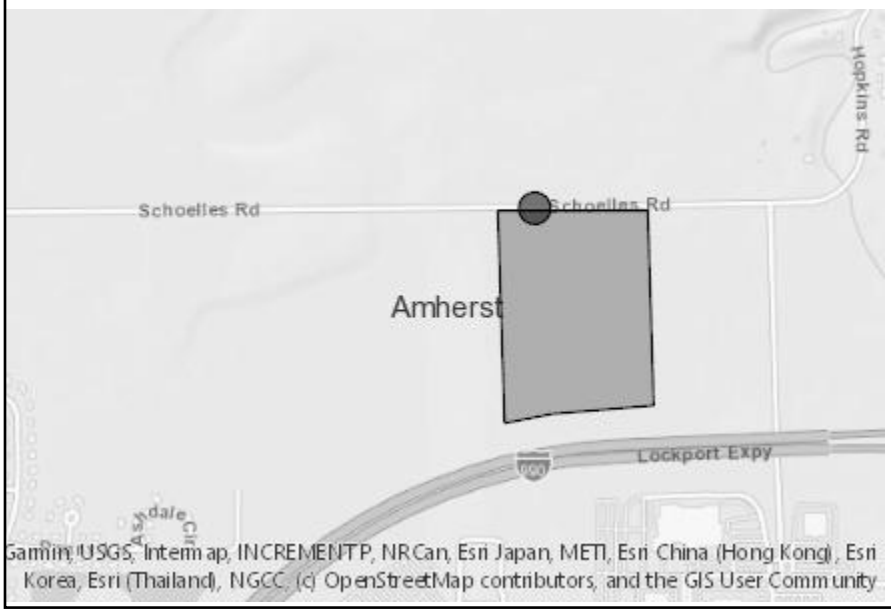
Signature: _____ Title: GPI PM for the applicant

Attachment: SP-2020-14A application 011322 (25066 : Sp-2020-14A)

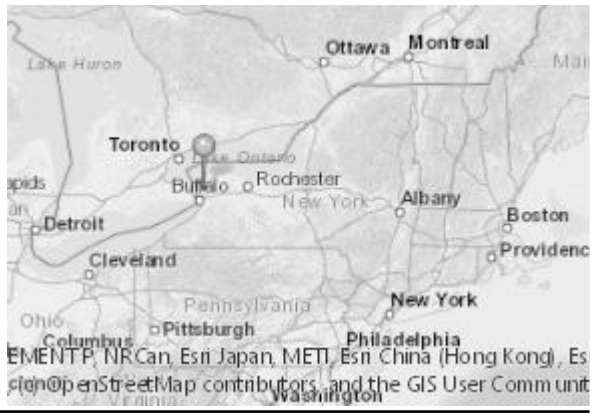
PRINT FORM

EAF Mapper Summary Report

Monday, November 8, 2021 2:53 P.M.

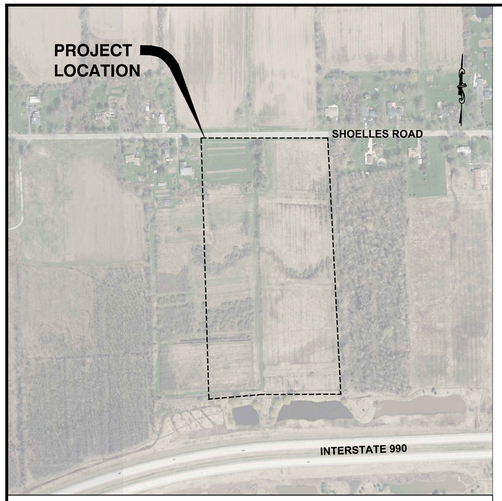


Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	Yes
Part 1 / Question 20 [Remediation Site]	No

Attachment: SP-2020-14A application 011322 (25066 : Sp-2020-14A)



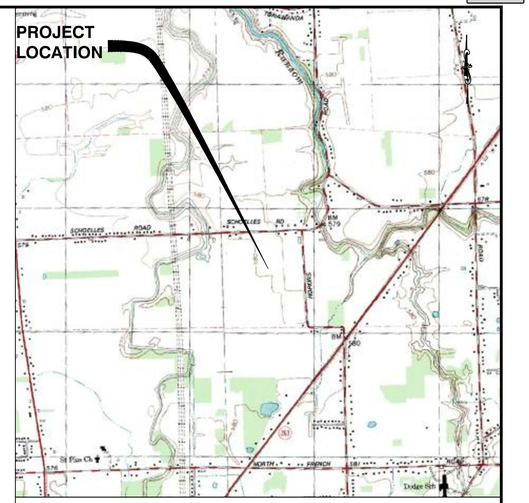
AERIAL MAP: 1" = 400'

AMHERST SOLAR FARM

595 SCHOELLES ROAD
TOWN OF AMHERST, NEW YORK

NOVEMBER 16, 2020

REVISON 2: JANUARY 8, 2021
REVISON 3: JANUARY 21, 2021
REVISON 4: MARCH 9, 2021
REVISON 5: JULY 29, 2021



LOCATION MAP: 1" = 2000'

BULK TABLE - ZONING REQUIREMENTS:		
TOWN OF AMHERST:		
S-A: SUBURBAN AGRICULTURAL		
	REQUIRED:	PROPOSED:
MINIMUM LOT AREA:	1.0 AC	21.87 ACRES
MINIMUM LOT WIDTH:	200 FEET	± 705 FT
MAXIMUM LOT COVERAGE:	25%	73.1%
PARKING REQUIREMENTS:	UTILITY: 1 PER FACILITY + 1 PER 250 SF + 1 PER FLEET VEHICLE	
MIN SPACE SIZE:	9' X 19'	9' X 19'
REQUIRED SPACES (1 FACILITY):	1	1*
PARKING SETBACK:	N/A	± 42 FT
SETBACKS:		
FRONT:	50 FT	±90 FT
SIDE:	50 FT	±65 FT
REAR:	50 FT	±67 FT

*SINGLE PARKING SPACE PROPOSED IS INCLUDED ALONG THE DRIVEWAY

INDEX OF DRAWINGS				
PAGE NO.	REV	SHEET NO.	DATE	DESCRIPTION
1	5	C-001	07/29/21	COVER SHEET
2	5	C-101	07/29/21	BASE SURVEY AND EXISTING CONDITIONS PLAN
3	5	C-101A	07/29/21	DEMOLITION PLAN
4	5	C-102	07/29/21	SITE LAYOUT, GRADING, AND UTILITY PLAN
5	5	C-103	07/29/21	LANDSCAPING PLAN
6A	5	C-104	07/29/21	EROSION AND SEDIMENT CONTROL PLAN
6B	5	C-105	07/29/21	TEMPORARY ACCESS ROADWAY PLAN
7	5	C-501	07/29/21	SITE DETAILS
8	5	C-505	07/29/21	LANDSCAPING DETAILS
9	5	C-510	07/29/21	EROSION AND SEDIMENT CONTROL DETAILS
10	5	C-515	07/29/21	STORMWATER AND UTILITY DETAILS

SITE STATS			
TOWN OF AMHERST: 28.00-1-1.11			
	ACRES:	SQUARE FEET:	PERCENT:
GROSS LOT AREA:	21.87	952,618	100%
EXISTING BUILDING COVER:	0.00	0	0%
EXISTING PAVEMENT COVER:	0.00	0	0%
EXISTING IMPERVIOUS COVER:	0.00	0	0%
PROPOSED BUILDING COVER:	0.00	0	0%
PROPOSED DRIVEWAY COVER:	0.10	4,360	0.46%
PROPOSED IMPERVIOUS COVER:	0.15	6,760	0.71%

OWNER/APPLICANT INFORMATION:
AMHERST COMMUNITY
SOLAR, LLC
412 SOUTH 13TH STREET
UNIT 607
PHILADELPHIA, PA 19147
TEL: (914) 420–5083

CIVIL/SITE ENGINEER:
GPI
GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
80 WOLF ROAD, SUITE 300
ALBANY, NY 12205
TEL: (518) 453–9431
WWW.GPINET.COM

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	REVISIONS		
1	11/16/20	SITE PLAN SUBMISSION	
	BY: ABJ	CHK: RJT	APP'D: JEM
2	01/08/21	TOWN COMMENT LETTER	
	BY: AVL	CHK: RJT	APP'D: JEM
3	01/21/21	ZONING ENFORCEMENT	
	BY: AVL	CHK: RJT	APP'D: JEM
4	03/09/21	ZONING ENFORCEMENT	
	BY: ABJ	CHK: RJT	APP'D: JEM
5	07/29/21	CATALYZE LAYOUT UPDATE	
	BY: ABJ	CHK: RJT	APP'D: JEM
	BY:	CHK:	APP'D:
	BY:	CHK:	APP'D:

GPI
GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
80 WOLF ROAD, SUITE 300
ALBANY, NY 12205
(518) 453–9431

AMHERST
SOLAR FARM

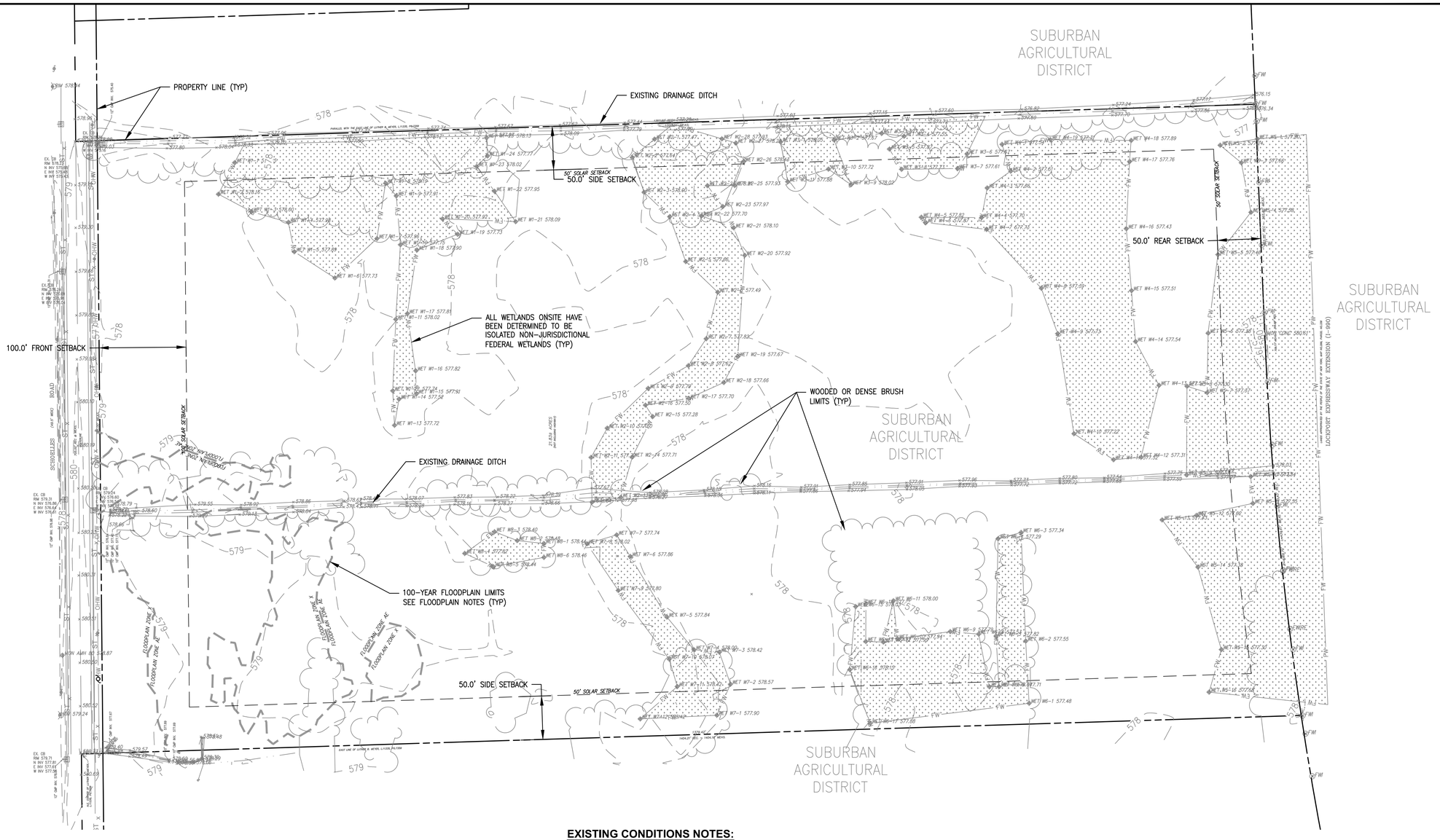
TOWN OF AMHERST
ERIE COUNTY, NEW YORK

DESIGNED BY: R. TRUNKO	APPROVED BY: J. MONTAGNE
DRAFTED BY: A. JOHNSON	DATE: 11/16/20
CHECKED BY: R. TRUNKO	GPI PROJECT NO. ALB–2020116.00

SHEET TITLE: **COVER SHEET**

SHEET NUMBER: C-001

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



EXISTING CONDITIONS NOTES:

GENERAL NOTES:

1. UNDERGROUND FACILITIES AND STRUCTURES SHOWN HEREON WERE TAKEN FROM DATA OBTAINED FROM PREVIOUS MAPS AND RECORD DRAWINGS. ALL ABOVE GROUND STRUCTURES AND SURFACE FEATURES SHOWN HEREON ARE THE RESULT OF A FIELD SURVEY UNLESS OTHERWISE NOTED. THERE MAY BE OTHER UNDERGROUND UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN OR CERTIFIED BY THE UNDERSIGNED. THE SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES. THE UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION MUST BE NOTIFIED PRIOR TO CONDUCTION TEST BORINGS, EXCAVATION AND CONSTRUCTION.

SURVEY REFERENCE:

1. "SURVEY OF PART OF LOT 52, TOWNSHIP 13, RANGE 7 HOLLAND LAND COMPANY'S SURVEY TOWN OF AMHERST, ERIE COUNTY, NEW YORK" PREPARED BY GPI. DATED SEPTEMBER 15, 2020.

WETLAND NOTES:

1. LATITUDE: 43°-03'-04" N
   LONGITUDE: -78°-44-52" W
2. WETLANDS SHOWN HEREON TAKEN FROM WETLAND DELINEATION SURVEY "WETLAND AND WATERBODIES DELINEATION REPORT FOR AMHERST SOLAR", PREPARED BY EARTH DIMENSIONS, INC., DATED AUGUST 24, 2020.

WETLANDS ON THE PROPERTY HAVE BEEN DETERMINED BY THE ARMY CORPS OF ENGINEERS TO BE ISOLATED NON-JURISDICTIONAL UNDER PROCESSING #LRB-2020-01247 DATED 11/17/2020

TAX PARCEL NUMBER:

TOWN OF AMHERST, ERIE COUNTY, NEW YORK
28.00-1-1.11

ZONING DISTRICTS:

THE SUBJECT PARCEL AS WELL AS THE ADJACENT PARCELS ARE LOCATED WITHIN THE TOWN OF AMHERST'S SUBURBAN AGRICULTURAL ZONING DISTRICT.

FLOODPLAIN NOTES:

1. MAPPED FLOODPLAIN LIMITS PROVIDED ARE TAKEN FROM FEMA'S NFIP FIRM PANEL 86 OF 807 FOR ERIE COUNTY, NEW YORK (MAP NUMBER 36029C0086H, EFFECTIVE DATE: JUNE 7, 2019). FEMA NFIP FIRM PANEL IDENTIFIES THE BASE FLOOD ELEVATION TO BE 579 DEET ABOVE MEAN SEA LEVEL.

EXISTING CONDITIONS LEGEND:

- PROPERTY LINE
- SETBACK LINE
- FW — FEDERAL WETLAND BOUNDARY
- 789 — EXISTING CONTOURS
- 100-YEAR FLOODPLAIN
- TREE/WOODED AREA LIMITS

N MAGNETIC

0 60 100 200 300

SCALE: 1" = 60'

Dig Safely. New York Call 811 before you dig

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREGORY PEDERSEN No. 091 LICENSED PROFESSIONAL ENGINEER

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS

NO.	REVISION	DATE
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	RJT

BASE SURVEY AND EXISTING CONDITIONS PLAN

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

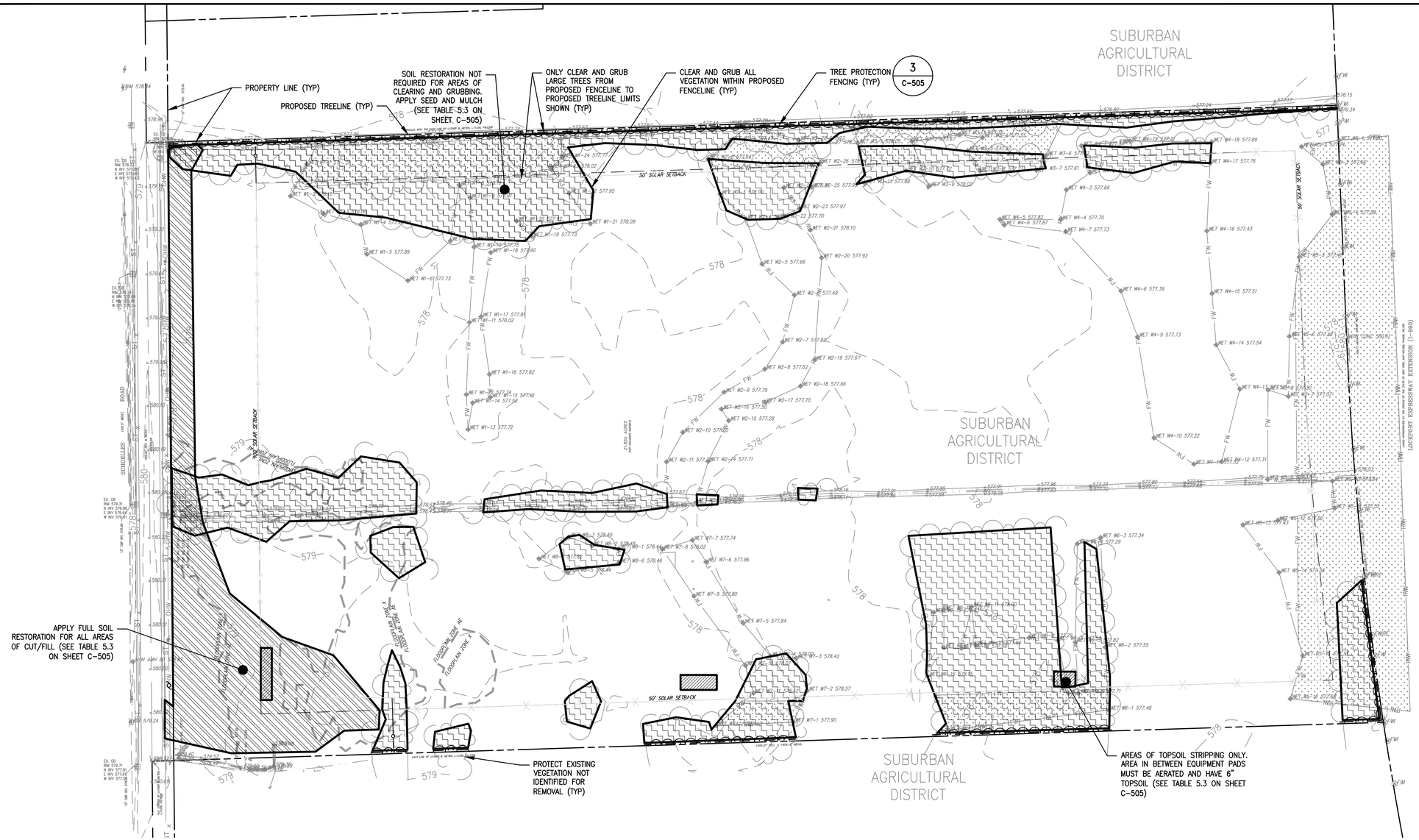
C-101

SHEET 2 OF 10

Sep. 09,2021
E:\2020\20201116.00 Amherst Solar Farm\CADD\20201116.00 C-101 EXISTING CONDITIONS PLAN.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



DEMOLITION NOTES:

1. REFER TO REQUIREMENTS OUTLINED IN THE EROSION & SEDIMENT CONTROL PLANS & NOTES PRIOR TO COMMENCEMENT OF WORK.
2. PROVIDE, ERECT AND MAINTAIN TEMPORARY BARRIERS AND SECURITY DEVICES AS REQUIRED.
3. MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING SELECT DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING OPERATING FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY OWNER AND AUTHORITIES HAVING JURISDICTION.
4. NOTIFY ADJACENT OWNERS OF WORK THAT MAY AFFECT THEIR PROPERTY, POTENTIAL NOISE, UTILITY OUTAGE, OR DISRUPTION. COORDINATE WITH OWNER.
5. LOCATE AND IDENTIFY ALL EXISTING UTILITIES WITHIN THE CONSTRUCTION AREA. DISCONNECT AND SEAL OR CAP OFF UTILITY SERVICES THAT WILL BE AFFECTED BY THIS PROJECT. NOTIFY AFFECTED UTILITY COMPANIES BEFORE STARTING WORK AND COMPLY WITH THEIR REQUIREMENTS. VERIFY THAT UTILITIES HAVE BEEN DISCONNECTED AND CAPPED.
6. DEMOLISH AND REMOVE COMPONENTS IN AN ORDERLY AND CAREFUL MANNER.
7. PROTECT EXISTING FEATURES THAT ARE NOT TO BE DEMOLISHED.
8. CONDUCT OPERATIONS WITH MINIMUM INTERFERENCE TO PUBLIC OR PRIVATE ACCESSES.
9. MAINTAIN EGRESS AND ACCESS AT ALL TIMES. DO NOT CLOSE OR OBSTRUCT ROADWAYS OR SIDEWALK WITHOUT PERMITS. COORDINATE WITH AUTHORITY HAVING JURISDICTION.
10. CEASE OPERATIONS IMMEDIATELY IF ADJACENT STRUCTURES APPEAR TO BE IN DANGER. NOTIFY AUTHORITY HAVING JURISDICTION.
11. USE WATER MIST, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS TO LIMIT THE SPREAD OF DUST AND DIRT. COMPLY WITH GOVERNING ENVIRONMENTAL PROTECTION REGULATIONS. DO NOT USE WATER WHEN IT MAY DAMAGE EXISTING CONSTRUCTION, SUCH AS CAUSING ICING, FLOODING, AND TRANSPORTING POLLUTANTS.
12. REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
13. ALL EXISTING LAWN AREA, CURBING, PAVING, SIDEWALKS, CULVERTS OR OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED BY TRENCHING OR EXCAVATION OPERATIONS SHALL BE REPLACED OR REPAIRED TO A CONDITION EQUAL TO EXISTING, AS DESCRIBED IN CONTRACT DOCUMENTS OR AS ORDERED BY ENGINEER (AOBE). MAILBOXES, SIGN POSTS, ETC SHALL BE PROTECTED OR REMOVED AND REPLACED EXACTLY AS THEY WERE BEFORE BEING DISTURBED. REMOVE AND REPLACE AFFECTED CURBING AND SIDEWALK TO NEAREST JOINT. REMOVE PAVEMENT AND REPLACE TO SAW CUT LINE, SAW CUT IN STRAIGHT LINE TO POINT NEEDED TO BLEND GRADE, REMOVE LAWN AND REPLACE TO MINIMUM LIMIT OF EXCAVATION.
14. ALL EXISTING SHRUBS/TREES NOT IDENTIFIED FOR CLEARING AND GRUBBING SHALL BE PROTECTED FROM ANY DAMAGE DURING CONSTRUCTION

DEMOLITION LEGEND:

- PROPERTY LINE
- WETLAND PROTECTION FENCING
- TOPSOIL TO BE STRIPPED ONLY
- AREA OF CUT/FILL
- CLEAR AND GRUB EXISTING VEGETATION
- TREE PROTECTION FENCE

N MAGNETIC

0 60 100 200 300

SCALE: 1" = 60'

Dig Safely. New York Call 811 before you dig

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR

AMHERST COMMUNITY SOLAR, LLC

412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM

595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREGORIAN PEDERSEN No. 131 LICENSED PROFESSIONAL ENGINEER

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS

NO.	REVISION	DATE
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
CNT	RJT

DEMOLITION PLAN

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

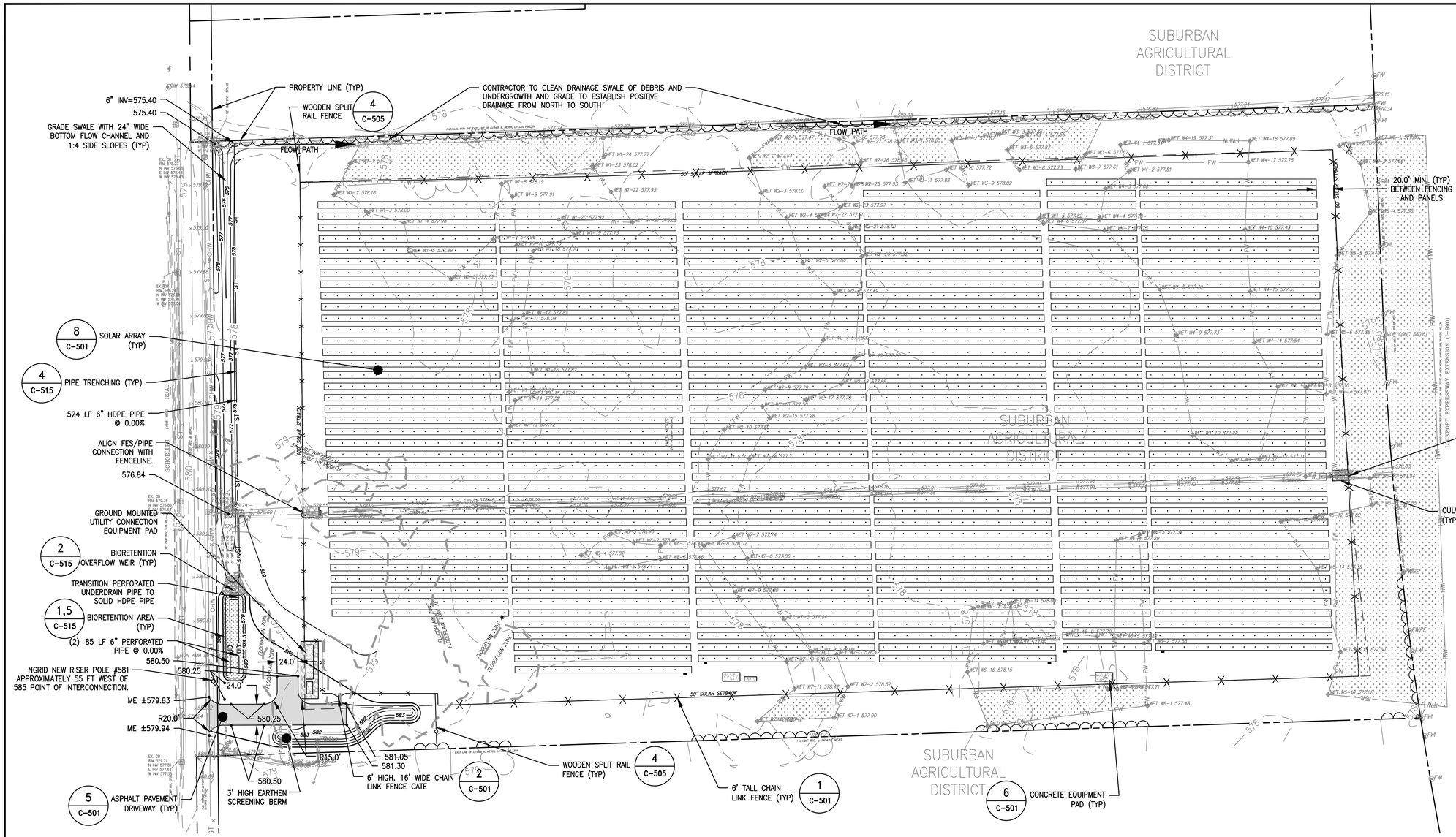
C-101A

SHEET 3 OF 10

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2020116.00 C-101A DEMOLITION PLAN.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



GRADING NOTES:

1. PRIOR TO SITE DISTURBANCE, CONTRACTOR TO INSTALL EROSION & SEDIMENT CONTROL MEASURES.
2. STRIP TOPSOIL FOR THE EARTHEN BERM, GRAVEL DRIVEWAY, CONCRETE EQUIPMENT PADS AND CULVERTS PRIOR TO COMMENCING EARTHWORK OPERATIONS. TOPSOIL MAY BE STORED, SCREENED AND THEN REUSED IN LAWN AND PLANTING AREAS ONLY. TOPSOIL AND SEED ALL AREAS DISTURBED BY CONSTRUCTION THAT ARE TO REMAIN GREEN.
3. ALL EARTHWORK SHALL BE SMOOTHLY AND EVENLY BLENDED INTO EXISTING CONDITIONS. NO WORK, STORAGE OR TRESPASS SHALL BE PERMITTED BEYOND THE BOUNDARIES OF ANY EASEMENT OR PROPERTY LINE.
4. SLOPE SIDES OF EXCAVATIONS TO COMPLY WITH ALL LOCAL CODES AND ORDINANCES HAVING JURISDICTION. MAINTAIN SIDES AND SLOPES OF EXCAVATIONS IN A SAFE CONDITION UNTIL COMPLETION OF BACKFILLING. BACKFILL EXCAVATION AS PROMPTLY AS WORK PERMITS, BUT NOT WITHOUT ACCEPTANCE BY ENGINEER OF CONSTRUCTION BELOW FINISH GRADE.
5. PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8" IN LOOSE DEPTH. FILL MATERIAL SHALL BE FREE FROM DEBRIS, VEGETATION AND DELETERIOUS MATERIAL. COMPACT ALL TRENCH BACKFILL TO 95% STANDARD PROCTOR.
6. GRAVEL AND SUB-BASE SHALL BE LAID IN 6" LIFTS AND SHALL CONFORM TO THE TYPICAL SECTION FOR PAVEMENT. ALL HOLES AND DEPRESSIONS SHALL BE FILLED WITH GRAVEL AND RE-ROLLED.

LAYOUT :

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL FIELD LAYOUT.
2. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS BUILT PLANS FOR ALL UTILITIES SHOWING TIES TO CONNECTIONS, BENDS, VALVES, LENGTHS OF LINES AND INVERTS. AS-BUILT PLANS SHALL BE REVIEWED BY THE OWNER/ARCHITECT AND THE ENGINEER AND THE CONTRACTOR SHALL PROVIDE ANY CORRECTION OR ADMISSIONS TO THE SATISFACTION OF THE OWNER/ARCHITECT AND THE ENGINEER BEFORE UTILITIES WILL BE ACCEPTED.

PAVING:

1. NO VEHICULAR TRAFFIC OF ANY SORT SHALL BE PERMITTED ON THE SURFACE OF SUBBASE COURSE MATERIAL ONCE IT HAS BEEN FINE GRADED, COMPACTED, AND IS READY FOR PAVING. SUBBASE MATERIAL SO PREPARED FOR PAVING SHALL BE PAVED WITHIN THREE DAYS OF PREPARATION.
2. SUBBASE MATERIAL AND THE VARIOUS ASPHALT CONCRETE MATERIALS CALLED FOR IN THESE DRAWINGS SHALL CONFORM WITH THE REFERENCED SECTION OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 1, 2018, INCLUDING ALL REVISIONS AND ADDENDUMS. CONSTRUCTION SHALL BE AS FURTHER SET FORTH IN THOSE SPECIFICATIONS AND AS OTHERWISE PROVIDED FOR IN THESE DRAWINGS.
3. PROOF ROLLING OF SUBGRADE SHALL BE WITNESSED BY THE ENGINEER, ALL UNSATISFACTORY AREAS, AS DETERMINED BY THE ENGINEER SHALL BE EXCAVATED AND REPLACED WITH SUBBASE MATERIAL TO THE ENGINEER'S SATISFACTION.
4. PLACE ASPHALT CONCRETE MIXTURE ON PREPARED SURFACE, SPREAD AND STRIKE-OFF USING A SELF-PROPELLED PAVING MACHINE, WITH VIBRATING SCREED. PLACEMENT IN INACCESSIBLE AND SMALL AREAS MAY BE BY HAND.
5. PROVIDE JOINTS BETWEEN OLD AND NEW PAVEMENTS OR BETWEEN SUCCESSIVE DAY'S WORK.
6. TACK COAT BINDER COURSE BEFORE PLACING TOP COURSE IF MORE THAN 48 HOURS HAVE ELAPSED AFTER PLACING BINDER COURSE.
7. ALL PAVEMENT RESTORATION SHALL MEET AND MATCH EXISTING GRADES.
8. AFTER COMPLETION OF PAVING AND SURFACING OPERATIONS, CLEAN SURFACES OF EXCESS OR SPILLED ASPHALT, GRAVEL OR STONE MATERIALS TO THE SATISFACTION OF THE ENGINEER.

SITE LAYOUT LEGEND:

- PROPERTY LINE
- DISTURBANCE LIMITS
- PROPOSED CHAIN LINK FENCE
- PROPOSED SPLIT RAIL FENCE
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED RIP-RAP STONE
- 787 PROPOSED MINOR CONTOUR
- 780 PROPOSED MAJOR CONTOUR
- 124.75 SPOT ELEVATION

ABBREVIATIONS:

TF	TOP OF FRAME
HP	HIGH POINT
LP	LOW POINT
TC	TOP OF CURB
BC	BOTTOM OF CURB
INV	INVERT
ME	MATCH EXISTING
TW	TOP OF RETAINING WALL
BW	BOTTOM OF RETAINING WALL

N MAGNETIC

0 60 100 200 300
SCALE: 1" = 60'

Dig Safely. New York Call 811 before you dig

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREGORY PEDERSEN No. 131 PROFESSIONAL ENGINEER

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS		
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020
NO.	REVISION	DATE

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	RJT

SITE LAYOUT, GRADING, AND UTILITY PLAN

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

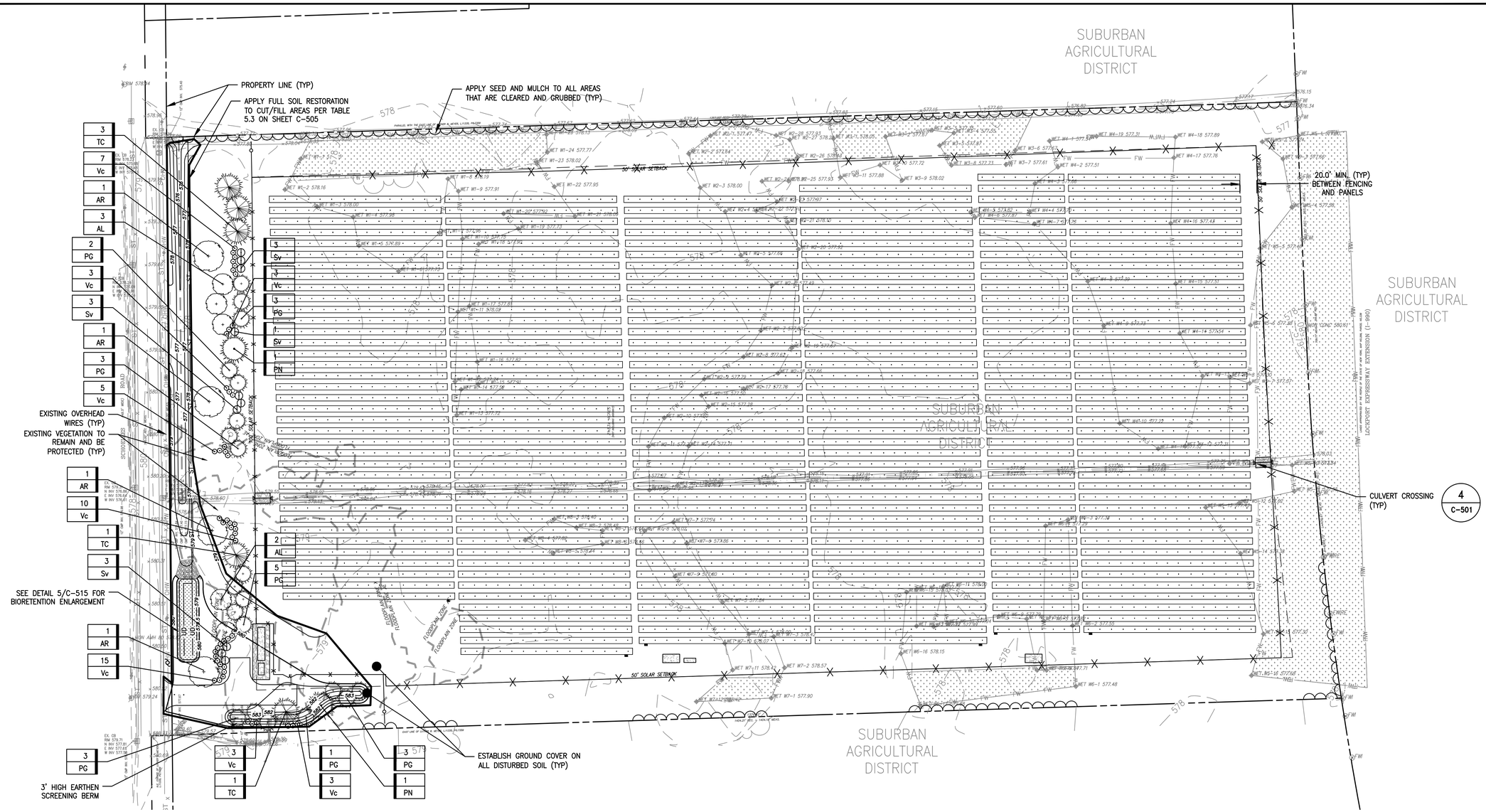
C-102

SHEET 4 OF 10

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2020116.00 C-102 SITE LAYOUT PLAN.dwg
36x24 PLOT SHEET

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



PLANTING SCHEDULE*							
	QTY.	ABRV.	BOTANICAL NAME	COMMON NAME	SIZE	COND.	SPACING
TREES	5	AL	AMELANCHIER LAEVIS	ALLEGHANY SERVICEBERRY	2.5"-3" CAL.	B&B	AS SHOWN
	4	AR	ACER RUBRUM	RED MAPLE	2.5"-3" CAL.	B&B	AS SHOWN
1 C-505	20	PG	PICEA GLAUCA	WHITE SPRUCE	5'-6' HT.	B&B	AS SHOWN
	2	PN	PINUS NIGRA	AUSTRIAN PINE	5'-6' HT.	B&B	AS SHOWN
	5	TC	TSUGA CANADENSIS	CANADIAN HEMLOCK	5'-6' HT.	B&B	AS SHOWN
SHRUBS	10	Sv	SYRINGA VULGARIS	COMMON LILAC	36"-48" HT.	B&B	AS SHOWN
2 C-505	49	Vc	VIBURNUM CARLESII	KOREANSPICE VIBURNUM	24"-30" HT.	B&B	AS SHOWN

* SEE SHEET C-515 FOR BIORETENTION PLANTING MIX.

LANDSCAPING LEGEND:

PROPERTY LINE
XX QUANTITY OF PLANT
AB PLANT TYPE

LANDSCAPING NOTE:

1. LANDSCAPING NOTES CAN BE FOUND ON THE LANDSCAPE DETAILS SHEET, C-505.

MAGNETIC

0 60 100 200 300
SCALE: 1" = 60'

Dig Safely. New York Call 811 before you dig

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

REGISTERED LANDSCAPE ARCHITECT CRAIG NEIL 001156 STATE OF NEW YORK

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS		
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020
NO.	REVISION	DATE

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
CNT	RJT

LANDSCAPING PLAN

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

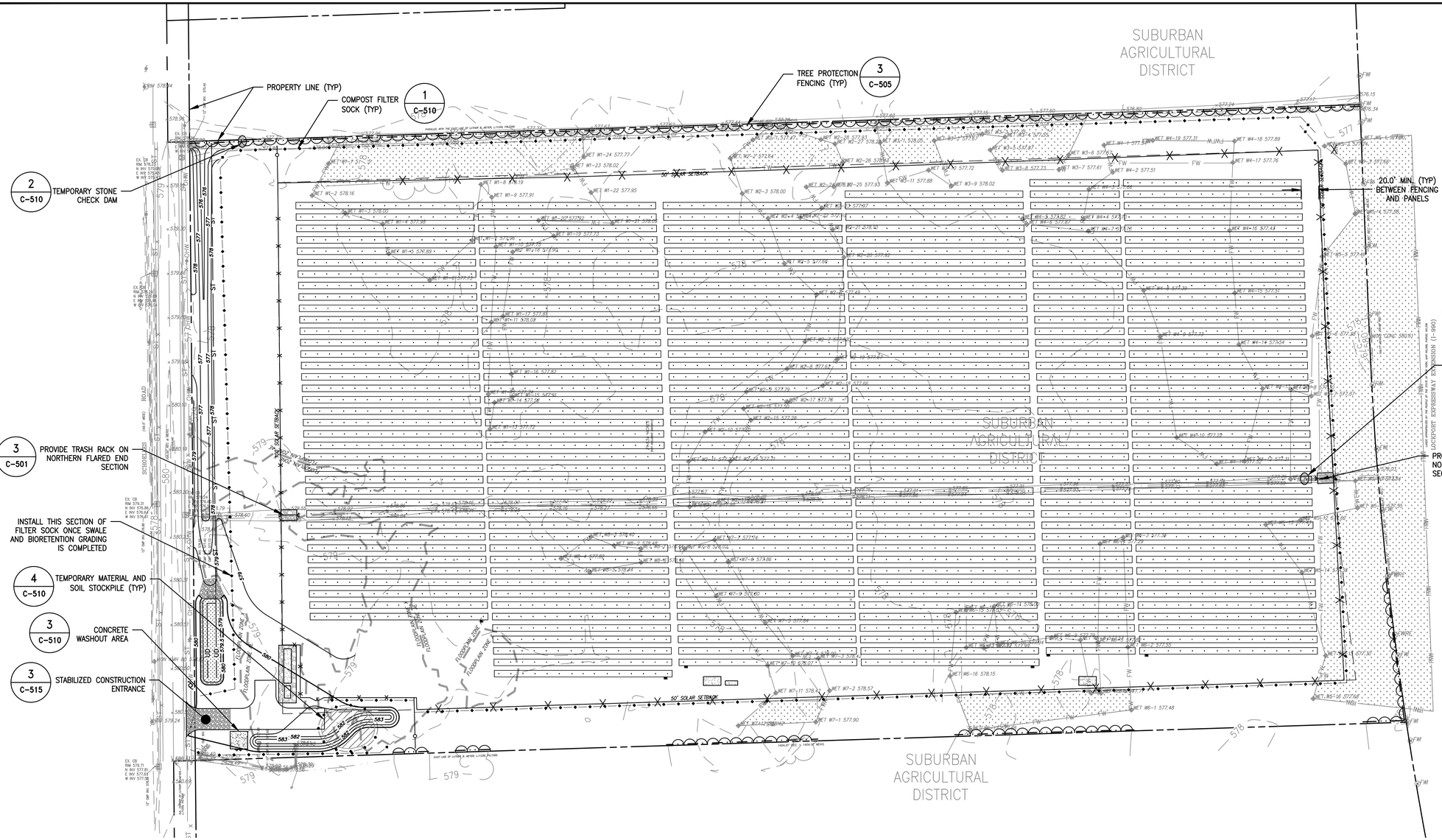
C-103

SHEET 5 OF 10

Sep 09,2021
E:\2020\20201116.00 Amherst Solar Farm\CADD\20201116.00 C-103 GRADING & LANDSCAPING PLAN.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



CONSTRUCTION SEQUENCING NOTES:

1. HOLD PRE-CONSTRUCTION MEETING AT LEAST 1 WEEK PRIOR TO STARTING CONSTRUCTION WITH ALL INVOLVED PARTIES.
2. PRIOR TO COMMENCING ANY CLEARING, GRUBBING, EARTHWORK ACTIVITIES, ETC. AT THE SITE, THE CONTRACTOR SHALL FLAG THE WORK LIMITS AND SHALL INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (I.E. SILT FENCES, TREE PROTECTION/BARRIER FENCES, STABILIZED CONSTRUCTION ACCESSE(S)/ROAD(S), STORM DRAIN SEDIMENT FILTERS, SEDIMENT TRAP, ETC.) INDICATED ON THE PROJECT DRAWINGS OR AS NECESSARY. THE CONTRACTOR SHALL INSTALL INLET AND OUTLET PROTECTION MEASURES (RIPRAP OVERFLOW WEIR(S), CULVERT INLET/OUTLET PROTECTION, STONE CHECK DAMS, ETC.) TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THEIR TRIBUTARY AREAS.
3. THE CONTRACTOR SHALL COMMENCE SITE CONSTRUCTION ACTIVITIES INCLUDING CLEARING & GRUBBING IDENTIFIED SECTIONS OF THE PROPOSED AREA OF DISTURBANCE. CLEARED AREAS SHALL BE STABILIZED WITH TOPSOIL AND GROUND COVER SEED MIX.
4. INSTALL NEW DIVERSION DITCH AND RESTORE EXISTING DRAINAGE DITCH SHOWN ON PLANS TO PROVIDE POSITIVE FLOW.
5. COMPLETE INSTALLATION OF SOLAR ARRAY, EQUIPMENT, AND APPURTENANCES STARTING FROM THE SOUTHERN END OF THE SITE, WORKING NORTH. STABILIZE ANY TEMPORARY DISTURBANCE AS CONSTRUCTION PROGRESSES.
6. INSTALL PERMANENT CULVERT CROSSINGS AND STABILIZE EXISTING DRAINAGE DITCH. PERMANENT CULVERT CROSSINGS ARE NOT DESIGNED FOR CONSTRUCTION LOADING.
7. REMOVE TEMPORARY CONSTRUCTION ACCESS AND INSTALL PERMANENT ASPHALT DRIVEWAY.
8. COMPLETE FINAL GRADING OF GROUNDS, BIORETENTION PRACTICE, AND EARTHEN SCREENING BERM. COMPLETE SOIL RESTORATION, TOPSOIL, AND PERMANENTLY VEGETATE, LANDSCAPE, AND MULCH EACH AREA.
9. AFTER THE SITE IS STABILIZED THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND IMMEDIATELY ESTABLISH PERMANENT VEGETATION ON THE AREAS DISTURBED DURING THEIR REMOVAL.

E&SC NOTES:

1. SEE SHEET C-510 FOR ADDITIONAL EROSION AND SEDIMENT CONTROL NOTES.

EROSION AND SEDIMENT CONTROL LEGEND:

- PROPERTY LINE
- PROPOSED COMPOST FILTER SOCK
- PROPOSED TREELINE PROTECTION FENCING
- TEMPORARY STONE CHECK DAM

N MAGNETIC

0 60 100 200 300
SCALE: 1" = 60'

Dig Safely. New York Call 811 before you dig

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREENMAN PEDERSEN No. 131 PROFESSIONAL ENGINEER
ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS		
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020
NO.	REVISION	DATE

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	RJT

EROSION AND SEDIMENT CONTROL PLAN
SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

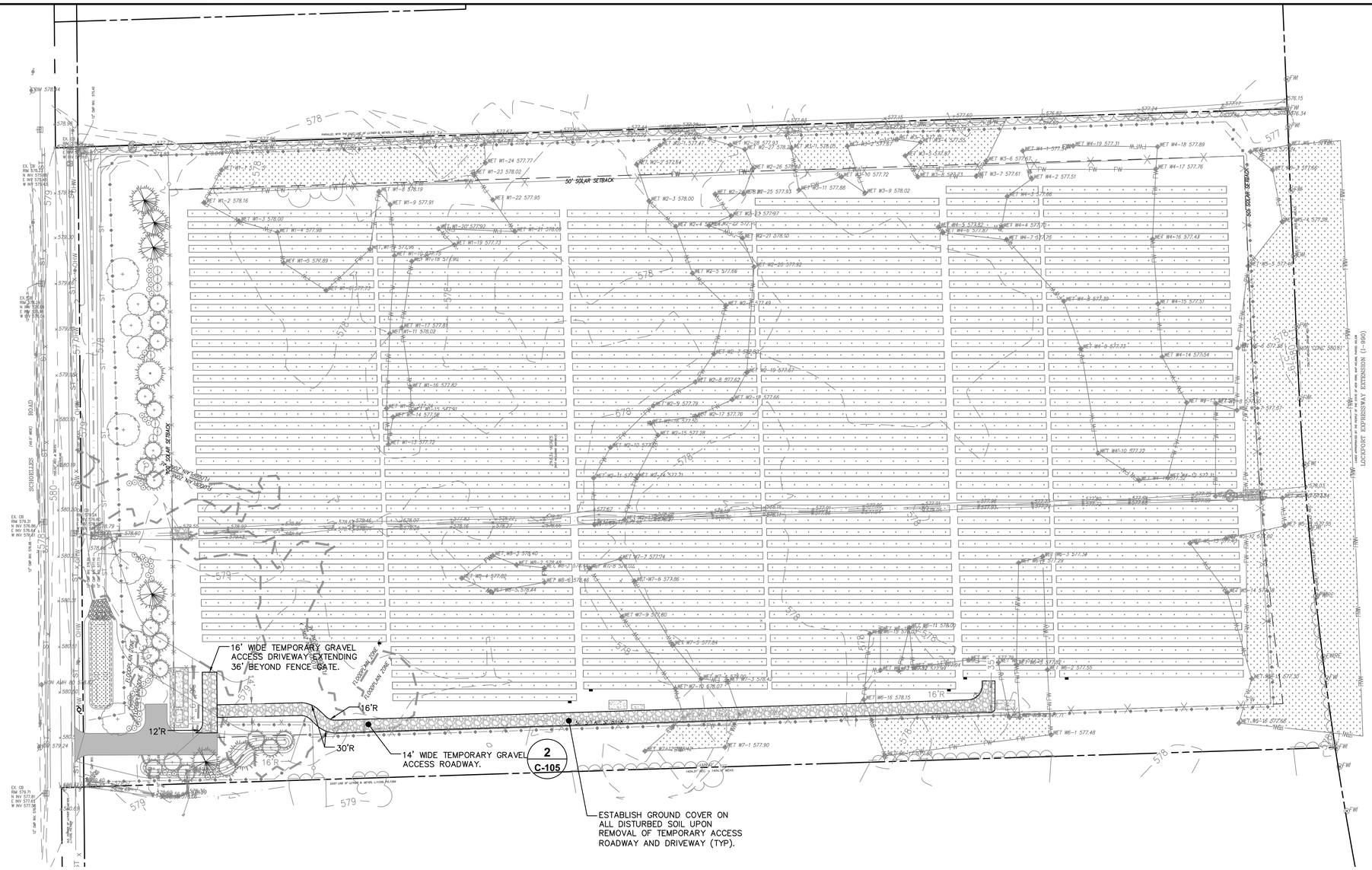
C-104

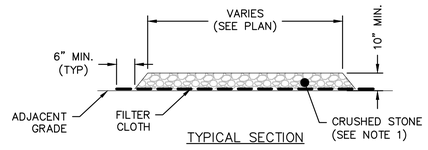
SHEET 6a OF 10

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2020116.00 C-104 EROSION AND SEDIMENT CONTROL PLAN.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)





TYPICAL SECTION

1 C-105 TEMPORARY ACCESS ROADWAY PLAN

SCALE: 1"=60'

TEMPORARY ACCESS ROADWAY SPECIFICATIONS:

1. STONE SIZE – USE 2" STONE.
2. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE AND EXTEND 6" MINIMUM ON EITHER EDGE OF TEMPORARY ROADWAY. FILTER CLOTH MATERIAL SHALL BE MIRAFI 100X OR APPROVED EQUIVALENT.
3. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ROADWAY SHALL BE PIPED ACROSS THE ROADWAY. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
4. MAINTENANCE – THE DRIVEWAY SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY AND ADJACENT GRASSED AREAS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

2 C-105 TEMPORARY ACCESS ROADWAY SECTION

SCALE: NOT TO SCALE

0 60 100 200 300

SCALE: 1" = 60'

Dig Safely. New York Call 811 before you dig

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR

AMHERST COMMUNITY SOLAR, LLC

412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM

595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREENMAN PEDERSEN No. 131 PROFESSIONAL ENGINEER

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS

NO.	REVISION	DATE
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	RJT

TEMPORARY ACCESS ROADWAY PLAN

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

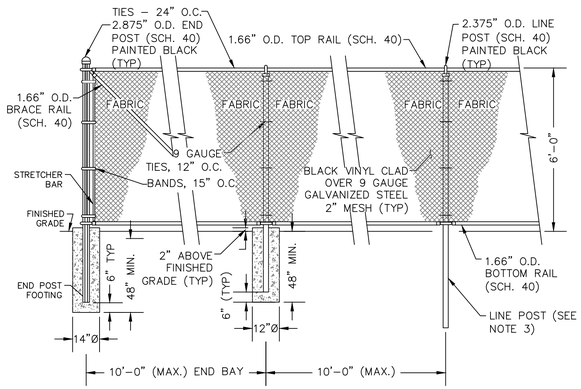
C-105

SHEET 6b OF 10

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2021.07.28 REVISION Access Road\C-105 Temporary Access Roadway Plan.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

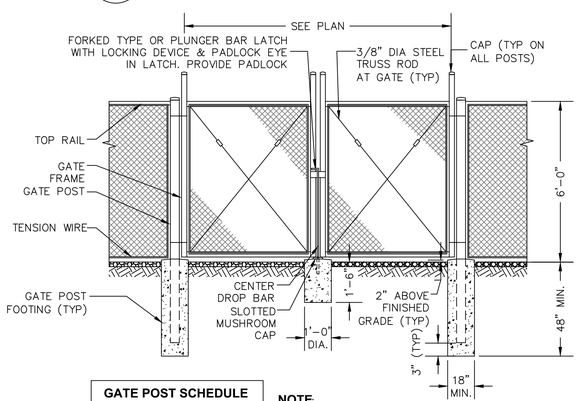
Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



SOIL TYPE	EMBEDMENT DEPTH (FT) WIND SPEED (MPH)		
	90	105	120
SOFT CLAY	5.5	6	6.5
STIFF CLAY	4.5	5	5.5
VERY STILL CLAY	4	4.5	5
HARD CLAY	3.5	4	4.5
LOOSE SAND	6	6.5	7
Medium Dense Sand	5.5	6	6.5
Dense Sand	5	6	6.5

NOTES:
1. ALL POSTS, RAILS, MESH & HARDWARE TO BE GALVANIZED STEEL
2. END POST REQUIREMENTS ALSO APPLY TO CORNER AND PULL POSTS.
3. CONTRACTOR SHALL HAVE THE OPTION OF SETTING LINE POSTS IN 12"ø BY 48" DEEP CONCRETE FOOTING OR USING DRIVING AND ANCHORING SPECIFIED BY THE MANUFACTURER TO THE DEPTH SPECIFIED IN THE INCLUDED TABLE EXCEPT FOR ALL END CORNER AND INTERMEDIATE POSTS SHALL HAVE CONCRETE FOOTINGS PER DETAIL.

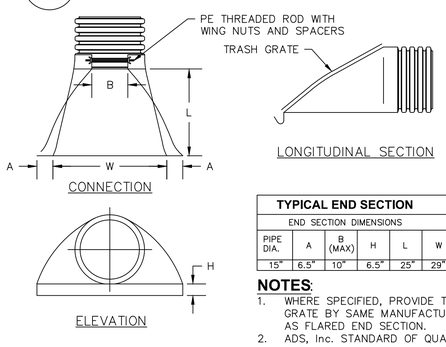
1 C-501 CHAIN LINK FENCE 6' HIGH
SCALE: NOT TO SCALE



GATE POST SCHEDULE	
GATE LEAF SIZE	POST O.D.
UP TO 12'	3"
12' TO 20'	4"

NOTE:
GATES ARE TO SWING OUTWARD, MAINTAINING 4" OF CLEARANCE FROM FINISHED GRADE.

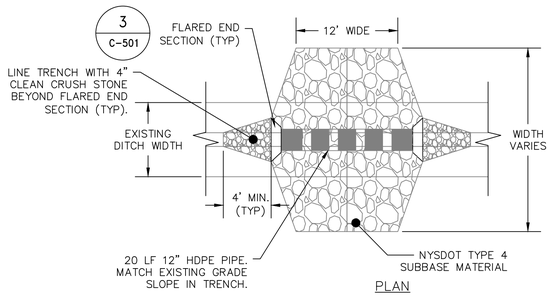
2 C-502 CHAIN LINK FENCE 6' HIGH GATE
SCALE: NOT TO SCALE

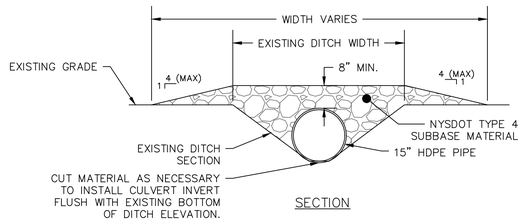


TYPICAL END SECTION					
END SECTION DIMENSIONS					
PIPE DIA.	A	B (MAX)	H	L	W
15"	6.5"	10"	6.5"	25"	29"

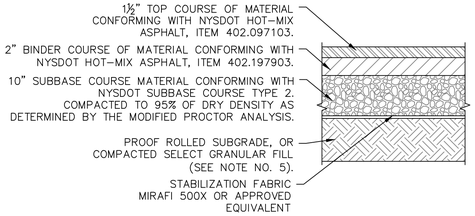
NOTES:
1. WHERE SPECIFIED, PROVIDE TRASH GRATE BY SAME MANUFACTURER AS FLARED END SECTION.
2. ADS, Inc. STANDARD OF QUALITY.

3 C-501 TYPICAL FLARED END SECTION
SCALE: NOT TO SCALE





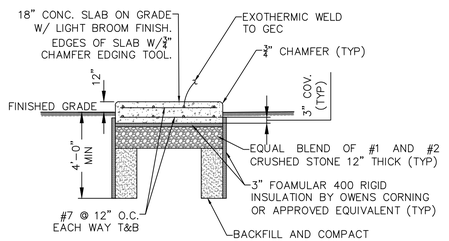
4 C-501 20' LONG CROSSING CULVERT
SCALE: NOT TO SCALE



NOTES:

1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 9, 2020, AND ALL ADDENDA THERETO; THE ONLY EXCEPTION BEING THAT THE WORK OF THIS CONTRACT SHALL BE MEASURED IN ENGLISH UNITS.
2. SUBBASE MATERIAL SHALL CONFORM WITH SECTION 304 – SUBBASE COURSE OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS.
3. HOT MIX ASPHALT (HMA) PAVEMENT SHALL CONFORM WITH SECTION 400–HOT MIX ASPHALT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE ITEM NUMBER CALLED OUT IN THESE DRAWINGS. ALTHOUGH SECTION 400 IN ITS ENTIRETY IS REFERENCED, THE HOT MIX ASPHALT (HMA) PAVEMENT(S) SPECIFIED FOR THIS CONTRACT SHALL BE AS SPECIFIED UNDER SECTION 402–HOT MIX ASPHALT (HMA) PAVEMENTS.
4. TACK COAT WHEN SPECIFIED OR CALLED OUT IN THESE DRAWINGS OR REQUIRED BY THE REFERENCED SPECIFICATIONS SHALL CONFORM WITH SECTION 407–TACK COAT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
5. APPLY TACK COAT TO ASPHALT PAVEMENT SURFACES AND SURFACES OF CURBS BELOW PAVEMENT LEVEL, GUTTERS, MANHOLES, AND OTHER STRUCTURES PROJECTING INTO OR ABUTTING PAVEMENT. TACK COAT ENTIRE VERTICAL SURFACE OF ABUTTING EXISTING PAVEMENT. DRY TO A "TACKY" CONSISTENCY BEFORE PAVING.
6. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSES OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMANCE WITH SECTION 203–EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
7. REMOVE LOOSE AND FOREIGN MATERIAL FROM ASPHALT SURFACE BEFORE PAVING NEXT COURSE. USE POWER BROOMS, BLOWERS OR HAND BROOM.

5 C-501 TYPICAL ASPHALT CONCRETE PAVEMENT
SCALE: NOT TO SCALE



NOTES:

1. ELEVATION OF TOP OF EACH PAD TO BE ABOVE THE 100–YEAR FLOODPLAIN ELEVATION OF 579.00.
2. COORDINATE PAD INFORMATION WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

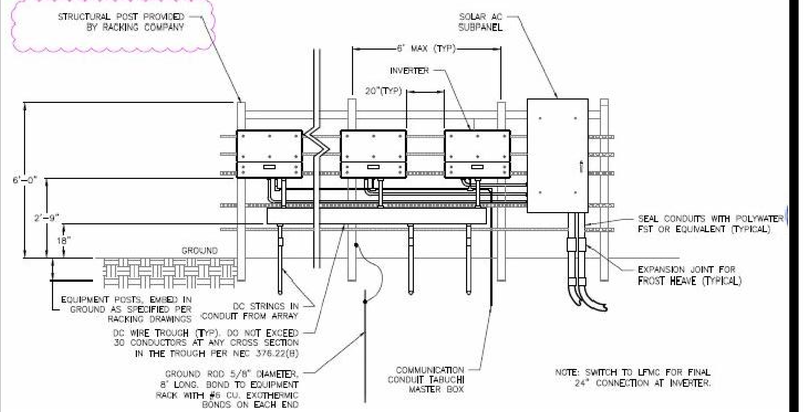
CAST-IN-PLACE CONCRETE GENERAL NOTES:
(UNLESS OTHERWISE NOTED OR SHOWN ON PLAN, THE FOLLOWING SHALL APPLY)

1. CONCRETE WORK SHALL CONFORM WITH THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE ACI 318–14.
2. UNLESS OTHERWISE INDICATED ON DRAWINGS CAST–IN–PLACE CONCRETE SHALL CONFORM TO THE FOLLOWING TABLE:

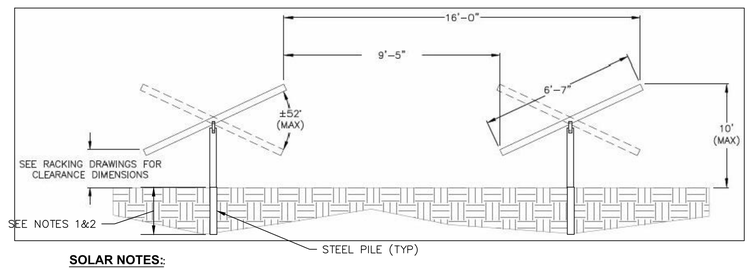
LOCATIONS	CONCRETE STRENGTH (PSI)	MAX. SIZE AGGREGATE	AIR CONTENT (%)	MAX. W/C RATIO
EXTERIOR SLAB–ON–GRADE	5000	1–1/2"	5.5±1.5	0.45

3. REINFORCING FOR CONCRETE SHALL BE DEFORMED STEEL BARS IN ACCORDANCE WITH ASTM SPECIFICATION A615, GRADE 60. REBAR ANCHOR TIES TO BE ASTM SPECIFICATION A–955, GRADE 60.
4. PROVIDE ADEQUATE TIES FOR REINFORCEMENT IN SLABS. REINFORCEMENT TO BE HELD AT CORRECT DISTANCE FROM FORMS AND EARTH BY STEEL CHAIRS OR TIES.
5. FOLLOW C.R.S.I. RULES FOR PLACING OF REINFORCING STEEL AND ACCESSORIES.
6. THIS CONTRACTOR SHALL COOPERATE WITH OTHER TRADES AND WHERE REQUIRED INSTALL ALL BUILT–IN WORK, SLEEVES, INSERTS, ETC., AS REQUIRED FOR A COMPLETE JOB.
7. STRUCTURAL MEMBERS SHALL BE POURED FOR THEIR FULL DEPTHS IN ONE OPERATION. CONSTRUCTION JOINTS, SUCH AS A DAY'S POUR, JOINTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE SPAN, MAIN REINFORCING TO RUN THROUGH THE JOINT, KEY AND ROUGHEN JOINTS TO EXPOSE AGGREGATE FOR CHEMICAL BOND.
8. U.N.O. WALL FOOTINGS SHALL BE MINIMUM 12" THICK AND PROJECT 6" BEYOND ALL FACES OF WALLS AND AS A MINIMUM CONTAIN #5@12" O.C. BOTTOM BARS.

6 C-501 CONCRETE EQUIPMENT PAD
SCALE: NOT TO SCALE



7 C-501 INVERTER AREA ELEVATION
SCALE: NOT TO SCALE



SOLAR NOTES:

1. FINAL PILE DEPTH SHALL BE DESIGNED BY A NEW YORK STATE PROFESSIONAL ENGINEER PRIOR TO CONSTRUCTION AND BE IN ACCORDANCE WITH ALL LOCAL AND STATE STANDARDS.
2. SOLAR PANELS INSTALLED WITHIN THE FLOODPLAIN BOUNDARY SHALL INCLUDE ANTI–FLOTATION ANCHORAGE AS NECESSARY.

8 C-501 TYPICAL SOLAR PANEL ELEVATION
SCALE: NOT TO SCALE

SOLAR EQUIPMENT DETAILS NOT DESIGNED BY GPI AND SHOWN FOR REFERENCE ONLY.

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS		
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020
NO.	REVISION	DATE

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	RJT

SITE DETAILS

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

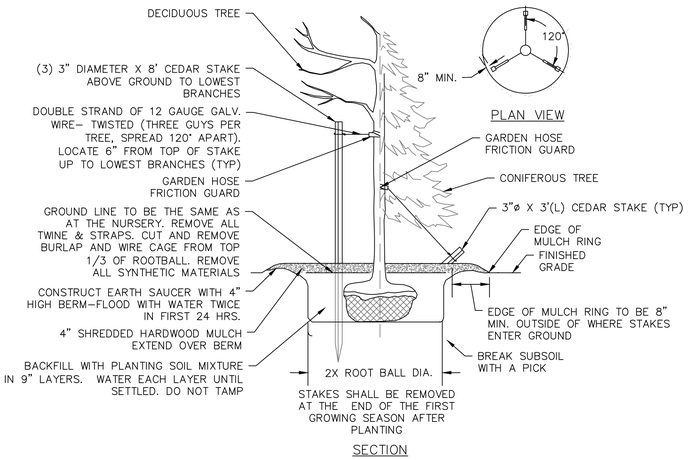
C-501

SHEET 7 OF 10

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2020116.00 C-501 SITE DETAILS.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



SECTION

NOTES:
1. TREES SHALL BE BALLED AND BURLAPPED

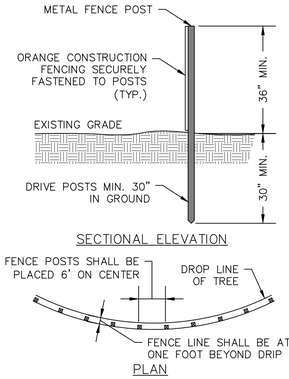
1 C-505 PLANTING AND GUYING FOR TREES SMALLER THAN 3" CALIPER

SCALE: NOT TO SCALE

NOTE:
SPRAY WITH ANTIDESICCANT IN ACCORDANCE WITH MFG.'S RECOMMENDATIONS IF FOLIAGE IS PRESENT.

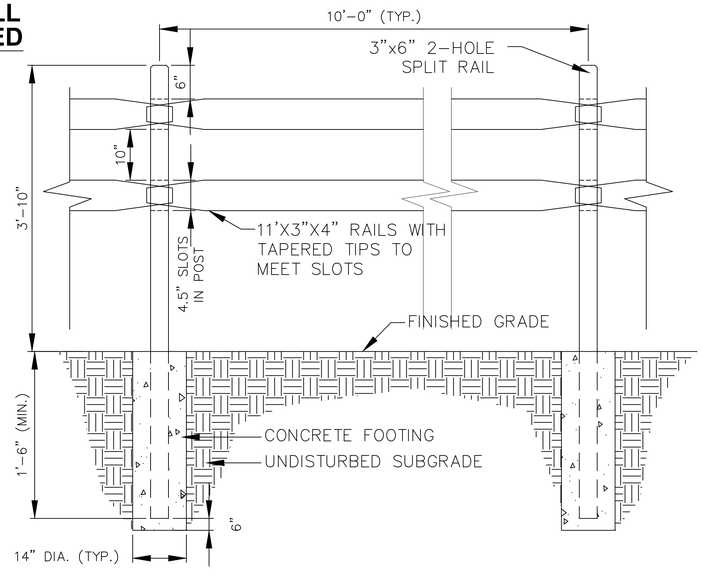
2 C-505 SHRUB PLANTING DETAIL FOR ALL SHRUBS BALLED AND BURLAPPED

SCALE: NOT TO SCALE



3 C-505 TREE PROTECTION FENCING

SCALE: NOT TO SCALE



NOTES:
1. ALL WOOD FOR SPLIT RAIL FENCE TO BE PRESSURE TREATED.
2. END POST SHALL BE TERMINAL POST.
3. ALL CONCRETE TO BE MINIMUM COMPRESSION STRENGTH 4,000 PSI AT THE END OF 28 DAYS.

4 C-505 SPLIT RAIL FENCE

SCALE: NOT TO SCALE

GENERAL LANDSCAPING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL CAREFULLY COORDINATE CONSTRUCTION ACTIVITIES WITH THAT OF THE EARTHWORK CONTRACTOR AND OTHER SITE DEVELOPMENT.
2. THE CONTRACTOR SHALL VERIFY DRAWING DIMENSIONS WITH ACTUAL FIELD CONDITIONS AND INSPECT RELATED WORK AND ADJACENT SURFACES. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF ALL FINISH GRADES WITHIN THE WORK AREA AND REPORT TO THE LANDSCAPE ARCHITECT/ENGINEER AND OWNER ALL CONDITIONS WHICH PREVENT PROPER EXECUTION OF THIS WORK.
3. THE EXACT LOCATION OF ALL EXISTING UTILITIES, STRUCTURES AND UNDERGROUND UTILITIES, WHICH MAY NOT BE INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROTECT EXISTING STRUCTURES AND UTILITY SERVICES AND IS RESPONSIBLE FOR THEIR REPLACEMENT IF DAMAGED.
4. THE CONTRACTOR SHALL KEEP THE PREMISES FREE FROM RUBBISH AND ALL DEBRIS AT ALL TIMES AND SHALL ARRANGE MATERIAL STORAGE SO AS NOT TO INTERFERE WITH THE OPERATION OF THE PROJECT. ALL UNUSED MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE SITE.
5. NO TREES OR SHRUBS SHALL BE PLANTED ON EXISTING OR PROPOSED UTILITY LINES.
6. QUALITY ASSURANCE:
   A. NOMENCLATURE: PLANT NAMES SHALL CONFORM TO THE LATEST EDITION OF "STANDARDIZED PLANT NAMES" AS ADOPTED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE.
   B. SIZE AND GRADING: PLANT SIZES AND GRADING SHALL CONFORM TO THE LATEST EDITION OF "AMERICAN STANDARD FOR NURSERY STOCK" AS SPONSORED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC (AAN), UNLESS OTHERWISE SPECIFIED.
   C. NURSERY SOURCE: OBTAIN FRESHLY DUG, HEALTHY, VIGOROUS PLANTS NURSERY GROWN UNDER CLIMACTIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR A MINIMUM OF 2 YEARS. PLANTS SHALL HAVE BEEN LINED OUT IN ROWS, ANNUALLY CULTIVATED, SPRAYED, PRUNED AND FERTILIZED IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICE. ALL PLANTS SHALL HAVE BEEN TRANSPLANTED OR ROOT PRUNED AT LEAST ONCE IN THE PAST 3 YEARS. BALLED AND BURLAPPED PLANTS MUST COME FROM SOIL WHICH WILL HOLD A FIRM ROOT BALL. HEELED IN PLANTS AND PLANTS FROM COLD STORAGE ARE NOT ACCEPTABLE.
   D. SUBSTITUTIONS: DO NOT MAKE SUBSTITUTIONS OF TREES AND/OR SHRUB MATERIALS. IF REQUIRED LANDSCAPE MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON–AVAILABILITY AND PROPOSAL FOR USE OF EQUIVALENT MATERIAL. WHEN AUTHORIZED, ADJUSTMENTS OF CONTRACT AMOUNT (IF ANY) WILL BE MADE BY CHANGE ORDER.
7. SEEDING & PLANTING SEASONS AND TIMING CONDITIONS:
   A. UNLESS OTHERWISE DIRECTED IN WRITING, SEED LAWNS FROM MARCH 15 TO JUNE 15, AND FROM AUGUST 15 TO OCTOBER 15.
   B. UNLESS OTHERWISE DIRECTED IN WRITING, PLANT TREES AND SHRUBS FROM MARCH 15 TO JUNE 1, AND FROM AUGUST 15 TO OCTOBER 30.
   C. AREAS UNDERGOING CLEARING OR GRADING AND ANY AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WHERE LAWNS OR PLANTINGS ARE TO BE ESTABLISHED AND WORK IS COMPLETE, SHALL BE RESTORED WITH PERMANENT VEGETATIVE COVER AS SOON AS SITE AREAS ARE AVAILABLE AND WITHIN 14 DAYS AFTER WORK IS COMPLETE; WORK SHALL BE WITHIN THE SEASONAL LIMITATIONS FOR EACH KIND OF LANDSCAPE WORK REQUIRED. PROVIDE STABILIZATION WITH TEMPORARY VEGETATIVE COVER (TOPSOIL AND TEMPORARY COVER SEED MIX) WITHIN 14 DAYS AFTER WORK IS COMPLETE, FOR SEEDING OUTSIDE PERMITTED SEEDING PERIODS.

SITE PREPARATION:

GENERAL:

1. EXISTING EXCESS TOPSOIL SHALL BE REMOVED AND STORED IN TOPSOIL STOCKPILES SUFFICIENTLY REMOVED FROM OTHER EXCAVATION OR DISTURBANCE TO AVOID MIXING. SEDIMENT BARRIER SHALL BE INSTALLED AROUND TOPSOIL STOCKPILE AREAS.

TOPSOIL:

1. NEWLY GRADED SUBGRADES: LOOSEN SUBGRADE TO A MINIMUM DEPTH OF 6 INCHES (SCARIFY AT APPROXIMATELY RIGHT ANGLES TO THE SLOPE DIRECTION IN SOIL AREAS THAT ARE STEEPER THAN 5%). REMOVE STONES LARGER THAN 1 INCH IN ANY DIMENSION AND STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATTER AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.
   1.1. SPREAD APPROXIMATELY 1/2 THE THICKNESS OF PLANTING SOIL OVER LOOSENED SUBGRADE. MIX THOROUGHLY INTO TOP 4 INCHES OF SUBGRADE. SPREAD REMAINDER OF PLANTING SOIL.
2. UNCHANGED SUBGRADES: IF TURF IS TO BE PLANTED IN AREAS UNALTERED OR UNDISTURBED BY EXCAVATING, GRADING, OR SURFACE–SOIL STRIPPING OPERATIONS. PREPARE SURFACE SOILS AS FOLLOWS:
   2.1. REMOVE EXISTING GRASS, VEGETATION , AND TURF. DO NOT MIX INTO SURFACE SOIL.
   2.2. LOOSEN SURFACE SOIL TO A DEPTH OF AT LEAST 6 INCHES (SCARIFY AT APPROXIMATELY RIGHT ANGLES TO THE SLOPE DIRECTION IN SOIL AREAS THAT ARE STEEPER THAN 5%).
   2.3. APPLY SOIL AMENDMENTS AND FERTILIZERS ACCORDING TO PLANTING SOIL MIX PROPORTIONS AND MIX THOROUGHLY INTO TOP 4 INCHES OF SOI. TILL SOIL TO A HOMOGENEOUS MIXTURE OF FINE TEXTURE.
   2.3.1. APPLY FERTILIZER DIRECTLY TO SURFACE SOIL BEFORE LOOSENING.
   2.4. REMOVE STONES LARGER THAN 1 INCH IN ANY DIMENSION AND STICKS, ROOTS, TRASH, AND OTHER EXTRANEOUS MATTER.
   2.5. LEGALLY DISPOSE OF WASTE MATERIAL, INCLUDING GRASS, VEGETATION, AND TURF, OFF OWNER'S PRPOERTY.
3. FINISH GRADING: GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANT WITH LOOSE, UNIFORMLY FINE TEXTURE. GRADE TO WITHIN PLUS OR MINUS 1/2 INCH OF FINISH ELEVATION. ROLL AND RAKE. REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES. LIMIT FINISH GRADING TO AREAS THAT CAN BE PLANTED IN THE IMMEDATE FUTURE.
4. MOISTEN PREPARED AREA BEFORE PLANTING IF SOIL IS DRY. WATER THOROUGHLY TO A DEPTH OF 4 INCHES 48 HOURS BEFORE SODDING AND ALLOW SURFACE TO DRY BEFORE PLANTING. DO NOT CREATE MUDDY SOIL.
5. BEFORE PLANTING, OBTAIN OWNER'S REPRESENTATIVE'S ACCEPTANCE OF FINISH GRADING; RESTORE PLANTING AREAS IF ERODED OR OTHERWISE DISTURBED AFTER FINISH GRADING.

SEEDING:

1. LIME TO ACHIEVE pH OF 6.5.
2. FERTILIZER: SEE "EXECUTION OF LANDSCAPE WORK" NOTE #4.
3. INCORPORATE LIME AND FERTILIZER IN THE TOP 4" OF TOPSOIL.
4. SMOOTH AND FIRM THE SEEDBED.

LANDSCAPE MATERIALS:

TOPSOIL:

1. NEW TOPSOIL SHALL BE BETTER THAN OR EQUAL TO THE QUALITY OF THE EXISTING ADJACENT TOPSOIL. IT SHALL MEET THE FOLLOWING CRITERIA:
   A. ORIGINAL LOAM TOPSOIL, WELL DRAINED HOMOGENOUS TEXTURE AND OF UNIFORM GRADE, WITHOUT THE ADMIXTURE OF SUBSOIL MATERIAL AND FREE OF DENSE MATERIAL, HARDPAN, CLAY, STONES, SOD OR OTHER OBJECTIONABLE MATERIAL.
   B. CONTAINING NOT LESS THAN 5% NOR MORE THAN 20% ORGANIC MATTER IN THAT PORTION OF A SAMPLING PASSING A 1/4" SIEVE WHEN DETERMINED BY THE WET COMBUSTION METHOD ON A SAMPLE DRIED AT 105°C.
   C. CONTAINING A pH VALUE WITHIN pH RANGE OF 6.5 TO 7.5 ON THAT PORTION OF THE SAMPLE WHICH PASSES A 1/4" SIEVE.
   D. CONTAINING THE FOLLOWING WASHED GRADATIONS:

SIEVE DESIGNATION	% PASSING
1"	100
1/4"	97–100
No. 200	20–60

MEADOW MIX SEED:

A. STANDARD OF QUALITY FOR MEADOW MIX SHALL BE ERNST SOLAR FARM SEED MIX – ERNMX–186 AS MANUFACTURED BY ERNST CONSERVATION SEEDS (OR APPROVED EQUIVALENT).
   ERNST CONSERVATION SEEDS
   8884 MERCER PIKE
   MEADVILLE, PA 16335
   800.873.3321
   WWW.ERNSTSEED.COM

	TABLE 5.3 SOIL RESTORATION REQUIREMENTS		
TYPE OF SOIL DISTURBANCE	**SOIL RESTORATION REQUIREMENT**		**COMMENTS/EXAMPLES**
NO SOIL DISTURBANCE	RESTORATION NOT PERMITTED		PRESERVATION OF NATURAL FEATURES
MINIMAL SOIL DISTURBANCE	RESTORATION NOT REQUIRED		CLEARING AND GRUBBING
AREAS WHERE TOPSOIL IS STRIPPED ONLY (NO CHANGE IN GRADE)	**HSG A&B*** **	**HSG C&D*** **	PROTECT AREA FROM ONGOING CONSTRUCTION ACTIVITIES
	APPLY 6" OF TOPSOIL	AERATE* AND APPLY 6" OF TOPSOIL	
AREAS OF CUT OR FILL	**HSG A&B*** **	**HSG C&D*** **	
	AERATE* AND APPLY 6" OF TOPSOIL	APPLY FULL SOIL RESTORATION**	
HEAVY TRAFFIC AREAS ON SITE (ESPECIALLY WITHIN 5–25 FEET AROUND BUILDINGS BUT NOT WITHIN 5 FEET OF PERIMETER FOUNDATION WALLS)	APPLY FULL SOIL RESTORATION** (DE–COMPACTION AND COMPOST ENHANCEMENT)		
AREAS WHERE RUNOFF REDUCTION AND/OR INFILTRATION PRACTICES ARE APPLIED	RESTORATION NOT REQUIRED, BUT MAY BE APPLIED TO ENHANCE THE REDUCTION SPECIFIED FOR APPROPRIATE PRACTICES		KEEP CONSTRUCTION EQUIPMENT FROM CROSSING THESE AREAS. TO PROTECT NEWLY INSTALLED PRACTICE FROM ONGOING CONSTRUCTION, CONSTRUCT A SINGLE PHASE OPERATION FENCE AREA.
REDEVELOPMENT PROJECTS	SOIL RESTORATION IS REQUIRED ON REDEVELOPMENT PROJECTS IN AREAS WHERE EXISTING IMPERVIOUS AREA WILL BE CONVERTED TO PERVIOUS AREA		

* AERATION INCLUDES THE USE OF MACHINES SUCH AS TRACTOR–DRAWN IMPLEMENTS WITH COULTERS MAKING A NARROW SILT IN THE SOIL, A ROLLER WITH MANY SKIPES MAKING INDENTATIONS IN THE SOIL, OR PRONGS WHICH FUNCTION LIKE A MINI–SUBSOILER
** PER "DEEP RIPPING AND DE–COMPACTION, DEC 2008"
*** HYDROLOGIC SOIL GROUP (HSG) ACCORDING TO THE NATIONAL RESOURCE CONSERVATION SERVICE.

EXECUTION OF LANDSCAPE WORK:

1. LANDSCAPE WORK SHALL BE UNDERTAKEN AS SOON AS AREAS OF THE SITE BECOME AVAILABLE.
2. TOPSOIL PLACED AND GRADED ON SLOPES STEEPER THAN 5% SHALL BE PROMPTLY FERTILIZED, SEEDED, MULCHED AND STABILIZED BY "TRACKING" WITH SUITABLE EQUIPMENT.
3. PERFORM FINE GRADING TO FINISHED ELEVATION ONLY IMMEDIATELY PRIOR TO PLANTING. PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN SURFACE, FREE OF DEPRESSIONS OR RIDGES WITH A UNIFORM LOOSE, FINE TEXTURE.
4. SOIL TESTING/AMENDING:
   A. THE SOIL SHALL BE TESTED BY A QUALIFIED TESTING LABORATORY AND AMENDED (PER LABORATORY RECOMMENDATIONS) TO MEET TOPSOIL SPECIFICATIONS HEREIN. LABORATORY RECOMMENDATIONS SHALL BE SUBMITTED TO AND APPROVED BY LANDSCAPE ARCHITECT BEFORE AMENDMENTS ARE MADE.
   B. APPLY FERTILIZER OF TYPE AND AT RATE RECOMMENDED BY TESTING LABORATORY FOR LAWN AREAS.
6. MEADOW MIX (SEED):
   A. STANDARD OF QUALITY FOR MEADOW MIX SHALL BE ERNST SOLAR FARM SEED MIX – ERNMX–186 AS MANUFACTURED BY ERNST CONSERVATION SEEDS (OR APPROVED EQUIVALENT).
      ERNST CONSERVATION SEEDS
      8884 MERCER PIKE
      MEADVILLE, PA 16335
      800.873.3321
      WWW.ERNSTSEED.COM
   B. SEED AT THE RATE OF 6 LBS PER 1,000 SF.
   C. APPLY SEED UNIFORMLY BY CYCLONE SEEDER CULTI–PACKER OR HYDRO–SEEDER AT RATE INDICATED.
   D. ALL SEEDED AREAS SHALL BE PROTECTED FROM EROSION BY ONE OF THE FOLLOWING METHODS:
      i. A UNIFORM BLANKET OF STRAW APPLIED AT A RATE OF 2 TONS/ACRE MIN., TO BE APPLIED ONCE SEEDING IS COMPLETE.
      ii. WOOD FIBER CELLULOSE APPLIED WITH SEED MIX BY HYDROSEEDER AT RATE OF 2,000 LBS/ACRE.
   D. ALL SEEDED SLOPES 3:1 OR GREATER SHALL BE PROTECTED FROM EROSION WITH JUTE MESH OR APPROVED EQUAL.
   E. IRRIGATE TO FULLY SATURATE SOIL LAYER, BUT NOT TO DISCLOSE PLANTING SOIL.
8. ALL NEWLY PLANTED AREAS SHALL BE KEPT MOIST BY WATERING UNTIL GRASSES AND GROUND COVERS ARE WELL ESTABLISHED. THE LANDSCAPE CONTRACTOR MUST WATER PLANT MATERIAL WHEN NECESSARY FOR 60 DAYS AFTER INSTALLATION.
9. MEADOW MIX AREAS ARE TO BE WARRANTED UNTIL THEY BECOME ESTABLISHED, UNTIL FINAL ACCEPTANCE, AND NOT LESS THAN 60 DAYS AFTER COMPLETION OF ALL WORK. TREES, SHRUBS, GROUND COVERS, AND PERENNIALS SHALL BE WARRANTED AGAINST DEFECTS INCLUDING POOR GROWTH AND DEATH, EXCEPT WHEN RESULTING FROM OWNER NEGLECT, INCIDENTS THAT ARE BEYOND THE CONTROL OF THE LANDSCAPE INSTALLER AND DAMAGE OR ABUSE BY OTHERS, FOR AT LEAST ONE FULL YEAR AFTER PROJECT COMPLETION.

GPI Engineering Design Planning Construction Management
518.453.9431 GPINT.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREENMAN PEDERSEN No. 131 PROFESSIONAL ENGINEER

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS

NO.	REVISION	DATE
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	JEM/RJT

LANDSCAPING DETAILS

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

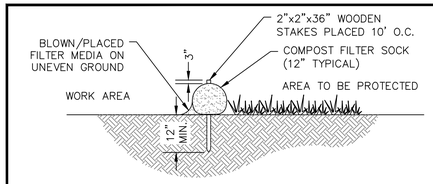
C-505

SHEET 8 OF 10

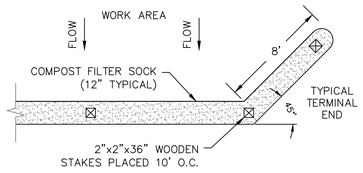
Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2020116.00 C–505 LANDSCAPING DETAILS.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)



SECTION



PLAN

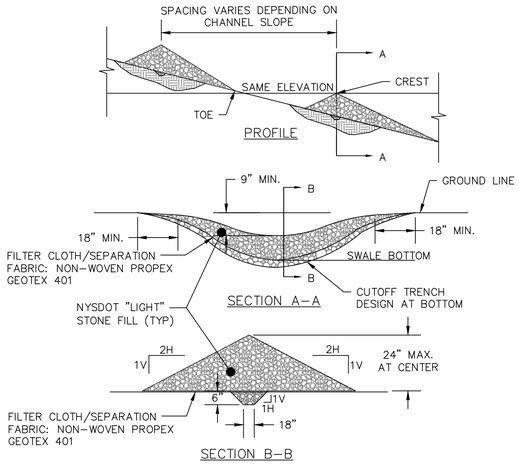
NOTES:

1. COMPOST FILTER SOCKS SHALL BE FILTREXX SILTSOXX OR EQUIVALENT.
2. THE COMPOST FILTER SOCK SHALL MEET THE REQUIREMENTS IN THE NEW YORK STANDARD SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (MOST RECENT EDITION).
3. THE COMPOST INFILL SHALL MEET THE PHYSICAL PARAMETERS IN TABLE 5.3–COMPOST STANDARDS TABLE.
4. SOCKS MAY BE FILLED AFTER PLACEMENT BY BLOWING COMPOST INTO THE TUBE PNEUMATICALLY, OR FILLED AT A STAGING LOCATION AND MOVED INTO THE DESIGNED LOCATION.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ACCUMULATED SEDIMENT REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT.
6. COMPOST FILTER SOCKS SHALL BE USED WHERE EROSION COULD OCCUR IN THE FORM OF SHEET EROSION.
7. UPON STABILIZATION OF THE CONTRIBUTING AREA, THE STAKES SHALL BE REMOVED. THE SOCKS SHALL BE REMOVED BY CUTTING THE MESH AND THE COMPOST SPREAD AS AN ADDITIONAL MULCH TO ACT AS A SOIL SUPPLEMENT.
8. MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUN–OFF TO A 12" COMPOST FILTER SOCK ARE:

% SLOPE	MAXIMUM SLOPE LENGTH(FT)
2	250
5	225
10	125
20	65
25	50
33	40
50	25

1 C-510 COMPOST FILTER SOCK INSTALLATION

SCALE: NOT TO SCALE

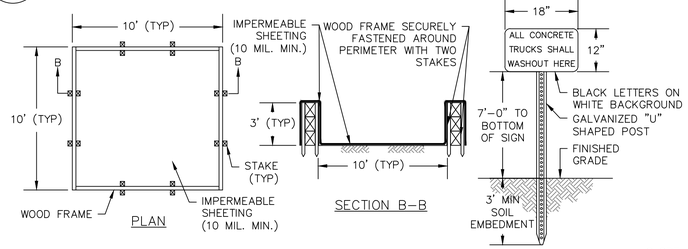


CONSTRUCTION SPECIFICATIONS:

1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, DATED NOVEMBER 2016.
2. STONE SHALL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN ON THE PLAN.
3. SET SPACING OF CHECK DAMS SUCH THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM ARE AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
4. EXTEND THE STONE A MINIMUM OF 18" BEYOND THE SWALE BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAM ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

2 C-510 STONE CHECK DAM DETAIL

SCALE: NOT TO SCALE

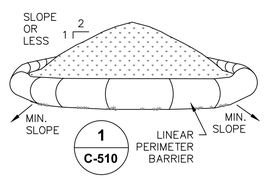


WASHOUT SPECIFICATIONS:

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET–VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

3 C-510 TEMPORARY CONCRETE WASHOUT STRUCTURE WITH WOODEN PLANKS

SCALE: NOT TO SCALE



NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1V:2H.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH A LINEAR PERIMETER BARRIER, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS FOR INSTALLATION OF LINEAR BARRIER.

4 C-510 TEMPORARY SOIL STOCKPILE

SCALE: NOT TO SCALE

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IN STRICT COMPLIANCE WITH "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", NOVEMBER 2016.
2. EXCESS SOIL TO BE STOCKPILED WITHIN THE LIMITS OF SITE DISTURBANCE IF NOT USED IMMEDIATELY FOR GRADING PURPOSES. INSTALL SEDIMENT BARRIER AROUND SOIL STOCKPILES.
3. APPLY SURFACE STABILIZATION AND RESTORATION MEASURES. AREAS UNDERGOING CLEARING OR GRADING AND ANY AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WHERE WORK IS DELAYED, SUSPENDED, OR INCOMPLETE AND WILL NOT BE REDISTURBED FOR 21 DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY VEGETATIVE COVER WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS CEASED. AREAS UNDERGOING CLEARING OR GRADING AND ANY AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WHERE WORK IS COMPLETE AND WILL NOT BE REDISTURBED SHALL BE STABILIZED AND RESTORED WITH PERMANENT VEGETATIVE COVER AS SOON AS SITE AREAS ARE AVAILABLE AND WITHIN 14 DAYS AFTER WORK IS COMPLETE. (SEE SPECIFICATIONS FOR PERMANENT VEGETATIVE COVER). SEEDING FOR PERMANENT VEGETATIVE COVER SHALL BE WITHIN THE SEASONAL LIMITATIONS. PROVIDE STABILIZATION WITH TEMPORARY VEGETATIVE COVER WITHIN 14 DAYS AFTER WORK IS COMPLETE, FOR SEEDING OUTSIDE PERMITTED SEEDING PERIODS.
4. SEEDED AREAS TO BE MULCHED WITH STRAW OR HAY MULCH IN ACCORDANCE WITH VEGETATIVE COVER SPECIFICATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST BY SPRINKLING EXPOSED SOIL AREAS PERIODICALLY WITH WATER AS REQUIRED. THE CONTRACTOR IS TO SUPPLY ALL EQUIPMENT AND WATER.
7. WHEN ALL DISTURBED AREAS ARE STABLE, ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED.
8. FOR ADDITIONAL WINTER STABILIZATION REQUIREMENTS SEE "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", NOVEMBER 2016.

EROSION & SEDIMENT INSPECTION & MAINTENANCE SCHEDULE

STRUCTURE	DAILY	WEEKLY	AFTER RAINFALL	NECESSARY TO MAINTAIN FUNCTION	AFTER COMPLETION OF CONSTRUCTION
SILT FENCE BARRIER	--	INSPECT	INSPECT	CLEAN/ REPLACE	REMOVE
DUST CONTROL	INSPECT	--	INSPECT	MULCHING/ SPRAYING WATER	N/A
VEGETATIVE ESTABLISHMENT	--	INSPECT	INSPECT	WATERING/ RE–SEEDING/ RE–MULCHING	PERMANENT
STONE CHECK DAM	--	INSPECT	INSPECT	CLEAN/ REPAIR/ REPLACE	REMOVE
STABILIZED CONSTRUCTION ENTRANCE	--	INSPECT	INSPECT	CLEAN/ REPLACE STONE & FABRIC	REMOVE
CONCRETE TRUCK WASHOUT	INSPECT	--	INSPECT	DEWATER/ REPLACE	REMOVE

SPDES GENERAL PERMIT GP-0-20-001 COMPLIANCE NOTES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE FOLLOWING:

1. THE CONTRACTOR AND HIS/HER SUBCONTRACTORS SHALL READ AND UNDERSTAND THE CONDITIONS OF THE "NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) STATE POLLUTANT DISCHARGE ELIMINATION (SPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES", GP–0–20–001 FOR THIS PROJECT.
2. THE CONTRACTOR AND HIS/HER SUBCONTRACTORS SHALL SIGN A COPY OF THE GENERAL PERMIT, GP–0–20–001, CERTIFICATION STATEMENT AS IDENTIFIED IN THE APPENDICES OF THE STORM WATER POLLUTION PREVENTION PLAN.
3. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS NECESSARY FOR THE WORK OUTLINED HEREIN.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF ALL STORM WATER POLLUTION PREVENTION MEASURES OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN AND SITE PLANS.
5. THE CONTRACTOR SHALL HOLD A PRECONSTRUCTION CONFERENCE WITH THE OWNER'S REPRESENTATIVES AT LEAST ONE WEEK PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. THE CONTRACTOR/OWNER SHALL HAVE A QUALIFIED INSPECTOR, AS DEFINED WITHIN THE NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY PERMIT NO. GP–0–20–001, CONDUCT AN INITIAL SITE ASSESSMENT PRIOR TO CONSTRUCTION, FOLLOWING THE COMMENCEMENT OF CONSTRUCTION, THE QUALIFIED INSPECTOR SHALL CONDUCT AT LEAST ONE (1) SITE INSPECTION EVERY SEVEN (7) CALENDAR DAYS. REFER TO SWPPP FOR INSPECTION GUIDELINES.
7. PRIOR TO COMMENCEMENT OF CONSTRUCTION, A QUALIFIED INSPECTOR IN EROSION AND SEDIMENT CONTROL (HIRED BY CONTRACTOR/OWNER) SHALL CONDUCT AN ASSESSMENT OF THE SITE AND CERTIFY THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROL STRUCTURES AS DEPICTED ON THE PLANS HAVE BEEN ADEQUATELY INSTALLED AND IMPLEMENTED. CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER ONCE THE EROSION AND SEDIMENT CONTROL STRUCTURES HAVE BEEN INSTALLED. REFER TO STORMWATER POLLUTION PREVENTION PLAN FOR INSPECTION GUIDELINES.
8. THE OWNER/OPERATOR SHALL MAINTAIN A RECORD OF ALL EROSION AND SEDIMENT CONTROL INSPECTION REPORTS AT THE SITE IN A LOG BOOK. THE SITE LOG BOOK SHALL BE MAINTAINED ON–SITE AND BE MADE AVAILABLE TO THE PERMITTING AUTHORITY. THE OWNER/CONTRACTOR SHALL POST AT THE SITE, IN A PUBLICLY–ACCESSIBLE LOCATION, A SUMMARY OF THE SITE INSPECTION ACTIVITIES ON A MONTHLY BASIS.
9. THE OWNER/OPERATOR SHALL FILE A NOTICE OF INTENT (NOI) WITH THE NYSDEC AND MS4 ACCEPTANCE FORM WITH THE TOWN OF EAST GREENBUSH, NY PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES AND A NOTICE OF TERMINATION (NOT) WITH NYSDEC FOLLOWING CONSTRUCTION ACTIVITIES.

EROSION AND SEDIMENT CONTROL MEASURES:

GENERAL MEASURES:

1. DAMAGE TO SURFACE WATERS RESULTING FROM EROSION AND SEDIMENTATION SHALL BE MINIMIZED BY STABILIZING DISTURBED AREAS AND BY REMOVING SEDIMENT FROM CONSTRUCTION SITE DISCHARGES.
2. AS MUCH AS IS PRACTICAL, EXISTING VEGETATION SHALL BE PRESERVED. FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES IN ANY PORTION OF THE SITE, PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SOILS.
3. SITE PREPARATION ACTIVITIES SHALL BE PLANNED TO MINIMIZE THE SCOPE AND DURATION OF SOIL DISRUPTION.
4. PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL POINTS OF ENTRY ONTO THE PROJECT SITE.

PARTICULAR MEASURES:

1. STABILIZED CONSTRUCTION ENTRANCE, UTILIZED DURING CONSTRUCTION, SHALL BE MAINTAINED IN A CONDITION THAT SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. PERIODIC INSPECTIONS AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
2. SOIL STOCKPILES: SEDIMENT BARRIERS SHALL BE CONSTRUCTED AROUND ALL STOCKPILES OF FILL, TOPSOIL, AND EXCAVATED OVERBURDEN THAT ARE TO REMAIN EXPOSED FOR PERIODS LESS THAN 21 DAYS. SEDIMENT BARRIERS SHALL BE ANCHORED AND MAINTAINED IN GOOD CONDITION UNTIL SUCH TIME AS SAID STOCKPILES ARE REMOVED AND STOCKPILING AREAS ARE BROUGHT TO FINAL GRADE AND PERMANENTLY STABILIZED. TOPSOIL AND FILL THAT IS TO REMAIN STOCKPILED ON–SITE FOR PERIODS GREATER THAN 21 DAYS SHALL BE STABILIZED BY SEEDING. PRIOR TO THE SEEDING OPERATION, THE STOCKPILED MATERIAL SHALL BE GRADED AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IN NO CASE SHALL ERODIBLE MATERIALS BE STOCKPILED WITHIN 25 FEET OF ANY DITCH, STREAM, OR OTHER SURFACE WATER BODY.
3. STONE CHECK DAMS: UNTIL SUCH TIME AS FINAL SITE STABILIZATION IS COMPLETED, DITCHES SHALL RECEIVE TREATMENT WITH STONE CHECK DAMS TO EFFECTIVELY TRAP SEDIMENT AND MINIMIZE ITS RELEASE OFF–SITE. STONE CHECK DAMS SHALL BE CONSTRUCTED WITHIN EACH DITCH BEGINNING AT ITS DOWNSTREAM TERMINUS AND SHOULD BE PLACED AT INTERVALS INDICATED ON THE DRAWINGS.
4. CONCRETE TRUCK WASHOUT: WASHOUT FACILITIES SHALL BE PROVIDED FOR EVERY PROJECT WHERE CONCRETE WILL BE POURED OR FORMED ON SITE. THIS FACILITY WILL RECEIVE HIGHLY ALKALINE WASH WATER FROM THE CLEANING OF CHUTES, MIXERS, HOPPERS, VIBRATORS, PLACING EQUIPMENT, TROWELS AND SCREEDS. THE FACILITY MUST BE LOCATED A MINIMUM OF 100 FEET FROM DRAINAGE SWALES, STORM DRAIN INLETS, WETLANDS, STREAMS, AND OTHER SURFACE WATERS. ALL WASHOUT FACILITIES WILL BE LINED TO PREVENT LEACHING OF LIQUIDS INTO THE GROUND. THE LINER SHALL BE PLASTIC SHEETING WITH A MINIMUM THICKNESS OF 10 MILS WITH NO HOLES OR TEARS AND ANCHORED BEYOND THE TOP OF THE PIT WITH AND EARTHEN BERM, SAND BAGS, STONE, OR OTHER STRUCTURAL APPURTENANCE EXCEPT AT THE ACCESS POINT.

MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES:

PERMANENT AND TEMPORARY VEGETATION:

INSPECT ALL AREAS THAT HAVE RECEIVED VEGETATION EVERY SEVEN DAYS. ALL AREAS DAMAGED BY EROSION OR WHERE SEED HAS NOT ESTABLISHED SHALL BE REPAIRED AND RESTABILIZED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE:

INSPECT THE ENTRANCE PAD EVERY SEVEN DAYS. CHECK FOR MUD, SEDIMENT BUILD–UP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING WET WEATHER. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL. WASH AND REPLACE STONE AS NEEDED. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE MUD BEING CARRIED OFF–SITE BY VEHICLES. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. REMOVE TEMPORARY CONSTRUCTION ENTRANCE AS SOON AS THEY ARE NO LONGER NEEDED TO PROVIDE ACCESS TO THE SITE.

SEDIMENT CONTROL BARRIERS:

INSPECT FOR DAMAGE EVERY SEVEN DAYS. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP–SLOPE FACE OF THE BARRIER BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 THE HEIGHT OF THE BARRIER. IF BARRIER FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF BARRIER IMMEDIATELY.

SOIL STOCKPILE:

INSPECT SEDIMENT CONTROL BARRIERS (SILT FENCE OR COMPOST FILTER SOCK) AND VEGETATION FOR DAMAGE EVERY SEVEN DAYS. MAKE ALL REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE UP–SLOPE FACE OF THE SEDIMENT CONTROL BARRIER BEFORE IT ACCUMULATES TO A HEIGHT EQUAL TO 1/3 THE HEIGHT OF THE SEDIMENT CONTROL BARRIER. IF SEDIMENT CONTROL BARRIER TEARS, BEGINS TO DECOMPOSE, OR IN ANYWAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED SECTION OF SEDIMENT CONTROL BARRIER IMMEDIATELY. REVEGETATE DISTURBED AREA TO STABILIZE SOIL STOCK PILE. REMOVE THE SEDIMENT CONTROL BARRIER WHEN THE SOIL STOCKPILE HAS BEEN REMOVED.

DUST CONTROL:

SCHEDULE CONSTRUCTION OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED AREAS AT ANY ONE TIME DURING THE COURSE OF WORK. APPLY TEMPORARY SOIL STABILIZATION PRACTICES SUCH AS MULCHING, SEEDING, AND SPRAYING (WATER). STRUCTURAL MEASURES (MULCH, SEEDING) SHALL BE INSTALLED IN DISTURBED AREAS BEFORE SIGNIFICANT BLOWING PROBLEMS DEVELOP. WATER SHALL BE SPRAYED AS NEEDED. REPEAT AS NEEDED, BUT AVOID EXCESSIVE SPRAYING, WHICH COULD CREATE RUNOFF AND EROSION PROBLEMS.

CHECK DAM:

INSPECT CHECK DAMS EVERY SEVEN DAYS. IF SIGNIFICANT EROSION HAS OCCURRED BETWEEN STRUCTURES A LINER OF STONE OR OTHER SUITABLE MATERIAL SHOULD BE INSTALLED IN THAT PORTION OF THE CHANNEL. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAM AS NEEDED TO ALLOW CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. STONE CHECK DAM FAILURES SHALL BE REPLACED/REPAIRED WITHIN 2 CALENDAR DAYS OF IDENTIFICATION. REPLACE STONES AS NEEDED TO MAINTAIN THE DESIGN CROSS SECTION OF THE STRUCTURES. REMOVE CHECK DAMS AS PER APPROVAL OF TOWN ENGINEER AND PROJECT ENGINEER.

CONCRETE TRUCK WASHOUT:

CONCRETE WASHOUT FACILITIES SHALL BE INSPECTED DAILY. DAMAGED OR LEAKING FACILITIES SHALL BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY. EXCESS RAINWATER THAT HAS ACCUMULATED OVER THE HARDENED CONCRETE SHOULD BE PUMPED TO A STABILIZED AREA, SUCH AS A GRASS FILTER STRIP. ACCUMULATED HARDENED MATERIAL SHALL BE REMOVED WHEN 75% OF THE STORAGE CAPACITY OF THE STRUCTURE IS FILLED. ANY EXCESS WASH WATER SHALL BE PUMPED INTO A CONTAINMENT VESSEL AND PROPERLY DISPOSED OF OFF SITE. DISPOSE OF THE HARDENED MATERIAL OFF SITE IN A CONSTRUCTION/DEMOLITION LANDFILL. ON SITE DISPOSAL MAY BE ALLOWED IF THIS HAS BEEN APPROVED AND ACCEPTED AS PART OF THE PROJECTS SWPPP. IN THAT CASE, THE MATERIAL SHOULD BE RECYCLED AS SPECIFIED, OR BURIED AND COVERED WITH A MINIMUM 2 FEET OF CLEAN COMPACTED EARTH FILL THAT IS PERMANENTLY STABILIZED TO PREVENT EROSION. THE PLASTIC LINER SHALL BE PLACED WITH EACH CLEANING OF THE WASHOUT FACILITY. INSPECT THE PROJECT SITE FREQUENTLY TO ENSURE THAT NO CONCRETE DISCHARGED ARE TAKING PLACE IN NON–DESIGINATED AREAS.

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR

AMHERST COMMUNITY SOLAR, LLC

412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM

595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREGORIAN PEDERSEN No. 131 PROFESSIONAL ENGINEER

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS

NO.	REVISION	DATE
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	RJT

EROSION AND SEDIMENT CONTROL DETAILS
SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

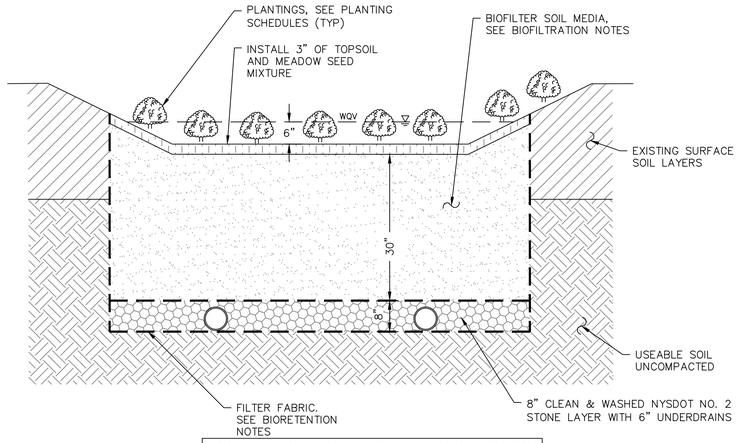
C-510

SHEET 9 OF 10

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2020116.00 C-510 EROSION AND SEDIMENT CONTROL DETAILS.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.



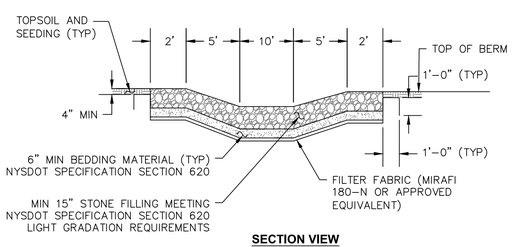
BIORETENTION SOIL MEDIA CHARACTERISTICS	
PARAMETER	VALUE
PH RANGE	5.5 TO 7.5
ORGANIC MATTER	3% TO 5%
SOIL FINES	8% TO 12%
SAND	85% TO 88%
PHOSPHORUS (P_2O_5)	10 TO 30 PPM
CATIONIC EXCHANGE CAPACITY (CEC)	>10 meq/100 g

BIORETENTION NOTES:

1. THE BIORETENTION AREAS MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE BIORETENTION AREA HAS RECEIVED FINAL STABILIZATION. PROVIDE TEMPORARY BYPASS FOR STORMWATER RUNOFF.
2. THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER, BRUSH OR SEEDS FROM NOXIOUS WEEDS. PLACEMENT OF THE SOIL MEDIA SHOULD BE IN LIFTS OF 12" TO 18", LOOSELY COMPACTED BY TAMPING LIGHTLY WITH A DOZER OR BACKHOE BUCKET. SEE TABLE BELOW FOR PLANTING SOIL CHARACTERISTICS.
3. THE NON-WOVEN FILTER FABRIC SHALL BE MIRAFI 180-N, AMOCO 4552, WEBTEC N70, GEOLON N70, CARTHAGE FX-80S OR APPROVED EQUIVALENT. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPHILL ROLL SHOULD OVERLAP A MINIMUM 2' OVER THE DOWNHILL ROLL IN ORDER TO PROVIDE A SHINGLE EFFECT.
4. THE TOPSOIL SHALL MEET THE SPECIFICATIONS ON SHEET C-505. THE TOPSOIL SHALL BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR SOIL MEDIA SHOWING THE USDA SOIL CLASSIFICATION AND GRADATION, FILTER FABRIC, TOPSOIL AND DRAINAGE STONE.
6. A PERCOLATION TEST WITNESSED BY THE ENGINEER SHALL BE COMPLETED UPON FINAL CONSTRUCTION OF THE BIORETENTION PRACTICE TO CONFIRM PERFORMANCE.
7. BIORETENTION SEED MIX:
   - A. STANDARD OF QUALITY FOR BIORETENTION MIX SHALL BE ERNST RAIN GARDEN SEED MIX – ERNMX-180 AS MANUFACTURED BY ERNST CONSERVATION SEEDS BROADCAST AT A RATE OF 20 LBS/ACRE (OR APPROVED EQUIVALENT).
     ERNST CONSERVATION SEEDS
     8884 MERCER PIKE
     MEADVILLE, PA 16335
     800.873.3321
     WWW.ERNSTSEED.COM
   - B. CONTRACTOR TO PLACE EROSION CONTROL BLANKET OVER THE SEEDED AREA. STANDARD OF QUALITY SHALL BE EAST COAST EROSION CONTROL ECS-1D.
   - C. MAINTENANCE: DURING THE FIRST SEASON OF GROWTH THE BIORETENTION AREA SHALL BE BRUSH HOGGED TWICE (ONCE MID-WAY THROUGH THE GROWING SEASON AND ONCE IN THE LATE FALL). IN SUBSEQUENT YEARS BRUSH HOGGING SHALL BE SHALL BE PERFORMED ONCE ANNUALLY IN THE LATE FALL.

1 C-515 BIORETENTION TYPICAL SECTION

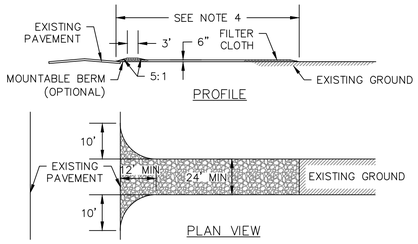
SCALE: 1"=10'



SECTION VIEW

2 C-515 BIORETENTION OVERFLOW WEIR

SCALE: NOT TO SCALE

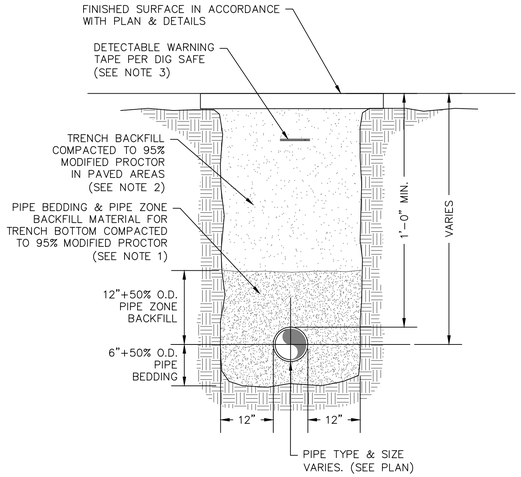


CONSTRUCTION ENTRANCE SPECIFICATIONS:

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. THICKNESS – NOT LESS THAN SIX (6) INCHES.
3. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY FOUR FEET (24) FOOT IF SINGLE ENTRANCE TO SITE.
4. LENGTH – NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH WOULD APPLY).
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

3 C-515 STABILIZED CONSTRUCTION ACCESS

SCALE: NOT TO SCALE



4 C-515 PIPE TRENCH DETAIL (TYPICAL)

SCALE: NOT TO SCALE

NOTES:

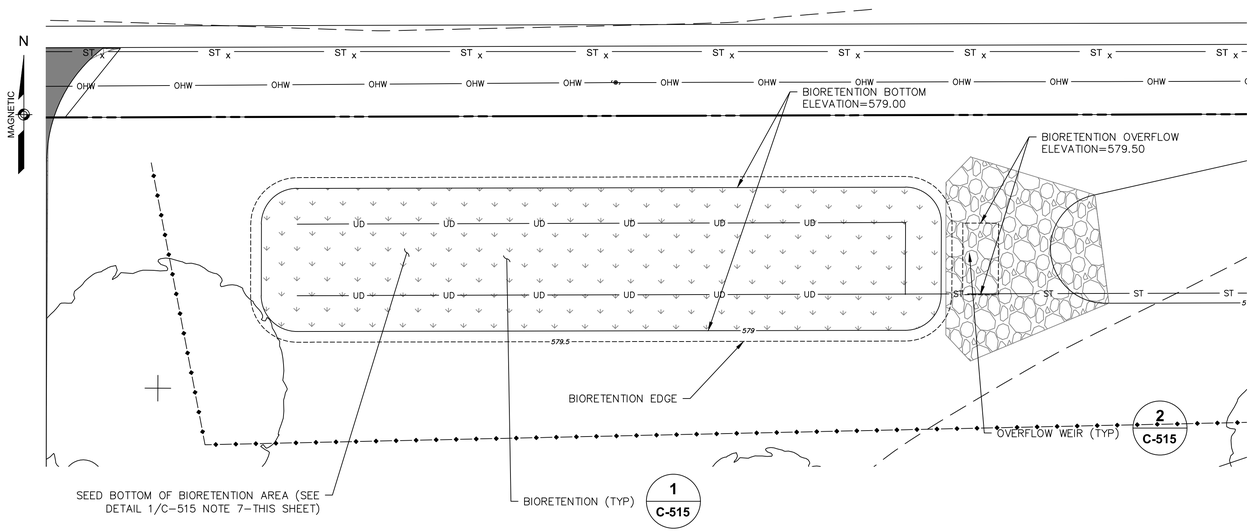
1. PIPE BEDDING & PIPE ZONE BACKFILL SHALL BE A NATURAL RUN-OF-BANK (R.O.B.) SAND OR A MIXTURE OF CRUSHED STONE AND GRAVEL, FREE OF SOFT, NONDURABLE PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES, AND SHALL BE WELL GRADED FROM FINE TO COARSE PARTICLES. BEDDING GRADATIONS SHALL BE APPROVED BY THE ENGINEER AND SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
3/4"	100%
NO. 40	0-70%
NO. 200	0-10%

2. TRENCH BACKFILL SHALL BE A NATURAL RUN-OF-BANK (R.O.B.) OR PROCESSED GRAVEL, OR EXCAVATED MATERIAL FREE OF SOFT, NONDURABLE PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES, AND SHALL BE WELL GRADED FROM FINE TO COARSE PARTICLES. TRENCH BACKFILL GRADATIONS SHALL BE APPROVED BY THE ENGINEER AND SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
4"	100%
NO. 40	0-70%
NO. 200	0-10%

   IN UNPAVED AREAS TRENCH BACKFILL CAN BE MATERIALS EXCAVATED FROM THE TRENCH AS APPROVED BY THE ENGINEER.
3. INSTALL CONTINUOUS DETECTABLE MARKING TAPE DURING BACKFILLING OF TRENCH FOR UNDERGROUND PIPING. LOCATE TAPE 12" BELOW FINISHED GRADE, DIRECTLY OVER PIPING, EXCEPT 6" BELOW SUBGRADE UNDER PAVEMENTS & SLAB.
4. TRENCHING SHALL BE IMPLEMENTED IN ACCORDANCE WITH O.S.H.A. STANDARDS.



5 C-515 BIORETENTION LAYOUT AND LANDSCAPING

SCALE: 1"=10'

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

STATE OF NEW YORK GREGORY PEDERSEN No. 091 LICENSED PROFESSIONAL ENGINEER

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS		
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020
NO.	REVISION	DATE

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
ABJ/RJT	RJT

EROSION AND SEDIMENT CONTROL DETAILS
SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

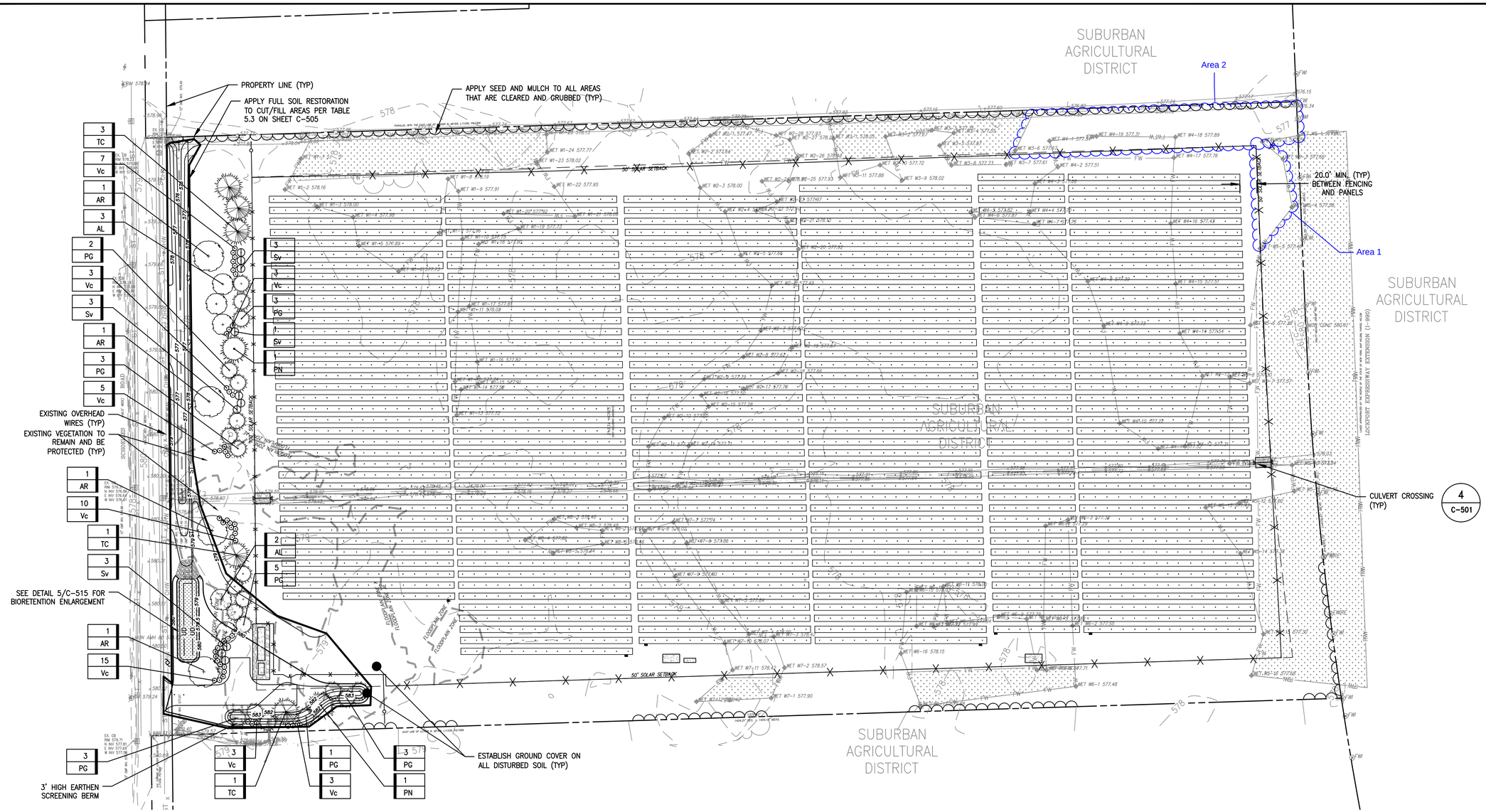
C-515

SHEET 10 OF 10

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\2020116.00 C-515 STORMWATER AND UTILITY DETAILS.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.



PLANTING SCHEDULE*							
	QTY.	ABRV.	BOTANICAL NAME	COMMON NAME	SIZE	COND.	SPACING
TREES	5	AL	AMELANCHIER LAEVIS	ALLEGHANY SERVICEBERRY	2.5"-3" CAL.	B&B	AS SHOWN
	4	AR	ACER RUBRUM	RED MAPLE	2.5"-3" CAL.	B&B	AS SHOWN
1 C-505	20	PG	PICEA GLAUCA	WHITE SPRUCE	5'-6' HT.	B&B	AS SHOWN
	2	PN	PINUS NIGRA	AUSTRIAN PINE	5'-6' HT.	B&B	AS SHOWN
	5	TC	TSUGA CANADENSIS	CANADIAN HEMLOCK	5'-6' HT.	B&B	AS SHOWN
SHRUBS	10	Sv	SYRINGA VULGARIS	COMMON LILAC	36"-48" HT.	B&B	AS SHOWN
2 C-505	49	Vc	VIBURNUM CARLESII	KOREANSPICE VIBURNUM	24"-30" HT.	B&B	AS SHOWN

* SEE SHEET C-515 FOR BIORETENTION PLANTING MIX.

LANDSCAPING LEGEND:

PROPERTY LINE
XX QUANTITY OF PLANT
AB PLANT TYPE

LANDSCAPING NOTE:

1. LANDSCAPING NOTES CAN BE FOUND ON THE LANDSCAPE DETAILS SHEET, C-505.

N MAGNETIC

0 60 100 200 300
SCALE: 1" = 60'

Dig Safely. New York Call 811 before you dig

GPI Engineering Design Planning Construction Management
518.453.9431 GPINET.COM
Greenman-Pedersen, Inc.
80 Wolf Road, Suite 300
Albany, NY 12205

PREPARED FOR
AMHERST COMMUNITY SOLAR, LLC
412 SOUTH 13TH ST.
UNIT 607
PHILADELPHIA, PA 19147

AMHERST SOLAR FARM
595 SCHOELLES ROAD
TOWN OF AMHERST, NY 14228

ISSUED FOR PERMIT REVIEW ONLY. THESE DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH THE BUILDING CODE.

REVISIONS

NO.	REVISION	DATE
5	CATALYZE LAYOUT UPDATE	07/29/2021
4	PLANNING BOARD CONDITIONS	03/09/2021
3	ZONING ENFORCEMENT	01/21/2021
2	TOWN COMMENT LETTER	01/08/2021
1	SITE PLAN SUBMISSION	11/16/2020

CONSTRUCTION PLANS
NOVEMBER 16, 2020

DRAWN/DESIGN BY	CHECKED BY
CNT	RJT

LANDSCAPING PLAN

SHEET SIZE: 24"x36"

GPI PROJECT/CONTRACT NO.:
ALB-2020116.00

C-103

SHEET 5 OF 10

Sep 09,2021
E:\2020\2020116.00 Amherst Solar Farm\CADD\20201116.00 C-103 GRADING & LANDSCAPING PLAN.dwg
36x24 PLOT SHEET

THE ALTERATION OF THIS DOCUMENT IN ANY WAY, UNLESS UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

Attachment: SP-2020-14A drawings 011322 (25066 : Sp-2020-14A)

DRAFT

(01/13/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst Planning Board

Project: SP-2020-14A

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Unlisted Action

Description of Action: Amendments to the originally approved site plan include modifications to the fence layout a the northwest corner, installation of a temporary stone access road, relocation of equipment pads from the north side to the west side of the compound within the fenced area; and elimination of proposed central culvert crossing to accommodate the change in array configuration. The project is a 15± acre solar energy development consisting of a maximum of 13,260 solar panels with a potential output of 3.5 – 4 mw of energy. Amendments include a 75 ft. paved access driveway to be located at the west end of the frontage along Schoelles Road. A 6 ft. tall fence enclosure with high impact landscape screening on all four sides of the enclosed area. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 595 Schoelles Road, Amherst, Erie County

Petitioner: Amherst Community Solar LLC

Attachment: SP-2020-14_A_draft neg dec_011322 (25066 : Sp-2020-14A)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on November 24, 2021 reviewed the Grading, Drainage and Utility Plans, the Erosion Control Plan and Engineer's Report submitted on November 15, 2021.

   The Stormwater Pollution Prevention Plan (SWPPP) submitted on November 15, 2021 was also reviewed. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on November 15, 2021 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of November 18, 2021 and the Planning Department in their review of December 6, 2021 has reviewed the application documents and determined that the subject project has or will have met all International Building Code – 2015 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. A report prepared by Panamerican Consultants, Inc. and received by the Planning Department in January 2021 concluded that the project will not have a significant impact on historical or cultural resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Suburban Agriculture (SA) zoning district; neighboring uses are agricultural uses and single family homes and zoned Suburban Agriculture (SA); therefore, the project is consistent with surrounding land uses and complies with the Town's local laws that strongly emphasize mitigation measures (e.g. landscaping, inclusion of agricultural uses) that allow renewable energy developments to be compatible with the surrounding rural character in the area.

Attachment: SP-2020-14_A_draft neg dec_011322 (25066 : Sp-2020-14A)

6. The proposed subject development will include amendments to the originally approved site plan including modifications to the fence layout, installation of a temporary stone access road, relocation of equipment pads and the elimination of the central culvert which will increase the energy output at this location.

7. The project will not create any hazard to human health. The Fire Chief's Association on December 6, 2021, has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency has or will have been met.

8. The project will change the use, and intensity of use, of land at this location, from open farmland to a field of solar arrays, however, the proposed amendments will include a co-located agricultural use and will be consistent with the scale of surrounding land uses.

9. The function of the proposed amendments to the site plan will not significantly increase the number of people using the site over its previous level of use. A maintenance plan will provide the minimum access by individuals needed to maintain the equipment and agricultural uses on the site.

10. Review by the Town Traffic/Safety Board dated November 30, 2021, and NYSDOT dated January 3, 2022 indicate that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on November 30, 2021, Assessor on December 9, 2021, Plumbing Division on November 18, 2021, and Right-of-Way Agent on November 17, 2021. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

Attachment: SP-2020-14_A_draft neg dec_011322 (25066 : Sp-2020-14A)

RR/ac
X:\Current_Planning\Files\Site Plans\2020\SP-2020-14_A_(595_Schoelles_Rd)_2021\SP-2020-14_A_draft neg dec_011322.doc
cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
Amherst Community Solar LLC, c/o Catalyze Holdings LLC, 6325 Gunpark Dr., Suite C, Boulder, CO 80301
Jason L. Burford, Greenman-Pedersen, Inc., 4950 Genesee St., Ste. 100, Buffalo, NY 14225

Attachment: SP-2020-14_A_draft neg dec_011322 (25066 : Sp-2020-14A)

Attachment: SP-2020-14_A_draft neg dec_011322 (25066 : Sp-2020-14A)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2020-14A

PETITIONER

Amherst Community Solar LLC
c/o Catalyze Holdings LLC
6325 Gunpark Dr., Suite C
Boulder, CO 80301

PROPERTY LOCATION

595 Schoelles Road

WHEREAS, the Town of Amherst Planning Board on Thursday, January 13, 2021 held a public hearing on a Site Plan for an amendment to the approved site plan including modifications to the fence layout, installation of a temporary stone access road, relocation of equipment pads and the elimination of the central culvert, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act is required since hydric / potentially hydric soils have been identified on the parcel.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

Attachment: SP-2020-14_A_draft resolution_011322 (25066 : Sp-2020-14A)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2020-14A

PETITIONER	PROPERTY LOCATION
Amherst Community Solar LLC	595 Schoelles Road

NOW THEREFORE BE IT FURTHER RESOLOVED that the Planning Board, in accordance with Part II, Chapter 83, Part IX, Section 1-1.2 of Town Law Schoelles Road is considered a rural-character arterial or collector street and sidewalks are not required, and

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance **approves** said Site Plan subject to the following conditions:

1. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

2. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

3. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

4. That the comments in the review by the Zoning Enforcement Officer dated January 4, 2022 be met.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

RR/ac
X:\Current_Planning\Files\Site Plans\2020\SP-2020-14_A_(595_Schoelles_Rd)_2021\SP-2020-14_A_draft resolution_011322.doc_
cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Amherst Community Solar LLC, c/o Catalyze Holdings LLC, 6325 Gunpark Dr., Suite C, Boulder, CO 80301
Jason L. Burford, Greenman-Pedersen, Inc., 4950 Genesee St., Ste. 100, Buffalo, NY 14225

Approved Plan: _____
Received: _____

Attachment: SP-2020-14_A_draft resolution_011322 (25066 : Sp-2020-14A)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor

Daniel C. Howard, AI
Planning Director

Daniel J. Ulatowski, AI
Assistant Planning Dire

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst
Planning Board

Project: SP-2020-14A

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date: January 13, 2022

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Unlisted Action

Description of Action: Amendments to the originally approved site plan include modifications to the fence layout a the northwest corner, installation of a temporary stone access road, relocation of equipment pads from the north side to the west side of the compound within the fenced area; and elimination of proposed central culvert crossing to accommodate the change in array configuration. The project is a 15± acre solar energy development consisting of a maximum of 13,260 solar panels with a potential output of 3.5 – 4 mw of energy. Amendments include a 75 ft. paved access driveway to be located at the west end of the frontage along Schoelles Road. A 6 ft. tall fence enclosure with high impact landscape screening on all four sides of the enclosed area. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 595 Schoelles Road, Amherst, Erie County

Petitioner: Amherst Community Solar LLC

JAN21'22 PM 1:12 RCVD

Attachment: SP-2020-14A_signed_Neg_Declaration_011322 (25066 : Sp-2020-14A)

REASONS SUPPORTING THIS DETERMINATION

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on November 24, 2021 reviewed the Grading, Drainage and Utility Plans, the Erosion Control Plan and Engineer's Report submitted on November 15, 2021.

   The Stormwater Pollution Prevention Plan (SWPPP) submitted on November 15, 2021 was also reviewed. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on January 11, 2022 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of November 18, 2021 and the Planning Department in their review of January 5, 2022 has reviewed the application documents and determined that the subject project has or will have met all International Building Code – 2015 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. A report prepared by Panamerican Consultants, Inc. and received by the Planning Department in January 2021 concluded that the project will not have a significant impact on historical or cultural resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Suburban Agriculture (SA) zoning district; neighboring uses are agricultural uses and single family homes and zoned Suburban Agriculture (SA); therefore, the project is consistent with surrounding land uses and complies with the Town's local laws that strongly emphasize mitigation measures (e.g. landscaping, inclusion of agricultural uses) that allow renewable energy developments to be compatible with the surrounding rural character in the area.

Attachment: SP-2020-14A_signed_Neg_Declaration_011322 (25066 : Sp-2020-14A)

JAN21'22 PM 1:12 RCVD

6. The proposed subject development will include amendments to the originally approved site plan including modifications to the fence layout, installation of a temporary stone access road, relocation of equipment pads and the elimination of the central culvert which will increase the energy output at this location.

7. The project will not create any hazard to human health. The Fire Chief's Association on December 6, 2021, has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency has or will have been met.

8. The project will change the use, and intensity of use, of land at this location, from open farmland to a field of solar arrays, however, the proposed amendments will include a co-located agricultural use and will be consistent with the scale of surrounding land uses.

9. The function of the proposed amendments to the site plan will not significantly increase the number of people using the site over its previous level of use. A maintenance plan will provide the minimum access by individuals needed to maintain the equipment and agricultural uses on the site.

10. Review by the Town Traffic/Safety Board dated November 30, 2021, and NYSDOT dated January 3, 2022 indicate that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on November 30, 2021, Assessor on December 9, 2021, Plumbing Division on November 18, 2021, and Right-of-Way Agent on November 17, 2021. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: Giuliani; Seconded by: Penberthy; Ayes 4; Noes 0; Absent 3 (Chmiel, Geler, Raffaele)

signature & title of preparer — 1/20/22 Date

Robert J. Gilmour, Planning Board Chair — 1-20-2022 Date

JAN21 '22 PM 1:12

Attachment: SP-2020-14A_signed_Neg_Declaration_011322 (25066 : Sp-2020-14A)

RR/ac
X:\Current_Planning\Files\Site Plans\2020\SP-2020-14_A_(595_Schoelles_Rd)_2021\SP-2020-14_A_neg dec_011322.doc.docx
cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDOT
Amherst Community Solar LLC, c/o Catalyze Holdings LLC, 6325 Gunpark Dr., Suite C, Boulder, CO 80301
Jason L. Burford, Greenman-Pedersen, Inc., 4950 Genesee St., Ste. 100, Buffalo, NY 14225
Jeffery D. Palumbo, Esq., Barclay Damon, LLP, 9276 Main Street, Suite 3, Clarence, NY 14031

Attachment: SP-2020-14A_signed_Neg_Declaration_011322 (25066 : Sp-2020-14A)

JAN21 '22 PM 1:12 RCVD

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2020-14A

PETITIONER

Amherst Community Solar LLC
c/o Catalyze Holdings LLC
6325 Gunpark Dr., Suite C
Boulder, CO 80301

PROPERTY LOCATION

595 Schoelles Road

WHEREAS, the Town of Amherst Planning Board on Thursday, January 13, 2021 held a public hearing on a Site Plan for an amendment to the approved site plan including modifications to the fence layout, installation of a temporary stone access road, relocation of equipment pads and the elimination of the central culvert, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act is required since hydric / potentially hydric soils have been identified on the parcel.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

NOW THEREFORE BE IT FURTHER RESOLOVED that, in accordance with Part II, Chapter 83, Part IX, Section 1-1.2 of Town Law Schoelles Road is considered a rural-character arterial or collector street and sidewalks are not required, and

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

Attachment: SP-2020-14A_signed_Resolution_011322 (25066 : Sp-2020-14A)

TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2020-14A

PETITIONER	PROPERTY LOCATION
Amherst Community Solar LLC	595 Schoelles Road

1. That the comments of the Zoning Enforcement Officer in his review dated January 4, 2022 be met.
2. That the Town reserves the right to require the petitioner to supplement the existing hedgerows/vegetation where gaps in the existing vegetation shown to remain as stipulated in §7-2-4A(5) and §7-2-4B(1)(a) of Town Code after a post construction site inspection.
3. That an agricultural use be determined in writing for the site as required by §6-10-1F of Town Code.

The foregoing resolution was adopted by the Town of Amherst Planning Board, January 13, 2022; moved by – Giuliani; seconded by – Gill; ayes 4, noes 0; absent – 3 (Chmiel, Gelber, Raffaele).

Robert J. Gilmour, Chair — Date: 1-20-2022

RR/ac
X:\Current_Planning\Files\Site Plans\2020\SP-2020-14_A_(595_Schoelles_Rd)_2021\SP-2020-14_A_resolution_011322.doc_

cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
NYSDOT
NYSDEC
Amherst Community Solar LLC, c/o Catalyze Holdings LLC, 6325 Gunpark Dr., Suite C, Boulder, CO 80301
Jason L. Burford, Greenman-Pedersen, Inc., 4950 Genesee St., Ste. 100, Buffalo, NY 14225
Jeffery D. Palumbo, Esq., Barclay Damon, LLP, 9276 Main Street, Suite 3, Clarence, NY 14031

Approved Plan: Greenman Pedersen, Inc.
Received: January 13, 2022

JAN21'22 PM 1:19 RCVD

Attachment: SP-2020-14A_signed_Resolution_011322 (25066 : Sp-2020-14A)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25067

TABLED

PLANNING BOARD ITEM (ID # 25067)

Proposed Office Building and Roadway, SP-2021-23

Property located at 2190 & 2220 Wehrle Drive
Acquest Wehrle LLC, Petitioner

Proposed in the northwest portion of the subject area a secured compound containing an 84,375 sq. ft. three-story office building, a 24,750 single story garage / maintenance / storage building, a 72,072 sq. ft. two-story parking garage and a one-story security booth are proposed along with 228 parking spaces (including those in the parking ramp) and having site access via a proposed 1,750± lineal foot roadway. Secondary emergency access to the site is proposed via a gated vehicular access to the Limestone Office Park building located at 17-20 Limestone Drive off of Main Street. The proposed public cul-de-sac roadway, public utilities and stormwater facilities are located on the eastern portion of the site and are intended to serve full build out of the entire development of the 2190 & 2200 Wehrle Drive parcels. Plans additionally show a possible future building which is not part of the current request in the southwest portion of the subject parcel.

Jason Utzig, C & S Engineers, represented the petitioner, explained the proposal and was available to answer questions from the Board. Michael Huntress, Acquest Wehrle LLC, was also present.

In response to the Board's questions, Mr. Utzig stated the clouds drawn on the plans indicate revisions that have been made, he doesn't have the distance of the green space and eastern boundary of the site with him, the roadway was developed in accordance with Town Code, the Fire Chiefs' comments have been addressed and submitted, and the roadway was designed to be public. Mr. Huntress stated the project is speculative and they would like a shovel ready site, the national development level shows a need for vehicle storage for potential users, and he is open to conditions on an approval of presenting uses to the Planning Department, Fire Chiefs' and ATSB comments.

Bruce Wisbaum spoke regarding concerns of the proposal. Mr. Huntress stated he will discuss with Mr. Wisbaum.

No further comments were heard on this proposal.

Following discussion, Mr. Giuliani moved to adjourn the proposal. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ATTACHMENTS:

- SP-2021-23 application 011322 (PDF)
- SP-2021-23 drawings 011322 (PDF)
- SP-2021-23_draft neg dec_011322 (PDF)
- SP-2021-23_draft resolution_011322 (PDF)
- SP-2021-23_adjournment_011322 (PDF)

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Dal Giuliani, Board Member	
SECONDER:	Harbinder Gill, Board Member	
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy	
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.	

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	_____
Each additional acre or fraction thereof	$ 650.00/acre	_____
Amendments to Site Plans	$1,200.00	_____
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	_____
Request for Extension of Site Plan Approval	$ 450.00	_____
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	_____
5 - 10 Acres	$ 750.00	_____
>10 Acres	$1,000.00	_____
Affidavit Fee for Public Hearing	$ 15.00	_____
	TOTAL FEE:	**$**_____

To Be Completed By Applicant

Petitioner:

Name: Acquest Wehrle LLC (contact: Omar M. Abu-Sitta)

Address: 5554 Main Street

Williamsville (city) NY (state) 14221 (zip code)

Phone: (716) 204-3570 Fax: _____

E Mail: omar@acquestdevelopment.com

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: C&S Engineers, Inc. (contact: Jason Utzig, P.E.)

Address: 141 Elm Street, Suite 100

Buffalo (city) NY (state) 14203 (zip code)

Phone: (716) 955-3013 Fax:

E Mail: jutzig@cscos.com

Project Location (must be verified by Town Assessor's Office)**:**

Address: 2190 & 2220 Wehrle Drive

SBL No(s): 81.02-1-11 and 81.02-1-10

Project Name: Proposed Office & Proposed Road

Project Description: Development will consist of the construction of a 84,375 sq.ft., three-story office building, a 24,750 sq.ft., single-story garage/maintenance building, a 72,072 sq.ft., two-story parking garage, along with associated parking, sidewalks, landscaping and associated utility infrastructure. Utility infrastructure to include stormwater management, sanitary, water, cable, electric and gas utilities to service the site. In addition to the site development, a new public road built to the Town of Amherst standards for a local road, along with public utilities to service the road.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	0	181,197 sq.ft.	181,197 sq.ft.
Gross Floor Area Residential:	N/A	N/A	N/A
Number of Residential Units:	N/A	N/A	N/A
Number of Parking Spaces:	0	228	228

Acreage of Parcel: 5.77 acres (2190 Wehrle Drive)

(list each parcel separately) 18.83 acres (2220 Wehrle Drive)

Frontage on Public Roads: 150 feet (2190 Wehrle Drive)

(list each road separately) 498 feet (2220 Wehrle Drive)

Existing Zoning District(s) OB (Office Building District)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Site Plan Submittal Requirements and Checklist

The following checklist outlines the information required by the Planning Department to accept a Site Plan application for review. ***It is strongly recommended that you make an appointment with Planning Staff to determine which items apply to your application***.

Item No.	Item	Submitted	Official use
I Basic Drawing Information			
1.0	**Drawing size not to exceed 24" x 36"**		
2.0	**Title of Drawing**		
3.0	**Name and address of Applicant**		
4.0	**Name of person preparing drawing**		
5.0	**Wet seal/raised seal and signature of NYS licensed architect, engineer, landscape architect, or surveyor (as applicable)**		
6.0	**Project address**		
7.0	**Zoning of subject property and adjacent parcels**		
8.0	**North point, scale, date, and revision date(s)**		
9.0	**4" x 6" reserved area in lower right hand corner for official Town use**		
II Structures, Paved Areas, & Open Space			
1.0	**Existing and Proposed Streets**		
1.1	Names of all existing and proposed streets		
1.2	Width and radii of proposed curb-cuts		
1.3	Existing curb-cuts on adjacent and opposite properties		
1.4	Show ROW width, pavement dimensions, lane widths, pavement markings, and proposed signage on proposed streets		
1.5	Show proposed ROW consistent with planned NYSDOT, Erie County, or Town road projects (if applicable)		
1.6	Show location of proposed cross access to adjacent parcels along with a draft easement		
1.7	Designation of Fire Lanes (if applicable)		
1.8	Fire apparatus access roads		
1.9	Label any proposed roads as public or private		
1.10	Location and dimensions of sidewalks		
1.11	Typical cross sections and profiles of proposed streets, pedestrian walkways, and bikeways		
2.0	**Proposed Structures**		
2.1	Location and complete dimensions of proposed structures		
2.2	Setback dimensions of structure(s) to all property lines		
2.3	Proposed use of structures		
2.4	Gross square feet area of each structure		
2.5	Location of all building entrances		
2.6	Indicate type of roof construction/materials		
2.7	Location, height, and design detail of existing and proposed fences and walls		
2.8	Location of light standards and building mounted lights		
2.9	Location of dumpster and detail of dumpster enclosure with gate		
2.10	Layout and dimensions of the lot(s) proposed for development		

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.	Item	Submitted	Official use
II Structures, Paved Areas, & Open Space (cont'd)			
3.0	**Floor Plans with individual rooms and spaces labeled** (fully dimensioned)		
4.0	**Building elevations with height dimensions from finished grade to the highest point of the roof and to midpoint of gable or hip of a pitched roof.** (fully dimensioned)		
4.1	Show screening of mechanical equipment		
5.0	**Parking/Loading/Stacking Areas**		
5.1	Location and complete dimensions of all paved areas		
5.2	Setback dimensions of all paved areas to property lines		
5.3	Dimension of typical parking space and drive aisles		
5.4	Location and layout of handicapped parking spaces & access aisles		
5.5	Detail of vertical signage for handicapped parking and access aisles		
5.6	Indicate minimum parking requirement & number of spaces provided		
5.7	Proposed signage for directing and guiding traffic		
5.8	Curb cut permits from NYS, Erie County, or Town (if applicable)		
5.9	Pedestrian connections (from proposed structures to public sidewalk network)		
6.0	**Location and proposed development of all open spaces, including parks, playgrounds, and open reservations**		
III Utilities and Drainage			
1.0	**Engineers Report** (bound separately from the Stormwater Pollution Prevention Plan [SWPPP])		
1.1	Stamped/sealed and signed by NYS licensed architect or professional engineer		
1.2	Proposed water service sizing, RPZ pressure and fire safety flow and pressure calculations		
1.3	Proposed sanitary sewer facility load calculations (avg. & peak flows) including calculation of the peaking factor		
1.4	Proposed storm drainage facility calculations (see information included with this application)		
2.0	**Grading Plan**		
2.1	Existing and proposed grades indicated (proposed grades may not exceed 1 on 3)		
3.0	**Water Service**		
3.1	Location, size and material of existing and proposed facilities		
3.2	Location of existing and proposed fire hydrant location(s)		
3.3	Indicate use of sprinklers, location of Fire Department connection, and proposed fire protection systems		
3.4	Existing and proposed meter/RPZ size and location		
3.5	Applicable construction details		
4.0	**Sanitary Sewers**		
4.1	Locations, sizes, slopes, inverts, and materials of all existing and proposed facilities		

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official use
III Utilities and Drainage (cont'd)			
4.2	Applicable construction details		
4.3	Proposed water/oil/grease interceptor sizing calculations by a professional engineer (if applicable)		
5.0	**Storm Drainage**		
5.1	Locations, sizes, slopes, inverts, and materials of existing and proposed storm drainage facilities		
5.2	Connection of roof drains to proposed drainage system		
5.3	Applicable Town Standard construction details		
5.4	Existing and proposed swales and ditches		
5.5	Detention area cross-section and high-level elevations		
5.6	County and State approval for tie-in to existing sewers		
6.0	**Stormwater Pollution Prevention Plan (SWPPP) as applicable** (bound separately from the Engineer's Report) **See attached checklist.**		
7.0	**Natural Gas Service**		
8.0	**Location of transformers, generators and other mechanical equipment; include detail drawings (if applicable)**		
9.0	**Downstream Sanitary Capacity Analysis (DSCA) Report** (must be submitted if proposed average flows are greater than 2,500 gallons per day)		
9.1	The DSCA Report must include a detailed downstream sewer capacity analysis and the calculations of and commitment to (via Developer commitment letter) the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. The contribution must be based on $250 per gallon per minute of mitigated flow		
IV Lighting Plan			
1.0	**Photometric plan showing light spread in foot candles at property lines**		
1.1	Detail of all light standards, including dimension of height from finished grade		
1.2	Detail of all exterior lighting fixtures		
V Landscape Plan			
1.0	**Wet/raised seal and signature of a licensed Landscape Architect**		
2.0	**Provide a calculation of the total Parking area and a calculation of interior parking area in square feet and as a percentage**		
3.0	**Indicate location, size, number and type of proposed landscape materials**		
4.0	**Indicate location, type and size of <u>all</u> existing trees 4" caliper or larger and indicate which will be removed or retained**		
VI Other Required Information/General Requirements			
1.0	**Complete boundary survey that includes all existing structures, acreage, legal description with reference to a property line, street, or other known feature, and easements plotted to scale by a NYS licensed land surveyor**		

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official Use
VI Other Required Information/General Requirements (cont'd)			
1.1	Copies of all easements, reciprocal access agreement or similar leag documents		
2.0	**Topographic Survey with a 30 ft. buffer outside all property lines by a NYS licensed land surveyor**		
3.0	**Draft of any deed restrictions, covenants, provisions for home associations and common ownership, and reciprocal easement agreements (as applicable).**		
4.0	**For assessment purposes, state intent to apply for condominium status (if applicable).**		
5.0	**Completed and signed Environmental Assessment Form**		
5.1	Soil boring report and geotechnical report prepared by a qualified Professional Engineer (if applicable)		
5.2	Traffic Impact Study (if applicable)		
5.3	Archaeological survey (if applicable		
5.4	Wetland Delineation report (if applicable)		
6.0	**Show existing zoning(s) of both the subject property and adjacent parcels on the Site Plan and the Landscape Plan**		
7.0	**Location of NYSDEC wetlands (including buffer area) and/or federal wetlands; indicate jurisdictional status**		
8.0	**Location of Floodway and floodplain** (if applicable)		
9.0	**Documentation pertaining to any conditions of zonings, including copies of required deed restrictions; indicate date of rezoning and the parcel address under which it was rezoned (if applicable)**		
10.0	**Documentation related to any required variances granted by the ZBA**		
11.0	**For residential site plans, provide a statement from the appropriate school district that adequate school sites and facilities are available.**		
12.0	**8 1/2" X 11" reduction of primary site plan drawing (see appendix "B" of application package for specifications)**		
13.0	**A CD containing a PDF of all site plan drawings (Must also be provided with revised drawings)**		
VII Additional Required Information for Projects in the Mixed Use Districts			
1.0	**Design Advisory Board Application**		
1.1	Required for Major Site Plan		
1.2	Required at the Planning Directors Discretion for Minor Site Plans		
2.0	**Block & Street Network Plan**		
2.1	Designation of Core, Local & Alley streets		
2.2	Dimensions of Blocks		
3.0	**Block Usage Plan (as applicable)**		
3.1	Designation of site usage for each block including open space areas		
4.0	**Phasing Plan**		

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

For official use only:

_____
Approved/Date

X:\Current_Planning\Application Forms 2013 Working Doc\Major Site Plan\Site Plan Submittal Requirements and Checklist (3).doc

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed <u>new</u> structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Ilion silt loam (In)	severe	severe	severe	severe	severe
Lima loam (LmB)	severe	moderate	severe	moderate	moderate
Newstead loam (Ne)	severe	severe	severe	severe	severe
Ovid silt loam (OvA)	severe	severe	severe	severe	severe

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   __X__ Geotechnical report attached _____ Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? □ Yes ☒ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☒ Yes □ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system. See attached Town Board Resolution 2018-1301

4. Are there alternative locations on the site for this project? □ Yes ☒ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   N/A

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: □ Yes ☒ No

   Describe_____

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project_____
   Source: 75, per attached Traffic Impact Study (by SRF Associates)

8. Will blasting occur during construction? □ Yes ☒ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ☒ Yes □ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    5,244 gpd average flow 11,775 gpd peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? □ Yes ☒ No

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Proposed Office & Proposed Road		
Project Location (describe, and attach a general location map): 2190 & 2220 Wehrle Drive, Amherst, New York 14221		
Brief Description of Proposed Action (include purpose or need): Development will consist of the construction of a 84,375 sq. ft., three-story office building, a 24,750 sq. ft., single-story storage garage/maintenance facility, a 72,072 sq. ft., two-story parking garage, along with associated parking, sidewalks, landscaping, lighting and associated utility infrastructure. Utility infrastructure to include stormwater management, sanitary, water, cable, electric and gas utilities. In addition to the site development, a new public road built to the Town of Amherst standards for a local road, along with a public watermain, public sewer, and electric and gas mains.		
Name of Applicant/Sponsor: Omar M. Abu-Sitta, (Acquest Wehrle LLC)	Telephone: (716) 204-3570 E-Mail: omar@acquestdevelopment.com	
Address: 5554 Main Street		
City/PO: Williamsville	State: New York	Zip Code: 14221
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Town of Amherst Town Board - Rezone portion of property	(Previously done)
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Town of Amherst Planning Board - Site Plan Approval	January 2022
c. City, Town or Village Zoning Board of Appeals ☐Yes ☐No		
d. Other local agencies ☑Yes ☐No	Erie County Water Authority - New Watermain & backflow prevention approval	January 2022
e. County agencies ☑Yes ☐No	Erie County Dept. of Health - Sewer & Watermain Erie County DPW - intersection at Wehrle	January 2022 January 2022
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC - SPDES Permit (Stormwater)	January 2022
h. Federal agencies ☑Yes ☐No	FAA - Proximity to BNIA (airport)	January 2022

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes ☑No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

NYS Heritage Areas:West Erie Canal Corridor

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Office Building District (OB)

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Williamsville Central School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police Department

c. Which fire protection and emergency medical services serve the project site?
Main-Transit Fire Department

d. What parks serve the project site?
Wehrle FAA Recreation Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Office Building

b. a. Total acreage of the site of the proposed action? 24.91 acres
b. Total acreage to be physically disturbed? 17.5 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 24.91 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

f. Does the project include new residential uses? ☐ Yes ☑ No

3.a

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes,

i. Total number of structures 4

ii. Dimensions (in feet) of largest proposed structure: 46' height; 125' width; and 225' length

iii. Approximate extent of building space to be heated or cooled: 212,625 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑ Yes ☐ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): Development will remove the (5) wetland and (2) ditches on site. As per the USACE letter dated January 22, 2021, the USACE has issued an Approved Jurisdictional Determination that these features are excluded and not regulated under Section 404 of the Clean Water Act

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:
Non-Jurisdictional Wetlands 1-5 and Ditches 1 and 2 will be removed. See item i above.

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☑ No
If Yes, describe: Non-Jurisdictional wetlands and ditches will be removed

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☑ Yes ☐ No
If Yes:

- acres of aquatic vegetation proposed to be removed: 0.70 acres
- expected acreage of aquatic vegetation remaining after project completion: 0.0 acres
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): Commercial construction
- proposed method of plant removal: clearing
- if chemical/herbicide treatment will be used, specify product(s): N/A

v. Describe any proposed reclamation/mitigation following disturbance: None required

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:

i. Total anticipated water usage/demand per day: 5,244 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑ Yes ☐ No
If Yes:

- Name of district or service area: Erie County Water Authority
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☑ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☑ Yes ☐ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: a proposed 8-inch watermain will be extended from existing 12-inch on Wehrle Drive to existing 6-inch on Bellingham Drive
- Source(s) of supply for the district: Erie County Water Authority

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☑ No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: N/A gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:

i. Total anticipated liquid waste generation per day: 5,244 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: Town of Amherst WWTP
- Name of district: Town of Amherst
- Does the existing wastewater treatment plant have capacity to serve the project? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

- Do existing sewer lines serve the project site? ☑ Yes ☐ No
- Will a line extension within an existing district be necessary to serve the project? ☑ Yes ☐ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: a public 8-inch sanitary sewer extension is proposed from the project site, to tie into the existing 8-inch public sewer on Bellingham Drive

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☑ No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑ Yes ☐ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 6.56 acres (impervious surface)

_____ Square feet or 24.9 acres (parcel size)

ii. Describe types of new point sources. storm sewer pipe discharge to Wehrle Drive drainage system

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

on-site stormwater management systems (bioretention basins, dry swale and dry detention basin)

- If to surface waters, identify receiving water bodies or wetlands: eventually connects to Ellicott Creek
- Will stormwater runoff flow to adjacent properties? ☐ Yes ☑ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐ Yes ☑ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐ Yes ☑ No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐ Yes ☐ No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☑Yes ☐No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☑ Morning ☐ Evening ☐Weekend ☑ Randomly between hours of 7 am to 9 am.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): 0

iii. Parking spaces: Existing 0 Proposed 228 Net increase/decrease +228

iv. Does the proposed action include any shared use parking? ☐Yes ☑No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe: new public road to be built as part of this development

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☑Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☑Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☑Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: Unknown

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): via grid/local utility

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7am-5pm
- Saturday: 7am-5pm
- Sunday: N/A
- Holidays: N/A

ii. During Operations:

- Monday - Friday: 8am-5pm
- Saturday: N/A
- Sunday: N/A
- Holidays: N/A

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☐ Yes ☑ No

If yes:

i. Provide details including sources, time of day and duration:

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe:

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

pole mounted and building mounted fixtures in accordance with Town of Amherst Town Code

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: To be determined tons per _____ (unit of time)
- Operation : To be determined tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: Recycling of salvageable construction items.
- Operation: Recycling programs by use.

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: Via agreement with waste disposal company.
- Operation: Via agreement with waste disposal company.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

residential neighborhoods to the east and west, commercial uses to the north, south, southeast and west.

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	6.56	+ 6.56
• Forested			
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)			
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)			
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: lawn/landscaping	24.91	18.35	-6.56

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑ Yes ☐ No
If Yes,
i. Identify Facilities:
Brierwood Child Care Center

e. Does the project site contain an existing dam? ☐ Yes ☑ No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No
If Yes:
i. Has the facility been formally closed? ☐ Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 3 - 4 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:
Ilion silt loam 34.1 %
Lima loam 11 %
Ovid silt loam 44.2% Newstead loam 10.6 %

d. What is the average depth to the water table on the project site? Average: 0.5 - 2 feet

e. Drainage status of project site soils:
☐ Well Drained: _____% of site
☐ Moderately Well Drained: _____% of site
☑ Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____% of site
☐ 15% or greater: _____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No
ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No
See attached USACE Approved Jurisdictional Determination
If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☑ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:
i. Name of aquifer: _____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

m. Identify the predominant wildlife species that occupy or use the project site:

White tailed deer	raccoon	squirrel
eastern chipmunk	skunk	woodchuck
field mice	common garter snake	red fox

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No

If Yes:

i. Species and listing (endangered or threatened): _____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

If Yes:

i. Species and listing: _____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No

If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Jason Utzig, P.E. (on behalf of applicant) Date 11-09-2021

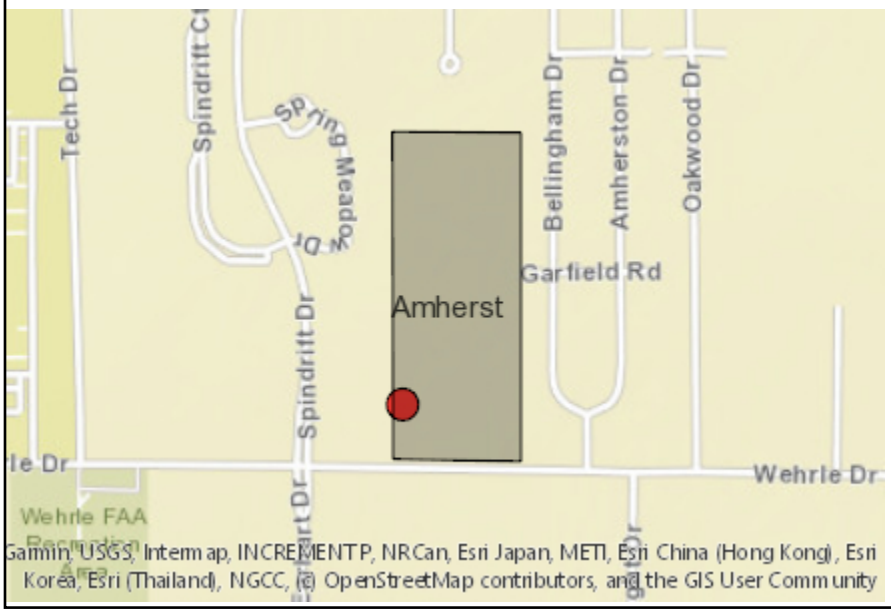
Signature _____ Title Senior Project Engineer

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

PRINT FORM

EAF Mapper Summary Report

Thursday, January 28, 2021 3:10 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NEW YORK STATE · OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
Bernadette Castro
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

October 4, 2005

RECEIVED
OCT 12 2005
PROJECT MANAGEMENT

Steven Doleski
Regional Permit Administrator
NYSDEC
270 Michigan Avenue
Buffalo, NY 14203-2999

Dear Mr. Doleski:

Re: DEC, CORPS 2000-00680 (1)
Proposed Acquest Office Park Development
2190 & 2220 Wehrle Drive/
2459 Hopkins Road Wetland Mitigation Site
Town of Amherst, Erie County
05PR3845

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). The SHPO has reviewed this project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended.

A review of SHPO records indicates that No Impact determinations were issued for 2190 Wehrle Drive in 2001, for 2220 Wehrle Drive in 1993 and for 2459 Hopkins Road in 2001. Therefore, it is the SHPO's opinion that project 05PR3845 will have **No Effect** upon historic properties in or eligible for inclusion in the State and National Registers of Historic Places.

The SHPO appreciates the opportunity to comment on this information. It should be noted that further consultation with the SHPO will be necessary if there are any changes to the project. Please telephone me at ext. 3280 with any questions you may have. Please also refer to the PR# above in any future correspondences for this project.

Sincerely,

Nancy Herter

Historic Preservation Program
Analyst, Archaeology

cc. Steven Metivier, CORPS
Gail Thompson, Seneca Nation THPO
Ashok Kapoor, Acquest Development (*faxed this day to 716-856-2288*)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.31

(Submission #: HPD-5WB3-PP8RE, version 1)

Details

Originally Started By	Jason Utzig
Submission ID	HPD-5WB3-PP8RE
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
Acquest Wehrle LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Abu-Sitta

Owner/Operator Contact Person First Name
Omar

Owner/Operator Mailing Address
5554 Main Street

City
Williamsville

State
NY

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Zip
14221

Phone
716-204-3570

Email
omar@acquestdevelopment.com

Federal Tax ID
NONE PROVIDED

Project Location

Project/Site Name
Proposed Office Building & Proposed Road

Street Address (Not P.O. Box)
2190-2220 Wehrle Drive

Side of Street
North

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Town of Amherst

State
NY

Zip
14221

DEC Region
9

County
ERIE

Name of Nearest Cross Street
South Ridge Court

Distance to Nearest Cross Street (Feet)
200

Project In Relation to Cross Street
West

Tax Map Numbers Section-Block-Parcel
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Tax Map Numbers
81.02-1-10 & 11

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
42.958340962733494,-78.71217501586915

Project Details

2. What is the nature of this project?
New Construction

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Pasture/Open Land

Post-Development Future Land Use
Commercial

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
24.9

Total Area to be Disturbed (acres)
17.5

Existing Impervious Area to be Disturbed (acres)
0

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Future Impervious Area Within Disturbed Area (acres)
6.56

5. Do you plan to disturb more than 5 acres of soil at any one time?
Yes

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
0

C (%)
0

D (%)
100

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
4/1/2022

End Date
4/1/2023

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Ellicott Creek

9a. Type of waterbody identified in question 9?
Stream/Creek Off Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
Yes

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
NONE PROVIDED

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
Erie County Dept. of Public Works

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
C&S Engineers, Inc.

Contact Name (Last, Space, First)
Utzig, Jason

Mailing Address
141 Elm Street, Suite 100

City
Buffalo

State
NY

Zip
14203

Phone
7169553013

Email
jutzig@cscos.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
SWPPP Preparer Certification Form.pdf - 11/12/2021 09:04 AM
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Silt Fence
Stabilized Construction Entrance
Storm Drain Inlet Protection

Biotechnical
None

Vegetative Measures
Mulching
Seeding
Topsoiling

Permanent Structural
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Reduction of Clearing and Grading

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.559

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.238

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.104

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
0.321

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
0.559

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
1.643

CPv Provided (acre-feet)
1.643

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pre-Development (CFS)
11.59

Post-Development (CFS)
5.20

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
24.49

Post-Development (CFS)
6.39

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
Acquest Wehrle LLC

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
NONE PROVIDED

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
5.63

Total Contributing Impervious Acres for Dry Swale (O-1)
0.93

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
NONE PROVIDED

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
NONE PROVIDED
Comment
NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
NONE PROVIDED
Comment
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachments

Date	Attachment Name	Context	User
11/12/2021 9:04 AM	SWPPP Preparer Certification Form.pdf	Attachment	Jason Utzig

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Traffic Impact Study

for the proposed

Wehrle Drive Office Development

Town of Amherst
Erie County, New York

October 2021

Project No. 41089

Prepared For:

Acquest Companies
5554 Main Street
Williamsville, NY 14221
Attn: Mr. Omar Abu-Sitta

Prepared By:

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TABLE OF CONTENTS

LIST OF TABLES i
LIST OF FIGURES ii
LIST OF APPENDICES ii
LIST OF REFERENCES ii
EXECUTIVE SUMMARY iii

I. INTRODUCTION 1
II. LOCATION 1
III. EXISTING HIGHWAY SYSTEM 1
A. Vehicular Network Description 1
B. Multi-Modal Network Description 2
IV. EXISTING TRAFFIC CONDITIONS 3
A. Peak Intervals for Analysis 3
B. Existing Traffic Volume Data 3
V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH 3
VI. PROPOSED DEVELOPMENT 3
A. Description 3
B. Site Traffic 4
C. Site Traffic Distribution 4
VII. FULL DEVELOPMENT VOLUMES 5
VIII. CAPACITY ANALYSIS 5
A. Description of Capacity Analysis 5
B. Capacity Analysis Results 5
IX. SIGNAL WARRANT INVESTIGATION 7
X. CONCLUSIONS & RECOMMENDATIONS 10
XI. FIGURES 10

LIST OF TABLES

TABLE I EXISTING HIGHWAY SYSTEM 2
TABLE II SITE GENERATED TRIPS 4
TABLE III CAPACITY ANALYSIS RESULTS 6
TABLE IV TRAFFIC SIGNAL WARRANT SUMMARY 9

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

LIST OF FIGURES

FIGURE 1 SITE LOCATION & STUDY AREA
FIGURE 2 LANE GEOMETRY & AVERAGE DAILY TRAFFIC
FIGURE 3 PEAK HOUR VOLUMES – 2021 EXISTING BASE CONDITIONS
FIGURE 4 PEAK HOUR VOLUMES – 2023 BACKGROUND CONDITIONS
FIGURE 5 CONCEPT SITE PLAN
FIGURE 6 TRIP DISTRIBUTION
FIGURE 7A SITE GENERATED TRIPS - PHASE 1 DEVELOPMENT CONDITIONS
FIGURE 7A SITE GENERATED TRIPS - FULL DEVELOPMENT CONDITIONS
FIGURE 8A PEAK HOUR VOLUMES – PHASE 1 DEVELOPMENT CONDITIONS
FIGURE 8B PEAK HOUR VOLUMES – FULL DEVELOPMENT CONDITIONS

LIST OF APPENDICES

A1. COLLECTED TRAFFIC VOLUME DATA
A2. MISCELLANEOUS TRAFFIC DATA AND CALCULATIONS
A3. LOS CRITERIA/DEFINITIONS
A4. LEVEL OF SERVICE CALCULATIONS – EXISTING CONDITIONS
A5. LEVEL OF SERVICE CALCULATIONS – BACKGROUND CONDITIONS
A6. LEVEL OF SERVICE CALCULATIONS – PHASE 1 DEVELOPMENT CONDITIONS
A7. LEVEL OF SERVICE CALCULATIONS – FULL DEVELOPMENT CONDITIONS
A8. LEVEL OF SERVICE CALCULATIONS – FULL DEVELOPMENT CONDITIONS WITH MITIGATION

LIST OF REFERENCES

1. Highway Capacity Manual 6th Edition. Transportation Research Board (TRB). The National Academies, Washington, DC. 2016.
2. Trip Generation, 11th Edition. Institute of Transportation Engineers (ITE). Washington, DC. 2021.
3. New York State Department of Transportation (NYSDOT) Traffic Data Viewer. Retrieved from https://www.dot.ny.gov/tdv. 2018.
4. Manual on Uniform Traffic Control Devices for Street and Highways (MUTCD). Federal Highway Administration. 2009.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to evaluate the potential traffic impacts associated with the proposed Wehrle Drive Office Development in the Town of Amherst, Erie County, New York. Within this report, the operating characteristics of the proposed access drives and impacts to the adjacent roadway network are identified, and mitigating measures, if needed, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes existing traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

The project site is located at 2190-2220 Wehrle Drive in the Town of Amherst, New York. The site is bounded by Medical Office Buildings to the north, Bellingham Drive to the east, Spindrift Drive to the west, and Wehrle Drive to the south. Land uses within the study area generally consist of residential, recreational, office, and school uses. The project site is currently undeveloped land. The study area consists of the following existing intersections:

1. Wehrle Drive/Spindrift/Earhart Drive
2. Wehrle Drive/Youngs Road

The proposed development will be constructed in phases over the next three (3) years. The Phase 1 proposal consists of a three-story 84,375 SF office building, a one-story 24,750 SF storage garage/maintenance facility, and a two-story parking garage. Future phases include a one-story 11,400 SF office building, a one-story 17,250 SF office building, and a three-story 103,500 SF medical office building.

Access to the site will be provided via one new driveway along Wehrle Drive at the easterly end of the property. An emergency access only connection will be provided to the existing Limestone Drive to the north.

The Town of Amherst was contacted to discuss any other specific developments that are currently approved or under construction that would generate additional traffic in the study area. Four projects were identified including a 38 townhome project at 6286-6300 Main St, a 4,200 SF office building along Main St, a four-story mixed use building located at 6842 Main St, and the Big Ditch Brewery and Banquet Facility. Traffic generated by the Big Ditch Brewery and Banquet Facility was added to the study area intersections. Traffic expected to be generated by the 6286-6300 Main Street townhome project, the Main Street office development, and the four-story mixed use building at 6842 Main Street were considered and included in the background growth rate. To account for normal increases in background traffic growth, including any unforeseen developments in the project study area aside from the projects already identified, and given the length of time (1.5 years/3 years) associated with phase 1/full build-out of the proposed project, a growth rate of 2.0% has been applied to the existing traffic volumes in the study area.

Both Phase 1 and Full Build conditions are analyzed in this study.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

CONCLUSIONS & RECOMMENDATIONS

This study identifies and evaluates the potential traffic impacts that can be expected from the proposed office development project in the Town of Amherst, Erie County, New York. The results of this study determine that the existing transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections with the recommended mitigation in place. The following sets forth the conclusions and recommendations based upon the results of the analyses:

1. The proposed project is expected to generate approximately 137 entering/26 exiting vehicle trips during the AM peak hour and 23 entering/109 exiting vehicle trips during the PM peak hour under the Phase 1 development and 386 entering/88 exiting vehicle trips during the AM peak hour and 127 entering/393 exiting vehicle trips during the PM peak hour at full build out.

2. The intersection of Wehrle Drive/Spindrift Drive/Earhart Dr will experience minor impacts on peak hour operations as a result of traffic added due to the proposed development. Minor signal timing adjustments will likely occur as a result of the increased traffic and actuated traffic control. This intersection should be monitored as development continues in this corridor to determine if changes in timings could improve operating conditions. No mitigation is recommended or required at this intersection as a result of the proposed development.

3. The Wehrle Drive/Youngs Road intersection will experience minor impacts on peak hour operations as a result of traffic added due to the proposed development. Minor signal timing adjustments will likely occur as a result of the increased traffic and actuated traffic control. This intersection should be monitored as development continues in this corridor to determine if changes in timings could improve operating conditions. No mitigation is recommended or required at this intersection as a result of the proposed development.

4. The proposed driveway should consist of one entering and two exiting lanes and should be stop-controlled at its intersection with Wehrle Drive.

5. Based on the expected delays under Phase 1 and full development conditions and the results of the Traffic Signal Warrant Analysis, a three-colored traffic signal is not recommended under Phase 1 conditions. The future development phases are speculative at this time, therefore it is recommended that an updated traffic analysis is performed at the Wehrle Drive/Site Driveway intersection after Phase 1 is completed and occupied.

6. No significant adverse traffic impacts are anticipated as a result of Phase 1 of the proposed project.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

I. INTRODUCTION

The purpose of this report is to evaluate the potential traffic impacts associated with the proposed Wehrle Drive Office Development in the Town of Amherst, Erie County, New York. Within this report, the operating characteristics of the proposed access drives and impacts to the adjacent roadway network are identified, and mitigating measures, if needed, are provided to minimize capacity or safety concerns.

In an effort to define traffic impact, this analysis establishes existing traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

II. LOCATION

The project site is located at 2190-2220 Wehrle Drive in the Town of Amherst, New York. The site is bounded by Medical Office Buildings to the north, Bellingham Drive to the east, Spindrift Drive to the west, and Wehrle Drive to the south. Land uses within the study area generally consist of residential, recreational, office, and school uses. The project site is currently undeveloped land. The study area consists of the following existing intersections:

1. Wehrle Drive/Spindrift/Earhart Drive
2. Wehrle Drive/Youngs Road

The site location and study area are illustrated in **Figure 1** (all Figures are included at the end of this report).

III. EXISTING HIGHWAY SYSTEM

A. Vehicular Network Description

The following information outlined in **Table I** provides a description of the existing roadway network within project study area. **Figure 2** illustrates the lane geometry at each of the study intersections and the Annual Average Daily Traffic (AADT) volumes on the study roadways. The AADTs reflect the most recently collected data obtained from the New York State Department of Transportation (NYSDOT).

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY[1]	CLASS[2]	AGENCY[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. AADT[6] & SOURCE[7]
Wehrle Dr (CR-290)	16	ECDPW	45	4	Two-way/ East-West	16,639 NYSDOT (2017)
Youngs Rd (CR-554)	16	ECDPW	35	2	Two-way/ North-South	16,692 NYSDOT (2017)

Notes:
1. Route Name/Number: "NY" = New York, "CR" = County Road.
2. State Functional Classification of Roadway (All are Urban): 14 = Principal Arterial, 16 = Minor Arterial
3. Jurisdictional Agency of Roadway. "NYSDOT" = New York State Department of Transportation, "ECDPW" = Erie County Department of Public Works.
4. Posted or Statewide Limit in Miles per Hour (mph).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated AADT in Vehicles per Day (vpd).
7. AADT Source (Year).

B. Multi-Modal Network Description

This evaluation reviewed the study area's pedestrian, bicycle, and transit network via field and aerial reconnaissance. A description of the multi-modal infrastructure is described hereafter.

PEDESTRIAN AND BICYCLE FACILITIES

There are sidewalks along the north and south sides of Wehrle Drive between Transit Road and Garrison Road within the study area. In addition, the signals at Wehrle Drive/Youngs Road and Wehrle Drive/Spindrift Drive both provide signalized pedestrian crossings on all four legs of the intersections. There are no dedicated bicycle facilities within the study area, however, bicyclists are permitted to share the road with motorists on all roadways and utilize the existing shoulder space, when available, within the study area.

TRANSIT FACILITIES

The Niagara Frontier Transportation Authority (NFTA) provides transit service along Wehrle Drive in the vicinity of the site via Routes 47 & 48. These routes overlap from Youngs Road to Spindrift Drive where they split and Route 48 turns to the north along Spindrift Drive and Route 48 turns to the south along Earhart Drive – see transit routes shown in the image to the right. There are no transit routes immediately adjacent to the site.



Wehrle Drive Transit Routes

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

IV. EXISTING TRAFFIC CONDITIONS

A. *Peak Intervals for Analysis*

Given the functional characteristics of the corridors, adjacent land uses, and the proposed land uses for the project site (office), the peak hours selected for analysis are the weekday commuter AM and PM peak periods. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. *Existing Traffic Volume Data*

Turning movement traffic counts were collected on Thursday, September 13, 2018 by SRF Associates (SRF) at the Wehrle Dr/Spindrift Dr/Earhart Dr intersection and on Thursday, August 15, 2019 by the Greater Buffalo Niagara Regional Transportation Council (GBNRTC) at the Wehrle Dr/Youngs Rd intersection. Traffic counts were conducted between 7:00-9:00 AM during the morning peak period and 4:00-6:00 PM during the evening peak period. The peak hour traffic periods occurred between 7:45-8:45 AM and 4:30-5:30 PM. All turning movement count data was collected on a typical weekday prior to any traffic changes resulting from the Covid-19 Pandemic. The base weekday AM and PM peak hour volumes are reflected in **Figure 3**.

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

The proposed development will be constructed in phases. Phase 1 will be completed in approximately 18 months with full build-out in approximately 3 years. The Town of Amherst was contacted to discuss any other specific developments that are currently approved or under construction that would generate additional traffic in the study area. Four projects were identified including a 38 townhome project at 6286-6300 Main St, a 4,200 SF office building along Main St, a four-story mixed use building located at 6842 Main St, and the Big Ditch Brewery and Banquet Facility. Traffic generated by the Big Ditch Brewery and Banquet Facility was added to the study area intersections. Traffic expected to be generated by the 6286-6300 Main Street townhome project, the Main Street office development, and the four-story mixed use building at 6842 Main Street were considered and included in the background growth rate.

To account for normal increases in background traffic growth, including any unforeseen developments in the project study area aside from the projects already identified, and given the length of time (1.5 years/3 years) associated with phase 1/full build-out of the proposed project, a growth rate of 2.0% has been applied to the existing traffic volumes in the study area. The background traffic volumes are depicted in **Figure 4**.

VI. PROPOSED DEVELOPMENT

A. *Description*

The proposed development will be constructed in phases over the next three (3) years. The Phase 1 proposal consists of a three-story 84,375 SF office building, a one-story 24,750 SF storage garage/maintenance facility, and a two-story parking garage. Future phases include a one-story 11,400 SF office building, a one-story 17,250 SF office building, and a three-story 103,500 SF medical office building. Access to the site will be provided via one new driveway

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

along Wehrle Drive at the easterly end of the property. An emergency access only connection will be provided to the existing Limestone Drive to the north. **Figure 5** illustrates the proposed concept plan.

Construction of the proposed project is anticipated to reach full build-out in approximately 3 years with Phase 1 being completed in approximately 18 months. Both Phase 1 and Full Build conditions are analyzed in this study.

B. Site Traffic

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation, 11th Edition (2021) published by the Institute of Transportation Engineers (ITE) is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of the adjacent street traffic and proposed land uses, in this case the weekday commuter AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

Table II shows the total site generated trips for the weekday commuter AM and PM peak hours for Phase 1 and Full Build out of the proposed project. All trip generation information has been included in the Appendices.

TABLE II: SITE GENERATED TRIPS

DESCRIPTION	ITE LAND USE CODE	SIZE[1]	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
General Office Building	710	84,375 SF	91	15	16	81
Utility	170	24,750 SF	46	11	7	28
Phase 1 Site Generated Trips			**137**	**26**	**23**	**109**
General Office Building	710	17,250 SF	37	6	3	18
General Office Building	710	11,400 SF	32	5	2	12
Medical-Dental Office Building	720	103,500 SF	180	51	99	254
Total Site Generated Trips (Full Build)			**386**	**88**	**127**	**393**

Notes:
1. SF = Square Feet

The proposed project is expected to generate approximately 137 entering/26 exiting vehicle trips during the AM peak hour and 23 entering/109 exiting vehicle trips during the PM peak hour under the Phase 1 development and 386 entering/88 exiting vehicle trips during the AM peak hour and 127 entering/393 exiting vehicle trips during the PM peak hour at full build out.

C. Site Traffic Distribution

The cumulative effect of site-generated traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drives serving the site. The proposed arrival/departure distribution of traffic generated by the proposed development is considered a function of several parameters, including:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

- Residential developments in the area;
- Location of the proposed driveways;
- Existing traffic patterns; and
- Existing traffic conditions and controls

Figure 6 shows the anticipated trip distribution pattern percentages for the traffic from the proposed project. **Figures 7A & 7B** illustrate the peak hour total site-generated traffic based on those percentages for the Phase 1 and full build conditions respectively.

VII. FULL DEVELOPMENT VOLUMES

The projected design hour traffic volumes were developed for the AM and PM peak hours by combining the background traffic conditions (Figure 4) and the new site-generated traffic volumes (Figures 7A & 7B) to yield the total traffic conditions expected at full development. The resulting design hour volumes for the proposed project are illustrated in **Figure 8A & 8B** under Phase 1 and full build-out conditions respectively.

VIII. CAPACITY ANALYSIS

A. Description of Capacity Analysis

A capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the conditions with little to no delay, and LOS "F" conditions with very long delays. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendix.

The standard procedure for capacity analysis of signalized and un-signalized intersections is outlined in the Highway Capacity Manual (HCM 2016) published by the Transportation Research Board. Traffic analysis software, Synchro 11, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service based on the HCM as an indicator of how well intersections operate.

B. Capacity Analysis Results

Existing and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The projected future traffic volumes generated by the proposed Wehrle Drive Office Development were analyzed to assess the operations of the intersections in the study area.

Capacity results for existing 2021 base, 2023 background, 2023 Phase 1, and 2024 full build conditions are listed in **Table III**. The discussion following the table summarizes capacity conditions. All capacity analysis calculations are included in the Appendices.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TABLE III: CAPACITY ANALYSIS RESULTS

INTERSECTION	2021 EXISTING BASE CONDITIONS				2023 BACKGROUND CONDITIONS				2023 PHASE 1 BUILD CONDITIONS				2024 FULL BUILD CONDITIONS				2024 FULL BUILD CONDITIONS WITH MITIGATION			
	AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
1. Wehrle Dr/Spindrift Dr/Earhart Dr (S)																				
EB Left - Wehrle Dr	A	6.3	A	8.8	A	6.8	A	9.3	A	7.0	A	9.6	A	7.9	B	13.5			B	14.8
EB Thru/Right - Wehrle Dr	A	7.4	B	10.2	A	7.5	B	10.6	A	7.7	B	10.6	A	8.2	B	11.0			B	12.0
WB Left - Wehrle Dr	A	4.2	A	7.0	A	4.3	A	7.1	A	4.3	A	7.1	A	4.3	A	7.2			A	8.1
WB Thru/Right - Wehrle Dr	B	17.0	C	20.8	B	17.2	C	21.3	B	17.1	C	21.9	B	17.6	C	24.2			C	26.9
NB - Earhart Dr	C	20.8	C	31.1	C	21.2	C	34.0	C	21.2	D	35.7	C	21.3	D	43.8	N/A		C	34.4
SB Left - Spindrift Dr	C	25.1	C	32.1	C	25.5	C	33.5	C	25.5	C	34.7	C	25.9	D	39.9			C	34.9
SB Thru/Right - Spindrift Dr	B	12.4	A	6.5	B	12.6	A	6.4	B	12.6	A	6.5	B	12.8	A	6.6			A	6.0
Overall LOS	***B***	***13.3***	***B***	***15.9***	***B***	***13.5***	***B***	***16.6***	***B***	***13.3***	***B***	***17.1***	***B***	***13.6***	***B***	***19.4***			***B***	***19.6***
Volume-to-Capacity (v/c) Ratio	***0.72***		***0.70***		***0.73***		***0.73***		***0.73***		***0.75***		***0.75***		***0.81***				***0.79***	
2. Youngs Rd/Wehrle Dr (S)																				
EB Left - Wehrle Dr	B	15.6	B	19.7	B	16.1	C	20.5	B	15.9	C	20.8	B	16.4	C	22.9	B	16.4	C	20.9
EB Thru/Right - Wehrle Dr	C	28.0	C	34.0	C	28.4	D	35.3	C	28.6	D	35.5	C	30.0	D	36.7	C	31.2	D	40.2
WB Left - Wehrle Dr	B	17.1	D	44.9	B	17.7	E	57.4	B	17.9	E	70.6	B	19.6	F	142.7	B	18.8	E	69.3
WB Thru - Wehrle Dr	C	27.2	C	30.7	C	27.6	C	31.2	C	27.3	C	31.6	C	27.4	C	33.9	C	26.9	C	30.5
WB Right - Wehrle Dr	B	10.5	B	11.9	B	10.5	B	12.0	B	10.4	B	11.9	B	10.4	B	12.1	B	10.5	B	11.9
NB Left - Youngs Rd	B	13.9	B	17.5	B	14.1	B	18.0	B	14.7	B	18.1	B	15.4	B	19.5	B	15.4	C	22.7
NB Thru/Right - Youngs Rd	B	16.5	C	22.1	B	17.0	C	22.6	B	17.2	C	22.6	B	18.0	C	23.2	B	18.1	C	25.6
SB Left - Youngs Rd	B	16.2	B	19.8	B	16.7	C	20.6	B	17.9	C	20.8	C	20.7	C	22.5	C	21.1	C	26.2
SB Thru - Youngs Rd	C	25.5	C	33.4	C	26.0	C	34.3	C	26.6	C	34.3	C	27.7	D	40.0	C	28.1	D	41.9
SB Right - Youngs Rd	B	10.3	B	11.9	B	10.4	B	12.6	B	10.6	B	12.6	B	10.9	B	13.5	B	11.0	B	13.5
Overall LOS	***C***	***21.0***	***C***	***28.1***	***C***	***21.3***	***C***	***30.0***	***C***	***21.5***	***C***	***31.5***	***C***	***22.5***	***D***	***41.2***	***C***	***22.8***	***C***	***34.4***
Volume-to-Capacity (v/c) Ratio	***0.62***		***0.62***		***0.63***		***0.93***		***0.64***		***0.98***		***0.68***		***1.20***		***0.69***		***0.99***	
3. Wehrle Dr/Proposed Driveway (U)																				
EB Left - Wehrle Dr									B	12.3	A	9.3	C	17.4	A	9.9				
SB Left - Proposed Driveway	N/A		N/A		N/A		N/A		D	26.8	C	22.6	F	68.2	F	118.0	N/A		N/A	
SB Right - Proposed Driveway									B	13.6	B	11.3	C	15.8	B	14.2				
3. Wehrle Dr/Proposed Driveway (S)																				
EB Left - Wehrle Dr																	B	10.3	A	6.5
EB thru - Wehrle Dr																	A	2.5	A	9.6
WB thru/right - Wehrle Dr																	B	13.7	B	16.9
SB Left - Proposed Driveway	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		C	26.4	C	25.3
SB Right - Proposed Driveway																	A	7.5	A	7.0
Overall LOS																	***B***	***11.1***	***B***	***13.1***
Volume-to-Capacity (v/c) Ratio																	***0.76***		***0.65***	

Notes:

1. A(2.8) = Level of Service (Delay in seconds per vehicle)
2. EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
3. (S) = Signalized; (U) = Unsignalized
4. N/A = Approach does not exist and/or was not analyzed during this condition
5. Green shaded cells indicate low delays, yellow shaded cells indicate moderate delays, red shaded cells indicate long delays.
6. The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays. A v/c ratio between 0.85 and 0.95 generally indicates an intersection is nearing capacity. Intersections with a v/c ratio of 1.0 or greater generally indicate conditions at or above capacity.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Spindrift Drive/Earhart Drive/Wehrle Drive

All approaches are projected to operate at an acceptable LOS "C" or better during all peak hours under all conditions except for the northbound approach and the southbound left turn movement. Between background and Phase 1 development conditions, the northbound approach changes from LOS "C" to "D" during the PM peak period. Additionally, between Phase 1 and full development conditions, the southbound left turn movement changes from LOS "C" to "D" during the PM peak period. Minor signal timing adjustments return all movements to LOS "C" or better. These adjustments may on their own occur given the actuated signal control at the intersection. Signal timings at the intersection of Spindrift Drive/Earhart Drive/Wehrle Drive should be monitored as development continues in this corridor to determine if changes in timings could improve operating conditions. No mitigation is recommended or required at this intersection as a result of the proposed development.

Youngs Road/Wehrle Drive

All approaches are projected to operate at LOS "D" or better during all peak hours under existing conditions, and LOS "E" or better under background conditions during both peak hours. There are no changes in levels of service as a result of the Phase 1 development. Under full development conditions, all approaches are projected to operate at LOS "D" or better during both peak hours with the exception of the WB left turn movement that is projected to operate at LOS "F" during the PM peak hour. Minor signal timing adjustments result in all approaches operating at LOS "E" better similar to background conditions. These adjustments may on their own occur given the actuated signal control at the intersection. Signal timings at the intersection of Youngs Road/Wehrle Drive should be monitored as development continues in this corridor to determine if changes in timings could improve operating conditions. No mitigation is recommended or required at this intersection as a result of the proposed development.

Proposed Driveway/Wehrle Drive

All approaches at the proposed driveway/Wehrle Drive intersection operate at LOS "D" or better during both peak hours under Phase 1 conditions. Under full development conditions, the southbound left turn movement is anticipated to operate at LOS "F" during both peak hours. A signal warrant investigation, included in Section IX: Signal Warrant Investigation, indicates that warrants relating to traffic volumes are met under full development conditions. No mitigation is recommended or required for Phase 1 development conditions. As a result of the poor levels of service, long delays, and high peak hour traffic volumes, under full build out conditions installation of a new three-color fully actuated traffic signal should be considered. An updated traffic analysis should be prepared prior to progressing development beyond Phase 1 to determine if/when a traffic signal may be needed.

IX. SIGNAL WARRANT INVESTIGATION

A traffic signal warrant analysis was completed at the Wehrle Drive/Proposed Site Driveway intersection under both Phase 1 and Full Build Conditions as part of this report. The need for a traffic signal is determined by comprehensive investigation of existing and projected traffic conditions and physical characteristics at the location. The Standard Specifications Update for the adoption of the National MUTCD (FHWA) and the New York State Supplement were reviewed to investigate the need for a traffic control signal at this location. There are nine (9) warrants and they are as follows:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Warrant 1	Eight-Hour vehicular volume
Warrant 2	Four-Hour vehicular volume
Warrant 3	Peak Hour
Warrant 4	Pedestrian Volume
Warrant 5	School Crossing
Warrant 6	Coordinated Signal System
Warrant 7	Crash Experience
Warrant 8	Roadway Network
Warrant 9	Intersection Near a Grade Crossing

Detailed signal warrant calculations are attached. Prior to applying warrants, the MUTCD suggests consideration of the effects of right-turn volumes on the minor street approach, and a reduction taken in the number of right turning vehicles, where appropriate. A certain number of right-turn vehicles will execute a right-turn on the red indication without actuating a traffic signal (if one were in place). For purposes of this analysis, it is assumed that 20% of the southbound right-turning vehicles exiting the proposed driveway will execute a right-turn on red maneuver and should, therefore be subtracted for the purposes of the warrant analysis. This figure is established based on the signal cycle length and resulting change intervals, and approximate number of right-turns on red estimated during the peak hour. The posted speed limit on Wehrle Drive at the proposed site driveway is 45 MPH and therefore, 70 percent thresholds in Table 4C-1, Figure 4C-2 and Figure 4C-4 are used as a basis for analysis.

Warrant 1 is subdivided into Condition A and Condition B. The Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. These conditions are satisfied when, for each of any eight hours of an average day, anticipated volumes on the artery and side road are in excess of the minimum values presented in Tables 4C-1 in the MUTCD. **Under Phase 1 development conditions, Condition A is not met at all and Condition B is only met for three hours. Condition A is met for six hours and Condition B is met for more than eight hours under the full development conditions.**

Warrant 2, the Four-Hour Vehicular Volume signal warrant conditions, are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. This warrant stipulates that for any four hours of a day, minimum threshold volumes are met on the artery and side road. **This warrant is not met under Phase 1 conditions and is met under the full development conditions for more than four hours.**

Warrant 3 is intended for application where minor street traffic suffers undue delay in entering or crossing the major street for one hour of the day. It stipulates that the warrant shall be applied in unusual cases (high-occupancy vehicle facilities – i.e., shopping centers) where a large number of vehicles discharge over a short period of time. Based on the proposed development, this warrant may be applicable. **This warrant is met under both Phase 1 and full build conditions.**

Warrant 4 is met when pedestrians experience excessive delay in crossing the major street (Main St) because the traffic volumes are so heavy. The intersection currently has low pedestrian activity. This warrant is not met.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Warrant 5 is met when a sufficient number of gaps in traffic do not exist for certain size and frequency of school children to cross the major roadway. Based on the proposed condition, this warrant is not applicable at this location and is not met.

Warrant 6 is met when a traffic signal is needed to maintain progressive movement and vehicle platooning in a coordinated signal system. Based on the current signal system along Wehrle Drive, this warrant is not met.

Warrant 7 is met when the severity, frequency, and types of crashes are such that it is a condition susceptible to correction by a traffic signal. Crash data is not available as the intersection does not currently exist.

Warrant 8 is met when a traffic signal might encourage concentration and organization of traffic flow on a roadway network. This warrant primarily focuses on two major intersecting roadways, which is not the case at the study intersection. Therefore, this warrant is not met.

Warrant 9 is applicable when an intersection is located near an at-grade rail crossing. This warrant is not applicable at this location.

TABLE IV: TRAFFIC SIGNAL WARRANT SUMMARY

WARRANT	SATISFACTION OF WARRANTS PHASE 1	SATISFACTION OF WARRANTS FULL BUILD
1A – Eight-Hour Condition A	NOT SATISFIED	NOT SATISFIED
1B – Eight-Hour Condition B	NOT SATISFIED	SATISFIED
2 – Four-Hour	NOT SATISFIED	SATISFIED
3 – Peak-Hour	SATISFIED	SATISFIED
4 – Pedestrian Volume	N/A	N/A
5 – School Crossing	N/A	N/A
6 – Coordinated Signal System	N/A	N/A
7 – Crash Experience	N/A	N/A
8 – Roadway Network	N/A	N/A
9 – Intersection Near a Grade Crossing	N/A	N/A

Table IV summarizes each warrant and the result of the investigation. Based on the expected delays under Phase 1 and full development conditions and the results of the Traffic Signal Warrant Analysis, a three-colored traffic signal is not recommended under Phase 1 conditions. The future development phases are speculative at this time, therefore it is recommended that an updated traffic analysis is performed at the Wehrle Drive/Site Driveway intersection after Phase 1 is completed and occupied.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

X. CONCLUSIONS & RECOMMENDATIONS

This study identifies and evaluates the potential traffic impacts that can be expected from the proposed office development project in the Town of Amherst, Erie County, New York. The results of this study determine that the existing transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections with the recommended mitigation in place. The following sets forth the conclusions and recommendations based upon the results of the analyses:

1. The proposed project is expected to generate approximately 137 entering/26 exiting vehicle trips during the AM peak hour and 23 entering/109 exiting vehicle trips during the PM peak hour under the Phase 1 development and 386 entering/88 exiting vehicle trips during the AM peak hour and 127 entering/393 exiting vehicle trips during the PM peak hour at full build out.

2. The intersection of Wehrle Drive/Spindrift Drive/Earhart Dr will experience minor impacts on peak hour operations as a result of traffic added due to the proposed development. Minor signal timing adjustments will likely occur as a result of the increased traffic and actuated traffic control. This intersection should be monitored as development continues in this corridor to determine if changes in timings could improve operating conditions. No mitigation is recommended or required at this intersection as a result of the proposed development.

3. The Wehrle Drive/Youngs Road intersection will experience minor impacts on peak hour operations as a result of traffic added due to the proposed development. Minor signal timing adjustments will likely occur as a result of the increased traffic and actuated traffic control. This intersection should be monitored as development continues in this corridor to determine if changes in timings could improve operating conditions. No mitigation is recommended or required at this intersection as a result of the proposed development.

4. The proposed driveway should consist of one entering and two exiting lanes and should be stop-controlled at its intersection with Wehrle Drive.

5. Based on the expected delays under Phase 1 and full development conditions and the results of the Traffic Signal Warrant Analysis, a three-colored traffic signal is not recommended under Phase 1 conditions. The future development phases are speculative at this time, therefore it is recommended that an updated traffic analysis is performed at the Wehrle Drive/Site Driveway intersection after Phase 1 is completed and occupied.

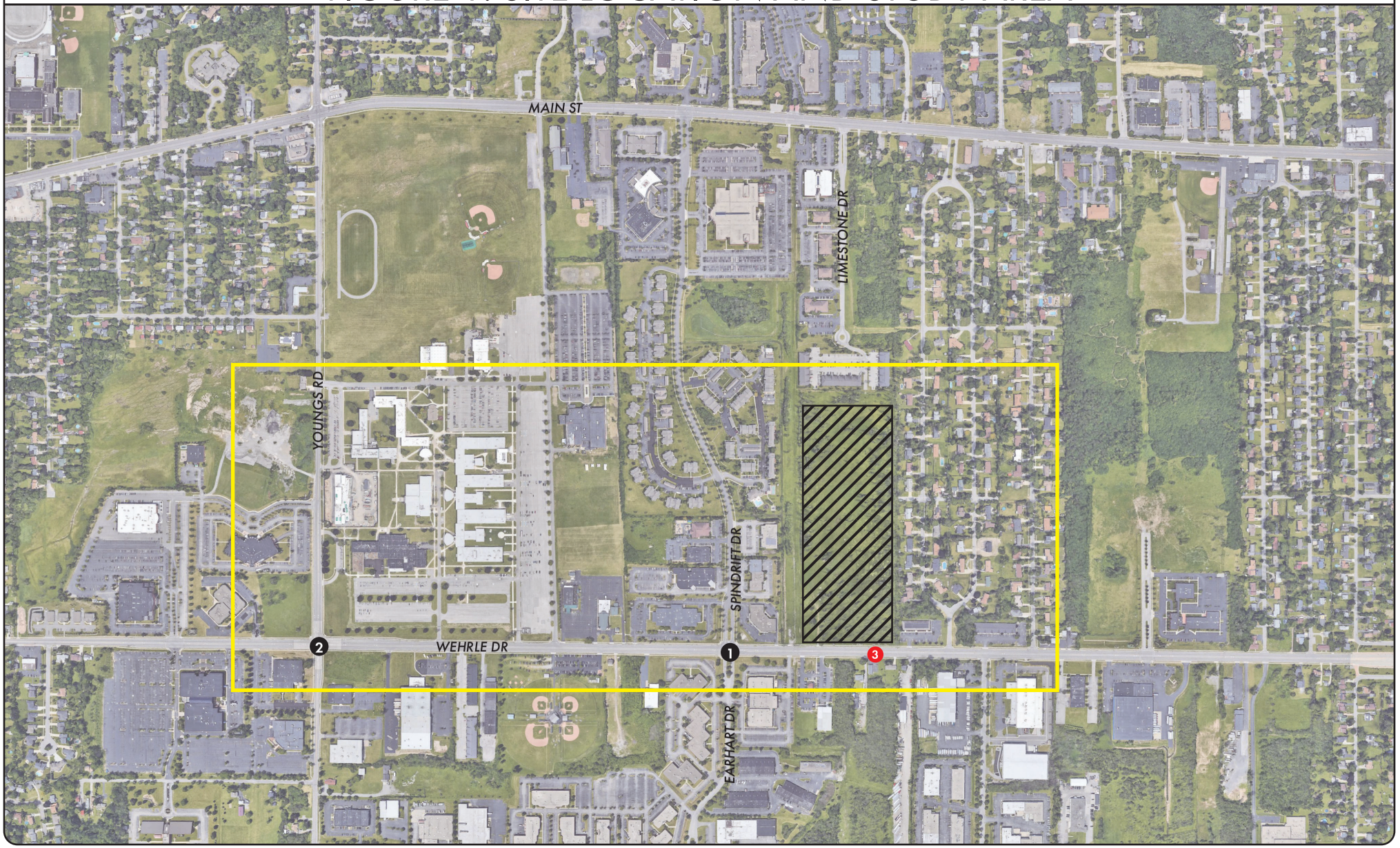
6. No significant adverse traffic impacts are anticipated as a result of Phase 1 of the proposed project.

XI. FIGURES

Figures 1 through 8B are included on the following pages.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

FIGURE 1: SITE LOCATION AND STUDY AREA



Key

- Study Intersection
- Proposed Intersection
- Site Location
- Study Area

WEHRLE DRIVE OFFICE DEVELOPMENT

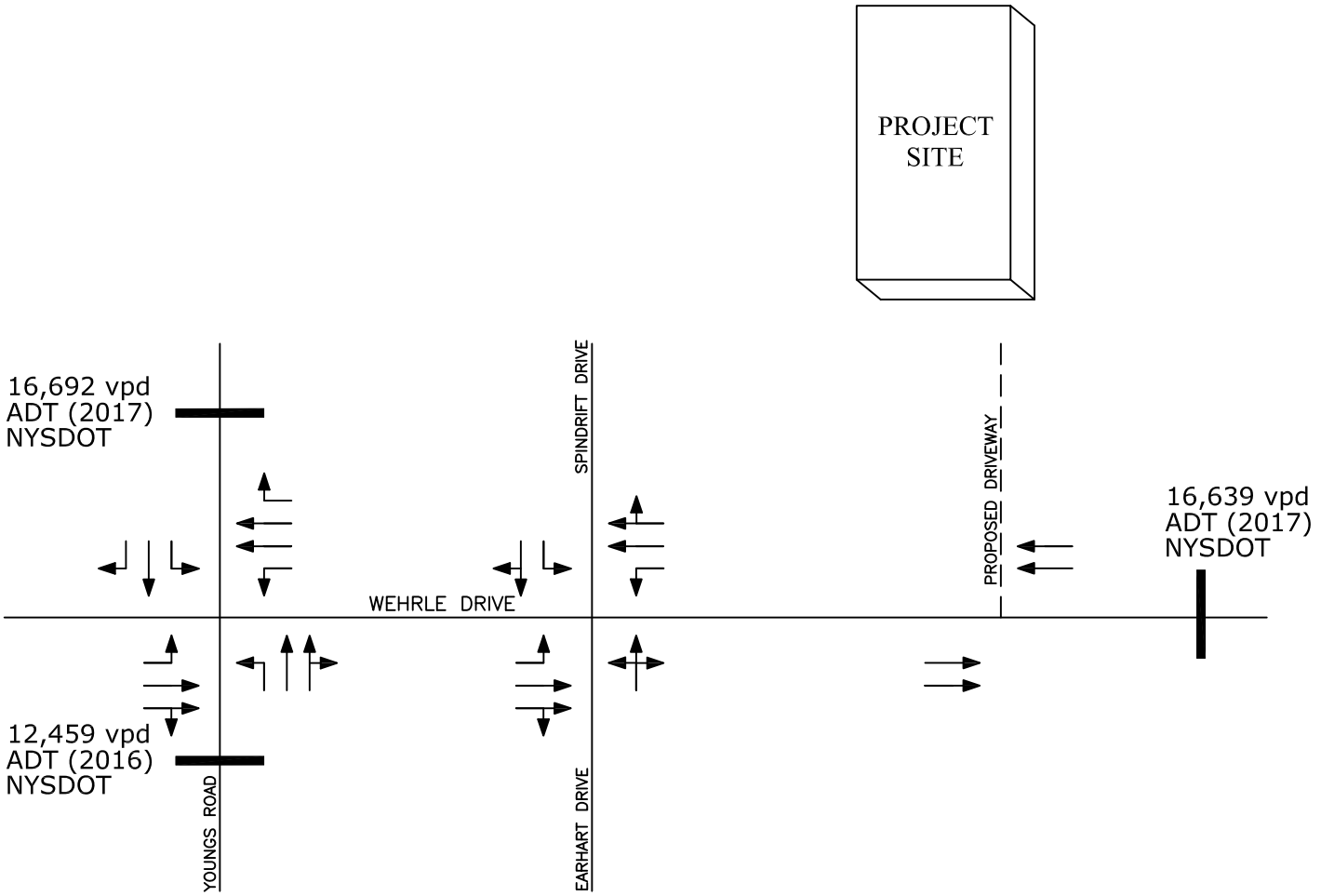
N

0 700
FEET

SRF ASSOCIATE

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

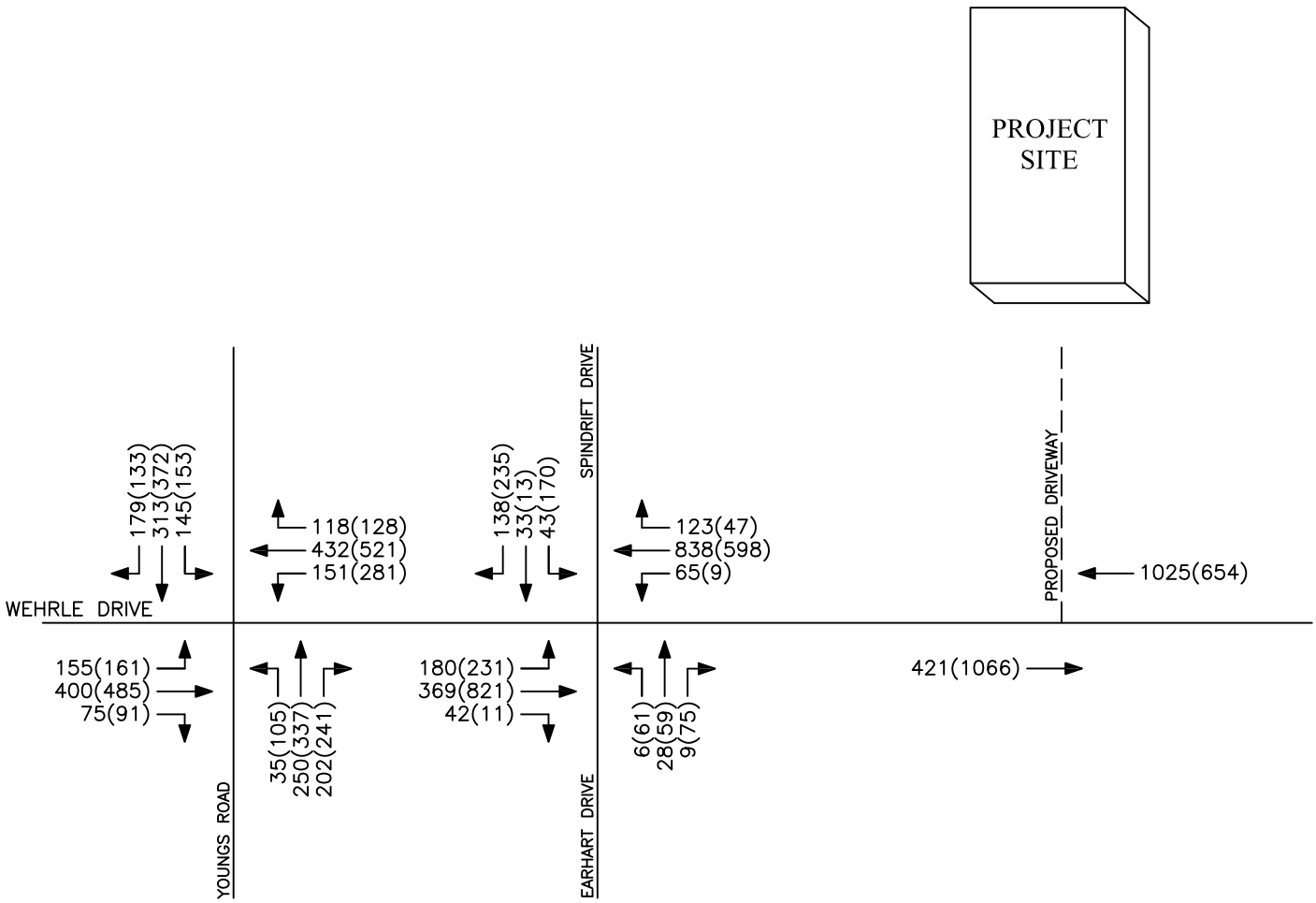
Notes:
1. All AADT volumes by those noted:
   1.1. NYSDOT = New York State Department of Transportation.
2. V.P.D. = Vehicles per Day.



PROJECT NO: 41089

KEY	FIGURE 2	SRF ASSOCIATES
N NOT TO SCALE	LANE GEOMETRY & AVERAGE DAILY TRAFFIC	Transportation Planning / Engineering / Design www.srfa.net / (585) 272-4660
	PROPOSED OFFICE DEVELOPMENT, TOWN OF AMHERST, NY	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



PROJECT NO: 41089

AM PEAK: 7:45–8:45
PM PEAK: 4:30–5:30

KEY

00(00) = AM(PM)

N

NOT TO SCALE

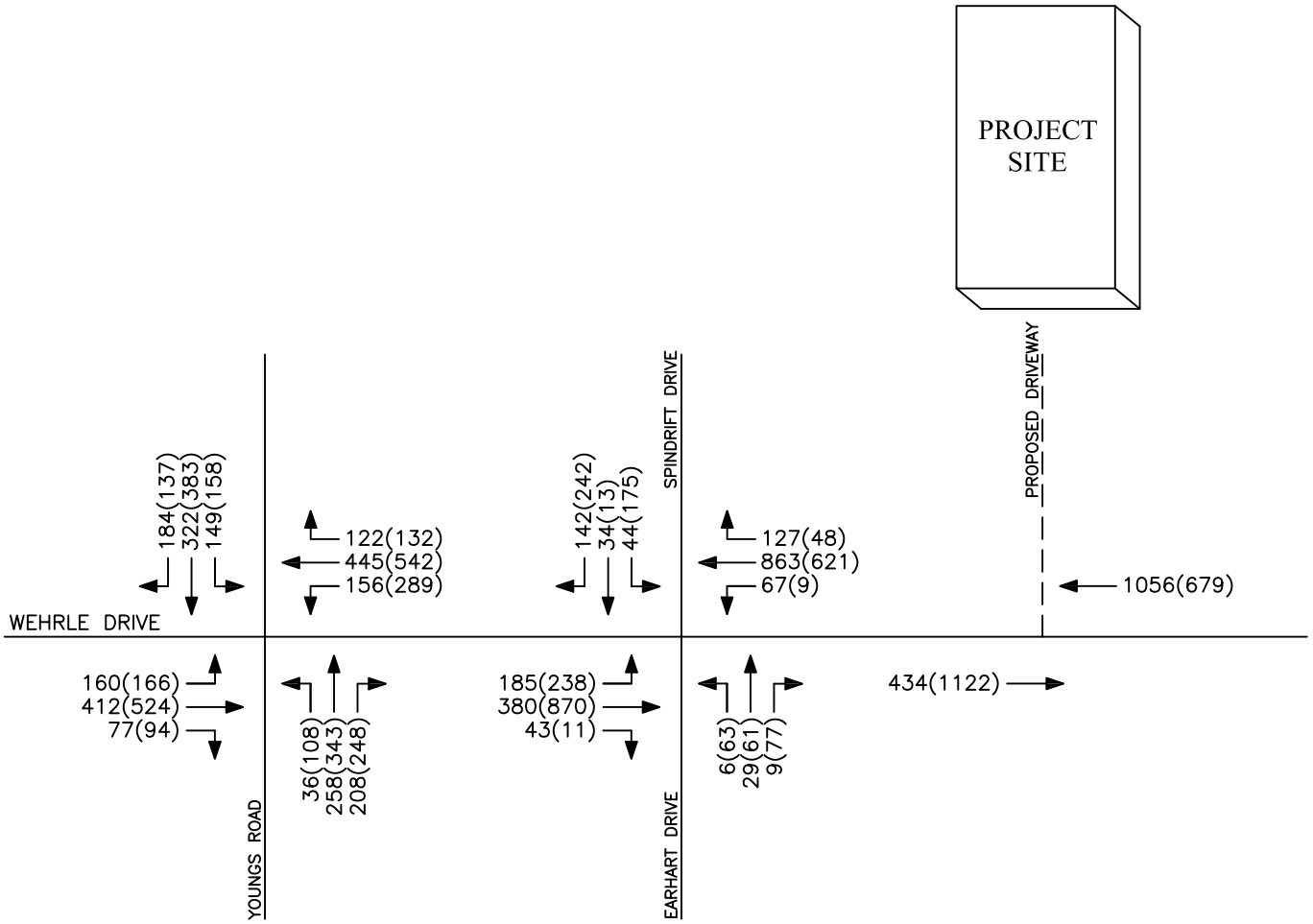
FIGURE 3

PEAK HOUR VOLUMES
2021 EXISTING CONDITIONS

PROPOSED OFFICE DEVELOPMENT,
TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

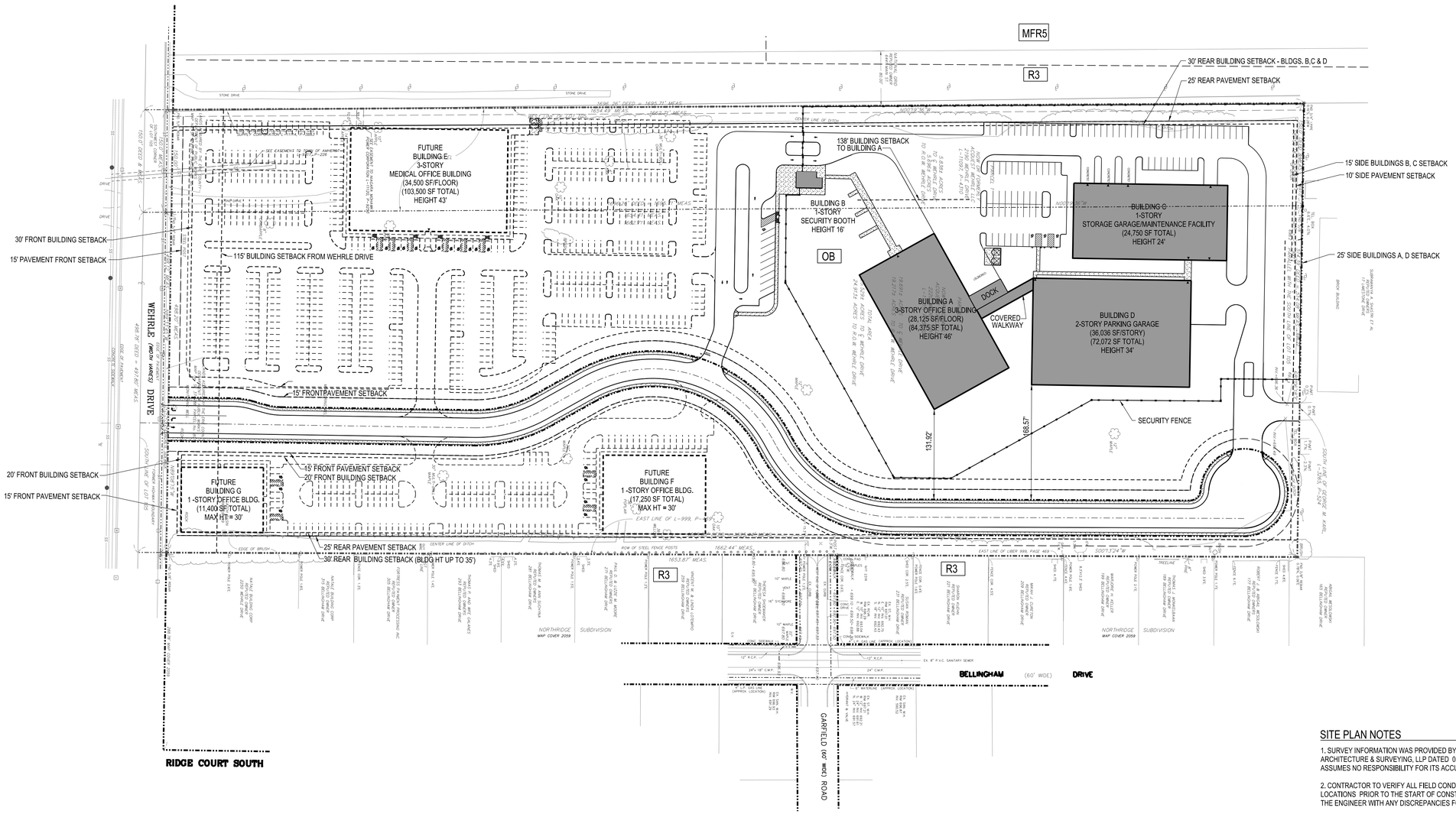
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



PROJECT NO: 41089

KEY	FIGURE 4	SRF ASSOCIATES
00(00) = AM(PM) N NOT TO SCALE	PEAK HOUR VOLUMES 2023 BACKGROUND CONDITIONS	Transportation Planning / Engineering / Design www.srfa.net / (585) 272-4660
	PROPOSED OFFICE DEVELOPMENT, TOWN OF AMHERST, NY	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



SITE PLAN NOTES

1. SURVEY INFORMATION WAS PROVIDED BY GPI ENGINEERING, LANDSCAPE, ARCHITECTURE & SURVEYING, LLP DATED 05/29/2018. C&S ENGINEERS, INC. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

2. CONTRACTOR TO VERIFY ALL FIELD CONDITIONS AND UTILITY LOCATIONS PRIOR TO THE START OF CONSTRUCTION. CONTACT THE ENGINEER WITH ANY DISCREPANCIES FOUND IN THE FIELD.

3. ALL DIMENSIONS FROM PROPERTY LINES ARE 90° FROM PROPERTY LINE UNLESS OTHERWISE NOTED.

4. ALL DIMENSIONS ARE FROM FACE OF CURB UNLESS OTHERWISE NOTED.

5. COORDINATE EXACT LOCATION OF SIDEWALKS AT DOORWAYS WITH ARCHITECTURAL PLANS.

6. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND LAYOUT.

PLAN NORTH

80' 80 0 80 160 Ft.

A1 OVERALL SITE PLAN
SCALE: 1"=80'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO: D04.009.001
DATE:
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY:

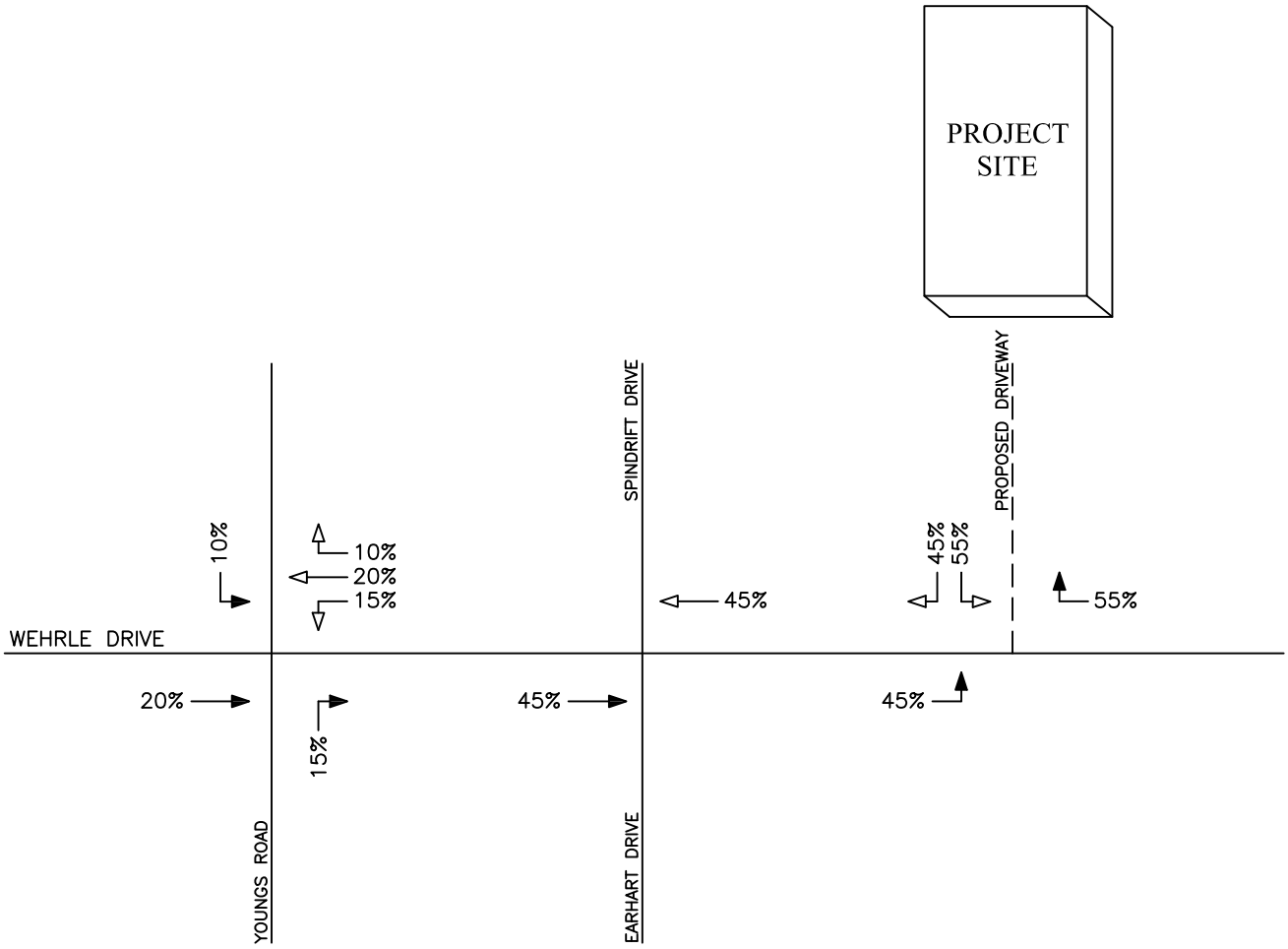
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL SITE PLAN

CS100

USER **DATE** **SYTIME** **TIME**

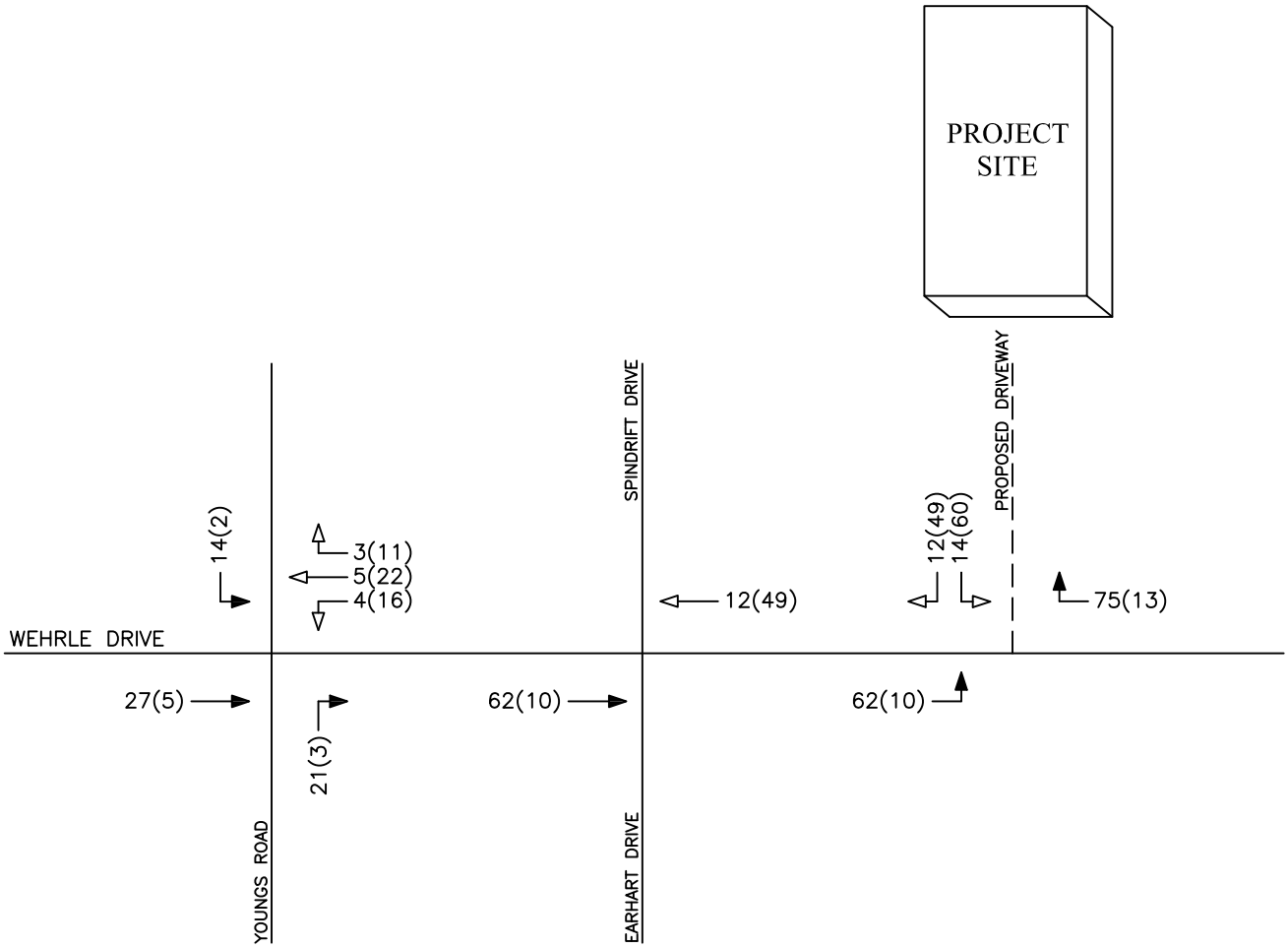
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



PROJECT NO: 41089

KEY	FIGURE 6	SRF ASSOCIATES
00(00) = AM(PM) → = ENTERING TRIPS → = EXITING TRIPS	TRIP DISTRIBUTION	Transportation Planning / Engineering / Design www.srfa.net / (585) 272-4660
	PROPOSED OFFICE DEVELOPMENT, TOWN OF AMHERST, NY	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

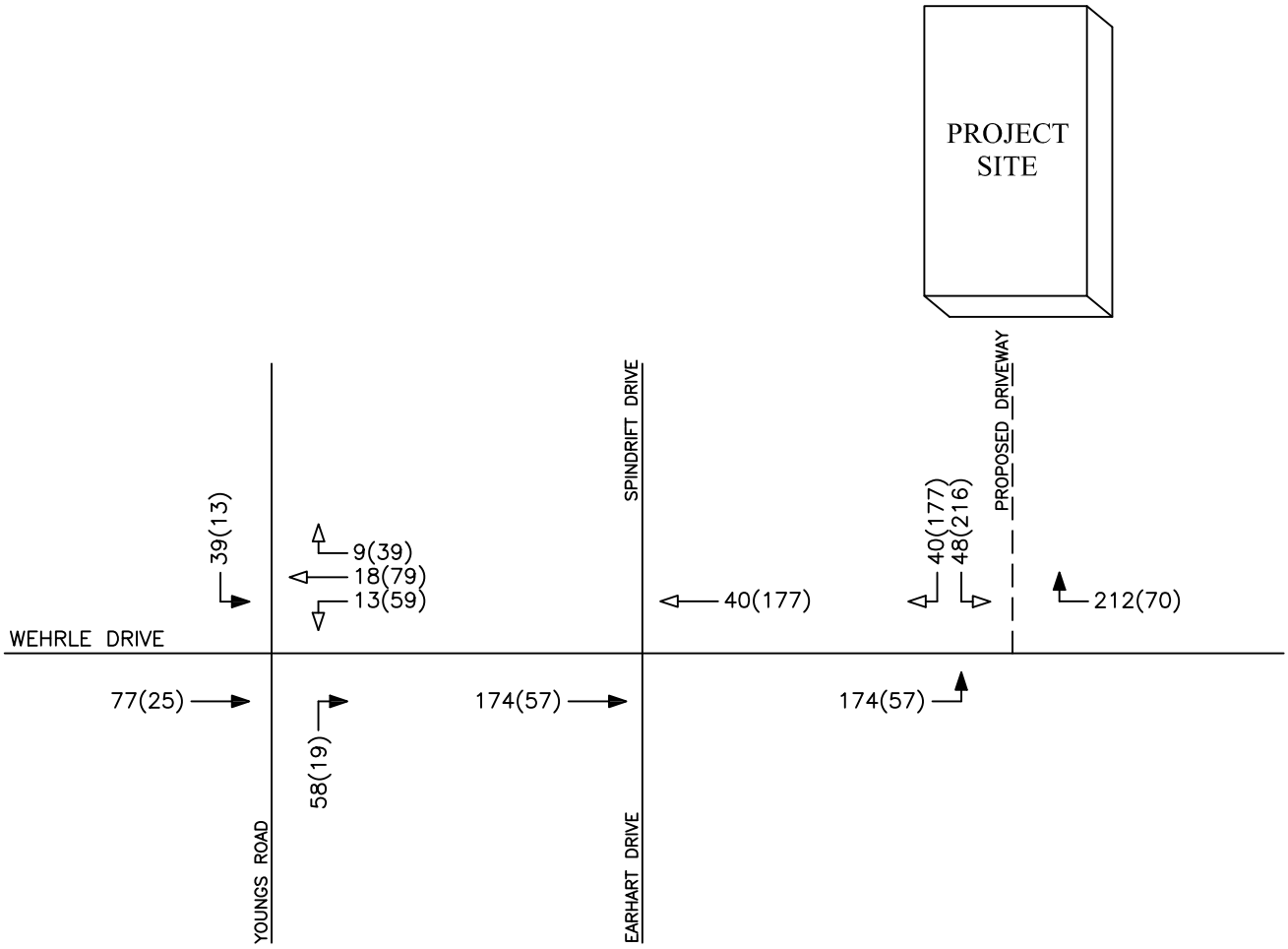


PROJECT NO: 41089

KEY	FIGURE 7A
00(00) = AM(PM) → = ENTERING TRIPS → = EXITING TRIPS	PHASE 1 SITE GENERATED TRIPS PROPOSED OFFICE DEVELOPMENT, TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

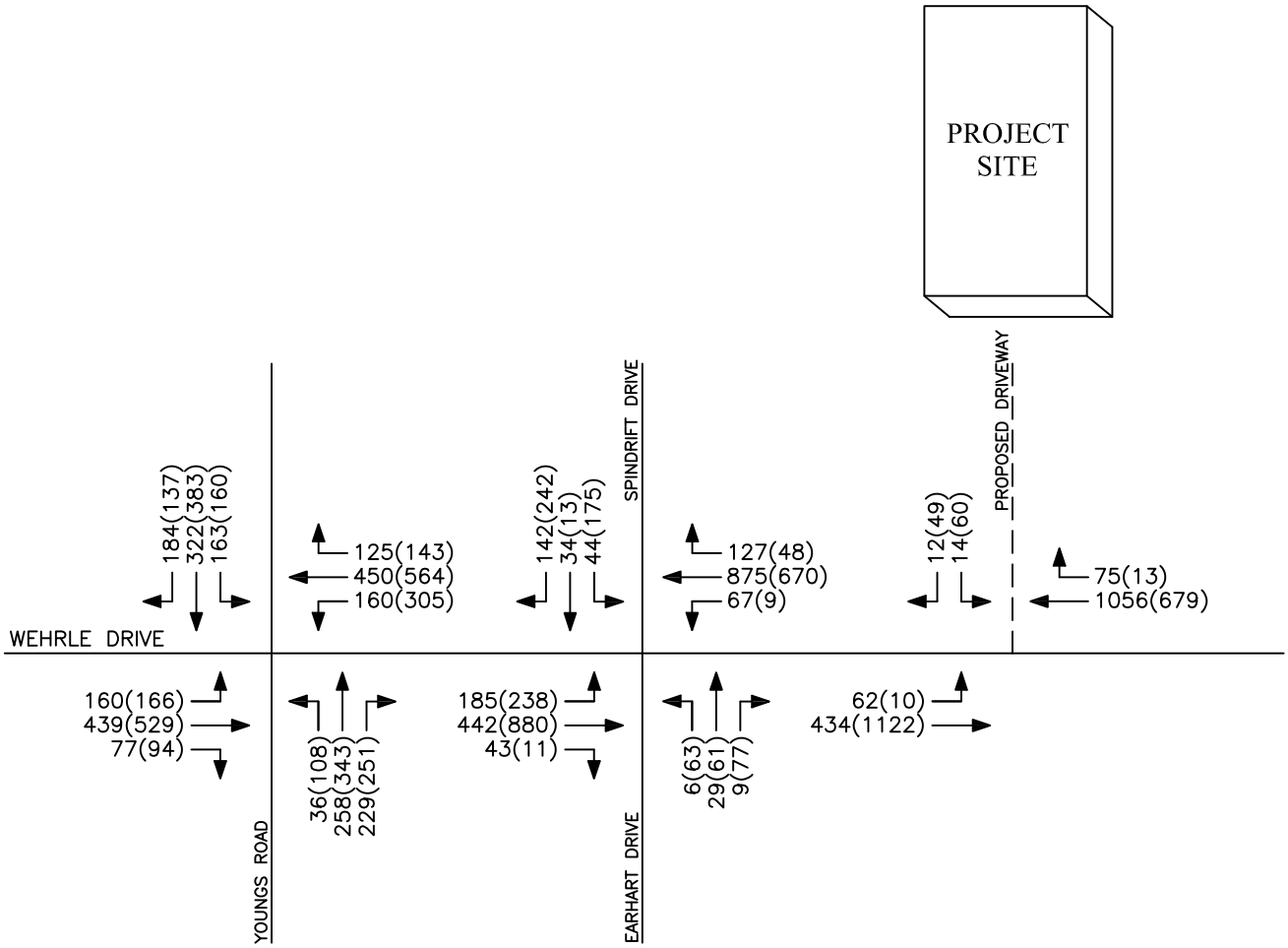


PROJECT NO: 41089

KEY	FIGURE 7B
00(00) = AM(PM) → = ENTERING TRIPS → = EXITING TRIPS	TOTAL SITE GENERATED TRIPS PROPOSED OFFICE DEVELOPMENT, TOWN OF AMHERST, NY

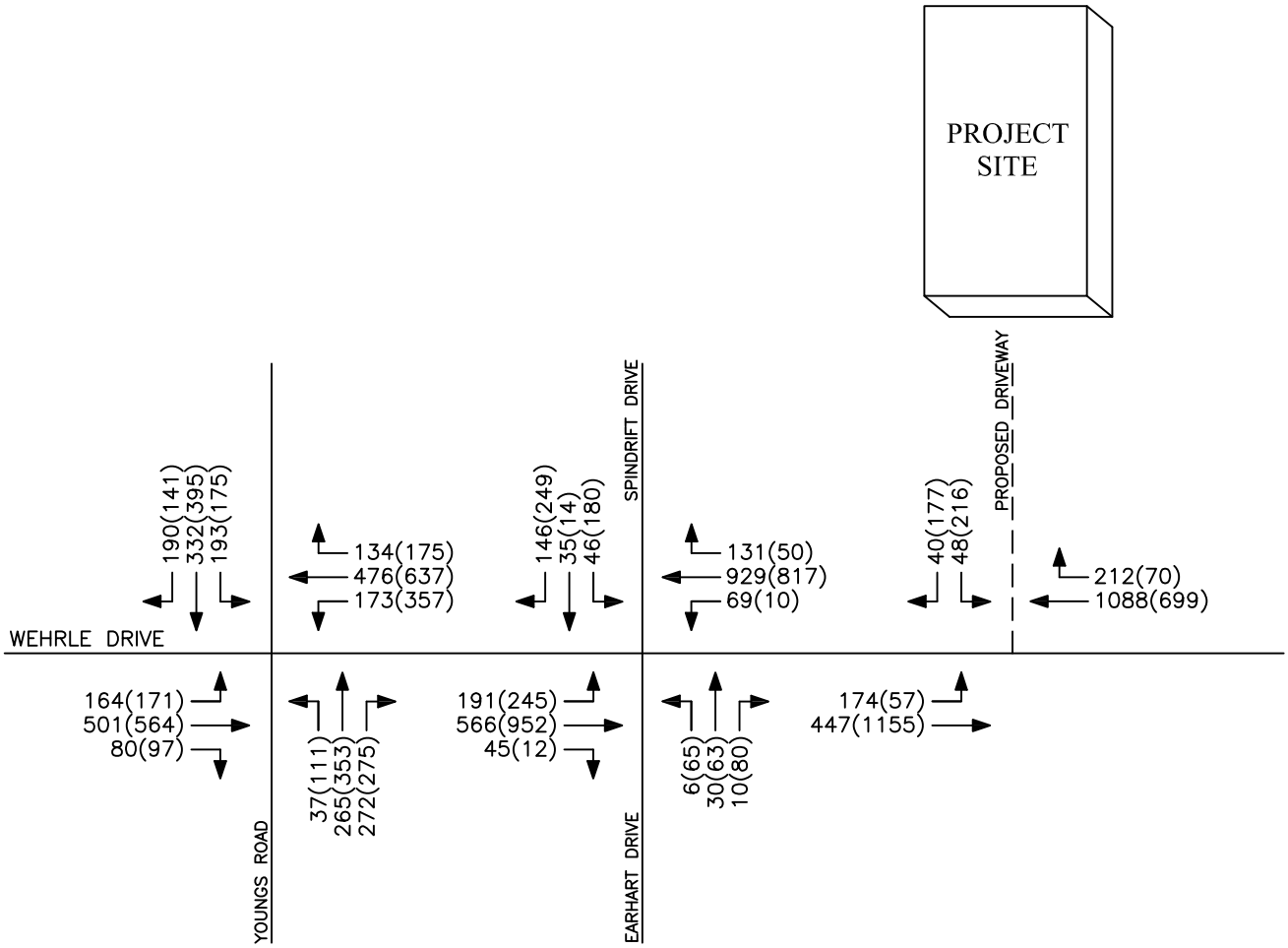
SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



KEY	FIGURE 8A	
00(00) = AM(PM) N NOT TO SCALE	PEAK HOUR VOLUMES PHASE 1 FULL DEVELOPMENT CONDITIONS	SRF ASSOCIATES Transportation Planning / Engineering / Design www.srfa.net / (585) 272-4660
	PROPOSED OFFICE DEVELOPMENT, TOWN OF AMHERST, NY	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



KEY	FIGURE 8B
00(00) = AM(PM) N NOT TO SCALE	PEAK HOUR VOLUMES FULL DEVELOPMENT CONDITIONS
	PROPOSED OFFICE DEVELOPMENT, TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDICES

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

A1

Collected Traffic Volume Data

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

SRF Associates, D.P.C.

3495 Winton Place, Building E, Suite 110
Rochester, New York 14623

File Name : Main at Limestone - AM
Site Code : 11111111
Start Date : 9/13/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

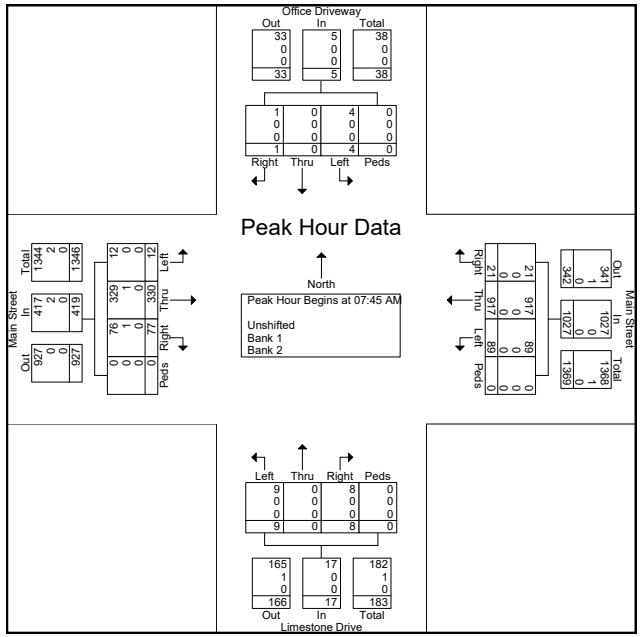
	Office Driveway Southbound				Main Street Westbound				Limestone Drive Northbound				Main Street Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	1	0	3	151	10	0	2	0	0	0	8	65	3	0	243
07:15 AM	1	0	0	0	2	198	11	0	0	0	1	0	10	76	3	0	302
07:30 AM	2	0	0	0	1	245	24	0	1	0	2	0	17	62	1	0	355
07:45 AM	0	0	2	0	6	297	24	0	2	0	0	0	24	73	1	0	429
Total	3	0	3	0	12	891	69	0	5	0	3	0	59	276	8	0	1329
08:00 AM	0	0	0	0	7	200	30	0	3	0	1	0	26	80	2	0	349
08:15 AM	0	0	2	0	6	202	17	0	1	0	3	0	11	70	5	0	317
08:30 AM	1	0	0	0	2	218	18	0	2	0	5	0	16	107	4	0	373
08:45 AM	2	0	0	0	3	191	27	0	5	0	5	0	22	106	6	0	367
Total	3	0	2	0	18	811	92	0	11	0	14	0	75	363	17	0	1406
Grand Total	6	0	5	0	30	1702	161	0	16	0	17	0	134	639	25	0	2735
Apprch %	54.5	0	45.5	0	1.6	89.9	8.5	0	48.5	0	51.5	0	16.8	80.1	3.1	0	
Total %	0.2	0	0.2	0	1.1	62.2	5.9	0	0.6	0	0.6	0	4.9	23.4	0.9	0	
Unshifted	6	0	5	0	30	1700	161	0	16	0	17	0	133	636	25	0	2729
% Unshifted	100	0	100	0	100	99.9	100	0	100	0	100	0	99.3	99.5	100	0	99.8
Bank 1	0	0	0	0	0	2	0	0	0	0	0	0	1	3	0	0	6
% Bank 1	0	0	0	0	0	0.1	0	0	0	0	0	0	0.7	0.5	0	0	0.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SRF Associates, D.P.C.

3495 Winton Place, Building E, Suite 110
Rochester, New York 14623

File Name : Main at Limestone - AM
Site Code : 11111111
Start Date : 9/13/2018
Page No : 2

	Office Driveway Southbound					Main Street Westbound					Limestone Drive Northbound					Main Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	**2**	0	**2**	6	**297**	24	0	**327**	2	0	0	0	2	24	73	1	0	98	**429**
08:00 AM	0	0	0	0	0	**7**	200	**30**	0	237	**3**	0	1	0	4	**26**	80	2	0	108	349
08:15 AM	0	0	2	0	2	6	202	17	0	225	1	0	3	0	4	11	70	**5**	0	86	317
08:30 AM	**1**	0	0	0	1	2	218	18	0	238	2	0	**5**	0	**7**	16	**107**	4	0	**127**	373
Total Volume	1	0	4	0	5	21	917	89	0	1027	8	0	9	0	17	77	330	12	0	419	1468
% App. Total	20	0	80	0		2	89.3	8.7	0		47.1	0	52.9	0		18.4	78.8	2.9	0		
PHF	.250	.000	.500	.000	.625	.750	.772	.742	.000	.785	.667	.000	.450	.000	.607	.740	.771	.600	.000	.825	.855
Unshifted	1	0	4	0	5	21	917	89	0	1027	8	0	9	0	17	76	329	12	0	417	1466
% Unshifted	100	0	100	0	100	100	100	100	0	100	100	0	100	0	100	98.7	99.7	100	0	99.5	99.9
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0.3	0	0	0.5	0.1
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



File Name : Main at Limestone - PM
Site Code : 22222222
Start Date : 9/13/2018
Page No : 1

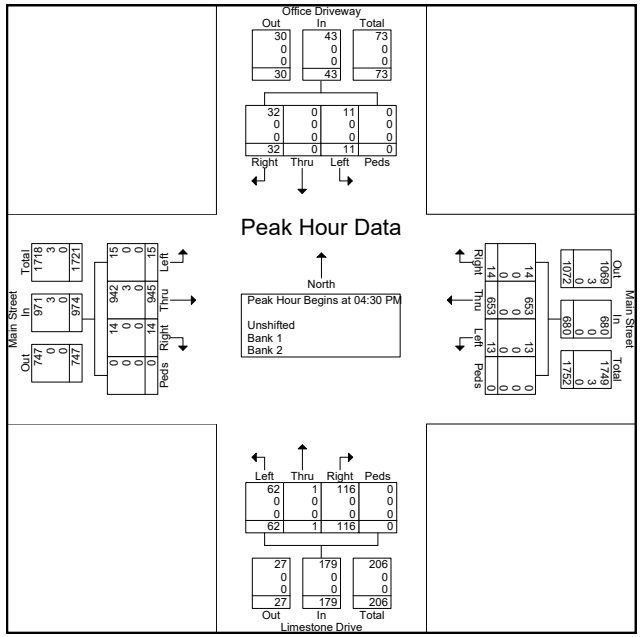
Groups Printed- Unshifted - Bank 1 - Bank 2

	Office Driveway Southbound				Main Street Westbound				Limestone Drive Northbound				Main Street Eastbound				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	5	0	2	0	3	163	2	0	20	0	14	0	6	247	5	0	467
04:15 PM	5	0	0	0	3	114	3	0	11	0	14	0	6	193	2	0	351
04:30 PM	10	0	3	0	3	167	3	0	21	0	16	0	3	180	6	0	412
04:45 PM	8	0	2	0	1	154	2	0	22	0	10	0	4	218	3	0	424
Total	28	0	7	0	10	598	10	0	74	0	54	0	19	838	16	0	1654
05:00 PM	6	0	4	0	2	192	6	0	42	1	23	0	5	277	3	0	561
05:15 PM	8	0	2	0	8	140	2	0	31	0	13	0	2	270	3	0	479
05:30 PM	2	0	2	0	0	141	1	0	19	0	9	0	7	244	1	0	426
05:45 PM	2	0	1	0	1	149	3	0	7	0	9	0	4	229	0	0	405
Total	18	0	9	0	11	622	12	0	99	1	54	0	18	1020	7	0	1871
Grand Total	46	0	16	0	21	1220	22	0	173	1	108	0	37	1858	23	0	3525
Apprch %	74.2	0	25.8	0	1.7	96.6	1.7	0	61.3	0.4	38.3	0	1.9	96.9	1.2	0	
Total %	1.3	0	0.5	0	0.6	34.6	0.6	0	4.9	0	3.1	0	1	52.7	0.7	0	
Unshifted	46	0	16	0	21	1216	22	0	173	1	108	0	37	1854	23	0	3517
% Unshifted	100	0	100	0	100	99.7	100	0	100	100	100	0	100	99.8	100	0	99.8
Bank 1	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0	8
% Bank 1	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0.2	0	0	0.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SRF Associates, D.P.C.
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623

File Name : Main at Limestone - PM
Site Code : 22222222
Start Date : 9/13/2018
Page No : 2

	Office Driveway Southbound					Main Street Westbound					Limestone Drive Northbound					Main Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**10**	0	3	0	**13**	3	167	3	0	173	21	0	16	0	37	3	180	**6**	0	189	412
04:45 PM	8	0	2	0	10	1	154	2	0	157	22	0	10	0	32	4	218	3	0	225	424
05:00 PM	6	0	**4**	0	10	2	**192**	**6**	0	**200**	**42**	**1**	**23**	0	**66**	**5**	**277**	3	0	**285**	**561**
05:15 PM	8	0	2	0	10	**8**	140	2	0	150	31	0	13	0	44	2	270	3	0	275	479
Total Volume	32	0	11	0	43	14	653	13	0	680	116	1	62	0	179	14	945	15	0	974	1876
% App. Total	74.4	0	25.6	0		2.1	96	1.9	0		64.8	0.6	34.6	0		1.4	97	1.5	0		
PHF	.800	.000	.688	.000	.827	.438	.850	.542	.000	.850	.690	.250	.674	.000	.678	.700	.853	.625	.000	.854	.836
Unshifted	32	0	11	0	43	14	653	13	0	680	116	1	62	0	179	14	942	15	0	971	1873
% Unshifted	100	0	100	0	100	100	100	100	0	100	100	100	100	0	100	100	99.7	100	0	99.7	99.8
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0.3	0.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SRF Associates, D.P.C.
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623

File Name : Wehrle at Spindrift - AM
Site Code : 00038052
Start Date : 9/13/2018
Page No : 1

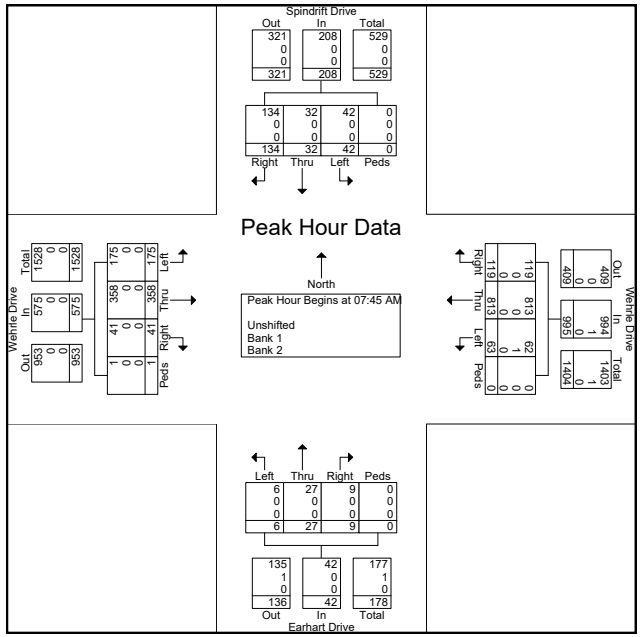
Groups Printed- Unshifted - Bank 1 - Bank 2

	Spindrift Drive Southbound				Wehrle Drive Westbound				Earhart Drive Northbound				Wehrle Drive Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	13	3	5	0	32	106	4	0	2	2	1	0	4	72	38	0	282
07:15 AM	29	3	6	0	28	179	7	0	0	4	2	0	9	87	43	0	397
07:30 AM	32	6	7	0	45	168	18	0	0	5	3	0	10	81	36	0	411
07:45 AM	29	6	11	0	36	213	20	0	1	11	2	0	11	97	51	0	488
Total	103	18	29	0	141	666	49	0	3	22	8	0	34	337	168	0	1578
08:00 AM	29	7	10	0	24	210	18	0	3	5	0	0	9	91	42	0	448
08:15 AM	39	11	11	0	26	199	11	0	3	6	3	0	9	81	49	1	449
08:30 AM	37	8	10	0	33	191	14	0	2	5	1	0	12	89	33	0	435
08:45 AM	35	10	10	0	27	193	14	0	6	6	2	0	6	73	38	0	420
Total	140	36	41	0	110	793	57	0	14	22	6	0	36	334	162	1	1752
Grand Total	243	54	70	0	251	1459	106	0	17	44	14	0	70	671	330	1	3330
Apprch %	66.2	14.7	19.1	0	13.8	80.3	5.8	0	22.7	58.7	18.7	0	6.5	62.6	30.8	0.1	
Total %	7.3	1.6	2.1	0	7.5	43.8	3.2	0	0.5	1.3	0.4	0	2.1	20.2	9.9	0	
Unshifted	243	54	70	0	251	1458	105	0	16	44	14	0	69	670	330	1	3325
% Unshifted	100	100	100	0	100	99.9	99.1	0	94.1	100	100	0	98.6	99.9	100	100	99.8
Bank 1	0	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0	5
% Bank 1	0	0	0	0	0	0.1	0.9	0	5.9	0	0	0	1.4	0.1	0	0	0.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SRF Associates, D.P.C.
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623

File Name : Wehrle at Spindrift - AM
Site Code : 00038052
Start Date : 9/13/2018
Page No : 2

	Spindrift Drive Southbound					Wehrle Drive Westbound					Earhart Drive Northbound					Wehrle Drive Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	29	6	**11**	0	46	**36**	**213**	**20**	0	**269**	1	**11**	2	0	**14**	11	**97**	**51**	0	**159**	**488**
08:00 AM	29	7	10	0	46	24	210	18	0	252	**3**	5	0	0	8	9	91	42	0	142	448
08:15 AM	**39**	**11**	11	0	**61**	26	199	11	0	236	3	6	**3**	0	12	9	81	49	**1**	140	449
08:30 AM	37	8	10	0	55	33	191	14	0	238	2	5	1	0	8	**12**	89	33	0	134	435
Total Volume	134	32	42	0	208	119	813	63	0	995	9	27	6	0	42	41	358	175	1	575	1820
% App. Total	64.4	15.4	20.2	0		12	81.7	6.3	0		21.4	64.3	14.3	0		7.1	62.3	30.4	0.2		
PHF	.859	.727	.955	.000	.852	.826	.954	.788	.000	.925	.750	.614	.500	.000	.750	.854	.923	.858	.250	.904	.932
Unshifted	134	32	42	0	208	119	813	62	0	994	9	27	6	0	42	41	358	175	1	575	1819
% Unshifted	100	100	100	0	100	100	100	98.4	0	99.9	100	100	100	0	100	100	100	100	100	100	99.9
Bank 1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
% Bank 1	0	0	0	0	0	0	0	1.6	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



File Name : Wehrle at Spindrift - PM
Site Code : 00038052
Start Date : 9/13/2018
Page No : 1

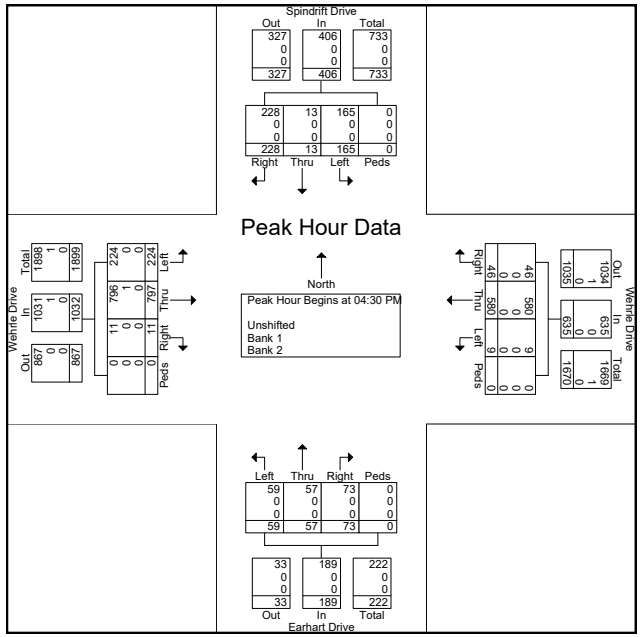
Groups Printed- Unshifted - Bank 1 - Bank 2

	Spindrift Drive Southbound				Wehrle Drive Westbound				Earhart Drive Northbound				Wehrle Drive Eastbound				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	46	4	56	0	7	138	5	0	17	7	9	0	2	167	31	0	489
04:15 PM	46	5	29	0	12	117	3	0	9	7	9	0	5	167	26	0	435
04:30 PM	78	4	55	0	8	164	2	0	16	10	22	0	3	172	44	0	578
04:45 PM	53	2	38	0	10	154	3	0	12	11	11	0	5	181	51	0	531
Total	223	15	178	0	37	573	13	0	54	35	51	0	15	687	152	0	2033
05:00 PM	44	7	40	0	10	133	2	0	32	18	21	0	2	233	65	0	607
05:15 PM	53	0	32	0	18	129	2	0	13	18	5	0	1	211	64	0	546
05:30 PM	27	3	21	0	14	126	2	0	20	8	9	0	6	225	63	0	524
05:45 PM	23	1	20	0	10	114	5	0	15	4	5	0	3	202	55	0	457
Total	147	11	113	0	52	502	11	0	80	48	40	0	12	871	247	0	2134
Grand Total	370	26	291	0	89	1075	24	0	134	83	91	0	27	1558	399	0	4167
Apprch %	53.9	3.8	42.4	0	7.5	90.5	2	0	43.5	26.9	29.5	0	1.4	78.5	20.1	0	
Total %	8.9	0.6	7	0	2.1	25.8	0.6	0	3.2	2	2.2	0	0.6	37.4	9.6	0	
Unshifted	370	26	290	0	89	1074	24	0	134	83	90	0	27	1553	399	0	4159
% Unshifted	100	100	99.7	0	100	99.9	100	0	100	100	98.9	0	100	99.7	100	0	99.8
Bank 1	0	0	1	0	0	1	0	0	0	0	1	0	0	5	0	0	8
% Bank 1	0	0	0.3	0	0	0.1	0	0	0	0	1.1	0	0	0.3	0	0	0.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SRF Associates, D.P.C.
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623

File Name : Wehrle at Spindrift - PM
Site Code : 00038052
Start Date : 9/13/2018
Page No : 2

Start Time	Spindrift Drive Southbound					Wehrle Drive Westbound					Earhart Drive Northbound					Wehrle Drive Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**78**	4	**55**	0	**137**	8	**164**	2	0	**174**	16	10	**22**	0	48	3	172	44	0	219	578
04:45 PM	53	2	38	0	93	10	154	**3**	0	167	12	11	11	0	34	**5**	181	51	0	237	531
05:00 PM	44	**7**	40	0	91	10	133	2	0	145	**32**	**18**	21	0	**71**	2	**233**	**65**	0	**300**	**607**
05:15 PM	53	0	32	0	85	**18**	129	2	0	149	13	18	5	0	36	1	211	64	0	276	546
Total Volume	228	13	165	0	406	46	580	9	0	635	73	57	59	0	189	11	797	224	0	1032	2262
% App. Total	56.2	3.2	40.6	0		7.2	91.3	1.4	0		38.6	30.2	31.2	0		1.1	77.2	21.7	0		
PHF	.731	.464	.750	.000	.741	.639	.884	.750	.000	.912	.570	.792	.670	.000	.665	.550	.855	.862	.000	.860	.932
Unshifted	228	13	165	0	406	46	580	9	0	635	73	57	59	0	189	11	796	224	0	1031	2261
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	99.9	100	0	99.9	100.0
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.0
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



3.a

Peak Hour Data for Intersection

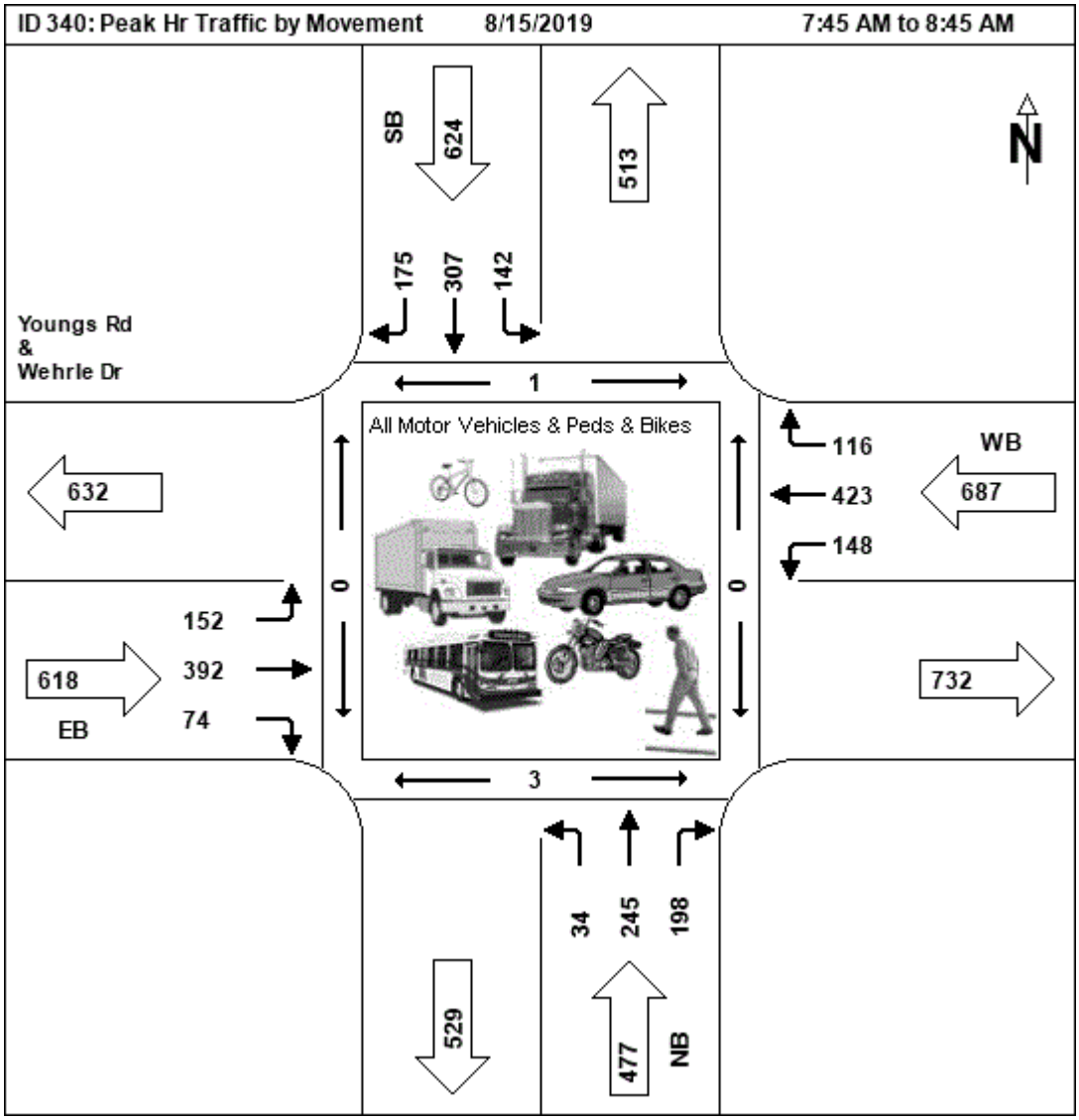
Int ID: 340
Community: Amherst
Road 1: Youngs Rd
Road 2: Wehrle Dr
Corridor: NA
Road 3:
Road 4:

|<< < > >>| 1-2 of 2

AM Peak Hour
08/15/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:45 AM	11	64	60	0	135	46	119	20	1	185	43	72	42	0	157	33	92	27	0	152	629
8:00 AM	10	70	48	0	128	38	91	22	0	151	30	77	45	0	152	35	129	26	0	190	621
8:15 AM	8	60	46	0	114	30	87	17	1	134	28	74	42	0	144	46	103	38	0	187	579
8:30 AM	5	51	44	0	100	38	95	15	1	148	41	84	46	0	171	34	99	25	1	158	577
Total	34	245	198	0	477	152	392	74	3	618	142	307	175	0	624	148	423	116	1	687	2406
PHF	0.77	0.88	0.83		0.88	0.83	0.82	0.84		0.84	0.83	0.91	0.95		0.91	0.80	0.82	0.76		0.90	
HV %	12	3	4			6	3	3			3	3	2			3	3	7			

Cars Trucks Pedestrians Bikes

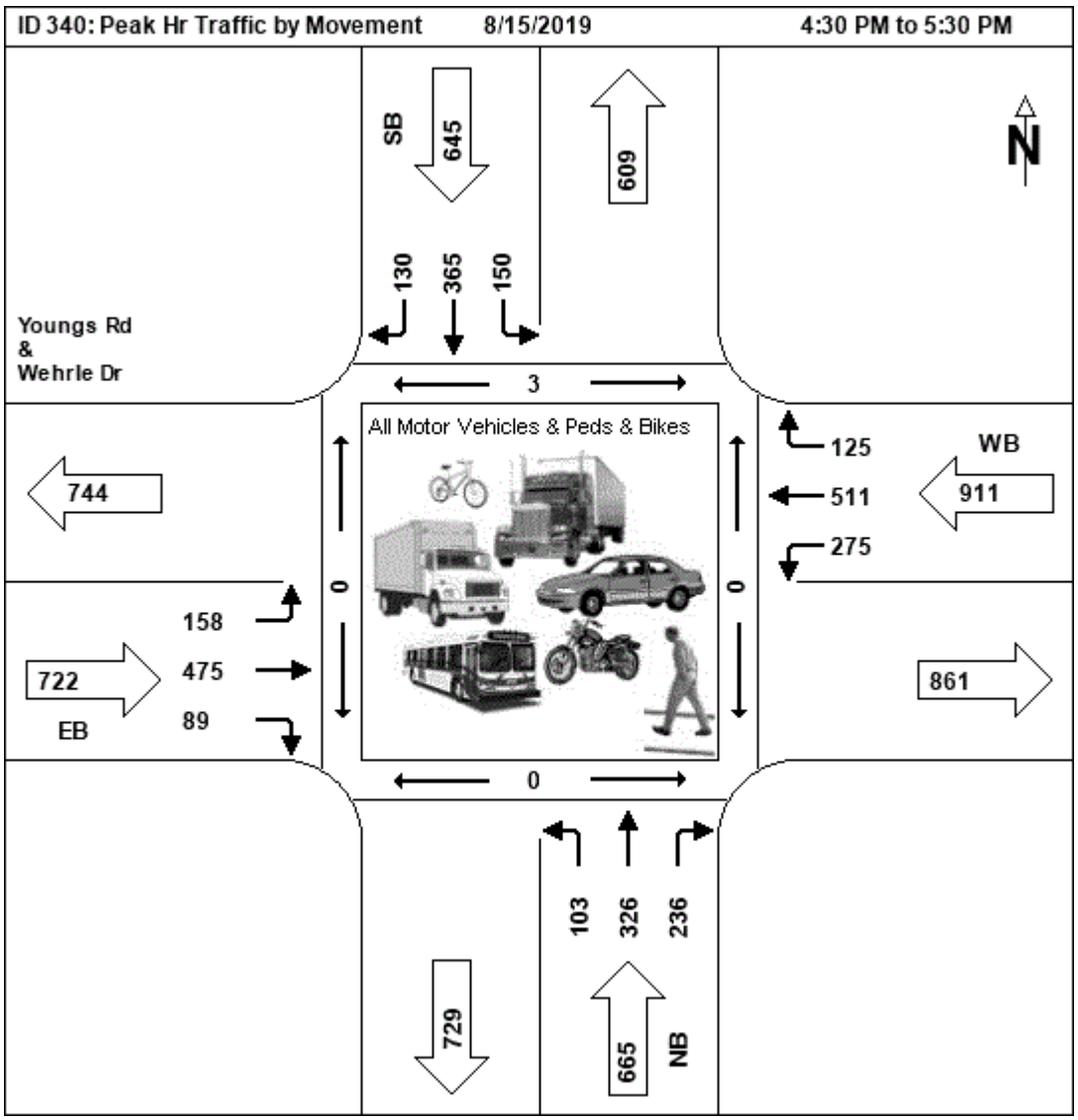


Midday Peak Hour
08/15/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
12:30 PM	8	56	46	0	110	29	77	16	1	122	46	66	22	1	134	31	90	28	0	149	515

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3.a



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

A2

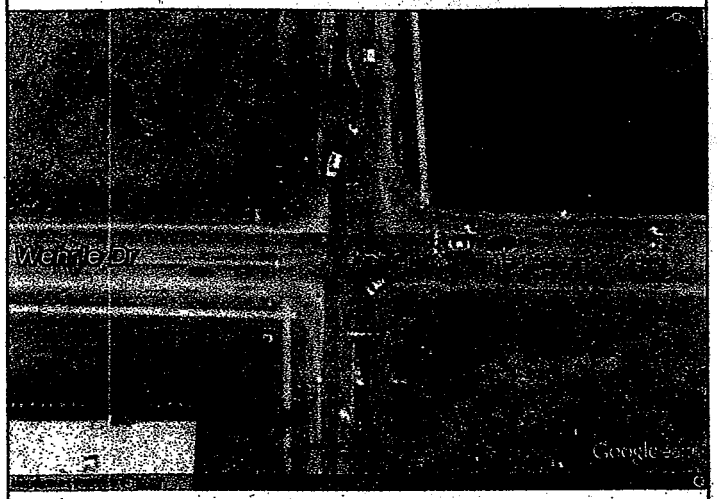
Miscellaneous Traffic Data and Calculations

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3.a

Intersection Name	1 - WEHRLE/YOUNGS	Local ID	1
Intersection Telephone Number			
System Name	36 - WEHRLE/YOUNGS	System ID	36
Controller Type	Voyage - 330 Cab.		
Controller Serial Number		Installation Date	
Programmed by		Programmed Date	

Graphic Map Background



Control Data

Controller Function and Timing (next/2/1, next/2/2)

Security, Sequence, Initialization

Security Code	****	0 = disabled, or 1000-9999
Sequence	1	0 = sequential, 1 = quad left turn, 2-6 = special A-E, 7 = lead lag

Lead Lag (next/2/2/3)

Phases 1 - 2	Phases 3 - 4	Phases 5 - 6	Phases 7 - 8

0 = no reversal, 1 = reversal, 2 = by coord plan or clock

Initialization and Flash (next/2/2/5)

	Initialization	Flash Entry	Flash Exit	
Ring 1 Phase	4	0	0	phase 1-8
Ring 2 Phase	8	0	0	phase 1-8
Interval	0	0	0	0 = red, 1 = yellow, 2 = green

Power up Flash	0.0	0.0 - 25.5 seconds		First All Red	6.0	0.0 - 25.5 seconds

Soft Flash (next/2/2/5)

Phase	1	2	3	4	5	6	7	8	0 = dark, 1=flash yel WIG, 2 = flash yel WAG, 3 = flash red WIG, 4 = flash red WAG				
	0	0	0	0	0	0	0	0					
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	same as phase
	0	0	0	0	0	0	0	0	0	0	0	0	
Internal Logic Output	1	2	3	4	5	6	7	8	9	10	11	12	0 = normal, 1 = dark, 2 = flash WIG
	0	0	0	0	0	0	0	0	0	0	0	0	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Phase Times (next/2/2/2, next/2/2/7/6)

	1	2	3	4	5	6	7	8	
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT	
Minimum Green	4	4	4	4	4	4	4	4	0 - 255 sec.
Passage	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0 - 25.5 sec.
Yellow	3.0	3.0	3.0	3.0	3.5	3.0	3.0	3.0	0.0 - 25.5 sec.
Red Clearance	2.0	2.0	2.0	2.0	0.5	2.0	2.0	2.0	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	11	26	9	44	12	25	12	41	0 - 255 sec
Max 2	10	27	9	24	10	27	13	20	0 - 255 sec
Walk	0	7	0	7	0	7	0	7	0 - 255 sec
Ped Clear	0	15	0	15	0	15	0	15	0 - 255 sec
Seconds Per Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	0	0	0	0	0	0	0	0 - 255 sec
Time to Reduce	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Gap	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0 - 25.5 sec.
Max Variable Initial	0	0	0	0	0	0	0	0	0 - 255 sec
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Other Controller Functions (next/2/2/9)

Phase -->	1	2	3	4	5	6	7	8	
Inhibit Simultaneous Gap Out									X = On

Last Car Passage	0	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage
Red Revert (+2seconds)	0.0	0 - 25.5 sec.
Auto Ped Clear		X = On
Flashing Don't Walk Thru Yellow		X = On
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec.
Change Sequence		X = On (After a download with a power on - off cycle)

Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

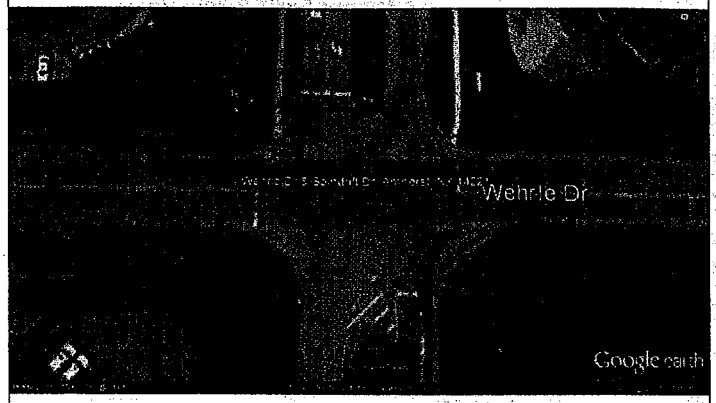
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TOA

Monday, April 24, 2017 12:58

Intersection Name	*1 -*		**Local ID**	*1*	
Intersection Telephone Number					
System Name	*55 - WEHRLE/SPINDRIFT/EARHART*		**System ID**	*55*	
Controller Type	*Voyage - 330 Cab.*				
Controller Serial Number			**Installation Date**		
Programmed by			**Programmed Date**		

Graphic Map Background



Control Data

Controller Function and Timing (next/2/1, next/2/2)

Security, Sequence, Initialization

Security Code	****	0 = disabled, or 1000-9999
Sequence	*1*	0 = sequential, 1 = quad left turn, 2-6 = special A-E, 7 = lead lag

Lead Lag (next/2/2/3)			
Phases 1 - 2	**Phases 3 - 4**	**Phases 5 - 6**	**Phases 7 - 8**
0 = no reversal, 1 = reversal, 2 = by coord plan or clock			

Initialization and Flash (next/2/2/5)

	Initialization	Flash Entry	Flash Exit	
Ring 1 Phase	*4*	*0*	*0*	phase 1-8
Ring 2 Phase	*8*	*0*	*0*	phase 1-8
Interval	*0*	*0*	*0*	0 = red, 1 = yellow, 2 = green

Power up Flash	*0.0*	0.0 - 25.5 seconds		**First All Red**	*6.0*	0.0 - 25.5 seconds

Soft Flash (next/2/2/5)

Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	0 = dark, 1=flash yel WIG, 2 = flash yel WAG, 3 = flash red WIG, 4 = flash red WAG
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	

Overlap	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	same as phase
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Internal Logic Output	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	0 = normal, 1 = dark, 2 = flash WIG
	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Phase Times (next/2/2/2, next/2/2/7/6)

	1	2	3	4	5	6	7	8	
Movement	WBL	EBT		SBT	EBL	WBT		NBT	
Minimum Green	4	4	0	4	4	4	0	4	0 - 255 sec.
Passage	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0 - 25.5 sec.
Yellow	3.5	3.0	0.0	3.0	3.0	3.0	0.0	3.5	0.0 - 25.5 sec.
Red Clearance	0.5	2.0	0.0	2.0	0.5	2.0	0.0	2.0	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	8	31	0	21	13	26	0	21	0 - 255 sec
Max 2	9	25	0	26	11	23	0	26	0 - 255 sec
Walk	0	7	0	7	0	7	0	7	0 - 255 sec
Ped Clear	0	15	0	15	0	15	0	15	0 - 255 sec
Seconds Per Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	0	0	0	0	0	0	0	0 - 255 sec
Time to Reduce	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Gap	3.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	0.0 - 25.5 sec.
Max Variable Initial	0	0	0	0	0	0	0	0	0 - 255 sec
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Other Controller Functions (next/2/2/9)

Phase -->	1	2	3	4	5	6	7	8	
Inhibit Simultaneous Gap Out									X = On

Last Car Passage	0	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage
Red Revert (+2seconds)	0.0	0 - 25.5 sec.
Auto Ped Clear		X = On
Flashing Don't Walk Thru Yellow		X = On
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec.
Change Sequence		X = On (After a download with a power on - off cycle)

Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Proposed Wehrle Dr Office Development, Town of Amherst, Erie County, NY

Documentation of Ambient Traffic Volume Growth

Roadway	Segment starts at	Segment end at	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Annual Growth
Wehrle Dr	Youngs Rd	Transit Rd		13,411						16,639				3.66%
Youngs Rd	Wehrle Dr	Main St	13,701			13,833				16,692				2.86%
Youngs Rd	Aero Dr	Wehrle Dr	10,487			13,111			12,459					-1.69%
Main St	Youngs Rd	Transit Rd	24,639			22,824		27,783	23,262			22,536		-0.99%
													AVERAGE	0.96%

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

PROJECT DETAILS

Project Name:	Wehrle Dr Amherst - Phase 1	Type of Project:	
Project No:	41089	City:	
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Amy Dake	Clients Name:	
Date:	9/3/2021	ZIP/Postal Code:	
State/Province:		No. of Scenarios:	2
Analysis Region:			

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	AM Peak	2	1	0		137	26	163
Scenario - 2	PM Peak	2	1	0		23	109	132

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Scenario - 1

Scenario Name: AM Peak

Dev. phase: 1

User Group:

No. of Years to Project Traffic : 0

Analyst Note:

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
710(2) - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	84.38	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	91	15	106
Data Source: Trip Generation Manual, 10th Ed +					T = 0.94(X) + 26.49	86%	14%	
170 - Utility	General Urban/Suburban	1000 Sq. Ft. GFA	24.75	Weekday, Peak Hour of Adjacent Street Traffic,	Average	46	11	57
Data Source: Trip Generation Manual, 10th Ed +					2.31	80%	20%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
710(2) - General Office Building	100	100	1	1	86	14
170 - Utility	100	100	1	1	80	20

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
710(2) - General Office Building	91	15	0	0	91	15
	106		0		106	
170 - Utility	46	11	0	0	46	11
	57		0		57	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
710(2) - General Office Building	91	15	106
170 - Utility	46	11	57

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	137	26	163
External Vehicle Trips	137	26	163
New Vehicle Trips	137	26	163

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Scenario - 2

Scenario Name: PM Peak

User Group:

Dev. phase: 1

No. of Years to Project Traffic : 0

Analyst Note:

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
710(2) - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	84.38	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	16	81	97
Data Source: Trip Generation Manual, 10th Ed +					Ln(T) =0.95Ln(X) + 0.36	16%	84%	
170 - Utility	General Urban/Suburban	1000 Sq. Ft. GFA	24.75	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	7	28	35
Data Source: Trip Generation Manual, 10th Ed +					Ln(T) =0.85Ln(X) + 0.84	20%	80%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
710(2) - General Office Building	100	100	1	1	16	84
170 - Utility	100	100	1	1	20	80

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
710(2) - General Office Building	16	81	0	0	16	81
	97		0		97	
170 - Utility	7	28	0	0	7	28
	35		0		35	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
710(2) - General Office Building	16	81	97
170 - Utility	7	28	35

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	23	109	132
External Vehicle Trips	23	109	132
New Vehicle Trips	23	109	132

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

PROJECT DETAILS

Project Name:	Wehrle Dr Amherst	Type of Project:	
Project No:		City:	
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Amy Dake	Clients Name:	
Date:	9/3/2021	ZIP/Postal Code:	
State/Province:		No. of Scenarios:	2
Analysis Region:			

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	AM Peak	5	1	0		386	88	474
Scenario - 2	PM Peak	5	1	0		127	393	520

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Scenario - 1

Scenario Name: AM Peak
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	11.4	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	32	5	37
Data Source: Trip Generation Manual, 10th Ed +					T = 0.94(X) + 26.49	86%	14%	
710(1) - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	17.25	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	37	6	43
Data Source: Trip Generation Manual, 10th Ed +					T = 0.94(X) + 26.49	86%	14%	
710(2) - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	84.38	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	91	15	106
Data Source: Trip Generation Manual, 10th Ed +					T = 0.94(X) + 26.49	86%	14%	
720 - Medical-Dental Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	103.5	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	180	51	231
Data Source: Trip Generation Manual, 10th Ed +					Ln(T) =0.89Ln(X) + 1.31	78%	22%	
170 - Utility	General Urban/Suburban	1000 Sq. Ft. GFA	24.75	Weekday, Peak Hour of Adjacent Street	Average	46	11	57
Data Source: Trip Generation Manual, 10th Ed +					2.31	80%	20%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
710 - General Office Building	100	100	1	1	86	14
710(1) - General Office Building	100	100	1	1	86	14
710(2) - General Office Building	100	100	1	1	86	14
720 - Medical-Dental Office Building	100	100	1.4	1.4	78	22
170 - Utility	100	100	1	1	80	20

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
710 - General Office Building	32	5	0	0	32	5
	37		0		37	
710(1) - General Office Building	37	6	0	0	37	6
	43		0		43	
710(2) - General Office Building	91	15	0	0	91	15
	106		0		106	
720 - Medical-Dental Office Building	251	71	0	0	251	71
	322		0		322	
170 - Utility	46	11	0	0	46	11
	57		0		57	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
710 - General Office Building	32	5	37
710(1) - General Office Building	37	6	43

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

710(2) - General Office Building	91	15	106
720 - Medical-Dental Office Building	180	51	231
170 - Utility	46	11	57

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	386	88	474
External Vehicle Trips	386	88	474
New Vehicle Trips	386	88	474

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Scenario - 2

Scenario Name: PM Peak

User Group:

Dev. phase: 1

No. of Years to Project Traffic : 0

Analyst Note:

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
710 - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	11.4	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	2	12	14
Data Source: Trip Generation Manual, 10th Ed +					Ln(T) =0.95Ln(X) + 0.36	16%	84%	
710(1) - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	17.25	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	3	18	21
Data Source: Trip Generation Manual, 10th Ed +					Ln(T) =0.95Ln(X) + 0.36	16%	84%	
710(2) - General Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	84.38	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	16	81	97
Data Source: Trip Generation Manual, 10th Ed +					Ln(T) =0.95Ln(X) + 0.36	16%	84%	
720 - Medical-Dental Office Building	General Urban/Suburban	1000 Sq. Ft. GFA	103.5	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	99	254	353
Data Source: Trip Generation Manual, 10th Ed +					T = 3.39(X) + 2.02	28%	72%	
170 - Utility	General Urban/Suburban	1000 Sq. Ft. GFA	24.75	Weekday, Peak Hour of Adjacent Street	Best Fit (LOG)	7	28	35
Data Source: Trip Generation Manual, 10th Ed +					Ln(T) =0.85Ln(X) + 0.84	20%	80%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
710 - General Office Building	100	100	1	1	16	84
710(1) - General Office Building	100	100	1	1	16	84
710(2) - General Office Building	100	100	1	1	16	84
720 - Medical-Dental Office Building	100	100	1.4	1.4	28	72
170 - Utility	100	100	1	1	20	80

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
710 - General Office Building	2	12	0	0	2	12
	14		0		14	
710(1) - General Office Building	3	18	0	0	3	18
	21		0		21	
710(2) - General Office Building	16	81	0	0	16	81
	97		0		97	
720 - Medical-Dental Office Building	138	356	0	0	138	356
	494		0		494	
170 - Utility	7	28	0	0	7	28
	35		0		35	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
710 - General Office Building	2	12	14
710(1) - General Office Building	3	18	21

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

710(2) - General Office Building	16	81	97
720 - Medical-Dental Office Building	99	254	353
170 - Utility	7	28	35

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	127	393	520
External Vehicle Trips	127	393	520
New Vehicle Trips	127	393	520

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

PROPOSED WEHRLE DRIVE OFFICE DEVELOPMENT
TOWN OF AMHERST, NY
AM PEAK

			Num of yrs 3	Num of yrs 2	Num of yrs 3															
LOCATION NUMBER	INTERSECTION DESCRIPTION	2018 Existing Volume	2021 Base Vol. 1.0%	2023 Bkgd Vol. 2.0%	2024 Bkgd Vol. 2.0%	2023 Background Volume	2024 Background Volume	Phase 1 Office Development Enter Dist. %	Exit Dist. %	Trips IN 137	Trips OUT 26	Total Site Trips	Phase 1 Build Volumes	Full Build Office Development Enter Dist. %	Exit Dist. %	Trips IN 386	Trips OUT 88	Total Site Trips	Full Build Volumes
1	Spindrift Drive & Earhart Drive/ Wehrle Drive																		
	SR	134	138	142	146	142	146						142						146
	ST	32	33	34	35	34	35						34						35
	SL	42	43	44	46	44	46						44						46
	WR	119	123	127	131	127	131						127						131
	WT	813	838	863	889	863	889		45%		12	12	875		45%		40	40	929
	WL	63	65	67	69	67	69						67						69
	NR	9	9	9	10	9	10						9						10
	NT	27	28	29	30	29	30						29						30
	NL	6	6	6	6	6	6						6						6
	ER	41	42	43	45	43	45						43						45
	ET	358	369	380	392	380	392	45%		62		62	442	45%		174		174	566
	EL	175	180	185	191	185	191						185						191
2	Youngs Road/ Wehrle Drive	2019																	
	SR	175	179	184	190	184	190						184						190
	ST	307	313	322	332	322	332						322						332
	SL	142	145	149	154	149	154	10%		14		14	163	10%		39		39	193
	WR	116	118	122	125	122	125		10%		5	5	127		10%		5	5	130
	WT	423	432	445	458	445	458		20%		5	5	450		20%		18	18	476
	WL	148	151	156	160	156	160		15%		4	4	160		15%		13	13	173
	NR	198	202	208	214	208	214	15%		21		21	229	15%		58		58	272
	NT	245	250	258	265	258	265						258						265
	NL	34	35	36	37	36	37						36						37
	ER	74	75	77	80	77	80						77						80
	ET	392	400	412	424	412	424	20%		27		27	439	20%		77		77	501
	EL	152	155	160	164	160	164						160						164
3	Proposed Westerly Driveway/ Wehrle Drive																		
	SR								45%		12	12	12		45%		40	40	40
	ST																		
	SL								55%		14	14	14		55%		48	48	48
	WR							55%		75		75	75	55%		212		212	212
	WT	995	1025	1056	1088	1056	1088						1056						1088
	WL																		
	NR																		
	NT																		
	NL																		
	ER																		
	ET	409	421	434	447	434	447						434						447
	EL							45%		62		62	62	45%		174		174	174

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

PROPOSED WEHRLE DRIVE OFFICE DEVELOPMENT
TOWN OF AMHERST, NY
PM PEAK

			Num of yrs 3	Num of yrs 2	Num of yrs 3				Phase 1 Office Development						Full Build Office Development					
LOCATION NUMBER	INTERSECTION DESCRIPTION	2018 Existing Volume	2021 Base Vol. 1.0%	2023 Bkgd Vol. 2.0%	2024 Bkgd Vol. 2.0%	Big Ditch Brewery	2023 Background Volume	2024 Background Volume	Enter Dist. %	Exit Dist. %	Trips IN 23	Trips OUT 109	Total Site Trips	Phase 1 Build Volumes	Enter Dist. %	Exit Dist. %	Trips IN 127	Trips OUT 393	Total Site Trips	Full Build Volumes
1	Spindrift Drive & Earhart Drive/ Wehrle Drive																			
	SR	228	235	242	249		242	249						242						249
	ST	13	13	13	14		13	14						13						14
	SL	165	170	175	180		175	180						175						180
	WR	46	47	48	50		48	50						48						50
	WT	580	598	616	635	5	621	640		45%		49	49	670		45%		177	177	817
	WL	9	9	9	10		9	10						9						10
	NR	73	75	77	80		77	80						77						80
	NT	57	59	61	63		61	63						61						63
	NL	59	61	63	65		63	65						63						65
	ER	11	11	11	12		11	12						11						12
	ET	797	821	846	871	24	870	895	45%		10		10	880	45%		57		57	952
	EL	224	231	238	245		238	245						238						245
2	Youngs Road/ Wehrle Drive	2019																		
	SR	130	133	137	141		137	141						137						141
	ST	365	372	383	395		383	395						383						395
	SL	150	153	158	162		158	162	10%		2		2	160	10%		13		13	175
	WR	125	128	132	136		132	136		10%		5	5	137		10%		5	5	141
	WT	511	521	537	553	5	542	558		20%		22	22	564		20%		79	79	637
	WL	275	281	289	298		289	298		15%		16	16	305		15%		59	59	357
	NR	236	241	248	256		248	256	15%		3		3	251	15%		19		19	275
	NT	326	333	343	353		343	353						343						353
	NL	103	105	108	111		108	111						108						111
	ER	89	91	94	97		94	97						94						97
	ET	475	485	500	515	24	524	539	20%		5		5	529	20%		25		25	564
	EL	158	161	166	171		166	171						166						171
3	Proposed Driveway/ Wehrle Drive																			
	SR									45%		49	49	49		45%		177	177	177
	ST																			
	SL									55%		60	60	60		55%		216	216	216
	WR								55%		13		13	13	55%		70		70	70
	WT	635	654	674	694	5	679	699						679						699
	WL																			
	NR																			
	NT																			
	NL																			
	ER																			
	ET	1035	1066	1098	1131	24	1122	1155						1122						1155
	EL								45%		10		10	10	45%		57		57	57

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

SRF ASSOCIATES
WWW.SRFA.NET
Traffic Engineering & Planning Consultants

Traffic Signal Warrant Analysis Wehrle Drive and Site Drive - Phase 1
Town of Amherst, Erie County

Hour			Existing Fluctuation in Artery Volumes				**Phase I Development Artery Volume on Wehrle Drive at Site Drive**	Hourly Fluctuation of Office Driveway Traffic	**Total Hourly Volumes Proposed Office Driveway* - Phase I**	Warrant Analysis			
			per NYSDOT count on Wehrle Drive	per NYSDOT count on Wehrle Drive	per NYSDOT count on Wehrle Drive	Hourly Fluctuation				Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4-hour)	Warrant 3 (Peak hour)
			EB	WB	Two-Way	Two-Way	**Total**	Exiting		420/140	630/70	80 vph min	80 vph min
7:00 AM	to	8:00 AM	336	856	1192	7.16%	**1396**	0.80%	**5**	N	N	N	N
8:00 AM	to	9:00 AM	381	964	1345	8.08%	**1575**	1.94%	**12**	N	N	N	N
9:00 AM	to	10:00 AM	361	535	896	5.38%	**1049**	4.00%	**24**	N	N	N	N
10:00 AM	to	11:00 AM	435	429	864	5.19%	**1012**	5.36%	**32**	N	N	N	N
11:00 AM	to	12:00 PM	551	467	1018	6.12%	**1192**	9.61%	**57**	N	N	N	N
12:00 PM	to	1:00 PM	718	685	1403	8.43%	**1643**	12.27%	**73**	N	Y	N	N
1:00 PM	to	2:00 PM	632	647	1279	7.69%	**1497**	6.19%	**37**	N	N	N	N
2:00 PM	to	3:00 PM	599	517	1116	6.71%	**1307**	6.89%	**41**	N	N	N	N
3:00 PM	to	4:00 PM	634	547	1181	7.10%	**1383**	8.27%	**49**	N	N	N	N
4:00 PM	to	5:00 PM	919	622	1541	9.26%	**1804**	14.25%	**84**	N	Y	Y	Y
5:00 PM	to	6:00 PM	990	568	1558	9.36%	**1824**	16.73%	**99**	N	Y	Y	Y
6:00 PM	to	7:00 PM	563	404	967	5.81%	**1132**	6.26%	**37**	N	N	N	N
7:00 PM	to	8:00 PM	394	283	677	4.07%	**793**	2.65%	**16**	N	N	N	N
8:00 PM	to	9:00 PM	260	228	488	2.93%	**571**	1.94%	**12**	N	N	N	N
9:00 PM	to	10:00 PM	185	154	339	2.04%	**397**	1.15%	**7**	N	N	N	N
10:00 PM	to	11:00 PM	82	86	168	1.01%	**197**	0.54%	**3**	N	N	N	N
							0						
					16639		19480		**593**				
										0	3	2	2

* 80% of the right turn volumes were included in this calculation as it is assumed that as much as 20% of the right turns may turn right on red.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

SRF ASSOCIATES
WWW.SRFA.NET
Traffic Engineering & Planning Consultants

Traffic Signal Warrant Analysis Wehrle Drive and Site Drive - Full Build
Town of Amherst, Erie County

Hour			Existing Fluctuation in Artery Volumes				**Full Development Artery Volume on Wehrle Drive at Site Drive**	Hourly Fluctuation of Office Driveway Traffic	**Total Hourly Volumes Proposed Office Driveway* - Full Build**	Warrant Analysis			
			per NYSDOT count on Wehrle Drive	per NYSDOT count on Wehrle Drive	per NYSDOT count on Wehrle Drive	Hourly Fluctuation				Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4-hour)	Warrant 3 (Peak hour)
			EB	WB	Two-Way	Two-Way	**Total**	Exiting		420/140	630/70	80 vph min	80 vph min
7:00 AM	to	8:00 AM	336	856	1192	7.16%	**1592**	0.80%	**17**	N	N	N	N
8:00 AM	to	9:00 AM	381	964	1345	8.08%	**1796**	1.94%	**41**	N	N	N	N
9:00 AM	to	10:00 AM	361	535	896	5.38%	**1197**	4.00%	**86**	N	Y	Y	Y
10:00 AM	to	11:00 AM	435	429	864	5.19%	**1154**	5.36%	**115**	N	Y	Y	Y
11:00 AM	to	12:00 PM	551	467	1018	6.12%	**1360**	9.61%	**205**	Y	Y	Y	Y
12:00 PM	to	1:00 PM	718	685	1403	8.43%	**1874**	12.27%	**262**	Y	Y	Y	Y
1:00 PM	to	2:00 PM	632	647	1279	7.69%	**1708**	6.19%	**132**	N	Y	Y	Y
2:00 PM	to	3:00 PM	599	517	1116	6.71%	**1491**	6.89%	**147**	Y	Y	Y	Y
3:00 PM	to	4:00 PM	634	547	1181	7.10%	**1577**	8.27%	**177**	Y	Y	Y	Y
4:00 PM	to	5:00 PM	919	622	1541	9.26%	**2058**	14.25%	**305**	Y	Y	Y	Y
5:00 PM	to	6:00 PM	990	568	1558	9.36%	**2081**	16.73%	**358**	Y	Y	Y	Y
6:00 PM	to	7:00 PM	563	404	967	5.81%	**1292**	6.26%	**134**	N	Y	Y	Y
7:00 PM	to	8:00 PM	394	283	677	4.07%	**904**	2.65%	**57**	N	N	N	N
8:00 PM	to	9:00 PM	260	228	488	2.93%	**652**	1.94%	**41**	N	N	N	N
9:00 PM	to	10:00 PM	185	154	339	2.04%	**453**	1.15%	**24**	N	N	N	N
10:00 PM	to	11:00 PM	82	86	168	1.01%	**224**	0.54%	**12**	N	N	N	N
							0						
					16639		22224		**2137**				
										6	10	10	10

* 80% of the right turn volumes were included in this calculation as it is assumed that as much as 20% of the right turns may turn right on red.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

A3

Level of Service: Criteria and Definitions

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

A4

Level of Service Calculations: Existing Conditions

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	369	42	65	838	123	6	28	9	43	33	138
Future Volume (vph)	180	369	42	65	838	123	6	28	9	43	33	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.981			0.971			0.879	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1805	3556	0	1770	3541	0	0	1834	0	1805	1670	0
Flt Permitted	0.151			0.496				0.926		0.727		
Satd. Flow (perm)	287	3556	0	924	3541	0	0	1708	0	1381	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			24			10			148	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			2091			437			355	
Travel Time (s)		17.0			31.7			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	194	397	45	70	901	132	6	30	10	46	35	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	194	442	0	70	1033	0	0	46	0	46	183	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	36.4	29.2		28.5	21.2			7.3		7.9	7.9	
Actuated g/C Ratio	0.69	0.55		0.54	0.40			0.14		0.15	0.15	
v/c Ratio	0.40	0.23		0.12	0.72			0.19		0.23	0.49	
Control Delay	6.3	7.4		4.2	17.0			20.8		25.1	12.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	6.3	7.4		4.2	17.0			20.8		25.1	12.4	
LOS	A	A		A	B			C		C	B	
Approach Delay		7.1			16.2			20.8			15.0	
Approach LOS		A			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 53.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 59.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

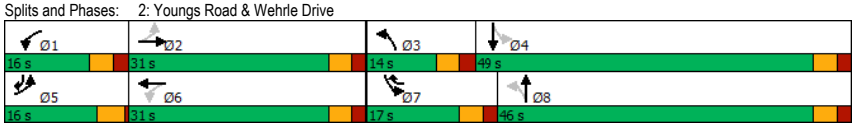


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	400	75	151	432	118	35	250	202	145	313	179
Future Volume (vph)	155	400	75	151	432	118	35	250	202	145	313	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.976				0.850		0.933				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3523	0	1805	3610	1615	1805	3353	0	1805	1881	1615
Flt Permitted	0.399			0.329			0.563			0.284		
Satd. Flow (perm)	758	3523	0	625	3610	1615	1070	3353	0	540	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				123		210				186
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	161	417	78	157	450	123	36	260	210	151	326	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	495	0	157	450	123	36	470	0	151	326	186
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	25.9	15.1		24.8	15.6	9.9	20.0	13.5		28.1	22.2	9.7
Actuated g/C Ratio	0.38	0.22		0.36	0.23	0.14	0.29	0.20		0.41	0.32	0.14
v/c Ratio	0.37	0.62		0.41	0.55	0.36	0.09	0.57		0.37	0.53	0.48
Control Delay	15.6	28.0		17.1	27.2	10.5	13.9	16.5		16.2	25.5	10.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	15.6	28.0		17.1	27.2	10.5	13.9	16.5		16.2	25.5	10.3
LOS	B	C		B	C	B	B	B		B	C	B
Approach Delay		25.0			22.2			16.4			19.1	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 68.4			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 59.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	821	11	9	598	47	61	59	75	170	13	235
Future Volume (vph)	231	821	11	9	598	47	61	59	75	170	13	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.948			0.858	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1805	3603	0	1770	3570	0	0	1774	0	1805	1630	0
Flt Permitted	0.252			0.318				0.624		0.610		
Satd. Flow (perm)	479	3603	0	592	3570	0	0	1124	0	1159	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			41			253	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			2091			437			355	
Travel Time (s)		17.0			31.7			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	248	883	12	10	643	51	66	63	81	183	14	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	895	0	10	694	0	0	210	0	183	267	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	34.0	30.9		24.2	17.2			13.7		14.2	14.2	
Actuated g/C Ratio	0.59	0.54		0.42	0.30			0.24		0.25	0.25	
v/c Ratio	0.45	0.46		0.03	0.64			0.70		0.64	0.45	
Control Delay	8.8	10.2		7.0	20.8			31.1		32.1	6.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	8.8	10.2		7.0	20.8			31.1		32.1	6.5	
LOS	A	B		A	C			C		C	A	
Approach Delay		9.9			20.6			31.1			16.9	
Approach LOS		A			C			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 57.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 15.9		Intersection LOS: B	
Intersection Capacity Utilization 73.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

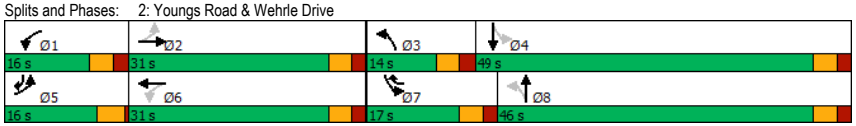


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	485	91	281	521	128	105	337	241	153	372	133
Future Volume (vph)	161	485	91	281	521	128	105	337	241	153	372	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.976				0.850		0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3523	0	1805	3610	1615	1805	3369	0	1805	1881	1615
Flt Permitted	0.331			0.208			0.343			0.213		
Satd. Flow (perm)	629	3523	0	395	3610	1615	652	3369	0	405	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				138		188				143
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	173	522	98	302	560	138	113	362	259	165	400	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	173	620	0	302	560	138	113	621	0	165	400	143
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	31.2	19.9		33.3	22.0	10.3	28.6	20.5		34.0	25.7	10.3
Actuated g/C Ratio	0.38	0.24		0.40	0.27	0.12	0.35	0.25		0.41	0.31	0.12
v/c Ratio	0.45	0.72		0.86	0.58	0.43	0.33	0.63		0.48	0.68	0.44
Control Delay	19.7	34.0		44.9	30.7	11.9	17.5	22.1		19.8	33.4	11.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.7	34.0		44.9	30.7	11.9	17.5	22.1		19.8	33.4	11.9
LOS	B	C		D	C	B	B	C		B	C	B
Approach Delay		30.9			32.4			21.4			25.9	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 82.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 28.1		Intersection LOS: C	
Intersection Capacity Utilization 74.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive



A5

Level of Service Calculations: Background Conditions

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	380	43	67	863	127	6	29	9	44	34	142
Future Volume (vph)	185	380	43	67	863	127	6	29	9	44	34	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.981			0.971			0.879	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1805	3556	0	1770	3541	0	0	1834	0	1805	1670	0
Flt Permitted	0.145			0.490				0.918		0.726		
Satd. Flow (perm)	276	3556	0	913	3541	0	0	1694	0	1379	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			24			10			153	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			2091			437			355	
Travel Time (s)		17.0			31.7			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	199	409	46	72	928	137	6	31	10	47	37	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	199	455	0	72	1065	0	0	47	0	47	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	37.6	30.3		29.5	22.2			7.4		7.9	7.9	
Actuated g/C Ratio	0.69	0.56		0.54	0.41			0.14		0.15	0.15	
v/c Ratio	0.41	0.23		0.12	0.73			0.20		0.23	0.51	
Control Delay	6.8	7.5		4.3	17.2			21.2		25.5	12.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	6.8	7.5		4.3	17.2			21.2		25.5	12.6	
LOS	A	A		A	B			C		C	B	
Approach Delay		7.3			16.4			21.2			15.2	
Approach LOS		A			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 54.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

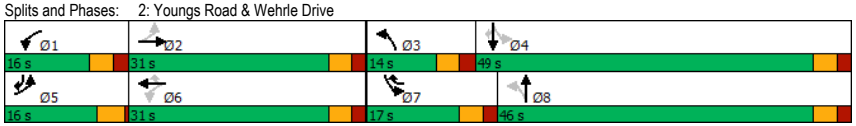


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	412	77	156	445	122	36	258	208	149	322	184
Future Volume (vph)	160	412	77	156	445	122	36	258	208	149	322	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.976				0.850		0.933				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3523	0	1805	3610	1615	1805	3353	0	1805	1881	1615
Flt Permitted	0.384			0.316			0.559			0.274		
Satd. Flow (perm)	730	3523	0	600	3610	1615	1062	3353	0	521	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				127		214				192
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	167	429	80	163	464	127	38	269	217	155	335	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	509	0	163	464	127	38	486	0	155	335	192
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	26.6	15.8		25.4	16.2	31.4	20.6	14.0		28.7	22.9	37.9
Actuated g/C Ratio	0.38	0.23		0.36	0.23	0.45	0.30	0.20		0.41	0.33	0.54
v/c Ratio	0.39	0.63		0.43	0.55	0.16	0.10	0.58		0.39	0.54	0.20
Control Delay	16.1	28.4		17.7	27.6	3.5	14.1	17.0		16.7	26.0	2.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	16.1	28.4		17.7	27.6	3.5	14.1	17.0		16.7	26.0	2.5
LOS	B	C		B	C	A	B	B		B	C	A
Approach Delay		25.3			21.4			16.8			17.3	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 69.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 20.4		Intersection LOS: C	
Intersection Capacity Utilization 61.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	870	11	9	621	48	63	61	77	175	13	242
Future Volume (vph)	238	870	11	9	621	48	63	61	77	175	13	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.948			0.858	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1805	3603	0	1770	3570	0	0	1774	0	1805	1630	0
Flt Permitted	0.239			0.302				0.608		0.598		
Satd. Flow (perm)	454	3603	0	563	3570	0	0	1095	0	1136	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			41			260	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			2091			437			355	
Travel Time (s)		17.0			31.7			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	256	935	12	10	668	52	68	66	83	188	14	260
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	947	0	10	720	0	0	217	0	188	274	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	34.5	31.4		24.6	17.6			14.1		14.6	14.6	
Actuated g/C Ratio	0.59	0.54		0.42	0.30			0.24		0.25	0.25	
v/c Ratio	0.47	0.49		0.03	0.66			0.73		0.66	0.45	
Control Delay	9.3	10.6		7.1	21.3			34.0		33.5	6.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	9.3	10.6		7.1	21.3			34.0		33.5	6.4	
LOS	A	B		A	C			C		C	A	
Approach Delay		10.3			21.1			34.0			17.4	
Approach LOS		B			C			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 58.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

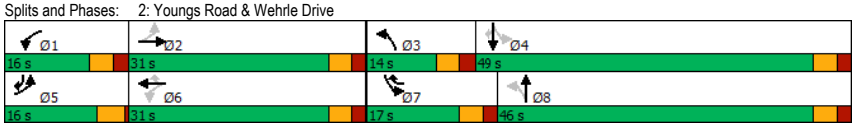


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	524	94	289	542	132	108	343	248	158	383	137
Future Volume (vph)	166	524	94	289	542	132	108	343	248	158	383	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.977				0.850		0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3527	0	1805	3610	1615	1805	3368	0	1805	1881	1615
Flt Permitted	0.310			0.184			0.325			0.204		
Satd. Flow (perm)	589	3527	0	350	3610	1615	618	3368	0	388	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				142		191				147
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	178	563	101	311	583	142	116	369	267	170	412	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	664	0	311	583	142	116	636	0	170	412	147
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.5	21.1		34.3	23.0	38.6	29.5	21.3		35.0	26.6	42.1
Actuated g/C Ratio	0.38	0.25		0.40	0.27	0.46	0.35	0.25		0.41	0.31	0.50
v/c Ratio	0.48	0.75		0.93	0.59	0.17	0.35	0.64		0.51	0.70	0.17
Control Delay	20.5	35.3		57.4	31.2	3.7	18.0	22.6		20.6	34.3	2.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.5	35.3		57.4	31.2	3.7	18.0	22.6		20.6	34.3	2.8
LOS	C	D		E	C	A	B	C		C	C	A
Approach Delay		32.2			35.3			21.9			24.7	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 84.7			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 29.2		Intersection LOS: C	
Intersection Capacity Utilization 76.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive



A6

Level of Service Calculations: Phase 1 Development Conditions

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	442	43	67	875	127	6	29	9	44	34	142
Future Volume (vph)	185	442	43	67	875	127	6	29	9	44	34	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.981			0.971			0.879	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1805	3563	0	1770	3541	0	0	1834	0	1805	1670	0
Flt Permitted	0.143			0.459				0.915		0.726		
Satd. Flow (perm)	272	3563	0	855	3541	0	0	1688	0	1379	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			23			10			153	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			963			437			355	
Travel Time (s)		17.0			14.6			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	199	475	46	72	941	137	6	31	10	47	37	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	199	521	0	72	1078	0	0	47	0	47	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	37.8	30.5		29.9	22.5			7.4		7.9	7.9	
Actuated g/C Ratio	0.69	0.56		0.55	0.41			0.14		0.14	0.14	
v/c Ratio	0.42	0.26		0.13	0.73			0.20		0.23	0.51	
Control Delay	7.0	7.7		4.3	17.1			21.2		25.5	12.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	7.0	7.7		4.3	17.1			21.2		25.5	12.6	
LOS	A	A		A	B			C		C	B	
Approach Delay		7.5			16.3			21.2			15.2	
Approach LOS		A			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 54.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 60.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

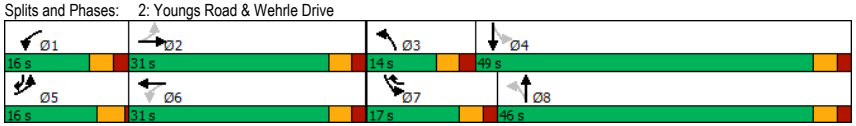


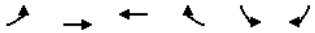
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	439	77	160	450	127	36	258	229	163	322	184
Future Volume (vph)	160	439	77	160	450	127	36	258	229	163	322	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.978				0.850		0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3531	0	1805	3610	1615	1805	3338	0	1805	1881	1615
Flt Permitted	0.383			0.297			0.559			0.252		
Satd. Flow (perm)	728	3531	0	564	3610	1615	1062	3338	0	479	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				132		235				192
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	167	457	80	167	469	132	38	269	239	170	335	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	537	0	167	469	132	38	508	0	170	335	192
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	27.5	16.6		26.4	17.1	10.4	20.5	13.9		29.3	23.2	9.9
Actuated g/C Ratio	0.39	0.23		0.37	0.24	0.15	0.29	0.20		0.41	0.33	0.14
v/c Ratio	0.39	0.64		0.45	0.54	0.38	0.10	0.60		0.43	0.55	0.49
Control Delay	15.9	28.6		17.9	27.3	10.4	14.7	17.2		17.9	26.6	10.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	15.9	28.6		17.9	27.3	10.4	14.7	17.2		17.9	26.6	10.6
LOS	B	C		B	C	B	B	B		B	C	B
Approach Delay		25.6			22.3			17.0			20.1	
Approach LOS		C			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 71.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 21.5		Intersection LOS: C	
Intersection Capacity Utilization 63.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	62	434	1056	75	14	12
Future Volume (vph)	62	434	1056	75	14	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3504	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3504	0	1770	1583
Link Speed (mph)		45	45		30	
Link Distance (ft)		963	1128		467	
Travel Time (s)		14.6	17.1		10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	472	1148	82	15	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	67	472	1230	0	15	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	62	434	1056	75	14	12
Future Vol, veh/h	62	434	1056	75	14	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	472	1148	82	15	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1230	0	-	0	1559	615
Stage 1	-	-	-	-	1189	-
Stage 2	-	-	-	-	370	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	562	-	-	-	103	434
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	669	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	562	-	-	-	91	434
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	221	-
Stage 2	-	-	-	-	669	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	562	-	-	-	180	434
HCM Lane V/C Ratio	0.12	-	-	-	0.085	0.03
HCM Control Delay (s)	12.3	-	-	-	26.8	13.6
HCM Lane LOS	B	-	-	-	D	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.3	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	880	11	9	670	48	63	61	77	175	13	242
Future Volume (vph)	238	880	11	9	670	48	63	61	77	175	13	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.990			0.948			0.858	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1805	3603	0	1770	3574	0	0	1774	0	1805	1630	0
Flt Permitted	0.216			0.299				0.600		0.593		
Satd. Flow (perm)	410	3603	0	557	3574	0	0	1081	0	1127	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			11			41			260	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			963			437			355	
Travel Time (s)		17.0			14.6			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	256	946	12	10	720	52	68	66	83	188	14	260
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	958	0	10	772	0	0	217	0	188	274	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	35.6	32.4		25.6	18.6			14.3		14.8	14.8	
Actuated g/C Ratio	0.60	0.55		0.43	0.31			0.24		0.25	0.25	
v/c Ratio	0.49	0.49		0.03	0.69			0.75		0.67	0.46	
Control Delay	9.6	10.6		7.1	21.9			35.7		34.7	6.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	9.6	10.6		7.1	21.9			35.7		34.7	6.5	
LOS	A	B		A	C			D		C	A	
Approach Delay		10.4			21.7			35.7			18.0	
Approach LOS		B			C			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 59.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

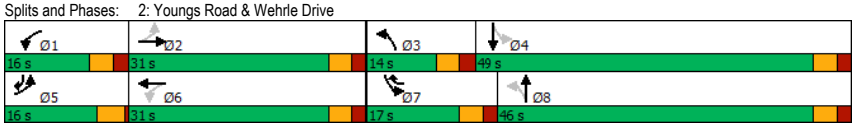


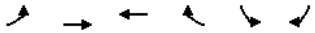
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	529	94	305	564	137	108	343	251	160	383	137
Future Volume (vph)	166	529	94	305	564	137	108	343	251	160	383	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.977				0.850		0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3527	0	1805	3610	1615	1805	3368	0	1805	1881	1615
Flt Permitted	0.291			0.180			0.325			0.203		
Satd. Flow (perm)	553	3527	0	342	3610	1615	618	3368	0	386	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				147		193				144
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	178	569	101	328	606	147	116	369	270	172	412	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	670	0	328	606	147	116	639	0	172	412	147
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.6	21.2		34.4	23.1	10.5	29.5	21.3		35.0	26.6	10.4
Actuated g/C Ratio	0.38	0.25		0.41	0.27	0.12	0.35	0.25		0.41	0.31	0.12
v/c Ratio	0.49	0.75		0.98	0.62	0.45	0.35	0.65		0.51	0.70	0.46
Control Delay	20.8	35.5		70.6	31.6	11.9	18.1	22.6		20.8	34.3	12.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.8	35.5		70.6	31.6	11.9	18.1	22.6		20.8	34.3	12.6
LOS	C	D		E	C	B	B	C		C	C	B
Approach Delay		32.4			40.8			21.9			26.8	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 84.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 31.5		Intersection LOS: C	
Intersection Capacity Utilization 77.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	1122	679	13	60	49
Future Volume (vph)	10	1122	679	13	60	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3529	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3529	0	1770	1583
Link Speed (mph)		30	30		30	
Link Distance (ft)		963	1128		467	
Travel Time (s)		21.9	25.6		10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1220	738	14	65	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	1220	752	0	65	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1122	679	13	60	49
Future Vol, veh/h	10	1122	679	13	60	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1220	738	14	65	53

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	752	0	-	0	1377	376
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	632	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	853	-	-	-	136	622
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	492	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	853	-	-	-	134	622
Mov Cap-2 Maneuver	-	-	-	-	269	-
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	492	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	853	-	-	-	269	622
HCM Lane V/C Ratio	0.013	-	-	-	0.242	0.086
HCM Control Delay (s)	9.3	-	-	-	22.6	11.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9	0.3

A7

Level of Service Calculations: Full Development Conditions

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	566	45	69	929	131	6	30	10	46	35	146
Future Volume (vph)	191	566	45	69	929	131	6	30	10	46	35	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.981			0.970			0.879	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1805	3570	0	1770	3541	0	0	1832	0	1805	1670	0
Flt Permitted	0.137			0.402				0.891		0.725		
Satd. Flow (perm)	260	3570	0	749	3541	0	0	1642	0	1377	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			23			11			157	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			963			437			355	
Travel Time (s)		17.0			14.6			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	205	609	48	74	999	141	6	32	11	49	38	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	657	0	74	1140	0	0	49	0	49	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	38.8	31.5		31.1	23.8			7.5		8.0	8.0	
Actuated g/C Ratio	0.70	0.57		0.56	0.43			0.13		0.14	0.14	
v/c Ratio	0.44	0.32		0.14	0.75			0.21		0.25	0.52	
Control Delay	7.9	8.2		4.3	17.6			21.3		25.9	12.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	7.9	8.2		4.3	17.6			21.3		25.9	12.8	
LOS	A	A		A	B			C		C	B	
Approach Delay		8.1			16.8			21.3			15.4	
Approach LOS		A			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 55.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 62.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

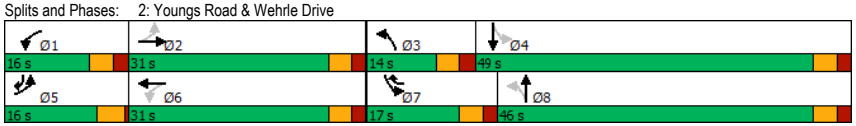


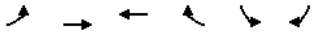
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	501	80	173	476	130	37	265	272	193	332	190
Future Volume (vph)	164	501	80	173	476	130	37	265	272	193	332	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.979				0.850		0.924				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3534	0	1805	3610	1615	1805	3319	0	1805	1881	1615
Flt Permitted	0.366			0.245			0.553			0.210		
Satd. Flow (perm)	695	3534	0	466	3610	1615	1051	3319	0	399	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				135		268				198
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	171	522	83	180	496	135	39	276	283	201	346	198
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	605	0	180	496	135	39	559	0	201	346	198
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.5	18.5		28.6	19.0	11.2	21.2	14.6		30.8	24.5	10.0
Actuated g/C Ratio	0.40	0.25		0.38	0.26	0.15	0.28	0.20		0.41	0.33	0.13
v/c Ratio	0.40	0.68		0.51	0.54	0.38	0.11	0.65		0.54	0.56	0.51
Control Delay	16.4	30.0		19.6	27.4	10.4	15.4	18.0		20.7	27.7	10.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	16.4	30.0		19.6	27.4	10.4	15.4	18.0		20.7	27.7	10.9
LOS	B	C		B	C	B	B	B		C	C	B
Approach Delay		27.0			22.9			17.8			21.3	
Approach LOS		C			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 74.5			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 69.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	174	447	1088	212	48	40
Future Volume (vph)	174	447	1088	212	48	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.976			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3454	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3454	0	1770	1583
Link Speed (mph)		45	45		30	
Link Distance (ft)		963	1128		467	
Travel Time (s)		14.6	17.1		10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	486	1183	230	52	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	486	1413	0	52	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	174	447	1088	212	48	40
Future Vol, veh/h	174	447	1088	212	48	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	189	486	1183	230	52	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1413	0	-	0	1919	707
Stage 1	-	-	-	-	1298	-
Stage 2	-	-	-	-	621	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	478	-	-	-	59	378
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	498	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	478	-	-	-	~ 36	378
Mov Cap-2 Maneuver	-	-	-	-	106	-
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	498	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	44.4
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	478	-	-	-	106	378
HCM Lane V/C Ratio	0.396	-	-	-	0.492	0.115
HCM Control Delay (s)	17.4	-	-	-	68.2	15.8
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	1.9	-	-	-	2.2	0.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	952	12	10	817	50	65	63	80	180	14	249
Future Volume (vph)	245	952	12	10	817	50	65	63	80	180	14	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.991			0.948			0.858	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1805	3603	0	1770	3578	0	0	1774	0	1805	1630	0
Flt Permitted	0.157			0.276				0.567		0.571		
Satd. Flow (perm)	298	3603	0	514	3578	0	0	1021	0	1085	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			41			268	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			963			437			355	
Travel Time (s)		17.0			14.6			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	263	1024	13	11	878	54	70	68	86	194	15	268
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	1037	0	11	932	0	0	224	0	194	283	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	39.1	35.8		28.7	21.7			15.4		15.9	15.9	
Actuated g/C Ratio	0.61	0.56		0.45	0.34			0.24		0.25	0.25	
v/c Ratio	0.56	0.51		0.03	0.76			0.81		0.72	0.47	
Control Delay	13.5	11.0		7.2	24.2			43.8		39.9	6.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	13.5	11.0		7.2	24.2			43.8		39.9	6.6	
LOS	B	B		A	C			D		D	A	
Approach Delay		11.5			24.0			43.8			20.1	
Approach LOS		B			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 63.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 19.4		Intersection LOS: B	
Intersection Capacity Utilization 81.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

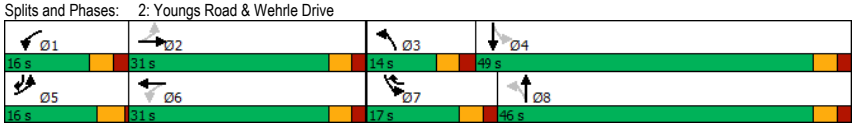


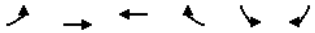
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	564	97	357	637	141	111	353	275	175	395	141
Future Volume (vph)	171	564	97	357	637	141	111	353	275	175	395	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.978				0.850		0.934				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3531	0	1805	3610	1615	1805	3357	0	1805	1881	1615
Flt Permitted	0.231			0.168			0.250			0.187		
Satd. Flow (perm)	439	3531	0	319	3610	1615	475	3357	0	355	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				152		203				145
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	184	606	104	384	685	152	119	380	296	188	425	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	710	0	384	685	152	119	676	0	188	425	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	31.0		16.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	28.2%		14.5%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	26.0		11.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	34.2	22.6		35.5	24.2	10.7	31.1	22.8		36.0	25.3	10.6
Actuated g/C Ratio	0.39	0.26		0.40	0.28	0.12	0.35	0.26		0.41	0.29	0.12
v/c Ratio	0.55	0.77		1.20	0.69	0.46	0.41	0.66		0.58	0.78	0.47
Control Delay	22.9	36.7		142.7	33.9	12.1	19.5	23.2		23.2	40.0	13.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	22.9	36.7		142.7	33.9	12.1	19.5	23.2		23.2	40.0	13.5
LOS	C	D		F	C	B	B	C		C	D	B
Approach Delay		33.9			65.4			22.7			30.6	
Approach LOS		C			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 87.7			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 41.2		Intersection LOS: D	
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	57	1155	699	70	216	177
Future Volume (vph)	57	1155	699	70	216	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.986			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3490	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3490	0	1770	1583
Link Speed (mph)		30	30		30	
Link Distance (ft)		963	1128		467	
Travel Time (s)		21.9	25.6		10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	1255	760	76	235	192
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	1255	836	0	235	192
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	12.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	57	1155	699	70	216	177
Future Vol, veh/h	57	1155	699	70	216	177
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	1255	760	76	235	192

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	836	0	-	0	1550	418
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	752	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	794	-	-	-	~ 104	584
Stage 1	-	-	-	-	404	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	794	-	-	-	~ 96	584
Mov Cap-2 Maneuver	-	-	-	-	~ 225	-
Stage 1	-	-	-	-	372	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	71.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	794	-	-	-	225	584
HCM Lane V/C Ratio	0.078	-	-	-	1.043	0.329
HCM Control Delay (s)	9.9	-	-	-	118	14.2
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.3	-	-	-	10	1.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

A8

Level of Service Calculations: Full Development Conditions With Mitigation

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	566	45	69	929	131	6	30	10	46	35	146
Future Volume (vph)	191	566	45	69	929	131	6	30	10	46	35	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.981			0.970			0.879	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1805	3570	0	1770	3541	0	0	1832	0	1805	1670	0
Flt Permitted	0.137			0.402				0.891		0.725		
Satd. Flow (perm)	260	3570	0	749	3541	0	0	1642	0	1377	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			23			11			157	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			963			437			355	
Travel Time (s)		17.0			14.6			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	205	609	48	74	999	141	6	32	11	49	38	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	657	0	74	1140	0	0	49	0	49	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	36.0		13.0	31.0		26.0	26.0		26.0	26.0	
Total Split (%)	24.0%	48.0%		17.3%	41.3%		34.7%	34.7%		34.7%	34.7%	
Maximum Green (s)	14.5	31.0		9.0	26.0		20.5	20.5		21.0	21.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	38.8	31.5		31.1	23.8			7.5		8.0	8.0	
Actuated g/C Ratio	0.70	0.57		0.56	0.43			0.13		0.14	0.14	
v/c Ratio	0.44	0.32		0.14	0.75			0.21		0.25	0.52	
Control Delay	7.9	8.2		4.3	17.6			21.3		25.9	12.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	7.9	8.2		4.3	17.6			21.3		25.9	12.8	
LOS	A	A		A	B			C		C	B	
Approach Delay		8.1			16.8			21.3			15.4	
Approach LOS		A			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 55.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 62.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

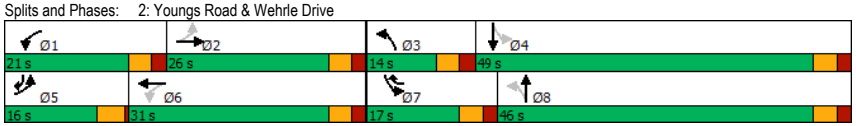


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	501	80	173	476	130	37	265	272	193	332	190
Future Volume (vph)	164	501	80	173	476	130	37	265	272	193	332	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.979				0.850		0.924				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3534	0	1805	3610	1615	1805	3319	0	1805	1881	1615
Flt Permitted	0.387			0.232			0.546			0.208		
Satd. Flow (perm)	735	3534	0	441	3610	1615	1037	3319	0	395	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				135		268				198
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	171	522	83	180	496	135	39	276	283	201	346	198
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	605	0	180	496	135	39	559	0	201	346	198
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	26.0		21.0	31.0	17.0	14.0	46.0		17.0	49.0	16.0
Total Split (%)	14.5%	23.6%		19.1%	28.2%	15.5%	12.7%	41.8%		15.5%	44.5%	14.5%
Maximum Green (s)	12.0	21.0		16.0	26.0	12.0	9.0	41.0		12.0	44.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.4	18.4		30.2	19.8	11.1	21.2	14.6		30.7	24.4	9.9
Actuated g/C Ratio	0.39	0.25		0.40	0.26	0.15	0.28	0.19		0.41	0.32	0.13
v/c Ratio	0.40	0.69		0.49	0.52	0.38	0.11	0.65		0.54	0.57	0.51
Control Delay	16.4	31.2		18.8	26.9	10.5	15.4	18.1		21.1	28.1	11.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	16.4	31.2		18.8	26.9	10.5	15.4	18.1		21.1	28.1	11.0
LOS	B	C		B	C	B	B	B		C	C	B
Approach Delay		28.0			22.4			18.0			21.7	
Approach LOS		C			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 75.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 69.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive

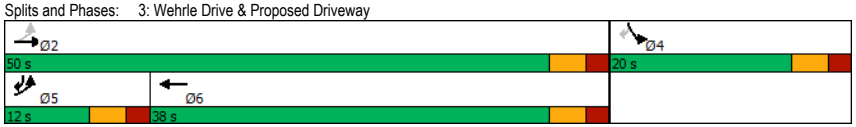


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	174	447	1088	212	48	40
Future Volume (vph)	174	447	1088	212	48	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.976			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3454	0	1770	1583
Flt Permitted	0.120				0.950	
Satd. Flow (perm)	224	3539	3454	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			44			37
Link Speed (mph)		45	45		30	
Link Distance (ft)		963	1128		467	
Travel Time (s)		14.6	17.1		10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	486	1183	230	52	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	486	1413	0	52	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.0	23.0	23.0		23.0	10.0
Total Split (s)	12.0	50.0	38.0		20.0	12.0
Total Split (%)	17.1%	71.4%	54.3%		28.6%	17.1%
Maximum Green (s)	7.0	45.0	33.0		15.0	7.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	40.9	43.7	28.1		7.4	14.1
Actuated g/C Ratio	0.77	0.83	0.53		0.14	0.27
v/c Ratio	0.48	0.17	0.76		0.21	0.10
Control Delay	10.3	2.5	13.7		26.4	7.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	10.3	2.5	13.7		26.4	7.5
LOS	B	A	B		C	A
Approach Delay		4.7	13.7		17.8	
Approach LOS		A	B		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 52.9			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 63.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Wehrle Drive & Proposed Driveway

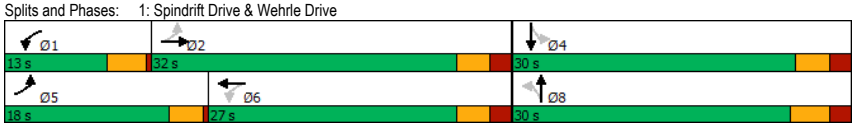


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	952	12	10	817	50	65	63	80	180	14	249
Future Volume (vph)	245	952	12	10	817	50	65	63	80	180	14	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.991			0.948			0.858	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1805	3603	0	1770	3578	0	0	1774	0	1805	1630	0
Flt Permitted	0.148			0.276				0.591		0.579		
Satd. Flow (perm)	281	3603	0	514	3578	0	0	1065	0	1100	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			8			44			268	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1124			963			437			355	
Travel Time (s)		17.0			14.6			9.9			8.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	263	1024	13	11	878	54	70	68	86	194	15	268
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	1037	0	11	932	0	0	224	0	194	283	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	7.5	27.0		8.0	27.0		25.0	25.0		25.0	25.0	
Total Split (s)	18.0	32.0		13.0	27.0		30.0	30.0		30.0	30.0	
Total Split (%)	24.0%	42.7%		17.3%	36.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	14.5	27.0		9.0	22.0		24.5	24.5		25.0	25.0	
Yellow Time (s)	3.0	3.0		3.5	3.0		3.5	3.5		3.0	3.0	
All-Red Time (s)	0.5	2.0		0.5	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.5	5.0		4.0	5.0			5.5		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	37.5	34.2		27.3	20.4			15.5		16.0	16.0	
Actuated g/C Ratio	0.60	0.55		0.44	0.33			0.25		0.26	0.26	
v/c Ratio	0.57	0.52		0.03	0.79			0.75		0.69	0.46	
Control Delay	14.8	12.0		8.1	26.9			34.4		34.9	6.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	14.8	12.0		8.1	26.9			34.4		34.9	6.0	
LOS	B	B		A	C			C		C	A	
Approach Delay		12.5			26.7			34.4			17.8	
Approach LOS		B			C			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 62.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 19.6		Intersection LOS: B	
Intersection Capacity Utilization 81.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Spindrift Drive & Wehrle Drive

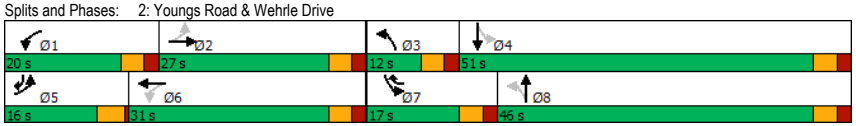


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	564	97	357	637	141	111	353	275	175	395	141
Future Volume (vph)	171	564	97	357	637	141	111	353	275	175	395	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	400		400	225		165	400		0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.978				0.850		0.934				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3531	0	1805	3610	1615	1805	3357	0	1805	1881	1615
Flt Permitted	0.310			0.148			0.250			0.159		
Satd. Flow (perm)	589	3531	0	281	3610	1615	475	3357	0	302	1881	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				152		203				145
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		901			1536			922			833	
Travel Time (s)		17.6			29.9			18.0			16.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	184	606	104	384	685	152	119	380	296	188	425	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	710	0	384	685	152	119	676	0	188	425	152
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Over	pm+pt	NA		pm+pt	NA	Over
Protected Phases	5	2		1	6	7	3	8		7	4	5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	8.0	27.0		9.0	27.0	9.0	9.0	27.0		9.0	27.0	8.0
Total Split (s)	16.0	27.0		20.0	31.0	17.0	12.0	46.0		17.0	51.0	16.0
Total Split (%)	14.5%	24.5%		18.2%	28.2%	15.5%	10.9%	41.8%		15.5%	46.4%	14.5%
Maximum Green (s)	12.0	22.0		15.0	26.0	12.0	7.0	41.0		12.0	46.0	12.0
Yellow Time (s)	3.5	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.5
All-Red Time (s)	0.5	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	33.4	22.1		41.8	27.9	10.7	28.4	21.4		35.9	25.2	10.3
Actuated g/C Ratio	0.37	0.25		0.47	0.31	0.12	0.32	0.24		0.40	0.28	0.12
v/c Ratio	0.51	0.80		0.99	0.61	0.46	0.47	0.71		0.62	0.80	0.48
Control Delay	20.9	40.2		69.3	30.5	11.9	22.7	25.6		26.2	41.9	13.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.9	40.2		69.3	30.5	11.9	22.7	25.6		26.2	41.9	13.5
LOS	C	D		E	C	B	C	C		C	D	B
Approach Delay		36.2			40.4			25.2			32.4	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 89.4			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 34.4		Intersection LOS: C	
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: Youngs Road & Wehrle Drive



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	57	1155	699	70	216	177
Future Volume (vph)	57	1155	699	70	216	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.986			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3490	0	1770	1583
Flt Permitted	0.193				0.950	
Satd. Flow (perm)	360	3539	3490	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			18			87
Link Speed (mph)		30	30		30	
Link Distance (ft)		963	1128		467	
Travel Time (s)		21.9	25.6		10.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	1255	760	76	235	192
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	1255	836	0	235	192
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60			60	60	60
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	23.0	23.0		23.0	9.5
Total Split (s)	12.0	45.0	33.0		25.0	12.0
Total Split (%)	17.1%	64.3%	47.1%		35.7%	17.1%
Maximum Green (s)	7.5	40.0	28.0		20.0	7.5
Yellow Time (s)	3.5	3.0	3.0		3.0	3.5
All-Red Time (s)	1.0	2.0	2.0		2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0		5.0	4.5
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	31.6	31.1	19.8		12.7	24.5
Actuated g/C Ratio	0.58	0.57	0.37		0.23	0.45
v/c Ratio	0.16	0.62	0.65		0.57	0.25
Control Delay	6.5	9.6	16.9		25.3	7.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	6.5	9.6	16.9		25.3	7.0
LOS	A	A	B		C	A
Approach Delay		9.4	16.9		17.1	
Approach LOS		A	B		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 54.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Wehrle Drive & Proposed Driveway



GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

Civil • Geotechnical
Structural • Architecture
Material Testing • Consulting

2190–2220 Wehrle Drive
Amherst, New York

Geotechnical Engineering Report

GGEA 21-1026

Prepared for:
Acquest Development Company, LLC
5554 Main Street
Williamsville, New York 14221

Prepared by:
Glynn Group Engineering & Architecture, PLLC
415 South Transit Street
Lockport, New York 14094





December 16, 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP ENGINEERING & ARCHITECTURE, PLLC
415 South Transit Street, Lockport, New York 14094
voice 716.625.6933 / fax 716.625.6983
www.glynngroup.com

TABLE OF CONTENTS

1.0 INTRODUCTION
- 1.1 Scope
- 1.2 Contract
- 1.3 Exclusions

2.0 PROJECT BACKGROUND
- 2.1 Site Description and Proposed Development
- 2.2 Geologic Setting

3.0 FIELD INVESTIGATION AND ANALYSIS
- 3.1 Methodology
- 3.2 Subsurface Conditions
- 3.3 Groundwater

4.0 GEOTECHNICAL EVALUATION AND RECOMMENDATIONS
- 4.1 Foundations
- 4.2 Slab on Grade
- 4.3 Flexible Pavement
- 4.4 Excavation and Backfill
- 4.5 Expansive Soil Mitigation
- 4.6 Liquefaction Mitigation
- 4.7 Settlement
- 4.8 Seismic Site Class and Design Category
- 4.9 General Construction Recommendations
- 4.10 Conclusion

APPENDICES

- A Subsurface Exploration Logs
- B Project Location Plan
- C Subsurface Exploration Plan
- D Seismic Site Class and Design Category
- E Engineered Fill Specifications

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

1.0 INTRODUCTION

1.1 SCOPE

This report provides subsurface exploration data and geotechnical recommendations for the proposed development of the property located at 2190–2220 Wehrle Drive in the Town of Amherst, New York. Specifically, Glynn Group Engineering & Architecture, PLLC (GGEA) has provided the following scope of services:

1. Performed a site visit and established fourteen (14) soil borings in accordance with the plan provided by Aquest Development Company, LLC (Aquest).
2. Cleared underground utilities with Dig Safely New York.
3. Mobilized drilling subcontractor, Earth Dimensions, Inc. (EDI), with a track mounted ATV drill rig and crew.
4. Performed SPT sampling in accordance with ASTM D-1586 "Standard Method for Penetration Test and Split Barrel Sampling of Soils" to auger refusal at each boring location.
5. Provided soil boring logs, prepared by EDI, to include SPT data, N values, soil classification, refusal depth and groundwater conditions.
6. Prepared a geotechnical report to address suitability of construction, foundation recommendations and construction recommendations.

1.2 CONTRACT

GGEA performed this study in accordance with a written contract/proposal to Aquest dated March 4, 2021, for which GGEA received the notice to proceed via signed contract by Mr. Omar Abu-Sitta on the same day. All services provided by GGEA are subject to the Standard Terms and Conditions included in the contract.

1.3 EXCLUSIONS

The project efforts exercised by GGEA include geotechnical analysis, design recommendations and the preparation of this report. The scope of this report specifically excludes any review of former site use, in particular, environmental or pollution related concerns.

2.0 PROJECT BACKGROUND

2.1 SITE DESCRIPTION AND PROPOSED IMPROVEMENTS

The site encompasses two properties, specifically address 2190 (5.8 acres) and address 2220 (19.7 acres), providing for a total of 25.5 acres combined. The site is located in the north side of Wehrle Drive approximately 0.75 miles west of Transit Road (Route 78). The property is flat, open and covered by mowed grass with a few large deciduous trees located throughout and occasional pools of seasonal surface water. A Project Location Plan has been included in Appendix B.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

The proposed site development plans were not provided to GGEA, however future development is presumed to consist of multiple buildings supported by shallow foundation systems with slab on grade first floors and associated roadways and parking areas.

2.2 GEOLOGIC SETTING

The underlying surficial geological conditions at the site are the result of the last glacial coverage of the Pleistocene Epoch, referred to as the Wisconsinan Glacial Stage, which ended approximately 12,000 years ago. As the glacier advanced across Western New York, the massive weight carved and crushed the underlying soil and rock to form glacial till, which typically consists of a dense matrix of silt, sand, rock and clay. Sediment was transported and deposited by the ice and meltwater, forming stratified soils commonly referred to as glacial drift. As the climate warmed and the glacier melted, vast quantities of meltwater were generated, which became impounded by the receding glacier and local topography to create proglacial pools throughout much of the area. The subsurface conditions encountered at the Wehrle Road site consist of slackwater deposits, glacial drift and glacial till overlying shallow limestone bedrock of the Middle Devonian Onondaga Formation. The bedrock typically has a high compressive strength and contains numerous chert nodules. Surficial geology maps identify bedrock at a depth of less than 10 feet from the ground surface in the vicinity of the Wehrle site. Soil borings revealed bedrock depth to vary from 3.0 to 10.6 feet below existing grade.

3.0 FIELD INVESTIGATION

3.1 METHODOLOGY

The subsurface exploration consisted of a total of fourteen (14) soil borings performed at locations selected by Aquest to provide a minimum of one boring per 3.5 acres of property. GGEA performed a site visit on March 11, 2021 to establish soil boring locations and assess drill rig access. Utility clearance was performed by EDI through Dig Safely New York.

EDI mobilized a tracked mounted ATV drill rig to the site on March 18, 2021 to perform the subsurface exploration on March 18 and 19, 2021. Soil boring and sampling operations were performed using hollow stem augers to advance through overburden materials in accordance with the Standard Penetration Test Method ASTM D-1586. Resistance values, or blow counts, were recorded for each six-inch advancement of a twenty-four inch long, two inch diameter split spoon sampler. The sum of the resistance values for the 6/12 and 12/18 inch intervals constitutes the N value, which provides an indication of the in-situ relative density and strength of encountered soils. All data recorded during drilling operations can be found on the soil boring logs included in Appendix A.

Retrieved soil samples were logged and visually classified by EDI in accordance with the ASEE System of Definition for Visual Identification of Soils (Burmister Classification System) and ASTM D-2488 "Standard Practice for Description and Identification of Soils (Visual – Manual Procedure)". Recovered soil samples were visually examined by GGEA to establish Unified Soil Classification System (USCS) classifications in accordance with ASTM D-2488 "Description and Identification of Soils (Visual-Manual Procedure)". Discrepancies observed between classifications noted on the EDI soil boring logs and those

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

identified in this report are due examination in the GGEA laboratory, which allows for the collection of specific gradation and index property data that was not discerned from visual classification in the field.

3.2 SUBSURFACE CONDITIONS

All soil borings were advanced to auger refusal, which was encountered on presumed limestone bedrock at depths ranging from a minimum of 3.0 feet at boring B-12 to a maximum of 10.6 feet at boring B-9. Overburden soils were found to be variable throughout the site, however subsurface conditions typically consisted of a thin layer of topsoil overlying firm to stiff slackwater sediment and stiff cohesive glacial till. Ground surface elevations were estimated at the soil boring locations from the topographic survey provided by Aquest. Soil boring locations are identified on the Subsurface Exploration Plan included in Appendix C and specific subsurface conditions can be found on the Subsurface Exploration Logs included in Appendix A. Subsurface conditions for each boring location have been summarized as follows:

B-1	Elevation 695.8
0.0 – 0.7 ft	Topsoil.
0.7 – 1.7 ft	Brown, extremely moist, soft, sandy silty clay (CL-ML), trace of gravel. N value of 5.
1.7 – 3.4 ft	Brown, faintly mottled, extremely moist, stiff, sandy silty clay with gravel (CL-ML). N value of > 10.
> 3.4 ft	Presumed limestone bedrock.
B-2	Elevation 698.5
0.0 – 0.4 ft	Topsoil.
0.4 – 4.4 ft	Brown, extremely moist, firm to very stiff, sandy silty clay with gravel (CL-ML). N values range from 9 to 22.
4.4 – 4.9 ft	Fractured limestone rock.
> 4.9 ft	Presumed limestone bedrock.
B-3	Elevation 698.0
0.0 – 0.9 ft	Topsoil.
0.9 – 1.8 ft	Brown, extremely moist, soft, sandy silty clay (CL-ML). N value of 4.
1.8 – 5.0 ft	Brown, extremely moist, very stiff, sandy silty clay with gravel (CL-ML). N value of 20.
5.0 – 6.6 ft	Brown to grayish brown, moist, hard, sandy silty clay with gravel (CL-ML). N value of 59.
> 6.6 ft	Presumed limestone bedrock.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

B-4	Elevation 697.6
0.0 – 0.7 ft	Topsoil.
0.7 – 1.8 ft	Brown, faintly mottled, extremely moist, very soft, sandy silty clay (CL-ML). N value of 2.
1.8 – 6.3 ft	Brown, faintly mottled, moist, stiff to very stiff, lean clay (CL). N values range from 15 to 17.
6.3 – 6.8 ft	Gray, extremely moist to wet, very dense, sandy silty with gravel (ML).
> 6.8 ft	Presumed limestone bedrock.

B-5	Elevation 696.6
0.0 – 0.8 ft	Topsoil.
0.8 – 2.5 ft	Brown, faintly mottled, extremely moist, firm, sandy silty clay (CL-ML). N value of 8.
2.5 – 5.0 ft	Brown, extremely moist, very stiff, lean clay (CL). N value of 21.
5.0 – 7.1 ft	Brown to brownish gray, moist, very stiff, sandy silty clay with gravel (CL-ML). N value of 21.
> 7.1 ft	Presumed limestone bedrock.

B-6	Elevation 696.4
0.0 – 0.8 ft	Topsoil.
0.8 – 2.2 ft	Brown, faintly mottled, extremely moist, soft, lean clay (CL). N value of 4.
2.2 – 5.8 ft	Brown, moist, stiff to very stiff, lean clay (CL). N values range from 13 to 19.
5.8 – 6.6 ft	Brown, extremely moist, very stiff, sandy silty clay with gravel (CL-ML).
> 6.6 ft	Presumed limestone bedrock.

B-7	Elevation 695.9
0.0 – 0.8 ft	Topsoil.
0.8 – 2.0 ft	Brown, faintly mottled, extremely moist, soft, lean clay (CL). N value of 4.
2.0 – 4.9 ft	Brown, faintly mottled, extremely moist, stiff, sandy silty clay (CL-ML). N value of 12.
4.9 – 9.5 ft	Brown, extremely moist, very stiff to hard, sandy silty clay with gravel (CL-ML). N values range from 27 to 36.
9.5 – 10.2 ft	Gray, extremely moist, very dense, silty sand with gravel (SM).
10.2 – 10.4 ft	Fractured limestone rock.
> 10.4 ft	Presumed limestone bedrock.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

B-8	Elevation 694.8
0.0 – 0.8 ft	Topsoil.
0.8 – 1.5 ft	Brown, extremely moist, very loose, sandy silt (ML). N value of 4.
1.5 – 7.2 ft	Brown, faintly mottled, moist, stiff to very stiff, lean clay (CL). N values range from 11 to 22.
7.2 – 8.5 ft	Grayish brown, moist, very stiff, lean clay (CL), trace of gravel. N value of 19.
8.5 – 9.3 ft	Light gray, extremely moist, very dense, sandy silt with gravel (ML).
> 9.3 ft	Presumed limestone bedrock.

B-9	Elevation 694.8
0.0 – 1.2 ft	Topsoil.
1.2 – 2.7 ft	Brown, faintly mottled, extremely moist, soft, lean clay (CL). N value of 4.
2.7 – 6.0 ft	Brown, extremely moist, stiff, lean clay (CL). N value of 10.
6.0 – 10.6 ft	Grayish brown, extremely moist, hard, sandy silty clay with gravel (CL-ML). N values range from 37 to 35.
> 10.6 ft	Presumed limestone bedrock.

B-10	Elevation 694.2
0.0 – 0.6 ft	Topsoil.
0.6 – 3.0 ft	Brownish gray, extremely moist, loose, sandy silt (ML). N value of 5.
3.0 – 7.0 ft	Grayish brown, moist, stiff to very stiff, lean clay (CL). N values range from 14 to 16.
7.0 – 9.7 ft	Grayish brown, extremely moist, very stiff to hard, sandy silty clay with gravel (CL-ML). N values range from 15 to 34.
9.7 – 9.9 ft	Gray, wet, fractured limestone.
> 9.9 ft	Presumed limestone bedrock.

B-11	Elevation 697.2
0.0 – 0.7 ft	Topsoil.
0.7 – 1.4 ft	Brown, extremely moist, stiff, lean clay (CL). N value of 11.
1.4 – 5.0 ft	Brown, extremely moist, very stiff, silty clay with gravel (CL-ML). N value of 21.
> 5.0 ft	Presumed limestone bedrock.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

B-12	Elevation 695.6
0.0 – 0.7 ft	Topsoil.
0.7 – 3.0 ft	Brown, faintly mottled, extremely moist, firm, sandy silty clay with gravel (CL-ML). N value of 5.
> 3.0 ft	Presumed limestone bedrock.

B-13	Elevation 696.3
0.0 – 1.8 ft	Topsoil.
1.8 – 2.5 ft	Brown, faintly mottled, extremely moist, stiff, lean clay (CL).
2.5 – 4.3 ft	Grayish brown, moist, very stiff, sandy silty clay with gravel (CL-ML). N value of 18.
> 4.3 ft	Presumed limestone bedrock.

B-14	Elevation 694.7
0.0 – 0.6 ft	Topsoil.
0.6 – 1.7 ft	Brown, extremely moist, soft, lean clay (CL). N value of 4.
1.7 – 3.1 ft	Brown, extremely moist, hard, sandy silty clay with gravel (CL-ML). N value > 50.
> 3.1 ft	Presumed limestone bedrock.

It is GGEA's opinion the extent of this investigation was sufficient to accurately characterize the subsurface conditions and provide information necessary for the preparation of this report. The soil borings portray the subsurface conditions encountered at the soil boring locations at the time of investigation. The stratification lines shown on the soil boring logs are approximate, whereas in-situ the changes between strata may be more gradual. Ground surface elevations and corresponding bedrock elevations have been summarized in the following table:

Boring No.	Surface El. (ft)	Depth (ft)	Bedrock El. (ft)
B-1	695.8	3.4	692.4
B-2	698.5	4.9	693.6
B-3	698.0	6.6	691.4
B-4	697.6	6.8	690.8
B-5	696.6	7.1	689.5
B-6	696.4	6.6	689.8
B-7	695.9	10.4	685.5

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

B-8	694.8	9.3	685.5
B-9	694.8	10.6	684.2
B-10	694.2	9.9	684.3
B-11	697.2	5.0	692.2
B-12	695.6	3.0	692.6
B-13	696.3	4.3	692.0
B-14	694.7	3.1	691.6

3.3 GROUNDWATER

Groundwater was not encountered in the augers upon the completion of drilling efforts at the majority of the subsurface exploration locations. The augers did not remain in the ground for an extended period of time to allow for groundwater to migrate through the soils and stabilize within the augers, nor where groundwater monitoring wells or piezometers installed to obtain accurate groundwater elevation data. However, groundwater was measured at a depth of 9.6 feet in the augers upon the completion of drilling efforts at boring B-10. Rock was initially encountered at a depth of 9.7 feet at boring B-10 and auger refusal was encountered at 9.9 feet. Based on the moisture content of recovered soil samples, the stabilized groundwater elevation is estimated to be within the limestone bedrock below the exploration depth of this project. Notwithstanding, seasonal perched groundwater should be anticipated in areas where the bedrock surface is of lower elevation, specifically in areas where granular overburden soils are present. Seasonal perched groundwater depth is anticipated to vary depending upon precipitation, frost depth and soil percolation characteristics.

4.0 GEOTECHNICAL EVALUATION AND RECOMMENDATIONS

4.1 FOUNDATIONS

The subsurface conditions at this site are of good structural quality and will provide for the construction of shallow foundation systems consisting of strip footings with frost walls or spread footings with columns to support future buildings. Considering the depth to bedrock varies from a minimum of 3.0 feet to a maximum of 10.6 feet, subgrade composition at the design bearing elevation may vary from limestone bedrock to stiff lean clay (CL) native soil. GGEA provides design and construction recommendations as follows:

1. Where practical, foundations should be advanced through native soils to bear on bedrock. Limestone bedrock will provide for a net allowable bearing capacity of > 10,000 psf.
2. In areas where the design foundation bearing elevation is significantly above that of the bedrock elevation, foundations may be constructed over undisturbed native soil. Compacted in-situ native soil will provide for a net allowable bearing capacity of 3,000 psf.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3. Depending on the size and footprint of proposed buildings, the foundation subgrade may be composed partially of undisturbed native soil and partially of limestone bedrock in some areas. All soil subgrade soil should be thoroughly compacted with a reversible plate tamper (Bomag BPR 50/60 or equivalent) to maximize the relative density of the subgrade soil, minimize variable bearing capacity and minimize settlement potential.
4. Foundations should be constructed at a depth of greater than 3.5 feet below final grade to provide frost protection in accordance with regional frost depth regulations. However, this does not apply to foundations constructed directly over bedrock per section 1809.5 of the 2020 NYS Building Code.

4.2 SLAB ON GRADE

Building interior concrete slabs should be designed and constructed in accordance with the following recommendations:

1. All slabs should be designed using a recognized standard procedure, such as identified in the text "Designing Floor Slabs on Grade" by Ringo and Anderson (ISBN 0-924659-34-3). The floor slab should be designed to properly support the intended load, which may include fork truck traffic or rack posts.
2. Remove topsoil and expose competent, undisturbed native soil subgrade. Based on conditions encountered at the soil boring locations, excavation to a depth of 1.0 to 2.0 feet below existing grade is anticipated.
3. Compact the exposed soil thoroughly with a smooth drum vibratory roller to produce a uniform density throughout the subgrade.
4. Proof roll the exposed subgrade with a fully loaded 10-wheel dump truck weighing at least 30 tons or a smooth drum roller having an effective force of at least 600 pounds per linear inch of roller width. Any area exhibiting weaving, yielding, rutting or boiling should be reworked and compacted to produce an acceptable response *or* over excavated and replaced with Structural Fill. The depth of the undercut and type of Structural Fill will depend on the soil material encountered, weather conditions at the time of construction and the bearing conditions at the base of the undercut. The top surface of the subgrade should be pitched to drain to prevent ponding of stormwater.
5. Separation geotextile is not required for design, but is suggested to prevent contamination of the granular stone base from underlying soil subgrade as a result of repeated traffic during construction. Any granular stone base that becomes contaminated with soil during construction should be removed and replaced prior to pouring concrete. GGEA recommends US Fabrics US 250 or equivalent.
6. Place Select Structural Fill granular base. The thickness of the Select Structural Fill should be dependent upon the intended slab usage. At a minimum, GGEA recommends the granular base thickness be equivalent to that of the thickness of the slab. Heavily loaded slabs may require additional thickness.
7. Install subsurface utilities.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

8. Install the concrete slab, the design of which should be based on a modulus of subgrade reaction of 150 pci. The installation of a vapor barrier and specification of the concrete finish technique is at the discretion of the architect.
9. Proper joint spacing and reinforcing steel spacing/placement will be critical to the long term performance of slab. The Portland Cement Association recommends joint spacing in feet should be two to three times the slab thickness in inches.

4.3 FLEXIBLE PAVEMENT

GGEA provides design and construction recommendations for flexible pavement as follows:

1. Remove existing topsoil to expose competent, undisturbed native subgrade soil. Based on conditions encountered at the soil boring locations, excavation to a depth of 1.0 to 2.0 feet below existing grade is anticipated.
2. Compact the exposed soil thoroughly with a smooth drum vibratory roller to produce a uniform density throughout the subgrade.
3. After the exposed subgrade is thoroughly densified, proof roll the subgrade with a fully loaded 10-wheel dump truck weighing at least 30 tons or a smooth drum roller having an effective force of at least 600 pounds per linear inch of roller width. Any area exhibiting weaving, yielding, rutting or boiling should be reworked and compacted to produce an acceptable response *or* over excavated and replaced with Structural Fill. The depth of the undercut and type of Structural Fill will depend on the soil material encountered, weather conditions at the time of construction and the bearing conditions at the base of the undercut. The top surface of the subgrade should be pitched to drain to prevent ponding of stormwater.
4. Install a granular base layer composed of properly placed and compacted Select Structural Fill. GGEA recommends a minimum granular base thickness of 10 inches for automobile traffic and 12 inches for bus or truck traffic.
5. If catch basins are installed, special attention should be directed at the compaction of stone around the catch basins and the pipes. Failure to properly compact the stone will result in pavement settlement around the catch basins and ponding of water.
6. If the design dictates, install ditches, lateral drains, weeps and storm drainage piping.
7. Construct a flexible pavement system consisting of asphalt binder followed by asphalt top. GGEA provides recommended pavement sections as follows:

Light Duty (primarily car traffic)
- 10 inches Select Structural Fill
- 2.5 inches of asphalt concrete binder (2008 NYSDOT item number 403.138902)
- 1.0 inch of asphalt concrete top (2008 NYSDOT item number 403.178902 or 403.198902)

Heavy Duty (mixed truck/bus and car traffic)
- 12 inches Select Structural Fill

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3.0 inches of asphalt concrete binder (2008 NYSDOT item number 403.138902)
1.5 inch of asphalt concrete top (2008 NYSDOT item number 403.178902 or 403.198902)

The native slack water soils may become soft if exposed to moisture, which will contaminate the overlying Select Structural Fill over time through repeated loading. The installation of a woven separation geotextile will provide additional support and should be considered, especially if the granular base will be used as a working surface during construction. GGEA recommends US 200 (or equivalent) beneath light duty pavement and US 250 (or equivalent) beneath heavy duty pavement.

All site contractors should be notified that roadways and parking areas will not support repeated travel by construction loads. Pavement and subgrade failure can be anticipated in areas that receive a high volume of heavy construction traffic. To preclude the overstressing of the pavement system it is recommended that haul roads be located in non-critical areas. As an option, the base course of stone can be overbuilt to a total thickness of 20 inches to serve as a haul route. The additional thickness of stone should be removed prior to paving along with any areas of stone that have been contaminated with soil. Failure to remove fine-grained soils from the stone base may cause pavement distress in the form of heaving resulting from freeze thaw effects.

In the event the binder layer is used as a working surface during construction or there is a prolonged time period between binder and top placement such that daily activities occur over the binder surface, the surface must be power washed, not just swept, and a tack coat should be applied prior to installation of the top course. In addition, any yielding area of pavement binder should be removed and replaced prior to application of the top course.

Design and construction of the pavement system should take care to provide adequate drainage to prevent saturation of the subgrade soil, which may have a high silt content in some areas and provide a high potential for frost heave if exposed to water and freezing temperatures.

4.4 · EXCAVATION AND BACKFILL

Excavation through the overburden soil and fill materials is anticipated to require minimal effort from standard excavation equipment. Excavation into the limestone bedrock will require significant effort and the use of a heavy duty hydraulic breaker (rock hammer) with an impact energy of greater than 10,000 foot pounds.

Construction of stormwater detention ponds, associated piping and various underground utilities will likely require the removal of bedrock in some areas. Stormwater detention ponds should be lined with compacted low permeability cohesive soils or geosynthetic material if percolation of detained stormwater into the underlying bedrock is undesirable.

The soil encountered at this site should be classified by an OSHA competent person in accordance with 29 CFR, Part 1926, OSHA Subpart P, "Excavations and Trenches" prior to and during excavation. GGEA has classified the soils as Type C. However, this classification may change depending on other site

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

criteria and moisture conditions at the time of construction. An OSHA competent person should judge the potential need for excavation bracing and excavation geometry in the field.

Engineered Fill is defined as Structural Fill, Select Structural Fill or Flowable Fill (CLSM). Composition, placement and compaction specifications for Engineered Fill materials have been included in Appendix E.

The foundations should be backfilled once the frost wall concrete has achieved a nominal compressive strength. The initial lift of backfill placement should be on the outside of the wall, with subsequent lifts balanced along the interior and exterior of the wall perimeter. Foundations should be backfilled with properly placed and compacted Select Structural Fill in structurally loaded areas (pavement, sidewalk, interior backfill) and Common Fill in non-structural landscaped areas. In place density testing should be performed at a rate of one test per 50 feet of trench or 2500 square feet of area per lift with a minimum of one test per day of placement.

Engineering properties for compacted native soils and Select Structural Fill have been estimated as follows:

Native Silt (ML), compacted

moist unit weight = 125 pcf

friction angle = 31^0

Rankine theory
- at rest pressure coefficient (Ko) = 0.48
- active pressure coefficient (Ka) = 0.32
- passive pressure coefficient (Kp) = 3.12

2015 IBC Table 1610.1 Lateral Soil Load
- at rest pressure = 100 psf/ft of depth
- active pressure = 45 psf/ft of depth

Native Lean Clay (CL), compacted

moist unit weight = 120 pcf

friction angle = 0^0 undrained, 25^0 drained

cohesion = 2000 psf undrained, 0 drained

Rankine theory (based on drained condition)
- at rest pressure coefficient (Ko) = 0.57
- active pressure coefficient (Ka) = 0.41
- passive pressure coefficient (Kp) = 2.46

2015 IBC Table 1610.1 Lateral Soil Load
- at rest pressure = 100 psf/ft of depth
- active pressure = 60 psf/ft of depth

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Select Structural Fill (GW)

moist unit weight = 145 pcf

friction angle = 40 degrees

Rankine theory

at rest pressure coefficient (Ko) = 0.36
active pressure coefficient (Ka) = 0.22
passive pressure coefficient (Kp) = 4.60

2015 IBC Table 1610.1 Lateral Soil Load

at rest pressure = 60 psf/ft of depth
active pressure = 30 psf/ft of depth

4.5 EXPANSIVE SOIL MITIGATION

Some cohesive soils undergo volumetric change (shrinkage and swelling) with changes in moisture content and degree of saturation, which are commonly referred to as expansive soils. This condition primarily occurs with fat clay (CH) soil, which is a cohesive soil that exhibits a liquid limit of 50 or greater. The liquid limit is the water content, in percent, of a soil that defines the boundary between the plastic and viscous fluid states.

Laboratory testing of recovered soil samples was not included in the scope of GGEA's services, however previous laboratory test results in the general area identified soils with a low potential for volumetric change.

4.6 LIQUEFACTION MITIGATION

Liquefaction is the process where saturated cohesionless (granular) soils, specifically, loose sands and silts, transform from a solid into a liquid as a result of an increase in the pore water pressure caused by repeated disturbance such as experienced during seismic events. Liquefaction results in an immediate loss of shear strength and bearing capacity, causing total and differential settling of the overlying structure.

The native soils encountered at this site exhibit a high in place density and do not provide concern for liquefaction.

4.7 SETTLEMENT

Foundations designed and constructed in accordance with the recommendations of this report will provide for estimated total settlement of less than 1.0 inch. Differential settlement is estimated to be less than 0.5 inches.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

4.8 SEISMIC SITE CLASS AND DESIGN CATEGORY

In accordance with Section 1613 (Earthquake Loads) of the 2020 NYS Building Code, GGEA has classified the site as Seismic Site Class D. The site classification is based on the summation of N values for the upper 100 feet of boring B-9 in accordance with ASCE 7-16 Equation 20.4-2. The design spectral response accelerations have been calculated as 0.183 g for the short period design spectral response acceleration (S_{DS}) and 0.072 g for the one second design spectral response acceleration (S_{D1}). In accordance with tables 1613.2.5(1) and 1613.2.5(2), using Risk Category II, the site is classified as Seismic Design Category B (refer to Appendix D).

4.9 GENERAL CONSTRUCTION RECOMMENDATIONS

GGEA provides general construction recommendations as follows:

1. The exposed subgrade grade should not be allowed to become saturated or inundated with standing water. No fill material or concrete shall be placed in water, over saturated subgrade or over frozen subgrade. Soils may lose considerable strength and bearing capacity if subject to saturation. The foundation subgrade should be pitched to drain and provided with a temporary sump(s), located outside of the structure footprint, to prevent the accumulation of stormwater in the excavation and subsequent deterioration of the foundation subgrade during construction. Likewise, stormwater should not be permitted to remain in the excavation adjacent to foundations after construction and prior to backfill.
2. Backfill foundations prior to applying load.
3. Upon completion of the excavation for shallow foundations, the exposed foundation subgrade should be compacted to densify soil loosened by the excavation process. Proper subgrade preparation will assure the development of the anticipated bearing strength and reduce settlement potential.
4. If additional undercut is necessary, the excavation bottom should be graded to a uniform elevation and gradually sloped back to design elevation. Undercut "pockets" should be avoided.
5. Conformance to OSHA standards is mandatory during excavation and trench work.
6. Topsoil and organic soils should be removed from all load bearing areas.
7. Footing sizes should be proportioned to create nearly equal contact pressures under all foundations, which will serve to minimize differential settlement.
8. Foundation bearing grades should not be allowed to freeze prior to or after placement of concrete. Insulating blankets should be used to cover bearing grades plus a one foot perimeter outside of the forms or completed footings until backfill is placed.
9. The fill placed at grade elevation should be sloped to drain away from the foundation walls to eliminate the potential for standing water to accumulate along the foundation

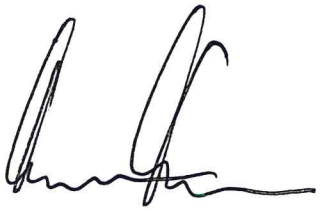
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

10. During the excavation process, if encountered soils or moisture contents are found to be different than those identified on the soil boring logs and represented within this report, the allowable bearing capacity and associated design recommendations may need to be reevaluated by a qualified geotechnical engineer to account for varying bearing capacity.

4.10 CONCLUSION

This completes the geotechnical evaluation for the proposed development of the property at 2190 – 2220 Wehrle Drive in the Town of Amherst, New York. The subsurface conditions are of good structural quality and will provide for the construction of shallow foundation systems designed in accordance with the recommendations presented herein. This report has been prepared based on the encountered subsurface conditions at the soil boring locations and pertinent data supplied by Aquest. Supplemental geotechnical exploration and evaluation may be necessary once site development plans are finalized. Please contact GGEA if major project changes are made or if encountered soils differ from conditions identified in this report.

Sincerely,





G. Edward Lover, P.G.
Senior Geologist

Mark W. Glynn, P.E.
Consulting Engineer, Principal

/gel

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Appendix A

Subsurface Exploration Logs

2190 – 2220 Wehrle Drive
Amherst, New York

Geotechnical Engineering Report

GGEA 21-1026

December 16, 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-01-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/18/21 COMPLETED 03/18/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1				5		Wet to extremely moist dark brown (SAND-SILT-CLAY) topsoil with 0 to 3% gravel, little sand, clay, and organic matter, very soft, granular soil structure, (ML-CL).	Silty topsoil with little sand, clay, and organic matter, trace gravel to 0.7 feet over clayey slackwater sediment with trace sand to 1.7 feet over silty glacial till with little sand and clay, trace to little gravel to end of boring.
	16		1					1.7	
				4				Extremely moist faintly mottled brown (CLAYEY-SILT) with some clay, trace sand, firm, blocky soil structure, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 3.4 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
					6			1.7	
	2	5						Extremely moist faintly mottled brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, stiff, massive soil structure, (ML-CL).	
	13		9					3.4	
				50/1				Advanced augers to refusal at 3.4 feet.	No water at completion.
5									
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-02-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/19/21 COMPLETED 03/19/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, trace clay, very loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter, trace clay to 0.4 feet over silty glacial till with little sand and clay, trace to little gravel to 4.4 feet over apparent limestone bedrock to end of boring.
	21		3			9		0.4	
				6				Extremely moist to moist brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, stiff, very stiff below 2.0 feet, massive soil structure, (ML-CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 4.9 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
					9			4.4	
	2	5						Gray stone fragments, hard.	No water at completion.
	24		10			22		4.9	
				12				Advanced augers to refusal at 4.9 feet.	
					14				
	3	13							
5	6		50/1						
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-03-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/19/21 COMPLETED 03/19/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, trace clay, very loose, granular soil structure, (ML). 0.9	Coarse silty topsoil with little sand and organic matter, trace clay to 0.9 feet over silty slackwater sediment with little sand and clay to 1.8 feet over silty glacial till with little sand and clay, trace to little gravel with an occasional cobble to 5.0 feet over silty glacial till with little to some gravel, little sand and clay to end of boring.
	19		2			4			
				2					
					4				
	2	6							
	24		8			20		Extremely moist brown (SAND-SILT-CLAY) with little mostly fine size sand and clay, soft, blocky soil structure, (ML-CL). 1.8	
				12					
					16				
	3	27							
5	3		35			59		Extremely moist to moist brown (SAND-SILT-CLAY) with 5 to 15% gravel, occasional cobble, little sand and clay, very stiff, massive soil structure, (ML-CL). 5.0	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 6.6 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
				24					
					49				
	4	50/3						Moist brown to grayish brown gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little sand and clay, hard, massive soil structure, (ML-CL). 6.6	No water at completion.
	3								
10								Advanced augers to refusal at 6.6 feet.	
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-04-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/19/21 COMPLETED 03/19/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, very loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter to 0.7 feet over silty slackwater sediment with little sand and clay to 1.8 feet over clayey slackwater sediment to 6.3 feet over coarse silty glacial till with little sand, trace to little gravel to auger refusal.
	22		1			2		0.7	
				1				Extremely moist faintly mottled brown (SAND-SILT-CLAY) with little mostly fine size sand and clay, soft, blocky soil structure, (ML-CL).	
					2			1.8	
	2	4						Moist faintly mottled brown (CLAYEY-SILT) with some clay, stiff, very stiff below 3.0 feet, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 6.8 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
	24		6			15		6.3	
				9				Extremely moist to wet gray (SANDY-SILT) with 5 to 15% gravel, little sand, very dense, massive soil structure, (SM).	
					10			6.8	
	3	4						Advanced augers to refusal at 6.8 feet.	No water at completion.
5	24		7			17			
				10					
					10				
	4	50/5							
	5								
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-05-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/18/21 COMPLETED 03/18/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	2						Wet to extremely moist dark brown (SAND-SILT-CLAY) topsoil with little sand, clay, and organic matter, soft, granular soil structure, (ML).	Silty topsoil with little sand, clay, and organic matter to 0.8 feet over silty slackwater sediment with little sand and clay to 2.5 feet over clayey slackwater sediment with trace sand to 5.0 feet over silty glacial till with little sand and clay, trace to little gravel to end of boring.
	20		2			8		0.8	
				6				Extremely moist faintly mottled brown (SAND-SILT-CLAY) with little mostly fine size sand and clay, firm, blocky soil structure, (ML-CL).	
					7			grades downward to 2.5	
	2	6						Extremely moist to moist brown (CLAYEY-SILT) with some clay, trace sand, very stiff and stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 7.1 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
	24		9			21		clear transition to 5.0	
				12				Moist brown to brownish gray (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, very stiff, massive soil structure, (ML-CL).	No water at completion.
					16			7.1	
	3	3						Advanced augers to refusal at 7.1 feet.	
5	24		7			21			
				14					
					23				
	4	11							
	26		50/2						
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-06-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/19/21 COMPLETED 03/19/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, trace clay and wood fiber, very loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter, trace clay to 0.8 feet over clayey slackwater sediment with trace sand to 5.8 feet over silty glacial till with little sand and clay, trace to little gravel to end of boring.
	16		2			4		0.8	
				2				Extremely moist to moist faintly mottled brown (CLAYEY-SILT) with some clay, trace sand, firm, blocky soil structure, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 6.6 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
					5			grades downward to 2.2	
	2	4						Moist brown (CLAYEY-SILT) with some clay, trace sand, stiff, very stiff below 5.5 feet, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).	No water at completion.
	24		6			13		5.8	
				7				Extremely moist brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, very stiff, massive soil structure, (ML-CL).	
					10			6.6	
	3	5						Advanced augers to refusal at 6.6 feet.	
5	24		8			19			
				11					
					12				
	4	50/2							
	2								
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-07-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/18/21 COMPLETED 03/18/21

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, trace clay, very loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter, trace clay to 0.8 feet over clayey slackwater sediment with trace gravel to 2.0 feet over silty slackwater sediment with little to some clay, little sand to 4.9 feet over silty glacial till with little sand and clay, trace to little gravel to 9.5 feet over sandy glacial till with some gravel, little silt to 10.2 feet over apparent limestone bedrock to end of boring.
	17		2			4		0.8	
				2				Extremely moist to moist faintly mottled brown (CLAYEY-SILT) with some clay, trace sand, firm, blocky soil structure, (CL).	
					4			grades downward to 2.0	
	2	5						Extremely moist faintly mottled brown (SAND-SILT-CLAY) with little to some clay, little mostly fine size sand, stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (ML-CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to split spoon refusal at 10.4 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
	24		5			12		clear transition to 4.9	
				7				Extremely moist to moist brown to grayish brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, very stiff, hard below 9.0 feet, massive soil structure, (ML-CL).	No water at completion.
					10			9.5	
	3	6						Extremely moist gravelly (SILTY-SAND) with 20 to 40% mostly angular gravel, little silt, very dense, massive soil structure, (SM).	
5	24		12			27		10.2	
				15				Gray stone fragments, moderately hard to hard.	
					17			10.4	
	4	7						Boring completed at 10.4 feet.	
	24		11						
				15		26			
					18				
	5	8							
	24		15						
				21					
10					40	36			
	6	25							
	5		50/5						
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-08-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/19/21 COMPLETED 03/19/21

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, very loose, granluar soil structure, (ML).	Coarse silty topsoil with little sand and organic matter to 0.8 feet over coarse silty slackwater sediment with little sand, trace clay to 1.5 feet over clayey slackwater sediment with trace sand to 7.2 feet over clayey glacial till with trace sand and gravel to 8.5 feet over coarse silty glacial till with little sand, trace to little gravel to end of boring.
	18		1			4		0.8	
				3				Extremely moist faintly mottled light grayish brown (SANDY-SILT) with little mostly fine size sand, trace clay, very loose, thinly bedded, (ML).	
					3			clear transition to 1.5	
	2	5						Moist faintly mottled brown (CLAYEY-SILT) with some clay, trace sand, stiff, very stiff below 5.0 feet, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 9.3 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
	24		6			11		clear transition to 7.2	
				5				Moist grayish brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, massive soil structure, (CL).	
					8			8.5	
	3	4						Extremely moist light gray (SANDY-SILT) with 5 to 15% gravel, little sand, very stiff, massive soil structure, (ML).	No water at completion.
5	24		9			22		9.3	
				13				Advanced augers to refusal at 9.3 feet.	
					16				
	4	5							
	24		8			19			
				11					
					17				
	5	6							
	11		50/5						
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-09-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —

Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/18/21 COMPLETED 03/18/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Wet to extremely moist dark brown (SANDY-SILT) topsoil with 0 to 3% gravel, little sand and organic matter, trace clay, very loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter, trace gravel and clay to 1.2 feet over clayey slackwater sediment with trace sand to 6.0 feet over silty glacial till with little to some gravel, little sand and clay to end of boring.
	22		1			4			
				3					
					4				
	2	4							
	24		4			10			
				6					
					6				
	3	4							
5	24		4			10			
				6					
					8				
	4	49							
	6		16			37			
				21					
					20				
	5	14							
	18		18			35			
				17					
10					21				
	6	7							
	4		50/1						
15									
20									

1.2

Extremely moist faintly mottled brown (CLAYEY-SILT) with some clay, trace sand, firm, blocky soil structure, (CL).

clear transition to 2.7

Extremely moist brown (CLAYEY-SILT) with some clay, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).

grades downward to 6.0

Extremely moist to moist grayish brown to brownish gray gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little sand and clay, hard, massive soil structure, (ML-CL).

10.6

Boring completed at 10.6 feet.

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to split spoon refusal at 10.6 feet. Bore hole was backfilled with cuttings to ground surface upon completion.

No water at completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-10-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/19/21 COMPLETED 03/19/21

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	1	WH				
	20		2			5
				3		
					4	
	2	5				
	24		5			14
				9		
					9	
	3	4				
5	24		7			16
				9		
					10	
	4	5				
	24		6			15
				9		
					12	
	5	9				
	20		10			34
				24		
10					50/5	
15						
20						

LITH

DESCRIPTION AND CLASSIFICATION

Wet to extremely moist (SANDY-SILT) topsoil with little sand and organic matter, very loose, granluar soil structure, (ML). 0.6

Extremely moist to moist light brownish gray (SANDY-SILT) with little mostly fine size sand, trace clay, loose, blocky soil structure becoming thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks below 1.7 feet, (ML).

grades downward to 3.0

Moist brown to grayish brown (CLAYEY-SILT) with some clay, trace sand, stiff and very stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).

clear transition to 7.0

Extremely moist grayish brown (SAND-SILT-CLAY) with 5 to 15% gravel, little to some clay, trace to little sand, very stiff, (ML-CL) tending toward (CL).

clear transition to 9.7

Wet gray stone fragments, hard. 9.9

Boring completed at 9.9 feet.

WATER TABLE AND REMARKS

WH: Sampler penetration with weight of rods and hammer.

Coarse silty topsoil with little sand and organic matter to 0.6 feet over coarse silty slackwater sediment with little sand, trace clay to 3.0 feet over clayey slackwater sediment with trace clay to 7.0 feet over silty glacial till with little to some clay, little sand, trace to little gravel to 9.5 feet over apparent limestone bedrock to end of boring.

▼ Water level at 9.6 feet below ground surface at completion.

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 9.9 feet. Bore hole was backfilled with cuttings to ground surface upon completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-11-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/18/21 COMPLETED 03/18/21

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, very loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter to 0.7 feet over clayey slackwater sediment with trace sand to 1.4 feet over silty glacial till with trace to little gravel, little clay, trace sand to end of boring.
	15		3			11		0.7	
				8				Extremely moist brown (CLAYEY-SILT) with some clay, trace sand, firm, blocky soil structure, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 5.0 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
					11			1.4	
	2	6						Extremely moist to moist brown (CLAYEY-SILT) with 5 to 15% gravel, little clay, trace sand, very stiff, massive soil structure, (ML-CL).	No water at completion.
	20		7			21		5.0	
				14				Advanced augers to refusal at 5.0 feet.	
					17				
	3	7							
5	6		50/2						
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-12-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/18/21 COMPLETED 03/18/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1				5		Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, trace wood fiber, very loose, granluar soil structure, (ML).	Coarse silty topsoil with little sand and organic matter, trace wood fiber to 0.7 feet over silty glacial till with little to some gravel, little sand and clay to end of boring.
	18		2					0.7	
				3				Extremely moist to moist faintly mottled brown gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little sand and clay, firm, massive soil structure, (ML-CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 3.0 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
					6			3.0	
	2	2						Advanced augers to refusal at 3.0 feet.	No water at completion.
	6		50/3						
5									
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-13-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/18/21 COMPLETED 03/18/21

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1				5		Extremely moist dark brown (SANDY-SILT) topsoil fill with little sand, trace to little organic matter, very loose, weakly blocky soil structure, (ML).	Coarse silty topsoil with little sand, trace to litlte organic matter to 0.3 feet over silty topsoil with little sand, clay, and organic matter, trace to little wood fiber to 1.8 feet over clayey slackwater sediment with trace sand to 2.5 feet over silty glacial till with little to some gravel, little sand and clay to end of boring.
	13		2					0.3	
				3					
					5				
	2	5				18		Extremely moist dark brown (SAND-SILT-CLAY) topsoil with little sand, clay, and organic matter, trace to little wood fiber, firm, granular soil structure, (ML-CL).	
	22		7					1.8	
				11					
					50/5				
5								Extremely moist to moist faintly mottled brown (CLAYEY-SILT) with some clay, trace sand, stiff, blocky soil structure becoming thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks below 2.0 feet, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 4.3 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
								2.5	
10								Moist brown to grayish brown gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little sand and clay, very stiff, massive soil structure, (ML-CL).	No water at completion.
								4.3	
								Advanced augers to refusal at 4.3 feet.	
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • EDI@earthdimensions.com

24K05g HOLE NO. BH-14-21 SURF. ELEVATION —

PROJECT 2190-2220 Wehrle Drive LOCATION —
Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 03/19/21 COMPLETED 03/19/21

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1				4		Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, very loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter to 0.6 feet over clayey slackwater sediment to 1.7 feet over silty glacial till with little to some clay, trace to little sand and gravel to end of boring.
	16		1					0.6	
				3				Extremely moist to moist brown (CLAYEY-SILT) with some clay, trace sand, firm, blocky soil structure, (CL).	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to auger refusal at 3.1 feet. Bore hole was backfilled with cuttings to ground surface upon completion.
					6			1.7	
	2	50/5						Extremely moist brown (SAND-SILT-CLAY) with 5 to 15% gravel, little to some clay, trace to little sand, stiff, massive soil structure, (ML-CL).	No water at completion.
	4							3.1	
5								Advanced augers to refusal at 3.1 feet.	
10									
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns) SHEET 1 OF 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Appendix B

Project Location Plan

2190 – 2220 Wehrle Drive
Amherst, New York

Geotechnical Engineering Report

GGEA 21-1026

December 16, 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GGE
ENGINEERING • DESIGN
GLYNN GEOTECHNICAL ENGINEERING
415 S. TRANSIT STREET
LOCKPORT, NEW YORK 14094
VOICE (716) 625 - 6933 / FAX (716) 625-6983
www.glynngroup.com

PROJECT: 2190-2220 WEHRLE DRIVE			SHEET NO.: S1
SUBJECT: PROJECT LOCATION PLAN			
CLIENT: AQUEST DEVELOPMENT			
PROJ. NO.: 21-1026	SCALE: 1" = 1000'	DATE: 04.01.21	BY: GEL

Appendix C

Subsurface Exploration Plan

2190 – 2220 Wehrle Drive
Amherst, New York

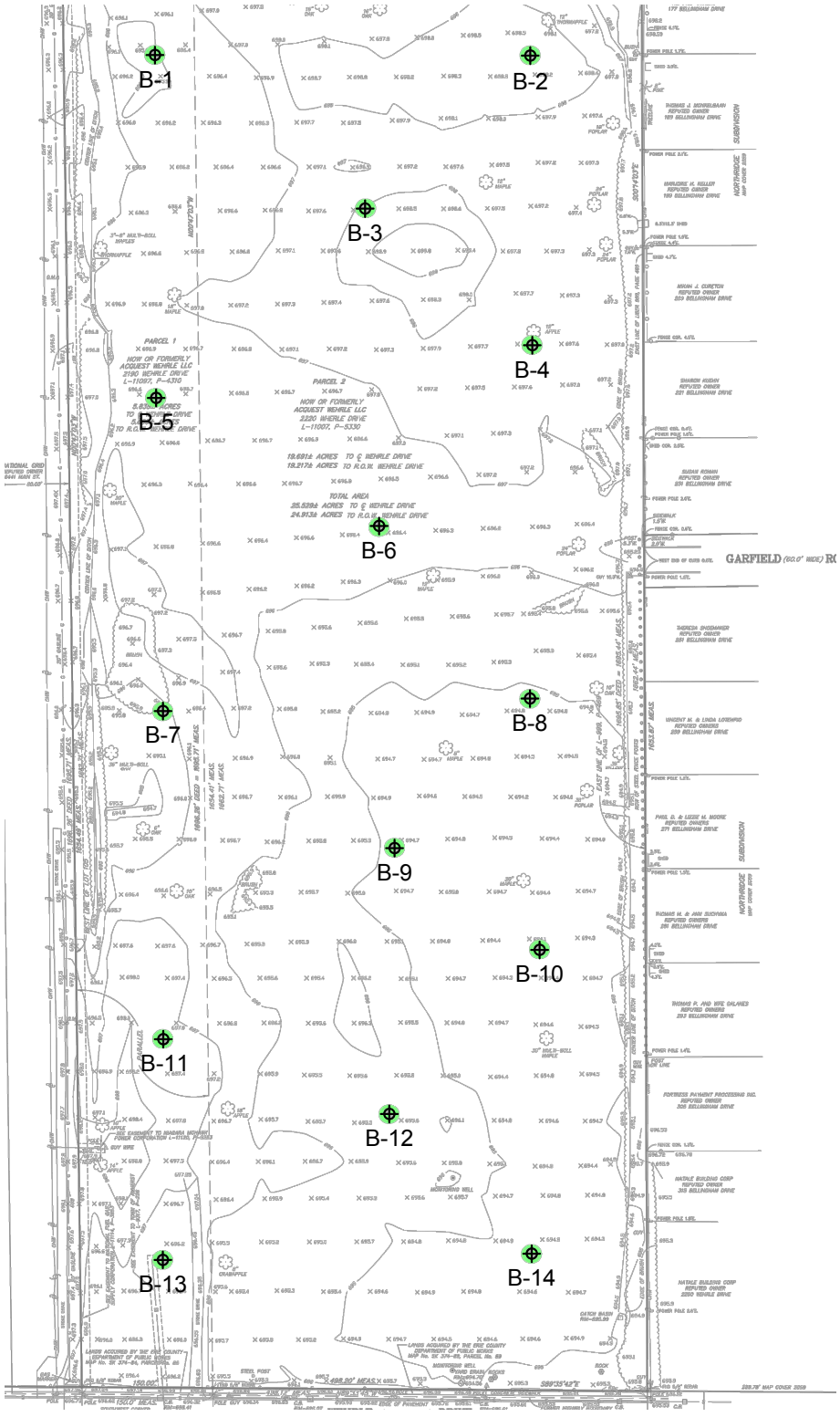
Geotechnical Engineering Report

GGEA 21-1026

December 16, 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC



GGE
ENGINEERING • DESIGN
GLYNN GEOTECHNICAL ENGINEERING
415 S. TRANSIT STREET
LOCKPORT, NEW YORK 14094
VOICE (716) 625 - 6933 / FAX (716) 625-6983
www.glynngroup.com

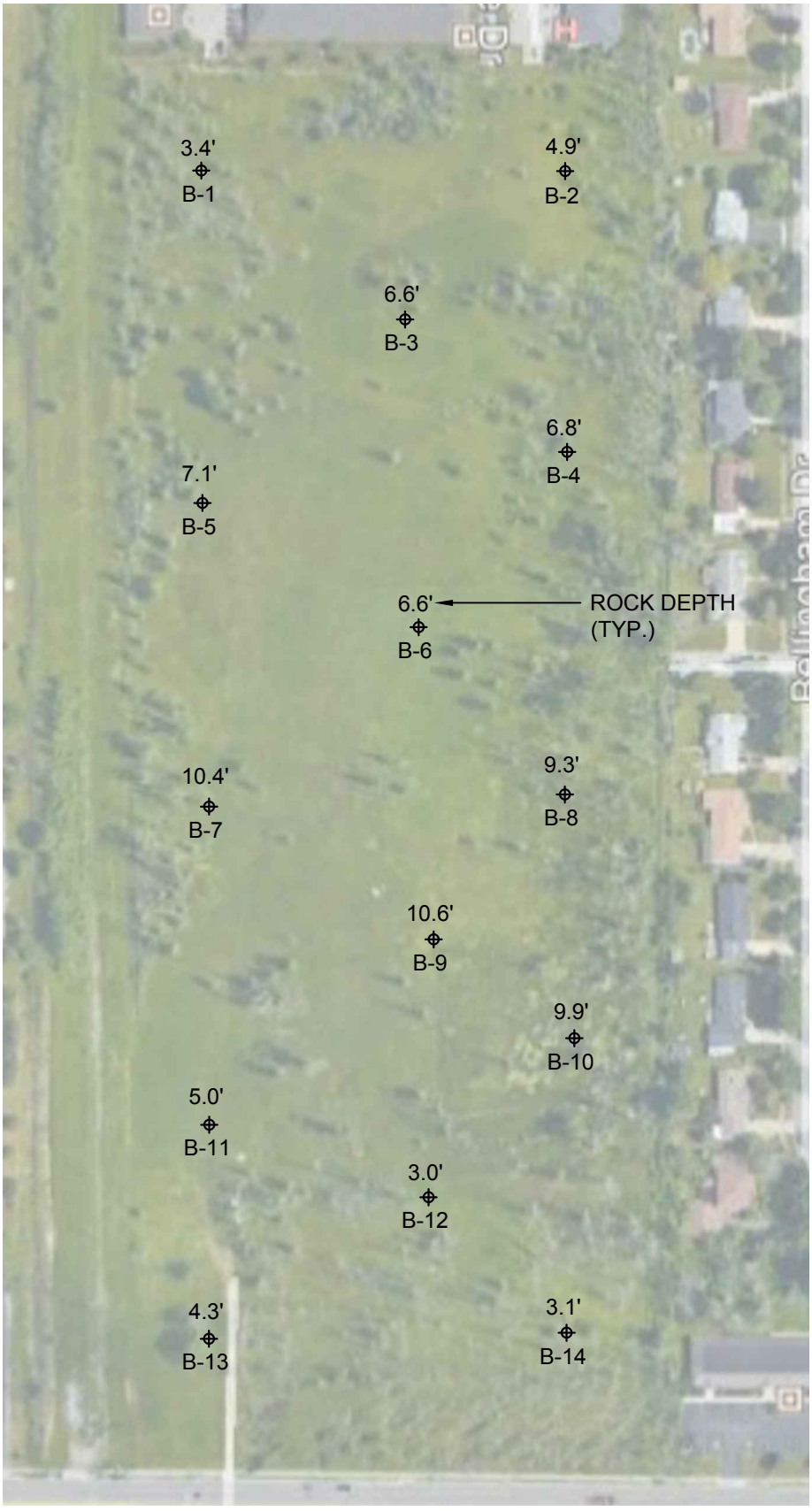
PROJECT:	2190 - 2220 WEHRLE DRIVE
SUBJECT:	BORING LOCATION PLAN
CLIENT:	ACQUEST DEVELOPMENT

PROJ. NO.:	SCALE:	DATE:	BY:
21-1026	1"= 200'-0"	03.16.21	GEL

SHEET NO.:

S2A

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



NORTH

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GGE
ENGINEERING • DESIGN
GLYNN GEOTECHNICAL ENGINEERING
415 S. TRANSIT STREET
LOCKPORT, NEW YORK 14094
VOICE (716) 625 - 6933 / FAX (716) 625-6983
www.glynngroup.com

PROJECT:	2190 - 2220 WEHRLE DRIVE
SUBJECT:	BORING LOCATION PLAN
CLIENT:	ACQUEST DEVELOPMENT

PROJ. NO.:	SCALE:	DATE:	BY:
21-1026	1"= 200'-0"	03.16.21	GEL

SHEET NO.:
S2B

Appendix D

Seismic Site Class and Design Category

2190 – 2220 Wehrle Drive
Amherst, New York

Geotechnical Engineering Report

GGEA 21-1026

December 16, 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

Project : 2190 - 2220 Wehrle Drive
Client: Aquest
GGEA # : 21-1026
Date: 04.06.21

B-9

Depth (di)	N Value (Ni)
2.7	4
3.3	10
4.6	36
89.4	100

ASCE 7-16
Equation 20.4-2

$$N = \frac{100}{\sum \frac{di}{Ni}} = 49.3$$

ASCE 7-16
Table 20.3-1

$15 < N < 50$ **SITE CLASS D**

2020 NYS Code Section 1613

F_a =	1.6	Site coefficient Table 1613.2.3(1)
F_v =	2.4	Site coefficient Table 1613.2.3(2)
S_s =	0.172	Mapped accelerations short periods Figure 1613.2.1(1)
S_1 =	0.045	Mapped accelerations 1 sec period Figure 1613.2.1(2)
S_{MS} =	0.275	Maximum spectral response short periods equation 16-36
S_{M1} =	0.108	Maximum spectral response 1 sec periods equation 16-37
S_{DS} =	0.183	Design spectral response short periods equation 16-38
S_{D1} =	0.072	Design spectral response 1 sec periods equation 16-39

Risk Category = II Table 1604.5

Seismic Design Category = **B** Table 1613.2.5(1)
Table 1613.2.5(2)

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Appendix E

Engineered Fill Specifications

2190 – 2220 Wehrle Drive
Amherst, New York

Geotechnical Engineering Report

GGEA 21-1026

December 16, 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

GLYNNGROUP
ENGINEERING & ARCHITECTURE, PLLC

Civil • Geotechnical
Structural • Architecture
Material Testing • Consulting

Common Fill

All soil and/or crushed rock material with the exception
of those with USCS classifications of
CH, MH, OH, and OL.

Place material in 12 inch lifts (loose) and compact to 90 % of modified proctor (ASTM D-1557) maximum dry density within 2 % of optimum moisture content.

The material should be compacted using a smooth drum vibratory roller (for large applications) or a reversible vibratory plate tamper (for smaller applications) such as a Bomag BPR 35/60 or similar (weight > 400 lbs).

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP ENGINEERING & ARCHITECTURE, PLLC
415 South Transit Street, Lockport, New York 14094
voice 716.625.6933 / fax 716.625.6983
www.glynngroup.com

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

Civil • Geotechnical
Structural • Architecture
Material Testing • Consulting

Structural Fill

All soil and/or crushed rock material with the exception
of those with USCS classifications of
CH, MH, OH, OL, ML and CL-ML.

Place material in 9 inch lifts (loose) and compact to 95 % of modified proctor (ASTM D-1557) maximum dry density within 2 % of optimum moisture content.

The material should be compacted using a smooth drum vibratory roller (for large applications) or a reversible vibratory plate tamper (for smaller applications) such as a Bomag BPR 35/60 or similar (weight > 400 lbs).

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP ENGINEERING & ARCHITECTURE, PLLC
415 South Transit Street, Lockport, New York 14094
voice 716.625.6933 / fax 716.625.6983
www.glynngroup.com

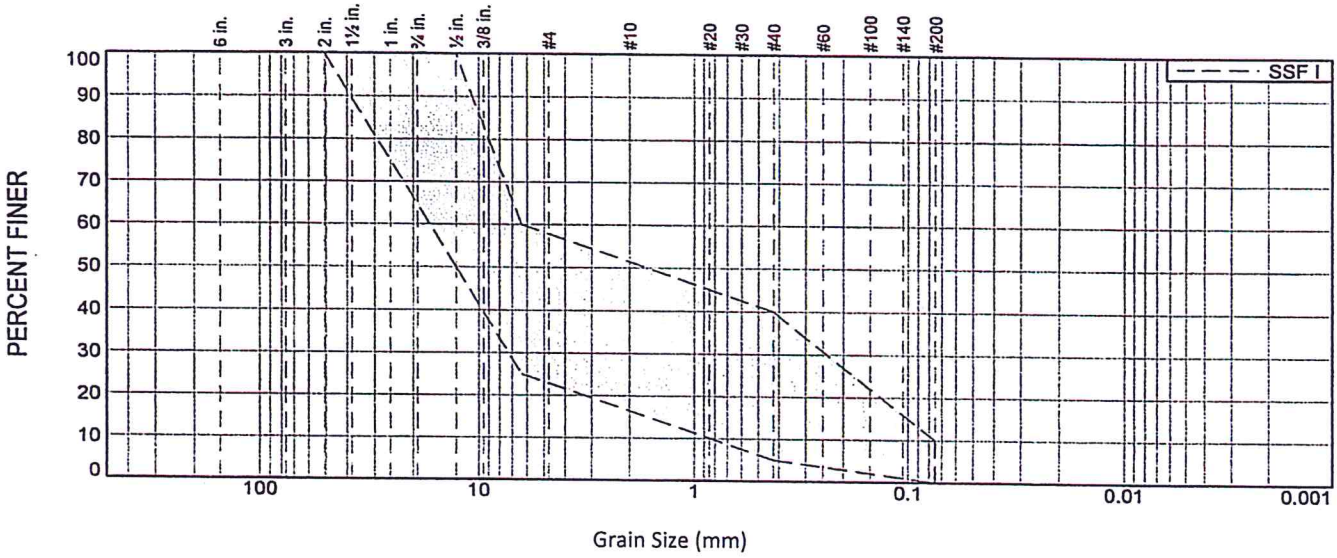
GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

Civil • Geotechnical
Structural • Architecture
Material Testing • Consulting

Select Structural Fill

NYSDOT Item No. 304.12 Subbase Course, Type 2

Sieve Size	Required % Passing
2 inch	100
1/4 inch	25 - 60
No. 40	5 - 40
No. 200	0 - 10



In addition to the above specification, material shall also meet the well graded qualifications of ASTM D-2487, such that USCS classification = GW, GW-GM, SW or SW-SM.

Place material in 9 inch lifts (loose) and compact to 95 % of modified proctor (ASTM D-1557) maximum dry density within 2 % of optimum moisture content.

The material should be compacted using a smooth drum vibratory roller (for large applications) or a reversible vibratory plate tamper (for smaller applications) such as a Bomag BPR 35/60 or similar (weight > 400 lbs).

GLYNN GROUP ENGINEERING & ARCHITECTURE, PLLC
415 South Transit Street, Lockport, New York 14094
voice 716.625.6933 / fax 716.625.6983
www.glynngroup.com

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

Civil • Geotechnical
Structural • Architecture
Material Testing • Consulting

Flowable Fill

Controlled Low Strength Material (CLSM).

Typically a fly ash based pozzolanic fill manufactured by local concrete plants.

Minimum 28 day compressive strength = 100 psi.

May include fine aggregate.

The material should be placed in separate lifts not to exceed 30 inches in depth and each lift should be allowed to fully cure (monitor for shrinkage and/or desiccation) prior to placing subsequent lifts or applying load.

CLSM should not be used within 42 inches of final grade due to potential freeze/thaw susceptibility and should not be used if the excavation contains standing water or is subject to groundwater infiltration.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

GLYNN GROUP ENGINEERING & ARCHITECTURE, PLLC
415 South Transit Street, Lockport, New York 14094
voice 716.625.6933 / fax 716.625.6983
www.glynngroup.com

ENGINEER'S REPORT

PROPOSED OFFICE BUILDING & PROPOSED PUBLIC ROAD

2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK

Prepared for:
Acquest Development Company, LLC
5554 Main Street
Williamsville, NY 14221

Prepared by:
C&S ENGINEERS, INC.
141 Elm Street, Suite 100
Buffalo, NY 14203

November 11, 2021
Revised December 3, 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Table of Contents

GENERAL 1
Existing Site Conditions 1
Proposed Site Conditions 1

PROPOSED FACILITIES 2
STORMWATER MANAGEMENT 2
SANITARY SEWER 6
WATER 9
100-YR FLOODPLAIN 10

APPENDIX A SITE LOCATION MAP

APPENDIX B STORMWATER CALCULATIONS

APPENDIX C SANITARY SEWER CALCULATIONS & DEVELOPER'S I&I COMMITMENT LETTER

APPENDIX D FLOW MONITORING DATA (by TECSmith, Inc.)

APPENDIX E WATER CALCULATIONS

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

A. GENERAL

1. Existing Site Conditions:

The project site is located at 2190-2220 Wehrle Drive, in Willamsville, New York. See location map in Appendix A. The project site is 24.91 acres, rectangular shaped with approximately 648 feet of frontage along the north side of Wehrle Drive. The existing site consists primarily of maintained lawn areas with a few brush/wooded areas along the eastern property line, and a couple brush areas along the west property line. Under existing conditions, there are five (5) drainage areas, all of which eventually drain to/are conveyed to the drainage system along Wehrle Drive. Drainage area #1 consists of the eastern and northeastern portion of the site. Stormwater runoff from drainage area #1 flows to a drainage ditch located along the east property line and flows south towards Wehrle Drive. Drainage area #2 consists of a small portion along the west property line and the northwest corner of the parcel. Stormwater runoff from drainage area #2 flows to a drainage ditch located along the west property line and flows south towards Wehrle Drive. Drainage area #3 consists of a small portion of the parcel near the middle of the site. Stormwater runoff from drainage area #3 flows to a low spot, pools and then eventually discharges to the drainage ditch located along the west property line and flows south towards Wehrle Drive. Drainage area #4 consists of a small portion of the parcel at the southwest corner of the site. Stormwater runoff from drainage area #4 travels by sheet flow towards Wehrle Drive. Drainage area #5 consists of a small portion of the parcel along the Wehrle Drive frontage. Stormwater runoff from drainage area #5 travels by sheet flow is conveyed to an existing yard drain along the Wehrle Drive frontage. As per the Erie County DPW Division of Highways "Plans for the Reconstruction of Wehrle Drive C.R. 290 Ellicott Creek to Harding Road", there are two (2) yard drain structures shown on the plans for this parcel. It is understood that the two yard drains were installed to collect stormwater runoff from this parcel and convey it to the Wehrle Drive storm drainage system.

Per the USDA NRCS Web Soil Survey for the site, the existing soils on site consist of Lima loam (HSG 'B/D'), Ilion silt loam (HSG 'C/D'), Newstead loam (HSG 'C/D') and Ovid silt loam (HSG 'C/D'). For soils assigned to a dual hydrologic group, the first letter is for drained areas and the second letter is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

2. Proposed Site Conditions:

Development will consist of both the development of the northwest portion of the this parcel along with development of a new, public road off of Wehrle Drive and terminating in a cul-de-sac at the northern portion of the site.

Development of the northwest portion of the parcel will consist of the following:

- One (1) three-story, 84,375 square-foot, office building
- One (1) single-story security booth
- One (1) single-story, 24,750 square foot storage garage/maintenance facility

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

- One (1) two-story, 72,072 square foot parking garage
- Associated site improvements

Site improvements include asphalt paved parking lots to accommodate 100 parking spaces including 4 handicap accessible spaces, concrete loading docks, security fencing, sidewalks, landscaping, and site utilities. Site utilities include a stormwater management system, bioretention basins, sanitary sewer and water service laterals.

Development of the new public road will consist of the construction of a new 28-foot wide public road, within a 52-foot wide right-of-way, designed to the Town of Amherst's standards and will eventually be dedicated to the Town of Amherst. Construction of the public road will include the following public utilities, water, sanitary sewer, storm sewer, electric and gas.

Upon completion, the proposed project will add 6.56 acres of new impervious cover in total. The total anticipated ground disturbance during construction of this project will be approximately 17.5 acres. Due to the increase in impervious areas, stormwater detention is required. Additionally, since the construction of this site will disturb more than one acre, a Storm Water Pollution Prevention Plan (SWPPP), in accordance with the New York State Department of Environmental Conservation (NYSDEC) standards must be prepared and a Notice of Intent (NOI) must be filed prior to beginning construction.

B. PROPOSED FACILITIES

1. Stormwater Management

a. Conveyance

Under proposed conditions, there will be four drainage areas with two bioretention facilities, one dry swale and a large dry detention basin. The Northwest Drainage Area consists of the office building, storage garage/maintenance facility and parking areas. Stormwater runoff from the Northwest Drainage Area will be collected and treated in a bioretention basin, then discharge to the dry detention basin. The Northeast Drainage Area consists of the parking garage and the northern portion of the proposed road. Stormwater runoff from the Northeast Drainage Area will be collected and treated in a bioretention basin, then discharge to the dry detention basin. The East Drainage Area will consist of southern portion of the proposed road, the dry swale and dry detention basin. Stormwater runoff from the East Drainage Area will be collected in an enclosed drainage system, piped to the dry swale and then flow to the dry detention basin. The South Drainage Area consists of the future development of medical office. Stormwater runoff from the existing conditions of the South Drainage Area will be collected and piped to the dry detention basin. The dry detention basin will have an outlet structure with a piped discharge to the storm drainage system on Wehrle Drive. The West

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Drainage Area consists of a small strip of lawn area along the north, west and south property lines. Stormwater runoff along the north and west property lines will be collected in a French drain/underdrain and tie directly into the storm sewer system on Wehrle Drive.

b. Quantity Control

New York State Department of Environmental Conservation regulations require design of stormwater detention facilities to limit the peak discharge produced by the 10-year and 100-year storm events to the pre-developed runoff rates, as well as provide extended detention of the 1-YR, 24-HR storm event (channel protection volume). Additionally, the Town of Amherst regulations require the peak discharge from the 25-year post-developed storm event to be limited to the 10-year pre-developed storm runoff rate.

Water quantity control will be provided through the combination of bioretention basins, a dry swale, dry detention basin and an outlet control structure that will consist of a manhole with a weir plate, 6-inch diameter orifice and a 15-inch diameter HDPE outlet pipe.

Each bioretention basin will utilize one 24" x 24" catch basin with an 18-inch diameter HDPE pipe to control the stormwater discharge from each facility.

The dry detention basin is designed to accept stormwater runoff from all the drainage areas, under developed conditions, as shown on the Proposed Drainage Analysis Map.

The dry detention basin will utilize a precast concrete manhole as a control structure. The stormwater runoff rates will be controlled through a combination of a 6-inch diameter orifice and a weir. The 15-inch diameter HDPE outlet pipe will convey the stormwater discharges from the dry detention basin to the existing storm sewer system on Wehrle Drive.

The stormwater discharge rates for the 10-year and 25-year storm events under developed conditions, will be below the stormwater discharge rates for the 10-year storm event under pre-developed conditions. The stormwater discharge rates for the 100-year storm event under developed conditions, will be below the stormwater discharge rate for the 100-year storm event under pre-developed conditions. The Channel Protection Volume (CPv) requirement will be met by the use of the 6-inch diameter orifice.

The stormwater detention calculations were completed using HYDROCAD, version 10 software. Following is a summary of the pre and post development discharge rates and associated detention volumes and water surface elevations:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

East Discharge to Wehrle Drive Storm Sewer:

Storm Event	Pre-Development Discharge (cfs)	Post-Development Discharge (cfs)	Dry Detention Basin Volume (cf)	Dry Detention Basin Water Surface Elevation (ft)
10-YR	5.40	4.29	82,942	693.05
25-YR	11.59	5.20	114,117	693.37
100-YR	24.49	6.39	183,906	694.00

West Discharge to Wehrle Drive Storm Sewer:

Storm Event	Pre-Development Discharge (cfs)	Post-Development Discharge (cfs)
10-YR	3.64	1.93
25-YR	5.22	2.77
100-YR	8.48	4.49

Quality Control:

Chapters 3-5 of the NYSDEC Stormwater Management Design Manual (SMDM) provides a green infrastructure approach to stormwater management to reduce a site's impact on the aquatic ecosystem through the use of site planning techniques, runoff reduction techniques, and standard SMP's. Runoff Reduction Volume (RRv) is the reduction of the total Water Quality Volume (WQv) by application of green infrastructure techniques and SMP's to replicate pre-development hydrology.

The NYSDEC SMDM's intent is for projects to meet 100% of runoff reduction volume through the use of green infrastructure techniques. Projects that do not achieve runoff reduction to pre-construction condition must, at a minimum, provide the minimum RRv as well as provide the remaining WQv in standard SMPs.

Two (2) bioretention basins will be used to treat 100% of the new impervious area from the proposed office building, storage garage/maintenance building, parking garage and parking lots, along with the northern portion of the proposed road. A dry swale will be used to treat 100% of the new impervious area from the southern portion of the proposed road.

Water Quality Volume and RRv has not been designed for the future development site along the south of the parcel.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Both the minimum RRv requirement and the water quality volume requirement has been attained through the use of the bioretention basin and open swale.

Below is a summary of the water quality volume and runoff reduction volumes attained on site:

Total Water Quality Volume Required (WQv):	**24,350 cf**
Minimum Runoff Reduction Volume Required (RRv, min)	**4,524 cf**
Bioretention Basin (from Northwest Drainage Area):	
WQ_v Required	13,195 cf
WQ_v Provided	7,917 cf
RR_v Provided (Standard SMP with Runoff Reduction Volume) – due to HSG C/D soils, RRv = 40% WQv for that practice (typical all bioretention facilities)	5,278 cf
Total WQ_v Provided	13,195 cf
Bioretention Basin (from Northeast Drainage Area):	
WQ_v Required	5,797 cf
WQ_v Provided	3,478 cf
RR_v Provided (Standard SMP with Runoff Reduction Volume) – due to HSG C/D soils, RRv = 40% WQv for that practice (typical all bioretention facilities)	2,319 cf
Total WQ_v Provided	5,797 cf
Dry Swale:	
WQ_v Required	5,360 cf
WQ_v Provided	4,288 cf
RR_v Provided (Standard SMP with Runoff Reduction Volume) – due to HSG C/D soils, RRv = 20% WQv for that practice (with underdrain)	1,072 cf
Total WQ_v Provided	5,360 cf
Total RRv Provided:	**8,669 cf**
Total WQv Provided (WQv provided + RRv provided):	**24,352 cf**

Stormwater calculations are included in Appendix B.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

2. Sanitary Sewer

Both the office building and the Storage Garage/Maintenance Facility will be serviced by a 6-inch diameter, SDR-35 PVC, private, sanitary sewer lateral. The 6-inch lateral will connect to a proposed 8-inch, PVC, public sanitary main along the proposed public road. The proposed 8-inch, PVC, public sanitary sewer will be sloped at a minimum slope of 0.40% and will run along a portion of the proposed road to service both the office building, storage garage/maintenance facility and the future development along the southwest corner of the parcel. The proposed 8-inch, PVC, public sanitary sewer main will run along the proposed road, then flow east through the west end of Garfield Street, then connect into the existing 8-inch public sanitary sewer main on Bellingham Drive.

All of the private sanitary work is to be performed per the Town of Amherst standards. All of the proposed, public sanitary sewer main will be performed to both the Town of Amherst and Erie County Department of Health standards. Sanitary sewer flow calculations for the proposed office and the storage garage/maintenance facility are shown below and are also included in Appendix C.

Design Parameters (Appendix C) –

1) Hydraulic Loading Rate per "Design Standard for Intermediate Sized Wastewater Treatment Works", March 5, 2014 NYSDEC.
2) Table B-3 Typical Per-Unit Hydraulic Loading Rates
   Office = 15 gpd/employee
   Storage Garage/Maintenance Facility = 15 gpd/employee
3) Building Matrix:
   Office = 232 employees
   Maintenance Facility = 5 employees
4) Average Daily Design Flow = (0.80 water saving reduction factor)
   [(232 employees)(15 gpd/employee) +
   (5 employees)(15 gpd/employee)]
   = 2,844 gpd
5) Peak Hourly Flow = (2,844 gpd) (4.36 peak factor)
   = 12,400 gpd = 0.012 mgd = 8.6 gpm

Downstream Sanitary Sewer Capacity Analysis

As the average daily design flow is greater than 2,500 gpd, the sanitary sewage is considered a sewer extension in accordance with the NYSDEC's regulations. Accordingly, a downstream sanitary capacity analysis was conducted and is detailed below.

All sanitary sewage from the proposed development will flow through a proposed 8-inch public PVC sewer main and connect into the existing 8-inch gravity sewer on Bellingham Drive. The 8-inch sewer flows north on Bellingham Drive to Lyndhurst Road and then flows east along Lyndhurst Road and into a lift station. From the lift station, sewage

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

flows north along Amherston Drive within a 4-inch forcemain to Ridge Court North, where it continues to flow north, until it reaches Main Street. At Main Street, the 4-inch forcemain ties into a 15-inch PVC sewer and flows west along Main Street to a manhole located just east of Limestone Drive. There, sewage flows north within a 15-inch PVC sewer and crosses Main Street and ties into an existing manhole located between 6470 and 6500 Main Street. From there, sewage flows north within an 18-inch PVC sewer and ties into the 18-inch Youngs Road sewer. The 18-inch Youngs Road sewer flows north on Youngs Road until it reaches Maple Road. At Maple Road, sewage flows west along Maple Road within an 18-inch sewer until it reaches Hopkins Road. At Hopkins Road, the 18-inch Maple Road sewer connects to an 18-inch sewer on Hopkins Road and flows north. Along this route, the 18-inch sewer increases to a 30-inch sewer. The 30-inch sewer continues to flow north until it reaches the Town of Amherst Peanut Line Sewer. There, the 30-inch sewer ties into the 54-inch Peanut Line Sewer. The 54-inch Peanut Line sewer flows west and then increases to a 60-inch sewer and then a 66-inch sewer within the Peanut Line sewer route. The 66-inch Peanut Line sewer continues to flow west until it ties into the 84-inch West Side Interceptor sewer. The 84-inch West Side Interceptor sewer flows north and discharges into the Town of Amherst Wastewater Treatment Plant, located at 455 Tonawanda Creek Road. (Included in Appendix D is the Town of Amherst Downstream Sewer – Amherst Peanut Line & West Side Interceptor Map)

The Town of Amherst Engineering Department requested flow monitoring of both the 15-inch PVC sanitary sewer located at 6543-6551 Main Street and the 18-inch PVC sanitary sewer located at 6470 Main Street. TECSmith, Inc. was hired to perform flow monitoring on both sewers. Included in Appendix D is the full report from TECSmith, Inc. Below is a summary of the downstream sanitary sewer capacity analysis study:

Sewer	Peak Flows without Office Project (mgd)	Proposed Peak Flow from Office Project (mgd)	Total Flow (mgd)	Theoretical Capacity (mgd)	Available Capacity (Y/N)
15" PVC sewer at 6543-6551 Main Street	0.998*	0.012	1.01	1.92**	Y
18" PVC sewer at 6470 Main Street	1.886*	0.012	1.898	2.79***	Y
54" Amherst Peanut Line	18.50****	0.012	18.512	36.0****	Y
54" Amherst Peanut Line	19.15****	0.012	19.162	36.0****	Y
60" Amherst Peanut Line	26.45****	0.012	26.464	44.60****	Y
66" Amherst	36.50****	0.012	36.512	57.40****	Y

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Peanut Line					
84" Amherst West Side Interceptor	92.00****	0.012	92.012	104.10****	Y

* Information obtained from the flow study performed by TECSmith, Inc. Peak flow occurred on 10/3/2021 with a total daily rainfall of 1.84 inches.

** Theoretical capacity of a 15-inch PVC sewer, with a slope of 0.15% (0.15% is the minimum slope per 10 States Standards), and a manning's 'n' of 0.011:
$Q_{capacity}$ = 1.92 mgd

*** Theoretical capacity of an 18-inch PVC sewer, with a slope of 0.12% (0.12% is the minimum slope per 10 States Standards), and a manning's 'n' of 0.011:
$Q_{capacity}$ = 2.79 mgd

**** Information obtained from Town of Amherst Engineering Department Sewer Maintenance Division, Main Sanitary Sewer Interceptors, Downstream Sewer – Amherst Peanut Line & West Side Interceptor Map, for Proposed Site 2190-2220 Wehrle Drive, with flows updated February 4, 2020. The 2-YR, 6-HR Flow and Capacity values were used.

From the information above under wet weather flows, the 15-inch PVC sewer on Main Street, the 18-inch PVC sewer on Main Street, the 54-inch, 60-inch and 66-inch Town of Amherst Peanut Line Sewers and the 84-inch West Side Interceptor Sewer, have sufficient capacity to handle the additional peak flow generated from the proposed office building and future development.

According to the Town of Amherst Infiltration and Inflow (I/I) offset program and to NYSDEC's I/I Flow Offset requirements, wet weather flows are to be offset by a factor of 4:1 of the peak hourly flow by replacing sewer system components. The Erie County Division of Sewerage Management Contribution Removal Values by Source identifies that replacing a deficient residential lateral allows an offset value of 30 gpm.

For the Office Building, the Town of Amherst's requirements for I/I mitigation is $250/gpm of mitigated flow. Accordingly, the flat fee for this project is calculated as follows:

Office Building:

Peak Hourly Design Flow:	= 12,400 gpd = 8.6 gpm
4:1 offset value:	= 8.6 x 4 = 34.4 gpm
Flat Fee:	= $250/gpm x 34.4 gpm
	= $8,600.00

Per the Town of Amherst's current regulations, the owner is required to pay a flat fee of $8,600.00 to mitigate the 4:1 ratio of peak hourly flow.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3. Water System

A new, public, 8-inch PVC watermain will be tapped off of the existing 12-inch watermain within Wehrle Drive. During the previous reconstruction of Wehrle Drive (in approximately 2011), a previous design for this site called for a 10-inch water service to the site. At that time, a 12x10 tee, a 10-inch stub pipe and a 10-inch line valve were installed and the 10-inch line was plugged. Additionally, a 20" casing pipe was installed to cross Wehrle Drive. The proposed 8-inch public watermain will tie into the existing 10-inch line with a 10x8 reducer and the proposed 8-inch watermain will reuse the existing 20-inch casing pipe to cross Wehrle Drive. Once the 8-inch public watermain crosses Wehrle Drive, it will run along the frontage of 2190-2220 Wehrle Drive within a proposed, 15-foot wide easement, until it reaches the proposed public road. The proposed 8-inch watermain will run north, along the west side of the proposed public road, within a 30-foot wide easement for approximately 1,070 linear feet. There, the proposed 8-inch public watermain will cross the proposed road, run along the south side of Garfield Road, then tie into the existing 6-inch public watermain on Bellingham Drive.

For the proposed development, a 6-inch ductile iron water service will be tapped off of the 8-inch public watermain with an 8x6 tapping sleeve and valve. The 6-inch service will be split at the property line into a 6-inch ductile iron, private fire service and a 4-inch ductile iron, domestic water service. Both services will be backflow protected within a Hotbox located on site. The 6-inch private fire service will connect to the fire sprinkler system within the building and also service a private fire hydrant on site. The 4-inch service will provide domestic water service to the building. The 4-inch service will reduce down to a 2-inch service within the Hotbox enclosure for both metering and backflow prevention. The fire sprinkler design and calculations will be provided by the mechanical engineer.

Domestic:

1)	Domestic Peak Operating Demand:	14 gpm
2)	Static Pressure in watermain:	42 psi
3)	Friction Loss through 4" domestic service	0 psi
4)	Friction Loss due to elevation	2.6 psi
5)	Friction Loss through fittings	1 psi
6)	Friction Loss through 2" Neptune T-10 Meter	0.5 psi
7)	Friction Loss through 2" Watts LF009 RPZ	13 psi
8)	Residual Pressure @ building for domestic service:	24.9 psi

Fire:

1)	Friction Loss through 6" fire service:	9.3 psi
2)	Friction Loss through fittings	1 psi
3)	Friction Loss due to elevation	2.6 psi
4)	Friction Loss through 6" Watts LF 957RPDA	9 psi

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

5) Available fire flow with 20 psi residual pressure @ building 850 gpm

(Static pressure at the main was provided by the Erie County Water Authority) – See Appendix E

Disinfection of water services following construction will be continuous feed, in accordance with AWWA C-651, latest revision requirements. Water demand calculations are included in Appendix E.

4. 100-YR Floodplain Information

Neither the proposed development nor the proposed public road is located within the 100-year floodplain, as per FEMA Firm Panel 360290C0229H.

Respectfully Submitted,

C&S ENGINEERS, INC.



Jason Utzig, P.E.
Senior Project Engineer

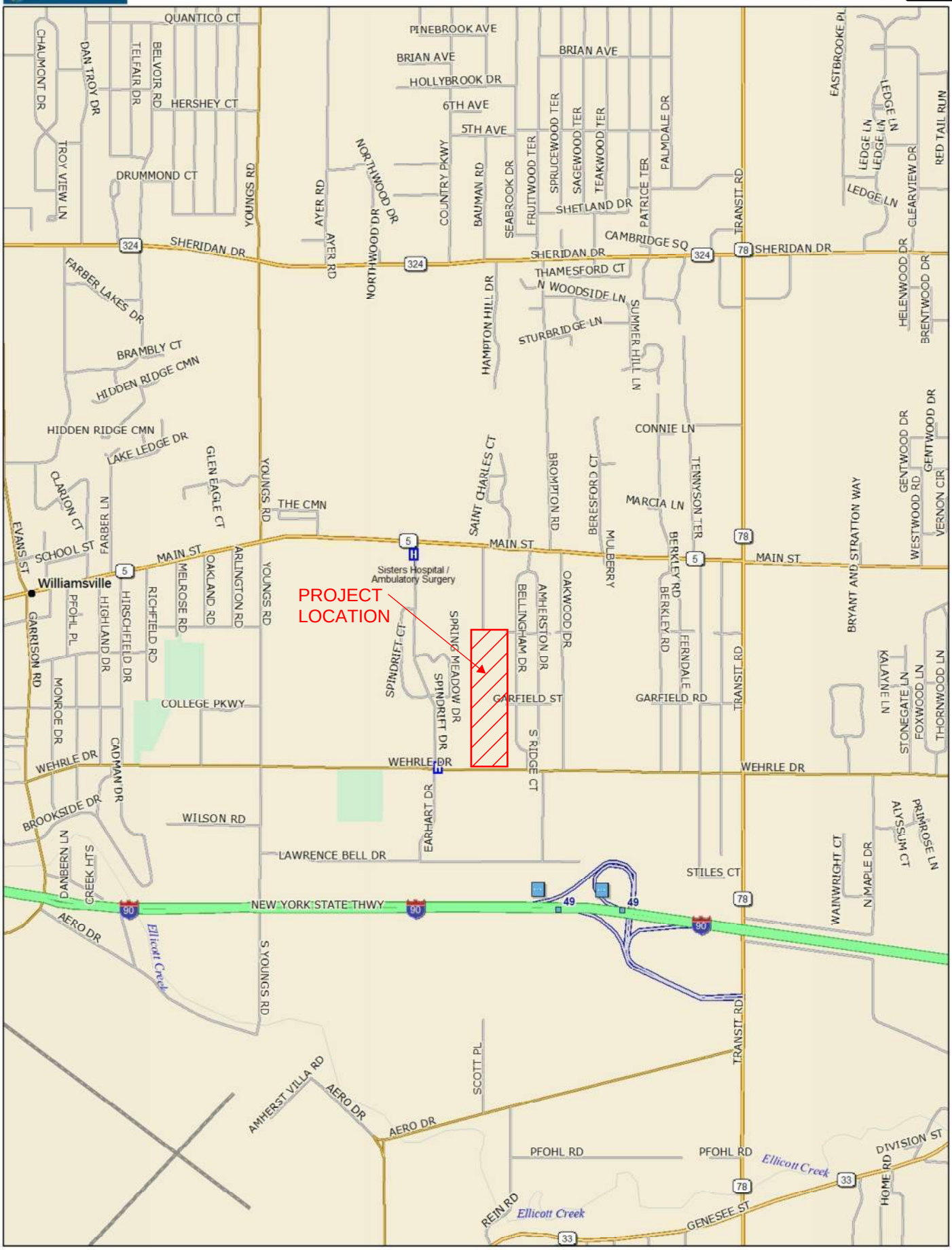
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX A

SITE LOCATION MAP

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



Data use subject to license.

© DeLorme. DeLorme Street Atlas USA® 2011.

www.delorme.com

MN (10.8° W)

0 600 1200 1800 2400 3000 3600 ft

Data Zoom 13

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

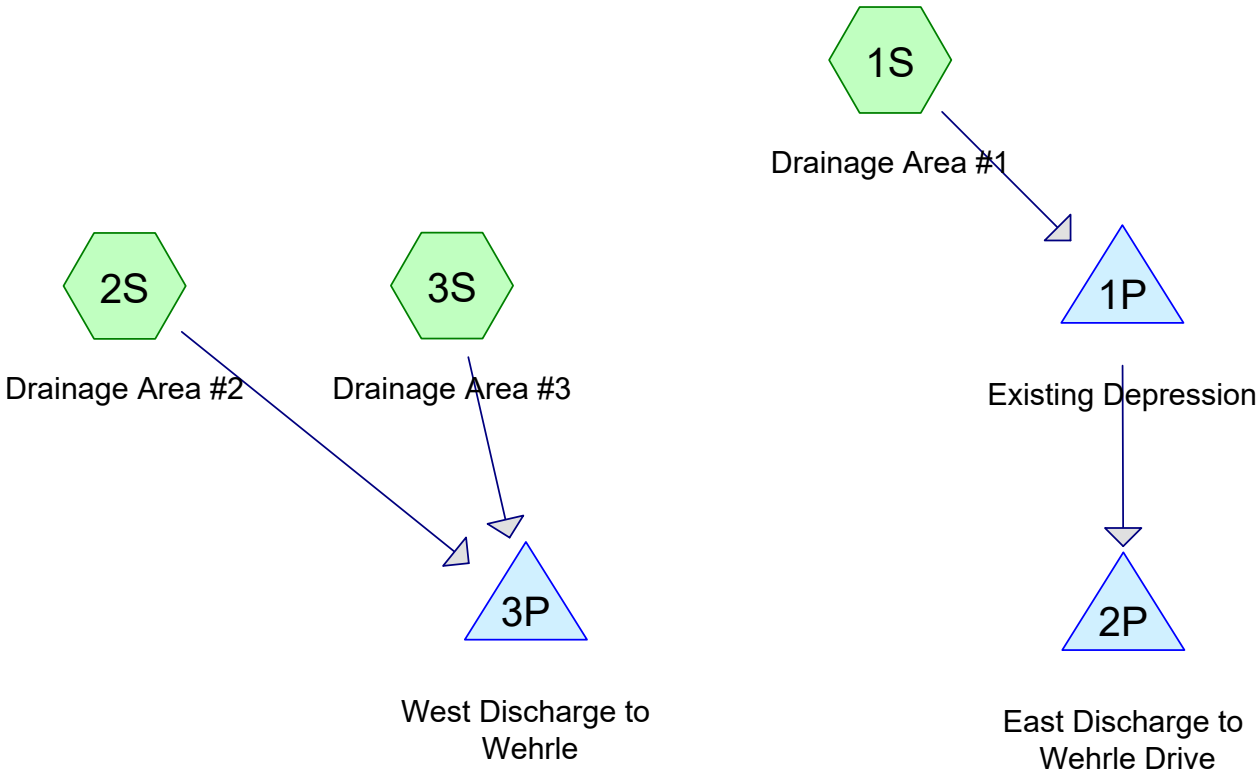
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

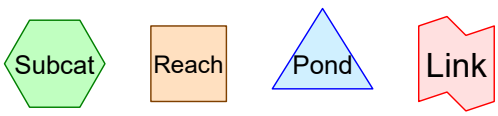
APPENDIX B

STORMWATER CALCULATIONS

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)





Routing Diagram for Existing Drainage
Prepared by C&S Engineers, Inc., Printed 11/10/2021
HydroCAD® 10.10-4a s/n 04066 © 2020 HydroCAD Software Solutions LLC

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	1.80	2
2	10-Year	Type II 24-hr		Default	24.00	1	3.11	2
3	25-Year	Type II 24-hr		Default	24.00	1	3.80	2
4	100-Year	Type II 24-hr		Default	24.00	1	5.14	2

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

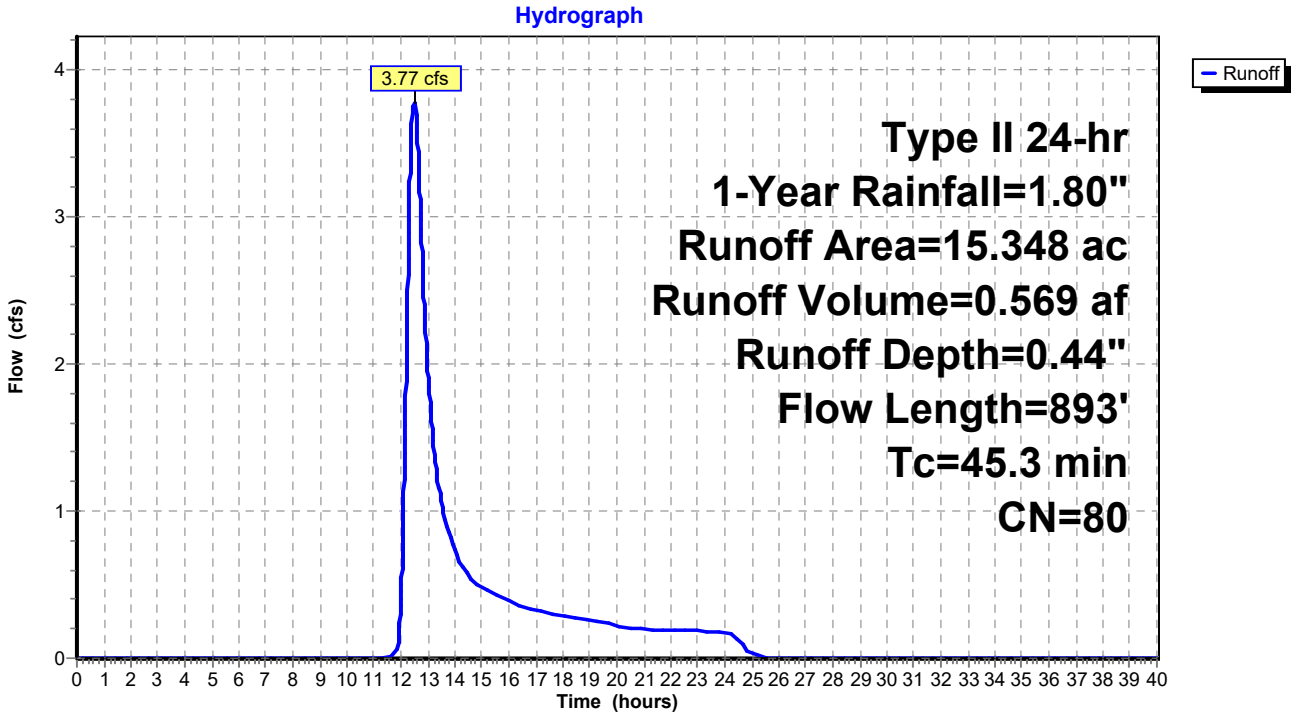
Runoff = 3.77 cfs @ 12.49 hrs, Volume= 0.569 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

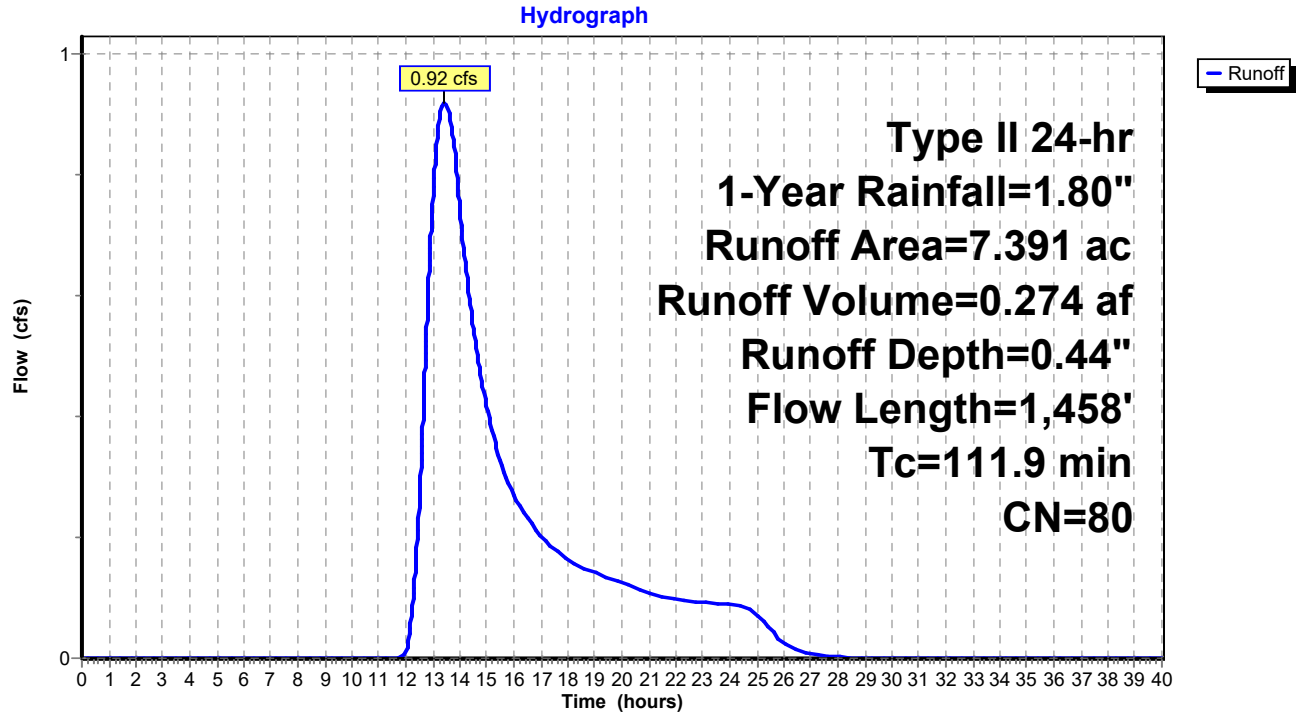
Runoff = 0.92 cfs @ 13.43 hrs, Volume= 0.274 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

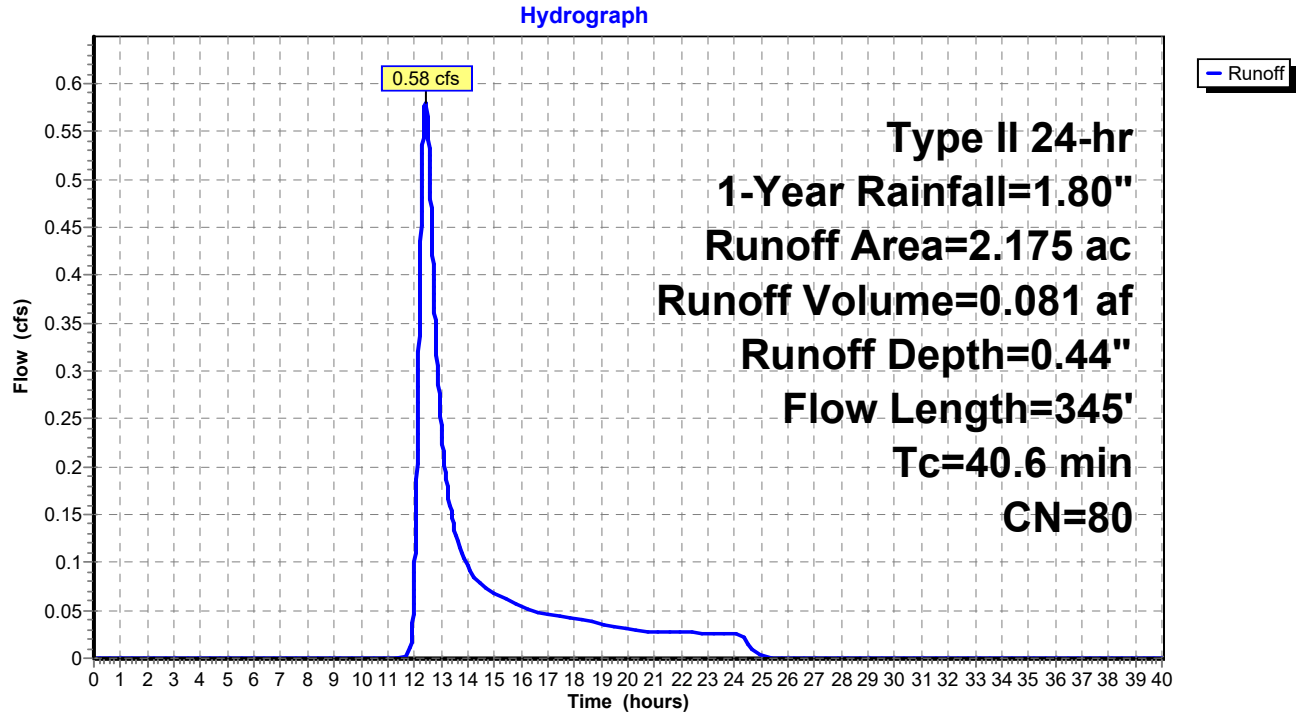
Runoff = 0.58 cfs @ 12.41 hrs, Volume= 0.081 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 3.77 cfs @ 12.49 hrs, Volume= 0.569 af
Outflow = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af, Atten= 98%, Lag= 734.5 min
Primary = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.80' @ 24.73 hrs Surf.Area= 107,830 sf Storage= 24,597 cf

Plug-Flow detention time= 840.4 min calculated for 0.011 af (2% of inflow)
Center-of-Mass det. time= 651.4 min (1,563.3 - 911.9)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

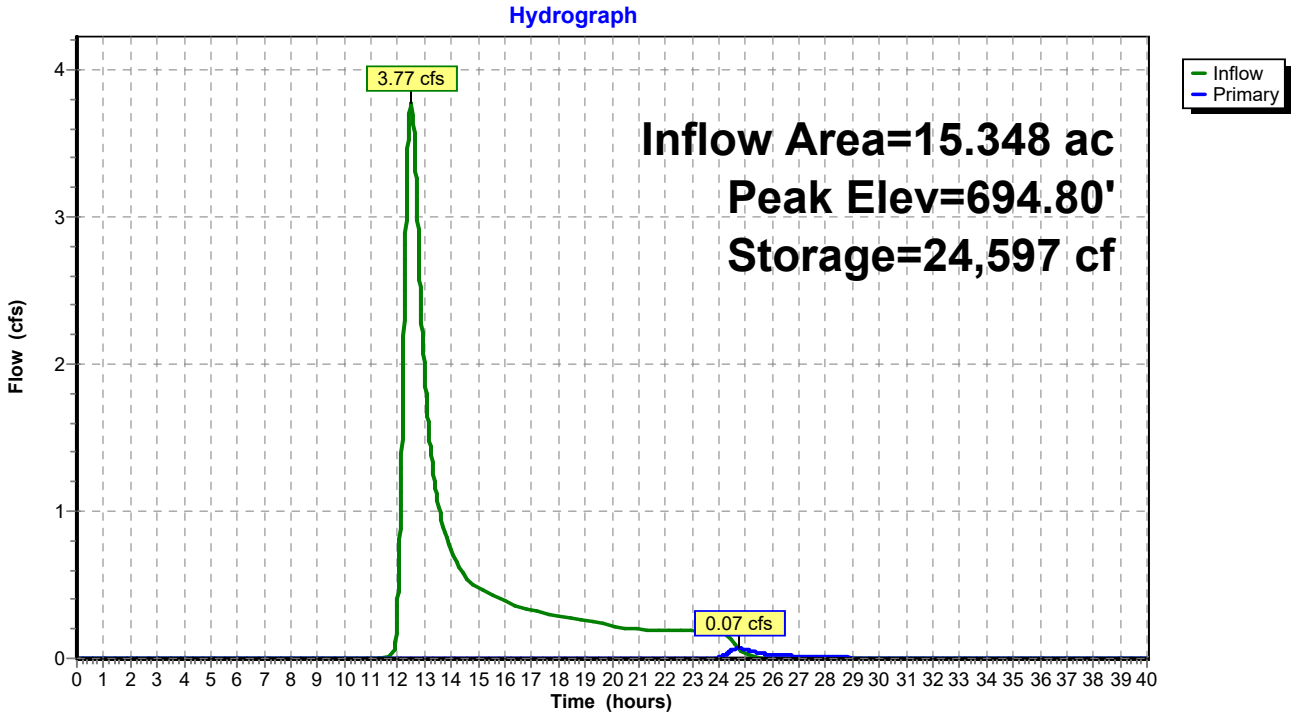
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.05 cfs @ 24.73 hrs HW=694.80' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.14 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

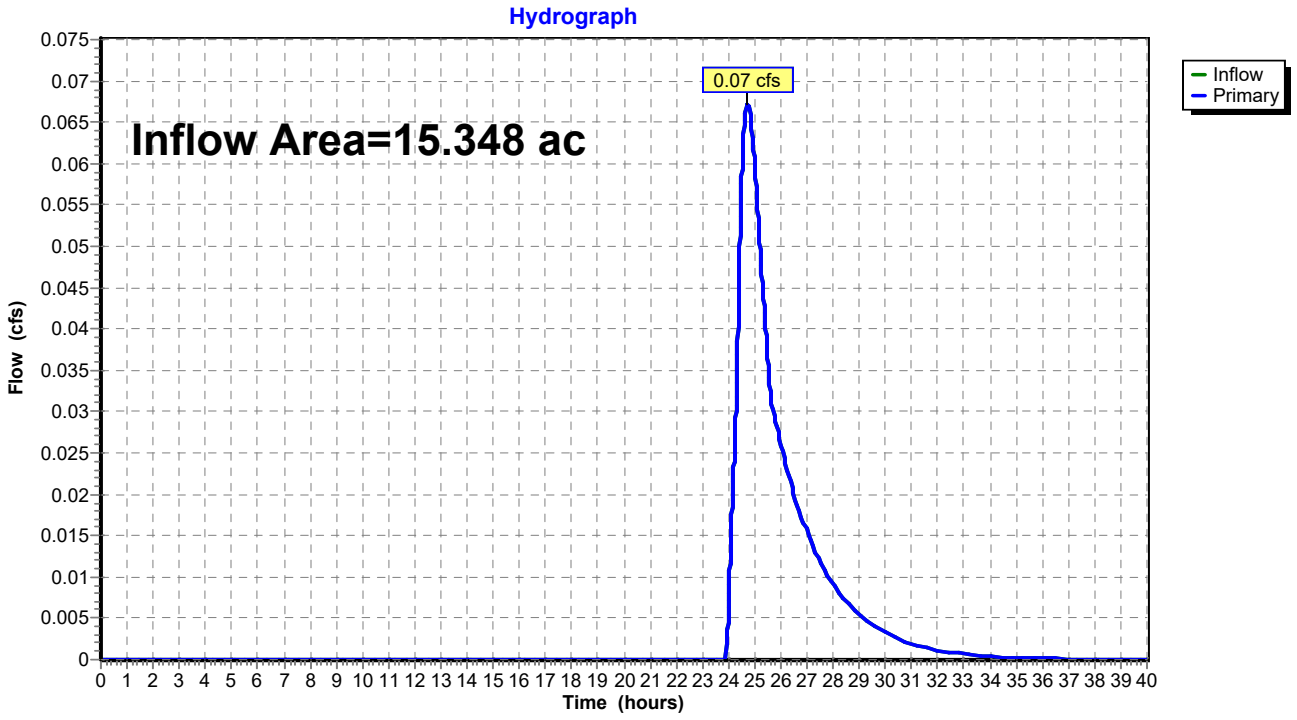
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth > 0.01" for 1-Year event
Inflow = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af
Primary = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

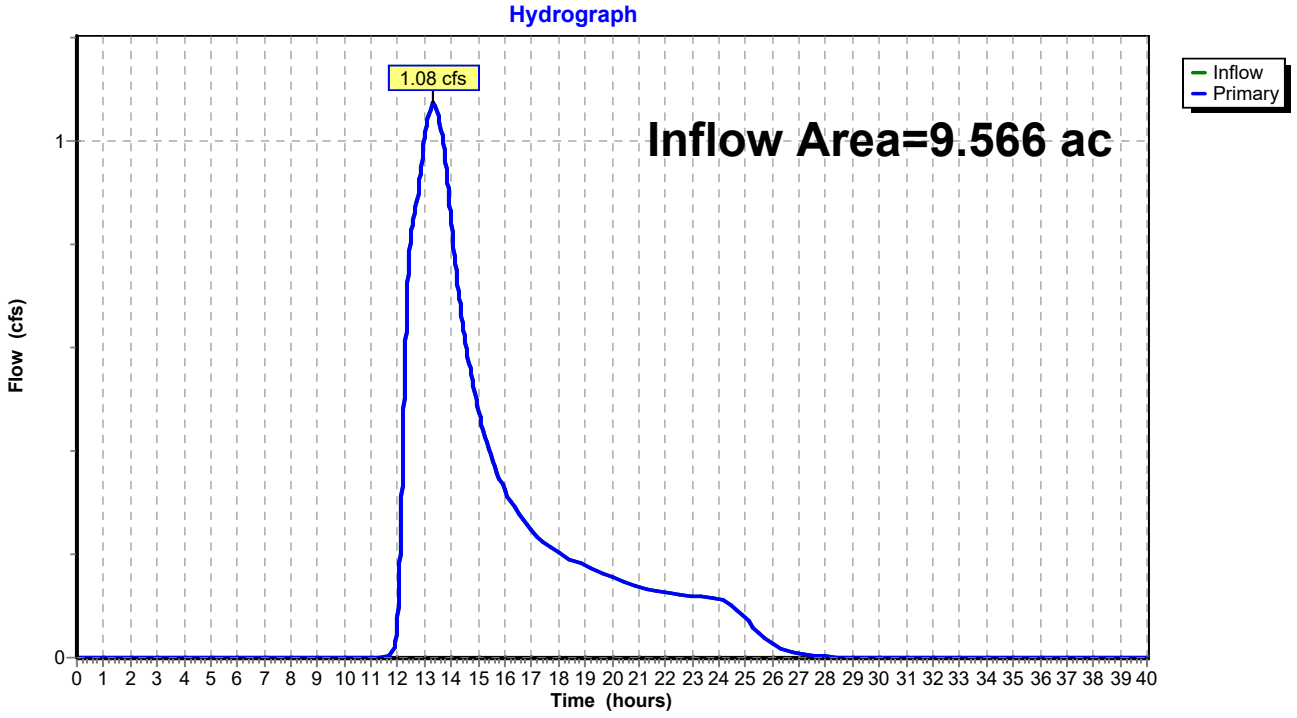
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 1.08 cfs @ 13.30 hrs, Volume= 0.355 af
Primary = 1.08 cfs @ 13.30 hrs, Volume= 0.355 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

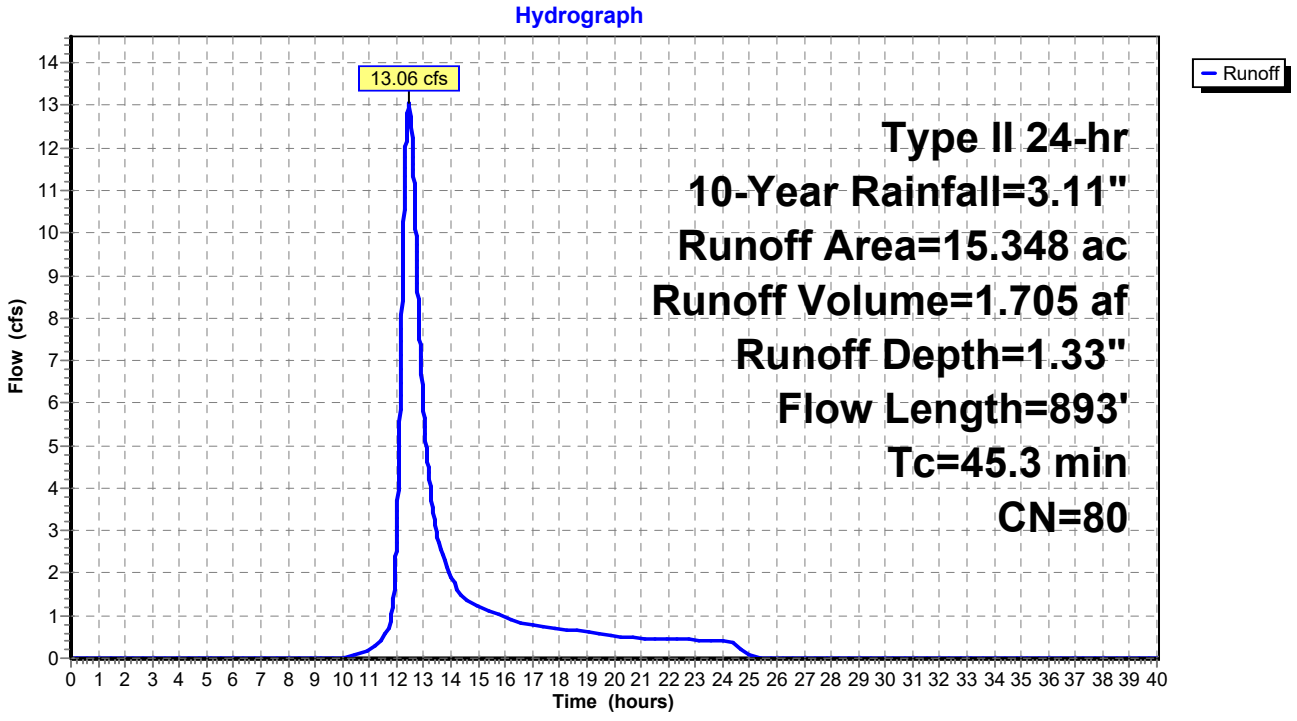
Runoff = 13.06 cfs @ 12.44 hrs, Volume= 1.705 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

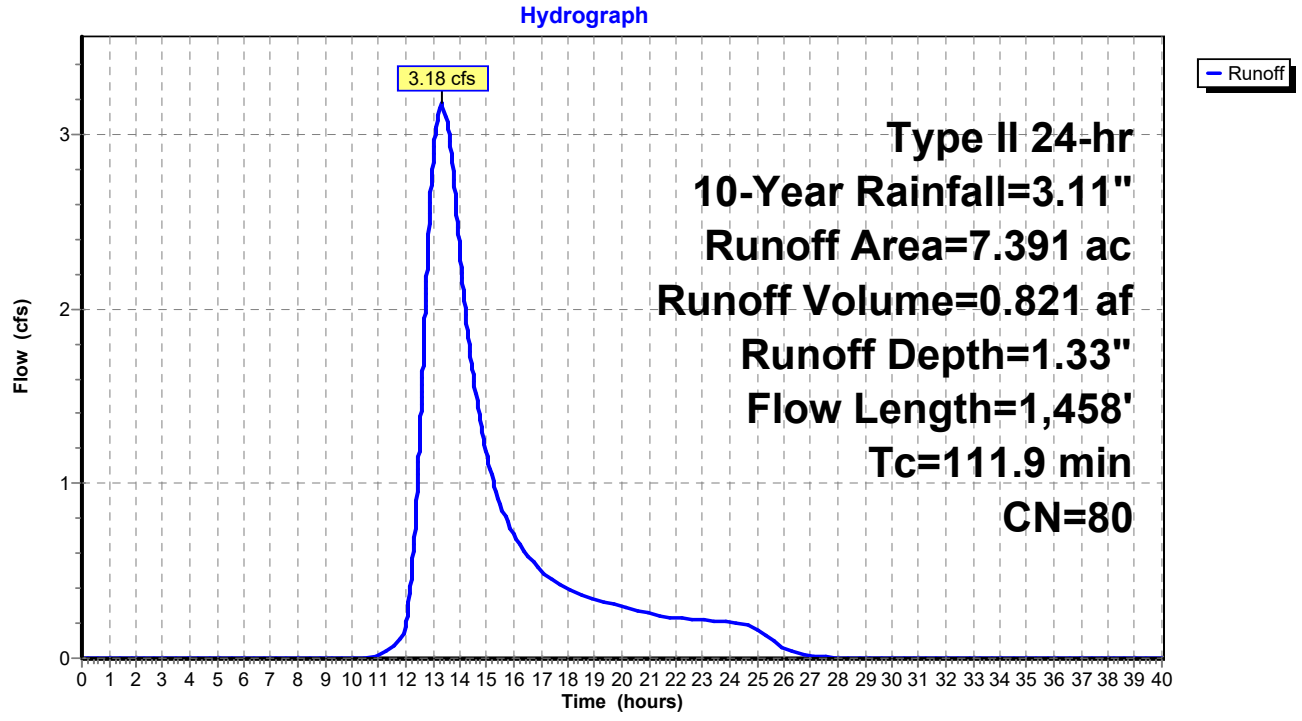
Runoff = 3.18 cfs @ 13.31 hrs, Volume= 0.821 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

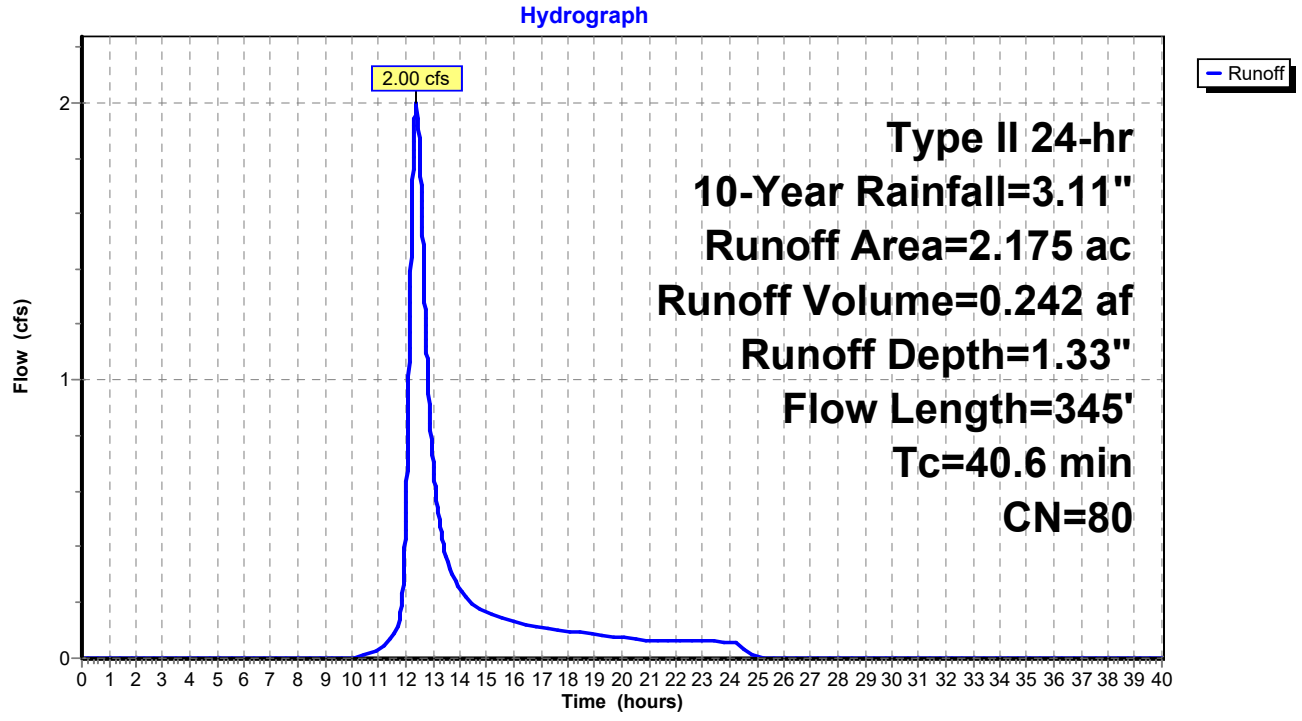
Runoff = 2.00 cfs @ 12.40 hrs, Volume= 0.242 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 13.06 cfs @ 12.44 hrs, Volume= 1.705 af
Outflow = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af, Atten= 59%, Lag= 36.3 min
Primary = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.86' @ 13.04 hrs Surf.Area= 118,545 sf Storage= 31,302 cf

Plug-Flow detention time= 214.5 min calculated for 1.147 af (67% of inflow)
Center-of-Mass det. time= 102.1 min (979.5 - 877.4)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

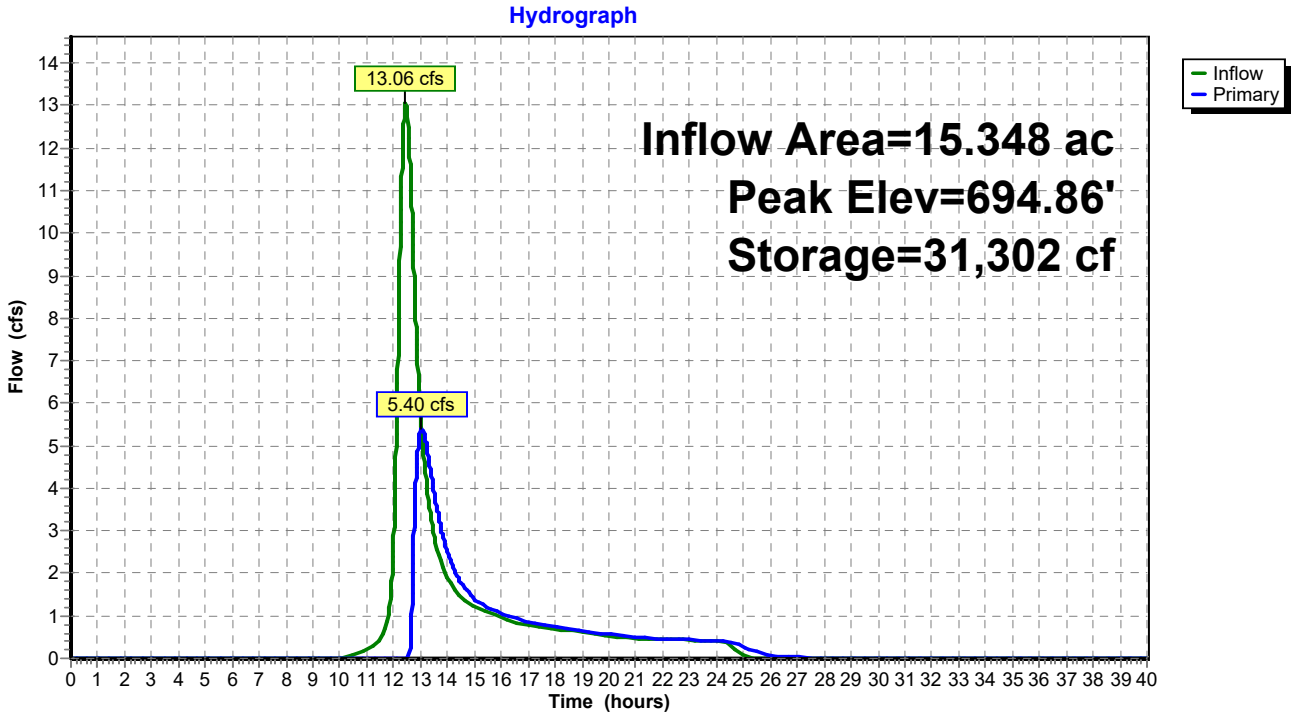
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.40 cfs @ 13.04 hrs HW=694.86' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 5.40 cfs @ 0.67 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

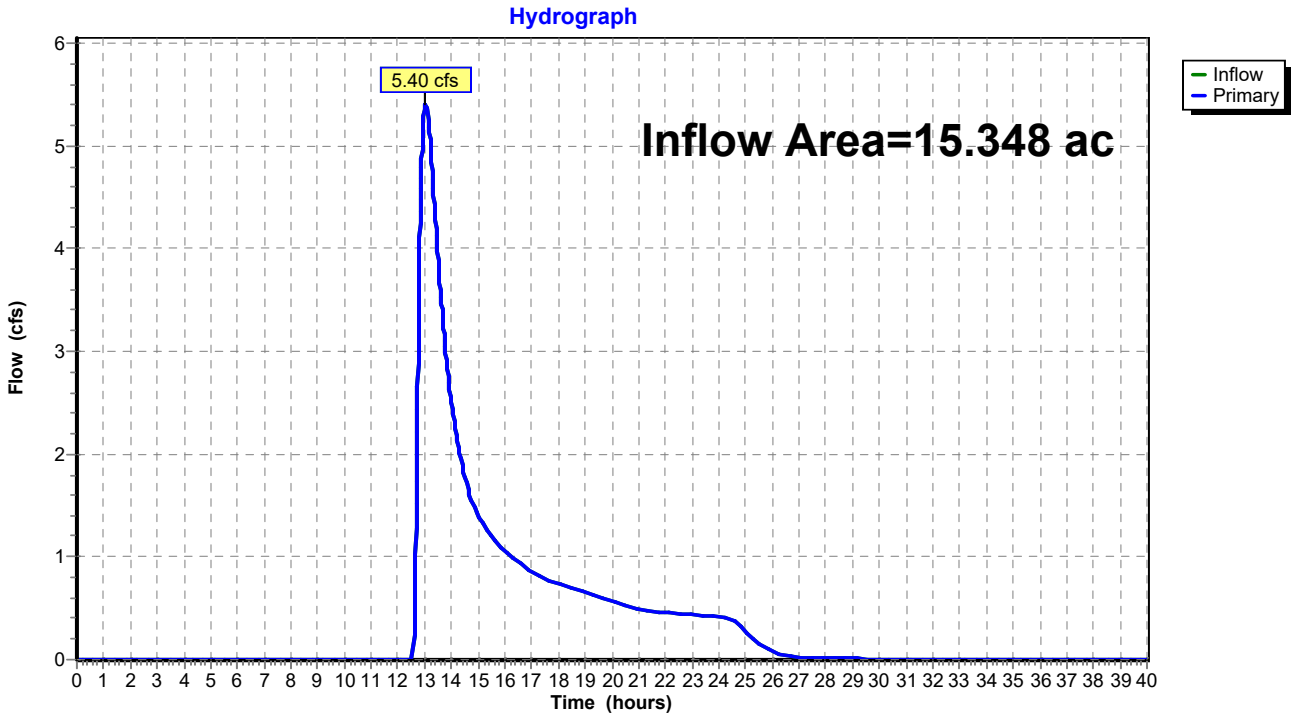
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 0.90" for 10-Year event
Inflow = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af
Primary = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

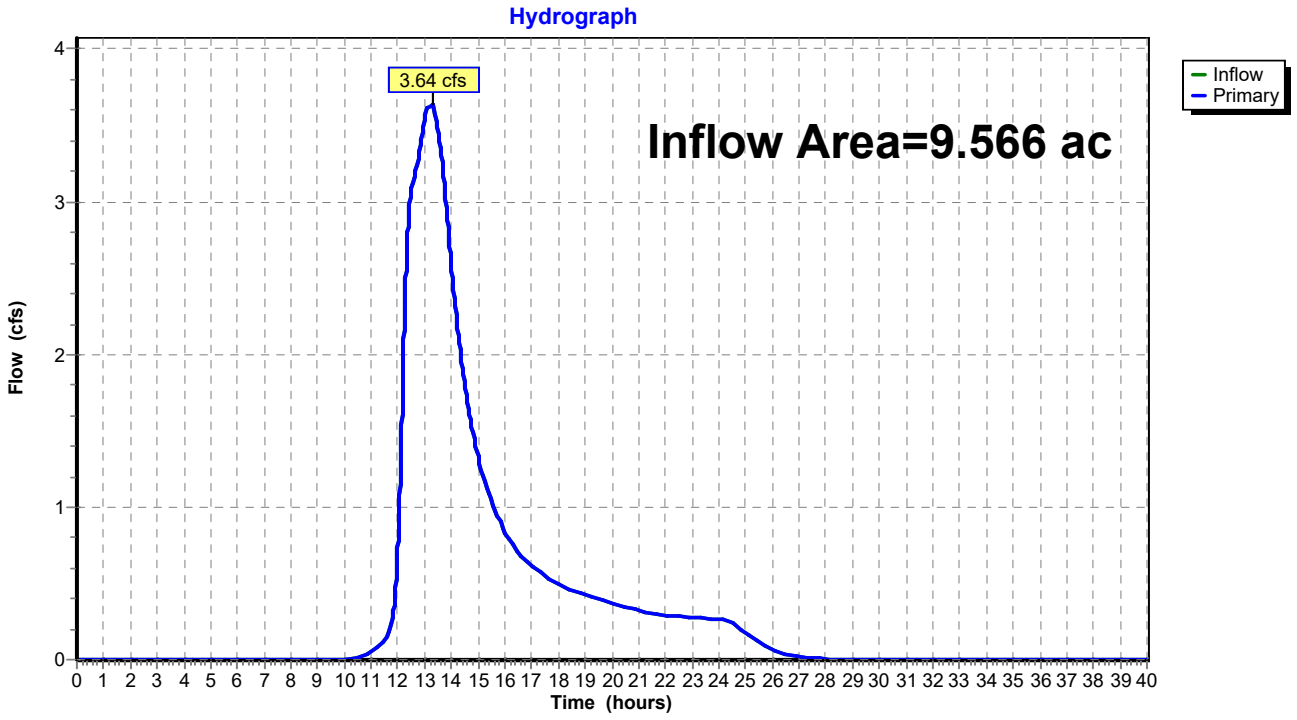
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 3.64 cfs @ 13.30 hrs, Volume= 1.063 af
Primary = 3.64 cfs @ 13.30 hrs, Volume= 1.063 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

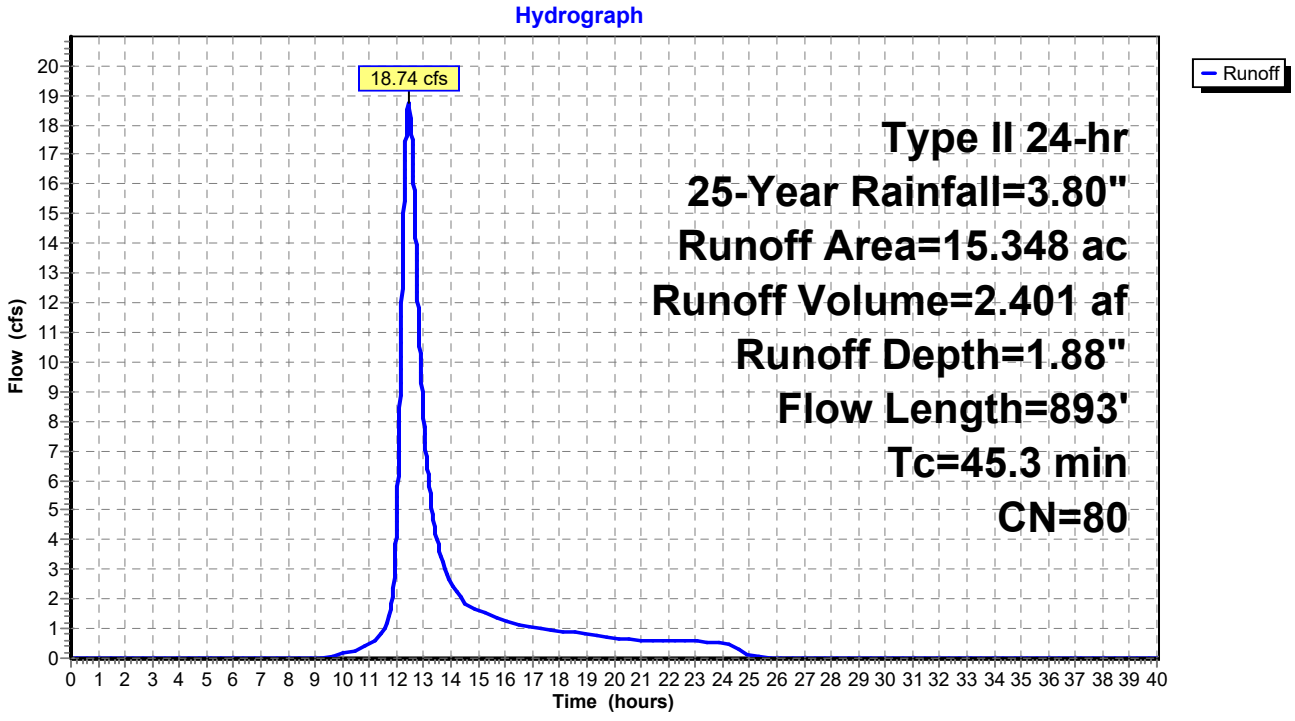
Runoff = 18.74 cfs @ 12.43 hrs, Volume= 2.401 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

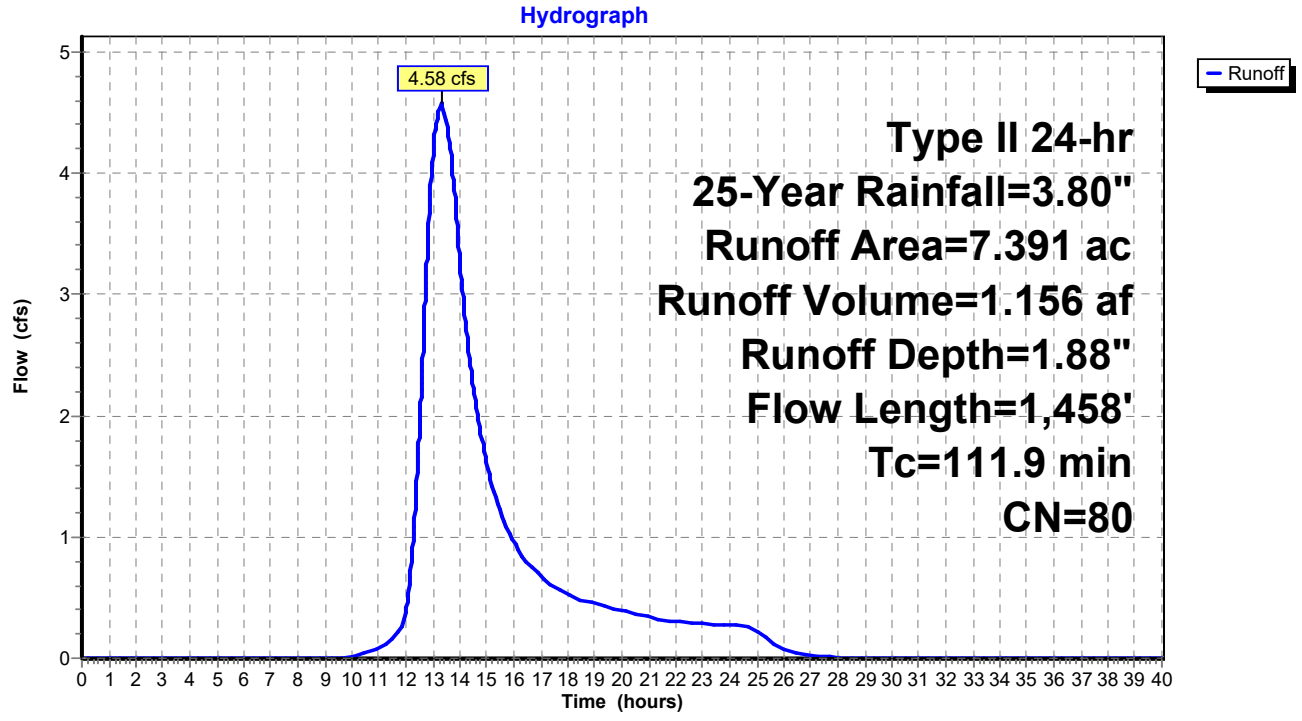
Runoff = 4.58 cfs @ 13.30 hrs, Volume= 1.156 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

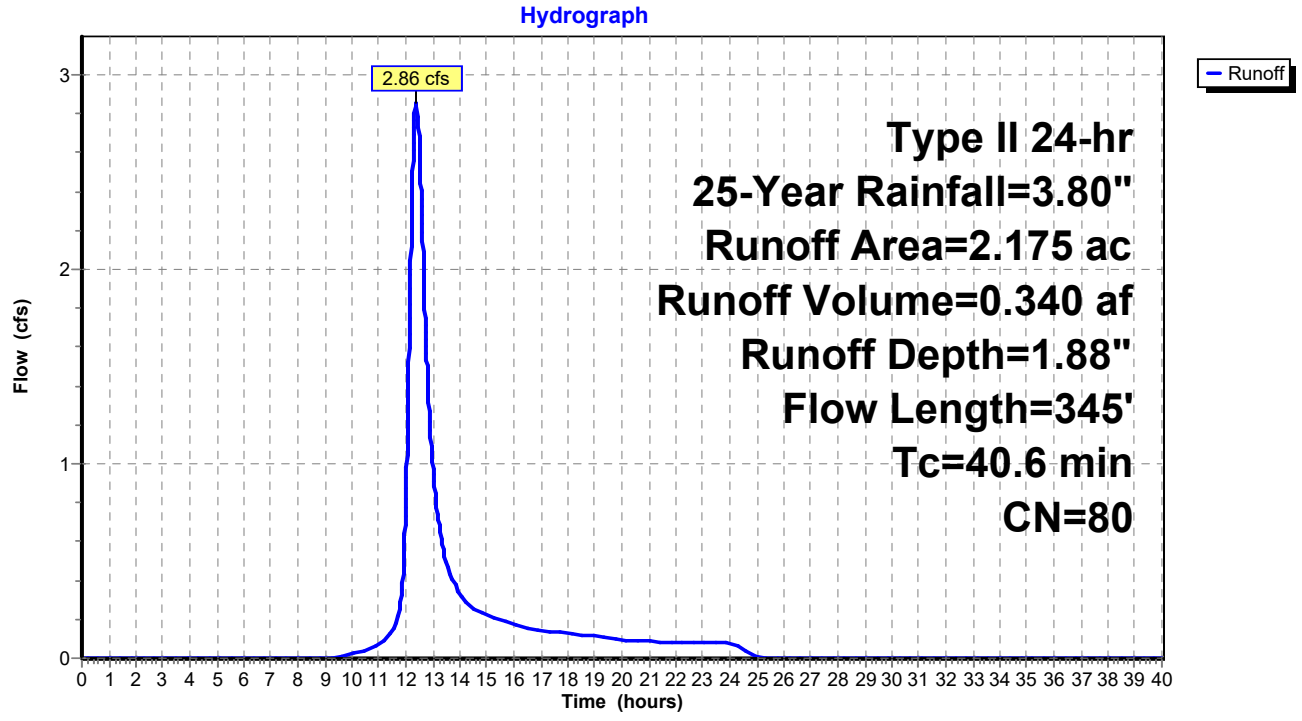
Runoff = 2.86 cfs @ 12.40 hrs, Volume= 0.340 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 1.88" for 25-Year event
Inflow = 18.74 cfs @ 12.43 hrs, Volume= 2.401 af
Outflow = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af, Atten= 38%, Lag= 22.0 min
Primary = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.90' @ 12.80 hrs Surf.Area= 126,310 sf Storage= 36,355 cf

Plug-Flow detention time= 163.9 min calculated for 1.843 af (77% of inflow)
Center-of-Mass det. time= 71.8 min (939.3 - 867.5)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

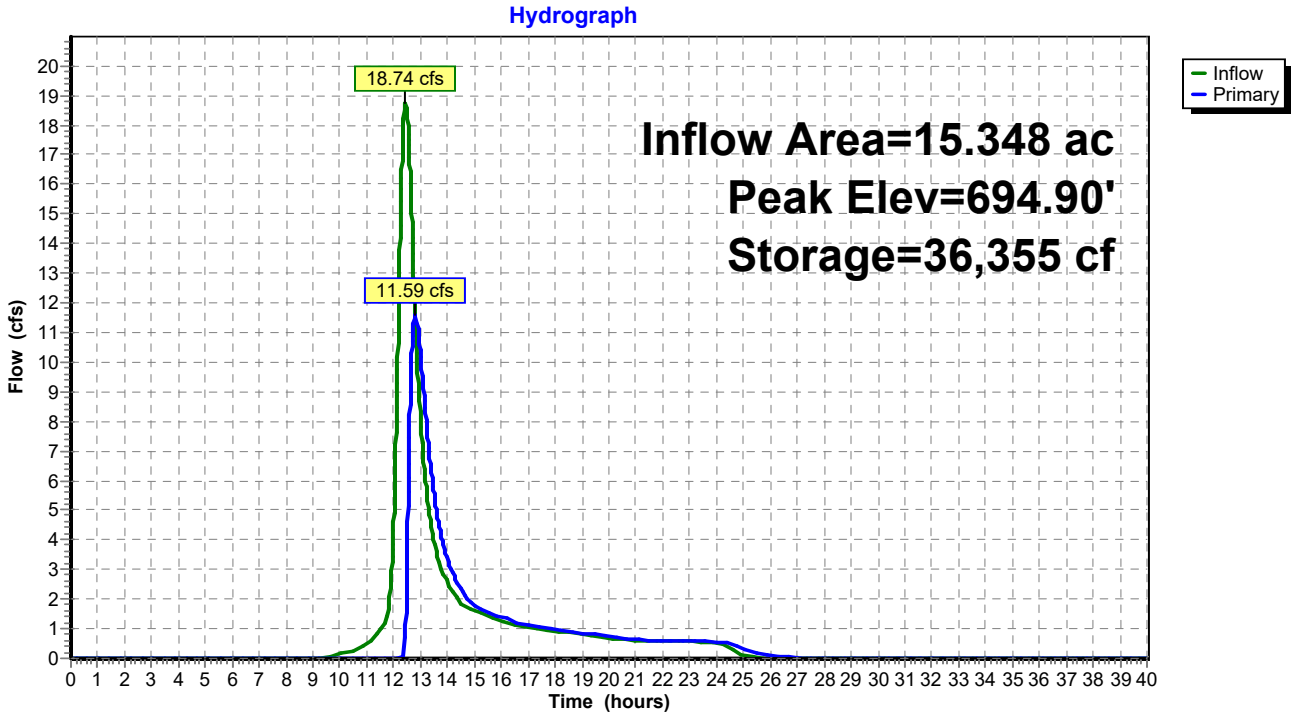
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.59 cfs @ 12.80 hrs HW=694.90' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 11.59 cfs @ 0.86 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

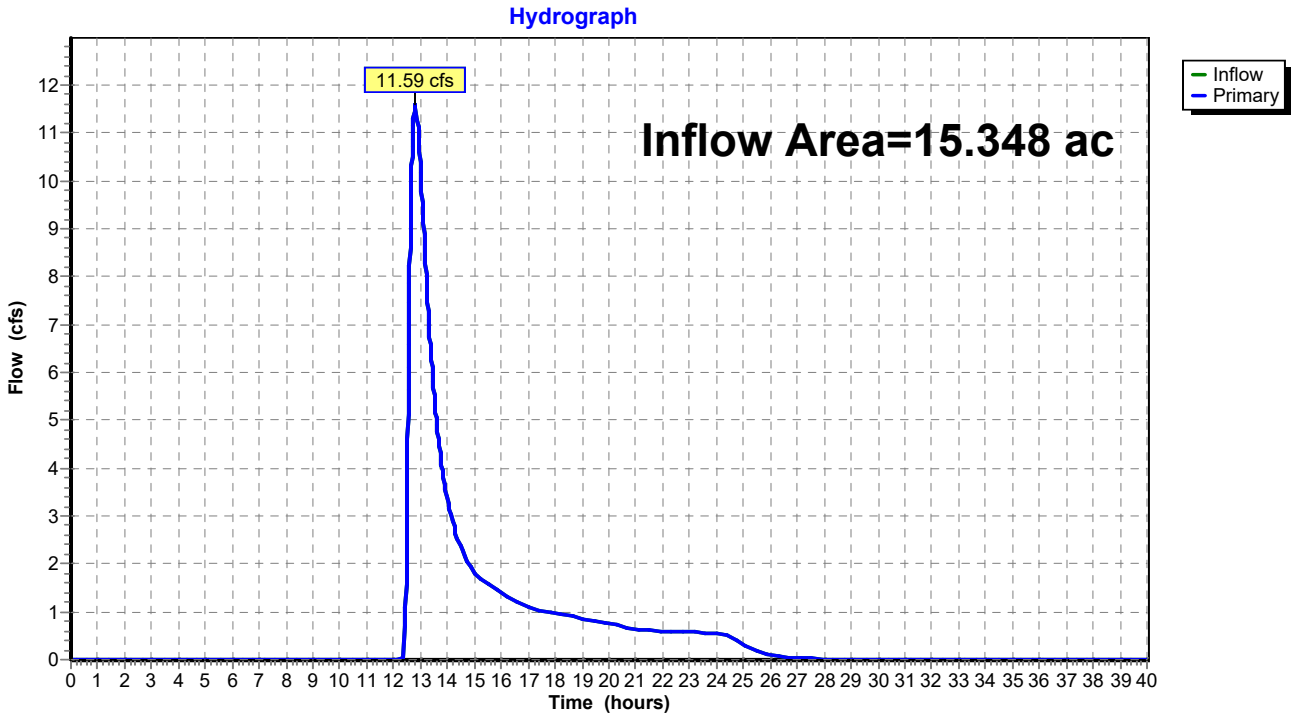
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 1.44" for 25-Year event
Inflow = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af
Primary = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

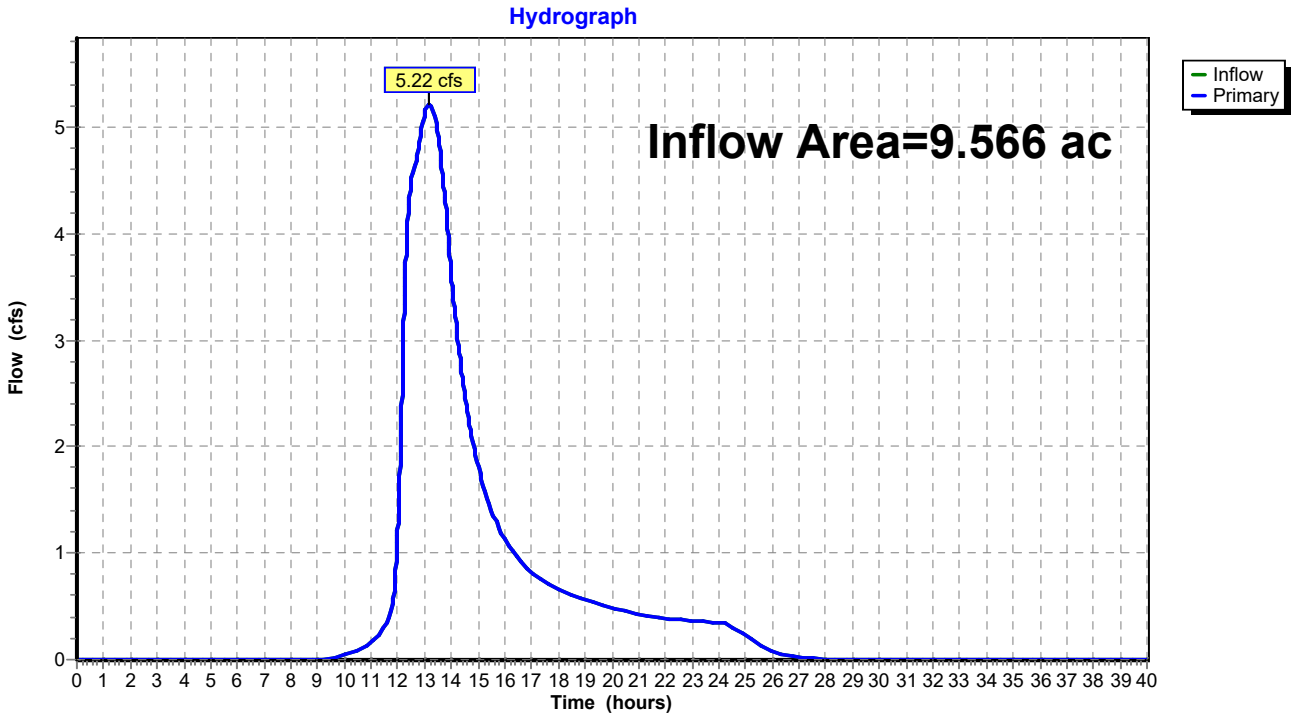
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 1.88" for 25-Year event
Inflow = 5.22 cfs @ 13.18 hrs, Volume= 1.497 af
Primary = 5.22 cfs @ 13.18 hrs, Volume= 1.497 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

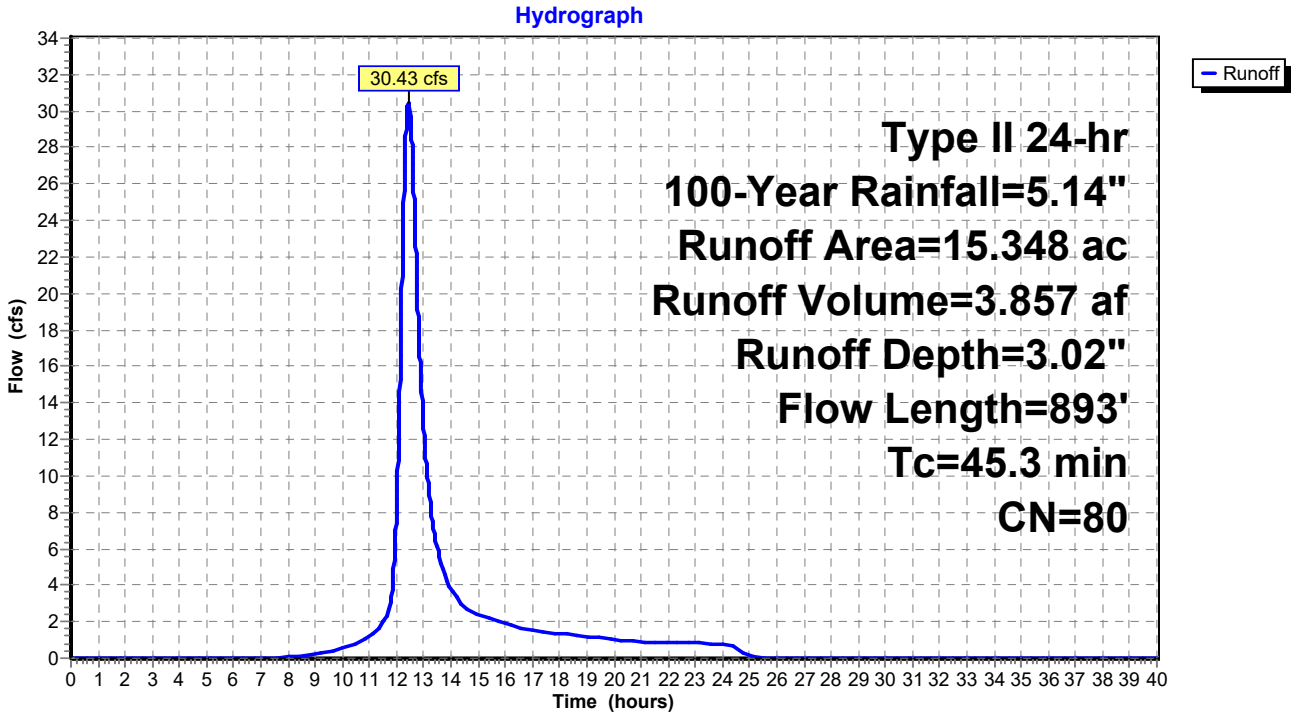
Runoff = 30.43 cfs @ 12.43 hrs, Volume= 3.857 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

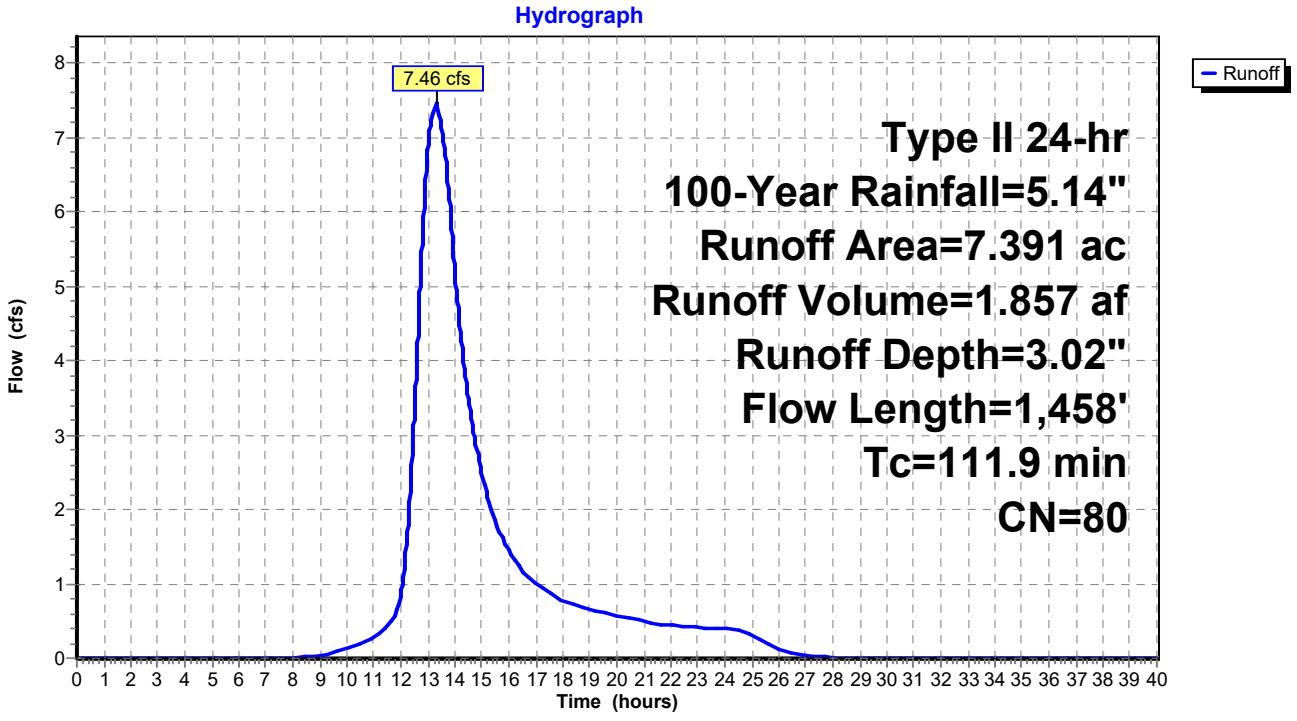
Runoff = 7.46 cfs @ 13.30 hrs, Volume= 1.857 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

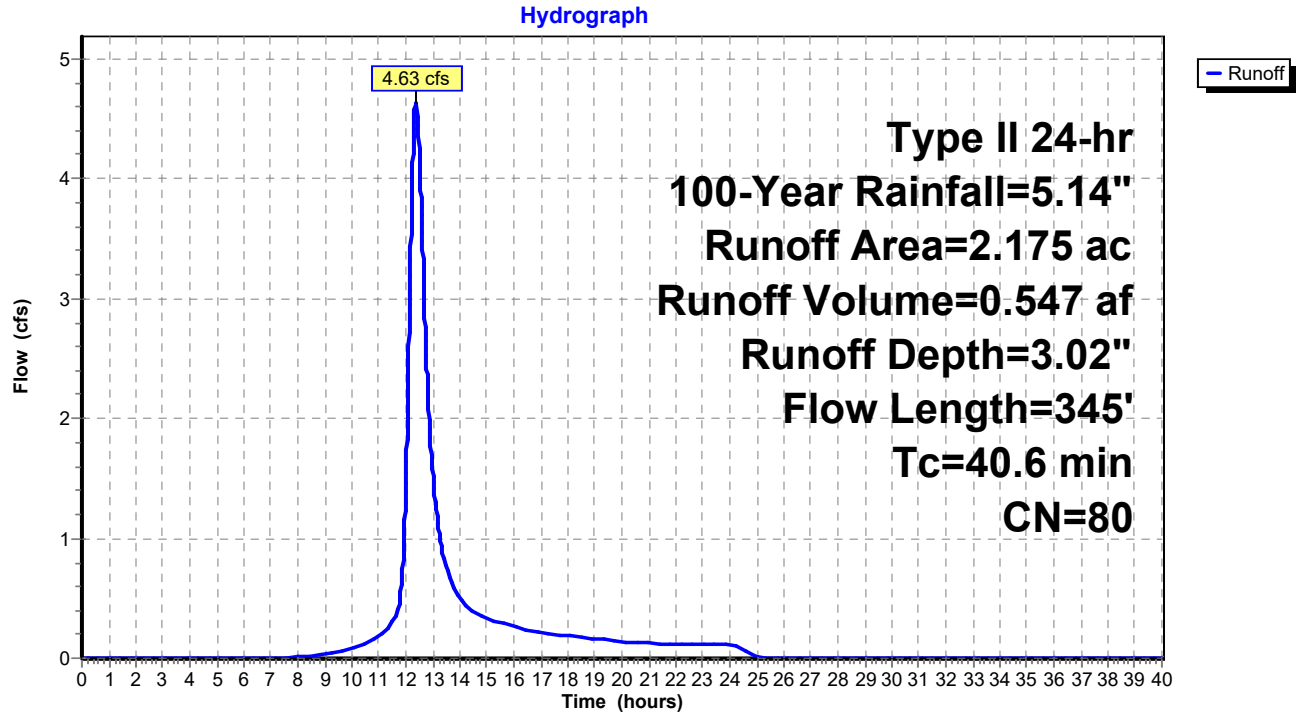
Runoff = 4.63 cfs @ 12.37 hrs, Volume= 0.547 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 3.02" for 100-Year event
Inflow = 30.43 cfs @ 12.43 hrs, Volume= 3.857 af
Outflow = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af, Atten= 20%, Lag= 13.5 min
Primary = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.97' @ 12.66 hrs Surf.Area= 139,413 sf Storage= 45,237 cf

Plug-Flow detention time= 117.4 min calculated for 3.298 af (86% of inflow)
Center-of-Mass det. time= 50.3 min (904.3 - 854.0)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

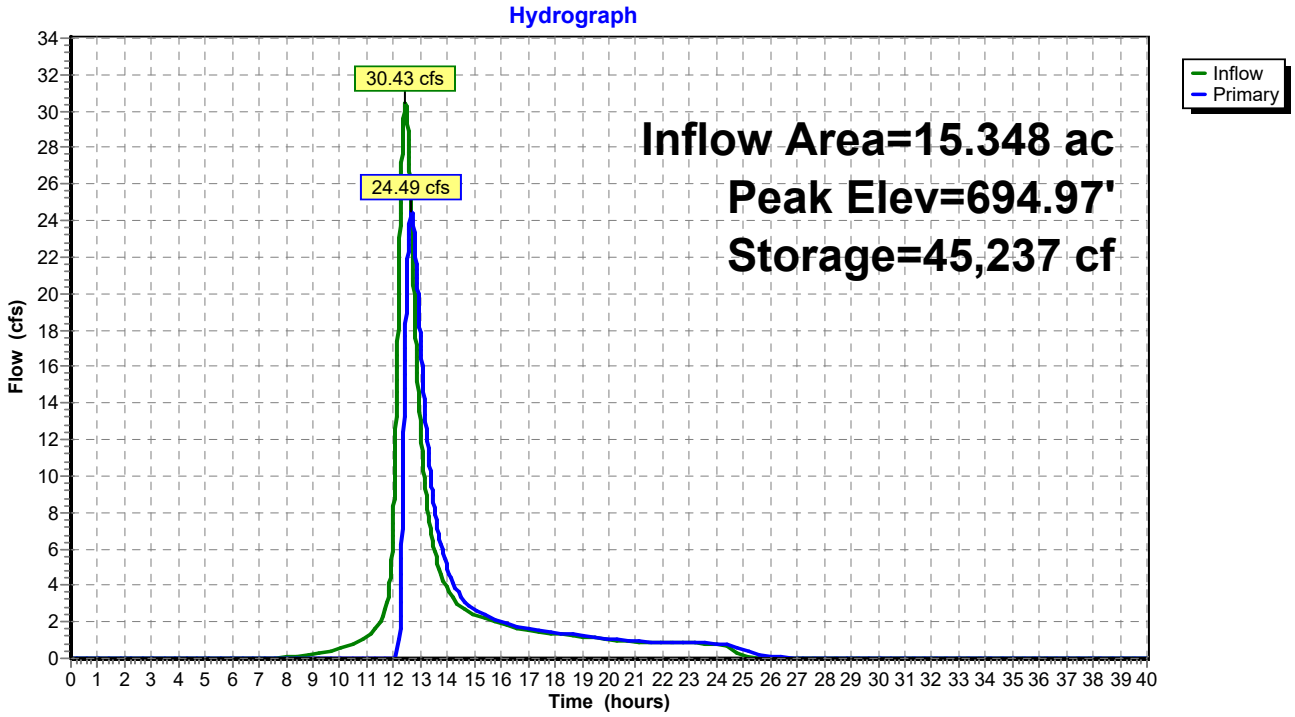
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=24.48 cfs @ 12.66 hrs HW=694.97' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 24.48 cfs @ 1.11 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

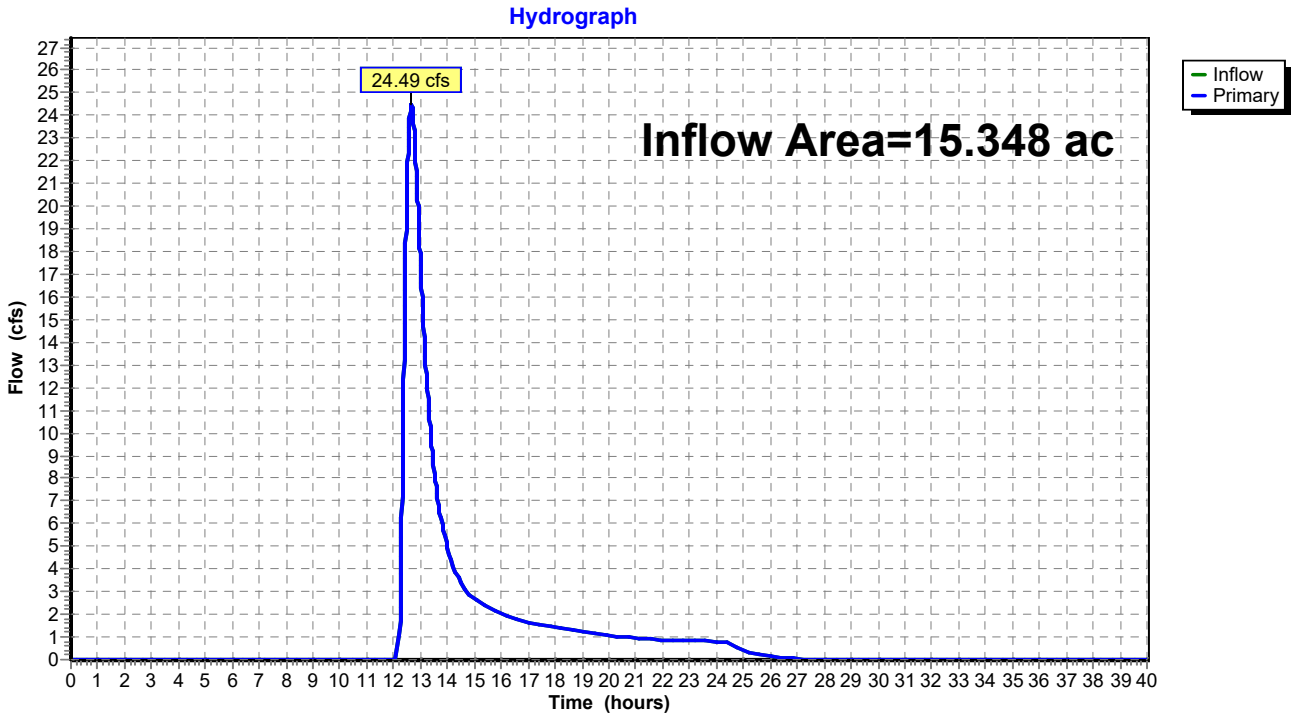
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 2.58" for 100-Year event
Inflow = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af
Primary = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

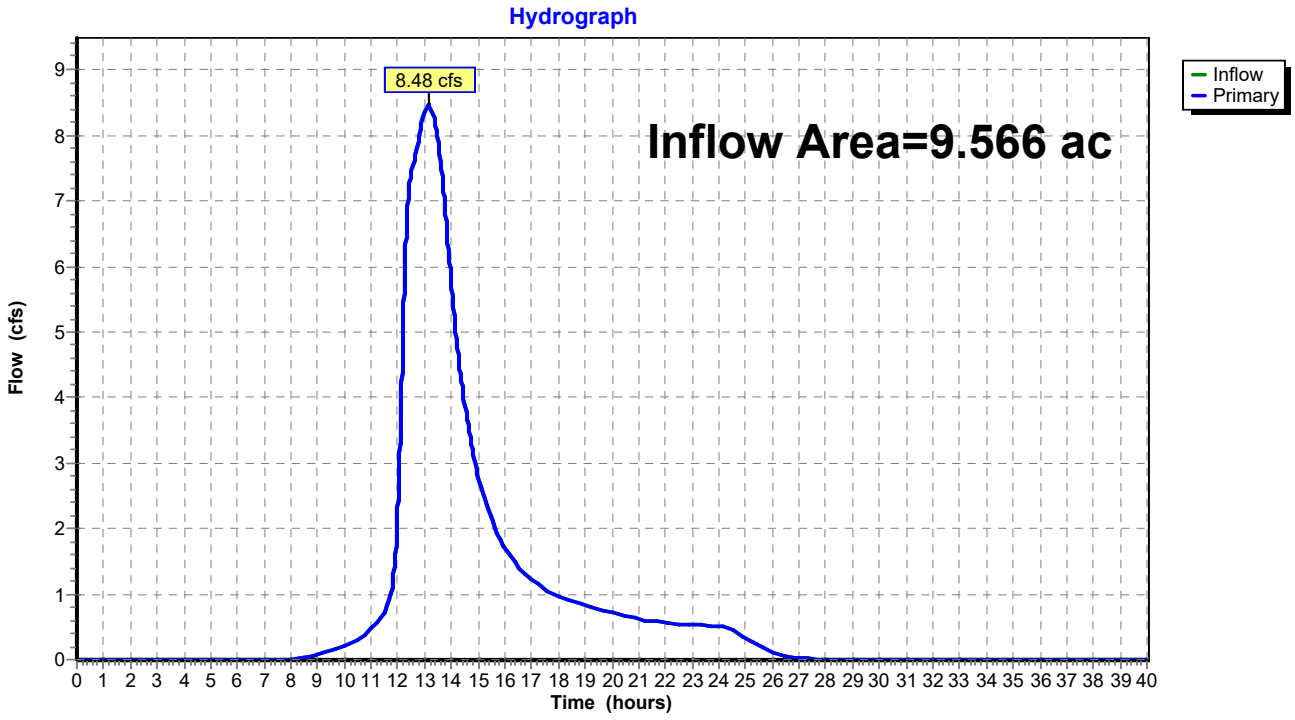
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

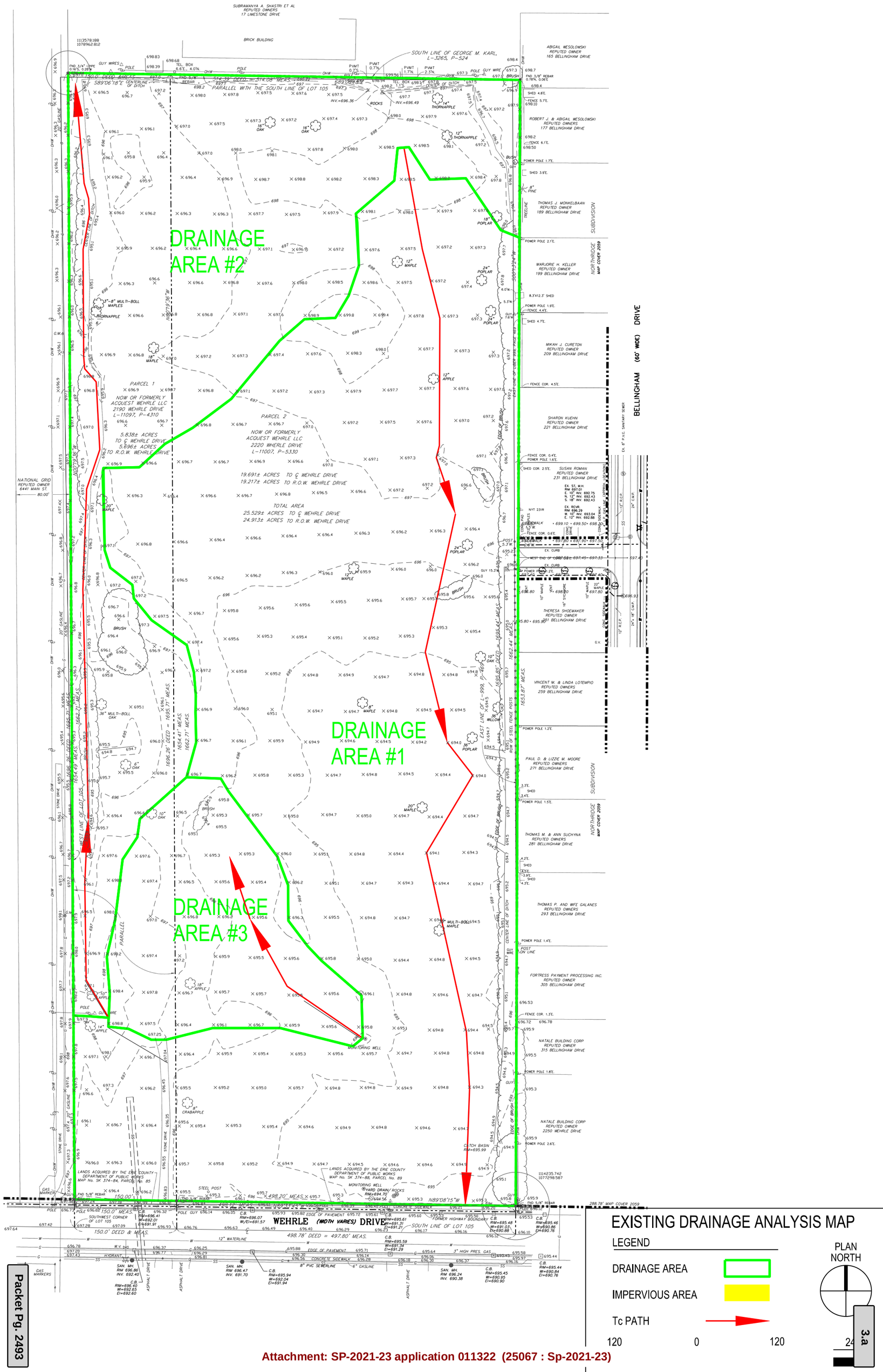
Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 3.02" for 100-Year event
Inflow = 8.48 cfs @ 13.18 hrs, Volume= 2.404 af
Primary = 8.48 cfs @ 13.18 hrs, Volume= 2.404 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

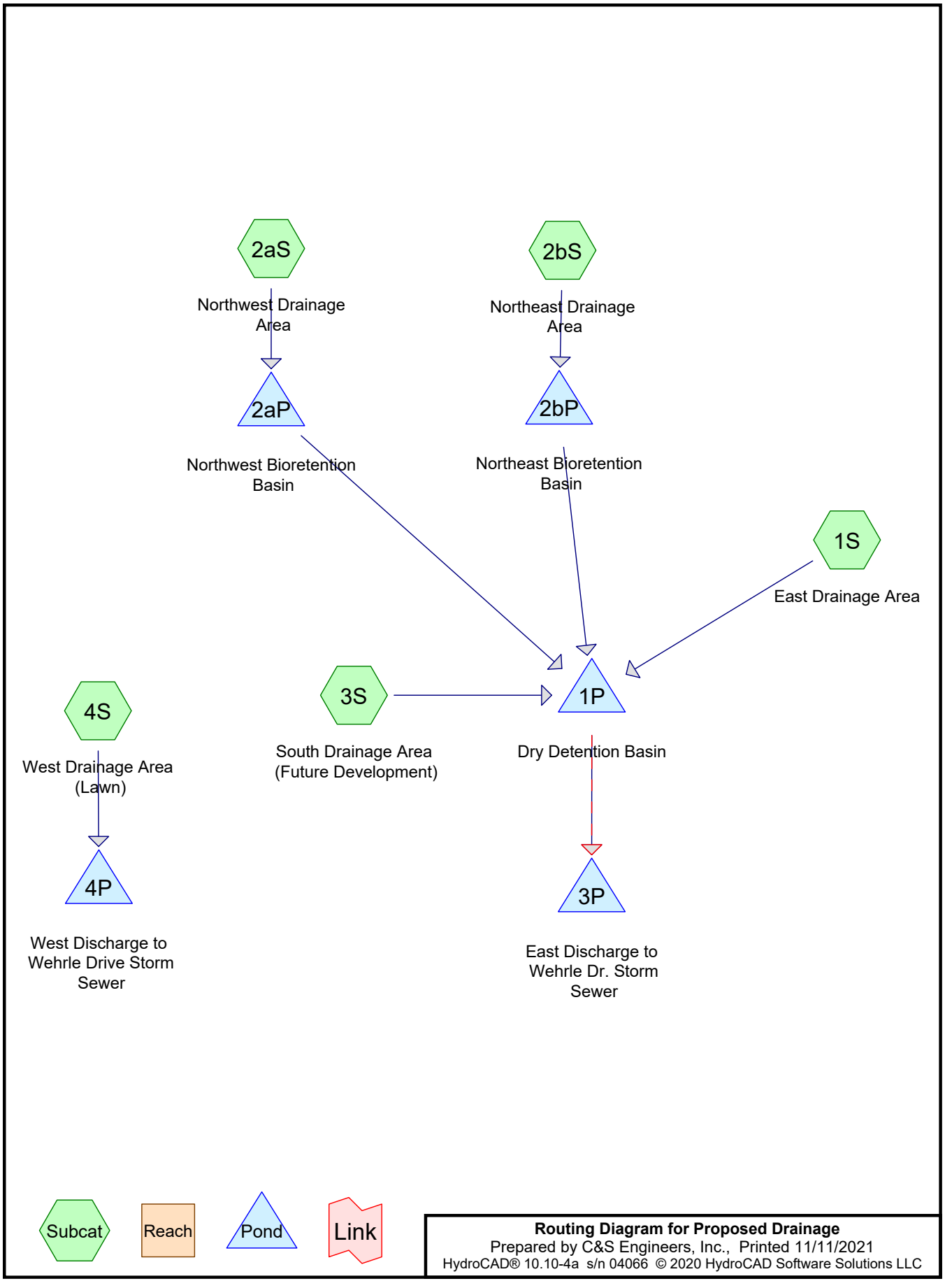
Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)


DRAINAGE AREA #2
DRAINAGE AREA #1
DRAINAGE AREA #3
WEHRLE (WIDTH VARIES) DRIVE
BELLINGHAM (60' WIDE) DRIVE
PARCEL 1
NOW OR FORMERLY ACQUEST WEHRLE LLC 2190 WEHRLE DRIVE L-11097, P-4310
5.838± ACRES TO ℄ WEHRLE DRIVE
5.896± ACRES TO R.O.W. WEHRLE DRIVE
PARCEL 2
NOW OR FORMERLY ACQUEST WEHRLE LLC 2220 WEHRLE DRIVE L-11007, P-5330
19.691± ACRES TO ℄ WEHRLE DRIVE
19.217± ACRES TO R.O.W. WEHRLE DRIVE
TOTAL AREA
25.529± ACRES TO ℄ WEHRLE DRIVE
24.913± ACRES TO R.O.W. WEHRLE DRIVE
SUBRAMANYA A. SHASTRI ET AL REPUTED OWNERS 17 LIMESTONE DRIVE
ABIGAIL WESOLOWSKI REPUTED OWNER 165 BELLINGHAM DRIVE
ROBERT J. & ABIGAIL WESOLOWSKI REPUTED OWNERS 177 BELLINGHAM DRIVE
THOMAS J. MONKELBAAN REPUTED OWNER 189 BELLINGHAM DRIVE
MARJORIE H. KELLER REPUTED OWNER 199 BELLINGHAM DRIVE
MIKAH J. CURETON REPUTED OWNER 209 BELLINGHAM DRIVE
SHARON KUEHN REPUTED OWNER 221 BELLINGHAM DRIVE
SUSAN ROMAN REPUTED OWNER 231 BELLINGHAM DRIVE
THERESA SHOEMAKER REPUTED OWNER 251 BELLINGHAM DRIVE
VINCENT M. & LINDA LOTEMPIO REPUTED OWNERS 259 BELLINGHAM DRIVE
PAUL D. & LIZZIE M. MOORE REPUTED OWNERS 271 BELLINGHAM DRIVE
THOMAS M. & ANN SUCHYNA REPUTED OWNERS 281 BELLINGHAM DRIVE
THOMAS P. AND WIFE GALANES REPUTED OWNERS 293 BELLINGHAM DRIVE
FORTRESS PAYMENT PROCESSING INC. REPUTED OWNER 305 BELLINGHAM DRIVE
NATALE BUILDING CORP REPUTED OWNER 315 BELLINGHAM DRIVE
NATALE BUILDING CORP REPUTED OWNER 2250 WEHRLE DRIVE
NATIONAL GRID REPUTED OWNER 6441 MAIN ST.
LANDS ACQUIRED BY THE ERIE COUNTY DEPARTMENT OF PUBLIC WORKS MAP No. SK 374-84, PARCEL No. 85
SUBDIVISION
NORTHRIDGE MAP COVER 2059
EXISTING DRAINAGE ANALYSIS MAP
LEGEND
DRAINAGE AREA
IMPERVIOUS AREA
Tc PATH
PLAN NORTH
120 0 120 240

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	1.80	2
2	10-Year	Type II 24-hr		Default	24.00	1	3.11	2
3	25-Year	Type II 24-hr		Default	24.00	1	3.80	2
4	100-Year	Type II 24-hr		Default	24.00	1	5.14	2

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	4S	0.00	0.00	2,050.0	0.0020	0.013	8.0	0.0	0.0
2	1P	691.50	691.00	18.0	0.0278	0.013	15.0	0.0	0.0
3	2aP	693.80	693.00	130.0	0.0062	0.013	18.0	0.0	0.0
4	2aP	693.80	693.80	214.0	0.0000	0.013	8.0	0.0	0.0
5	2bP	693.00	693.00	234.0	0.0000	0.013	18.0	0.0	0.0
6	2bP	693.00	693.00	390.0	0.0000	0.013	8.0	0.0	0.0

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

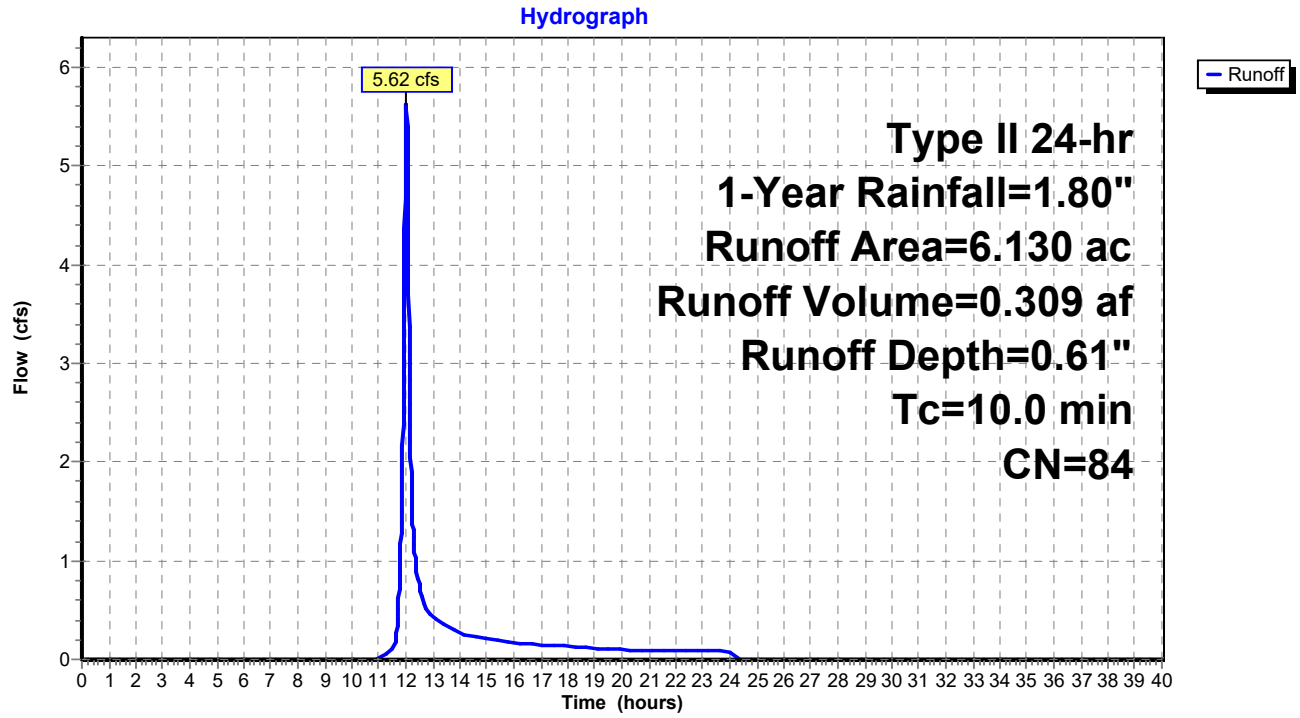
Runoff = 5.62 cfs @ 12.03 hrs, Volume= 0.309 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

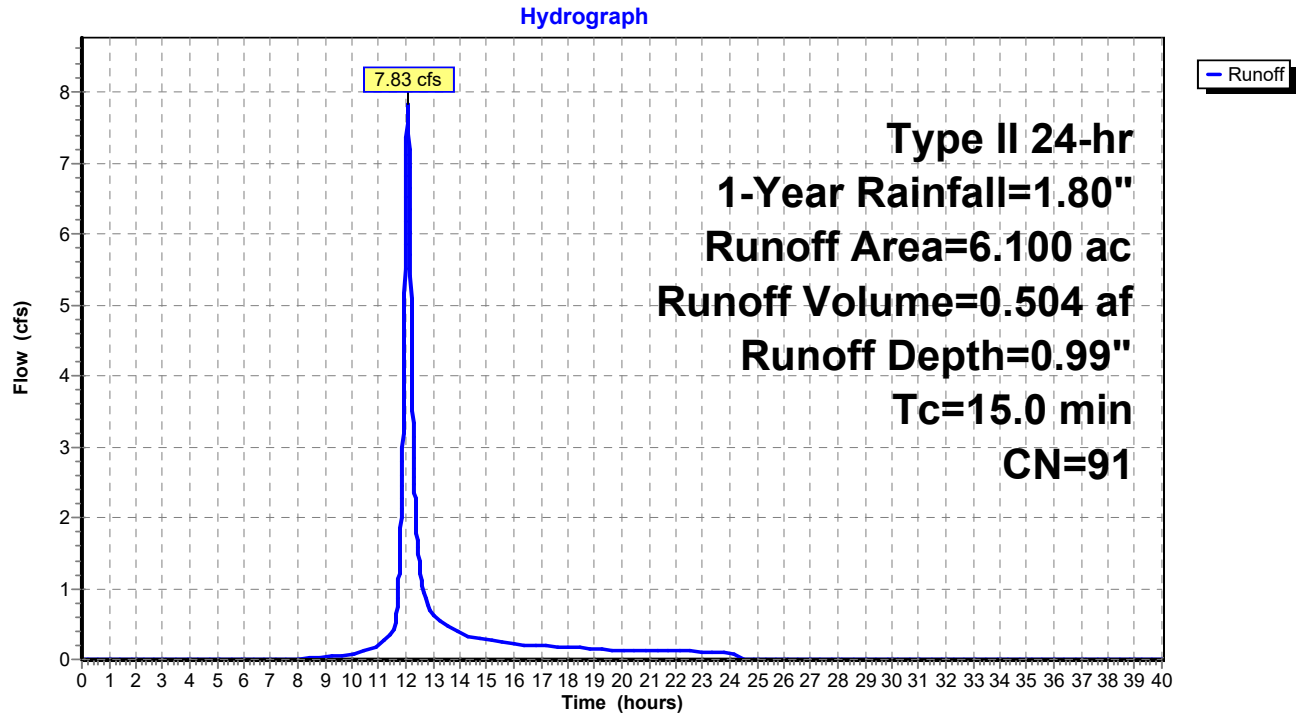
Runoff = 7.83 cfs @ 12.07 hrs, Volume= 0.504 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

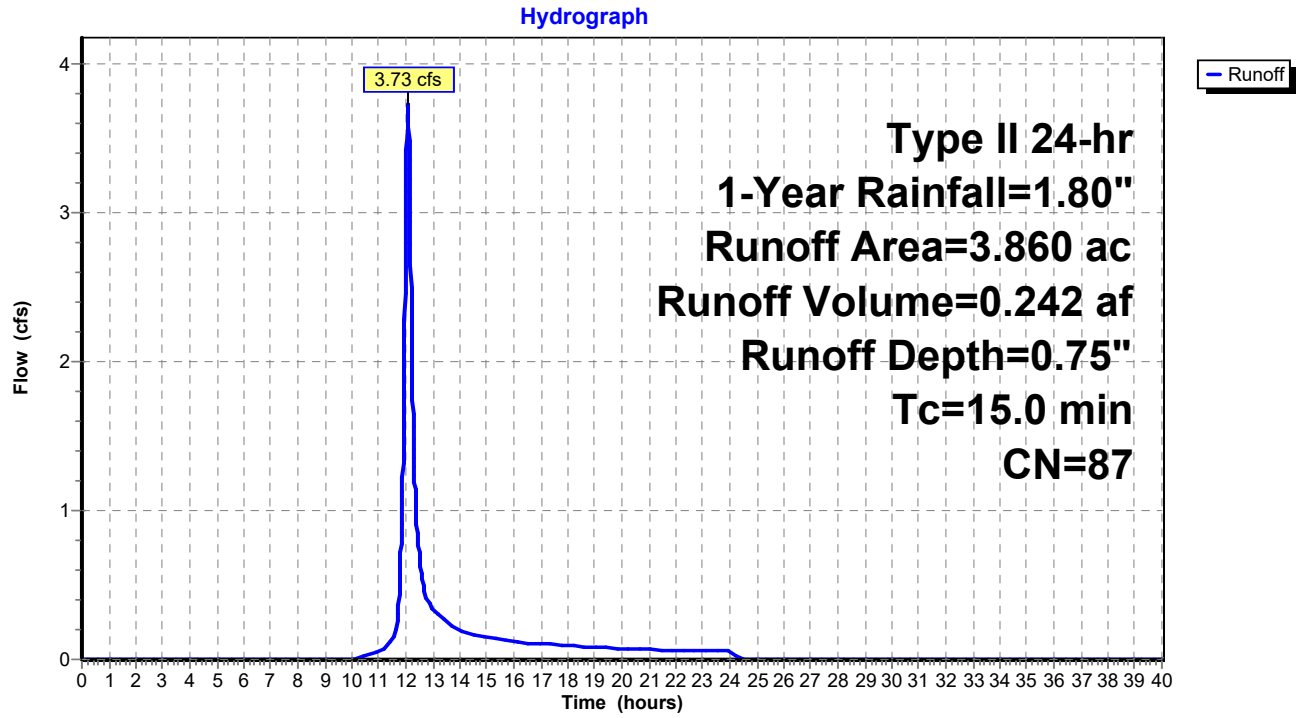
Runoff = 3.73 cfs @ 12.08 hrs, Volume= 0.242 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

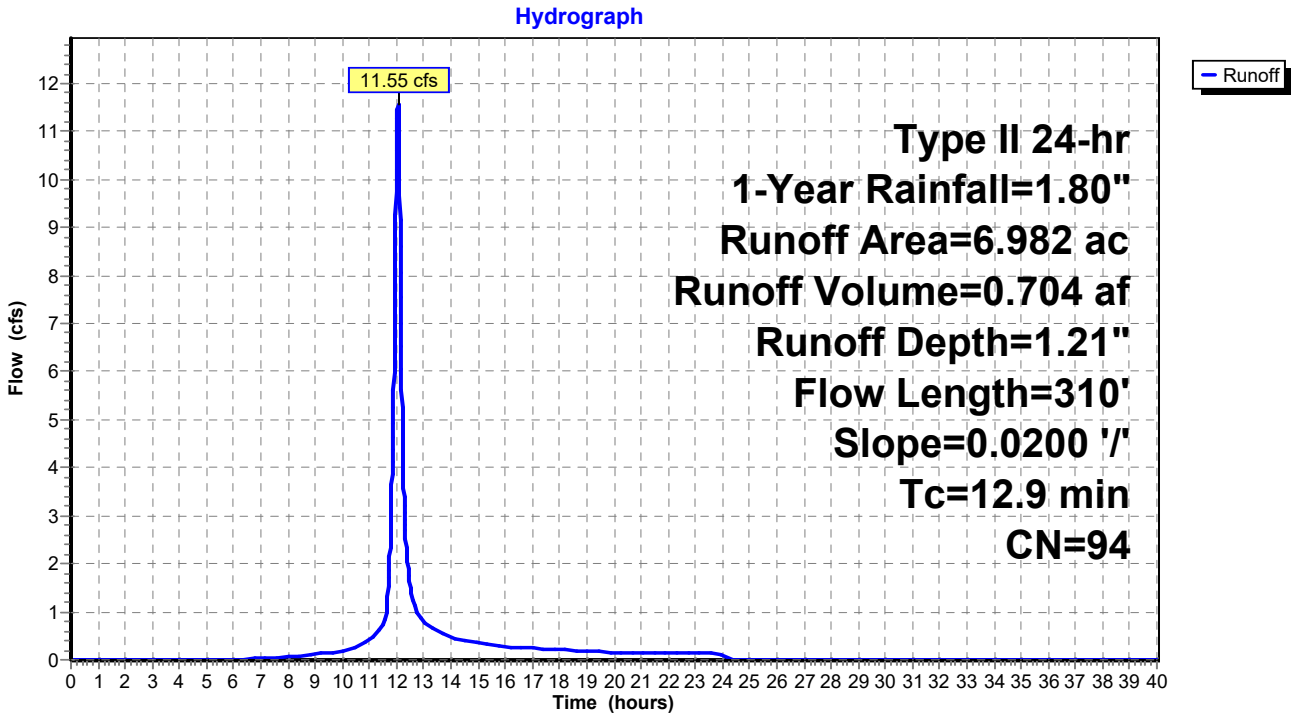
Runoff = 11.55 cfs @ 12.05 hrs, Volume= 0.704 af, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 104% of capacity of segment #2

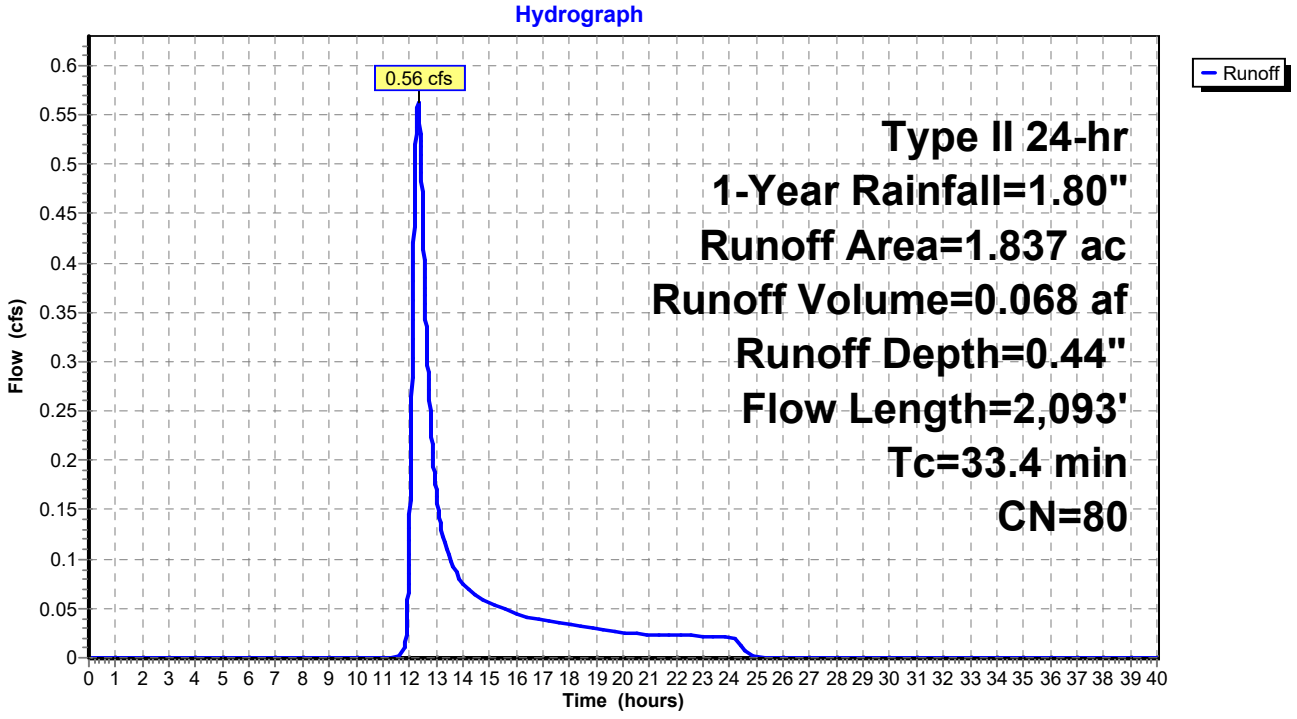
Runoff = 0.56 cfs @ 12.32 hrs, Volume= 0.068 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 0.84" for 1-Year event
Inflow = 17.21 cfs @ 12.04 hrs, Volume= 1.610 af
Outflow = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af, Atten= 95%, Lag= 255.9 min
Primary = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 692.45' @ 16.30 hrs Storage= 34,277 cf

Plug-Flow detention time= 523.4 min calculated for 1.537 af (95% of inflow)
Center-of-Mass det. time= 465.6 min (1,439.8 - 974.1)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

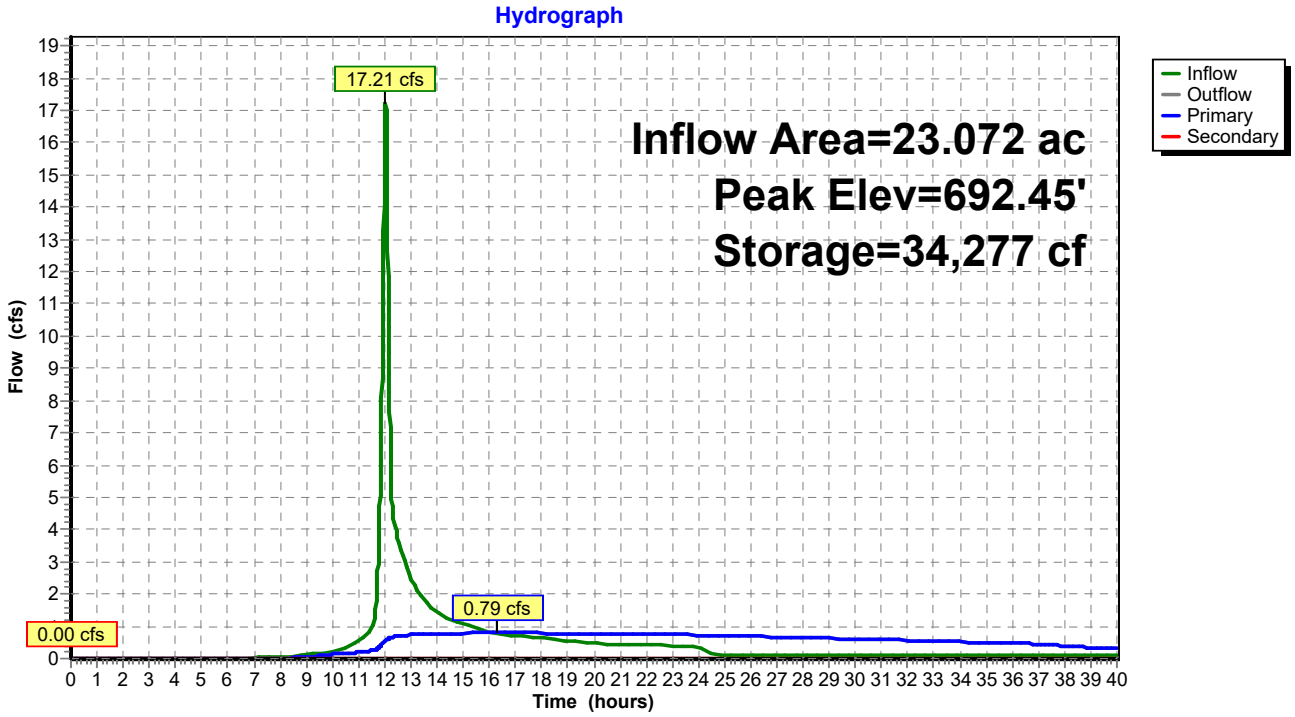
Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Primary OutFlow Max=0.79 cfs @ 16.30 hrs HW=692.45' (Free Discharge)
└─**1=Culvert** (Passes 0.79 cfs of 2.63 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 0.79 cfs @ 4.03 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=691.50' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 0.99" for 1-Year event
Inflow = 7.83 cfs @ 12.07 hrs, Volume= 0.504 af
Outflow = 0.99 cfs @ 12.63 hrs, Volume= 0.384 af, Atten= 87%, Lag= 33.5 min
Primary = 0.99 cfs @ 12.63 hrs, Volume= 0.384 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.09' @ 12.63 hrs Surf.Area= 14,908 sf Storage= 11,250 cf

Plug-Flow detention time= 485.6 min calculated for 0.384 af (76% of inflow)
Center-of-Mass det. time= 393.8 min (1,225.0 - 831.2)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

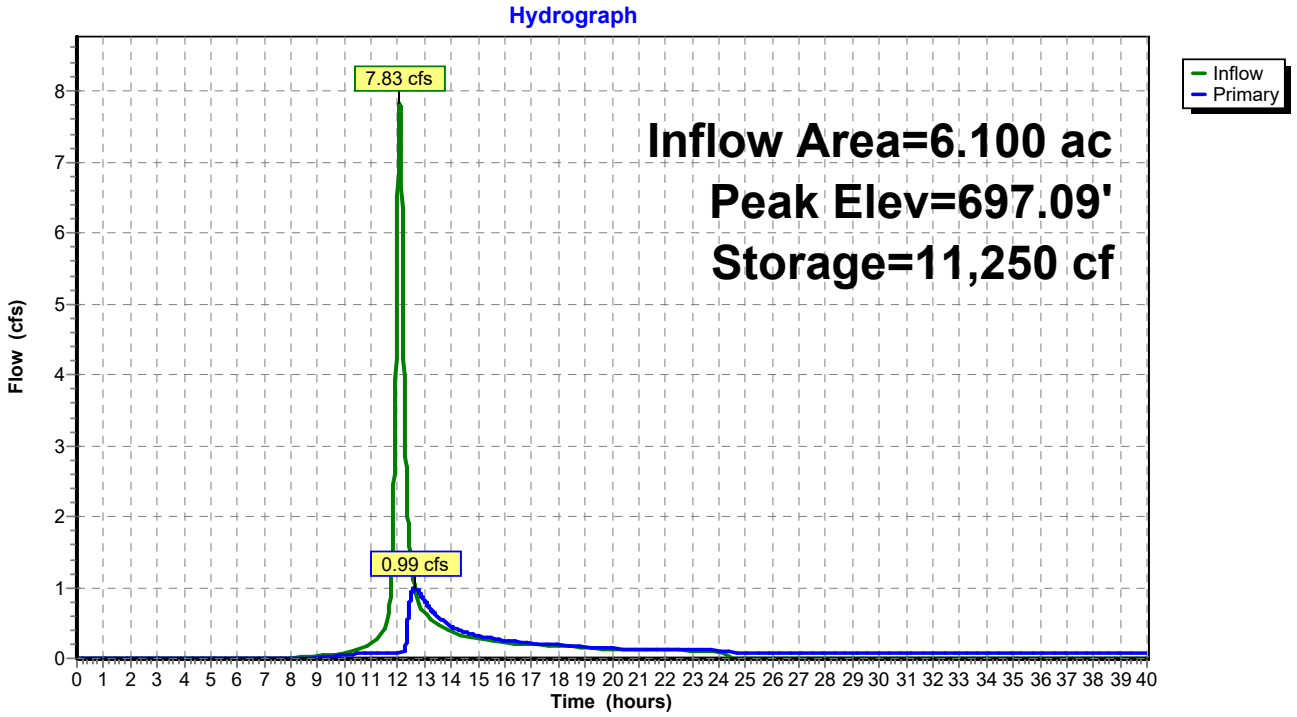
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=0.99 cfs @ 12.63 hrs HW=697.09' (Free Discharge)
└─**1=Culvert** (Passes 0.99 cfs of 21.42 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 0.91 cfs @ 0.99 fps)
  └─**3=Underdrain** (Passes 0.09 cfs of 1.24 cfs potential flow)
    └─**4=Exfiltration** (Controls 0.09 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 0.75" for 1-Year event
Inflow = 3.73 cfs @ 12.08 hrs, Volume= 0.242 af
Outflow = 0.57 cfs @ 12.59 hrs, Volume= 0.212 af, Atten= 85%, Lag= 30.6 min
Primary = 0.57 cfs @ 12.59 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.07' @ 12.59 hrs Surf.Area= 8,992 sf Storage= 4,808 cf

Plug-Flow detention time= 437.8 min calculated for 0.212 af (88% of inflow)
Center-of-Mass det. time= 376.9 min (1,227.9 - 851.0)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

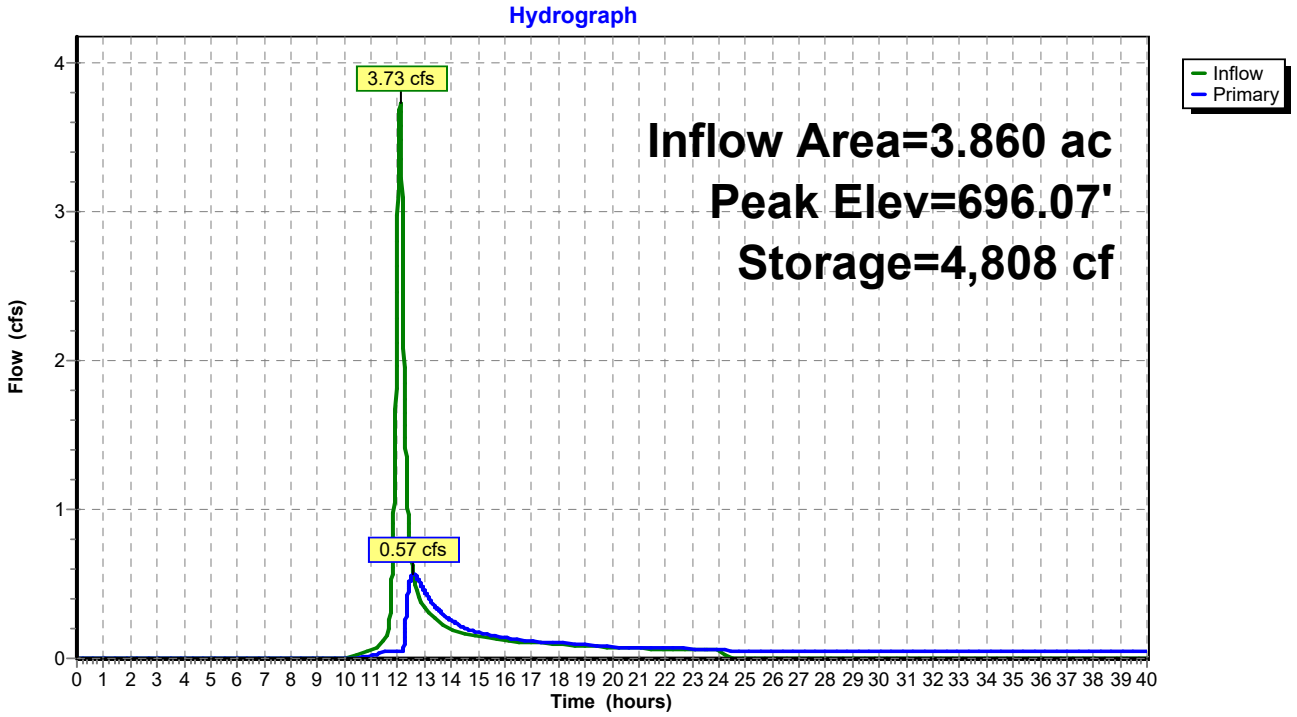
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=0.57 cfs @ 12.59 hrs HW=696.07' (Free Discharge)
└**1=Culvert** (Passes 0.57 cfs of 14.31 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 0.52 cfs @ 0.88 fps)
└**3=Underdrain** (Passes 0.05 cfs of 0.91 cfs potential flow)
└**4=Exfiltration** (Controls 0.05 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

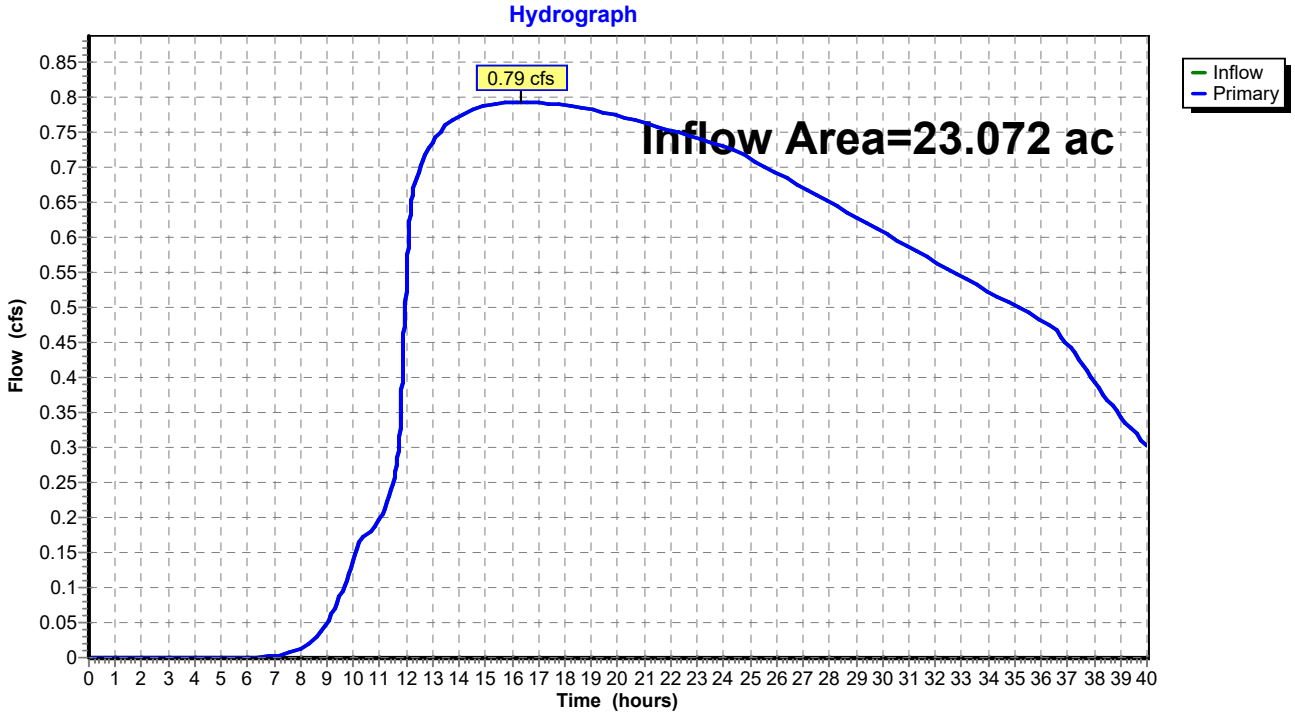
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 0.80" for 1-Year event
Inflow = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af
Primary = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

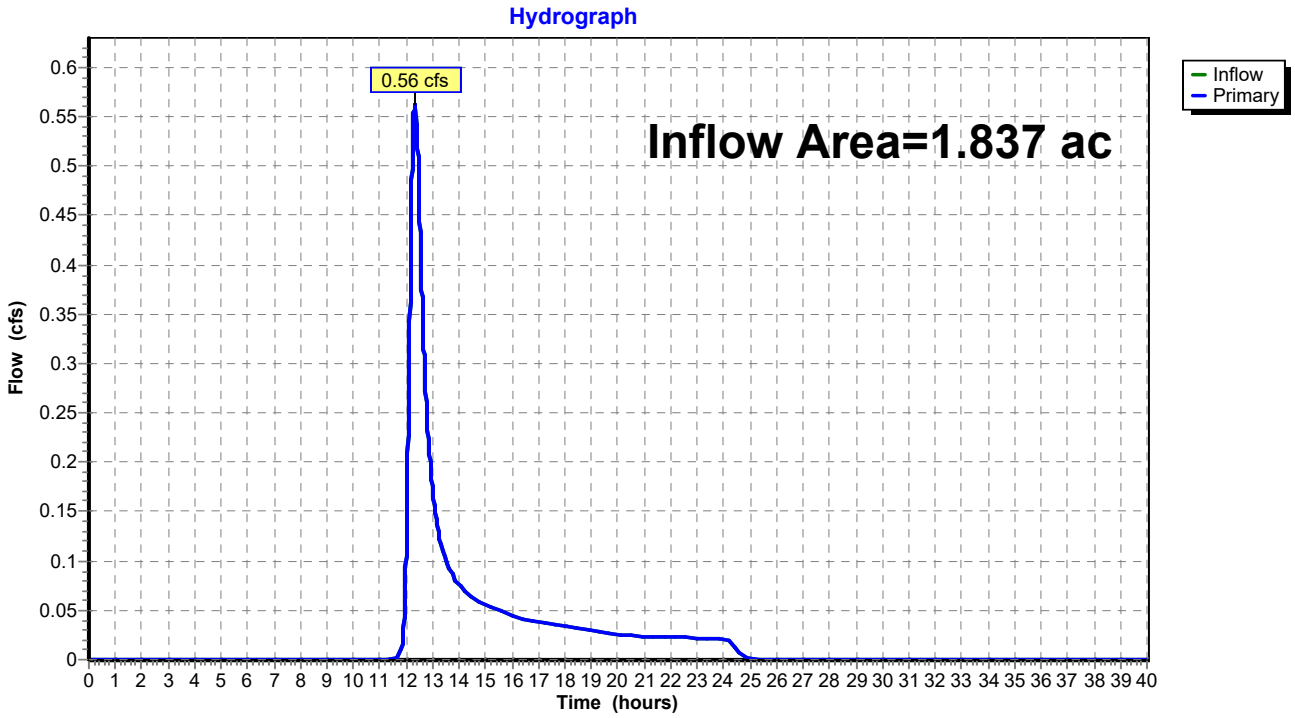
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 0.56 cfs @ 12.32 hrs, Volume= 0.068 af
Primary = 0.56 cfs @ 12.32 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

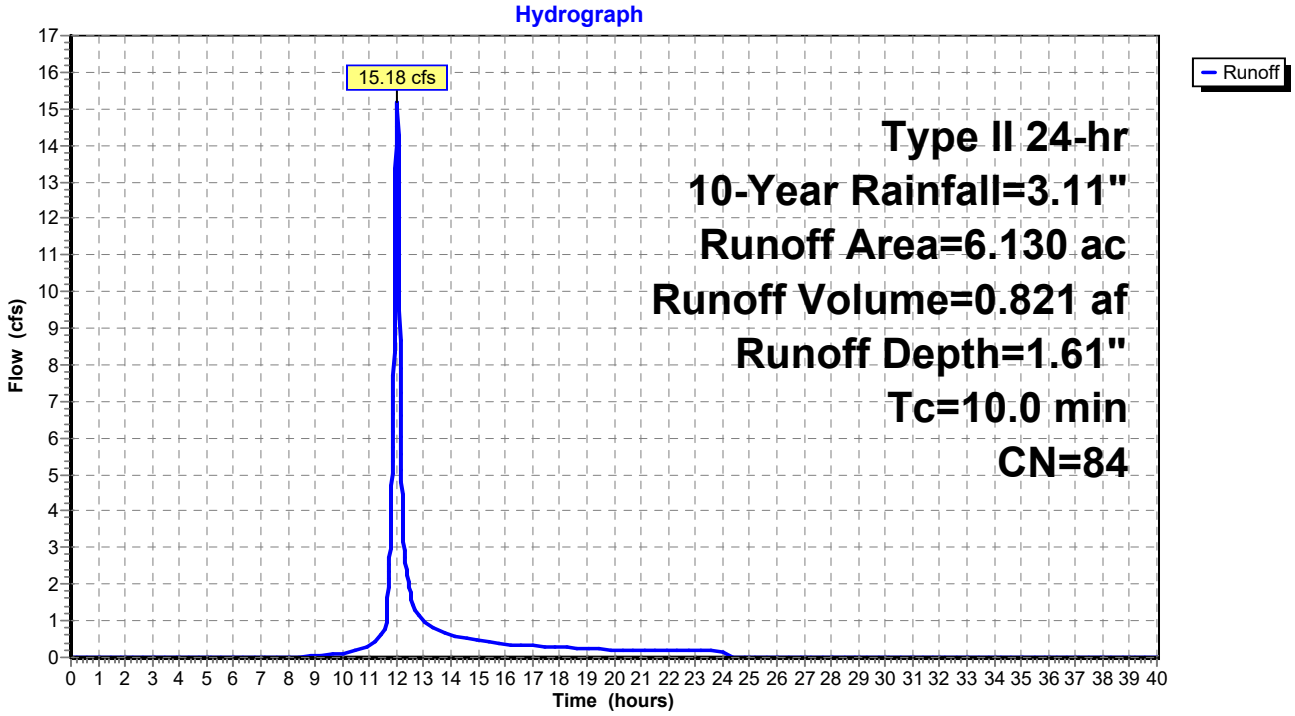
Runoff = 15.18 cfs @ 12.02 hrs, Volume= 0.821 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

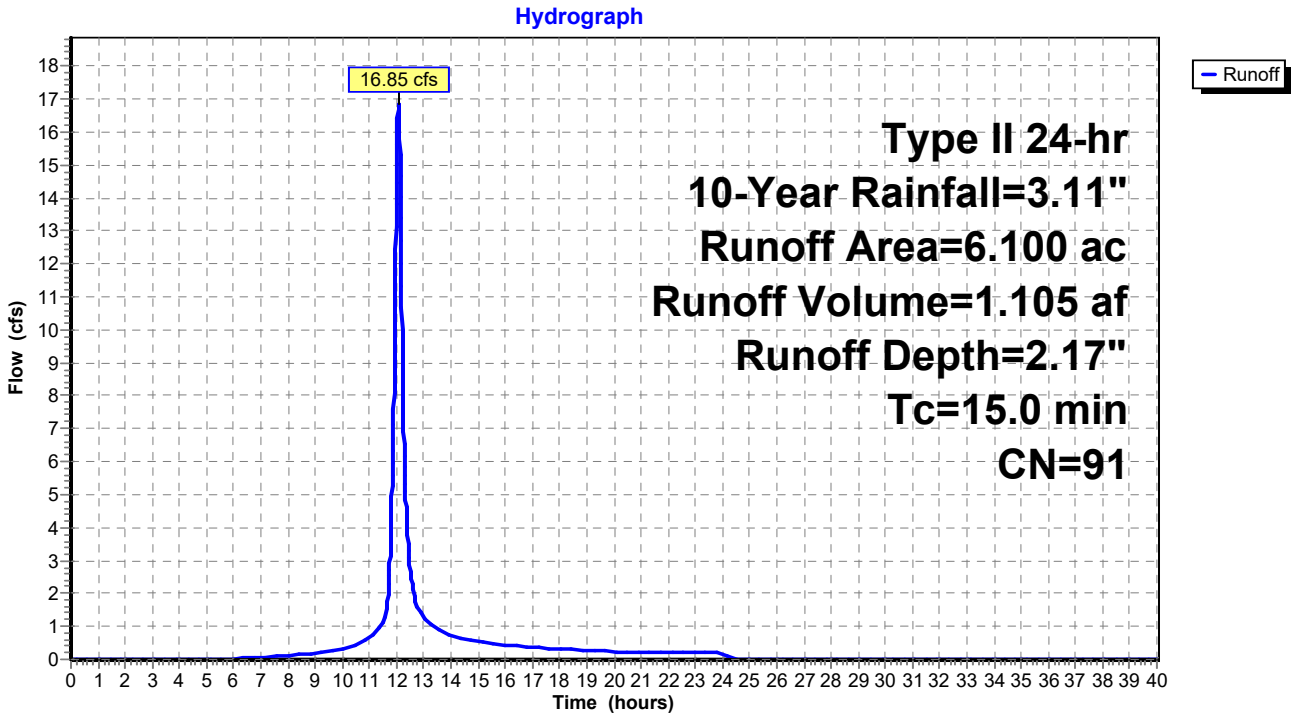
Runoff = 16.85 cfs @ 12.07 hrs, Volume= 1.105 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

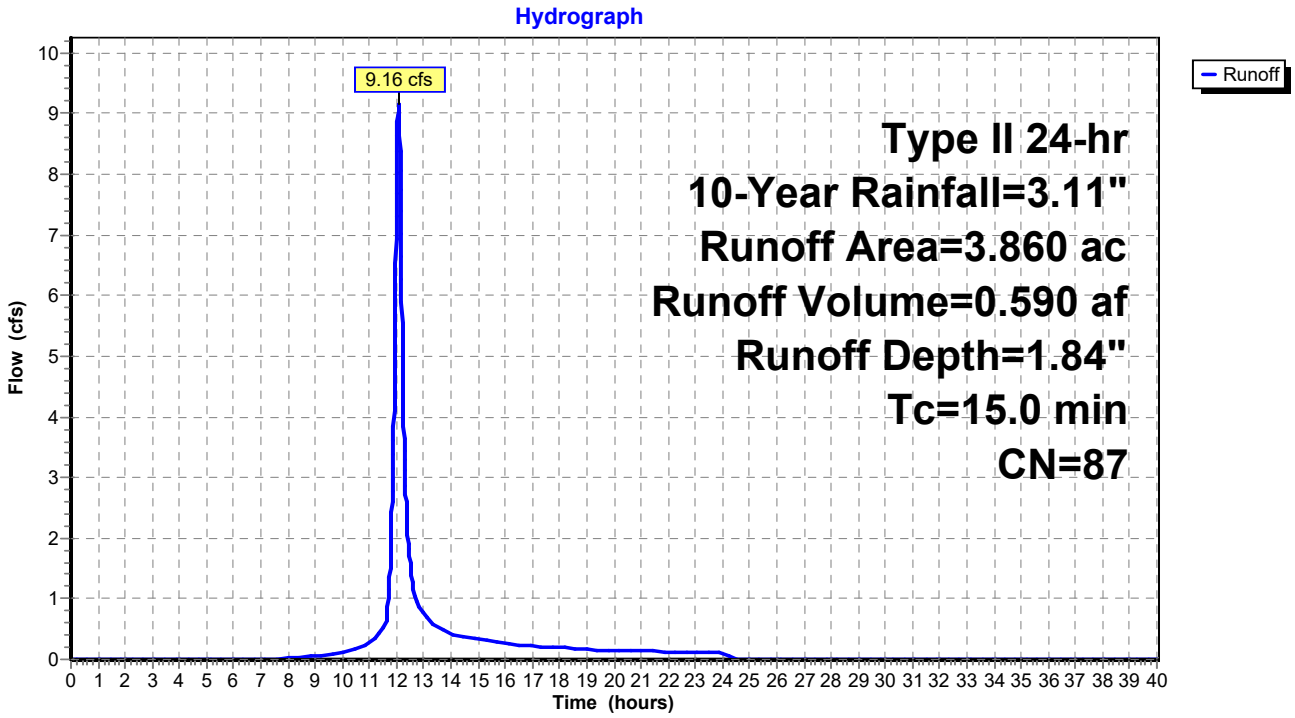
Runoff = 9.16 cfs @ 12.07 hrs, Volume= 0.590 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

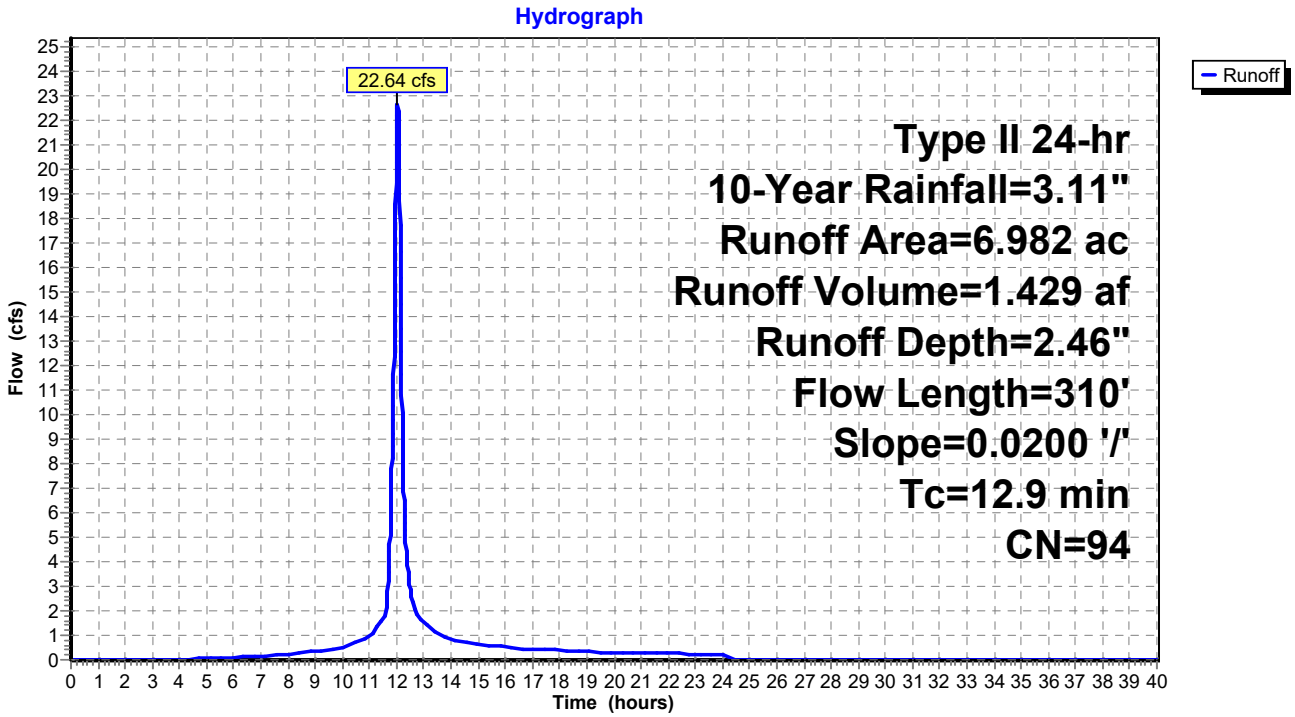
Runoff = 22.64 cfs @ 12.04 hrs, Volume= 1.429 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 358% of capacity of segment #2

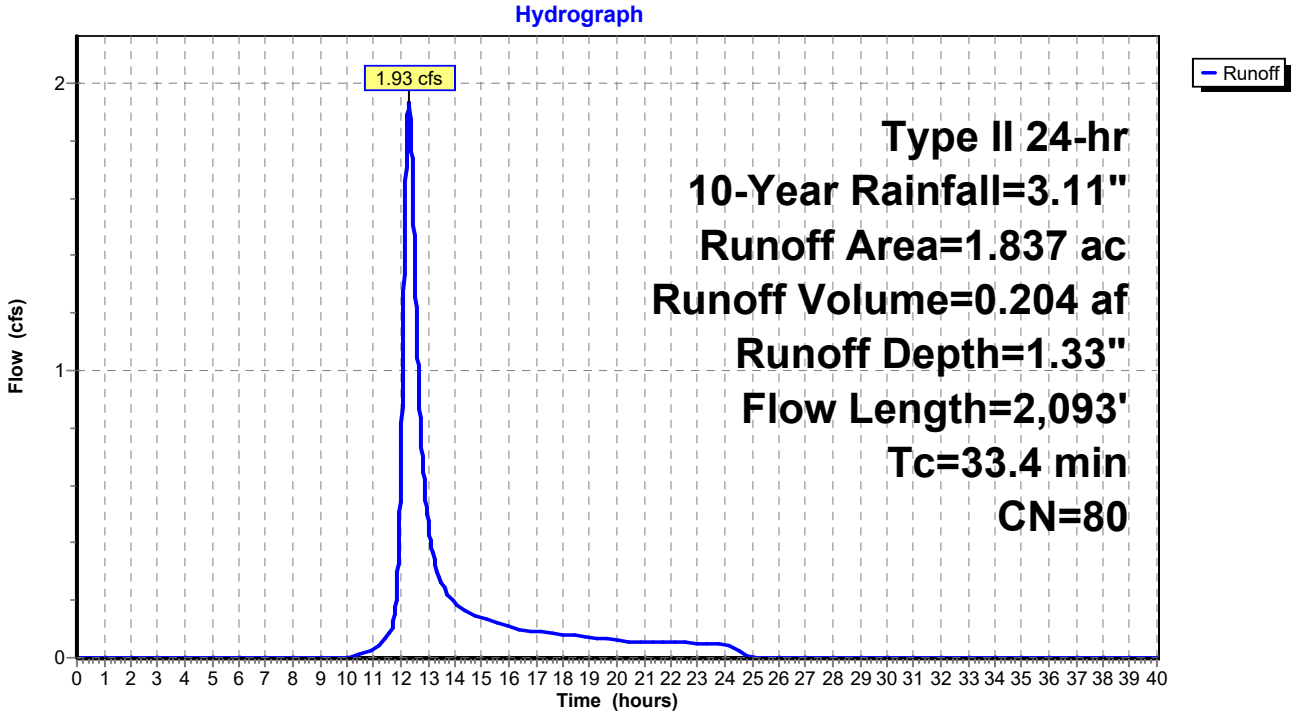
Runoff = 1.93 cfs @ 12.29 hrs, Volume= 0.204 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

[79] Warning: Submerged Pond 2aP Primary device # 1 OUTLET by 0.05'
[79] Warning: Submerged Pond 2bP Primary device # 1 by 0.05'

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 1.97" for 10-Year event
Inflow = 44.74 cfs @ 12.06 hrs, Volume= 3.791 af
Outflow = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af, Atten= 90%, Lag= 71.9 min
Primary = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 693.05' @ 13.26 hrs Storage= 82,942 cf

Plug-Flow detention time= 449.3 min calculated for 3.430 af (90% of inflow)
Center-of-Mass det. time= 370.2 min (1,246.5 - 876.3)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

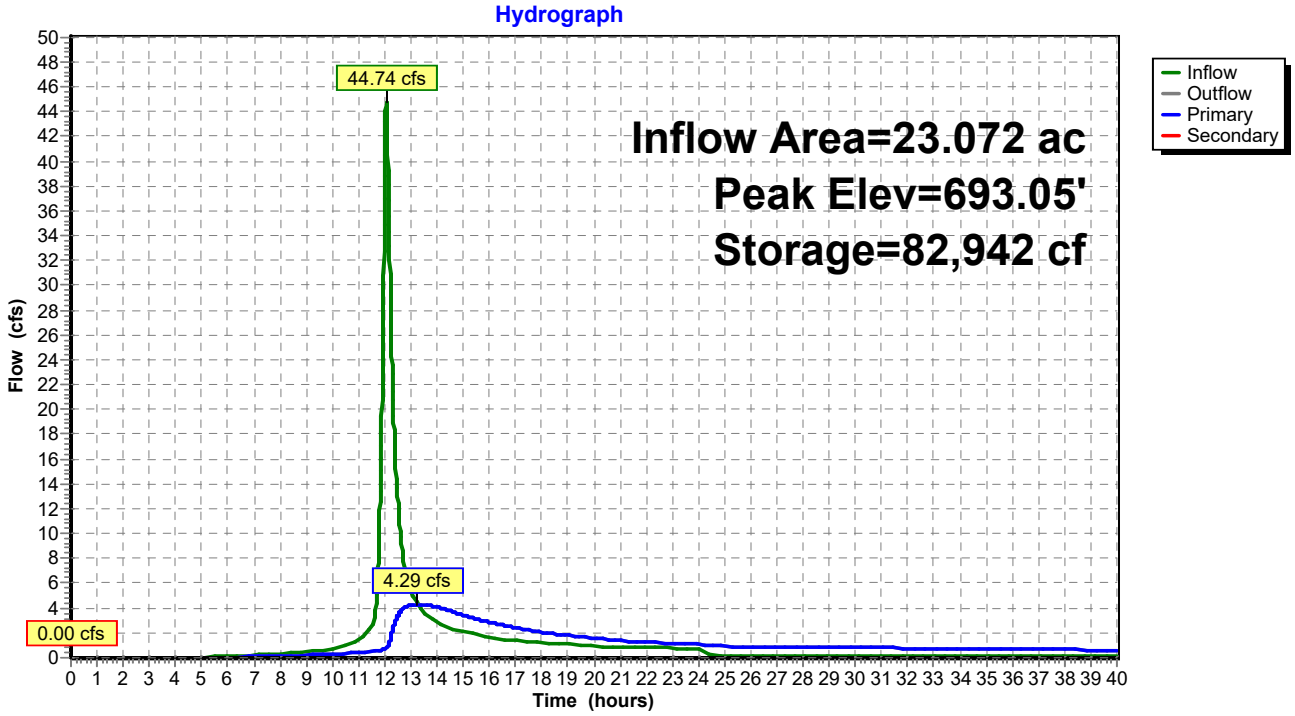
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=4.33 cfs @ 13.26 hrs HW=693.05' (Free Discharge)
└**1=Culvert** (Passes 4.33 cfs of 4.49 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.08 cfs @ 5.49 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.25 cfs @ 2.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=691.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 2.17" for 10-Year event
Inflow = 16.85 cfs @ 12.07 hrs, Volume= 1.105 af
Outflow = 10.83 cfs @ 12.19 hrs, Volume= 0.983 af, Atten= 36%, Lag= 7.2 min
Primary = 10.83 cfs @ 12.19 hrs, Volume= 0.983 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.48' @ 12.19 hrs Surf.Area= 15,588 sf Storage= 17,110 cf

Plug-Flow detention time= 223.8 min calculated for 0.983 af (89% of inflow)
Center-of-Mass det. time= 168.6 min (977.4 - 808.8)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

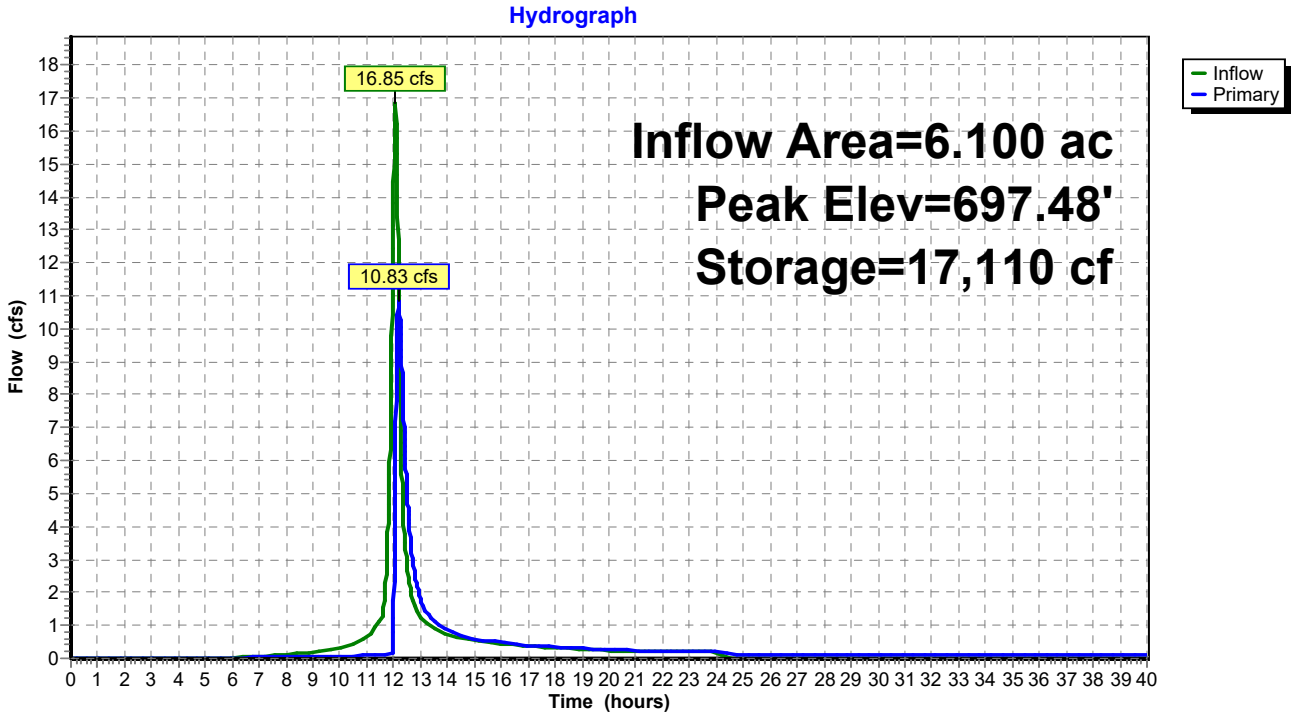
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=10.82 cfs @ 12.19 hrs HW=697.48' (Free Discharge)
└**1=Culvert** (Passes 10.82 cfs of 22.98 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 10.73 cfs @ 2.26 fps)
└**3=Underdrain** (Passes 0.09 cfs of 1.33 cfs potential flow)
└**4=Exfiltration** (Controls 0.09 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 1.84" for 10-Year event
Inflow = 9.16 cfs @ 12.07 hrs, Volume= 0.590 af
Outflow = 5.60 cfs @ 12.20 hrs, Volume= 0.558 af, Atten= 39%, Lag= 7.7 min
Primary = 5.60 cfs @ 12.20 hrs, Volume= 0.558 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.36' @ 12.20 hrs Surf.Area= 11,541 sf Storage= 8,355 cf

Plug-Flow detention time= 188.0 min calculated for 0.558 af (95% of inflow)
Center-of-Mass det. time= 157.1 min (982.5 - 825.3)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

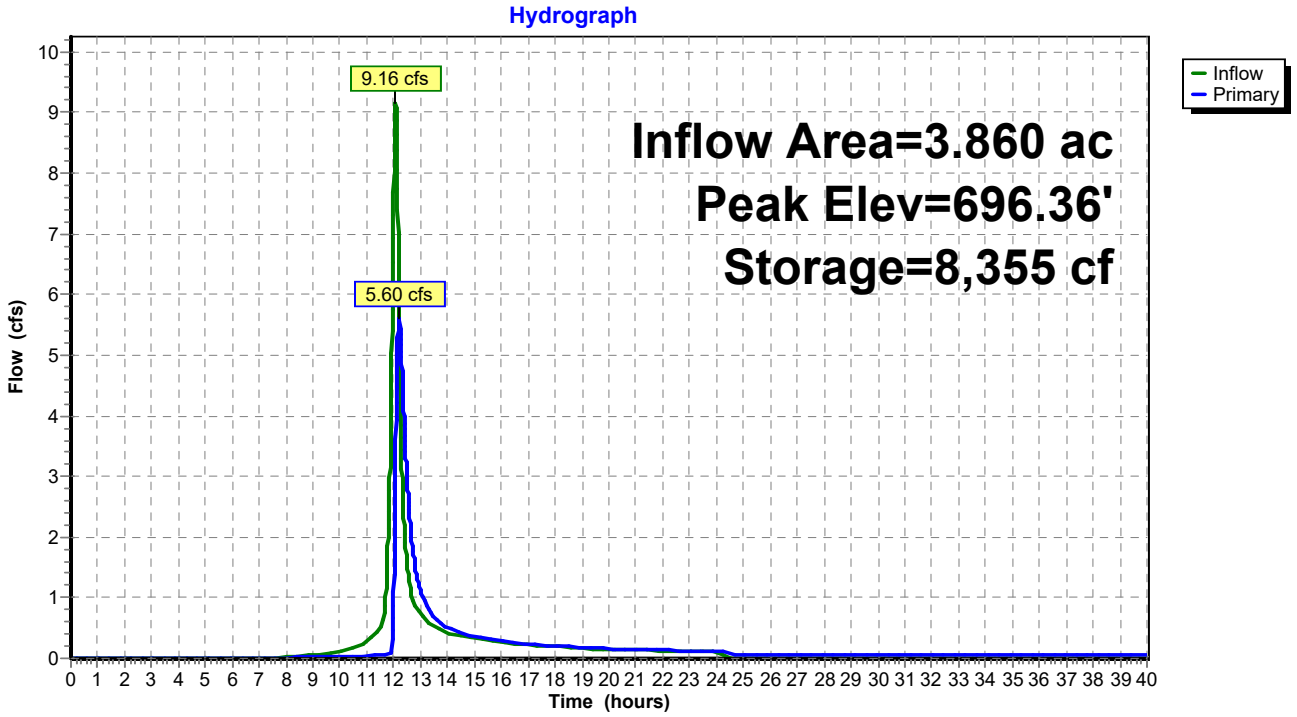
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=5.60 cfs @ 12.20 hrs HW=696.36' (Free Discharge)
└─**1=Culvert** (Passes 5.60 cfs of 15.54 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 5.53 cfs @ 1.95 fps)
  └─**3=Underdrain** (Passes 0.07 cfs of 0.96 cfs potential flow)
    └─**4=Exfiltration** (Controls 0.07 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

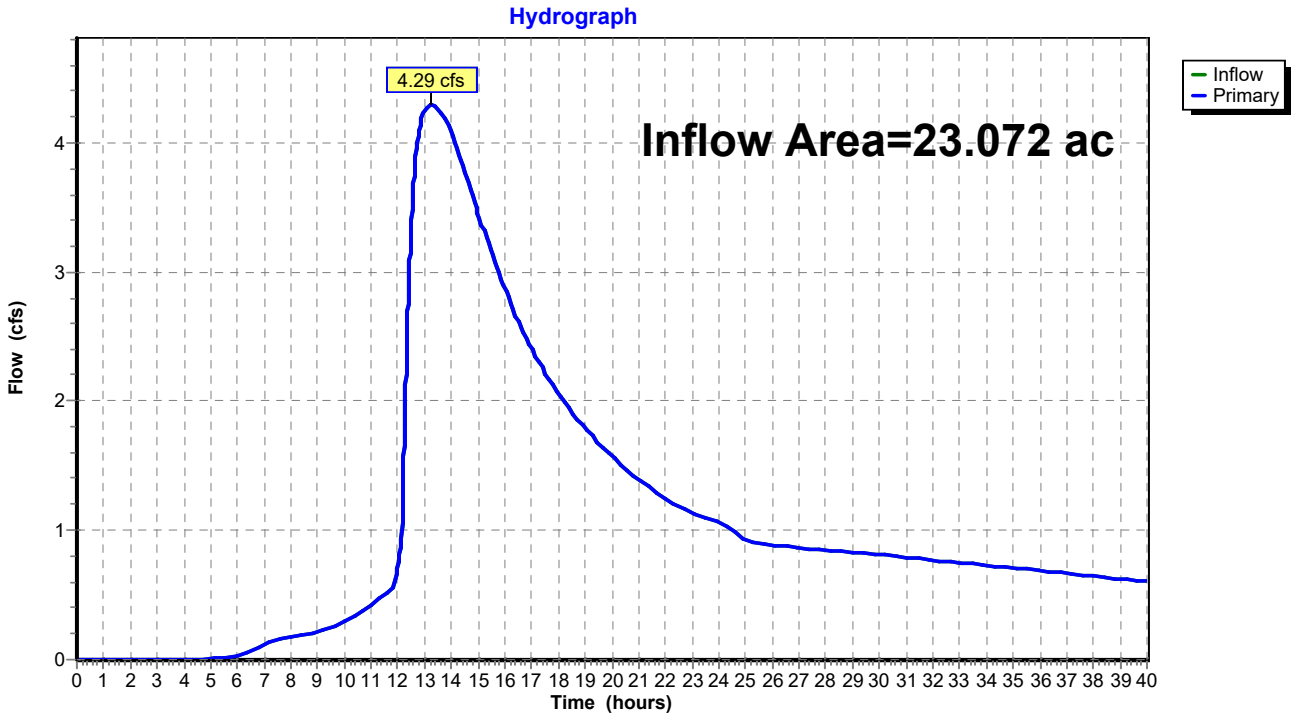
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 1.78" for 10-Year event
Inflow = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af
Primary = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

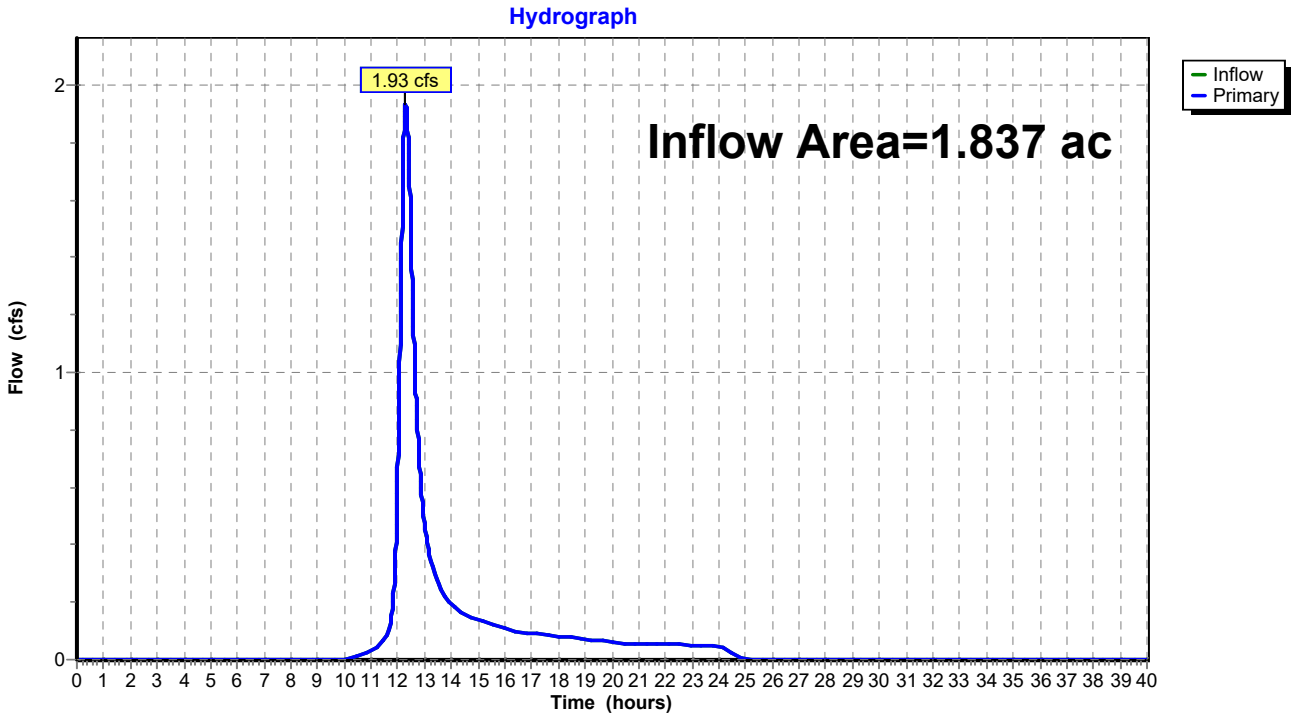
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 1.93 cfs @ 12.29 hrs, Volume= 0.204 af
Primary = 1.93 cfs @ 12.29 hrs, Volume= 0.204 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

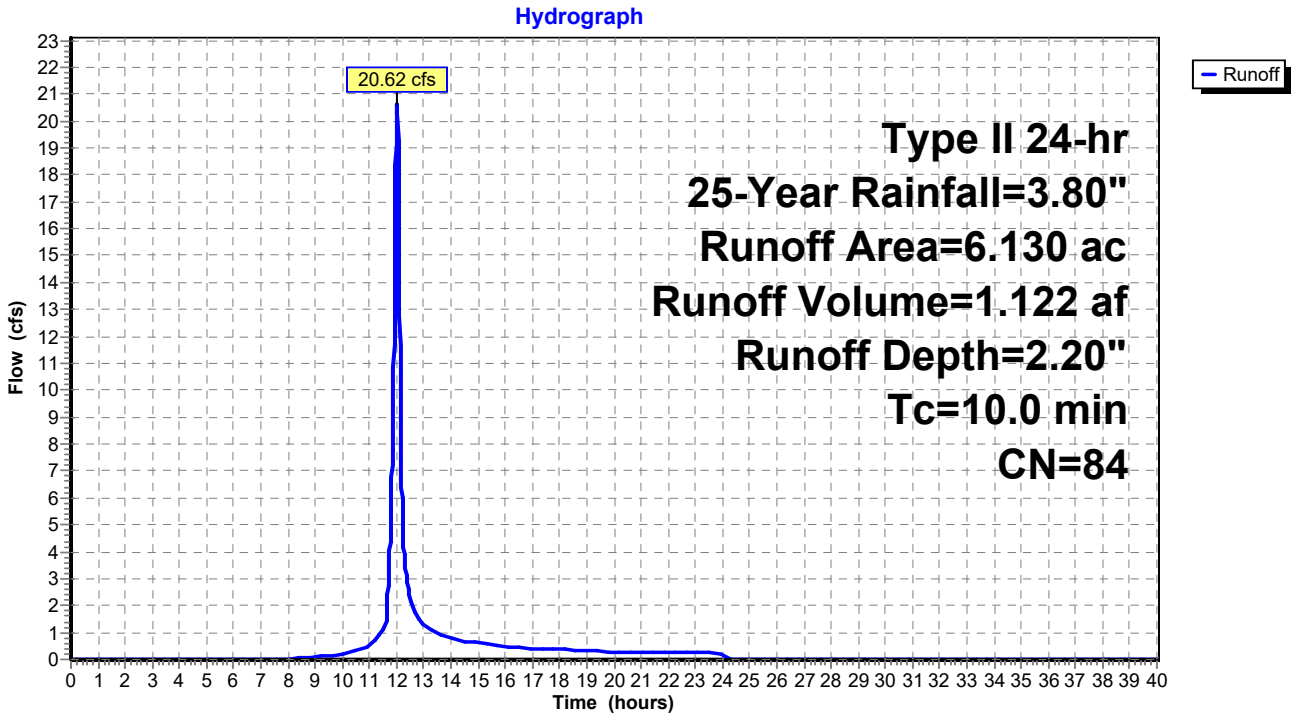
Runoff = 20.62 cfs @ 12.02 hrs, Volume= 1.122 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

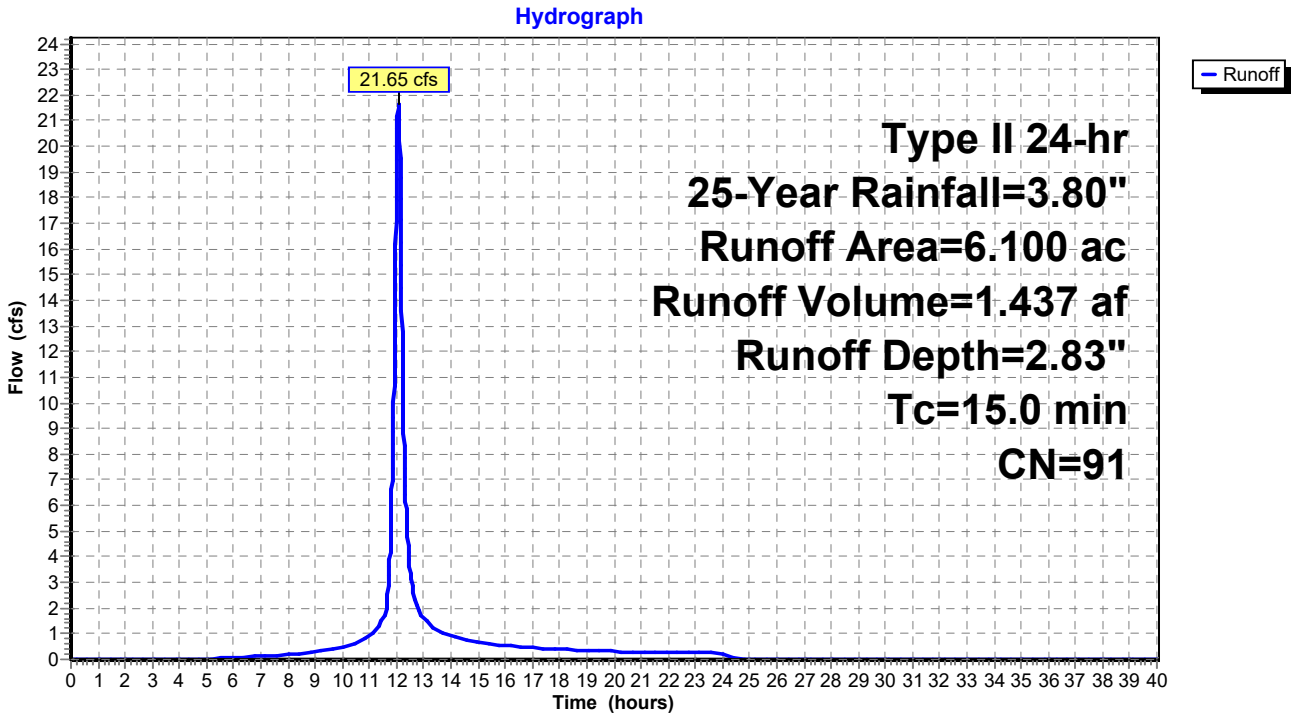
Runoff = 21.65 cfs @ 12.07 hrs, Volume= 1.437 af, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

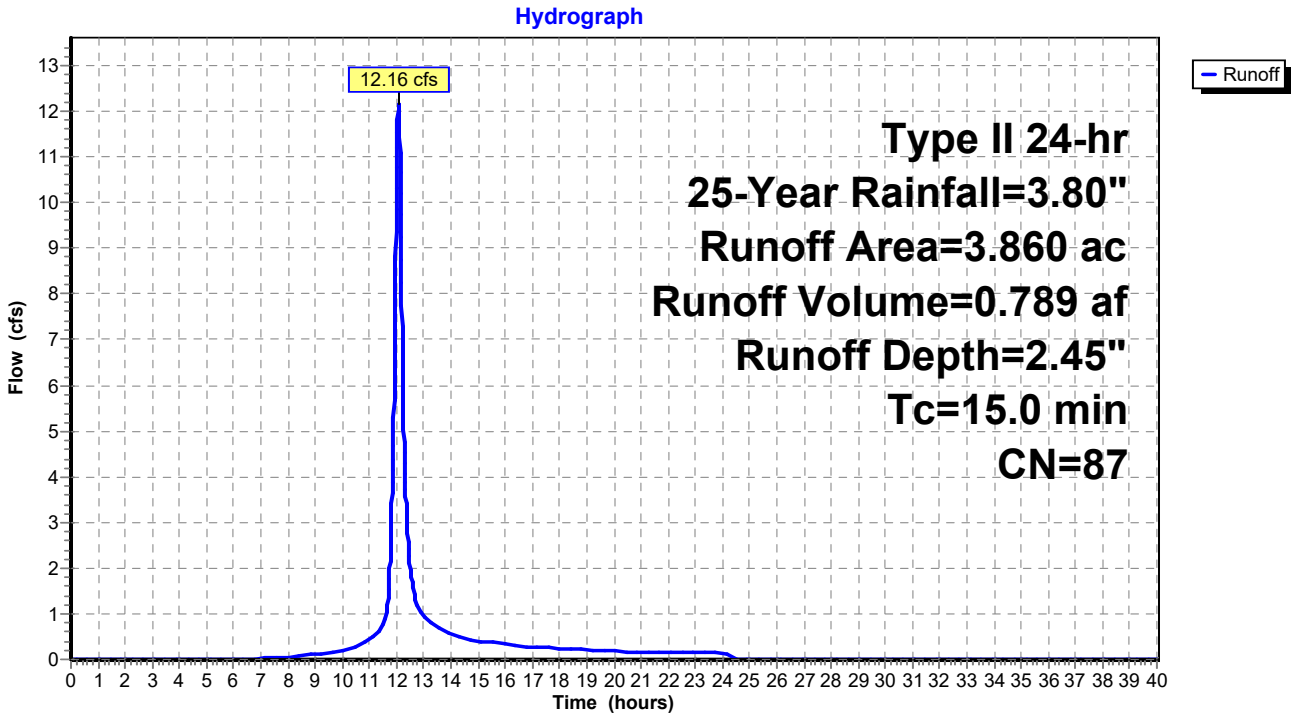
Runoff = 12.16 cfs @ 12.07 hrs, Volume= 0.789 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

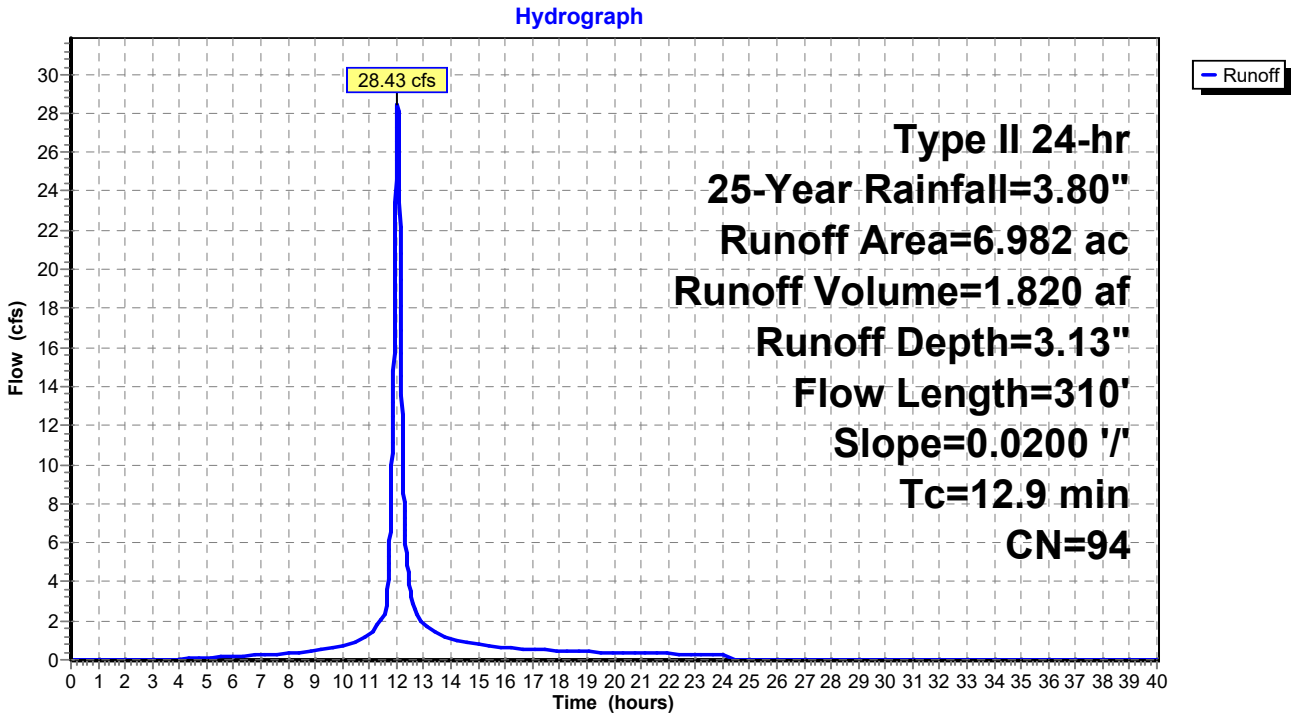
Runoff = 28.43 cfs @ 12.04 hrs, Volume= 1.820 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 512% of capacity of segment #2

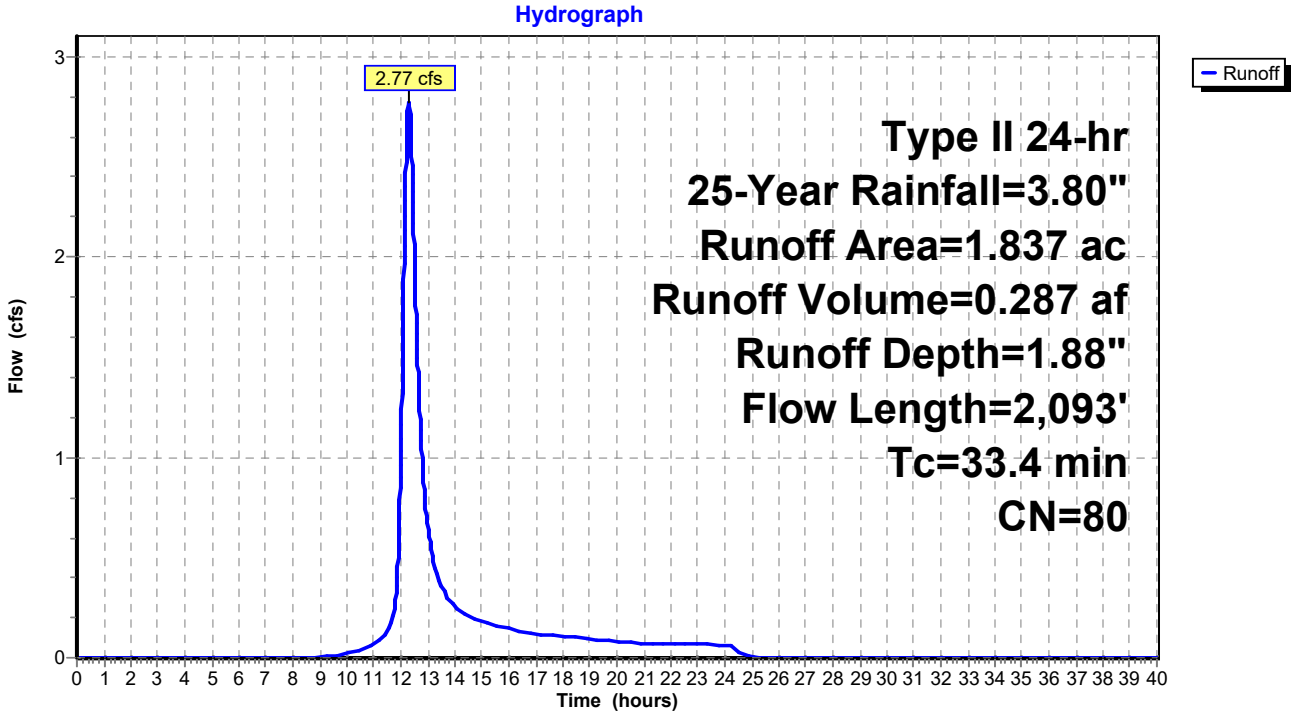
Runoff = 2.77 cfs @ 12.28 hrs, Volume= 0.287 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

[79] Warning: Submerged Pond 2aP Primary device # 1 OUTLET by 0.37'
[79] Warning: Submerged Pond 2bP Primary device # 1 by 0.37'

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 2.61" for 25-Year event
Inflow = 65.00 cfs @ 12.05 hrs, Volume= 5.012 af
Outflow = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af, Atten= 92%, Lag= 75.0 min
Primary = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 693.37' @ 13.30 hrs Storage= 114,117 cf

Plug-Flow detention time= 397.1 min calculated for 4.610 af (92% of inflow)
Center-of-Mass det. time= 331.9 min (1,187.7 - 855.9)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

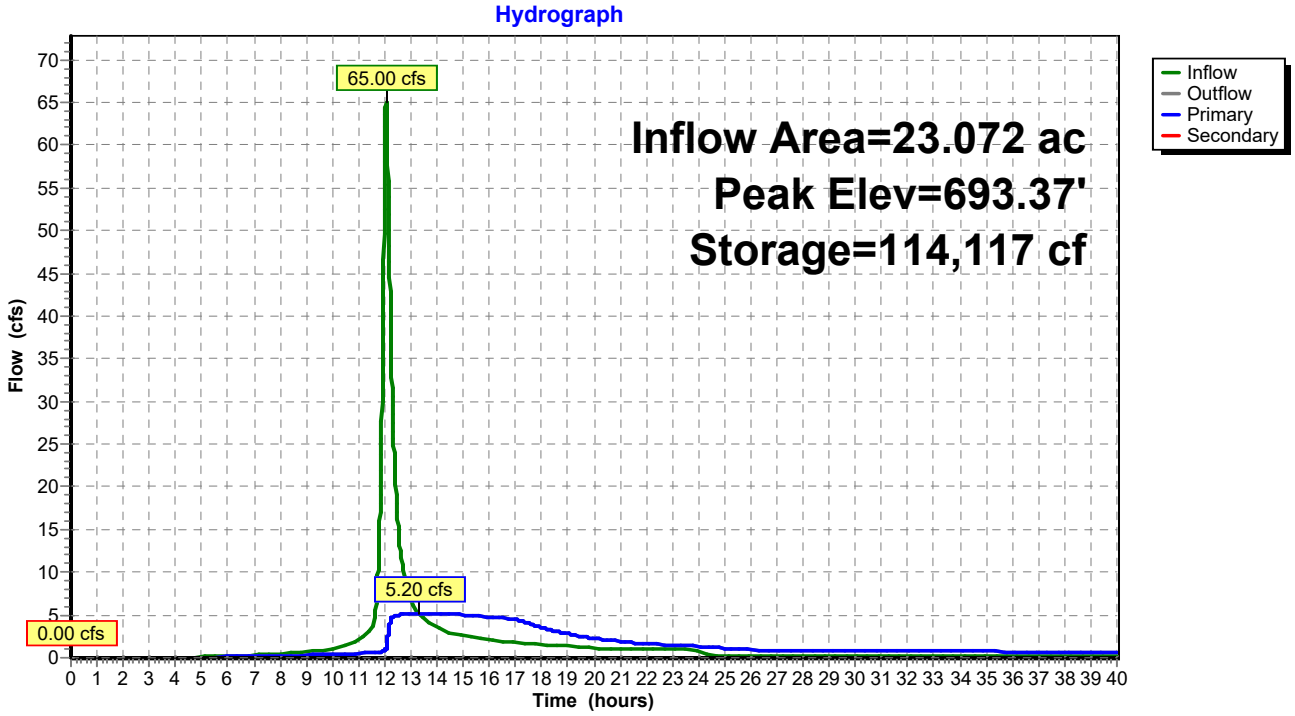
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=5.20 cfs @ 13.30 hrs HW=693.37' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.20 cfs @ 4.23 fps)
└**2=Orifice/Grate** (Passes < 1.20 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Passes < 7.63 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=691.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 2.83" for 25-Year event
Inflow = 21.65 cfs @ 12.07 hrs, Volume= 1.437 af
Outflow = 16.34 cfs @ 12.16 hrs, Volume= 1.313 af, Atten= 25%, Lag= 5.6 min
Primary = 16.34 cfs @ 12.16 hrs, Volume= 1.313 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.63' @ 12.16 hrs Surf.Area= 15,861 sf Storage= 19,492 cf

Plug-Flow detention time= 178.9 min calculated for 1.313 af (91% of inflow)
Center-of-Mass det. time= 133.4 min (934.8 - 801.4)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

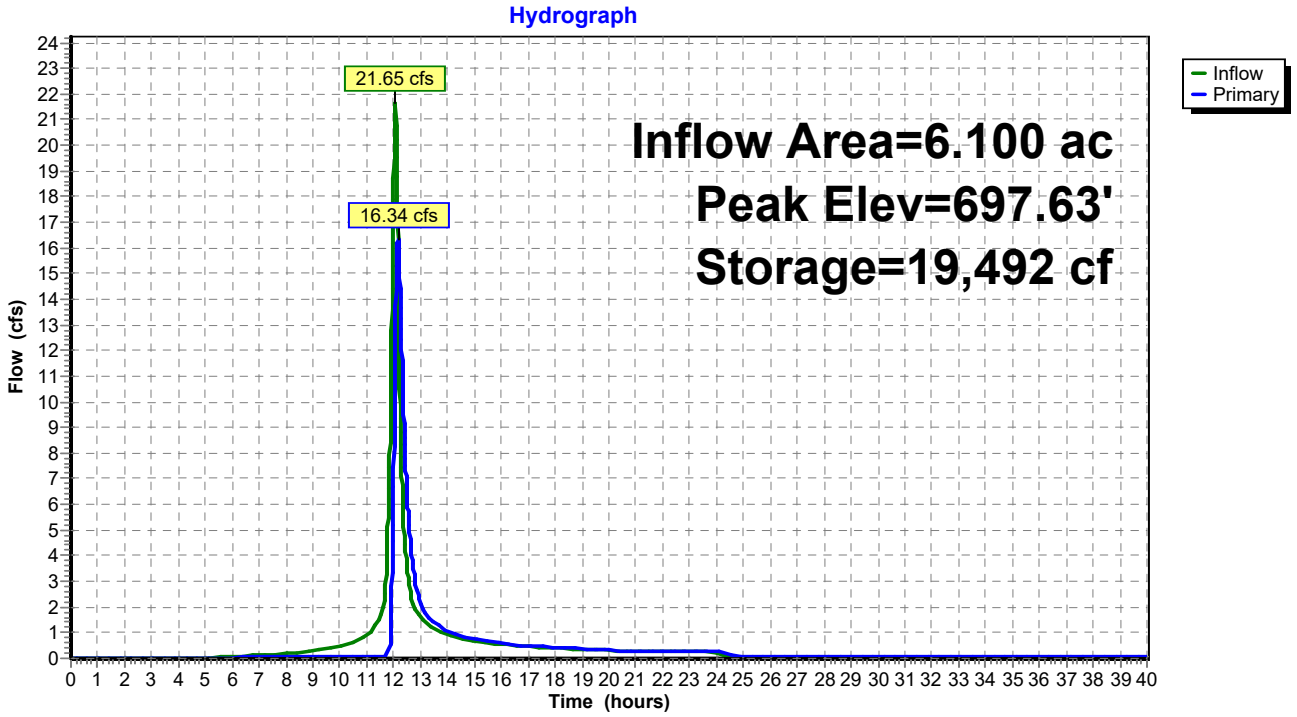
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=16.34 cfs @ 12.16 hrs HW=697.63' (Free Discharge)
└─**1=Culvert** (Passes 16.34 cfs of 23.57 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 16.24 cfs @ 2.59 fps)
  └─**3=Underdrain** (Passes 0.09 cfs of 1.36 cfs potential flow)
    └─**4=Exfiltration** (Controls 0.09 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 2.45" for 25-Year event
Inflow = 12.16 cfs @ 12.07 hrs, Volume= 0.789 af
Outflow = 8.73 cfs @ 12.17 hrs, Volume= 0.756 af, Atten= 28%, Lag= 6.1 min
Primary = 8.73 cfs @ 12.17 hrs, Volume= 0.756 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.48' @ 12.17 hrs Surf.Area= 12,655 sf Storage= 9,906 cf

Plug-Flow detention time= 146.5 min calculated for 0.756 af (96% of inflow)
Center-of-Mass det. time= 122.4 min (939.5 - 817.1)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

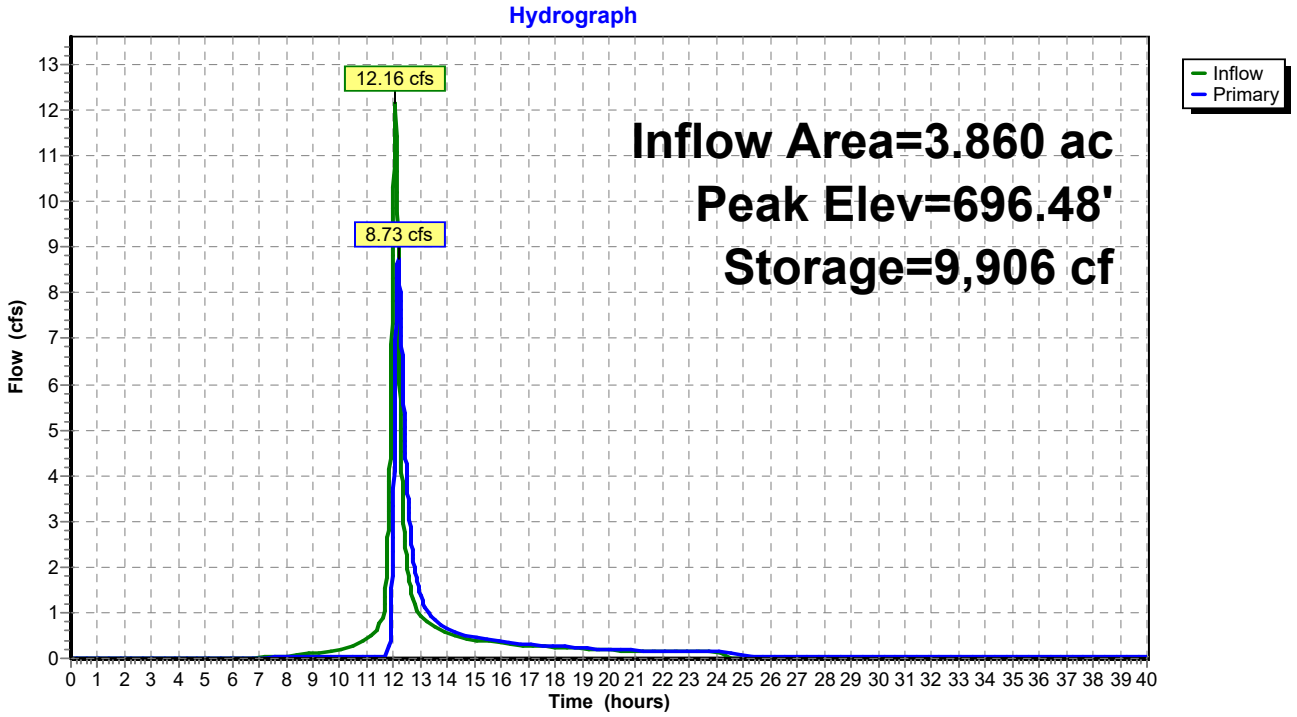
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=8.73 cfs @ 12.17 hrs HW=696.48' (Free Discharge)
└**1=Culvert** (Passes 8.73 cfs of 16.05 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 8.65 cfs @ 2.26 fps)
└**3=Underdrain** (Passes 0.07 cfs of 0.98 cfs potential flow)
└**4=Exfiltration** (Controls 0.07 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

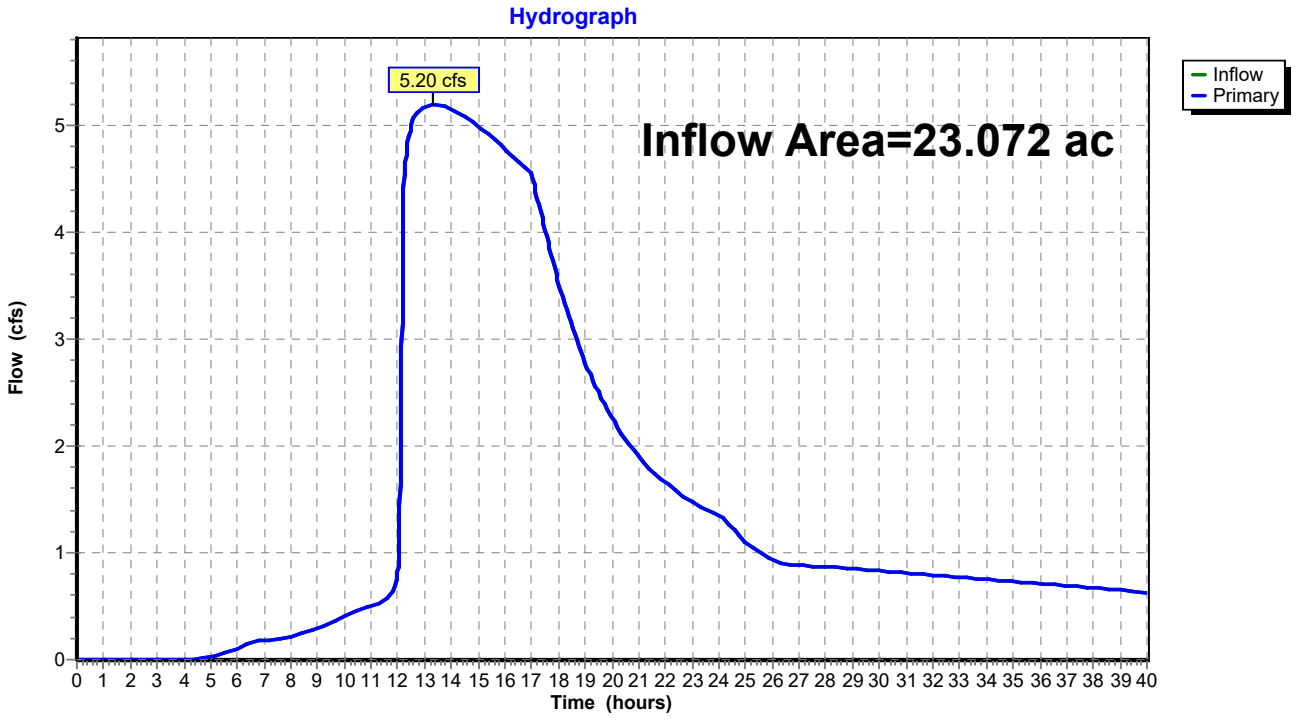
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 2.40" for 25-Year event
Inflow = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af
Primary = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

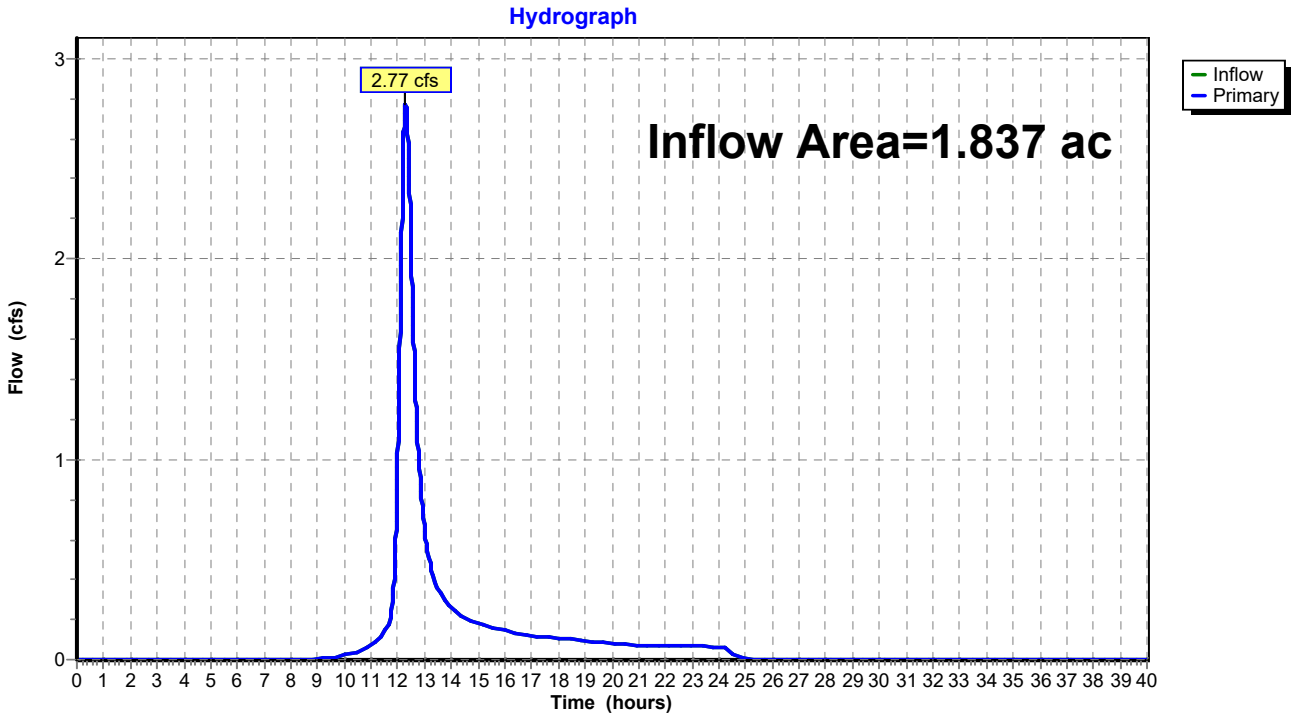
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 1.88" for 25-Year event
Inflow = 2.77 cfs @ 12.28 hrs, Volume= 0.287 af
Primary = 2.77 cfs @ 12.28 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

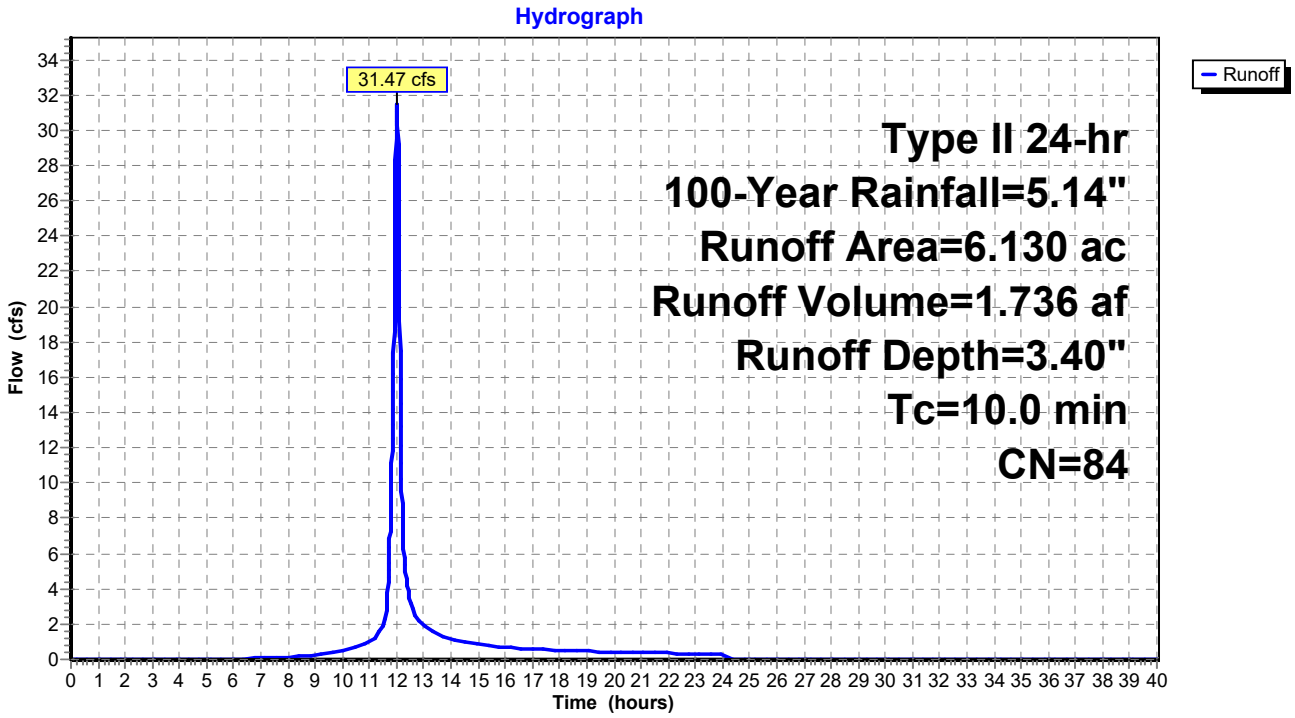
Runoff = 31.47 cfs @ 12.01 hrs, Volume= 1.736 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

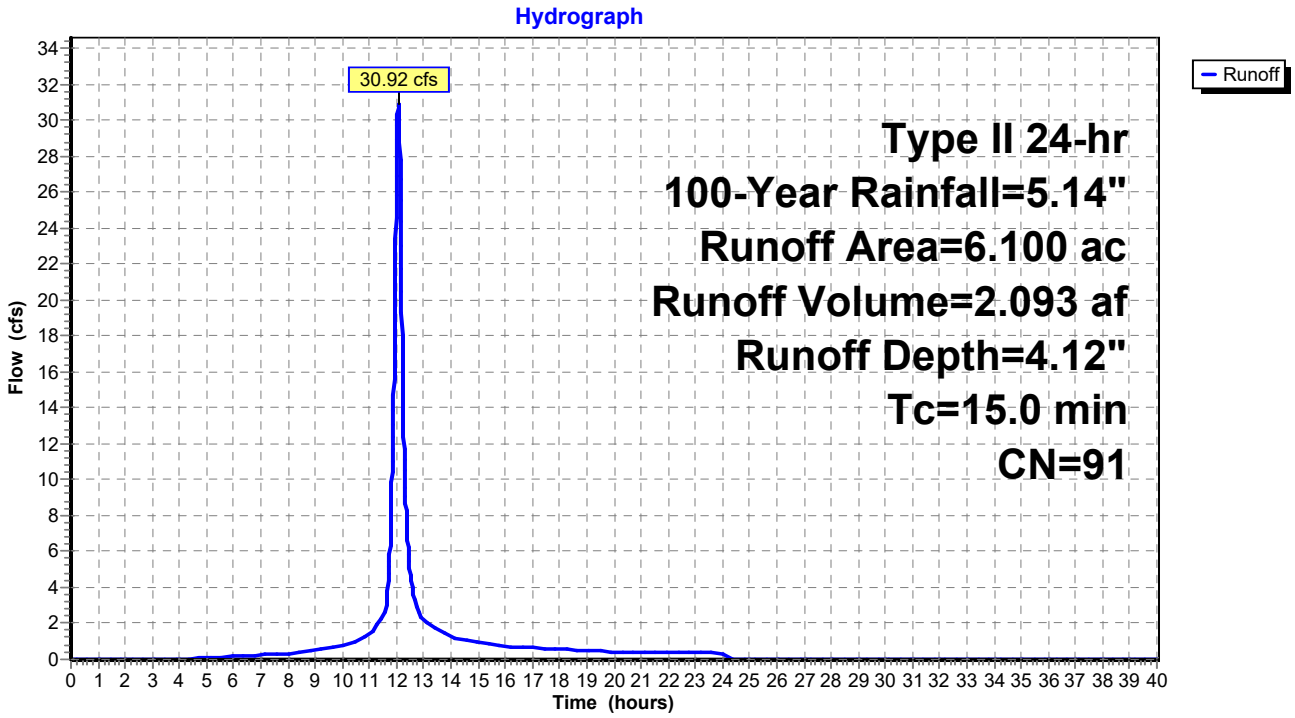
Runoff = 30.92 cfs @ 12.06 hrs, Volume= 2.093 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

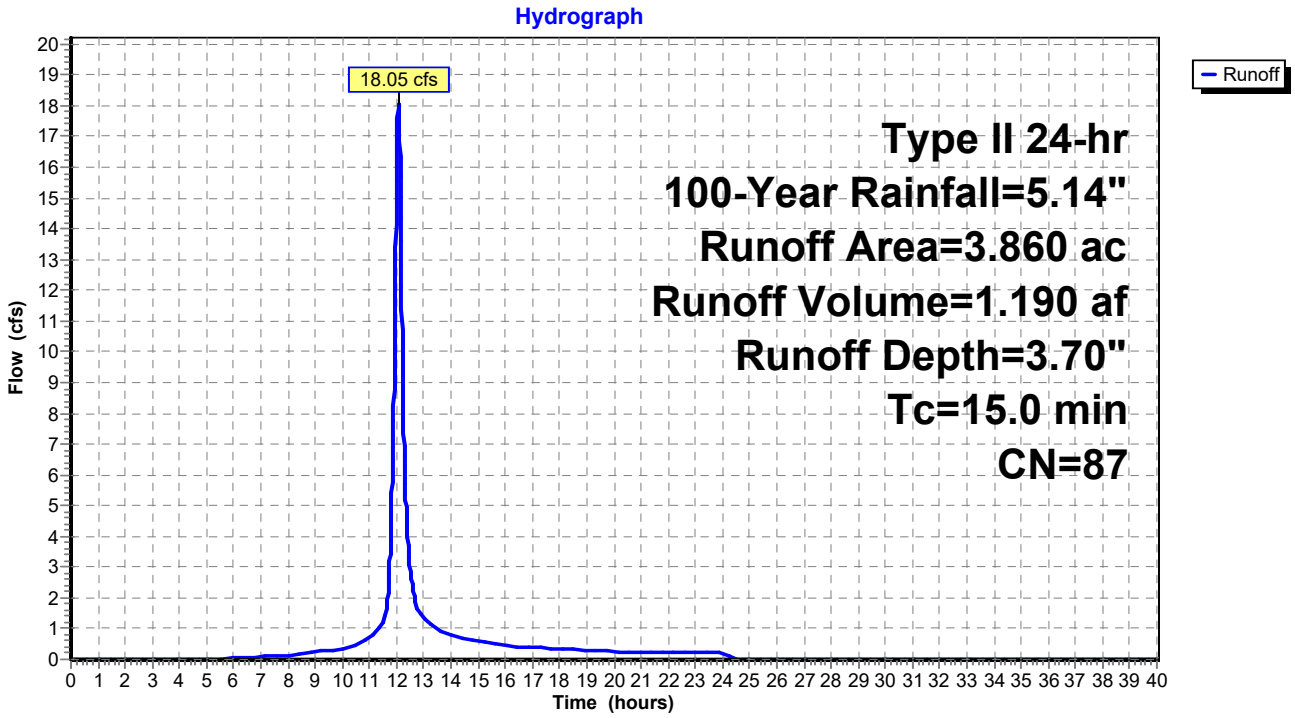
Runoff = 18.05 cfs @ 12.07 hrs, Volume= 1.190 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

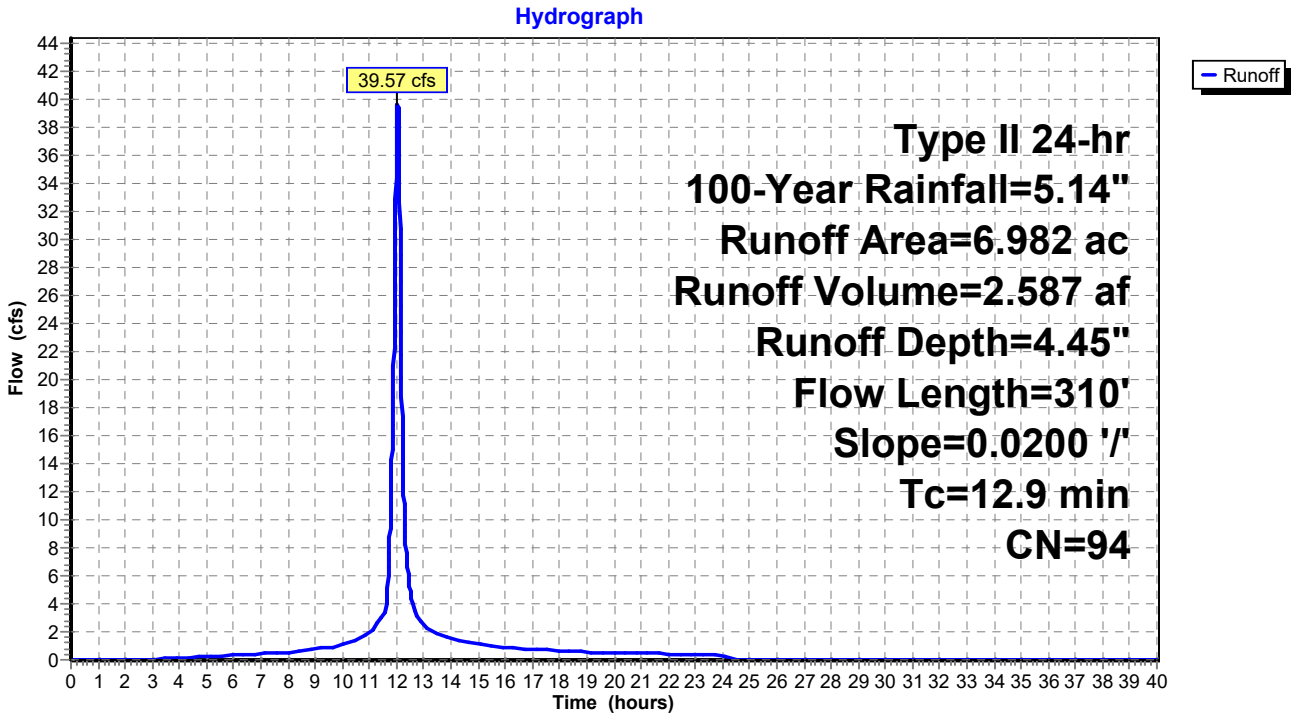
Runoff = 39.57 cfs @ 12.04 hrs, Volume= 2.587 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 830% of capacity of segment #2

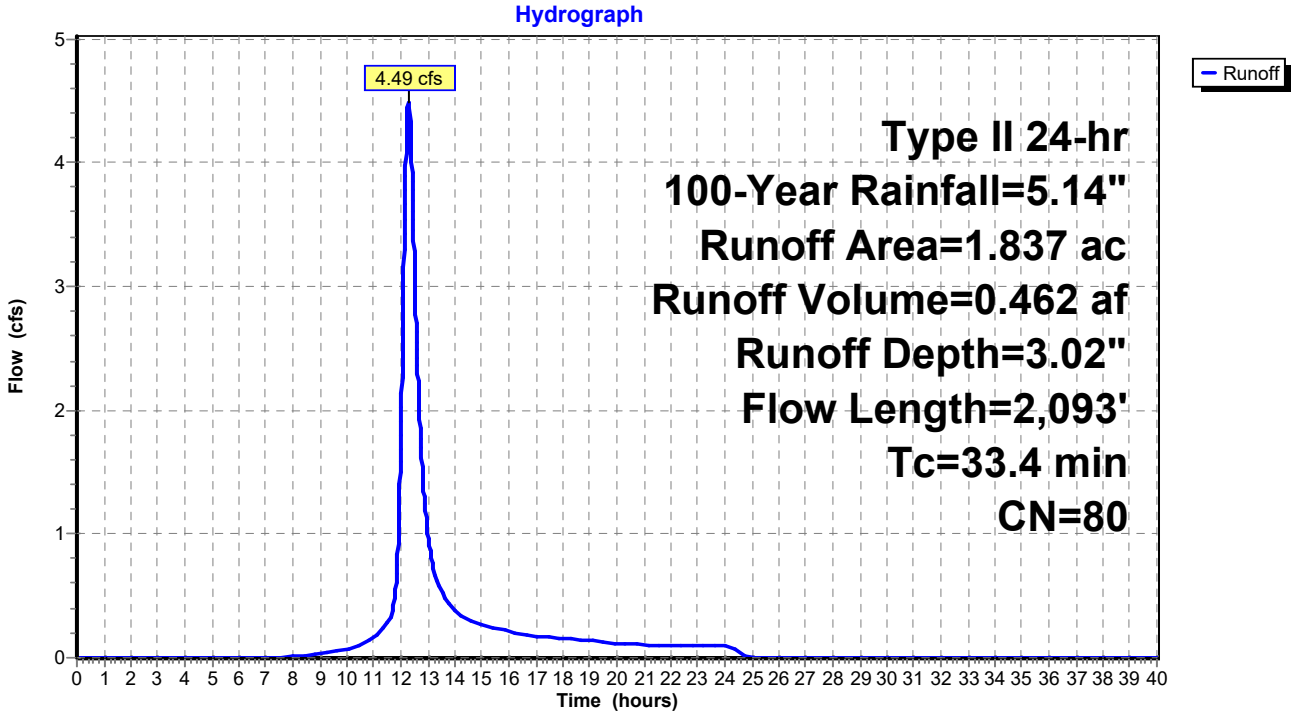
Runoff = 4.49 cfs @ 12.28 hrs, Volume= 0.462 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

[79] Warning: Submerged Pond 2aP Primary device # 1 INLET by 0.20'
[79] Warning: Submerged Pond 2bP Primary device # 1 by 1.00'

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 3.87" for 100-Year event
Inflow = 100.40 cfs @ 12.05 hrs, Volume= 7.449 af
Outflow = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af, Atten= 94%, Lag= 86.7 min
Primary = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af
Secondary = 0.00 cfs @ 13.50 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.00' @ 13.50 hrs Storage= 183,906 cf

Plug-Flow detention time= 399.9 min calculated for 6.947 af (93% of inflow)
Center-of-Mass det. time= 348.0 min (1,180.6 - 832.7)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

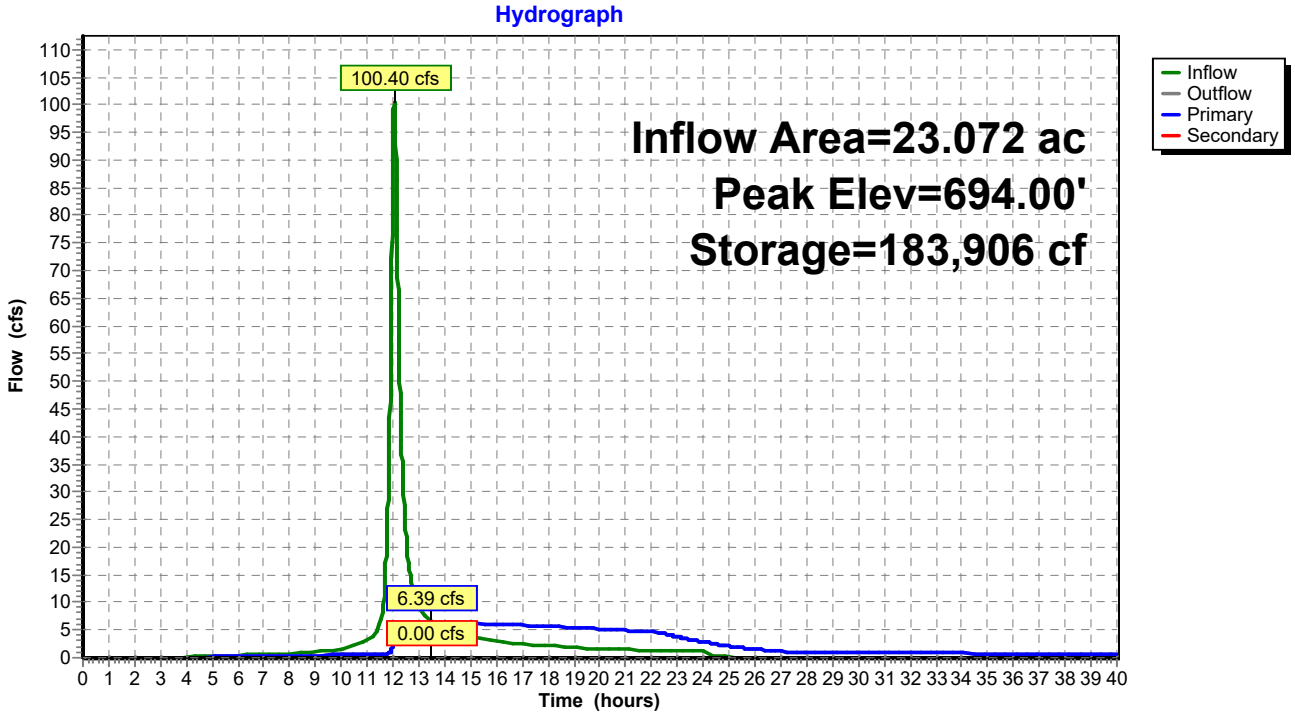
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=6.39 cfs @ 13.50 hrs HW=694.00' (Free Discharge)
└**1=Culvert** (Inlet Controls 6.39 cfs @ 5.21 fps)
└**2=Orifice/Grate** (Passes < 1.42 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Passes < 19.14 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 13.50 hrs HW=694.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.04 fps)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 4.12" for 100-Year event
Inflow = 30.92 cfs @ 12.06 hrs, Volume= 2.093 af
Outflow = 24.41 cfs @ 12.15 hrs, Volume= 1.969 af, Atten= 21%, Lag= 5.1 min
Primary = 24.41 cfs @ 12.15 hrs, Volume= 1.969 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.85' @ 12.15 hrs Surf.Area= 16,270 sf Storage= 23,106 cf

Plug-Flow detention time= 133.7 min calculated for 1.969 af (94% of inflow)
Center-of-Mass det. time= 100.1 min (891.1 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

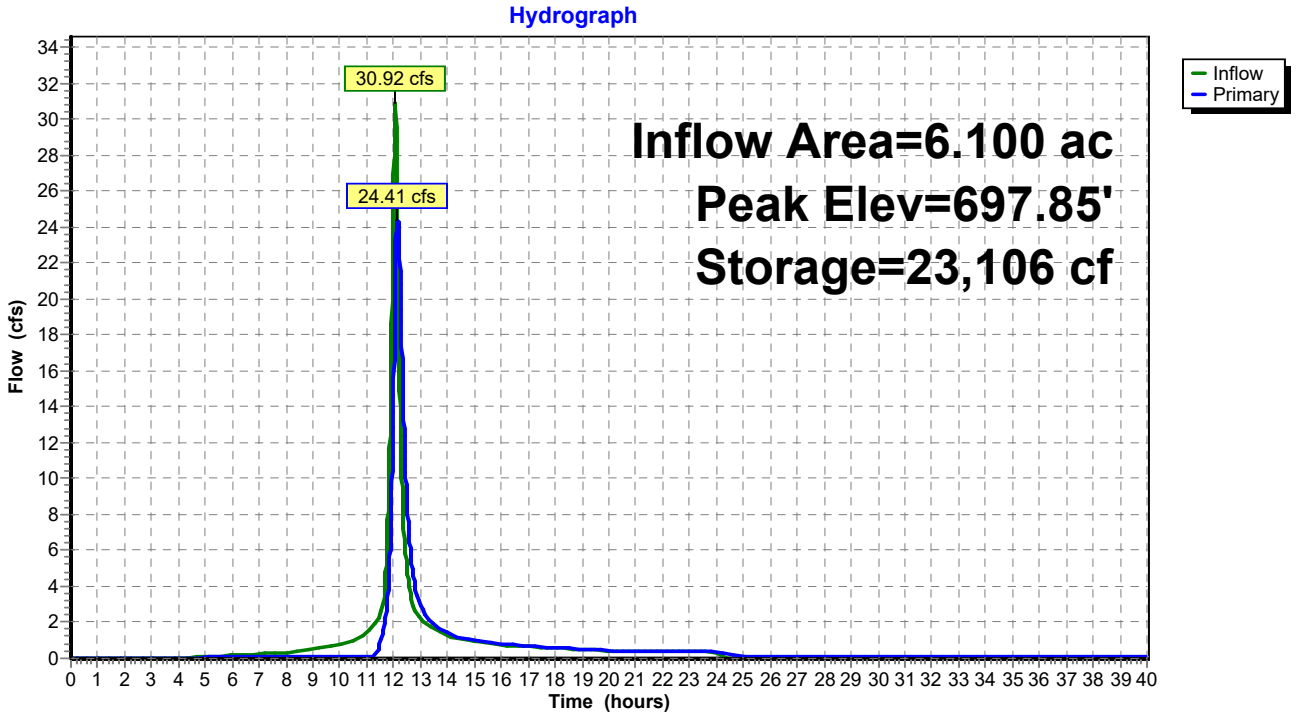
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=24.41 cfs @ 12.15 hrs HW=697.85' (Free Discharge)
└**1=Culvert** (Inlet Controls 24.41 cfs @ 6.91 fps)
└**2=Orifice/Grate** (Passes < 25.73 cfs potential flow)
└**3=Underdrain** (Passes < 1.41 cfs potential flow)
└**4=Exfiltration** (Passes < 0.10 cfs potential flow)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 3.70" for 100-Year event
Inflow = 18.05 cfs @ 12.07 hrs, Volume= 1.190 af
Outflow = 14.35 cfs @ 12.15 hrs, Volume= 1.156 af, Atten= 20%, Lag= 5.0 min
Primary = 14.35 cfs @ 12.15 hrs, Volume= 1.156 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.67' @ 12.15 hrs Surf.Area= 14,365 sf Storage= 12,285 cf

Plug-Flow detention time= 106.4 min calculated for 1.156 af (97% of inflow)
Center-of-Mass det. time= 89.5 min (894.9 - 805.4)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

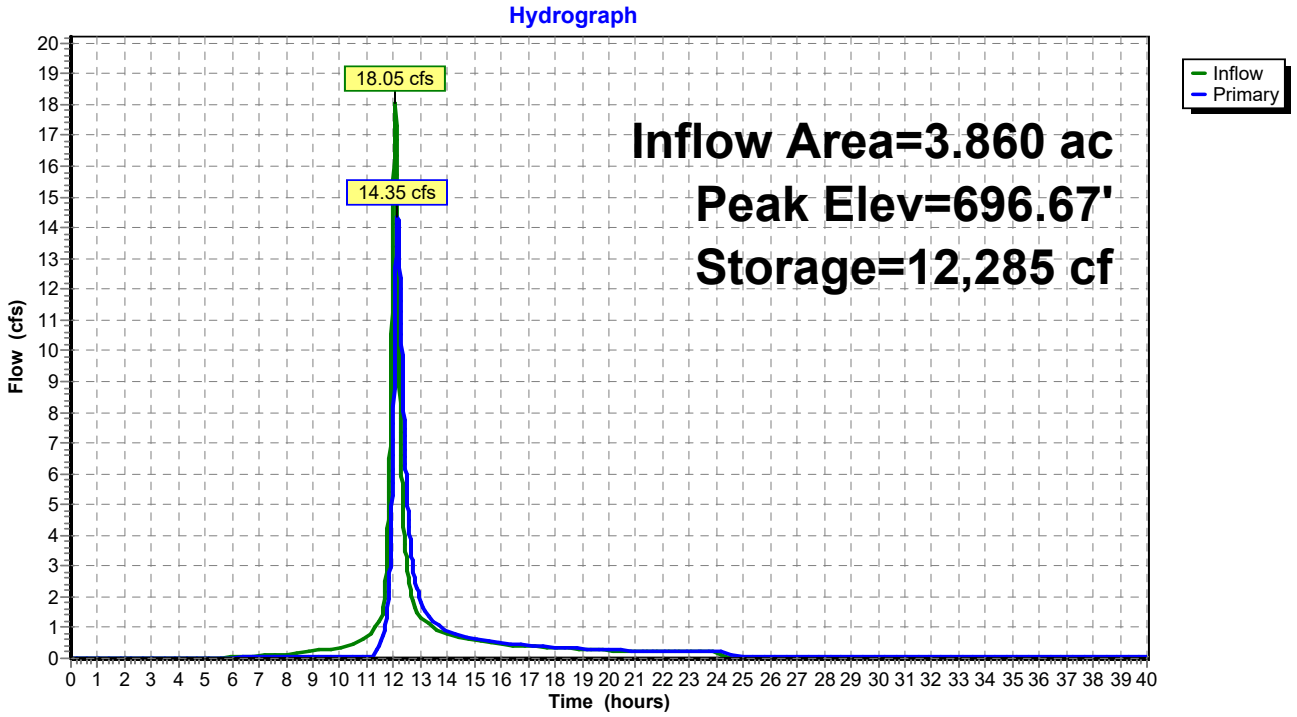
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=14.35 cfs @ 12.15 hrs HW=696.67' (Free Discharge)
└**1=Culvert** (Passes 14.35 cfs of 16.80 cfs potential flow)
  ├**2=Orifice/Grate** (Weir Controls 14.27 cfs @ 2.67 fps)
  └**3=Underdrain** (Passes 0.08 cfs of 1.01 cfs potential flow)
    └**4=Exfiltration** (Controls 0.08 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

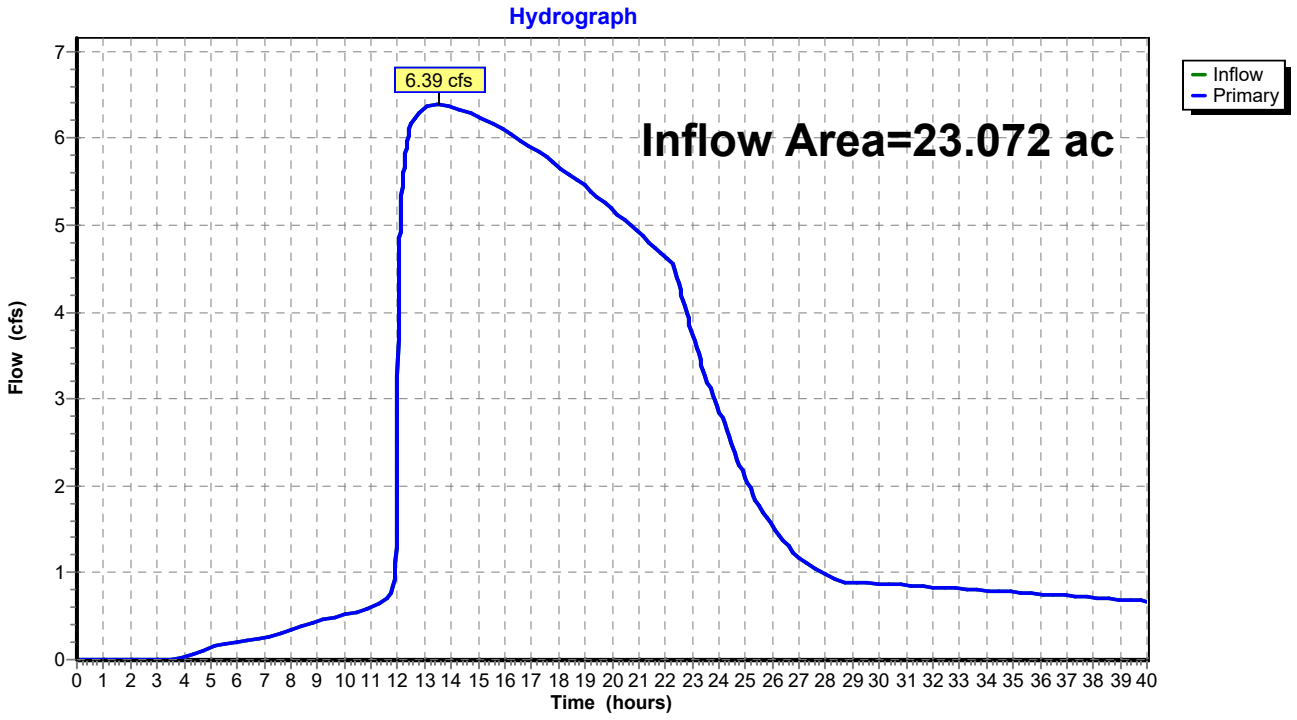
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 3.61" for 100-Year event
Inflow = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af
Primary = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

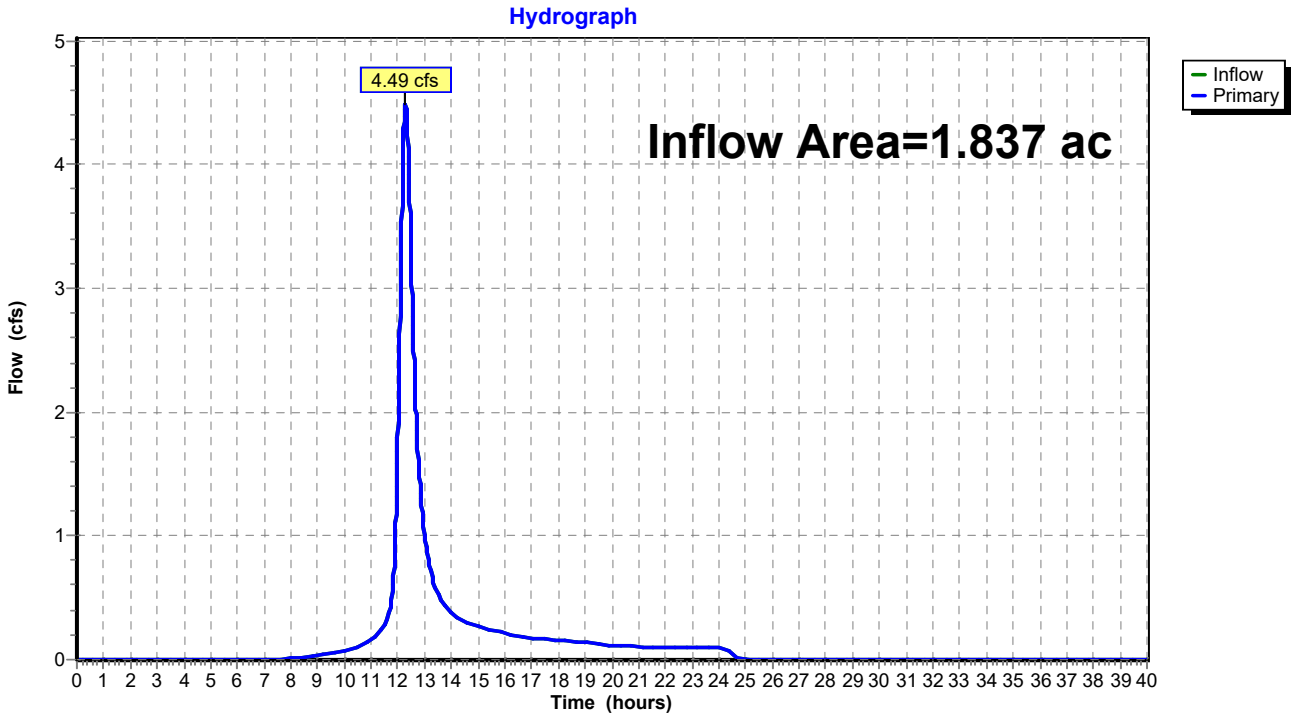
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 3.02" for 100-Year event
Inflow = 4.49 cfs @ 12.28 hrs, Volume= 0.462 af
Primary = 4.49 cfs @ 12.28 hrs, Volume= 0.462 af, Atten= 0%, Lag= 0.0 min

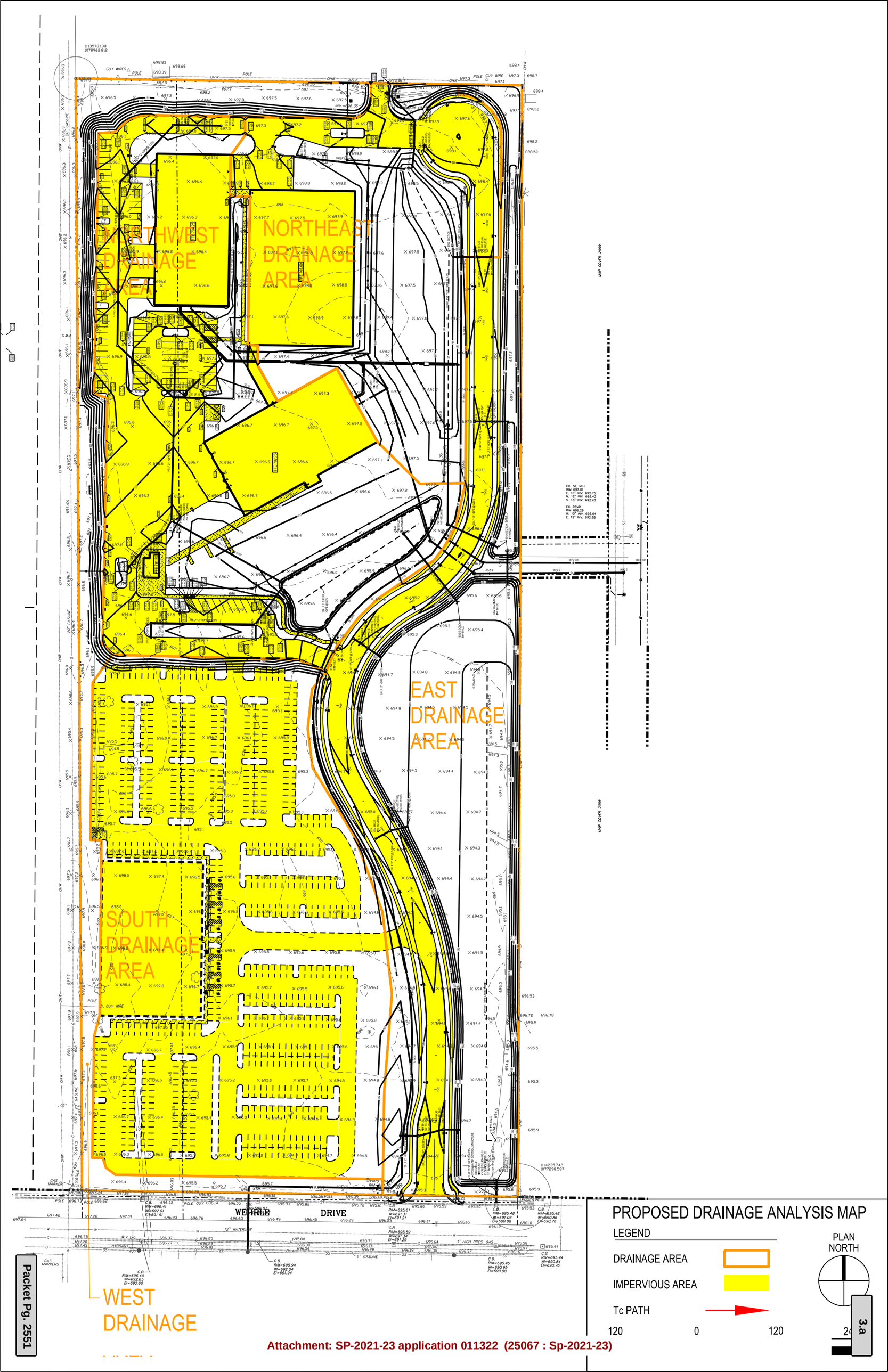
Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)


NORTHWEST DRAINAGE AREA
NORTHEAST DRAINAGE AREA
EAST DRAINAGE AREA
SOUTH DRAINAGE AREA
WEST DRAINAGE
WEHRLE
DRIVE
PROPOSED DRAINAGE ANALYSIS MAP
LEGEND
DRAINAGE AREA
IMPERVIOUS AREA
Tc PATH
PLAN NORTH
120
0
120

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Hydrologic Soil Group—Erie County, New York
(2190-2220 Wehrle Drive, Amherst, NY)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 20, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 4, 2020—Jul 10, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Packet Pg. 2554
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)
3.a

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
In	Ilion silt loam	C/D	8.1	34.1%
LmB	Lima loam, 3 to 8 percent slopes	B/D	2.6	11.0%
Ne	Newstead loam	C/D	2.5	10.6%
OvA	Ovid silt loam, 0 to 3 percent slopes	C/D	10.5	44.2%
Totals for Area of Interest			**23.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

C&S COMPANIES®
www.cscos.com

Project 2190 - 2220 WEHRLE
CHANNEL PROTECTION VOLUME
Prepared by JU
Checked by
Sheet of
File #
Date 11/3/21
Date

CHANNEL PROTECTION VOLUME (CP_V)

1-YR, 24-HR RUNOFF VOLUME = 1.759 AC-FT = 76,622 CF

EQUIVALENT DISCHARGE OVER 24 HRS = $\frac{76{,}622\ CF}{24\ HRS} \times \frac{1\ HR}{3600\ sec} = 0.89\ CFS$

MINIMUM ORIFICE REQ'D TO MEET CP_V:

$$Q = 0.60 A \sqrt{2gh}$$

$$A = \frac{Q}{0.60\sqrt{2gh}}$$

WHERE: A = ORIFICE AREA (SF)
Q = 0.89 CFS
g = 32.2 FT/sec²
h = AVG. HT OF WATER = 1 FT

$$= \frac{0.89\ CFS}{0.60\sqrt{2(32.2\ FT/S^2)(1\ FT)}}$$

$$= 0.19\ SF$$

$$A = \frac{\pi D^2}{4}$$

$$D = \sqrt{\frac{4A}{\pi}} = \sqrt{\frac{4(0.19\ SF)}{\pi}} = 0.49\ FT = 6\text{-INCH}$$

⇒ USE A 6"ϕ ORIFICE

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

DATE: November 2021
PROJECT NAME: 2190-2220 WEHRLE DRIVE
(PROPOSED DEV. & PROPOSED ROAD)

Stormwater Quality Calculations

Impervious Areas (refer to Existing & Proposed Drainage Analysis Maps)

$I_{Existing} := 0$ — $I_{Existing}$ = Existing Impervious Area (acres) per Existing Drainage Analysis Map

$I_{Proposed} := 6.56$ — $I_{Proposed}$ = Proposed Impervious Area (acres) per Proposed Drainage Analysis Map

$I_{New} := I_{Proposed} - I_{Existing}$ — I_{New} = New Impervious Area (acres)

$I_{New} = 6.56$

Minimum Runoff Reduction Volume (RR_v Min)

The minimum RRv is calculated by applying a reduction factor (S) (based on the HSG on site) to the area of new impervious coverage.

$P := 1.0$ — *90% Rainfall Event (inches)*

$Rv := 0.95$ — **0.05 + 0.009(I) where I is 100% impervious**

$Aic := I_{New}$ — *Total Area of New Impervious Area (acres)*

$Aic = 6.56$

$S := 0.20$ — *Hydrologic Soil Group (HSG) Specific Reduction Factor (S)*
The site is 100% HSG D. Therefore, S = 0.20

$RR_{vmin} := \frac{P \cdot Rv \cdot Aic \cdot S}{12} = 0.104$ — *Runoff Reduction Volume Minimum (acre-feet)*

$RR_{vmin} \cdot 43560 = 4524$ — *Runoff Reduction Volume Minimum (cubic-feet)*

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Water Quality Volume Required (WQ_v Required)

$P = 1.000$ — *90% Rainfall Event (inches)*

$A_c := 16.08$ — *Total Contributing Area (acres)*

$I := \frac{Aic}{A_c} \cdot 100$ — *Percent impervious cover (100%)*

$I = 40.8$

$R_v := 0.05 + 0.009 \cdot I$ — **0.05 + 0.009(I) where I is 100% impervious**

$R_v = 0.417$

$WQ_{vRequired} := \frac{P \cdot R_v \cdot A_c}{12}$

$WQ_{vRequired} = 0.559$ — *Water Quality Volume Required from New Impervious Areas (acre-feet)*

$WQ_{vRequired} \cdot 43560 = 24350$ — *Water Quality Volume Required from New Impervious Areas (cubic feet)*

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Water Quality Volume Provided (WQ_v Provided)

Northwest Bioretention Basin

$P = 1.000$ — *90% Rainfall Event (inches)*

$A_1 := 6.10$ — *Total Area Draining to BMP*

$Impervious_1 := 3.70$ — *Impervious Area draining to BMP*

$I_1 := \frac{Impervious_1}{A_1} \cdot 100$ — *Percent impervious cover*

$I_1 = 60.7$

$R_{v1} := 0.05 + 0.009 \cdot I_1$ — **0.05 + 0.009(I) where I is percent impervious**

$R_{v1} = 0.596$

$WQ_{v1} := \frac{P \cdot R_{v1} \cdot A_1}{12}$

$WQ_{v1} = 0.303$ — *Total Water Quality Volume Provided in BMP (acre-feet)*

$WQ_{v1} \cdot 43560 = 13195$ — *Total Water Quality Volume Provided in BMP (cubic feet)*

For Bioretention Basins in Type 'D' soils, 40% of the water quality volume can count towards the Runoff Reduction Volume.

$RR_{v1} := 0.40 \cdot WQ_{v1}$

$RR_{v1} = 0.121$ — **Runoff Reduction Volume Provided in BMP (acre-feet)**

$RR_{v1} \cdot 43560 = 5278$ — **Runoff Reduction Volume Provided in BMP (cubic-feet)**

$WQ_{vProvided1} := WQ_{v1} - RR_{v1}$

$WQ_{vProvided1} = 0.182$ — **Water Quality Volume Provided in BMP (acre-feet)**

$WQ_{vProvided1} \cdot 43560 = 7917$ — **Water Quality Volume Provided in BMP (cubic-feet)**

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Size Filter Area of Northwest Bioretention Basin

$WQ_{v1} \cdot 43560 = 13195$ — *Water Quality Volume Provided in BMP (cubic feet)*

$d_f := 2.5$ — **Filter Bed Depth = 2.5 feet**

$k := 0.50$ — **Coefficient of permeability of filter media = 0.50 ft/day (for bioretention soil)**

$h_f := 0.50$ — **Average height of water above filter bed (feet)**

$t_f := 2$ — **Design filter bed drain time = 2 day for bioretention**

$$A_{f1} := \frac{WQ_{v1} \cdot 43560 \cdot d_f}{k \cdot (h_f + d_f) \cdot t_f}$$

$A_{f1} = 10996$ — Required Surface Area of filter bed (square feet)

A_f provided is 13,527 square feet

Northeast Bioretention Basin

$P = 1.000$ — *90% Rainfall Event (inches)*

$A_2 := 3.86$ — *Total Area Draining to BMP*

$Impervious_2 := 1.56$ — *Impervious Area draining to BMP*

$$I_2 := \frac{Impervious_2}{A_2} \cdot 100$$ — *Percent impervious cover*

$I_2 = 40.4$

$R_{v2} := 0.05 + 0.009 \cdot I_2$ — **0.05 + 0.009(I) where I is percent impervious**

$R_{v2} = 0.414$

$$WQ_{v2} := \frac{P \cdot R_{v2} \cdot A_2}{12}$$

$WQ_{v2} = 0.133$ — *Total Water Quality Volume Provided in BMP (acre-feet)*

$WQ_{v2} \cdot 43560 = 5797$ — *Total Water Quality Volume Provided in BMP (cubic feet)*

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

For Bioretention Basins in Type 'D' soils, 40% of the water quality volume can count towards the Runoff Reduction Volume.

$RR_{v2} := 0.40 \cdot WQ_{v2}$

$RR_{v2} = 0.053$ **Runoff Reduction Volume Provided in BMP (acre-feet)**

$RR_{v2} \cdot 43560 = 2319$ **Runoff Reduction Volume Provided in BMP (cubic-feet)**

$WQ_{vProvided2} := WQ_{v2} - RR_{v2}$

$WQ_{vProvided2} = 0.080$ **Water Quality Volume Provided in BMP (acre-feet)**

$WQ_{vProvided2} \cdot 43560 = 3478$ **Water Quality Volume Provided in BMP (cubic-feet)**

Size Filter Area of Northeast Bioretention Basin

$WQ_{v2} \cdot 43560 = 5797$ ***Water Quality Volume Provided in BMP (cubic feet)***

$d_f := 2.5$ **Filter Bed Depth = 2.5 feet**

$k := 0.50$ **Coefficient of permeability of filter media = 0.50 ft/day (for bioretention soil)**

$h_f := 0.50$ **Average height of water above filter bed (feet)**

$t_f := 2$ **Design filter bed drain time = 2 day for bioretention**

$$A_{f2} := \frac{WQ_{v2} \cdot 43560 \cdot d_f}{k \cdot (h_f + d_f) \cdot t_f}$$

$A_{f2} = 4831$ Required Surface Area of filter bed (square feet)

A_f provided is 7,239 square feet

Dry Swale

$P = 1.000$ ***90% Rainfall Event (inches)***

$A_3 := 6.13$ ***Total Area Draining to BMP***

$Impervious_3 := 1.30$ ***Impervious Area draining to BMP***

$$I_3 := \frac{Impervious_3}{A_3} \cdot 100$$ ***Percent impervious cover***

$I_3 = 21.2$

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

$R_{v3} := 0.05 + 0.009 \cdot I_3$ **0.05 + 0.009(I) where I is percent impervious**

$R_{v3} = 0.241$

$$WQ_{v3} := \frac{P \cdot R_{v3} \cdot A_3}{12}$$

$WQ_{v3} = 0.123$ ***Total Water Quality Volume Provided in BMP (acre-feet)***

$WQ_{v3} \cdot 43560 = 5360$ ***Total Water Quality Volume Provided in BMP (cubic feet)***

For Dry Swales in Type 'D' soils, 20% of the water quality volume can count towards the Runoff Reduction Volume.

$RR_{v3} := 0.20 \cdot WQ_{v3}$

$RR_{v3} = 0.025$ **Runoff Reduction Volume Provided in BMP (acre-feet)**

$RR_{v3} \cdot 43560 = 1072$ **Runoff Reduction Volume Provided in BMP (cubic-feet)**

$WQ_{vProvided3} := WQ_{v3} - RR_{v3}$

$WQ_{vProvided3} = 0.098$ **Water Quality Volume Provided in BMP (acre-feet)**

$WQ_{vProvided3} \cdot 43560 = 4288$ **Water Quality Volume Provided in BMP (cubic-feet)**

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX C

SANITARY SEWER CALCULATIONS & DEVELOPER'S I&I COMMITMENT LETTER

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

SANITARY SEWER FLOW FOR 2190-2220 Wehrle Drive

References:

- "Design Standards for Wastewater Treatment Works Intermediate Sized Sewerage Facilities - March 5, 2014) by New York State Department of Environmental Conservation Division of Water Bureau of Wastewater Facilities Design (NYSDEC Design Standards)

Sanitary sewer loading is taken from the sanitary expected hydraulic loading rates listed in Table B-3:

Typical Per-Unit Hydralic Loading Rates

Office Building = 15 GPD per employee
Storage Garage/Maintenance Facility = 15 GPD per employee

$$LR_{Office} := 15 \ \frac{\frac{gal}{day}}{employee}$$

$$LR_{Maint} := 15 \ \frac{\frac{gal}{day}}{employee}$$

Building Matrix:

Building 'A' is a 3-story office building, 28,125 sf/floor, 84,375 sf. total

Building 'B' is a 1-story security booth

Building 'C' is a 1-story storage garage/maintenance facility, 24,750 sf. total

Building 'D' is a 3-story parking garage

Building 'E' is a "Future" 3-story medical office building, 34,500 sf/floor, 103,500 sf. total

Assumptions:

Office space:

15% of total is for common areas (hallways, bathrooms)

30% of total is for corridors/circulation areas

55% of total is for office space

Use 200 sf/employee for office space

Office = 0.55 x 84,375 sf x 1 employee/200 sf

$Office := 232 \ employees$

Storage Garage/Maintenance Facility: Assume 5 employees

$Maint := 5 \ employees$

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Average Daily Flow for Proposed Development:

Average Daily $Flow_{PropDev} = Q_{AvgDailyPropDev}$

= (0.80 water saving reduction factor) x (Office) x (LR_{Office})

+(0.80 water saving reduction factor) x (Maint) x (LR_{Maint}) +

$$Q_{AvgDailyPropDev} := (0.80)(Office)\left(LR_{Office}\right) + (0.80)(Maint)LR_{Maint}$$

$$Q_{AvgDailyPropDev} = 2844 \ \frac{gal}{day}$$

Average Daily Flowrate for Proposed Development= 2,844 gpd

Peak Factor for Proposed Development:

Per Ten States Standards (2014 Edition), Figure 1:

$$\frac{\text{Q Peak Hourly}}{\text{Q Daily Average}} = \frac{18 + P^{1/2}}{4 + P^{1/2}} = \text{Peak Factor}$$

where P = population in thousands

$$P_{PropDev} := \frac{2844}{100} \ \frac{gpd}{\frac{gpd}{person}}$$

$$P_{PropDev} = 28$$

Population to be in thousands

$$P_{PropDev2} := \frac{P_{PropDev}}{1000}$$

$$P_{PropDev2} = 0.028$$

$PF_{PropDev}$ = Peak factor

$$PF_{PropDev} := \frac{18 + P_{PropDev2}^{\frac{1}{2}}}{4 + P_{PropDev2}^{\frac{1}{2}}}$$

$$PF_{PropDev} = 4.36$$

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Peak Hourly Flow for Proposed Development:

$$Q\ Peak\ Hourly_{PropDev} = (Q\ Daily\ Average_{PropDev})(PF_{PropDev})$$

$$Q_{PeakHourlyPropDev} := Q_{AvgDailyPropDev} \cdot PF_{PropDev}$$

$$Q_{PeakHourlyPropDev} = 12395 \ \frac{gal}{day}$$

Q Peak Hourly for Proposed Development = 12,400 gpd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

ACQUEST
DEVELOPMENT

December 3, 2021

Jeffrey S. Burroughs, P.E., Town Engineer
Town of Amherst Engineering Department
1100 North Forest Road
Williamsville, NY 14221

Re: I/I Commitment Letter
Site Plan Application [SP-2021-23]
Proposed Office Building w/ Parking Garage at
2190 & 2220 Wehrle Drive
Applicant/Project Sponsor: Acquest Wehrle LLC

This letter is being submitted on behalf of Acquest Wehrle LLC ("Project Sponsor") to serve as the Project Sponsor's commitment to make the required contribution to the Town's Sewer Remediation Trust Fund pursuant to Chapter 160 of the Town Code of the Town of Amherst ("Sanitary Sewer Law").

Per the sanitary sewer calculations prepared by C&S Engineers, the required payment into the Town's Sewer Remediation Trust Fund is $8,600.00 and such payment will be provided to the Engineering Department prior to the issuance of a Final Certificate of Occupancy for the proposed office building at 2190 & 2220 Wehrle Drive.

The relevant sanitary sewer calculations prepared by C&S Engineers to determine the payment amount are summarized below as follows:

- Peak flow = 12,400 gpd = 8.6 gpm
- 4:1 offset of peak flow = 8.6 gpm x 4 peak factor = 34.4 gpm
- I/I Payment — $250/gpm x 34.4 gpm = $8,600.00

Acquest Wehrle LLC

Omar M. Abu-Sitta

Cc: Scott Marshall, Principal Planner
Jason Utzig, P.E., C&S Engineers

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX D

FLOW MONITORING DATA (by TECSmith, Inc.)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Date: November 2, 2021

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: 2190-2220 Wehrle Drive Capacity Analysis

Jason Utzig PE
C&S Companies
141 Elm Street, Suite 100
Buffalo, NY 140203

Project Name: 2190-2220 Wehrle Drive Capacity Analysis

Flow Monitoring Period: September 27, 2021 to October 25, 2021

Rain Events (> 0.5-inches) Monitored: October 3 (1.84”), and October 15 (0.75”)

Number of Monitoring Nodes: Two (2) downstream manholes

Node Locations and Descriptions:

- Node 1 6543 Main St (15")
- Node 2 6470 Main St (18")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below)

- At no time did the flow depth exceed pipe diameter at any of the downstream monitoring points during the wet weather vents monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.
- It appears that the sanitary sewer sections monitored have available capacity.

.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

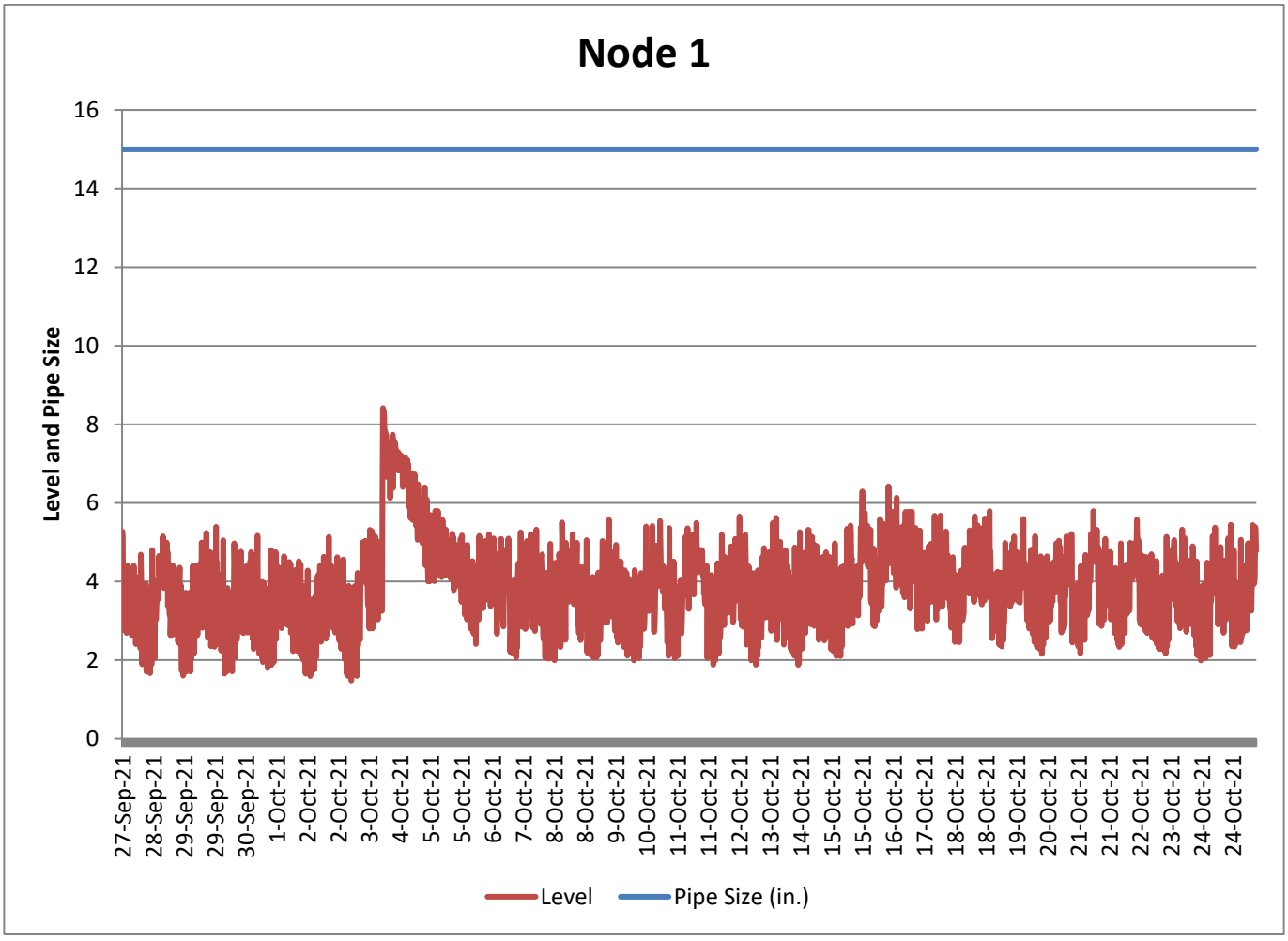
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 1.

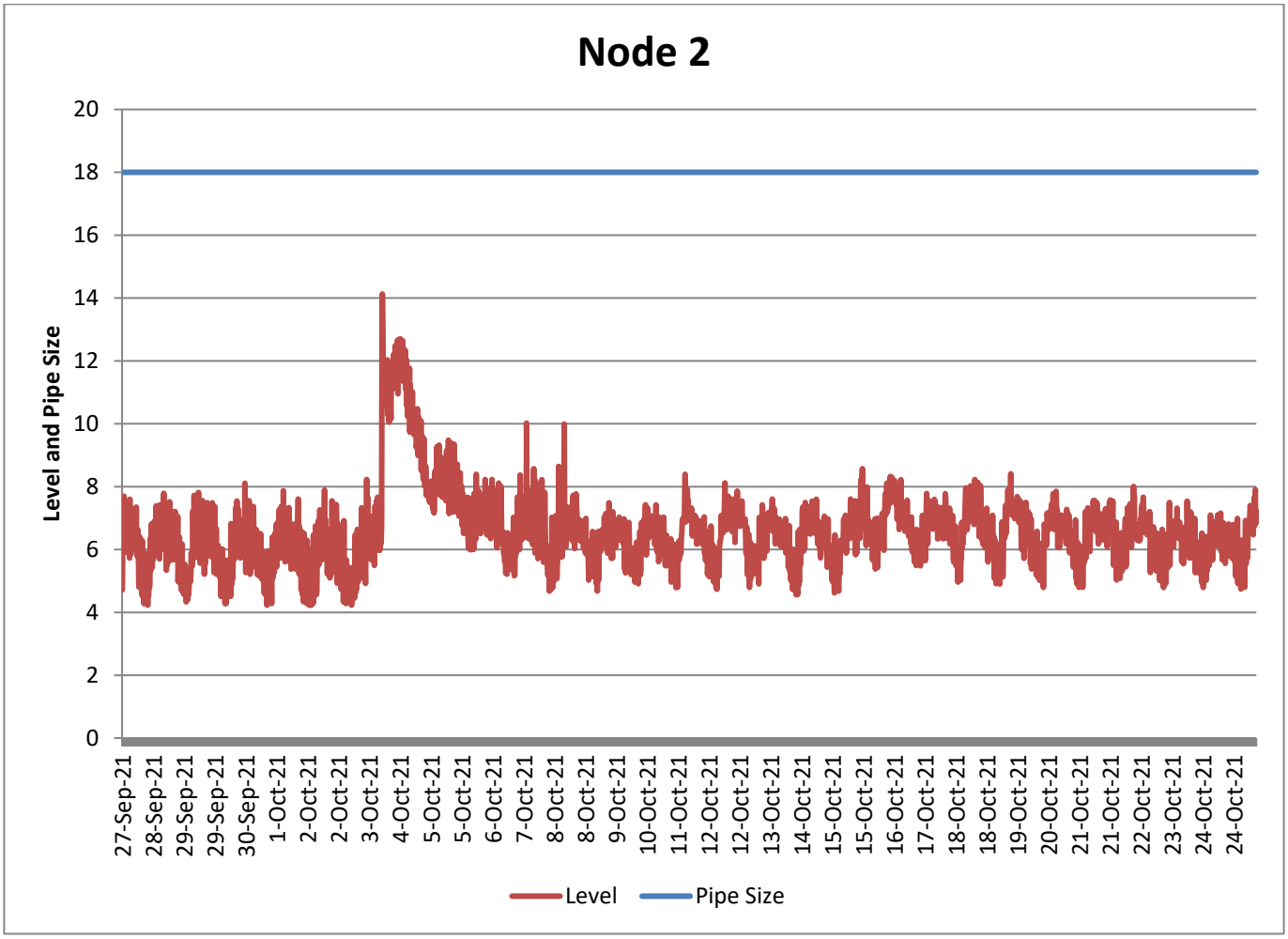


Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

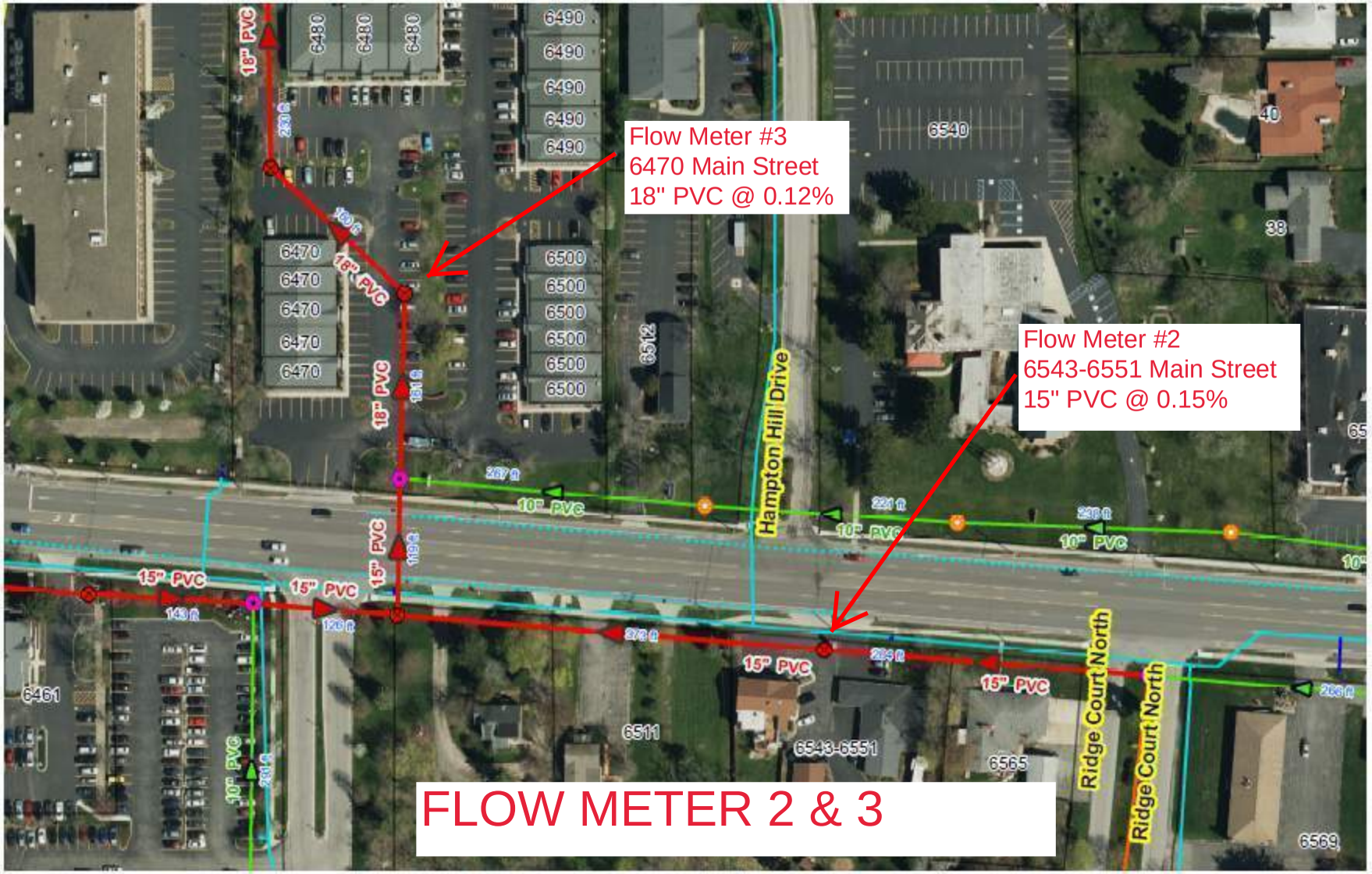
TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 2.



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)


Flow Meter #3
6470 Main Street
18" PVC @ 0.12%
Flow Meter #2
6543-6551 Main Street
15" PVC @ 0.15%
Hampton Hill Drive
Ridge Court North
Ridge Court North
18" PVC
15" PVC
10" PVC
6470
6480
6490
6500
6540
6512
6511
6543-6551
6565
6569
6461
FLOW METER 2 & 3

Date	Node 1			Node 2			Rain₂
	6543 Main St (15")			6470 Main St (18")			
	FLOW (GAL x 1,000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1,000)	PEAK FLOW (MDG)	PEAK LEVEL (IN)	(inches)
9/27/2021	66.272	0.380	5.273	176.763	0.767	7.699	***0.08***
9/28/2021	151.360	0.355	5.152	352.594	0.690	7.789	***0***
9/29/2021	147.468	0.438	5.394	346.647	0.797	7.815	***0***
9/30/2021	140.832	0.381	5.165	329.870	0.588	8.107	***0***
10/1/2021	143.780	0.307	4.801	336.043	0.782	7.867	***0***
10/2/2021	134.706	0.305	5.137	308.198	0.627	7.893	***0***
10/3/2021	193.034	0.998	8.416	386.427	1.886	14.130	***1.84***
10/4/2021	603.670	0.883	7.833	1154.185	1.658	12.705	***0.42***
10/5/2021	300.759	0.531	6.084	638.446	1.250	9.478	***0***
10/6/2021	202.461	0.372	5.206	440.073	0.659	8.395	***0***
10/7/2021	174.520	0.373	5.325	375.750	1.161	10.022	***0***
10/8/2021	185.053	0.414	5.503	371.538	1.298	9.989	***0***
10/9/2021	146.661	0.457	5.572	330.018	0.537	7.489	***0.04***
10/10/2021	158.276	0.428	5.543	326.844	0.501	7.424	***0***
10/11/2021	180.298	0.382	5.491	363.456	0.660	8.396	***0***
10/12/2021	156.097	0.385	5.656	398.251	0.753	8.120	***0***
10/13/2021	156.000	0.440	5.620	355.902	0.569	7.606	***0***
10/14/2021	145.663	0.353	5.318	361.827	0.564	7.601	***0***
10/15/2021	189.714	0.506	6.294	385.947	0.729	8.573	***0.75***
10/16/2021	235.821	0.572	6.423	478.215	0.776	8.321	***0.42***
10/17/2021	196.027	0.457	5.781	409.545	0.658	7.783	***0.08***
10/18/2021	205.334	0.474	5.794	425.140	0.785	8.230	***0.08***
10/19/2021	178.835	0.364	5.595	427.597	0.751	8.411	***0***
10/20/2021	174.502	0.368	5.214	393.026	0.703	7.852	***0***
10/21/2021	191.118	0.472	5.794	409.564	0.705	7.577	***0.22***
10/22/2021	183.922	0.466	5.575	402.930	0.650	8.007	***0***
10/23/2021	187.434	0.413	5.324	353.906	0.576	7.540	***0***
10/24/2021	167.220	0.410	5.447	350.486	0.535	7.155	***0.05***
10/25/2021	93.211	0.397	5.438	203.679	0.703	7.907	***0.42***
---	---	---	---	---	---	---	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX E

WATER CALCULATIONS

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

WATER LOADING CALCULATIONS FOR:
2190 - 2220 Wehrle Drive

Hydrant Flow Test information from the Erie County Water Authority, dated 4/5/2021, for 12-inch PVC watermain on Wehrle Drive

Static Pressure = 50 psi

Residual Pressure = 42 psi with total flow of 1,712 gpm

$Pressure_{static} := 50 \quad psi$

$Pressure_{residual} := 42 \quad psi$

Domestic Service to Proposed Development

Assume 120% of the sewer design flow

Water demand = 1.20 x sanitary demand

$Q_{water} := 1.20(2844)$

$Q_{water} = 3413 \quad \frac{gal}{day}$

Peak Operating Demand = $\frac{\text{Water Demand}}{\text{(Usage in hr/day) (60 min/hr)}}$ x peak rate

Peak rate can be found on page 10-6 of the Recommended Standards for Wastewater Facilities (Ten States Standards), 2004 Edition.

$Usage := 8 \quad \frac{hr}{day}$

$Peak := 1.96$

$$Q_{waterpeak} := \frac{(Q_{water})(Peak)}{(Usage)\cdot(60)}$$

$Q_{waterpeak} = 13.9 \quad gpm$

The peak demand is 14 gpm.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Calculate headloss in domestic service to determine residual pressure at building:

Peak Domestic Flow = 14 gpm

$Q_{Domestic} := 14 \quad gpm$

Determine headloss in proposed domestic water service:

Length of 4-inch domestic water service from tap location to the Maint. Garage = 450 ft

$L_{Dom} := 450 \quad feet$

$D_{Dom} := 4 \quad inches$

$C_p := 140$

$$h_{LDomPipe} := \frac{10.44 \cdot L_{Dom} \cdot Q_{Domestic}^{1.85}}{C_p^{1.85} \cdot D_{Dom}^{4.87}}$$

$h_{LDomPipe} = 0 \, feet$

$h_{LDomPipepsi} := 0.433 \cdot h_{LDomPipe}$

$h_{LDomPipepsi} = 0 \quad psi$

Determine headloss due to elevation:

$h_{LDomElevationft} := 6 \, feet$

$h_{LDomElevationpsi} := 0.433 \cdot h_{LDomElevationft}$

$h_{LDomElevationpsi} = 2.6 \quad psi$

Determine headloss due to fittings:

$h_{LDomFittings} := 1 \quad psi$

Determine headloss through 2-inch Neptune T-10 Meter:
- refer to attached cut sheet w/ 14 gpm domestic flow

$h_{LMeter} := 0.50 \quad psi$

Determine headloss through 2-inch Watts LF009 RPZ:
- refer to attached cut sheet w/ 14 gpm domestic flow

$h_{LDomRPZ} := 1$ psi

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Calculate the sum of the headlosses in domestic service:

$h_{LDomSum} := h_{LDomPipepsi} + h_{LDomElevationpsi} + h_{LDomFittings} + h_{LDomRPZ} + h_{LMeter}$

$h_{LDomSum} = 17.1 \quad psi$

Calculate residual pressure at building using peak domestic flow:

Residual Pressure = Residual at watermain - Sum of headloss

$Pressure_{Domresidualbldg} := Pressure_{residual} - h_{LDomSum}$

$Pressure_{Domresidualbldg} = 24.8 \ psi$

A 4-inch domestic service can provide the 14 gpm peak domestic flow with a 24.8 psi residual pressure at the building.

Fire Protection Service

Available Fire Flow = 850 gpm

$Q_{fireflow} := 850 \quad gpm$

Determine headloss in proposed fire protection service:

Length of 6-inch PVC fire protection service from tap location to Maint. Garage = 450 ft

$L_w := 450 \quad feet$

$D := 6 \quad inches$

$C_p := 140$

$$h_{LFirePipe} := \frac{10.44 \cdot L_w \cdot Q_{fireflow}^{1.85}}{C_p^{1.85} \cdot D^{4.87}}$$

$h_{LFirePipe} = 21.4 \quad feet$

$h_{LFirePipepsi} := 0.433 \cdot h_{LFirePipe}$

$h_{LFirePipepsi} = 9.3 \quad psi$

Determine headloss due to fittings:

$h_{LFireFittings} := 1 \quad psi$

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Determine headloss due to elevation:

$h_{LFireElevationft} := 6 \ feet$

$h_{LFireElevationpsi} := 0.433 \cdot h_{LFireElevationft}$

$h_{LFireElevationpsi} = 2.6 \ psi$

Determine headloss through 6-inch Watts LF957 RPDA:
- refer to attached cut sheet w/ 850 gpm fire flow

$h_{LFireRPDA} := 9 \ psi$

Calculate the sum of the headlosses in fire protection service:

$h_{LFireSum} := h_{LFirePipepsi} + h_{LFireFittings} + h_{LFireElevationpsi} + h_{LFireRPDA}$

$h_{LFireSum} = 21.9 \ psi$

Calculate residual pressure at building using required fire flow:

Residual Pressure = Residual at watermain - Sum of headloss

$Pressure_{residualbldg} := Pressure_{residual} - h_{LFireSum}$

$Pressure_{residualbldg} = 20.1 \ psi$

A 6-inch fire protection service can provide the 850 gpm required fire flow with 20.1 psi residual pressure at the building.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

A PRODUCT SHEET OF NEPTUNE TECHNOLOGY GROUP

T-10® METER

SIZES: 1 ½" and 2"



Construction

Every Neptune® T-10® water meter meets or exceeds the latest AWWA C700 Standard. Its nutating disc, positive displacement principle has been time-proven for accuracy and dependability since 1892, ensuring maximum utility revenue.

The T-10 water meter consists of three major assemblies: a register, a lead free, high-copper alloy maincase, and a nutating disc measuring chamber.

The T-10 meter is available with a variety of register types. For reading convenience, the register can be mounted in one of four positions on the meter.

The corrosion-resistant, lead-free, high-copper alloy maincase will withstand most service conditions: internal water pressure, rough handling, and in-line piping stress.

The innovative floating chamber design of the nutating disc measuring element protects the chamber from frost damage while the unique chamber seal extends the low-flow accuracy by sealing the chamber outlet port to the maincase outlet port. The nutating disc measuring element utilizes corrosion-resistant materials throughout and a thrust roller to minimize wear.

Warranty

Neptune provides a limited warranty for performance, materials and workmanship. See warranty statement for details.

KEY FEATURES

Register

- Magnetic-driven, low-torque registration ensures accuracy
- Impact-resistant register
- High-resolution, low-flow leak detection
- Bayonet-style register mount allows in-line serviceability
- Tamperproof seal pin deters theft
- Date of manufacture, size, and model stamped on dial face

Lead Free Maincase

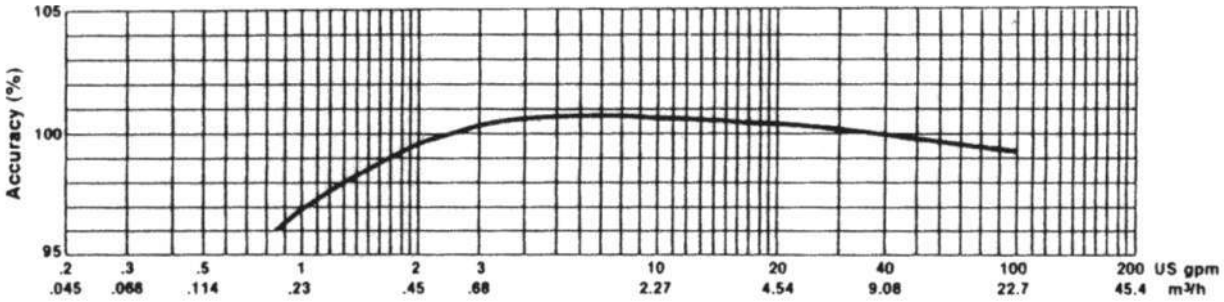
- Made from lead free, high-copper alloy
- NSF/ANSI 61 Certified
- NSF/ANSI 372 Certified
- Lifetime guarantee
- Resists internal pressure stresses and external damage
- Handles in-line piping variations and stresses
- Lead free, high-copper alloy provides residual value vs. plastic
- Electrical grounding continuity

Nutating Disc Measuring Chamber

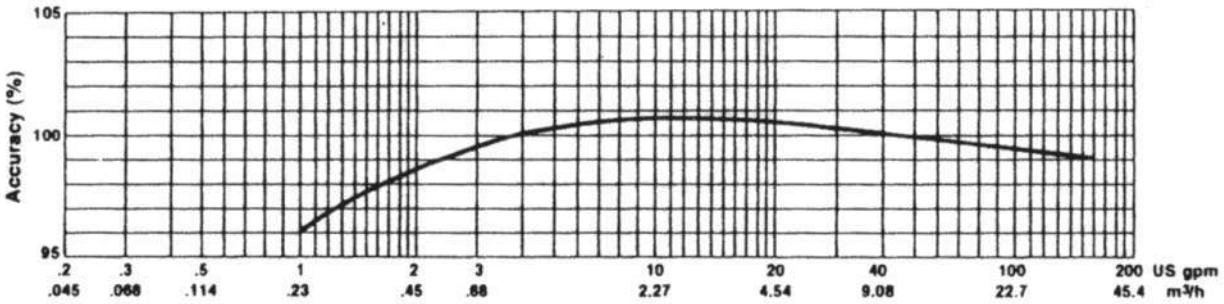
- Positive displacement
- Widest effective flow range for maximum revenue
- Proprietary polymer materials maximize long-term accuracy
- Floating chamber design is unaffected by meter position or in-line piping stresses

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

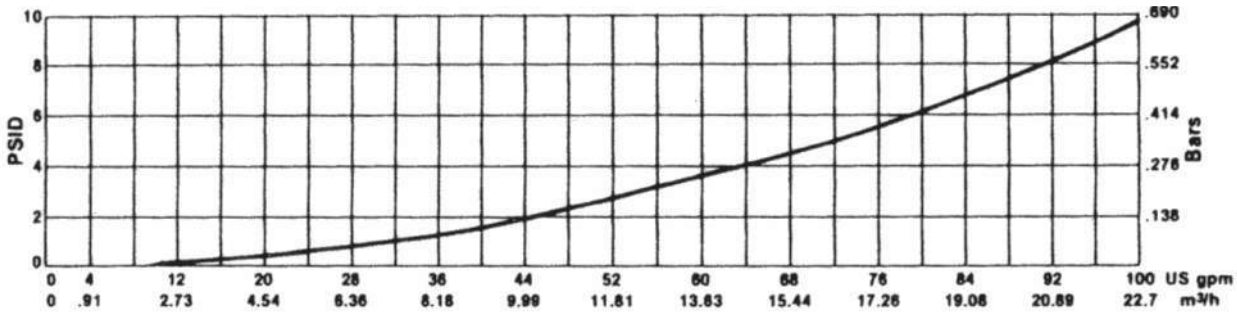
1 ½" Accuracy



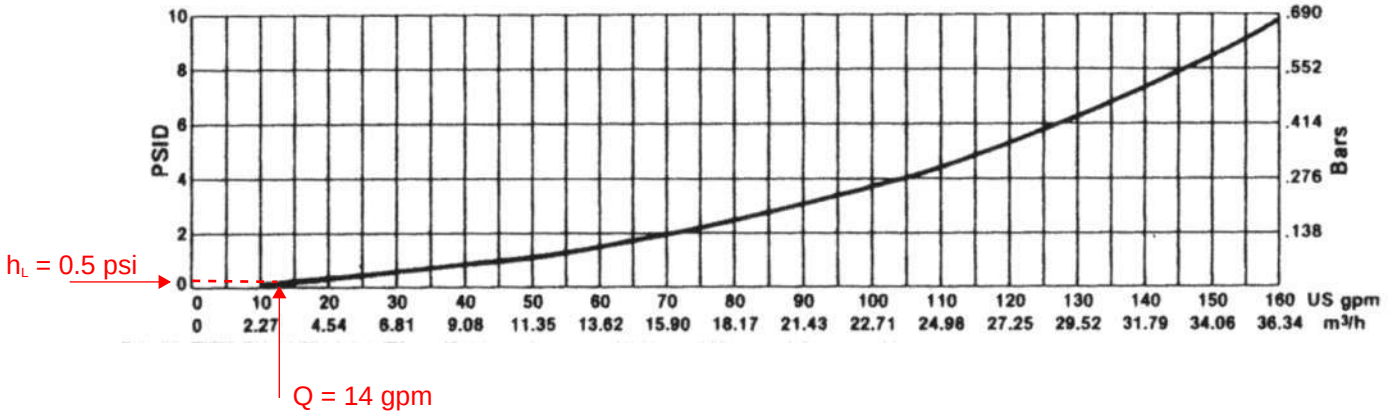
2" Accuracy



1 ½" Pressure Loss



2" Pressure Loss



These charts show typical meter performance. Individual results may vary.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

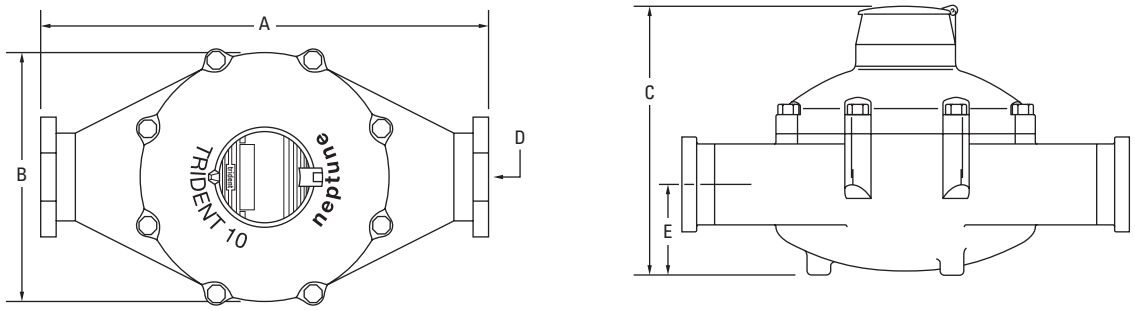
Operating Characteristics

Meter Size	Normal Operating Range @100% Accuracy (±1.5%)	AWWA Standard	Low Flow @ 95% Accuracy
1 ½"	2 to 100 US gpm 0.46 to 22.73 m³/h	5 to 100 US gpm 1.1 to 22.7 m³/h	¾ US gpm 0.17 m³/h
2"	2 ½ to 160 US gpm 0.57 to 36.36 m³/h	8 to 160 US gpm 1.8 to 36.3 m³/h	1 US gpm 0.23 m³/h

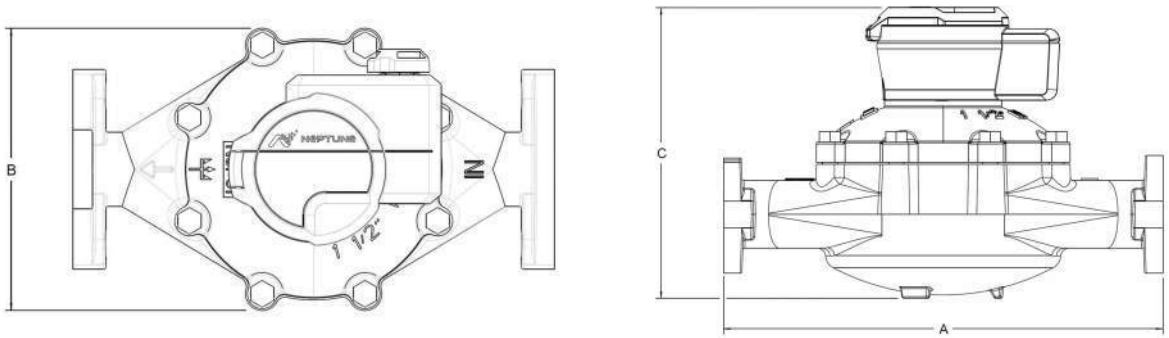
Dimensions

Meter Size	A in/mm	B in/mm	C-Std. in/mm	C-ARB in/mm	C- E-CODER®) R900*i*™ or ProCoder™) R900*i*™	D- Threads per inch	D- Thread Type	E in/mm	Weight lbs/kg
1 ½" Screw End	12 5/8 321	8 1/16 205	8 1/8 206	8 13/16 220.3	8 3/8 213	11 ½	1 ½ NPT	2 9/16 65	31 14.1
1 ½" Flanged End	13 330	8 1/16 205	8 1/8 206	8 13/16 220.3	8 3/8 213	—	—	2 9/16 65	35 15.9
2" Screw End	15 ¼ 387	9 7/16 240	9 5/16 237	9 15/16 248.4	9 ½ 241	11 ½	2" NPT	3 1/8 79	40 18.1
2" Flanged End	17 432	9 7/16 240	9 5/16 237	9 15/16 248.4	9 ½ 241	—	—	3 1/8 79	44 20.0

T-10 With Standard Register



T-10 With E-CODER®)R900*i*™ or ProCoder™)R900*i*™ Pit Register



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Guaranteed Systems Compatibility

All T-10 meters are guaranteed adaptable to our ARB®V, ProRead™ (ARB VI), ProCoder™, E-CODER® (ARB VII), E-CODER®)R900*i*™, E-CODER®)R450*i*™, ProCoder™)R900*i*™, TRICON®/S, TRICON/E®3, and Neptune ARB® Utility Systems™ without removing the meter from service.

Specifications

Certification

• NSF/ANSI 61, NSF/ANSI 372

Application

• Cold water measurement of flow in one direction

Maximum Operating Water Pressure

• 150 psi (1,034 kPa)

Maximum Operating Water Temperature

• 80°F

Measuring Chamber

• Nutating disc technology design made from proprietary synthetic polymer

Registration

ProRead Registration (per sweep hand revolution)		**1 ½"**	**2"**
100	US Gallons	✓	✓
100	Imperial Gallons	✓	✓
10	Cubic Feet	✓	✓
1	Cubic Metre		✓
.01	Cubic Metre	✓	
Register Capacity ProRead, ProCoder, and E-CODER		**1 ½"**	**2"**
100,000,000	US Gallons	✓	✓
100,000,000	Imperial Gallons	✓	✓
10,000,000	Cubic Feet	✓	✓
100,000	Cubic Metres	✓*	
1,000,000	Cubic Metres	✓**	✓
E-CODER High Resolution (8-digit reading)		**1 ½"**	**2"**
1	US Gallons	✓	✓
1	Imperial Gallons	✓	✓
0.1	Cubic Feet	✓	✓
0.01	Cubic Metres		✓
0.001	Cubic Metres	✓	
ProCoder High Resolution (8-digit reading)		**1 ½"**	**2"**
1	US Gallons	✓	✓
1	Imperial Gallons	✓	✓
0.1	Cubic Feet	✓	✓
0.01	Cubic Metres	✓	✓

**ProRead and E-CODER only **ProCoder only*

Options

Sizes

• 1 ½" flanged or threaded end

• 2" flanged or threaded end

Units of Measure

• U.S. gallons, imperial gallons, cubic feet, cubic metres

Register Types

• Direct reading: Bronze box and cover

• Remote reading: ProRead Absolute Encoder, ProCoder, E-CODER, E-CODER)R900*i*, E-CODER)R450*i*, ProCoder™)R900*i*™, TRICON/S, TRICON/E3

• Reclaim

Measuring Chamber

• Synthetic polymer

Companion Flanges

• Lead free, high-copper alloy

Environmental Conditions

• Operating temperature: +33°F to +149°F (0°C to +65°C)

• Storage temperature:

• +33°F to +158°F (0°C to +70°C)

Test Ports

• 1" (optional)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NEPTUNE TECHNOLOGY GROUP

#winyourday
neptunetg.com

Neptune Technology Group
1600 Alabama Highway 229
Tallassee, AL 36078
800-633-8754 f 334-283-7293

© 2020 Neptune Technology Group Inc. All Rights Reserved. The trademarks, logos and service marks displayed in this document herein are the property of Neptune Technology Group Inc., its affiliates or other third parties. Availability and technical specifications are subject to change without notice. 20-004232 PS T-10 INTERMEDIATE 04.20

Engineering Specification

Job Name 2190-2220 Wehrle Drive
Job Location Amherst, NY
Engineer C&S Engineers, Inc.
Approval _____

Contractor _____
Approval _____
Contractor's P.O. No. _____
Representative _____

Series 009
Reduced Pressure Zone Assemblies

Sizes: ¼" – 2"

Series 009 Reduced Pressure Zone Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series is designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing.

This series features two in-line, independent check valves, captured springs and replaceable check seats with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes ¼" – 1" shutoffs have tee handles.

Features

- Single access cover and modular check construction for ease of maintenance
- Top entry - all internals immediately accessible
- Captured springs for safe maintenance
- Internal relief valve for reduced installation clearances
- Replaceable seats for economical repair
- Bronze body construction for durability ¼" – 2"
- Ball valve test cocks — screwdriver slotted ¼" – 2"
- Large body passages provides low pressure drop
- Compact, space saving design
- No special tools required for servicing

Specifications

A Reduced Pressure Zone Assembly shall be installed at each potential health hazard location to prevent backflow due to back-siphonage and/or backpressure. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the waterway exposed to line fluids. Service of all internal components shall be through a single access bronze cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting. The assembly shall meet the requirements of: USC; ASSE Std. 1013; AWWA Std. C511-92; CSA B64.4. Shall be a Watts Series 009.

†Does not indicate approval status. Refer to Page 2 for approved sizes & models.

NOTICE

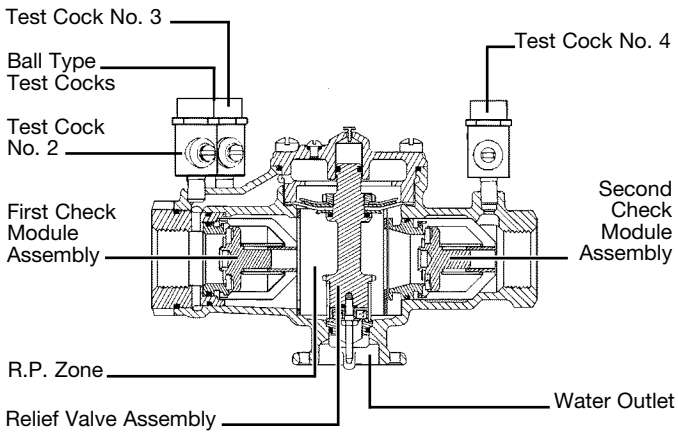
Inquire with governing authorities for local installation requirements



009QT-S



009M2QT



Now Available
WattsBox Insulated Enclosures.
For more information, send for literature ES-WB.

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

⚠ WARNING

It is illegal to use this product in any plumbing system providing water for human consumption, such as drinking or dishwashing, in the United States. Before installing standard material product, consult your local water authority, building and plumbing codes.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

WATTS®

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Available Models: ¼" – 2"

Suffix:

QT – quarter-turn ball valves
S – bronze strainer
LF – without shutoff valves
AQT – elbow fittings for 360° rotation ¾" – 2" only
PC – internal Polymer Coating
SH – stainless steel ball valve handles
HC – 2½" inlet/outlet fire hydrant fitting (2" valve)

Prefix:

C – clean and check strainer ¾" – 1" only
U – union connections (see ES-U009)

Materials: ¼" – 2"

Bronze body construction, silicone rubber disc material in the first and second check plus the relief valve. Replaceable polymer check seats for first and second checks. Removable Relief valve seats. Stainless steel cover bolts.

Standardly furnished with NPT body connections. For optional bronze union inlet and outlet connections, specify prefix U (½" – 2"). Series 009QT furnished with quarter turn, full port, resilient seated, bronze ball valve shutoffs.

Pressure / Temperature

Series 009 ¼" – 2" Suitable for supply pressure up to 175psi (12.1 bar). Water temperature: 33°F – 180°F (0.5°C – 75°C).

Standards

USC
ASSE No. 1013
AWWA C511-92
CSA B64.4
IAPMO File No. 1563.

†Does not indicate approval status. See below for approved models.

USC-FCCCHR

Approvals

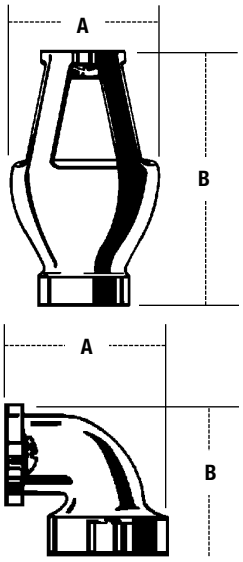
ASSE, AWWA, CSA, IAPMO

Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

UL Classified ¾" – 2"
(LF models only except 009M3LF)

Air Gaps and Elbows

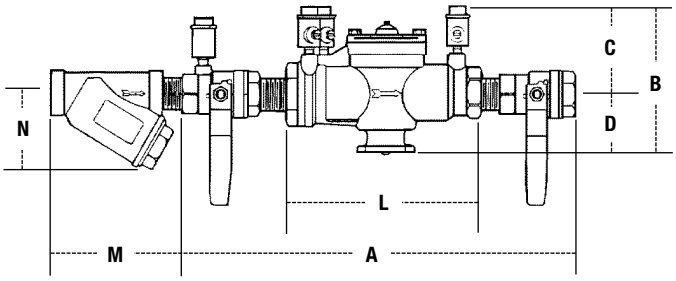
MODEL	for 909, 009 and 993 sizes	DRAIN OUTLET		DIMENSIONS A		DIMENSIONS B		WEIGHT	
		in.	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
909AGA	¼"–½" 009, ¾" 009M2/M3	½	13	2⅜	60	3⅛	79	0.625	0.28
909AGC	¾"–1" 009/909, 1"–1½" 009M2	1	25	3¼	83	4⅞	124	1.5	0.68
909AGF	1¼"–2" 009M1, 1¼"–3" 009/909, 2" 009M2, 4"–6" 993	2	51	4⅜	111	6¾	171	3.25	1.47
909AGK	4"–6" 909, 8"–10" 909M1	3	76	6⅜	162	9⅝	244	6.25	2.83
909AGM	8"–10" 909	4	102	7⅜	187	11¼	286	15.5	7.03
909ELA	¼"–½" 009, ¾" 009M2/M3	–	–	–	–	–	–	–	–
909ELC	¾"–1" 009/909	–	–	2⅜	60	2⅜	60	0.38	0.17
* 909ELF	1¼"-2" 009M1, 1¼"–2" 009/909, 2" 009M2, 4"–6" 993	–	–	3⅝	92	3⅝	92	2	0.91
* 909ELH Vertical	2½"–3" 009/909	–	–	–	–	–	–	–	–



* Epoxy coated

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Dimensions and Weight: ¼" – 2" 009



009 ¼" – 2"

SIZE	DIMENSIONS (APPROX.)										STRAINER DIMENSIONS				WEIGHT	
	A		B		C		D		L		M		N			
in.	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
¼	10	250	4⅝	117	3⅜	86	1¼	32	5½	140	2⅜	60	2½	64	5	2
⅜	10	250	4⅝	117	3⅜	86	1¼	32	5½	140	2⅜	60	2½	64	5	2
½	10	250	4⅝	117	3⅜	86	1¼	32	5½	140	2¾	70	2¼	57	5	2
¾	10¾	273	5	127	3½	89	1½	38	6¾	171	3³⁄₁₆	81	2¾	70	6	3
1	14½	368	5½	140	3	76	2½	64	9½	241	3¾	95	3	76	12	5
1¼	17⅜	441	6	150	3½	89	2½	64	11⅜	289	4⁷⁄₁₆	113	3½	89	15	6
1½	17⅞	454	6	150	3½	89	2½	64	11⅛	283	4⅞	124	4	102	16	7
2	21⅜	543	7¾	197	4½	114	3¼	83	13½	343	5¹⁵⁄₁₆	151	5	127	30	13

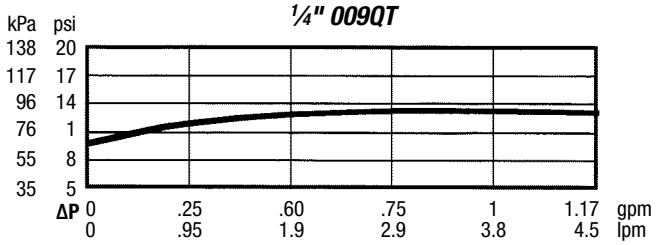
Suffix HC – Fire Hydrant Fittings dimension ‘A’ = 25"

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

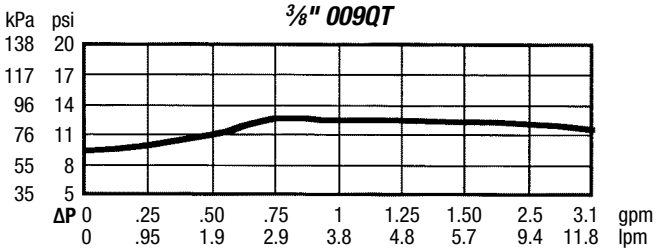
Capacity

Performance as established by an independent testing laboratory. *Typical maximum system flow rate (7.5 feet/sec., 2.3 meters/sec.)

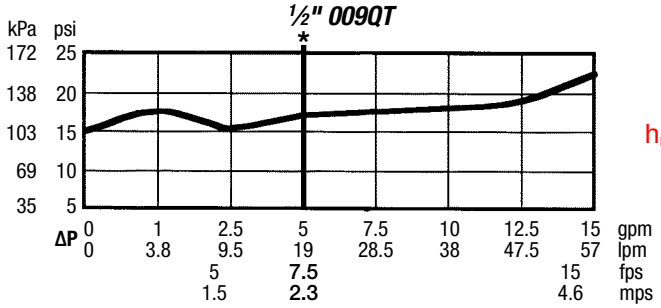
¼" 009QT



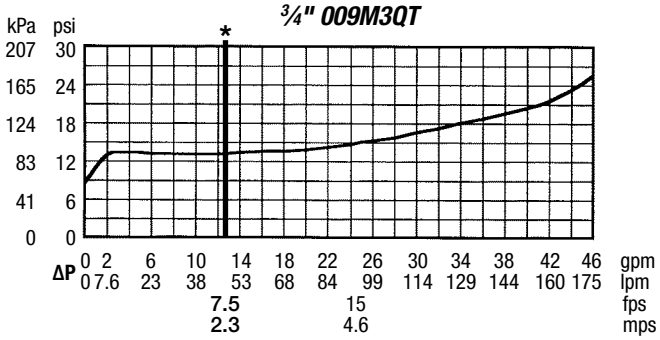
⅜" 009QT



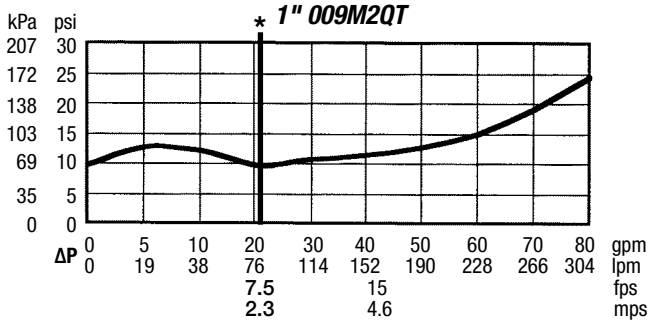
½" 009QT



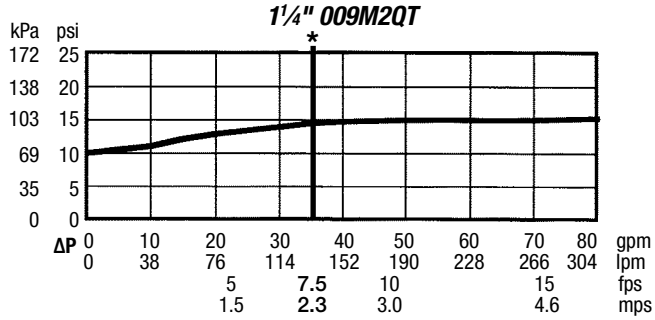
¾" 009M3QT



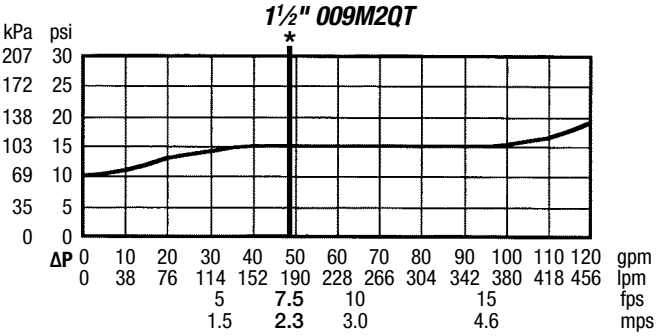
1" 009M2QT



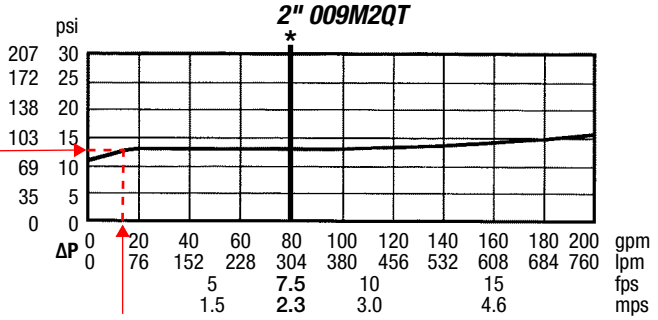
1¼" 009M2QT



1½" 009M2QT



2" 009M2QT



h_L = 13 psi

Q = 14 gpm

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

USA: T: (978) 689-6066 • F: (978) 975-8350 • Watts.com
Canada: T: (905) 332-4090 • F: (905) 332-7068 • Watts.ca
Latin America: T: (52) 81-1001-8600 • Watts.com

Job Name 2190-2220 Wehrle Drive
Job Location Amherst, NY
Engineer C&S Engineers, Inc.
Approval

Contractor
Approval
Contractor's P.O. No.
Representative

Series 957RPDA, 957NRPDA, 957ZRPDA

Reduced Pressure Detector Assemblies

Sizes: 2½" – 10"

Series 957RPDA, 957NRPDA, 957ZRPDA Reduced Pressure Detector Assemblies provide protection to the potable water system from contamination in accordance with national plumbing codes. The 957RPDA, 957NRPDA, 957ZRPDA are normally used in health hazard applications to protect against backsiphonage and backpressure. The Watts 957RPDA, 957NRPDA, 957ZRPDA are used to monitor unauthorized use of water from the fire protection system.



957NRPDAOSY

Features

- Extremely compact design
- 70% lighter than traditional designs
- 304 (Schedule 40) stainless steel housing & sleeve
- Groove fittings allow integral pipeline adjustment
- Patented torsion spring check provides lowest pressure loss
- Unmatched ease of serviceability
- Replaceable check disc rubber
- Available with grooved butterfly valve shutoffs
- Bottom mounted cast stainless steel relief valve
- Metered bypass to detect leakage or theft of water from the fire sprinkler system

Specifications

The Reduced Pressure Detector Assembly shall consist of two independent torsion spring check modules, a differential pressure relief valve located between and below the two modules, two drip tight shutoff valves, and required torsion spring check modules and relief valve shall be contained within a sleeve accessible single housing constructed from 304 (Sch 40) stainless steel pipe with groove end connections. Torsion spring checks shall have reversible elastomer discs and in operation produce drip tight closure against reverse flow caused by backpressure or backsiphonage. The bypass line shall include a meter, small diameter reduced pressure zone assembly and isolation valves. Assembly shall be Watts Series 957RPDA, 957NRPDA, 957ZRPDA.

⚠ WARNING

It is illegal to use this product in any plumbing system providing water for human consumption, such as drinking or dishwashing, in the United States. Before installing standard material product, consult your local water authority, building and plumbing codes.

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Available Models

Suffix:

OSY – UL/FM outside stem and yoke, resilient seated gate valves

BFG – UL/FM grooved gear operated butterfly valves with tamper switch

*OSY FxG – Flanged inlet gate connection and grooved outlet gate connection

*OSY GxF – Grooved inlet gate connection and flanged outlet gate connection

*OSY GxG – Grooved inlet gate connection and grooved outlet gate connection

Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Materials

Housing & Sleeve: 304 (Schedule 40) Stainless Steel
Elastomers: EPDM, Silicone and Buna 'N'
Torsion Spring Checks: Noryl®, Stainless Steel
Check Discs: Reversible Silicone or EPDM
Test Cocks: Lead Free* Bronze Body
Pins & Fasteners: 300 Series Stainless Steel
Springs: Stainless Steel

Pressure — Temperature

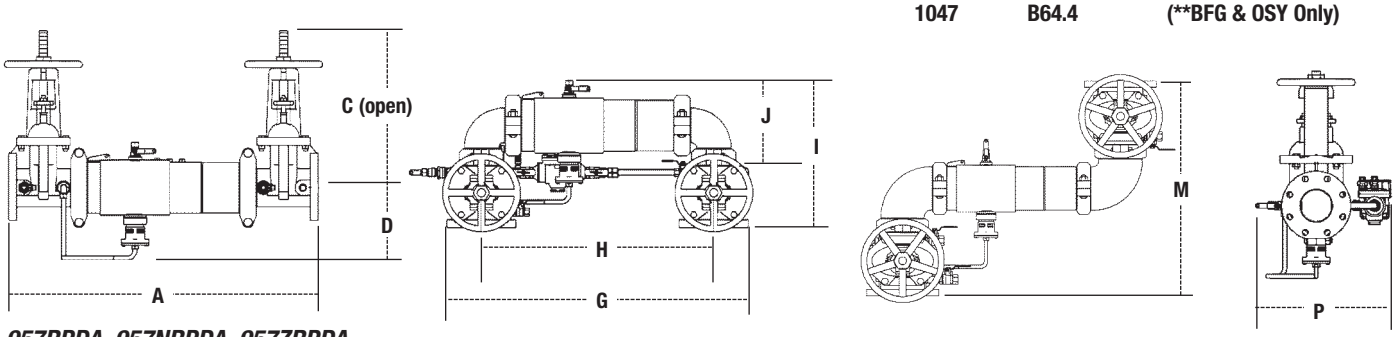
Temperature Range: 33°F – 140°F (0.5°C – 60°C)
Maximum Working Pressure: 175psi (12.1 bar)

Approvals

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at The University of Southern California (FCCCHR-USC)
  (Excluding 'N' Pattern – 10"'Z', Pattern – 6" and 10")
- AWWA C511-97

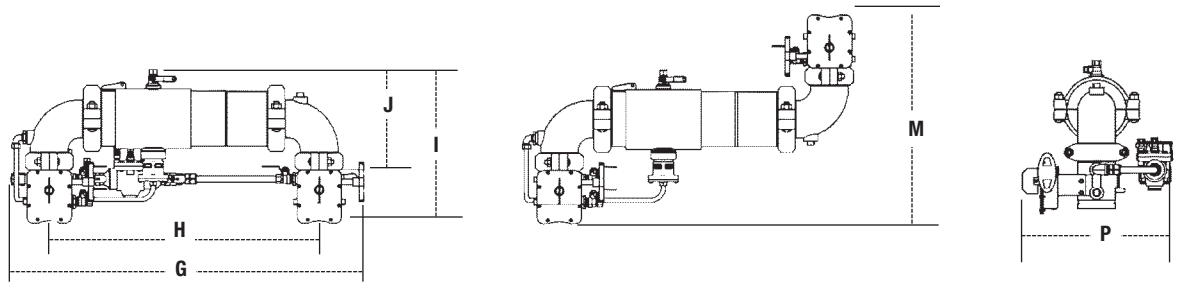
1047 B64.4 (**BFG & OSY Only)

Dimensions — Weight



957RPDA, 957NRPDA, 957ZRPDA

SIZE	DIMENSIONS																		WEIGHT			
	A		C (OSY)		D		G		H		I		J		M		P		957RPDA		957NRPDA	
in.	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*	*lbs.*	*kgs.*
2½	30¾	781	16⅜	416	6½	165	29 1/16	738	21½	546	15½	393	8 13/16	223	21¼	540	13 3/16	335	142	64	150	68
3	31¾	806	18⅞	479	6 11/16	170	30¼	768	22¼	565	17⅛	435	9⅜	233	23	584	14½	368	162	73	175	79
4	33¾	857	22¾	578	7	178	33	838	23½	597	18½	470	9 15/16	252	26¼	667	15 3/16	386	178	81	201	91
6	43½	1105	30⅛	765	8½	216	44¾	1137	33¼	845	23 3/16	589	13 1/16	332	32¼	819	19	483	312	142	353	160
8	49¾	1264	37¾	959	9 11/16	246	54⅛	1375	40⅛	1019	27 7/16	697	15 11/16	399	36⅞	937	21 3/16	538	497	225	572	
10	57¾	1467	45¾	1162	23 13/16	605	8 3/16	208	66	1676	49½	1257	32½	826	17 5/16	440	20	508	721	327	781	354



957NRPDABFG, 957ZRPDABFG

SIZE	DIMENSIONS												WEIGHT	
	G		H		I		J		M		P		957RPDABFG	
in.	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
2½	32½	826	23	584	15½	394	9½	241	19¾	502	15 13/16	402	81	37
3	34	864	24	610	16 5/16	414	10 1/16	256	21¼	540	16⅛	410	84	38
4	35⅝	905	25½	648	17 3/16	437	10 15/16	279	23½	597	16⅝	422	101	46
6	46½	1181	35¼	895	20½	521	13½	343	27¼	692	19	483	174	79

Noryl® is a registered trademark of SABIC Innovative Plastics Holding BV.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Capacity

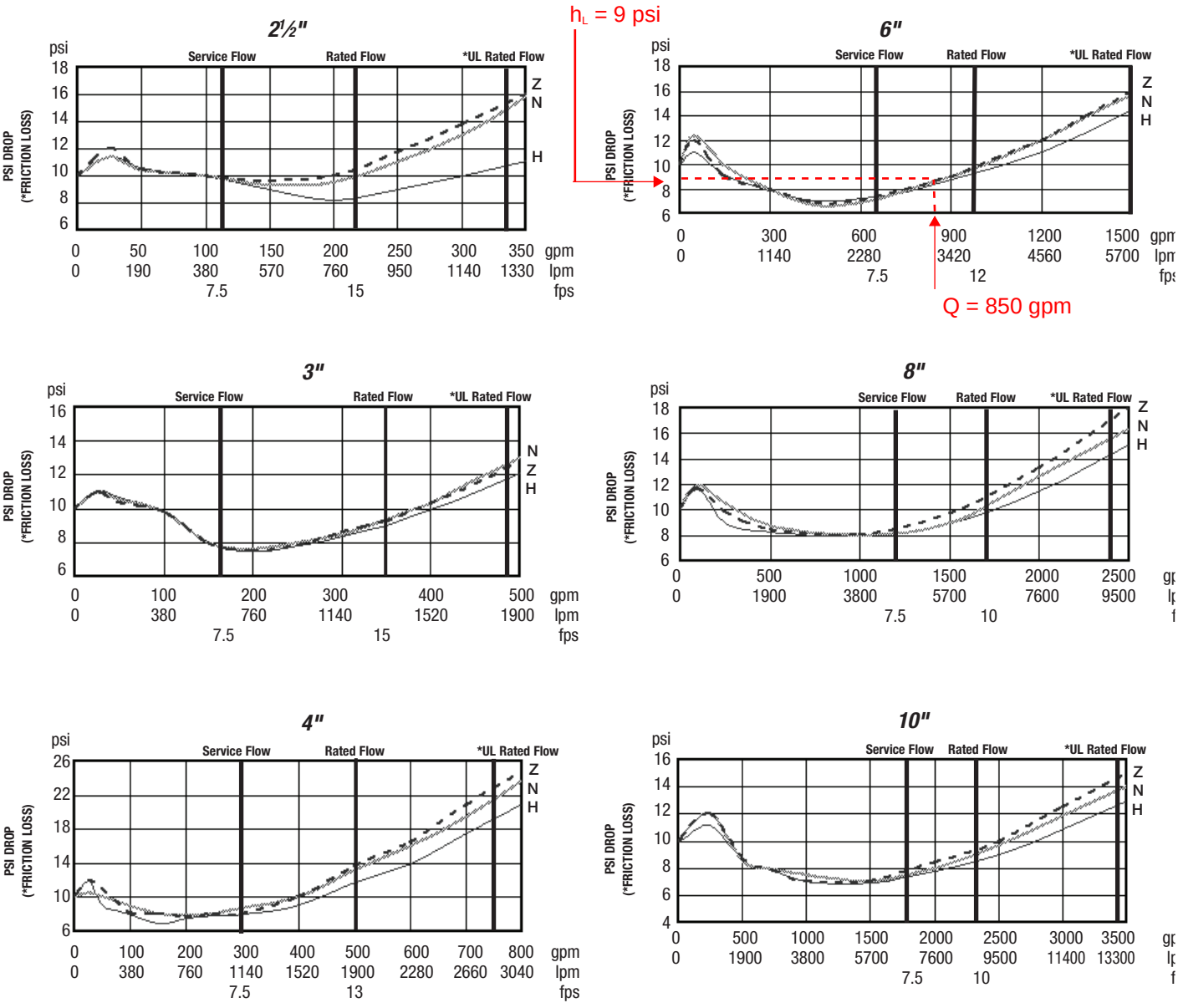
Series 957RPDA, 957NRPDA, 957ZRPDA flow curves as tested by Underwriters Laboratory.

Flow characteristics collected using butterfly shutoff valves

——— Horizontal ——— N-Pattern ------ Z-Pattern

Flow capacity chart identifies valve performance based upon rated water velocity up to 25fps

- Service Flow is typically determined by a rated velocity of 7.5fps based upon schedule 40 pipe.
- Rated Flow identifies maximum continuous duty performance determined by AWWA.
- UL Flow Rate is 150% of Rated Flow and is not recommended for continuous duty.
- AWWA Manual M22 [Appendix C] recommends that the maximum water velocity in services be not more than 10fps.



NOTICE

Inquire with governing authorities for local installation requirements

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

USA: Tel: (978) 689-6066 • Fax: (978) 975-8350 • Watts.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • Watts.ca
Latin America: Tel: (52) 55-4122-0138 • Watts.com

Hydrant FLow Test

Print Date: 11/0

Residual Hydrant: L07E49 **Test Date/Time:** 10/14/2021 10:12

Location.....: **305 BELLINGHAM DR 1ST N/O WEHRLE DR**
TOWN OF AMHERST

Size of Main/Branch: **6"/6"** Fire District: **22031 MAIN TRANSIT FD 14** Water District: **315 AMHERST DISTRICT 15C**

Performed By: **CDB,MES** Comments: **HYDRANT FLOW TEST REQUESTED BY JASON UTZIG, C&S COMPANIES**
EMAIL: JUTZIG@CSCOS.COM
CW #63961 - WATER WAS DIRTY LET RUN. HAD TO CLEAR LEAVES OUT
OF MULTIPLE DI'S.

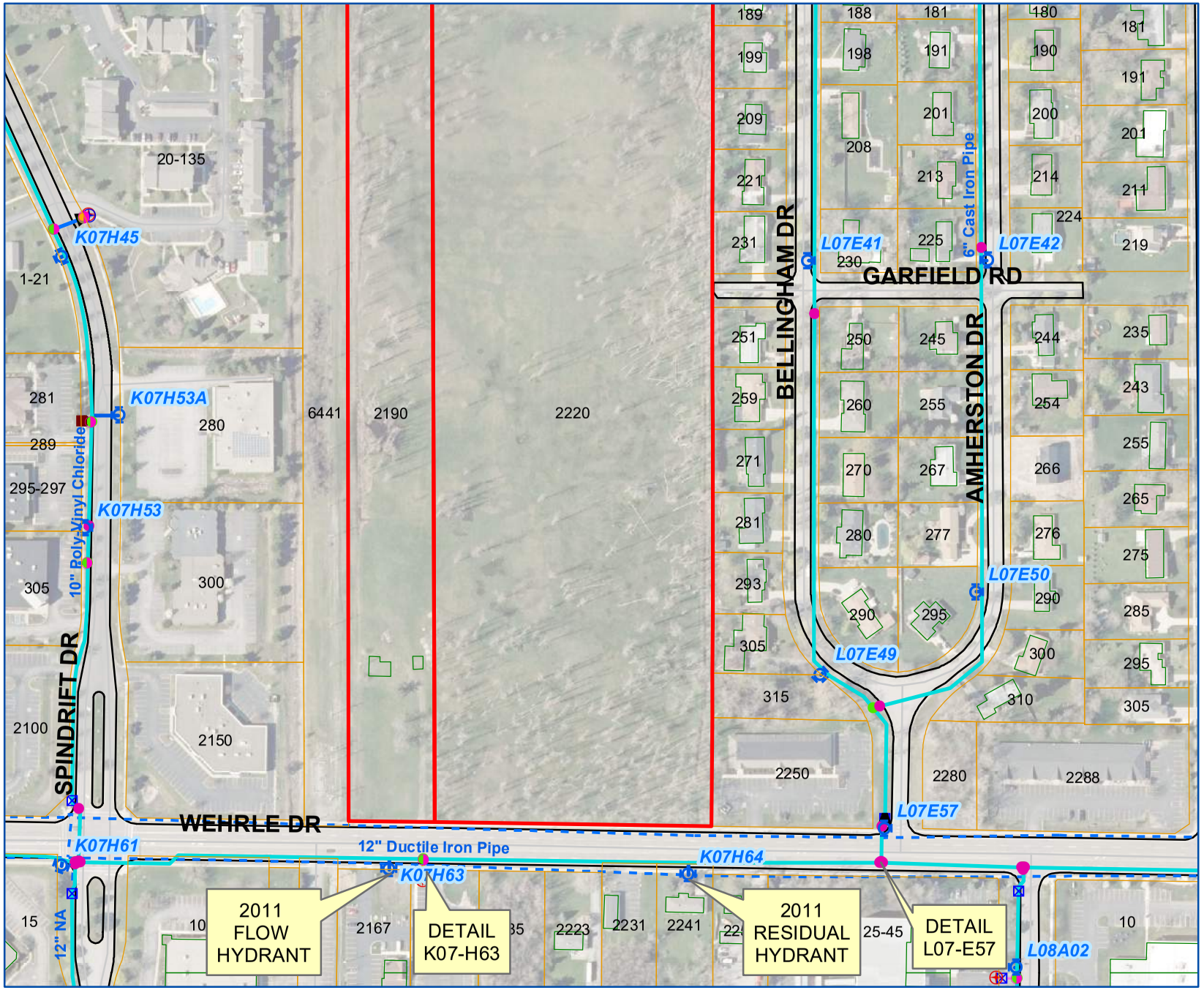
Dischrge Coef: **090** Elvtn Usgs(ft): Static(psi): **46** Residual(psi): **42** Required Residual Pressure(psi): **20**
Gallons Used..: Total Flow(gpm): **1,162** Flow at Reqd Resid Pressure: **3,193**

Flow Hydrants:

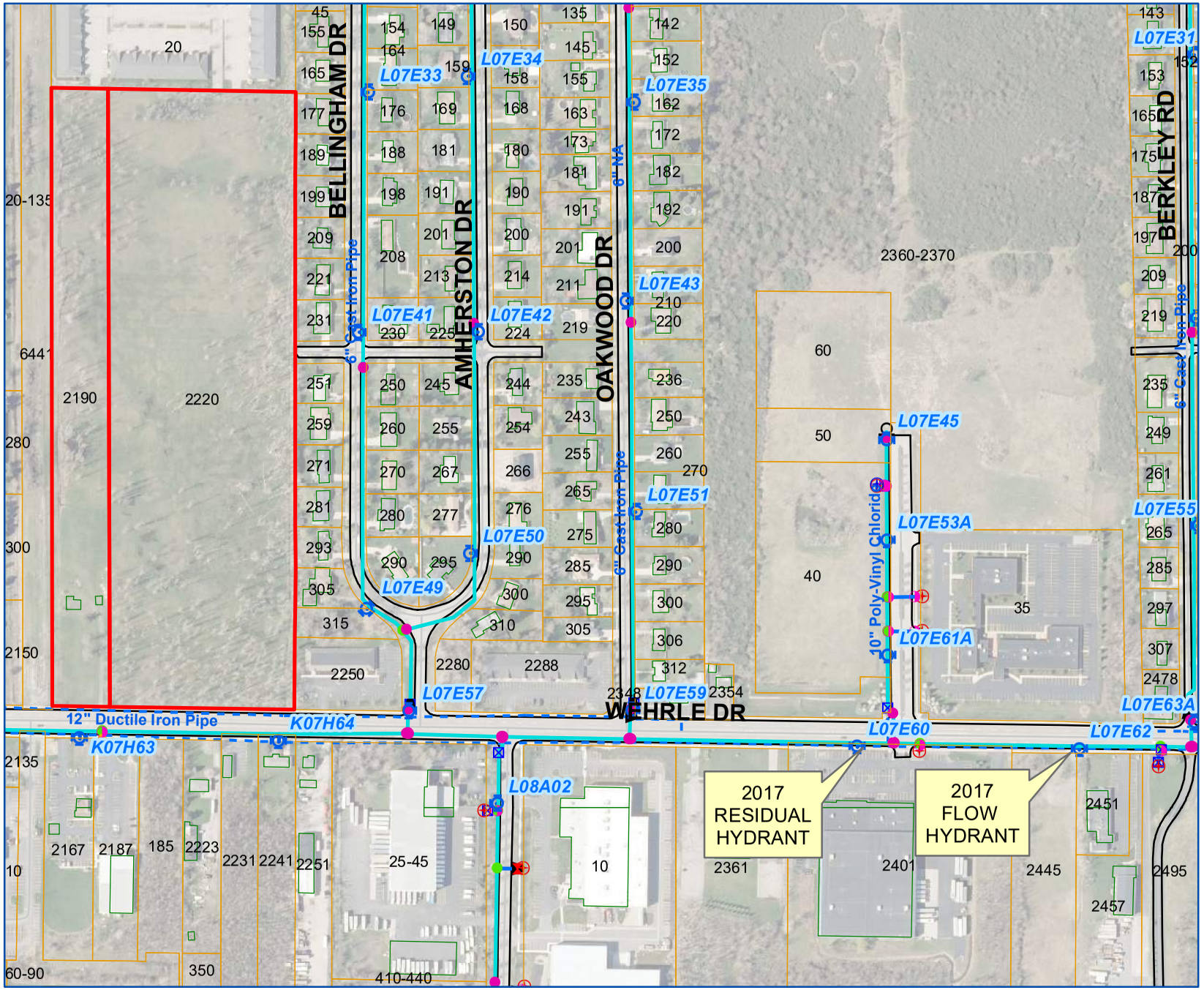
Flow Hyd	Location	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
L07 E41	**230 BELLINGHAM DR**	**6"/6"**	1:	**2.50**	**12.0**	**581**	
	2ND HYD N/O WEHRLE DR		2:	**2.50**	**12.0**	**581**	
	C/O GARFIELD DR		3:			Total Flow:	**1,162**

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

2190-2220 WEHRLE DR., AMTN



2190-2220 WEHRLE DR., AMTN

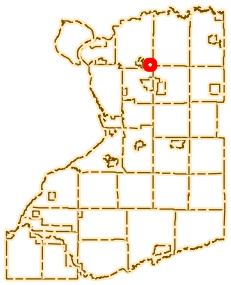


N

1 inch = 375 feet

Legend:

Parcels



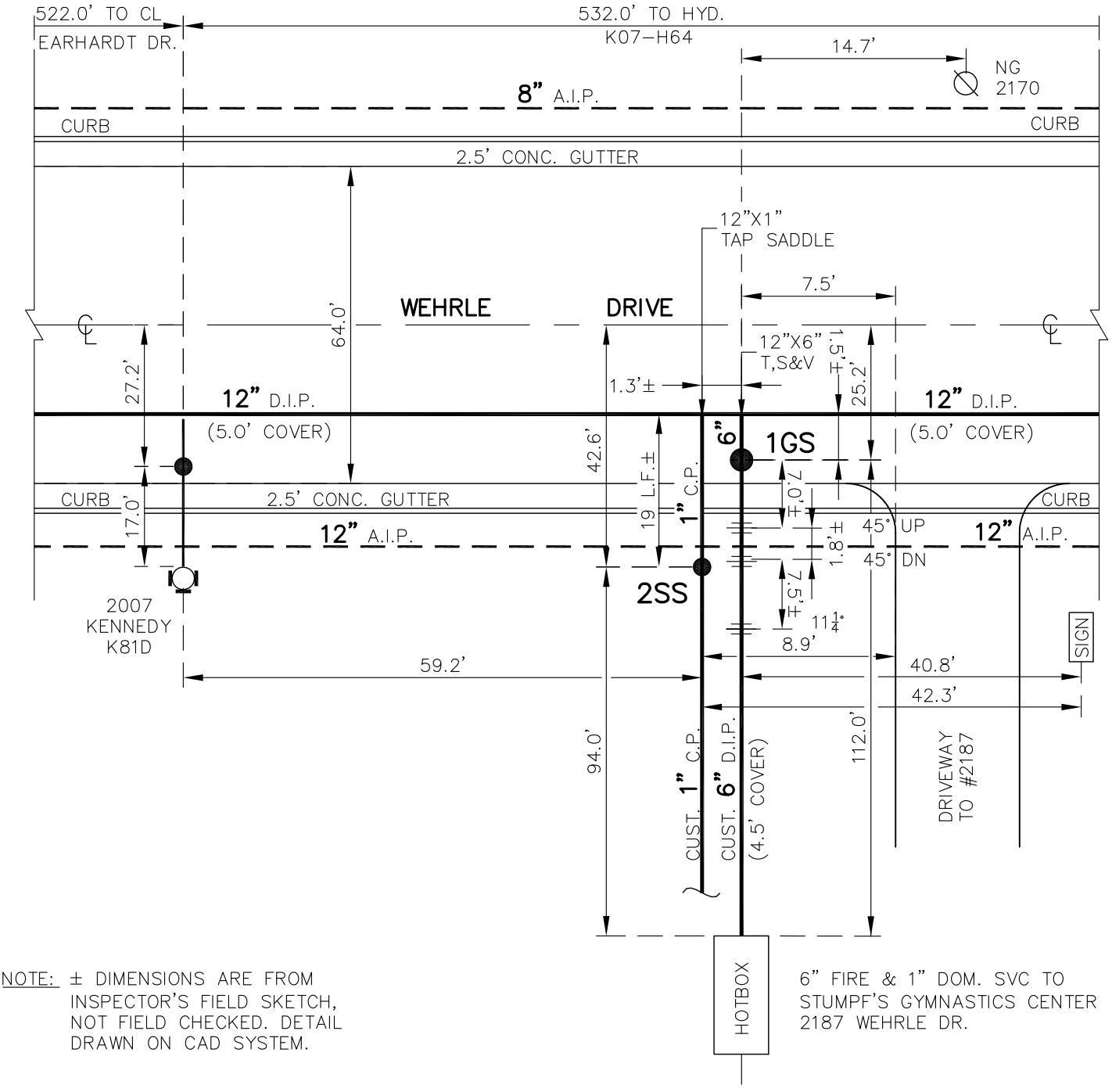
Packet Pg. 2601

3.a

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

ERIE COUNTY WATER AUTHORITY, BUFFALO, NEW YORK	REVISED DR. D.M.C.	REVISED DR.	TOWN OF AMHERST WATER DISTRICT 15C	K07- DETAIL SHT. NO.
	DATE: 10/05/18	DATE:		201400190 CURRENT PROJECT NO.
	FIELD	OFFICE		

1GS TO 2SS = 17.4'
1GS TO HYD = 63.1'
2SS TO HYD = 59.2'



NOTE: ± DIMENSIONS ARE FROM INSPECTOR'S FIELD SKETCH, NOT FIELD CHECKED. DETAIL DRAWN ON CAD SYSTEM.

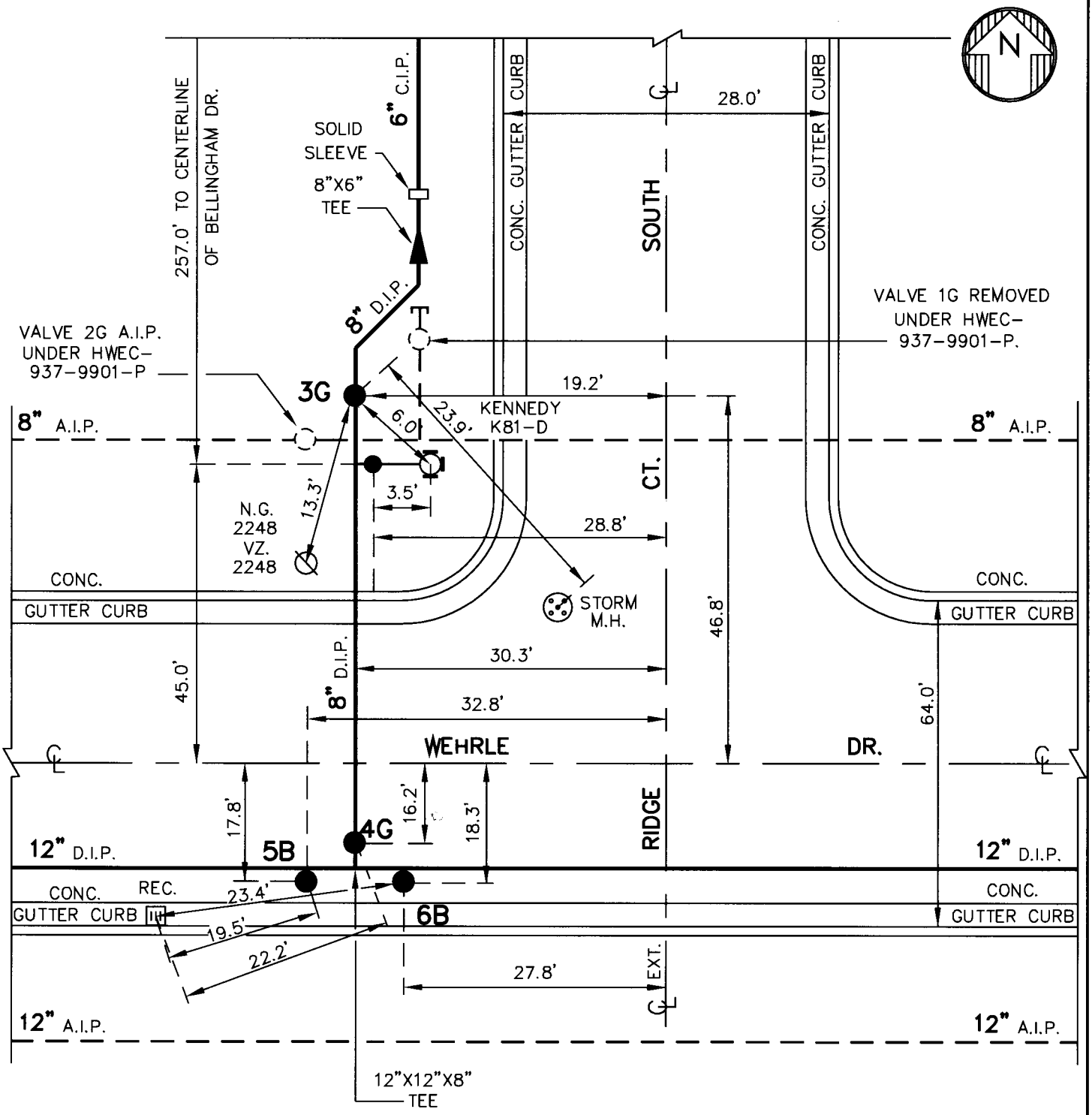
6" FIRE & 1" DOM. SVC TO STUMPF'S GYMNASTICS CENTER 2187 WEHRLE DR.

AMTN-937-1402
HWEC-937-9901-P
AMTN-937-7401-FD
F-32

K07-H63 DETAIL SHT. NO.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

ERIE COUNTY WATER AUTHORITY, BUFFALO, NEW YORK	REVISED DR. R.B.B.	REVISED DR.	TOWN OF AMHERST	L07-E57 DETAIL SHT. NO.
	DATE: 5/16/11	DATE:	WATER DISTRICT 15C	199900415 CURRENT PROJECT NO.
	FIELD	OFFICE		



4G TO 5B = 2.8'
4G TO 6B = 3.3'
5B TO 6B = 5.3'

NOTE: DETAIL DRAWN ON CAD SYSTEM.

HWEC-937-9901-P
AMTN-937-7401-FD

L07-E57 DETAIL SHT. NO.

MASTER COPY

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

DWP Hydrant Flow Test Inquiry -- Hydrant: K07H64 Test Date/Time: 4/05/2011 11:15 CHI095-B

Address: 2241 WEHRLE DR Side: S Location: 2ND HYD E/O EARHART DR
AMHERST

Size of Main/Branch: 12"/6" Fire District: 22031 MAIN TRANSIT FD 14 Water District: 315 AMHERST DISTRICT 15C

Performed By: BM, RLS Comments: HYDRANT FLOW TEST REQUESTED BY BRIAN LAW
DAVIS ULMER, PHONE: 691-3200, FAX: 691-1230

Dischrge Coef: .90 Elvtn Usgs(ft): Static(psi): 50 Residual(psi): 42 Required Residual Pressure(psi): 20
Gallons Used..: 5,160 Total Flow(gpm): 1,712 Flow at Reqd Resid Pressure: 3,495

Flow Hydrants:

C	Flow Hyd	Flow Hydrant Address	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
_	K07 H63	2167 WEHRLE DR 1ST HYD E/O EARHART DR	12"/6"	1: 2: 3:	2.50 2.50	26.0 26.0	856 856 Tot Flow: 1,712	

Bottom

I=Flow Hydrant Inquiry
ENTER=Continue F3=Exit F6=Maintain Test F7=Test Hydrant Inquiry F15=Print Test Information

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

DWP Hydrant Flow Test Inquiry -- Hydrant: L07E60 Test Date/Time: 4/12/2017 14:30 CHI095-B

Address: 2401 WEHRLE DR Side: S Location: 1ST E/O OAKWOOD DR
AMHERST

Size of Main/Branch: 12"/6" Fire District: 22031 MAIN TRANSIT FD 14 Water District: 315 AMHERST DISTRICT 15C

Performed By: BM CHM

Comments: HYDRANT FLOW TEST REQUESTED BY NINA SWANSON, ZURICH NORTH AMERICA, PHONE: 847-605-4072
EMAIN: NINA.SWANSON@ZURICHNA.COM

Dischrge Coef: .90 Elvtn Usgs(ft): Static(psi): 45 Residual(psi): 41 Required Residual Pressure(psi): 20
Gallons Used..: 4,830 Total Flow(gpm): 1,610 Flow at Reqd Resid Pressure: 4,331

Flow Hydrants:

C	Flow Hyd	Flow Hydrant Address	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
_	L07 E62	2461 WEHRLE DR 1ST HYD E/O GEROGE KARL BLVD	12"/6"	1: 2: 3:	2.50 2.50	23.0 23.0	805 805 Tot Flow: 1,610	

Bottom

I=Flow Hydrant Inquiry
ENTER=Continue F3=Exit F6=Maintain Test F7=Test Hydrant Inquiry F15=Print Test Information

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



www.cscos.com | (877) CS-SOLVE

printed on 50% recycled paper, including 25% post-consumer waste

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

STORM WATER POLLUTION PREVENTION PLAN FOR THE CONSTRUCTION OF

PROPOSED OFFICE BUILDING & PROPOSED PUBLIC ROAD

2190-2220 Wehrle Drive
Williamsville, New York

Prepared for:
Acquest Development Company, LLC
5554 Main Street
Williamsville, NY 14221

Prepared by:
C&S Engineers, Inc.
141 Elm Street, Suite 100
Buffalo, New York 14203

November 2021
Revised December 2021

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TABLE OF CONTENTS

1.0 Introduction

2.0 Notice of Intent Requirements

3.0 Storm Water Pollution Prevention Plan

- 3.1 Site Description
  - A. Site Description
  - B. Sequence of Construction Activities
  - C. Plans, Details and Owner's Information
- 3.2 Construction Controls
  - A. Stabilization Practices
    1. Seeding
    2. Mulching
    3. Preservation of Vegetation
    4. Dust Control
    5. Equipment/Material Storage
    6. Temporary Soil Stockpiles
    7. Staging Area
  - B. Structural Practices
    1. Silt Sock
    2. Storm Drain Inlet Protection
    3. Stabilized Construction Entrance
  - C. Other Pollution Prevention Measures (Chemicals and Debris)
  - D. Good Housekeeping and Control of Construction Wastes and Chemicals
    1. Good Housekeeping
    2. Hazardous Products
- 3.3 Storm Water Management
- 3.4 Post-Construction Water Quality & Quantity Controls
  - A. Water Quality Volume and Runoff Reduction Volume
  - B. Water Quantity Controls
- 3.5 Construction and Waste Materials
- 3.6 Other Requirements
- 3.7 Inspections
- 3.8 Maintenance
- 3.9 Contractors

4.0 Record Retention

5.0 Notice of Termination Requirements

Operator Certification

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDICES:

Appendix A-1 NYSDEC SPDES General Permit from Storm Water Discharges Associated from Construction Activity Permit No. GP-0-20-001

Appendix B-1 Electronic Notice of Intent (eNOI), MS4 SWPPP Acceptance Form, NYSDEC Acknowledgment of NOI Letter

Appendix C-1 Drainage Calculations

Appendix D-1 Weekly Soil Erosion and Sediment Control Inspection Checklist

Appendix E-1 Contractor's Certification Form

Appendix F-1 Notice of Termination

Appendix G-1 SWPPP Plans & Details

Appendix H-1 Post Construction Maintenance Schedule & Town of Amherst –Stormwater Control Facility Maintenance Agreement

Appendix I-1 Standards and Specifications for Erosion and Sediment Control

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

1.0 INTRODUCTION

The Clean Water Act states that storm water discharges associated with an industrial activity from a point source, including through a separate municipal storm sewer system, is unlawful unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. In New York State, the New York State Department of Environmental Conservation (NYSDEC) administers the NPDES through the State Pollution Discharge Elimination System (SPDES) program. According to the SPDES General Permit, construction sites or common plans of development, that result in soil disturbance of one or more acres that are not classified single family residential or agricultural, are subject to permitting requirements.

This plan outlines the manner in which to reduce the potential of storm water runoff pollution and assigns responsibilities to ensure that the contractor and his subcontractors implement the requirements of the Storm Water Pollution Prevention Plan (SWPPP) during construction activities until the site is stabilized. The SWPPP was developed based on the SPDES General Permit for Storm Water Discharges from Construction Activity Permit No. GP-0-20-001, dated January 29, 2020.

2.0 NOTICE OF INTENT REQUIREMENTS

To obtain coverage under a general permit, an electronic Notice of Intent (eNOI) must be submitted using the Department's online NOI. Permit coverage does not begin until five (5) business days following submittal of the eNOI.

A completed copy of the eNOI form has been included in Appendix B-1.

3.0 STORM WATER POLLUTION PREVENTION PLAN

This Storm Water Pollution Prevention Plan (SWPPP) was developed to set operating guidelines during construction activities. A copy of this SWPPP shall be retained at the construction site throughout the duration of this project.

The Contractor shall meet all conditions of this SWPPP and all conditions within the NYSDEC SPDES General Permit for Stormwater discharges from Construction Activities - Permit No. GP-0-20-001 dated January 29, 2020. The contractor shall be responsible for all measures of the SWPPP including being responsible for any subcontractors who may implement the SWPPP.

During the course of the project and upon approval by the owner, the contractor shall amend the plan whenever there is a change in construction, operation, or maintenance, which may have an effect on the potential for the discharge of pollutants. In addition, if a new subcontractor is utilized at the site who will implement tasks included in the plan, the SWPPP shall be amended. Furthermore, should the contractor wish to amend any design aspect of the SWPPP, the SWPPP preparer must be notified and must approve or address the change.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3.1 Site Description

The project site is located at 2190-2220 Wehrle Drive, in Willamsville, New York. See location map in Appendix A. The project site is 24.91 acres, rectangular shaped with approximately 648 feet of frontage along the north side of Wehrle Drive. The existing site consists primarily of maintained lawn areas with a few brush/wooded areas along the eastern property line, and a couple brush areas along the west property line. Under existing conditions, there are five (5) drainage areas, all of which eventually drain to/are conveyed to the drainage system along Wehrle Drive. Drainage area #1 consists of the eastern and northeastern portion of the site. Stormwater runoff from drainage area #1 flows to a drainage ditch located along the east property line and flows south towards Wehrle Drive. Drainage area #2 consists of a small portion along the west property line and the northwest corner of the parcel. Stormwater runoff from drainage area #2 flows to a drainage ditch located along the west property line and flows south towards Wehrle Drive. Drainage area #3 consists of a small portion of the parcel near the middle of the site. Stormwater runoff from drainage area #3 flows to a low spot, pools and then eventually discharges to the drainage ditch located along the west property line and flows south towards Wehrle Drive. Drainage area #4 consists of a small portion of the parcel at the southwest corner of the site. Stormwater runoff from drainage area #4 travels by sheet flow towards Wehrle Drive. Drainage area #5 consists of a small portion of the parcel along the Wehrle Drive frontage. Stormwater runoff from drainage area #5 travels by sheet flow is conveyed to an existing yard drain along the Wehrle Drive frontage. As per the Erie County DPW Division of Highways “Plans for the Reconstruction of Wehrle Drive C.R. 290 Ellicott Creek to Harding Road”, there are two (2) yard drain structures shown on the plans for this parcel. It is understood that the two yard drains were installed to collect stormwater runoff from this parcel and convey it to the Wehrle Drive storm drainage system.

Development will consist of both the development of the northwest portion of the this parcel along with development of a new, public road off of Wehrle Drive and terminating in a cul-de-sac at the northern portion of the site.

Development of the northwest portion of the parcel will consist of the following:

- One (1) three-story, 84,375 square-foot, office building
- One (1) single-story security booth
- One (1) single-story, 24,750 square foot storage garage/maintenance facility
- One (1) two-story, 72,072 square foot parking garage
- Associated site improvements

Site improvements include asphalt paved parking lots to accommodate 100 parking spaces including 4 handicap accessible spaces, concrete loading docks, security fencing, sidewalks, landscaping, and site utilities. Site utilities include a stormwater management system, bioretention basins, sanitary sewer and water service laterals.

Development of the new public road will consist of the construction of a new 28-foot

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

wide public road, within a 52-foot wide right-of-way, designed to the Town of Amherst's standards and will eventually be dedicated to the Town of Amherst. Construction of the public road will include the following public utilities, water, sanitary sewer, storm sewer, electric and gas.

Upon completion, the proposed project will add 6.56 acres of new impervious cover in total. The total anticipated ground disturbance during construction of this project will be approximately 17.5 acres. Due to the increase in impervious areas, stormwater detention is required. Additionally, since the construction of this site will disturb more than one acre, a Storm Water Pollution Prevention Plan (SWPPP), in accordance with the New York State Department of Environmental Conservation (NYSDEC) standards must be prepared and a Notice of Intent (NOI) must be filed prior to beginning construction.

Per FEMA FIRMette, panel number 36029C0229H, no portion of the proposed improvements are within a 100-year flood plain.

Per the USDA NRCS Web Soil Survey for the site, the existing soils on site consist of Lima loam (HSG 'B/D'), Ilion silt loam (HSG 'C/D'), Newstead loam (HSG 'C/D') and Ovid silt loam (HSG 'C/D'). For soils assigned to a dual hydrologic group, the first letter is for drained areas and the second letter is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Upon review of the New York State Historic Preservation Office's GIS for Archeology and National Register online resources tool, and furthermore, per NYS Office of Parks, Recreation and Historic Preservation correspondence letters, neither construction activities nor the stormwater discharge from this site will have an effect upon historic properties in or eligible for inclusion in the State and National Registers of Historic Places.

B. Below is a description of the intended sequence of major construction activities which involve soil disturbance:

- Install silt sock.
- Clear, grub and install temporary erosion and sediment controls simultaneously where possible.
- Remove debris from site. (Debris to be disposed of in a NYSDEC approved landfill approved to accept this type of material.)
- Remove, stockpile and seed any excess topsoil and install temporary erosion and sediment controls simultaneously.
- Excavate and rough grade the construction site and stormwater detention facility.
- Install utilities, construct building, install pavement and pour concrete sidewalks
- Final grade, replace topsoil, seed and mulch all disturbed turf areas outside of pavement limits immediately upon acceptance of the grade.
- Construct bio-retention facilities and all plantings within
- Replace remaining topsoil and seed and mulch all areas disturbed from construction activities.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

- After stabilization, remove temporary erosion and sediment controls.

C. Plans and details for temporary stormwater controls have been included in Appendix G-1. The plans have been included to indicate grading limits, drainage patterns, grade slopes, and location of erosion and sediment controls and storm water discharge locations.

The owner/operator is: Acquest Wehrle LLC
5554 Main Street
Williamsville, NY 14221

The contact person is: Omar Abu-Sitta
(phone) 716-204-3570
(email) omar@acquestdevelopment.com

3.2 Construction Controls

The Contractor shall be required to construct and maintain the following controls in accordance with this document and the associated Contract Documents for this project. There shall not be more than five (5) acres of disturbed soil at any one time without prior written approval from the NYSDEC and/or the Town of Amherst. Since this project will disturb greater than 5 acres of soil at one time, Town of Amherst approval (MS4 Approval) is required, prior to the start of site disturbance activities.

A. Stabilization Practices.

1. Seeding.
Immediately after completion of grading operations, topsoil shall be replaced and all areas disturbed from grading operations shall be seeded in an effort to stabilize the site. Where land disturbance is necessary, temporary seeding or mulching must be used on areas which will be exposed for more than 14 days. Permanent stabilization should be performed as soon as possible after completion of grading.

2. Mulching.
Directly after seeding, all disturbed areas shall be mulched to prevent surface compaction, reduce runoff and erosion, control weeds and help establish plant cover.

3. Preservation of Vegetation.
The contractor shall make every effort to protect trees, shrubs, ground cover and any other vegetation adjacent to the work areas. The purpose of preserving existing vegetation where obtainable is to reduce soil erosion and enhance water quality.

4. Dust Control.
Dust resulting from land-disturbing activities shall be controlled to prevent surface and air movement of dust from disturbed soil surfaces. Dust control measures are

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

necessary on construction roads, access points and other disturbed areas subject to dust movement.

5. Equipment/Material Storage.
An equipment and material storage area shall be determined by the site contractor prior to any ground disturbance. The location of the storage area may be modified if deemed necessary. The storage area will be graded to insure that any material spillage shall be directed away from the adjacent property. In addition, any identified chemical spills (oil, grease, etc.) shall be addressed immediately, a written log prepared and kept on-site with the SWPPP and appropriate local officials contacted, if necessary.

6. Temporary Soil Stockpiles.
A temporary stockpile area shall be determined by the site contractor prior to any ground disturbance. The shape, size and location of this area may be modified by the site contractor if deemed necessary. The stockpile area shall be perimeter protected with silt fence and seeded as soon as possible to minimize the potential for sediment transport and erosion.

7. Staging Area
The contractor staging area shall be determined by the site contractor prior to any ground disturbance. The shape, size and location of this area may be modified by the site contractor if deemed necessary.

B. Structural Practices.

1. Silt Sock (Temporary)
   - Silt sock is a temporary sediment control practice composed of a degradable geotextile mesh tube filled with compost filter media to filter sediment and other pollutants associated with construction activity.
   - Silt sock is used where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock.
   - Silt sock shall be maintained and accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

2. Storm Drain Inlet Protection (Temporary)
   - A storm drain inlet barrier shall be installed around inlets. The purpose is to prevent sediment - laden water from entering inlets to a storm drain system.
   - Inspect and clean after every storm. Sediment should be removed when 50 percent of the storage volume is achieved. This material should be incorporated in the site in a stabilized manner.

3. Stabilized Construction Entrance (Temporary).
   - A stabilized construction entrance shall be constructed where traffic will be entering or leaving a construction site to or from a street, alley, sidewalk or

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

parking area. The purpose of the stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public streets.

C. Other Pollution Prevention Measures (Chemicals and Debris)

- The Contractor shall be responsible for providing onsite trash receptacles appropriate to store all litter, construction chemicals and construction debris. The contents of the receptacles shall be properly disposed of at a NYSDEC licensed waste facility (or equal).
- Hazardous products shall be maintained in their original containers when possible, and be kept with their original labels and applicable Material Safety Data Sheets (MSDS);
- Fertilizers shall only be applied as recommended by the manufacturer, and once applied shall be worked into the soil to limit exposure to storm water runoff. Storage shall be within an enclosed or covered area.
- Paints, coatings and sealants shall be maintained in a tightly enclosed, leak-proof container at all times. Excess materials shall be disposed of as required by applicable laws and regulations.
- Excess concrete material shall be removed and disposed of off-site in an appropriate manner. Concrete wash water shall not be allowed to discharge to storm water conveyances.
- All petroleum product spills, if such occurs, shall be cleaned up immediately, the source of the spill be repaired or removed, and contained material shall be disposed of as required by applicable law. In the event a spill, the contractor shall contact the NYSDEC Spills Hotline at 1-800-457-7362 to report such spill. Within 2 hours of discovery, except spills which meet all of the following criteria:
    1) The quantity is known to be less than 5 gallons; and
    2) The spill is contained and under the control of the spiller; and
    3) The spill has not and will not reach the State's water or any land; and
    4) The spill is cleaned up within 2 hours of discovery.
    5) A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. A spill in a dirt or gravel parking lot is considered to have impacted land and is reportable.

  More details on notification and reporting requirements can be found at the NYSDEC Website (http://www.dec.ny.gov/chemical/8428.html

D. Good Housekeeping and Control of Construction Wastes and Chemicals

1. Good Housekeeping

   It is anticipated that construction materials such as concrete, asphalt, petroleum based products, stone, and fertilizers will be present on-site at various stages during the project. In order to prevent the conveyance to and contamination of any adjacent and/or downstream property, lands or water bodies, good housekeeping practices shall be employed. Such precautions shall include:

   - Storing of only enough materials to complete the project, or active phases of the

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

project;
- Materials stored on-site shall be stored in a neat and orderly manner and in their appropriate containers and, if possible, under a covered area or enclosed structure;
- The manufacturer's recommendations for use and disposal shall be followed at all times;
- The project site superintendent shall inspect the site daily to ensure proper use, storage and disposal of all materials on-site.

2. Hazardous Products
Hazardous products shall be maintained in their original containers when possible, and be kept with their original labels and applicable Material Safety Data Sheets (MSDS);
   - All petroleum product spills, if such occurs, shall be cleaned up immediately, the source of the spill be repaired or removed, and contained material shall be disposed of as required by applicable law.
   - Fertilizers shall only be applied as recommended by the manufacturer, and once applied shall be worked into the soil to limit exposure to storm water runoff. Storage shall be within an enclosed or covered area.
   - Paints, coatings and sealants shall be maintained in a tightly enclosed, leak-proof container at all times. Excess materials shall be disposed of as required by applicable laws and regulations;
   - Excess concrete material shall be removed and disposed of off-site in an appropriate manner. Concrete wash water shall not be allowed to discharge to storm water conveyances.

3.3 Storm Water Management.

The best approach to storm water management for construction activities is through the use of self-designed Storm Water Pollution Prevention Plan (SWPPP). The development of the SWPPP through the use of Best Management Practices (BMP) is to prevent erosion and pollutants from the construction materials mixing with storm water runoff and being discharged from the project site. BMP's should be designed to prevent, or at least control, the pollution of storm water before it has a chance to affect receiving waters. Using BMP's in this way improves the discharge water quality.

Specific requirements for management of storm water and maintaining water quality include, but are not limited to:

A. There shall be no increase in turbidity that will cause a substantial visible contrast to natural condition;
B. There shall be no suspended, colloidal, and settleable solids that will cause deposition or impair the waters for their best usages, and;
C. There shall be no residue from oil and floating substances, visible oil film, globules or grease.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

In addition, local ordinances may affect these Best Management Practices. Any conditions or specific local ordinances are to be included in the development of the BMP's for the project.

3.4 Post Construction Water Quality & Quantity Controls

A. Chapters 3-5 of the NYSDEC Stormwater Management Design Manual (SMDM) provides a green infrastructure approach to stormwater management to reduce a site's impact on the aquatic ecosystem through the use of site planning techniques, runoff reduction techniques, and standard SMP's. Runoff Reduction Volume (RRv) is the reduction of the total Water Quality Volume (WQv) by application of green infrastructure techniques and SMP's to replicate pre-development hydrology.

Outlined below is the NYSDEC SMDM site planning flowchart in relation to this site.

Step 1: Site Planning – Green Infrastructure Method to Preserve Natural Resources and Reduce Impervious Cover

1. Preservation of Undisturbed Areas
   - Vegetative areas and natural terrain has been retained to the maximum extent practical/possible.

2. Preservation of Buffer
   - Natural vegetative buffer has been retained to the maximum extent practical/possible. As many trees as possible have been saved.
3. Reduction of Clearing and Grading
   - Clearing and grading has been limited to the least amount possible while still allowing for development of the site.
4. Locating Development in Less Sensitive Areas
   - The project will have no effect upon cultural resources in or eligible for inclusion in the National Register of Historic Places.
5. Open Space Design
   - The impervious cover has been minimized to the smallest extent possible that complies with the town code.
6. Soil Restoration
   - Soil restoration will be applied to the proposed "bio-retention" areas and all landscaped areas.
7. Roadway Reduction
   - Roadway widths and lengths have been minimized to the maximum extent possible while still maintaining the intended use of the site.
8. Sidewalk Reduction

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

- Sidewalk widths and lengths have been minimized to the smallest extent possible while still maintaining accessibility to the building.

9. Driveway Reduction
   - Driveways have been minimized as much as possible while still meeting site and fire code requirements.
10. Cul-de-sac Reduction
   - The minimum size for a cul-de-sac, in accordance with the Town Code has been provided.
11. Building Footprint Reduction
   - The smallest possible building footprint has been provided.
12. Parking Reduction
   - Parking areas have been reduced to the maximum extent possible. The Town dictates the minimum required parking spaces.

Step 2: Water Quality Volume

The total water quality volume required is 24,350 c.f.

Step 3: Runoff Reduction by Applying Green Infrastructure Techniques and Standard SMPs with RRv Capacity

1. Conservation of Natural Areas
   - Natural areas and natural terrain have been retained to the maximum extent practical/possible while still allowing for the buildout of the property.
2. Sheet flow to Riparian Buffers or Filter Strips
   - No riprarian buffers are present on site.
3. Vegetated Open Swale
   - A dry swale is proposed to treat a portion of the proposed road.
4. Tree Planting / Tree Box
   - New trees will be planted on-site to enhance the landscaping on-site and meet the Town's Landscaping requirements. Although trees will be planted, RRv credit cannot be used. The planted areas drain to the bio-retention basin. Credit is already given for these areas.
5. Disconnection of Rooftop Runoff
   - Runoff from the new building structure will be directed to bioretention basins, prior to being discharged to the detention system.
6. Stream Daylighting
   - No stream daylighting is proposed.
7. Rain Garden

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

- This method was considered but due to site constraints, a bio-retention basin is more applicable.

8. Green Roof
   - This method was considered but a bioretention basin was more applicable.
9. Stormwater Planters
   - This method was considered but a bioretention basin was more applicable.
10. Rain tanks/Cisterns
    - This method was considered, however, landscape irrigation will not be a concern.
11. Porous Pavement
    - Not applicable – Maintenance issues and the use of salts for parking lot deicing make this option impractical. Impervious soils on site make this option infeasible.
12. Standard SMPs with RRv Capacity
    - Two (2) bioretention basins and one (1) open swale are proposed to treat the proposed impervious area.

Two (2) bioretention basins will be used to treat 100% of the new impervious area from the proposed office building, storage garage/maintenance building, parking garage and parking lots, along with the northern portion of the proposed road. A dry swale will be used to treat 100% of the new impervious area from the southern portion of the proposed road.

Water Quality Volume and RRv has not been designed for the future development site along the south of the parcel.

Both the minimum RRv requirement and the water quality volume requirement has been attained through the use of the bioretention basin and open swale.

Below is a summary of the water quality volume and runoff reduction volumes attained on site:

Total Water Quality Volume Required (WQv):	**24,350 cf**
Minimum Runoff Reduction Volume Required (RRv, min)	**4,524 cf**
Bioretention Basin (from Northwest Drainage Area):	
WQ_v Required	13,195 cf
WQ_v Provided	7,917 cf
RR_v Provided (Standard SMP with Runoff Reduction Volume) – due to HSG C/D soils, RRv = 40% WQv for that practice (typical all bioretention facilities)	5,278 cf
Total WQ_v Provided	13,195 cf

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Bioretention Basin (from Northeast Drainage Area):

WQ_v Required	5,797 cf
WQ_v Provided	3,478 cf
RR_v Provided (Standard SMP with Runoff Reduction Volume) – due to HSG C/D soils, RRv = 40% WQv for that practice (typical all bioretention facilities)	2,319 cf
Total WQ_v Provided	5,797 cf

Dry Swale:

WQ_v Required	5,360 cf
WQ_v Provided	4,288 cf
RR_v Provided (Standard SMP with Runoff Reduction Volume) – due to HSG C/D soils, RRv = 20% WQv for that practice (with underdrain)	1,072 cf
Total WQ_v Provided	5,360 cf

Total RRv Provided:	**8,669 cf**
Total WQv Provided (WQv provided + RRv provided):	**24,352 cf**

Post construction maintenance of the permanent water quality treatment facilities will be performed by the Owner. For the bioretention basins and dry swale this will include removing any litter, maintaining and replacing plantings as needed and adding/replacing mulch as needed.

B. New York State Department of Environmental Conservation regulations require design of stormwater detention facilities to limit the peak discharge produced by the 10-year and 100-year storm events to the pre-developed runoff rates, as well as provide extended detention of the 1-YR, 24-HR storm event (channel protection volume). Additionally, the Town of Amherst regulations require the peak discharge from the 25-year post-developed storm event to be limited to the 10-year pre-developed storm runoff rate.

Water quantity control will be provided through the combination of bioretention basins, a dry swale, dry detention basin and an outlet control structure that will consist of a manhole with a weir plate, 6-inch diameter orifice and a 15-inch diameter HDPE outlet pipe.

Each bioretention basin will utilize one 24” x 24” catch basin with an 18-inch diameter HDPE pipe to control the stormwater discharge from each facility.

The dry detention basin is designed to accept stormwater runoff from all the drainage areas, under developed conditions, as shown on the Proposed Drainage Analysis Map.

The dry detention basin will utilize a precast concrete manhole as a control structure. The

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

stormwater runoff rates will be controlled through a combination of a 6-inch diameter orifice and a weir. The 15-inch diameter HDPE outlet pipe will convey the stormwater discharges from the dry detention basin to the existing storm sewer system on Wehrle Drive.

The stormwater discharge rates for the 10-year and 25-year storm events under developed conditions, will be below the stormwater discharge rates for the 10-year storm event under pre-developed conditions. The stormwater discharge rates for the 100-year storm event under developed conditions, will be below the stormwater discharge rate for the 100-year storm event under pre-developed conditions. The Channel Protection Volume (CPv) requirement will be met by the use of the 6-inch diameter orifice.

The stormwater detention calculations were completed using HYDROCAD, version 10 software. Following is a summary of the pre and post development discharge rates and associated detention volumes and water surface elevations:

East Discharge to Wehrle Drive Storm Sewer:

Storm Event	Pre-Development Discharge (cfs)	Post-Development Discharge (cfs)	Dry Detention Basin Volume (cf)	Dry Detention Basin Water Surface Elevation (ft)
10-YR	5.40	4.29	82,942	693.05
25-YR	11.59	5.20	114,117	693.37
100-YR	24.49	6.39	183,906	694.00

West Discharge to Wehrle Drive Storm Sewer:

Storm Event	Pre-Development Discharge (cfs)	Post-Development Discharge (cfs)
10-YR	3.64	1.93
25-YR	5.22	2.77
100-YR	8.48	4.49

3.5 Construction and Waste Materials

Some of the construction materials expected to be stored onsite include precast concrete drainage structures, corrugated HDPE pipe, under drain pipe, silt sock, etc. These materials will be stored in the contractor's staging area. The Contractor shall install additional silt fence around the perimeter of both the staging and topsoil stockpile areas, should contaminated runoff flow off the area.

3.6 Other Requirements.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

A. Any discharges other than storm water must be in compliance with the appropriate SPDES permit (other than this permit).
B. No solid materials including building materials shall be discharged to waters of the United States, except as authorized by a federal or state law.
C. All construction activities shall be in compliance with all federal, state and local laws as required.

3.7 Inspections.

A. Inspections are important for visually evaluating potential storm water runoff pollution sources at the facility. All projects should be inspected periodically to ensure contaminants are not present in the storm water exiting a project site. On projects which apply for coverage under the SPDES General Permit, qualified inspectors of the Owner shall inspect and evaluate the site. Qualified inspectors are persons knowledgeable in the principles and practices of erosion and sediment control such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or a soil scientist.

B. The Owner shall have a qualified inspector conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the erosion and sediment controls described in the SWPPP have been installed or implemented. Following the commencement of construction, site inspections shall occur at least once every seven calendar days. For construction sites where soil disturbance activities are on going and the owner or operator has received authorization to disturb greater than five (5) acres of soil at any one time, the qualified inspector shall conduct at least two (2) site inspections every seven (7) calendar days. When performing just two (2) inspections every seven (7) calendar days, the inspections shall be separated by a minimum of two (2) full calendar days.

C. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the qualified inspector shall conduct a site inspection at least once every thirty (30) calendar days. The owner or operator shall notify the Regional Office stormwater contact person in writing prior to reducing the frequency of inspections

D. The owner shall prepare a written summary of the project status with respect to compliance with the Permit at a minimum frequency of every three months during which coverage under the Permit exists. The summary should address the status of achieving each component of the SWPPP. The Owner shall post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

E. For construction sites where soil disturbance activities have been shut down with partial project completion, the qualified inspector can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The owner or operator shall notify the Regional Office stormwater contact person in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the owner or operator shall have the qualified inspector(s) perform a final inspection and certify that all disturbed areas have achieved final stabilization, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the Notice of Termination (N.O.T.). The owner or operator shall then submit the completed N.O.T. form to the address in Part II.A.1 of the permit.

F. Each inspection report shall, at the minimum, include the following:

- Date and time of inspection
- Name and title of person(s) performing inspection.
- A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection
- A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow.
- On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period.
- Indicate on a site map all areas of the site map that have undergone temporary or permanent stabilization.
- Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period.
- Photographs of the site on the day of the inspection, including a date stamp on the photos, showing deficiencies found, shall be included in the report.
- Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume.
- Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (silt sock) and containment systems (sediment basins).
- Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced
- Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching.
- Document any excessive deposition of sediment or ponding water along barriers or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

- Location where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking
- Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards
- Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).

F. The process for conducting the evaluation shall follow these steps:

- Review the Storm Water Pollution Prevention Plan and draw up a list of any items of concern.
- List all specified control measures and areas covered in the plan.
- Conduct inspections to determine whether all storm water pollution prevention measures are accurately identified in the plan, are in place, and working properly.
- Document findings and inspections in a site log book.
- Modify SWPPP as appropriate. (Note: The plan shall be modified by the contractor and site inspector within 7 days of the inspection).

G. Within one business day of the completion of an inspection, the qualified inspector shall notify the owner or operator and appropriate contractor (or subcontractor) identified in Contractor's Certification Form of any corrective actions that need to be taken. The contractor (or subcontractor) shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

H. All inspection reports shall be signed by the qualified inspector. A copy of the inspection reports shall be maintained on site with the SWPPP.

A copy of the erosion and sediment control inspection checklist has been included in Appendix D-1.

3.8 Maintenance.

The contractor is required to inspect and maintain all soil erosion and siltation controls throughout the duration of the project and until final stabilization of the site. "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform, perennial vegetative cover with a density of 80% has been obtained.

Maintenance shall include, but not be limited to, repair or replacement of any existing controls, removal of sediment and any other measures deemed necessary, which would reduce soil erosion and siltation runoff. Sediment shall be removed from sediment traps or sediment basins whenever their capacity has been reduced by fifty (50) percent from the design capacity. Refer to Section 3.2 for maintenance of individual controls.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Maintenance of the permanent bioretention basins, dry swale and stormwater detention facility will be provided by the owner. Generally, this consists of inspecting and replacing diseased plants, removing litter and debris, checking for clogging of planting soil and replacing when necessary. Suggested inspection and maintenance checklists are provided in appendix H-1.

3.9 Contractors.

The contractor must sign a SWPPP certification form before undertaking any construction activity at the site identified in the Storm Water Pollution Prevention Plan. The contractor is responsible for any and all subcontractors working on the SWPPP. A copy of the Contractor's Certification Form has been included in Appendix E-1.

4.0 RECORD RETENTION

The owner or operator shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves final stabilization. This period may be extended by the Department, in its sole discretion, at any time upon written notification

5.0 NOTICE OF TERMINATION REQUIREMENTS

A. Prior to filing a Notice of Termination (NOT) the Owner shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that all disturbed areas have achieved final stabilization; and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements on the NOT.

B. Post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, the owner or operator has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

C. Post-construction stormwater management practices that are privately owned, the owner or operator has a deed restriction in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

D. Post-construction stormwater management practices that are privately owned, but will be maintained by a municipality, require an executed maintenance agreement be in place with the municipality that will maintain the post-construction stormwater management practice(s). Any right-of- way(s) needed to maintain such practice(s) must have been deeded to the municipality in which the practice(s) is located.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

E. Once the project is stabilized, a level 1 inspection for the stormwater management practices shall be performed and signed off by a professional engineer. The report shall be submitted to the Town's stormwater management officer with the NOT form.

In addition, the Owner must certify that the permanent structure(s) have been constructed as described in the SWPPP.

When the project is completed and the site has been stabilized, the Owner must submit a NOT. A copy of the NOT form has been included in Appendix F-1. The NOT form shall be submitted to the following address:

NYS DEC "Notice of Termination"
Bureau of Water Permits
625 Broadway
Albany, NY 12233-3505

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: Proposed Office Building & Proposed Road

eNOI Submission Number: HPD-5WB3-PP8RE

eNOI Submitted by: ☐ Owner/Operator ☑ SWPPP Preparer ☐ Other

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

Omar M. Abu-Sitta, Acquest Wehrle LLC

Signature

12/17/21

Date

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX A-1

NYSDEC SPDES GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED FROM CONSTRUCTION ACTIVITY
PERMIT NO. GP-0-20-001

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS 1
- A. Permit Application 1
- B. Effluent Limitations Applicable to Discharges from Construction Activities 1
- C. Post-construction Stormwater Management Practice Requirements 4
- D. Maintaining Water Quality 8
- E. Eligibility Under This General Permit 9
- F. Activities Which Are Ineligible for Coverage Under This General Permit 9

Part II. PERMIT COVERAGE 12
- A. How to Obtain Coverage 12
- B. Notice of Intent (NOI) Submittal 13
- C. Permit Authorization 13
- D. General Requirements For Owners or Operators With Permit Coverage 15
- E. Permit Coverage for Discharges Authorized Under GP-0-15-002 17
- F. Change of Owner or Operator 17

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) 18
- A. General SWPPP Requirements 18
- B. Required SWPPP Contents 20
- C. Required SWPPP Components by Project Type 24

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS 24
- A. General Construction Site Inspection and Maintenance Requirements 24
- B. Contractor Maintenance Inspection Requirements 24
- C. Qualified Inspector Inspection Requirements 25

Part V. TERMINATION OF PERMIT COVERAGE 29
- A. Termination of Permit Coverage 29

Part VI. REPORTING AND RETENTION RECORDS 31
- A. Record Retention 31
- B. Addresses 31

Part VII. STANDARD PERMIT CONDITIONS 31
- A. Duty to Comply 31
- B. Continuation of the Expired General Permit 32
- C. Enforcement 32
- D. Need to Halt or Reduce Activity Not a Defense 32
- E. Duty to Mitigate 33
- F. Duty to Provide Information 33
- G. Other Information 33
- H. Signatory Requirements 33
- I. Property Rights 35
- J. Severability 35

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

K. Requirement to Obtain Coverage Under an Alternative Permit....35
L. Proper Operation and Maintenance....36
M. Inspection and Entry....36
N. Permit Actions....37
O. Definitions....37
P. Re-Opener Clause....37
Q. Penalties for Falsification of Forms and Reports....37
R. Other Permits....38
APPENDIX A – Acronyms and Definitions....39
Acronyms....39
Definitions....40
APPENDIX B – Required SWPPP Components by Project Type....48
Table 1....48
Table 2....50
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal....52
APPENDIX D – Watersheds with Lower Disturbance Threshold....58
APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)....59
APPENDIX F – List of NYS DEC Regional Offices....65

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

Discharges authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* ("SWPPP") the reason(s) for the

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharges* are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

(Part I.C.2.c)

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: “Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned”; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

(Part IV.C.4.a)

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

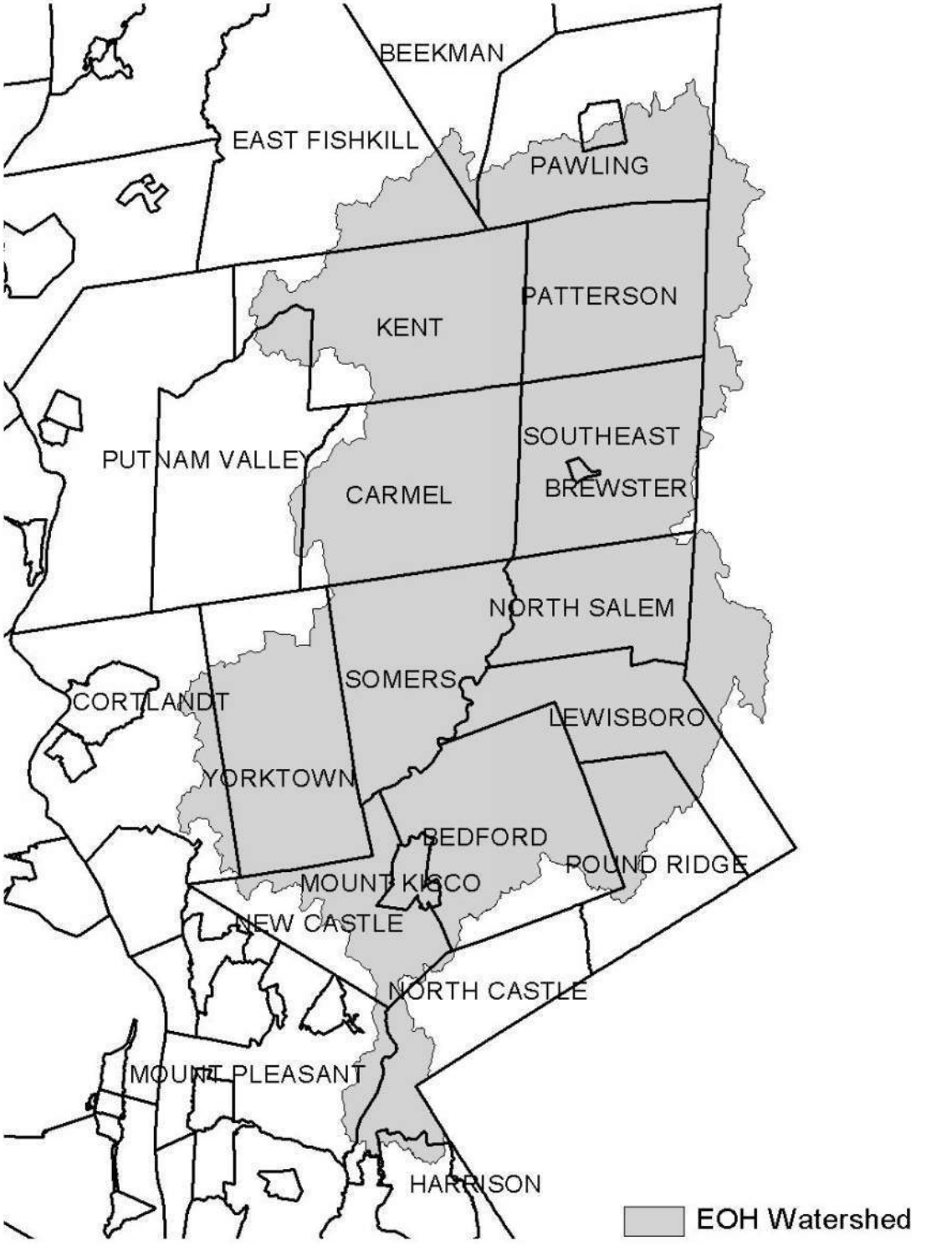
Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Appendix C

Figure 1 - New York City Watershed East of the Hudson



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Appendix C

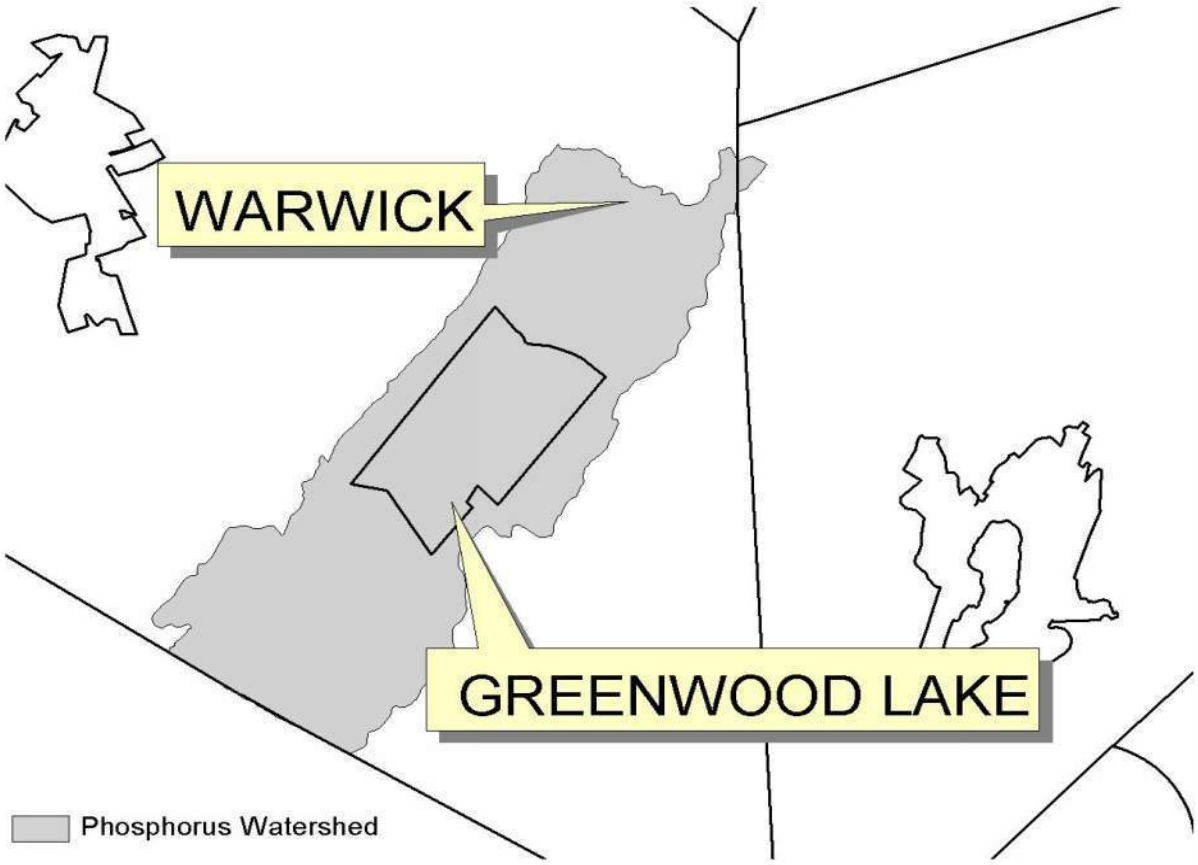
Figure 2 - Onondaga Lake Watershed



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

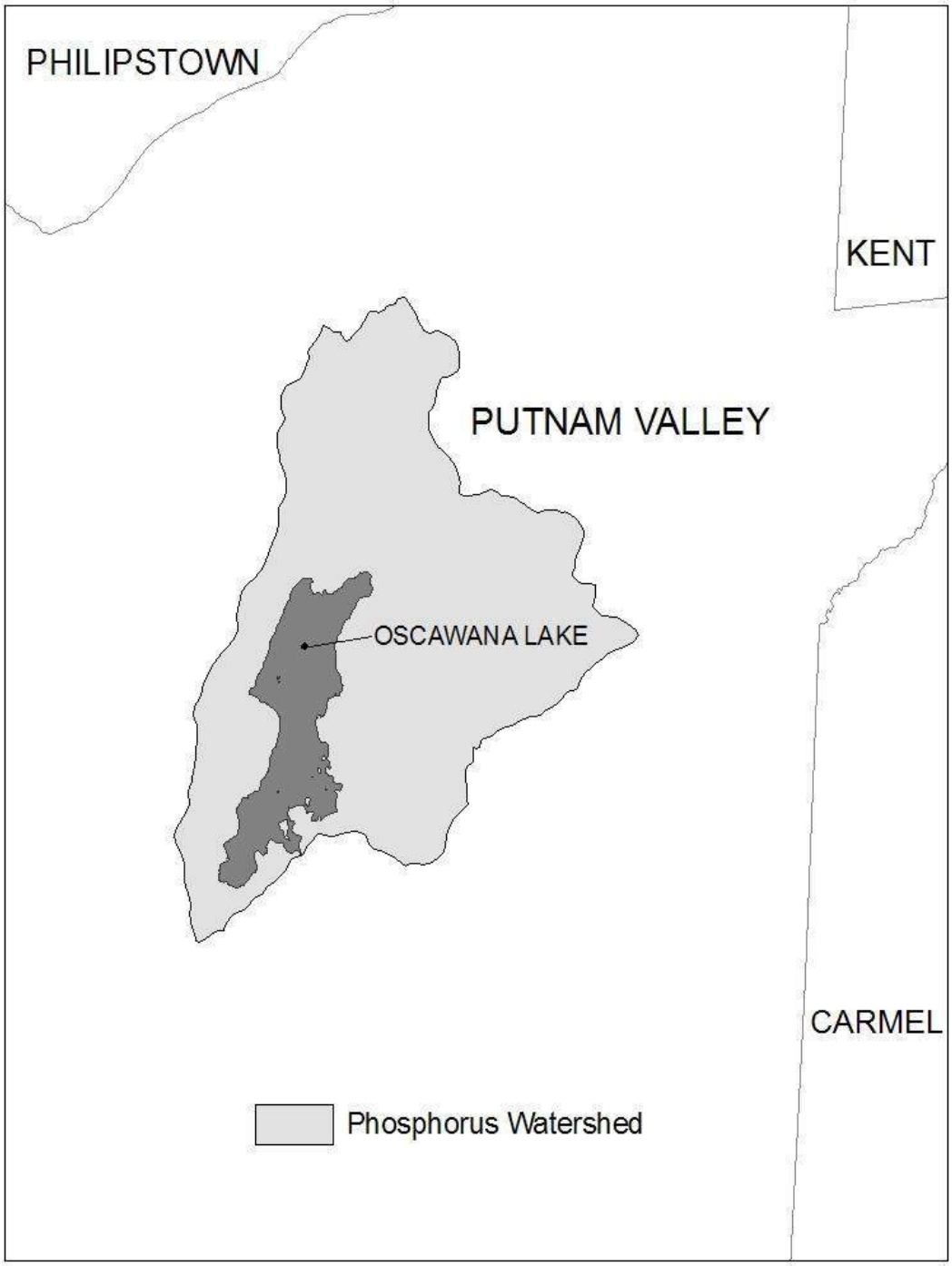
Appendix C

Figure 3 - Greenwood Lake Watershed



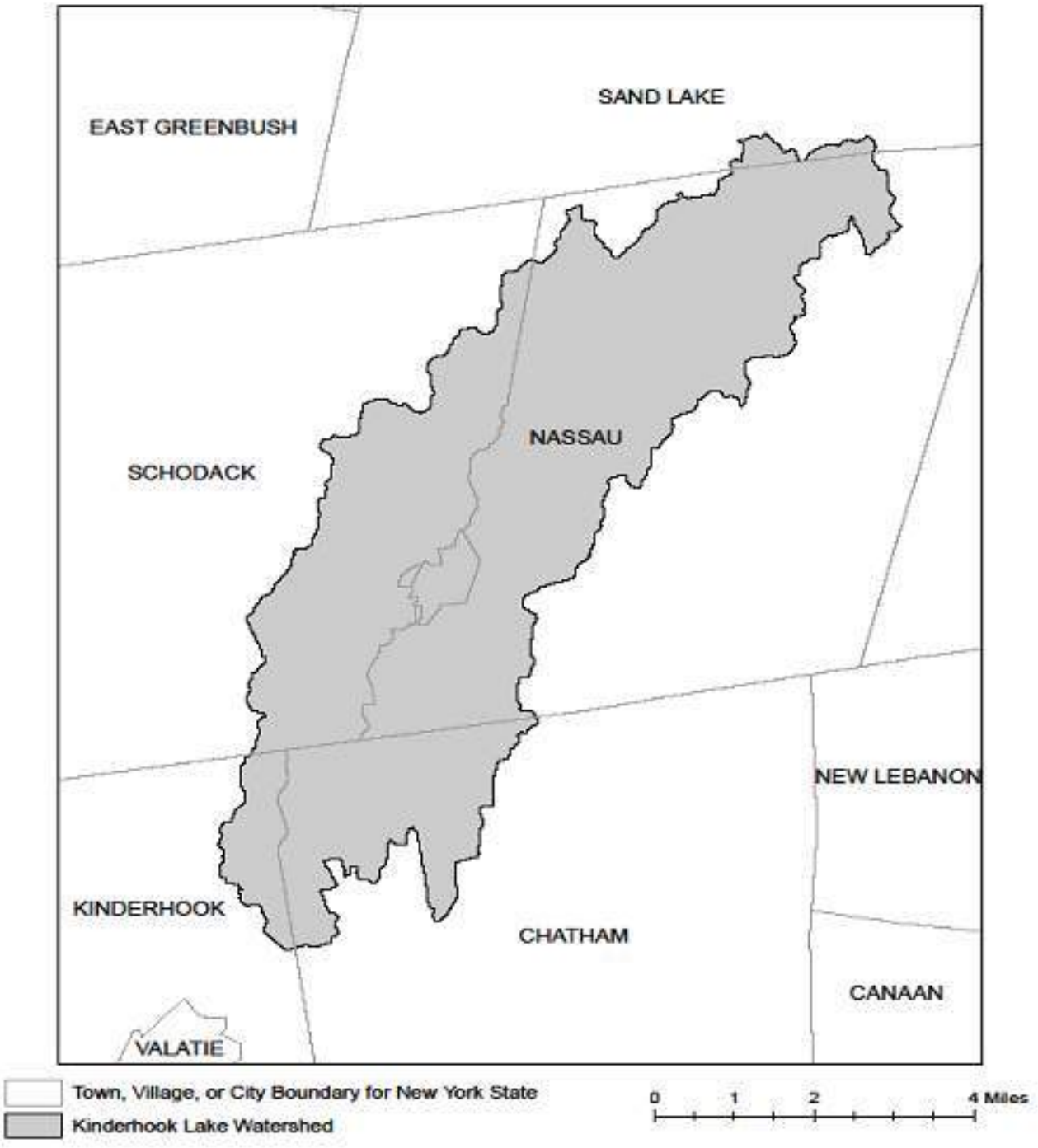
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Figure 4 - Oscawana Lake Watershed



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Figure 5 - Kinderhook Lake Watershed



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX B-1

ELECTRONIC NOTICE OF INTENT (eNOI), MS4 SWPPP ACCEPTANCE FORM & NYSDEC ACKNOWLEDGMENT OF NOI

FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE SPDES GENERAL PERMIT

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.31

(Submission #: HPD-5WB3-PP8RE, version 1)

Details

Originally Started By	Jason Utzig
Submission ID	HPD-5WB3-PP8RE
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
Acquest Wehrle LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Abu-Sitta

Owner/Operator Contact Person First Name
Omar

Owner/Operator Mailing Address
5554 Main Street

City
Williamsville

State
NY

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Zip
14221

Phone
716-204-3570

Email
omar@acquestdevelopment.com

Federal Tax ID
NONE PROVIDED

Project Location

Project/Site Name
Proposed Office Building & Proposed Road

Street Address (Not P.O. Box)
2190-2220 Wehrle Drive

Side of Street
North

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Town of Amherst

State
NY

Zip
14221

DEC Region
9

County
ERIE

Name of Nearest Cross Street
South Ridge Court

Distance to Nearest Cross Street (Feet)
200

Project In Relation to Cross Street
West

Tax Map Numbers Section-Block-Parcel
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Tax Map Numbers
81.02-1-10 & 11

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
42.958340962733494,-78.71217501586915

Project Details

2. What is the nature of this project?
New Construction

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Pasture/Open Land

Post-Development Future Land Use
Commercial

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
24.9

Total Area to be Disturbed (acres)
17.5

Existing Impervious Area to be Disturbed (acres)
0

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Future Impervious Area Within Disturbed Area (acres)
6.56

5. Do you plan to disturb more than 5 acres of soil at any one time?
Yes

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
0

C (%)
0

D (%)
100

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
4/1/2022

End Date
4/1/2023

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Ellicott Creek

9a. Type of waterbody identified in question 9?
Stream/Creek Off Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
Yes

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
NONE PROVIDED

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
Erie County Dept. of Public Works

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
C&S Engineers, Inc.

Contact Name (Last, Space, First)
Utzig, Jason

Mailing Address
141 Elm Street, Suite 100

City
Buffalo

State
NY

Zip
14203

Phone
7169553013

Email
jutzig@cscos.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
SWPPP Preparer Certification Form.pdf - 11/12/2021 09:04 AM
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Silt Fence
Stabilized Construction Entrance
Storm Drain Inlet Protection

Biotechnical
None

Vegetative Measures
Mulching
Seeding
Topsoiling

Permanent Structural
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Reduction of Clearing and Grading

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.559

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.238

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.104

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
0.321

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
0.559

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
1.643

CPv Provided (acre-feet)
1.643

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pre-Development (CFS)
11.59

Post-Development (CFS)
5.20

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
24.49

Post-Development (CFS)
6.39

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
Acquest Wehrle LLC

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
NONE PROVIDED

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
5.63

Total Contributing Impervious Acres for Dry Swale (O-1)
0.93

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
NONE PROVIDED

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
NONE PROVIDED
Comment
NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
NONE PROVIDED
Comment
NONE PROVIDED

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachments

Date	Attachment Name	Context	User
11/12/2021 9:04 AM	SWPPP Preparer Certification Form.pdf	Attachment	Jason Utzig

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Acquest Wehrle LLC
2. Contact Person:	Omar Abu-Sitta
3. Street Address:	5554 Main Street
4. City/State/Zip:	Williamsville, NY 14221
II. Project Site Information	
5. Project/Site Name:	Proposed Office Building & Proposed Road
6. Street Address:	2190-2220 Wehrle Drive
7. City/State/Zip:	Williamsville, NY 14221
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

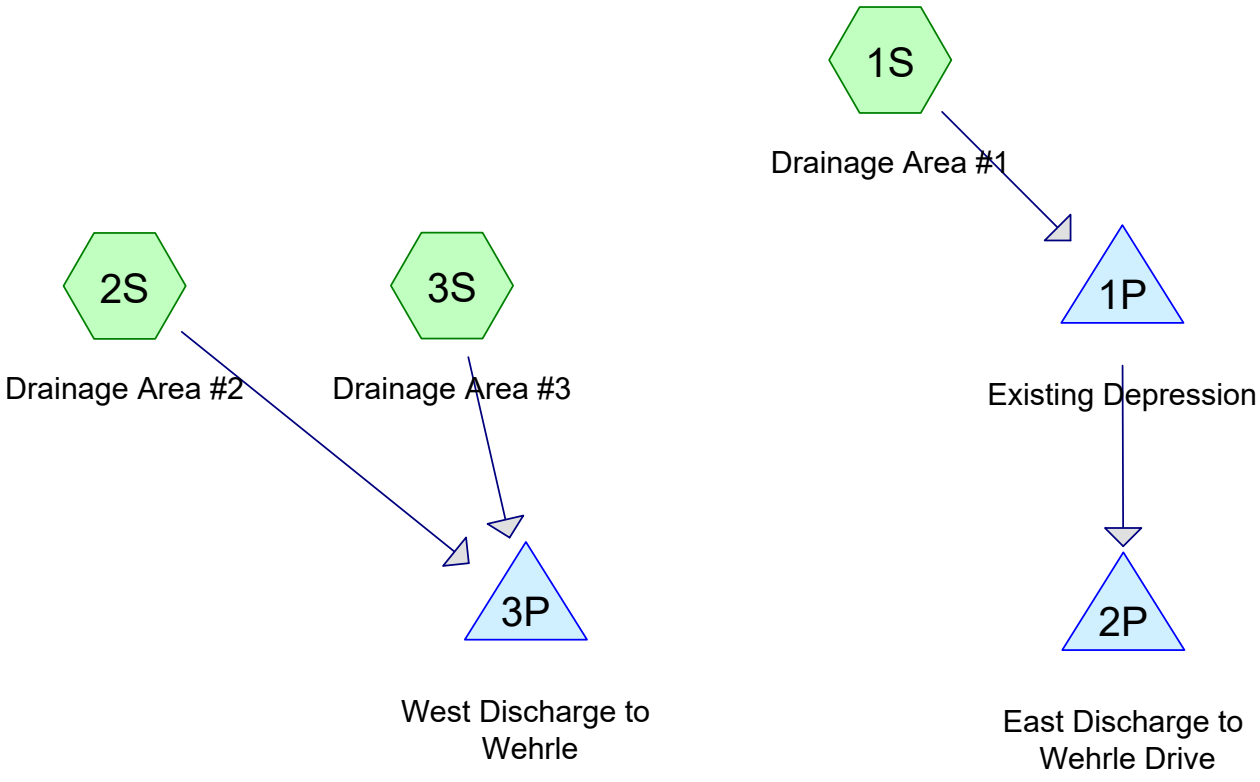
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

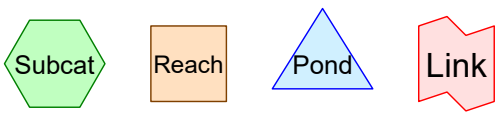
APPENDIX C-1

DRAINAGE CALCULATIONS

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)





Routing Diagram for Existing Drainage
Prepared by C&S Engineers, Inc., Printed 11/10/2021
HydroCAD® 10.10-4a s/n 04066 © 2020 HydroCAD Software Solutions LLC

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	1.80	2
2	10-Year	Type II 24-hr		Default	24.00	1	3.11	2
3	25-Year	Type II 24-hr		Default	24.00	1	3.80	2
4	100-Year	Type II 24-hr		Default	24.00	1	5.14	2

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

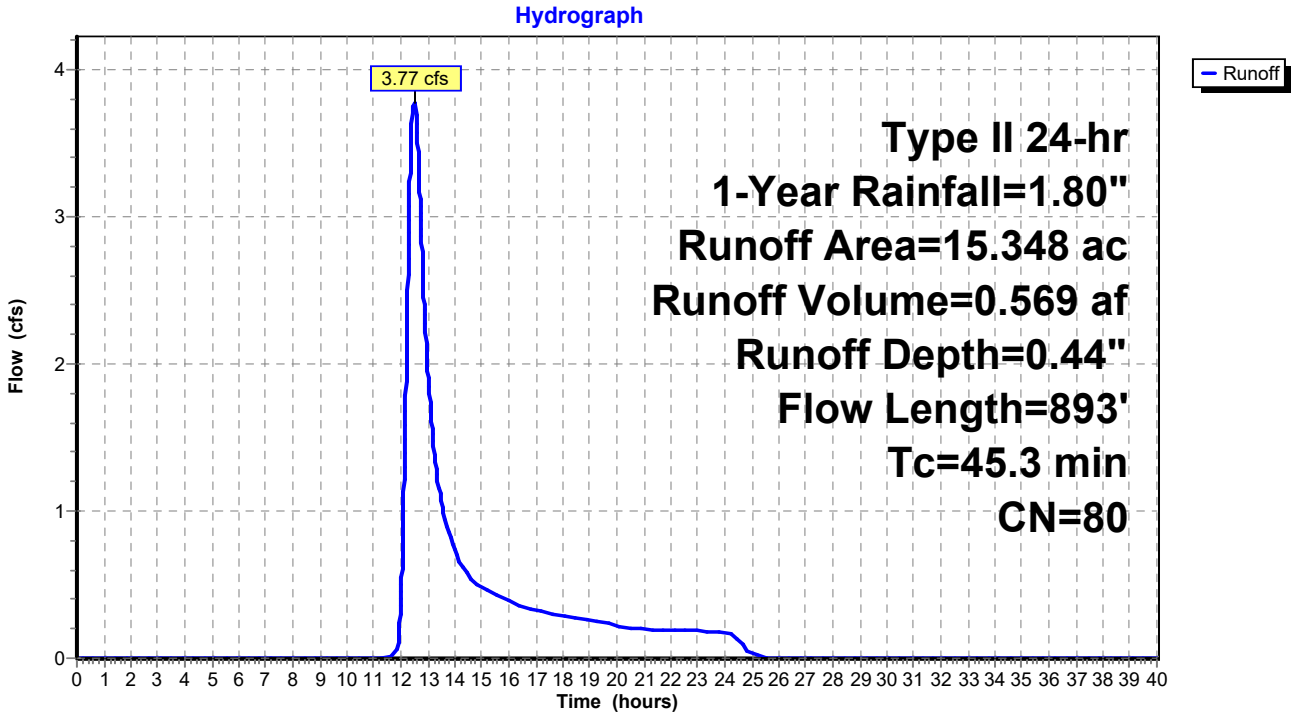
Runoff = 3.77 cfs @ 12.49 hrs, Volume= 0.569 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

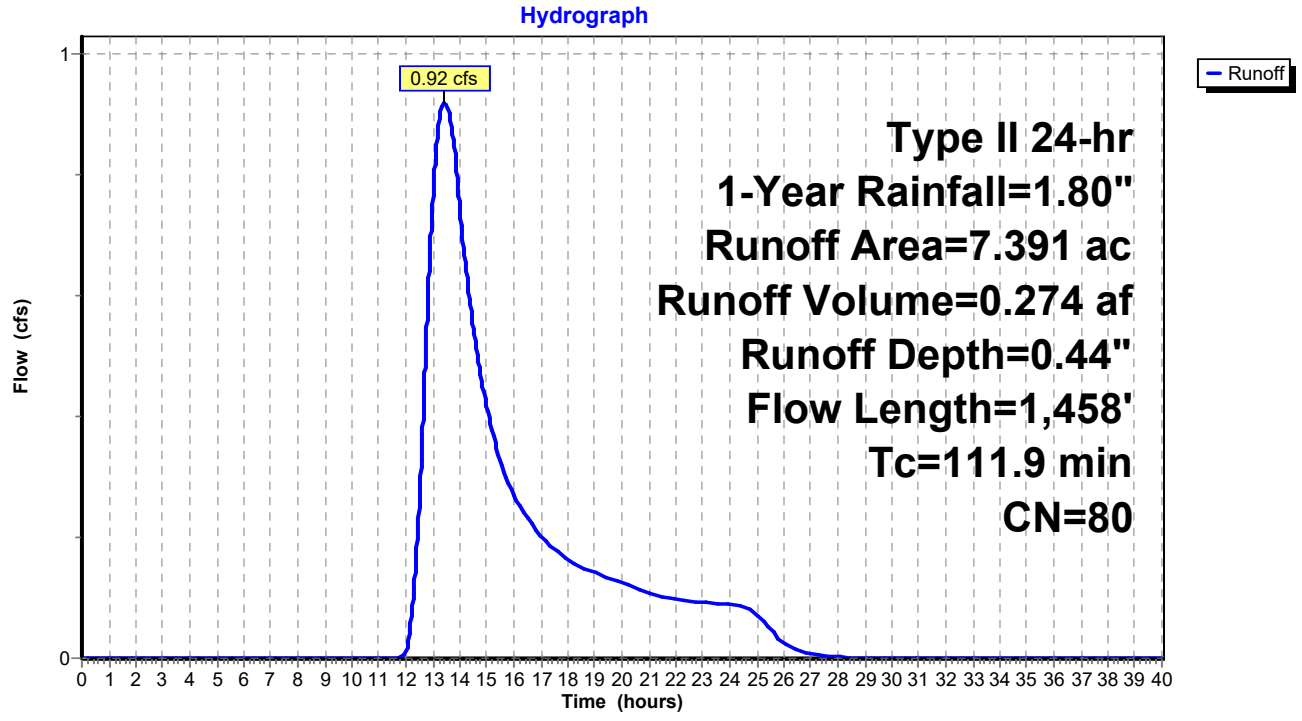
Runoff = 0.92 cfs @ 13.43 hrs, Volume= 0.274 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

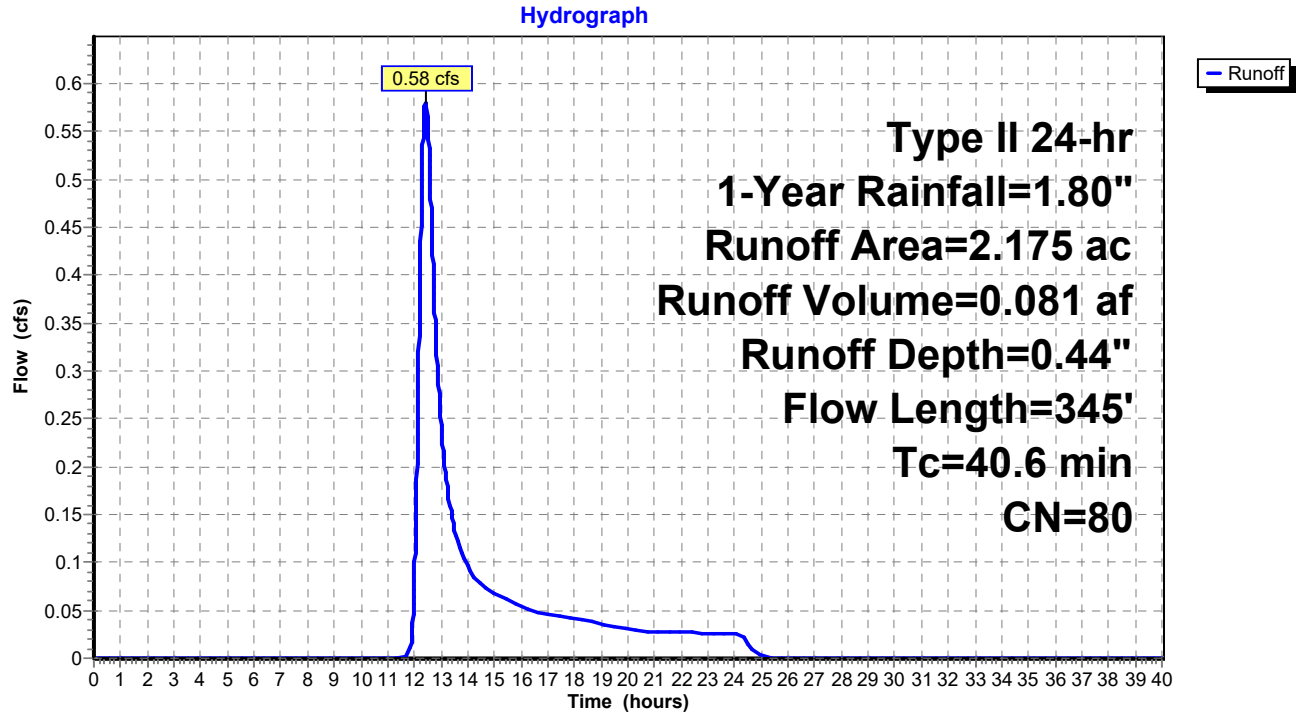
Runoff = 0.58 cfs @ 12.41 hrs, Volume= 0.081 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 3.77 cfs @ 12.49 hrs, Volume= 0.569 af
Outflow = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af, Atten= 98%, Lag= 734.5 min
Primary = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.80' @ 24.73 hrs Surf.Area= 107,830 sf Storage= 24,597 cf

Plug-Flow detention time= 840.4 min calculated for 0.011 af (2% of inflow)
Center-of-Mass det. time= 651.4 min (1,563.3 - 911.9)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

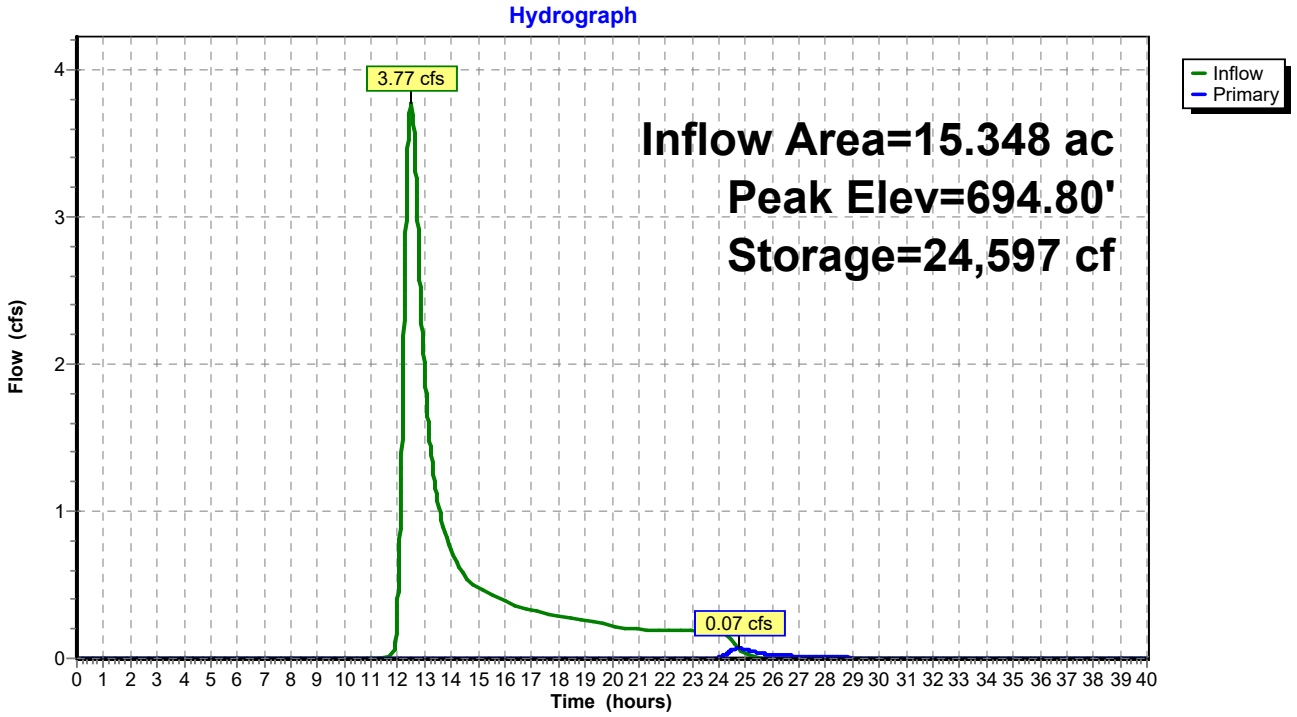
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.05 cfs @ 24.73 hrs HW=694.80' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.14 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

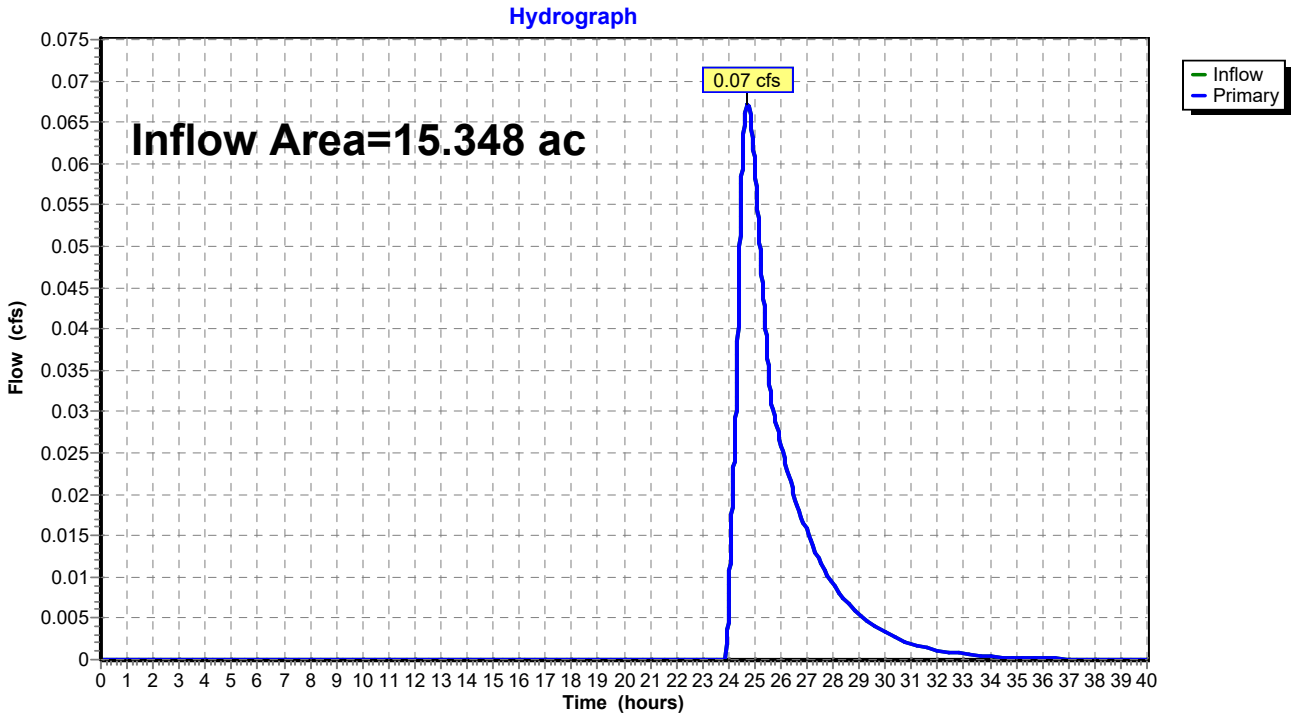
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth > 0.01" for 1-Year event
Inflow = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af
Primary = 0.07 cfs @ 24.73 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

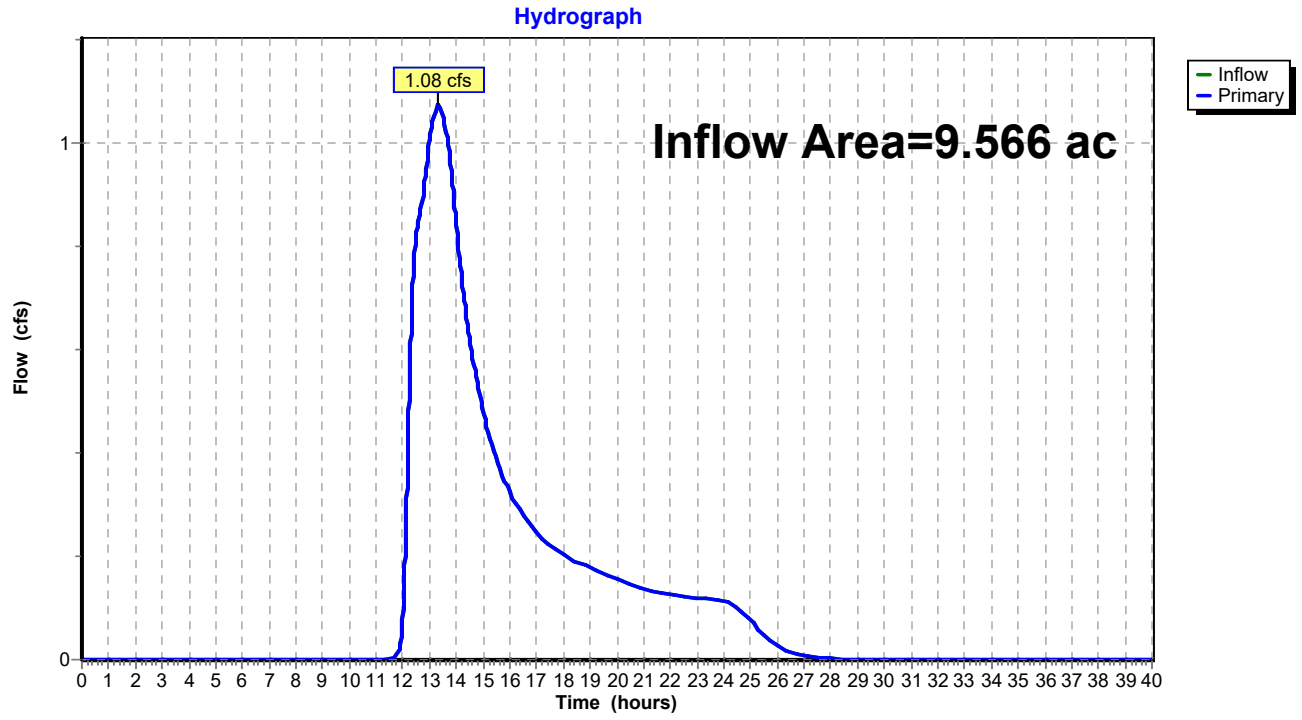
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 1.08 cfs @ 13.30 hrs, Volume= 0.355 af
Primary = 1.08 cfs @ 13.30 hrs, Volume= 0.355 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

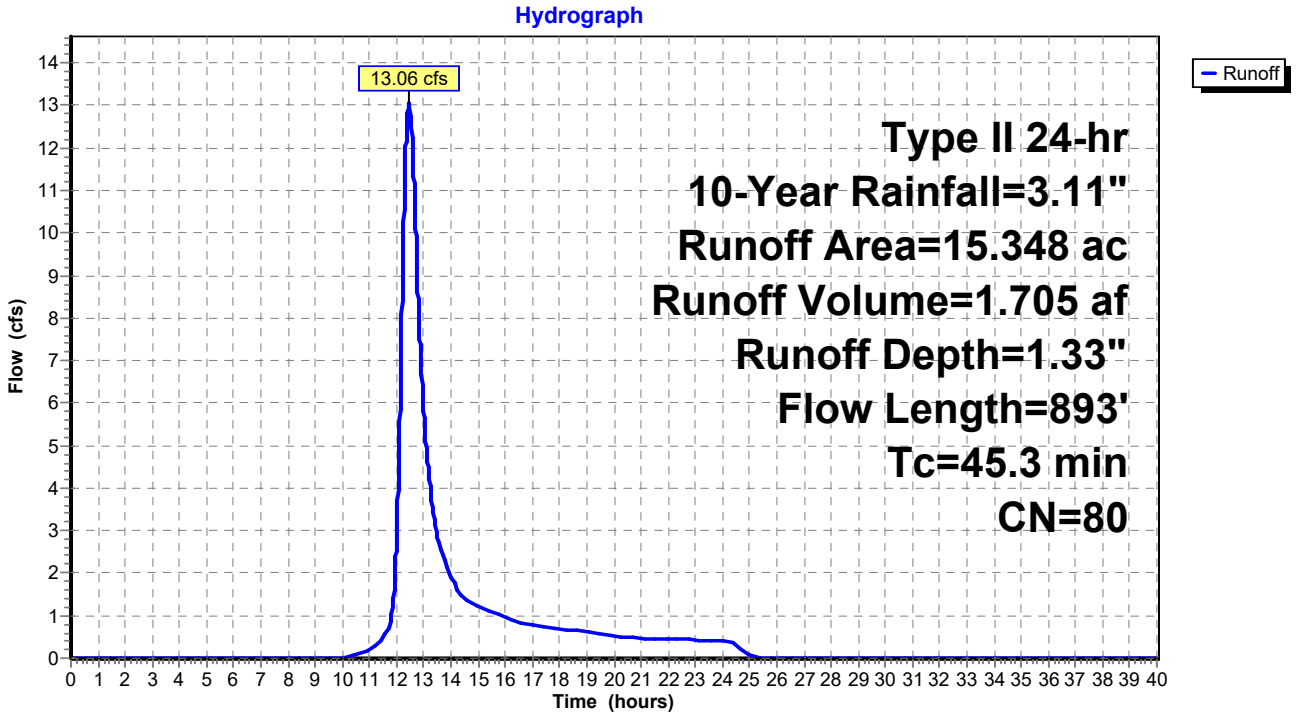
Runoff = 13.06 cfs @ 12.44 hrs, Volume= 1.705 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

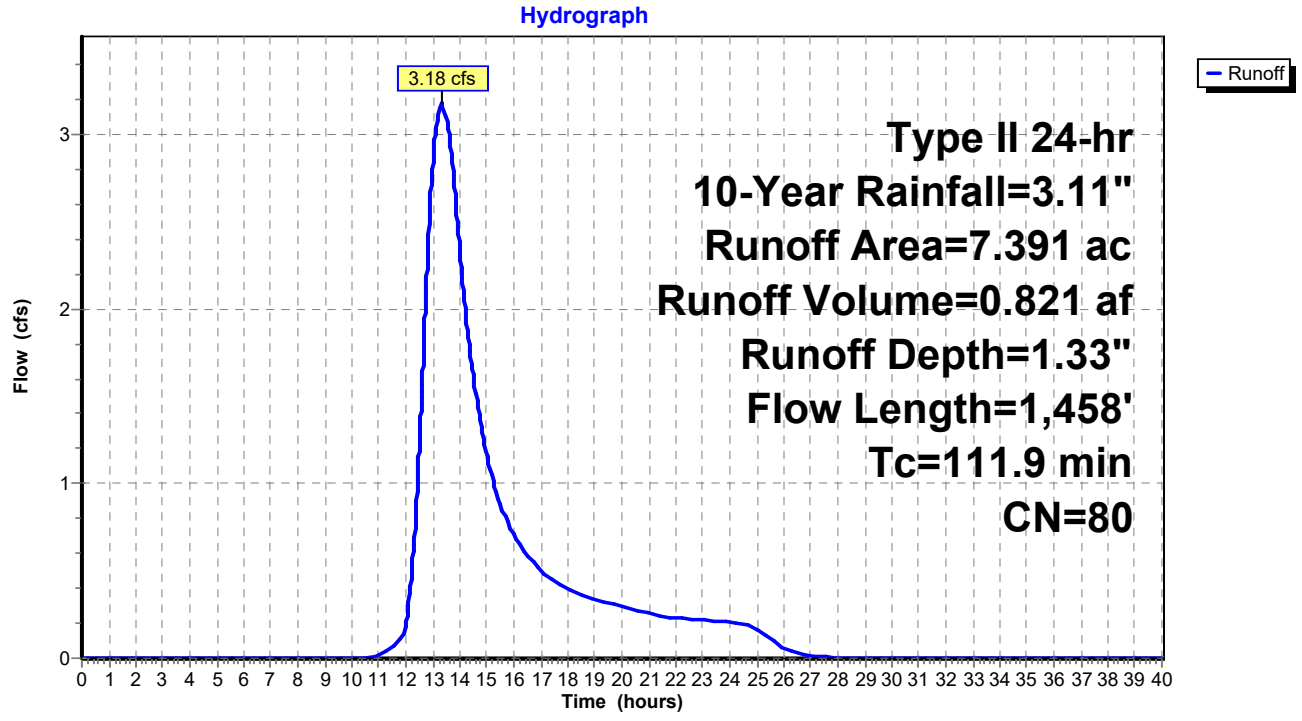
Runoff = 3.18 cfs @ 13.31 hrs, Volume= 0.821 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

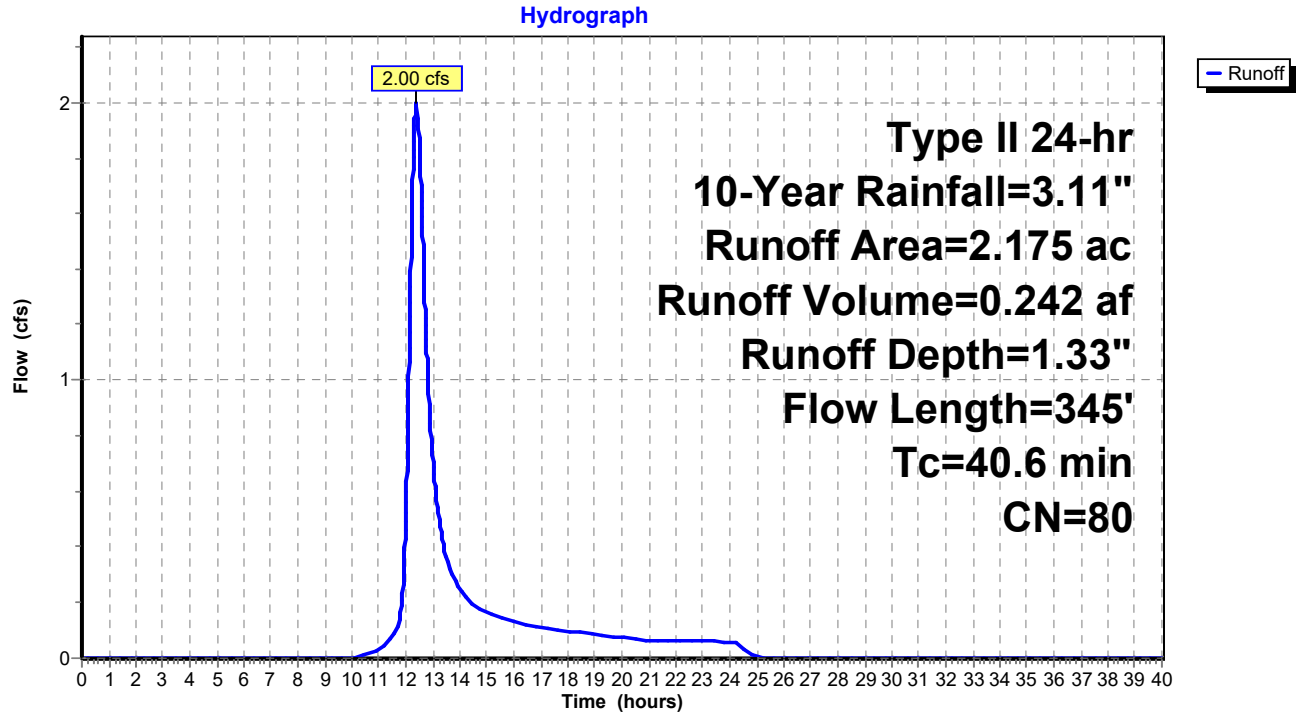
Runoff = 2.00 cfs @ 12.40 hrs, Volume= 0.242 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 13.06 cfs @ 12.44 hrs, Volume= 1.705 af
Outflow = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af, Atten= 59%, Lag= 36.3 min
Primary = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.86' @ 13.04 hrs Surf.Area= 118,545 sf Storage= 31,302 cf

Plug-Flow detention time= 214.5 min calculated for 1.147 af (67% of inflow)
Center-of-Mass det. time= 102.1 min (979.5 - 877.4)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

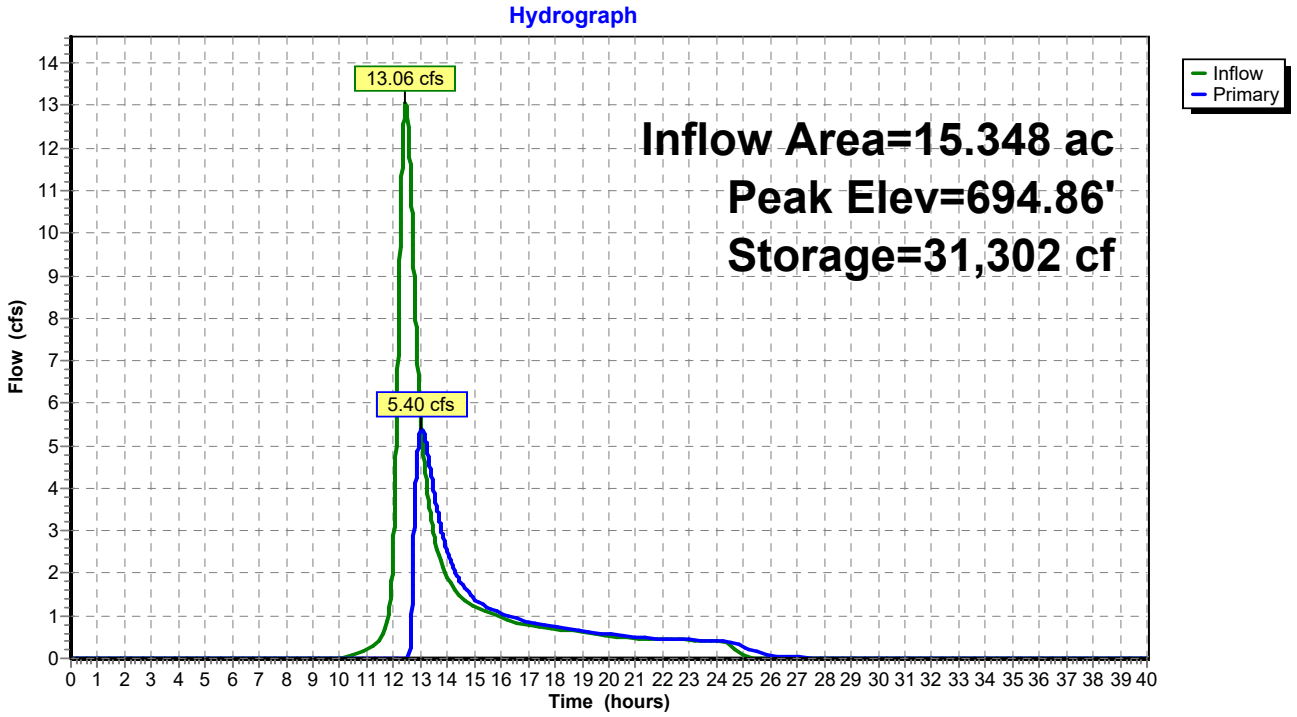
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.40 cfs @ 13.04 hrs HW=694.86' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 5.40 cfs @ 0.67 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

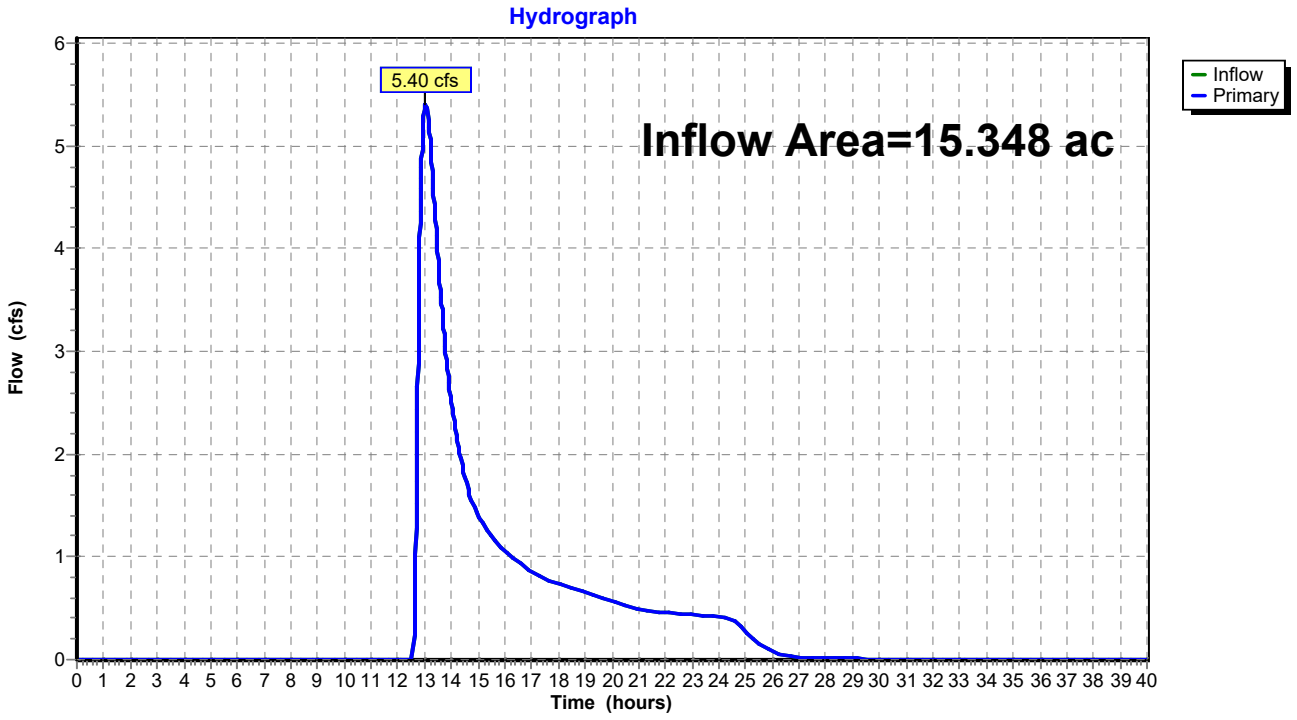
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 0.90" for 10-Year event
Inflow = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af
Primary = 5.40 cfs @ 13.04 hrs, Volume= 1.147 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

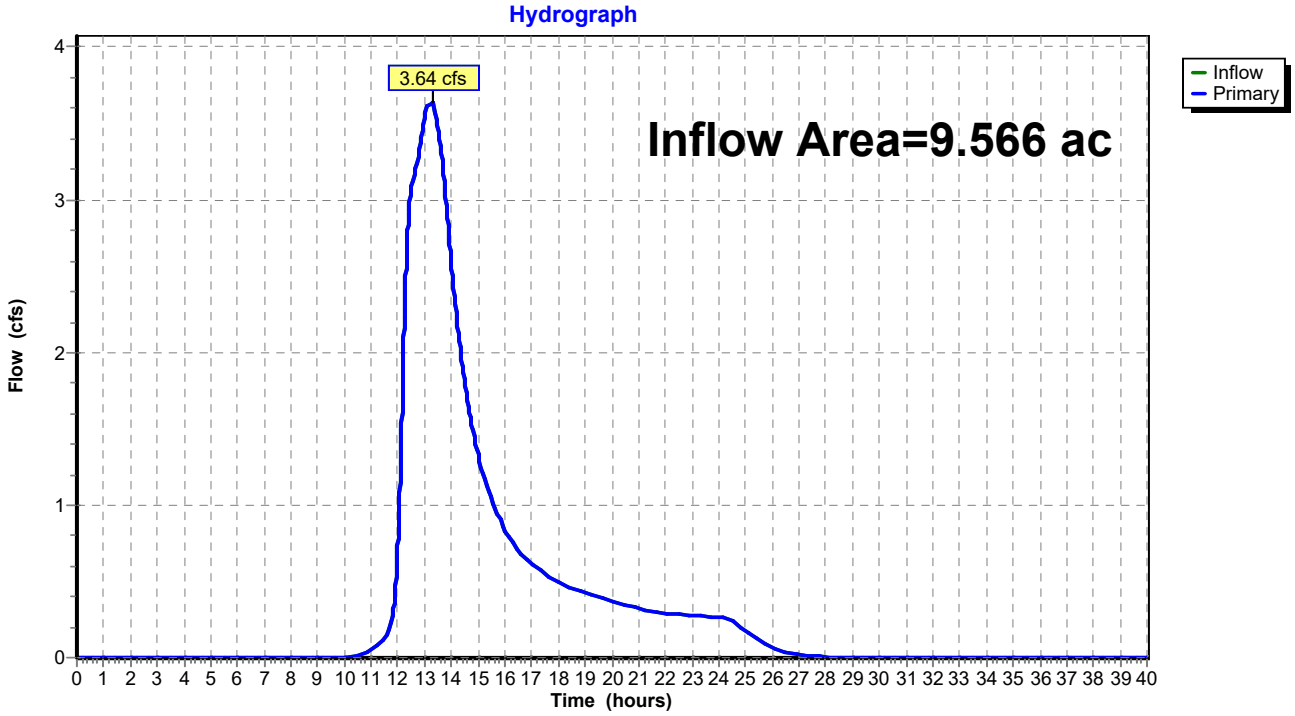
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 3.64 cfs @ 13.30 hrs, Volume= 1.063 af
Primary = 3.64 cfs @ 13.30 hrs, Volume= 1.063 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

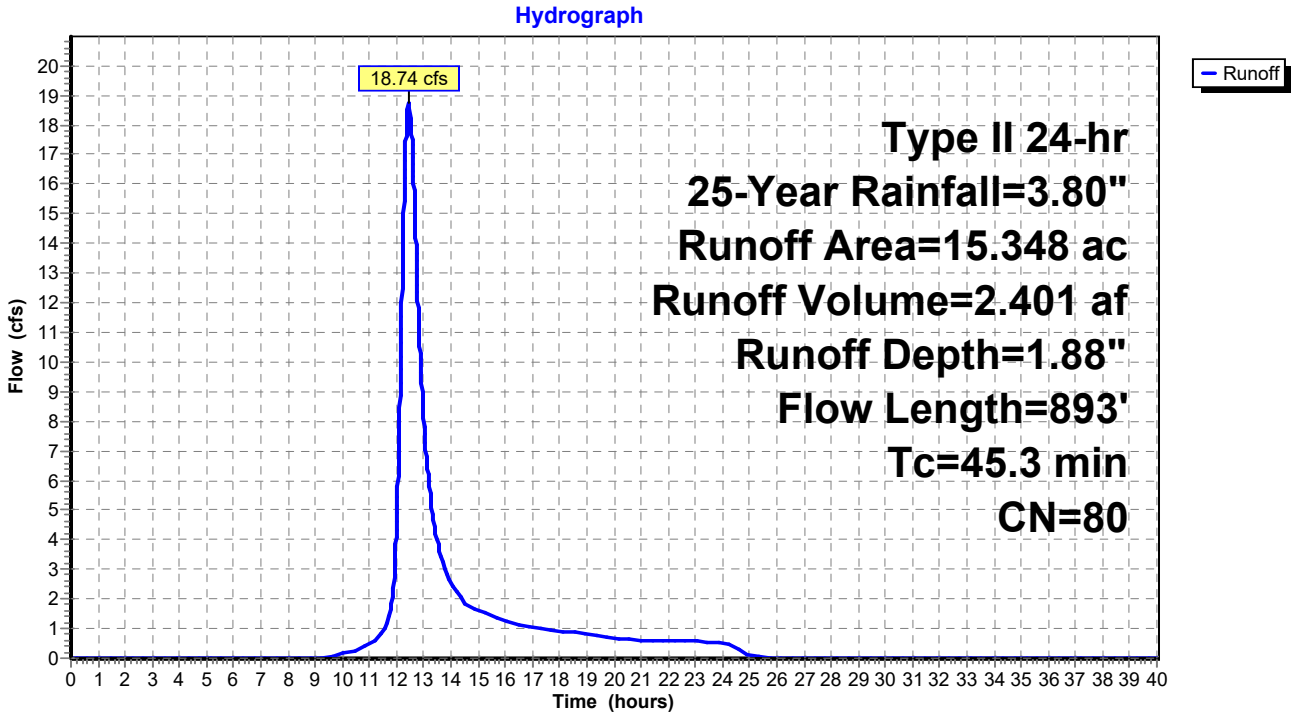
Runoff = 18.74 cfs @ 12.43 hrs, Volume= 2.401 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

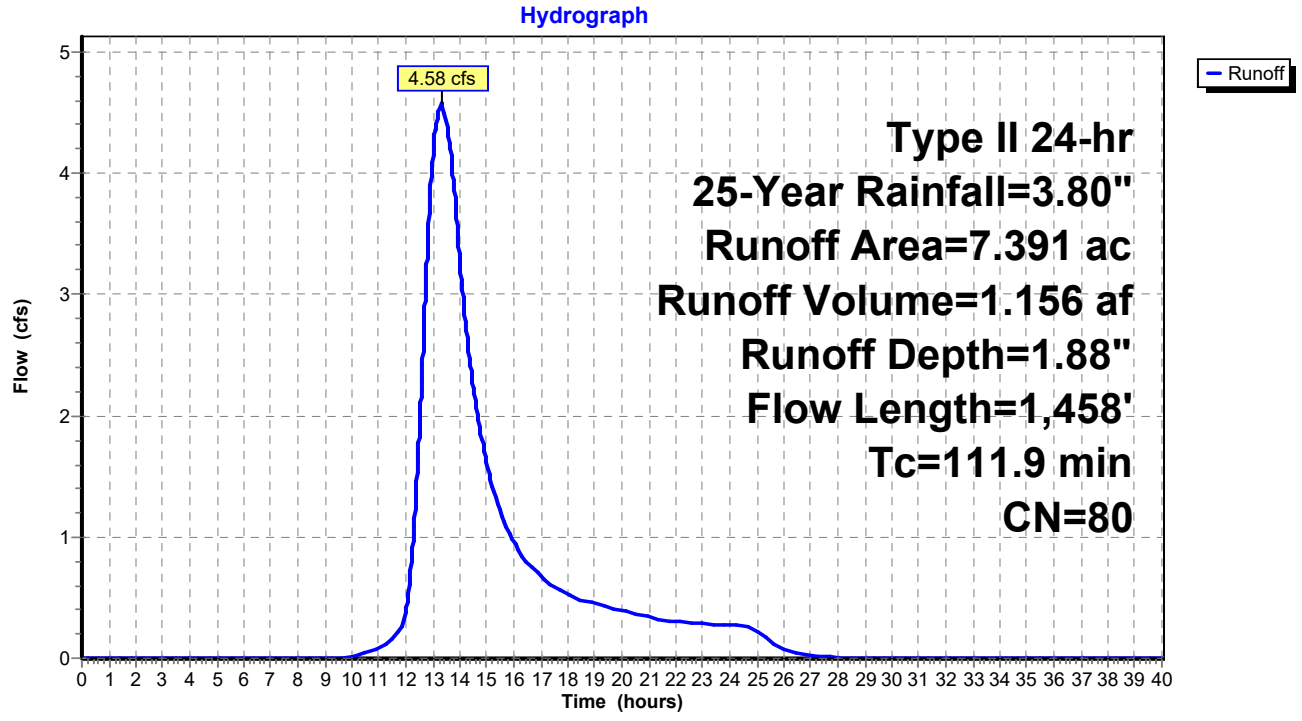
Runoff = 4.58 cfs @ 13.30 hrs, Volume= 1.156 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

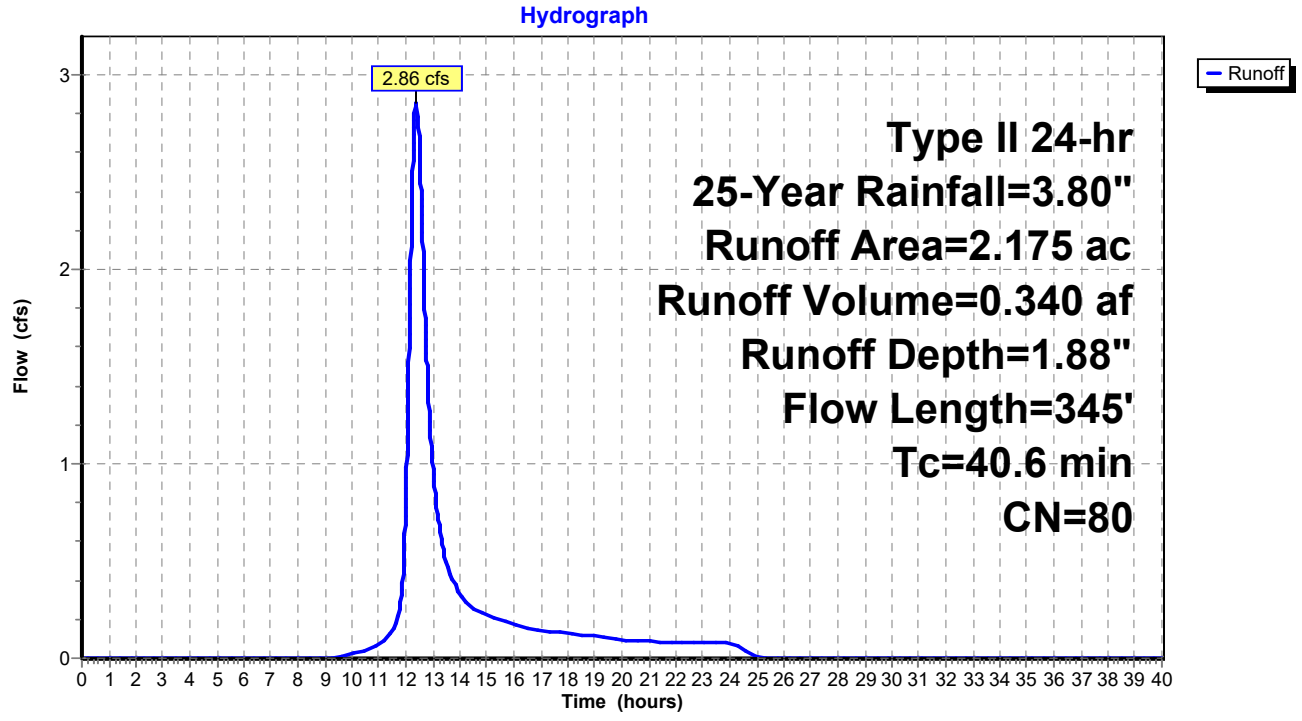
Runoff = 2.86 cfs @ 12.40 hrs, Volume= 0.340 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 1.88" for 25-Year event
Inflow = 18.74 cfs @ 12.43 hrs, Volume= 2.401 af
Outflow = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af, Atten= 38%, Lag= 22.0 min
Primary = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.90' @ 12.80 hrs Surf.Area= 126,310 sf Storage= 36,355 cf

Plug-Flow detention time= 163.9 min calculated for 1.843 af (77% of inflow)
Center-of-Mass det. time= 71.8 min (939.3 - 867.5)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

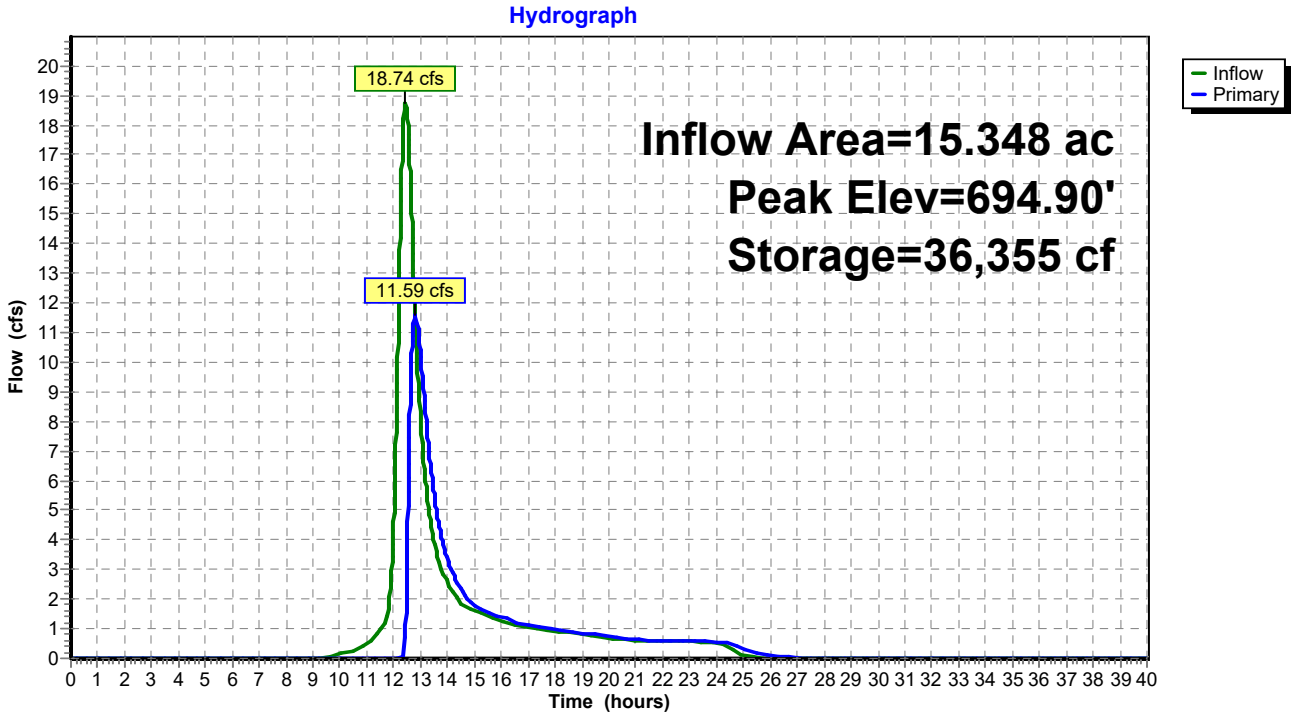
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.59 cfs @ 12.80 hrs HW=694.90' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 11.59 cfs @ 0.86 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

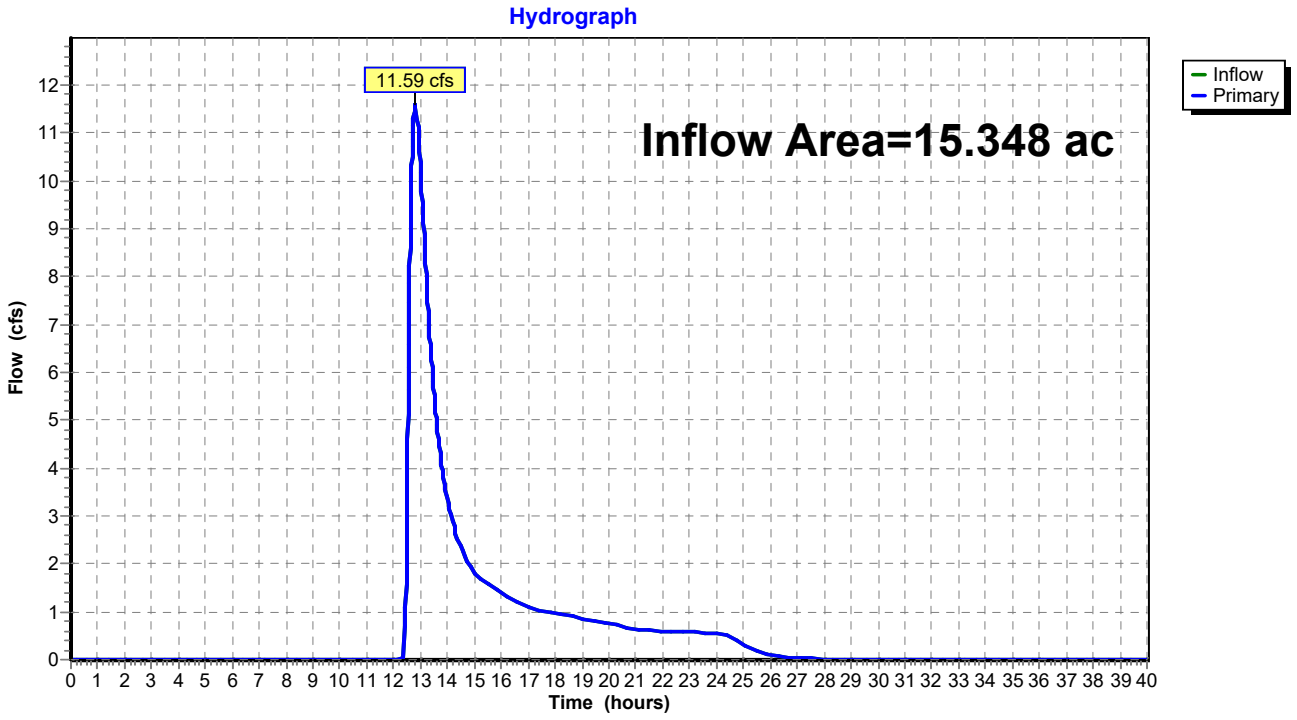
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 1.44" for 25-Year event
Inflow = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af
Primary = 11.59 cfs @ 12.80 hrs, Volume= 1.844 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

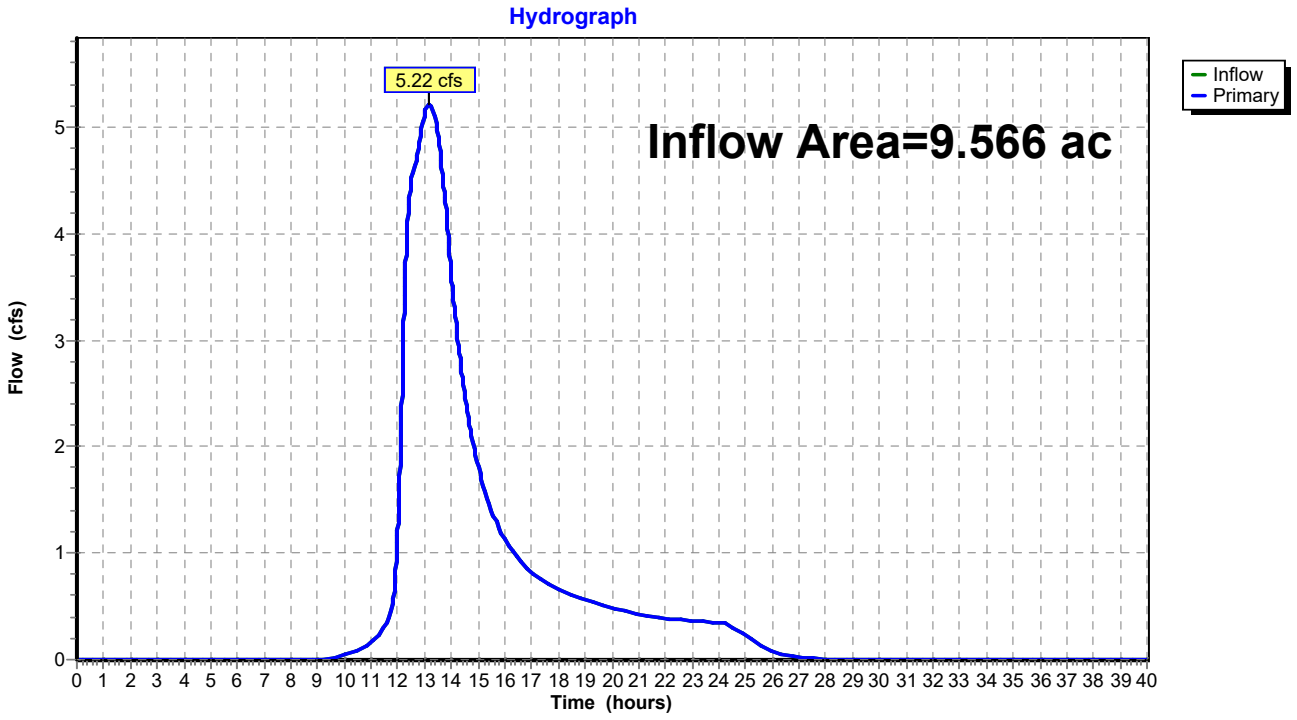
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 1.88" for 25-Year event
Inflow = 5.22 cfs @ 13.18 hrs, Volume= 1.497 af
Primary = 5.22 cfs @ 13.18 hrs, Volume= 1.497 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: Drainage Area #1

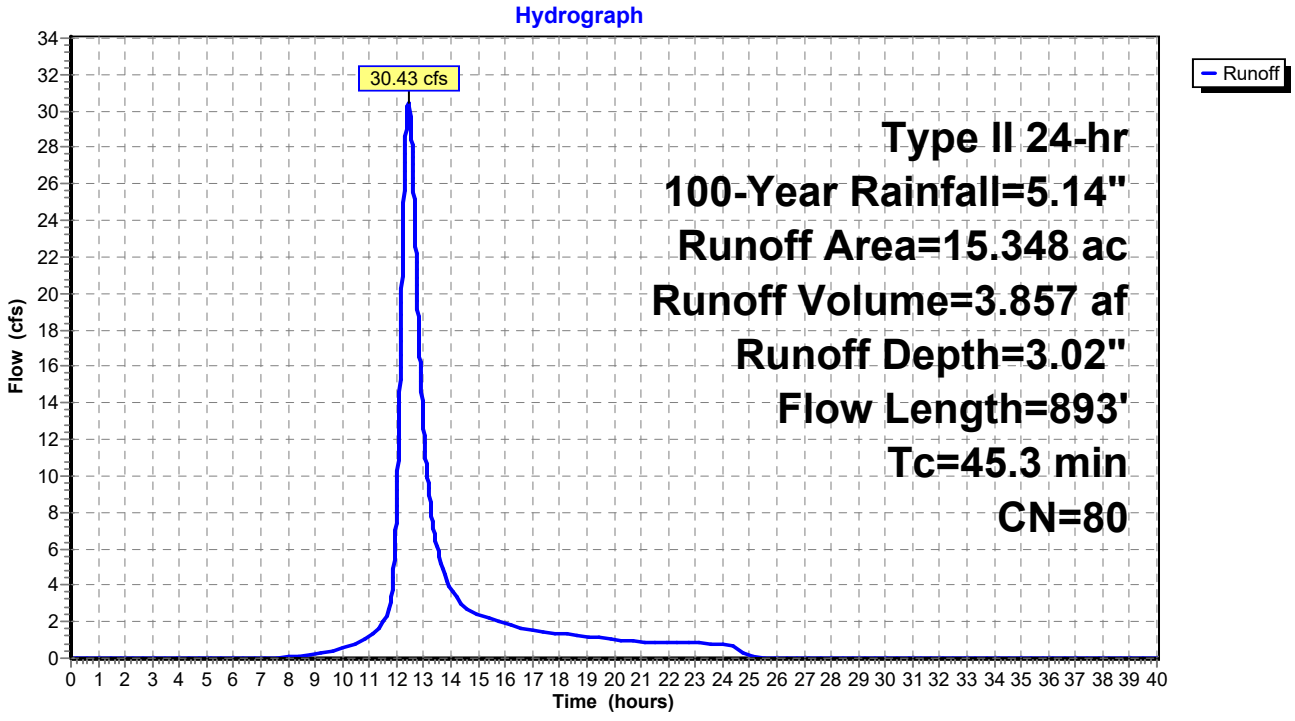
Runoff = 30.43 cfs @ 12.43 hrs, Volume= 3.857 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
15.348	80	>75% Grass cover, Good, HSG D
15.348		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.6	100	0.0060	0.09		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
26.7	793	0.0050	0.49		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
45.3	893	Total			

Subcatchment 1S: Drainage Area #1



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2S: Drainage Area #2

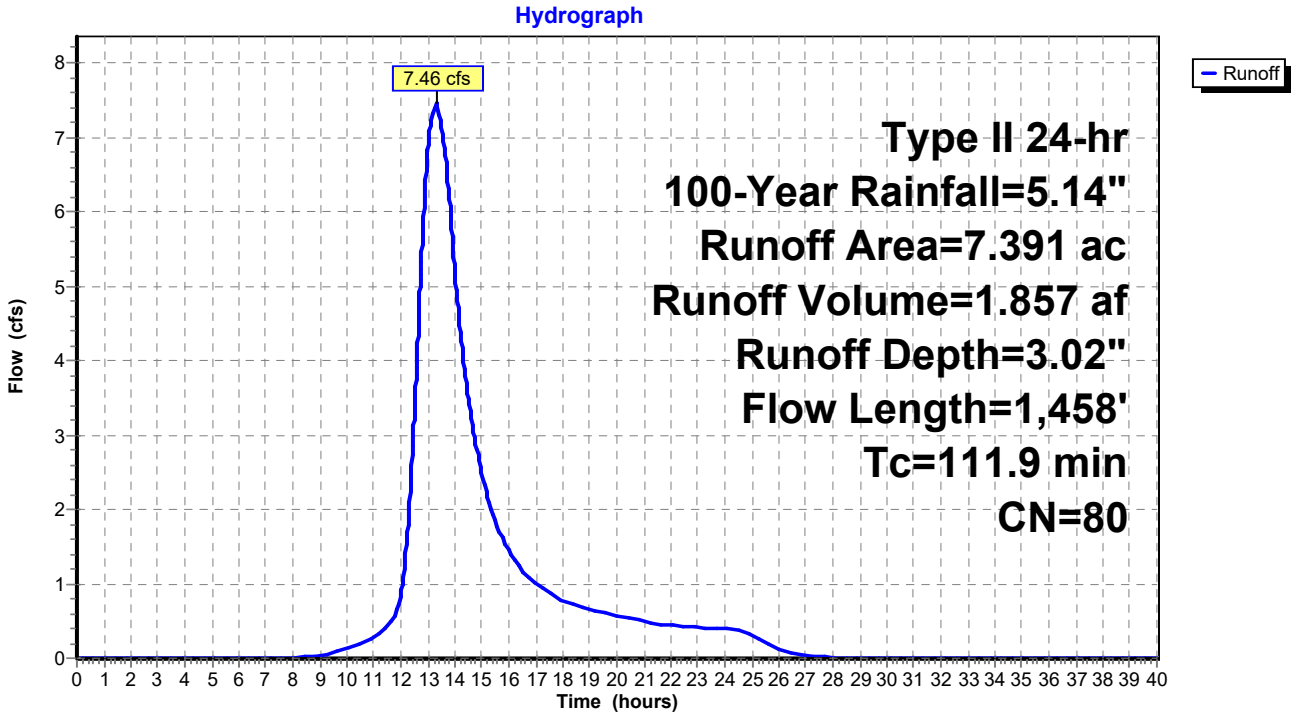
Runoff = 7.46 cfs @ 13.30 hrs, Volume= 1.857 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
7.391	80	>75% Grass cover, Good, HSG D
7.391		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	63	0.0290	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
105.0	1,395	0.0010	0.22		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
111.9	1,458	Total			

Subcatchment 2S: Drainage Area #2



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: Drainage Area #3

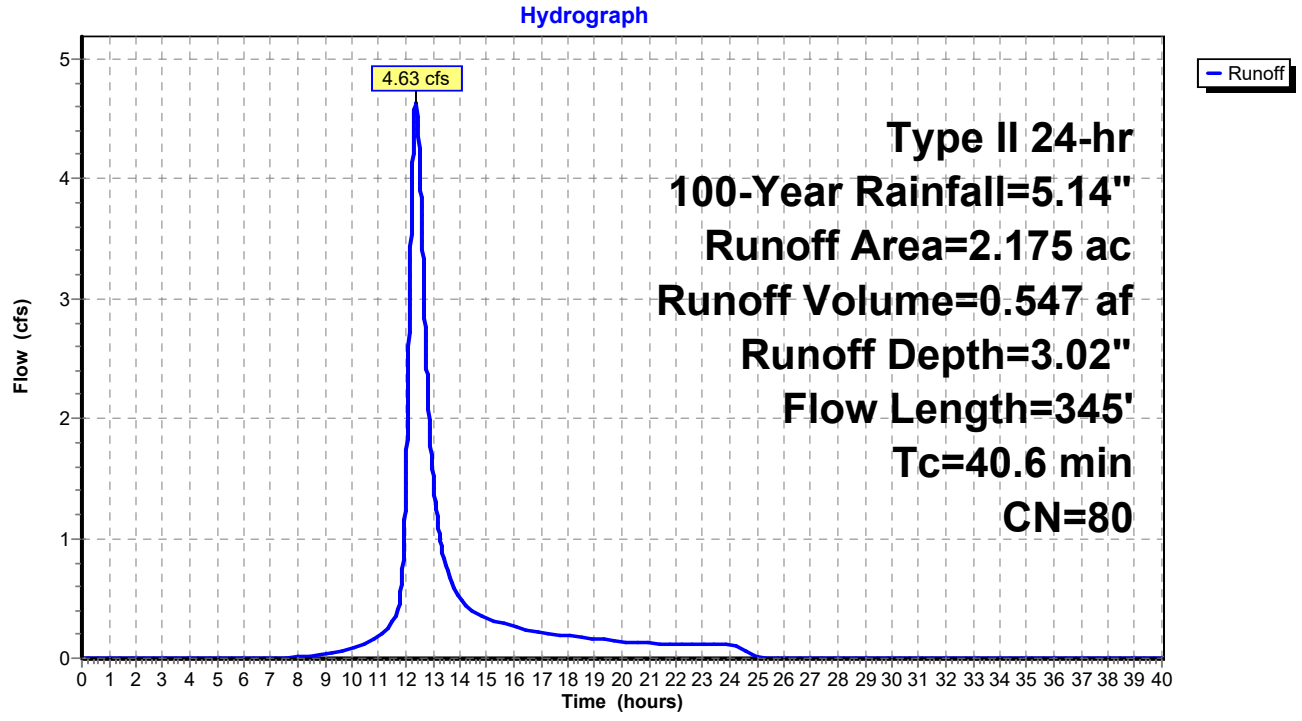
Runoff = 4.63 cfs @ 12.37 hrs, Volume= 0.547 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
2.175	80	>75% Grass cover, Good, HSG D
2.175		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0050	0.08		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
20.6	245	0.0008	0.20		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
40.6	345	Total			

Subcatchment 3S: Drainage Area #3



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Existing Depression

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 3.02" for 100-Year event
Inflow = 30.43 cfs @ 12.43 hrs, Volume= 3.857 af
Outflow = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af, Atten= 20%, Lag= 13.5 min
Primary = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.97' @ 12.66 hrs Surf.Area= 139,413 sf Storage= 45,237 cf

Plug-Flow detention time= 117.4 min calculated for 3.298 af (86% of inflow)
Center-of-Mass det. time= 50.3 min (904.3 - 854.0)

Volume	Invert	Avail.Storage	Storage Description
#1	694.10'	49,468 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

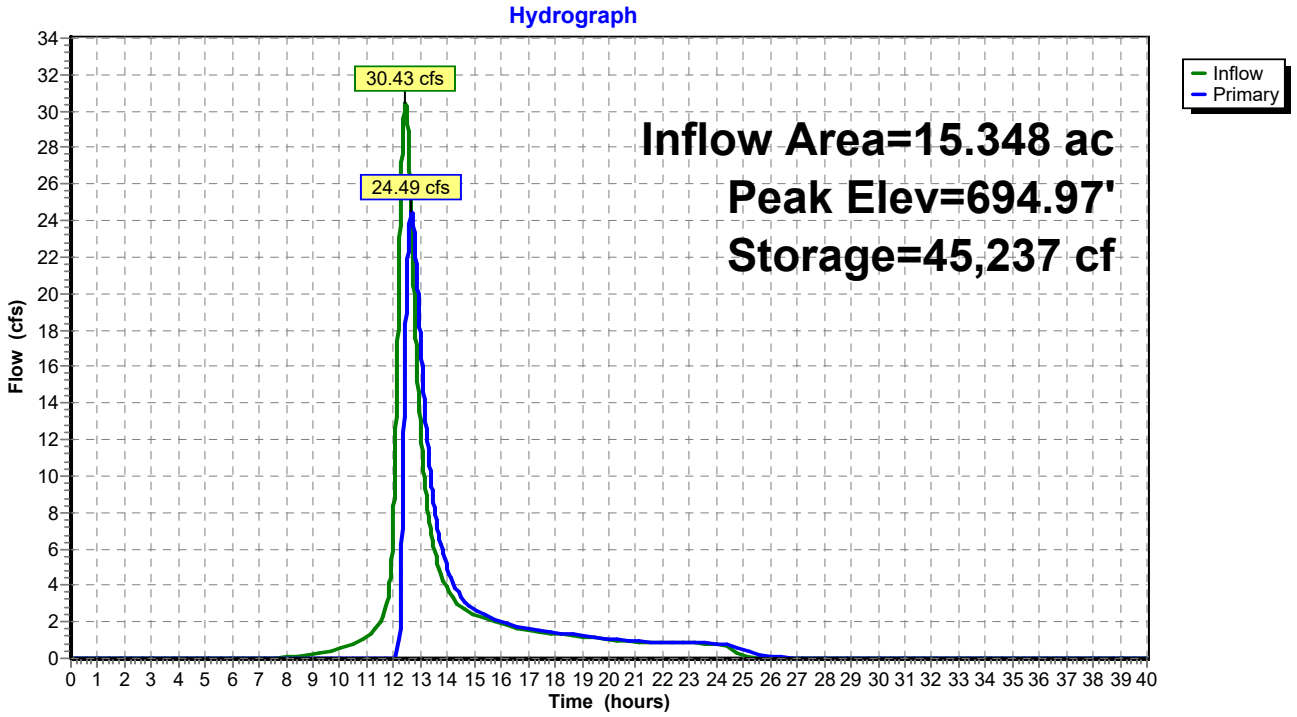
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
694.10	3,986	382.0	0	0	3,986
694.40	21,354	841.0	3,457	3,457	48,658
694.60	42,860	1,024.0	6,298	9,754	75,818
694.80	107,323	1,579.0	14,534	24,288	190,781
695.00	145,440	1,789.0	25,180	49,468	247,065

Device	Routing	Invert	Outlet Devices
#1	Primary	694.80'	**130.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=24.48 cfs @ 12.66 hrs HW=694.97' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 24.48 cfs @ 1.11 fps)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 1P: Existing Depression



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

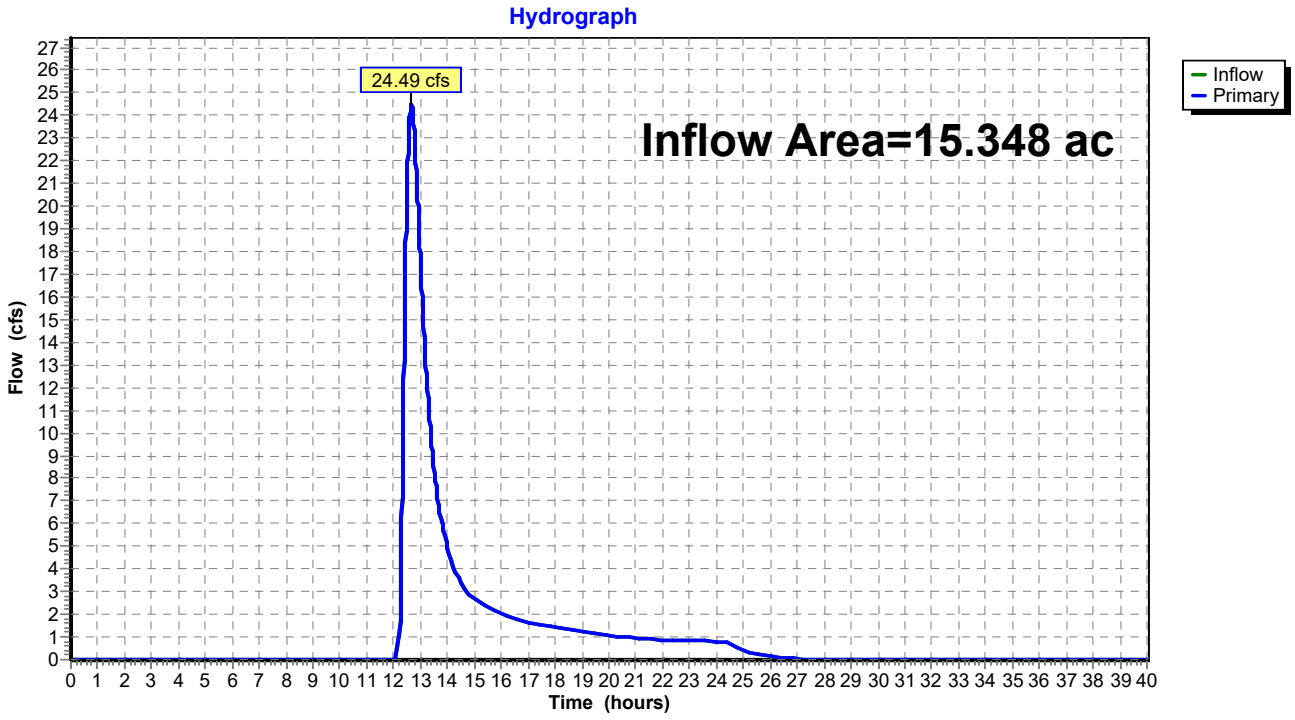
Summary for Pond 2P: East Discharge to Wehrle Drive

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.348 ac, 0.00% Impervious, Inflow Depth = 2.58" for 100-Year event
Inflow = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af
Primary = 24.49 cfs @ 12.66 hrs, Volume= 3.299 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 2P: East Discharge to Wehrle Drive



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

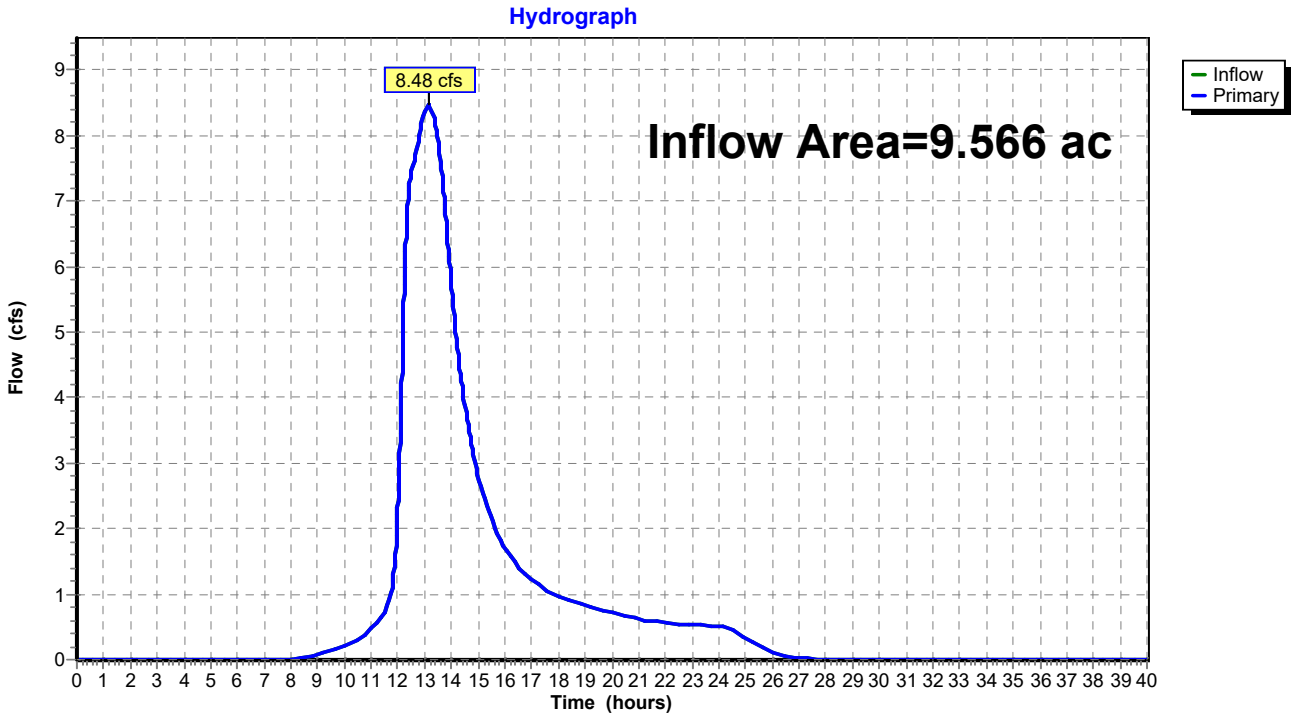
Summary for Pond 3P: West Discharge to Wehrle

[40] Hint: Not Described (Outflow=Inflow)

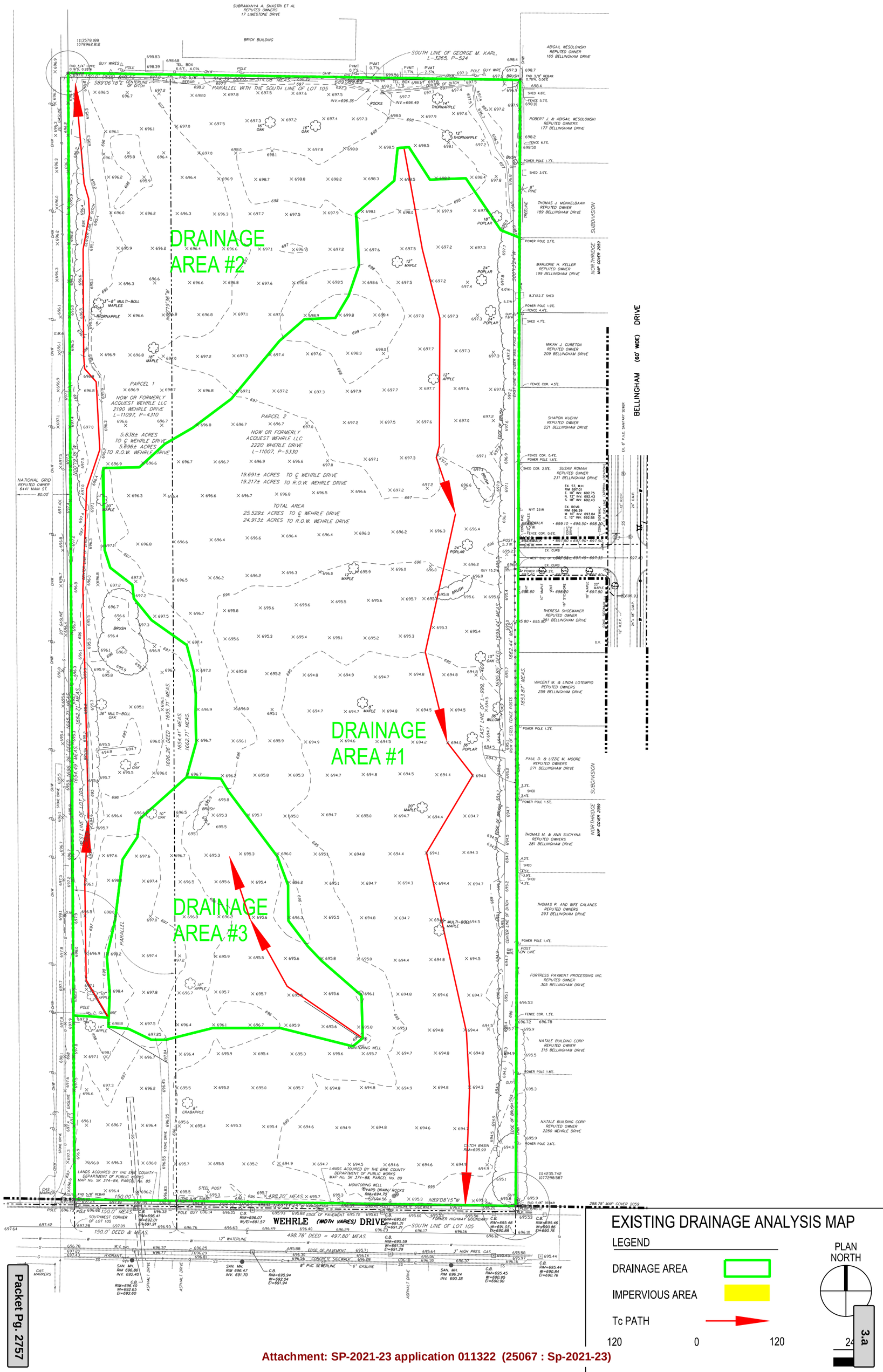
Inflow Area = 9.566 ac, 0.00% Impervious, Inflow Depth = 3.02" for 100-Year event
Inflow = 8.48 cfs @ 13.18 hrs, Volume= 2.404 af
Primary = 8.48 cfs @ 13.18 hrs, Volume= 2.404 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

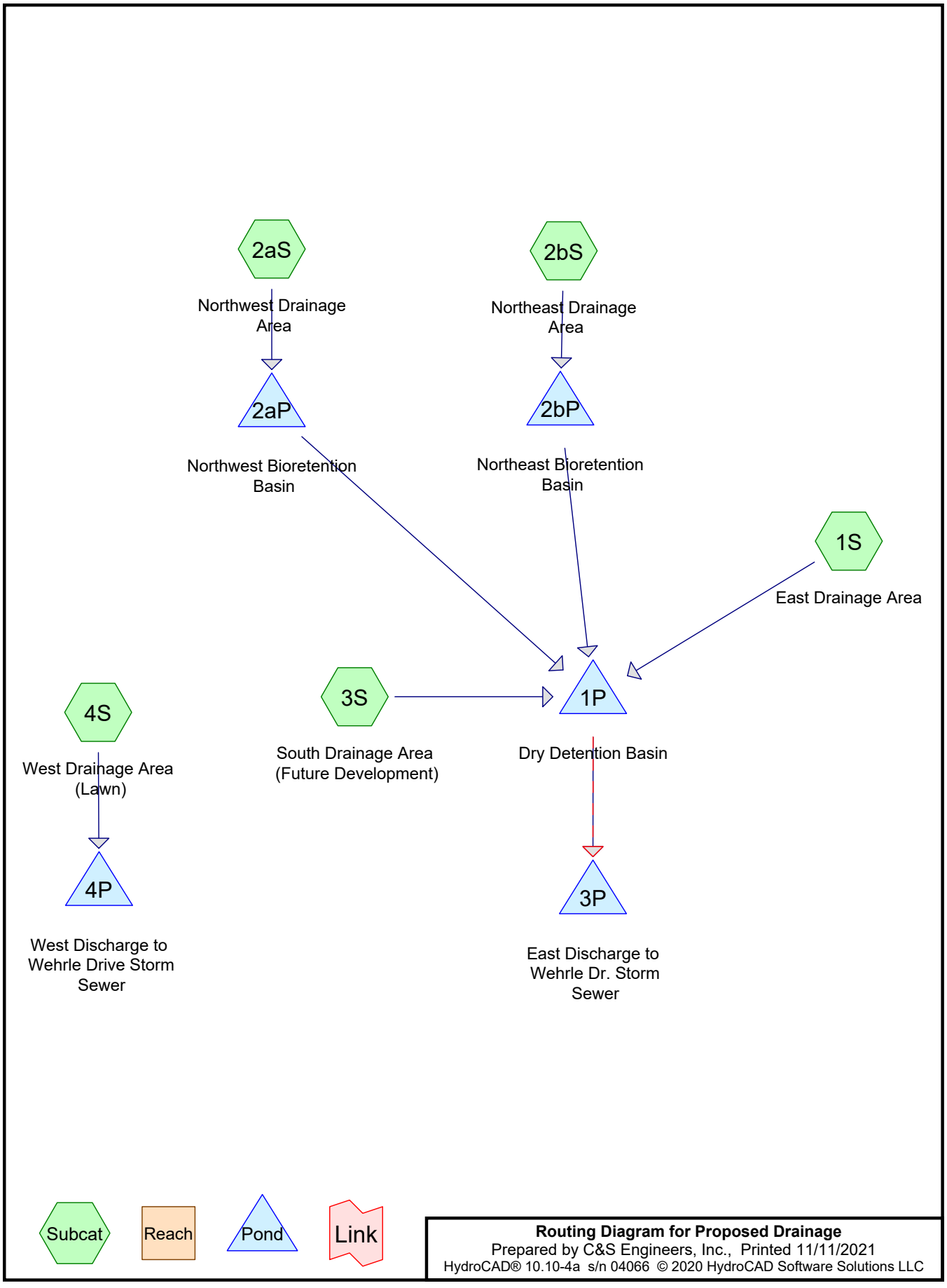
Pond 3P: West Discharge to Wehrle



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)


DRAINAGE AREA #2
DRAINAGE AREA #1
DRAINAGE AREA #3
WEHRLE (WIDTH VARIES) DRIVE
BELLINGHAM (60' WIDE) DRIVE
SUBRAMANYA A. SHASTRI ET AL REPUTED OWNERS 17 LIMESTONE DRIVE
BRICK BUILDING
SOUTH LINE OF GEORGE M. KARL, L-3265, P-524
ABIGAIL WESOLOWSKI REPUTED OWNER 165 BELLINGHAM DRIVE
ROBERT J. & ABIGAIL WESOLOWSKI REPUTED OWNERS 177 BELLINGHAM DRIVE
THOMAS J. MONKELBAAN REPUTED OWNER 189 BELLINGHAM DRIVE
MARJORIE H. KELLER REPUTED OWNER 199 BELLINGHAM DRIVE
MIKAH J. CURETON REPUTED OWNER 209 BELLINGHAM DRIVE
SHARON KUEHN REPUTED OWNER 221 BELLINGHAM DRIVE
SUSAN ROMAN REPUTED OWNER 231 BELLINGHAM DRIVE
THERESA SHOEMAKER REPUTED OWNER 251 BELLINGHAM DRIVE
VINCENT M. & LINDA LOTEMPIO REPUTED OWNERS 259 BELLINGHAM DRIVE
PAUL D. & LIZZIE M. MOORE REPUTED OWNERS 271 BELLINGHAM DRIVE
THOMAS M. & ANN SUCHYNA REPUTED OWNERS 281 BELLINGHAM DRIVE
THOMAS P. AND WIFE GALANES REPUTED OWNERS 293 BELLINGHAM DRIVE
FORTRESS PAYMENT PROCESSING INC. REPUTED OWNER 305 BELLINGHAM DRIVE
NATALE BUILDING CORP REPUTED OWNER 315 BELLINGHAM DRIVE
NATALE BUILDING CORP REPUTED OWNER 2250 WEHRLE DRIVE
NATIONAL GRID REPUTED OWNER 6441 MAIN ST.
PARCEL 1 NOW OR FORMERLY ACQUEST WEHRLE LLC 2190 WEHRLE DRIVE L-11097, P-4310
PARCEL 2 NOW OR FORMERLY ACQUEST WEHRLE LLC 2220 WEHRLE DRIVE L-11007, P-5330
5.838± ACRES TO ℄ WEHRLE DRIVE
5.896± ACRES TO R.O.W. WEHRLE DRIVE
19.691± ACRES TO ℄ WEHRLE DRIVE
19.217± ACRES TO R.O.W. WEHRLE DRIVE
TOTAL AREA
25.529± ACRES TO ℄ WEHRLE DRIVE
24.913± ACRES TO R.O.W. WEHRLE DRIVE
LANDS ACQUIRED BY THE ERIE COUNTY DEPARTMENT OF PUBLIC WORKS MAP No. SK 374-84, PARCEL No. 85
MONITORING WELL
YARD DRAIN/ ROCKS RIM=694.70
CATCH BASIN RIM=695.99
SOUTHWEST CORNER OF LOT 105
SOUTHEAST CORNER OF LOT 105
SOUTH LINE OF LOT 105
EAST LINE OF L-999, P-405
WEST LINE OF LOT 105
EDGE OF PAVEMENT
8" PVC SEWERLINE
6" GASLINE
12" WATERLINE
3" HIGH PRES. GAS
CONCRETE SIDEWALK
ASPHALT DRIVE
SAN. MH. RIM 696.86 INV. 692.40
SAN. MH. RIM 696.47 INV. 691.70
SAN. MH. RIM 696.24 INV. 690.38
HYDRANT
GAS MARKERS
STONE DRIVE
EX. 8" PVC SANITARY SEWER
EX. 15" R.C.P.
EX. 24" C.M.P.
EX. 12" R.C.P.
EX. 18" C.M.P.
EX. 24" R.C.P.
EX. 51. M.H. RIM 697.01 E. 10" INV. 692.75 N. 12" INV. 692.43 S. 18" INV. 692.43
EX. RIOR. RIM 696.29 W. 10" INV. 693.04 E. 12" INV. 692.88
SUBDIVISION MAP COVER 2059
NORTHRIDGE
288.78' MAP COVER 2059
1113578.188 1078962.612
1114235.742 1077298.587
N89°06'18"E 514.39' DEED = 514.08' MEAS.
PARALLEL WITH THE SOUTH LINE OF LOT 105
S89°06'18"W 514.39' DEED = 514.08' MEAS.
N89°28'15"W 498.20' MEAS.
N89°28'15"W 288.78' DEED & MEAS.
N00°13'36"W 1654.41' MEAS. 1662.71' MEAS.
S00°13'36"E 1654.49' MEAS. 1662.71' MEAS.
1696.26' DEED = 1695.71' MEAS.
1662.44' MEAS. 1695.44' MEAS. 1695.85' DEED
1653.87' MEAS.
150.00' DEED & MEAS.
498.78' DEED = 497.80' MEAS.
EXISTING DRAINAGE ANALYSIS MAP
LEGEND
DRAINAGE AREA
IMPERVIOUS AREA
Tc PATH
PLAN NORTH
120 0 120 240

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	1.80	2
2	10-Year	Type II 24-hr		Default	24.00	1	3.11	2
3	25-Year	Type II 24-hr		Default	24.00	1	3.80	2
4	100-Year	Type II 24-hr		Default	24.00	1	5.14	2

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	4S	0.00	0.00	2,050.0	0.0020	0.013	8.0	0.0	0.0
2	1P	691.50	691.00	18.0	0.0278	0.013	15.0	0.0	0.0
3	2aP	693.80	693.00	130.0	0.0062	0.013	18.0	0.0	0.0
4	2aP	693.80	693.80	214.0	0.0000	0.013	8.0	0.0	0.0
5	2bP	693.00	693.00	234.0	0.0000	0.013	18.0	0.0	0.0
6	2bP	693.00	693.00	390.0	0.0000	0.013	8.0	0.0	0.0

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

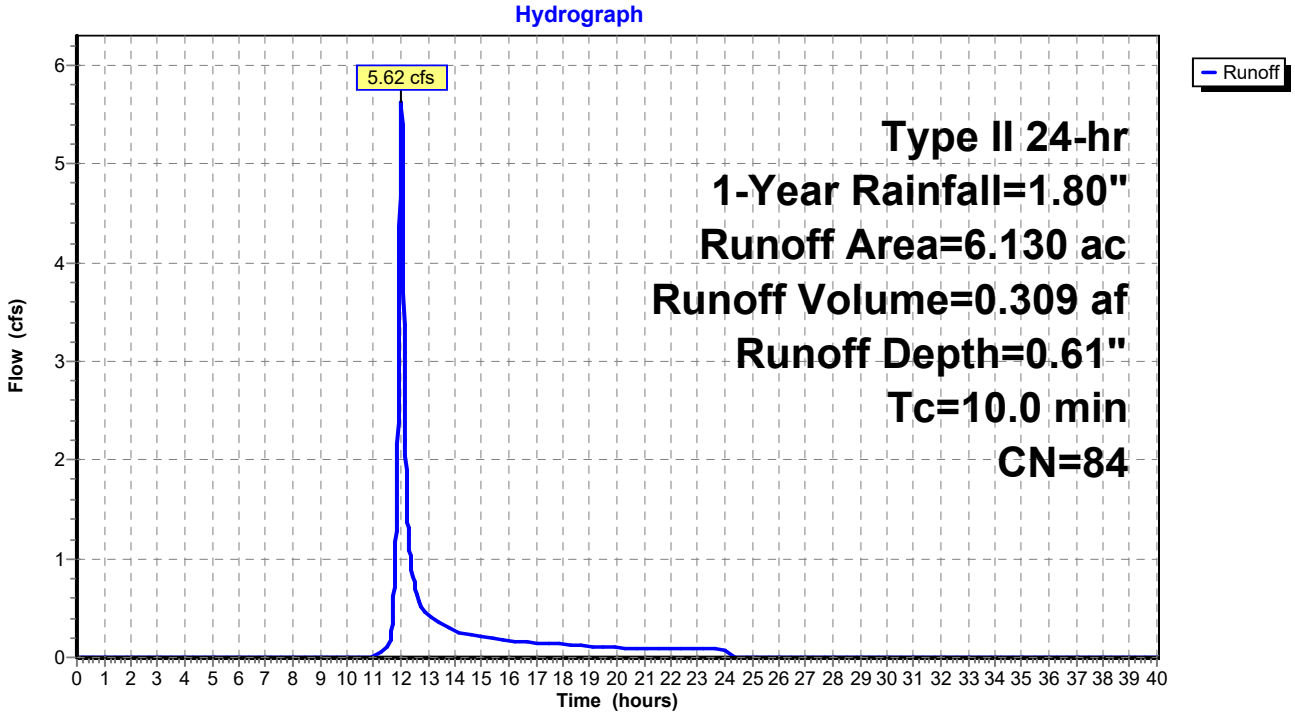
Runoff = 5.62 cfs @ 12.03 hrs, Volume= 0.309 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

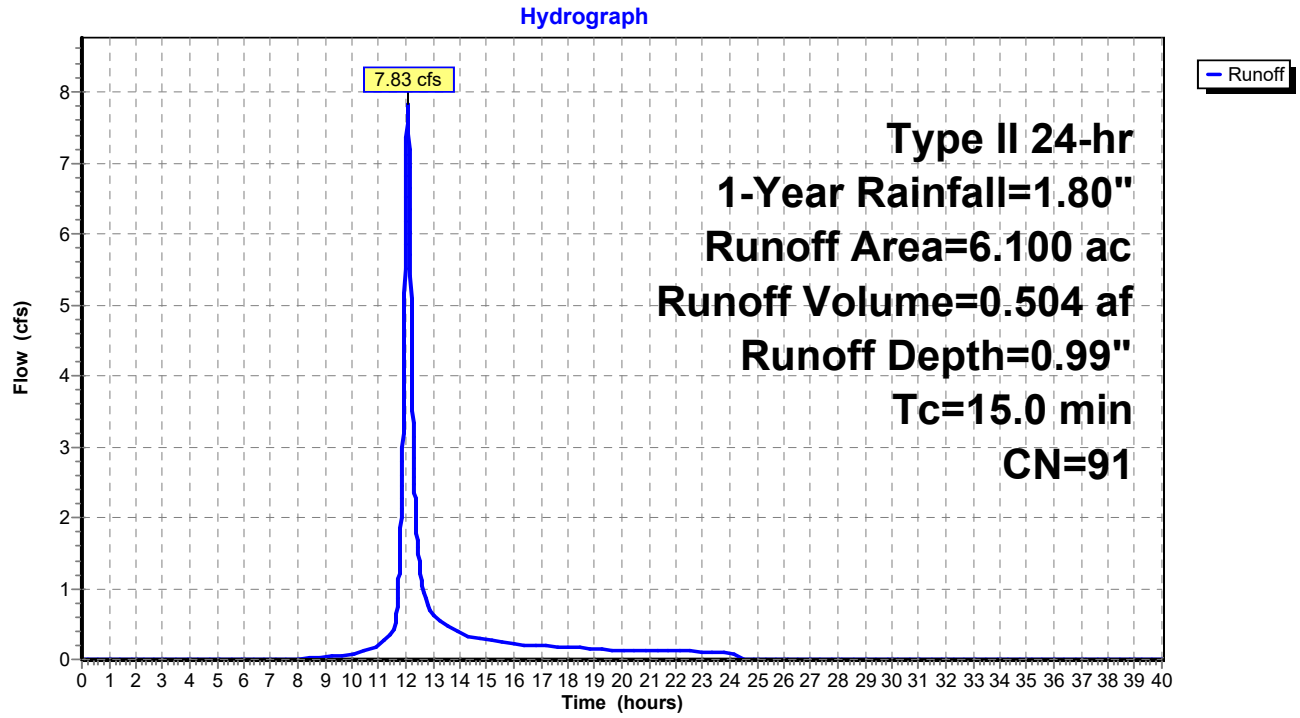
Runoff = 7.83 cfs @ 12.07 hrs, Volume= 0.504 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

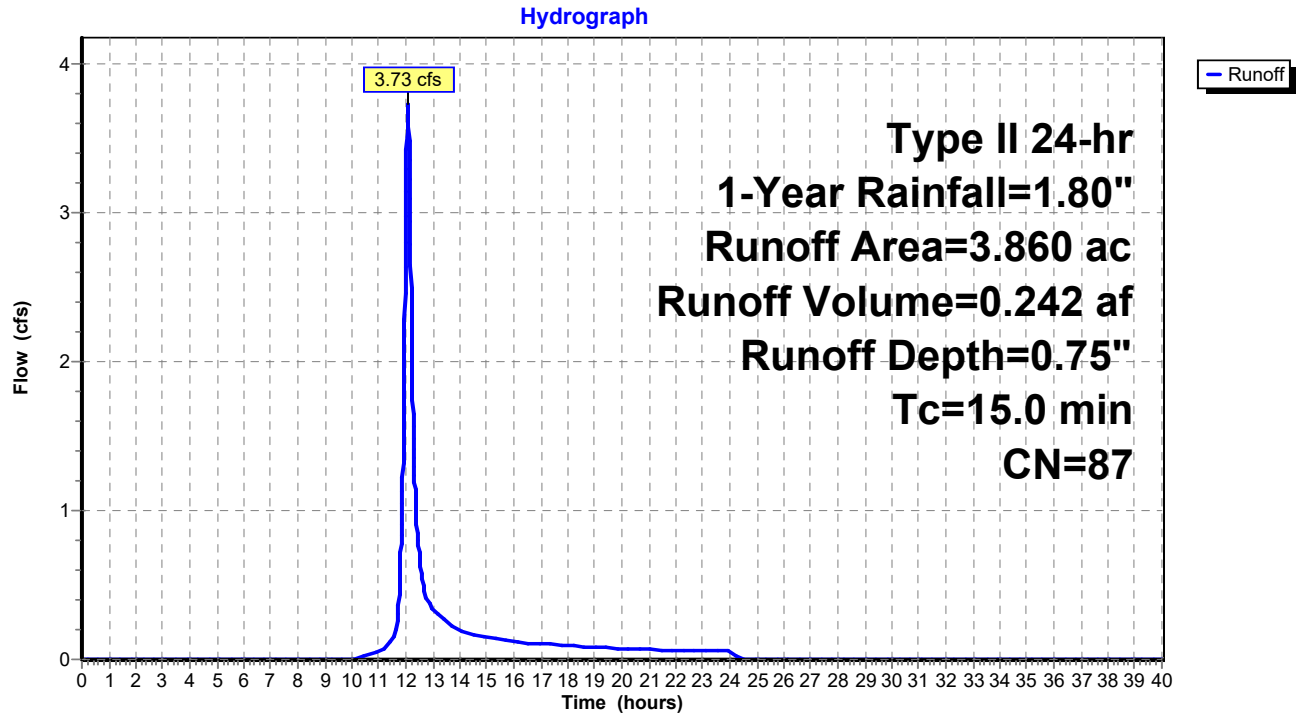
Runoff = 3.73 cfs @ 12.08 hrs, Volume= 0.242 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

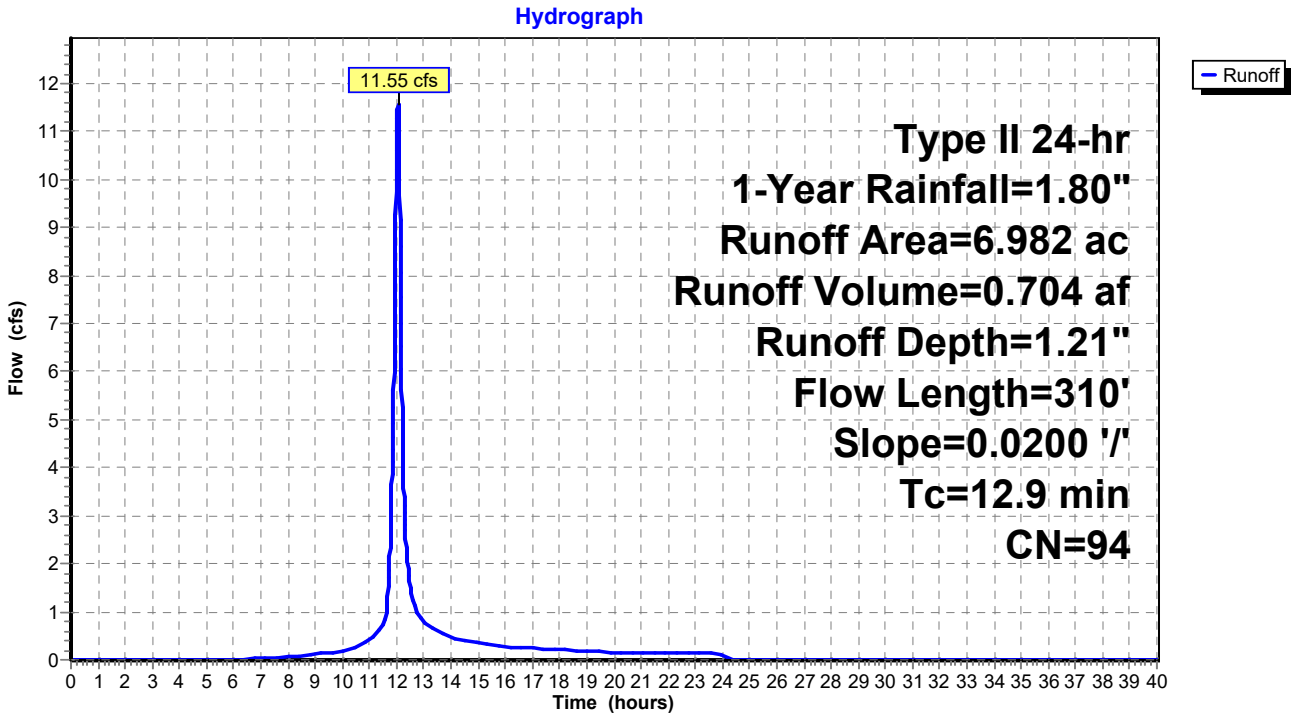
Runoff = 11.55 cfs @ 12.05 hrs, Volume= 0.704 af, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 104% of capacity of segment #2

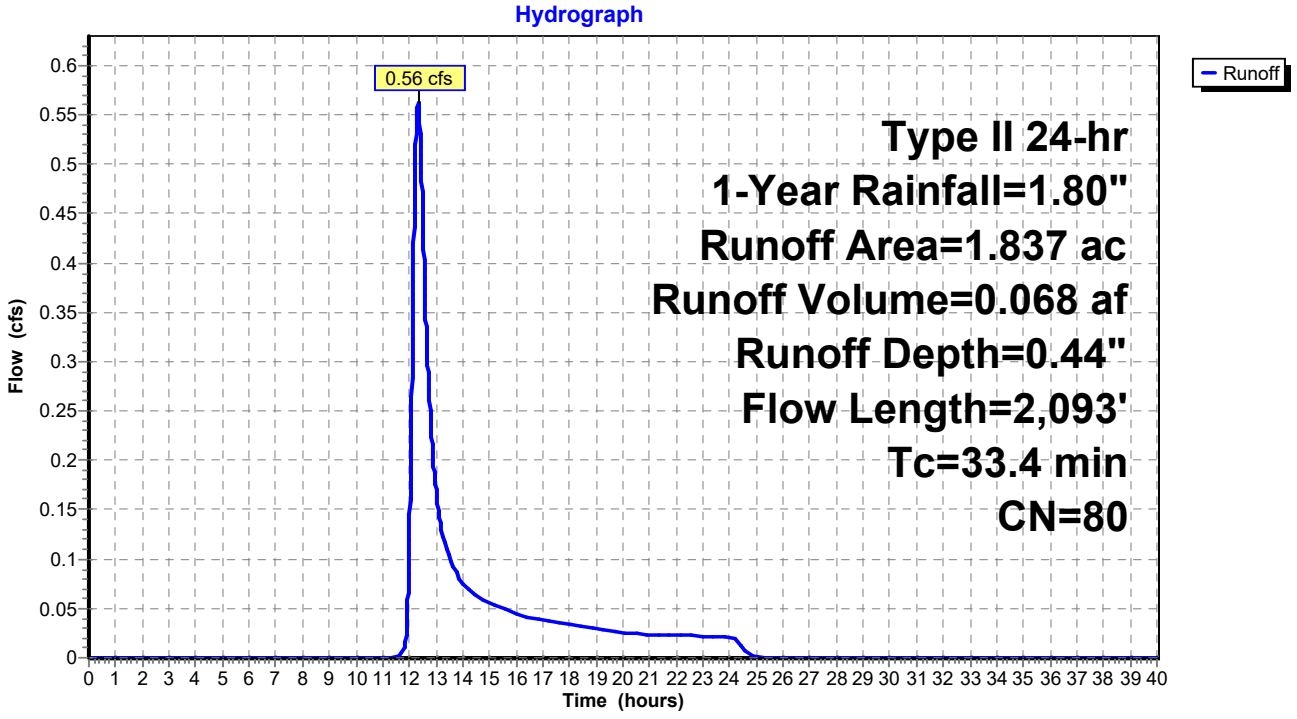
Runoff = 0.56 cfs @ 12.32 hrs, Volume= 0.068 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.80"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 0.84" for 1-Year event
Inflow = 17.21 cfs @ 12.04 hrs, Volume= 1.610 af
Outflow = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af, Atten= 95%, Lag= 255.9 min
Primary = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 692.45' @ 16.30 hrs Storage= 34,277 cf

Plug-Flow detention time= 523.4 min calculated for 1.537 af (95% of inflow)
Center-of-Mass det. time= 465.6 min (1,439.8 - 974.1)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

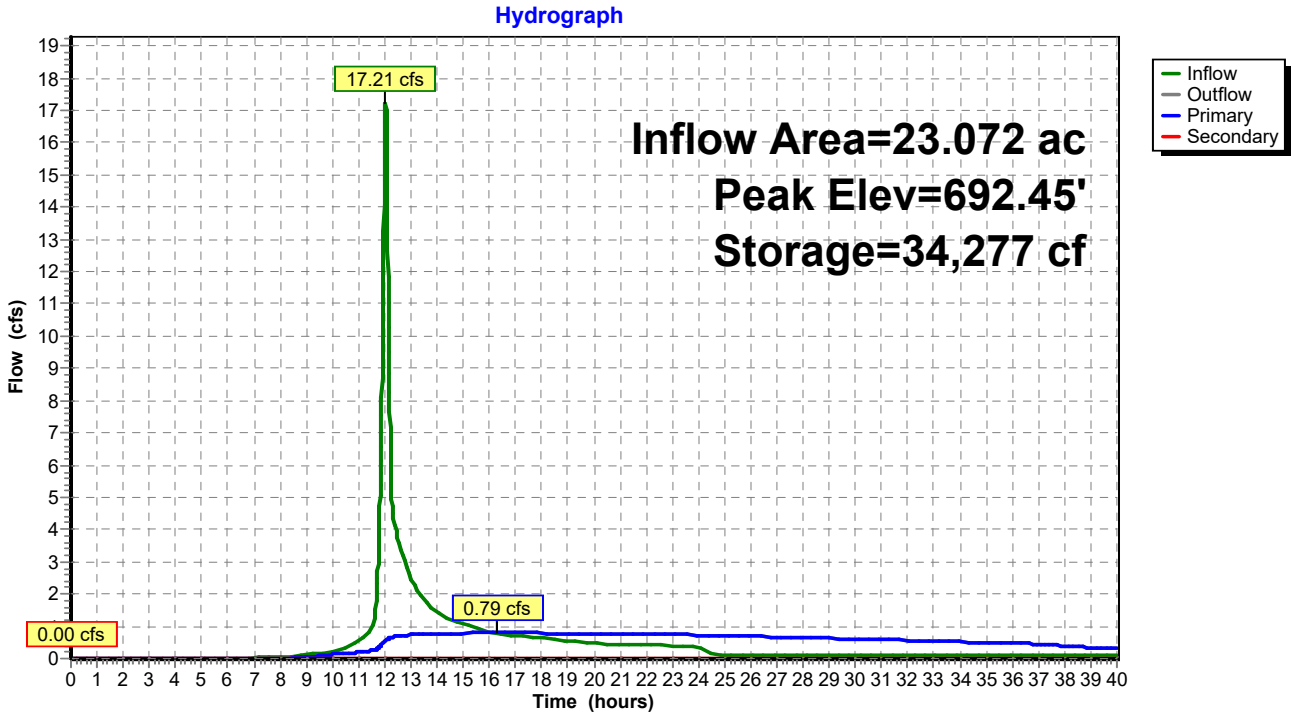
Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Primary OutFlow Max=0.79 cfs @ 16.30 hrs HW=692.45' (Free Discharge)
└─**1=Culvert** (Passes 0.79 cfs of 2.63 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 0.79 cfs @ 4.03 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=691.50' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 0.99" for 1-Year event
Inflow = 7.83 cfs @ 12.07 hrs, Volume= 0.504 af
Outflow = 0.99 cfs @ 12.63 hrs, Volume= 0.384 af, Atten= 87%, Lag= 33.5 min
Primary = 0.99 cfs @ 12.63 hrs, Volume= 0.384 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.09' @ 12.63 hrs Surf.Area= 14,908 sf Storage= 11,250 cf

Plug-Flow detention time= 485.6 min calculated for 0.384 af (76% of inflow)
Center-of-Mass det. time= 393.8 min (1,225.0 - 831.2)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

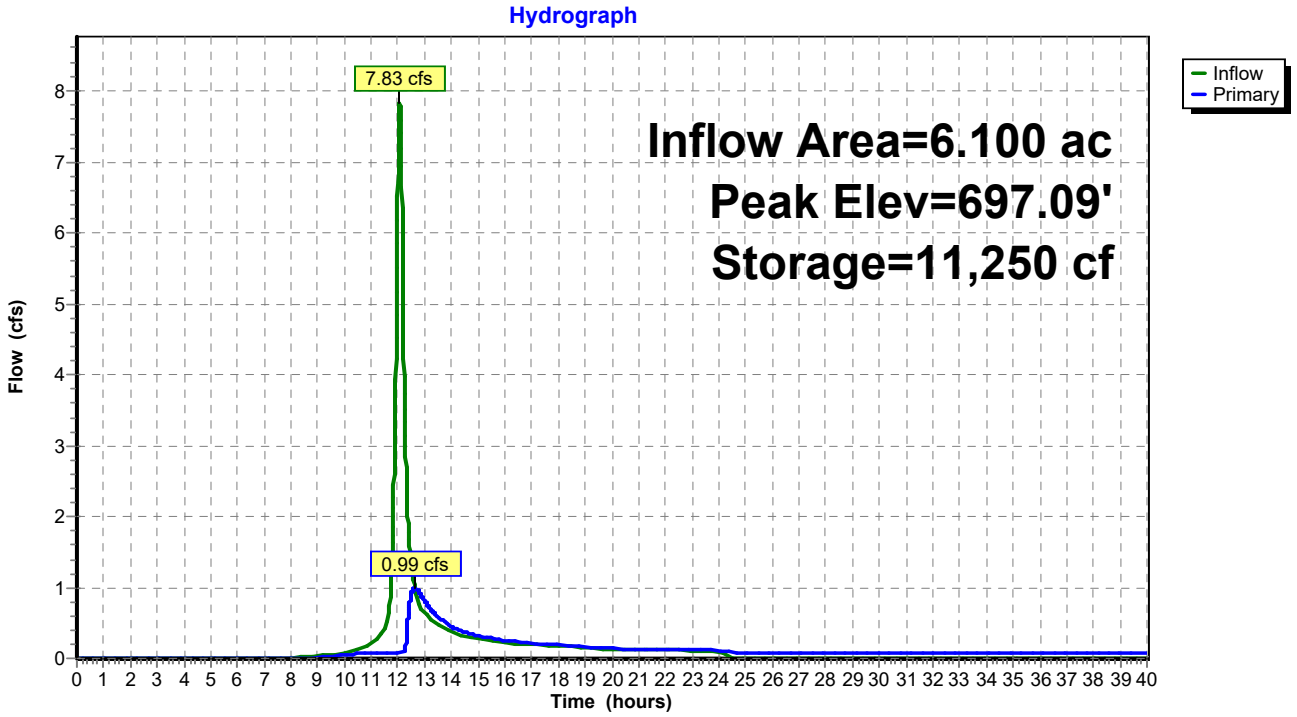
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=0.99 cfs @ 12.63 hrs HW=697.09' (Free Discharge)
└─**1=Culvert** (Passes 0.99 cfs of 21.42 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 0.91 cfs @ 0.99 fps)
  └─**3=Underdrain** (Passes 0.09 cfs of 1.24 cfs potential flow)
    └─**4=Exfiltration** (Controls 0.09 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 0.75" for 1-Year event
Inflow = 3.73 cfs @ 12.08 hrs, Volume= 0.242 af
Outflow = 0.57 cfs @ 12.59 hrs, Volume= 0.212 af, Atten= 85%, Lag= 30.6 min
Primary = 0.57 cfs @ 12.59 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.07' @ 12.59 hrs Surf.Area= 8,992 sf Storage= 4,808 cf

Plug-Flow detention time= 437.8 min calculated for 0.212 af (88% of inflow)
Center-of-Mass det. time= 376.9 min (1,227.9 - 851.0)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

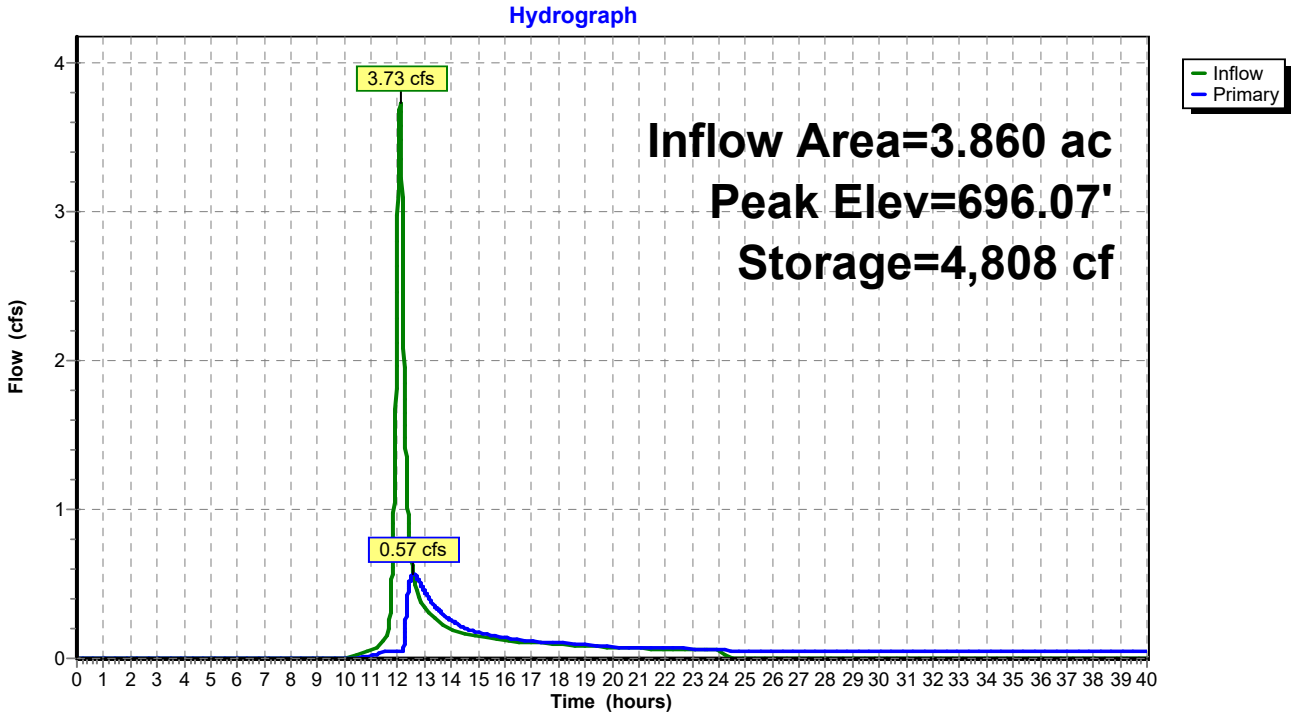
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=0.57 cfs @ 12.59 hrs HW=696.07' (Free Discharge)
└─**1=Culvert** (Passes 0.57 cfs of 14.31 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 0.52 cfs @ 0.88 fps)
  └─**3=Underdrain** (Passes 0.05 cfs of 0.91 cfs potential flow)
    └─**4=Exfiltration** (Controls 0.05 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

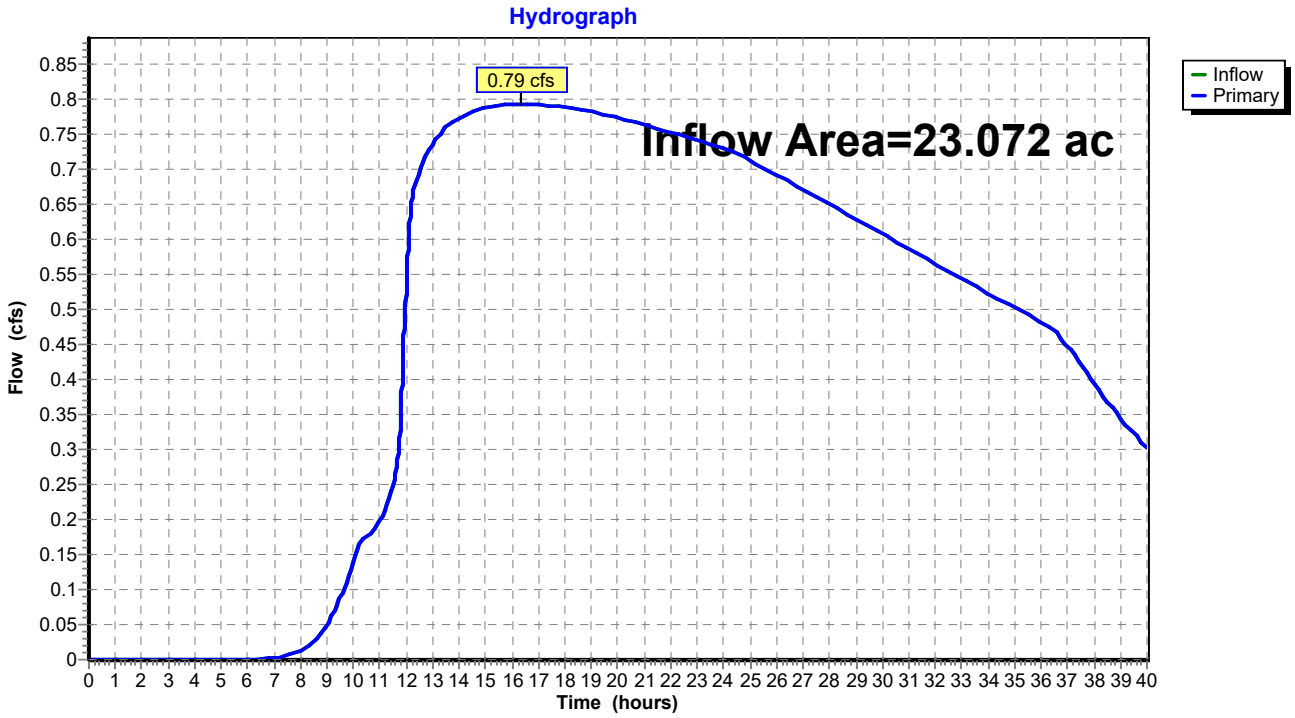
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 0.80" for 1-Year event
Inflow = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af
Primary = 0.79 cfs @ 16.30 hrs, Volume= 1.537 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

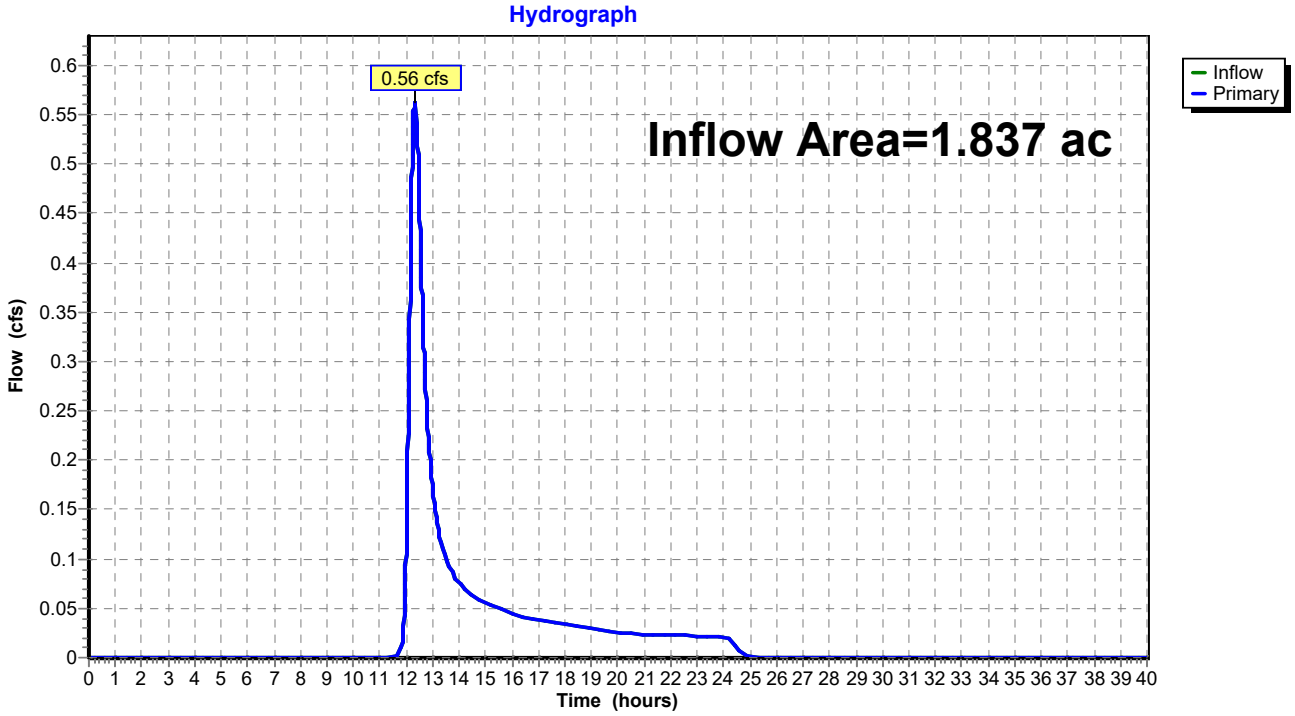
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 0.56 cfs @ 12.32 hrs, Volume= 0.068 af
Primary = 0.56 cfs @ 12.32 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

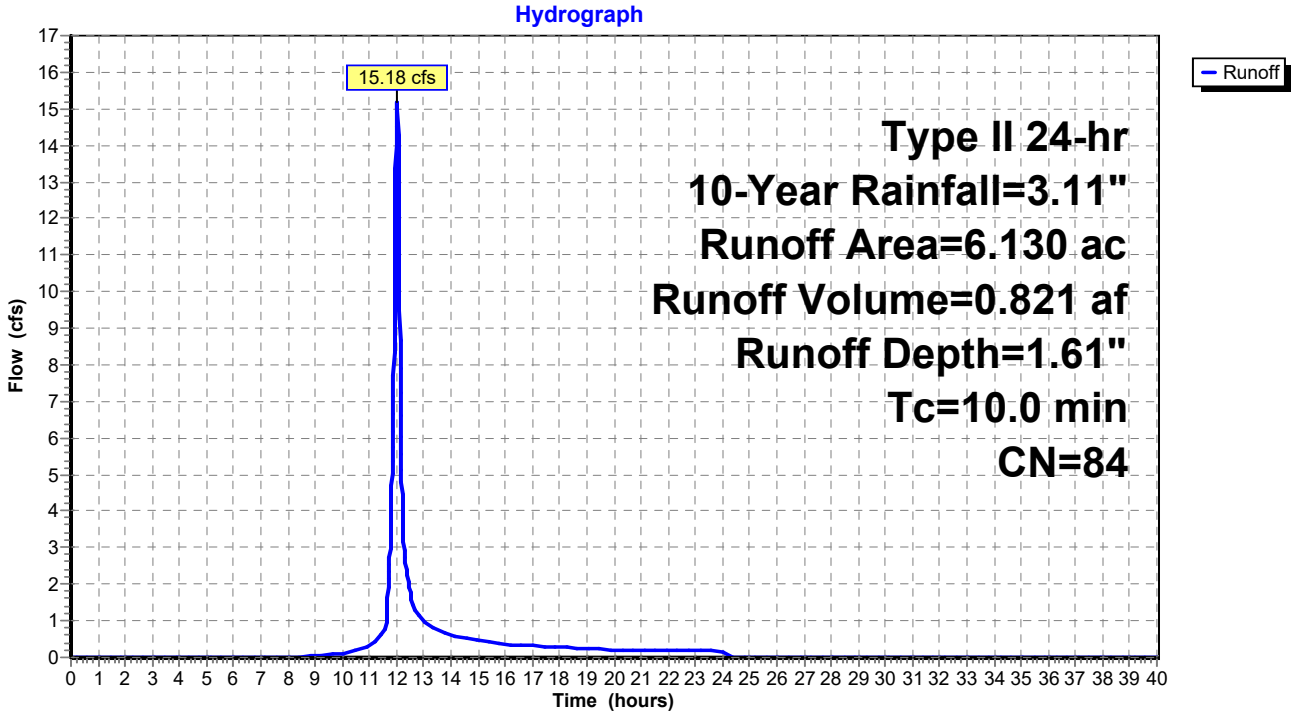
Runoff = 15.18 cfs @ 12.02 hrs, Volume= 0.821 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

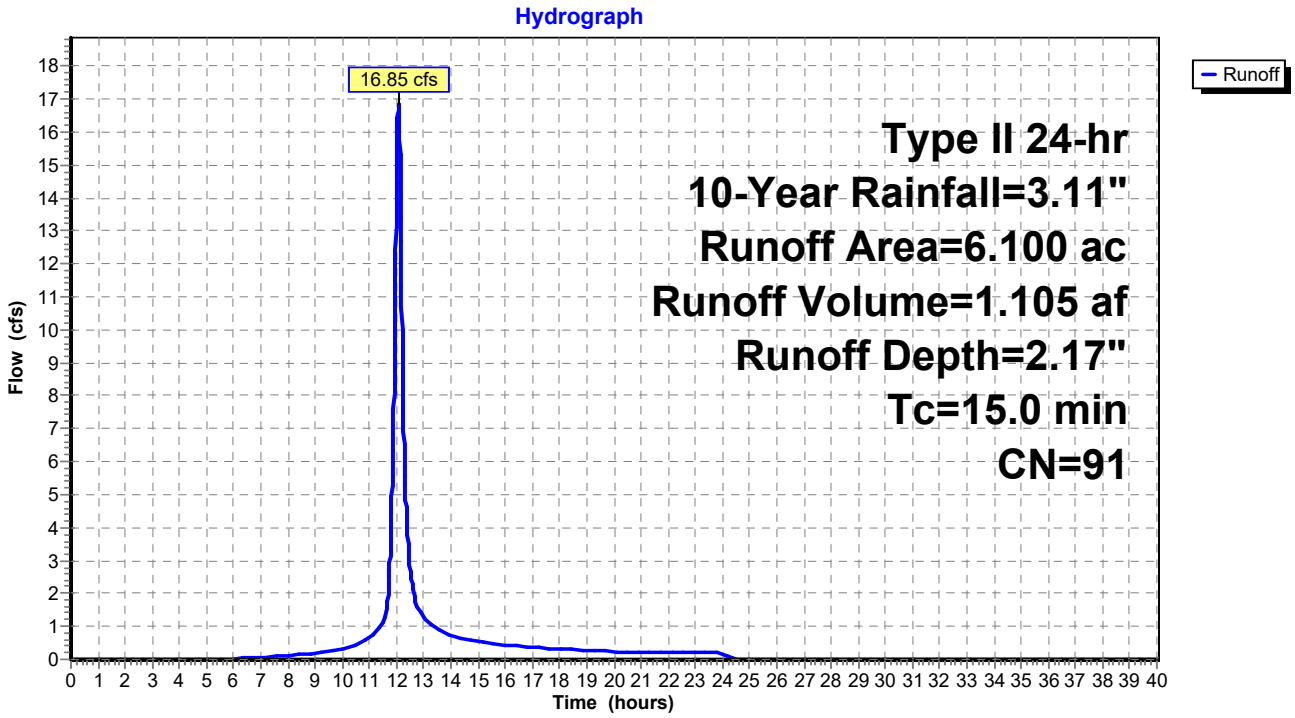
Runoff = 16.85 cfs @ 12.07 hrs, Volume= 1.105 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

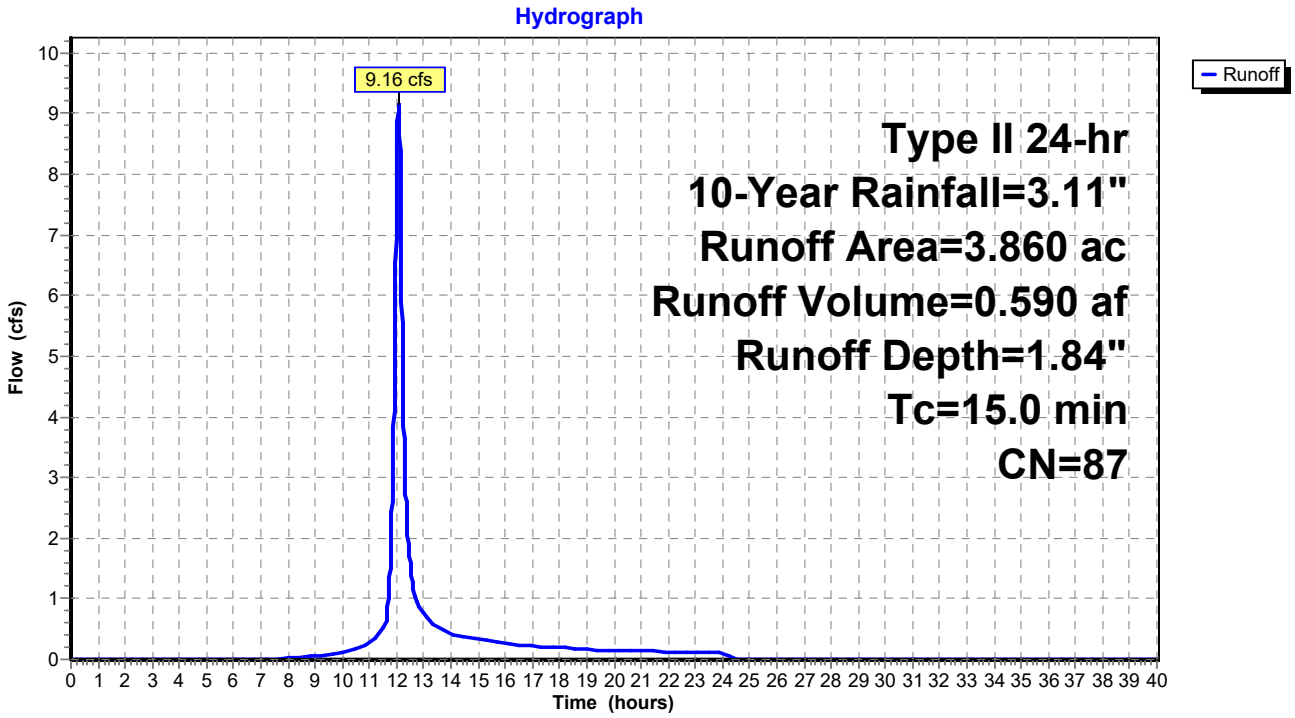
Runoff = 9.16 cfs @ 12.07 hrs, Volume= 0.590 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

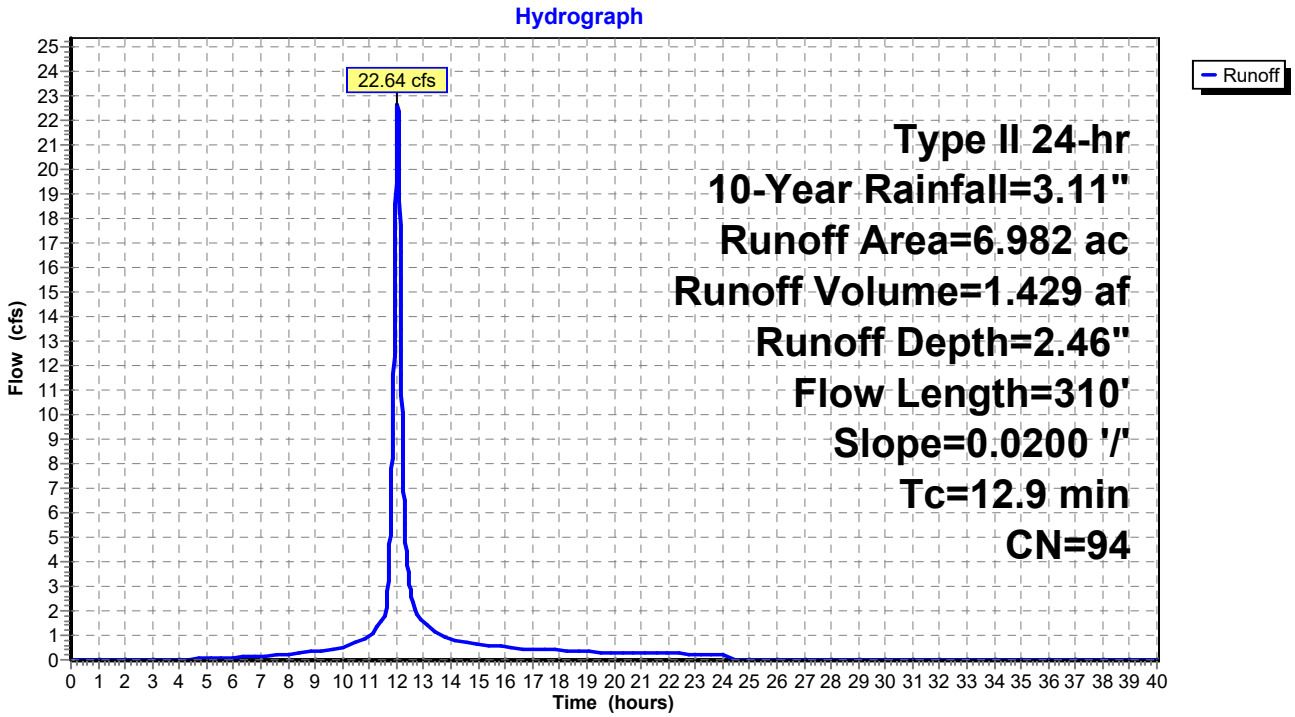
Runoff = 22.64 cfs @ 12.04 hrs, Volume= 1.429 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 358% of capacity of segment #2

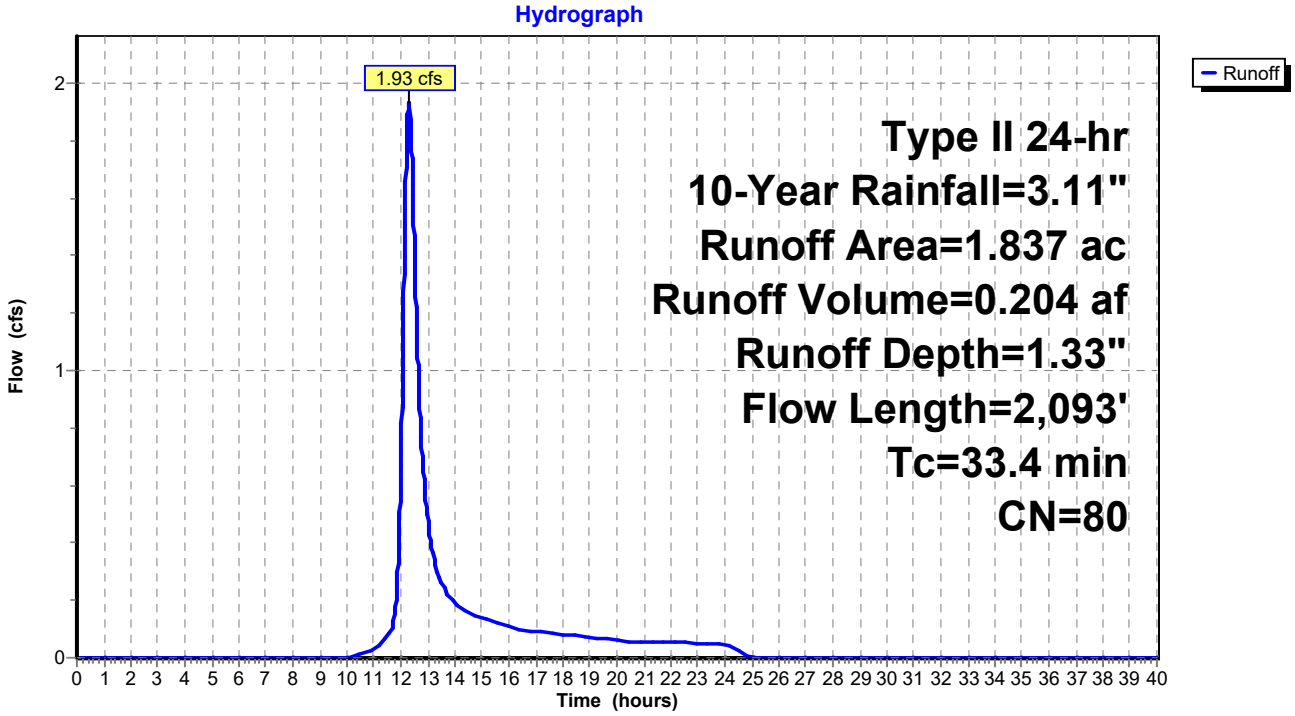
Runoff = 1.93 cfs @ 12.29 hrs, Volume= 0.204 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.11"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

[79] Warning: Submerged Pond 2aP Primary device # 1 OUTLET by 0.05'
[79] Warning: Submerged Pond 2bP Primary device # 1 by 0.05'

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 1.97" for 10-Year event
Inflow = 44.74 cfs @ 12.06 hrs, Volume= 3.791 af
Outflow = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af, Atten= 90%, Lag= 71.9 min
Primary = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 693.05' @ 13.26 hrs Storage= 82,942 cf

Plug-Flow detention time= 449.3 min calculated for 3.430 af (90% of inflow)
Center-of-Mass det. time= 370.2 min (1,246.5 - 876.3)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

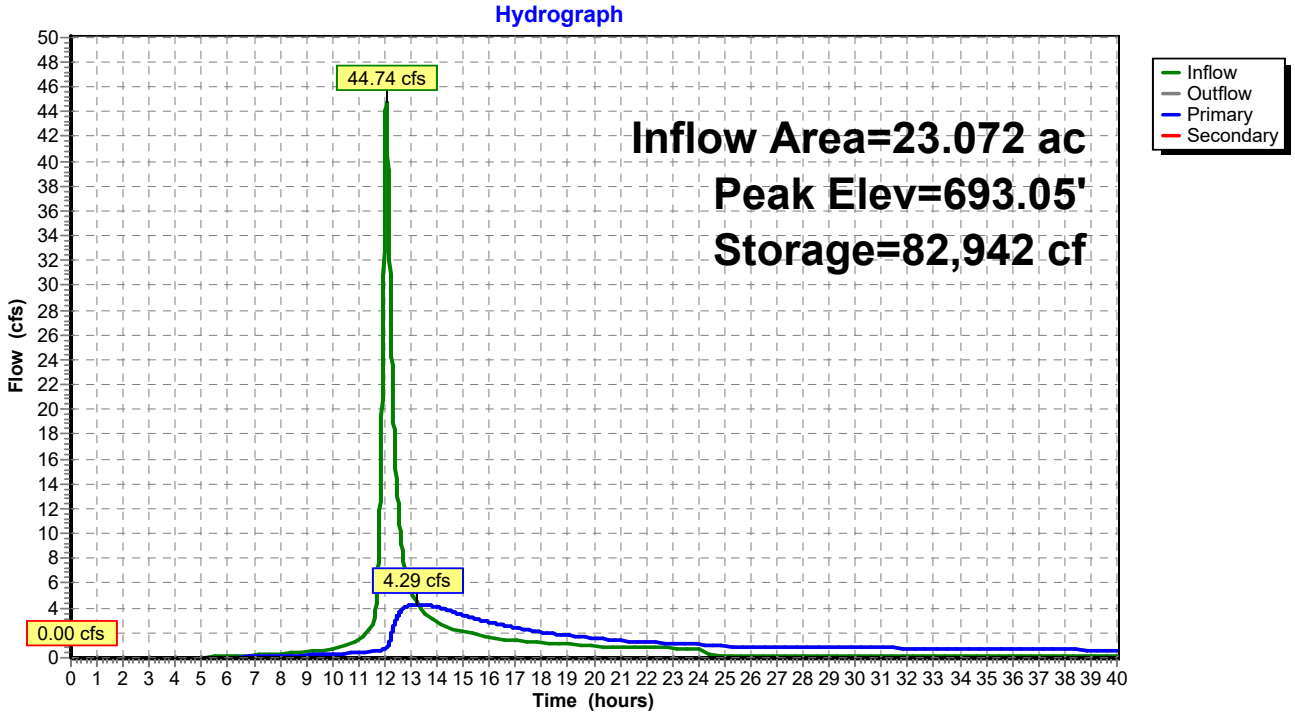
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=4.33 cfs @ 13.26 hrs HW=693.05' (Free Discharge)
└**1=Culvert** (Passes 4.33 cfs of 4.49 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.08 cfs @ 5.49 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.25 cfs @ 2.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=691.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 2.17" for 10-Year event
Inflow = 16.85 cfs @ 12.07 hrs, Volume= 1.105 af
Outflow = 10.83 cfs @ 12.19 hrs, Volume= 0.983 af, Atten= 36%, Lag= 7.2 min
Primary = 10.83 cfs @ 12.19 hrs, Volume= 0.983 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.48' @ 12.19 hrs Surf.Area= 15,588 sf Storage= 17,110 cf

Plug-Flow detention time= 223.8 min calculated for 0.983 af (89% of inflow)
Center-of-Mass det. time= 168.6 min (977.4 - 808.8)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

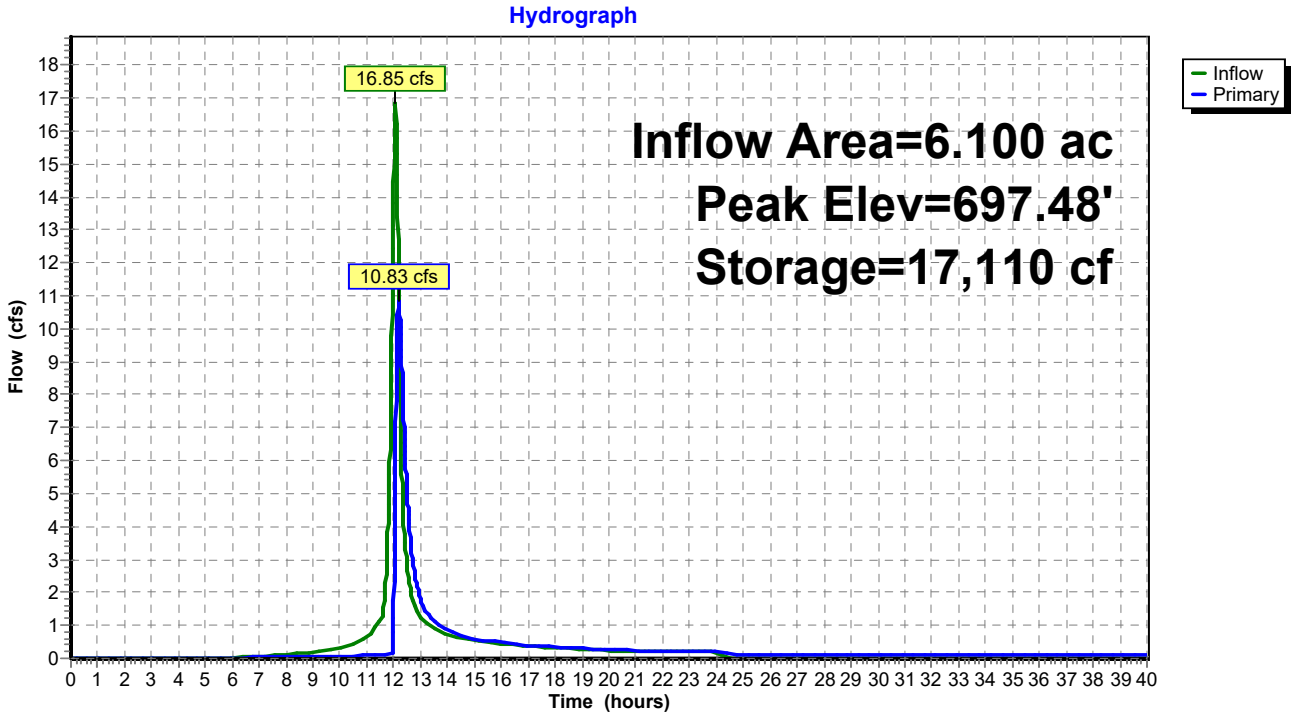
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=10.82 cfs @ 12.19 hrs HW=697.48' (Free Discharge)
└**1=Culvert** (Passes 10.82 cfs of 22.98 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 10.73 cfs @ 2.26 fps)
└**3=Underdrain** (Passes 0.09 cfs of 1.33 cfs potential flow)
└**4=Exfiltration** (Controls 0.09 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 1.84" for 10-Year event
Inflow = 9.16 cfs @ 12.07 hrs, Volume= 0.590 af
Outflow = 5.60 cfs @ 12.20 hrs, Volume= 0.558 af, Atten= 39%, Lag= 7.7 min
Primary = 5.60 cfs @ 12.20 hrs, Volume= 0.558 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.36' @ 12.20 hrs Surf.Area= 11,541 sf Storage= 8,355 cf

Plug-Flow detention time= 188.0 min calculated for 0.558 af (95% of inflow)
Center-of-Mass det. time= 157.1 min (982.5 - 825.3)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

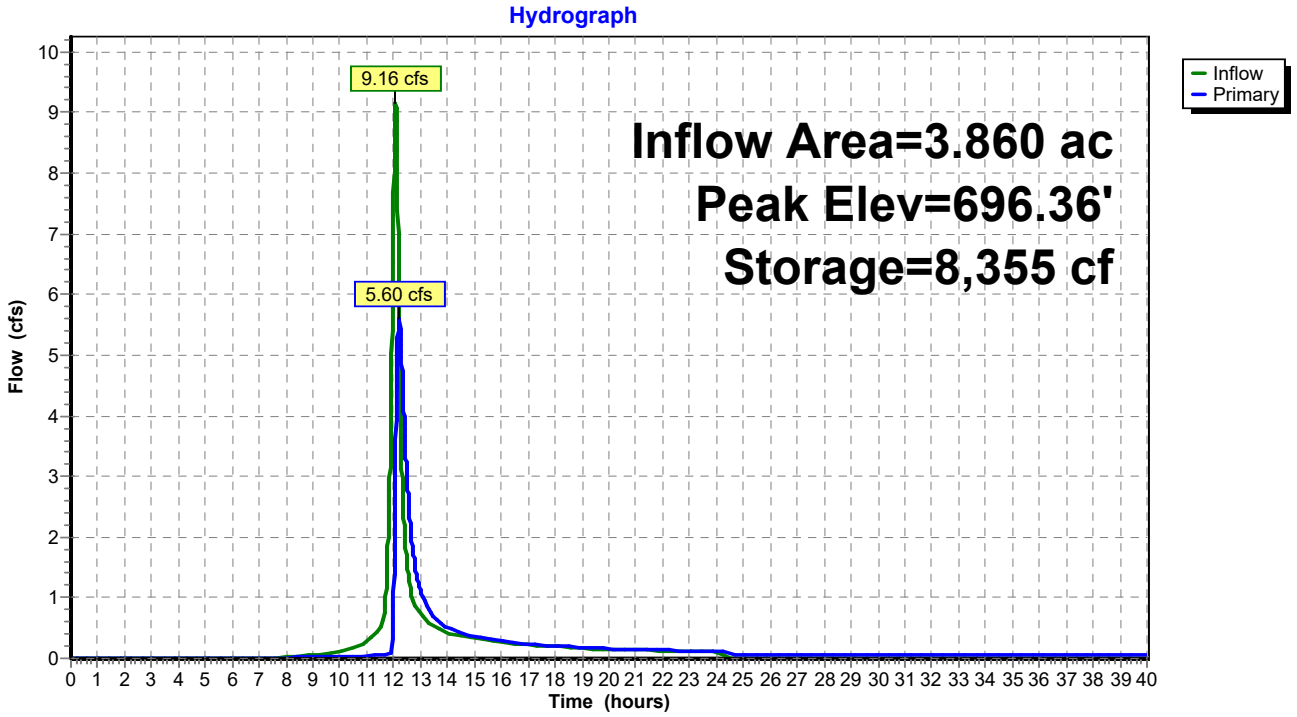
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=5.60 cfs @ 12.20 hrs HW=696.36' (Free Discharge)
└**1=Culvert** (Passes 5.60 cfs of 15.54 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 5.53 cfs @ 1.95 fps)
└**3=Underdrain** (Passes 0.07 cfs of 0.96 cfs potential flow)
└**4=Exfiltration** (Controls 0.07 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

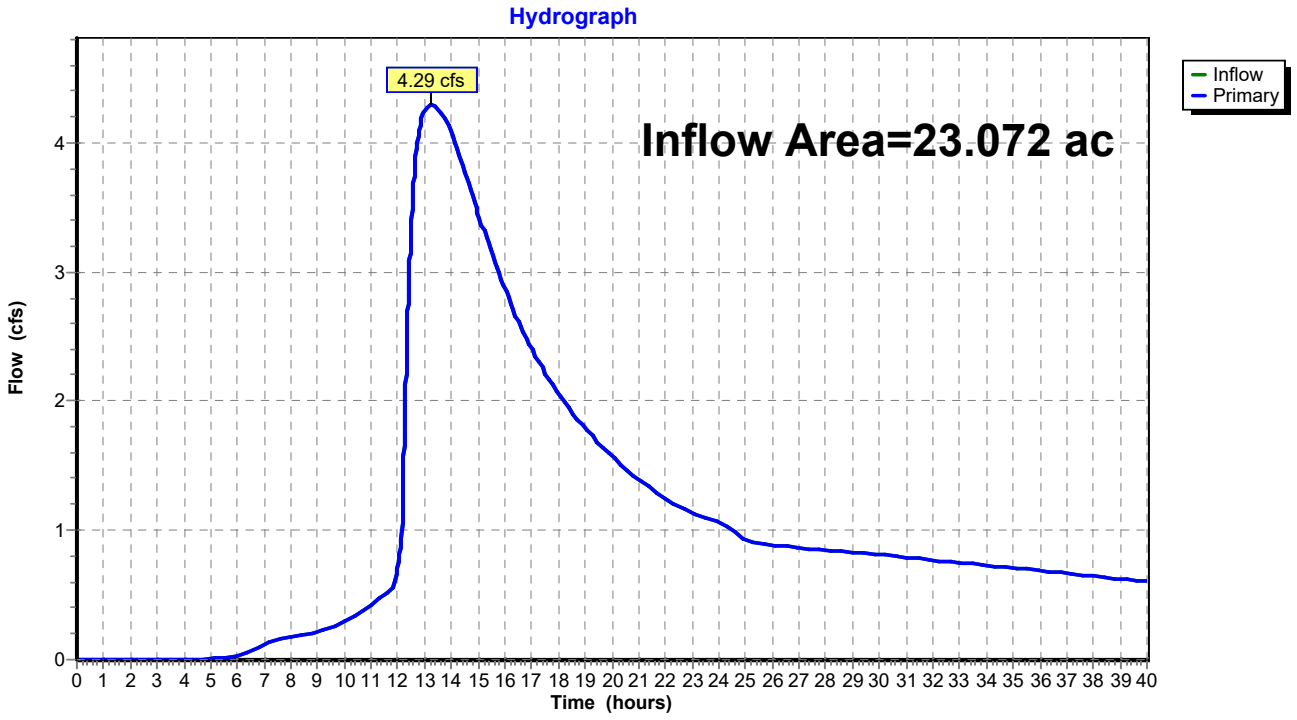
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 1.78" for 10-Year event
Inflow = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af
Primary = 4.29 cfs @ 13.26 hrs, Volume= 3.430 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

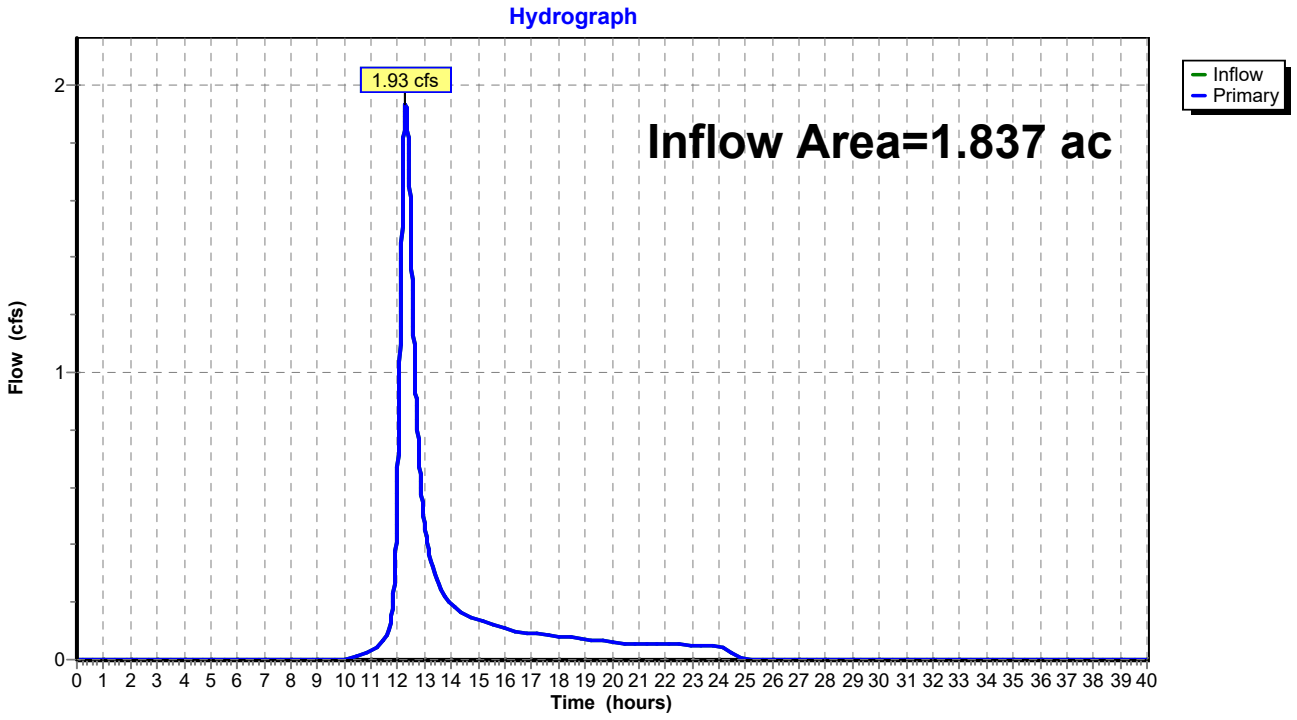
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 1.93 cfs @ 12.29 hrs, Volume= 0.204 af
Primary = 1.93 cfs @ 12.29 hrs, Volume= 0.204 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

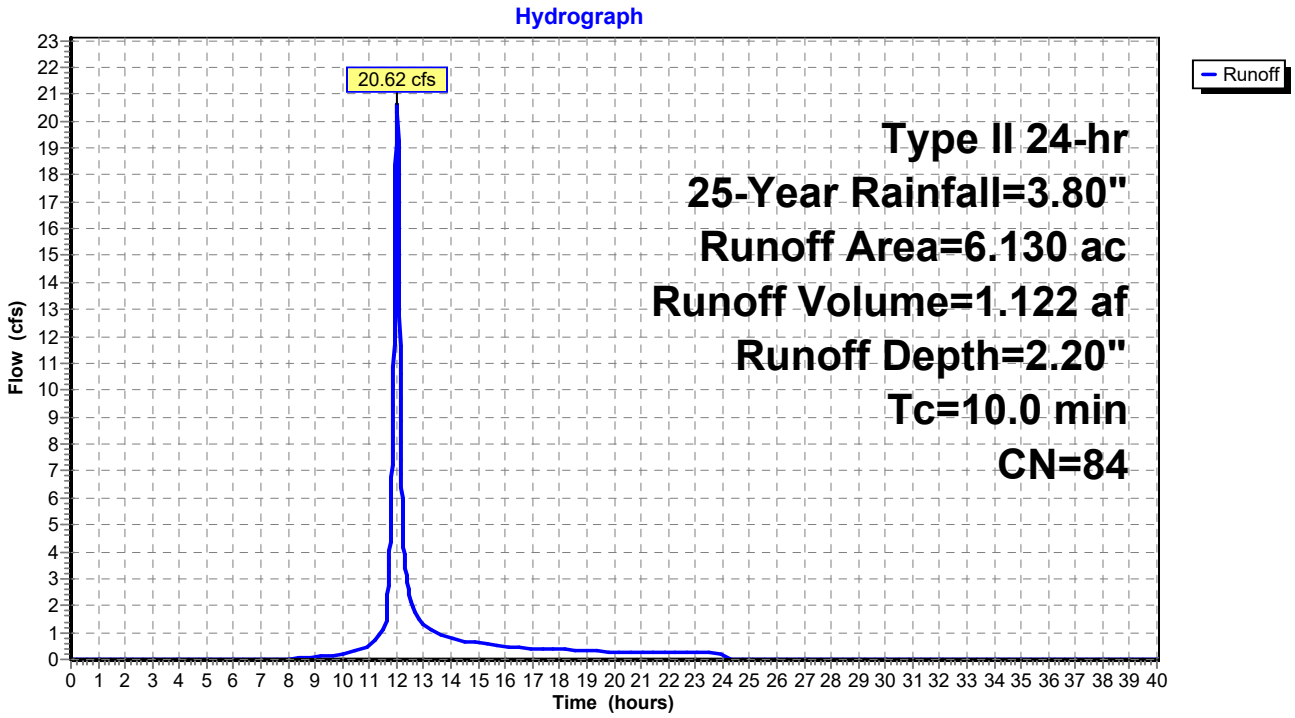
Runoff = 20.62 cfs @ 12.02 hrs, Volume= 1.122 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

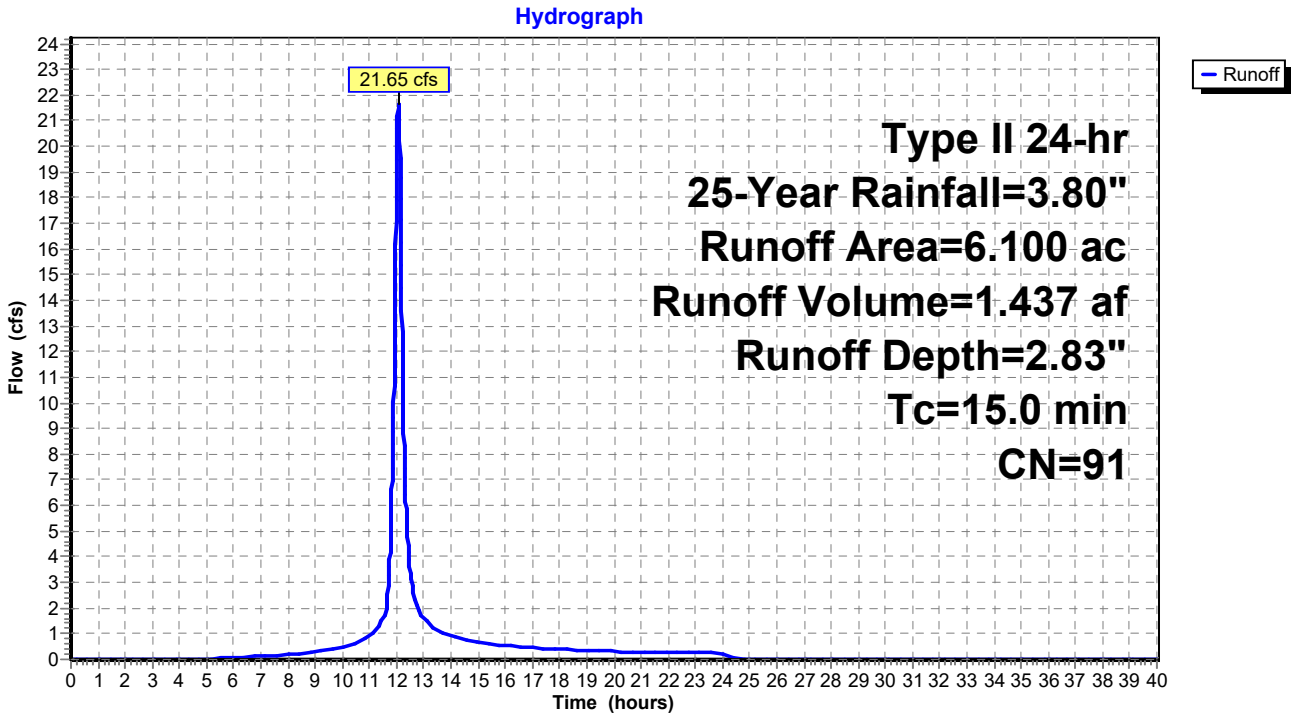
Runoff = 21.65 cfs @ 12.07 hrs, Volume= 1.437 af, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

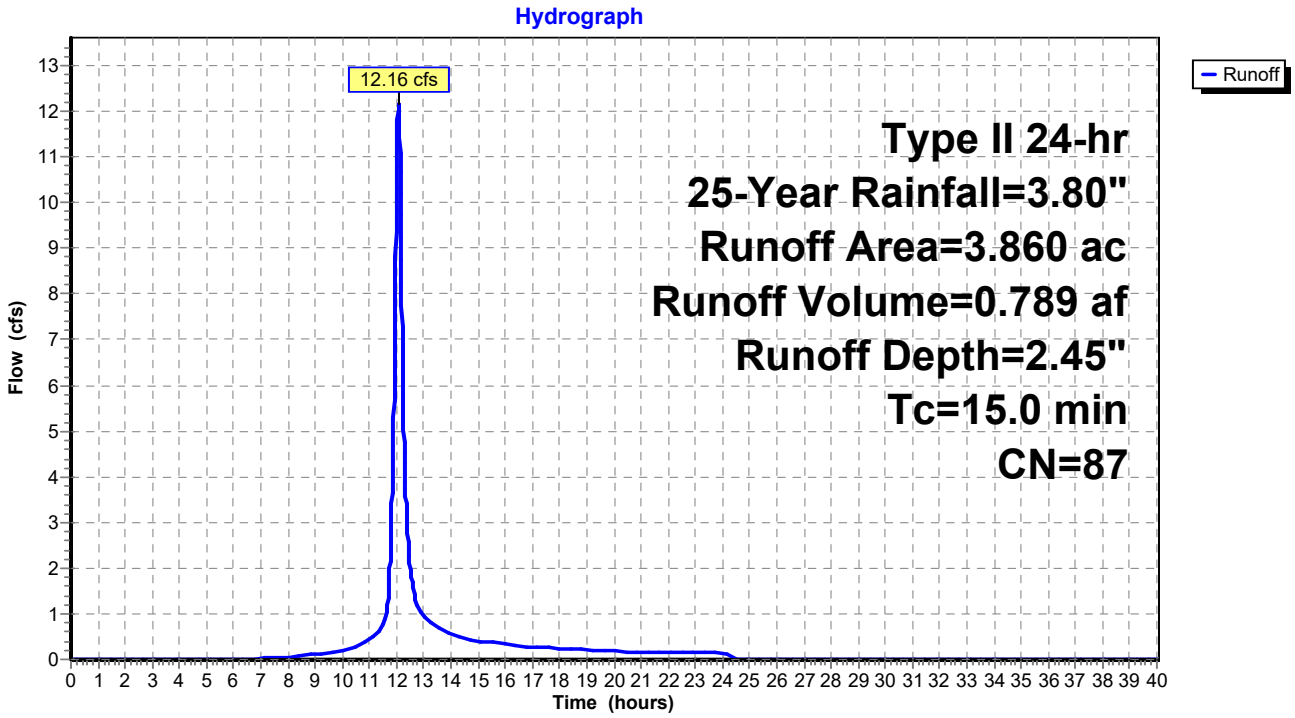
Runoff = 12.16 cfs @ 12.07 hrs, Volume= 0.789 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

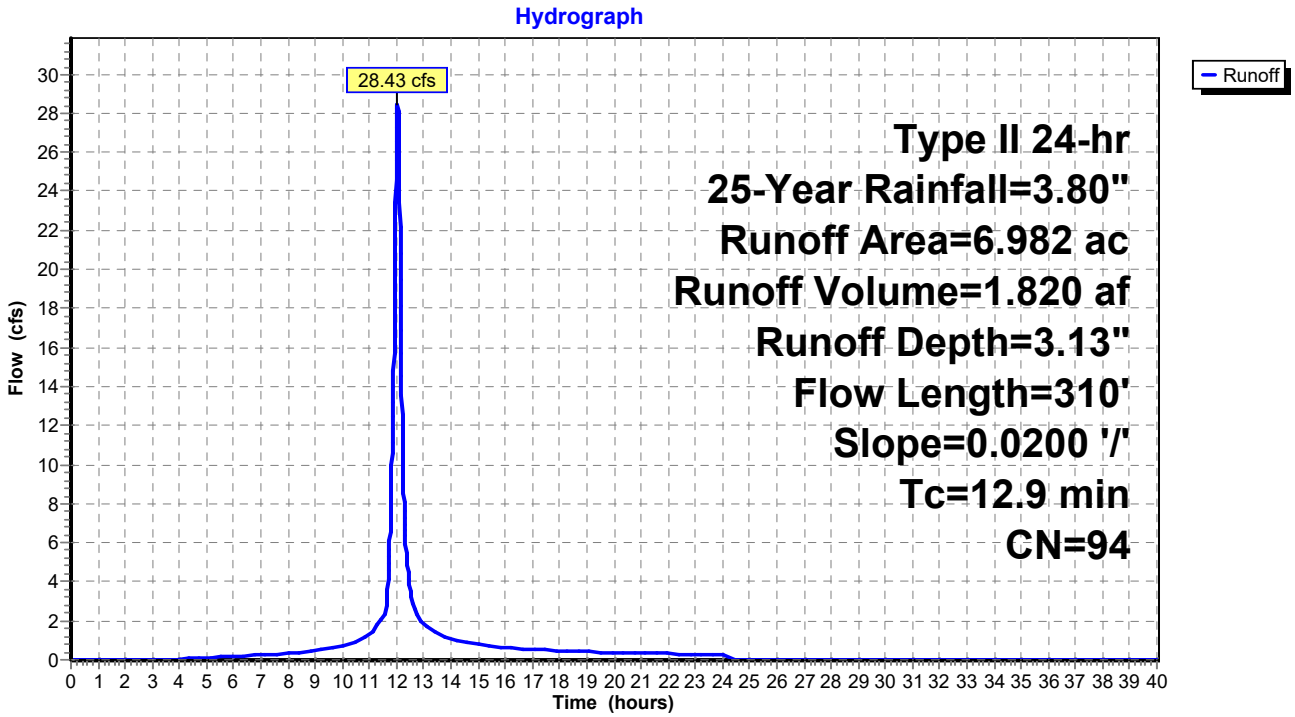
Runoff = 28.43 cfs @ 12.04 hrs, Volume= 1.820 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 512% of capacity of segment #2

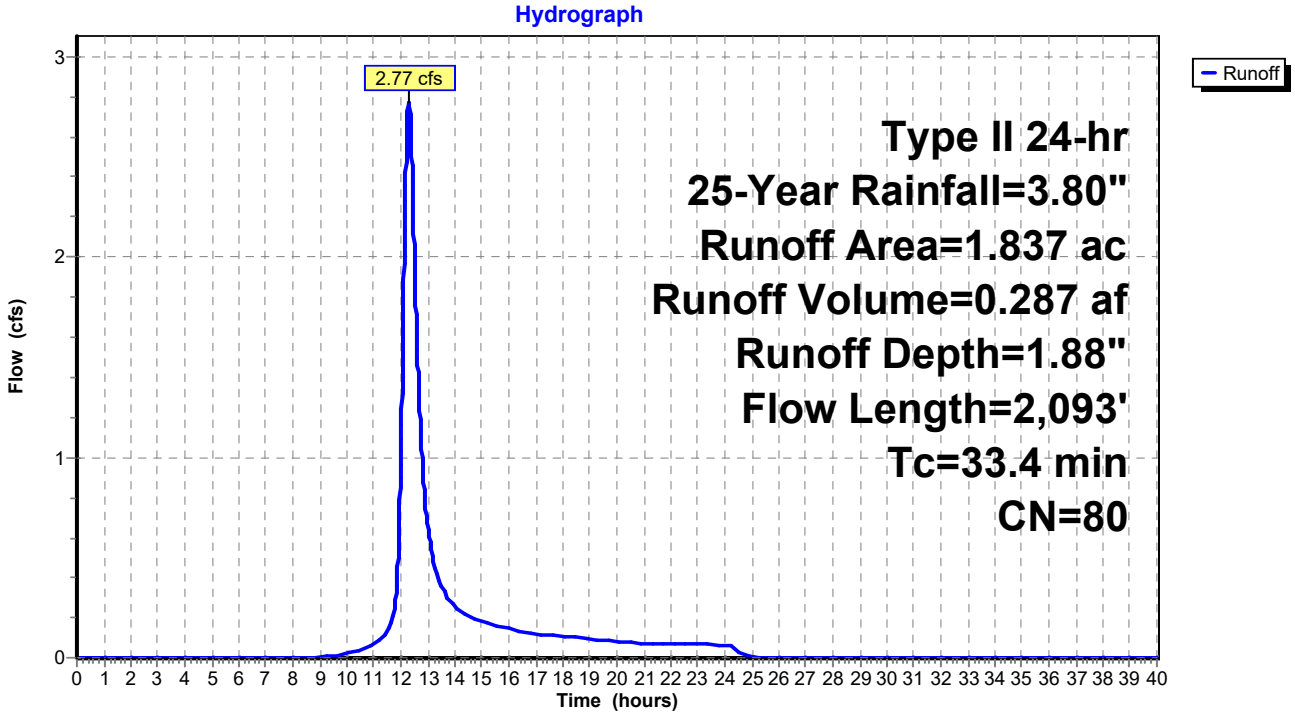
Runoff = 2.77 cfs @ 12.28 hrs, Volume= 0.287 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.80"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

[79] Warning: Submerged Pond 2aP Primary device # 1 OUTLET by 0.37'
[79] Warning: Submerged Pond 2bP Primary device # 1 by 0.37'

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 2.61" for 25-Year event
Inflow = 65.00 cfs @ 12.05 hrs, Volume= 5.012 af
Outflow = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af, Atten= 92%, Lag= 75.0 min
Primary = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 693.37' @ 13.30 hrs Storage= 114,117 cf

Plug-Flow detention time= 397.1 min calculated for 4.610 af (92% of inflow)
Center-of-Mass det. time= 331.9 min (1,187.7 - 855.9)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

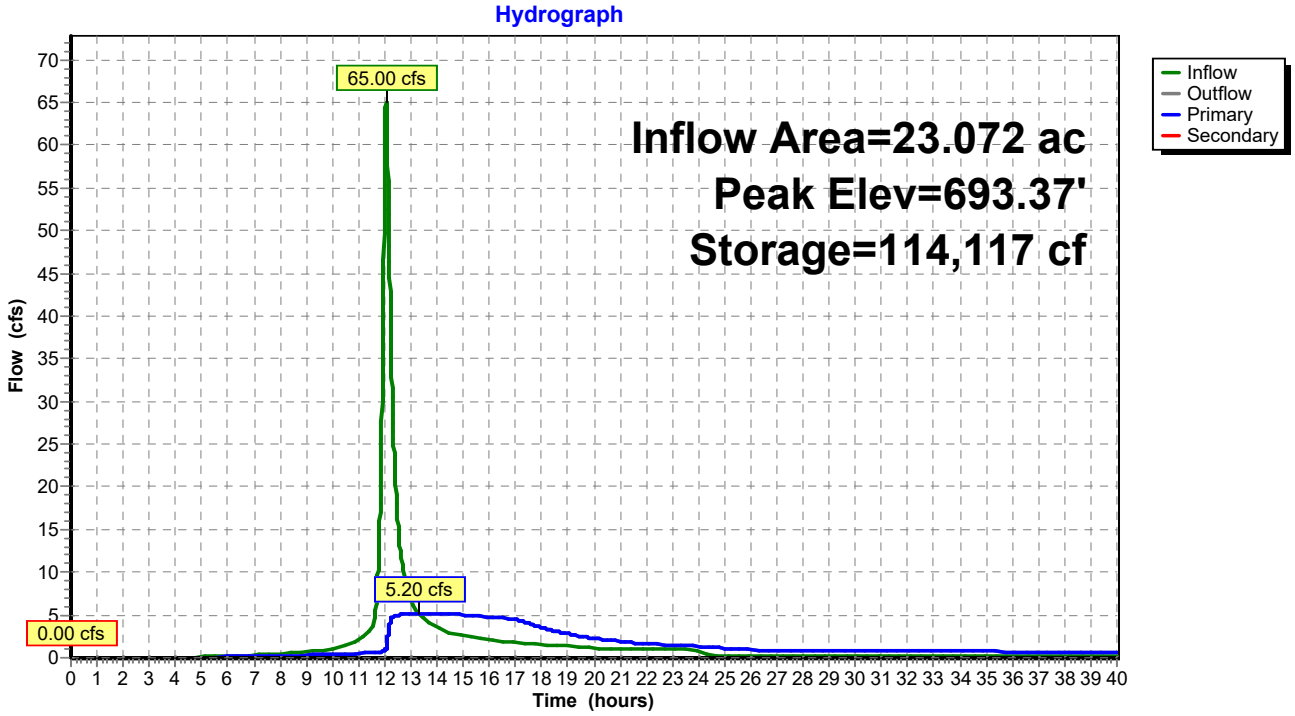
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=5.20 cfs @ 13.30 hrs HW=693.37' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.20 cfs @ 4.23 fps)
└**2=Orifice/Grate** (Passes < 1.20 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Passes < 7.63 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=691.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 2.83" for 25-Year event
Inflow = 21.65 cfs @ 12.07 hrs, Volume= 1.437 af
Outflow = 16.34 cfs @ 12.16 hrs, Volume= 1.313 af, Atten= 25%, Lag= 5.6 min
Primary = 16.34 cfs @ 12.16 hrs, Volume= 1.313 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.63' @ 12.16 hrs Surf.Area= 15,861 sf Storage= 19,492 cf

Plug-Flow detention time= 178.9 min calculated for 1.313 af (91% of inflow)
Center-of-Mass det. time= 133.4 min (934.8 - 801.4)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

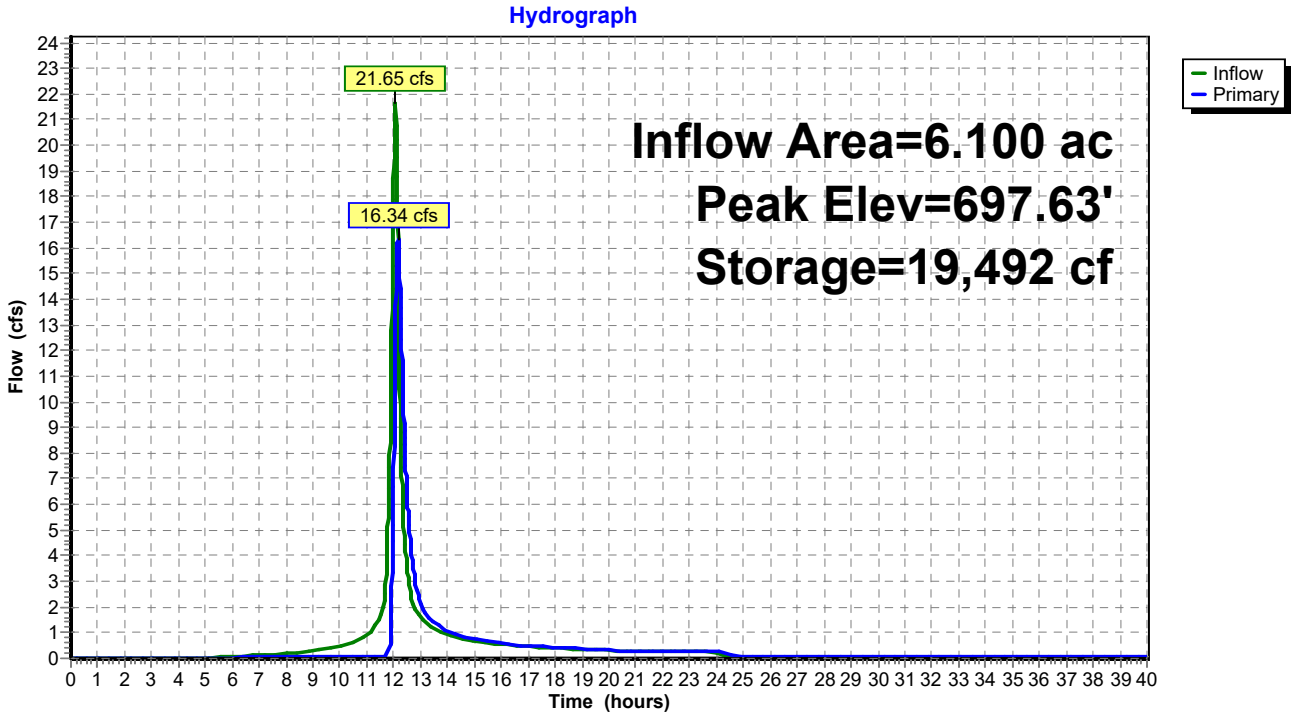
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=16.34 cfs @ 12.16 hrs HW=697.63' (Free Discharge)
└**1=Culvert** (Passes 16.34 cfs of 23.57 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 16.24 cfs @ 2.59 fps)
└**3=Underdrain** (Passes 0.09 cfs of 1.36 cfs potential flow)
└**4=Exfiltration** (Controls 0.09 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 2.45" for 25-Year event
Inflow = 12.16 cfs @ 12.07 hrs, Volume= 0.789 af
Outflow = 8.73 cfs @ 12.17 hrs, Volume= 0.756 af, Atten= 28%, Lag= 6.1 min
Primary = 8.73 cfs @ 12.17 hrs, Volume= 0.756 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.48' @ 12.17 hrs Surf.Area= 12,655 sf Storage= 9,906 cf

Plug-Flow detention time= 146.5 min calculated for 0.756 af (96% of inflow)
Center-of-Mass det. time= 122.4 min (939.5 - 817.1)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

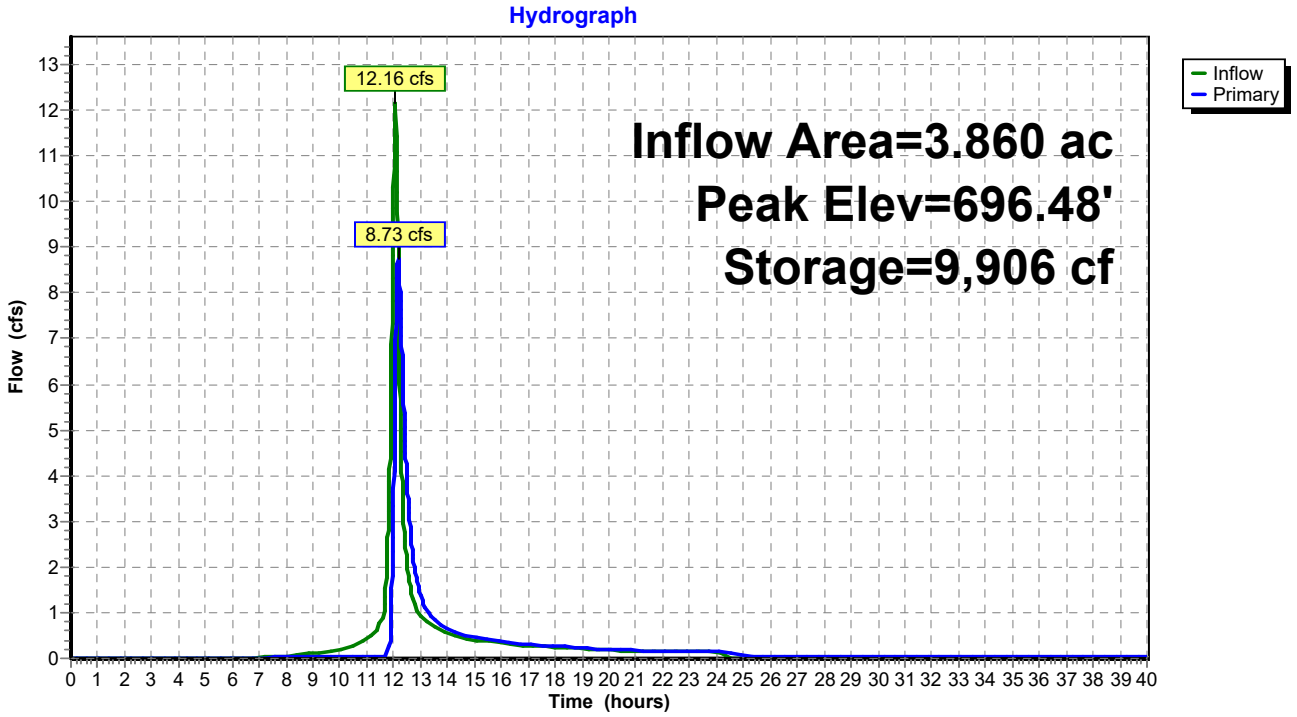
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=8.73 cfs @ 12.17 hrs HW=696.48' (Free Discharge)
└**1=Culvert** (Passes 8.73 cfs of 16.05 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 8.65 cfs @ 2.26 fps)
└**3=Underdrain** (Passes 0.07 cfs of 0.98 cfs potential flow)
└**4=Exfiltration** (Controls 0.07 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

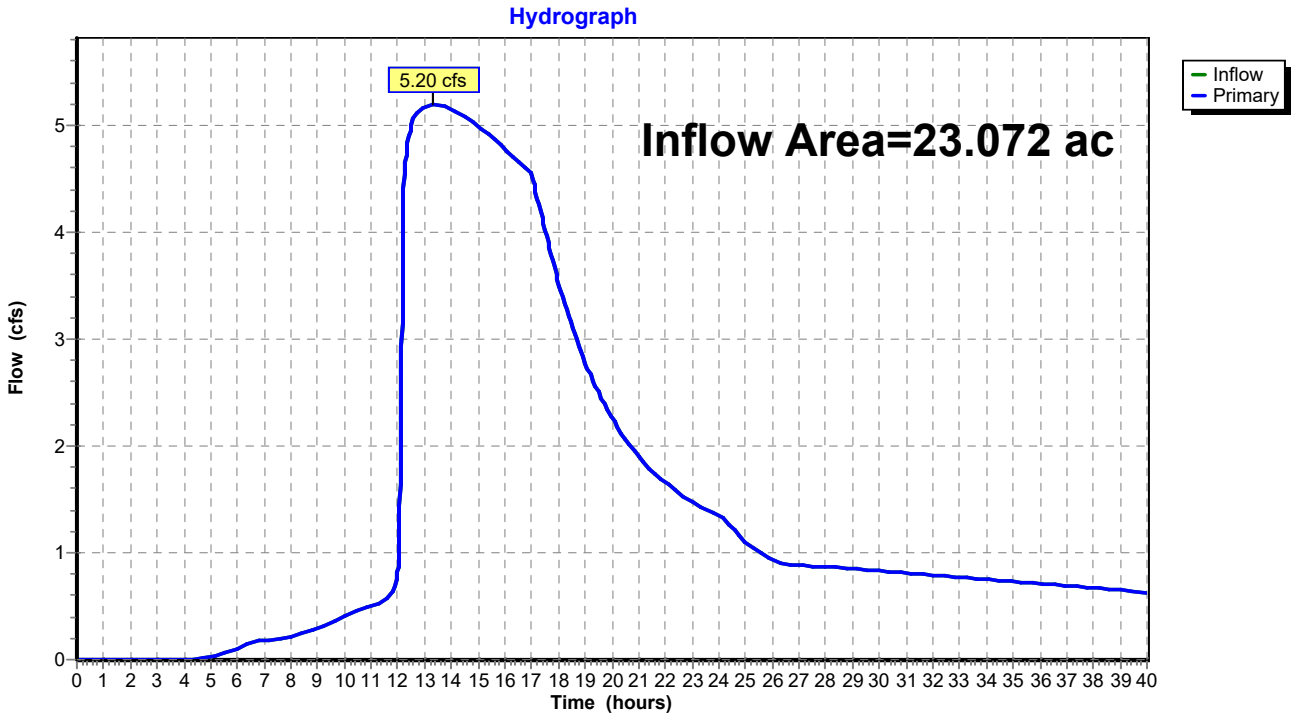
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 2.40" for 25-Year event
Inflow = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af
Primary = 5.20 cfs @ 13.30 hrs, Volume= 4.610 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

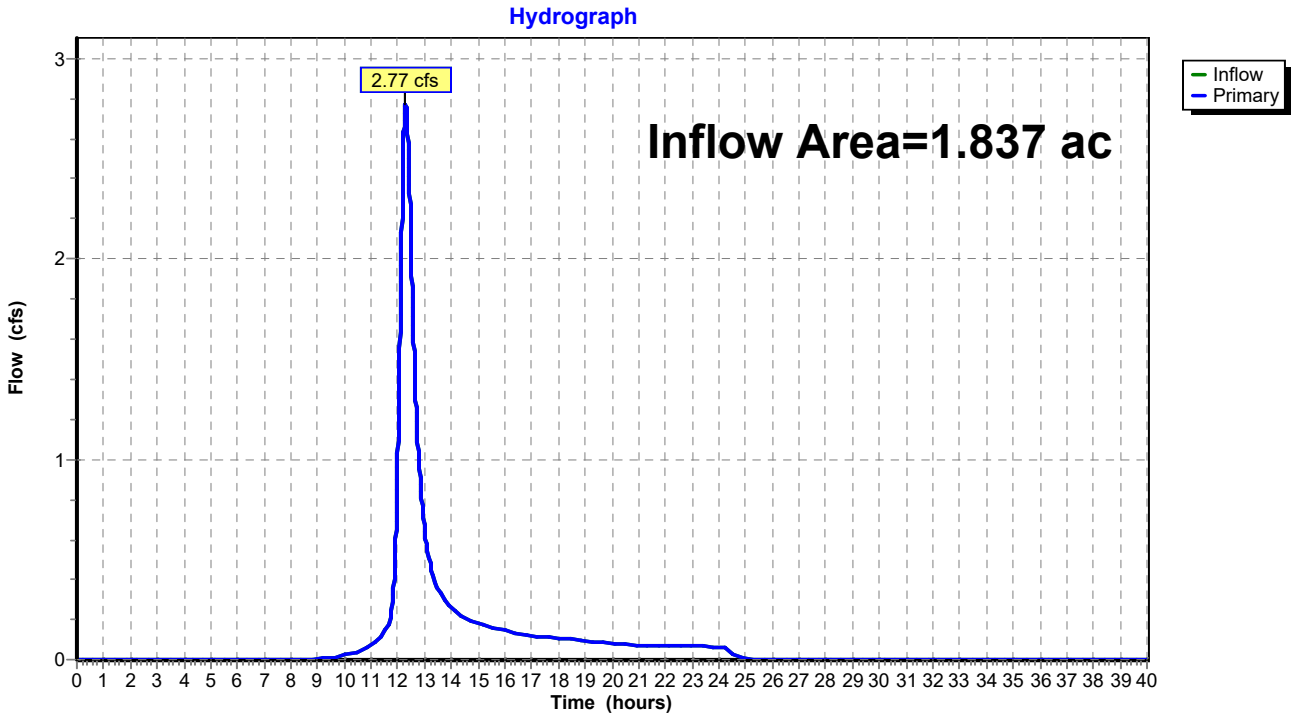
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 1.88" for 25-Year event
Inflow = 2.77 cfs @ 12.28 hrs, Volume= 0.287 af
Primary = 2.77 cfs @ 12.28 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 1S: East Drainage Area

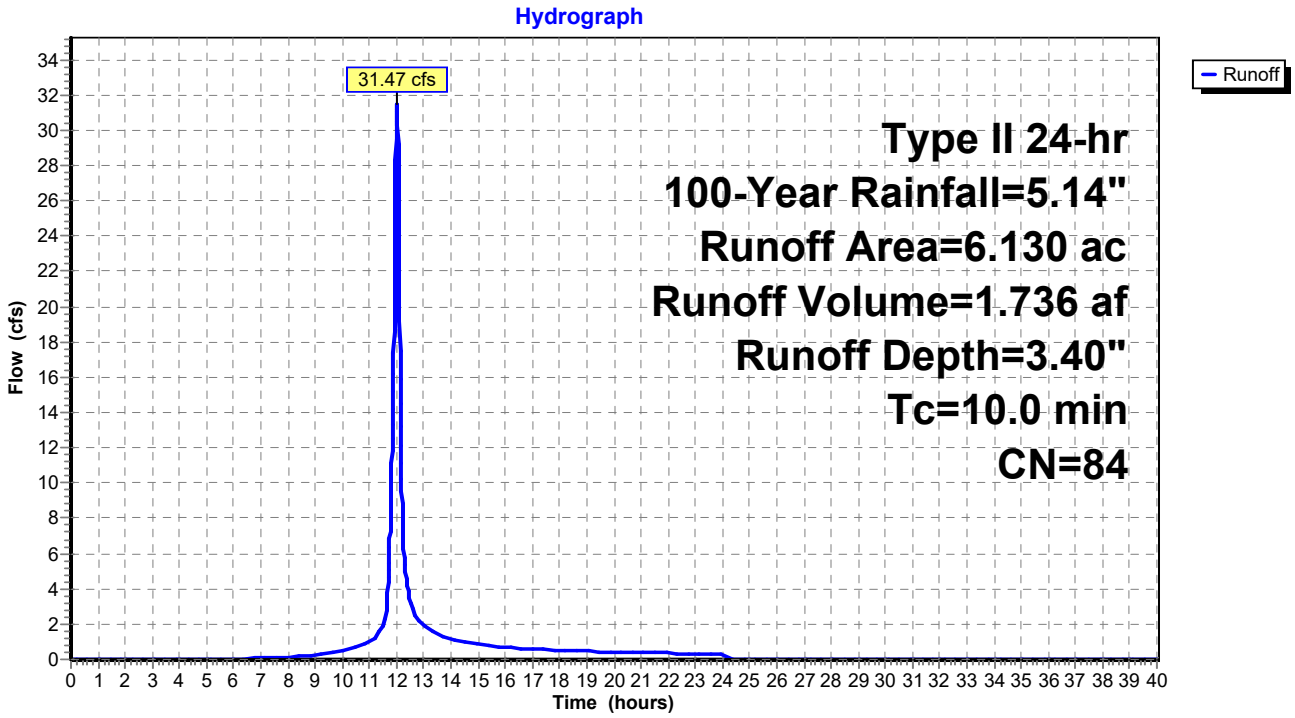
Runoff = 31.47 cfs @ 12.01 hrs, Volume= 1.736 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG D
4.830	80	>75% Grass cover, Good, HSG D
6.130	84	Weighted Average
4.830		78.79% Pervious Area
1.300		21.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: East Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2aS: Northwest Drainage Area

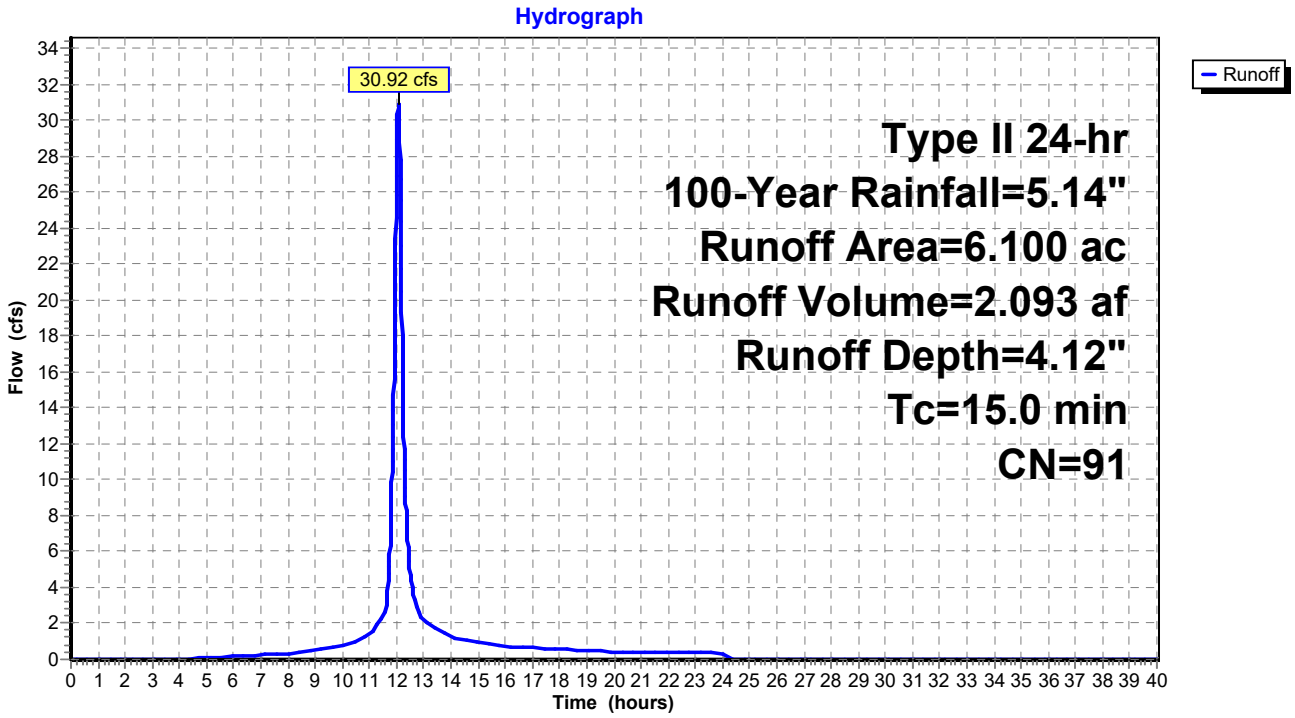
Runoff = 30.92 cfs @ 12.06 hrs, Volume= 2.093 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
3.700	98	Paved parking, HSG D
2.400	80	>75% Grass cover, Good, HSG D
6.100	91	Weighted Average
2.400		39.34% Pervious Area
3.700		60.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2aS: Northwest Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 2bS: Northeast Drainage Area

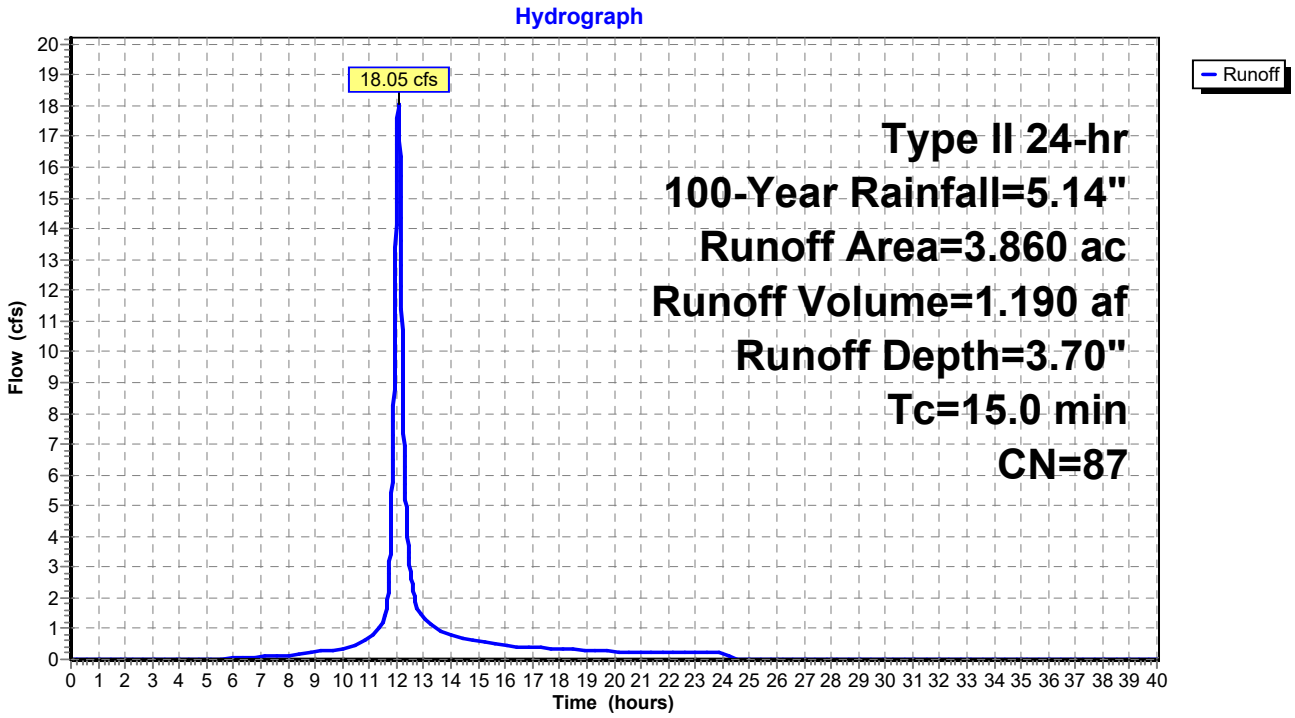
Runoff = 18.05 cfs @ 12.07 hrs, Volume= 1.190 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
1.560	98	Paved parking, HSG D
2.300	80	>75% Grass cover, Good, HSG D
3.860	87	Weighted Average
2.300		59.59% Pervious Area
1.560		40.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

Subcatchment 2bS: Northeast Drainage Area



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 3S: South Drainage Area (Future Development)

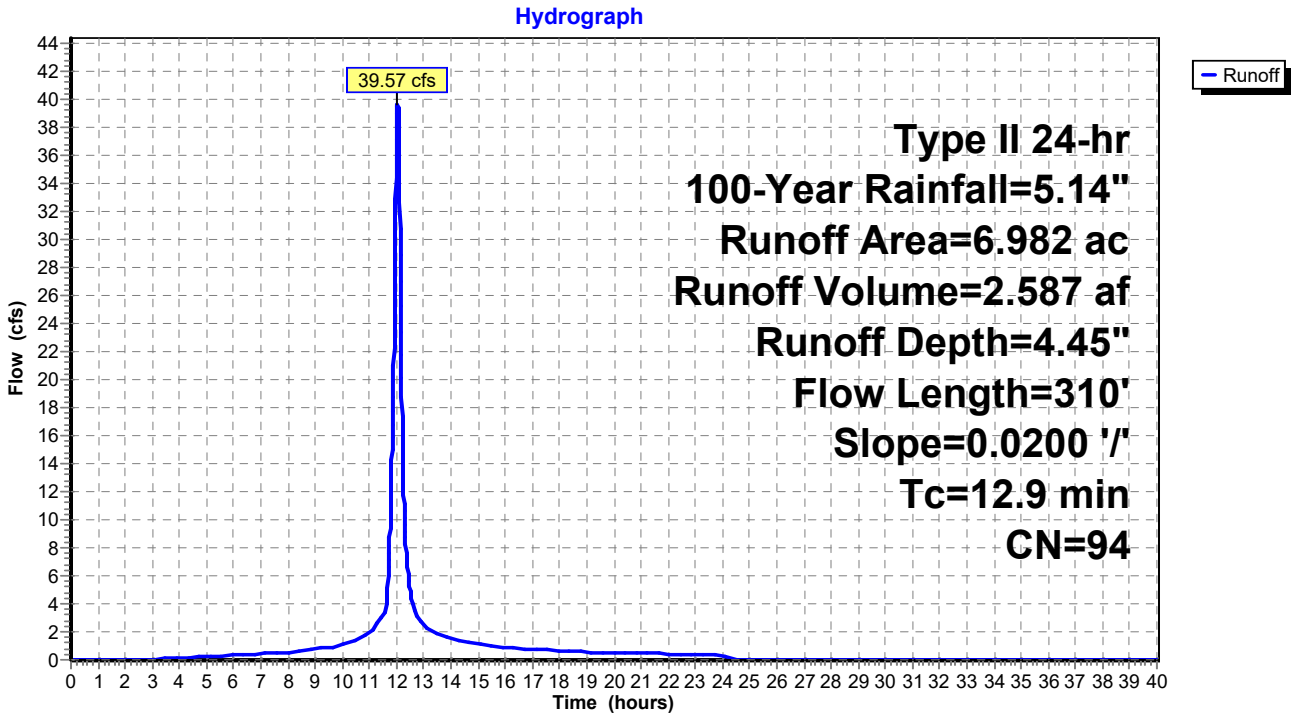
Runoff = 39.57 cfs @ 12.04 hrs, Volume= 2.587 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
5.449	98	Paved parking, HSG D
1.533	80	>75% Grass cover, Good, HSG D
6.982	94	Weighted Average
1.533		21.96% Pervious Area
5.449		78.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 2.32"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
12.9	310	Total			

Subcatchment 3S: South Drainage Area (Future Development)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Subcatchment 4S: West Drainage Area (Lawn)

[47] Hint: Peak is 830% of capacity of segment #2

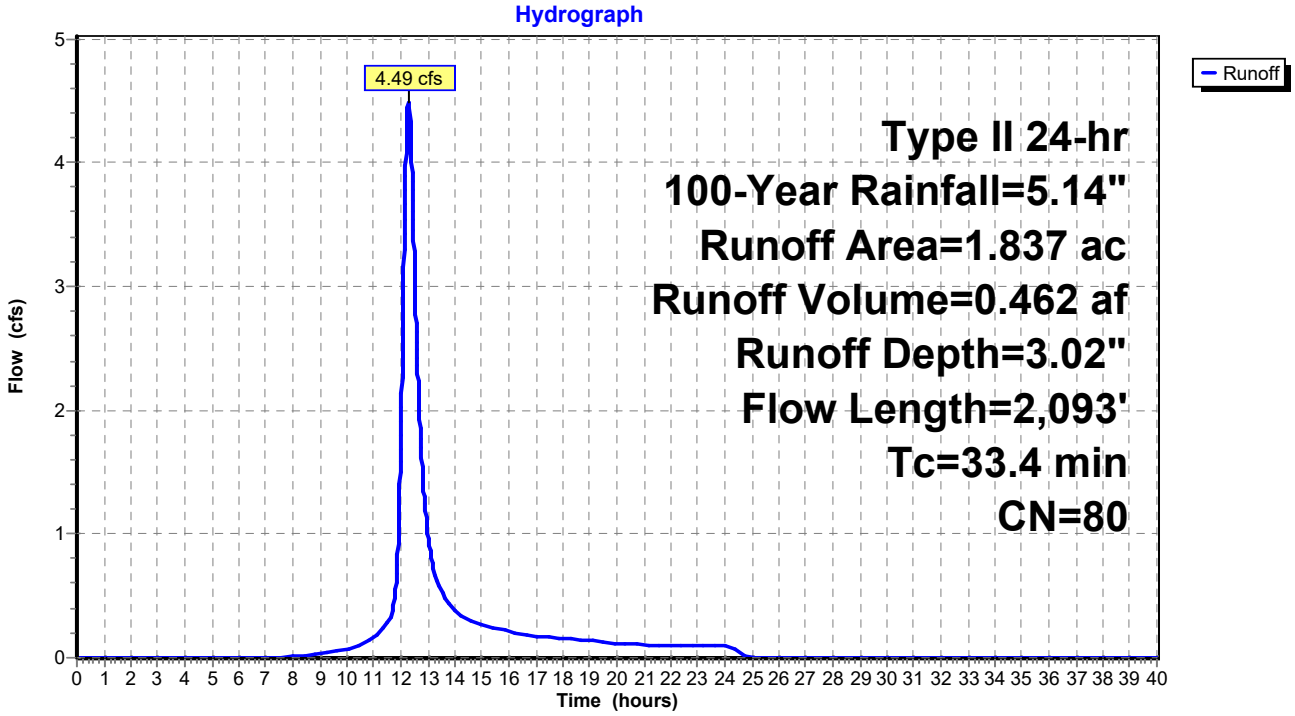
Runoff = 4.49 cfs @ 12.28 hrs, Volume= 0.462 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.14"

Area (ac)	CN	Description
1.837	80	>75% Grass cover, Good, HSG D
1.837		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	43	0.0100	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.32"
22.1	2,050	0.0020	1.55	0.54	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.013 Corrugated PE, smooth interior
33.4	2,093	Total			

Subcatchment 4S: West Drainage Area (Lawn)



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 1P: Dry Detention Basin

[79] Warning: Submerged Pond 2aP Primary device # 1 INLET by 0.20'
[79] Warning: Submerged Pond 2bP Primary device # 1 by 1.00'

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 3.87" for 100-Year event
Inflow = 100.40 cfs @ 12.05 hrs, Volume= 7.449 af
Outflow = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af, Atten= 94%, Lag= 86.7 min
Primary = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af
Secondary = 0.00 cfs @ 13.50 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 694.00' @ 13.50 hrs Storage= 183,906 cf

Plug-Flow detention time= 399.9 min calculated for 6.947 af (93% of inflow)
Center-of-Mass det. time= 348.0 min (1,180.6 - 832.7)

Volume	Invert	Avail.Storage	Storage Description
#1	691.50'	311,215 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
691.50	0	0
691.75	806	806
692.00	5,645	6,451
692.25	14,718	21,169
692.50	16,311	37,480
692.75	18,682	56,162
693.00	21,833	77,995
693.25	24,307	102,302
693.50	25,591	127,893
693.75	27,112	155,005
694.00	28,869	183,874
694.25	30,112	213,986
694.50	30,494	244,480
694.75	31,274	275,754
695.00	31,705	307,459
695.25	798	308,257
695.50	888	309,145
695.75	984	310,129
696.00	1,086	311,215

Device	Routing	Invert	Outlet Devices
#1	Primary	691.50'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 691.50' / 691.00' S= 0.0278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	691.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	692.65'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	694.00'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

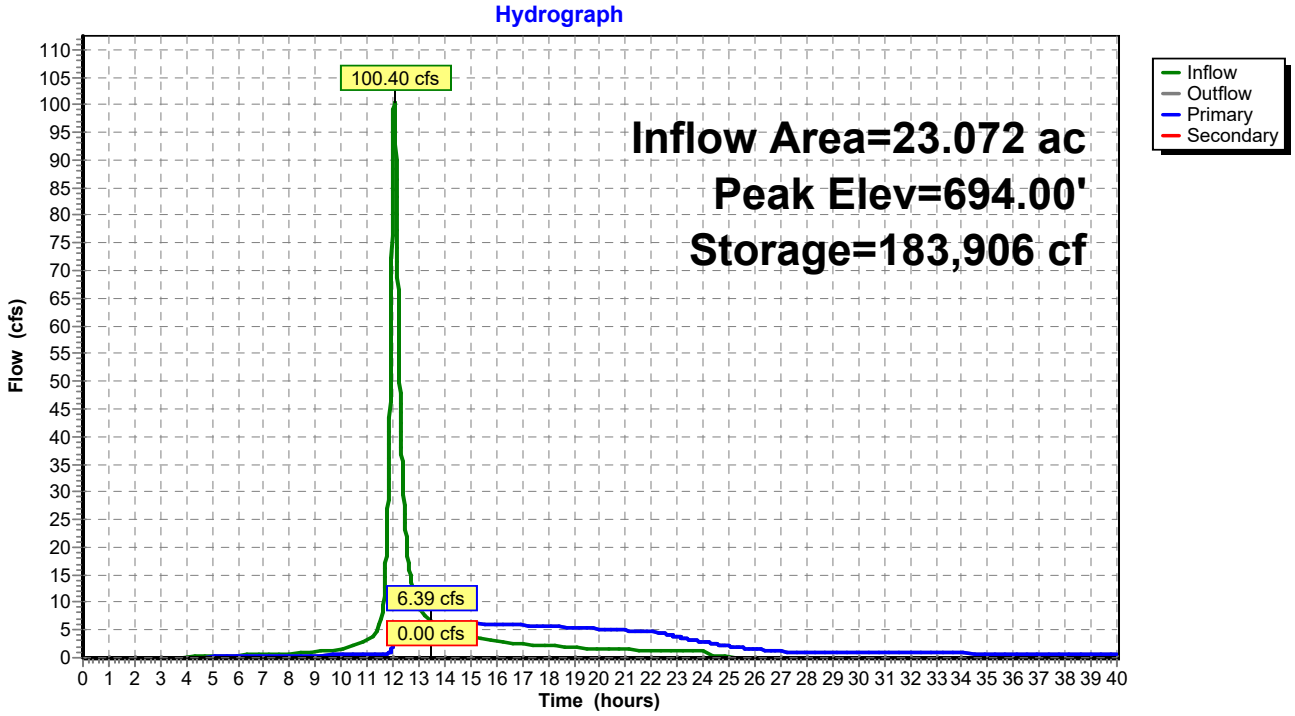
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=6.39 cfs @ 13.50 hrs HW=694.00' (Free Discharge)
└**1=Culvert** (Inlet Controls 6.39 cfs @ 5.21 fps)
└**2=Orifice/Grate** (Passes < 1.42 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Passes < 19.14 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 13.50 hrs HW=694.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.04 fps)

Pond 1P: Dry Detention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2aP: Northwest Bioretention Basin

Inflow Area = 6.100 ac, 60.66% Impervious, Inflow Depth = 4.12" for 100-Year event
Inflow = 30.92 cfs @ 12.06 hrs, Volume= 2.093 af
Outflow = 24.41 cfs @ 12.15 hrs, Volume= 1.969 af, Atten= 21%, Lag= 5.1 min
Primary = 24.41 cfs @ 12.15 hrs, Volume= 1.969 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 697.85' @ 12.15 hrs Surf.Area= 16,270 sf Storage= 23,106 cf

Plug-Flow detention time= 133.7 min calculated for 1.969 af (94% of inflow)
Center-of-Mass det. time= 100.1 min (891.1 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	696.30'	25,529 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

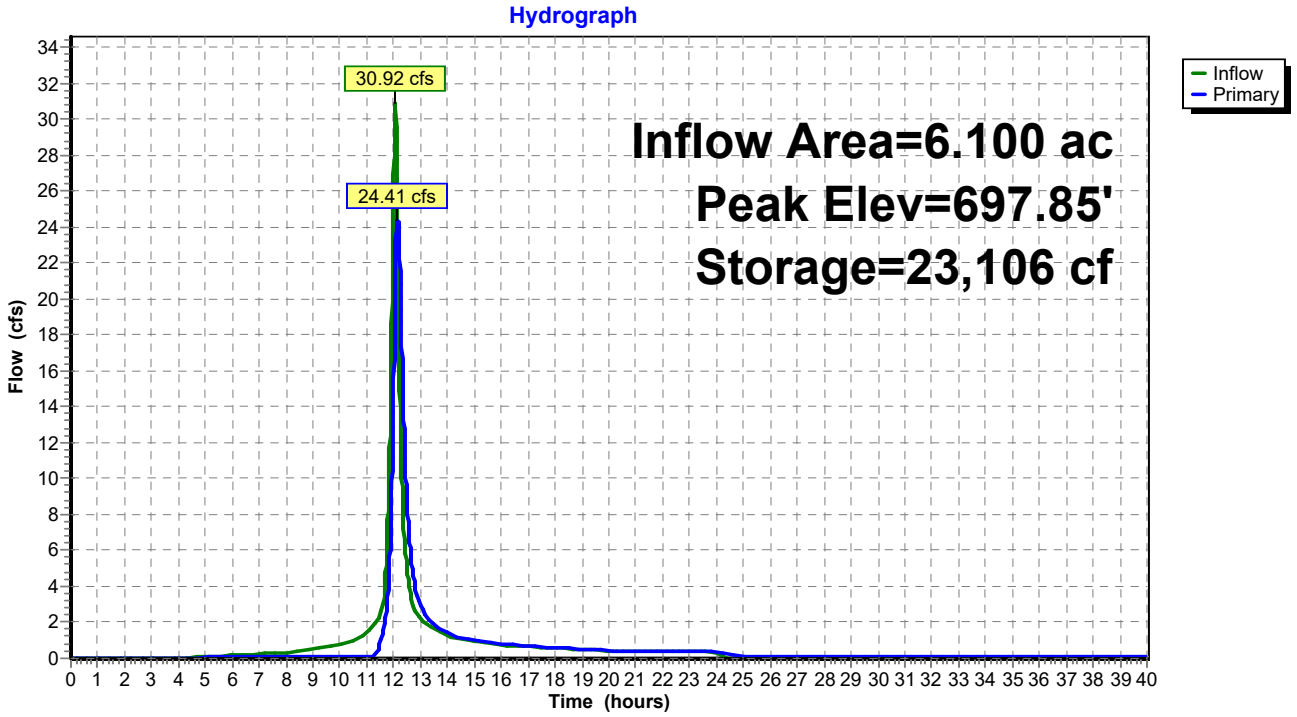
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
696.30	13,527	575.0	0	0	13,527
697.00	14,748	588.0	9,893	9,893	14,797
698.00	16,541	607.0	15,636	25,529	16,700

Device	Routing	Invert	Outlet Devices
#1	Primary	693.80'	**18.0" Round Culvert X 2.00** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.00' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	697.00'	**30.0" x 30.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.80'	**8.0" Round Underdrain** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.80' / 693.80' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	696.30'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=24.41 cfs @ 12.15 hrs HW=697.85' (Free Discharge)
└**1=Culvert** (Inlet Controls 24.41 cfs @ 6.91 fps)
└**2=Orifice/Grate** (Passes < 25.73 cfs potential flow)
└**3=Underdrain** (Passes < 1.41 cfs potential flow)
└**4=Exfiltration** (Passes < 0.10 cfs potential flow)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2aP: Northwest Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Summary for Pond 2bP: Northeast Bioretention Basin

Inflow Area = 3.860 ac, 40.41% Impervious, Inflow Depth = 3.70" for 100-Year event
Inflow = 18.05 cfs @ 12.07 hrs, Volume= 1.190 af
Outflow = 14.35 cfs @ 12.15 hrs, Volume= 1.156 af, Atten= 20%, Lag= 5.0 min
Primary = 14.35 cfs @ 12.15 hrs, Volume= 1.156 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 696.67' @ 12.15 hrs Surf.Area= 14,365 sf Storage= 12,285 cf

Plug-Flow detention time= 106.4 min calculated for 1.156 af (97% of inflow)
Center-of-Mass det. time= 89.5 min (894.9 - 805.4)

Volume	Invert	Avail.Storage	Storage Description
#1	695.50'	16,467 cf	**Custom Stage Data (Irregular)**Listed below

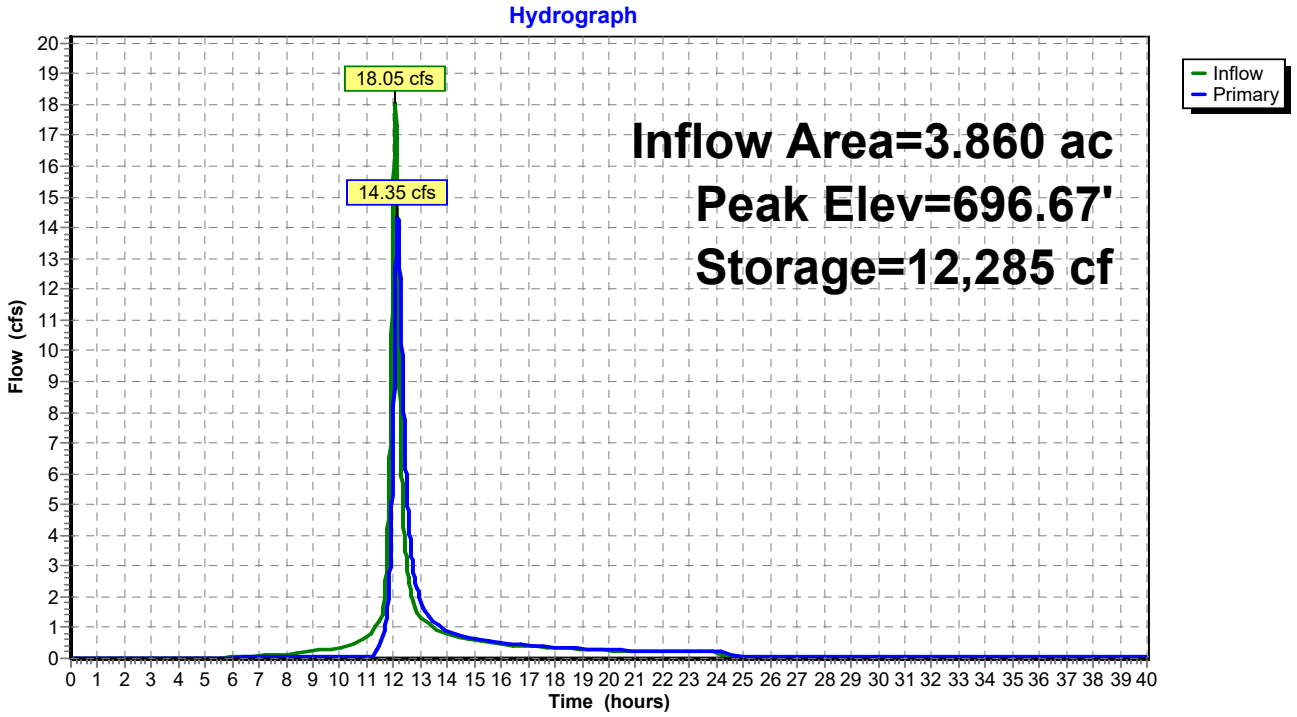
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
695.50	7,239	823.0	0	0	7,239
696.00	8,332	831.0	3,890	3,890	8,370
697.00	17,370	893.0	12,577	16,467	16,920

Device	Routing	Invert	Outlet Devices
#1	Primary	693.00'	**18.0" Round Culvert X 2.00** L= 234.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	696.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	693.00'	**8.0" Round Underdrain** L= 390.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 693.00' / 693.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#4	Device 3	695.50'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 600.00'

Primary OutFlow Max=14.35 cfs @ 12.15 hrs HW=696.67' (Free Discharge)
└**1=Culvert** (Passes 14.35 cfs of 16.80 cfs potential flow)
  └**2=Orifice/Grate** (Weir Controls 14.27 cfs @ 2.67 fps)
  └**3=Underdrain** (Passes 0.08 cfs of 1.01 cfs potential flow)
    └**4=Exfiltration** (Controls 0.08 cfs)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Pond 2bP: Northeast Bioretention Basin



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

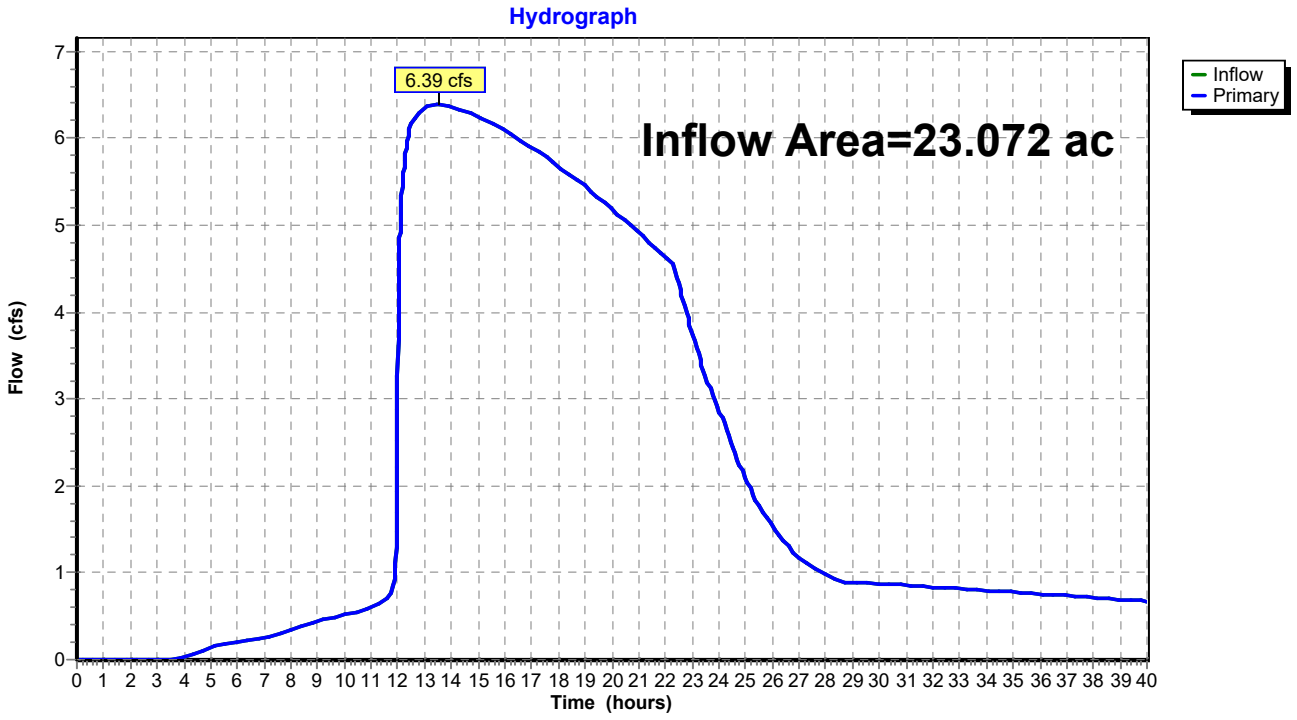
Summary for Pond 3P: East Discharge to Wehrle Dr. Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.072 ac, 52.05% Impervious, Inflow Depth > 3.61" for 100-Year event
Inflow = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af
Primary = 6.39 cfs @ 13.50 hrs, Volume= 6.949 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 3P: East Discharge to Wehrle Dr. Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

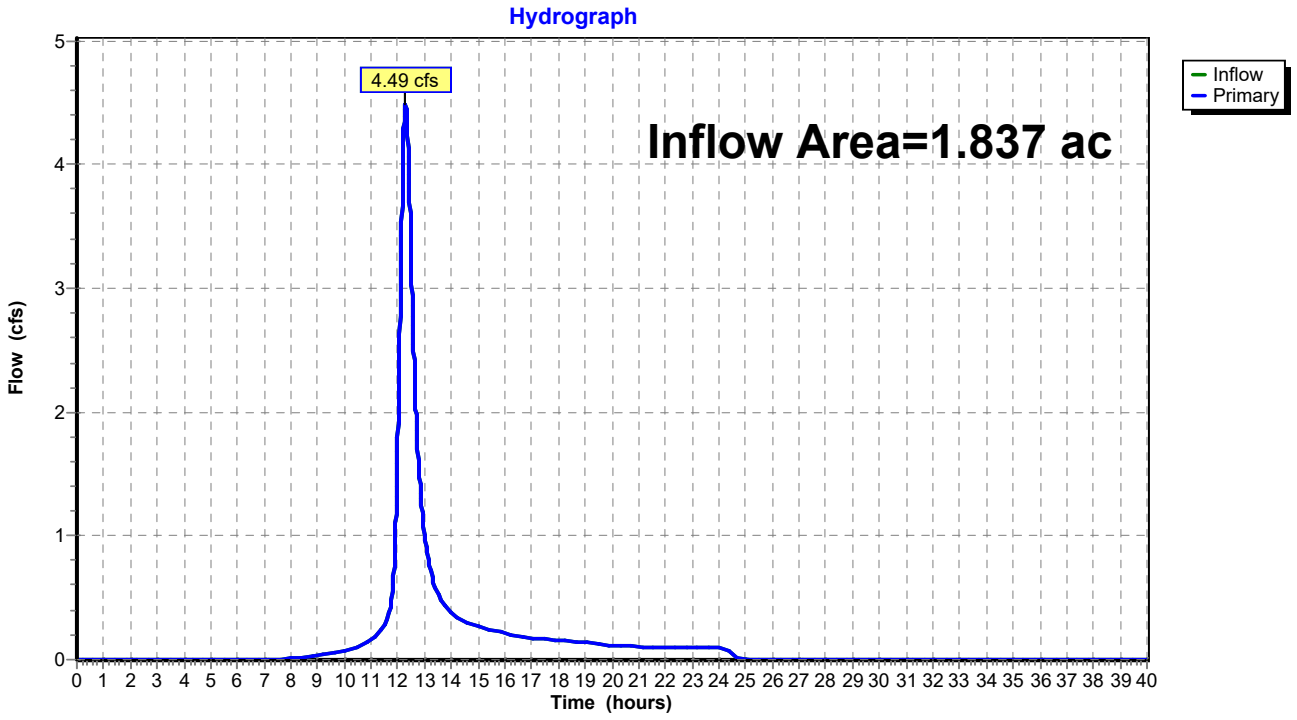
Summary for Pond 4P: West Discharge to Wehrle Drive Storm Sewer

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.837 ac, 0.00% Impervious, Inflow Depth = 3.02" for 100-Year event
Inflow = 4.49 cfs @ 12.28 hrs, Volume= 0.462 af
Primary = 4.49 cfs @ 12.28 hrs, Volume= 0.462 af, Atten= 0%, Lag= 0.0 min

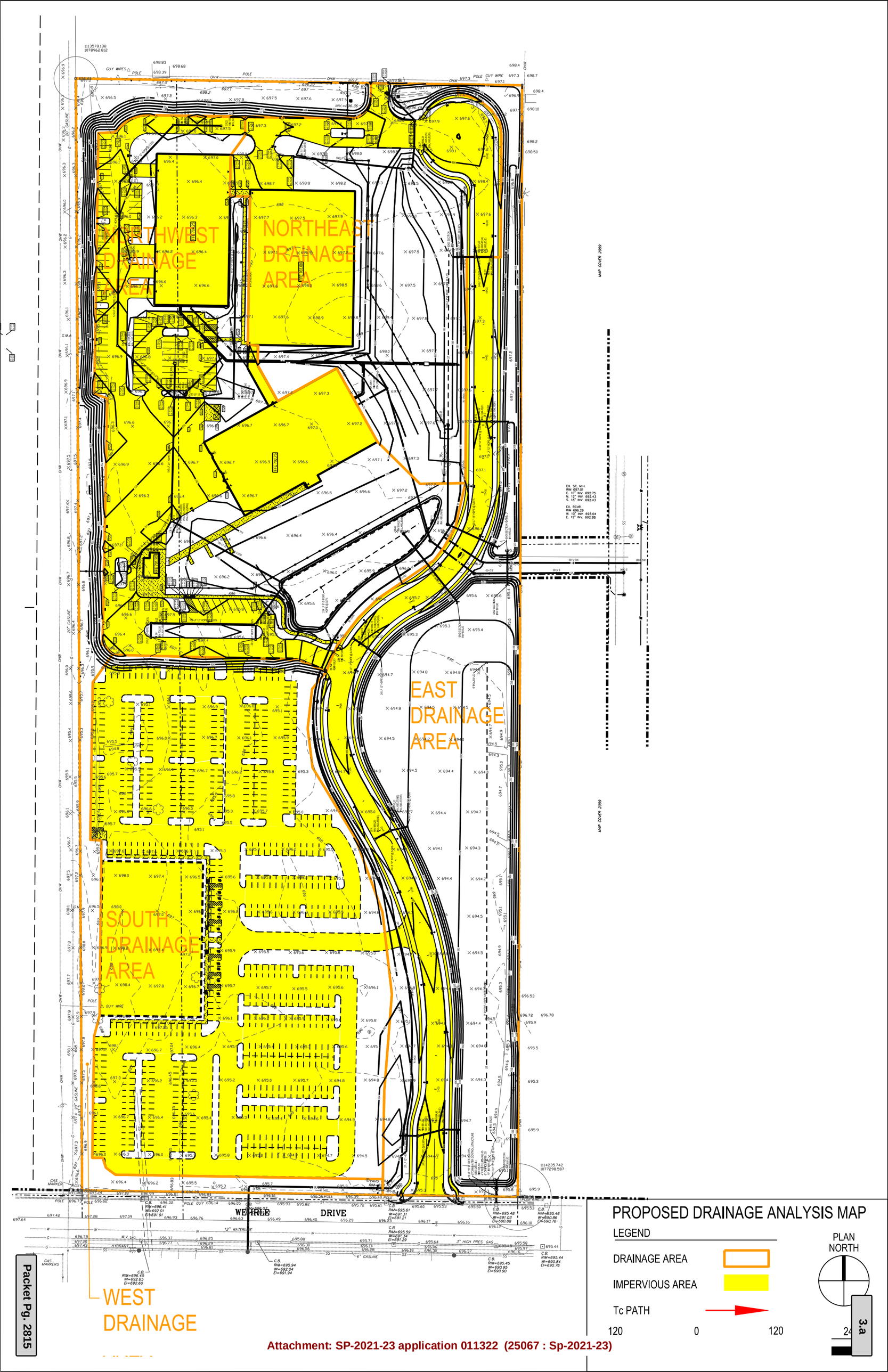
Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Pond 4P: West Discharge to Wehrle Drive Storm Sewer



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)


NORTHWEST DRAINAGE AREA
NORTHEAST DRAINAGE AREA
EAST DRAINAGE AREA
SOUTH DRAINAGE AREA
WEST DRAINAGE
WEHRLE
DRIVE
PROPOSED DRAINAGE ANALYSIS MAP
LEGEND
DRAINAGE AREA
IMPERVIOUS AREA
Tc PATH
PLAN NORTH
120
0
120

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Hydrologic Soil Group—Erie County, New York
(2190-2220 Wehrle Drive, Amherst, NY)



Map Scale: 1:2,960 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 20, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 4, 2020—Jul 10, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Packet Pg. 2818
3.a
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
In	Ilion silt loam	C/D	8.1	34.1%
LmB	Lima loam, 3 to 8 percent slopes	B/D	2.6	11.0%
Ne	Newstead loam	C/D	2.5	10.6%
OvA	Ovid silt loam, 0 to 3 percent slopes	C/D	10.5	44.2%
Totals for Area of Interest			**23.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

C&S COMPANIES®
www.cscos.com

Project 2190 - 2220 WEHRLE
CHANNEL PROTECTION VOLUME
Prepared by JU
Checked by
Sheet of
File #
Date 11/3/21
Date

CHANNEL PROTECTION VOLUME (CP_V)

1-YR, 24-HR RUNOFF VOLUME = 1.759 AC-FT = 76,622 CF

EQUIVALENT DISCHARGE OVER 24 HRS = $\frac{76{,}622\ CF}{24\ HRS} \times \frac{1\ HR}{3600\ sec} = 0.89\ CFS$

MINIMUM ORIFICE REQ'D TO MEET CP_V:

$$Q = 0.60 A \sqrt{2gh}$$

$$A = \frac{Q}{0.60\sqrt{2gh}}$$

WHERE: A = ORIFICE AREA (SF)
Q = 0.89 CFS
g = 32.2 FT/sec²
h = AVG. HT OF WATER = 1 FT

$$= \frac{0.89\ CFS}{0.60\sqrt{2(32.2\ FT/S^2)(1\ FT)}}$$

$$= 0.19\ SF$$

$$A = \frac{\pi D^2}{4}$$

$$D = \sqrt{\frac{4A}{\pi}} = \sqrt{\frac{4(0.19\ SF)}{\pi}} = 0.49\ FT = 6\text{-INCH}$$

⇒ USE A 6" ϕ ORIFICE

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

DATE: November 2021
PROJECT NAME: 2190-2220 WEHRLE DRIVE
(PROPOSED DEV. & PROPOSED ROAD)

Stormwater Quality Calculations

Impervious Areas (refer to Existing & Proposed Drainage Analysis Maps)

$I_{Existing} := 0$ — $I_{Existing}$ = Existing Impervious Area (acres) per Existing Drainage Analysis Map

$I_{Proposed} := 6.56$ — $I_{Proposed}$ = Proposed Impervious Area (acres) per Proposed Drainage Analysis Map

$I_{New} := I_{Proposed} - I_{Existing}$ — I_{New} = New Impervious Area (acres)

$I_{New} = 6.56$

Minimum Runoff Reduction Volume (RR_v Min)

The minimum RRv is calculated by applying a reduction factor (S) (based on the HSG on site) to the area of new impervious coverage.

$P := 1.0$ — *90% Rainfall Event (inches)*

$Rv := 0.95$ — **0.05 + 0.009(I) where I is 100% impervious**

$Aic := I_{New}$ — *Total Area of New Impervious Area (acres)*

$Aic = 6.56$

$S := 0.20$ — *Hydrologic Soil Group (HSG) Specific Reduction Factor (S)*
The site is 100% HSG D. Therefore, S = 0.20

$RR_{vmin} := \frac{P \cdot Rv \cdot Aic \cdot S}{12} = 0.104$ — *Runoff Reduction Volume Minimum (acre-feet)*

$RR_{vmin} \cdot 43560 = 4524$ — *Runoff Reduction Volume Minimum (cubic-feet)*

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Water Quality Volume Required (WQ_v Required)

$P = 1.000$ — *90% Rainfall Event (inches)*

$A_c := 16.08$ — *Total Contributing Area (acres)*

$I := \frac{Aic}{A_c} \cdot 100$ — *Percent impervious cover (100%)*

$I = 40.8$

$R_v := 0.05 + 0.009 \cdot I$ — **0.05 + 0.009(I) where I is 100% impervious**

$R_v = 0.417$

$WQ_{vRequired} := \frac{P \cdot R_v \cdot A_c}{12}$

$WQ_{vRequired} = 0.559$ — *Water Quality Volume Required from New Impervious Areas (acre-feet)*

$WQ_{vRequired} \cdot 43560 = 24350$ — *Water Quality Volume Required from New Impervious Areas (cubic feet)*

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Water Quality Volume Provided (WQ_v Provided)

Northwest Bioretention Basin

$P = 1.000$ — *90% Rainfall Event (inches)*

$A_1 := 6.10$ — *Total Area Draining to BMP*

$Impervious_1 := 3.70$ — *Impervious Area draining to BMP*

$I_1 := \frac{Impervious_1}{A_1} \cdot 100$ — *Percent impervious cover*

$I_1 = 60.7$

$R_{v1} := 0.05 + 0.009 \cdot I_1$ — **0.05 + 0.009(I) where I is percent impervious**

$R_{v1} = 0.596$

$WQ_{v1} := \frac{P \cdot R_{v1} \cdot A_1}{12}$

$WQ_{v1} = 0.303$ — *Total Water Quality Volume Provided in BMP (acre-feet)*

$WQ_{v1} \cdot 43560 = 13195$ — *Total Water Quality Volume Provided in BMP (cubic feet)*

For Bioretention Basins in Type 'D' soils, 40% of the water quality volume can count towards the Runoff Reduction Volume.

$RR_{v1} := 0.40 \cdot WQ_{v1}$

$RR_{v1} = 0.121$ — **Runoff Reduction Volume Provided in BMP (acre-feet)**

$RR_{v1} \cdot 43560 = 5278$ — **Runoff Reduction Volume Provided in BMP (cubic-feet)**

$WQ_{vProvided1} := WQ_{v1} - RR_{v1}$

$WQ_{vProvided1} = 0.182$ — **Water Quality Volume Provided in BMP (acre-feet)**

$WQ_{vProvided1} \cdot 43560 = 7917$ — **Water Quality Volume Provided in BMP (cubic-feet)**

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Size Filter Area of Northwest Bioretention Basin

$WQ_{v1} \cdot 43560 = 13195$ — *Water Quality Volume Provided in BMP (cubic feet)*

$d_f := 2.5$ — **Filter Bed Depth = 2.5 feet**

$k := 0.50$ — **Coefficient of permeability of filter media = 0.50 ft/day (for bioretention soil)**

$h_f := 0.50$ — **Average height of water above filter bed (feet)**

$t_f := 2$ — **Design filter bed drain time = 2 day for bioretention**

$$A_{f1} := \frac{WQ_{v1} \cdot 43560 \cdot d_f}{k \cdot (h_f + d_f) \cdot t_f}$$

$A_{f1} = 10996$ — Required Surface Area of filter bed (square feet)

A_f provided is 13,527 square feet

Northeast Bioretention Basin

$P = 1.000$ — *90% Rainfall Event (inches)*

$A_2 := 3.86$ — *Total Area Draining to BMP*

$Impervious_2 := 1.56$ — *Impervious Area draining to BMP*

$$I_2 := \frac{Impervious_2}{A_2} \cdot 100$$ — *Percent impervious cover*

$I_2 = 40.4$

$R_{v2} := 0.05 + 0.009 \cdot I_2$ — **0.05 + 0.009(I) where I is percent impervious**

$R_{v2} = 0.414$

$$WQ_{v2} := \frac{P \cdot R_{v2} \cdot A_2}{12}$$

$WQ_{v2} = 0.133$ — *Total Water Quality Volume Provided in BMP (acre-feet)*

$WQ_{v2} \cdot 43560 = 5797$ — *Total Water Quality Volume Provided in BMP (cubic feet)*

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

For Bioretention Basins in Type 'D' soils, 40% of the water quality volume can count towards the Runoff Reduction Volume.

$RR_{v2} := 0.40 \cdot WQ_{v2}$

$RR_{v2} = 0.053$ **Runoff Reduction Volume Provided in BMP (acre-feet)**

$RR_{v2} \cdot 43560 = 2319$ **Runoff Reduction Volume Provided in BMP (cubic-feet)**

$WQ_{vProvided2} := WQ_{v2} - RR_{v2}$

$WQ_{vProvided2} = 0.080$ **Water Quality Volume Provided in BMP (acre-feet)**

$WQ_{vProvided2} \cdot 43560 = 3478$ **Water Quality Volume Provided in BMP (cubic-feet)**

Size Filter Area of Northeast Bioretention Basin

$WQ_{v2} \cdot 43560 = 5797$ ***Water Quality Volume Provided in BMP (cubic feet)***

$d_f := 2.5$ **Filter Bed Depth = 2.5 feet**

$k := 0.50$ **Coefficient of permeability of filter media = 0.50 ft/day (for bioretention soil)**

$h_f := 0.50$ **Average height of water above filter bed (feet)**

$t_f := 2$ **Design filter bed drain time = 2 day for bioretention**

$$A_{f2} := \frac{WQ_{v2} \cdot 43560 \cdot d_f}{k \cdot (h_f + d_f) \cdot t_f}$$

$A_{f2} = 4831$ Required Surface Area of filter bed (square feet)

A_f provided is 7,239 square feet

Dry Swale

$P = 1.000$ ***90% Rainfall Event (inches)***

$A_3 := 6.13$ ***Total Area Draining to BMP***

$Impervious_3 := 1.30$ ***Impervious Area draining to BMP***

$$I_3 := \frac{Impervious_3}{A_3} \cdot 100$$ ***Percent impervious cover***

$I_3 = 21.2$

F:\Project\D04 - Acquest\D04009001 - 2190-2220 Wehrle Drive\Design\Technical \Stormwater\WQv and RRv calcs - Proposed Development and Proposed Road.xmcd

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

$R_{v3} := 0.05 + 0.009 \cdot I_3$ **0.05 + 0.009(I) where I is percent impervious**

$R_{v3} = 0.241$

$$WQ_{v3} := \frac{P \cdot R_{v3} \cdot A_3}{12}$$

$WQ_{v3} = 0.123$ ***Total Water Quality Volume Provided in BMP (acre-feet)***

$WQ_{v3} \cdot 43560 = 5360$ ***Total Water Quality Volume Provided in BMP (cubic feet)***

For Dry Swales in Type 'D' soils, 20% of the water quality volume can count towards the Runoff Reduction Volume.

$RR_{v3} := 0.20 \cdot WQ_{v3}$

$RR_{v3} = 0.025$ **Runoff Reduction Volume Provided in BMP (acre-feet)**

$RR_{v3} \cdot 43560 = 1072$ **Runoff Reduction Volume Provided in BMP (cubic-feet)**

$WQ_{vProvided3} := WQ_{v3} - RR_{v3}$

$WQ_{vProvided3} = 0.098$ **Water Quality Volume Provided in BMP (acre-feet)**

$WQ_{vProvided3} \cdot 43560 = 4288$ **Water Quality Volume Provided in BMP (cubic-feet)**

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX D-1

WEEKLY SOIL EROSION AND SEDIMENT CONTROL INSPECTION CHECKLIST

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

EROSION AND SEDIMENT CONTROL INSPECTION CHECKLIST

Project Name:	**Date & Time of Inspection:**
Project Title:	**Current Conditions (Temp., etc.):**
Project No.:	**Reason for Inspection:**
Inspector' Name:	**Contractor:**

Project E&SC Inspection Report No. ____

(Date of Last Inspection - _____**)**

The State Pollutant Discharge Elimination System General Permit for Construction Activity (Permit) requires site inspections to be conducted at least every 7 calendar days.

Prior to conducting site inspection, review the previous site inspection report to identify reported deficiencies and the proposed corrective actions to address these deficiencies. During the site inspection, evaluate whether the implemented corrective actions proposed in the previous site inspection adequately addressed reported deficiencies.

Are the SWPPP, NOI, Acknowledgment of NOI, MS4 Acceptance Form and Contractor Certifications on site and available to review?	**Yes** ☐ **No** ☐ **N/A** ☐
Are the weekly SWPPP inspection reports on site and available to review (either in a SWPPP mailbox or job trailer?	**Yes** ☐ **No** ☐ **N/A** ☐
Did you review the previous site inspection report?	**Yes** ☐ **No** ☐ **N/A** ☐
Did the previous site inspection require an update to the Storm Water Pollution Prevention Plan (SWPPP)?	**Yes** ☐ **No** ☐ **N/A** ☐
If so was the SWPPP updated?	**Yes** ☐ **No** ☐ **N/A** ☐

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Project Site Activities

Provide a description of the construction activities that have occurred on site since the last inspection, what activities are currently occurring, and what activities are planned over the course of the next week. The description should consist of general activities, with specific activities identified where appropriate, and as they relate to the implementation and maintenance of Erosion and Sediment Control Measures.

Prior Activities:
Current Activities:
Planned Activities:

Site Map

The project site map shall be utilized as part of the site inspection process. The site map shall be used to visually depict various construction stages of the site, as well as to identify specific areas requiring attention. The various stages are to be depicted by the use of different color highlighters. The following outlines the color to be used for the selected construction activity:

Blue will indicate all disturbed site areas and drainage pathways that have undergone active site work within last 14 days.

Green will indicate site areas which have been temporarily or permanently stabilized.

Yellow will indicate site areas which have not undergone construction activity within the last 14 days but will within the next seven days.

Pink will indicate site areas which have not undergone construction within the last 14 days and will not undergo construction within the next 7 days. Notify contractor that this site area needs to be temporarily or permanently stabilized.

Approximately how many acres are within the Blue area**?**	_____ Acres
Approximately how many acres are within the Yellow area?	_____ Acres
Approximately how many acres are within the Pink area?	_____ Acres
Add all of the acreage from the three areas	_____ Acres

If the total area is greater than five (5) acres, then the portion of the site in excess of five acres shall be temporarily or permanently stabilized, unless written permission has been obtained from the NYSDEC in advance for any land disturbance of five acres or greater.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

INSPECTION ITEM	YES	NO	PHOTO #	COMMENTS
a. Is there any evidence of sediment deposition or the discharge of sediment laden water to adjacent properties or drainage facilities?				
b. Is there any evidence of sediment deposition in a sediment trapping device? Record percentage _____% (SPDES permit requires sediment to be removed once it exceeds 50% of the sediment storage volume.)				
Is the sediment trapping device in need of maintenance?				
c. Are protected areas such as wetlands, property boundaries, and vegetation preservation areas, properly delineated?				
d. Is there evidence of erosion at the outlet of pipes, swales or ditches?				
e. Is the construction entrance stabilized and operating correctly?				
f. If Diversion Berms and/or Earth Dikes are required, have they been installed?				
If so, are they in need of maintenance?				
g. If Check Dams are required, have they been installed?				
If so, are they in need of maintenance?				
h. Do catch basins and drainage inlets have proper protection - i.e., filter fabric, stone and block, etc. - inlet protection?				
If so, are they in need of maintenance?				
i. Is there any loss of stabilizing vegetation, or seeding and mulching?				
j. Is there evidence of rill or gully erosion occurring on slopes?				

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Were the Corrective Action(s) Identified in Last Inspection Report Implemented? Yes ☐ No ☐ N/A ☐ **If yes, Did the Corrective Actions Rectify the Problem? Yes ☐ No ☐ N/A ☐**
Indicate Deficiencies Identified During the Current Site Inspection (which were not already identified in this report):
Who was Notified of Problem(s) and When Were They Notified?
Corrective Actions to be Taken by Whom and When:
Are the Corrective Actions to be taken consistent with the current SWPPP? Yes ☐ No ☐ N/A ☐ **If no, update the SWPPP prior to the next site inspection to reference the inclusion of these corrective actions**

Contractor Signature: _____ **Date:** _____

Inspector's Signature: _____ **Date:** _____

Reviewing P.E.: _____ **Date:** _____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX E-1

CONTRACTOR'S CERTIFICATION FORM

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

CONTRACTOR'S STORM WATER POLLUTION PREVENTION CERTIFICATION FORM

Project Address/Location: _____

Project Name: _____

Contractor's Official Name: _____

Address: _____

Telephone Number: _____

Contractor's Responsibilities: _____

_____

_____

_____

Trained Individual(s) Responsible for SWPPP Implementation

_____ _____
Printed Name of Trained Individual Title

_____ _____
Printed Name of Trained Individual Title

Certification Statement:

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

_____ _____
Printed Name Signature

_____ _____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Title Date

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX F-1

NOTICE OF TERMINATION (NOT)

FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE SPDES GENERAL PERMIT

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

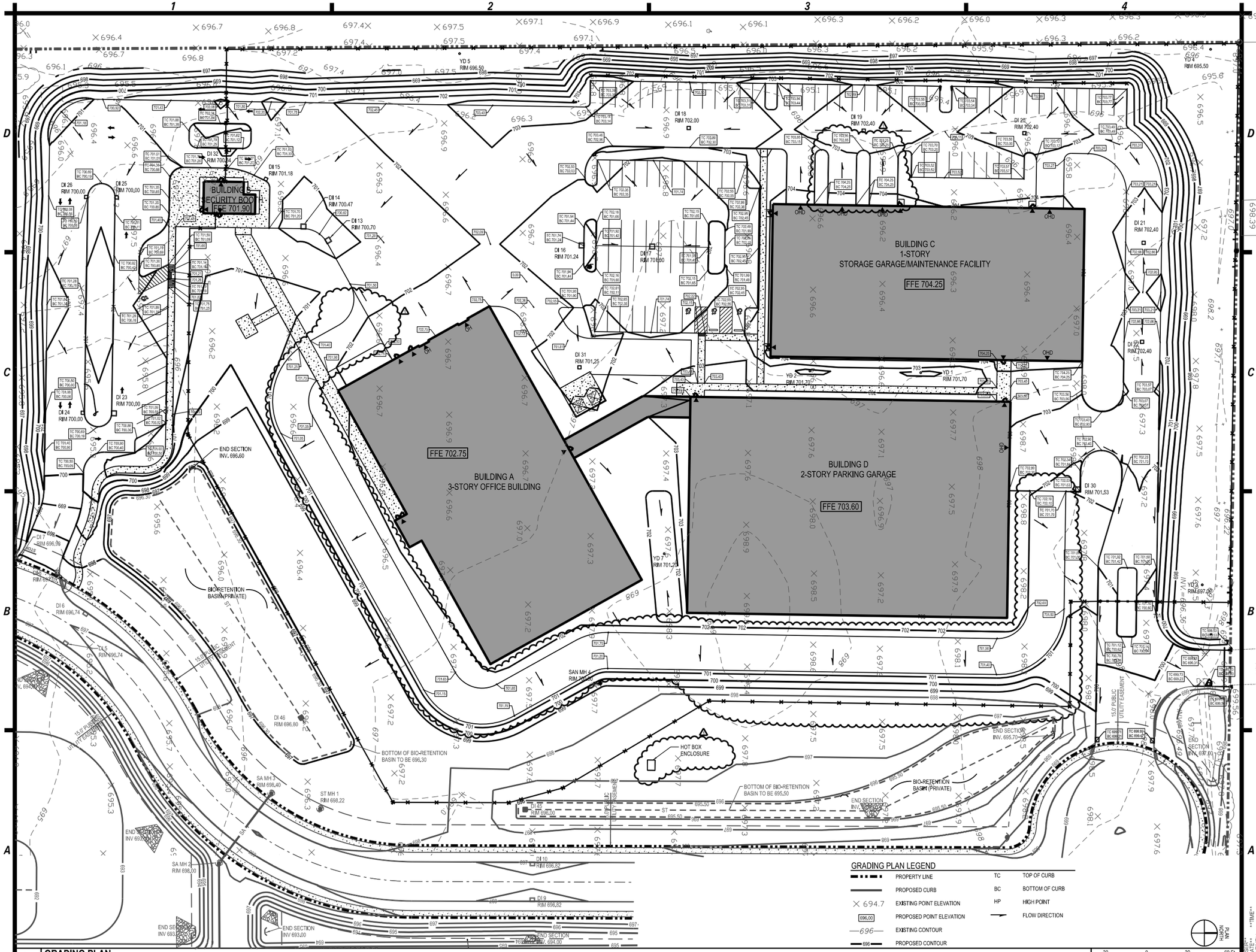
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX G-1

SWPPP PLANS & DETAILS

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



A1 **GRADING PLAN**
SCALE: 1" =30'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
△	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

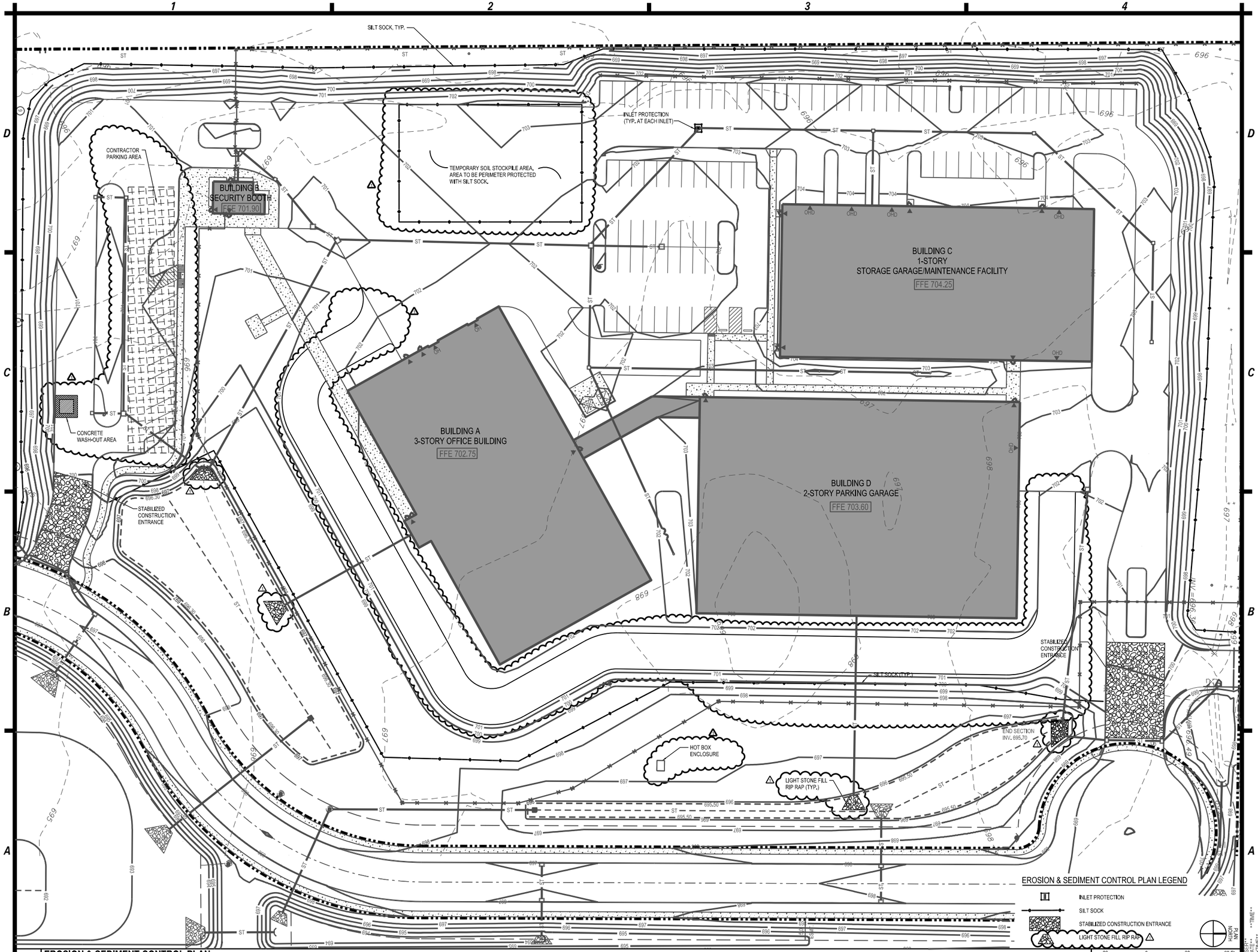
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING PLAN

CG101

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Copyright



A1 EROSION & SEDIMENT CONTROL PLAN
SCALE: 1"=30'

C&S COMPANIES®

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
△	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

EROSION & SEDIMENT CONTROL PLAN

CG102

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Copyright

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

UTILITY PLAN

CU101

A1 UTILITY PLAN
SCALE: 1"=30'

UTILITY PLAN LEGEND

EXISTING SANITARY SEWER	SS	PROPOSED HYDRANT	
EXISTING STORM SEWER	ST	PROPOSED MANHOLE	
EXISTING WATER MAIN	W	PROPOSED DRAINAGE INLET	DI
EXISTING ELECTRIC	OHW	PROPOSED YARD DRAIN	YD
EXISTING GAS	G	PROPOSED CLEAN OUT	C.O.
PROPOSED SANITARY SEWER	SA	PROPOSED LIGHT STANDARD	
PROPOSED STORM SEWER	ST		
PROPOSED WATER MAIN	W		

30 0 30 60 FT

Copyright

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

BUILDING A
3-STORY OFFICE BUILDING

BUILDING B
SECURITY

BUILDING C
1-STORY
STORAGE GARAGE/MAINTENANCE FACILITY

BUILDING D
2-STORY PARKING GARAGE

HOTBOX
6-JB

NOTES:
1. ALL INTERIOR LANDSCAPED AREA SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE SAUCERS AND SHRUB BEDS SHALL RECEIVE A MINIMUM OF THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL TREES SHALL BE STAKED WITH THREE (3) WOOD STAKES AS SHOWN ON THE TREE PLANTING DETAIL.
4. A ROOT PROTECTION ZONE SHALL BE ESTABLISHED AROUND ANY TREE WHICH IS IDENTIFIED ON THE LANDSCAPE PLAN AS A TREE TO BE PRESERVED. THE ROOT PROTECTION ZONE IS IDENTIFIED BY CREATING A CIRCLE AROUND THE TREE. THE SIZE OF WHICH IS DETERMINED BY PROVIDING ONE FOOT OF RADIUS FOR EVERY INCH DIAMETER OF THE TREE MEASURED AT BREAST HEIGHT (DBH). THE ROOT PROTECTION ZONE SHALL BE MARKED IN THE FIELD WITH A PHYSICAL BARRIER SUCH AS TEMPORARY FENCING OR OTHER MEANS WHICH SHALL PREVENT CONSTRUCTION ACTIVITIES FROM OCCURRING WITH THE TREE ROOT PROTECTION ZONE. METHODS FOR PRESERVING AND PROTECTING EXISTING TREES SHALL BE INCLUDED AS PART OF THE LANDSCAPE PLAN.

LANDSCAPING LEGEND
- EXISTING TREE TO BE PRESERVED
- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUB
- EXISTING TREE TO BE REMOVED

SEE DRAWING CS503 FOR PLANT LIST, PLANTING DETAILS & SPECIFICATION

NORTH

30 0 30 60 FEET
30"

A1 LANDSCAPING PLAN
SCALE: 1"=30'

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG M. GRIDLEY
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

LANDSCAPING PLAN

CL101

Copyright ©

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

WEHRLE (WIDTH VARIES) DRIVE

RIDGE COURT SOUTH

BELLINGHAM (60' WIDE) DRIVE

GARFIELD (60' WIDE) ROAD

NORTHRIDGE SUBDIVISION MAP COVER 2059

STABILIZED CONSTRUCTION ENTRANCE

STORMWATER DETENTION BASIN (PRIVATE)

LIGHT STONE FILL RIP RAP (TYP.)

SILT SOCK (TYP.)

BIORETENTION BASIN (PRIVATE) BOTTOM ELEV. 696.30

TEMPORARY SEDIMENT BASIN BOTTOM ELEV. 692.30

INLET PROTECTION (TYP. AT EACH INLET)

TEMPORARY SEDIMENT BASIN BOTTOM ELEV. 691.50

BIORETENTION BASIN (PRIVATE) BOTTOM ELEV. 695.50

STORMWATER DETENTION BASIN (PRIVATE)

1. SITE STABILIZATION OF UNDISTURBED AREAS WHICH HAVE NOT UNDERGONE CONSTRUCTION WITHIN 14 DAYS AND WILL NOT UNDERGO CONSTRUCTION WITHIN THE NEXT 7 DAYS, SHALL CONSIST OF STRAW MULCH OR HYDROSEEDING OF BARE SOIL AND/OR SOIL STOCKPILES.

2. HYDROSEED SHALL BE APPLIED AT THE RATE OF 500 LBS PER ACRE IN FIRST APPLICATION FOLLOWED BY 1,500 LBS PER ACRE FOR THE SECOND APPLICATION. STRAW MULCH SHALL BE APPLIED AT A RATE OF 90 LBS PER 1,000 SQ. FT.

EROSION & SEDIMENT CONTROL PLAN SHEET KEYNOTES

1. EXCAVATE BIORETENTION AREA TO BOTTOM ELEVATION INDICATED TO ACT AS TEMPORARY SEDIMENT BASIN. DO NOT INSTALL BIORETENTION SOIL, UNDERDRAIN, PLANTINGS OR MULCH UNTIL UPSTREAM DRAINAGE AREAS ARE FULLY STABILIZED AND SEDIMENT IS REMOVED.

EROSION & SEDIMENT CONTROL PLAN LEGEND

- INLET PROTECTION
- SILT SOCK
- STABILIZED CONSTRUCTION ENTRANCE
- LIGHT STONE FILL RIP RAP

NORTH

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
△	2/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

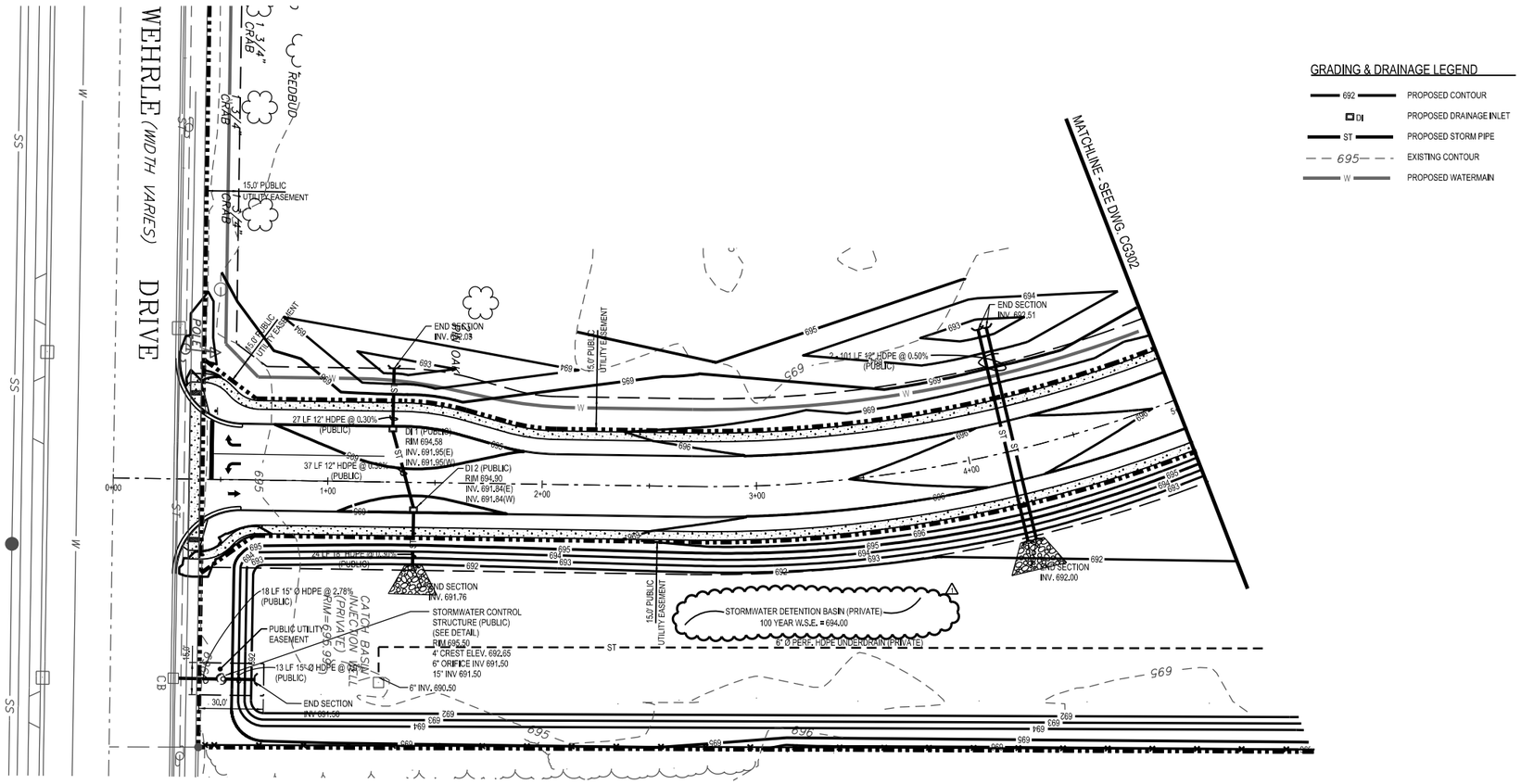
EROSION & SEDIMENT CONTROL PLAN

CG100 △

A1 EROSION & SEDIMENT CONTROL PLAN
SCALE: 1"=60'

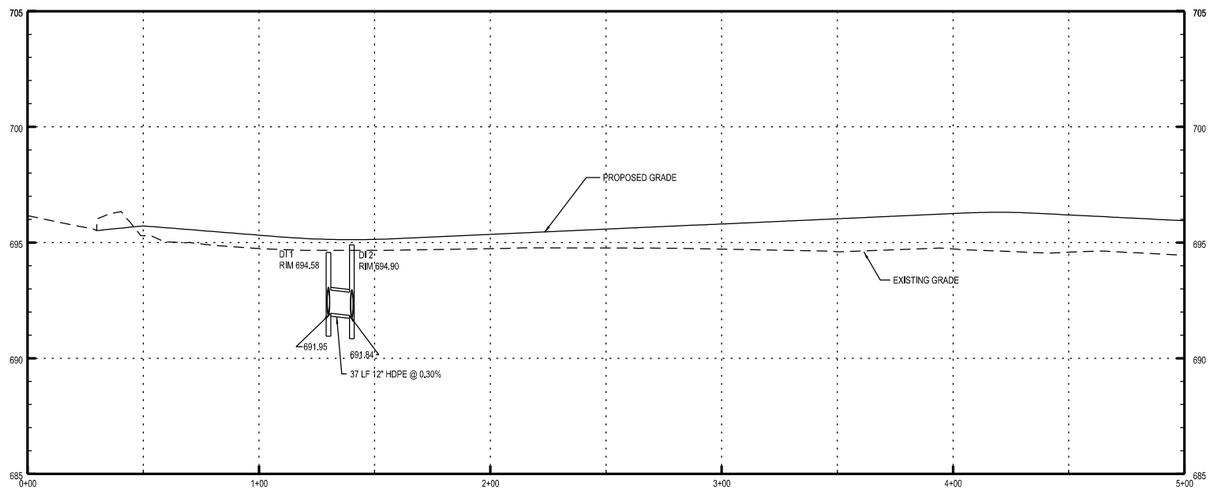
60' 0 60 120 FT.

Copyright ©



GRADING & DRAINAGE PLAN STA. 0+00 - STA. 5+00

SCALE:1"=30'



GRADING & DRAINAGE PROFILE STA. 0+00 - STA. 5+00

SCALE: HORIZ.: 1"=30'
VERT.: 1"=5'

A1 GRADING & DRAINAGE PLAN & PROFILE
SCALE: 1" = 30'

30 0 30 60 FT.

PLAN NORTH

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

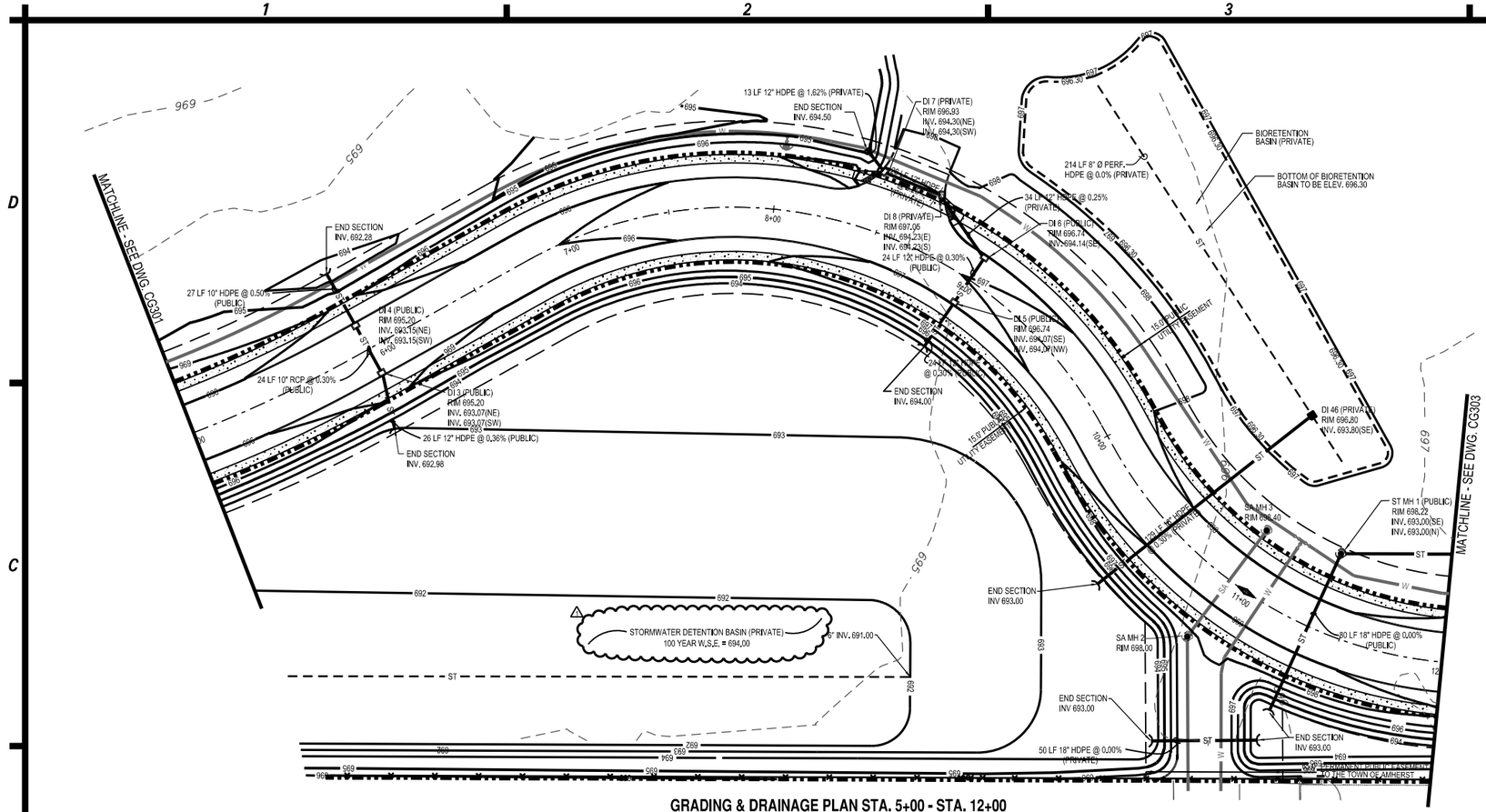
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING & DRAINAGE PLAN & PROFILE STA. 0+00 - STA. 5+00

CG301

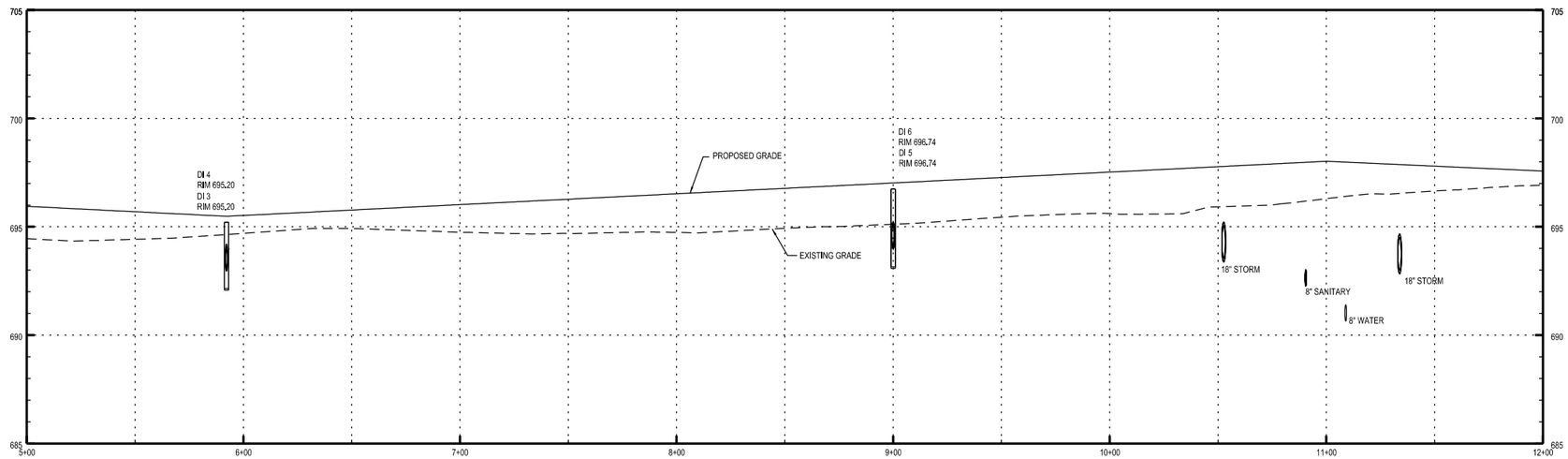
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Copyright



GRADING & DRAINAGE PLAN STA. 5+00 - STA. 12+00

SCALE: 1"=30'



GRADING & DRAINAGE PROFILE STA. 5+00 - STA. 12+00

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

A1 GRADING & DRAINAGE PLAN & PROFILE
SCALE:1" = 30'

30' 0 30' 60 FT.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

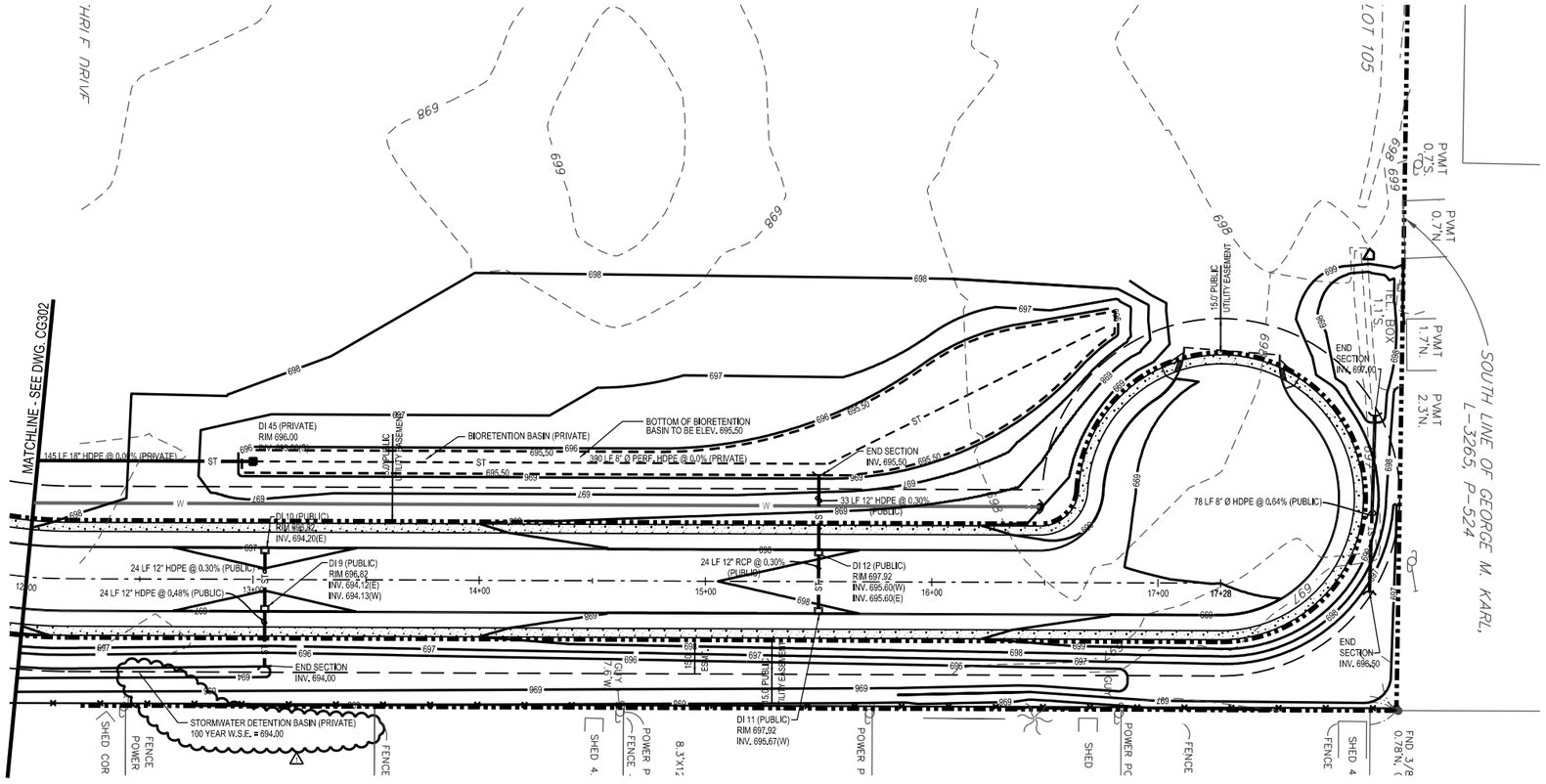
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING & DRAINAGE PLAN & PROFILE STA. 5+00 - STA. 12+00

CG302

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Copyright

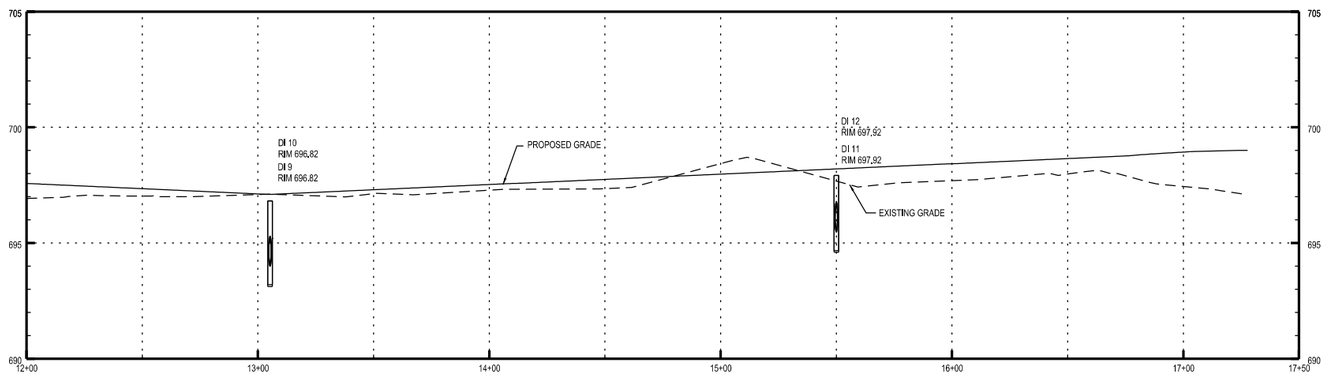


GRADING & DRAINAGE LEGEND

- 692 — PROPOSED CONTOUR
- DI — PROPOSED DRAINAGE INLET
- ST — PROPOSED STORM PIPE
- 695 — EXISTING CONTOUR
- W — PROPOSED WATERMAIN

GRADING & DRAINAGE PLAN STA. 12+00 - STA. 17+28

SCALE: 1"=30'



GRADING & DRAINAGE PROFILE STA. 12+00 - STA. 17+28

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
△	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING & DRAINAGE PLAN & PROFILE STA. 12+00 - STA. 17+28

CG303

PLAN NORTH

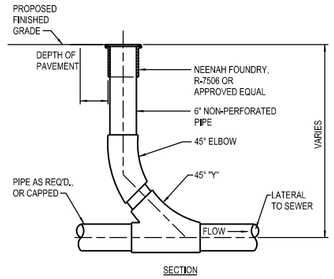
30 0 30 60 FT.
30"

A1 GRADING & DRAINAGE PLAN & PROFILE
SCALE: 1" = 30'

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

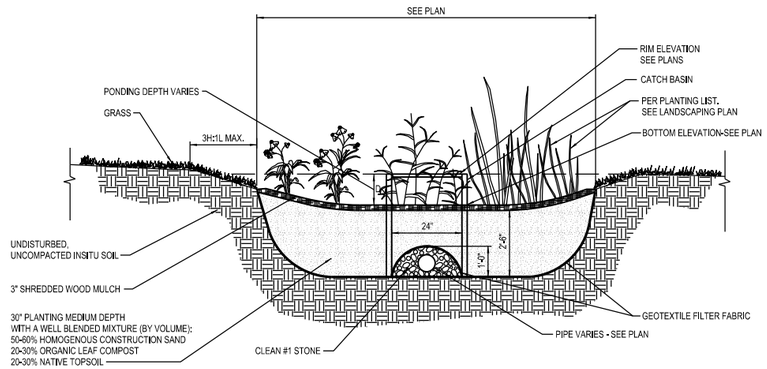
Copyright

D1 NOT USED
SCALE: N.T.S.



SECTION

C1 TYPICAL STORM SEWER CLEANOUT
SCALE: N.T.S.



C2 BIO-RETENTION CROSS-SECTION
SCALE: N.T.S.

EROSION CONTROL NOTES:

THE FOLLOWING EROSION CONTROL PROCEDURE SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE BARRIERS AS SHOWN ON THE PLAN AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.

2. THE TOPSOIL SHALL BE STRIPPED & STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE AND/OR REMOVAL OF TOPSOIL FROM THE SITE MUST BE FOLLOWED.

3. ALL SILT FENCES/SOCKS SHALL BE REPLACED WHENEVER THEY BECOME CLOGGED OR INOPERABLE.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENNACE & REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.

5. THE CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AND WATER APPLIED AS NECESSARY AND AS DIRECTED BY THE OWNER IN ORDER TO CONTROL DUST.

6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED & ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.

7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH & SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE & AS SOON AS PHYSICALLY POSSIBLE.

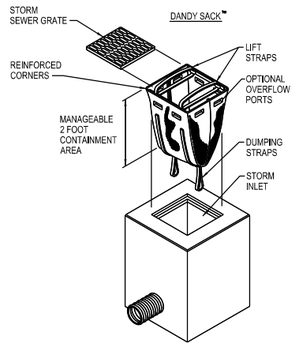
8. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES & CULVERTS. SILT BUILD-UP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN.

9. IN ADDITION TO STORM WATER DISCHARGES, THE FOLLOWING NON-STORM WATER DISCHARGES MAY CONTRIBUTE TO THE RUN-OFF FROM THE SITE:

- WATER FROM WATER SERVICE FLUSHINGS
- WATER USED TO WASH DOWN CONSTRUCTION VEHICLES (NO DETERGENTS)
- WATER USED FOR DUST CONTROL
- UNCONTAMINATED GROUNDWATER

10. THE ABOVE NON-STORM WATER FLOWS SHALL BE TREATED IN THE SAME MANNER AS STORM WATER FLOWS INDICATED HERIN.

C4 GENERAL NOTES
SCALE: N.T.S.



DANDY SACK™ SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW DANDY SACK™ (BLACK)

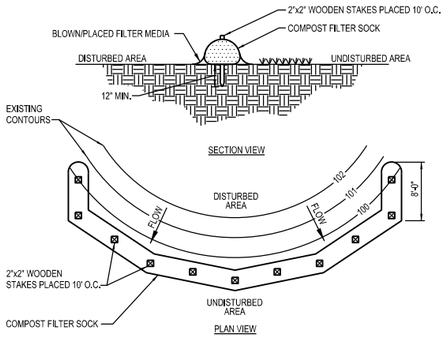
MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1,78 (400) x 1,40 (315)
GRAB TENSILE ELONGATION	ASTM D 4632	%	15 x 15
PUNCTURE STRENGTH	**ASTM D 4833**	kN (lbs)	0,67 (150)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	5506 (800)
TRAPEZOID TEAR STRENGTH	**ASTM D 4533**	kN (lbs)	0,67 (150) x 0,73 (165)
UV RESISTANCE	**ASTM D 4355**	%	90
APPARENT OPENING SIZE	**ASTM D 4751**	Mm (US Std Sieve)	0,425 (40)
FLOW RATE	**ASTM D 4491**	$l/m/s/m^2$ ($gal/min/ft^2$)	2852 (70)
PERMITTIVITY	ASTM D 4491	Sec^{-1}	0,90

HI-FLOW DANDY SACK™ (SAFETY ORANGE)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1,62 (365) X 0,89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 X 10
PUNCTURE STRENGTH	**ASTM D 4833**	kN (lbs)	0,40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	3097 (450)
TRAPEZOID TEAR STRENGTH	**ASTM D 4533**	kN (lbs)	0,51 (115) X 0,33 (75)
UV RESISTANCE	**ASTM D 4355**	%	90
APPARENT OPENING SIZE	**ASTM D 4751**	Mm (US Std Sieve)	0,425 (40)
FLOW RATE	**ASTM D 4491**	$l/m/s/m^2$ ($gal/min/ft^2$)	5907 (145)
PERMITTIVITY	ASTM D 4491	Sec^{-1}	2,1

*NOTE: DANDY SACKS™ CAN BE ORDERED WITH OUR OPTIONAL OIL ABSORBENT PILLOWS.

A1 FILTER SACK INLET PROTECTION
SCALE: N.T.S.



ADAPTED FROM DETAILS PROVIDED BY: FILTREXX

COMPOST STANDARDS TABLE	
ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT)
ORGANIC PORTION	FIBROUS & ELONGATED
PH	6,0 - 8,0
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	100 % PASSING A 1" SCREEN 10 - 50% PASSING A 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5,0 ds/M (mmhos/cm) MAXIMUM

1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 5.1. COMPOST SHALL MEET THE STANDARDS LISTED ON OF TABLE 5.2.

2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (FIGURE 5.2). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE X.X. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.

3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK & DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

5. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

6. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCKS, STAKES SHALL BE REMOVED, THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

A3 COMPOST FILTER SOCK
SCALE: N.T.S.

STABILIZED CONSTRUCTION ENTRANCE NOTES:

1. STONE SIZE - USE 2" STONE, WASHED, CRUSHED.

2. LENGTH - NOT LESS THAN 50 FEET

3. THICKNESS - NOT LESS THAN SIX (6) INCHES

4. WIDTH - TWELVE (12) FOOT MINIMUM, BU NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.

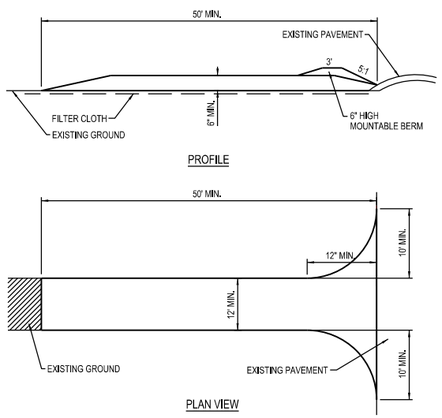
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC-RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE & WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9. PERIODIC INSPECTION & NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



A4 TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
△	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

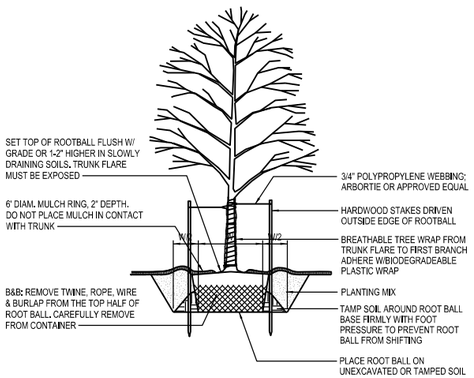
STORM SEWER & EROSION & SEDIMENT CONTROL DETAILS & NOTES

CS503

"*DRAWN*" "*TIME*"
"*DATE*" "*TIME*"
"*ISSUED*"

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Copyright ©



NOTES:
1. STAKE TREES AS DIRECTED BY THE LANDSCAPE ARCHITECT. STAKING WILL BE REQ'D WHEN ROOT BALLS ARE VERY SANDY OR WET CLAY, WHEN SOIL IS VERY SOFT, OR WHEN PLANTING LOCATIONS ARE WINDY.

2. TIGHTEN ARBORTIE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT.

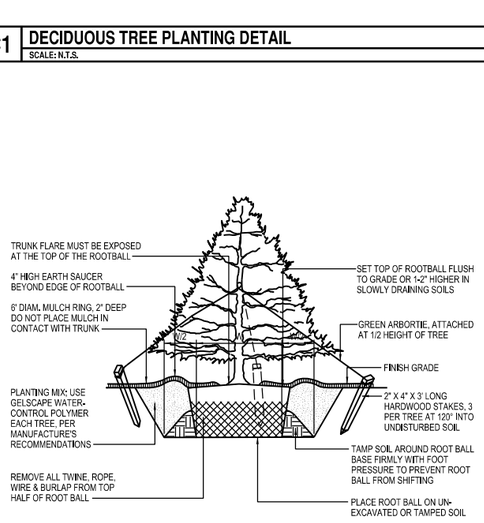
3. PRUNE ONLY CROSSING LIMBS, CO-DOMINANT LEADERS AND BROKEN OR DEAD BRANCHES.

4. TREE WRAP SHOULD BE INSTALLED AT TIME OF PLANTING AND REMOVED 12 MONTHS AFTER PLANTING.

C1 DECIDUOUS TREE PLANTING DETAIL
SCALE: N.T.S.

PLANTING SPECIFICATION

1. SCOPE OF WORK
   A. THIS WORK SHALL CONSIST OF PERFORMING, CLEARING, AND GRUBBING, SOIL PREPARATION, FINISH GRADING, PLANTING, DRAINAGE, INCLUDING ALL LABOR MATERIALS, TOOLS, EQUIPMENT, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT.
2. MATERIALS
   A. PLANTS - ALL PLANTS SHALL BE HEALTHY, OF NORMAL GROWTH, WELL ROOTED FREE FROM DISEASE AND INSECTS, QUALITY AND OF PLANT MATERIAL THAT SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1) AND BE OF NUMBER ONE GRADE.
   B. VARIETIES AND SIZES OF PLANTS SHALL BE AS SHOWN ON DRAWINGS
3. FERTILIZER
   A. FERTILIZER SHALL BE MILORGANITE (6-2-0) OR APPROVED EQUAL.
4. GENERAL WORK PROCEDURES
   A. LANDSCAPE WORK SHALL BE ACCORDING TO THE WORKMANLIKE STANDARDS ESTABLISHED FOR LANDSCAPE CONSTRUCTION AND PLANTING.
5. WEEDING
   A. BEFORE AND DURING PRELIMINARY GRADING AND FINISH GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
6. SOIL CONDITIONING
   A. CULTIVATE ALL AREAS TO BE PLANTED TO A DEPTH OF 6". ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
7. PLANTING
   POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
   A. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, AS SHOWN ON THE PLANTING DETAILS.
      - 3 PARTS TOPSOIL
      - 1 PART PEAT MOSS OR COMPOST
      - 1/3 PART MILORGANITE FERTILIZER
   B. PREPARED SOIL SHALL BE TAMPED FIRMLY AT BOTTOM OF PIT. FILL PREPARED SOIL AROUND BALL OF PLAN & WAY, AND WATER, COMPLETE BACK-FILLING AND WATER THOROUGHLY.
   C. ALL PLANTS SHALL BE SET SO THAT, WHEN SETTLED, THEY BEAR THE SAME RELATION TO THE REQUIRED GRADE AS THEY BORE TO THE NATURAL BEFORE BEING TRANSPLANTED.
   D. IMMEDIATELY AFTER PLANTING, STAKE ALL TREES WITH 3 CEDAR STAKES PER TREE.
   E. PREPARE RAISED EARTH SAUCER AS WIDE AS PLANTING HOLE OF EACH PLANT.
   F. WATER IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED.
   G. AFTER SHRUB BEDS AND TREE SAUCERS ARE BACKFILLED AND FINE GRADED, MULCH WITH 3" DEPTH OF DARK, SHREDDED HARDWOOD BARK MULCH.
8. FINISH GRADING
   A. PLUS/MINUS .1 FOOT OF FINISH GRADE.
   B. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN, UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE. SOIL AREAS ADJACENT TO THE BUILDING SHALL SLOPE AWAY FROM THE BUILDING.
   C. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER.
9. GUARANTEE
   A. CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR.
10. CLEAN-UP
   A. UPON THE COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL MATERIAL, EQUIPMENT AND DEBRIS RESULTING FROM HIS WORK. ALL ACCEPTABLE CONDITIONS AS APPROVED BY THE OWNERS AUTHORIZED REPRESENTATIVE.
11. MAINTENANCE
   MAINTENANCE PERIOD TO COMMENCE AFTER FINAL INSPECTION.
   A. MAINTENANCE PERIOD FOR THIS CONTRACT SHALL BE 90 CALENDAR DAYS COMMENCING AFTER FINAL INSPECTION OF CONSTRUCTION. MAINTAIN TREES, SHRUBS AND OTHER PLANTS BY PRUNING, CULTIVATING AND WEEDING AS REQUIRED FOR HEALTHY GROWTH, RESTORE PLANTING SAUCERS, TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES AND SHRUBS TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED, SPRAY AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE, MAINTAIN LAWNS BY WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING, AND OTHER OPERATIONS SUCH AS ROLLING, REGRADING, AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.



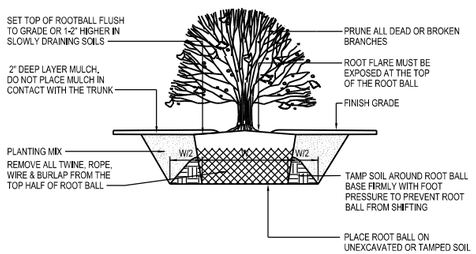
NOTES:
1. STAKE TREES AS WHEN DIRECTED BY THE LANDSCAPE ARCHITECT. STAKING WILL BE REQUIRED WHEN ROOT BALLS HAVE VERY SANDY OR WET CLAY SOIL, WHEN ROOT BALLS ARE PLACED ON VERY SOFT SOIL, OR WHEN TREES ARE LOCATED IN AREAS WITH CONDITIONS.

2. TIGHTEN ARBORTIE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT.

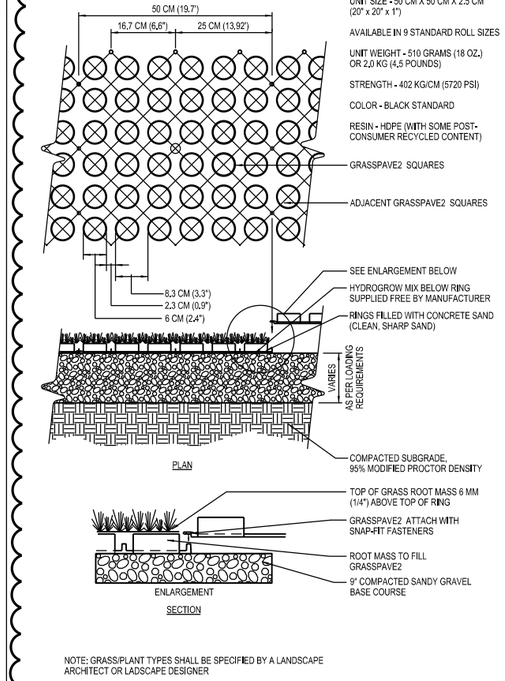
3. PRUNE ANY BROKEN OR DEAD BRANCHES.

A1 CONIFEROUS TREE PLANTING DETAIL
SCALE: N.T.S.

B2 PLANTING SPECIFICATION
SCALE: N.T.S.

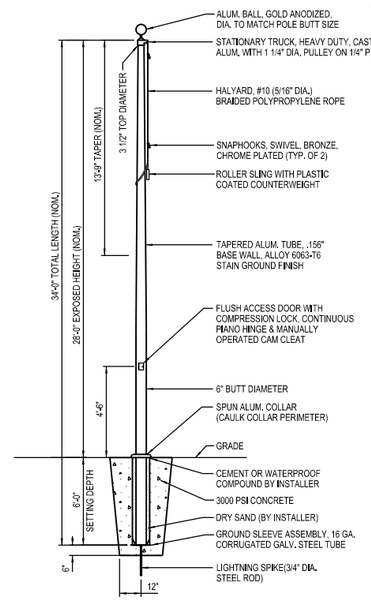


A2 SHRUB PLANTING DETAIL
SCALE: N.T.S.



NOTE: GRASS/PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR LADSCAPE DESIGNER

C3 TYPICAL GRASSPAVE DETAIL
SCALE: N.T.S.



C4 FLAGPOLE DETAIL
SCALE: N.T.S.

PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE	NOTES
			TREES		
AC	53	Abies concolor	White Fir	5-6' Ht.	
AG	14	Amelanchier grandiflora "Autumn Brilliance"	Autumn Brilliance Serviceberry	1 3/4" Caliper	
AR	21	Acer rubrum "October Glory"	October Glory Red Maple	2 1/2" Caliper	
CC	9	Carpinus caroliniana	Hornbeam	1 3/4" Caliper	
GT	27	Gleditsia triacanthos inermis "Skyline"	Skyline Honeylocust	2 1/2" Caliper	
MH	2	Malus "Harvest Gold"	Harvest Gold Crabapple	1 3/4" Caliper	
MP	5	Malus "Prariefire"	Prarie Fire Crabapple	1 3/4" Caliper	
MS	12	Malus "Spring Snow"	Spring Snow Crabapple	1 3/4" Caliper	
PG	52	Picea glauca	White Spruce	5-6' Ht.	
QB	23	Quercus bicolor	Swamp White Oak	2 1/2" Caliper	
TC	13	Tilia cordata "Greenspire"	Greenspire Linden	2 1/2" Caliper	
ZS	4	Zelkova serrata	Japanese Zelkova	2 1/2" Caliper	
			SHRUBS		
BG	54	Buxus "Green Velvet"	Green Velvet Boxwood	24" Ht.	
CS	15	Cornus sericea	Red Osier Dogwood	24" Ht.	
HL	21	Hydrangea paniculata "SMLQFHP"	Little Quickfire Hydrangea	24" Ht.	
JB	6	Juniperus Scopulorum "Blue Moffetti"	Blue Moffett Juniper	5-6"	
SA	44	Spiraea x bumalda "Anthony Waterer"	Anthony Waterer Spirea	24" Ht.	
SC	15	Sambucus canadensis	Common Elderberry	24" Ht.	
VD	35	Viburnum dentatum	Arrowood Viburnum	24" Ht.	
WF	16	Weigela florida	Rose Weigela	24" Ht.	

A3 PLANTINGS TABLES
SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SITE, LANDSCAPING DETAILS & PLANTING LIST

CS503

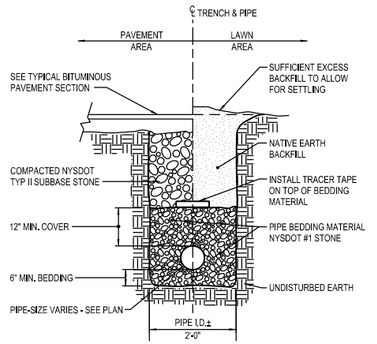
TIME
DATE
SYSTIME

3.a

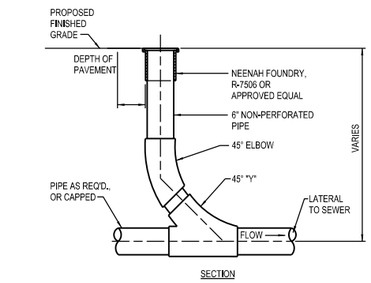
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Packet Pg. 2856

Copyright ©

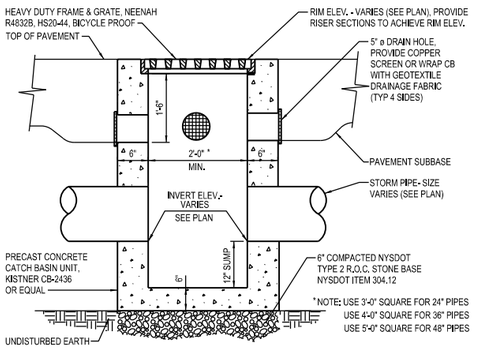


D1 STORM PIPE TRENCH SECTION
SCALE: N.T.S.

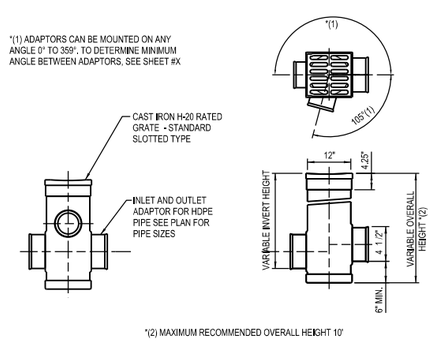


SECTION

D2 TYPICAL STORM SEWER CLEANOUT
SCALE: N.T.S.

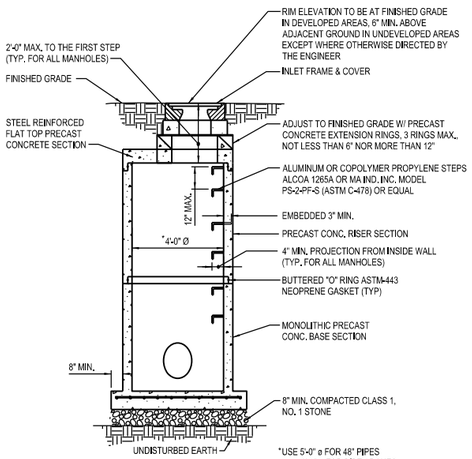


C1 TYPICAL PRECAST CATCH BASIN
SCALE: N.T.S.



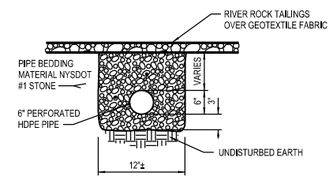
C2 12" YARD DRAIN
SCALE: N.T.S.

C3 NOT USED
SCALE: N.T.S.



A1 STORM MANHOLE DETAIL
SCALE: N.T.S.

A2 NOT USED
SCALE: N.T.S.



B3 FRENCH DRAIN SECTION
SCALE: N.T.S.

B4 NOT USED
SCALE: N.T.S.

A3 NOT USED
SCALE: N.T.S.

A4 NOT USED
SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

STORM DETAILS

CS505

USER
DATE
STIME

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Copyright ©

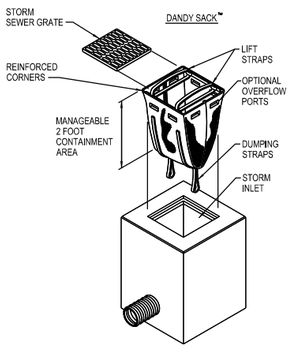
D1 NOT USED
SCALE: N.T.S.

C1 NOT USED
SCALE: N.T.S.

B1 NOT USED
SCALE: N.T.S.

A1 NOT USED
SCALE: N.T.S.

C2 FILTER SACK INLET PROTECTION
SCALE: N.T.S.



DANDY SACK™ SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW DANDY SACK™ (BLACK)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1,78 (400) x 1,40 (315)
GRAB TENSILE ELONGATION	ASTM D 4632	%	15 x 15
PUNCTURE STRENGTH	**ASTM D 4833**	kN (lbs)	0,67 (150)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	5506 (800)
TRAPEZOID TEAR STRENGTH	**ASTM D 4533**	kN (lbs)	0,67 (150) x 0,73 (165)
UV RESISTANCE	**ASTM D 4355**	%	90
APPARENT OPENING SIZE	**ASTM D 4751**	Mm (US Std Sieve)	0,425 (40)
FLOW RATE	**ASTM D 4491**	l/min/m² (gal/min/ft²)	2852 (70)
PERMITTIVITY	ASTM D 4491	Sec⁻¹	0,90

HI-FLOW DANDY SACK™ (SAFETY ORANGE)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1,62 (365) X 0,89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 X 10
PUNCTURE STRENGTH	**ASTM D 4833**	kN (lbs)	0,40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	3097 (450)
TRAPEZOID TEAR STRENGTH	**ASTM D 4533**	kN (lbs)	0,51 (115) X 0,33 (75)
UV RESISTANCE	**ASTM D 4355**	%	90
APPARENT OPENING SIZE	**ASTM D 4751**	Mm (US Std Sieve)	0,425 (40)
FLOW RATE	**ASTM D 4491**	l/min/m² (gal/min/ft²)	5907 (145)
PERMITTIVITY	ASTM D 4491	Sec⁻¹	2,1

*NOTE: DANDY SACKS™ CAN BE ORDERED WITH OUR OPTIONAL OIL ABSORBENT PILLOWS.

C4 GENERAL NOTES
SCALE: N.T.S.

EROSION CONTROL NOTES:

THE FOLLOWING EROSION CONTROL PROCEDURE SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE BARRIERS AS SHOWN ON THE PLAN AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.

2. THE TOPSOIL SHALL BE STRIPPED & STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE AND/OR REMOVAL OF TOPSOIL FROM THE SITE MUST BE FOLLOWED.

3. ALL SILT FENCES/SOCKS SHALL BE REPLACED WHENEVER THEY BECOME CLOGGED OR INOPERABLE.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENNACE & REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.

5. THE CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AND WATER APPLIED AS NECESSARY AND AS DIRECTED BY THE OWNER IN ORDER TO CONTROL DUST.

6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED & ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.

7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH & SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE & AS SOON AS PHYSICALLY POSSIBLE.

8. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES, CULVERTS, SILT BUILD-UP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN.

9. IN ADDITION TO STORM WATER DISCHARGES, THE FOLLOWING NON-STORM WATER DISCHARGES MAY CONTRIBUTE TO THE RUN-OFF FROM THE SITE:

- WATER FROM WATER SERVICE FLUSHINGS
- WATER USED TO WASH DOWN CONSTRUCTION VEHICLES (NO DETERGENTS)
- WATER USED FOR DUST CONTROL
- UNCONTAMINATED GROUNDWATER

10. THE ABOVE NON-STORM WATER FLOWS SHALL BE TREATED IN THE SAME MANNER AS STORM WATER FLOWS INDICATED HERIN.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

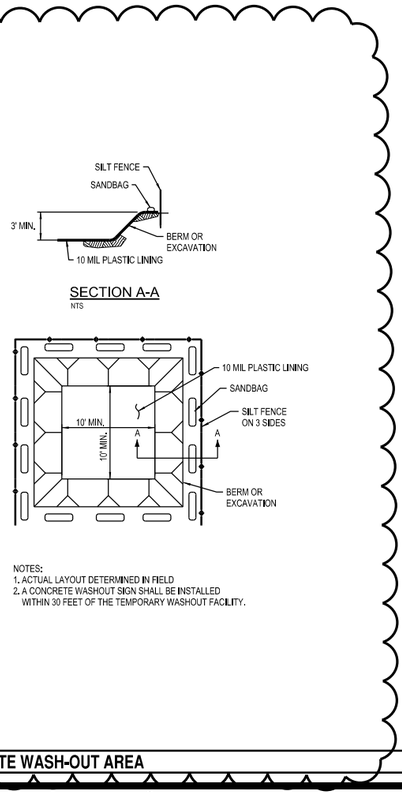
PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

EROSION & SEDIMENT CONTROL DETAILS & NOTES

CS506

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



SECTION A-A
NTS

NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY WASHOUT FACILITY.

A2 CONCRETE WASH-OUT AREA
SCALE: N.T.S.

A3 TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
SCALE: N.T.S.

STABILIZED CONSTRUCTION ENTRANCE NOTES:

1. STONE SIZE - USE 2" STONE, WASHED, CRUSHED.

2. LENGTH - NOT LESS THAN 50 FEET

3. THICKNESS - NOT LESS THAN SIX (6) INCHES

4. WIDTH - TWELVE (12) FOOT MINIMUM, BU NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.

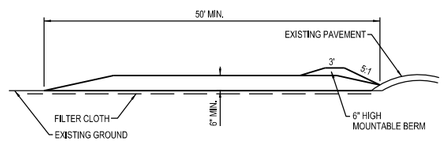
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

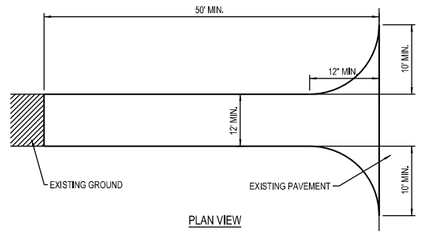
7. MAINTENANCE - THE ENTRANCE SHALL BE MANTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC-RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE & WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9. PERIODIC INSPECTION & NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

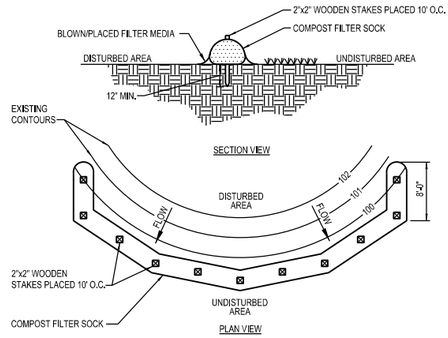


PROFILE



PLAN VIEW

A4 COMPOST FILTER SOCK
SCALE: N.T.S.



PLAN VIEW

ADAPTED FROM DETAILS PROVIDED BY: FILTREXX

COMPOST STANDARDS TABLE	
ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT)
ORGANIC PORTION	FIBROUS & ELONGATED
PH	6.0 - 8.0
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	100 % PASSING A 1" SCREEN 10 - 50% PASSING A 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 ds/M (mmhos/cm) MAXIMUM

1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 5.1. COMPOST SHALL MEET THE STANDARDS LISTED ON OF TABLE 5.2.

2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (FIGURE 5.2). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE X.X. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.

3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK & DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

5. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

6. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCKS, STAKES SHALL BE REMOVED, THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

**USER: **
**DATE: **
**TIME: **
**SYSTEM: **

Copyright ©

APPENDIX H-1

POST CONSTRUCTION MAINTENANCE SCHEDULE & TOWN OF AMHERST – STORMWATER CONTROL FACILITY MAINTENANCE AGREEMENT

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

STORMWATER CONTROL FACILITY
MAINTENANCE AGREEMENT

Stormwater Management Facility Maintenance Schedule

Post Construction Operation & Maintenance

1. **On a quarterly basis, perform the following:**
    a. **Inspect catch basins, manholes, storm piping and underground detention piping for debris and accumulation of sediment**
    b. **Remove and properly dispose of any collected debris from structures**
    c. **Flush storm sewers with water, if necessary, to remove accumulated sediment**
    d. **Check all rip rap stone for erosion and re-stone, if necessary, to prevent further erosion**
    e. **Inspect grass and landscaped areas for un-vegetated areas or areas with less than 80% healthy stand of grass and reseed and mulch as necessary. Water areas daily if reseeded between July and August.**

2. **Maintain all lawn areas by regular mowing, including the grass slopes of the bio-retention basin. Any eroded areas shall be re-graded, seeded and mulched immediately.**

3. **Inspect the bio-retention basin(s) for debris and sediment accumulation. Debris and sediment accumulation should be removed from the basin. Remove and properly dispose of any collected debris and sediment. Sediment must be removed when accumulation depth exceeds one inch.**

4. **The bio-retention basin is to be maintained as required in the NYSDEC Stormwater Management Design Manual (NYSDEC SMDM) and as a component of the property landscaping and shall be maintained on a regular basis. Mulching, weeding and plant replacement shall occur on a regular basis.**

5. **Inspect the dry detention basin and swales for debris and sediment accumulation. Debris and sediment accumulation should be removed from the basin and swale. Remove and properly dispose of any collected debris and sediment. Sediment must be removed when accumulation depth exceeds six inches.**

6. **The dry detention basin and swale are to be maintained as required in the NYSDEC Stormwater Management Design Manual (NYSDEC SMDM) and as a component of the property landscaping and shall be maintained on a regular basis. Mulching, weeding and plant replacement shall occur on a regular basis.**

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

STORMWATER CONTROL FACILITY
MAINTENANCE AGREEMENT

Whereas, the Municipality of Amherst ('Municipality") and the ("facility owner") want to enter into an agreement to provide for the long term maintenance and continuation of stormwater control measures approved by the Municipality for the below named project;

Whereas, the Municipality and the facility owner desire that the stomwater control measures be built in accordance with the approved project plans and thereafter maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components. Therefore, the Municipality and the facility owner agree as follows:

1. This agreement binds the Municipality and the facility owner, its successors and assigns, to the maintenance provisions depicted in the approved project plans which are attached as Schedule A of this agreement.

2. The facility owner shall maintain, clean, repaired, replace and continue the stomwater control measures depicted in Schedule A as necessary to ensure optimum performance of the measures to design specifications. The stormwater control measures shall include, but shall not be limited to, the following: drainage ditches, swales, drywells, infiltrators, drop inlets, pipes, culverts, soil absorption devices and retention ponds.

3. In the event that the facility owner ceases operation, it agrees that before ceasing said operation that is shall assure that its obligations under stormwater control maintenance agreement are transferred to a valuable and legal entity which would take over all of such responsibilities.

4. The facility owner shall be responsible for all expenses related to the maintenance of the stomwater control measures and shall establish a means for the collection and distribution of expenses among the parties for any commonly owned facilities.

5. The facility owner shall provide for the periodic inspection of the stormwater control measures, not less than once in every(5)year period, to determine the condition and integrityofthemeasures.Suchinspectorshallbe performed by a Professional Engineer licensed by the State of New York. The inspecting engineer shall prepare and submit to the Municipality within thirty (30) days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the stormwater control measures.

6. The facility owner shall not authorize, undertaken or permit alteration, abandonment, modification or discontinuation of the stormwater control measures except in accordance with written approval of the Municipality.

7. The facility owner shall undertake necessary repairs and replacement of the stormwater control measures at the direction of the Municipality or in accordance with the recommendations of the inspecting engineer.

8. The facility owner shall provide to the Municipality within 30 days of the date of this agreement, a security for the maintenance and continuation of the stormwater control measures in the form of a Bond, letter of credit or escrow account.

9. This agreement shall be recorded in the Office of the County Clerk, County of Erie together with the deed for the common property and shall be included in the offering plan and/or prospectus approved pursuant to _____

10. If ever the Municipality determines that the facility owner has failed to construct or maintain the stormwater control measures in accordance with the project plan or has failed to undertake corrective action specified by the Municipality or by the inspecting engineer, the Municipality is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures and to affix the expenses thereof as lien against the property.

11. Thls agreement is effective _____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

STORMWATER CONTROL FACILITY
MAINTENANCE AGREEMENT

UNIFORM CERTIFICATE OF ACKNOWLEDGEMENT

The Municipality of Amherst

By: _____ Date: _____

STATE OF NEW YORK)

: SS.

COUNTY OF _____)

On the _____ day of _____, in the year _____, before me, the undersigned, personally appeared

_____, personally known to me *or* proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), *or* the person upon behalf of which the individual(s) acted, executed the instrument.

_____

By: _____ Date: _____

STATE OF NEW YORK)

: SS.

COUNTY OF _____)

On the _____ day of _____, in the year _____, before me, the undersigned, personally appeared

_____, personally known to me *or* proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(les), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Post Construction Stormwater Management

Private Facility Certification Form

Cover Sheet

A. General Information

Use only one Cover Sheet per site with as many specific structural BMP Inspection Report attachments as needed. Please attach digital photographs of the site and structural BMPs as applicable.

Development Name:_____ Inspection Date:_____

BMP Owner:_____ Inspection Company:_____

Owner Address:_____ Company Address:_____

_____ _____

Owner Phone #:_____ Inspector Name:_____

Owner Email:_____ Inspector Phone #:_____

Inspector Email:_____

B. Inspection Report Attachments

The listed stormwater controls are the Structural BMPs who's Inspection Reports are to be completed per the NYS Stormwater Design Manual for this site. Please use one inspection report per BMP inspected and submit all forms together with this Cover Sheet as one single report. Also, please document the number of each structural BMP found at this site in the space below.

BMP	# of BMP	BMP	# of BMP
Micropool Extended Detention Pond (P-1)		Infiltration Basin (I-2)	
Wet Pond (P-2)		Dry Well (I-3)	
Wet Extended Detention Pond (P-3)		Surface Sand Filter (F-1)	
Multiple Pond System (P-4)		Underground Sand Filter (F-2)	
Shallow Wetland (W-1)		Perimeter Sand Filter (F-3)	
Extended Detention Wetland (W-2)		Organic Filter (F-4)	
Pond/ Wetland System (W-3)		Bioretention (F-5)	
Pocket Wetland (W-4)		Dry Swale (O-1)	
Infiltration Trench (I-1)		Wet Swale (O-2)	

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Post Construction Stormwater Management

C. Inspection Results

FAIL*

*** If any one item on the inspection form is coded as "Work needed", then the entire BMP fails inspection.**

***If a site has multiple BMPs and on fails inspection, this cover sheet is marked as fail until all items on all BMPs pass inspection.**

NOTE: Applicable BMP Inspection Reports and confirmatory digital photographs summarizing required repairs must be submitted to the Town following completion of the preliminary inspection. A re-inspection and certification must be completed within 30 days of the failed preliminary report.

PASS

NOTE: A passing inspection form should be signed below by the appropriate professional and submitted to the Town on or before the established inspection due date. Attach all applicable BMP Inspection Reports and confirmatory digital photographs accordingly.

D. Professional Certification

To be completed only when all structural BMPs at this site are functional with no outstanding maintenance issues.

I, _____, as a duly registered _____ attest that a thorough inspection has been completed for all structural BMPs that are associated with this particular site. All inspected structural BMPs are performing properly and are in compliance with the terms and conditions of the recorded maintenance agreement for the site.

Signature:_____

Date:_____

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

APPENDIX I-1

STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost filter media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.
2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.
3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.
4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %						
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50
* Length in feet							



5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**
6. The compost filter sock fabric material shall meet the minimum requirements provided in Table 5.1 - Compost Sock Fabric Minimum Specifications Table.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

Table 5.1 - Compost Sock Fabric Minimum Specifications Table

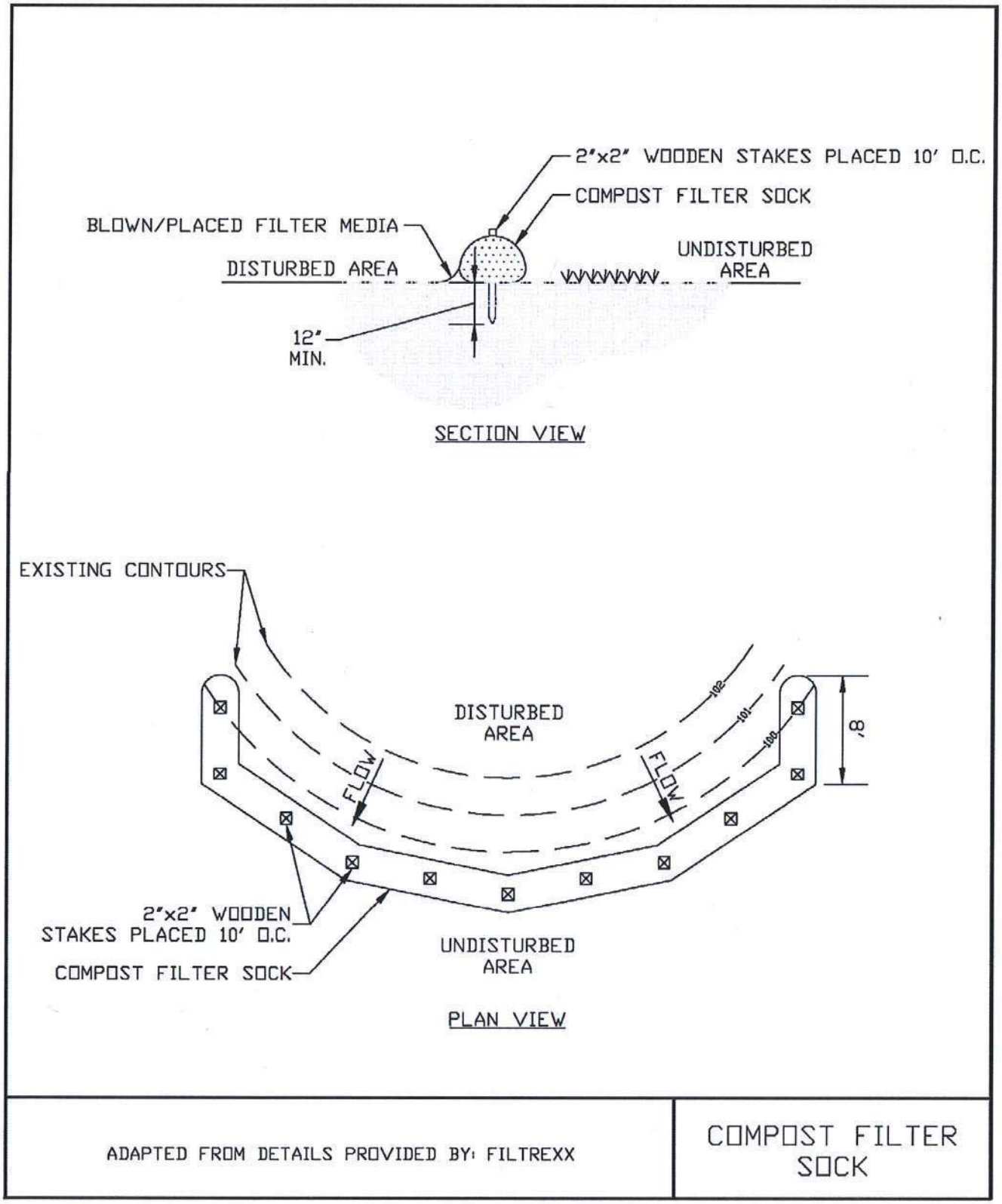
Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 2" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Figure 5.2
Compost Filter Sock



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

STANDARD AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ACCESS



Definition & Scope

A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area. The purpose of stabilized construction access is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets.

Conditions Where Practice Applies

A stabilized construction access shall be used at all points of construction ingress and egress.

Design Criteria

See Figure 2.1 on page 2.31 for details.

Aggregate Size: Use a matrix of 1-4 inch stone, or reclaimed or recycled concrete equivalent.

Thickness: Not less than six (6) inches.

Width: 12-foot minimum but not less than the full width of points where ingress or egress occurs. 24-foot minimum if there is only one access to the site.

Length: As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).

Geotextile: To be placed over the entire area to be covered with aggregate. Filter cloth will not be required on a single-family residence lot. Piping of surface water under entrance shall be provided as required. If piping is impossible, a mountable berm with 5:1 slopes will be permitted.

Criteria for Geotextile: The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties as shown:

Fabric Properties[3]	Light Duty[1] Roads Grade Subgrade	Heavy Duty[2] Haul Roads Rough Graded	Test Method
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Burst Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D751 Modified
Equivalent	40-80	40-80	US Std Sieve
Opening Size			CW-02215
Aggregate Depth	6	10	-

[1]Light Duty Road: Area sites that have been graded to subgrade and where most travel would be single axle vehicles and an occasional multi-axle truck. Acceptable materials are Trevira Spunbond 1115, Mirafi 100X, Typar 3401, or equivalent.

[2]Heavy Duty Road: Area sites with only rough grading, and where most travel would be multi-axle vehicles. Acceptable materials are Trevira Spunbond 1135, Mirafi 600X, or equivalent.

[3]Fabrics not meeting these specifications may be used only when design procedure and supporting documentation are supplied to determine aggregate depth and fabric strength.

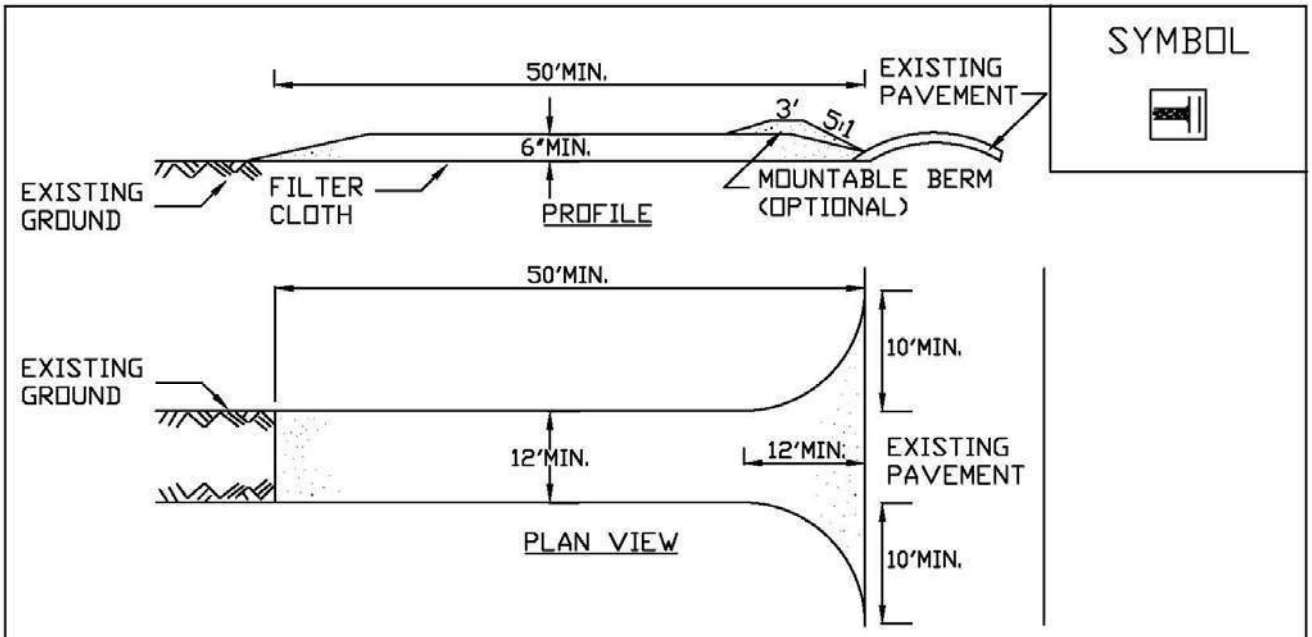
Maintenance

The access shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Figure 2.1
Stabilized Construction Access



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION



Definition & Scope

A **temporary** barrier with low permeability, installed around inlets in the form of a fence, berm or excavation around an opening, detaining water and thereby reducing the sediment content of sediment laden water by settling thus preventing heavily sediment laden water from entering a storm drain system.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a trapping device, and watertight blocking of inlets is not advisable. **It is not to be used in place of sediment trapping devices.** This practice shall be used with an upstream buffer strip if placed at a storm drain inlet on a paved surface. It may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with low slope angle.

Types of Storm Drain Inlet Practices

There are five (5) specific types of storm drain inlet protection practices that vary according to their function, location, drainage area, and availability of materials:

I. Excavated Drop Inlet Protection
II. Fabric Drop Inlet Protection
III. Stone & Block Drop Inlet Protection
IV. Paved Surface Inlet Protection
V. Manufactured Insert Inlet Protection

Design Criteria

Drainage Area – The drainage area for storm drain inlets shall not exceed one acre. Erosion control/temporary stabilization measures must be implemented on the disturbed drainage area tributary to the inlet. The crest elevations of these practices shall provide storage and minimize bypass flow.

Type I – Excavated Drop Inlet Protection

This practice is generally used during initial overlot grading after the storm drain trunk line is installed.

Limit the drainage area to the inlet device to 1 acre. Excavated side slopes shall be no steeper than 2:1. The minimum depth shall be 1 foot and the maximum depth 2 feet as measured from the crest of the inlet structure. Shape the excavated basin to fit conditions with the longest dimension oriented toward the longest inflow area to provide maximum trap efficiency. The capacity of the excavated basin should be established to contain 900 cubic feet per acre of disturbed area. Weep holes, protected by fabric and stone, should be provided for draining the temporary pool.

Inspect and clean the excavated basin after every storm. Sediment should be removed when 50 percent of the storage volume is achieved This material should be incorporated into the site in a stabilized manner.

Type II – Fabric Drop Inlet Protection



This practice is generally used during final elevation grading phases after the storm drain system is completed.

Limit the drainage area to 1 acre per inlet device. Land area slope immediately surrounding this device should not exceed 1 percent. The maximum height of the fabric above the inlet crest shall not exceed 1.5 feet unless reinforced.

The top of the barrier should be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

unprotected lower areas. Support stakes for fabric shall be a minimum of 3 feet long, spaced a maximum 3 feet apart. They should be driven close to the inlet so any overflow drops into the inlet and not on the unprotected soil. Improved performance and sediment storage volume can be obtained by excavating the area.

Inspect the fabric barrier after each rain event and make repairs as needed. Remove sediment from the pool area as necessary with care not to undercut or damage the filter fabric. Upon stabilization of the drainage area, remove all materials and unstable sediment and dispose of properly. Bring the adjacent area of the drop inlet to grade, smooth and compact and stabilize in the appropriate manner to the site.

Type III – Stone and Block Drop Inlet Protection

This practice is generally used during the initial and intermediate overlot grading of a construction site.

Limit the drainage area to 1 acre at the drop inlet. The stone barrier should have a minimum height of 1 foot and a maximum height of 2 feet. Do not use mortar. The height should be limited to prevent excess ponding and bypass flow.

Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Subsequent courses can be supported laterally if needed by placing a 2x4 inch wood stud through the block openings perpendicular to the course. The bottom row should have a few blocks oriented so flow can drain through the block to dewater the basin area.

The stone should be placed just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth of wire mesh with ½ inch openings over all block openings to hold stone in place.

As an optional design, the concrete blocks may be omitted and the entire structure constructed of stone, ringing the outlet ("doughnut"). The stone should be kept at a 3:1 slope toward the inlet to keep it from being washed into the inlet. A level area 1 foot wide and four inches below the crest will further prevent wash. Stone on the slope toward the inlet should be at least 3 inches in size for stability and 1 inch or smaller away from the inlet to control flow rate. The elevation of the top of the stone crest must be maintained 6 inches lower than the ground elevation down slope from the inlet to ensure that all storm flows pass over the stone into the storm drain and not past the structure. Temporary diking should be used as necessary to prevent bypass flow.

The barrier should be inspected after each rain event and repairs made where needed. Remove sediment as necessary to provide for accurate storage volume for subsequent rains. Upon stabilization of contributing drainage area, remove all materials and any unstable soil and dispose of properly.

Bring the disturbed area to proper grade, smooth, compact and stabilize in a manner appropriate to the site.

Type IV – Paved Surface Inlet Protection



This practice is generally used after pavement construction has been done while final grading and soil stabilization is occurring. These practices should be used with upstream buffer strips in linear construction applications, and with temporary surface stabilization for overlot areas, to reduce the sediment load at the practice. This practice includes sand bags, compost filter socks, geo-tubes filled with ballast, and manufactured surface barriers. Pea gravel can also be used in conjunction with these practices to improve performance. When the inlet is not at a low point, and is offset from the pavement or gutter line, protection should be selected and installed so that flows are not diverted around the inlet.



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

The drainage area should be limited to 1 acre at the drain inlet. All practices will be placed at the inlet perimeter or beyond to maximize the flow capacity of the inlet. Practices shall be weighted, braced, tied, or otherwise anchored to prevent movement or shifting of location on paved surfaces. Traffic safety shall be integrated with the use of this practice. All practices should be marked with traffic safety cones as appropriate. Structure height shall not cause flooding or by-pass flow that would cause additional erosion.

The structure should be inspected after every storm event. Any sediment should be removed and disposed of on the site. Any broken or damaged components should be replaced. Check all materials for proper anchorage and secure as necessary.

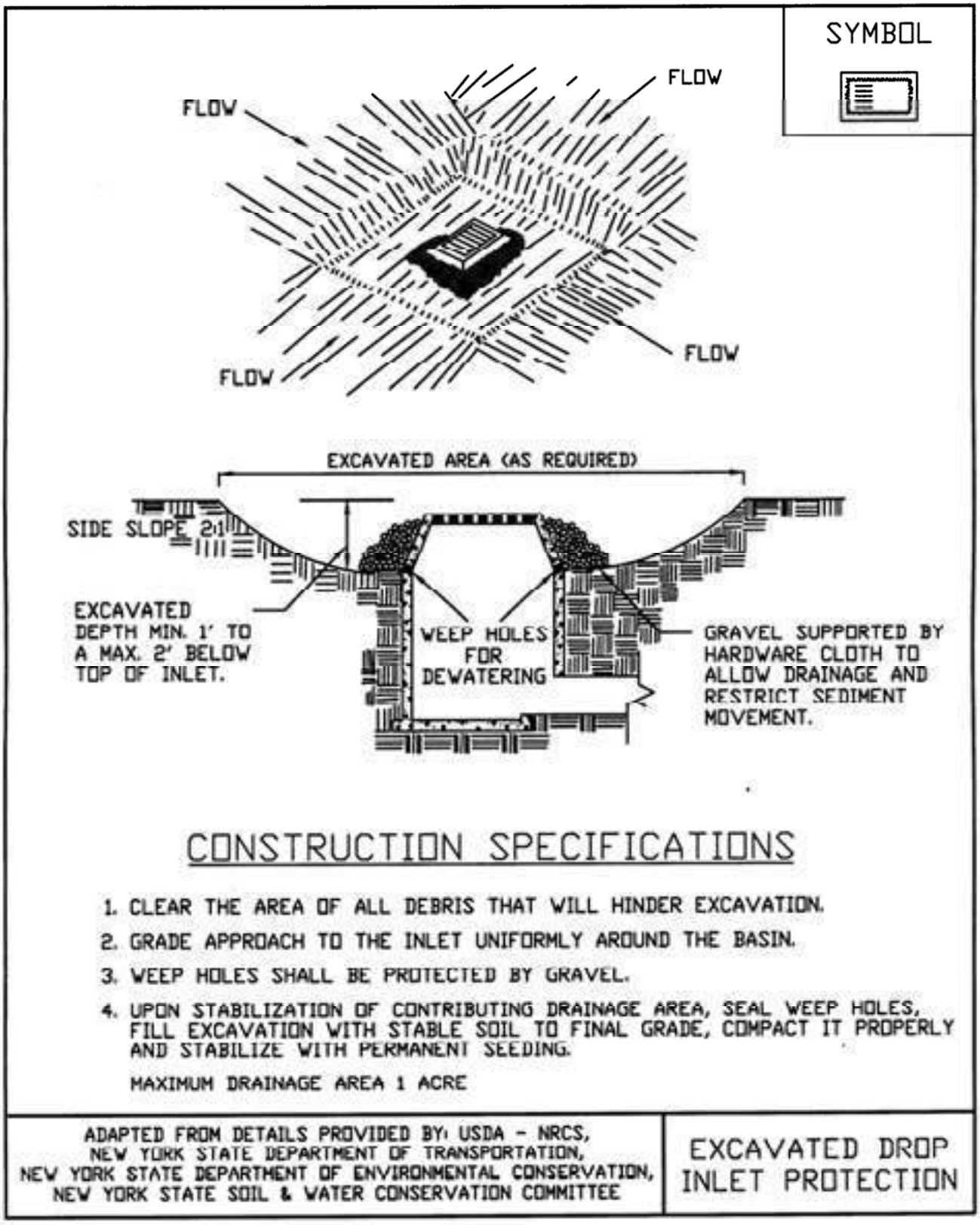
Type V - Manufactured Insert Inlet Protection



The drainage area shall be limited to 1 acre at the drain inlet. All inserts will be installed and anchored in accordance with the manufacturers recommendations and design details. The fabric portion of the structure will equal or exceed the performance standard for the silt fence fabric. The inserts will be installed to preserve a minimum of 50 percent of the open, unobstructed design flow area of the storm drain inlet opening to maintain capacity for storm events.

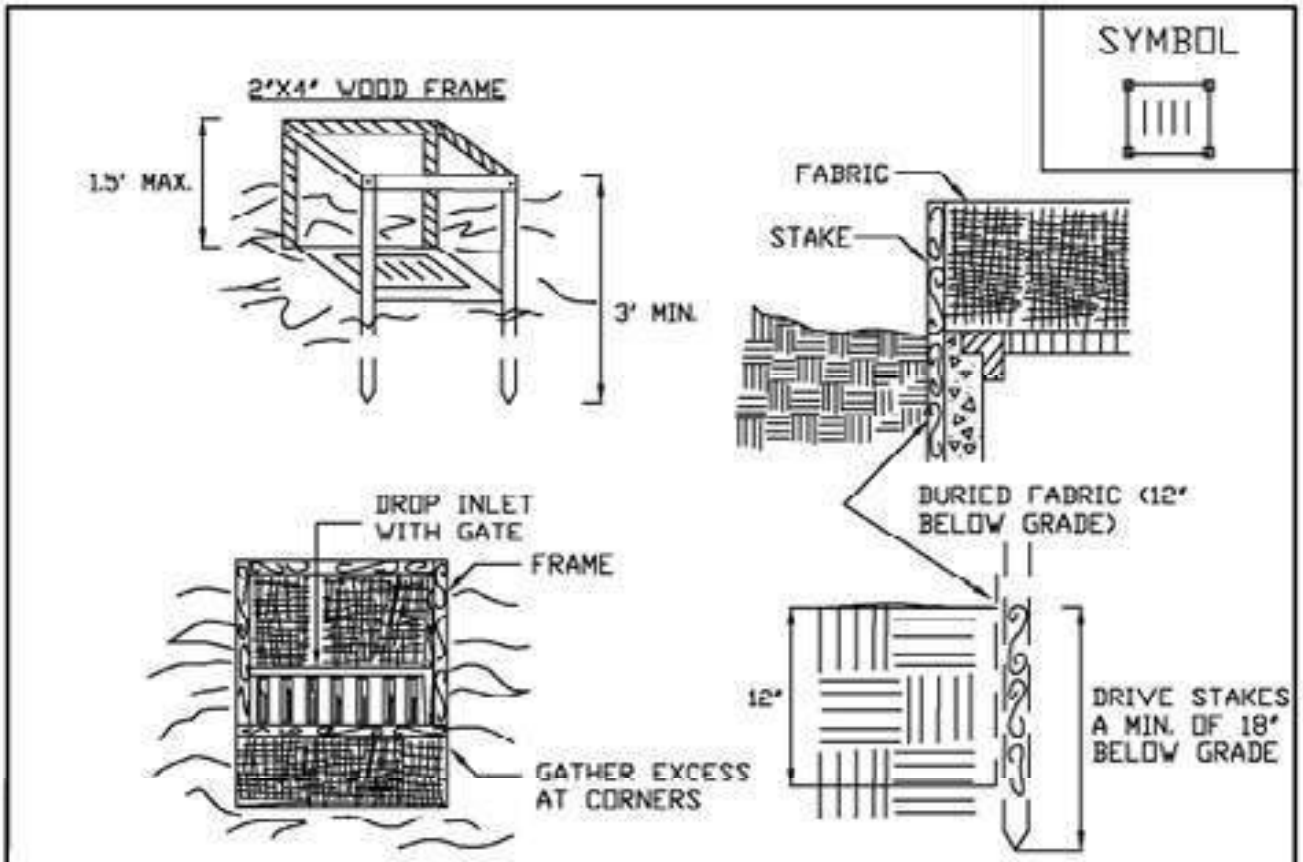
Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Figure 5.31
Excavated Drop Inlet Protection



Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Figure 5.32
Fabric Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

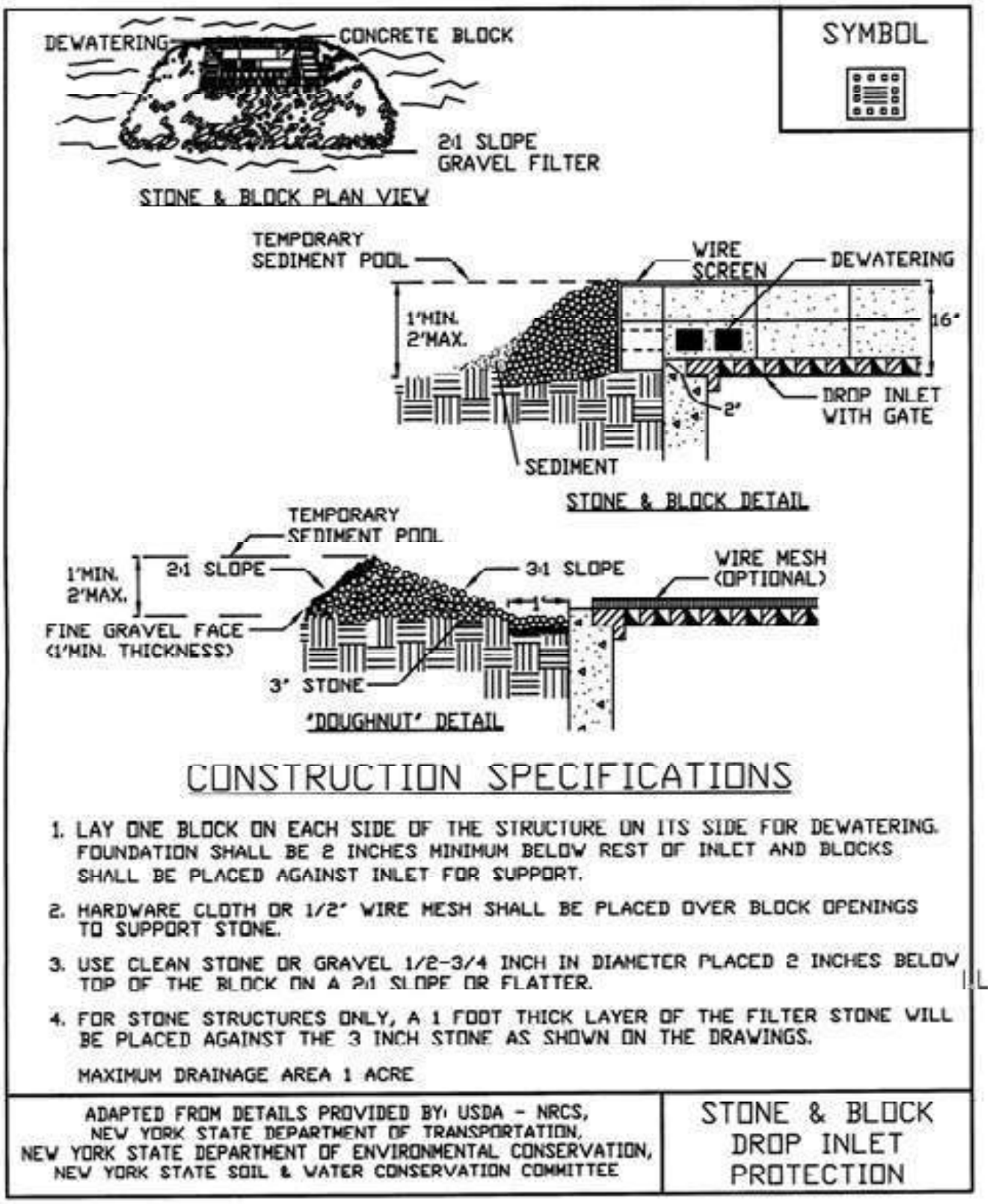
MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FABRIC DROP INLET PROTECTION

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Figure 5.33
Stone & Block Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE & BLOCK DROP INLET PROTECTION

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

Computed by JU Date 12/17/21 Checked by JU Date 12/17/21
Project 2190-2220 WEHRLE DRIVE Basin # NE BASIN
Location EAST OF BLDG. D Total Area draining to basin (≤50 Ac.) 3.86 Acres

BASIN SIZE DESIGN

1. Sediment storage zone volume = 1,000 cu. ft. x number of disturbed acres (3.86) = 3,860 cu. ft., Top of Zone Elev. 692.50
2. Dewatering zone volume = 3,600 cu. ft. x number of drainage area acres = 13,896 cu. ft., Top of Zone Elev. 695.50
3. Length to width ratio = 404'/10' = 40:1
4. A. Cleanout at 50% of sediment storage zone volume, Elev. 692.00
   B. Distance below top of riser 4.0 feet
5. Minimum surface area is larger of 0.01 $Q_{(10)}$ 0.09 or, 0.015 DA = 0.06 use 0.09 acres

DESIGN OF SPILLWAYS & ELEVATIONS

Runoff

6. $Q_{p(10)}$ = 9.16 cfs (Attach runoff computation sheets)

USE PROPOSED OUTLET STRUCTURE

Pipe Spillway (Q_{ps})

7. Min. pipe spillway cap., Q_{ps} = 0.2 x _____ Drainage Area, acres = _____ cfs
   Note: If there is no emergency spillway, then required $Q_{ps} = Q_{p(10)}$ = _____ cfs.
8. H, head = _____ ft. Barrel length = _____ ft
9. Barrel: Diam. _____ inches; Q_{ps} = (Q) _____ x (cor.fac.) _____ = _____ cfs.
10. Riser: Diam. _____ inches; Length _____ ft.; h = _____ ft. Crest Elev. _____
11. Trash Rack: Diameter = _____ inches; H, height = _____ inches

Emergency Spillway Design

12. Emergency Spillway Flow, $Q_{es} = Q_p - Q_{ps}$ = _____ - _____ = _____ cfs.
13. Width _____ ft.; H_p _____ ft Crest elevation _____; Design High Water Elev. _____
    Entrance channel slope _____ % ; Top of Dam Elev. _____
    Exit channel slope _____ %

ANTI-SEEP COLLAR/SEEPAGE DIAPHRAGM DESIGN

Collars:

14. y = _____ ft.; z = _____ :1; pipe slope = _____ %, L_s = _____ ft.
    Use _____ collars, _____ - _____ inches square; projection = _____ ft.

Diaphragms:

_____ width _____ ft. height _____ ft.

DEWATERING ORIFICE SIZING

(Determined from the Dewatering Device Standard)

15. Dewatering orifice diameter = _____ inches. Skimmer ___ or Riser ____ (check one)
16. Design dewatering time _____ days (Min. 2 days required)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

Computed by J.U. Date 12/17/21 Checked by J.U. Date 12/17/21
Project 2190- 2220 WEHRLE DRIVE Basin # NW BASIN
Location SOUTH OF BLDG.A Total Area draining to basin (≤50 Ac.) 6.1 Acres

BASIN SIZE DESIGN

1. Sediment storage zone volume = 1,000 cu. ft. x number of disturbed acres = 6,100 cu. ft., Top of Zone Elev. 693.30
2. Dewatering zone volume = 3,600 cu. ft. x number of drainage area acres = 21,960 cu. ft., Top of Zone Elev. 696.30
3. Length to width ratio = 225'/54' = 4:1
4. A. Cleanout at 50% of sediment storage zone volume, Elev. 692.71
   B. Distance below top of riser 4.1 feet
5. Minimum surface area is larger of 0.01 $Q_{(10)}$ 0.17 or, 0.015 DA = 0.09 use 0.17 acres

DESIGN OF SPILLWAYS & ELEVATIONS

Runoff

6. $Q_{p(10)}$ = 16.85 cfs (Attach runoff computation sheets)

Pipe Spillway (Q_{ps})

7. Min. pipe spillway cap., Q_{ps} = 0.2 x _____ Drainage Area, acres = _____ cfs
   Note: If there is no emergency spillway, then required $Q_{ps} = Q_{p(10)}$ = _____ cfs.
8. H, head = _____ ft. Barrel length = _____ ft
9. Barrel: Diam. _____ inches; Q_{ps} = (Q) _____ x (cor.fac.) _____ = _____ cfs.
10. Riser: Diam. _____ inches; Length _____ ft.; h = _____ ft. Crest Elev. _____
11. Trash Rack: Diameter = _____ inches; H, height = _____ inches

Emergency Spillway Design

12. Emergency Spillway Flow, $Q_{es} = Q_p - Q_{ps}$ = _____ - _____ = _____ cfs.
13. Width _____ ft.; H_p _____ ft Crest elevation _____; Design High Water Elev. _____
    Entrance channel slope _____ % ; Top of Dam Elev. _____
    Exit channel slope _____ %

USE PROPOSED OUTLET STRUCTURE

ANTI-SEEP COLLAR/SEEPAGE DIAPHRAGM DESIGN

Collars:

14. y = _____ ft.; z = _____ :1; pipe slope = _____ %, L_s = _____ ft.
    Use _____ collars, _____ - _____ inches square; projection = _____ ft.

Diaphragms:

_____ width _____ ft. height _____ ft.

DEWATERING ORIFICE SIZING

(Determined from the Dewatering Device Standard)

15. Dewatering orifice diameter = _____ inches. Skimmer ___ or Riser ____ (check one)
16. Design dewatering time _____ days (Min. 2 days required)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



www.cscos.com | (877) CS-SOLVE

printed on 50% recycled paper, including 25% post-consumer waste

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

DESCRIPTION:

PARCEL 1 (2190 WEHRLE DRIVE) ALL THAT TRACT OR PARCEL OF LAND, SITUATE IN THE TOWN OF AMHERST, COUNTY OF ERIE AND STATE OF NEW YORK, AND BEING PART OF LOT NO. 105, TOWNSHIP 12, RANGE 7 OF THE HOLLAND LAND COMPANY'S SURVEY, BOUNDED AND DESCRIBED AS FOLLOWS: BEGINNING AT A POINT IN THE SOUTHWEST CORNER OF LOT NO. 105 IN THE CENTER LINE OF WEHRLE DRIVE, A PUBLIC HIGHWAY (66 FEET WIDE); THENCE NORTHERLY ALONG THE WEST LINE OF SAID LOT NO. 105, 1696.28 FEET TO THE SOUTH LINE OF LANDS OWNED BY GEORGE N. KARL BY DEED RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 3265 OF DEEDS AT PAGE 524; THENCE EASTERLY ALONG SAID KARL'S SOUTH LINE AND PARALLEL WITH THE SOUTH LINE OF LOT NO. 105, 150 FEET; THENCE SOUTHERLY AND PARALLEL WITH THE WEST LINE OF LOT NO. 105, 1696.26 FEET TO THE CENTER LINE OF WEHRLE DRIVE (66 FEET WIDE); THENCE WESTERLY ALONG THE CENTER LINE OF WEHRLE DRIVE (66 FEET WIDE) 150 FEET TO THE PLACE OF BEGINNING. EXCEPTING FROM THE ABOVE DESCRIBED PREMISES THAT PORTION THEREOF CONVEYED TO THE COUNTY OF ERIE FOR WIDENING OF WEHRLE DRIVE, AS DESCRIBED IN DEED RECORDED IN LIBER 11092 OF DEEDS AT PAGE 3872 ON MARCH 17, 2005.

PARCEL 2 (2220 WEHRLE DRIVE) ALL THAT TRACT OR PARCEL OF LAND, SITUATE IN THE TOWN OF AMHERST, COUNTY OF ERIE AND STATE OF NEW YORK, AND BEING PART OF LOT NO. 105, TOWNSHIP 12, RANGE 7 OF THE HOLLAND LAND COMPANY'S SURVEY, BOUNDED AND DESCRIBED AS FOLLOWS: BEGINNING AT A POINT IN THE CENTER LINE OF WEHRLE DRIVE, A 66 FOOT WIDE PUBLIC HIGHWAY 150 FEET EASTERLY FROM THE SOUTHWEST CORNER OF LOT NO. 105; THENCE NORTHERLY AND PARALLEL WITH SAID LOT NO. 105, 1696.26 FEET TO THE SOUTH LINE OF LAND OWNED BY GEORGE H. KARL RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 3265 OF DEEDS AT PAGE 524; THENCE EASTERLY AND PARALLEL WITH THE SOUTH LINE OF LOT NO. 105, 514.39 FEET TO THE EAST LINE OF LANDS DESCRIBED IN DEED RECORDED IN ERIE COUNTY CLERK'S OFFICE IN LIBER 999 OF DEEDS AT PAGE 469; THENCE SOUTHERLY ALONG SAID EAST LINE OF LANDS DESCRIBED DESCRIBED IN DEED RECORDED IN ERIE COUNTY CLERK'S OFFICE IN LIBER 999 OF DEEDS AT PAGE 469 TO THE SOUTH LINE OF LOT NO. 105, 1695.85 FEET TO THE CENTER LINE OF WEHRLE DRIVE, WHICH CENTER LINE IS THE SOUTH LINE OF LOT NO. 105; THENCE WESTERLY ALONG THE CENTER LINE OF WEHRLE DRIVE, 498.78 FEET TO THE PLACE OF BEGINNING. EXCEPTING THAT PORTION OF THE ABOVE DESCRIBED LANDS LYING WITHIN THE BOUNDS OF WEHRLE DRIVE (66 FEET WIDE). ALSO EXCEPTING FROM THE ABOVE DESCRIBED PREMISES THAT PORTION THEREOF CONVEYED TO THE COUNTY OF ERIE FOR WIDENING OF WEHRLE DRIVE, AS DESCRIBED IN DEED RECORDED IN LIBER 11093 OF DEEDS AT PAGE 6575 AND IN Q143-8281, ON APRIL 13, 2005.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 06/21/21 07:00 PM
Department: Town Clerk
Initiated by: **Timothy Koller**
Co-Sponsored by:

DOC ID: 23333 **RESOLUTION 2021-465** **ADOPTED AS AMENDED**

2190 Wehrle Drive Rezoning

2nd REVISED
DRAFT RESOLUTION
(06/21/2021)

Adoption of Local Law to Amend the Zoning Map
(2190 Wehrle Drive, Z-2021-01)

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, that the requirements of SEQR have been completed and the Town Board issues the attached Negative Declaration, and be it further

RESOLVED, that pursuant to NYS Town Law Sec.272-a, the Town Board concurs with the findings of the Planning Board as stated in their resolution of April 15, 2021 that the proposed Office Building District (OB) zoning at 2190 Wehrle Drive is consistent with the adopted Bicentennial Comprehensive Plan, as amended, and be it further

RESOLVED, that to the extent the proposed zoning is not consistent with the adopted Comprehensive Plan, the plan is hereby amended to be consistent with the proposed zoning at this location, and be it further

RESOLVED, that in accordance with Section 203-8-3 of the Town Code (Zoning), the Town Board adopts Local Law (#) to amend the Town Zoning map.

6/07/2021
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Bucki and unanimously approved 5-0.

Omar Abu-Sitta, Acquest Development, presented and answered questions.

The following speakers addressed the Town Board:
Ann Tsuchyna, 281 Bellingham Dr. - Concerned for the impact on their quality of life, water, wetlands; better buffer and greenspace
Tom Tsuchyna, 281 Bellingham Dr. - Voiced his concerns with the development of the property

There were no further speakers therefore, Supervisor Kulpa moved to adjourn the hearing until June 21st, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was adjourned at 7:42 PM.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

6/21/2021

A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was opened at 7:09 PM.

There were no speakers from the public. Supervisor Kulpa motioned to adopt the negative declaration, seconded by Deputy Supervisor Berger and approved 4-1 (nay, Bucki).

Supervisor Kulpa then moved to close the public hearing, seconded by Deputy Supervisor Berger and approved 5-0. The public hearing was closed at 7:15 PM.

A motion to amend the resolution and use the 2nd revised resolution without conditions was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved 4-1 (nay, Bucki). A motion to adopt as amended was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved 4-1 (nay, Bucki).

RESULT:	**ADOPTED AS AMENDED [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Jeffery C Zeplowitz
Town Clerk

Meeting: 12/10/18 07:00 PM
Department: Town Attorney
Initiated by: **Stanley J. Sliwa**
Co-Sponsored by:

DOC ID: 19712 **RESOLUTION 2018-1301**

Property Located at 2190 and 2220 Wehrle Drive - Acquest Wehrle

AGENDA ITEM - DECEMBER 10TH, 2018

TO: **Town Board**

FROM: **Stanley J. Sliwa, Esq., Town Attorney**

DATE: **December 5, 2018**

RE: **Property Located At 2190 and 2220 Wehrle Drive (Acquest Wehrle)**

Kindly adopt the following resolution with respect to the above matter:

WHEREAS, in July of 1983, the Town of Amherst accepted a construction grant from the Environmental Protection Agency ("USEPA") and the New York State Department of Environmental Conservation ("NYSDEC") to assist with the construction of the Youngs Road Interceptor and Collector Sewer Project for Southeast Amherst ("Sewer Project"); and

WHEREAS, in furtherance of the Sewer Project and as a condition of receiving the approximate $5.8 million grant, the Town of Amherst entered into a Grant Agreement with the USEPA that contained a 50-year prohibition on sewer hook-ups that would allow wastewater discharge from any development on a parcel of land within any wetland; and

WHEREAS, on approximately July 5, 1983, the Town of Amherst passed a resolution enacting a "fifty-year moratorium on development of properties which are located wholly or partially within state or federal designated wetlands and which are tributary to sanitary sewers in which there will be NYSDEC or USEPA financial participation under this project known as Federal Project Number C-36-1225-02" (the "Moratorium"); and

WHEREAS, the Town of Amherst subsequently failed to record the Grant Agreement or Moratorium in the Town Clerk's Office or other public record as an encumbrance on properties in the Town; and

WHEREAS, in 1997, Acquest (or an affiliate thereof) purchased property in the Town located at 2220 Wehrle Drive (the "Property") without knowledge of the Grant Agreement or Moratorium; and

WHEREAS, over several years that followed, Acquest pursued its project at the Property and obtained from the Town of Amherst, as Lead Agency, several Negative Declarations under the New York State Environmental Quality Review Act ("SEQRA"); and

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

WHEREAS, in June of 2005, Acquest purchased property in the Town of Amherst at 2190 Wehrle Drive located adjacent to 2220 Wehrle Drive; and

WHEREAS, on March 20, 2006, the Town of Amherst held a meeting during which the Town Board voted and passed a resolution terminating Acquest's commercial project; and

WHEREAS, on January 16, 2007, the Town of Amherst passed a resolution reaffirming the Moratorium, specifically identifying 2220 Wehrle Drive as being subject to the Moratorium, and declaring it "the policy of the Town of Amherst to honor and enforce the 50-year moratorium previously approved, adopted and implemented by the Amherst Town Board on July 5, 1983, which applies to all the properties which are located, in part or whole, within State or Federal designated wetlands, which are tributary to sanitary sewers in which construction there was State or Federal financial participation, including the [Sewer Project], which includes the property commonly known as 2220 Wehrle Dr. and to seek no waiver or variance there from,"; and

WHEREAS, in July of 2009, the United States commenced litigation against Acquest Wehrle, LLC (and later Acquest Development, LLC and William L. Huntress) alleging that the USEPA had jurisdiction over the Property and that Acquest had committed alleged violations of the fill and stormwater provisions of Clean Water Act (the "Federal Action"); and

WHEREAS, in August of 2009, Acquest Wehrle, LLC commenced an action in the New York State Supreme Court alleging the Town of Amherst, among other things, committed violations of Acquest's constitutional rights against a taking of property without just compensation, of due process, and of equal protection (the "State Action"); and

WHEREAS, Acquest ultimately obtained a judgment against the Town of Amherst in the amount of $3,941,967.64. The Town of Amherst then paid Acquest $63,220.24 in additional attorneys' fees, costs, and disbursements, resulting in a total payment to Acquest in excess of $4,000,000.00 in the State Action; and

WHEREAS, Acquest vigorously defended the allegations in the Federal Action, at all times disputing that either 2220 or 2190 Wehrle Drive contained any NYSDEC or USEPA regulated wetlands or any Waters of the United States, until, the United States abandoned the Federal Action by voluntarily dismissing it. The Court subsequently entered a Decision and Order on November 1, 2017 dismissing the Federal Action, with prejudice (the "Dismissal Order"); and

WHEREAS, the Dismissal Order made clear that the dismissal of the Federal Action was with prejudice, and that all that was or could have been litigated in the Federal Action was over once and for all; and

WHEREAS, upon information and belief, having taken a hard look at the Property, having considered the results of the State Action and the voluntary dismissal, with prejudice, of the Federal Action, that neither property owned by Acquest Wehrle, LLC (or any affiliate thereof) located in the Town of Amherst at 2190 and 2220 Wehrle Drive contain any New York State or Federal designated or regulated wetlands or Waters of the United States; and

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)

WHEREAS, considering the history of this matter and the history of 2190 and 2220 Wehrle Drive, the Town of Amherst desires to declare that neither 2190 or 2220 Wehrle Drive are any longer subject to the Moratorium or the Grant Agreement; and

NOW THEREFORE, BE IT RSOLVED, that neither 2190 Wehrle Drive nor 2220 Wehrle Drive in the Town of Amherst are subject to the Moratorium, the Resolution passed by the Town on July 5, 1983, nor the Grant Agreement; and

BE IT FURTHER RESOLVED, that the Resolution passed by the Town on March 20, 2006, insofar as it purported to terminate Acquest's commercial project, hereby is rescinded and withdrew, and is null & void. Acquest's property rights shall no longer be encumbered by said Resolution in any way; and

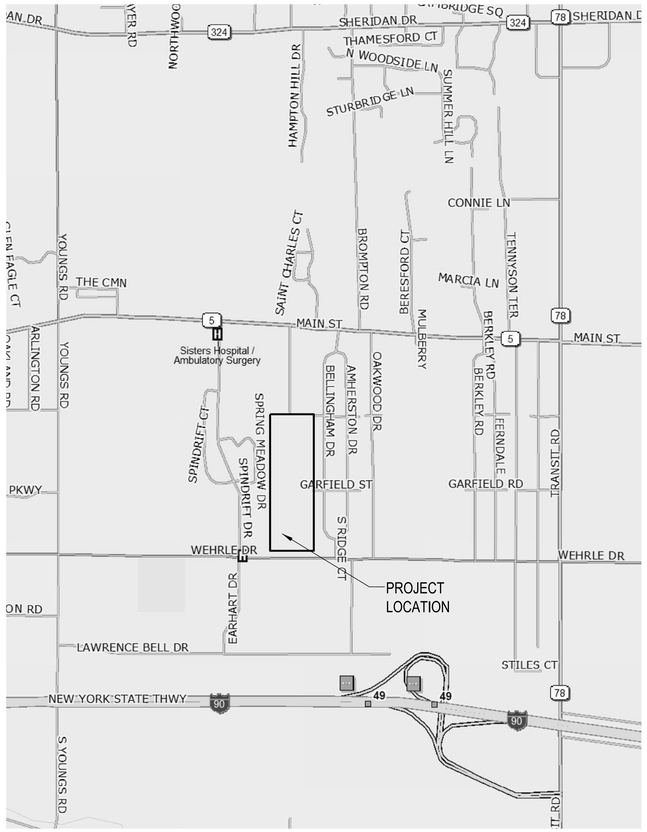
BE IT FURTHER RESOLVED, that neither 2190 Wehrle Drive nor 2220 Wehrle Drive are subject to the Resolution passed by the Town on January 16, 2007, and that to the extent that Resolution purports to state that 2220 Wehrle Drive contains State or Federal designated wetlands, the same no longer holds true.

SJS:nmb
c: Kathleen Cooper, Deputy Town Clerk
(**Agenda Item - December 10, 2018**)

FINANCIAL IMPACT:

None for the purposes of this resolution.

Attachment: SP-2021-23 application 011322 (25067 : Sp-2021-23)



LOCATION MAP

NORTH

C&S COMPANIES®

CONTRACT DRAWINGS FOR THE CONSTRUCTION OF

PROPOSED OFFICE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

ACQUEST COMPANIES

DRAWING LIST	
BOUNDARY & TOPOGRAPHIC SURVEY	
OVERALL SITE PLAN	CS100
SITE PLAN	CS101
DEMOLITION PLAN	CD100
GRADING PLAN	CG101
EROSION & SEDIMENT CONTROL PLAN	CG102
UTILITY PLAN	CU101
UTILITY PLAN	CU102
OVERALL LANDSCAPING PLAN	CL100
LANDSCAPING PLAN	CL101
PHOTOMETRIC PLAN	CL102
SITE DETAILS	CS501
SITE DETAILS	CS502
SITE, LANDSCAPING DETAILS & PLANTING LIST	CS503
WATER & SANITARY SEWER DETAILS	CS504
STORM DETAILS	CS505
EROSION & SEDIMENT CONTROL DETAILS & NOTES	CS506
FLOOR PLAN (BY OTHERS)	
BUILDING ELEVATIONS (BY OTHERS)	

OWNER:
ACQUEST WEHRLE LLC
5554 MAIN STREET
WILLIAMSVILLE, NY 14221
PHONE: 716-204-3570

APPLICANT:
ACQUEST WEHRLE LLC
5554 MAIN STREET
WILLIAMSVILLE, NY 14221
PHONE: 716-204-3570

ENGINEER:
C&S ENGINEERS, INC.
141 ELM STREET, SUITE 100
BUFFALO, NY 14203
PHONE: 716-847-1630

C&S PROJECT: D04.009.001

NOVEMBER 2021
REVISED DECEMBER 2021

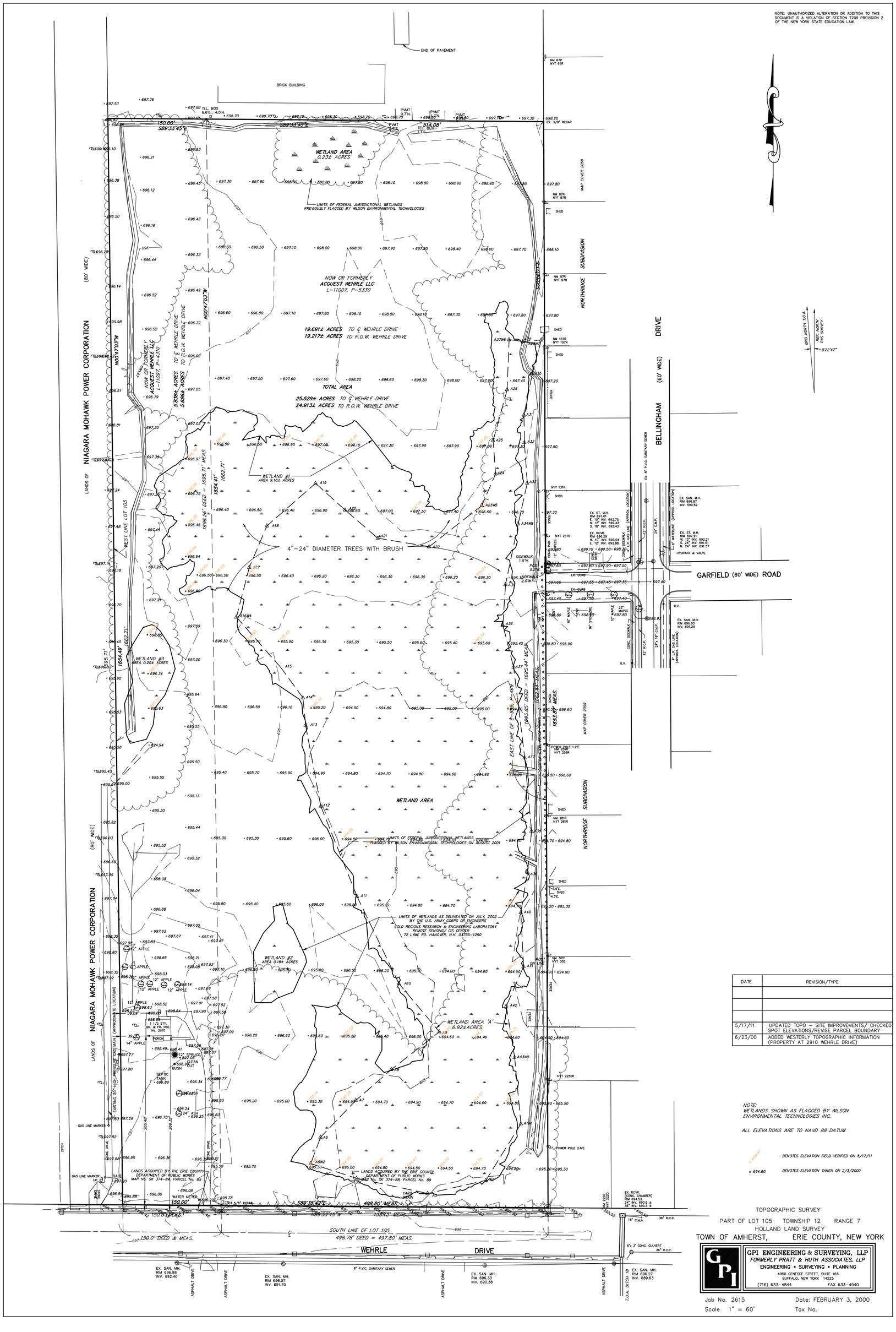
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

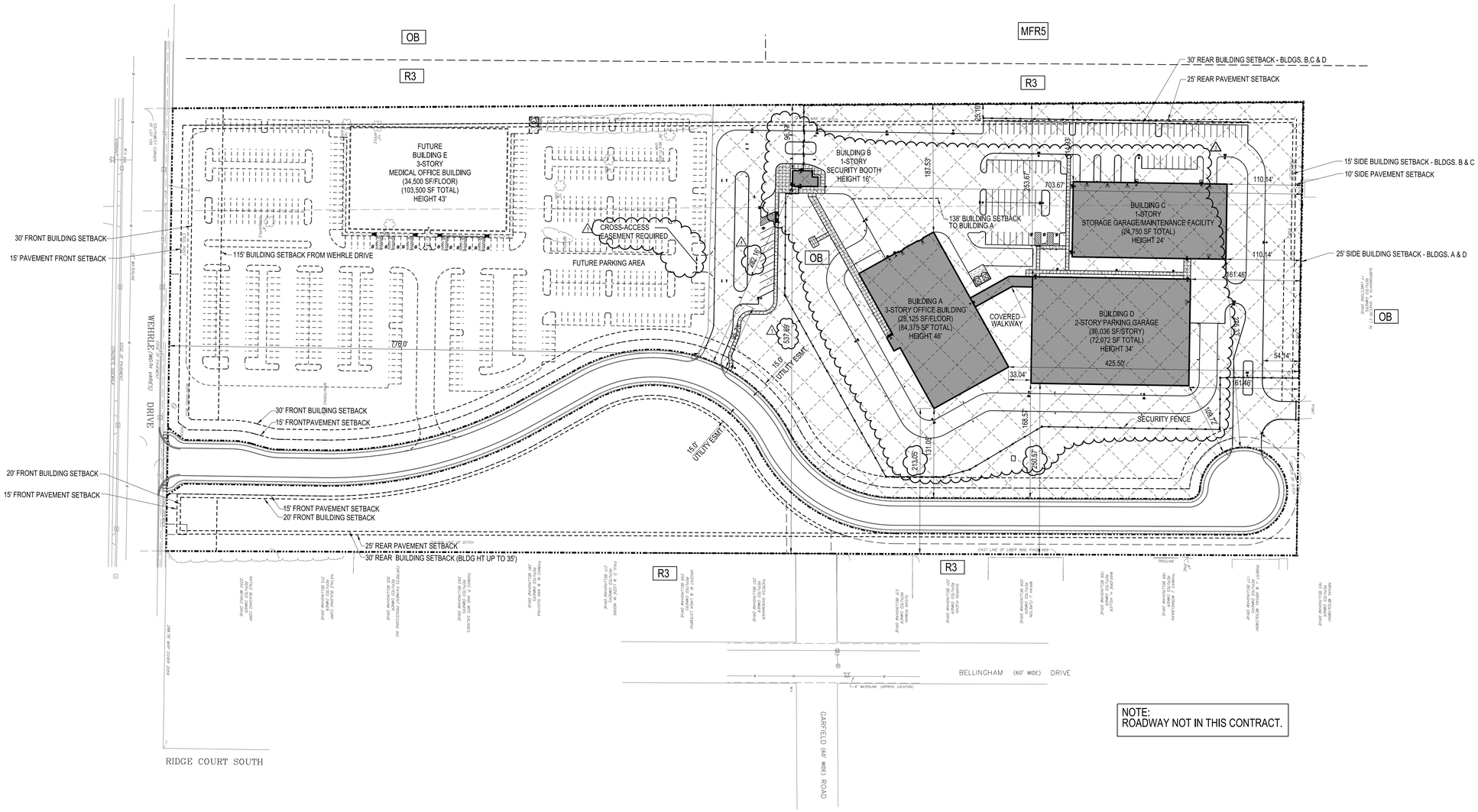
RESERVED FOR TOWN OF AMHERST USE

G-001

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

Attachment: SP-2021-23 drawings 011322 (2507 : SP-2021-23)





NOTE:
ROADWAY NOT IN THIS CONTRACT.

SITE DATA						
CURRENT ZONING: OFFICE BUILDING DISTRICT (OB)						
	REQUIRED	PROVIDED				
LOT DIMENSIONS:						
OVERALL LOT AREA (MIN)	NONE	24.9+/- ACRES				
LOT AREA TO BE DEVELOPED	N/A	14.50+/-				
LOT WIDTH (MIN)	NONE	648.20'				
BUILDING COVERAGE: (MAX)	NONE	14.47%				
INTERIOR GREENSPACE:	10%	10.06%				
BUILDING SETBACKS:						
		BUILDING A	BUILDING B	BUILDING C	BUILDING D	PAVEMENT
FRONT (BLDG HT. UP TO 35 FT.)	20'		282.16'	276.33'	109.72'	
FRONT (BLDG HT. > 35 FT.)	30'	131.05'				
FROM CENTER OF R.O.W. WEHRLE						
SIDE YARD (BLDG HT. UP TO 30 FT.)	15'		703.67'	110.14'		
SIDE YARD (BLDG HT.> 30 FT'	25'	425.50'			161.46'	
REAR YARD (BLDG HT. UP TO 30 FT.)	30''		96.17'	114.93'		
REAR YARD (BLDG HT.> 30 FT'	3' FOR EVERY FT. OF BLDG. HT.	187.53'			253.67'	
PAVEMENT SETBACKS:						
FRONT - WEHRLE DRIVE	15'					776.0'
FRONT - NEW ROAD	15'					95.73'
SIDE YARD	10'					54.14'
REAR YARD	25'					25.10'
BUILDING HEIGHT (MAX):	65'	46'	16'	24'	34'	
INTERIOR BUILDING SEPARATION(MIN):	30'	30+	30+	30'	30'	

PARKING DATA TABLE		
BUILDING	REQUIRED	PROVIDED
BUILDING A, 3 STORY OFFICE BUILDING (MULTISTORY, MULTIPLE TENNANT)		
1 PER 200 SF NET FLOOR AREA		
28,125 SF x 3 FLOORS = 84,375 SF (GROSS)		
84,375 x 75% = 63,281 SF (NET)		
63,281/200 = 316 SPACES	316	75 (SURFACE)
BUILDING B - SECURITY BOOTH - N/A	N/A	N/A
BUILDING C, 1 STORY MAINTENANCE GARAGE/STORAGE FACILITY		
1 PER 1,000 SF GROSS FLOOR AREA OR 1 SPACE PER EMPLOYEE, WHICHEVER IS GREATER		
24,750 SF/1000 = 25 SPACES	25	25
BUILDING D, 2 STORY PARKING GARAGE	N/A	128
BUILDING E, 3 STORY MEDICAL OFFICE BUILDING (MULTISTORY, MULTIPLE TENNANT)	N/A	N/A
1 PER 150 SF NET FLOOR AREA		
34,500 SF x 3 FLOORS = 103,500 SF (GROSS)		
103,500 x 75% = 77,625 SF (NET)		
77,625/150= 518 SPACES	341	228

SITE PLAN NOTES

1. SURVEY INFORMATION WAS PROVIDED BY GPI ENGINEERING, LANDSCAPE, ARCHITECTURE & SURVEYING, LLP DATED 05/29/2018. C&S ENGINEERS, INC. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

2. CONTRACTOR TO VERIFY ALL FIELD CONDITIONS AND UTILITY LOCATIONS PRIOR TO THE START OF CONSTRUCTION. CONTACT THE ENGINEER WITH ANY DISCREPANCIES FOUND IN THE FIELD.

3. ALL DIMENSIONS FROM PROPERTY LINES ARE 90° FROM PROPERTY LINE UNLESS OTHERWISE NOTED.

4. ALL DIMENSIONS ARE FROM FACE OF CURB UNLESS OTHERWISE NOTED.

5. COORDINATE EXACT LOCATION OF SIDEWALKS AT DOORWAYS WITH ARCHITECTURAL PLANS.

6. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND LAYOUT.

LEGEND

AREA TO BE DEVELOPED

MFR5 CURRENT ZONING

PLAN NORTH

80 0 80 160 FT.

A1 OVERALL SITE PLAN
SCALE: 1"=80'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089696 · LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

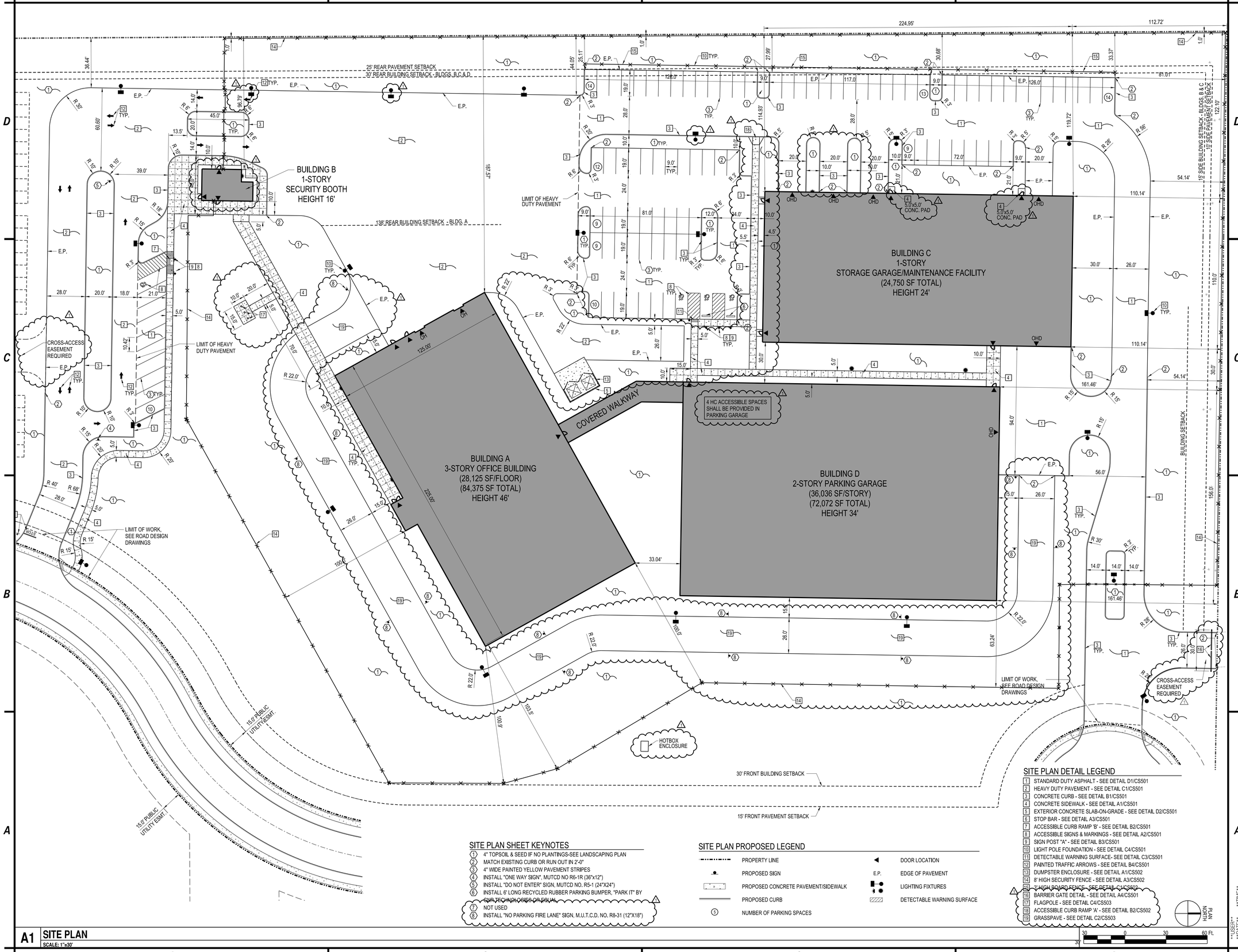
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL
SITE PLAN

CS100

USER
DATE
SYSTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



SITE PLAN SHEET KEYNOTES

1. 4" TOPSOIL & SEED IF NO PLANTINGS-SEE LANDSCAPING PLAN
2. MATCH EXISTING CURB OR RUN OUT IN 2'-0"
3. 4" WIDE PAINTED YELLOW PAVEMENT STRIPES
4. INSTALL "ONE WAY SIGN", MUTCD NO R6-1R (36"x12")
5. INSTALL "DO NOT ENTER" SIGN, MUTCD NO. R5-1 (24"X24")
6. INSTALL 6' LONG RECYCLED RUBBER PARKING BUMPER, "PARK IT" BY SIR TECHNOLOGIES OR EQUAL
7. NOT USED
8. INSTALL "NO PARKING FIRE LANE" SIGN, M.U.T.C.D. NO. R8-31 (12"X18")

SITE PLAN PROPOSED LEGEND

- PROPERTY LINE
- PROPOSED SIGN
- PROPOSED CONCRETE PAVEMENT/SIDEWALK
- PROPOSED CURB
- (5) NUMBER OF PARKING SPACES
- DOOR LOCATION
- E.P. EDGE OF PAVEMENT
- LIGHTING FIXTURES
- DETECTABLE WARNING SURFACE

SITE PLAN DETAIL LEGEND

1. STANDARD DUTY ASPHALT - SEE DETAIL D1/CS501
2. HEAVY DUTY PAVEMENT - SEE DETAIL C1/CS501
3. CONCRETE CURB - SEE DETAIL B1/CS501
4. CONCRETE SIDEWALK - SEE DETAIL A1/CS501
5. EXTERIOR CONCRETE SLAB-ON-GRADE - SEE DETAIL D2/CS501
6. STOP BAR - SEE DETAIL A3/CS501
7. ACCESSIBLE CURB RAMP 'B' - SEE DETAIL B2/CS501
8. ACCESSIBLE SIGNS & MARKINGS - SEE DETAIL A2/CS501
9. SIGN POST "A" - SEE DETAIL B3/CS501
10. LIGHT POLE FOUNDATION - SEE DETAIL C4/CS501
11. DETECTABLE WARNING SURFACE- SEE DETAIL C3/CS501
12. PAINTED TRAFFIC ARROWS - SEE DETAIL B4/CS501
13. DUMPSTER ENCLOSURE - SEE DETAIL A1/CS502
14. 8' HIGH SECURITY FENCE - SEE DETAIL A3/CS502
15. 8' HIGH BOARD FENCE - SEE DETAIL C1/CS502
16. BARRIER GATE DETAIL - SEE DETAIL A4/CS501
17. FLAGPOLE - SEE DETAIL C4/CS503
18. ACCESSIBLE CURB RAMP 'A' - SEE DETAIL B2/CS502
19. GRASSPAVE - SEE DETAIL C2/CS503

A1 **SITE PLAN**
SCALE: 1"=30'

30 0 30 60 Ft.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
089695
LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

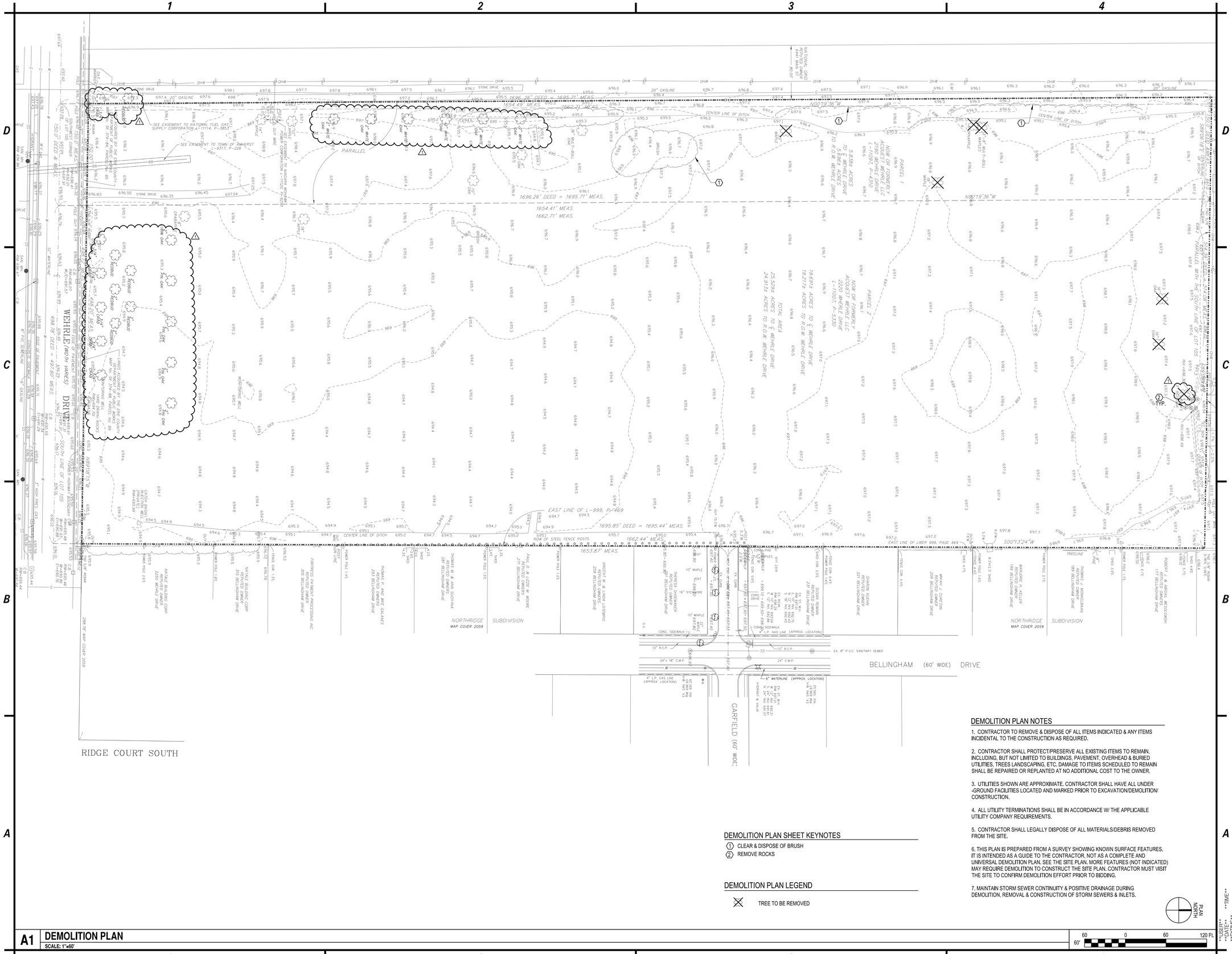
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SITE PLAN

CS101

USER **DATE** **SYTIME** **TIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)


1
2
3
4
A
B
C
D
WEHRLE (WIDTH VARIES) DRIVE
RIDGE COURT SOUTH
BELLINGHAM (60' WIDE) DRIVE
GARFIELD (60' WIDE)
NORTHRIDGE SUBDIVISION
MAP COVER 2059
N00°19'36"W 1696.26' DEED = 1695.71' MEAS.
S00°13'24"W 1695.85' DEED = 1695.44' MEAS.
EAST LINE OF L-999, P-469
EAST LINE OF LIBER 999, PAGE 469
CENTER LINE OF DITCH
ROW OF STEEL FENCE POSTS
PARALLEL
1654.41' MEAS.
1662.71' MEAS.
1653.87' MEAS.
1662.44' MEAS.
SEE EASEMENT TO NATIONAL FUEL GAS SUPPLY CORPORATION L-11114, P-3853
SEE EASEMENT TO TOWN OF AMHERST L-9311, P-226
5.836± ACRES TO R.O.W. WEHRLE DRIVE
19.6914 ACRES TO ℄ WEHRLE DRIVE
19.2714 ACRES TO R.O.W. WEHRLE DRIVE
25.529± ACRES TO ℄ WEHRLE DRIVE
24.913± ACRES TO R.O.W. WEHRLE DRIVE
TOTAL AREA
PARCEL 1
NOW OR FORMERLY ACQUEST WEHRLE LLC
2220 WEHRLE DRIVE
L-11001, P-5350
PARCEL 2
NOW OR FORMERLY ACQUEST WEHRLE LLC
2220 WEHRLE DRIVE
L-11001, P-5350
NOW OR FORMERLY ACQUEST WEHRLE LLC
2190 WEHRLE DRIVE
L-11001, P-4370
NOW OR FORMERLY ACQUEST WEHRLE LLC
2190 WEHRLE DRIVE
L-11001, P-4370
NATIONAL FUEL GAS SUPPLY CORP. RECORDED OWNER 641 MIN. 30' ROW
LANDS NOW OR FORMERLY OF THE STATE OF NEW YORK
LANDS NOW OR FORMERLY OF THE TOWN OF AMHERST
LANDS NOW OR FORMERLY OF THE NIAGARA FRONTIER TRANSPORTATION AUTHORITY
LANDS NOW OR FORMERLY OF THE NIAGARA MOHAWK POWER CORPORATION

BUILDING B
SECURITY BOOTH
FFE 701.90

BUILDING C
1-STORY
STORAGE GARAGE/MAINTENANCE FACILITY
FFE 704.25

FFE 702.75
BUILDING A
3-STORY OFFICE BUILDING

BUILDING D
2-STORY PARKING GARAGE
FFE 703.60

DI 15 RIM 701.18
DI 14 RIM 700.47
DI 13 RIM 700.70
DI 16 RIM 701.24
DI 17 RIM 701.00
DI 18 RIM 702.00
DI 19 RIM 702.40
DI 20 RIM 702.40
DI 21 RIM 702.40
DI 22 RIM 702.40
DI 25 RIM 700.00
DI 26 RIM 700.00
DI 23 RIM 700.00
DI 24 RIM 700.00
DI 31 RIM 701.25
DI 32 RIM 700.54
DI 30 RIM 701.53
DI 7 RIM 696.93
DI 8 RIM 697.05
DI 6 RIM 696.74
DI 5 RIM 696.74
DI 46 RIM 696.80
DI 45 RIM 696.00
DI 10 RIM 696.82
DI 9 RIM 696.82

YD 1 RIM 701.70
YD 2 RIM 701.70
YD 3 RIM 697.00
YD 4 RIM 695.50
YD 5 RIM 696.50
YD 7 RIM 701.20

END SECTION INV. 696.60
END SECTION INV. 693.00
END SECTION INV. 694.00
END SECTION INV. 695.70
END SECTION INV. 697.00

BIO-RETENTION BASIN (PRIVATE)
BOTTOM OF BIO-RETENTION BASIN TO BE 696.30
BOTTOM OF BIO-RETENTION BASIN TO BE 695.50
HOT BOX ENCLOSURE
SAN MH 4 RIM 701.00
SA MH 3 RIM 698.40
ST MH 1 RIM 698.22
SA MH 2 RIM 696.00

15.0' PUBLIC UTILITY EASEMENT

GRADING PLAN LEGEND

	PROPERTY LINE	TC	TOP OF CURB
	PROPOSED CURB	BC	BOTTOM OF CURB
X 694.7	EXISTING POINT ELEVATION	HP	HIGH POINT
696.00	PROPOSED POINT ELEVATION		FLOW DIRECTION
696	EXISTING CONTOUR		
696	PROPOSED CONTOUR		

PLAN NORTH

30' 0 30 60 Ft.

A1 **GRADING PLAN**
SCALE: 1"=30'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
089696
LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

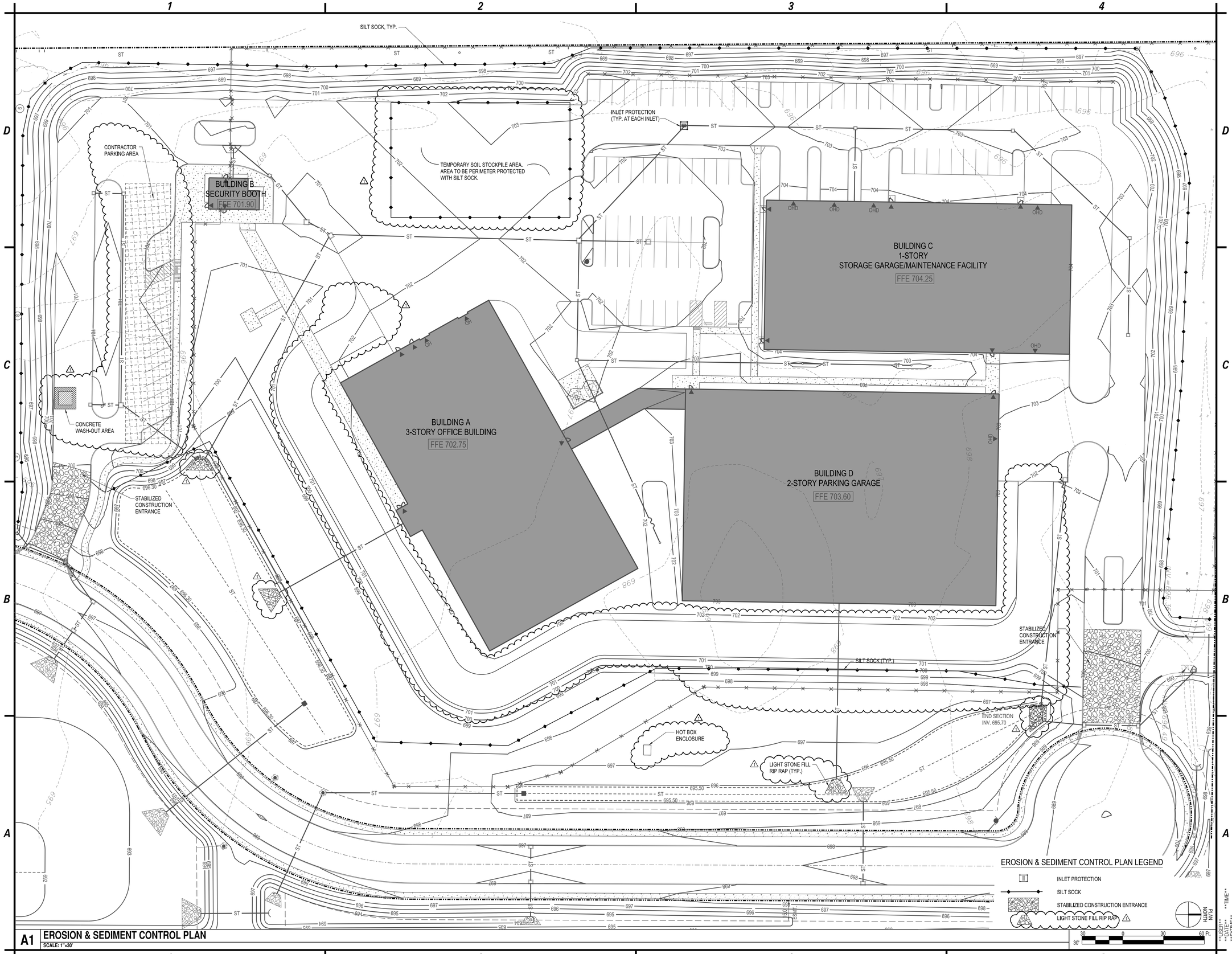
PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING PLAN

CG101

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



A1 **EROSION & SEDIMENT CONTROL PLAN**
SCALE: 1"=30'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
089696
LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

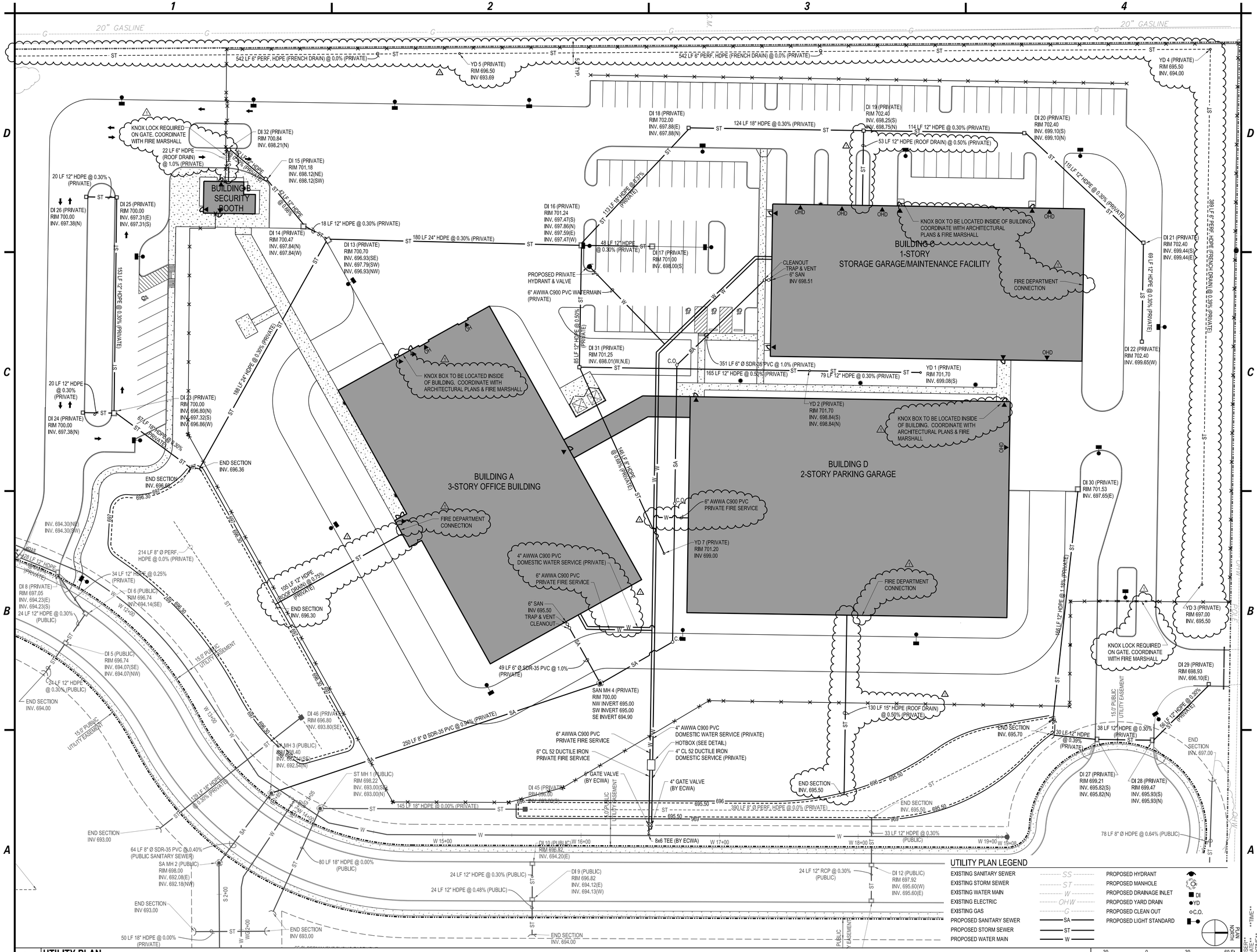
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

EROSION & SEDIMENT CONTROL PLAN

CG102

USER **TIME** **DATE** **SYTIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



A1 UTILITY PLAN
SCALE: 1"=30'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
089686
LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

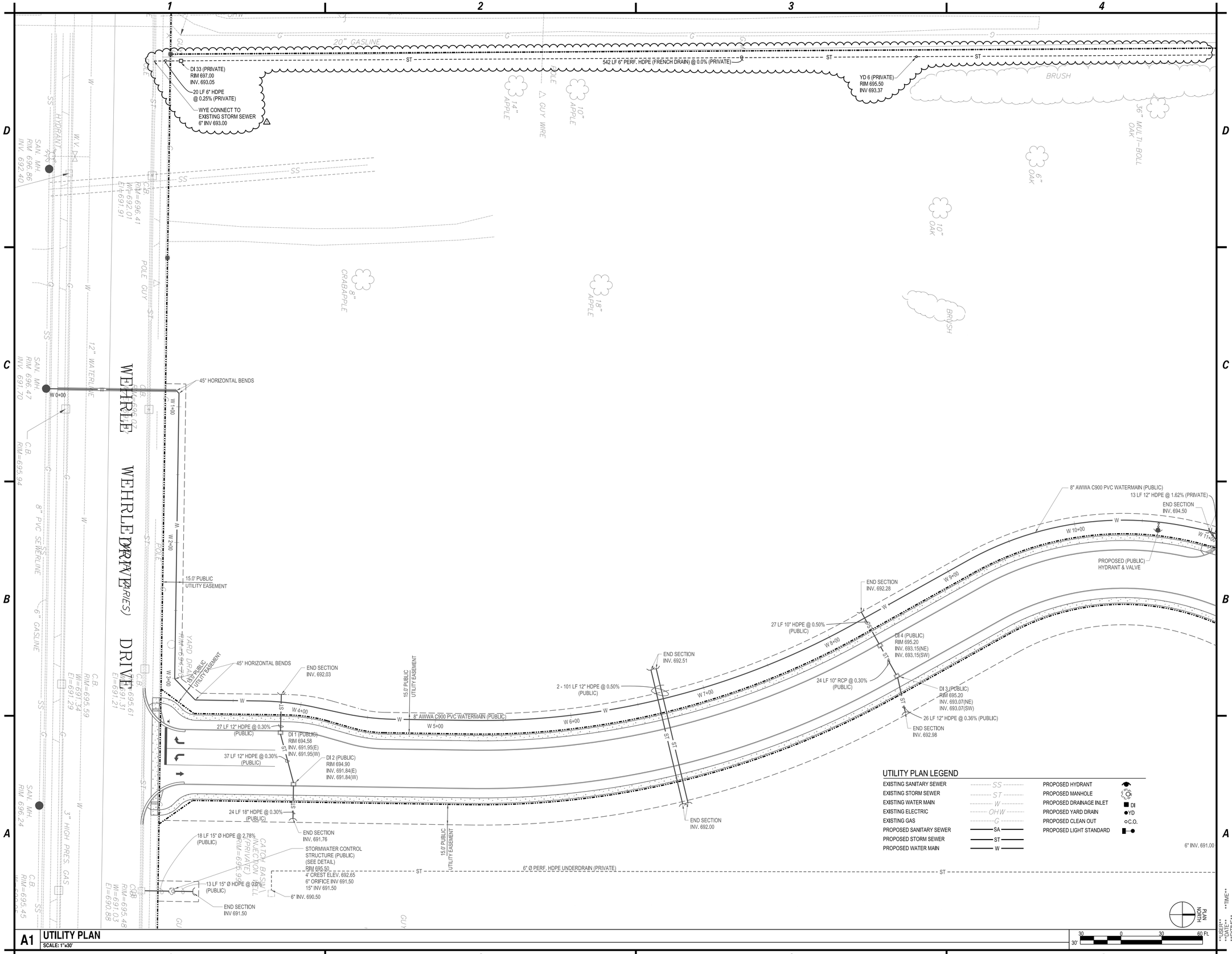
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

UTILITY PLAN

CU101

"USER" *"DATE"* *"SYSTIME"*

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



A1 **UTILITY PLAN**
SCALE: 1"=30'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
089686
LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

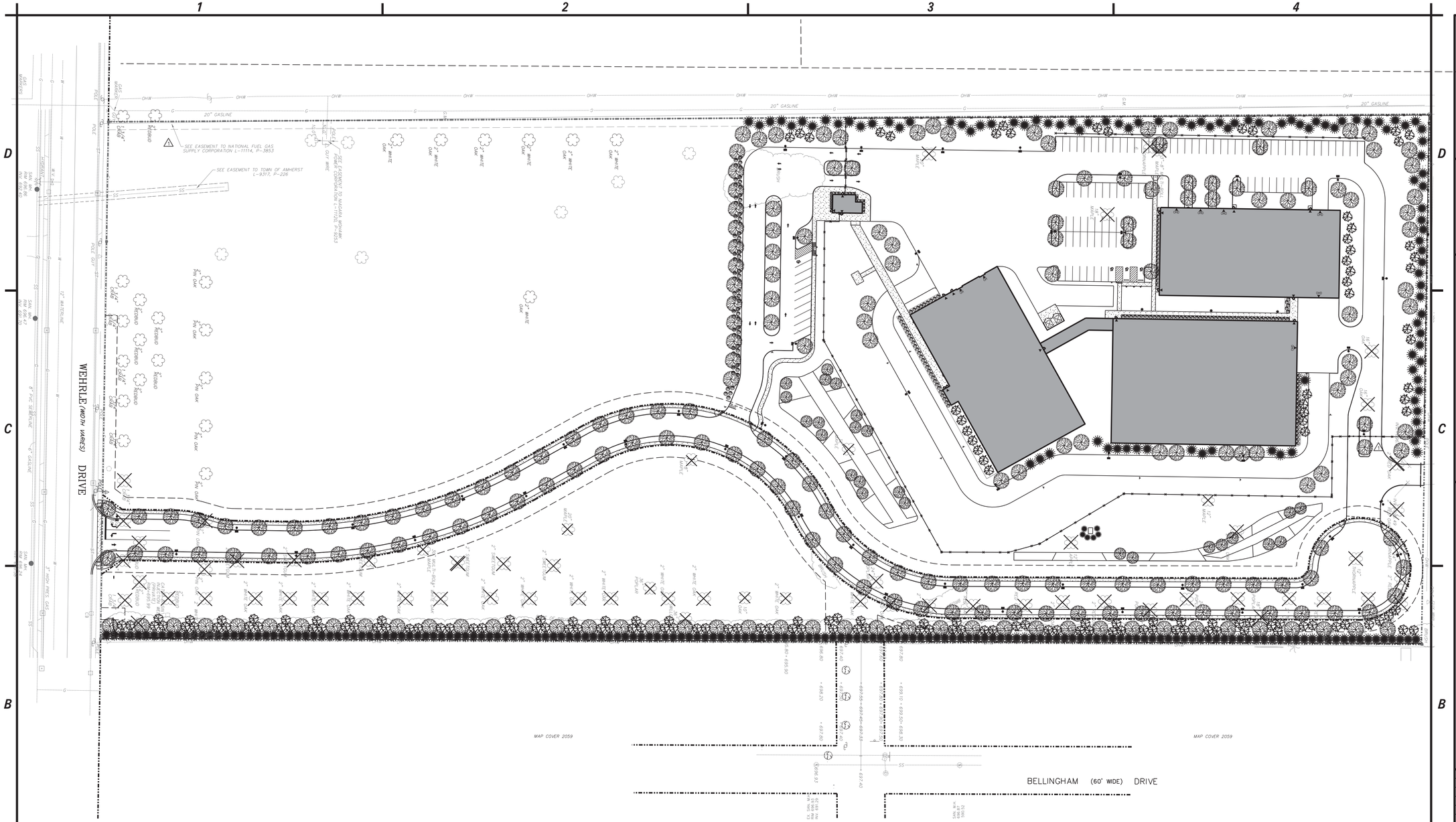
PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

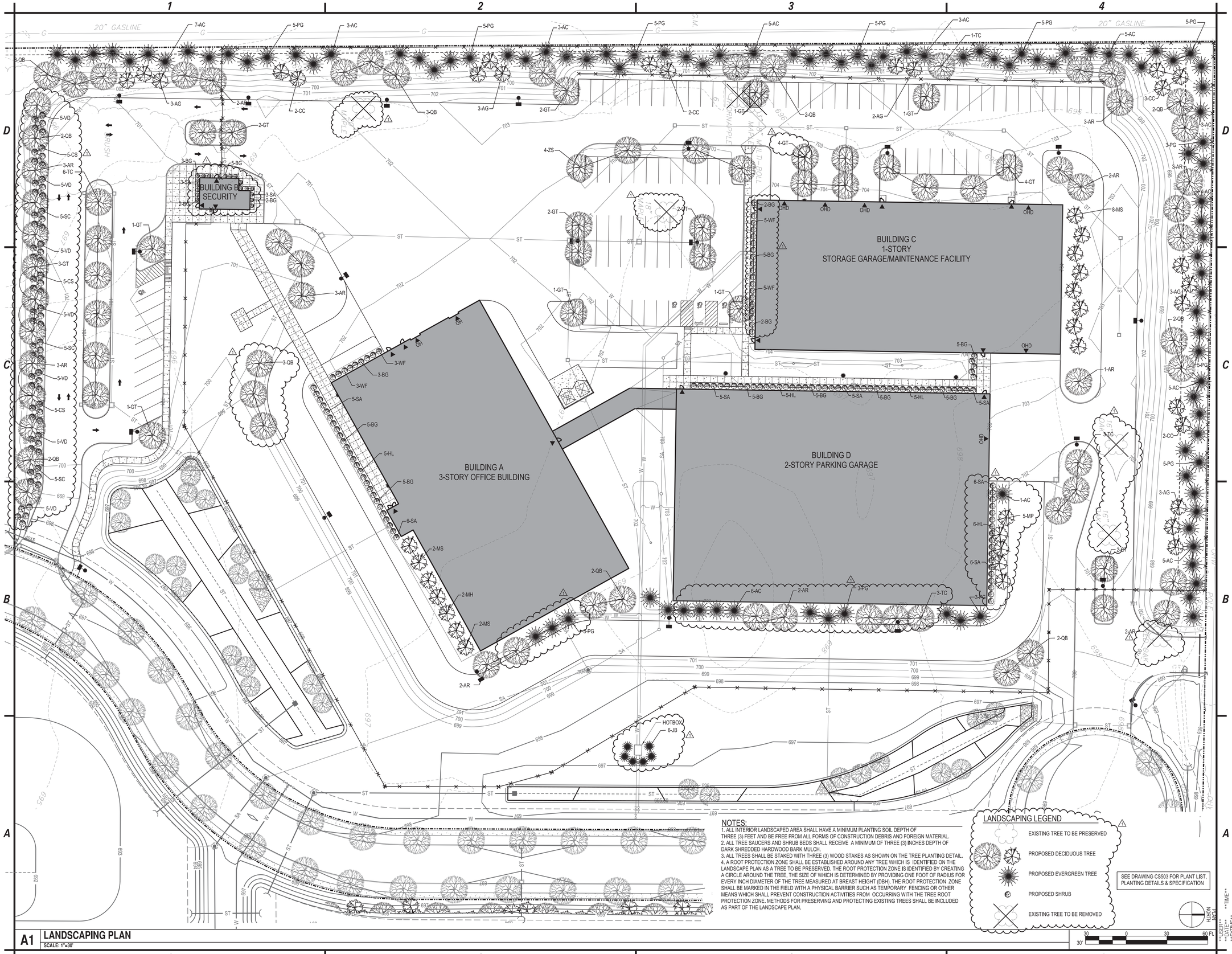
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

UTILITY PLAN

CU102

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)


WEHRLE (WIDTH VARIES) DRIVE
BELLINGHAM (60' WIDE) DRIVE
SEE EASEMENT TO NATIONAL FUEL GAS SUPPLY CORPORATION L-11114, P-3853
SEE EASEMENT TO TOWN OF AMHERST L-9317, P-226
SEE EASEMENT TO NIAGARA MOHAWK POWER CORPORATION L-11120, P-3253
MAP COVER 2059
MAP COVER 2059
20" GASLINE
OHW
12" WATERLINE
8" PVC SANITARY
4" GASLINE
3" HIGH PRESS. GAS
SAN MH RIM 696.46 INV 681.21
SAN MH RIM 696.47 INV 681.06
SAN MH RIM 696.52
EX. SAN MH RIM 695.76 INV 681.21
SAN M.H. RIM 695.52
2" WHITE OAK
2" RED OAK
2" PIN OAK
2" SWEETGUM
2" NORWAY MAPLE
2" SILVER MAPLE
2" SUGAR MAPLE
2" SHADBLOW SERVICEBERRY
2" EASTERN REDBUD
2" AMERICAN HORNBEAM
2" SERBIAN SPRUCE
2" BLACK TUPELO
2" BLACK GUM
2" CHINKAPIN OAK
2" BUR OAK
2" SWAMP WHITE OAK
2" SHINGLE OAK
2" SOUTHERN RED OAK
2" SCARLET OAK
2" SHUMARD OAK
2" NORTHERN RED OAK
2" BLACK OAK
2" CHESTNUT



A1 LANDSCAPING PLAN
SCALE: 1"=30'

USER **TIME**
DATE **SYTIME**

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

MICHAEL MURTON GRIDLEY — 001907 — STATE OF NEW YORK — LANDSCAPE ARCHITECT

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

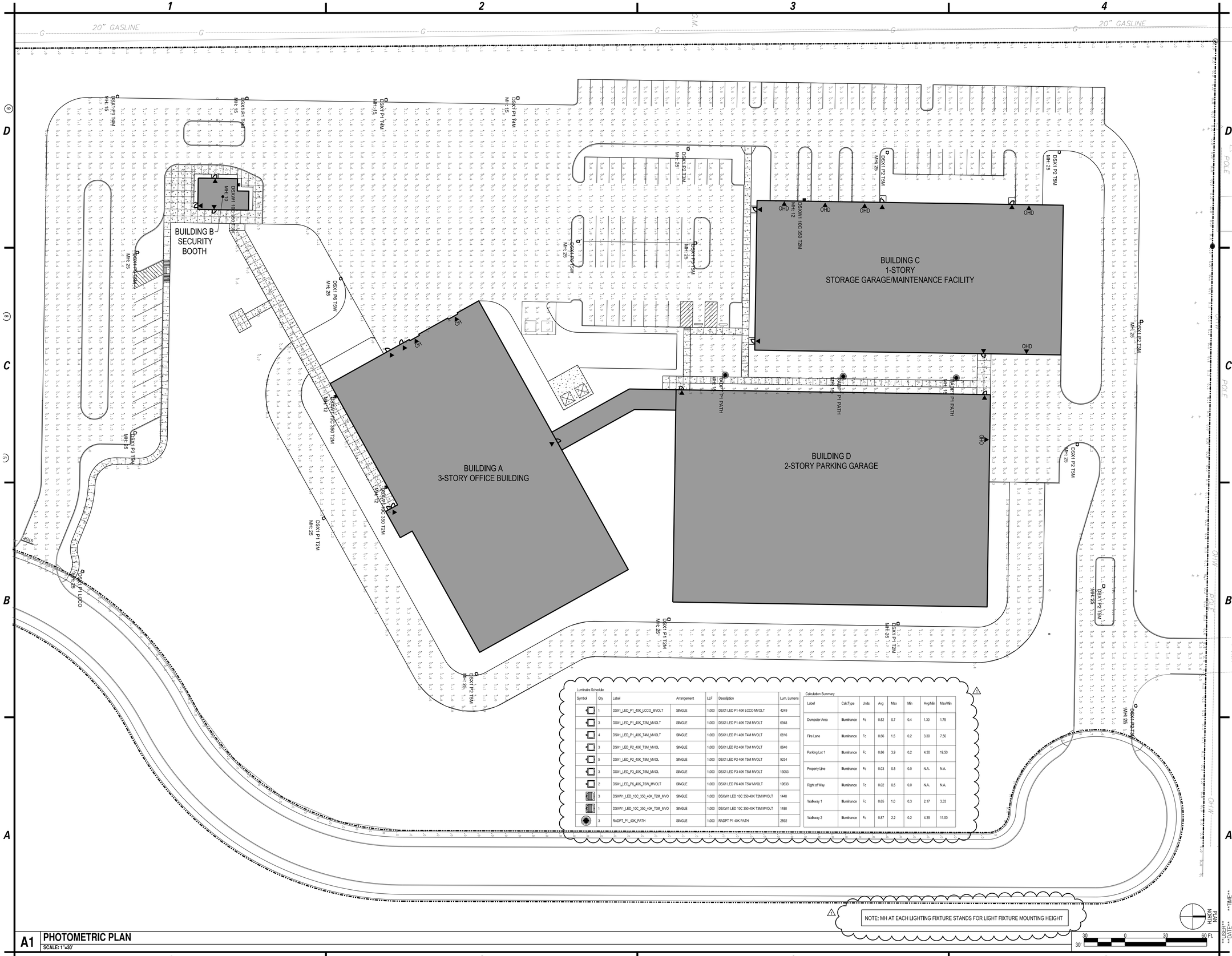
PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG M. GRIDLEY
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

LANDSCAPING PLAN

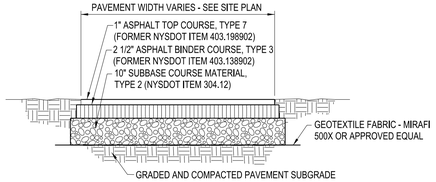
CL101

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)


20" GASLINE
20" GASLINE
BUILDING A
3-STORY OFFICE BUILDING
BUILDING B
SECURITY
BOOTH
BUILDING C
1-STORY
STORAGE GARAGE/MAINTENANCE FACILITY
BUILDING D
2-STORY PARKING GARAGE
GUY WIRE
POLE
OHD
DSX1 P1 T2M
DSX1 P2 T5M
DSX1 P3 T5M
DSX1 P6 T5W
DSXW1 10C 350 T2M
RADPT P1 PATH
DSXW1 10C 350 T4M
DSXW1 10C 350 T3M
DSX1 P1 T4M
DSX1 P1 T4W
DSX1 P1 LCCO
DSX1 P2 T3M
DSX1 P3 T5W
MH-25
MH-15
MH-12
MH-10
MH-18
MH-19
MH-20
MH-21
MH-22
MH-23
MH-24
MH-26
MH-27
MH-28
MH-29
MH-30
MH-31
MH-32
MH-33
MH-34
MH-35
MH-36
MH-37
MH-38
MH-39
MH-40
MH-41
MH-42
MH-43
MH-44
MH-45
MH-46
MH-47
MH-48
MH-49
MH-50
MH-51
MH-52
MH-53
MH-54
MH-55
MH-56
MH-57
MH-58
MH-59
MH-60
MH-61
MH-62
MH-63
MH-64
MH-65

D1 ASPHALT PAVEMENT SECTION

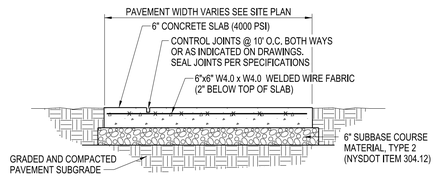
SCALE: N.T.S.



NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO FORMER NYSDOT STANDARD SPECIFICATION 401.3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304.3.

D2 EXTERIOR CONCRETE SLAB-ON-GRADE SECTION

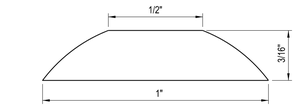
SCALE: N.T.S.



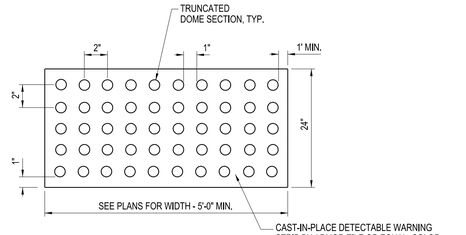
NOTE: CONCRETE PAVEMENT MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 502.3

D3

SCALE: N.T.S.



TRUNCATED DOME SECTION

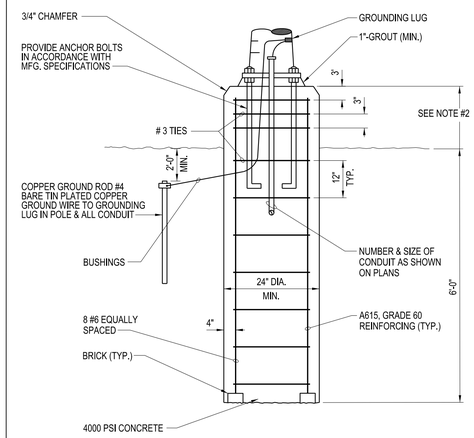


DOME SPACING

NOTE:
DETECTABLE WARNING DEVICES SHALL BE PER 2010 ADA STANDARDS SECTION 705 OR THE MOST CURRENT UPDATE

D4

SCALE: N.T.S.

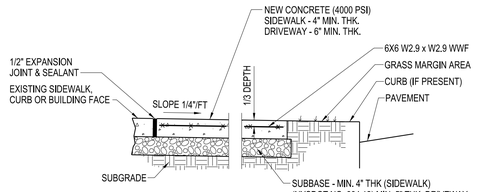


NOTES:

1. AUGER HOLES FOR FOOTING, INSPECT THE EXCAVATION & NOTIFY THE ENGINEER OF UNSUITABLE MATERIALS BEFORE PLACING THE STEEL & CONCRETE.
2. LIGHT POLE BASE SHALL BE: 30" ABOVE GRADE IN PAVED AREAS
   6" ABOVE THE CURB IN LANDSCAPED AREAS
   30" ABOVE GRADE IN AREAS W/O CURBING
3. FOR LOCATIONS OF LIGHT POLES, SEE SIGHT PLAN.

C1 HEAVY DUTY ASPHALT SECTION

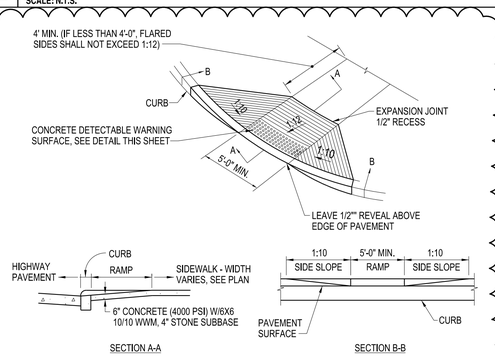
SCALE: N.T.S.



NOTE: CONSTRUCTION METHODS FOR ASPHALT PAVEMENT SHALL CONFORM TO FORMER NYSDOT STANDARD SPECIFICATION 401.3, WITH SUBBASE CONSTRUCTION METHODS CONFORMING TO NYSDOT STANDARD SPECIFICATION 304.3.

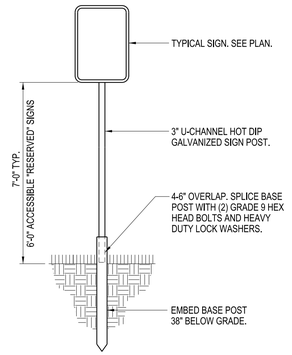
C2 ACCESSIBLE CURB RAMP 'A'

SCALE: N.T.S.



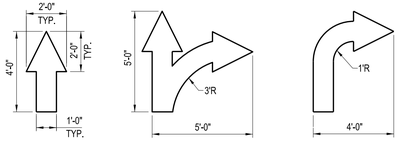
C3 DETECTABLE WARNING SURFACE

SCALE: N.T.S.



C4 LIGHT POLE FOUNDATION 'A'

SCALE: N.T.S.



B1 CONCRETE CURB

SCALE: N.T.S.

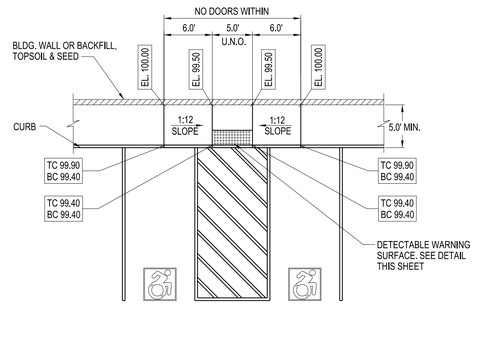
CROSS SECTION

NOTES:

1. CONTROL JOINTS TO BE AT 5'-0" O.C. BOTH WAYS OR AS SHOWN ON DRAWINGS. SEAL JOINTS PER SPECIFICATIONS.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3

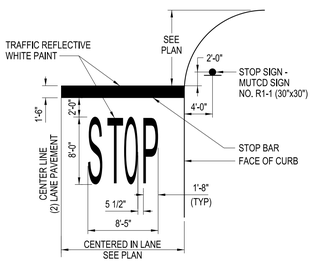
B2 ACCESSIBLE CURB RAMP 'B'

SCALE: N.T.S.



B3 SIGN POST 'A'

SCALE: N.T.S.



B4 PAINTED TRAFFIC ARROWS

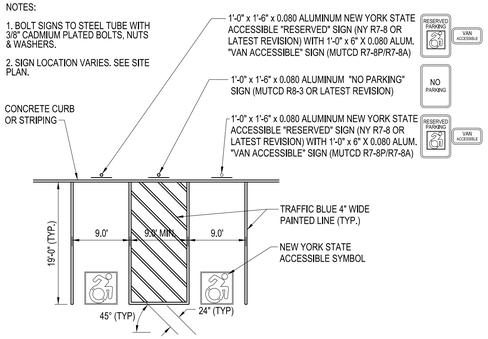
SCALE: N.T.S.

A1 CONCRETE SIDEWALK

SCALE: N.T.S.

A2 ACCESSIBLE SIGNS & MARKINGS

SCALE: N.T.S.

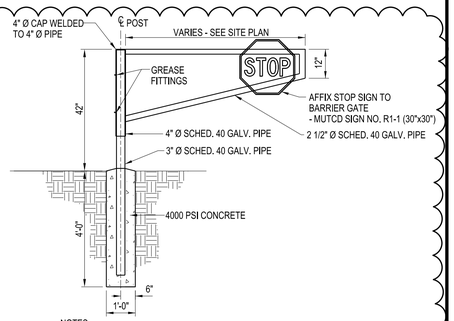


A3 STOP BAR DETAIL

SCALE: N.T.S.

A4 BARRIER GATE DETAIL

SCALE: N.T.S.



NOTES:
1. ALL GATE FRAME MEMBERS ARE TO BE WELDED.
2. PROVIDE 6' OF CHAIN & S.S. PADLOCK
3. BARRIER GATE TO BE REPLICATED ON OTHER SIDE OF THE DRIVE

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. WEIS
089686
LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SITE
DETAILS

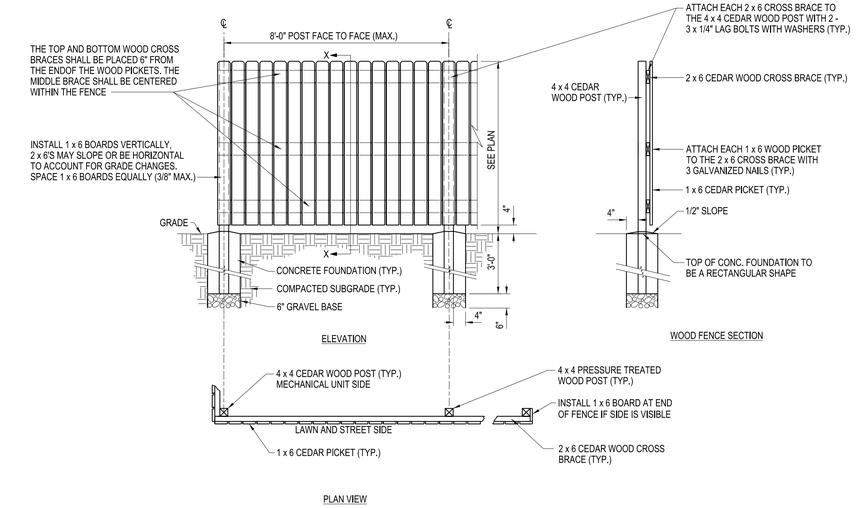
CS501

NAME
DATE
SYTIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

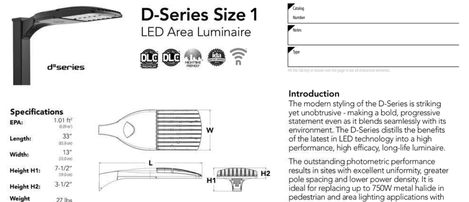
C1 BOARD FENCE DETAIL

SCALE: N.T.S.



C3 D SERIES AREA LUMINAIRE

SCALE: N.T.S.



Ordering Information EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED									
Series	**LEDs**	**Color temperature**	**Distribution**				**Voltage**	**Mounting**	
DSX1 LED	**Forward optics**	30K 3000 K	T1S Type I short (Automotive)	T3S Type III short	TSVS Type V very short [5]	MVOLT [1]	**Shipped included**		
	P1 P4 [5] P7 [5]	40K 4000 K	T2S Type II short	T4M Type IV medium	TSS Type V short [5]	120 [1]	SPA Square pole mounting		
	P2 P5 [5] P8	50K 5000 K	T2M Type II medium	T4W Type IV wide	TSM Type V medium [5]	208 [1]	RPA Round pole mounting [2]		
	P3 P6 [5] P9 [5]		T3S Type III short	T5W Type V wide [5]	TSW Type V wide [5]	240 [1]	WBA Wall bracket [3]		
	Rotated optics		T3M Type III medium	BLC Backlight control [6]		277 [1]	SPUMBA Square pole universal mounting adaptor [4]		
	P10 [5] P12 [5]		T4M Type IV medium	LCCO Left corner cutoff [6]		347 [1]	RPUMBA Round pole universal mounting adaptor [4]		
	P11 [5] P13 [5]		TFTM Forward throw medium	RCCO Right corner cutoff [6]		480 [1]	**Shipped separately**		
							KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) [7]		

Control options			Other options		Finish (required)	
Shipped installed	PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc [7,8]		**Shipped installed**		DDBXD Dark bronze	DWHGXD Textured white
NLTAIR2 nLight AIR 2 enabled [9]	PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc [7,8]		HS House-side shield [10]		DBLXD Black	DSSTXD Textured sandstone
PIRHN Network, high/low motion/ambient sensor [9]	PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc [7,8]		SF Single fuse (120, 277 or 347V) [1,10]		DNAXD Natural aluminum	DBLBXD Textured black
PER NEMA twist-lock receptacle only (controls ordered separately) [11]	PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc [7,8]		DF Double fuse (208, 240, 480V) [1,10]		DWHXD White	DNATXD Textured natural aluminum
PERS Five-pin receptacle only (controls ordered separately) [12,13]	FAO Field adjustable output [7,14]		L90 Left rotated optics [7]		DDBTXD Textured dark bronze	
PER7 Seven-pin receptacle only (controls ordered separately) [12,13]			R90 Right rotated optics [7]		DBLBXD Textured black	
DMG 0-10V, dimming wires pulled outside fixture (for use with an external control, ordered separately) [8]			HA 50°C ambient operations [1]		DNATXD Textured natural aluminum	
DS Dual switching [15,16,17]			**Shipped separately**		DWHGXD Textured white	
			BS Bird spikes [7]			
			EGS External glare shield			

C4 WALL LUMINAIRE

SCALE: N.T.S.



Ordering Information EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSXW1 LED									
Series	**LEDs**	**Drive Current**	**Color temperature**	**Distribution**		**Voltage**	**Mounting**	**Control Options**	
DSXW1 LED	10C 10 LEDs (one engine)	350 350 mA	30K 3000 K	T2S Type II Short	T4M Type IV Medium	MVOLT [1] 277 [1]	**Shipped included**	**Shipped installed**	
	20C 20 LEDs (two engines) [1]	530 530 mA	40K 4000 K	T2M Type II Medium	T4W Type IV Wide	120 [1] 347 [1]	(blank) Surface mounting bracket	PE Photoelectric cell, button type [2]	
		700 700 mA	50K 5000 K	T3S Type III Short	TFTM Forward Throw Medium	208 [1] 480 [1]	BBW Surface-mounted back box (for conduit entry) [3]	DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)	
		1000 1000 mA (1 A) [1]	AMBPC Amber phosphor converted	T3M Type III Medium		240 [1]		PIR 180° motion/ambient light sensor, <15' mtg ht [4,5]	
								PIRH 180° motion/ambient light sensor, 15-30' mtg ht [4,5]	
								PIR1FC3V Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc [4,5]	
								PIRH1FC3V Motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc [4,5]	
								ELCW Emergency battery backup (includes external component enclosure), CA Title 20 Non-compliant [6,7]	

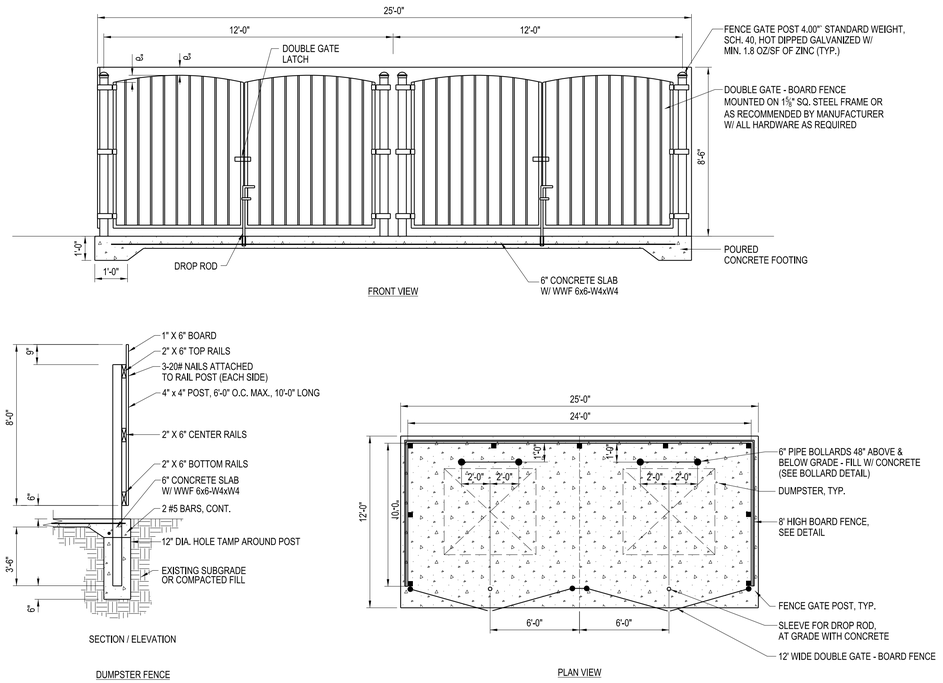
Other Options		Finish (required)	
Shipped installed	**Shipped separately** [8]	DDBXD Dark bronze	DSSTD Sandstone	DWHGXD Textured white
SF Single fuse (120, 277 or 347V) [1,9]	BSW Bird-deterrent spikes	DBLXD Black	DDBTXD Textured dark bronze	DSSTXD Textured sandstone
DF Double fuse (208, 240 or 480V) [1,9]	VG Vandal guard	DNAXD Natural aluminum	DBLBXD Textured black	
HS House-side shield [9]	DDL Diffused drop lens	DWHXD White	DNATXD Textured natural aluminum	
SPD Separate surge protection [10]				

Accessories Ordered and shipped separately.
DSHS(*) U House-side shield (one per light engine)
DSHSBSW U Bird-deterrent spikes
DSHSVG U Vandal guard accessory

NOTES
1. 20C 1000 is not available with PIR, PIRH, PIR1FC3V or PIRH1FC3V.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
4. Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH.
5. Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
6. Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
7. Reference Motion Sensor table on page 3.
8. Shipped separately keyed. Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with fusing. Not available with 347 or 480 voltage options. Dimensions for accessory components located in back box housing. Emergency mode IES files located on product page at www.lithonia.com.
9. Not available with SPD.
10. Not available with ELCW.
11. Also available as a separate accessory; see Accessories information.
12. Not available with ELCW.

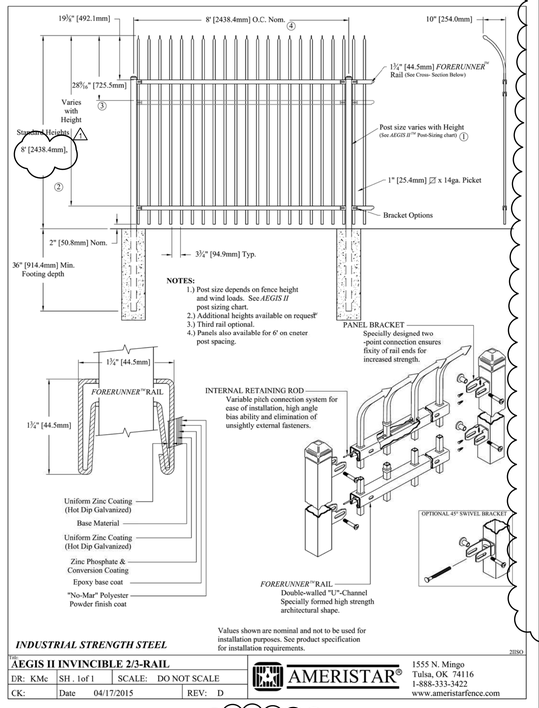
A1 DUMPSTER ENCLOSURE

SCALE: N.T.S.



A3 SECURITY FENCE

SCALE: N.T.S.



A4 AREA LUMINAIRE P1

SCALE: N.T.S.



Ordering Information EXAMPLE: RADPT LED P3 30K SYM MVOLT PT4 PIR DNAXD

RADPT LED						
Series	**Performance package**	**Color temperature**	**Distribution**	**Voltage**	**Mounting** (required)	
RADPT LED	P1 3,000 Lumens	27K 2700K	SYM Symmetric type V	MVOLT [1] 277 [1]	PT4 [1] Sign inside a 4" OD round metal pole	
	P2 5,000 Lumens	30K 3000K	ASY Asymmetric type IV	120 [1] 347	RADPT20 Sign over a 2 3/8" diameter tenon	
	P3 7,000 Lumens	35K 3500K	PATH Pathway type III	208 [1] 480	RADPT25 Sign over a 2 7/8" diameter tenon	
	P4 10,000 Lumens	40K 4000K		240 [1]		
	P5 15,000 Lumens	50K 5000K				

Control options		Other options		Finish (required)	
Shipped installed		SF Single fuse [1]	**Shipped installed**	DDBXD Dark bronze	DDBTXD Textured dark bronze
NLTAIR2 nLight AIR 2 enabled [2]		DF Double fuse [1]	HS House-side shield [3]	DBLXD Black	DBLBXD Textured black
PIR Bi-level motion/ambient (100% to 30%) [4,5]		R90 Rotated optics [6]		DNAXD Natural aluminum	DNATXD Textured natural aluminum
PE Button photocell [7]				DWHXD White	DWHGXD Textured white
FAO Field adjustable output [8]					

AEGIS II INVINCIBLE 2/3-RAIL

INDUSTRIAL STRENGTH STEEL

DR: KMc	SH . 1of 1	SCALE:	DO NOT SCALE
CK:	Date 04/17/2015	REV:	D

AMERISTAR®
1555 N. Mingo
Tulsa, OK 74116
1-888-333-3422
www.ameristarfence.com

NOTE: FENCE IS TO BE 8.0' TALL

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK JASON P. UTZIG 089686 LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

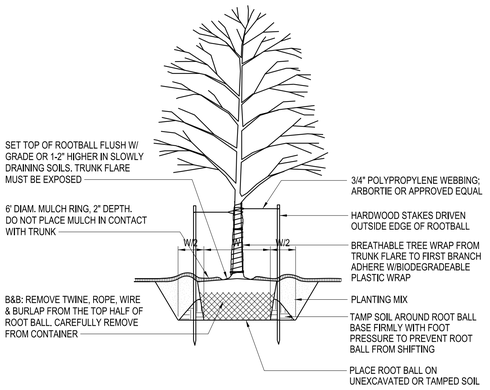
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SITE DETAILS

CS502

USER *DATE* *SYSTIME* *TIME*

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



NOTES:
1. STAKE TREES AS DIRECTED BY THE LANDSCAPE ARCHITECT. STAKING WILL BE REQ'D WHEN ROOT BALLS ARE VERY SANDY OR WET CLAY, WHEN SOIL IS VERY SOFT, OR WHEN PLANTING LOCATIONS ARE WINDY.

2. TIGHTEN ARBORTIE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT.

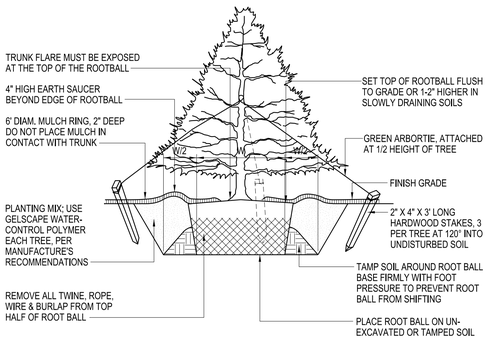
3. PRUNE ONLY CROSSING LIMBS, CO-DOMINANT LEADERS AND BROKEN OR DEAD BRANCHES.

4. TREE WRAP SHOULD BE INSTALLED AT TIME OF PLANTING AND REMOVED 12 MONTHS AFTER PLANTING.

C1 DECIDUOUS TREE PLANTING DETAIL
SCALE: N.T.S.

PLANTING SPECIFICATION

1. SCOPE OF WORK
   A. THIS WORK SHALL CONSIST OF PERFORMING, CLEARING, AND GRUBBING, SOIL PREPARATION, FINISH GRADING, PLANTING, DRAINAGE, INCLUDING ALL LABOR MATERIALS, TOOLS, EQUIPMENT, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT.
2. MATERIALS
   A. PLANTS - ALL PLANTS SHALL BE HEALTHY, OF NORMAL GROWTH, WELL ROOTED FREE FROM DISEASE AND INSECTS. QUALITY AND OF PLANT MATERIAL THAT SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1) AND BE OF NUMBER ONE GRADE.
   B. VARIETIES AND SIZES OF PLANTS SHALL BE AS SHOWN ON DRAWINGS
3. FERTILIZER
   A. FERTILIZER SHALL BE MILORGANITE (6-2-0) OR APPROVED EQUAL.
4. GENERAL WORK PROCEDURES
   A. LANDSCAPE WORK SHALL BE ACCORDING TO THE WORKMANLIKE STANDARDS ESTABLISHED FOR LANDSCAPE CONSTRUCTION AND PLANTING.
5. WEEDING
   A. BEFORE AND DURING PRELIMINARY GRADING AND FINISH GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
6. SOIL CONDITIONING
   A. CULTIVATE ALL AREAS TO BE PLANTED TO A DEPTH OF 6". ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
7. PLANTING
   POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
   A. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, AS SHOWN ON THE PLANTING DETAILS.
      - 3 PARTS TOPSOIL
      - 1 PART PEAT MOSS OR COMPOST
      - 1/3 PART MILORGANITE FERTILIZER
   B. PREPARED SOIL SHALL BE TAMPED FIRMLY AT BOTTOM OF PIT. FILL PREPARED SOIL AROUND BALL OF PLAN ½ WAY, AND WATER. COMPLETE BACK-FILLING AND WATER THOROUGHLY.
   C. ALL PLANTS SHALL BE SET SO THAT, WHEN SETTLED, THEY BEAR THE SAME RELATION TO THE REQUIRED GRADE AS THEY BORE TO THE NATURAL BEFORE BEING TRANSPLANTED.
   D. IMMEDIATELY AFTER PLANTING, STAKE ALL TREES WITH 3 CEDAR STAKES PER TREE.
   E. PREPARE RAISED EARTH SAUCER AS WIDE AS PLANTING HOLE OF EACH PLANT.
   F. WATER IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED.
   G. AFTER SHRUB BEDS AND TREE SAUCERS ARE BACKFILLED AND FINE GRADED, MULCH WITH 3" DEPTH OF DARK, SHREDDED HARDWOOD BARK MULCH.
8. FINISH GRADING
   A. PLUS/MINUS .1 FOOT OF FINISH GRADE.
   B. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN, UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE. SOIL AREAS ADJACENT TO THE BUILDING SHALL SLOPE AWAY FROM THE BUILDING.
   C. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER.
9. GUARANTEE
   A. CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR.
10. CLEAN-UP
   A. UPON THE COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL MATERIAL, EQUIPMENT AND DEBRIS RESULTING FROM HIS WORK, ALL ACCEPTABLE CONDITIONS AS APPROVED BY THE OWNERS AUTHORIZED REPRESENTATIVE.
11. MAINTENANCE
   MAINTENANCE PERIOD TO COMMENCE AFTER FINAL INSPECTION.
   A. MAINTENANCE PERIOD FOR THIS CONTRACT SHALL BE 90 CALENDAR DAYS COMMENCING AFTER FINAL INSPECTION OF CONSTRUCTION. MAINTAIN TREES, SHRUBS AND OTHER PLANTS BY PRUNING, CULTIVATING AND WEEDING AS REQUIRED FOR HEALTHY GROWTH, RESTORE PLANTING SAUCERS, TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES AND SHRUBS TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED. SPRAY AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE. MAINTAIN LAWNS BY WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING, AND OTHER OPERATIONS SUCH AS ROLLING, REGRADING, AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.



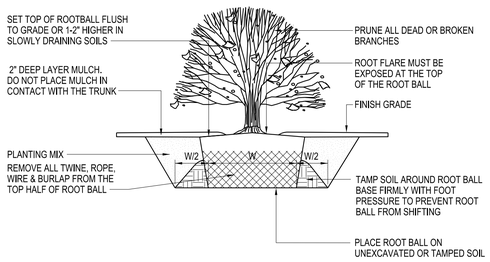
NOTES:
1. STAKE TREES AS WHEN DIRECTED BY THE LANDSCAPE ARCHITECT. STAKING WILL BE REQUIRED WHEN ROOT BALLS HAVE VERY SANDY OR WET CLAY SOIL, WHEN ROOT BALLS ARE PLACED ON VERY SOFT SOIL, OR WHEN TREES ARE LOCATED IN AREAS WITH CONDITIONS.

2. TIGHTEN ARBORTIE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT.

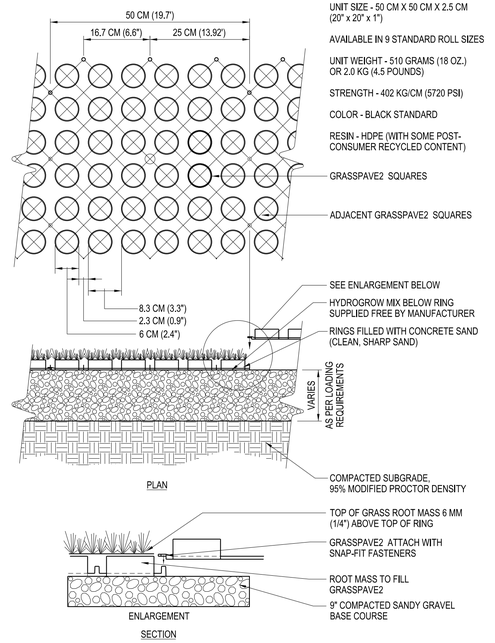
3. PRUNE ANY BROKEN OR DEAD BRANCHES.

A1 CONIFEROUS TREE PLANTING DETAIL
SCALE: N.T.S.

B2 PLANTING SPECIFICATION
SCALE: N.T.S.

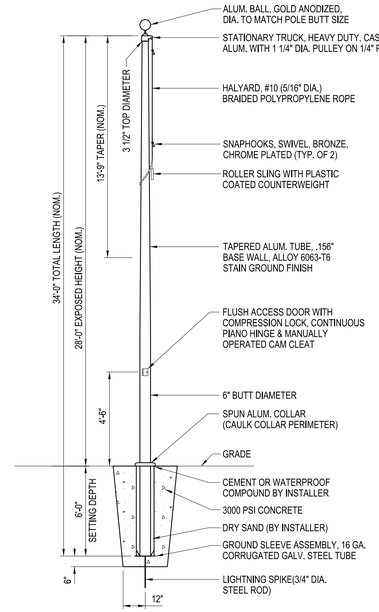


A2 SHRUB PLANTING DETAIL
SCALE: N.T.S.



NOTE: GRASS/PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR LADSCAPE DESIGNER

C3 TYPICAL GRASSPAVE DETAIL
SCALE: N.T.S.



C4 FLAGPOLE DETAIL
SCALE: N.T.S.

PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE	NOTES
		TREES			
AC	53	Abies concolor	White Fir	5-6' Ht.	
AG	14	Amelanchier grandiflora "Autumn Brilliance"	Autumn Brilliance Serviceberry	1 3/4" Caliper	
AR	21	Acer rubrum "October Glory"	October Glory Red Maple	2 1/2" Caliper	
CC	9	Carpinus caroliniana	Hornbeam	1 3/4" Caliper	
GT	27	Gleditsia triacanthos inermis "Skyline"	Skyline Honeylocust	2 1/2" Caliper	
MH	2	Malus "Harvest Gold"	Harvest Gold Crabapple	1 3/4" Caliper	
MP	5	Malus "Prariefire"	Prarie Fire Crabapple	1 3/4" Caliper	
MS	12	Malus "Spring Snow"	Spring Snow Crabapple	1 3/4" Caliper	
PG	52	Picea glauca	White Spruce	5-6' Ht.	
QB	23	Quercus bicolor	Swamp White Oak	2 1/2" Caliper	
TC	13	Tilia cordata "Greenspire"	Greenspire Linden	2 1/2" Caliper	
ZS	4	Zelkova serrata	Japanese Zelkova	2 1/2" Caliper	
		SHRUBS			
BG	54	Buxus "Green Velvet"	Green Velvet Boxwood	24" Ht.	
CS	15	Cornus sericea	Red Osier Dogwood	24" Ht.	
HL	21	Hydrangea paniculata "SMLQFHP"	Little Quickfire Hydrangea	24" Ht.	
JB	6	Juniperus Scopulorum "Blue Moffetti"	Blue Moffett Juniper	5-6"	
SA	44	Spiraea x bumalda "Anthony Waterer"	Anthony Waterer Spirea	24" Ht.	
SC	15	Sambucus canadensis	Common Elderberry	24" Ht.	
VD	35	Viburnum dentatum	Arrowood Viburnum	24" Ht.	
WF	16	Weigela florida	Rose Weigela	24" Ht.	

A3 PLANTINGS TABLES
SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

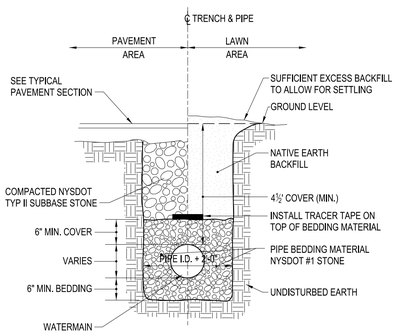
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SITE, LANDSCAPING DETAILS & PLANTING LIST

CS503

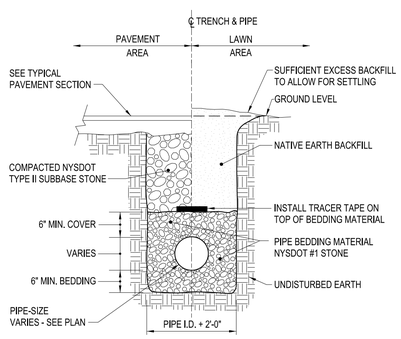
TIME
DATE
USER

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



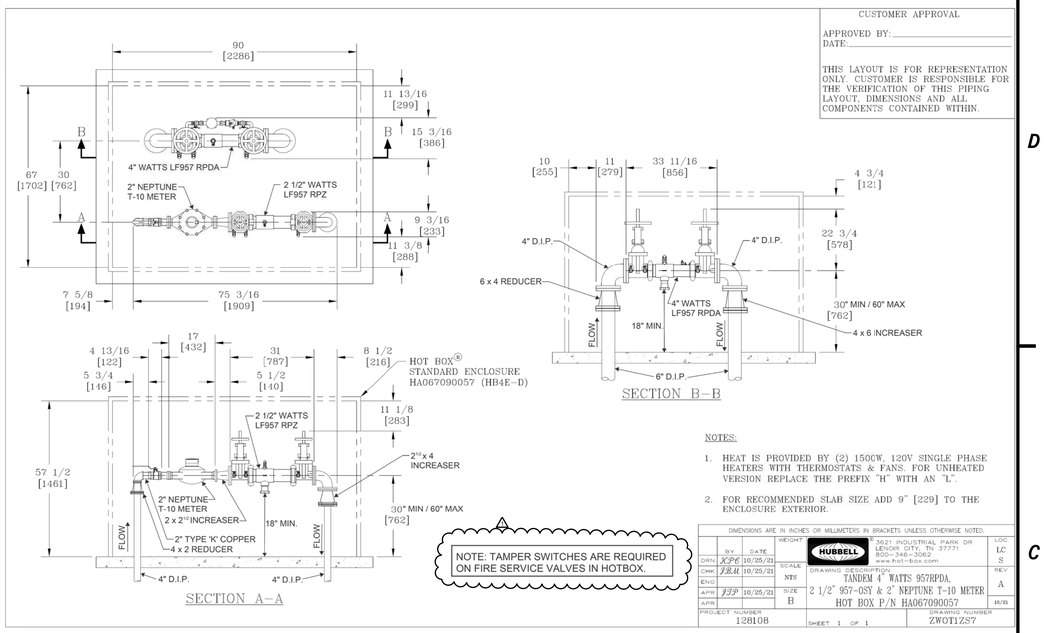
D1 TYPICAL WATERLINE TRENCH SECTION

SCALE: N.T.S.



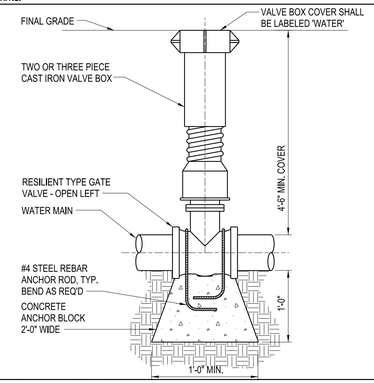
D2 SANITARY SEWER TRENCH SECTION

SCALE: N.T.S.



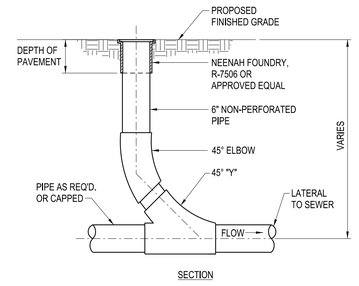
C1 TYPICAL VALVE SETTING DETAIL

SCALE: N.T.S.



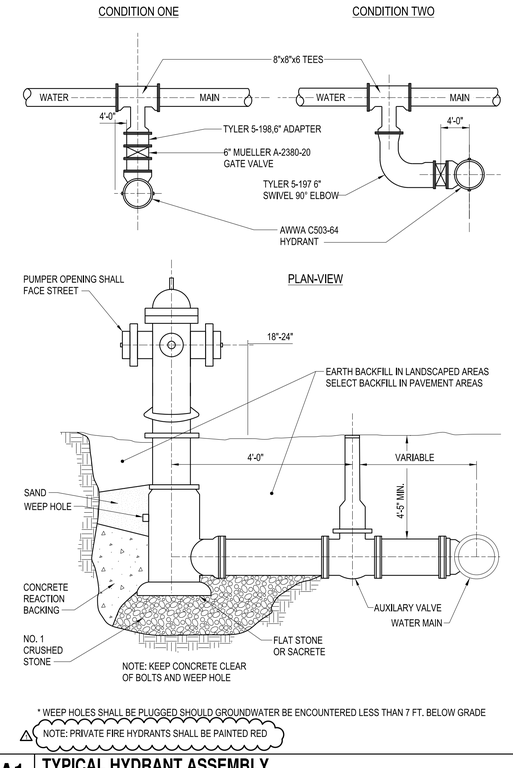
C2 TYPICAL SANITARY SEWER CLEANOUT

SCALE: N.T.S.



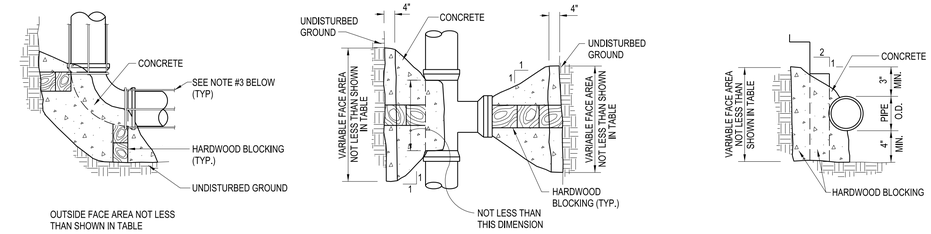
C3 HOT BOX DETAIL

SCALE: N.T.S.



A1 TYPICAL HYDRANT ASSEMBLY

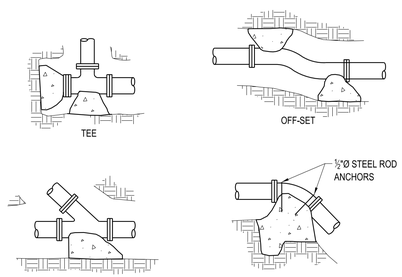
SCALE: N.T.S.



TYPICAL THRUST BLOCKING DETAILS FOR TEES, PLUGS AND BENDS

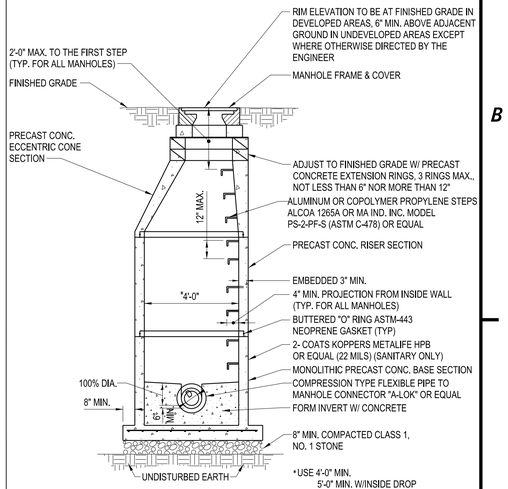
PIPE SIZE	AREA SQ. IN.	TOTAL PRESS. IN LBS.	AREA OF BLOCK IN SQUARE FEET				
			TEES PLUGS	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4"	26	5,800	1.5	2.1	1.1	1.0	1.0
6"	48	10,800	2.7	3.8	2.1	1.0	1.0
8"	79	17,800	4.5	6.3	3.5	2.0	1.0
10"	114	25,700	6.4	9.0	4.9	2.5	1.25
12"	158	35,600	9.0	12.7	6.9	3.5	2.0

NOTES:
1. THRUST BLOCKS ARE TO BE CONSTRUCTED OF DRY-MIX PORTLAND CEMENT ATTAINING 3000 AT 28 DAYS.
2. THRUST BLOCKS ARE TO BE USED IN CONJUNCTION WITH LOCKING COLLARS
3. PROVIDE TIE-RODS OR MEGA-LUGS TO ALIGNMENT CONCRETE THRUST BLOCKS AS SHOWN.



A2 TYPICAL THRUST BLOCK PAVEMENT

SCALE: N.T.S.



A4 PRECAST CONCRETE MANHOLE DETAIL

SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK JASON P. UTZIG 089686 LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

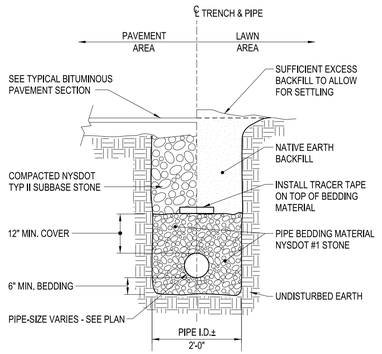
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATER & SANITARY SEWER DETAILS

CS504

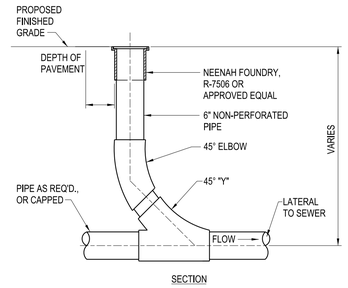
USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



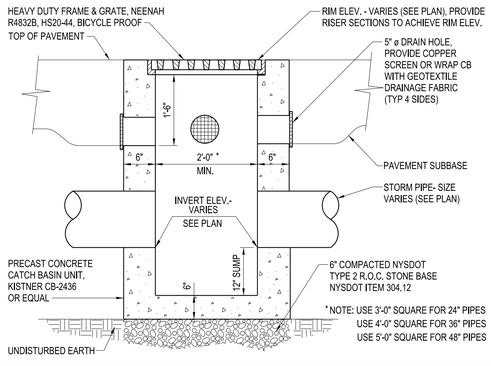
D1 STORM PIPE TRENCH SECTION

SCALE: N.T.S.



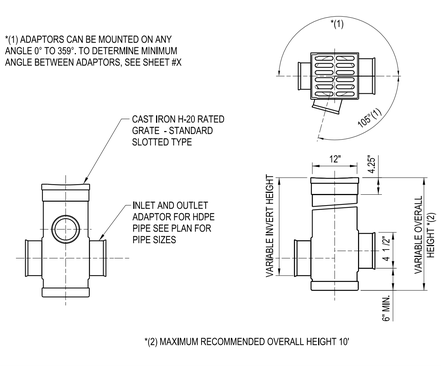
D2 TYPICAL STORM SEWER CLEANOUT

SCALE: N.T.S.



C1 TYPICAL PRECAST CATCH BASIN

SCALE: N.T.S.

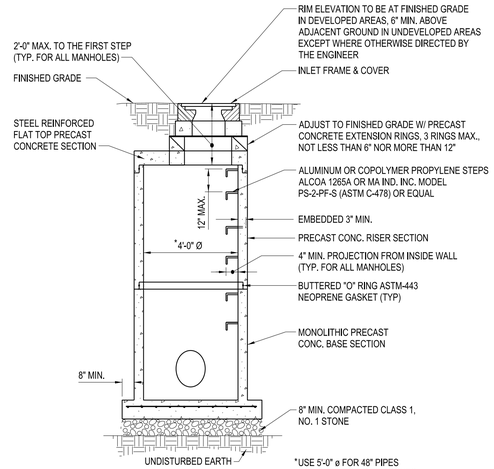


C2 12" YARD DRAIN

SCALE: N.T.S.

C3 NOT USED

SCALE: N.T.S.

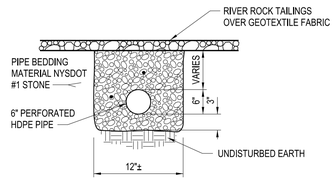


A1 STORM MANHOLE DETAIL

SCALE: N.T.S.

A2 NOT USED

SCALE: N.T.S.



B3 FRENCH DRAIN SECTION

SCALE: N.T.S.

B4 NOT USED

SCALE: N.T.S.

A3 NOT USED

SCALE: N.T.S.

A4 NOT USED

SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
		REVISIONS
1	12/20/2021	TOWN COMMENTS

PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

STORM DETAILS

CS505

USER **DATE** **TIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

D1 NOT USED

SCALE: N.T.S.

C1 NOT USED

SCALE: N.T.S.

B1 NOT USED

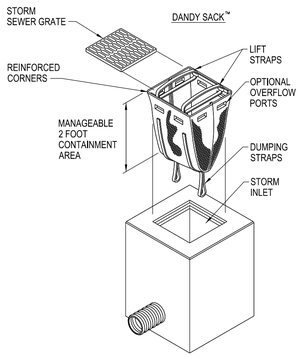
SCALE: N.T.S.

A1 NOT USED

SCALE: N.T.S.

C2 FILTER SACK INLET PROTECTION

SCALE: N.T.S.



DANDY SACK™ SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW DANDY SACK™ (BLACK)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
GRAB TENSILE ELONGATION	ASTM D 4632	%	15 x 15
PUNCTURE STRENGTH	ASTM D 4833	kN (lbs)	0.67 (150)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	5506 (800)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV RESISTANCE	ASTM D 4355	%	90
APPARENT OPENING SIZE	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
FLOW RATE	ASTM D 4491	1/min/m² (gal/min/ft²)	2852 (70)
PERMITTIVITY	ASTM D 4491	Sec⁻¹	0.90

HI-FLOW DANDY SACK™ (SAFETY ORANGE)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 X 10
PUNCTURE STRENGTH	ASTM D 4833	kN (lbs)	0.40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	3097 (450)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV RESISTANCE	ASTM D 4355	%	90
APPARENT OPENING SIZE	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
FLOW RATE	ASTM D 4491	1/min/m² (gal/min/ft²)	5907 (145)
PERMITTIVITY	ASTM D 4491	Sec⁻¹	2.1

*NOTE: DANDY SACKS™ CAN BE ORDERED WITH OUR OPTIONAL OIL ABSORBENT PILLOWS.

C4 GENERAL NOTES

SCALE: N.T.S.

EROSION CONTROL NOTES:

THE FOLLOWING EROSION CONTROL PROCEDURE SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE BARRIERS AS SHOWN ON THE PLAN AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.

2. THE TOPSOIL SHALL BE STRIPPED & STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER. ALL LOCAL ORDINANCES REGARDING THE SALE AND/OR REMOVAL OF TOPSOIL FROM THE SITE MUST BE FOLLOWED.

3. ALL SILT FENCES/SOCKS SHALL BE REPLACED WHENEVER THEY BECOME CLOGGED OR INOPERABLE.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENNACE & REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.

5. THE CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AND WATER APPLIED AS NECESSARY AND AS DIRECTED BY THE OWNER IN ORDER TO CONTROL DUST.

6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED & ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.

7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH & SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE & AS SOON AS PHYSICALLY POSSIBLE.

8. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES & CULVERTS. SILT BUILD-UP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN.

9. IN ADDITION TO STORM WATER DISCHARGES, THE FOLLOWING NON-STORM WATER DISCHARGES MAY CONTRIBUTE TO THE RUN-OFF FROM THE SITE:

- WATER FROM WATER SERVICE FLUSHINGS
- WATER USED TO WASH DOWN CONSTRUCTION VEHICLES (NO DETERGENTS)
- WATER USED FOR DUST CONTROL
- UNCONTAMINATED GROUNDWATER

10. THE ABOVE NON-STORM WATER FLOWS SHALL BE TREATED IN THE SAME MANNER AS STORM WATER FLOWS INDICATED HERIN.

SECTION A-A
NTS

NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY WASHOUT FACILITY.

A2 CONCRETE WASH-OUT AREA

SCALE: N.T.S.

A3 TEMPORARY STABILIZED CONSTRUCTION ENTRANCE

SCALE: N.T.S.

STABILIZED CONSTRUCTION ENTRANCE NOTES:

1. STONE SIZE - USE 2" STONE, WASHED, CRUSHED.

2. LENGTH - NOT LESS THAN 50 FEET

3. THICKNESS - NOT LESS THAN SIX (6) INCHES

4. WIDTH - TWELVE (12) FOOT MINIMUM, BU NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.

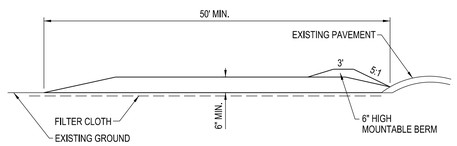
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

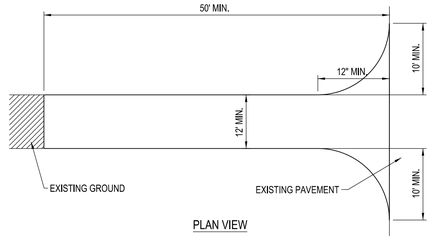
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC-RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE & WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9. PERIODIC INSPECTION & NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



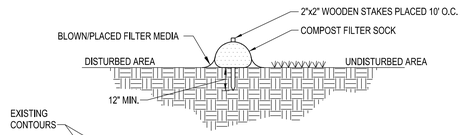
PROFILE

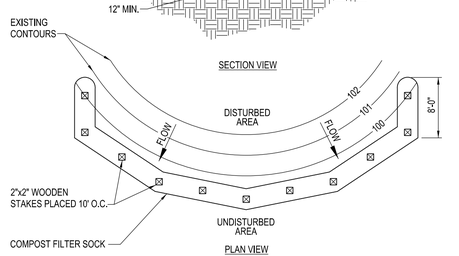


PLAN VIEW

A4 COMPOST FILTER SOCK

SCALE: N.T.S.





PLAN VIEW

ADAPTED FROM DETAILS PROVIDED BY: FILTREXX

COMPOST STANDARDS TABLE	
ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT)
ORGANIC PORTION	FIBROUS & ELONGATED
PH	6.0 - 8.0
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	100 % PASSING A 1" SCREEN 10 - 50% PASSING A 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 ds/M (mmhos/cm) MAXIMUM

1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 5.1. COMPOST SHALL MEET THE STANDARDS LISTED ON OF TABLE 5.2.

2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (FIGURE 5.2). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE X.X. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.

3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK & DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

5. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

6. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCKS, STAKES SHALL BE REMOVED, THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

JASON P. UTZIG
059686
LICENSED PROFESSIONAL ENGINEER
STATE OF NEW YORK

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

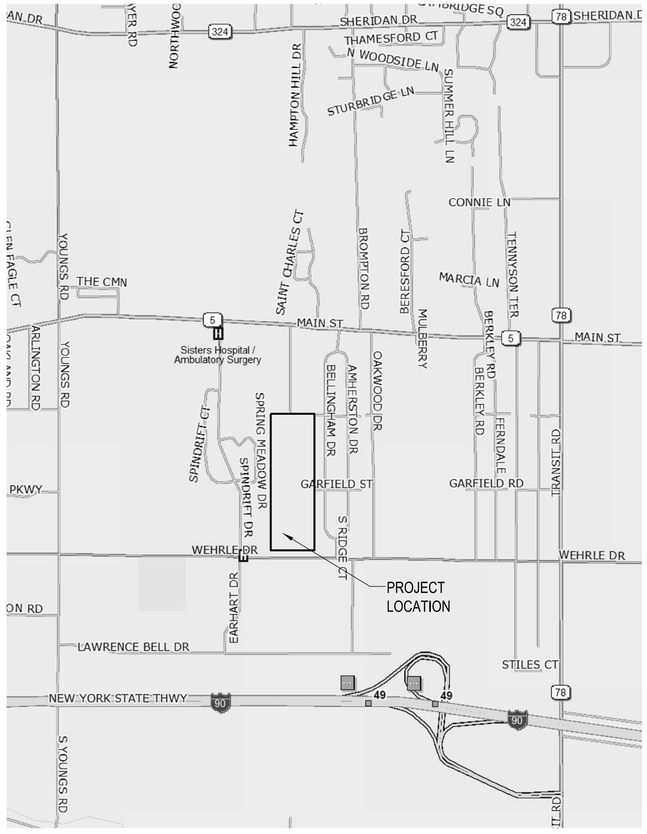
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

EROSION & SEDIMENT CONTROL DETAILS & NOTES

CS506

USER
DATE
SYSTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



LOCATION MAP

CONTRACT DRAWINGS FOR THE CONSTRUCTION OF

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

ACQUEST COMPANIES

OWNER:
ACQUEST WEHRLE LLC
5554 MAIN STREET
WILLIAMSVILLE, NY 14221
PHONE: 716-204-3570

APPLICANT:
ACQUEST WEHRLE LLC
5554 MAIN STREET
WILLIAMSVILLE, NY 14221
PHONE: 716-204-3570

ENGINEER:
C&S ENGINEERS, INC.
141 ELM STREET, SUITE 100
BUFFALO, NY 14203
PHONE: 716-847-1630

C&S PROJECT: D04.009.001

NOVEMBER 2021
REVISED DECEMBER 2021

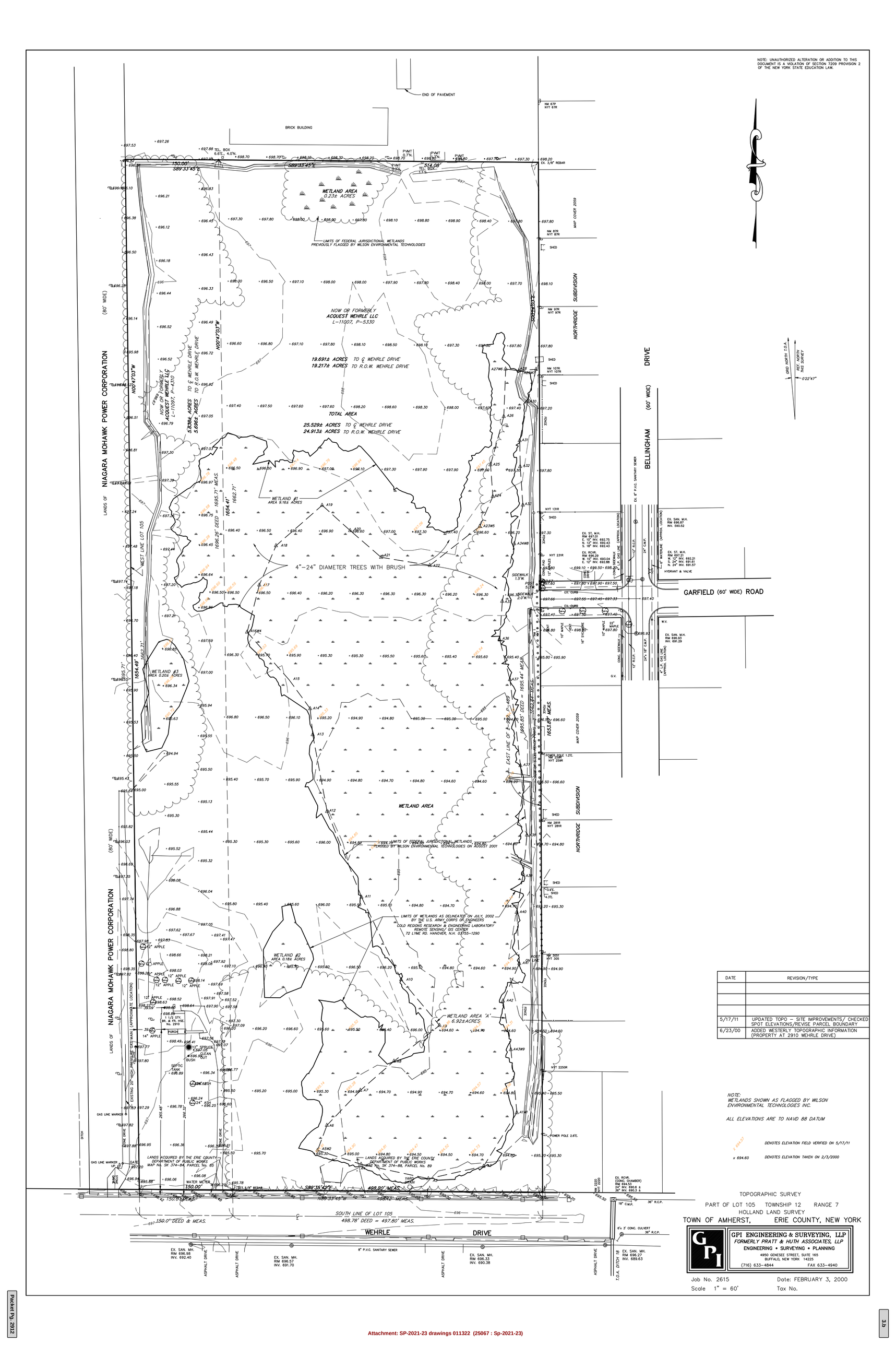
DRAWING LIST	
BOUNDARY & TOPOGRAPHIC SURVEY	
OVERALL SITE PLAN	CS100
DEMOLITION PLAN	CD100
PROPOSED ROAD PLAN & PROFILE STATION 0+00 - STA. 5+00	CP301
PROPOSED ROAD PLAN & PROFILE STATION 5+00 - STA. 12+00	CP302
PROPOSED ROAD PLAN & PROFILE STATION 12+00 - STA. 17+28	CP303
EROSION & SEDIMENT CONTROL PLAN	CG100
GRADING & DRAINAGE PLAN & PROFILE STATION 0+00 - STA. 5+00	CG301
GRADING & DRAINAGE PLAN & PROFILE STATION 5+00 - STA. 12+00	CG302
GRADING & DRAINAGE PLAN & PROFILE STATION 12+00 - STA. 17+28	CG303
WATERMAIN PLAN & PROFILE STATION W0+00 - STA. W7+00	CU301
WATERMAIN PLAN & PROFILE STATION W7+00 - STA. W14+50	CU302
WATERMAIN PLAN & PROFILE STATION W14+50 - STA. W19+08	CU303
SANITARY SEWER & WATERMAIN PLAN & PROFILE - GARFIELD ROAD	CU304
PHOTOMETRIC PLAN STA. 0+00 - STA. 5+00	CL101
PHOTOMETRIC PLAN STA. 5+00 - STA. 12+00	CL102
PHOTOMETRIC PLAN STA. 12+00 - STA. 17+28	CL103
OVERALL LANDSCAPING PLAN	LP100
LANDSCAPING PLAN STA. 0+00 - STA. 5+00	LP101
LANDSCAPING PLAN STA. 5+00 - STA. 12+00	LP102
LANDSCAPING PLAN STA. 12+00 - STA. 17+28	LP103
SITE DETAILS	CS501
STORM SEWER DETAILS	CS502
STORM SEWER & EROSION & SEDIMENT CONTROL DETAILS & NOTES	CS503
SANITARY SEWER DETAILS	CS504
SITE & SANITARY SEWER DETAILS	CS505
WATERMAIN DETAILS	CS506
WATERMAIN DETAILS	CS507
WATERMAIN NOTES	CS508
WATERMAIN NOTES	CS509
WATERMAIN NOTES	CS510

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

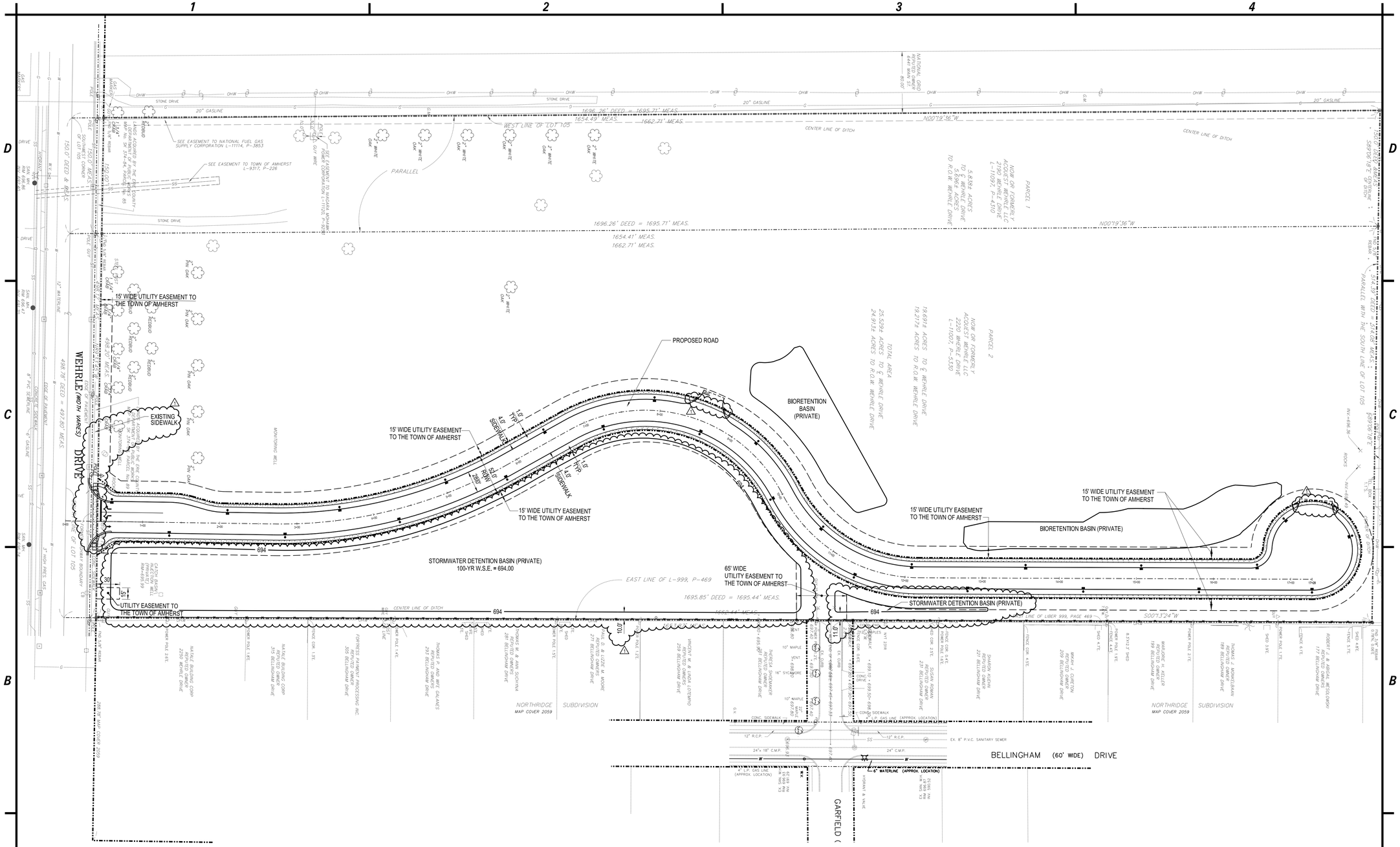
RESERVED FOR TOWN OF AMHERST USE

G-001

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



NOTES

GENERAL

1. SIDEWALK CURB RAMP TYPE AND LOCATION ARE AS SHOWN ON THE PLANS OR AS DIRECTED.
2. ALL SIDEWALK CURB RAMP TYPES MAY BE USED IN STRAIGHT OR CURVED CURBED SECTIONS.
3. SIDEWALK CURB RAMP TYPES MAY BE DIFFERENT AT EACH LOCATION WITHIN AN INTERSECTION.

SIDEWALK CURB RAMP CRITERIA

4. THE MAXIMUM SLOPE OF A SIDEWALK CURB RAMP IN NEW CONSTRUCTION SHALL BE 1:12.IF SPACE LIMITATIONS ON EXISTING SITES PROHIBIT THE USE OF 1:12, THE FOLLOWING SLOPES AND RISES MAY BE USED:
   A) STEEPER THAN 1:12 (8.33%) BUT NO STEEPER THAN 1:10 (10%) 6" MAXIMUM RISE, 5 FT. MAXIMUM RUN
   B) STEEPER THAN 1:10 (10%) BUT NO STEEPER THAN 1:8 (12.5%) 3" MAXIMUM RISE, 2 FT. MAXIMUM RUN
   C) A SLOPE STEEPER THAN 1:8 (12.5%) NOT ALLOWED.
5. THE MINIMUM WIDTH OF A SIDEWALK CURB RAMP SHALL BE FIVE FEET, EXCLUSIVE OF FLARED SIDES.
6. ALL SIDEWALK CURB RAMPS SHALL HAVE FLUSH, SMOOTH TRANSITIONS TO THE ADJACENT STREET OR HIGHWAY SURFACE.

SURFACE FINISH

7. THE SURFACE OF ALL SIDEWALK CURB RAMPS SHALL BE STABLE, FIRM, AND SLIP RESISTANT. (E.G., A COARSE BROOM FINISH PERPENDICULAR TO THE RAMP SLOPE IS ACCEPTABLE ON CEMENT CONCRETE CURB RAMPS.)

SIDEWALK CURB RAMP PLACEMENT

8. AT A CORNER, WHERE THE CURB RADIUS IS 25' OR LESS, A SINGLE RAMP (EITHER TYPE A, B, OR C) LOCATED DIAGONALLY CAN OFTEN SERVE CROSSWALKS IN TWO DIRECTIONS. HOWEVER, A SINGLE RAMP SHALL ONLY BE USED WHERE THERE IS A MINIMUM CLEAR SPACE OF 48" FALLING ENTIRELY WITHIN THE PROJECTION OF THE INTERSECTING CURBS (SEE FIGURE 1). WHERE THE RADIUS EXCEEDS 25' OR THE MINIMUM 48" CLEAR SPACE IS UNACHIEVABLE, THEN SEPARATE RAMPS SHOULD BE PROVIDED FOR EACH CROSSWALK.

PAVEMENT MARKINGS AT CROSSWALKS

9. SIDEWALK CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
10. AT A CORNER, WHERE A SINGLE RAMP (EITHER TYPE A, B, OR C) LOCATED DIAGONALLY SERVES TWO CROSSWALKS, THERE SHALL BE A 48" MINIMUM CLEAR SPACE AT THE RAMP BOTTOM WHOLLY CONTAINED WITHIN THE INTERSECTING CROSSWALK MARKINGS (SEE FIGURE 1).
11. WHERE STOP LINES ARE NECESSARY, THEY SHALL BE LOCATED IN ADVANCE OF SIDEWALK CURB RAMPS.

UTILITIES AND DRAINAGE INLETS OR GRATES

12. WHERE FEASIBLE PROVIDE FOR DRAINAGE INLETS OR GRATES IMMEDIATELY UPSTREAM FROM THE CURB RAMPS. RETICULINE OR RECTANGULAR DRAINAGE GRATES ARE TO BE USED IN THE AREA OF CURB RAMPS.
13. DO NOT PLACE SIGNAL POLES, SIGN POSTS, UTILITY POLES, FIRE HYDRANTS, ETC., WITHIN THE RAMP OR SIDE FLARE AREAS.

PEDESTRIAN ACTIVATED SIGNALS

14. PUSHBUTTONS SHALL BE LOCATED NEAR CURB RAMPS AND WHERE A PERSON IN A WHEELCHAIR CAN ACTIVATE THE SIGNAL WITHOUT STOPPING ON THE CURB RAMP.
15. PUSH BUTTON HEIGHT SHALL BE 42" TO 48" ABOVE THE SIDEWALK SURFACE.
16. PUSH BUTTONS SHALL BE LOCATED SO THAT THE PEDESTRIAN CAN SEE THE APPROPRIATE SIGNAL HEAD WHILE ACTIVATING THE SIGNAL.

ISLANDS

17. ANY RAISED ISLANDS IN CROSSINGS SHALL BE CUT THROUGH LEVEL WITH THE STREET OR HAVE CURB RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48 INCHES LONG IN THE PART OF THE ISLAND INTERSECTED BY THE CROSSINGS.

A1 OVERALL SITE PLAN
SCALE: 1"=60'

60' 60 0 60 120 Ft.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

JASON P. UTZIG — STATE OF NEW YORK — 089686 — LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

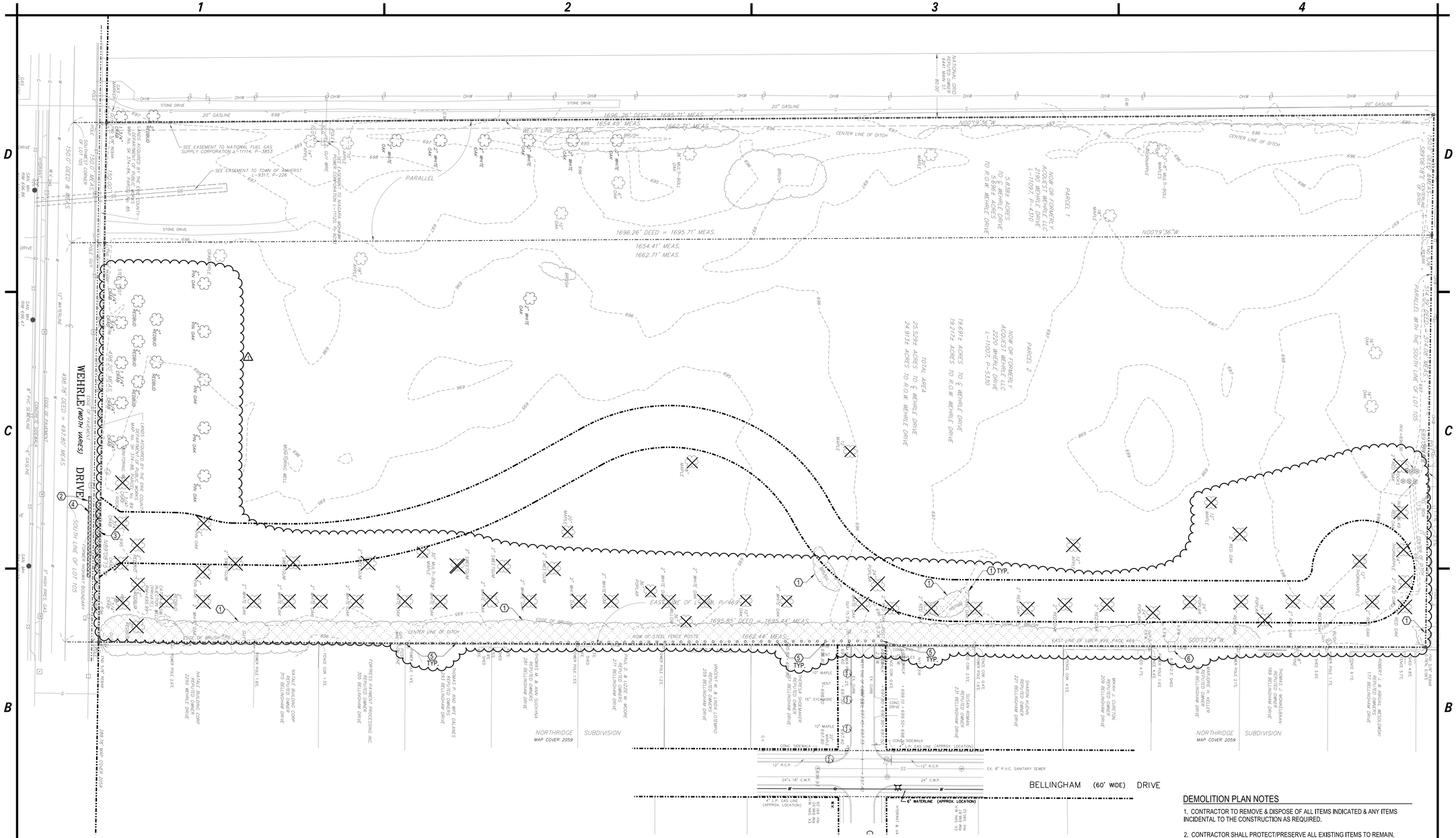
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL SITE PLAN

CS100

USER **DATE** **TIME** **SYTIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



DEMOLITION PLAN SHEET KEYNOTES

1. CLEAR & DISPOSE OF BRUSH
2. SAWCUT PAVEMENT
3. REMOVE & DISPOSE OF CONCRETE SIDEWALK
4. REMOVE & DISPOSE OF CURB & GUTTER
5. REMOVE ROW OF STEEL FENCE POSTS
6. SHED TO BE RELOCATED, COORDINATE WITH OWNER

DEMOLITION PLAN LEGEND

- TREE TO BE REMOVED
- BRUSH TO BE REMOVED

DEMOLITION PLAN NOTES

1. CONTRACTOR TO REMOVE & DISPOSE OF ALL ITEMS INDICATED & ANY ITEMS INCIDENTAL TO THE CONSTRUCTION AS REQUIRED.

2. CONTRACTOR SHALL PROTECT/PRESERVE ALL EXISTING ITEMS TO REMAIN, INCLUDING, BUT NOT LIMITED TO BUILDINGS, PAVEMENT, OVERHEAD & BURIED UTILITIES, TREES LANDSCAPING, ETC. DAMAGE TO ITEMS SCHEDULED TO REMAIN SHALL BE REPAIRED OR REPLANTED AT NO ADDITIONAL COST TO THE OWNER.

3. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL HAVE ALL UNDER -GROUND FACILITIES LOCATED AND MARKED PRIOR TO EXCAVATION/DEMOLITION/ CONSTRUCTION.

4. ALL UTILITY TERMINATIONS SHALL BE IN ACCORDANCE W/ THE APPLICABLE UTILITY COMPANY REQUIREMENTS.

5. CONTRACTOR SHALL LEGALLY DISPOSE OF ALL MATERIALS/DEBRIS REMOVED FROM THE SITE.

6. CONTRACTOR TO OBTAIN HIGHWAY WORK PERMIT PRIOR TO THE START OF CONSTRUCTION. CALL FOR STAKEOUT OF UTILITIES BEFORE STARTING WORK. NOTIFY ENGINEER OR OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES FOUND IN THE FIELD.

7. THIS PLAN IS PREPARED FROM A SURVEY SHOWING KNOWN SURFACE FEATURES. IT IS INTENDED AS A GUIDE TO THE CONTRACTOR, NOT AS A COMPLETE AND UNIVERSAL DEMOLITION PLAN. SEE THE SITE PLAN, MORE FEATURES (NOT INDICATED) MAY REQUIRE DEMOLITION TO CONSTRUCT THE SITE PLAN. CONTRACTOR MUST VISIT THE SITE TO CONFIRM DEMOLITION EFFORT PRIOR TO BIDDING.

8. MAINTAIN STORM SEWER CONTINUITY & POSITIVE DRAINAGE DURING DEMOLITION, REMOVAL & CONSTRUCTION OF STORM SEWERS & INLETS.

PLAN NORTH

A1 DEMOLITION PLAN
SCALE: 1"=60'

60' 60 0 60 120 Ft.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

JASON P. UTZIG — STATE OF NEW YORK — 089686 — LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

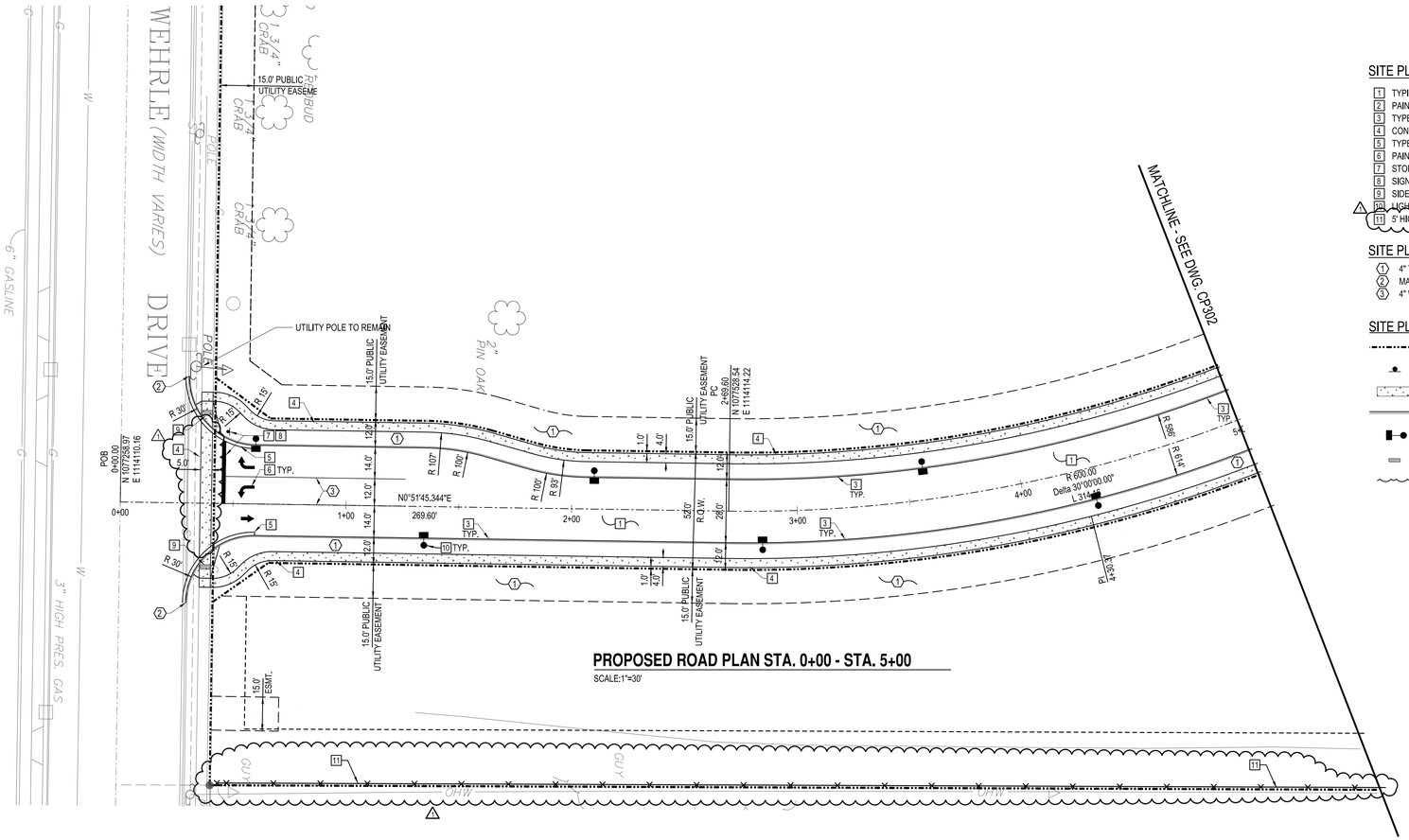
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

DEMOLITION PLAN

CD100

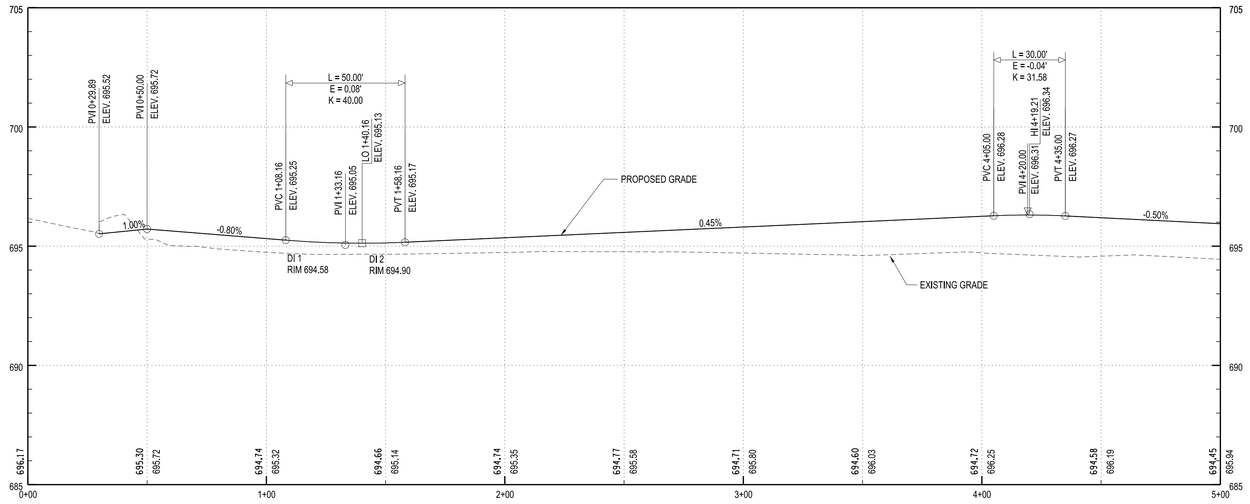
USER
DATE
TIME
SYSTIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



PROPOSED ROAD PLAN STA. 0+00 - STA. 5+00

SCALE:1"=30'



PROPOSED ROAD PROFILE STA. 0+00 - STA. 5+00

SCALE: HORIZ.: 1"=30'
VERT.: 1"=5'

SITE PLAN DETAIL LEGEND

1. TYPICAL PAVEMENT SECTION - SEE DETAIL D1/CS501
2. PAINTED CROSSWALK - SEE DETAIL C1/CS501
3. TYPE "A" CURBING - SEE DETAIL B1/CS501
4. CONCRETE SIDEWALK - SEE DETAIL A1/CS501
5. TYPE "B" CURBING - POURED IN PLACE - SEE DETAIL D2/CS501
6. PAINTED TRAFFIC ARROWS - SEE DETAIL C2/CS501
7. STOP BAR/STOP SIGN - SEE DETAIL B2/CS501
8. SIGN POST "A" - SEE DETAIL A2/CS501
9. SIDEWALK CURB RAMP TYPE "A" - SEE DETAIL D3/CS501
10. LIGHT POLE FOUNDATION - SEE DETAIL B3/CS501
11. 5' HIGH BOARD FENCE - SEE DETAIL A1/CS501

SITE PLAN SHEET KEYNOTES

1. 4" TOPSOIL & SEED IF NO PLANTINGS-SEE LANDSCAPING PLAN
2. MATCH EXISTING CURB OR RUN OUT IN 2'-0"
3. 4" WIDE PAINTED WHITE PAVEMENT STRIPES

SITE PLAN PROPOSED LEGEND

- PROPERTY LINE
- PROPOSED SIGN
- PROPOSED CONCRETE PAVEMENT/SIDEWALK
- PROPOSED CURB
- LIGHTING FIXTURES
- DETECTABLE WARNING SURFACE
- NEW EDGE OF WOODS/CLEARING LIMIT

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

PROPOSED ROAD
PLAN & PROFILE
STA. 0+00 - STA. 5+00

CP301

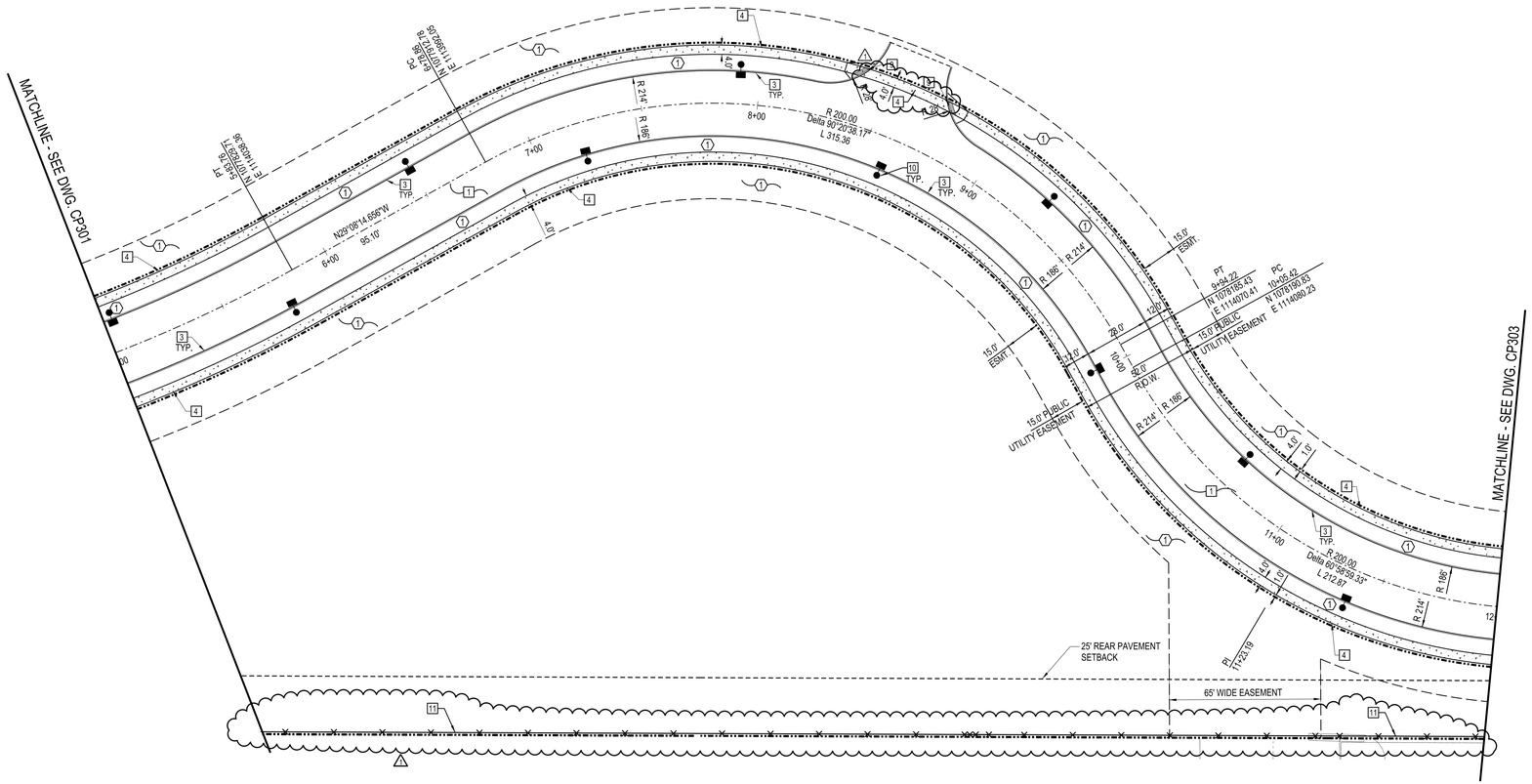
A1 PROPOSED ROAD PLAN & PROFILE
SCALE: 1" = 30'

PLAN NORTH

30 0 30 60 Ft.
30'

USER **DATE** **TIME** **SYTIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



SITE PLAN DETAIL LEGEND

1. TYPICAL PAVEMENT SECTION - SEE DETAIL D1/CS501
2. PAINTED CROSSWALK - SEE DETAIL C1/CS501
3. TYPE "A" CURBING - SEE DETAIL B1/CS501
4. CONCRETE SIDEWALK - SEE DETAIL A1/CS501
5. TYPE "B" CURBING - POURED IN PLACE - SEE DETAIL D2/CS501
6. PAINTED TRAFFIC ARROWS - SEE DETAIL C2/CS501
7. STOP BAR/STOP SIGN - SEE DETAIL B2/CS501
8. SIGN POST "A" - SEE DETAIL A2/CS501
9. SIDEWALK CURB RAMP TYPE "A" - SEE DETAIL D3/CS501
10. LIGHT POLE FOUNDATION - SEE DETAIL B4/CS501
11. 5' HIGH BOARD FENCE - SEE DETAIL A1/CS501

SITE PLAN SHEET KEYNOTES

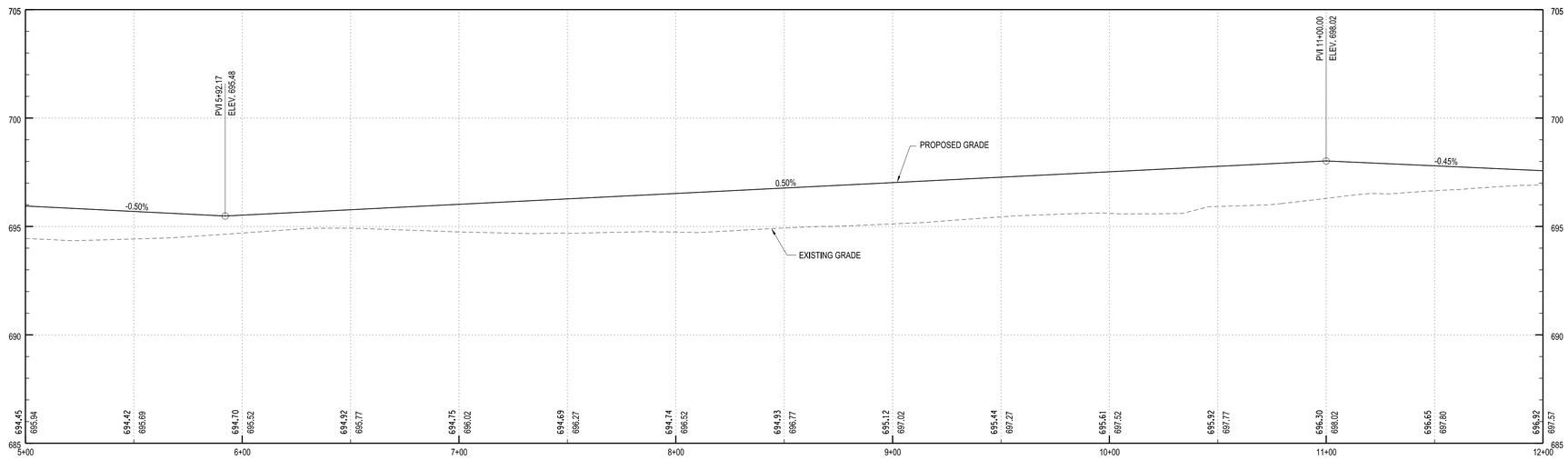
1. 4" TOPSOIL & SEED IF NO PLANTINGS-SEE LANDSCAPING PLAN
2. MATCH EXISTING CURB OR RUN OUT IN 2'-0"
3. 4" WIDE PAINTED WHITE PAVEMENT STRIPES

SITE PLAN PROPOSED LEGEND

- PROPERTY LINE
- PROPOSED SIGN
- PROPOSED CONCRETE PAVEMENT/SIDEWALK
- PROPOSED CURB
- LIGHTING FIXTURES
- DETECTABLE WARNING SURFACE
- NEW EDGE OF WOODS/CLEARING LIMIT

PROPOSED ROAD PLAN STA. 5+00 - STA. 12+00

SCALE: 1"=30'



PROPOSED ROAD PROFILE STA. 5+00 - STA. 12+00

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

NORTH

A1	PROPOSED ROAD PLAN & PROFILE
	SCALE: 1" = 30'

30' 0 30 60 Ft.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St, Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
089686
LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

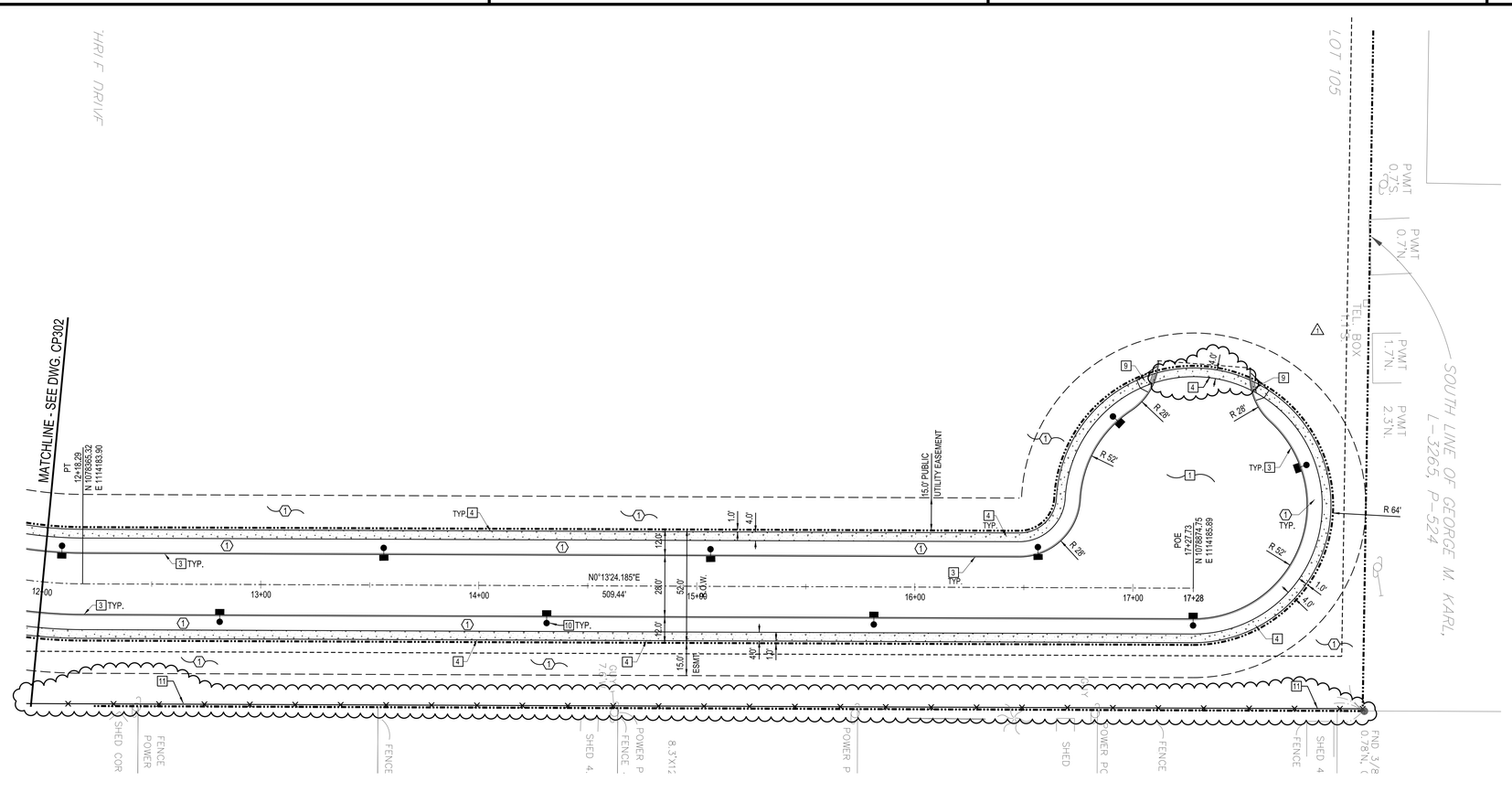
NO ALTERATION PERMITTED HEREON
EXCEPT AS PROVIDED UNDER SECTION
7209 SUBDIVISION 2 OF THE NEW YORK
EDUCATION LAW

PROPOSED ROAD PLAN & PROFILE STA. 5+00 - STA. 12+00

CP302

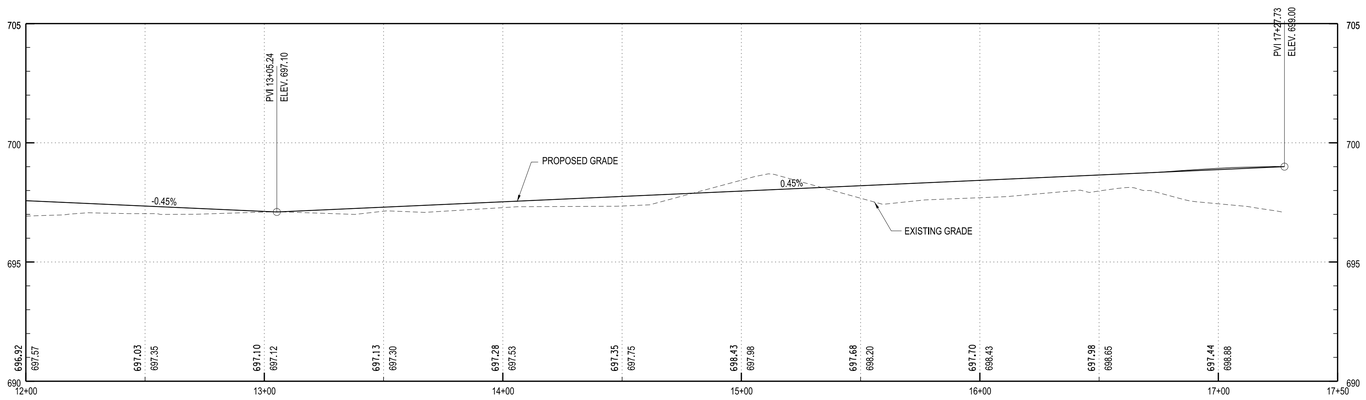
USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



PROPOSED ROAD PLAN STA. 12+00 - STA. 17+28

SCALE: 1"=30'



PROPOSED ROAD PROFILE STA. 12+00 - STA. 17+28

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

SITE PLAN DETAIL LEGEND

1. TYPICAL PAVEMENT SECTION - SEE DETAIL D1/CS501
2. PAINTED CROSSWALK - SEE DETAIL C1/CS501
3. TYPE "A" CURBING - SEE DETAIL B1/CS501
4. CONCRETE SIDEWALK - SEE DETAIL A1/CS501
5. TYPE "B" CURBING - POURED IN PLACE - SEE DETAIL D2/CS501
6. PAINTED TRAFFIC ARROWS - SEE DETAIL C2/CS501
7. STOP BAR/STOP SIGN - SEE DETAIL B2/CS501
8. SIGN POST "A" - SEE DETAIL A2/CS501
9. SIDEWALK CURB RAMP TYPE "A" - SEE DETAIL D3/CS501
10. LIGHT POLE FOUNDATION - SEE DETAIL B3/CS501
11. 5' HIGH BOARD FENCE - SEE DETAIL A1/CS501

SITE PLAN SHEET KEYNOTES

1. 4" TOPSOIL & SEED IF NO PLANTINGS-SEE LANDSCAPING PLAN
2. MATCH EXISTING CURB OR RUN OUT IN 2'-0"
3. 4" WIDE PAINTED WHITE PAVEMENT STRIPES

SITE PLAN PROPOSED LEGEND

- PROPERTY LINE
- PROPOSED SIGN
- PROPOSED CONCRETE PAVEMENT/SIDEWALK
- PROPOSED CURB
- LIGHTING FIXTURES
- DETECTABLE WARNING SURFACE
- NEW EDGE OF WOODS/CLEARING LIMIT

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

PROPOSED ROAD
PLAN & PROFILE
STA. 12+00 - STA. 17+28

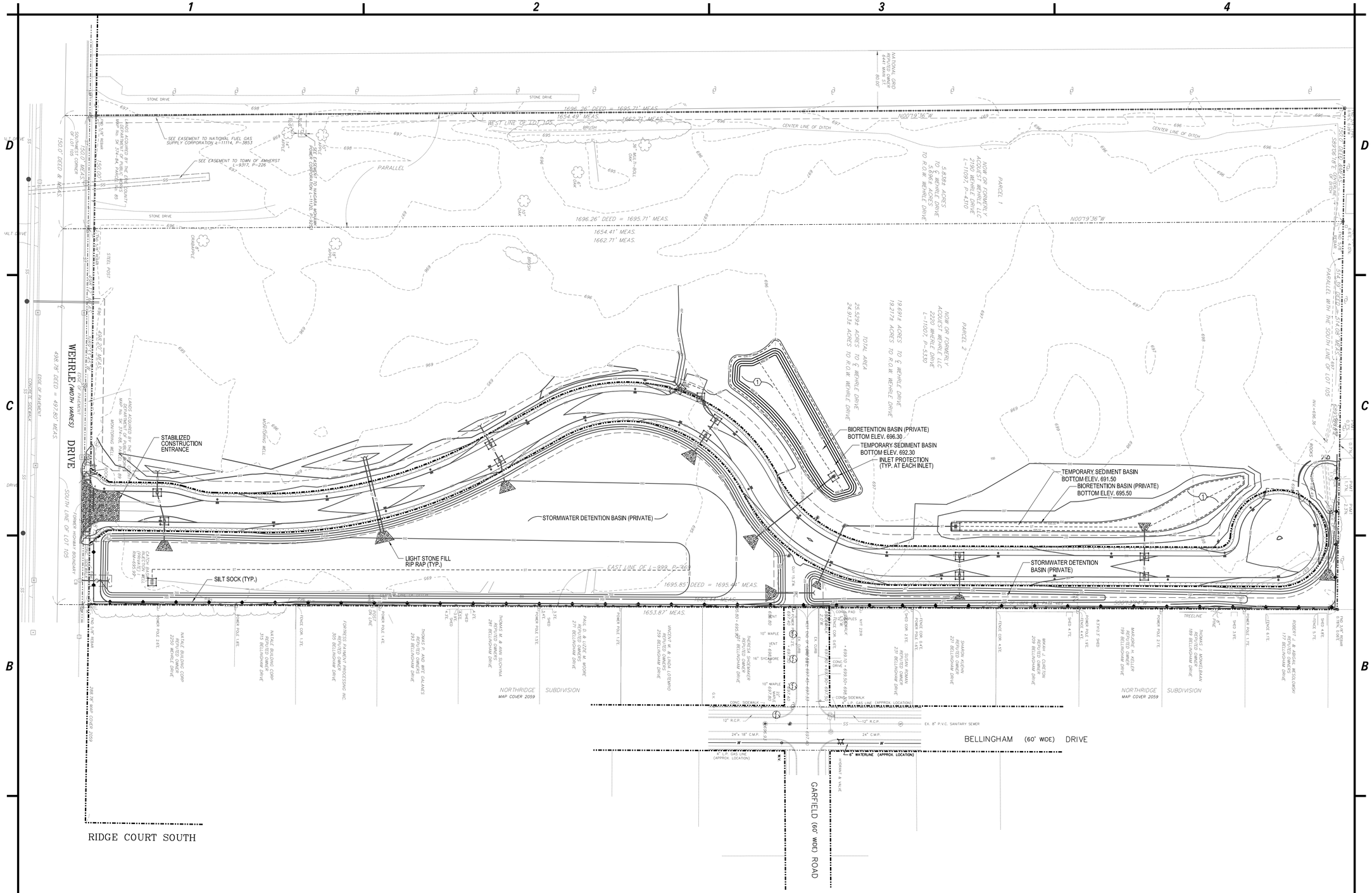
CP303

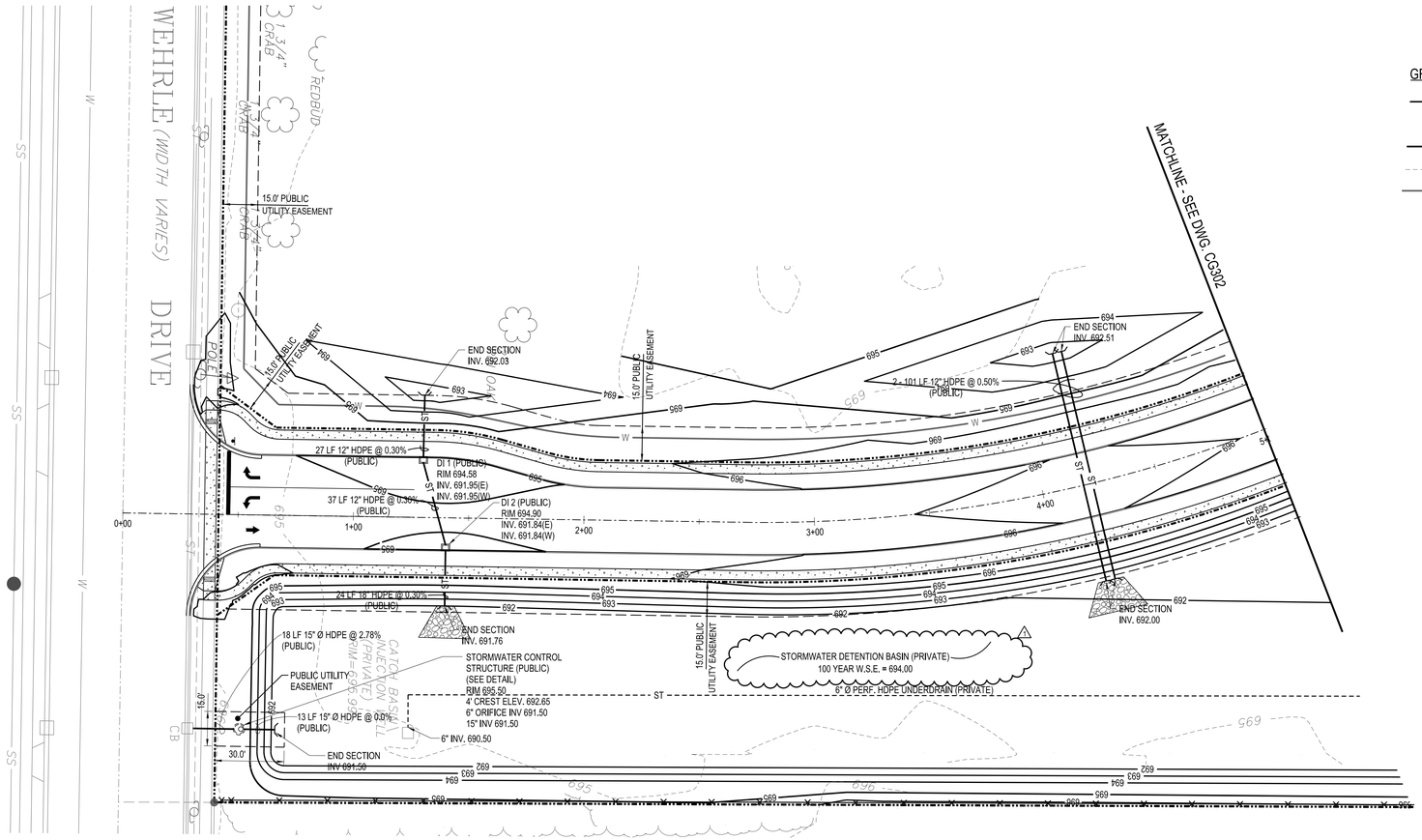
A1 PROPOSED ROAD PLAN & PROFILE
SCALE: 1" = 30'

PLAN NORTH

30 0 30 60 Ft.

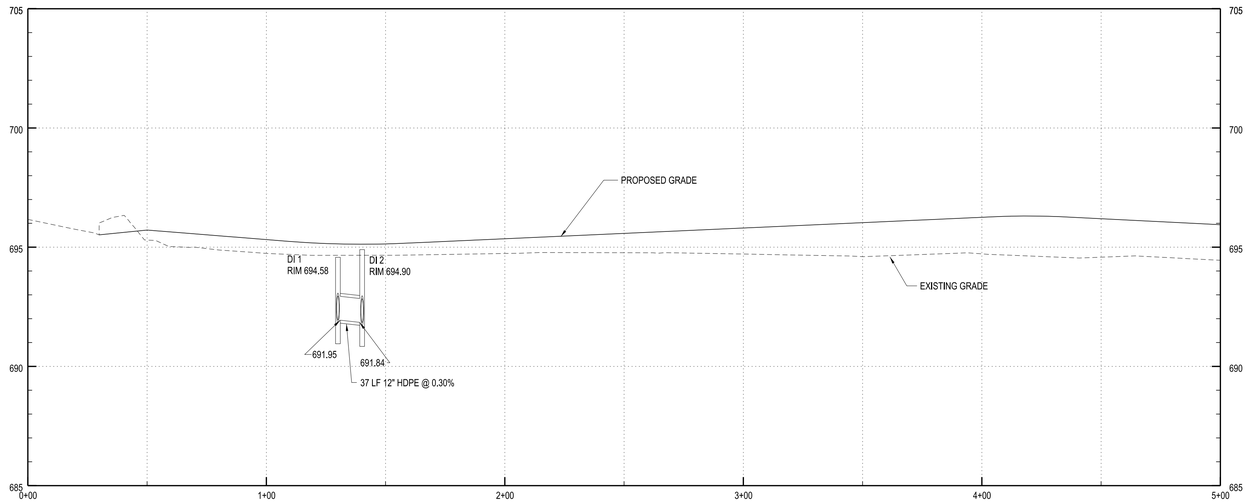
Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)


WEHRLE (WIDTH VARIES) DRIVE
SOUTH LINE OF LOT 105
498.78' DEED = 497.80' MEAS.
STABILIZED CONSTRUCTION ENTRANCE
SILT SOCK (TYP.)
LIGHT STONE FILL RIP RAP (TYP.)
STORMWATER DETENTION BASIN (PRIVATE)
BIORETENTION BASIN (PRIVATE) BOTTOM ELEV. 696.30
TEMPORARY SEDIMENT BASIN BOTTOM ELEV. 692.30
INLET PROTECTION (TYP. AT EACH INLET)
TEMPORARY SEDIMENT BASIN BOTTOM ELEV. 691.50
BIORETENTION BASIN (PRIVATE) BOTTOM ELEV. 695.50
STORMWATER DETENTION BASIN (PRIVATE)
EAST LINE OF L-999, P-261
1695.85' DEED = 1695.44' MEAS.
1653.87' MEAS.
WEST LINE OF LOT 105
1696.26' DEED = 1695.71' MEAS.
1654.49' MEAS.
1662.71' MEAS.
1654.41' MEAS.
1662.71' MEAS.
PARALLEL
SEE EASEMENT TO NATIONAL FUEL GAS SUPPLY CORPORATION L-11114, P-3853
SEE EASEMENT TO TOWN OF AMHERST L-9317, P-226
SEE EASEMENT TO NIAGARA MOHAWK POWER CORPORATION L-11120, P-3025
LANDS ACQUIRED BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS MAP NO. SK 3-74-64, PARCEL NO. 65
LANDS ACQUIRED BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS MAP NO. SK 3-74-66, PARCEL NO. 67
MONITORING WELL
MONITORING WELL
NATIONAL GRID 66' WIDE (444' MAIN ST. 80.00')
NOW OR FORMERLY ACQUIST WEHRLE LLC 2190 WEHRLE DRIVE L-11097, P-4310
PARCEL 1
5.8184 ACRES TO C WEHRLE DRIVE
5.6968 ACRES TO R.O.W. WEHRLE DRIVE
NOW OR FORMERLY ACQUIST WEHRLE LLC 2220 WEHRLE DRIVE L-11001, P-5300
PARCEL 2
25.5204 ACRES TO C WEHRLE DRIVE
24.9134 ACRES TO R.O.W. WEHRLE DRIVE
19.6914 ACRES TO C WEHRLE DRIVE
19.2174 ACRES TO R.O.W. WEHRLE DRIVE
TOTAL AREA
NORTHRIDGE SUBDIVISION MAP COVER 2059
NORTHRIDGE SUBDIVISION MAP COVER 2059
BELLINGHAM (60' WIDE) DRIVE
GARFIELD (60' WIDE) ROAD
RIDGE COURT SOUTH
12" R.C.P.
24"x 18" C.M.P.
24" C.M.P.
EX. 8" P.V.C. SANITARY SEWER
4" U.P. GAS LINE (APPROX. LOCATION)
6" WATERLINE (APPROX. LOCATION)
HYDRANT & VALVE
CONC. SIDEWALK
4" U.P. GAS LINE (APPROX. LOCATION)
CENTER LINE OF DITCH
STONE DRIVE
STEEL POST
CONCRETE SIDEWALK
EDGE OF PAVEMENT
TREELINE
MATALE BUILDING CORP 2200 WEHRLE DRIVE REPUTED OWNER
FISHPRESS PAYMENT PROCESSING INC 359 BELLINGHAM DRIVE REPUTED OWNER
THOMAS P. AND WIFE GALANES 291 BELLINGHAM DRIVE REPUTED OWNERS
THOMAS M. & ANN SYCHOWA 287 BELLINGHAM DRIVE REPUTED OWNERS
PAUL D. & LIZE M. MOORE 277 BELLINGHAM DRIVE REPUTED OWNERS
VINCENT M. & LINDA LOMPO 259 BELLINGHAM DRIVE REPUTED OWNERS
INGRID A. SCHRAMER 16" SYCAMORE REPUTED OWNER 267 BELLINGHAM DRIVE
MICHAEL P. KOCHAN 227 BELLINGHAM DRIVE REPUTED OWNER
SHARON KAPAH 227 BELLINGHAM DRIVE REPUTED OWNER
MICAH C. CURTIN 259 BELLINGHAM DRIVE REPUTED OWNER
MARJORIE H. KELLER 199 BELLINGHAM DRIVE REPUTED OWNER
THOMAS J. MCWHERTHAN 189 BELLINGHAM DRIVE REPUTED OWNER
ROBERT J. & ABIGAIL MCSSLOWSKI 177 BELLINGHAM DRIVE REPUTED OWNERS
FND. 1/4" REBAR 0.78'N, 0.08'E
SET 5/8" REBAR W/ CAP
FND. 3/4" REBAR
FND. 1/4" REBAR W/ CAP
SET MAG NAIL W/ SHINER
SET MAG NAIL W/ SHINER
SET MAG NAIL W/ SHINER



GRADING & DRAINAGE PLAN STA. 0+00 - STA. 5+00

SCALE:1"=30'



GRADING & DRAINAGE PROFILE STA. 0+00 - STA. 5+00

SCALE: HORIZ.: 1"=30'
VERT.: 1"=5'

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK — JASON P. UTZIG — 089686 — LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING & DRAINAGE PLAN & PROFILE STA. 0+00 - STA. 5+00

CG301

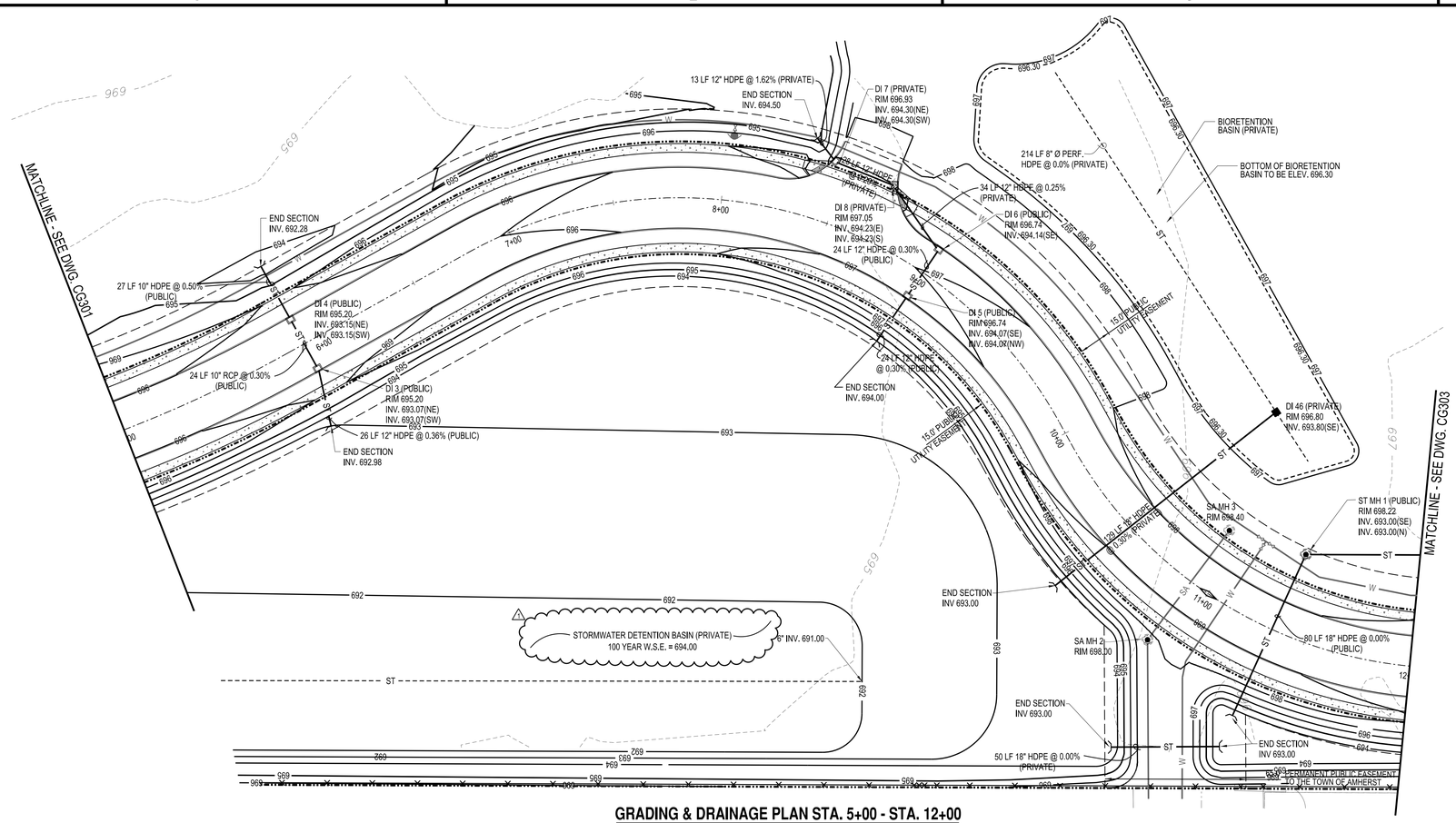
NORTH PLAN

30' 30 0 30 60 FT.

USER **DATE** **SYSTIME** **TIME**

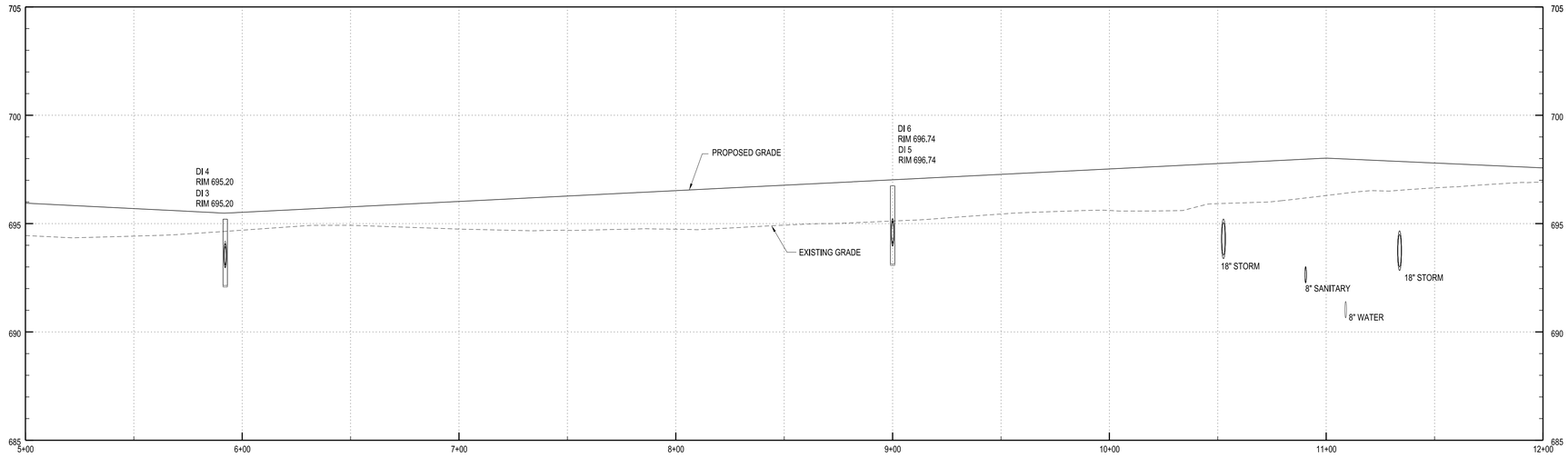
A1 GRADING & DRAINAGE PLAN & PROFILE
SCALE: 1" = 30'

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



GRADING & DRAINAGE PLAN STA. 5+00 - STA. 12+00

SCALE: 1"=30'



GRADING & DRAINAGE PROFILE STA. 5+00 - STA. 12+00

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

GRADING & DRAINAGE LEGEND

692	PROPOSED CONTOUR
DI	PROPOSED DRAINAGE INLET
ST	PROPOSED STORM PIPE
695	EXISTING CONTOUR
W	PROPOSED WATERMAIN
SA	PROPOSED SANITARY SEWER

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

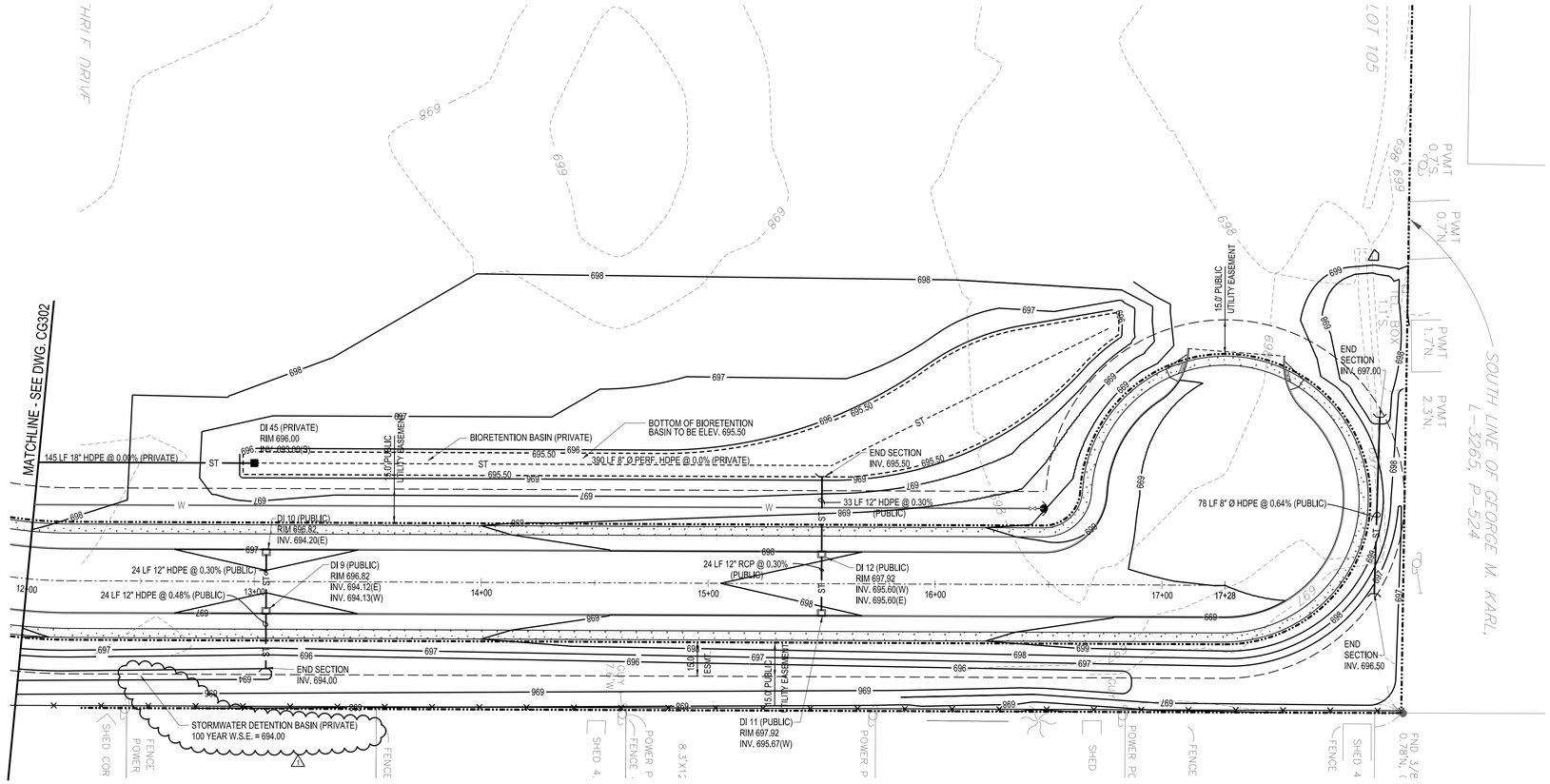
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING & DRAINAGE PLAN & PROFILE STA. 5+00 - STA. 12+00

CG302

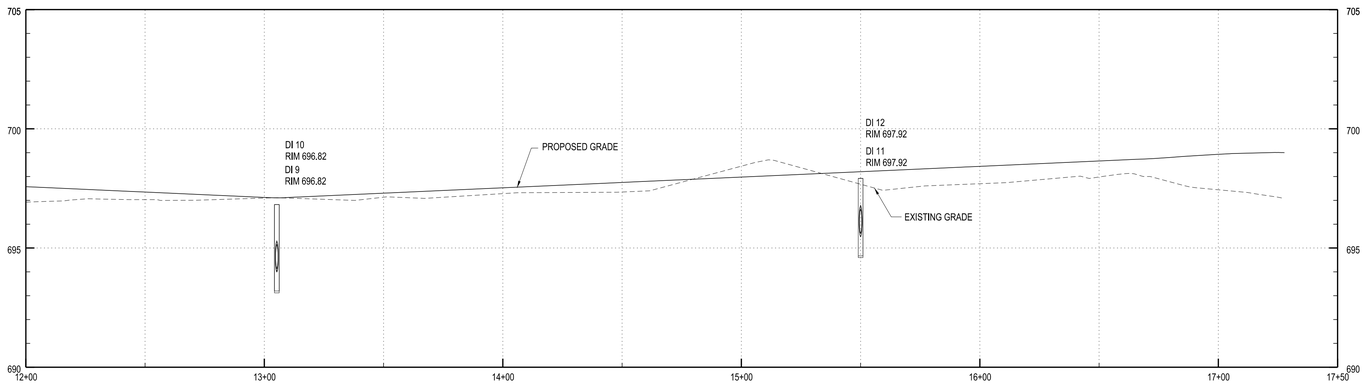
A1 GRADING & DRAINAGE PLAN & PROFILE
SCALE: 1" = 30'

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



GRADING & DRAINAGE PLAN STA. 12+00 - STA. 17+28

SCALE: 1"=30'



GRADING & DRAINAGE PROFILE STA. 12+00 - STA. 17+28

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

GRADING & DRAINAGE LEGEND

- 692 — PROPOSED CONTOUR
- DI — PROPOSED DRAINAGE INLET
- ST — PROPOSED STORM PIPE
- 695 — EXISTING CONTOUR
- W — PROPOSED WATERMAIN

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 059696 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GRADING & DRAINAGE PLAN & PROFILE STA. 12+00 - STA. 17+28

CG303

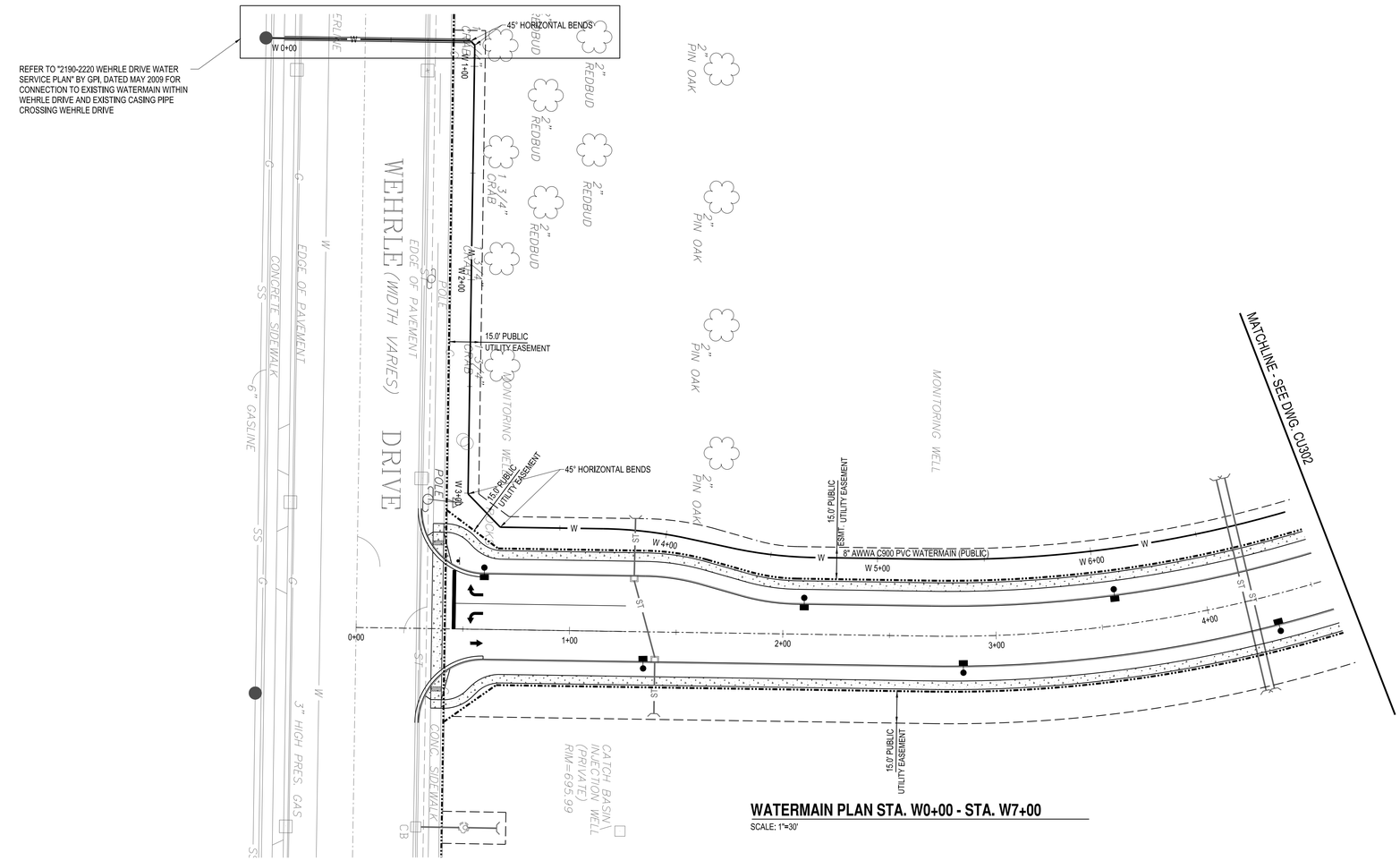
NORTH PLAN

30' 0 30 60 FT.

A1 GRADING & DRAINAGE PLAN & PROFILE
SCALE: 1" = 30'
XX XX

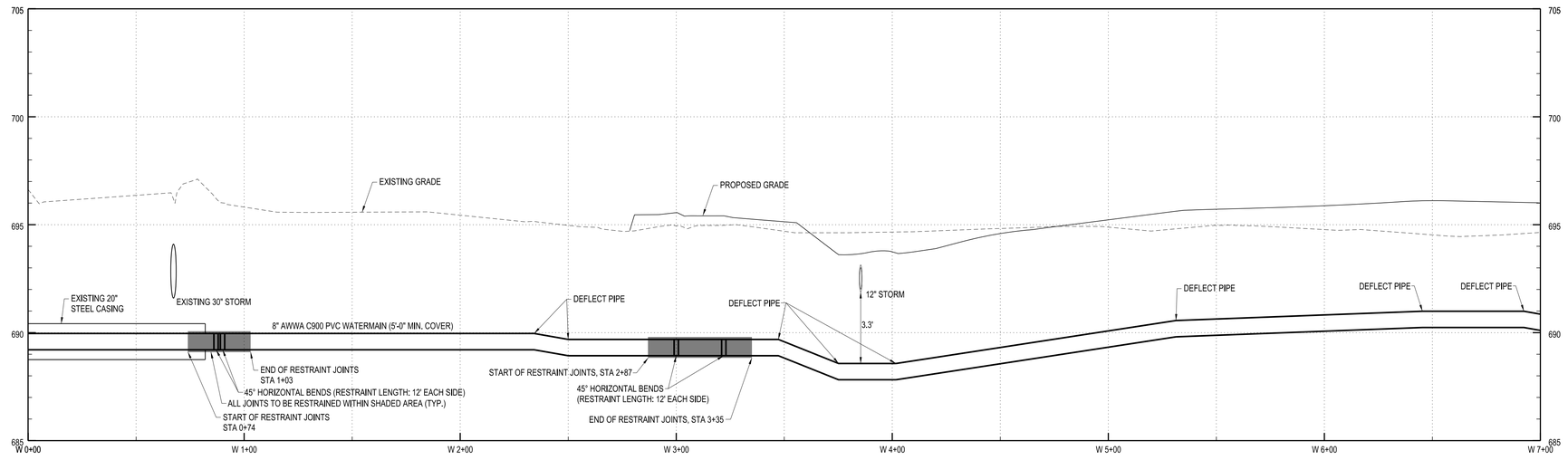
USER **TIME**
DATE
SYTIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



WATERMAIN PLAN STA. W0+00 - STA. W7+00

SCALE: 1"=30'



WATERMAIN PROFILE STA. W0+00 - STA. W7+00

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

UTILITY PLAN LEGEND

EXISTING SANITARY SEWER	SA
EXISTING STORM SEWER	ST
EXISTING WATER MAIN	W
EXISTING ELECTRIC	E
EXISTING GAS	G
PROPOSED WATER MAIN	W
PROPOSED HYDRANT	
SANITARY SEWER	SA
STORM SEWER	ST

A1 WATERMAIN PLAN & PROFILE
SCALE: 1" = 30'

30 0 30 60 FT.
30'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

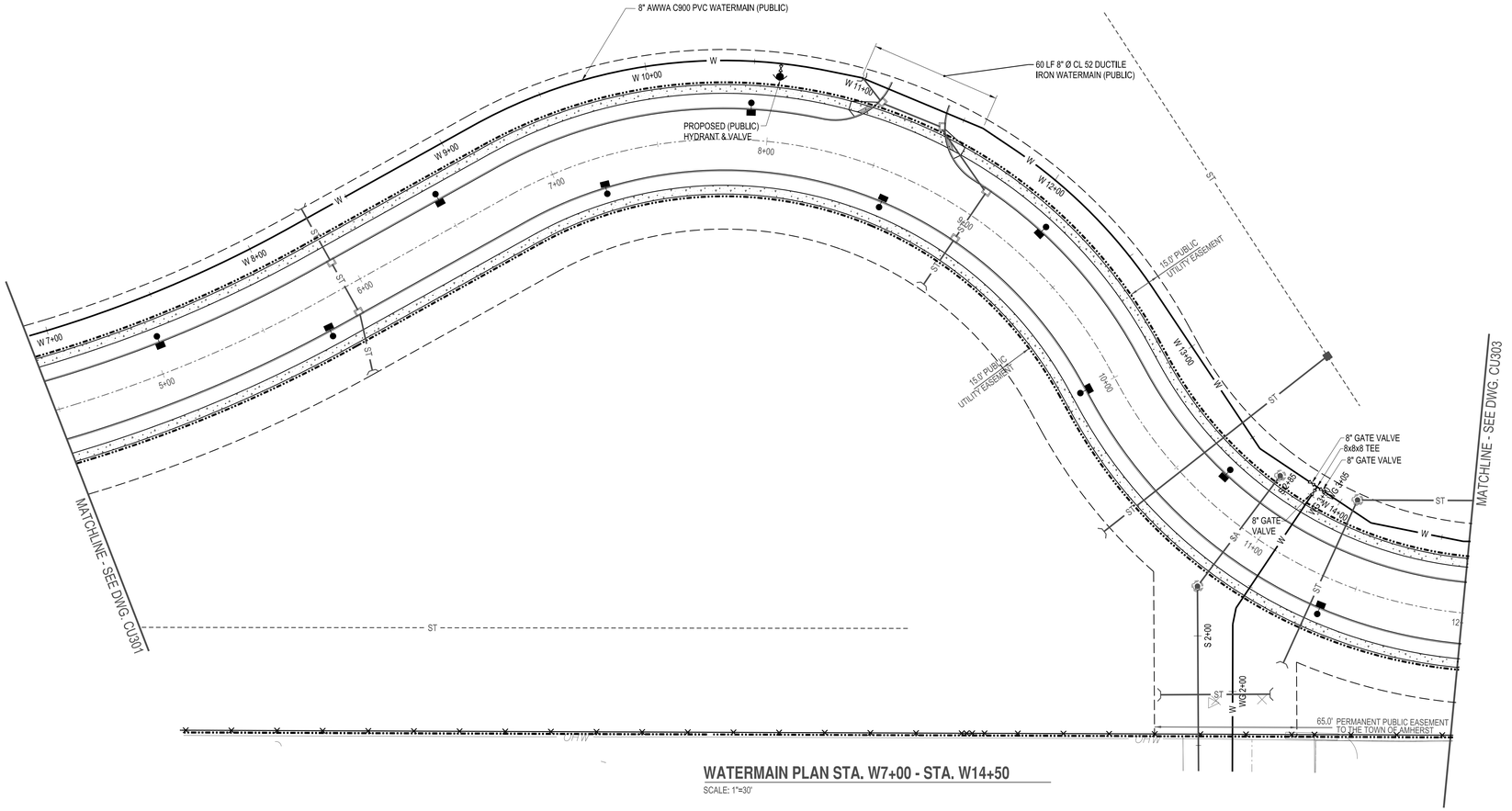
PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATERMAIN PLAN & PROFILE STA. W0+00 - STA. W7+00

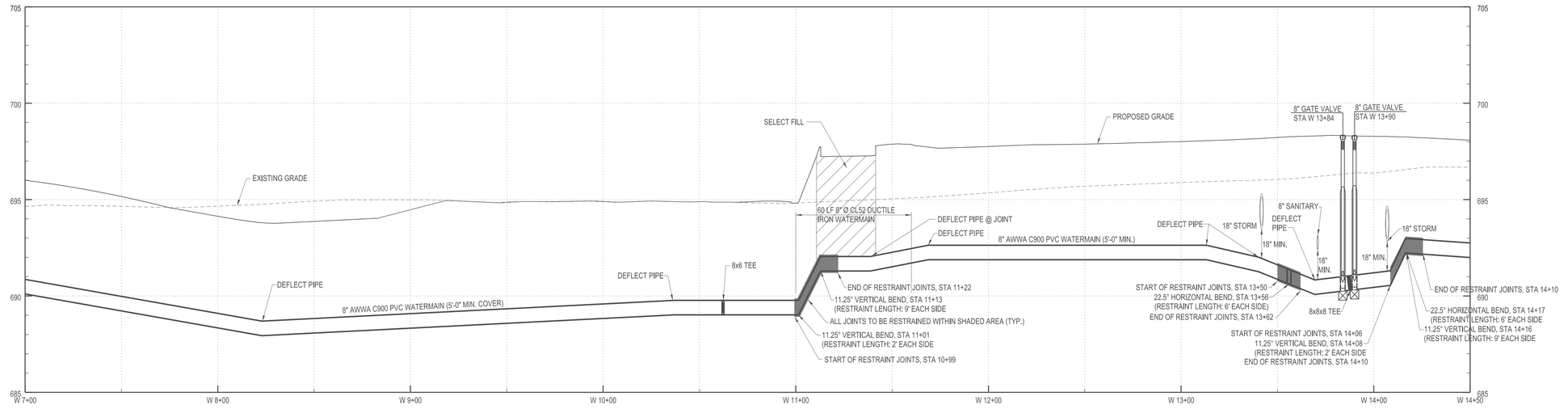
CU301

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



WATERMAIN PLAN STA. W7+00 - STA. W14+50

SCALE: 1"=30'



WATERMAIN PROFILE STA. W7+00 - STA. W14+50

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

UTILITY PLAN LEGEND

EXISTING SANITARY SEWER	SA
EXISTING STORM SEWER	ST
EXISTING WATER MAIN	W
EXISTING ELECTRIC	E
EXISTING GAS	G
PROPOSED WATER MAIN	W
PROPOSED HYDRANT	
SANITARY SEWER	SA
STORM SEWER	ST

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATERMAIN PLAN & PROFILE STA. W7+00 - STA. W14+50

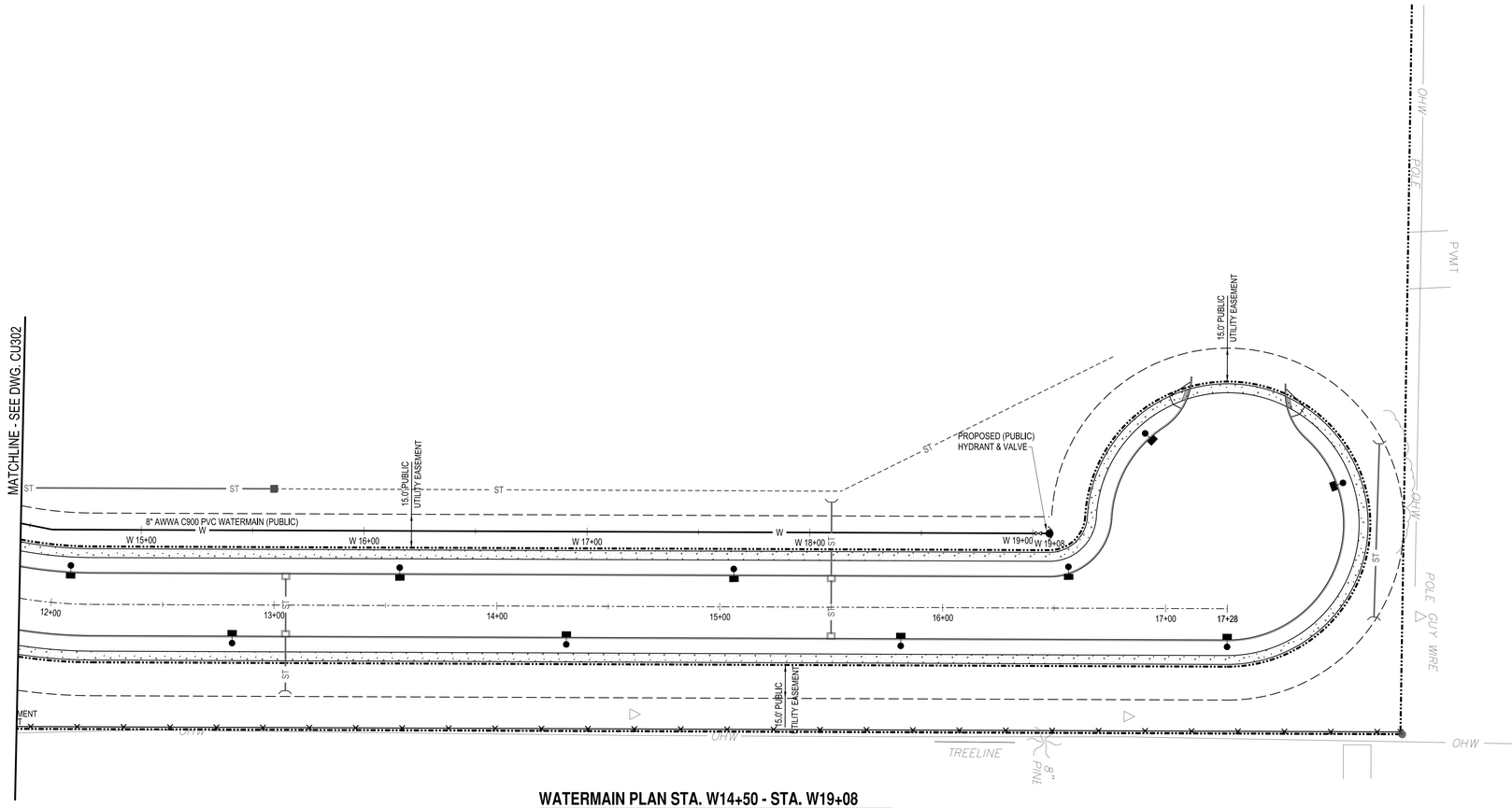
CU302

A1 WATERMAIN PLAN & PROFILE
SCALE: 1" = 30'

30 0 30 60 Ft.

USER **DATE** **SYTIME** **TIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

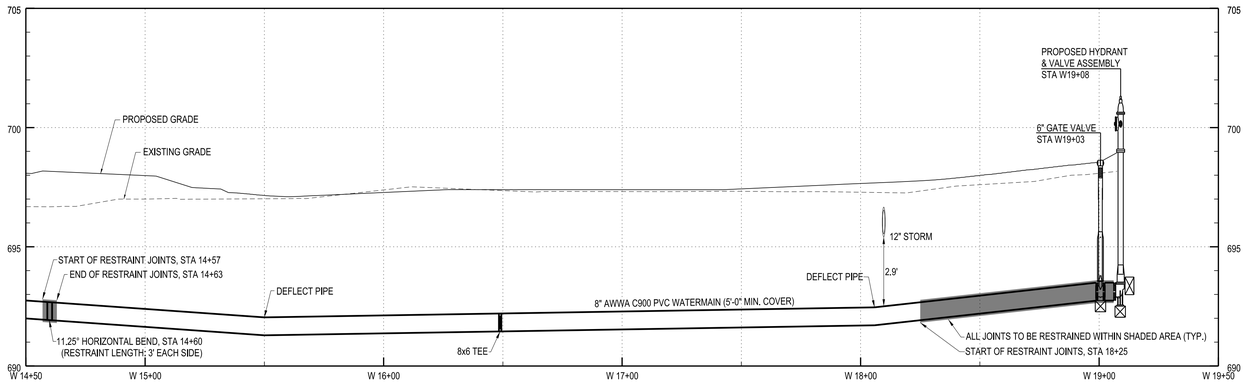


WATERMAIN PLAN STA. W14+50 - STA. W19+08

SCALE: 1"=30'

UTILITY PLAN LEGEND

EXISTING SANITARY SEWER	SA
EXISTING STORM SEWER	ST
EXISTING WATER MAIN	W
EXISTING ELECTRIC	E
EXISTING GAS	G
PROPOSED WATER MAIN	W
PROPOSED HYDRANT	
SANITARY SEWER	SA
STORM SEWER	ST



WATERMAIN PROFILE STA. W14+50 - STA. W19+08

SCALE:HORIZ.: 1"=30'
VERT.: 1"=5'

PLAN NORTH

30' 0 30 60 Ft.

A1 WATERMAIN PLAN & PROFILE
SCALE: 1" = 30'

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

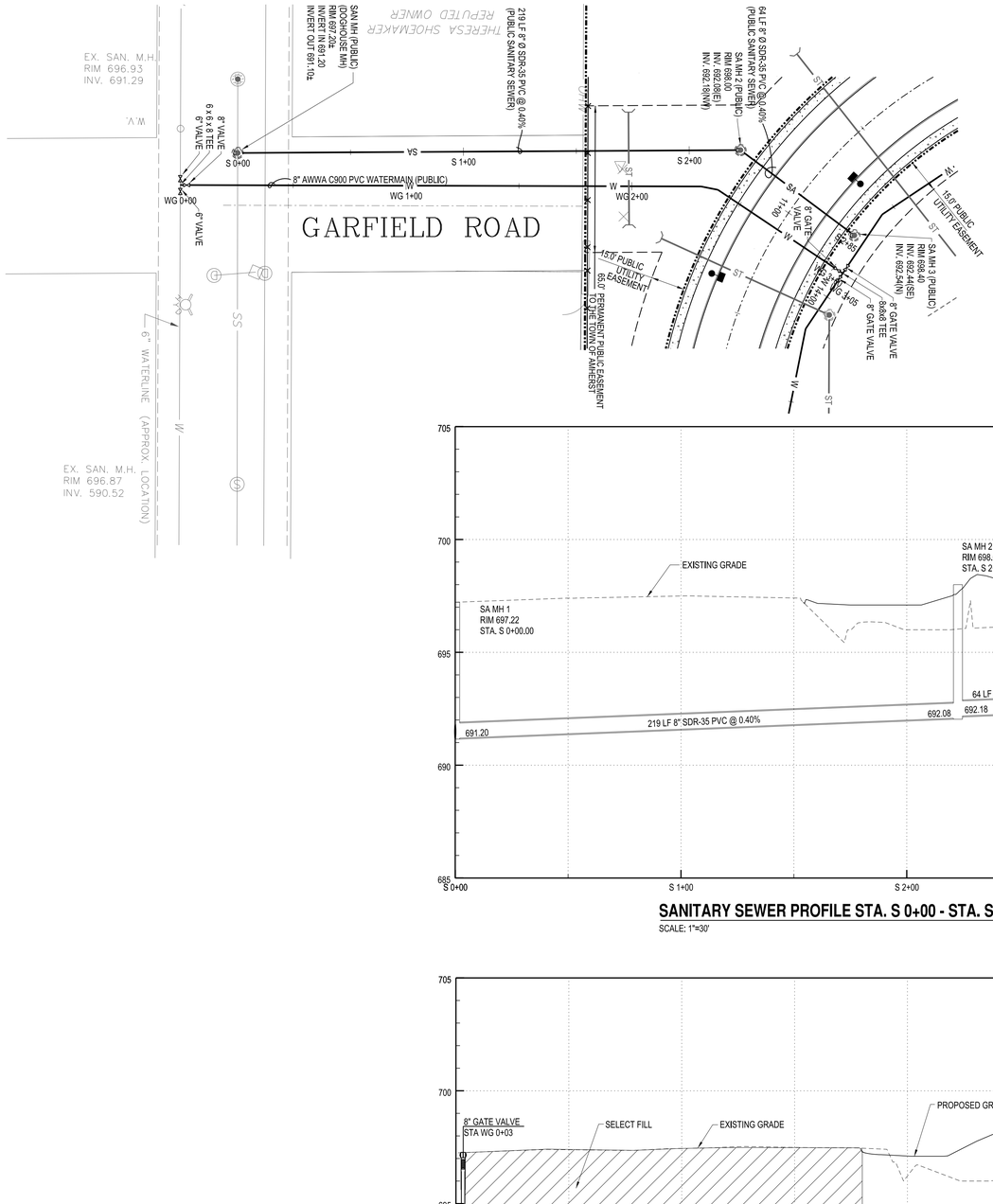
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATERMAIN
PLAN & PROFILE
STA. W14+50 -
STA. W19+08

CU303

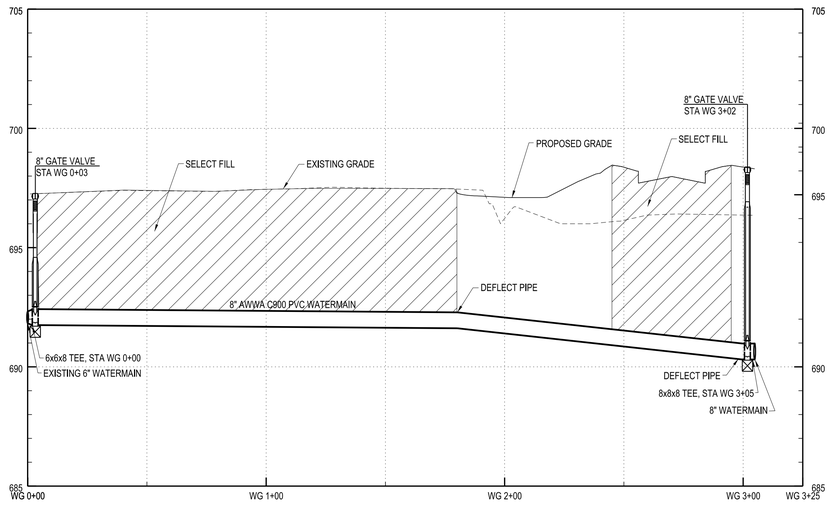
USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



SANITARY SEWER PROFILE STA. S 0+00 - STA. S 2+85

SCALE: 1"=30'



WATERMAIN PROFILE STA. WG 0+00 - STA. WG 3+05

SCALE: 1"=30'

UTILITY PLAN LEGEND

EXISTING SANITARY SEWER	SA
EXISTING STORM SEWER	ST
EXISTING WATER MAIN	W
EXISTING ELECTRIC	E
EXISTING GAS	G
PROPOSED WATER MAIN	W
PROPOSED HYDRANT	
SANITARY SEWER	SA
STORM SEWER	ST

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GARFIELD ROAD WATERMAIN & SANITARY SEWER PLAN & PROFILES

CU304

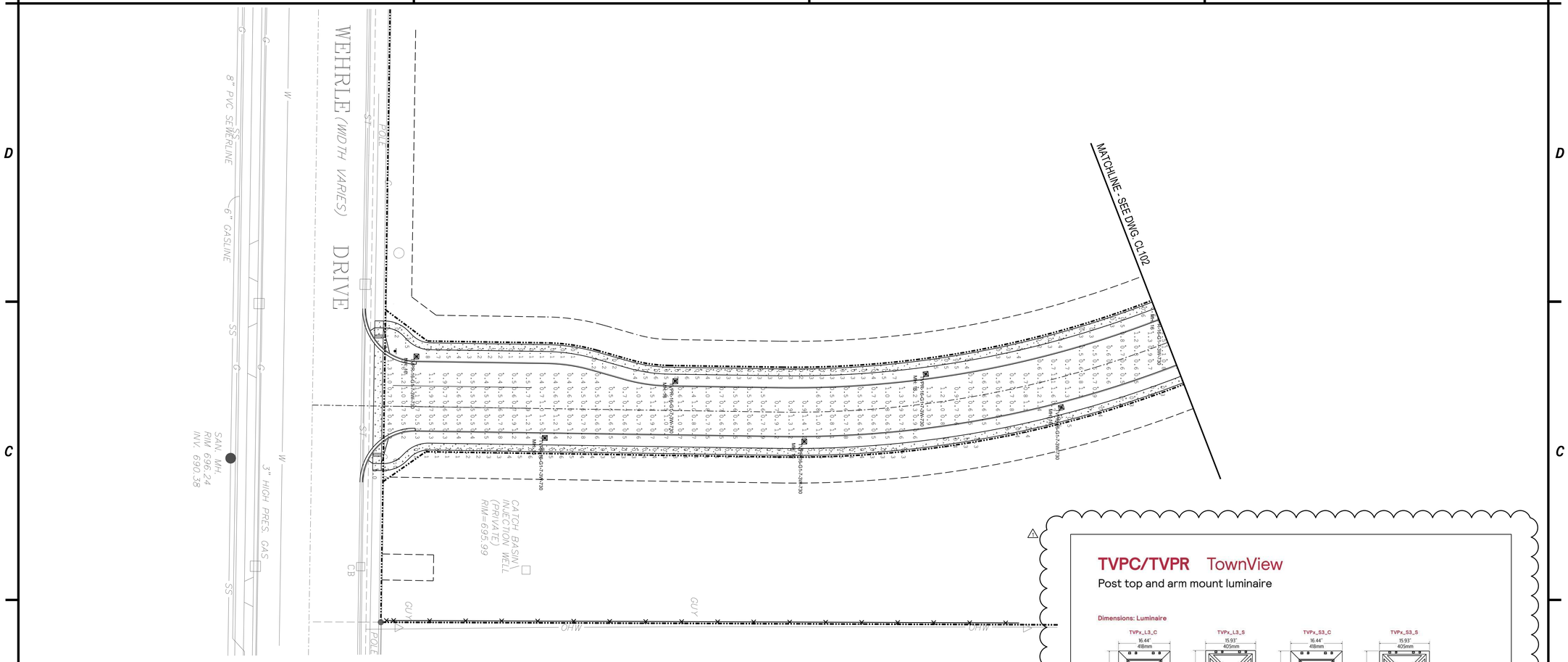
A1 WATERMAIN & SANITARY SEWER PLAN & PROFILE
SCALE: 1" = 30'

PLAN NORTH

30' 0 30 60 FT

USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



NOTE: MH AT EACH LIGHT FIXTURE STANDS FOR LIGHT FIXTURE MOUNTING HEIGHT

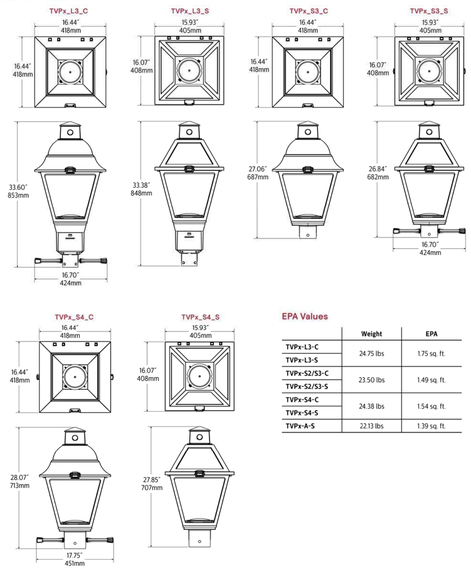
Luminaire Schedule						
Symbol	Qty	Label	Mounting Height	LLF	Description	Lum. Lumens
☒	26	TVPR-16-G1-7-3W-730	16'	0.900	TVPR-16-G1-7-3W-730	3694

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
East Sidewalk	Illuminance	Fc	0.41	1.0	0.0	N.A.	N.A.
Road	Illuminance	Fc	0.77	1.7	0.1	7.70	17.00
West Sidewalk	Illuminance	Fc	0.38	0.8	0.1	3.80	8.00
West Sidewalk_1	Illuminance	Fc	0.42	0.9	0.2	2.10	4.50

TVPC/TVPR TownView

Post top and arm mount luminaire

Dimensions: Luminaire



EPA Values

	Weight	EPA
TVPx-L3-C	24.75 lbs	1.75 sq. ft.
TVPx-L3-S		
TVPx-S2/S3-C	23.50 lbs	1.49 sq. ft.
TVPx-S2/S3-S		
TVPx-S4-C	24.38 lbs	1.54 sq. ft.
TVPx-S4-S		
TVPx-A-S	22.13 lbs	1.39 sq. ft.

NORTH PLAN

A1 **PHOTOMETRIC PLAN**
SCALE: 1" = 30'

30' 30 0 30 60 Ft.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

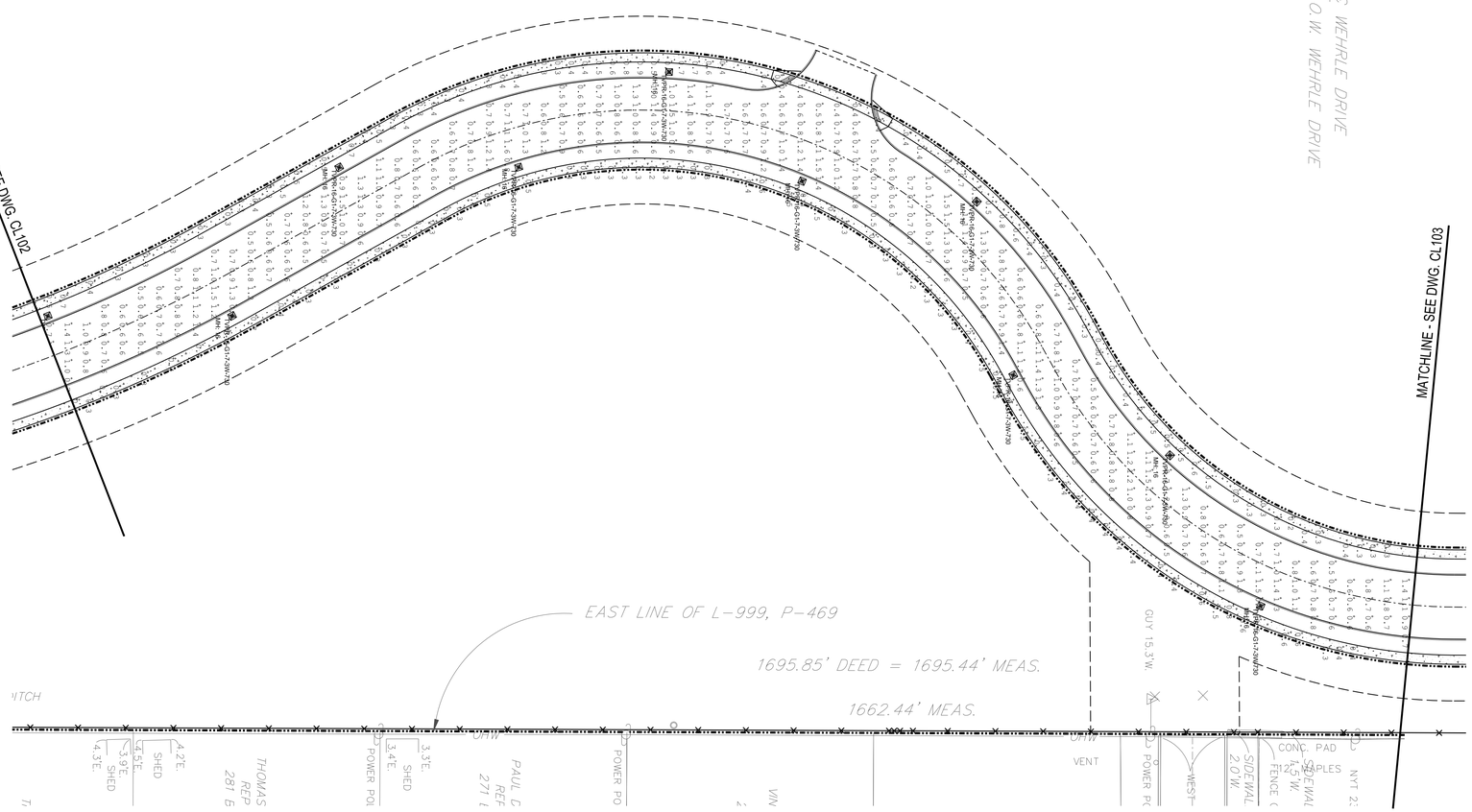
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

PHOTOMETRIC PLAN
STA. 0+00 - STA. 5+00

CL101

**USER:
**DATE:
**SYSTIME:
**TIME:

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
059686
LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON
EXCEPT AS PROVIDED UNDER SECTION
7209 SUBDIVISION 2 OF THE NEW YORK
EDUCATION LAW

PHOTOMETRIC PLAN
SAT. 5+00 - STA. 12+00

CL102

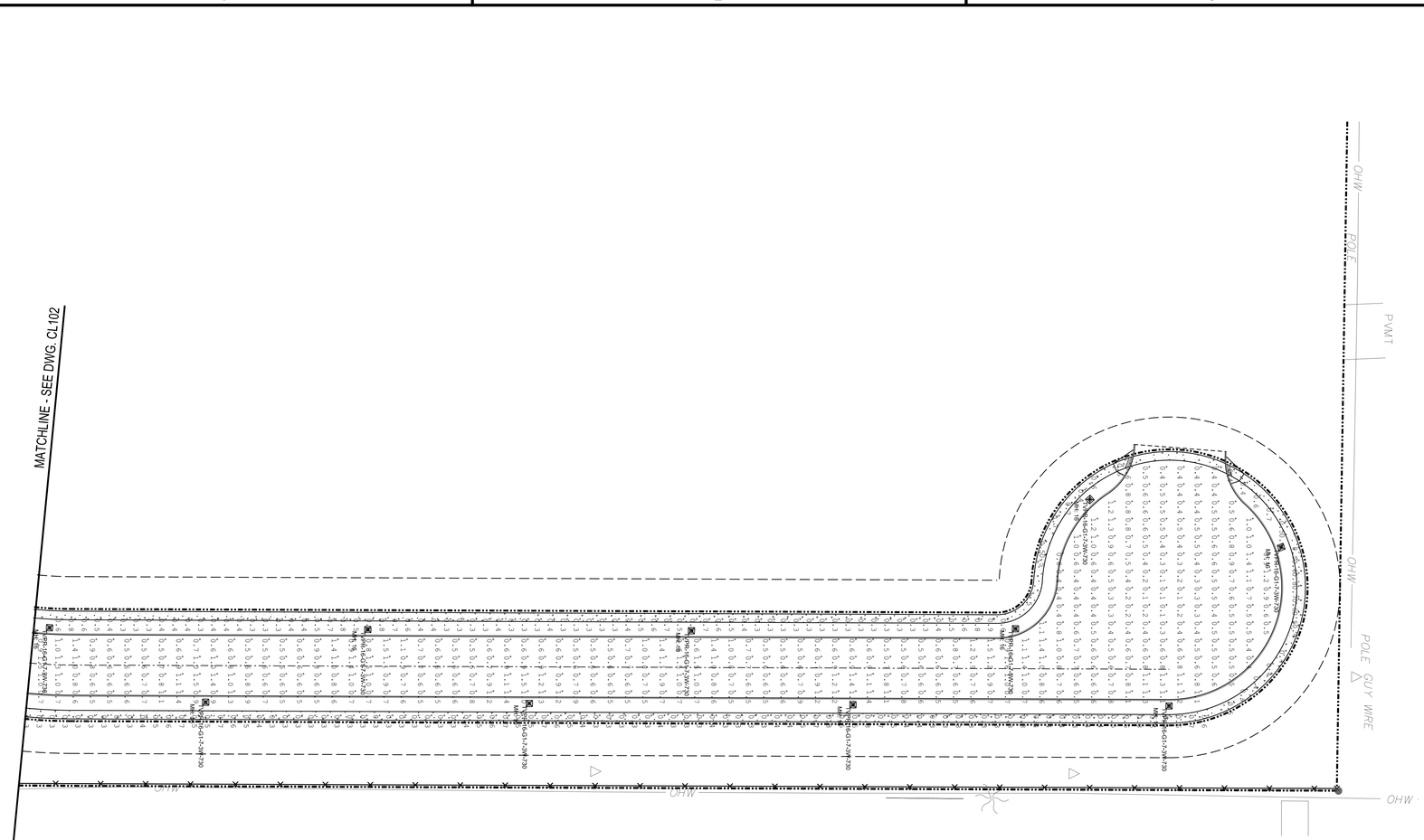
A1 PHOTOMETRIC PLAN
SCALE: 1" = 30'

30 0 30 60 FT
30'

MAP NORTH

USER
DATE
SYSTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



PLAN NORTH

A1 **PHOTOMETRIC PLAN**
SCALE: 1" = 30'

30' 30 0 30 60 FT.

XX XX

C&S COMPANIES®

C&S Engineers, Inc.
141 Elm St, Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
JASON P. UTZIG
089686
LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

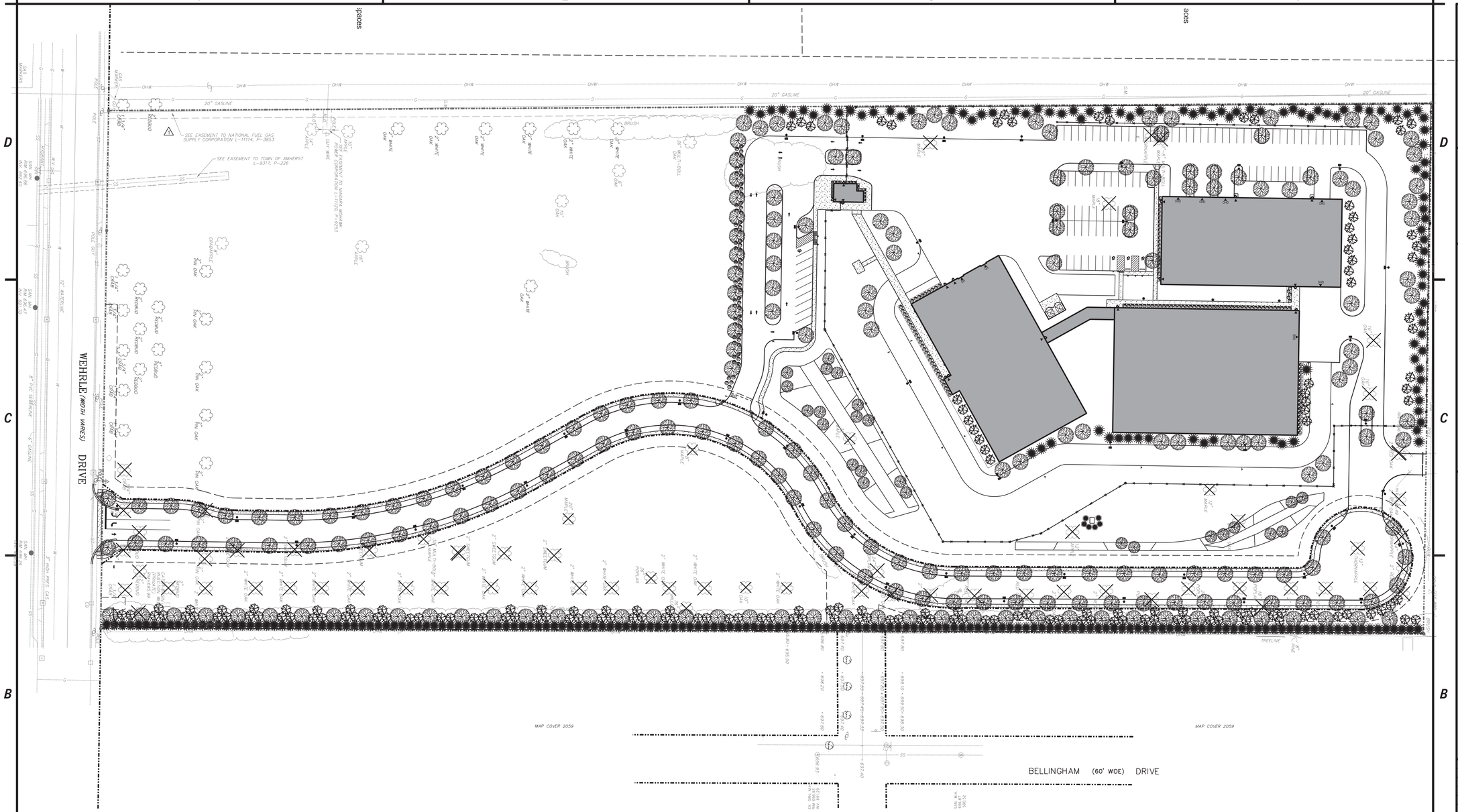
NO ALTERATION PERMITTED HEREON
EXCEPT AS PROVIDED UNDER SECTION
7209 SUBDIVISION 2 OF THE NEW YORK
EDUCATION LAW

PHOTOMETRIC PLAN
STA. 12+00 - STA. 17+28

CL103

USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



LANDSCAPING LEGEND

- EXISTING TREE TO BE PRESERVED
- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUB

PLAN NORTH

A1 OVERALL LANDSCAPING PLAN
SCALE: 1"=60'

60' 60 0 60 120 Ft.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

REGISTERED LANDSCAPE ARCHITECT MICHAEL MURTON BRADLEY 001907 STATE OF NEW YORK

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

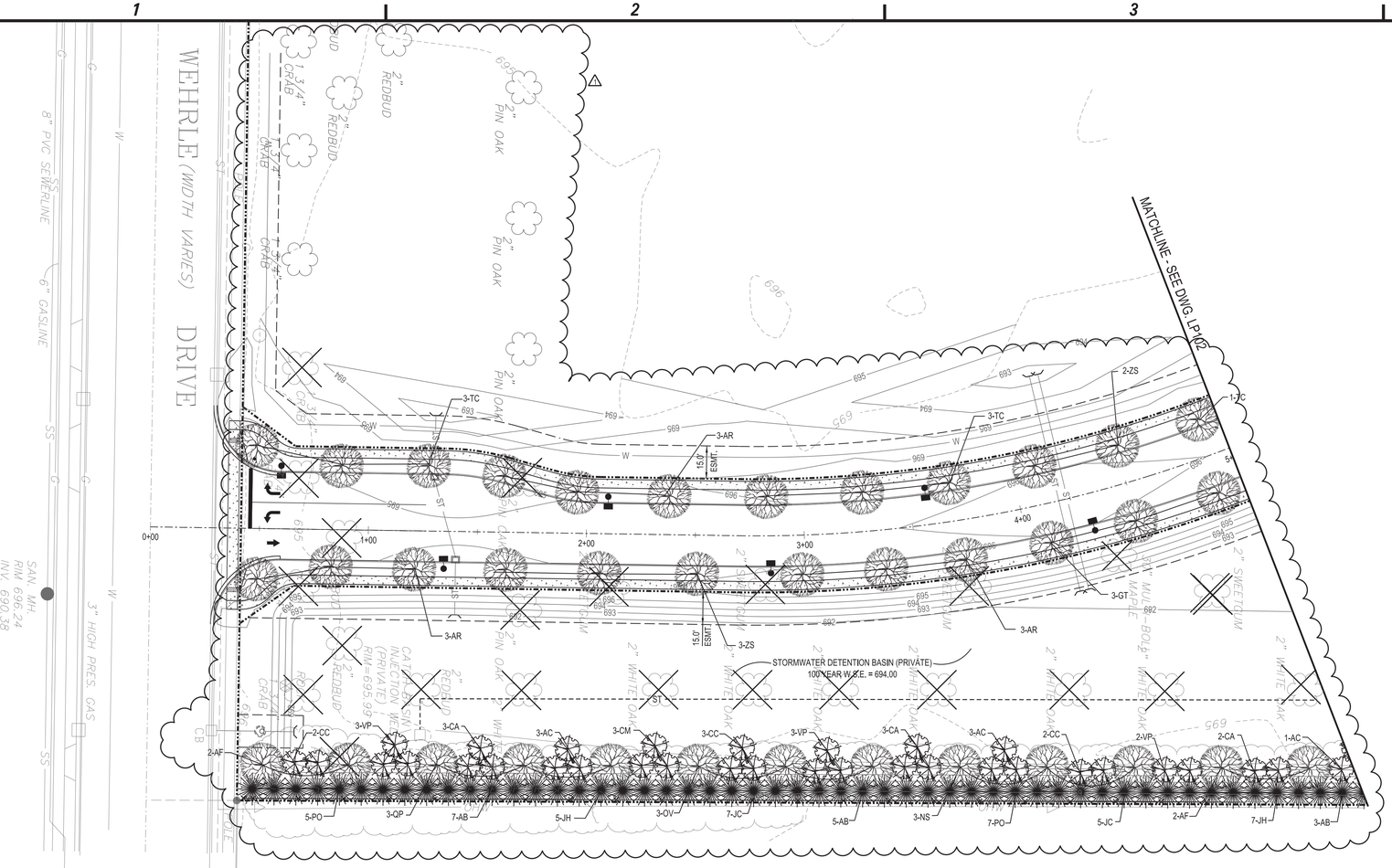
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL
LANDSCAPING PLAN

LP100 1

USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



PLANTING SPECIFICATION

1. SCOPE OF WORK
   - A. THIS WORK SHALL CONSIST OF PERFORMING, CLEARING, AND GRUBBING, SOIL PREPARATION, FINISH GRADING, PLANTING, DRAINAGE, INCLUDING ALL LABOR MATERIALS, TOOLS, EQUIPMENT, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT.
2. MATERIALS
   - A. PLANTS - ALL PLANTS SHALL BE HEALTHY, OF NORMAL GROWTH, WELL ROOTED FREE FROM DISEASE AND INSECTS. QUALITY AND OF PLANT MATERIAL THAT SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1) AND BE OF NUMBER ONE GRADE.
   - B. VARIETIES AND SIZES OF PLANTS SHALL BE AS SHOWN ON DRAWINGS
3. FERTILIZER
   - A. FERTILIZER SHALL BE MILORGANITE (6-2-0) OR APPROVED EQUAL.
4. GENERAL WORK PROCEDURES
   - A. LANDSCAPE WORK SHALL BE ACCORDING TO THE WORKMANLIKE STANDARDS ESTABLISHED FOR LANDSCAPE CONSTRUCTION AND PLANTING.
5. WEEDING
   - A. BEFORE AND DURING PRELIMINARY GRADING AND FINISH GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
6. SOIL CONDITIONING
   - A. CULTIVATE ALL AREAS TO BE PLANTED TO A DEPTH OF 6". ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
7. PLANTING

   POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
   - A. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, AS SHOWN ON THE PLANTING DETAILS.

     - 3 PARTS TOPSOIL
     - 1 PART PEAT MOSS OR COMPOST
     - 1/3 PART MILORGANITE FERTILIZER
   - B. PREPARED SOIL SHALL BE TAMPED FIRMLY AT BOTTOM OF PIT. FILL PREPARED SOIL AROUND BALL OF PLAN ½ WAY, AND WATER. COMPLETE BACK-FILLING AND WATER THOROUGHLY.
   - C. ALL PLANTS SHALL BE SET SO THAT, WHEN SETTLED, THEY BEAR THE SAME RELATION TO THE REQUIRED GRADE AS THEY BORE TO THE NATURAL BEFORE BEING TRANSPLANTED.
   - D. IMMEDIATELY AFTER PLANTING, STAKE ALL TREES WITH 3 CEDAR STAKES PER TREE.
   - E. PREPARE RAISED EARTH SAUCER AS WIDE AS PLANTING HOLE OF EACH PLANT.
   - F. WATER IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED.
   - G. AFTER SHRUB BEDS AND TREE SAUCERS ARE BACKFILLED AND FINE GRADED, MULCH WITH 3" DEPTH OF DARK, SHREDDED HARDWOOD BARK MULCH.
8. FINISH GRADING
   - A. PLUS/MINUS .1 FOOT OF FINISH GRADE.
   - B. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN, UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE. SOIL AREAS ADJACENT TO THE BUILDING SHALL SLOPE AWAY FROM THE BUILDING.
   - C. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER.
9. GUARANTEE
   - A. CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR.
10. CLEAN-UP
    - A. UPON THE COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL MATERIAL, EQUIPMENT AND DEBRIS RESULTING FROM HIS WORK. ALL ACCEPTABLE CONDITIONS AS APPROVED BY THE OWNERS AUTHORIZED REPRESENTATIVE.
11. MAINTENANCE

    MAINTENANCE PERIOD TO COMMENCE AFTER FINAL INSPECTION.
    - A. MAINTENANCE PERIOD FOR THIS CONTRACT SHALL BE 90 CALENDAR DAYS COMMENCING AFTER FINAL INSPECTION OF CONSTRUCTION. MAINTAIN TREES, SHRUBS AND OTHER PLANTS BY PRUNING, CULTIVATING AND WEEDING AS REQUIRED FOR HEALTHY GROWTH. RESTORE PLANTING SAUCERS. TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES AND SHRUBS TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED. SPRAY AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE. MAINTAIN LAWNS BY WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING, AND OTHER OPERATIONS SUCH AS ROLLING, REGRADING, AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE	NOTES
		TREES			
AB	44	Abies balsamea var. phanerolepis	Canaan Fir	5-6' ht.	Buffer planting
AR	24	Acer rubrum "October Glory"	October Glory Red Maple	2 1/2" Caliper	Street tree
AF	11	Acer x freemanii 'Armstrong'	Armstrong Maple	2 1/2" Caliper	Buffer planting
AC	22	Amelanchier canadensis	Serviceberry	1 3/4" caliper	Buffer planting
BN	25	Betula Nigra	River Birch	2 1/2" Caliper	Street tree
CC	21	Carpinus caroliniana	Hornbeam	1 3/4" caliper	Buffer planting
CA	23	Cornus alternifolia	Pagoda Dogwood	1 3/4" caliper	Buffer planting
CM	18	Cornus mas	Corneliancherry Dogwood	1 3/4" caliper	Buffer planting
GT	14	Gleditsia triacanthos inermis "Skyline"	Skyline Honeylocust	2 1/2" Caliper	Street tree
JC	38	Juniperus virginiana 'Canaertii'	Canaertii Juniper	5-6' ht.	Buffer planting
JH	36	Juniperus virginiana 'Hillspire'	Hillspire Juniper	5-6' ht.	Buffer planting
NS	9	Nyssa sylvatica	Black Tupelo	2 1/2" Caliper	Buffer planting
OV	9	Ostrya virginica	Hophornbeam	2 1/2" Caliper	Buffer planting
PO	46	Picea omorika	Serbian Spruce	5-6' ht.	Buffer planting
QP	12	Quercus palustris 'Green Pillar'	Green Pillar Pin Oak	2 1/2" Caliper	Buffer planting
TC	30	Tilia cordata "Greenspire"	Greenspire Linden	2 1/2" Caliper	Street tree
VP	26	Viburnum prunifolium	Blackhaw Viburnum	1 3/4" caliper	Buffer planting
ZS	19	Zelkova serrata	Japanese Zelkova	2 1/2" Caliper	Street tree

BIORETENTION PLANTINGS

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE
AI	310	Asclepias incarnata	Swamp Milkweed	2" Plug
AN	395	Aster novae-angliae	New England Aster	2" Pots
CA	85	Cornus amomum	Silky Dogwood	4" Pot
CL	435	Calamagrotis canadensis	Reed Grass	2" Plug
CO	75	Cepahlanthus occidentalis	Button Bush	4" Pot
IV	90	Ilex verticillata	Winterberry	4" Pots
JE	1500	Juncus effusus	Common Rush	2" Plug

LANDSCAPING LEGEND

- EXISTING TREE TO BE PRESERVED
- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUB
- EXISTING TREE TO BE REMOVED

NOTES:
1. ALL INTERIOR LANDSCAPED AREA SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE SAUCERS AND SHRUB BEDS SHALL RECEIVE A MINIMUM OF THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL TREES SHALL BE STAKED WITH THREE (3) WOOD STAKES AS SHOWN ON THE TREE PLANTING DETAIL.
4. A ROOT PROTECTION ZONE SHALL BE ESTABLISHED AROUND ANY TREE WHICH IS IDENTIFIED ON THE LANDSCAPE PLAN AS A TREE TO BE PRESERVED. THE ROOT PROTECTION ZONE IS IDENTIFIED BY CREATING A CIRCLE AROUND THE TREE, THE SIZE OF WHICH IS DETERMINED BY PROVIDING ONE FOOT OF RADIUS FOR EVERY INCH DIAMETER OF THE TREE MEASURED AT BREAST HEIGHT (DBH). THE ROOT PROTECTION ZONE SHALL BE MARKED IN THE FIELD WITH A PHYSICAL BARRIER SUCH AS TEMPORARY FENCING OR OTHER MEANS WHICH SHALL PREVENT CONSTRUCTION ACTIVITIES FROM OCCURRING WITH THE TREE ROOT PROTECTION ZONE. METHODS FOR PRESERVING AND PROTECTING EXISTING TREES SHALL BE INCLUDED AS PART OF THE LANDSCAPE PLAN.

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

REGISTERED LANDSCAPE ARCHITECT MICHAEL MURTON GRIDLEY 001907 STATE OF NEW YORK

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	REVISIONS
1	12/20/2021	TOWN COMMENTS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: M. GRIDLEY
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

LANDSCAPING PLAN
STA. 0+00 - STA. 5+00
& NOTES &
PLANTING TABLE

LP101

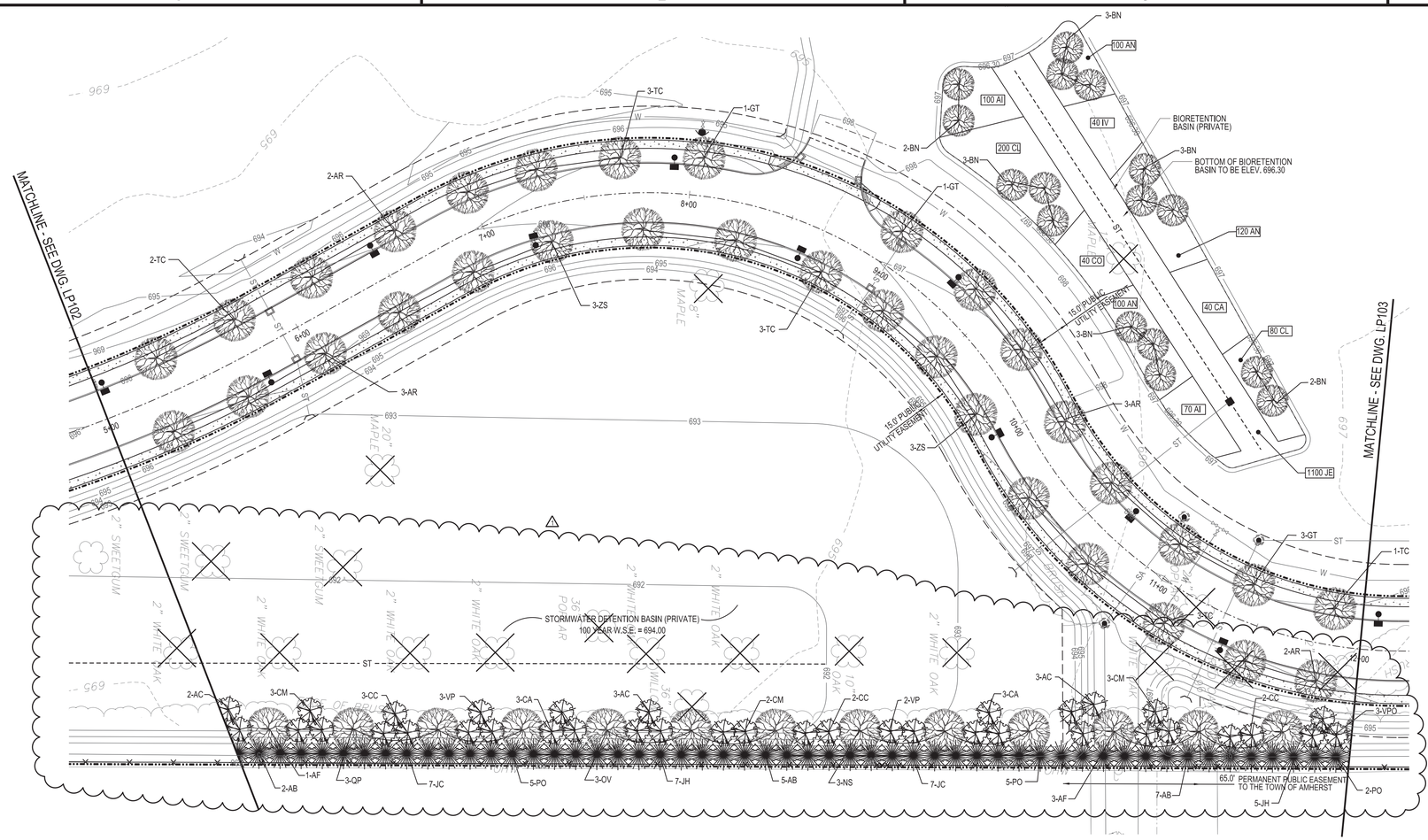
NORTH PLAN

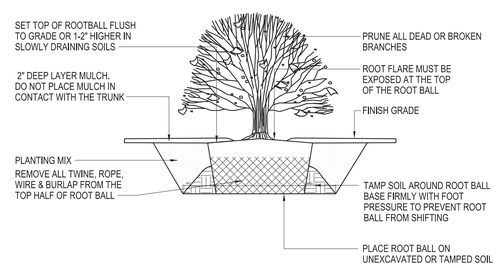
30 0 30 60 Ft.
30'

A1 LANDSCAPING PLAN
SCALE: 1" = 30'

USER *DATE* *SYSTIME* *TIME*

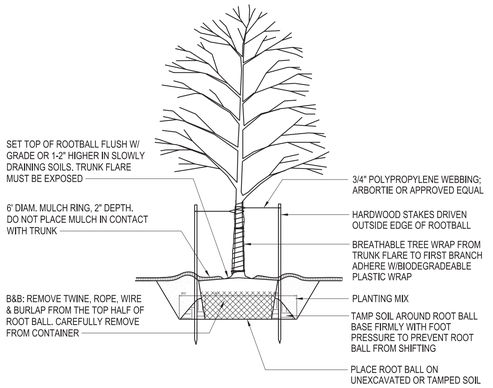
Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)





SHRUB PLANTING DETAIL

NTS



NOTES:

1. STAKE TREES AS DIRECTED BY THE LANDSCAPE ARCHITECT. STAKING WILL BE REQ'D WHEN ROOT BALLS ARE VERY SANDY OR WET CLAY, WHEN SOIL IS VERY SOFT, OR WHEN PLANTING LOCATIONS ARE WINDY.
2. TIGHTEN ARBORTIE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT.
3. PRUNE ONLY CROSSING LIMBS, CO-DOMINANT LEADERS AND BROKEN OR DEAD BRANCHES.
4. TREE WRAP SHOULD BE INSTALLED AT TIME OF PLANTING AND REMOVED 12 MONTHS AFTER PLANTING.

DECIDUOUS TREE PLANTING DETAIL

NTS

LANDSCAPING LEGEND

- EXISTING TREE TO BE PRESERVED
- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUB
- EXISTING TREE TO BE REMOVED

PLAN NORTH

30' 0 30 60 Ft.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

REGISTERED LANDSCAPE ARCHITECT MICHAEL MURTON GRIDLEY 001907 STATE OF NEW YORK

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG M. GRIDLEY
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

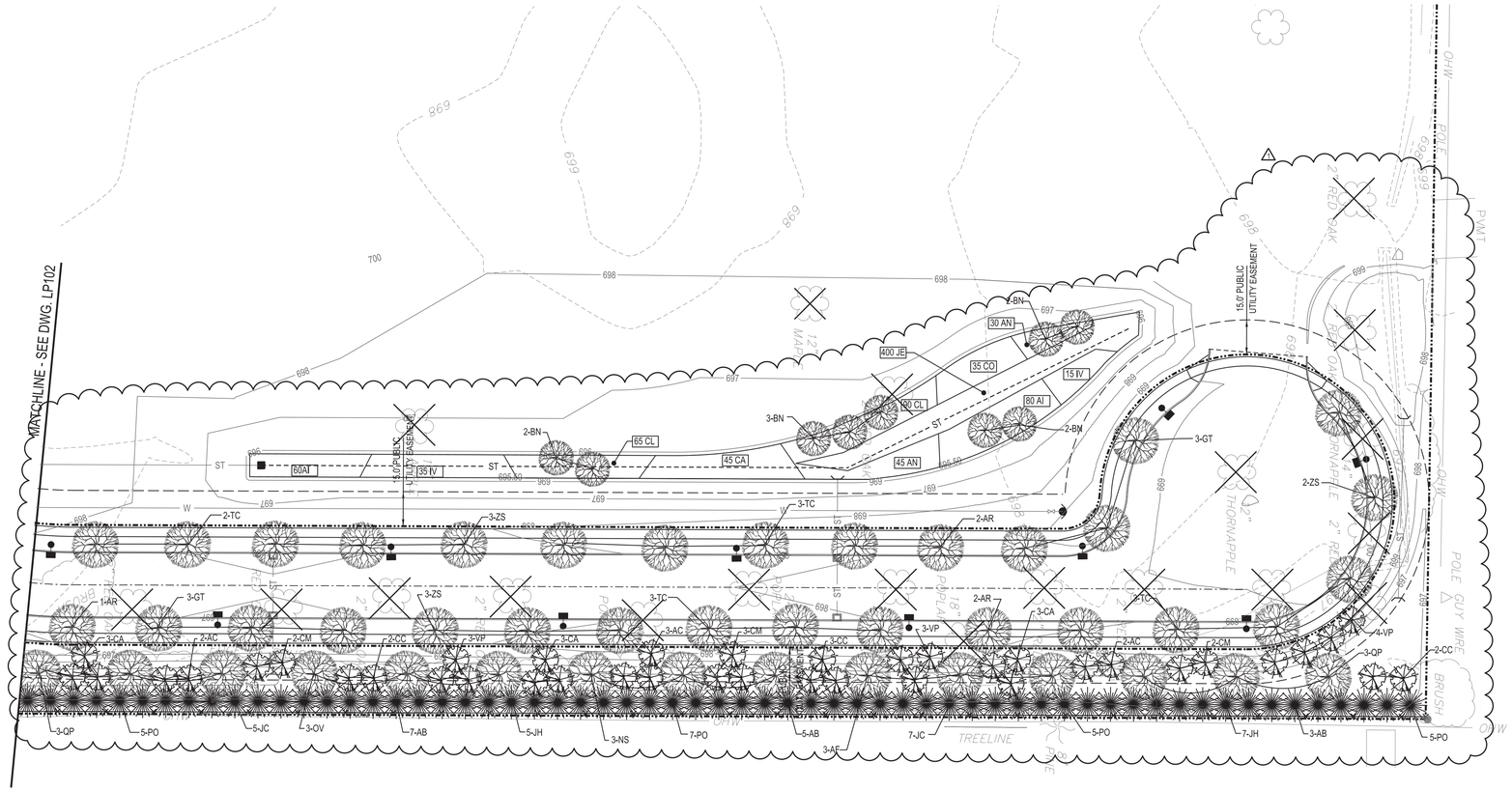
LANDSCAPING PLAN SAT. 5+00 - STA. 12+00 AND DETAILS

LP102

A1 LANDSCAPING PLAN AND DETAILS
SCALE: 1" = 30'

USER **DATE** **SYTIME** **TIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



LANDSCAPING LEGEND

- EXISTING TREE TO BE PRESERVED
- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUB
- EXISTING TREE TO BE REMOVED

NORTH PLAN

A1 LANDSCAPING PLAN
SCALE: 1" = 30'

30' 30 0 30 60 FT.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

REGISTERED LANDSCAPE ARCHITECT — MICHAEL MURTON GRIDLEY — 001907 — STATE OF NEW YORK

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG M. GRIDLEY
CHECKED BY: J. UTZIG

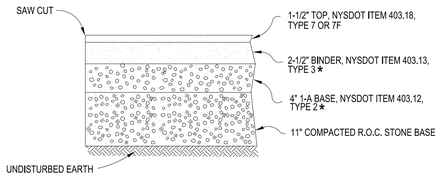
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

LANDSCAPING PLAN
STA. 12+00 - STA. 17+28

LP103

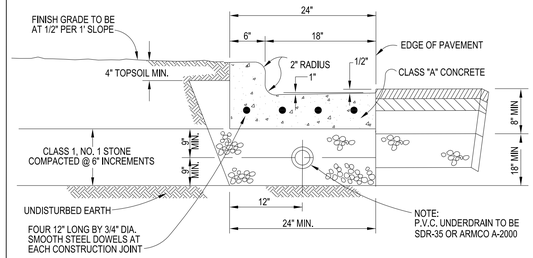
USER *DATE* *SYTIME* *TIME*

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

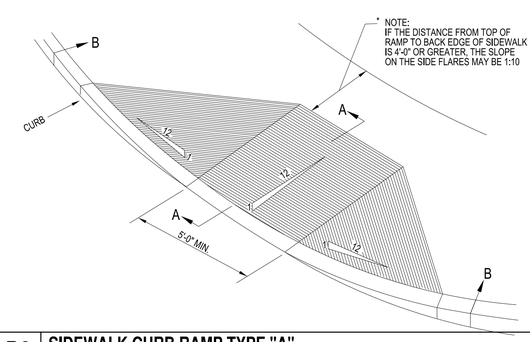


* NOTE: THE BINDER AND BASE COURSES MAY CONSIST OF RECYCLED ASPHALT MATERIAL

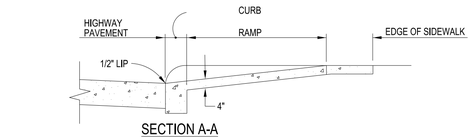
D1 TYPICAL PAVEMENT SECTION
SCALE: N.T.S.



D2 TYPE "B" CURBING - POURED IN PLACE
SCALE: N.T.S.

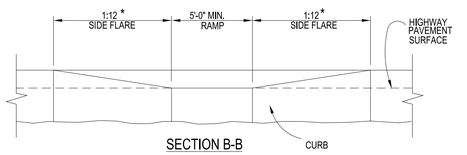


* NOTE:
IF THE DISTANCE FROM TOP OF RAMP TO BACK EDGE OF SIDEWALK IS 4'-0" OR GREATER, THE SLOPE ON THE SIDE FLARES MAY BE 1:10



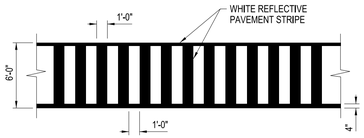
SECTION A-A

* - UNLESS OTHERWISE DIRECTED BY THE TOWN ENGINEER

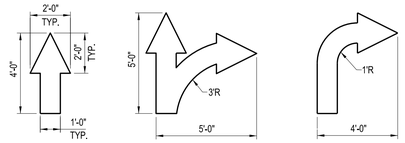


SECTION B-B

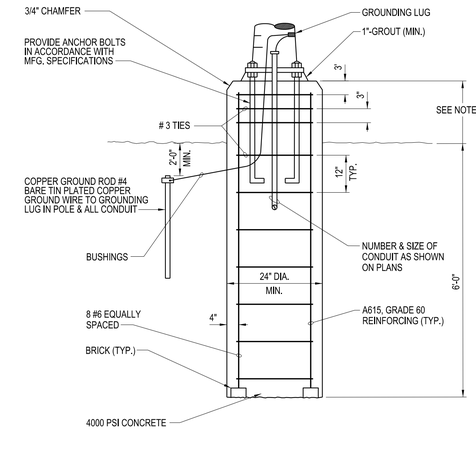
D3 SIDEWALK CURB RAMP TYPE "A"
SCALE: N.T.S.



C1 PEDESTRIAN CROSSWALK DETAIL
SCALE: N.T.S.



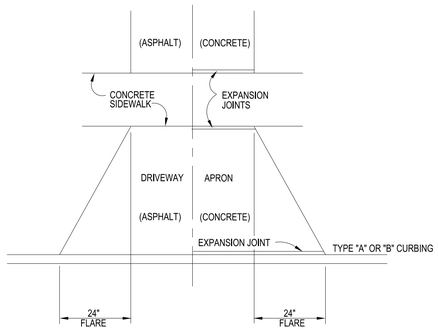
C2 PAINTED TRAFFIC ARROWS
SCALE: N.T.S.



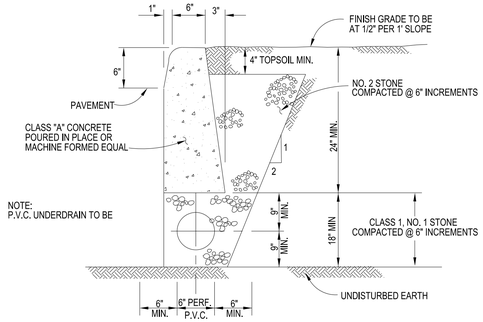
NOTES:

1. AUGER HOLES FOR FOOTING, INSPECT THE EXCAVATION & NOTIFY THE ENGINEER OF UNSUITABLE MATERIALS BEFORE PLACING THE STEEL & CONCRETE.
2. LIGHT POLE BASE SHALL BE: 30" ABOVE GRADE IN PAVED AREAS
   6" ABOVE THE CURB IN LANDSCAPED AREAS
   30" ABOVE GRADE IN AREAS W/O CURBING
3. FOR LOCATIONS OF LIGHT POLES, SEE SIGHT PLAN.

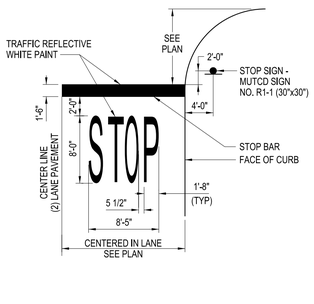
B3 LIGHT POLE FOUNDATION 'A'
SCALE: N.T.S.



C4 DRIVEWAY CURB CUTS
SCALE: N.T.S.

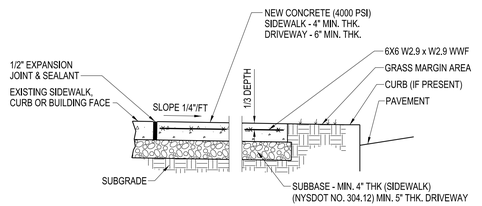


B1 TYPE "A" CURBING
SCALE: N.T.S.



B2 STOP BAR DETAIL
SCALE: N.T.S.

B4 NOT USED
SCALE: N.T.S.

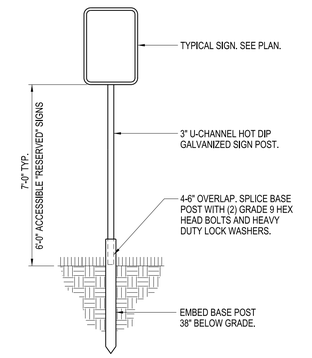


CROSS SECTION

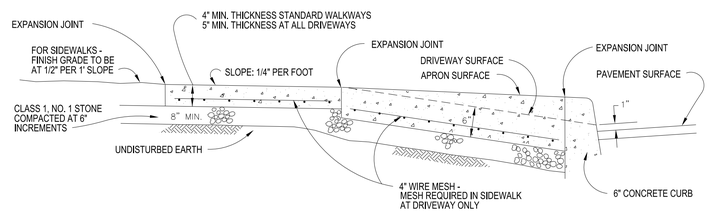
NOTES:

1. CONTROL JOINTS TO BE AT 5'-0" O.C. BOTH WAYS OR AS SHOWN ON DRAWINGS. SEAL JOINTS PER SPECIFICATIONS.
2. CONCRETE SIDEWALK AND DRIVEWAY MATERIAL SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 501 AND CONSTRUCTION METHODS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 608-3

A1 CONCRETE SIDEWALK
SCALE: N.T.S.



A2 SIGN POST 'A'
SCALE: N.T.S.



NOTE: MINIMUM WIDTH OF SIDEWALK TO BE 4'-0" UNLESS OTHERWISE DIRECTED BY THE ENGINEER. 4000 PSI CONCRETE REQUIRED

NOTE: WHEN THE SIDEWALK LIES IN THE NYSDOT'S R.O.W. THE SIDEWALK WILL BE 5' MINIMUM IN WIDTH.

A3 STANDARD SIDEWALK AND DRIVEWAY DETAIL
SCALE: N.T.S.

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

JASON P. UTZIG — 089686 — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW YORK

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SITE DETAILS

CS501

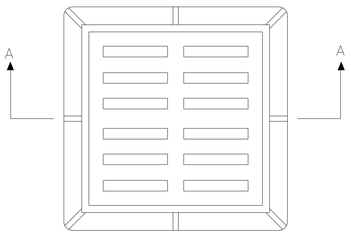
USER **DATE** **SYSTIME** **TIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

C1 CAST IRON FRAME & GRATE

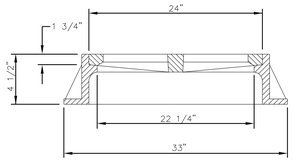
SCALE: N.T.S.

CAST IRON FRAME AND GRATE
B (NEENAH R3433 OR EQUAL)



PLAN

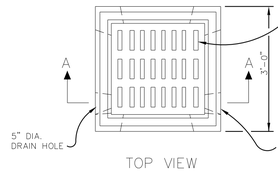
NOTE: INSIDE DIMENSIONS OF CONCRETE STRUCTURE ARE TO BE A MIN. OF 24"x 24"



SECTION A–A

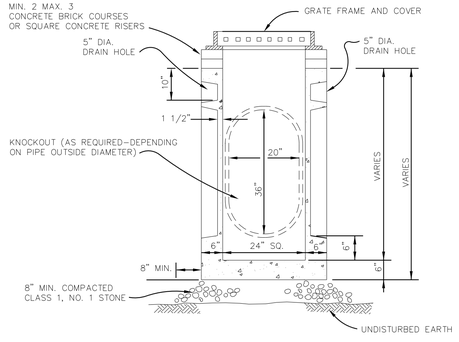
C2 STANDARD PRECAST CONCRETE DROP INLET

SCALE: N.T.S.



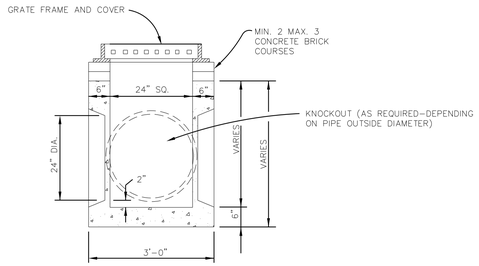
TOP VIEW

NOTE:
ALL CONCRETE BLOCK TO BE TREATED WITH RHEOMIX OR EQUAL. PARGE INSIDE OF BLOCKS.



SECTION A–A
STANDARD
316B

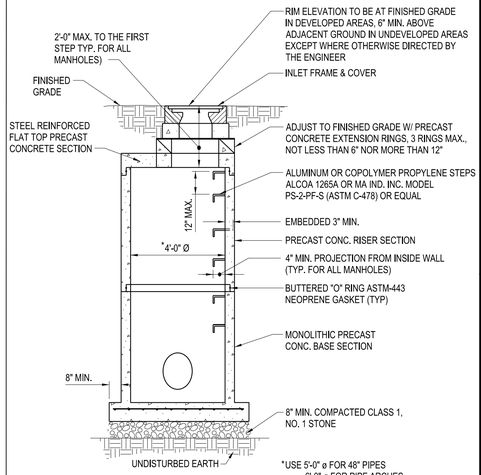
NOTE:
USE KISTNER CONCRETE PRODUCTS 24" SQ. DROP INLET WITH FRAME AND GRATE (MODEL 316B) OR EQUAL



SECTION A–A
SHALLOW
316BS

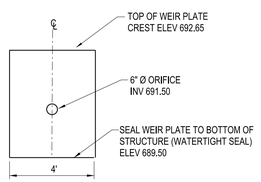
C4 STORM MANHOLE DETAIL

SCALE: N.T.S.

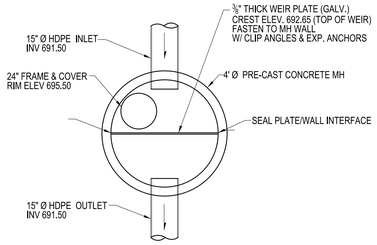


C3 WEIR PLATE - ELEVATION VIEW

SCALE: N.T.S.



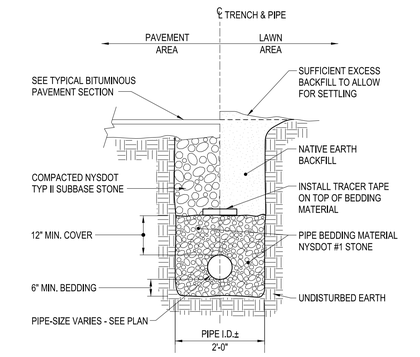
WEIR PLATE - ELEVATION VIEW

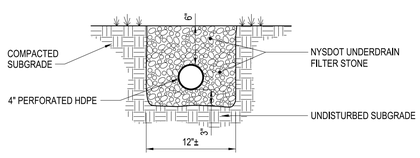


PLAN VIEW

B2 STORM PIPE TRENCH SECTION

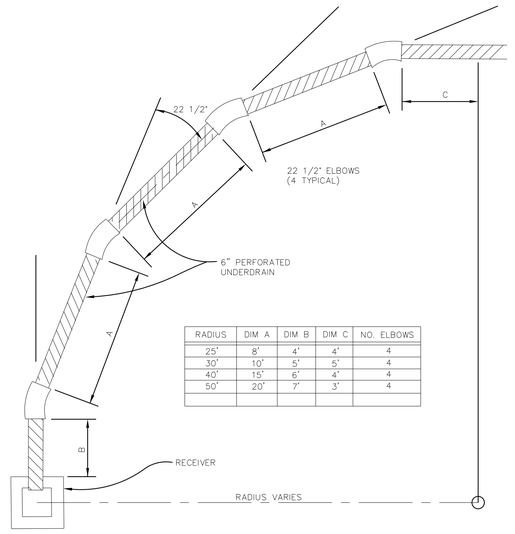
SCALE: N.T.S.





A3 TYPICAL UNDERDRAIN INSTALLED AROUND CURVE

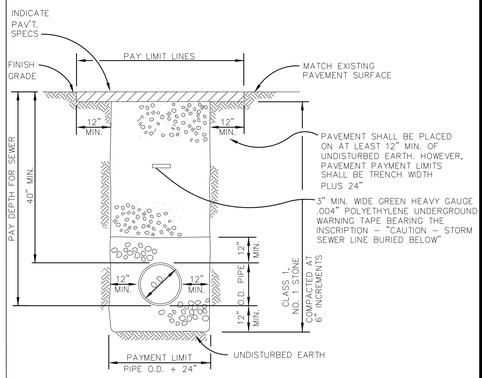
SCALE: N.T.S.



RADIUS	DIM A	DIM B	DIM C	NO. ELBOWS
25'	8'	4'	4'	4
30'	10'	5'	5'	4
40'	15'	6'	4'	4
50'	20'	7'	3'	4

A4 TYPICAL TRENCH DETAIL TOWN ROAD CROSSING

SCALE: N.T.S.



NOTE:
WHERE THE CONTRACTOR EXCAVATES BEYOND THE PAY LIMITS SHOWN : SELECT FILL AND PAVEMENT, SIDEWALK & DRIVEWAY REPLACEMENT OUTSIDE THE PAY LIMITS SHALL BE FURNISHED AND PLACED AT THE CONTRACTOR'S EXPENSE (TYP.)

A1 STORMWATER CONTROL STRUCTURE

SCALE: N.T.S.

A2 4" UNDERDRAIN

SCALE: N.T.S.

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089666 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

STORM SEWER DETAILS

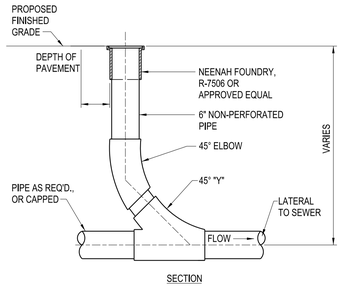
CS502

USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

D1 NOT USED

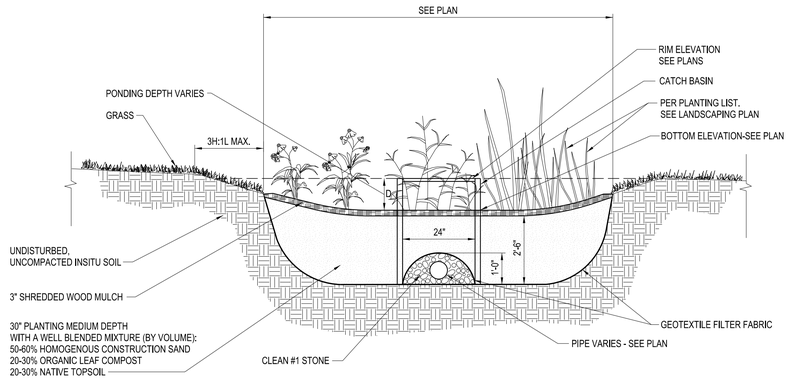
SCALE: N.T.S.



SECTION

C1 TYPICAL STORM SEWER CLEANOUT

SCALE: N.T.S.



C2 BIO-RETENTION CROSS-SECTION

SCALE: N.T.S.

EROSION CONTROL NOTES:

THE FOLLOWING EROSION CONTROL PROCEDURE SHALL BE ADHERED TO BY THE CONTRACTOR:

1. INSTALL TEMPORARY SILT FENCE BARRIERS AS SHOWN ON THE PLAN AND AT ALL EXISTING STORMWATER CATCH BASINS WITHIN THE WORK AREA TO PREVENT SEDIMENT MIGRATION. ALL SILT FENCE/SOCK BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS.

2. THE TOPSOIL SHALL BE STRIPPED & STOCKPILED ON SITE FOR RE-USE AS DIRECTED BY THE OWNER, ALL LOCAL ORDINANCES REGARDING THE SALE AND/OR REMOVAL OF TOPSOIL FROM THE SITE MUST BE FOLLOWED.

3. ALL SILT FENCES/SOCKS SHALL BE REPLACED WHENEVER THEY BECOME CLOGGED OR INOPERABLE.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENNACE & REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS.

5. THE CONTRACTOR MUST CONTROL DUST DURING CONSTRUCTION. DURING EARTHWORK OPERATIONS, WATER SPREADING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AND WATER APPLIED AS NECESSARY AND AS DIRECTED BY THE OWNER IN ORDER TO CONTROL DUST.

6. DIRT OR DEBRIS LEFT ON LOCAL PUBLIC ROADS AS A RESULT OF THIS CONSTRUCTION PROJECT SHALL BE REMOVED & ROAD SURFACES CLEANED BY THE CONTRACTOR ON A DAILY BASIS.

7. ALL DISTURBED AREAS (EXCEPT AREAS TO BE PAVED OR BUILT UPON) SHALL BE TOPSOILED TO A MINIMUM 4" DEPTH & SEEDED IMMEDIATELY AFTER FINE GRADING TAKES PLACE & AS SOON AS PHYSICALLY POSSIBLE.

8. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF DOWNSTREAM STORM SEWERS, DITCHES & CULVERTS. SILT BUILD-UP FOUND TO BE A RESULT OF THIS SITE CONSTRUCTION WORK SHALL BE REMOVED FROM DOWNSTREAM CULVERTS BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR THE TOWN.

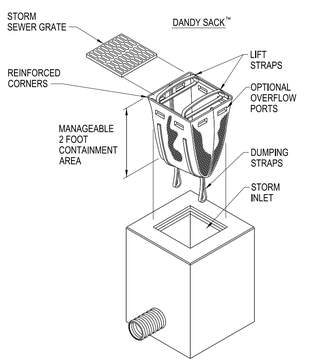
9. IN ADDITION TO STORM WATER DISCHARGES, THE FOLLOWING NON-STORM WATER DISCHARGES MAY CONTRIBUTE TO THE RUN-OFF FROM THE SITE:

- WATER FROM WATER SERVICE FLUSHINGS
- WATER USED TO WASH DOWN CONSTRUCTION VEHICLES (NO DETERGENTS)
- WATER USED FOR DUST CONTROL
- UNCONTAMINATED GROUNDWATER

10. THE ABOVE NON-STORM WATER FLOWS SHALL BE TREATED IN THE SAME MANNER AS STORM WATER FLOWS INDICATED HERIN.

C4 GENERAL NOTES

SCALE: N.T.S.



DANDY SACK™ SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW DANDY SACK™ (BLACK)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1,78 (400) x 1,40 (315)
GRAB TENSILE ELONGATION	ASTM D 4632	%	15 x 15
PUNCTURE STRENGTH	ASTM D 4833	kN (lbs)	0.67 (150)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	5506 (800)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	kN (lbs)	0,67 (150) x 0,73 (165)
UV RESISTANCE	ASTM D 4355	%	90
APPARENT OPENING SIZE	ASTM D 4751	Mm (US Std Sieve)	0,425 (40)
FLOW RATE	ASTM D 4491	1/min/m² (gal/min/ft²)	2852 (70)
PERMITTIVITY	ASTM D 4491	Sec⁻¹	0.90

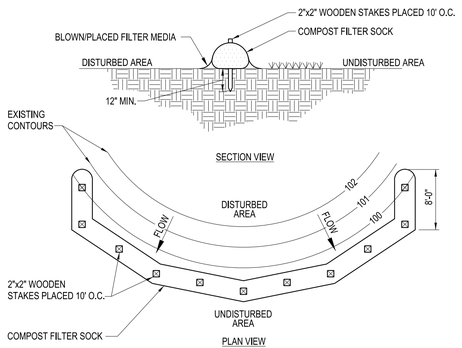
HI-FLOW DANDY SACK™ (SAFETY ORANGE)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1,62 (365) X 0,89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 X 10
PUNCTURE STRENGTH	ASTM D 4833	kN (lbs)	0.40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	3097 (450)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV RESISTANCE	ASTM D 4355	%	90
APPARENT OPENING SIZE	ASTM D 4751	Mm (US Std Sieve)	0,425 (40)
FLOW RATE	ASTM D 4491	1/min/m² (gal/min/ft²)	5907 (145)
PERMITTIVITY	ASTM D 4491	Sec⁻¹	2,1

*NOTE: DANDY SACKS™ CAN BE ORDERED WITH OUR OPTIONAL OIL ABSORBENT PILLOWS.

A1 FILTER SACK INLET PROTECTION

SCALE: N.T.S.



ADAPTED FROM DETAILS PROVIDED BY: FILTREXX

COMPOST STANDARDS TABLE	
ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT)
ORGANIC PORTION	FIBROUS & ELONGATED
PH	6,0 - 8,0
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	100 % PASSING A 1" SCREEN 10 - 50% PASSING A 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5,0 ds/M (mmhos/cm) MAXIMUM

1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 5.1. COMPOST SHALL MEET THE STANDARDS LISTED ON OF TABLE 5.2.

2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (FIGURE 5.2). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE X.X. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.

3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK & DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

5. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

6. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCKS, STAKES SHALL BE REMOVED, THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

A3 COMPOST FILTER SOCK

SCALE: N.T.S.

STABILIZED CONSTRUCTION ENTRANCE NOTES:

1. STONE SIZE - USE 2" STONE, WASHED, CRUSHED.

2. LENGTH - NOT LESS THAN 50 FEET

3. THICKNESS - NOT LESS THAN SIX (6) INCHES

4. WIDTH - TWELVE (12) FOOT MINIMUM, BU NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.

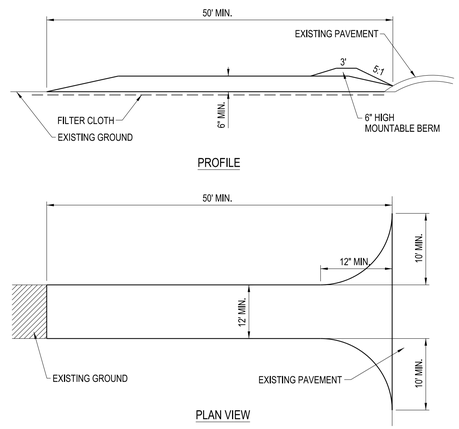
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

7. MAINTENANCE - THE ENTRANCE SHALL BE MANTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC-RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE & WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9. PERIODIC INSPECTION & NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



A4 TEMPORARY STABILIZED CONSTRUCTION ENTRANCE

SCALE: N.T.S.

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

JASON P. UTZIG — STATE OF NEW YORK — 089686 — LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

STORM SEWER & EROSION & SEDIMENT CONTROL DETAILS & NOTES

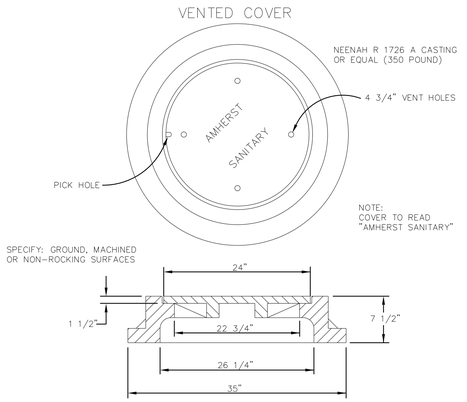
CS503

USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

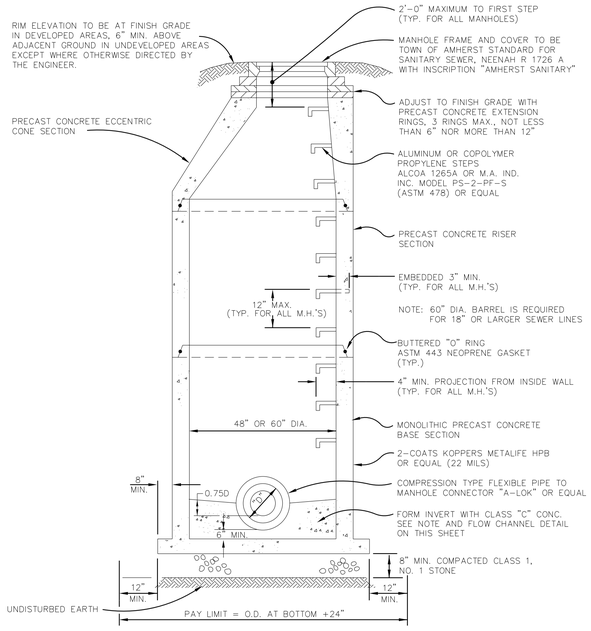
C1 STANDARD MANHOLE FRAME & COVER

SCALE: N.T.S.



C2 PRECAST CONCRETE MANHOLE

SCALE: N.T.S.



SANITARY SEWER TESTING METHODS

GENERAL NOTES

(A) LEAKAGE TESTS

01. THE TEST PERIOD WHEREIN THE MEASUREMENTS ARE TAKEN SHALL NOT BE LESS THAN 24 HOURS, REGARDLESS OF THE TEST METHOD USED.

02. THE TOTAL LEAKAGE OF ANY SECTION TESTED BY ANY TEST METHOD SHALL NOT EXCEED THE RATE OF 200 GALLONS PER MILE OF PIPE PER 24 HOURS PER INCH OF NOMINAL PIPE DIAMETER.

03. MANHOLES SHALL BE CONSIDERED AS SECTIONS OF 48" DIAMETER PIPE AND THE EQUIVALENT LEAKAGE ALLOWANCE SHALL BE COMPUTED PER NOTE 02 USING THE SUBMERGED HEIGHT OF MANHOLE AS THE LENGTH.

04. WHEN MANHOLES ARE TESTED SEPARATELY, ALL PIPE OPENINGS SHALL BE PLUGGED AND THE TEST PROCEDURES AND CRITERIA SHALL BE APPLIED IN THE SAME MANNER AS FOR TESTS INVOLVING ONLY THE PIPE OR A COMBINATION OF PIPE AND MANHOLES.

(B) INFILTRATION TEST CRITERIA FOR USE

01. THIS TEST METHOD MAY ONLY BE USED WHEN GROUND WATER LEVELS ARE AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE FOR THE ENTIRE LENGTH OF THE SECTION TO BE TESTED DURING THE ENTIRE PERIOD OF THE TESTS.

02. GROUND WATER LEVELS MAY BE MEASURED IN AN OPEN TRENCH OR IN STANDPIPES PREVIOUSLY PLACED IN BACKFILLED TRENCHES DURING BACKFILLING.

03. THE NUMBER OF STANDPIPES REQUIRED AND LOCATION OF THE SAME ARE TO BE AS ORDERED BY THE ENGINEER. STANDPIPES MAY BE OF ANY PIPE MATERIAL BUT MUST BE OF SUCH DIAMETER (2-1/2" MINIMUM) AS TO PERMIT THE INSERTION OF A RULE OR LEVEL ROD. CRUSHED STONE SHALL BE PLACED AROUND THE LOWER OPEN ENDS OF THE STANDPIPES.

04. STANDPIPES ARE TO BE REMOVED AT THE SATISFACTORY COMPLETION OF THE TESTS.

05. IF IN LIEU OF STANDPIPES, THE TRENCH IS TO BE LEFT OPEN FOR GROUND WATER OBSERVATION, THE LENGTH OF UNBACKFILLED TRENCH AT ANY ONE TIME MAY HAVE TO BE LIMITED FOR REASONS OF SAFETY.

(C) EXFILTRATION TEST CRITERIA FOR USE

01. THIS TEST CONSISTS OF FILLING THE PIPE WITH WATER TO PROVIDE A HEAD OF AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE OR ABOVE GROUND WATER WHICHEVER IS HIGHER AT THE HIGHEST POINT OF THE PIPE LINE UNDER TEST, AND THEN MEASURING THE LOSS OF WATER TO MAINTAIN THE ORIGINAL LEVEL.

02. IN THIS TEST THE PIPE LINE MUST BE FILLED WITH WATER AND ALLOWED TO REMAIN SO FILLED FOR AT LEAST 24 HOURS PRIOR TO TAKING MEASUREMENTS.

03. REGARDING GROUND WATER MEASUREMENTS: SEE NOTES 02 THROUGH 05 ABOVE.

04. REGARDING THE TEST STANDPIPE: THERE MUST BE SOME POSITIVE METHOD OF RELEASING ENTRAPPED AIR IN THE SEWER PRIOR TO TAKING MEASUREMENTS.

(D) DEFLECTION TEST FOR PVC SEWER PIPE

01. DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE GRAVITY SEWER PIPE. TESTS SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS.

02. NO PIPE SHALL EXCEED DEFLECTION OF 5%. DEFLECTION GAGE MAY BE BORROWED FROM THE TOWN ENGINEER FOR 8" AND 10" PIPE. THE DEFLECTION TEST MUST BE EXECUTED AFTER 30 DAYS OF PLACEMENT OF FINAL BACKFILL. THE TEST WILL ALSO BE DONE WITHOUT MECHANICAL PULLING DEVICES.

MANHOLE PLACEMENT AND MAINTENANCE DURING CONSTRUCTION AND DEVELOPMENT

CONTRACTOR AND/OR DEVELOPERS SHALL CONSTRUCT ALL MANHOLE STRUCTURES IN ACCORDANCE WITH THE TOWN OF AMHERST STANDARD SPECIFICATIONS OR THE SPECIFICATIONS OF THE DESIGN ENGINEER WHEN REQUIRED BY THE TOWN.

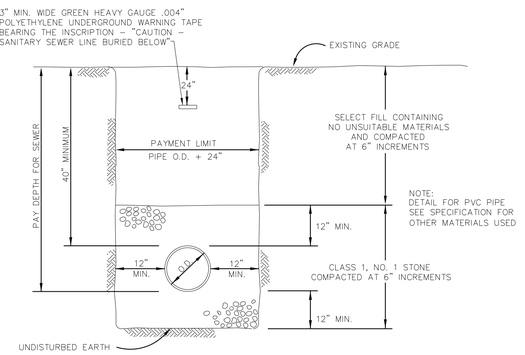
ALL MANHOLES ARE TO BE DESIGNED AND FURNISHED WITH RIM ELEVATIONS AT FINAL FINISHED GRADES. THE CONTRACTOR, DEVELOPER, OR HOME BUILDER SHALL BE RESPONSIBLE FOR ALL CORRECTIONS, ADJUSTMENTS, AND MODIFICATIONS NEEDED FOR RAISING, LOWERING, OR REPLACING ANY AND ALL MANHOLES AS PROPOSED FOR THE FACILITY.

ALL AS-BUILT STATIONING, LINE AND GRADE IMPROVEMENTS, INVERT AND RIM ELEVATIONS, "Y" LOCATIONS, INSPECTION REPORTS, ROADWAY OR STREET NAMES, RIGHT-OF-WAY WIDTHS, AND EASEMENT LINES SHALL BE FURNISHED TO THE TOWN ON A SET OF MYLAR DRAWINGS PRIOR TO TAP-IN APPROVAL, PIP ACCEPTANCE, AND/OR RELEASE OF FINAL PAYMENT.

ALL MANHOLE STRUCTURES SHALL BE MADE ACCESSIBLE TO THE TOWN OF AMHERST TELEVISION/MAINTENANCE CREWS. THE CONTRACTOR AND/OR DEVELOPER SHALL PROVIDE A DRY, WELL COMPACTED, STABLE SURFACE FREE FROM SHOW AND OBSTRUCTIONS FOR SAFE AND OPEN ACCESS WITH TOWN VEHICLES. SHOULD THE CONTRACTOR AND/OR DEVELOPER WISH TV INSPECTIONS DURING WET WEATHER/WET SOFT SOIL CONDITIONS, HE SHALL PROVIDE ALL NECESSARY GRANULAR BACKFILL, DISTRIBUTED AND COMPACTED TO SUPPLY ACCESS TO EACH MANHOLE. THE CONTRACTOR AND/OR DEVELOPER SHALL BEAR ALL COSTS OF TOWING, DOWN TIME, CREW TIME, AND DAMAGE ALONG WITH RESTORATION, SHOULD SUCH ACCESSWAYS FAIL.

B1 TYPICAL EARTH TRENCH DETAIL- UNPAVED & UNTRAVELED AREAS

SCALE: N.T.S.

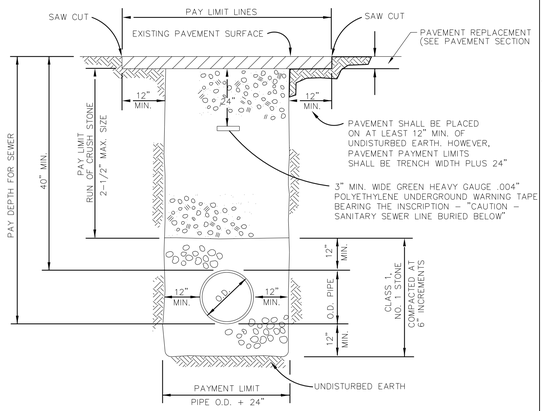


A1 NOT USED

SCALE: N.T.S.

A2 TYPICAL TRENCH SECTION - TOWN ROAD CROSSING

SCALE: N.T.S.



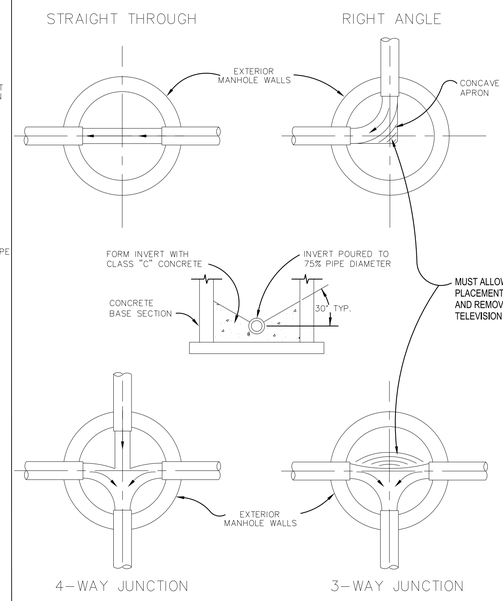
NOTE:
IF CONCRETE ENCASEMENT IS REQUIRED, IT SHALL BE INSTALLED IN PLACE OF (AND TO THE DIMENSIONS OF) THE PIPE BEDDING AND COVER TO 12" MIN. ABOVE AND BELOW THE PIPE (SEE WATER CROSSING DETAIL ON THIS SHEET)

NOTE:
WHERE THE CONTRACTOR EXCAVATES BEYOND THE PAY LIMITS SHOWN; SELECT FILL AND PAVEMENT, SIDEWALK & DRIVEWAY REPLACEMENT OUTSIDE THE PAY LIMITS SHALL BE FURNISHED AND PLACED AT THE CONTRACTOR'S EXPENSE. (TYP.)

FOR MAIN SEWERS
& HOUSE AND BUILDING CONNECTIONS

A3 FLOW CHANNEL DETAIL SANITARY SEWERS

SCALE: N.T.S.



NOTE : FLOW CHANNELS MUST ALLOW PLACEMENT, PASSAGE AND REMOVAL OF T.V. CAMERA'S. THE CAMERA DIMENSIONS ARE APPROXIMATELY 26" LONG X 6 1/2" SQ. A BLOCK OF WOOD OF THESE DIMENSIONS (MIN.) MAY BE USED TO SIMULATE THE SIZE OF THE CAMERA. THIS WILL SIMPLIFY THE FORMATION OF THE FLOW CHANNELS AND INVERTS

NOTE : DEPTH OF ALL CHANNELS TOO BE 75% PIPE DIAMETER.

NOTE : FINISH ALL CHANNELS AT PROPER GRADE AS TO ALLOW SMOOTH AND UN-OBSTRUCTED FLOW.

NOTE : ALL INVERTS TO BE FLUSH WITH THE INSIDES.

A4 TYPICAL TRENCH DETAIL TOWN ROAD CROSSING

SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

JASON P. UTZIG — STATE OF NEW YORK — 089686 — LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

SANITARY SEWER DETAILS

CS504

USER
DATE
SYSTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

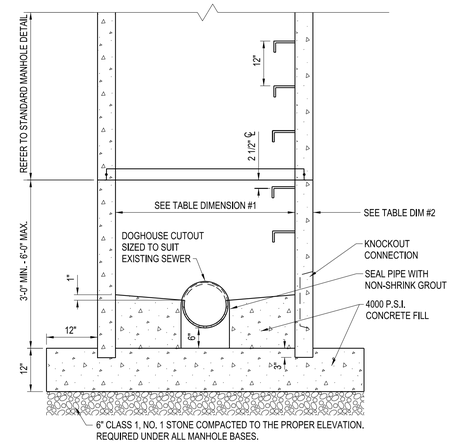
D1 NOT USED
SCALE: N.T.S.

D2 NOT USED
SCALE: N.T.S.

C1 NOT USED
SCALE: N.T.S.

C2 NOT USED
SCALE: N.T.S.

C3 PRECAST DOGHOUSE MANHOLE (ECDEP)
SCALE: N.T.S.



NOTE: AREA AROUND DOGHOUSE CUTOUT & PIPE TO BE MADE WATERTIGHT UTILIZING A HYDRAULIC CEMENT MIXTURE. (WATERPLUG, PRECO-PATCH OR APPROVED EQUAL.)

PIPE SIZE	DIMENSION #1	DIMENSION #2
8"-16"	4'-0" *	5"
18"	5'-0"	6"
21"-27"	5'-0"	6"
30"-36"	6'-0"	7"

* FOR DROP CONNECTIONS, INSIDE DIAMETER SHALL BE 5'-0"

GENERAL NOTES:

01. THE CONTRACTOR SHALL COMPLY WITH THE TOWN OF AMHERST STANDARD DRAWINGS AND SPECIFICATIONS.

02. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND THE TOWN OF AMHERST ENG. DEPT. OF ANY HAZARDOUS SUBSTANCE ENCOUNTERED DURING THE CONSTRUCTION OF THE WORK. HE SHALL AT HIS EXPENSE, CONFORM TO ALL LAWS, RULES, REGULATIONS AND DIRECTIONS AS PROMULGATED BY THE UNITED STATES DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, THE NEW YORK STATE DEPARTMENT OF HEALTH AND ANY SUCH LOCAL RULES, ORDINANCES AND LAWS WHEN ENCOUNTERING OR WORKING WITH ANY SUCH HAZARDOUS SUBSTANCE.

03. THE CONTRACTOR SHALL COMPLY IN ALL RESPECTS TO THE INDUSTRIAL CODE PART (RULE NO.) 53 RELATING TO CONSTRUCTION, EXCAVATION AND DEMOLITION OPERATIONS AT OR NEAR UNDERGROUND FACILITIES, AS ISSUED BY THE STATE OF NEW YORK DEPARTMENT OF LABOR, BOARD OF STANDARD AND APPEALS.

04. SINCE THE ERIE COUNTY WATER AUTHORITY OPERATES AND MAINTAINS THE EXISTING WATER LINES, THEY ARE TO BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF THE START OF CONSTRUCTION. ALL EXISTING VALVES ARE TO BE OPERATED BY THE ERIE COUNTY WATER AUTHORITY PERSONNEL.

05. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AHEAD OF THE PIPE LAYING OPERATION, SO THAT, IF MINOR ADJUSTMENTS MUST BE MADE IN ELEVATION AND/OR ALIGNMENT DUE TO INTERFERENCE FROM THESE UTILITIES, SAID CHANGES CAN BE MADE IN ADVANCE OF THE WORK.

06. WHERE SUCH FACILITIES ARE UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER, HE SHALL CERTIFY TO THE ENGINEERING DEPARTMENT OF THE TOWN OF AMHERST THAT SAID FACILITIES AS CONSTRUCTED WERE SUPERVISED BY HIMSELF (HERSELF) AND THAT THE WORKS HAVE BEEN FULLY COMPLETED IN ACCORDANCE WITH THE APPROVED ENGINEERING REPORTS, PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND ANY AND ALL ADDENDA TO SAME.

07. THE CONSTRUCTION OF THE FACILITIES SHALL BE UNDER THE SUPERVISION OF A PERSON OR FIRM QUALIFIED TO PRACTICE PROFESSIONAL ENGINEERING IN NEW YORK STATE UNDER THE EDUCATION LAW OF THE STATE, WHENEVER ENGINEERING SERVICES ARE REQUIRED BY SUCH LAW FOR SUCH PURPOSES.

08. A WRITTEN CERTIFICATE OF CONSTRUCTION COMPLIANCE, INCLUDING THE RESULTS OF HYDROSTATIC LEAKAGE TESTS, MADE BY THE PROFESSIONAL ENGINEER SUPERVISING THE CONSTRUCTION, SHALL BE SUBMITTED TO THE ERIE COUNTY DEPART. OF ENVIRONMENT PLANNING AND NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION WITHIN THIRTY (30) DAYS AFTER CONSTRUCTION COMPLETION.

09. UNSUITABLE MATERIALS SUCH AS FROZEN ORGANIC AND/OR VEGETABLE MATERIAL, DEBRIS, TREES, LUMBER, LARGE STONES OR CLODS (6.0" OR LARGER), MUCK, PEAT, ORGANIC SILT WILL NOT BE ACCEPTABLE FILL AND CERTAIN MAN-MADE DEPOSITS OF INDUSTRIAL WASTE, SLUDGE OR LANDFILL MAY ALSO BE DETERMINED AS UNSUITABLE HAZARDOUS MATERIAL.

10. THE COMPACTION OF ALL MATERIALS WILL OCCUR AT 6" INCREMENTS.

11. VERIFICATION OF ALL EXISTING EASEMENTS IS THE RESPONSIBILITY OF THE DESIGN ENGINEER AND THEY MUST BE SHOWN ALONG WITH ALL PROPOSED EASEMENTS ON PLAN DRAWINGS.

12. SHOULD A FLUID CONDITION BE ENCOUNTERED AT THE TRENCH BOTTOM, THE CONTRACTOR IS TO INSTALL ADDITIONAL STONE CRADLE AS ORDERED BY THE ENGINEER.

13. ALL PIPE CROSSING UNDER PAVED AREAS ARE TO BE BACKFILLED TO SUBGRADE WITH COMPACTED SELECT MATERIAL TO FIVE (5) FEET OUTSIDE THE PAVEMENT EDGES.

14. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A QUALIFIED TREE EXPERT TO REMOVE, WHERE NECESSARY, BRANCHES WHICH INTERFERE WITH THE CONSTRUCTION OPERATION, OR REPAIR TREES HAVING SUFFERED DAMAGE BY CONSTRUCTION ACTIVITIES. THE COST INVOLVED IN THE ABOVE IS TO BE INCLUDED IN THE VARIOUS ITEMS OF THE CONTRACT.

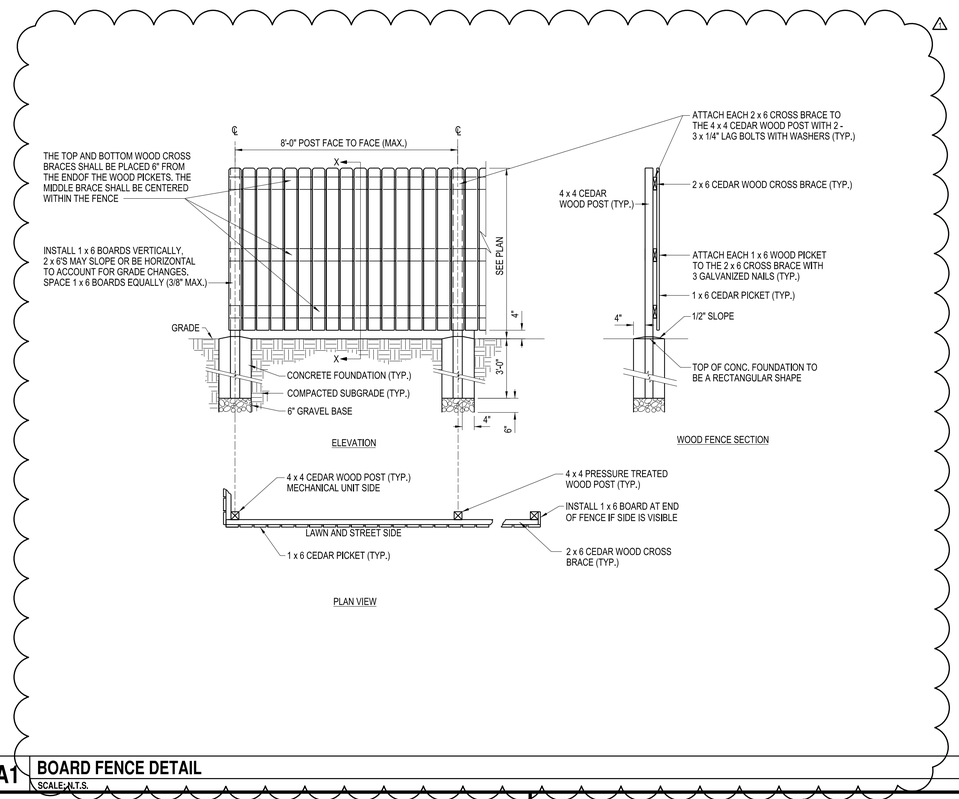
15. SEWERS SHALL BE LAID AT LEAST TEN (10) FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A TEN FOOT SEPARATION, THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THAT THE WATERMAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND AT AN ELEVATION SO THE BOTTOM OF THE WATERMAIN IS AT LEAST 18" (46CM) ABOVE THE TOP OF THE SEWER.

16. SEWERS CROSSING WATERMAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46CM) BETWEEN THE OUTSIDE OF A WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATERMAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATERMAIN JOINTS. WHERE A WATERMAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER, TO PREVENT DAMAGE TO THE WATERMAIN.

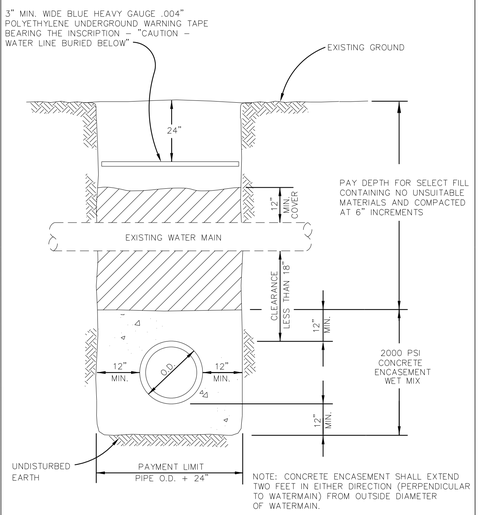
17. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER PIPE AND SHALL BE PRESSURE TESTED AS TO ASSURE WATERTIGHTNESS PRIOR TO BACKFILLING.

18. THE PIPE SHALL BE P.V.C. SEWER PIPE CONFORMING TO THE LATEST REVISIONS OF ASTM DESIGNATION D-3034, SDR-35, INSTALLED IN ACCORDANCE WITH ASTM.

19. THE MANHOLE COVERS ARE TO BEAR THE INSCRIPTION "AMHERST SANITARY".



A1 BOARD FENCE DETAIL
SCALE: N.T.S.



NOTE: CONCRETE ENCASEMENT SHALL EXTEND TWO FEET IN EITHER DIRECTION (PERPENDICULAR TO WATERMAIN) FROM OUTSIDE DIAMETER OF WATERMAIN.

A3 WATER CROSSING DETAIL CLEARANCE LESS THAN 18"
SCALE: N.T.S.

A4 GENERAL NOTES
SCALE: N.T.S.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

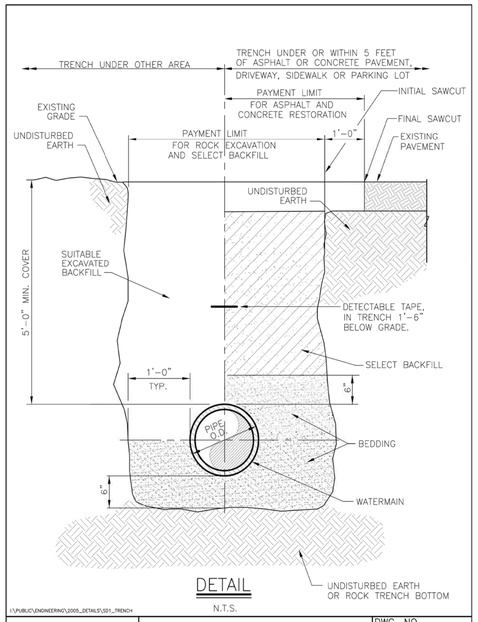
1

SITE & SANITARY SEWER DETAILS

CS505

USER
DATE
SYSTIME
TIME

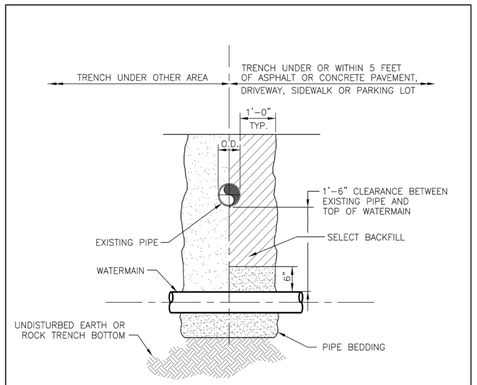
Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



DETAIL
N.T.S.

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD1_TRENCH

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TRENCH THROUGH 12–INCH DIAMETER WATERMAIN	DWG. NO. SD1
		DATE 4/28/92 · REVISED 10/05



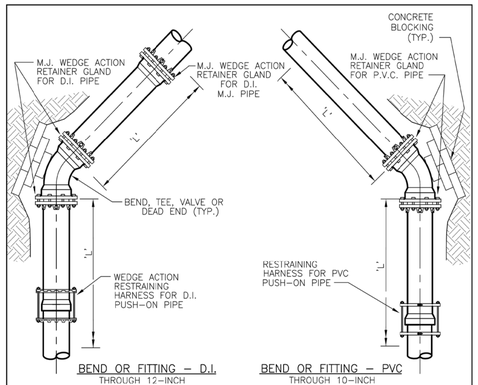
NOTES:

1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18 FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2
		DATE 4/28/92 · REVISED 10/05



BEND OR FITTING – D.I. THROUGH 12–INCH

BEND OR FITTING – PVC THROUGH 10–INCH

RESTRAINED JOINT SCHEDULE

PIPE SIZE	PIPE TYPE	11.25° ELBOW 'L'	22.5° ELBOW 'L'	45° ELBOW 'L'	TEE BRANCH, 90° BEND, VALVE OR DEAD END 'L'
8"	PVC	3'	5'	11'	70'

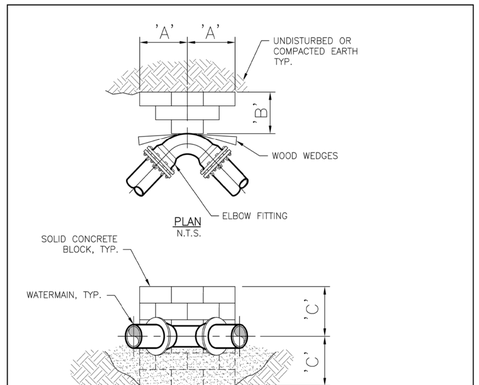
NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN
N.T.S.

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD4_REST_JOINT_SCHED

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL RESTRAINED JOINT SCHEDULE	DWG. NO. SD4
		DATE 4/28/92 · REVISED 10/05



PLAN
N.T.S.

ELEVATION
N.T.S.

NOTE:

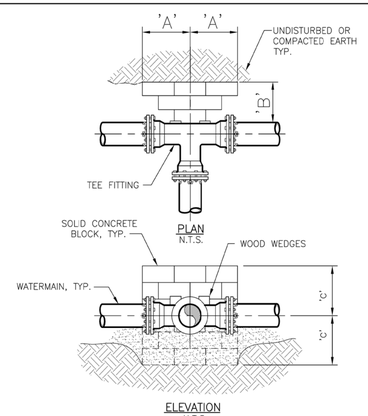
1. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

DIMENSION SCHEDULE

PIPE SIZE	11.25° ELBOW 'A'	'B'	'C'	22.5° ELBOW 'A'	'B'	'C'	45° ELBOW 'A'	'B'	'C'	90° ELBOW 'A'	'B'	'C'
8"	0.75	1.0	0.75	1.125	1.0	1.125	1.5	1.0	1.5	N/A	N/A	N/A

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD6_THRUST_BLOCKS_ELBOW

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR ELBOW FITTING	DWG. NO. SD6
		DATE 4/28/92 · REVISED 10/05



PLAN
N.T.S.

ELEVATION
N.T.S.

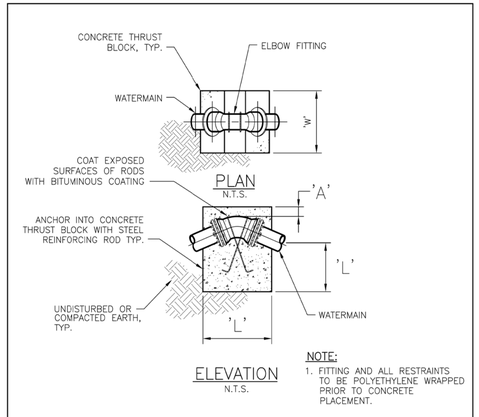
NOTES:

1. THRUST BLOCK REQUIRED FOR TEES, HYDRANT LATERAL TEES AND TAPPING SLEEVE INSTALLATIONS.
2. FITTING TO BE POLYETHYLENE WRAPPED PRIOR TO BEDDING AND CONCRETE BLOCK PLACEMENT.

BRANCH TEE SIZE	DIMENSION SCHEDULE 'A'	'B'	'C'
8"	2.25'	1.0'	1.25'

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD7_THRUST_BLOCKS_TEE

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR TEE OR "DEAD END" FITTING	DWG. NO. SD7
		DATE 4/28/92 · REVISED 10/05



ELEVATION
N.T.S.

NOTE:

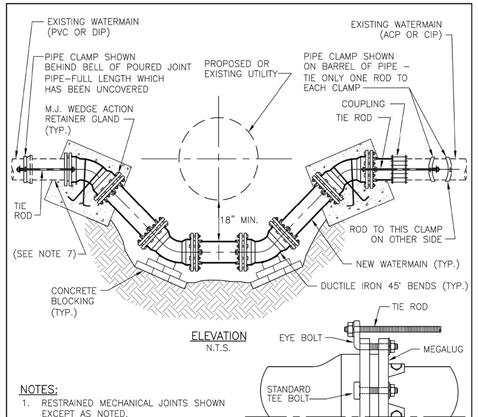
1. FITTING AND ALL RESTRAINTS TO BE POLYETHYLENE WRAPPED PRIOR TO CONCRETE PLACEMENT.

DIMENSION SCHEDULE

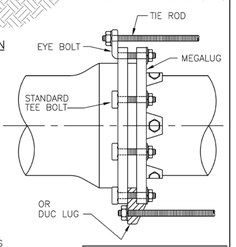
PIPE SIZE	PIPE TYPE	11.25° ELBOW 'A'	'W'	'L'	ROD ø	22.5° ELBOW 'A'	'W'	'L'	ROD ø	45° ELBOW 'A'	'W'	'L'	ROD ø
8"	PVC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.50'	6.0'	6.0'	#4

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD8_THRUST_BLOCKS_VBEND

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL THRUST BLOCKS FOR VERTICAL BEND	DWG. NO. SD8
		DATE 4/28/92 · REVISED 10/05



ELEVATION
N.T.S.



NOTES:

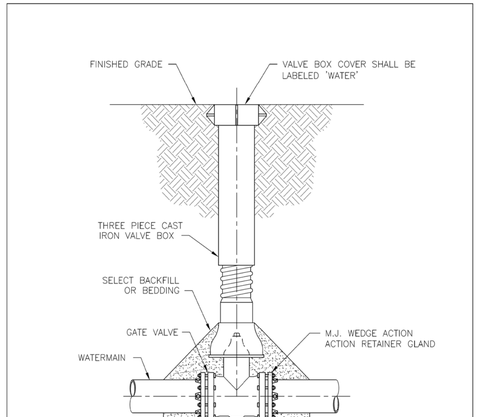
1. RESTRAINED MECHANICAL JOINTS SHOWN EXCEPT AS NOTED.
2. TIE TOP BENDS BACK TO FULL LENGTH OF PIPE IN UNEXCAVATED TRENCH.
3. VALVES, TEES AND HYDRANTS MAY BE HARNESSED SIMILARLY.
4. HARNESSING IS FOR RESISTANCE TO INTERNAL PRESSURES–PIPE ITSELF MUST BE SUPPORTED ON FIRM BEDDING AND CAREFULLY BACKFILLED.
5. COAT ALL EXPOSED SURFACES OF HARNESS ASSEMBLY WITH BITUMINOUS COATING.
6. TIE RODS SHALL BE PLACED ON SIDES OF PIPE.
7. IF EXISTING PIPE IS CIP OR PVC, CONNECT TO NEW FITTING ONLY WHEN ALLOWED BY ENGINEER.

TIE ROD SCHEDULE

PIPE SIZE	PIPE TYPE	ROD ø	NUMBER OF RODS
8"	PVC	#4	2

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD10_HARN_OFFSET_EXIST_MAIN

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL HARNESSING DETAILS–INSTALL OFFSET IN EXISTING WATERMAIN	DWG. NO. SD10
		DATE 6/00 · REVISED 10/05



NOTES:

1. VALVE SHALL NOT SUPPORT VALVE BOX.
2. GATE VALVE SHALL BE INSTALLED LEVEL.
3. VALVE BOX SHALL BE PLUMB TO GRADE, WITH OPERATING NUT CENTERED IN BOX.

SECTION
N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD11_GATE_VALVE_SET

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GATE VALVE SETTING	DWG. NO. SD11
		DATE 4/28/92 · REVISED 02/17

C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

JASON P. UTZIG — STATE OF NEW YORK — 089686 — LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

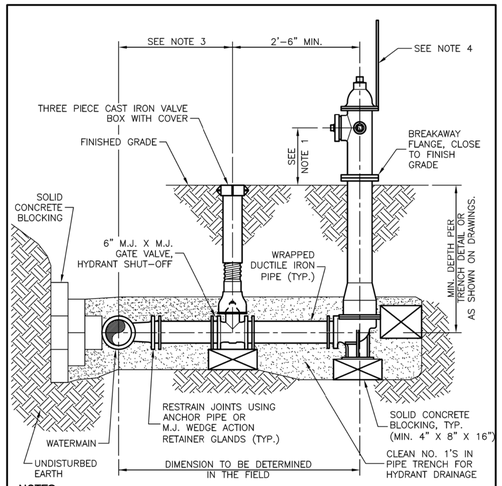
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATERMAIN DETAILS

CS506

USER *DATE* *SYTIME* *TIME*

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



NOTES:

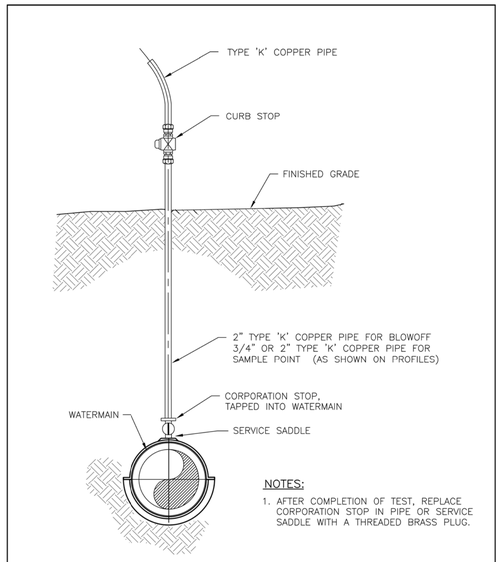
1. CENTERLINE OF THE LOWEST NOZZLE TO FINISHED GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT.
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.
5. HYDRANT FACE TO BE A MINIMUM OF 3' FROM THE BACK FACE OF ALL CURBS OR A MINIMUM OF 5' FROM ALL EDGES OF PAVEMENT (IF NO CURB).

SECTION

N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD13_HYD_INST

		DWG. NO. SD13	
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL FIRE HYDRANT INSTALLATION	DATE 6/00	REVISED 11/16



NOTES:

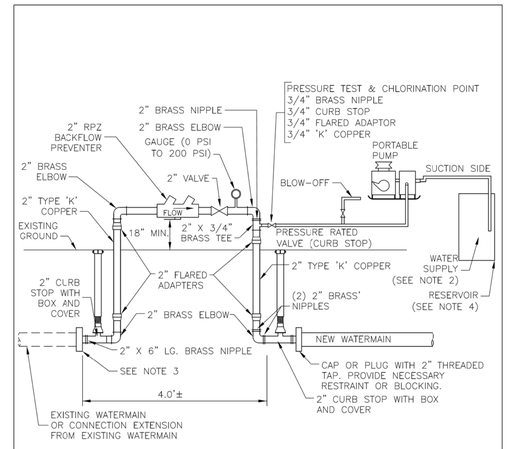
1. AFTER COMPLETION OF TEST, REPLACE CORPORATION STOP IN PIPE OR SERVICE SADDLE WITH A THREADED BRASS PLUG.

ELEVATION

N.T.S.

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD17_TEMP_BO_SAMP_PT

		DWG. NO. SD17	
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL TEMPORARY BLOW-OFF/SAMPLING POINT	DATE 4/28/92	REVISED 10/05



NOTES:

1. BACTERIOLOGICAL WATER SAMPLES SHALL BE TAKEN AT WATERMAIN BEGINNING AND END OF STATION AND AT MAXIMUM 1000 FT. SPACING.
2. FOR PRESSURE TESTING PROVIDE CLEAN WATER SUPPLY. FOR DISINFECTION PROVIDE CHLORINATED WATER SUPPLY.
3. CAP OR PLUG WITH 2-INCH THREADED TAP OR 2-INCH TAP INTO MAIN. PROVIDE NECESSARY RESTRAINT AND BLOCKING.
4. DIAMETER OF RESERVOIR SHALL BE 15" OR LESS. IF DIAMETER IS GREATER THAN 15", LEAKAGE TEST SHALL BE RUN A MINIMUM OF 4 HOURS.
5. PRESSURE TEST CANNOT EXCEED 2000 LINEAR FEET PER TEST STATION.

DETAIL

N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD23_PRESS_TEST_SCHEM

		DWG. NO. SD23	
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PRESSURE TESTING AND DISINFECTION APPARATUS SCHEMATIC	DATE 6/00	REVISED 7/16

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR'S work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed, or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install the watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as-needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority shall only operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers in writing of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

		DWG. NO. SD29	
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DATE 3/05	REVISED 7/17

11. All watermain piping shall be installed with a minimum of 5'-0" of cover.
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment, and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be scheduled and returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga, New York 14227.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict access for school buses or any emergency vehicles.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for review prior to the start of testing.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants, and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

		DWG. NO. SD30	
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DATE 3/05	REVISED 7/17

PIPE DIAMETER (in)	PIPE MATERIAL		WORKING PRESSURE (psi)	TEST PRESSURE (psi)
	Type	Rating		
8-INCH	PVC	DR 18	150	170

(Fill in project-specific values in table. Items shown are for example only.)

I:\PUBLIC\ENGINEERING\2005_DETAILS\SD31_PRESS_TEST_SCHED

		DWG. NO. SD31	
ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	PRESSURE TESTING SCHEDULE	DATE 10/05	REVISED

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 059666 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATERMAIN DETAILS

CS507

USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

FACILITY WATER DISTRIBUTION PIPING SPECIFICATION

PART 1 - GENERAL

1.1 SUBMITTALS:

A. Shop drawings and Product data on pipe and all appurtenances (i.e. joints, fittings, hydrants, etc.). Contractor shall also submit a materials list providing full information for all components of the system, including the materials of construction.

B. Manufacturer's descriptive literature, recommendations for installation and Operation and Maintenance information.

C. Manufacturer's certification that products meet specification requirements and are required for each shipment.

D. Certified copies of all test and disinfection reports.

1.2 PRODUCT DELIVERY, STORAGE, AND HANDLING:

A. Unload at the point of delivery, haul to and distribute at the site all pipe and accessories. Equipment for unloading shall be utilized so as to avoid damage to material. Material is not to be dropped, bumped, or damaged. During delivery, handling and storage, all materials shall be braced and protected from any distortion or damage in accordance with the manufacturer's requirements. Any distortion or damage shall be basis for rejection of materials.

B. The Contractor will replace, at his expense, all material found defective in manufacture or during handling.

C. Keep the interior of all pipes and appurtenances free from dirt and foreign matter at all times.

D. All pipe and appurtenances shall be stored in accordance with the manufacturer's recommendations and off the ground unless otherwise stated by the Engineer. Store to prevent distortion of pipe, both linear and round.

E. Store materials in locations that do not cause interference or safety hazards with private or public access traffic.

1.3 JOB CONDITIONS

A. Protection:
1. At the end of each day or when pipe laying is not in progress, place watertight plugs in the ends of all pipelines and appurtenances to keep dirt and other substances from entering the pipe.

1.4 QUALITY ASSURANCE

A. Reference Standards (Latest Revisions)
1. AWWA
2. ASTM
3. Other agency or local standards applicable to water distribution systems.

B. Parts Interchangeability
1. Components (pipe and appurtenances) provided under this section shall be the standard product in regular production by manufacturers whose products have proven reliable in similar services for at least two (2) years.
2. In so far as possible, components shall be product of the same manufacturer.

1.5 REGULATORY REQUIREMENTS

A. Sequence, coordinate and perform all work in accordance with applicable codes and regulations, including those of government and/or local agencies of authority and jurisdiction for all related activity. Any conflict arising from differences between the plans, specifications and applicable codes and regulations shall be immediately brought to the attention of the Engineer and shall be resolved prior to construction.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Pipe
1. Material shall conform with AWWA C900 for polyvinyl chloride pipe.
a. Polyvinyl pipe in sizes from 4-inches to 12-inches in diameter, shall be made from class 12454-8 materials or better in accordance with ASTM D1784.
b. Pipe shall be a minimum of DF DR-18.
2. 2" and smaller services-type 'K' copper.

B. Fittings
1. Material shall be ductile iron mechanical joint type conforming to AWWA C110, AWWA C111 and AWWA C153; interior coating of double thickness cement lining per AWWA C104; exterior bituminous coating (standard). All fittings to be furnished with sufficient accessory quantities.
2. Hydrant tees shall be anchoring type; Acceptable manufacturers – Mueller Company or approved equal.

C. Anchorage Installation

1. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:
a. Locking mechanical joints.
b. Set-screw mechanical retainer glands.
c. Pipe clamps and tie rods.

D. Gate Valves (Resilient Seat)
1. Conforming to AWWA C509 and AWWA C111, including working and test pressures for applicable valve sizes
2. Valves shall have mechanical joint ends. Suitable steel rods shall be installed between the main mechanical joint bell outlet and the valve (and/or fittings) to resist movement under pressure when the valve is closed. All bolts and nuts shall be fluorocarbon coated stainless steel or high strength corrosion resistant alloy steel unless otherwise stated.
3. The body, bonnet, seal plate, discs and hub nuts shall be iron. Ends shall conform to applicable standards for ductile iron pipe fittings.
4. Valve shall have non-rising stem. The non-rising valve stem, stem nuts, glands and bushings shall be bronze.
5. Shaft "O-ring" seals shall be synthetic rubber or Buna-N.
6. "O-ring" seals and non-rising stems shall withstand a minimum working pressure of 250 psi and a minimum test pressure of 500 psi.
7. All internal parts shall be accessible without removing the main body from the pressure line.
8. Operators shall be as specified in AWWA C509 for submerged, buried or in-plant service. Operators shall be equipped with a 2-inch square operating nut and shall be fully gasketed and grease packed for buried service. Operating nuts shall turn counterclockwise to close the valve. Buried operators with the operating nut greater than 8 feet below finished grade will be furnished an extension stem, centering device and operating nut. The extension stem shall come within 3 feet of the finished grade.
9. Acceptable manufacturers – Mueller Company or approved equal.
10. Valve shall open in a counter-clockwise direction.

E. Valve Boxes
1. Adjustable screw type valve box; 2 or 3-piece model with minimum 1-foot adjustment.
2. Valve box shall have a barrel not less than 5-1/4" inches in diameter with a base to fit the valve on which is to be installed.
3. The word "WATER" shall be cast in the cover.
4. Acceptable Manufacturers – Mueller Company or approved equal.

F. Hydrant Assemblies
1. Conforming to AWWA C502 and AWWA C111.
2. General – Hydrants shall have manufacturer's name cast in raised letters on hydrant body. All bolts required to connect buried valves shall be Type 304 Stainless Steel or fluorocarbon coated, high strength corrosion resistant alloy steel. All other bolts, nuts and studs shall conform to ASTM A 307, Grade B; or ASTM A 354 unless otherwise specified. Bolts and nuts shall have hexagon heads. Gasket material shall conform to manufacturer's recommendations. Hydrant shut-off gate valve shall be resilient seat.
3. Hydrant shall be cast iron body, break-away type barrel, "O-ring" operating stem seal and suitable for 250 psi maximum working pressure and 500 psi minimum test pressure. All operating parts, including brass valve seat, shall remove through the barrel without excavation. Operating nuts and caps shall be 1-1/2" pentagon and shall turn clockwise to close.
4. Hydrant shall be compression type, with valve opening not less than 5-⅛ inches and non-rising stems. Valve shall open against pressure and shall close with pressure.
5. Hydrant shall have two 2 National Standard hose connections and one 5-inch pumper connection with National Standard threads and operating nuts.
6. Barrel length shall provide for a minimum of 6 foot bury (extensions to be provided if required by finish grade).
7. Inlet shall be 6-inch mechanical joint unless otherwise specified.
8. Weep holes shall be provided for drainage.
9. Acceptable manufacturers – Mueller Company 5-1/4" barrel or approved equal.
10. Hydrant shall open in a counter-clockwise direction.

2.2 STONE BEDDING

A. NYSDOT No. 1 Stone.

2.3 LOCATOR TAPE

A. Mylar encased aluminum foil tape suitable for direct burial. Minimum width of 2 inches with lettering "CAUTION BURIED WATER LINE BELOW."

PART 3 – EXECUTION

3.1 PAINTING

A. The interior wetted surfaces of system fittings and appurtenances, except finished or bearing surfaces, shall be shop painted in accordance with NSF specifications for potable water and applied in accordance with the manufacturer's recommendations. Exterior surfaces shall receive two coats of heavy coal tar enamel or two-component coal-tar epoxy unless otherwise specified.

3.2 INSPECTION

A. Pipe and Appurtenances
1. All pipe and appurtenances will be inspected by the Engineer prior to installation. Carefully inspect all pipe prior to installation.
2. Do not use damaged components. Remove defective components from site.
4. Any pipe or appurtenance found to be broken or defective after it has been installed, shall be removed and replaced at the Contractor's expense.
5. Pipe to be straight to within 3/8" per length.

B. Trench:
1. Prior to work in this section, the Contractor shall inspect the installation area to determine if the work of other trades has progressed to the point where the installation may properly commence.
2. Contractor shall verify that the installation can proceed in accordance with all pertinent codes and regulations, the original design and referenced standards. The Contractor shall immediately notify the Engineer of any discrepancies. The Contractor shall not proceed with the installation in areas of discrepancy until the discrepancy has been resolved.
3. Insure that trench bottom is to proper line and grade.

3.3 PREPARATION

A. Trench:
1. Bed all pipe in stone as shown on the drawings.
2. Dig bell holes sufficiently large to insure proper mating, checking and bedding of joints.

B. Location, Grade and Cover
1. Pipelines and appurtenances shall be located as shown on the Contract Drawings or as directed and established from the control survey in accordance with general project requirements. Alignments and grades shall be determined and maintained by methods acceptable to the Engineer. Any section of pipe or appurtenance found to be laid at the wrong grade or to have settled shall be dug up and reinstalled to the satisfaction of the Engineer at the Contractor's expense.
2. Pipeline and appurtenances shall be installed with no less than the minimum cover indicated by the Contract drawings and governing authority. No pipe or appurtenance shall be laid upon a foundation in which frost may exist or develop.

C. Pipe and Appurtenances
1. Clean pipe and appurtenances thoroughly.
2. As applicable, apply proper lubricant in accordance with the manufacturer's written instruction.
3. Insert gasket and seal it if required, in accordance with the manufacturer's written directions.
4. If field cutting of pipe is necessary, leave a smooth end in accordance with the manufacturer's written instructions.

3.4 EXECUTION

A. General

1. Excavation, subgrade preparation, pipe bedding and backfilling shall be in accordance with the Contract drawings.
2. Blocking will not be permitted under pipe or appurtenances, except where the pipe or appurtenance is to be laid with concrete cradle or encasement.
3. Pipe and appurtenance shall be laid upon a foundation of select material, unless otherwise specified. The top of this layer shall be considered to be the bottom of the trench.
4. Temporary bulkheads shall be placed in all open ends of the installation (i.e. pipe) whenever installation activities are not actively in progress. The bulkheads shall be designed to prevent the entrance of dirt, debris or water.
5. Precautions shall be taken to prevent flotation or movement.
6. Installation shall include thrust restraints in the form of thrust blocks, tie rods, anchors, etc. of the size and type specified by the Contract drawings or as required by the pressure and stability of the supporting surface. Thrust restraints shall be installed at all changes in direction, changes in size, dead ends or other locations as shown. Thrust restraints shall be in place and concrete shall have developed the required strength prior to testing.

B. Interconnections and Abandonments
1. No work shall begin on the interconnections until the Engineer and governing water authority authorize the work. The Contractor shall not operate existing valves. Existing valves will be operated by the governing water authority only. The Contractor is advised that watertight conditions may not exist when existing valves are closed. The Contractor shall consider this in the bid. The maximum allowable shutdown of any existing water system shall be as per the requirements of the governing water authority. The work shall be scheduled through the Engineer and governing water authority to provide a minimum of three (3) days advance notice prior to the work.
2. Caps (or plugs) on pipe shall be mechanically restrained watertight caps (or plugs) compatible with the pipe being capped and suitable to resist thrusts due to operating pressures.
3. The Contractor shall perform test pits at existing pipes, valves, etc. to assess conditions and determine requirements for construction activity and interconnections.
4. Removal and/or abandonment of existing pipelines or appurtenances will be carried out as per the requirements of the Engineer and governing water authority.

C. Pipe Installation
1. Except as otherwise specified, all pipe shall be installed in accordance with the requirements of the governing water authority, AWWA C600 and applicable codes and regulations.
2. Carefully handle and lower pipe into the trench so as not to damage pipe or coatings.
3. Lay pipe with bell end facing upstream in respect to design flow direction.
4. Properly bed and secure each length of pipe prior to bringing next length of pipe into position.
5. Firmly bed and backfill each pipe for the full length of the barrel, on a solid stone bed as shown on the drawings.
6. Abut each length against the next in such a manner that there is no shoulder or unevenness of any kind along the inside of the bottom of the pipe.
7. All joint surfaces shall be clean prior to connection. Use a method to push or pull the joints home appropriate for size of pipe. Joints shall be assembled using gaskets, lubricants, etc. as furnished by the pipe manufacturer and in accordance with the manufacturer's recommendations.
8. Take appropriate precautions when pushing or pulling the joints home to prevent damage to the pipe or joint. Keep joints straight while pushing home.
9. Check the position of the gasket in each joint carefully.
10. Do not walk on the pipe until at least 12 inches of backfill is properly placed over the pipe.
11. Install pipe with manufacturer's lettering up.

D. Fittings Installation
1. Installation of fittings shall be in accordance with Section 3.4C Pipe Installation, Contract drawings, approved shop drawings and the manufacturer's recommendations.

E. Gate Valves

1. Installation of valves shall be to the configuration shown on the Contract drawings, approved shop drawings and in accordance with the manufacturer's recommendations.
2. Valves shall be installed between the hydrant and the main line at each hydrant installation as shown on the Contract drawings.
3. Valves shall be set on solid bearing, installed plumb and in a closed position unless otherwise specified.

G. Valve Boxes
1. Installation of valve boxes shall be to the configuration shown on the Contract drawings, approved shop drawings, in accordance with the manufacturer's recommendations and requirements of the governing water authority.
2. Valve boxes shall be set plumb, centered over the valve and shall be independently supported so no weight is transmitted to the valve or carrier pipe.

3.5 ANCHORAGE INSTALLATION

A. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:

1. Locking mechanical joints.
2. Set-screw mechanical retainer glands.
3. Pipe clamps and tie rods.

B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:

1. Gasketed-Joint, Ductile Iron Water-Service Piping: According to AWWA C600.

C. Apply full coat of bituminous or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089695 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATERMAIN NOTES

CS508

USER **DATE** **SYTIME** **TIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

SECTION 15140

TESTING AND DISINFECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified
1. Testing and disinfection of all pressure piping for leakage as specified.
   a. The CONTRACTOR shall furnish all labor, equipment, test connections, vents, water and materials necessary for carrying out the pressure and leakage tests as specified and required.
   b. The work specified shall include all labor, material, equipment, services and incidentals necessary to fill, clean, chlorinate, flush, and test all pipelines which will carry or hold potable water.

B. Related Work Specified Elsewhere
1. Section 02080 - Fire Hydrants
2. Section 15051 - Buried Piping Installation
3. Section 15106 - Ductile Iron Pipe and Fittings
4. Section 15108 - Thermoplastic Pipe
5. Section 15109 - Prestressed Concrete Cylinder Pipe
6. Section 15110 - Valves and Appurtenances
7. Section 15120 - Piping Specialties and Accessories

C. Description
1. Permission shall be obtained from the OWNER of the water system before the use of water from any existing system. The CONTRACTOR shall:
   a. Conform to the requirements of the OWNER.
   b. Pay all costs connected with the taking or use of water for any retesting.
   c. The CONTRACTOR shall provide written notice to the Authority and ENGINEER at least three working days in advance of testing and disinfection.
2. All work under this section shall be performed in the presence of the ENGINEER. A representative of the public health authority having jurisdiction must also be present, as required.
3. Chlorination shall be scheduled such that sampling and flushing will be performed during normal business hours.

1.02 QUALITY ASSURANCE

A. Reference Standards
1. AWWA B300, Standard for Hypochlorites

2. AWWA B301, Standard for Liquid Chlorine
3. AWWA C104, Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
4. AWWA C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type for Water and Other Liquids
5. AWWA C502, Standard for Dry-Barrel Fire Hydrants
6. AWWA C504, Standard for Rubber Seated Butterfly Valves
7. AWWA C600, Standard for Installation of Ductile Iron Watermains and Their Construction
8. AWWA C651-14, Standard for Disinfecting Water Mains
9. AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch Through 12-inch for Water Distribution
10. NSF/ANSI Standard 60 and 61 (as applicable)
11. Standard Methods for the Examination of Water and Wastewater, latest edition
12. 1996 Safe Drinking Water Act

1.03 SUBMITTALS

A. The CONTRACTOR shall submit proposed materials, methods, and operations regarding testing and disinfection to the ENGINEER for review prior to the start of testing.

B. CONTRACTOR must provide a sketch to the ENGINEER of the sampling locations identifying at minimum the following:
1. Street names,
2. North arrow,
3. Sampling locations,
4. House numbers of nearest buildings to sampling locations.
5. Other distinguishable landmarks,
6. Any other information as requested by ENGINEER, OWNER, AUTHORITY, or County Health Department.

C. The CONTRACTOR shall submit certification that all backflow preventers (Reduced Pressure Zone attachments) and pressure gauges have been tested and certified within the last year.

D. Qualifications of laboratory analyzing biological samples shall be New York State ELAP certified.

E. Chain-of-Custody forms are to be furnished for all biological samples taken.

F. For flushing operations, ENGINEER shall supply calculations identifying that a minimum 3.0 ft/sec scour velocity has been achieved in the new waterline and that three pipe volumes have passed through it.

G. ENGINEER shall provide pressure testing and leakage test results on the ECWA Pressure Test/Leakage Test form available on the ECWA website.

PART 2 - PRODUCTS

2.01 MATERIALS

A. All products must be suitable for use in a potable water system and NSF-60 certified. All piping, valves, etc. shall be NSF-61 certified.

B. Chlorination shall be by the use of a solution of sodium hypochlorite contained in the pipe or structure as specified. The use of calcium hypochlorite in powdered, granular, or tablet form, shall not be allowed.

PART 3 - EXECUTION

3.01 TESTS ON PRESSURE PIPING FOR POTABLE WATER

A. General
1. Flush, test and disinfect prior to connection to existing watermains as specified below, except as otherwise authorized by the ENGINEER.
2. The length of piping and sections included in the tests shall meet the approval of the ENGINEER; however, the length shall not exceed 2,000 feet in any case. Pressure test of pipe section shall be from valve to valve regardless of watermain size.
3. Notify the ENGINEER 72 hours in advance of testing.
4. Equipment in or attached to the pipes being tested shall be protected. Any damage to such equipment during the test shall be repaired by the CONTRACTOR at his expense.
5. Conduct all tests per AWWA C-600 and C-651, latest editions in the presence of the ENGINEER. Repeat tests in the presence of local authorities having jurisdiction if required by them.
6. CONTRACTOR shall have sufficient personnel at the site for the entire duration of all tests.
7. When piping is to be insulated or concealed in a structure, tests shall be made before the pipe is covered.
8. Provide outlets to flush line, expel air and perform specified tests.
9. Where connections to existing lines are called for only one such connection will be allowed.
10. All fittings, hydrants and appurtenances must be properly braced and harnessed before the pressure is applied. Thrust restraining devices which will become a part of the system must also be tested at the test pressure.
11. When testing absorbent pipe materials such as cement or concrete, the pipeline shall be filled with water at least 24 hours before the test is made.

12. The CONTRACTOR must supply all materials and manpower to perform the tests as specified herein.
13. Testing and disinfection shall be acceptable and approved by the agency of jurisdiction before another connection is made.

B. Initial Flushing
1. CONTRACTOR shall fill and flush new main to remove dirt and miscellaneous debris from the inside of the watermain.
2. CONTRACTOR is responsible for removing all entrapped air during flushing.
3. Flushing must have sufficient flowrate to achieve a fluid velocity of 3.0 feet per second inside the waterline.
4. A minimum 2" tap is required for proper flushing of all watermains having a diameter of 8 inches or less, however, multiple taps or larger taps may be required. ENGINEER shall be responsible for determining necessary connections and providing calculations verifying flushing conditions are met.
5. Refer to AWWA C651, for number of taps required to obtain the minimum 3.0 feet per second flow velocity in all pipes.
6. CONTRACTOR is responsible for providing a water source for flushing. With the permission of the OWNER, an existing watermain may be used as a water source, however, the following restrictions apply:
   a. The CONTRACTOR is not allowed to operate any valves or hydrants or operate any components which belong to the OWNER.
   b. If water is drawn from the existing system, an appropriate backwater preventer such as a Reduced-Pressure Zone (RPZ) device must be used. The RPZ must be tested within one (1) year and approved prior to usage.
   c. Water from flushing procedures must be disposed of properly. Water may be piped or gravity-fed to an existing storm sewer with the ENGINEER'S and the OWNER'S permission if proper erosion control methods to minimize sediment build-up are used. Discharge of water into a roadway or into a parking lot area is strictly prohibited. Water discharging operations shall not cause damage to any public or private property.
7. CONTRACTOR shall partially open and close valves and hydrants several times under expected line pressure to flush foreign material out of the valves and hydrants.
8. Flushing shall continue until three pipe volumes have passed through the new waterline and the water appears sediment-free.

C. Pressure Test
1. Pressure test apparatus must be installed as shown on the Drawings
2. Test pressure shall be as specified in Section 15051, Buried Piping Installation, at the lowest point in the line.

3. Test pressure shall be held on the piping for a period of at least 2 hours, unless a longer period is requested by the ENGINEER, OWNER, or AUTHORITY. Pressure should not fluctuate by more than 5 psi during testing.
4. Pressure gauge must be in good working condition and must be demonstrated to be accurate to the ENGINEER prior to any testing.
5. Gauge must have proper labeling to allow ENGINEER to accurately distinguish the maximum allowable 5 psi change in pressure. Gauge must have markings at no greater than 2 psi increments to allow accurate readings.
6. ENGINEER is responsible for reading the gauge and recording the test results he/she witnesses. Results obtained by the ENGINEER are considered final, and not subject to discussion by the CONTRACTOR.
7. ENGINEER may tap pressure gauge at each reading to ensure needle is measuring pressure accurately.
8. The AUTHORITY reserves the right to read the pressure gauge and record the test results for those lines considered suspect or for potentially inaccurate result recording.
9. ENGINEER shall record pressure at 15 or 30 minute intervals to help determine if the pressure loss is stabilizing.
10. The CONTRACTOR will inform the ENGINEER when to begin the test.
11. If the pressure drop is greater than 5 psi in 2 hours, or if the ENGINEER believes the line is suspect, the CONTRACTOR shall explore for the cause of the excessive leakage and after repairs have been made, the line shall be retested. This procedure shall be repeated until the pressure loss is less than the maximum allowable and the ENGINEER is satisfied.
12. If the pressure drop is 3 psi or greater but less than 5 psi in 2 hours, the CONTRACTOR shall continue the test for another 2 hours. If the pressure drop over the 4 hour period is 5 psi or greater, the test failed and must be repeated after the cause of the leakage is explored and the necessary repairs have been made
13. The ENGINEER shall make a preliminary determination if the test passes or fails based on the pressure and volume losses recorded during testing.
14. After each test, the CONTRACTOR must demonstrate that the test apparatus, including the pressure gauge, is fully functional and accurate. Inaccurate gauges or non-satisfactory equipment will be grounds for test failure, regardless of test results. CONTRACTOR will resupply proper equipment and retest, at his expense.
15. The pressure loss recorded over the 2 or 4-hour test must be acceptable to the County Health Department and AUTHORITY for final hydrostatic testing approval to be given.
16. At the end of the test, the pressure shall be increased to the starting pressure, so that the leakage test data is acquired. See Section D Leakage Test below, for additional information.

D. Leakage Test
1. The leakage test shall be conducted concurrently with the pressure test.
2. The rate of leakage shall be determined at 15-minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15-minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.
   a. At the completion of the test the pressure shall be released at the furthermost point from the point of application.
3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.
4. The leakage for pressure pipelines shall not exceed the following allowable rates in gallons per hour per 1000 feet of pipe at the test pressure specified in Section 15051, Buried Piping Installation:

Pipe Diameter	Pipe Material	ECWA Allowable Leakage*
4"	PVC, DIP	0.26
6"	PVC, DIP	0.40
8"	PVC, DIP	0.53
10"	PVC, DIP	0.66
12"	PVC, DIP	0.79
16"	DIP, PCCP	1.06
20"	DIP, PCCP	1.32
24"	DIP, PCCP	1.59
30"	DIP, PCCP	1.98
36"	DIP, PCCP	2.38
42"	DIP, PCCP	2.78
48"	DIP, PCCP	3.17

* 75% of allowable leakage per AWWA C600-17.

5. Regardless of the above allowables, any visible leaks shall be permanently stopped.
6. The CONTRACTOR shall provide a meter certified within the last year or a source-water tank/barrel of small enough cross section so that measurable changes in water depth can be accurately recorded. A two hour test is permitted for circular tanks/barrels of 15 inches in diameter or less. A four hour test is required for circular tanks/barrels greater than 15 inches in diameter. If a tank of non-circular cross section or irregular shape is used, and the change in water depth cannot be properly measured, the ENGINEER or AUTHORITY may require the test to be run more than 2 hours until an accurate depth change can be recorded and the ENGINEER is satisfied with the results.
7. The leakage volume recorded over the 2 or 4-hour test must be acceptable to the County Health Department and AUTHORITY for final waterline approval to be given.

3.02 BUTTERFLY VALVE TESTING

A. Each butterfly valve shall have a field leakage test performed with the pressure differential as identified in Section 15051, Buried Piping Installation, applied in both directions. This requirement does not waive the requirements stipulated in AWWA C504.

B. The duration of each field test in each direction shall be a minimum of two (2) hours.

C. The CONTRACTOR shall demonstrate to the ENGINEER'S satisfaction that all system components operate correctly, both individually and as a system. All testing equipment and materials required to perform all tests shall be provided by the CONTRACTOR and demonstrated as functional and accurate to the ENGINEER. Non-functional or inaccurate equipment, regardless of test results, will be grounds for test failure. CONTRACTOR shall resupply proper equipment and retest.

3.03 RESILIENT SEAT GATE VALVE TESTING

A. Each gate valve shall have a field leakage test performed with the pressure differential as identified in Section 15051, Buried Piping Installation, applied in both directions. This requirement does not waive the requirements stipulated in AWWA C509.

B. The duration of each field test in each direction shall be a minimum of two (2) hours unless specifically defined by the ENGINEER.

C. The CONTRACTOR shall demonstrate to the ENGINEER'S satisfaction that all system components operate correctly, both individually and as a system. All testing equipment and materials required to perform all tests shall be provided by the CONTRACTOR and demonstrated as functional and accurate to the ENGINEER. Non-functional or inaccurate equipment, regardless of test results, will be grounds for test failure. CONTRACTOR will resupply proper equipment and retest.

3.04 TAPPING SLEEVE AND VALVE TESTING

A. Prior to making the tap, gate valves shall have a field leakage test performed with a hydrostatic pressure as identified in Section 15051, Buried Piping Installation, on the open end.

B. Once the system is complete, the valves shall be tested in accordance with the Butterfly and Resilient Seat Gate Valve Testing criteria stated above.

C. The duration of each field test shall be a minimum of two (2) hours unless specifically defined by the ENGINEER.

D. After installation of the tapping sleeve or saddle and prior to tapping the main, the sleeve or saddle shall be air tested in accordance with manufacturers' recommendations. If the results of the air test do not meet manufacturers' specifications, the sleeve or saddle will be replaced and retested until the results are satisfactory.

E. The CONTRACTOR shall demonstrate to the ENGINEER'S satisfaction that all system components operate correctly, both individually and as a system. All testing equipment and materials required to perform all tests shall be provided by the CONTRACTOR and demonstrated as functional and accurate to the ENGINEER. Non-functional or inaccurate equipment, regardless of test results, will be grounds for test failure. CONTRACTOR will resupply proper equipment and retest.

3.05 DISINFECTION

A. Before disinfection, the line shall be cleaned and flushed with clean water as defined in the Initial Flushing section. CONTRACTOR shall provide outlets as required.

B. The chlorine solution shall be admitted to pipelines through corporation stops placed in the horizontal axis of the pipe, to structures by means of tubing extending directly into the structure or other approved methods.

C. CONTRACTOR shall install 2-inch saddles on existing and proposed mains and run 2-inch Type K copper tubing with backflow prevention device to allow for addition of chlorinated water. The rate of chlorine solution flow shall be in such proportion to the rate of water entering the pipe or structure that the resulting free chlorine residual shall be between 50 and 100 milligrams per liter (mg/l). Concentrations over 100 mg/l shall not be allowed to enter the piping system.

D. The placement of chlorine powder or tablets inside the pipe during installation as a means of disinfection will not be allowed.

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK · JASON P. UTZIG · 089686 · LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

WATERMAIN NOTES

CS509

USER **DATE** **TIME** **SYTIME**

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

E. The proposed piping shall be tested in all respects, prior to connecting the second end of the pipe to the existing system and prior to installing the annular fill at casing pipes.

F. All valves to existing mains must be closed during the chlorination process. CONTRACTOR must flush the proposed main through a backflow preventer such as a Reduced Pressure Zone (RPZ) and 2-inch copper until chlorine residual at the opposite end reaches 50 mg/l. All valves to the existing water network are to remain closed until this level is reached. While the chlorinated water is being added, all appurtenances on the main shall be operated so as to completely disinfect the new work. The operation shall be repeated as necessary to provide complete disinfection.

G. Chlorinated water from hydrants and taps must be properly collected and disposed of by the CONTRACTOR. Discharge of chlorinated water into the existing storm sewer or a natural water body shall not be allowed.

H. The chlorine treated water shall be retained in the pipe or structure at least 24 hours, unless otherwise directed. During the retention period all valves and hydrants within the treated sections shall be operated.

I. The chlorine residual shall be not less than 25 mg/l at any point in the pipe or structure at the end of the retention period. CONTRACTOR shall immediately perform final flushing to reduce the retention time high levels of chlorinated water.

J. When making repairs to or when specified, structures and portions of pipelines shall be chlorinated by a concentrated chlorine solution containing between 200 mg/l and 300 mg/l of free chlorine. The solution shall be applied with a brush or sprayed on the entire inner surface of the empty pipes or structures. The surfaces disinfected shall remain in contact with the strong chlorine solution for at least 30 minutes.

K. The CONTRACTOR must use an approved test method, as defined in AWWA C651 and *Standard Methods for the Examination of Water and Wastewater*, to determine chlorine levels. Test strips and test kits will be allowed for testing chlorine levels if the kit is less than six months old, in the original bottle, is not past the expiration date, and has a color coded scale on the side with legible concentrations defined. ENGINEER and AUTHORITY reserve the right to reject test results if the test strip or kit is suspect. Sending samples to an approved laboratory is also acceptable.

06 FINAL FLUSHING

A. Upon completion of each disinfecting operation, the CONTRACTOR will be required to empty the contents of the pipe into a tank truck. Dumping into a

sewer will only be allowed with approval from the local governing body. In no instance will chlorinated testing or flushing water be emptied onto the roadways, in ditches, culverts, streams, wetlands, or any other natural water body.

B. Final flushing will continue until such time as the chlorine residual is between 0.5 and 1.2 mg/l.

C. Prior to discharging into storm or sanitary sewer systems, and with the written approval of the municipality, the CONTRACTOR shall use a reducing agent (such as sodium thiosulfate) to neutralize any chlorine residual. CONTRACTOR shall prove to the ENGINEER, AUTHORITY and municipality that the water has been properly neutralized prior to discharge using an appropriate testing method.

3.07 BACTERIOLOGICAL TESTING

A. After disinfection and final flushing, a representative of the laboratory hired by the CONTRACTOR shall, in the presence of the ENGINEER, take two bacteriological samples from sampling points at maximum 1,000-foot intervals along the waterline, at every branch off the main line, and at each end of the test section (one immediately after final flushing and a second one after 24 hours) for testing by an ELAP certified laboratory in accordance with the latest Health Department requirements.

B. Should acceptable results not occur after these two consecutive tests, the CONTRACTOR shall, at his expense, repeat the disinfection procedure until safe results are obtained.

C. All precautions shall be taken to maintain dry and sanitary conditions and to prevent contamination of any piping, at the CONTRACTOR'S expense.

D. If, in the opinion of the ENGINEER or AUTHORITY, contamination has occurred, the CONTRACTOR shall repeat the disinfection and bacteriological testing at his cost and expense.

E. Test results from the laboratory shall be sent directly to the ENGINEER. Test results sent through the CONTRACTOR shall not be considered.

F. Bacteriological test results shall expire 30 calendar days after the samples are taken. After 30 calendar days, the CONTRACTOR shall be required to repeat the process, taking two sets of samples and submitting results for review.

G. As per AWWA C651-14 standards, the limit for pipe installed without bacteriological samples being taken is 20 linear feet.

3.08 APPROVAL

A. The ENGINEER shall submit the Waterline Installation Complete Works Approval Report(s) to the Erie County Water Authority for review and processing.

B. Once approval is given, after reconnecting the proposed piping to the existing piping, the CONTRACTOR shall slowly refill the watermain with water and allow it to pressurize so that the ENGINEER may inspect the connections and/or other piping.

C. The CONTRACTOR shall, at his expense, correct any observed defects to the satisfaction of the ENGINEER and OWNER.

END OF SECTION

C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK JASON P. UTZIG 089686 LICENSED PROFESSIONAL ENGINEER

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

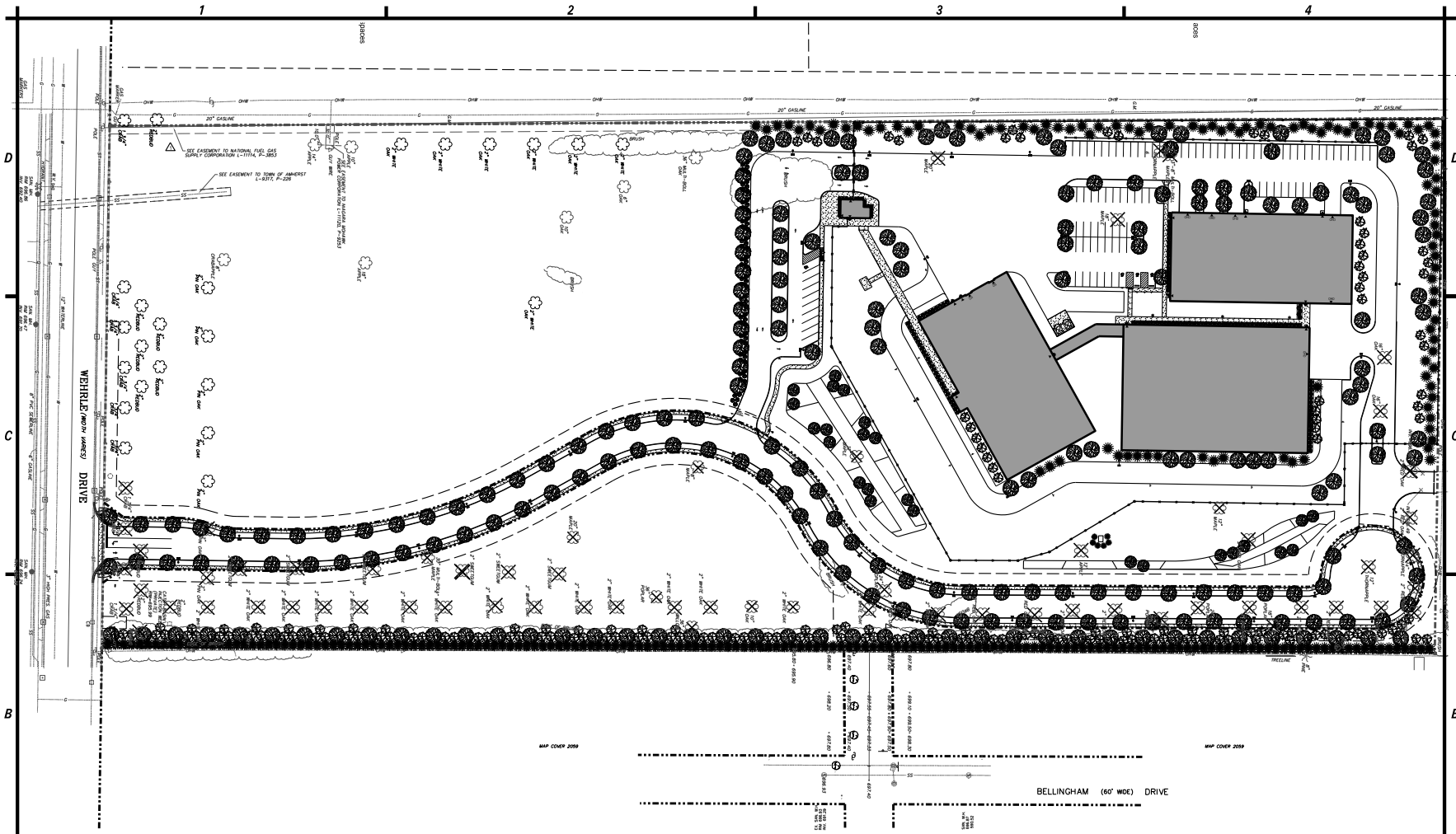
NO ALTERATION PERMITTED HEREON
EXCEPT AS PROVIDED UNDER SECTION
7209 SUBDIVISION 2 OF THE NEW YORK
EDUCATION LAW

WATERMAIN NOTES

CS510

USER **TIME**
DATE
SYTIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



C&S COMPANIES

C&S Engineers, I
141 Elm St. Suite
Buffalo, New York 14
Phone: 716-847-1
Fax: 716-847-1
www.cscos.

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST US

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

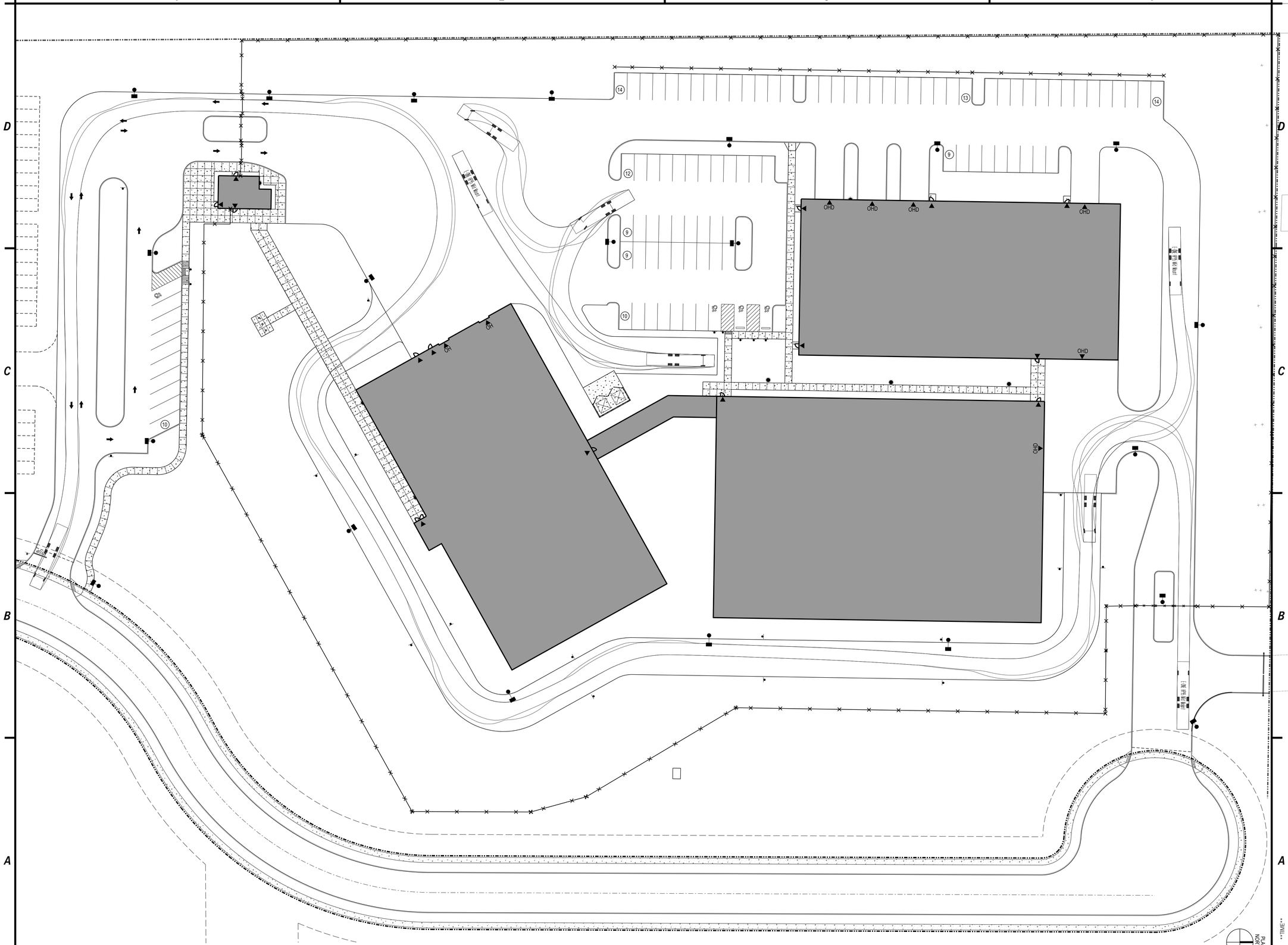
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL LANDSCAPING PLAI

A1 OVERALL LANDSCAPING PLAN
SCALE: 1"=60'

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

Copyright



C&S COMPANIES®
C&S Engineers, Inc.
141 Elm St. Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST USE

MARK	DATE	DESCRIPTION
1	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04,009,001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

FIRE TRUCK TURNING MOVEMENT EXHIBIT

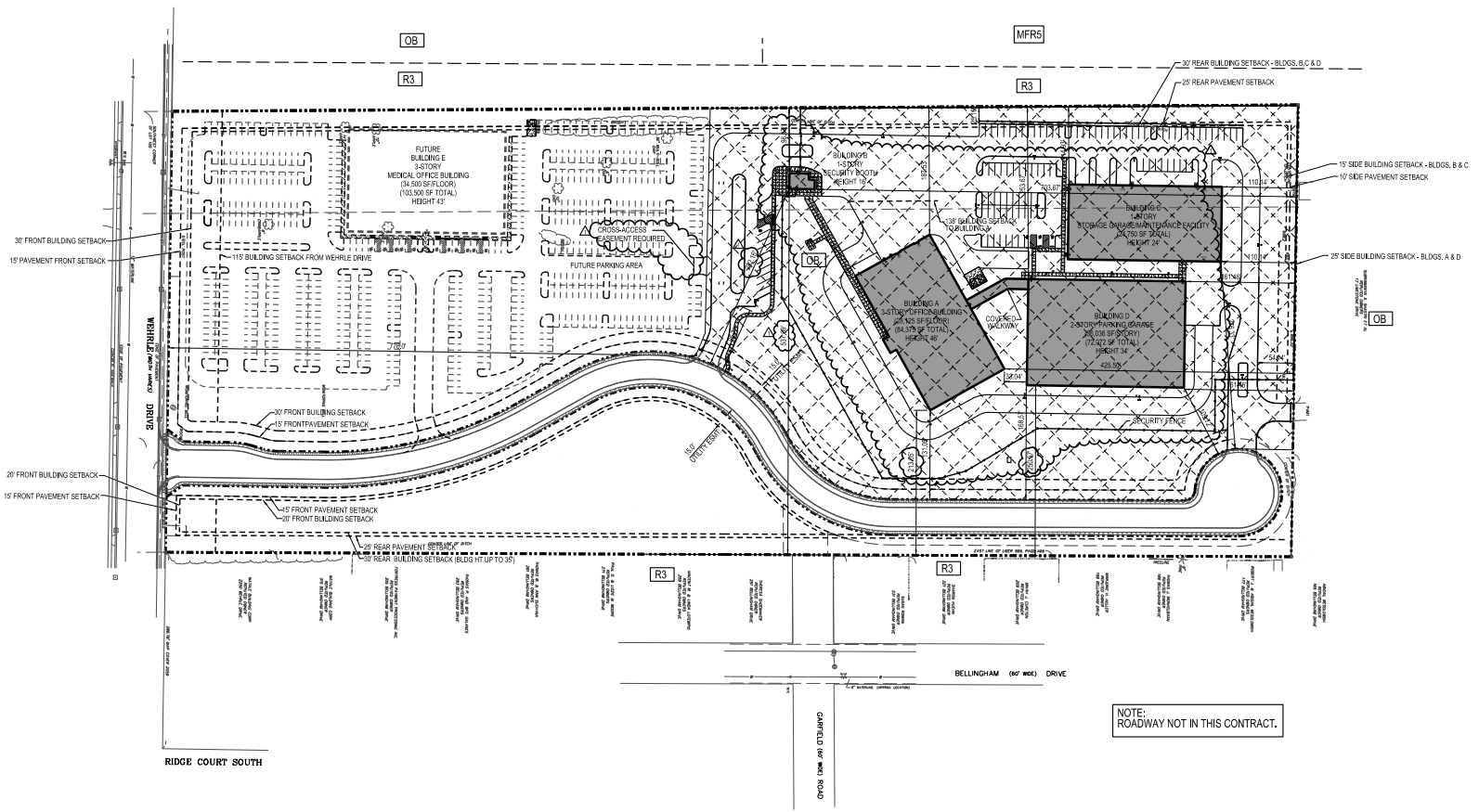
A1 FIRE TRUCK TURNING MOVEMENT EXHIBIT
SCALE: 1"=30'

30' 30 0 30 60 Ft.

PLAN NORTH

USER
DATE
SYTIME
TIME

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



SITE DATA						
CURRENT ZONING: OFFICE BUILDING DISTRICT (OB)						
	REQUIRED	PROVIDED				
LOT DIMENSIONS:						
OVERALL LOT AREA (MIN)	NONE	24.9+/- ACRES				
LOT AREA TO BE DEVELOPED	N/A	14.50+/-				
LOT WIDTH (MIN)	NONE	648.20'				
BUILDING COVERAGE: (MAX)	NONE	14.47%				
INTERIOR GREENSPACE:	10%	10.06%				
BUILDING SETBACKS:		BUILDING A	BUILDING B	BUILDING C	BUILDING D	PAVEMENT
FRONT (BLDG HT. UP TO 35 FT.)	20'		282.16'	276.33'	109.72'	
FRONT (BLDG HT. > 35 FT.)	30'	131.05'				
FROM CENTER OF R.O.W. WEHRLE						
SIDE YARD (BLDG HT. UP TO 30 FT.)	15'		703.67'	110.14'		
SIDE YARD (BLDG HT.> 30 FT'	25'	425.50'			161.46'	
REAR YARD (BLDG HT. UP TO 30 FT.)	30'		96.17'	114.93'		
REAR YARD (BLDG HT.> 30 FT'	3' FOR EVERY FT. OF BLDG. HT.	187.53'			253.67'	
PAVEMENT SETBACKS:						
FRONT - WEHRLE DRIVE	15'					776.0'
FRONT - NEW ROAD	15'					95.73'
SIDE YARD	10'					54.14'
REAR YARD	25'					25.10'
BUILDING HEIGHT (MAX):	65'	46'	16'	24'	34'	
INTERIOR BUILDING SEPARATION(MIN):	30'	30+	30+	30'	30'	

PARKING DATA TABLE		
BUILDING	REQUIRED	PROVIDED
BUILDING A, 3 STORY OFFICE BUILDING (MULTISTORY, MULTIPLE TENNANT)		
1 PER 200 SF NET FLOOR AREA		
28,125 SF x 3 FLOORS = 84,375 SF (GROSS)		
84,375 x 75% = 63,281 SF (NET)		
63,281/200 = 316 SPACES	316	75 (SURFACE)
BUILDING B - SECURITY BOOTH - N/A	N/A	N/A
BUILDING C, 1 STORY MAINTENANCE GARAGE/STORAGE FACILITY		
1 PER 1,000 SF GROSS FLOOR AREA OR 1 SPACE PER EMPLOYEE, WHICHEVER IS GREATER		
24,750 SF/1000 = 25 SPACES	25	25
BUILDING D, 2 STORY PARKING GARAGE	N/A	128
BUILDING E, 3 STORY MEDICAL OFFICE BUILDING (MULTISTORY, MULTIPLE TENNANT)	N/A	N/A
1 PER 150 SF NET FLOOR AREA		
34,500 SF x 3 FLOORS = 103,500 SF (GROSS)		
103,500 x 75% = 77,625 SF (NET)		
77,625/150= 518 SPACES	341	228

SITE PLAN NOTES

1. SURVEY INFORMATION WAS PROVIDED BY GPI ENGINEERING, LANDSCAPE, ARCHITECTURE & SURVEYING, LLP DATED 05/29/2018. C&S ENGINEERS, INC. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.
2. CONTRACTOR TO VERIFY ALL FIELD CONDITIONS AND UTILITY LOCATIONS PRIOR TO THE START OF CONSTRUCTION. CONTACT THE ENGINEER WITH ANY DISCREPANCIES FOUND IN THE FIELD.
3. ALL DIMENSIONS FROM PROPERTY LINES ARE 90° FROM PROPERTY LINE UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS ARE FROM FACE OF CURB UNLESS OTHERWISE NOTED.
5. COORDINATE EXACT LOCATION OF SIDEWALKS AT DOORWAYS WITH ARCHITECTURAL PLANS.
6. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND LAYOUT.

LEGEND

AREA TO BE DEVELOPED

MFR5 CURRENT ZONING

NORTH

80 0 80 160 Ft.

A1 OVERALL SITE PLAN
SCALE: 1"=80'

C&S COMPANIES®
C&S Engineers, Inc
141 Elm St. Suite
Buffalo, New York 142
Phone: 716-847-1
Fax: 716-847-1
www.cscos.c

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST US

MARK	DATE	DESCRIPTION
△	12/20/2021	TOWN COMMENTS

REVISIONS

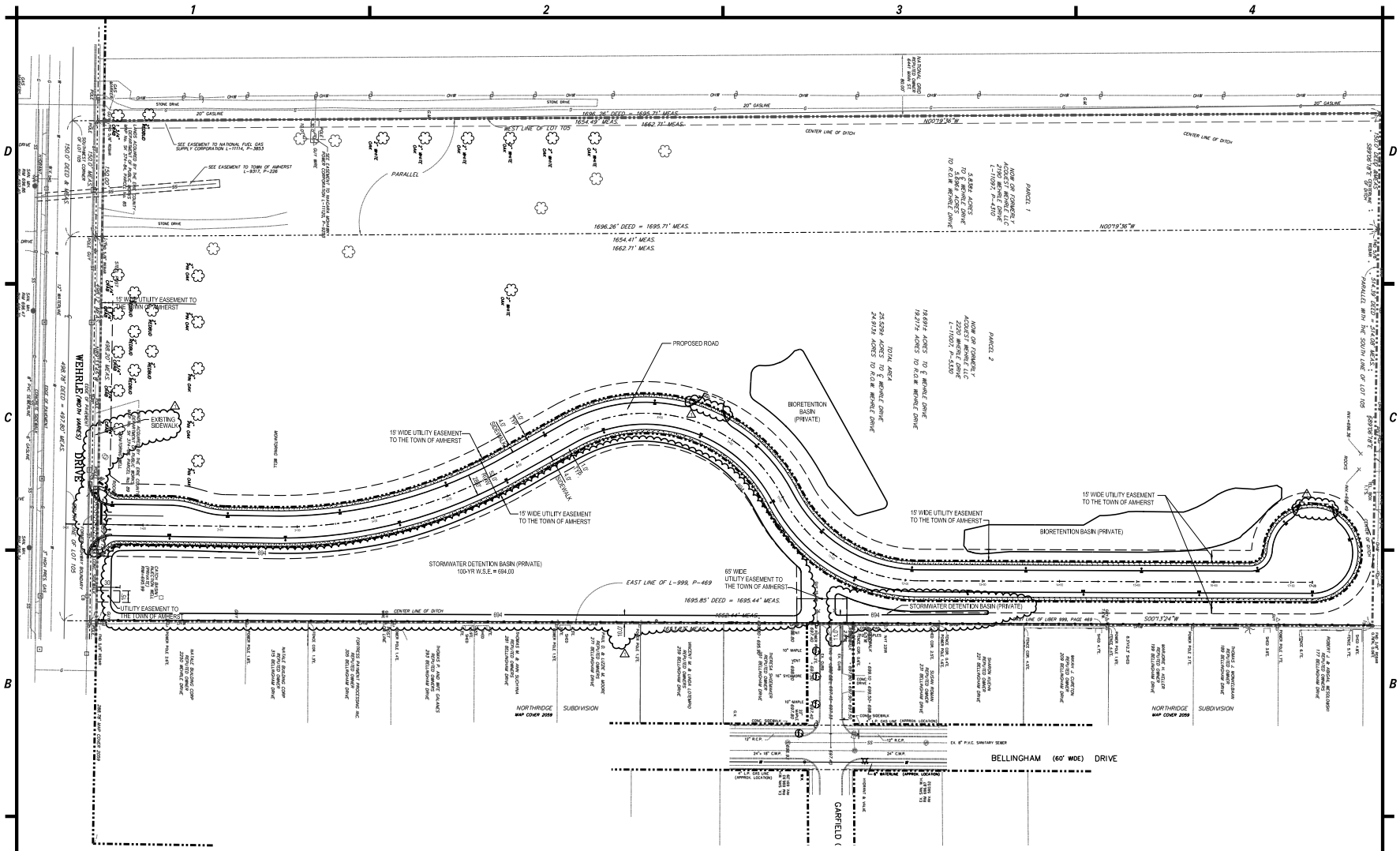
PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL SITE PLAN

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

Copyright ©



NOTES

GENERAL

1. SIDEWALK CURB RAMP TYPE AND LOCATION ARE AS SHOWN ON THE PLANS OR AS DIRECTED.
2. ALL SIDEWALK CURB RAMP TYPES MAY BE USED IN STRAIGHT OR CURVED CURBED SECTIONS.
3. SIDEWALK CURB RAMP TYPES MAY BE DIFFERENT AT EACH LOCATION WITHIN AN INTERSECTION.

SIDEWALK CURB RAMP CRITERIA

4. THE MAXIMUM SLOPE OF A SIDEWALK CURB RAMP IN NEW CONSTRUCTION SHALL BE 1:12.IF SPACE LIMITATIONS ON EXISTING SITES PROHIBIT THE USE OF 1:12, THE FOLLOWING SLOPES AND RISES MAY BE USED:
   A) STEEPER THAN 1:12 (8.33%) BUT NO STEEPER THAN 1:10 (10%) 6" MAXIMUM RISE, 5 FT. MAXIMUM RUN
   B) STEEPER THAN 1:10 (10%) BUT NO STEEPER THAN 1:8 (12.5%) 3" MAXIMUM RISE, 2 FT. MAXIMUM RUN
   C) A SLOPE STEEPER THAN 1:8 (12.5%) NOT ALLOWED.
5. THE MINIMUM WIDTH OF A SIDEWALK CURB RAMP SHALL BE FIVE FEET, EXCLUSIVE OF FLARED SIDES.
6. ALL SIDEWALK CURB RAMPS SHALL HAVE FLUSH, SMOOTH TRANSITIONS TO THE ADJACENT STREET OR HIGHWAY SURFACE.

SURFACE FINISH

7. THE SURFACE OF ALL SIDEWALK CURB RAMPS SHALL BE STABLE, FIRM, AND SLIP RESISTANT. (E.G., A COARSE BROOM FINISH PERPENDICULAR TO THE RAMP SLOPE IS ACCEPTABLE ON CEMENT CONCRETE CURB RAMPS.)

SIDEWALK CURB RAMP PLACEMENT

8. AT A CORNER, WHERE THE CURB RADIUS IS 25' OR LESS, A SINGLE RAMP (EITHER TYPE A, B, OR C) LOCATED DIAGONALLY CAN OFTEN SERVE CROSSWALKS IN TWO DIRECTIONS. HOWEVER, A SINGLE RAMP SHALL ONLY BE USED WHERE THERE IS A MINIMUM CLEAR SPACE OF 48" FALLING ENTIRELY WITHIN THE PROJECTION OF THE INTERSECTING CURBS (SEE FIGURE 1). WHERE THE RADIUS EXCEEDS 25' OR THE MINIMUM 48" CLEAR SPACE IS UNACHIEVABLE, THEN SEPARATE RAMPS SHOULD BE PROVIDED FOR EACH CROSSWALK.

PAVEMENT MARKINGS AT CROSSWALKS

9. SIDEWALK CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
10. AT A CORNER, WHERE A SINGLE RAMP (EITHER TYPE A, B, OR C) LOCATED DIAGONALLY SERVES TWO CROSSWALKS, THERE SHALL BE A 48" MINIMUM CLEAR SPACE AT THE RAMP BOTTOM WHOLLY CONTAINED WITHIN THE INTERSECTING CROSSWALK MARKINGS (SEE FIGURE 1).
11. WHERE STOP LINES ARE NECESSARY, THEY SHALL BE LOCATED IN ADVANCE OF SIDEWALK CURB RAMPS.

UTILITIES AND DRAINAGE INLETS OR GRATES

12. WHERE FEASIBLE PROVIDE FOR DRAINAGE INLETS OR GRATES IMMEDIATELY UPSTREAM FROM THE CURB RAMPS. RETICULINE OR RECTANGULAR DRAINAGE GRATES ARE TO BE USED IN THE AREA OF CURB RAMPS.
13. DO NOT PLACE SIGNAL POLES, SIGN POSTS, UTILITY POLES, FIRE HYDRANTS, ETC., WITHIN THE RAMP OR SIDE FLARE AREAS.

PEDESTRIAN ACTIVATED SIGNALS

14. PUSHBUTTONS SHALL BE LOCATED NEAR CURB RAMPS AND WHERE A PERSON IN A WHEELCHAIR CAN ACTIVATE THE SIGNAL WITHOUT STOPPING ON THE CURB RAMP.
15. PUSH BUTTON HEIGHT SHALL BE 42" TO 48" ABOVE THE SIDEWALK SURFACE.
16. PUSH BUTTONS SHALL BE LOCATED SO THAT THE PEDESTRIAN CAN SEE THE APPROPRIATE SIGNAL HEAD WHILE ACTIVATING THE SIGNAL.

ISLANDS

17. ANY RAISED ISLANDS IN CROSSINGS SHALL BE CUT THROUGH LEVEL WITH THE STREET OR HAVE CURB RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48 INCHES LONG IN THE PART OF THE ISLAND INTERSECTED BY THE CROSSINGS.

C&S COMPANIES®
C&S Engineers, I
141 Elm St. Suite
Buffalo, New York 14
Phone: 716-847-1
Fax: 716-847-1
www.CSCOS.

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST US

MARK	DATE	DESCRIPTION
		REVISIONS
1	2/20/2021	TOWN COMMENTS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL SITE PLAN

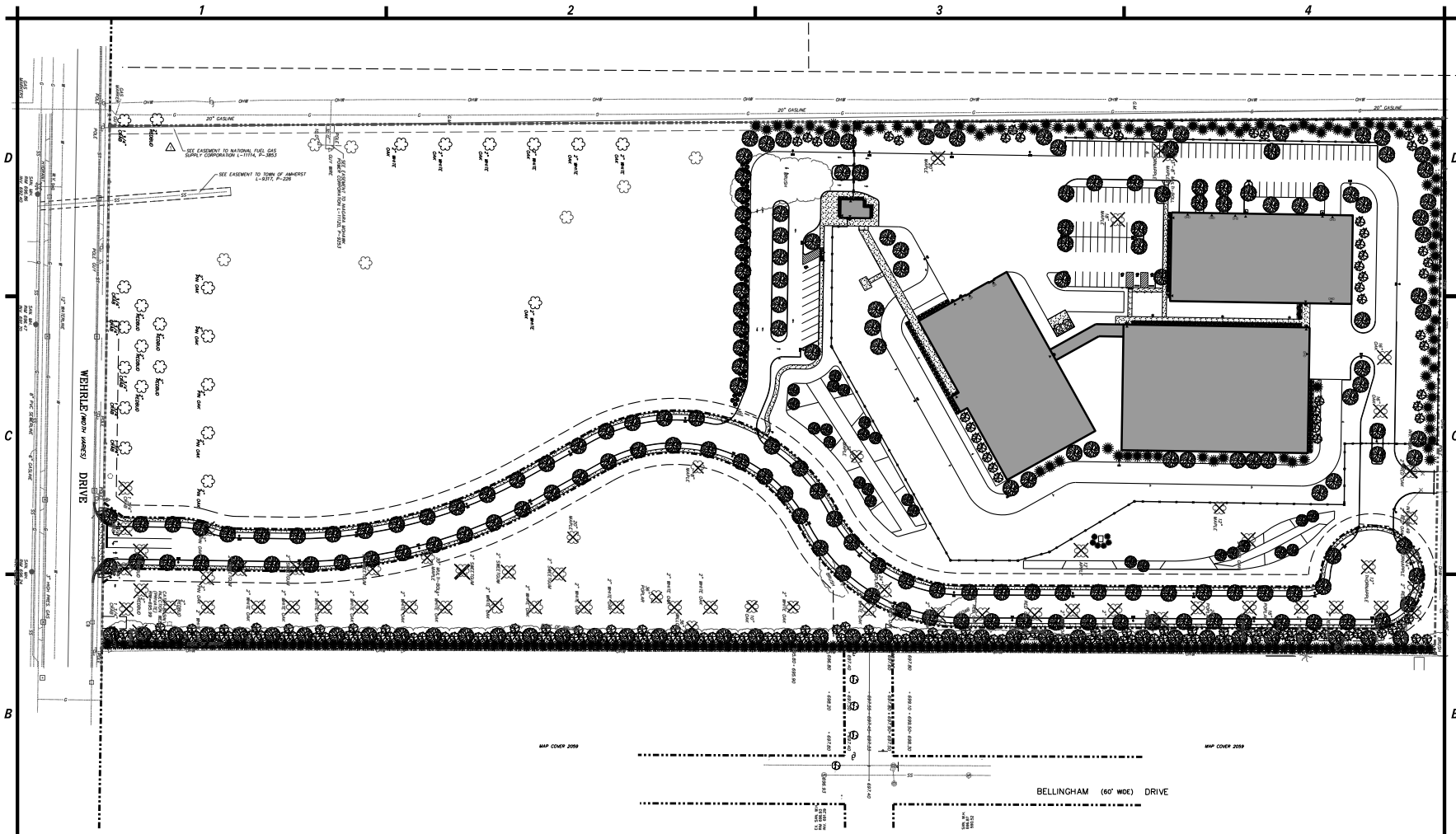
A1 OVERALL SITE PLAN
SCALE: 1"=60'

60' 0 60 120 FT.

NORTH

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

Copyright ©



C&S COMPANIES®
C&S Engineers, Inc
141 Elm St. Suite
Buffalo, New York 142
Phone: 716-847-1
Fax: 716-847-1
www.cscos.c

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NY 14221

RESERVED FOR TOWN OF AMHERST US

MARK	DATE	DESCRIPTION
△	12/20/2021	TOWN COMMENTS

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

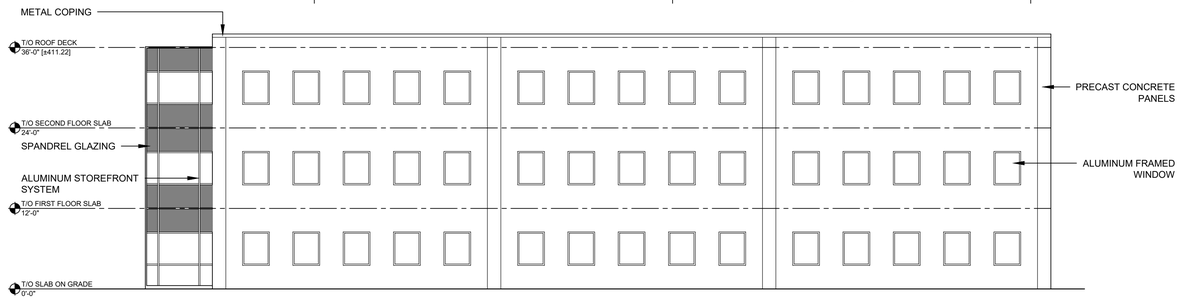
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

OVERALL LANDSCAPING PLAN

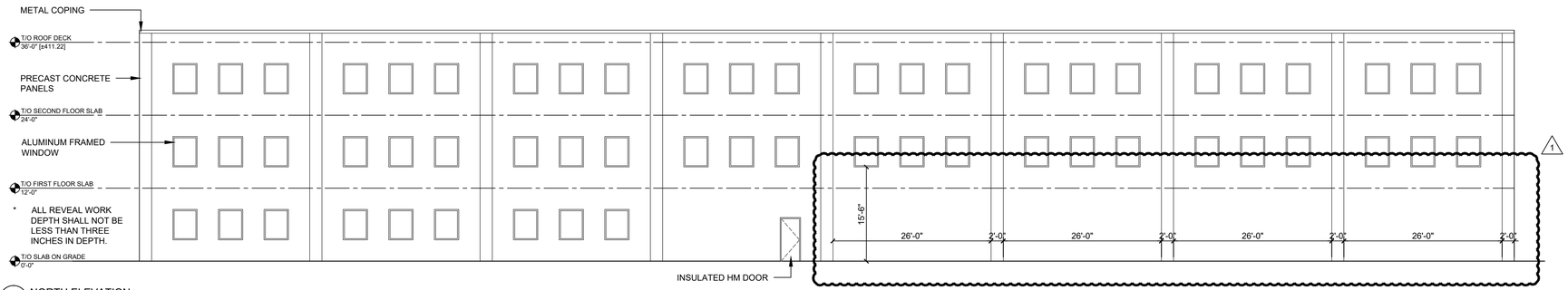
A1 OVERALL LANDSCAPING PLAN
SCALE: 1"=60'

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

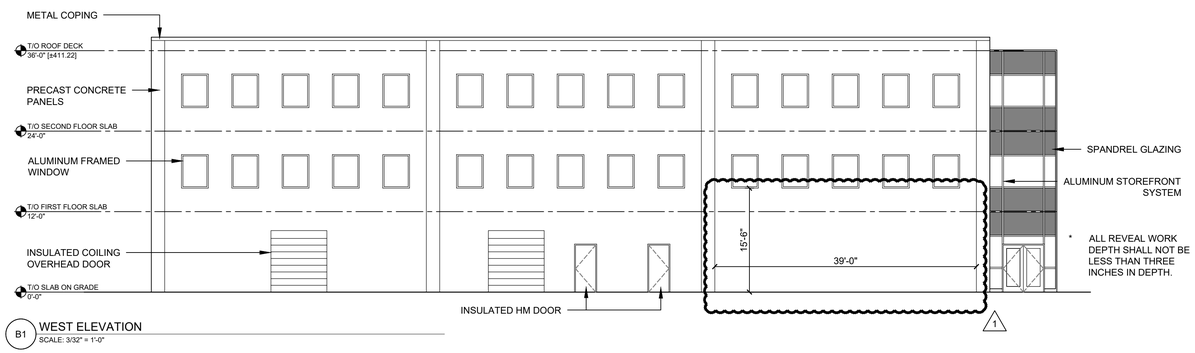
Copyright



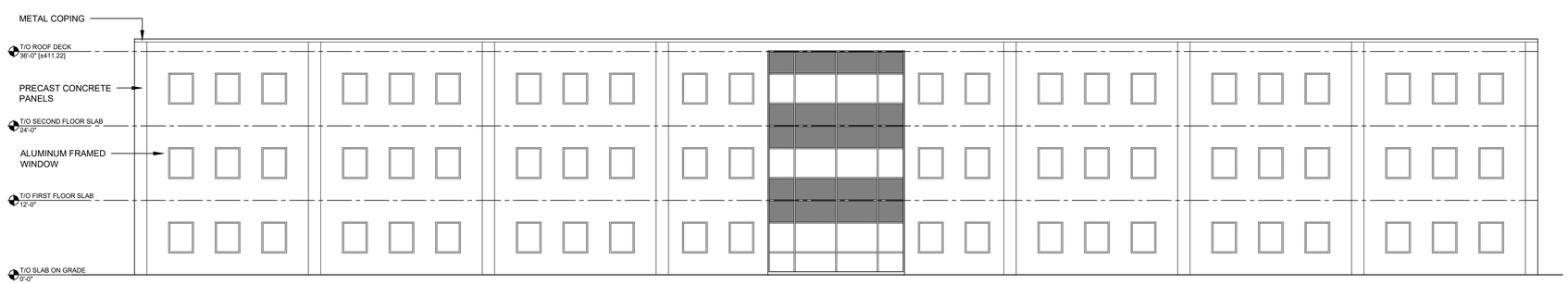
E1 EAST ELEVATION
SCALE: 3/32" = 1'-0"



C1 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

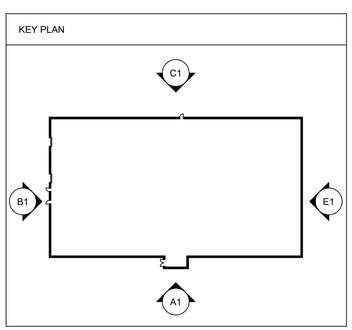


B1 WEST ELEVATION
SCALE: 3/32" = 1'-0"



A1 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"

KEY PLAN



ACQUEST DESIGN SERVICES
5554 Main Street Williamsville, NY 14221 P | 716-204-3570
© Acquest Design Services, LLC
These drawings, the culmination of ideas and designs incorporated herein, are the property of Acquest Design Services, LLC, here-by known as the Architect, and shall not be copied or reproduced in any way without written authorization. The Contract Documents have been prepared by the Architect and are issued for the specific project named on these drawings.
Ownership rights to these documents will remain with the Architect and are non-transferable, nor shall they be lost by the filing of The Contract Documents for the purpose of compliance of Codes and/or Ordinances with authorities having jurisdiction. Documents must be returned or destroyed immediately upon completion of the project or at the request of the Architect.

ISSUED:

MARK	DATE	DESCRIPTION
1	12/20/2021	Town Comments

Spec Office Building
2190-2220 Wehrle Drive

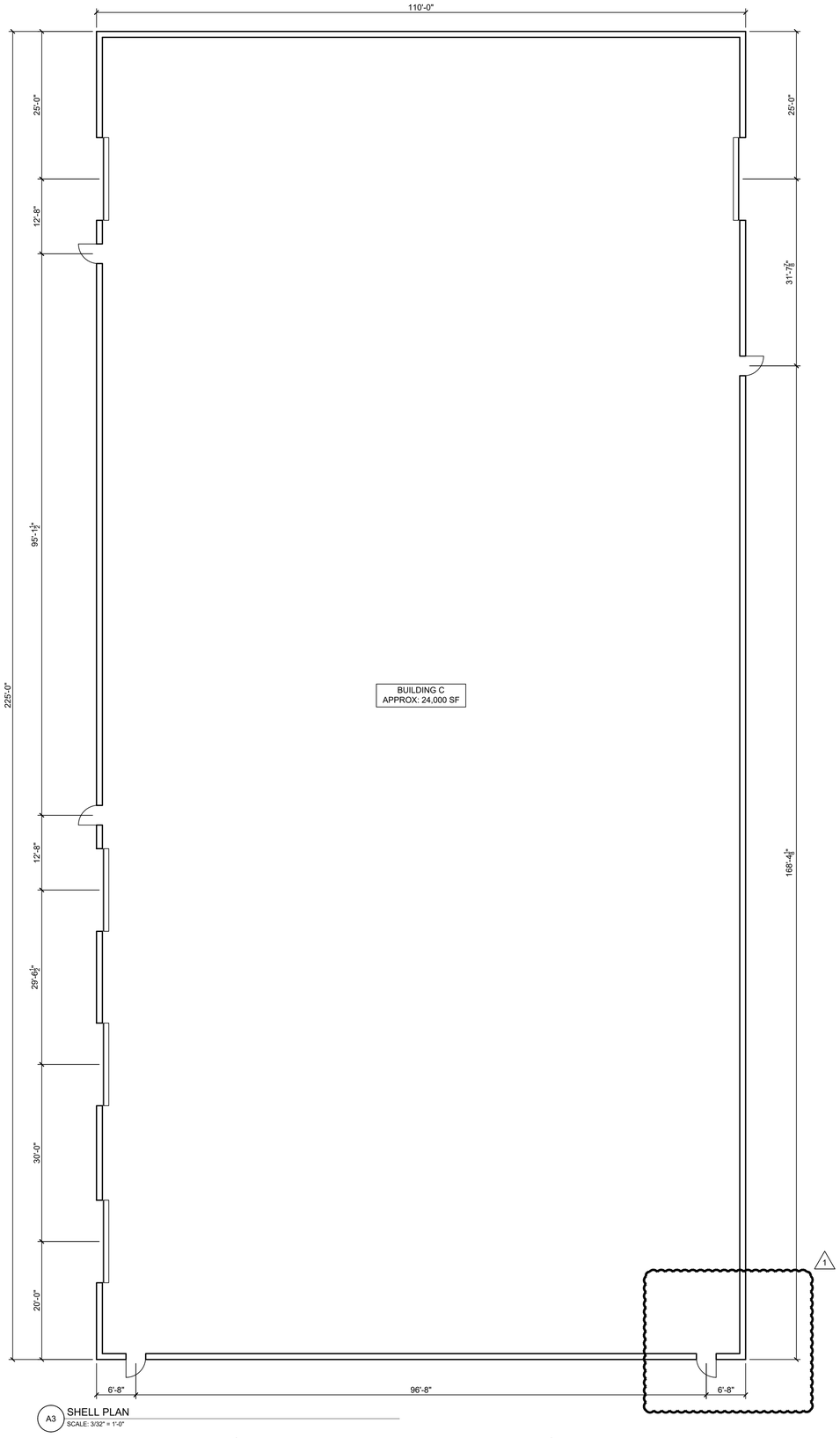
SEAL

PROJECT NUMBER 20-015-02
DATE 11/12/2021

SHEET TITLE
Building A Exterior Elevations

SHEET NUMBER
AA-201

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



A3 SHELL PLAN
SCALE: 3/32" = 1'-0"

N

ACQUEST
DESIGN SERVICES
5554 Main Street Williamsville, NY 14221 P | 716-204-3570

© Acquest Design Services, LLC
These drawings, the culmination of ideas and designs incorporated herein, are the property of Acquest Design Services, LLC, here-by known as the Architect, and shall not be copied or reproduced in any way without written authorization. The Contract Documents have been prepared by the Architect and are issued for the specific project named on these drawings.
Ownership rights to these documents will remain with the Architect and are non-transferable, nor shall they be lost by the filing of The Contract Documents for the purpose of compliance of Codes and/or Ordinances with authorities having jurisdiction. Documents must be returned or destroyed immediately upon completion of the project or at the request of the Architect.

ISSUED:

MARK	DATE	DESCRIPTION
1	12/20/2021	Town Comments

Spec Office Building
2190-2220 Wehrle Drive

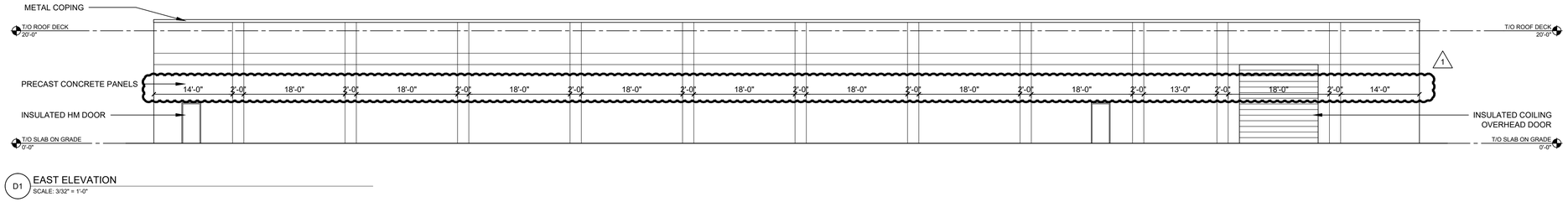
SEAL

PROJECT NUMBER: 20-015-02
DATE: 11/12/2021

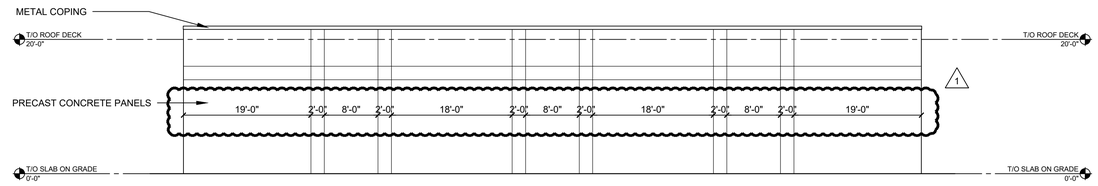
SHEET TITLE
Building C Shell Plan

SHEET NUMBER
AC-101

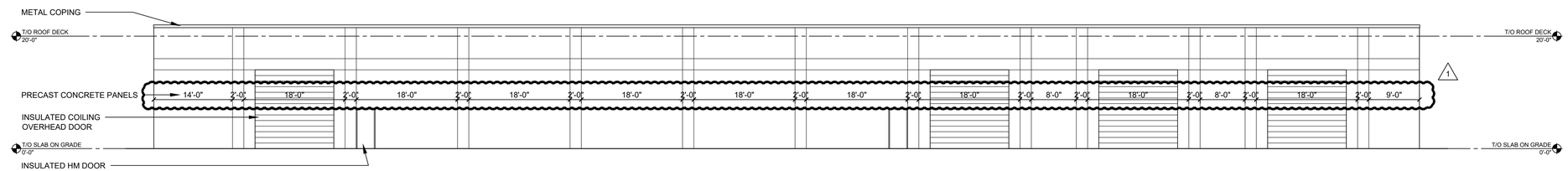
Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



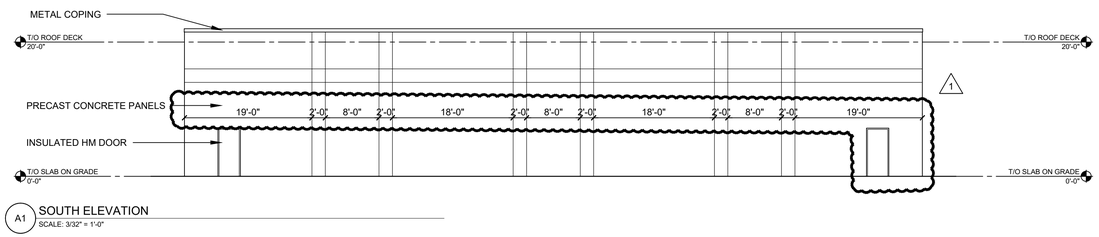
D1 EAST ELEVATION
SCALE: 3/32" = 1'-0"



C1 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

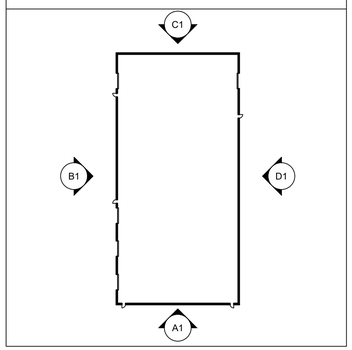


B1 WEST ELEVATION
SCALE: 3/32" = 1'-0"



A1 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"

KEY PLAN



DS
ACQUEST
DESIGN SERVICES
5554 Main Street Williamsville, NY 14221 P | 716-204-3570

© Acquest Design Services, LLC
These drawings, the culmination of ideas and designs incorporated herein, are the property of Acquest Design Services, LLC, here-by known as the Architect, and shall not be copied or reproduced in any way without written authorization. The Contract Documents have been prepared by the Architect and are issued for the specific project named on these drawings.
Ownership rights to these documents will remain with the Architect and are non-transferable, nor shall they be lost by the filing of The Contract Documents for the purpose of compliance of Codes and/or Ordinances with authorities having jurisdiction. Documents must be returned or destroyed immediately upon completion of the project or at the request of the Architect.

ISSUED:

MARK	DATE	DESCRIPTION
1	12/20/2021	Town Comments

Spec Office Building
2190-2220 Wehrle Drive

SEAL

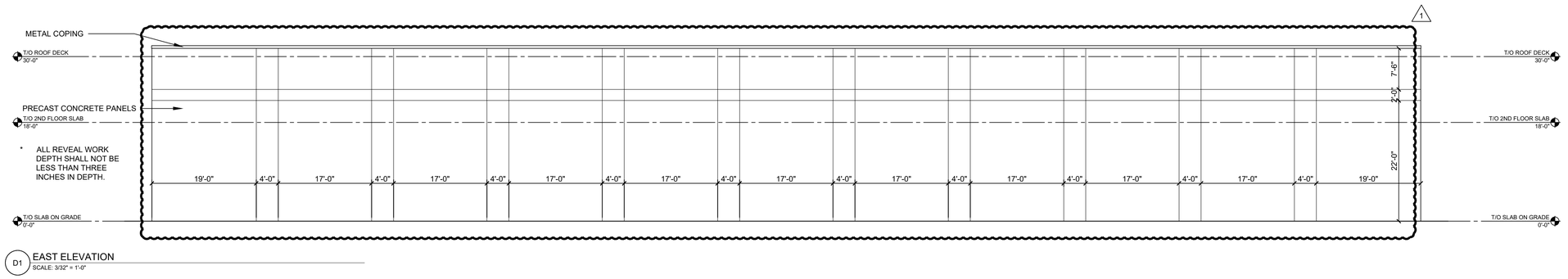
PROJECT NUMBER
20-015-02

DATE
11/12/2021

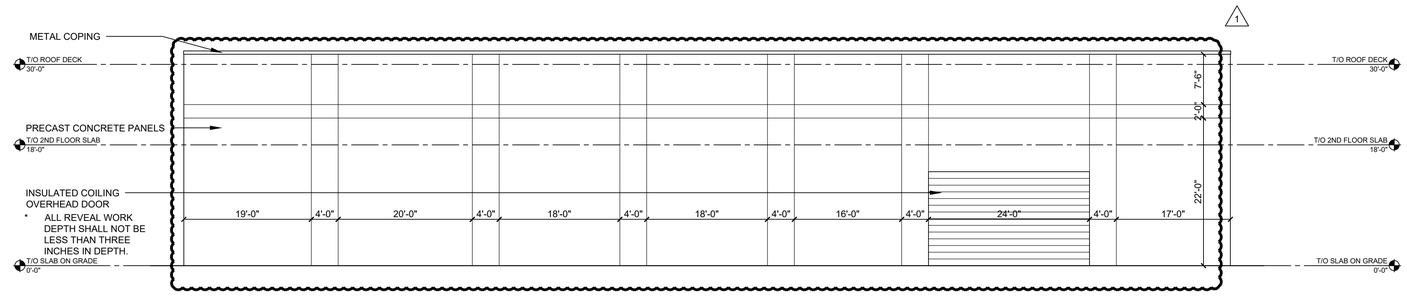
SHEET TITLE
Building C Exterior Elevations

SHEET NUMBER
AC-201

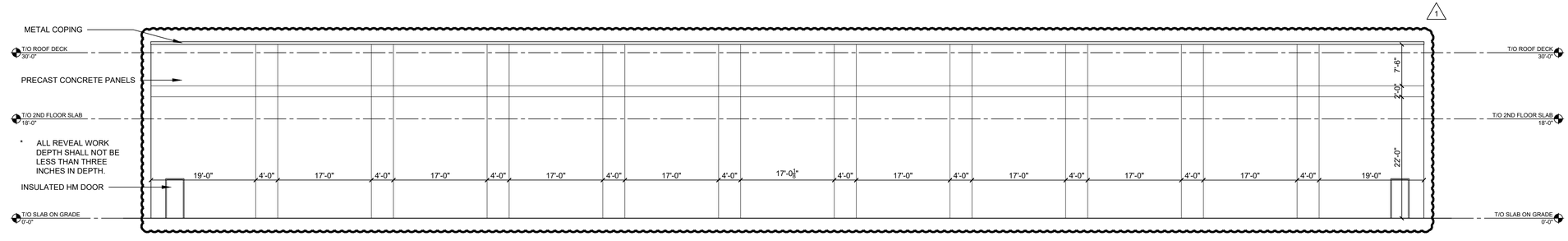
Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



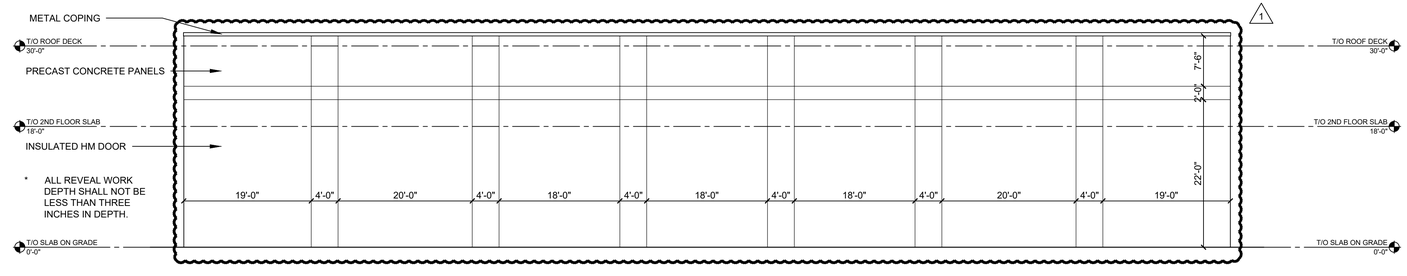
D1 EAST ELEVATION
SCALE: 3/32" = 1'-0"



C1 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

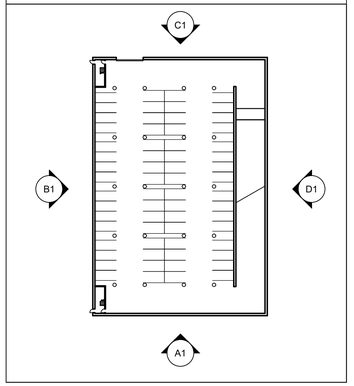


B1 WEST ELEVATION
SCALE: 3/32" = 1'-0"



A1 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"

KEY PLAN



ACQUEST
DESIGN SERVICES
5554 Main Street Williamsville, NY 14221 P | 716-204-3570

© Acquest Design Services, LLC
These drawings, the culmination of ideas and designs incorporated herein, are the property of Acquest Design Services, LLC, here-by known as the Architect, and shall not be copied or reproduced in any way without written authorization. The Contract Documents have been prepared by the Architect and are issued for the specific project named on these drawings.
Ownership rights to these documents will remain with the Architect and are non-transferable, nor shall they be lost by the filing of The Contract Documents for the purpose of compliance of Codes and/or Ordinances with authorities having jurisdiction. Documents must be returned or destroyed immediately upon completion of the project or at the request of the Architect.

ISSUED:

MARK	DATE	DESCRIPTION
1	12/20/2021	Town Comments

Spec Office Building
2190-2220 Wehrle Drive

SEAL

PROJECT NUMBER 20-015-02
DATE 11/12/2021

SHEET TITLE
Building D Exterior Elevations

SHEET NUMBER
AD-201

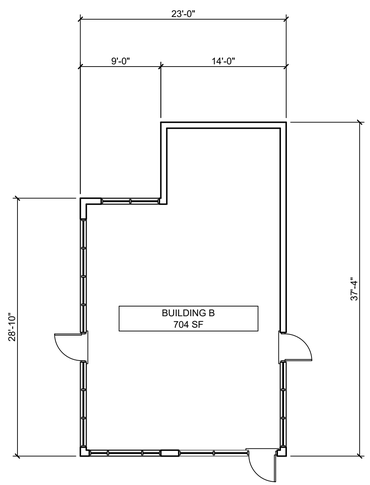
Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

ACQUEST
DESIGN SERVICES
5554 Main Street Williamsville, NY 14221 P | 716-204-3570

© Acquest Design Services, LLC
These drawings, the culmination of ideas and designs incorporated herein, are the property of Acquest Design Services, LLC, here-by known as the Architect, and shall not be copied or reproduced in any way without written authorization. The Contract Documents have been prepared by the Architect and are issued for the specific project named on these drawings.
Ownership rights to these documents will remain with the Architect and are non-transferable, nor shall they be lost by the filing of The Contract Documents for the purpose of compliance of Codes and/or Ordinances with authorities having jurisdiction. Documents must be returned or destroyed immediately upon completion of the project or at the request of the Architect.

ISSUED:

MARK	DATE	DESCRIPTION



A4 SHELL PLAN
SCALE: 1/8" = 1'-0"

N

Spec Office Building
2190-2220 Wehrle Drive

SEAL



PROJECT NUMBER: 20-015-02
DATE: 11/12/2021

SHEET TITLE
Building B Shell Plan

SHEET NUMBER
AB-101

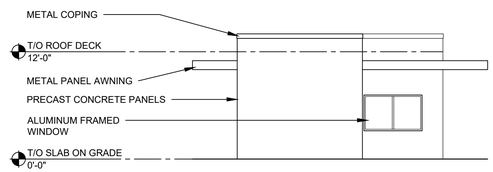
Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

ACQUEST
DESIGN SERVICES
5554 Main Street Williamsville, NY 14221 P | 716-204-3570

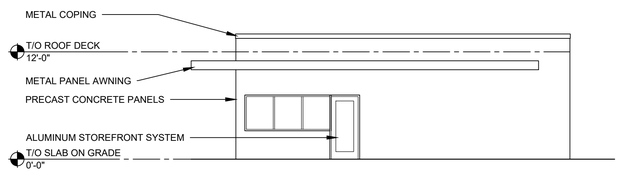
© Acquest Design Services, LLC
These drawings, the culmination of ideas and designs incorporated herein, are the property of Acquest Design Services, LLC, here-by known as the Architect, and shall not be copied or reproduced in any way without written authorization. The Contract Documents have been prepared by the Architect and are issued for the specific project named on these drawings.
Ownership rights to these documents will remain with the Architect and are non-transferable, nor shall they be lost by the filing of The Contract Documents for the purpose of compliance of Codes and/or Ordinances with authorities having jurisdiction. Documents must be returned or destroyed immediately upon completion of the project or at the request of the Architect.

ISSUED:

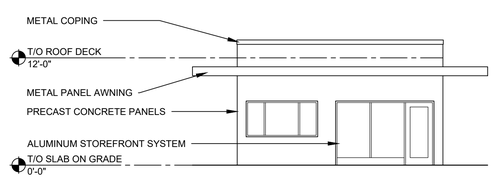
MARK	DATE	DESCRIPTION



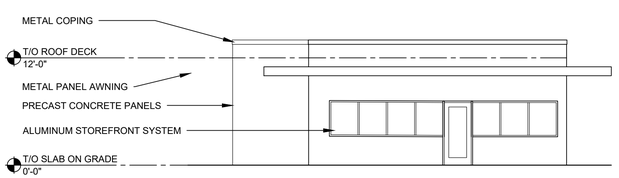
B1 NORTH EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



B3 EAST EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"

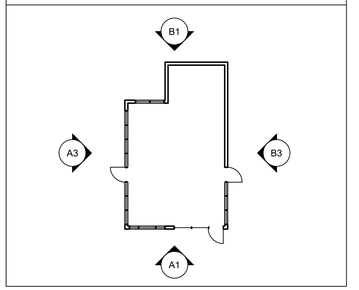


A1 SOUTH EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



A3 WEST EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"

KEY PLAN



Spec Office Building
2190-2220 Wehrle Drive

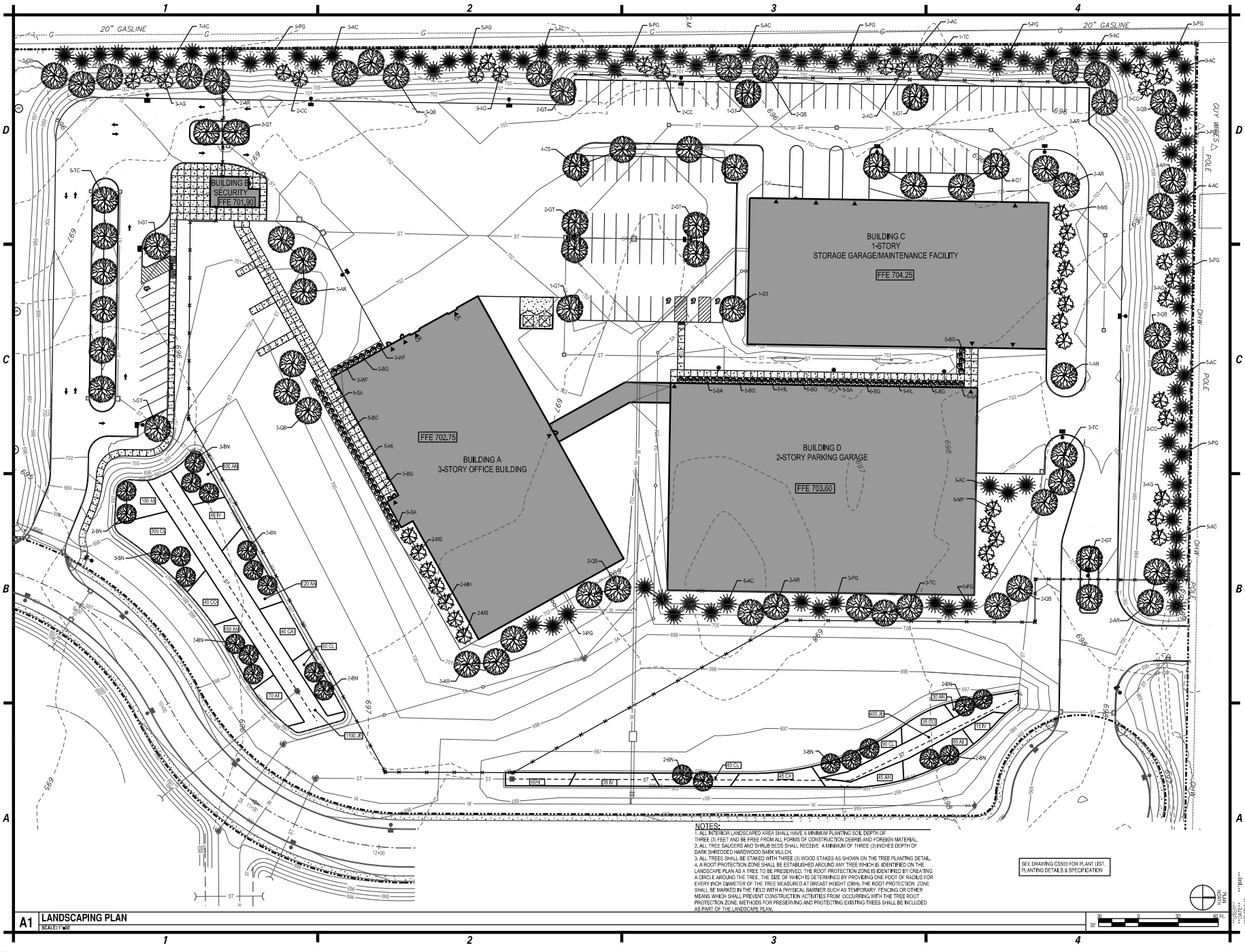
SEAL

PROJECT NUMBER 20-015-02
DATE 11/12/2021

SHEET TITLE
Building B Exterior Elevations

SHEET NUMBER
AB-201

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



A1 LANDSCAPING PLAN
SCALE: 1"=30'

C&S COMPANIES
C&S Engineers
141 Elm St
Buffalo, New York
Phone: 716
Fax: 716
www.

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

MARK	DATE	DESCRIPTION
REVISIONS		

PROJECT NO: 004.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHENER
DESIGNED BY: M. GRIDLEY
CHECKED BY: J. UTZIG

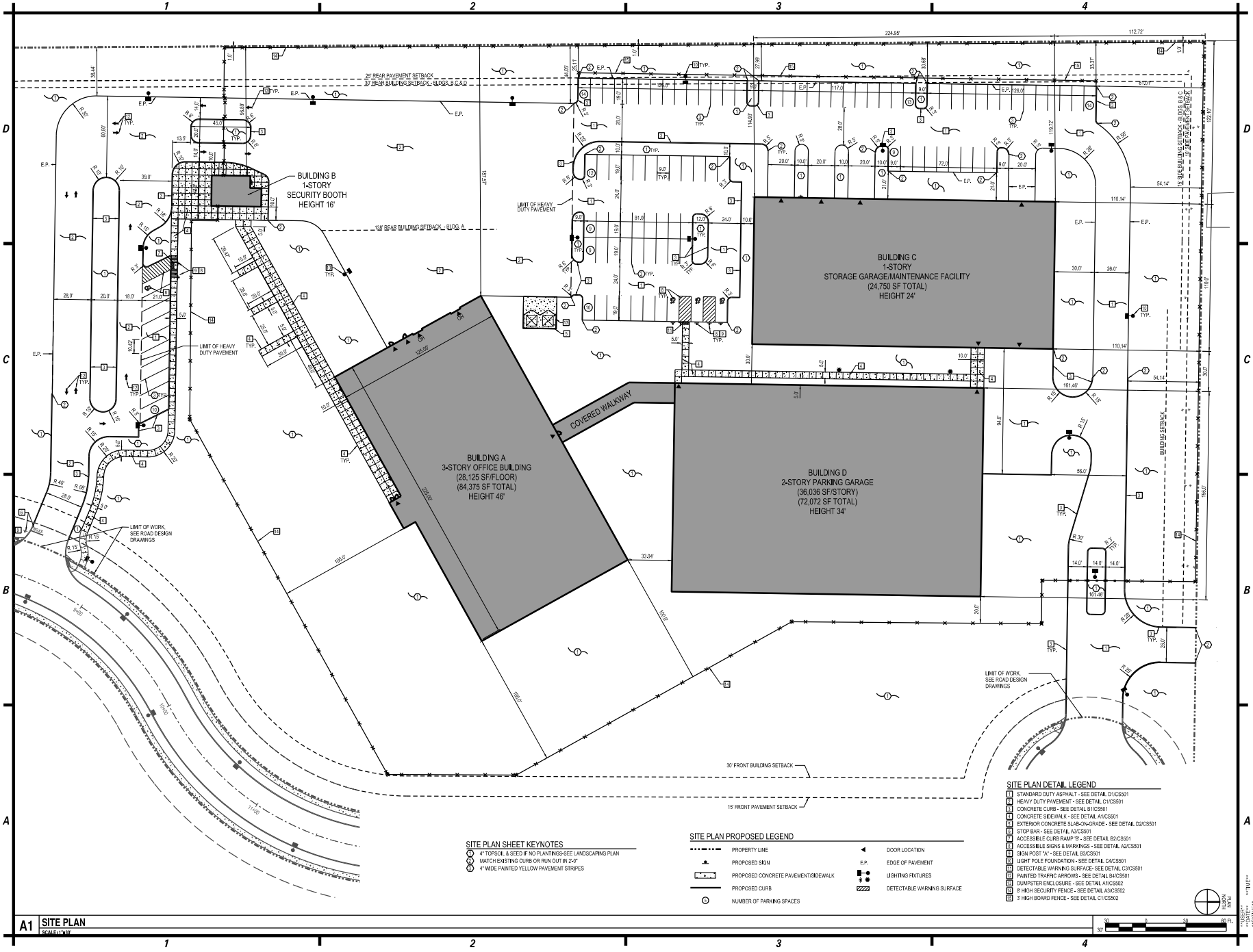
NO ALTERATION PERMITTED HERE EXCEPT AS PROVIDED UNDER SE 7209 SUBDIVISION 2 OF THE NEW EDUCATION LAW

LANDSCAPI PLAN

CL101

Copyright

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



C&S COMPANIES

C&S Engineers
141 Elm St
Buffalo, New York
Phone: 716
Fax: 716
www.

PROPOSED SITE
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

MARK	DATE	DESCRIPTION
REVISIONS		

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHENER
DESIGNED BY: J. UTZIG
CHECKED BY: J. UTZIG

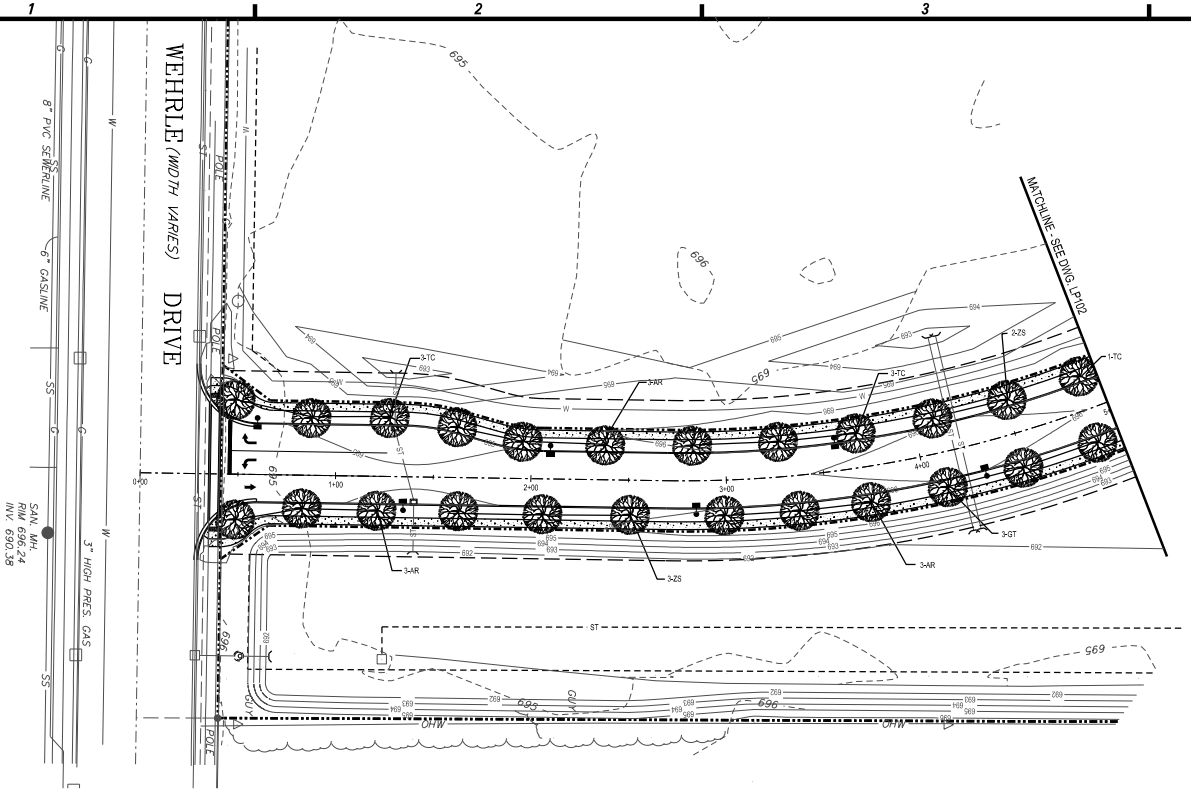
NO ALTERATION PERMITTED HERE EXCEPT AS PROVIDED UNDER SE 7209 SUBDIVISION 2 OF THE NEW EDUCATION LAW

SITE PLAN

CS101

Copyright

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE	NOTES
			TREES		
AR	24	Acer rubrum "October Glory"	October Glory Red Maple	2 ½" Caliper	
GI	14	Gleditsia triacanthos inermis "Skyline"	Skyline Honeylocust	2 ½" Caliper	
TC	30	Tilia cordata "Greenspire"	Greenspire Linden	2 ½" Caliper	
ZS	19	Zelkova serrata	Japanese Zelkova	2 ½" Caliper	

PLANTING SPECIFICATION

1. SCOPE OF WORK
   - A. THIS WORK SHALL CONSIST OF PERFORMING, CLEARING, AND GRUBBING, SOIL PREPARATION, FINISH GRADING, PLANTING, DRAINAGE, INCLUDING ALL LABOR MATERIALS, TOOLS, EQUIPMENT, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT.
2. MATERIALS
   - A. PLANTS - ALL PLANTS SHALL BE HEALTHY, OF NORMAL GROWTH, WELL ROOTED FREE FROM DISEASE AND INSECTS, QUALITY AND OF PLANT MATERIAL THAT SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSIZ60.1) AND BE OF NUMBER ONE GRADE.
   - B. VARIETIES AND SIZES OF PLANTS SHALL BE AS SHOWN ON DRAWINGS
3. FERTILIZER
   - A. FERTILIZER SHALL BE MILORGANITE (6-2-0) OR APPROVED EQUAL.
4. GENERAL WORK PROCEDURES
   - A. LANDSCAPE WORK SHALL BE ACCORDING TO THE WORKMANLIKE STANDARDS ESTABLISHED FOR LANDSCAPE CONSTRUCTION AND PLANTING.
5. WEEDING
   - A. BEFORE AND DURING PRELIMINARY GRADING AND FINISH GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
6. SOIL CONDITIONING
   - A. CULTIVATE ALL AREAS TO BE PLANTED TO A DEPTH OF 6". ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
7. PLANTING

   POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
   - A. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, AS SHOWN ON THE PLANTING DETAILS.
     - 3 PARTS TOPSOIL
     - 1 PART PEAT MOSS OR COMPOST
     - 1/3 PART MILORGANITE FERTILIZER
   - B. PREPARED SOIL SHALL BE TAMPED FIRMLY AT BOTTOM OF PIT, FILL PREPARED SOIL AROUND BALL OF PLANT & WAY, AND WATER, COMPLETE BACK-FILLING AND WATER THOROUGHLY.
   - C. ALL PLANTS SHALL BE SET SO THAT, WHEN SETTLED, THEY BEAR THE SAME RELATION TO THE REQUIRED GRADE AS THEY BORE TO THE NATURAL BEFORE BEING TRANSPLANTED.
   - D. IMMEDIATELY AFTER PLANTING, STAKE ALL TREES WITH 3 CEDAR STAKES PER TREE.
   - E. PREPARE RAISED EARTH SAUCER AS WIDE AS PLANTING HOLE OF EACH PLANT.
   - F. WATER IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED.
   - G. AFTER SHRUB BEDS AND TREE SAUCERS ARE BACKFILLED AND FINE GRADED, MULCH WITH 3" DEPTH OF DARK, SHREDDED HARDWOOD BARK MULCH.
8. FINISH GRADING
   - A. PLUS/MINUS .1 FOOT OF FINISH GRADE.
   - B. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN, UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE. SOIL AREAS ADJACENT TO THE BUILDING SHALL SLOPE AWAY FROM THE BUILDING.
   - C. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER.
9. GUARANTEE
   - A. CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR.
10. CLEAN-UP
    - A. UPON THE COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL MATERIAL, EQUIPMENT AND DEBRIS RESULTING FROM HIS WORK, ALL ACCEPTABLE CONDITIONS AS APPROVED BY THE OWNERS AUTHORIZED REPRESENTATIVE.
11. MAINTENANCE

    MAINTENANCE PERIOD TO COMMENCE AFTER FINAL INSPECTION.
    - A. MAINTENANCE PERIOD FOR THIS CONTRACT SHALL BE 90 CALENDAR DAYS COMMENCING AFTER FINAL INSPECTION OF CONSTRUCTION. MAINTAIN TREES, SHRUBS AND OTHER PLANTS BY PRUNING, CULTIVATING AND WEEDING AS REQUIRED FOR HEALTHY GROWTH; RESTORE PLANTING SAUCERS, TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES AND SHRUBS TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED. SPRAY AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE. MAINTAIN LAWNS BY WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING, AND OTHER OPERATIONS SUCH AS ROLLING, REGRADING, AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

NOTES:
1. ALL INTERIOR LANDSCAPED AREA SHALL HAVE A MINIMUM PLANTING SOIL DEPTH OF THREE (3) FEET AND BE FREE FROM ALL FORMS OF CONSTRUCTION DEBRIS AND FOREIGN MATERIAL.
2. ALL TREE SAUCERS AND SHRUB BEDS SHALL RECEIVE A MINIMUM OF THREE (3) INCHES DEPTH OF DARK SHREDDED HARDWOOD BARK MULCH.
3. ALL TREES SHALL BE STAKED WITH THREE (3) WOOD STAKES AS SHOWN ON THE TREE PLANTING DETAIL.
4. A ROOT PROTECTION ZONE SHALL BE ESTABLISHED AROUND ANY TREE WHICH IS IDENTIFIED ON THE LANDSCAPE PLAN AS A TREE TO BE PRESERVED. THE ROOT PROTECTION ZONE IS IDENTIFIED BY CREATING A CIRCLE AROUND THE TREE. THE SIZE OF WHICH IS DETERMINED BY PROVIDING ONE FOOT OF RADIUS FOR EVERY INCH DIAMETER OF THE TREE MEASURED AT BREAST HEIGHT (DBH). THE ROOT PROTECTION ZONE SHALL BE MARKED IN THE FIELD WITH A PHYSICAL BARRIER SUCH AS TEMPORARY FENCING OR OTHER MEANS WHICH SHALL PREVENT CONSTRUCTION ACTIVITIES FROM OCCURRING WITH THE TREE ROOT PROTECTION ZONE. METHODS FOR PRESERVING AND PROTECTING EXISTING TREES SHALL BE INCLUDED AS PART OF THE LANDSCAPE PLAN.

HUDSON MAP

A1 LANDSCAPING PLAN
SCALE: 1" = 30'

30 0 30 60 FT.

C&S Engineers
141 Elm St
Buffalo, New Y
Phone: 716
Fax: 716
www.

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHENER
DESIGNED BY: M. GRIDLEY
CHECKED BY: J. UTZIG

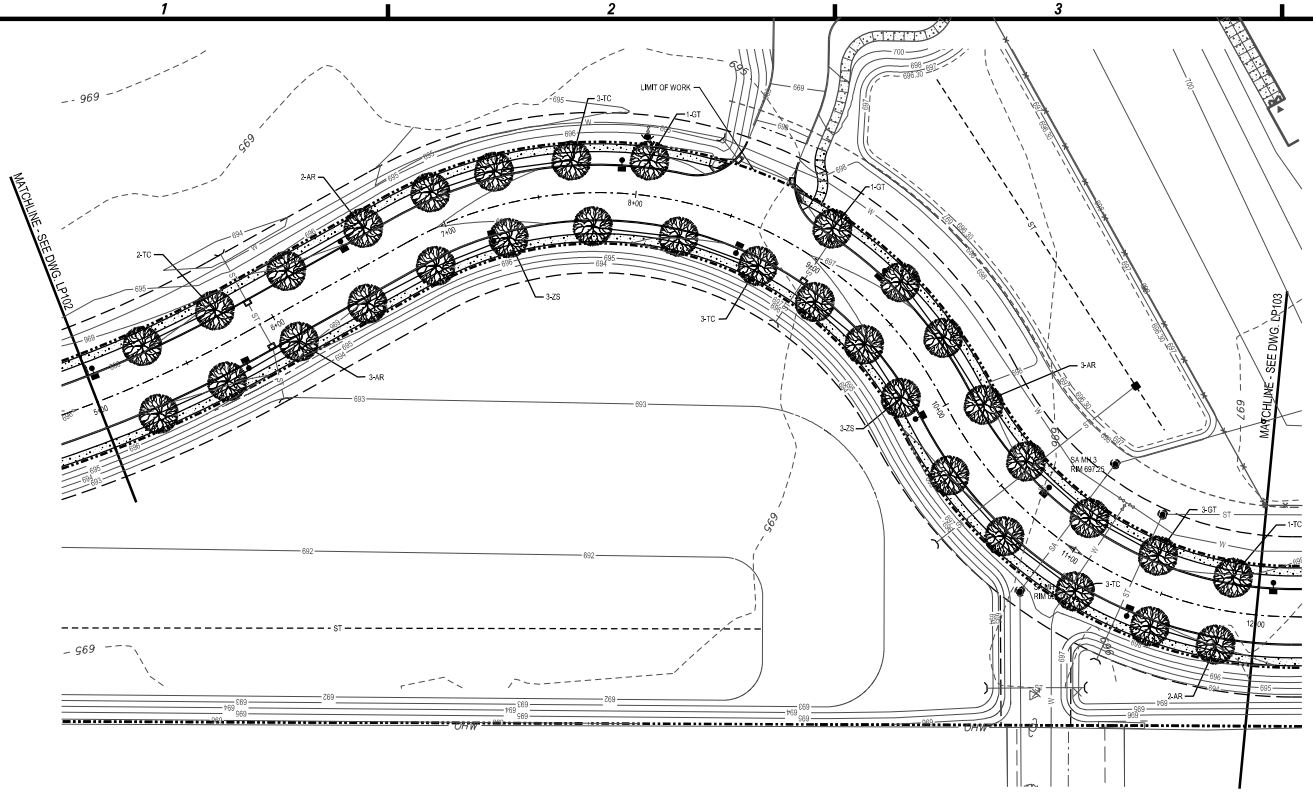
NO ALTERATION PERMITTED HERE EXCEPT AS PROVIDED UNDER SE 7209 SUBDIVISION 2 OF THE NEW EDUCATION LAW

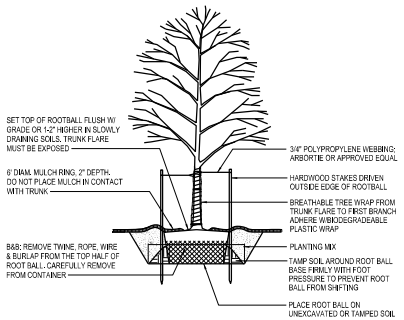
LANDSCAPING
STA. 0+00 - STA
& NOTES
PLANTING TA

LP101

Copyright

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)





NOTES:
1. STAKE TREES AS DIRECTED BY THE LANDSCAPE ARCHITECT. STAKING WILL BE REQ'D WHEN ROOT BALLS ARE VERY SANDY OR WET CLAY. WHEN SOIL IS VERY SOFT, OR WHEN PLANTING LOCATIONS ARE WINDY.
2. TIGHTEN ARBORTIE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT.
3. PRUNE ONLY CROSSING LIMBS, CO-DOMINANT LEADERS AND BROKEN OR DEAD BRANCHES.
4. TREE WRAP SHOULD BE INSTALLED AT TIME OF PLANTING AND REMOVED 12 MONTHS AFTER PLANTING.

DECIDUOUS TREE PLANTING DETAIL
NTS

A1 LANDSCAPING PLAN AND DETAILS
SCALE: 1" = 30'

30 0 30 60 FT.

C&S COMPANIES
C&S Engineers
141 Elm St
Buffalo, New York
Phone: 716
Fax: 716
www.

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO: 004.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: M. GRIDLEY
CHECKED BY: J. UTZIG

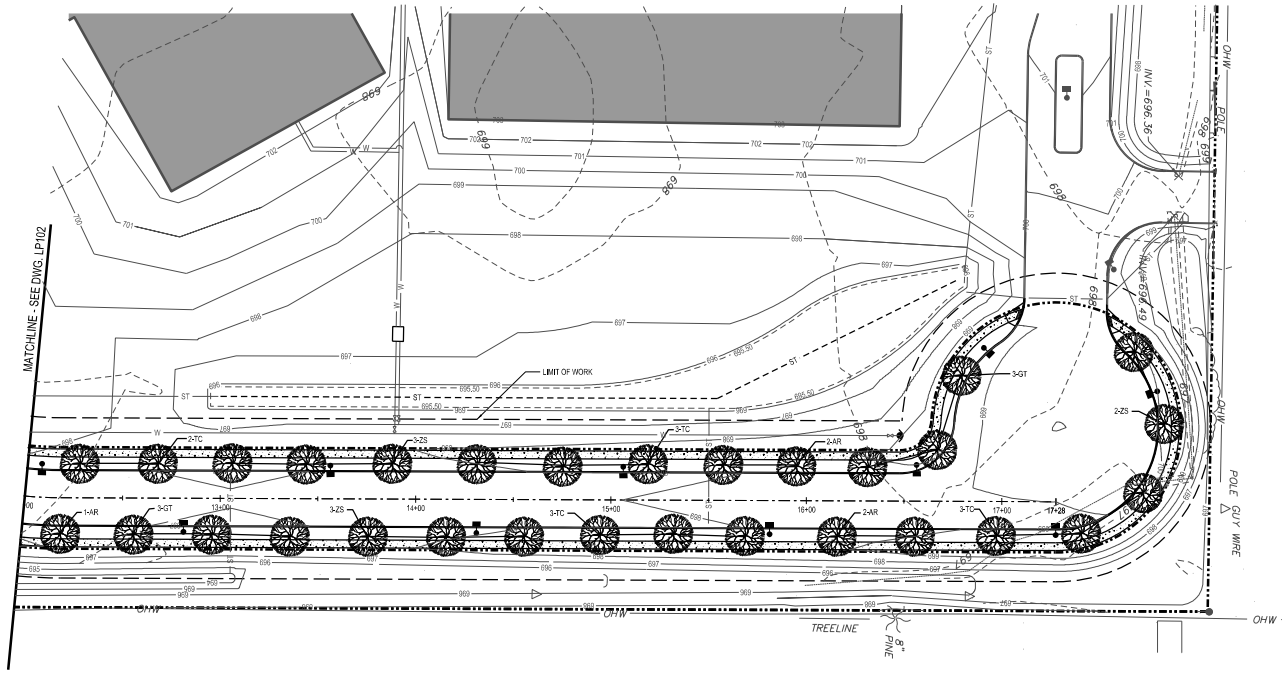
NO ALTERATION PERMITTED HERE EXCEPT AS PROVIDED UNDER SEC 7209 SUBDIVISION 2 OF THE NEW EDUCATION LAW

LANDSCAPING
SAT. 5+00 - STA
AND DETAI

LP102

Copyright

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



A1 LANDSCAPING PLAN
SCALE: 1" = 30'

C&S COMPANIES

C&S Engineers
141 Elm St
Buffalo, New York
Phone: 716
Fax: 716
www.

PROPOSED ROAD
2190-2220 WEHRLE DRIVE
WILLIAMSVILLE, NEW YORK 14221

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO: D04.009.001
DATE: NOVEMBER 12, 2021
DRAWN BY: S. SCHIENER
DESIGNED BY: M. GRIDLEY
CHECKED BY: J. UTZIG

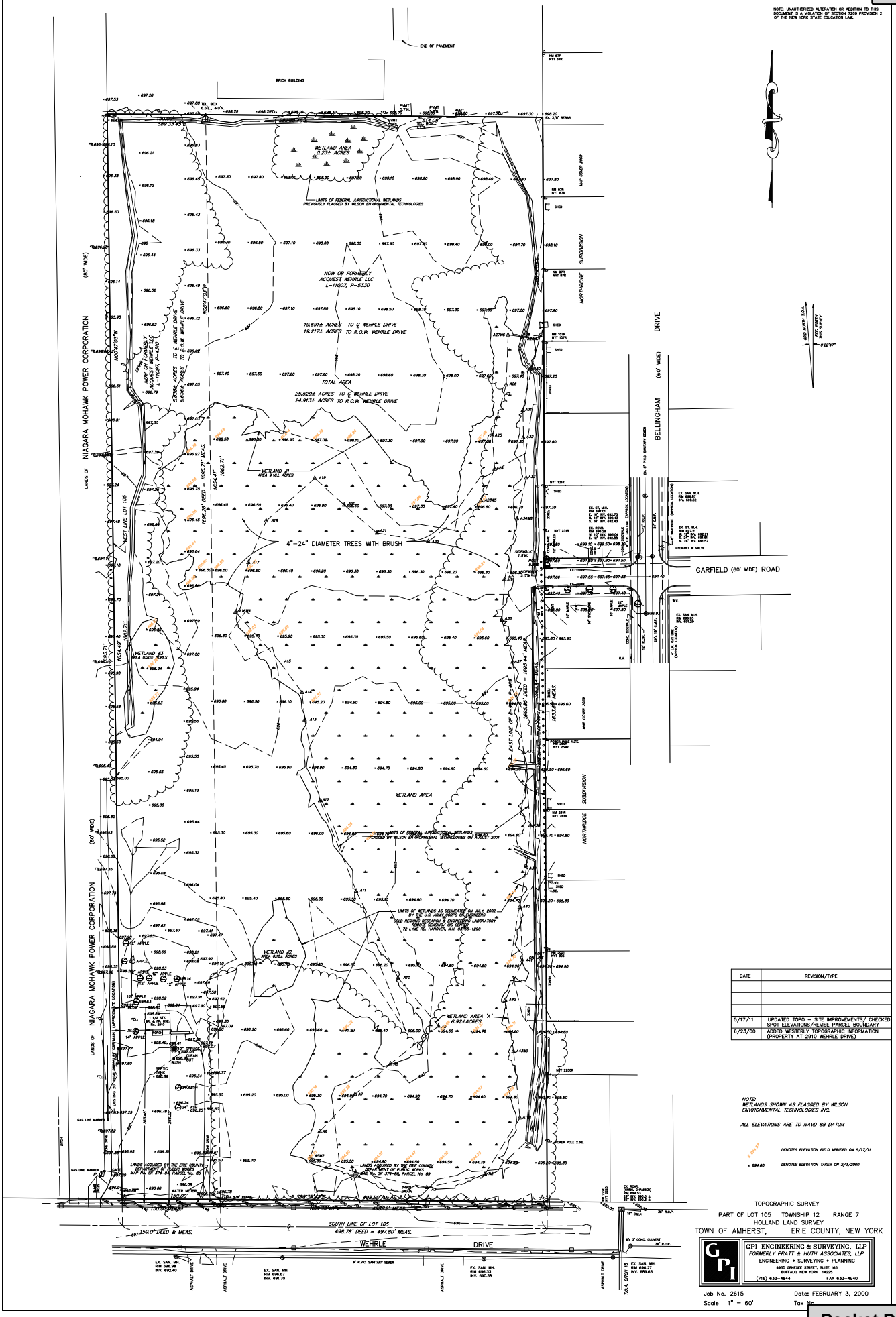
NO ALTERATION PERMITTED HERE
EXCEPT AS PROVIDED UNDER SE
7209 SUBDIVISION 2 OF THE NEW
EDUCATION LAW

LANDSCAPING
STA. 12+00 - STA

LP103

Copyright

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)



DATE	REVISION/TYPE
5/17/11	UPDATED TOPO - SITE IMPROVEMENTS/ CHECKED SPOT ELEVATIONS/REVISE PARCEL BOUNDARY
6/23/00	ADDED WESTERLY TOPOGRAPHIC INFORMATION (PROPERTY AT 2910 WEHRLE DRIVE)

TOPOGRAPHIC SURVEY
PART OF LOT 105 TOWNSHIP 12 RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING & SURVEYING, LLP
FORMERLY PRATT & HUTH ASSOCIATES, LLP
ENGINEERING • SURVEYING • PLANNING
4820 GENESEE STREET, SUITE 165
BUFFALO, NEW YORK 14225
(716) 633-4944 FAX 633-4940

Job No. 2615 Date: FEBRUARY 3, 2000
Scale 1" = 60' Tax No.

Attachment: SP-2021-23 drawings 011322 (25067 : Sp-2021-23)

Vote #1 SEQR DETERMINATION

MOTION:
APPROVE ____ BY _____ 2nd _____ VOTE _____
DENY ____
TABLE ____
ADJOURN ____

	FOR	AGAINST	ABSTAIN		FOR	AGAINST	ABSTAIN
CHMIEL				GIULIANI			
GELBER				PENBERTHY			
GILL				RAFFAELE			
GILMOUR							

Vote #2 SITE PLAN REVIEW

MOTION:
APPROVE ____ BY _____ 2nd _____ VOTE _____
DENY ____
TABLE ____
ADJOURN ____

	FOR	AGAINST	ABSTAIN		FOR	AGAINST	ABSTAIN
CHMIEL				GIULIANI			
GELBER				PENBERTHY			
GILL				RAFFAELE			
GILMOUR							

COMMENTS:_____
_____
_____
_____

PETITIONER

Acquest Wehrle LLC
Omar Abu-Sitta
5554 Main Street
Williamsville, NY 14221

Represented by:

C & S Engineers
Jason Utzig
141 Elm Street, Suite 100
Buffalo, NY 14203

REQUEST: Site Plan Review, SP-2021-23; Proposed Office Building and Roadway; property located at 2190 & 2220 Wehrle Drive.

PROJECT DESCRIPTION: In the northwest portion of the subject area a secured compound containing an 84,375 sq. ft. three-story office building, a 24,750 single story garage / maintenance / storage building, a 72,072 sq. ft. two-story parking garage and a one-story security booth are proposed along with 228 parking spaces (including those in the parking ramp) and having site access via a proposed 1,750± lineal foot roadway. Secondary emergency access to the site is proposed via a gated vehicular access to the Limestone Office Park building located at 17-20 Limestone Drive off of Main Street. The proposed public cul-de-sac roadway, public utilities and stormwater facilities are located on the eastern portion of the site and are intended to serve full build out of the entire development of the 2190 & 2200 Wehrle Drive parcels. Plans additionally show a

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

possible future building which is not part of the current request in the southwest portion of the subject parcel.

Location: North side of Wehrle Drive, 390± ft. east of Spindrift Drive and 290± feet west of Ridge Court South

SITE FACTORS:

Acreage: Subject sites, 24.6± acres
Project area, 17.5± acres

Configuration: Subject sites, rectangular
Project area, irregular

Frontage: 640± ft. on Wehrle Drive
60 ft. on Garfield Road

Depth: 1,654.49± ft.

Existing Development: Site is currently undeveloped with a meadow area and intermittent trees. The parcel located at 2190 Wehrle Drive was formerly occupied by a single-family home which has be demolished.

Other Factors:

- Wehrle Drive is an Erie County highway designated as a minor arterial in the Town of Amherst Bicentennial Comprehensive Plan.
- Site is located adjacent to the flight path for runway 5/23 at the Buffalo Niagara International Airport

Surrounding Zoning and Land Use: Per attached sketch.

REVIEW AGENCY REPORTS:

Assessor:

Approved with the following condition:

2190 and 2220 Wehrle Drive are required to be merged, request to merge to be sent to Assessor's Office and Planning Department

Building Department:

Approved with the following conditions:

Eight accessible parking spaces required, four shown on site plan, any spaces within the parking garage are not shown.

Plumbing Division:

Denied for the following reasons:

1. Show roof drainage for all buildings connected to the site storm sewer.
2. Provide drainage along the north and west property lines.

Note: All sanitary and water in the public ROW to be under a PIP. Sanitary and water on site (outside of ROW or public utility easement) to be under a Town of Amherst Plumbing Permit.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

Engineering Department:

Approved with the following conditions:

Proposed Office Building:

1. Plans must be revised to include perimeter drainage along the west and north property lines.
2. A revised Developer commitment letter must be provided based on the revised Engineer's Report outlining the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. This revised commitment letter must be received by this office prior to the issuance of any plumbing permits.

Proposed Roadway:

1. All proposed utilities must be labeled as public or private. All proposed public utilities must be located either within the right-of-way or permanent public utility easements.
2. Erie County Division of Highways approval documents relative to the proposed activities within the Wehrle Drive right-of-way must be provided to this office prior to the issuance of a Town of Amherst plumbing permit or acceptance of any PIP applications

Stormwater Management Officer:

Approved with the following conditions:

1. Under Section 3.2 – construction controls add language that Town approval is required prior to disturbing more than 5 acres at any one time.
2. Under inspection report, please specify that photographs of the site on the day of inspection and deficiencies found shall be included in the report.
3. Include a copy of signed Owner certification.
4. Show location and detail of concrete wash-out area, contractor parking on the erosion and sediment control plan. Also include description of stabilization methods including quantities of material, specs, seeding rates, mulch material rates, etc. Soil stockpile stabilization methods and timing.
5. Please include a statement between pages 2 and 3 in the maintenance agreement stating "In the event that the facility owner ceases operation, it agrees that before ceasing said operation that it shall assure that its obligations under stormwater control maintenance agreement are transferred to a valuable and legal entity which would take over all of such responsibilities." Include a schedule summarizing the post-construction measures type of maintenance needed and schedule for those activities.
6. Under the N.O.T. (Notice of Termination) requirements within the SWPPP include language that once the project is stabilized, level 1 inspection for the stormwater management practices shall be performed and signed off by a professional engineer. The report shall be submitted to the Town's stormwater management officer with the NOT form.
7. Please include temporary sediment basin size design calculations per NYSDEC requirements.
8. How will the portion of bio-retention area inside the fence be maintained?

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

9. Show erosion and sediment control plan for the proposed road and the site east of the road.

Fire Chiefs' Association:

Denied due to the following:

1. Access gates shall comply with appendix D103.5
2. Tamper switches are required on fire service valves in hotbox.
3. Two separate remote access roads required per Appendix D.
4. Per Appendix D104.1 buildings exceeding 30 feet require two means of fire apparatus access for each structure.
5. Private hydrants must be painted red.
6. Enclosed parking garages exceeding 12,000 square feet require sprinkler protection.
7. Provide fire apparatus turning plan throughout site.
8. Provide address plan for each building on complex.

Highway Department:

Approved as submitted.

Traffic/Safety Board:

TIS Comments:

A. Tis Must be revised to reflect the most revised set of plans that only shows Building 'E' as a future development. The additional speculative buildings removed from the site plan (but remain in TIS) are located in the proposed stormwater detention basin. As such, revise the TIS removing these buildings.
B. TIS is showing signal adjustments at the Youngs/Wehrle signal as mitigation. Provide timing sheets as part of site plan review.
C. Petitioner must agree to follow up traffic study after full buildout to determine if warrants are met for a traffic signal. If warrants are met and a signal is recommended, petitioner must agree to fund its portion of installation cost of the traffic signal system to Town standards (incl. Miovision). Establishment of an escrow, may be necessary if the Planning Board requires such to accommodate this condition.

Site Plan comments:

1. Change the roadway to a private roadway.

R.O.W. Agent:

Approved as submitted.

OTHER INVOLVED AGENCIES:

ECDEP: Concur with the Town acting as Lead Agency
No recommendation; proposed action has been reviewed & determined to be of local concern.

.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

ECDPW Highways: Concur with the Town acting as Lead Agency and comments:

1. The traffic signal warrant 3 for peak hour is met for both the Phase I and full build conditions. The three-color signal should be installed at the time of Phase I construction. The developer shall contact the Town of Amherst regarding signal design.
2. This site will negatively impact the signal timing at the intersections of Wehrle Drive with Spindrift Drive and Youngs Road. The developer shall contact the Town of Amherst regarding monitoring and adjustments to timing of these signals.
3. A stormwater management report shall be provided for our review. Stormwater drainage for this site shall be designed in accordance with the New York State Stormwater Management Design Manual and local Town requirements.
4. The project sponsor will be required to apply for and obtain an Erie County Highway Work Permit for Utility Work Perm-2 prior to construction within the Wehrle Drive (CR-290) highway right-of-way.
5. The project sponsor will be required to apply for and obtain an Erie County Highway Work Permit for Non-Utility Work Perm-3 prior to construction of a new road within the Wehrle Drive (CR-290) highway right-of-way.

NYSDOT: review pending.

BNIA: review pending.

NYSDEC: Concur with the Town acting as Lead Agency and comments

1. If any project activities will involve land disturbance of 1 acre or more, the project sponsor, owner or operator is required to obtain a State Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001).
2. The Town of Amherst is designated as an MS4 community. The project sponsor, owner or operator of a construction activity that is subject to the requirements of a regulated, traditional land use control MS4 shall have their SWPPP reviewed and accepted by the MS4 community.
3. This proposed project requires a sanitary sewer connection that is designed to convey 2,500 gallons/day or more of municipal sewage and is therefore considered a sanitary sewer extension. A detailed Downstream Sewer Capacity Analysis must be performed and submitted for the proposed project as part of the Project's Engineering Report. Recent wet weather flow monitoring data and proposed new development flow should be analyzed relative to theoretical capacity at key nodes in the downstream sewer system and at pump stations (if any) to determine if capacity exists.
4. The Downstream Sewer Capacity Analysis must also contain a narrative and a detailed map showing the downstream routing of sewers from the proposed project site to the Wastewater Treatment Plant.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

5. This Downstream Sewer Capacity Analysis, as well as any required infiltration and inflow (I/I) rehabilitation offset work at a 4:1 ratio, should be part of the Project's Engineering Report.

Other Considerations: None.

STAFF ANALYSIS:

Existing zoning / intent: Office Building District (OB), is intended to provide areas within the Town devoted exclusively to offices by regulating the land area, bulk and spacing of uses, particularly at common boundaries and promoting the most desirable land use and traffic patterns in accordance with the objectives of the comprehensive plan.

History of previous rezoning / site plan approvals:

REZONING:

2190 Wehrle Drive

Z-2000-23 The Town Board on December 17, 2001 approved a request to rezone the parcel from R-3 to OB with the following conditions:

a. The requirements of the ECDPW as stated in memo dated 11/15/01 be addressed for the development of Phase 1 (40,000 sq. ft.) prior to any final site plan approval for that phase. Any site plans for subsequent phases will be required to update the TIS so that the impact of the office park may be monitored relative to planned road improvements & other developments in the area.
b. The heights of the buildings & structures be limited to 1 story & 35 ft. from finished grade on the east side of the proposed subdivision road.
c. A minimum 50 ft. greenspace buffer be provided along the east property line of 2220 Wehrle Drive.
d. The EPA sewer connection moratorium be approved prior to any connections to the sanitary sewer system.
e. A vehicular connection to the Limestone Office Park from the proposed access road be required when the development extends beyond 800 ft. from Wehrle Drive.

Z-2021-01 The Town Board on June 21, 2021 approved a request to rezone the parcel from R-3 to OB with the following condition:

a. That the petitioner provide further information on the intended use of the northerly buildings to ensure compliance with the allowed uses set forth in §203-4-2(A)

2220 Wehrle Drive

Z-1995-12 The Town Board on December 4, 1995 approved a request to rezone the parcel from R-3 to OB with the following condition.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

a. That the mitigation recommended by the NYSDOT and the ECDPW be required.

SITE PLANS:

SP-2000-16 The Planning Board on May 16, 2002 approved a site plan for a 1,675 lineal foot public road & R.O.W. to service a future business park. Access was provided to Limestone Office Park.

SP-2000-16_A The Planning Board on May 16, 2002 approved a site plan for 750 lineal feet of public road & R.O.W. to service a future business park.

SP-2002-10 The Planning Board on July 11, 2021 approved a site plan for a 2 story 51,200 sq. ft. office building with parking for 214 vehicles. 365 ft. of the approved road is planned to be constructed to serve this development.

Staff Comments:

Zoning Enforcement Officer:

Denied for the following reasons:

1. Unable to determine compliance with §203-4-2-2 A of Town Code for use of the subject site. Provide a detailed use and or tenant of building 'A' so that a determination as to the allowable use of building 'C' as an accessory use to Building 'A' can be made

2. Unable to determine compliance with §203-4-8-6 C of Town Code as the building facades are not dimensioned with enough detail to determine compliance.

3. The accessory structures (garage, security booth and maintenance facility) floor area exceeds that permitted by §203-6-8-1 B of Town Code. Maximum allowable is 75% of the gross floor area of the principal structure.

4. Onsite parking is insufficient to meet the requirements of §203-7-1-6 A of Town Code. A minimum of 341 parking stalls are required whereas a total of 228 spaces are provided. An alternative parking plan in accordance with §203-7-1-7 of Town Code may be sought.

5. The required landscape area adjacent to buildings is not provided as required by §203-7-2-3 A (2) of Town Code. North side of Building 'D', the west side of Building 'A', and south side of Building 'C'. Foundation plantings are required on all sides of the proposed buildings that are adjacent to vehicle use areas, with the exception of entrances and exits, drive throughs and covered pedestrian walkways. There are foundation plantings missing on the east side of Building 'C', the north side of Building 'D' and the west side of Building 'A' exclusive of building entrances. Additionally, the landscaped area adjacent to Building 'B' is not dimensioned to determine compliance with this section.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

6. All landscape islands are not curbed as required by §203-7-2-3 A (3) (k). The island at the northwest corner of Building 'C' and the terminal landscape island in the southeast corner of the parking lot south of Building 'C' are not curbed.

7. If the proposed roadway will be a public roadway the vehicle use area between Buildings 'A' and 'D' and the public roadway will require the vehicle use area screen required by §203-7-2-4 A (2) of Town Code.

8. Be aware the proposed flag poles may only display national or governmental flags. Any flags, banners etc. bearing advertising or tenant identification will be considered signage and as such are not permitted by §203-7-8-2 of Town Code.

9. Unable to determine compliance with §204-3-2 C (6) and §204-3-2 C (10) of Town Code as no offset or distances to other streets onto Wehrle Drive were provided from the proposed roadway.

Planning Department Staff:

1. The portion of the subject development located on the parcel at 2200 Wehrle Drive was rezoned by the Town Board on December 4, 1995 with the condition "*That the mitigations recommended by the NYSDOT and ECDPW be required"* (Z-1995-12). Provide documentation from these agencies that the mitigation was provided or is no longer required.

2. Given the proposed public roadway serves no, or minimal public purpose it will be recommend to the Planning Board that it be classified as a private roadway.

3. Revise the light pole foundation detail on sheet CS501 to indicate that the light pole bases are to be 6 inches above finished grade in landscaped areas.

4. A reciprocal access agreement to allow for pedestrian and vehicular ingress and egress for the proposed vehicular connection shown to the future development area will be required.

5. A reciprocal access and maintenance agreement to allow for vehicular ingress and egress to the Existing office development site north of the subject site will be required.

Landscape Architect:

1. Provide plantings in the landscape island at the southwest corner of Building A, adjacent to the dumpster enclosure per section, per §7-2-3A (3) (e) of Town Code.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

2. Provide landscaped areas adjacent to the building as per §7-2-3 (A) (2) of Town Code.

3. Please provide typical details for all above ground utilities as enumerated in § 7-2-4 (C) (1) of Town Code "*Non-single-family residential properties which may be viewed from residential uses, public streets or public park areas shall screen all roof, ground and wall mounted mechanical equipment (utility structures, multiple meter boards, generators, air conditioning units, backflow preventer [RPZ] hot boxes, etc.) from view at ground level of the property line*."

4. Consideration should be given to providing an east to west connection through the site near the Garfield Street area for pedestrian walkways or bicycle access. This multi-modal connection could be designed as an on-road treatment with bike lanes or separate off-road multi-use trail on the east side of the roadway.

STAFF RECOMMENDATION

SEQR: EAF completed; Type I Action, Town Established as Lead Agency, Issue Attached Negative Declaration.

Site Plan: **Table**, pending review by NYSDOT, BNIA and receipt of revised plans or materials that address the concerns of the Assessor's Office, Building, Engineering and Planning Departments, Plumbing Division, Traffic Safety Board, Zoning Enforcement Officer, Stormwater management Officer and Landscape Architect.

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-23_(2190_&_2220_Wehrle_Dr)_2021\SP-2021-23_Blurb_011322.doc_

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

DRAFT

(1/13/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst Planning Board

Project: SP-2021-23

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Type I Action

Description of Action: development of 17.5 acres of a 24.6 acre site for an 84,375 sq. ft. three-story office building, a 24,750 single story garage / maintenance / storage building, a 72,072 sq. ft. two-story parking garage and a one-story security booth along with 228 parking spaces (including those within the parking ramp) and having site access via a proposed 1,750± lineal foot roadway. Work will include site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 2190 & 2220 Wehrle Drive, Amherst, Erie County

Petitioner: Acquest Wehrle, LLC

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on_____ reviewed the Grading, Drainage and Utility Plan, Engineer's Report and Erosion Control Plan submitted on December 20, 2021, long with the Geotechnical Report prepared by Glynn Group Engineering & Architecture, PLLC. A Stormwater Pollution Prevention Plan (SWPPP) submitted on December 20, 2021 was also reviewed. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on December 20, 2021 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of _____ and the Planning Department in their review of _____ has reviewed the application documents, along with the Geotechnical Report submitted on November 15, 2021 and noted in their review of _____ that the subject project has or will have met all International Building Code – 2015 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project site and, as stated in their letters of October 4, 2005 and September 28, 2001 determined that there will be no impact on these resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Office Building District (OB) zoning district; neighboring uses are office buildings to the north, a power transmission right-of-way to the west, office light industrial uses to the south across Wehrle Drive and detached single family homes to the east, zoned Office Building District (OB), Research Development District (RD) and Residential District Three (R3); therefore, the project is consistent with surrounding land uses.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

6. The proposed subject development will include an 182,700± sq. ft. office building and associated accessory structures along with an 1,750± lineal foot roadway which will not cause a major change in the use of either the quantity or type of energy.

7. The project will not create any hazard to human health. The Fire Chief's Association on _____, and the BNIA on _____, have reviewed the project and have no objection to the approval of the site plan, as all requirements of these agencies have or will have been met.

8. The project will cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The 182,700± sq. ft. of office building and associated accessory structures and 1,750± lineal foot roadway will be consistent with the scale of surrounding land uses.

9. The function of the proposed 182,700± sq. ft. of office building and associated accessory structures and 1,750± lineal foot roadway will significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated _____, Erie County Dept. of Public Works –Highways Division dated _____, and NYSDOT dated_____ indicates that significant negative traffic impacts are not expected to result from the proposed project.

    Review of the Traffic Impact Study (TIS) prepared by SRF Associates submitted to the Planning Department on November 15, 2021 and reviewed by the Town Traffic/Safety Board _____, Erie County Dept. of Public Works –Highways Division,_____ and NYSDOT _____

    - ❑ indicates that significant negative traffic impacts are not expected to result from the proposed project.
    - ❑ Indicates that the following transportation improvements are required:
      _____
      _____
      _____
      _____

      and that these improvements will be constructed as part of this project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on _____, Assessor on _____, Plumbing Division on _____, and Right-of-Way Agent on _____. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

DRAFT Negative Declaration SP-2021-23
DATE

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-23_(2190_&_2220_Wehrle_Dr)_2021\SP-2021-23_Blurb_011322.doc
cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
Omar Abu-Sitta, Acquest Wehrle LLC, 5554 Main Street, Williamsville, NY 14221
Jason Utzig, C & S Engineers, 141 Elm Street, Suite 100, Buffalo, NY 14203

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-23

PETITIONER

Acquest Wehrle LLC
5554 Main Street
Williamsville, NY 14221

PROPERTY LOCATION

2190 & 2220 Wehrle Drive

WHEREAS, the Town of Amherst Planning Board on Thursday, January 13, 2022 held a public hearing on a Site Plan for a 182,700± sq. ft. of office building and associated accessory structures and a 1,750± lineal foot roadway and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Under Section 404 of the Clean Water Act, the US Army Corps of Engineers has determined that it has no jurisdiction.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-23

PETITIONER	PROPERTY LOCATION
Acquest Wehrle LLC	2190 & 2220 Wehrle Drive

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance **approves/denies** said Site Plan subject to the following conditions:

1. That Building "C" (storage garage/maintenance facility) is not approved as part of this site plan. The subject building will be considered at a future time, when the developer provides written confirmation of the tenant/user and actual intended use, including a detailed floor plan allowing the Planning Department and the Zoning Enforcement Officer to determine if the intended use is a customary accessory use of the proposed principal office building use, and that such intended use is permitted within the OB- Office Business zoning district.

2 That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

3. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

4. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-23

PETITIONER	PROPERTY LOCATION
Acquest Wehrle LLC	2190 & 2220 Wehrle Drive

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-23_(2190_&_2220_Wehrle_Dr)_2021\SP-2021-23_Blurb_011322.doc_

cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Omar Abu-Sitta, Acquest Wehrle LLC, 5554 Main Street, Williamsville, NY 14221
Jason Utzig, C & S Engineers, 141 Elm Street, Suite 100, Buffalo, NY 14203

Approved Plan: _____
Received: _____

Attachment: SP-2021-23_draft neg dec_011322 (25067 : Sp-2021-23)

Vote #1 SEQR DETERMINATION

MOTION:
APPROVE ____ BY _____ 2nd _____ VOTE _____
DENY ____
TABLE ____
ADJOURN ____

	FOR	AGAINST	ABSTAIN		FOR	AGAINST	ABSTAIN
CHMIEL				GIULIANI			
GELBER				PENBERTHY			
GILL				RAFFAELE			
GILMOUR							

Vote #2 SITE PLAN REVIEW

MOTION:
APPROVE ____ BY _____ 2nd _____ VOTE _____
DENY ____
TABLE ____
ADJOURN ____

	FOR	AGAINST	ABSTAIN		FOR	AGAINST	ABSTAIN
CHMIEL				GIULIANI			
GELBER				PENBERTHY			
GILL				RAFFAELE			
GILMOUR							

COMMENTS:_____
_____
_____
_____

PETITIONER

Acquest Wehrle LLC
Omar Abu-Sitta
5554 Main Street
Williamsville, NY 14221

Represented by:

C & S Engineers
Jason Utzig
141 Elm Street, Suite 100
Buffalo, NY 14203

REQUEST: Site Plan Review, SP-2021-23; Proposed Office Building and Roadway; property located at 2190 & 2220 Wehrle Drive.

PROJECT DESCRIPTION: In the northwest portion of the subject area a secured compound containing an 84,375 sq. ft. three-story office building, a 24,750 single story garage / maintenance / storage building, a 72,072 sq. ft. two-story parking garage and a one-story security booth are proposed along with 228 parking spaces (including those in the parking ramp) and having site access via a proposed 1,750± lineal foot roadway. Secondary emergency access to the site is proposed via a gated vehicular access to the Limestone Office Park building located at 17-20 Limestone Drive off of Main Street. The proposed public cul-de-sac roadway, public utilities and stormwater facilities are located on the eastern portion of the site and are intended to serve full build out of the entire development of the 2190 & 2200 Wehrle Drive parcels. Plans additionally show a

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

possible future building which is not part of the current request in the southwest portion of the subject parcel.

Location: North side of Wehrle Drive, 390± ft. east of Spindrift Drive and 290± feet west of Ridge Court South

SITE FACTORS:

Acreage: Subject sites, 24.6± acres
Project area, 17.5± acres

Configuration: Subject sites, rectangular
Project area, irregular

Frontage: 640± ft. on Wehrle Drive
60 ft. on Garfield Road

Depth: 1,654.49± ft.

Existing Development: Site is currently undeveloped with a meadow area and intermittent trees. The parcel located at 2190 Wehrle Drive was formerly occupied by a single-family home which has be demolished.

Other Factors:

- Wehrle Drive is an Erie County highway designated as a minor arterial in the Town of Amherst Bicentennial Comprehensive Plan.
- Site is located adjacent to the flight path for runway 5/23 at the Buffalo Niagara International Airport

Surrounding Zoning and Land Use: Per attached sketch.

REVIEW AGENCY REPORTS:

Assessor:

Approved with the following condition:

2190 and 2220 Wehrle Drive are required to be merged, request to merge to be sent to Assessor's Office and Planning Department

Building Department:

Approved with the following conditions:

Eight accessible parking spaces required, four shown on site plan, any spaces within the parking garage are not shown.

Plumbing Division:

Denied for the following reasons:

1. Show roof drainage for all buildings connected to the site storm sewer.
2. Provide drainage along the north and west property lines.

Note: All sanitary and water in the public ROW to be under a PIP. Sanitary and water on site (outside of ROW or public utility easement) to be under a Town of Amherst Plumbing Permit.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

Engineering Department:

Approved with the following conditions:

Proposed Office Building:

1. Plans must be revised to include perimeter drainage along the west and north property lines.
2. A revised Developer commitment letter must be provided based on the revised Engineer's Report outlining the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. This revised commitment letter must be received by this office prior to the issuance of any plumbing permits.

Proposed Roadway:

1. All proposed utilities must be labeled as public or private. All proposed public utilities must be located either within the right-of-way or permanent public utility easements.
2. Erie County Division of Highways approval documents relative to the proposed activities within the Wehrle Drive right-of-way must be provided to this office prior to the issuance of a Town of Amherst plumbing permit or acceptance of any PIP applications

Stormwater Management Officer:

Approved with the following conditions:

1. Under Section 3.2 – construction controls add language that Town approval is required prior to disturbing more than 5 acres at any one time.
2. Under inspection report, please specify that photographs of the site on the day of inspection and deficiencies found shall be included in the report.
3. Include a copy of signed Owner certification.
4. Show location and detail of concrete wash-out area, contractor parking on the erosion and sediment control plan. Also include description of stabilization methods including quantities of material, specs, seeding rates, mulch material rates, etc. Soil stockpile stabilization methods and timing.
5. Please include a statement between pages 2 and 3 in the maintenance agreement stating "In the event that the facility owner ceases operation, it agrees that before ceasing said operation that it shall assure that its obligations under stormwater control maintenance agreement are transferred to a valuable and legal entity which would take over all of such responsibilities." Include a schedule summarizing the post-construction measures type of maintenance needed and schedule for those activities.
6. Under the N.O.T. (Notice of Termination) requirements within the SWPPP include language that once the project is stabilized, level 1 inspection for the stormwater management practices shall be performed and signed off by a professional engineer. The report shall be submitted to the Town's stormwater management officer with the NOT form.
7. Please include temporary sediment basin size design calculations per NYSDEC requirements.
8. How will the portion of bio-retention area inside the fence be maintained?

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

9. Show erosion and sediment control plan for the proposed road and the site east of the road.

Fire Chiefs' Association:

Denied due to the following:

1. Access gates shall comply with appendix D103.5
2. Tamper switches are required on fire service valves in hotbox.
3. Two separate remote access roads required per Appendix D.
4. Per Appendix D104.1 buildings exceeding 30 feet require two means of fire apparatus access for each structure.
5. Private hydrants must be painted red.
6. Enclosed parking garages exceeding 12,000 square feet require sprinkler protection.
7. Provide fire apparatus turning plan throughout site.
8. Provide address plan for each building on complex.

Highway Department:

Approved as submitted.

Traffic/Safety Board:

TIS Comments:

A. Tis Must be revised to reflect the most revised set of plans that only shows Building 'E' as a future development. The additional speculative buildings removed from the site plan (but remain in TIS) are located in the proposed stormwater detention basin. As such, revise the TIS removing these buildings.
B. TIS is showing signal adjustments at the Youngs/Wehrle signal as mitigation. Provide timing sheets as part of site plan review.
C. Petitioner must agree to follow up traffic study after full buildout to determine if warrants are met for a traffic signal. If warrants are met and a signal is recommended, petitioner must agree to fund its portion of installation cost of the traffic signal system to Town standards (incl. Miovision). Establishment of an escrow, may be necessary if the Planning Board requires such to accommodate this condition.

Site Plan comments:

1. Change the roadway to a private roadway.

R.O.W. Agent:

Approved as submitted.

OTHER INVOLVED AGENCIES:

ECDEP: Concur with the Town acting as Lead Agency
No recommendation; proposed action has been reviewed & determined to be of local concern.

.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

ECDPW Highways: Concur with the Town acting as Lead Agency and comments:

1. The traffic signal warrant 3 for peak hour is met for both the Phase I and full build conditions. The three-color signal should be installed at the time of Phase I construction. The developer shall contact the Town of Amherst regarding signal design.
2. This site will negatively impact the signal timing at the intersections of Wehrle Drive with Spindrift Drive and Youngs Road. The developer shall contact the Town of Amherst regarding monitoring and adjustments to timing of these signals.
3. A stormwater management report shall be provided for our review. Stormwater drainage for this site shall be designed in accordance with the New York State Stormwater Management Design Manual and local Town requirements.
4. The project sponsor will be required to apply for and obtain an Erie County Highway Work Permit for Utility Work Perm-2 prior to construction within the Wehrle Drive (CR-290) highway right-of-way.
5. The project sponsor will be required to apply for and obtain an Erie County Highway Work Permit for Non-Utility Work Perm-3 prior to construction of a new road within the Wehrle Drive (CR-290) highway right-of-way.

NYSDOT: review pending.

BNIA: review pending.

NYSDEC: Concur with the Town acting as Lead Agency and comments

1. If any project activities will involve land disturbance of 1 acre or more, the project sponsor, owner or operator is required to obtain a State Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001).
2. The Town of Amherst is designated as an MS4 community. The project sponsor, owner or operator of a construction activity that is subject to the requirements of a regulated, traditional land use control MS4 shall have their SWPPP reviewed and accepted by the MS4 community.
3. This proposed project requires a sanitary sewer connection that is designed to convey 2,500 gallons/day or more of municipal sewage and is therefore considered a sanitary sewer extension. A detailed Downstream Sewer Capacity Analysis must be performed and submitted for the proposed project as part of the Project's Engineering Report. Recent wet weather flow monitoring data and proposed new development flow should be analyzed relative to theoretical capacity at key nodes in the downstream sewer system and at pump stations (if any) to determine if capacity exists.
4. The Downstream Sewer Capacity Analysis must also contain a narrative and a detailed map showing the downstream routing of sewers from the proposed project site to the Wastewater Treatment Plant.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

5. This Downstream Sewer Capacity Analysis, as well as any required infiltration and inflow (I/I) rehabilitation offset work at a 4:1 ratio, should be part of the Project's Engineering Report.

Other Considerations: None.

STAFF ANALYSIS:

Existing zoning / intent: Office Building District (OB), is intended to provide areas within the Town devoted exclusively to offices by regulating the land area, bulk and spacing of uses, particularly at common boundaries and promoting the most desirable land use and traffic patterns in accordance with the objectives of the comprehensive plan.

History of previous rezoning / site plan approvals:

REZONING:

2190 Wehrle Drive

Z-2000-23 The Town Board on December 17, 2001 approved a request to rezone the parcel from R-3 to OB with the following conditions:

a. The requirements of the ECDPW as stated in memo dated 11/15/01 be addressed for the development of Phase 1 (40,000 sq. ft.) prior to any final site plan approval for that phase. Any site plans for subsequent phases will be required to update the TIS so that the impact of the office park may be monitored relative to planned road improvements & other developments in the area.
b. The heights of the buildings & structures be limited to 1 story & 35 ft. from finished grade on the east side of the proposed subdivision road.
c. A minimum 50 ft. greenspace buffer be provided along the east property line of 2220 Wehrle Drive.
d. The EPA sewer connection moratorium be approved prior to any connections to the sanitary sewer system.
e. A vehicular connection to the Limestone Office Park from the proposed access road be required when the development extends beyond 800 ft. from Wehrle Drive.

Z-2021-01 The Town Board on June 21, 2021 approved a request to rezone the parcel from R-3 to OB with the following condition:

a. That the petitioner provide further information on the intended use of the northerly buildings to ensure compliance with the allowed uses set forth in §203-4-2(A)

2220 Wehrle Drive

Z-1995-12 The Town Board on December 4, 1995 approved a request to rezone the parcel from R-3 to OB with the following condition.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

a. That the mitigation recommended by the NYSDOT and the ECDPW be required.

SITE PLANS:

SP-2000-16 The Planning Board on May 16, 2002 approved a site plan for a 1,675 lineal foot public road & R.O.W. to service a future business park. Access was provided to Limestone Office Park.

SP-2000-16_A The Planning Board on May 16, 2002 approved a site plan for 750 lineal feet of public road & R.O.W. to service a future business park.

SP-2002-10 The Planning Board on July 11, 2021 approved a site plan for a 2 story 51,200 sq. ft. office building with parking for 214 vehicles. 365 ft. of the approved road is planned to be constructed to serve this development.

Staff Comments:

Zoning Enforcement Officer:

Denied for the following reasons:

1. Unable to determine compliance with §203-4-2-2 A of Town Code for use of the subject site. Provide a detailed use and or tenant of building 'A' so that a determination as to the allowable use of building 'C' as an accessory use to Building 'A' can be made

2. Unable to determine compliance with §203-4-8-6 C of Town Code as the building facades are not dimensioned with enough detail to determine compliance.

3. The accessory structures (garage, security booth and maintenance facility) floor area exceeds that permitted by §203-6-8-1 B of Town Code. Maximum allowable is 75% of the gross floor area of the principal structure.

4. Onsite parking is insufficient to meet the requirements of §203-7-1-6 A of Town Code. A minimum of 341 parking stalls are required whereas a total of 228 spaces are provided. An alternative parking plan in accordance with §203-7-1-7 of Town Code may be sought.

5. The required landscape area adjacent to buildings is not provided as required by §203-7-2-3 A (2) of Town Code. North side of Building 'D', the west side of Building 'A', and south side of Building 'C'. Foundation plantings are required on all sides of the proposed buildings that are adjacent to vehicle use areas, with the exception of entrances and exits, drive throughs and covered pedestrian walkways. There are foundation plantings missing on the east side of Building 'C', the north side of Building 'D' and the west side of Building 'A' exclusive of building entrances. Additionally, the landscaped area adjacent to Building 'B' is not dimensioned to determine compliance with this section.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

6. All landscape islands are not curbed as required by §203-7-2-3 A (3) (k). The island at the northwest corner of Building 'C' and the terminal landscape island in the southeast corner of the parking lot south of Building 'C' are not curbed.

7. If the proposed roadway will be a public roadway the vehicle use area between Buildings 'A' and 'D' and the public roadway will require the vehicle use area screen required by §203-7-2-4 A (2) of Town Code.

8. Be aware the proposed flag poles may only display national or governmental flags. Any flags, banners etc. bearing advertising or tenant identification will be considered signage and as such are not permitted by §203-7-8-2 of Town Code.

9. Unable to determine compliance with §204-3-2 C (6) and §204-3-2 C (10) of Town Code as no offset or distances to other streets onto Wehrle Drive were provided from the proposed roadway.

Planning Department Staff:

1. The portion of the subject development located on the parcel at 2200 Wehrle Drive was rezoned by the Town Board on December 4, 1995 with the condition "*That the mitigations recommended by the NYSDOT and ECDPW be required"* (Z-1995-12). Provide documentation from these agencies that the mitigation was provided or is no longer required.

2. Given the proposed public roadway serves no, or minimal public purpose it will be recommend to the Planning Board that it be classified as a private roadway.

3. Revise the light pole foundation detail on sheet CS501 to indicate that the light pole bases are to be 6 inches above finished grade in landscaped areas.

4. A reciprocal access agreement to allow for pedestrian and vehicular ingress and egress for the proposed vehicular connection shown to the future development area will be required.

5. A reciprocal access and maintenance agreement to allow for vehicular ingress and egress to the Existing office development site north of the subject site will be required.

Landscape Architect:

1. Provide plantings in the landscape island at the southwest corner of Building A, adjacent to the dumpster enclosure per section, per §7-2-3A (3) (e) of Town Code.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

2. Provide landscaped areas adjacent to the building as per §7-2-3 (A) (2) of Town Code.

3. Please provide typical details for all above ground utilities as enumerated in § 7-2-4 (C) (1) of Town Code "*Non-single-family residential properties which may be viewed from residential uses, public streets or public park areas shall screen all roof, ground and wall mounted mechanical equipment (utility structures, multiple meter boards, generators, air conditioning units, backflow preventer [RPZ] hot boxes, etc.) from view at ground level of the property line*."

4. Consideration should be given to providing an east to west connection through the site near the Garfield Street area for pedestrian walkways or bicycle access. This multi-modal connection could be designed as an on-road treatment with bike lanes or separate off-road multi-use trail on the east side of the roadway.

STAFF RECOMMENDATION

SEQR: EAF completed; Type I Action, Town Established as Lead Agency, Issue Attached Negative Declaration.

Site Plan: **Table**, pending review by NYSDOT, BNIA and receipt of revised plans or materials that address the concerns of the Assessor's Office, Building, Engineering and Planning Departments, Plumbing Division, Traffic Safety Board, Zoning Enforcement Officer, Stormwater management Officer and Landscape Architect.

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-23_(2190_&_2220_Wehrle_Dr)_2021\SP-2021-23_Blurb_011322.doc_

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

DRAFT

(1/13/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst Planning Board

Project: SP-2021-23

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Type I Action

Description of Action: development of 17.5 acres of a 24.6 acre site for an 84,375 sq. ft. three-story office building, a 24,750 single story garage / maintenance / storage building, a 72,072 sq. ft. two-story parking garage and a one-story security booth along with 228 parking spaces (including those within the parking ramp) and having site access via a proposed 1,750± lineal foot roadway. Work will include site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 2190 & 2220 Wehrle Drive, Amherst, Erie County

Petitioner: Acquest Wehrle, LLC

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on_____ reviewed the Grading, Drainage and Utility Plan, Engineer's Report and Erosion Control Plan submitted on December 20, 2021, long with the Geotechnical Report prepared by Glynn Group Engineering & Architecture, PLLC. A Stormwater Pollution Prevention Plan (SWPPP) submitted on December 20, 2021 was also reviewed. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on December 20, 2021 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of _____ and the Planning Department in their review of _____ has reviewed the application documents, along with the Geotechnical Report submitted on November 15, 2021 and noted in their review of _____ that the subject project has or will have met all International Building Code – 2015 and Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project site and, as stated in their letters of October 4, 2005 and September 28, 2001 determined that there will be no impact on these resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the Office Building District (OB) zoning district; neighboring uses are office buildings to the north, a power transmission right-of-way to the west, office light industrial uses to the south across Wehrle Drive and detached single family homes to the east, zoned Office Building District (OB), Research Development District (RD) and Residential District Three (R3); therefore, the project is consistent with surrounding land uses.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

6. The proposed subject development will include an 182,700± sq. ft. office building and associated accessory structures along with an 1,750± lineal foot roadway which will not cause a major change in the use of either the quantity or type of energy.

7. The project will not create any hazard to human health. The Fire Chief's Association on _____, and the BNIA on _____, have reviewed the project and have no objection to the approval of the site plan, as all requirements of these agencies have or will have been met.

8. The project will cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The 182,700± sq. ft. of office building and associated accessory structures and 1,750± lineal foot roadway will be consistent with the scale of surrounding land uses.

9. The function of the proposed 182,700± sq. ft. of office building and associated accessory structures and 1,750± lineal foot roadway will significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated _____, Erie County Dept. of Public Works –Highways Division dated _____, and NYSDOT dated_____ indicates that significant negative traffic impacts are not expected to result from the proposed project.

    Review of the Traffic Impact Study (TIS) prepared by SRF Associates submitted to the Planning Department on November 15, 2021 and reviewed by the Town Traffic/Safety Board _____, Erie County Dept. of Public Works –Highways Division,_____ and NYSDOT _____

    - ❑ indicates that significant negative traffic impacts are not expected to result from the proposed project.
    - ❑ Indicates that the following transportation improvements are required:
      _____
      _____
      _____
      _____

      and that these improvements will be constructed as part of this project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on _____, Assessor on _____, Plumbing Division on _____, and Right-of-Way Agent on _____. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

DRAFT Negative Declaration SP-2021-23
DATE

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-23_(2190_&_2220_Wehrle_Dr)_2021\SP-2021-23_Blurb_011322.doc

cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
Omar Abu-Sitta, Acquest Wehrle LLC, 5554 Main Street, Williamsville, NY 14221
Jason Utzig, C & S Engineers, 141 Elm Street, Suite 100, Buffalo, NY 14203

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-23

PETITIONER

Acquest Wehrle LLC
5554 Main Street
Williamsville, NY 14221

PROPERTY LOCATION

2190 & 2220 Wehrle Drive

WHEREAS, the Town of Amherst Planning Board on Thursday, January 13, 2022 held a public hearing on a Site Plan for a 182,700± sq. ft. of office building and associated accessory structures and a 1,750± lineal foot roadway and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Under Section 404 of the Clean Water Act, the US Army Corps of Engineers has determined that it has no jurisdiction.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-23

PETITIONER	PROPERTY LOCATION
Acquest Wehrle LLC	2190 & 2220 Wehrle Drive

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance **approves/denies** said Site Plan subject to the following conditions:

1. That Building "C" (storage garage/maintenance facility) is not approved as part of this site plan. The subject building will be considered at a future time, when the developer provides written confirmation of the tenant/user and actual intended use, including a detailed floor plan allowing the Planning Department and the Zoning Enforcement Officer to determine if the intended use is a customary accessory use of the proposed principal office building use, and that such intended use is permitted within the OB- Office Business zoning district.

2 That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

3. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

4. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-2021-23

PETITIONER	PROPERTY LOCATION
Acquest Wehrle LLC	2190 & 2220 Wehrle Drive

SM/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-23_(2190_&_2220_Wehrle_Dr)_2021\SP-2021-23_Blurb_011322.doc_

cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
Omar Abu-Sitta, Acquest Wehrle LLC, 5554 Main Street, Williamsville, NY 14221
Jason Utzig, C & S Engineers, 141 Elm Street, Suite 100, Buffalo, NY 14203

Approved Plan: _____
Received: _____

Attachment: SP-2021-23_draft resolution_011322 (25067 : Sp-2021-23)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

January 20, 2021

Omar Abu-Sitta
Acquest Wehrle LLC
5554 Main Street
Williamsville, NY 14221

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2021-23**; PROPOSED OFFICE BUILDING AND ROADWAY; PROPERTY LOCATED AT **2190 & 2220 WEHRLE DRIVE**.

Dear Mr. Abu-Sitta:

At its meeting of January 13, 2022 the Planning Board voted to **adjourn** the subject site plan to the February 17, 2022 Planning Board meeting.

Please submit a detailed use of building "C" and floor plan along with revised plans or required materials by Monday, January 31, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-23_(2190_&_2220_Wehrle_Dr)_2021\SP-2021-23_Adjournment Letter_011322.doc
cc: Jason Utzig, C & S Engineers, 141 Elm Street, Suite 100, Buffalo, NY 14203

Attachment: SP-2021-23_adjournment_011322 (25067 : Sp-2021-23)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25069

TABLED

PLANNING BOARD ITEM (ID # 25069)

Proposed the Well Buffalo Church - Building Expansion, SP-1988-21B

Property located at 995 Dodge Road
The Well Buffalo, Petitioner

A proposed 13,960 s.f. single-story 29-foot addition to theWELLbuffalo church consisting of a 500-seat sanctuary, offices, activity space, associated parking expansion, landscaping, a 900 s.f. 1-story garage and ancillary site improvements.

Corey A. Auerbach, Esq., Barclay Damon, represented the petitioner, explained the proposal and was available to answer questions from the Board.

In response to the Board's questions, Mr. Auerbach stated the exterior materials proposed meet the requirements of Town Code other than the corrugated metal siding, the petitioner added 8 feet of brick from original design which did not include any, there are limited options in a prefabricated building, the height of the porte-cochère is to meet Fire regulations, the closest neighbor and congregation supports the design, the building is not outwardly facing and sits in the middle of an 8-acre site,

No further comments were heard on this proposal. The hearing was closed.

Following discussion, Mr. Gill moved to adjourn decision on the proposal. The motion was seconded by Mr. Giuliani and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ATTACHMENTS:

- SP-1988-21B application 011322 (PDF)
- SP-1988-21B drawings 011322(PDF)
- SP-1988-21_B_draft neg dec_011322 (PDF)
- SP-1988-21_B_draft resolution_011322(PDF)
- SP-1988-21_B_adjournment_011322 (PDF)

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Harbinder Gill, Board Member	
SECONDER:	Dal Giuliani, Board Member	
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy	
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.	

TOWN OF AMHERST

APPLICATION & REVIEW PROCEDURE

MAJOR SITE PLAN

MATERIALS MUST BE PROVIDED IN AN ELECTRONIC FORMAT THAT CONTAINS PDF FILES OF THE APPLICATION, EAF, SITE PLAN DRAWING SET SURVEY, LANDSCAPE PLAN, PRELIMINARY BUILDING FLOO PLANS / ELEVATIONS & ANY OTHER SUPPORTING INFORMATION. THIS MUST BE SUBMITTED WITH YOUR APPLICATION. APPLICATIONS WILL NOT BE TRANSMITTED WITHOUT THIS ELECTRONIC INFORMATION.

THIS ALSO APPLIES TO REVISED MATERIALS THAT AR SUBMITTED.

This application package includes the following:

- Application Procedures
- Application Form & Checklist
- Stormwater Pollution Prevention Plan Checklist
- Appendix A Town of Amherst EAF Addendum
- Appendix B Criteria for Required 8½" x 11" Sketches
- Appendix C Erie Sewer District No. 5 – Commercial / Industrial New & Existing Buildings Requirements

- IMPORTANT-

1. A pre-submittal consultation with Planning Department staff is *strongly recommended* prior to submitting an application. The pre-submittal meeting gives the applicant an opportunity to discuss with staff such items as:
   - classifying the action as a major site plan, minor site plan, or minor site plan adjustment;
   - determining what specific information will be required to be submitted with the application;
   - identifying and discussing issues that must be addressed as part of the SEQR review;
   - identifying any potential variances required to implement the project as proposed.

   An appointment is required for all meetings with Planning Department staff.

2. This site plan petition is subject to the requirements of 6 NYCRR Part 617, State Environmental Quality Review Act (SEQR), and Chapter 104 of the Town of Amherst Code, as amended. The Planning Board cannot make a SEQR determination unless a complete Environmental Assessment Form (EAF), including Town of Amherst EAF Addendum, and any required supplementary information such as traffic impact studies, archaeological reports, wetland delineations or geotechnical reports, are submitted. SEQR issues may be discussed with Planning Department staff at a recommended pre-submittal meeting. Unlisted Actions require a Short EAF; Type I Actions require a Full EAF. The following is a link to the NYSDEC website and fillable forms with instructions*:*
   http://www.dec.ny.gov/permits/6191.html.

3. **Review by the Town Design Advisory Board (DAB) is required for Major Site Plans located in the following Mixed-Use zoning districts:**

   Traditional Infill 2.5 (TI-2.5)
   Traditional Infill 4 (TI-4)
   Shallow Corridor 3 (SC-3)
   Deep Corridor 3 (DC-3)
   Deep Corridor 5 (DC-5)
   Center 2.5 (CTR-2.5)
   Center 5 (CTR-5)
   Center 8 (CTR-8)

   The application for DAB review is required to be filed in conjunction with the major site plan application.

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

4. The application shall be executed or consented to in writing by the owner of the property.

5. **Any variances from the Zoning Board of Appeals, or any decision from the Town Board (e.g. removal of deed restrictions) must be obtained prior to action by the Planning Board on a Site Plan application.**

6. Submittal of an application grants permission to Town staff and Planning Board members to access the parcel(s) under consideration.

7. All site plan drawings must be prepared by a Registered Architect, Professional Engineer, Landscape Architect, or Land Surveyor (as applicable) licensed to practice in New York State.

8. If you wish to include a Coordinated Sign Plan application with the site plan petition, a separate application must be completed. Contact the Planning Department for a copy of a Coordinated Sign Plan application package.

9. All drawings should be no larger than 24 in. x 36 in. If site characteristics warrant larger plan sheets, they may be accepted subject to Planning Department concurrence. All drawings must also reserve a 4 in. x 6 in. area in the lower right hand corner for official Town use.

APPLICATION PROCEDURES

1. Applicant secures application package from the Planning Department, 5583 Main Street, Williamsville, NY 14221. (716) 631-7051. Forms are also available online at: www.amherst.ny.us, (keyword: Planning).

2. Applicant prepares information as required on the Site Plan Submittal Checklist, attached. NOTE: Some proposals may not require all items on the checklist; please verify with the Planning Department.

3. Applicant schedules an appointment with the Planning Department to review the following:
   - a complete set of site plan drawings, preliminary building elevations and floor plans (no larger than 24" x 36" in size)
   - Environmental Assessment Form (EAF) & Town EAF Addendum
   - any supporting reports and materials
   - verification from the Town Assessor that the address in the application is correct

4. Applicant schedules an application submittal appointment with the Planning Department. NO SITE PLAN WILL BE ACCEPTED FOR REVIEW WITHOUT A PRE-SET SUBMITTAL APPOINTMENT.

5. At the submittal appointment, applicant provides fourteen (14) complete and collated sets of drawings and application information to the Planning Department **(materials will not be accepted unless folded into 9" x 12" in size),** including**:**
   - application form
   - Environmental Assessment Form (EAF)
   - supporting reports / materials
   - complete set of site plan drawings, preliminary building elevations and floor plans (**at least one (1) set of drawings must bear a raised or wet seal and signature of the design professional** who prepared the plans; the remaining copies may be submitted with a facsimile of the seal and signature)
   - digital files of all materials in pdf format
   - an 8½" x 11" reduction of the sketch plan or plat drawing (see Appendix B)

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

6. After approval for filing by the Planning Department, applicant submits all necessary fees to the Town Clerk. **(See Schedule of Fees on first page of application and make checks payable to: Town of Amherst.)**

7. The applicant returns a copy of the filing receipt to the Planning Department.

8. The Planning Department transmits remaining thirteen (13) copies of the application and supporting materials to:
   - Assessor
   - Commissioner of Building
   - Town Engineer
   - Superintendent of Highways
   - Traffic/Safety Board
   - Fire Chiefs' Association
   - Plumbing Division
   - Right-of-Way Agent
   - Police Department (if applicable)
   - Zoning Enforcement Officer
   - Other Town and outside agencies, as applicable

9. Within 30 days of its receipt of the complete application for Site Plan approval, each agency completes its review and notifies the Planning Department in writing of its comments or recommendations as required by Ordinance.

10. The applicant may be required to submit revised plans, reports, or materials to address review agency comments. The procedures for submittal of revised plans are as follows:

    - A cover letter addressing all comments received to date is required.
    - "Highlight" the area of change on the drawings and provide a notation describing the change.
    - Revised plans/materials are required. Planning staff should be contacted to determine the number of sets needed.
    - All revised plans and materials must also be provided in an electronic format that contains pdf files of the revised information.

11. The Planning Board reviews the EAF to determine whether a Draft Environmental Impact Statement (DEIS) is required. The petitioner will be advised in the event that a DEIS is required and afforded the opportunity to prepare it. If the petitioner declines, the Planning Board will prepare the DEIS at the petitioner's expense. The public hearing will be held on the DEIS concurrently with the Planning Board hearing on the application.

12. Planning Board Meeting Procedures:

    The applicant or representative presents the project at the public hearing before the Planning Board and is available to answer any questions. The Planning Board may take any of the following actions:

    - Adjourn the hearing to a future Planning Board meeting (hearing remains open).
    - Close the hearing and table action on the site plan to a future Planning Board meeting. (The Planning Board may remove the item from the agenda until such time as all required information is provided.)
    - Close the hearing and make a decision on the site plan.

    All determinations on matters before the Planning Board are made after all public hearings on that meeting's agenda are completed.

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

13. A copy of the Planning Board's determination will be provided to the applicant, his / her representative, the Building Commissioner and the Town Clerk approximately 1 week following the Planning Board meeting at which it was heard.

14. If the Planning Board approves a Site Plan with conditions, the Planning Department will work with the applicant to ensure that all conditions of the approval are satisfactorily addressed. When all conditions are satisfied, the applicant submits **seven (7) final copies** of the complete set of all site plan drawings, folded into 9" x 12". For site plans in the Mixed-Use zoning districts, building elevations will also be required.

    All 7 sets must have original wet seals and include the required 4 in. x 6 in area in the lower right hand corner for official Town use. These drawings will be stamped and signed "Approved" by the Planning Director and transmitted to Town Departments for their files and use.

15. A building permit will not be issued by the Building Department until the stamped and signed Site Plan is issued by the Planning Director.

NOTE: Please check with the Planning Department to determine the deadline date for filing applications. Due to the public hearing notice requirements and department reviews, no site plan application will be placed on the Planning Board agenda after the deadline for filing has closed. Scheduling may be delayed if an application is incomplete.

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: _____ **Acreage** _____ **Fee $** _____

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Received by Planning Department _____ RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	
Each additional acre or fraction thereof	$ 650.00/acre	
Amendments to Site Plans	$1,200.00	X
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	
Request for Extension of Site Plan Approval	$ 450.00	
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	
5 - 10 Acres	$ 750.00	
>10 Acres	$1,000.00	
Affidavit Fee for Public Hearing	$ 15.00	X
	TOTAL FEE:	$ 1215

To Be Completed By Applicant

Petitioner:

Name: theWELL Buffalo

Address: 995 Dodge Road

Getzville (city) NY (state) 14068 (zip code)

Phone: (716) 404-9355 Fax: _____

E Mail: darrick@thewellbuffalo.com

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: Corey A. Auerbach as agent/attorney

Address: 200 Delaware Avenue, Suite 1200

Buffalo (city) NY (state) 14202 (zip code)

Phone: (716) 858-3801 Fax: (716) 768-2801

E Mail: cauerbach@barclaydamon.com

Project Location (must be verified by Town Assessor's Office)**:**

Address: 995 Dodge Road

SBL No(s): 41.02-2-26.1

Project Name: theWELL Buffalo Expansion

Project Description:

Applicant proposes 13,960 square foot, single-story expansion of church spaces and associating parking and site improvements.

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	+/- 16,000	13,960	+/- 26,960
Gross Floor Area Residential:	0	0	0
Number of Residential Units:	0	0	0
Number of Parking Spaces:	111	61	172

Acreage of Parcel: 7.93

(list each parcel separately)

Frontage on Public Roads: 595.00' - Dodge Road

(list each road separately) 345.86- - Haussauer

Existing Zoning District(s) CF and R-3 (entirety of improvements occur within CF)

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

Site Plan Submittal Requirements and Checklist

The following checklist outlines the information required by the Planning Department to accept a Site Plan application for review. ***It is strongly recommended that you make an appointment with Planning Staff to determine which items apply to your application***.

Item No.	Item	Submitted	Official use
I Basic Drawing Information			
1.0	**Drawing size not to exceed 24" x 36"**		
2.0	**Title of Drawing**		
3.0	**Name and address of Applicant**		
4.0	**Name of person preparing drawing**		
5.0	**Wet seal/raised seal and signature of NYS licensed architect, engineer, landscape architect, or surveyor (as applicable)**		
6.0	**Project address**		
7.0	**Zoning of subject property and adjacent parcels**		
8.0	**North point, scale, date, and revision date(s)**		
9.0	**4" x 6" reserved area in lower right hand corner for official Town use**		
II Structures, Paved Areas, & Open Space			
1.0	**Existing and Proposed Streets**		
1.1	Names of all existing and proposed streets		
1.2	Width and radii of proposed curb-cuts		
1.3	Existing curb-cuts on adjacent and opposite properties		
1.4	Show ROW width, pavement dimensions, lane widths, pavement markings, and proposed signage on proposed streets		
1.5	Show proposed ROW consistent with planned NYSDOT, Erie County, or Town road projects (if applicable)		
1.6	Show location of proposed cross access to adjacent parcels along with a draft easement		
1.7	Designation of Fire Lanes (if applicable)		
1.8	Fire apparatus access roads		
1.9	Label any proposed roads as public or private		
1.10	Location and dimensions of sidewalks		
1.11	Typical cross sections and profiles of proposed streets, pedestrian walkways, and bikeways		
2.0	**Proposed Structures**		
2.1	Location and complete dimensions of proposed structures		
2.2	Setback dimensions of structure(s) to all property lines		
2.3	Proposed use of structures		
2.4	Gross square feet area of each structure		
2.5	Location of all building entrances		
2.6	Indicate type of roof construction/materials		
2.7	Location, height, and design detail of existing and proposed fences and walls		
2.8	Location of light standards and building mounted lights		
2.9	Location of dumpster and detail of dumpster enclosure with gate		
2.10	Layout and dimensions of the lot(s) proposed for development		

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.	Item	Submitted	Official use
II Structures, Paved Areas, & Open Space (cont'd)			
3.0	**Floor Plans with individual rooms and spaces labeled** (fully dimensioned)		
4.0	**Building elevations with height dimensions from finished grade to the highest point of the roof and to midpoint of gable or hip of a pitched roof.** (fully dimensioned)		
4.1	Show screening of mechanical equipment		
5.0	**Parking/Loading/Stacking Areas**		
5.1	Location and complete dimensions of all paved areas		
5.2	Setback dimensions of all paved areas to property lines		
5.3	Dimension of typical parking space and drive aisles		
5.4	Location and layout of handicapped parking spaces & access aisles		
5.5	Detail of vertical signage for handicapped parking and access aisles		
5.6	Indicate minimum parking requirement & number of spaces provided		
5.7	Proposed signage for directing and guiding traffic		
5.8	Curb cut permits from NYS, Erie County, or Town (if applicable)		
5.9	Pedestrian connections (from proposed structures to public sidewalk network)		
6.0	**Location and proposed development of all open spaces, including parks, playgrounds, and open reservations**		
III Utilities and Drainage			
1.0	**Engineers Report** (bound separately from the Stormwater Pollution Prevention Plan [SWPPP])		
1.1	Stamped/sealed and signed by NYS licensed architect or professional engineer		
1.2	Proposed water service sizing, RPZ pressure and fire safety flow and pressure calculations		
1.3	Proposed sanitary sewer facility load calculations (avg. & peak flows) including calculation of the peaking factor		
1.4	Proposed storm drainage facility calculations (see information included with this application)		
2.0	**Grading Plan**		
2.1	Existing and proposed grades indicated (proposed grades may not exceed 1 on 3)		
3.0	**Water Service**		
3.1	Location, size and material of existing and proposed facilities		
3.2	Location of existing and proposed fire hydrant location(s)		
3.3	Indicate use of sprinklers, location of Fire Department connection, and proposed fire protection systems		
3.4	Existing and proposed meter/RPZ size and location		
3.5	Applicable construction details		
4.0	**Sanitary Sewers**		
4.1	Locations, sizes, slopes, inverts, and materials of all existing and proposed facilities		

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official use
III Utilities and Drainage (cont'd)			
4.2	Applicable construction details		
4.3	Proposed water/oil/grease interceptor sizing calculations by a professional engineer (if applicable)		
5.0	**Storm Drainage**		
5.1	Locations, sizes, slopes, inverts, and materials of existing and proposed storm drainage facilities		
5.2	Connection of roof drains to proposed drainage system		
5.3	Applicable Town Standard construction details		
5.4	Existing and proposed swales and ditches		
5.5	Detention area cross-section and high-level elevations		
5.6	County and State approval for tie-in to existing sewers		
6.0	**Stormwater Pollution Prevention Plan (SWPPP) as applicable** (bound separately from the Engineer's Report) **See attached checklist.**		
7.0	**Natural Gas Service**		
8.0	**Location of transformers, generators and other mechanical equipment; include detail drawings (if applicable)**		
9.0	**Downstream Sanitary Capacity Analysis (DSCA) Report** (must be submitted if proposed average flows are greater than 2,500 gallons per day)		
9.1	The DSCA Report must include a detailed downstream sewer capacity analysis and the calculations of and commitment to (via Developer commitment letter) the required financial contribution to the Town's I/I mitigation fund based on peak flow conditions. The contribution must be based on $250 per gallon per minute of mitigated flow		
IV Lighting Plan			
1.0	**Photometric plan showing light spread in foot candles at property lines**		
1.1	Detail of all light standards, including dimension of height from finished grade		
1.2	Detail of all exterior lighting fixtures		
V Landscape Plan			
1.0	**Wet/raised seal and signature of a licensed Landscape Architect**		
2.0	**Provide a calculation of the total Parking area and a calculation of interior parking area in square feet and as a percentage**		
3.0	**Indicate location, size, number and type of proposed landscape materials**		
4.0	**Indicate location, type and size of <u>all</u> existing trees 4" caliper or larger and indicate which will be removed or retained**		
VI Other Required Information/General Requirements			
1.0	**Complete boundary survey that includes all existing structures, acreage, legal description with reference to a property line, street, or other known feature, and easements plotted to scale by a NYS licensed land surveyor**		

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Item No.		Submitted	Official Use
VI Other Required Information/General Requirements (cont'd)			
1.1	Copies of all easements, reciprocal access agreement or similar leag documents		
2.0	**Topographic Survey with a 30 ft. buffer outside all property lines by a NYS licensed land surveyor**		
3.0	**Draft of any deed restrictions, covenants, provisions for home associations and common ownership, and reciprocal easement agreements (as applicable).**		
4.0	**For assessment purposes, state intent to apply for condominium status (if applicable).**		
5.0	**Completed and signed Environmental Assessment Form**		
5.1	Soil boring report and geotechnical report prepared by a qualified Professional Engineer (if applicable)		
5.2	Traffic Impact Study (if applicable)		
5.3	Archaeological survey (if applicable		
5.4	Wetland Delineation report (if applicable)		
6.0	**Show existing zoning(s) of both the subject property and adjacent parcels on the Site Plan and the Landscape Plan**		
7.0	**Location of NYSDEC wetlands (including buffer area) and/or federal wetlands; indicate jurisdictional status**		
8.0	**Location of Floodway and floodplain** (if applicable)		
9.0	**Documentation pertaining to any conditions of zonings, including copies of required deed restrictions; indicate date of rezoning and the parcel address under which it was rezoned (if applicable)**		
10.0	**Documentation related to any required variances granted by the ZBA**		
11.0	**For residential site plans, provide a statement from the appropriate school district that adequate school sites and facilities are available.**		
12.0	**8 1/2" X 11" reduction of primary site plan drawing (see appendix "B" of application package for specifications)**		
13.0	**A CD containing a PDF of all site plan drawings (Must also be provided with revised drawings)**		
VII Additional Required Information for Projects in the Mixed Use Districts			
1.0	**Design Advisory Board Application**		
1.1	Required for Major Site Plan		
1.2	Required at the Planning Directors Discretion for Minor Site Plans		
2.0	**Block & Street Network Plan**		
2.1	Designation of Core, Local & Alley streets		
2.2	Dimensions of Blocks		
3.0	**Block Usage Plan (as applicable)**		
3.1	Designation of site usage for each block including open space areas		
4.0	**Phasing Plan**		

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

For official use only:

_____
Approved/Date

X:\Current_Planning\Application Forms 2013 Working Doc\Major Site Plan\Site Plan Submittal Requirements and Checklist (3).doc

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

Town of Amherst Planning Department 5583 Main Street Williamsville-NY-14221
(716) 631-7051- Fax: (716) 631-7153

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: theWELL Expansion		
Project Location (describe, and attach a general location map): 995 Dodge Road, SBL 41.02-2-26.1		
Brief Description of Proposed Action (include purpose or need):		
Name of Applicant/Sponsor: THEWELLBUFFALO, Darrick Castronova - Lead Pator	Telephone: (716) 404-9355 E-Mail: darrick@thewellbuffalo.com	
Address: 995 Dodge Road		
City/PO: Getzville	State: NY	Zip Code: 14068
Project Contact (if not same as sponsor; give name and title/role): Barclay Damon LLP, Corey A. Auerbach as agent/attorney for Applicant	Telephone: (716) 858-3801 E-Mail: cauerbach@barclaydamon.com	
Address: 200 Delaware Avenue, Suite 1200		
City/PO: Buffalo	State: NY	Zip Code: 14202
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes ☐No		
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Town of Amherst Planning Board (Site Plan)	November 15, 2021
c. City, Town or Village Zoning Board of Appeals ☑Yes ☐No	Town of Amherst Zoning Board of Appeals (area variance)	November 22, 2021
d. Other local agencies ☐Yes ☐No		
e. County agencies ☐Yes ☐No		
f. Regional agencies ☐Yes ☐No		
g. State agencies ☐Yes ☐No		
h. Federal agencies ☐Yes ☐No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

NYS Heritage Areas:West Erie Canal Corridor

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
CF - Community Facilities

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Williamsville Central School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police

c. Which fire protection and emergency medical services serve the project site?
Getzville

d. What parks serve the project site?
Billy Wilson Park, North French Recreation Area, Clearfield Community Center/Recreation Center, Audobon Town Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? religious facility expansion

b. a. Total acreage of the site of the proposed action? 7.93 acres
b. Total acreage to be physically disturbed? +/- 0.92 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 7.93 acres

c. Is the proposed action an expansion of an existing project or use? ☑ Yes ☐ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % 85.3% (14,860) Units: square feet

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 9-12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

4.a

f. Does the project include new residential uses? ☐Yes ☑No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑Yes ☐No

If Yes,

i. Total number of structures 1

ii. Dimensions (in feet) of largest proposed structure: +/- 29 height; 130 width; and 160 length

iii. Approximate extent of building space to be heated or cooled: +/-13,960 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑Yes ☐No

If Yes,

i. Purpose of the impoundment: underground stormwater detention facility

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☑Other specify: surface stormwater runoff

iii. If other than water, identify the type of impounded/contained liquids and their source. N/A

iv. Approximate size of the proposed impoundment. Volume: 0.055 million gallons; surface area: 0.078 acres

v. Dimensions of the proposed dam or impounding structure: -3.5 ft height; 111 ft length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): stone and ADS N-12 Storm pipe

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐Yes ☑No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐Yes ☐No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☑No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

_____

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:

i. Total anticipated water usage/demand per day: 1,950 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑ Yes ☐ No
If Yes:

- Name of district or service area: Erie County Water Authority Lease Managed area
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☑ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☑ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:

i. Total anticipated liquid waste generation per day: 1,950 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: Town of Amherst Wastewater Treatment Plant 16
- Name of district: Town of Amherst Sewer District # 16
- Does the existing wastewater treatment plant have capacity to serve the project? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

- Do existing sewer lines serve the project site? ☑ Yes ☐ No
- Will a line extension within an existing district be necessary to serve the project? ☐ Yes ☑ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

_____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☑ No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

_____

_____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☐ Yes ☑ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or _____ acres (impervious surface)

_____ Square feet or _____ acres (parcel size)

ii. Describe types of new point sources. _____

_____

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

_____

_____

- If to surface waters, identify receiving water bodies or wetlands: _____

_____

_____

- Will stormwater runoff flow to adjacent properties? ☐ Yes ☐ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐ Yes ☑ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

_____

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

_____

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

_____

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐ Yes ☑ No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐ Yes ☐ No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: Pursuant to Town Code
- Saturday: Pursuant to Town Code
- Sunday: Pursuant to Town Code
- Holidays: Pursuant to Town Code

ii. During Operations:

- Monday - Friday: Continuous
- Saturday: Continuous
- Sunday: Continuous
- Holidays: Continuous

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☐ Yes ☑ No

If yes:

i. Provide details including sources, time of day and duration:

_____

_____

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☐ No

Describe: _____

_____

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

dark sky compatible security lighting in parking lot and along building. No spillage into neighboring residential properties.

_____

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

_____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

_____

_____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:_____

_____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

_____

_____

_____

_____

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____

  _____
- Operation: _____

  _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____

  _____
- Operation: _____

  _____

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

4.a

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): vacant land, other community facilities (churches)

ii. If mix of uses, generally describe:

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	1.99 ac	2.58	+ 0.59
• Forested	0		
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0		
• Agricultural (includes active orchards, field, greenhouse etc.)	0		
• Surface water features (lakes, ponds, streams, rivers, etc.)	0		
• Wetlands (freshwater or tidal)	0		
• Non-vegetated (bare rock, earth or fill)	0		
• Other Describe: green space, lawn open aeeas	5.94	5.35	- 0.59

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No
If Yes,
i. Identify Facilities:

_____
_____

e. Does the project site contain an existing dam? ☐ Yes ☑ No
If Yes:
i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No
If Yes:
i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____
_____

iii. Describe any development constraints due to the prior solid waste activities: _____

_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____

_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No
If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____
_____

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 6.6+ feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

NfA Niagara Silt Loam, 0-3% slopes	50 %
Sw Swromville clay loam	25 %
Wd Wayland Soils complex, 0-3% slopes	25 %

d. What is the average depth to the water table on the project site? Average: 1.02 feet

e. Drainage status of project site soils:

☐ Well Drained:	____% of site	
☐ Moderately Well Drained:	____% of site	Web Soil Survey notes 75% of site
☑ Poorly Drained	25 % of site	"somewhat poorly drained."

f. Approximate proportion of proposed action site with slopes:

☑ 0-10%:	100 % of site
☐ 10-15%:	____% of site
☐ 15% or greater:	____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name Seasonally flooded federal streambed (eastern portion of site) Classification R4SBC
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Freshwater/Forested Shrub wetland (southern and eastern portion of site) Approximate Size 6.45; 0.75
- Wetland No. (if regulated by DEC) TE-18 (buffer zone on northern portion of site)

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

m. Identify the predominant wildlife species that occupy or use the project site: built landscape habitats

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No

If Yes:

i. Species and listing (endangered or threatened): _____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

If Yes:

i. Species and listing: _____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No

If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

*See note below

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Erie Canal National Heritage Corridor

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): Historic trail and recreation corridor

iii. Distance between project and resource: 3.5-5.0 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name theWELL Buffalo Date November 15, 2021

Signature /s/ Corey Auerbach Title agent/attorney

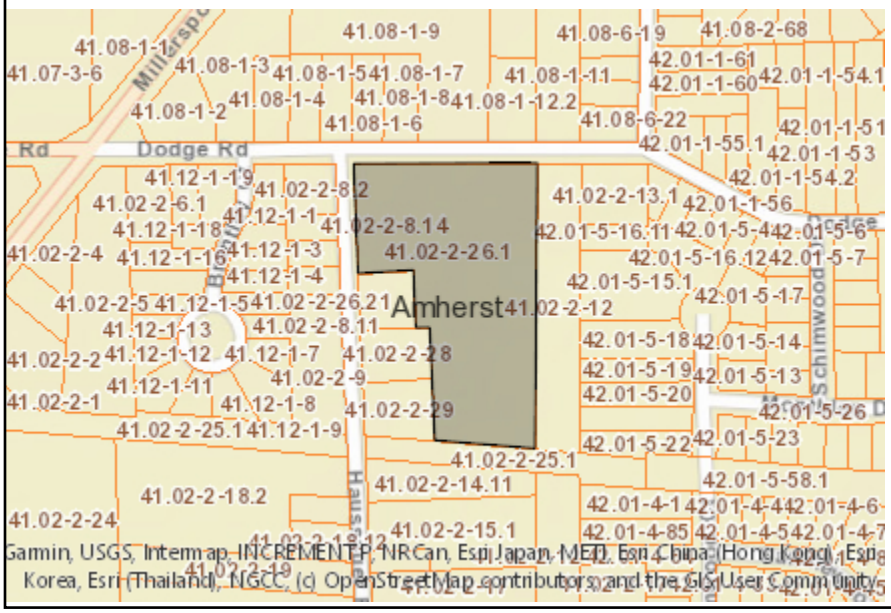
*If the proposed action is within an area designated as containing "sensitive archaeological resources," the EAF Mapper will automatically check "yes" on the PDF of the EAF. Sensitivity for archaeological sites usually covers large areas. Proposed action is within the "Intensive Level Historic Resources Survey of Selected [Building] Resources in the Town of Amherst," Survey No. 17SR0080, which surveyed the entire Town of Amherst and Village of Williamsville, approximately 35,000 acres. No subsequent or site-specific survey done on site of proposed action and site of proposed action was not one of 225 specific properties investigated as part of Town survey.

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

PRINT FORM

EAF Mapper Summary Report

Thursday, November 11, 2021 2:22 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

TOWN OF AMHERST
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM
-- ADDENDUM --

1. For each applicable category of proposed <u>new</u> structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
NfA Niagara Silt Loam, 0-3% slopes	very limited	very limited	very limited	very limited	very limited
Sw Swromville clay loam	very limited	very limited	very limited	very limited	very limited
Wd Wayland soils complex, 0-3% slopes	very limited	very limited	very limited	very limited	very limited

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

   _____ Geotechnical report attached X Not applicable

3. Is your property located: On Youngs Road between Dodge and Klein Roads? ☐ Yes ☑ No
   On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? ☐ Yes ☑ No

   If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? ☐ Yes ☑ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:
   none.

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: ☐ Yes ☑ No

   Describe_____

   (Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

7. Maximum number of vehicular trips to be generated per peak hour upon completion of project 15.00
   Source: Institute of transportation Engineers Common Trip Rates - Church - 1,000 sf GFA = 0.49/unit Tot GFA = 30,625/1000 = 30.63 x 0.49

8. Will blasting occur during construction? ☐ Yes ☑ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ☑ Yes ☐ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:
    1,950 average flow 7,624.50 peak flow.

    (Average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

11. Based on the Town's *2011 Reconnaissance Level Survey of Historic Resources,* is your property 'blue-rated' for historic significance? ☐ Yes ☑ No

Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)

DocuSign Envelope ID: E9105608-2B7E-4F56-AD70-5B0FB05EC5AE

AUTHORIZATION

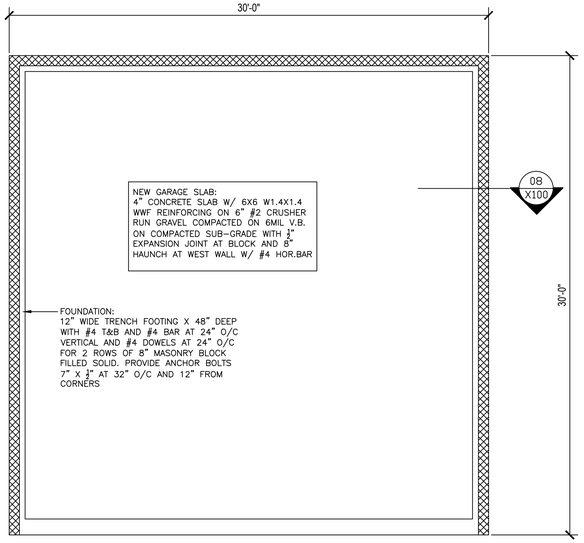
THEWELLBUFFALO, record property owner of 995 Dodge Road, SBL 41.02-2-26.1 in the Town of Amherst hereby authorizes the law firm of Barclay Damon LLP, to file any applications, along with any necessary supporting documentation, with the Town of Amherst in connection with approvals sought for the above referenced property.

DocuSigned by:
Darrick Castronova
BDA6B986F80F4FC...

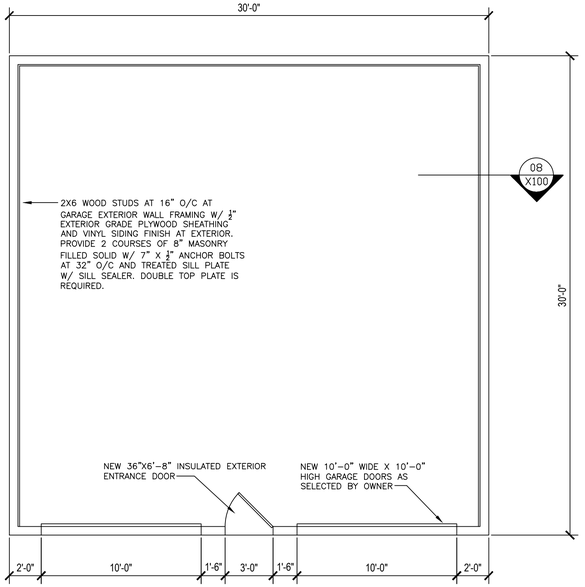
By: Darrick Castronova

Dated: November 12, 2021

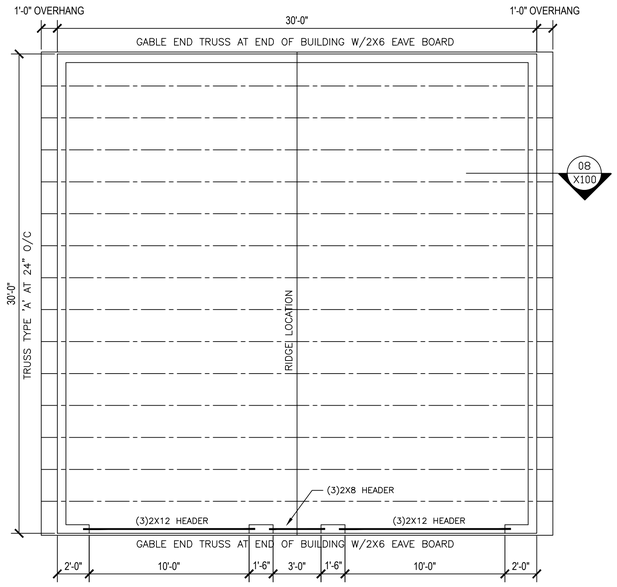
Attachment: SP-1988-21B application 011322 (25069 : Sp-1988-21B)



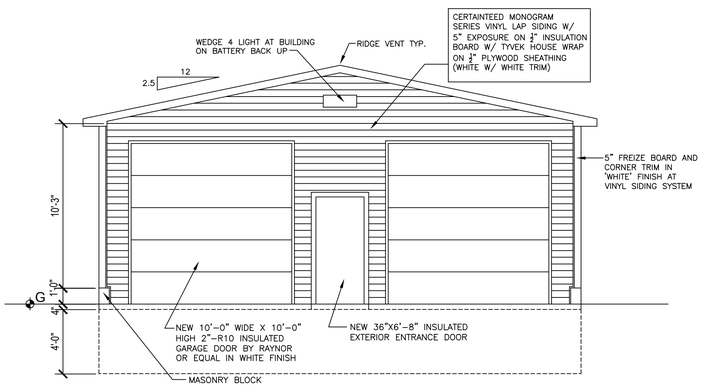
1 FOUNDATION PLAN @ ACCESSORY STRUCTURE
1/4" = 1'-0"



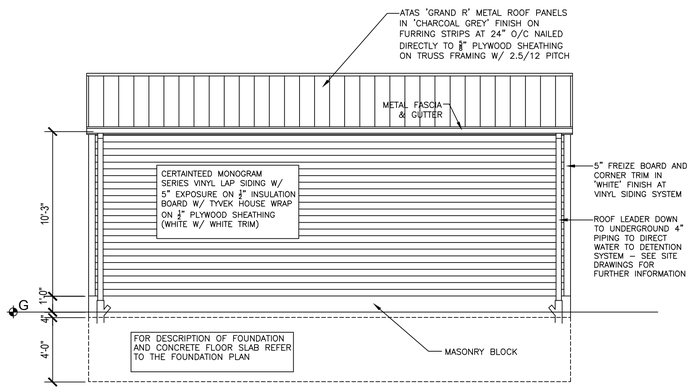
2 FLOOR PLAN @ ACCESSORY STRUCTURE
1/4" = 1'-0"



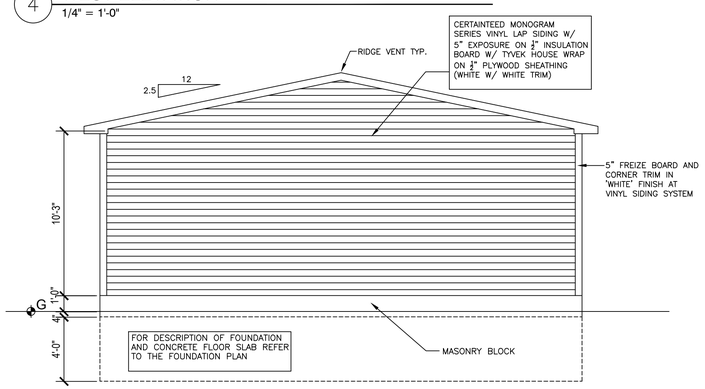
3 ROOF FRAMING PLAN @ ACCESSORY STRUCTURE
1/4" = 1'-0"



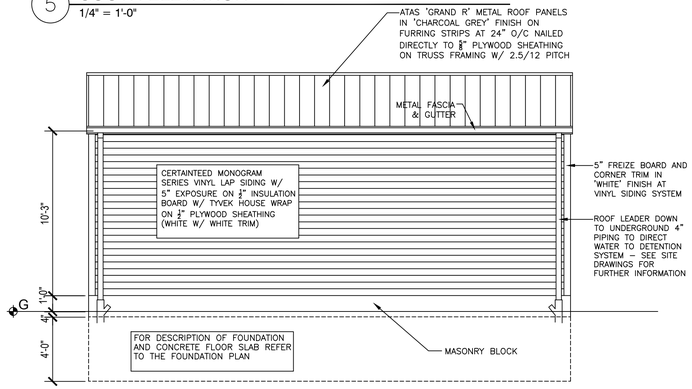
4 WEST ELEVATION
1/4" = 1'-0"



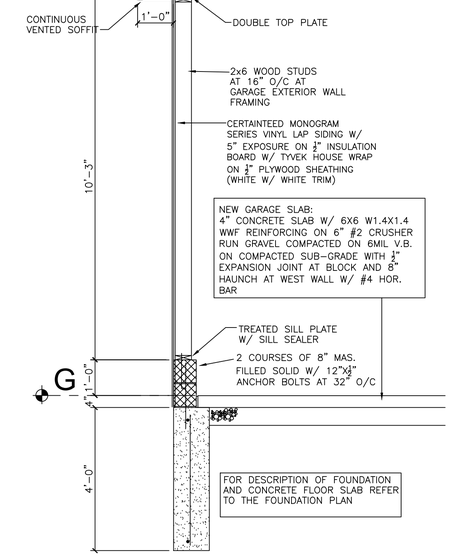
5 SOUTH ELEVATION
1/4" = 1'-0"



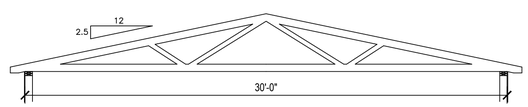
6 EAST ELEVATION
1/4" = 1'-0"



7 NORTH ELEVATION
1/4" = 1'-0"



8 TYPICAL WALL SECTION
1/2" = 1'-0"



TRUSS DIAGRAM
TRUSS TYPE 'A' - FINK TRUSS
2.5:12 PITCH, 10.5" OH, 50LB. GROUND SNOW

ADELMANN PALMISANO ARCHITECTS

NOTICE
DRAWING ALTERATION

THIS DOCUMENT IS SOLELY THE PROPERTY OF ADELMANN PALMISANO ARCHITECTS, PC AND AS AFFIXED WITH A PROFESSIONAL SEAL AUTHORIZES ITS ACCURACY.

ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.

REVISIONS	DATE	BY
1		
2		
3		
4		
5		
6		

PROJECT ARCHITECT
SRA
PROJECT MANAGER
DMP
DRAWN BY
DMP
DATE DRAWN
11-2-20
SCALE
AS NOTED
DATE ISSUED
11-15-21

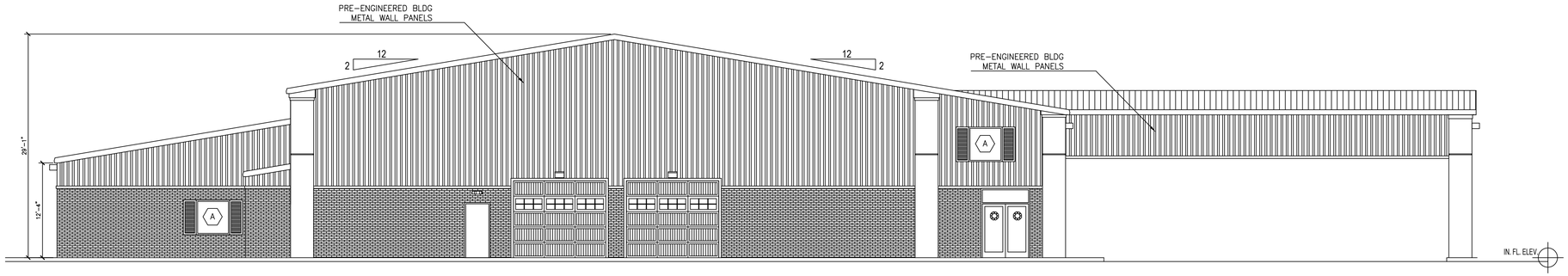
AP Architects
adelmann palmisano architects
1374 orchard park rd.
west seneca, ny 14224
TEL: 716-310-3128
WWW.APABUFFALO.COM

PROJECT
PROPOSED ADDITION TO EXISTING BUILDING
THE WELL WORSHIP CENTER
995 DODGE ROAD AMHERST, N.Y.

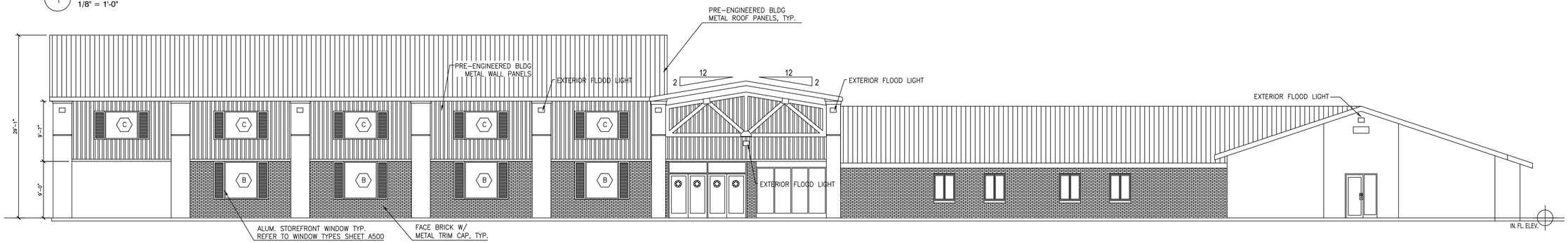
TITLE OF DRAWING
ACCESSORY GARAGE BLDG. SPECIFICATIONS

PROJECT NO.
2021-10
DRAWING NO.
X-100

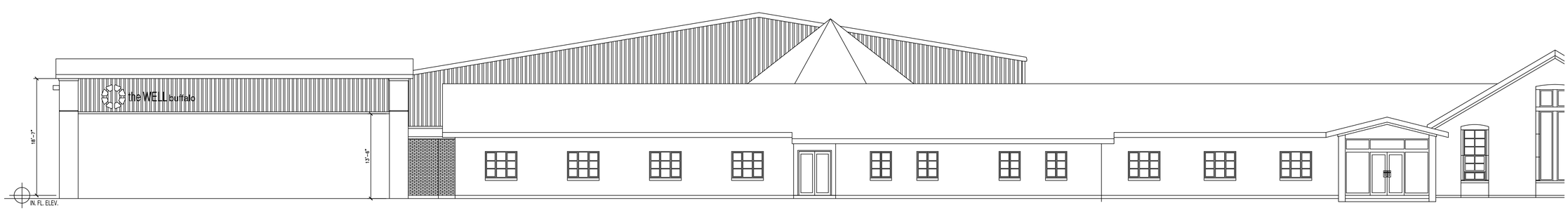
Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)



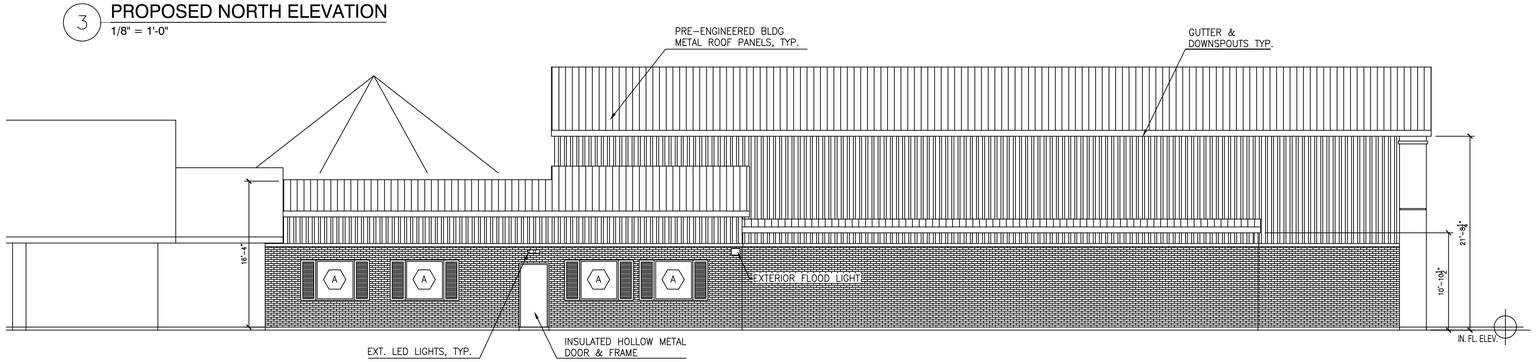
1 PROPOSED SOUTH ELEVATION
1/8" = 1'-0"



2 PROPOSED EAST ELEVATION
1/8" = 1'-0"



3 PROPOSED NORTH ELEVATION
1/8" = 1'-0"



4 PROPOSED WEST ELEVATION
1/8" = 1'-0"



ADELMANN PALMISANO ARCHITECTS

NOTICE
DRAWING ALTERATION

THIS DOCUMENT IS SOLELY THE PROPERTY OF ADELMANN PALMISANO ARCHITECTS, PC AND AS AFFIXED WITH A PROFESSIONAL SEAL AUTHORIZES ITS ACCURACY.

ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.

REVISIONS		DATE	BY
1	BRICK AT BASE / FLOOD LIGHTS	12/15/21	DMP
2			
3			
4			
5			
6			

PROJECT ARCHITECT: SRA
PROJECT MANAGER: DMP
DRAWN BY: DMP
DATE DRAWN: 11-2-20
SCALE: AS NOTED
DATE ISSUED: 11-15-21

AP Architects
adelmann palmisano architects
1374 orchard park rd.
west seneca, ny 14224
TEL: 716-310-3128
WWW.APABUFFALO.COM

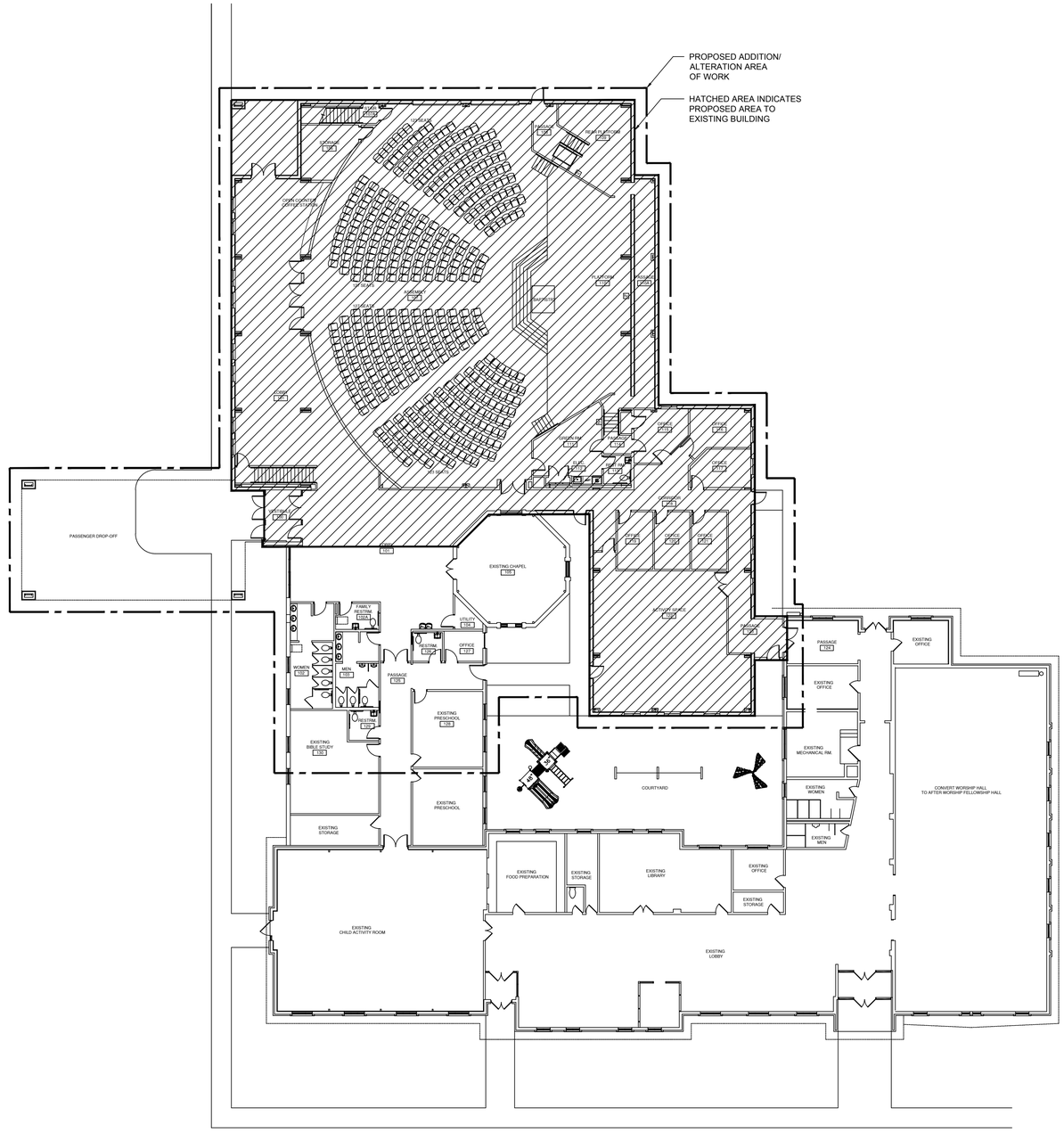
PROJECT
PROPOSED ADDITION TO EXISTING BUILDING
THE WELL WORSHIP CENTER
995 DODGE ROAD AMHERST, N.Y.

TITLE OF DRAWING
PROPOSED EXTERIOR ELEVATIONS

PROJECT NO.
2021-10

DRAWING NO.
A200

Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)


PROPOSED ADDITION/
ALTERATION AREA
OF WORK
HATCHED AREA INDICATES
PROPOSED AREA TO
EXISTING BUILDING
PASSENGER DROP-OFF
OPEN CONNECTOR
CONFIGURATION
UP SEATS
ORCHESTRA
GO SEATS
BALCONY
SEATS
VESTIBULE
LOBBY
ENTRY
ATRIUM
VESTIBULE
ENTRY
VESTIBULE
ENTRY
VESTIBULE
ENTRY

SITE NOTES

1. FOR REFERENCE INFORMATION SEE TOPOGRAPHIC SURVEY PREPARED BY WILLIAM SCHUTT ASSOCIATES JOB# 21171 DATED 8/30/21 INCLUDED WITH THIS SET OF SITE PLANS.
2. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF AMHERST STANDARDS AND NEW YORK STATE CODE REQUIREMENTS, AS WELL AS THE LATEST A.I.S.C., A.C.I., O.S.H.A., AND A.S.T.M. STANDARDS. WHERE CODES OVERLAP, THE CONTRACTOR SHALL COMPLY WITH THE MORE STRINGENT CODE.
3. WHERE A SPECIFIC MANUFACTURER'S PRODUCT IS CALLED OUT ON THIS SHEET OR ANY OTHER PLAN IN THIS SET OF DRAWINGS, THE CONTRACTOR MUST COMPLY WITH THE MANUFACTURER'S LATEST PRINTED INSTRUCTIONS AND RECOMMENDATIONS FOR INSTALLATION.
4. ANY TEMPORARY TRAFFIC CONTROL AND WARNING SIGNS SHALL CONFORM TO N.Y.S.D.O.T. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5. THE CONTRACTOR SHALL MAINTAIN ACCESSIBLE PASSAGEWAYS FOR TRAFFIC AND PEDESTRIANS TO EXISTING BUSINESSES WHICH WILL REMAIN IN OPERATION THROUGHOUT THE DURATION OF THE CONSTRUCTION.
6. ANY CAST-IN-PLACE CONCRETE SHALL CONFORM TO N.Y.S.D.O.T. STANDARD SPECIFICATIONS (SECTION 501). USE CLASS "C" FOR APRONS, OR STRUCTURAL SLABS. USE CLASS "D" FOR SIDEWALKS AND ALL OTHER GENERAL PURPOSE CONCRETE PAVEMENT ON SITE. CEMENT USED TO PRODUCE CONCRETE SHALL CONFORM WITH BOTH ACI 318 AND ASTM C1157. CONCRETE SHALL HAVE A SLUMP OF NO MORE THAN 5" AND AN AIR ENTRAINMENT OF 4-6%.
7. ALL CONCRETE CURBS, SIDEWALKS, APRONS, AND PADS SHALL BE CURED USING A PIGMENTED CURING COMPOUND CONFORMING TO A.S.T.M. C309.
8. ANY DEVIATION FROM ANY PLANS IN THIS DRAWING SET SHALL REQUIRE APPROVAL OF DESIGN ENGINEER AND THE TOWN OF AMHERST PLANNING AND BUILDING DEPARTMENTS, AS WELL AS THE APPROPRIATE UTILITY COMPANIES AND SERVICE PROVIDERS.
9. THE DESIGN ENGINEER (STUDIO T3) SHOULD BE IMMEDIATELY CONTACTED UPON DISCOVERY OF ANY ABOVEGROUND OR BELOW GROUND OBJECTS (BUILDING FOUNDATIONS, BURIED VAULTS, TREES, SIDEWALKS, PAVEMENT, RAILINGS, SIGNS, STOCKPILES, STUMPS, OR SIMILAR). WORK SHALL BE IMMEDIATELY SUSPENDED AND NOT COMMENCE UNTIL SUCH DISCOVERED OBJECTS ARE IDENTIFIED AND THE DESIGN ENGINEER (STUDIO T3) ISSUES EITHER A WRITTEN APPROVAL OR A SIGNED REVISED PLAN.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL NECESSARY FEES AND OBTAINING ALL NECESSARY PERMITS PRIOR TO THE START OF CONSTRUCTION. CONTACT TOWN OF AMHERST BUILDING DEPARTMENT FOR INSTRUCTIONS, PERMIT APPLICATIONS, AND FEES.
11. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES WHICH ARE TO BE PRESERVED FROM ALL POSSIBLE TYPES OF ROOT, TRUNK, AND LIMB DAMAGE; INCLUDING BUT NOT LIMITED TO, RETAINING WALLS WHICH PREVENT FILLING ON TOP OF ROOTS OR EXCAVATING TREE ROOTS AS REQUIRED.

CODE & SITE DATA

TOTAL PARCEL: 7.93 AC
SBL# 41.02-2-26.1
ZONED: COMMUNITY FACILITIES DISTRICT (CF)
TOTAL SOIL DISTURBANCE: 0.924 AC

GREENSPACE ****	EXISTING	PROVIDED
BUILDING	0.40± AC	0.74± AC
PAVEMENT	1.59± AC	1.84± AC
LAWN/LANDSCAPE	5.94± AC	5.35± AC
TOT. GREENSPACE	74.90%±	67.47%±

BUILDING SETBACK	REQUIRED	PROVIDED
FRONT	50.0'T	50.0' +
SIDE	MIN 30.0'	MIN 23.3'±**
REAR	MIN 30.0'	30.0' +

PARKING ***	REQUIRED	PROVIDED
PROPOSED	167 *	170
HANDICAP	6	8

* REQ TOTAL IS BASED ON 1 PER 3 SEATS 500 SEATS/3 = 166.67 MIN SPACES REQ.
** SET BACK VARIANCE REQUIRED PER EXCEPTIONS 2-5-4-B(3), MIN 30' FEET PROPOSED 23.30'
*** PARKING VARIANCE REQ PER 7-1-9-A(1) MIN SPACE 9' FT X 19' FT PROPOSED 9' FT X 18' FT
**** GREEN SPACE VARIANCE REQ ON EAST SIDE OF NEW BUILDING PER 7-2-3(2) MIN 3' LANDSCAPE BUFFER BETWEEN PARKING AREAS ADJACENT TO BUILDINGS PROPOSED 0.0' FT.

INTERIOR GREEN SPACE CALCULATIONS:
TOTAL EXISTING PARKING AREA = 40,031.64 SQ FT
EXISTING: 766.73 SQ FT (1.92%)
TOTAL REVISED PARKING AREA = 49,745.52 SQ FT
REQUIRED: 4,974.55 SQ FT (10.0%)
OBTAINED: 3,781.38 SQ FT (7.60%)*

*NOTE THE REQUIRED 10% IS NOT NECESSARY, ONLY A PORTION OF THE EXISTNG PARKING LOT IS BEING MODIFIED.

GENERAL NOTE:

811

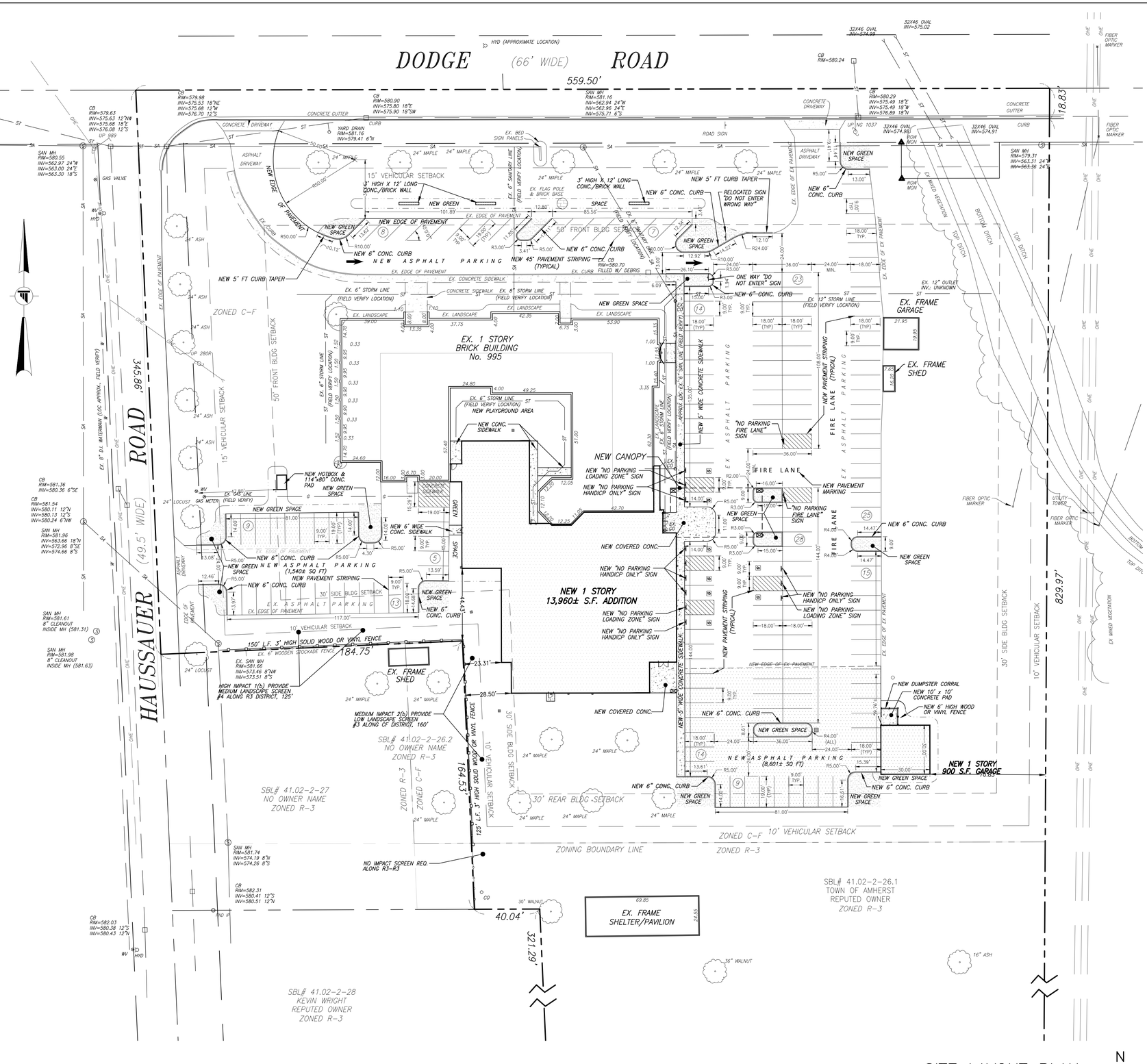
LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. (HORIZONTAL AND VERTICAL) THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES, JUST APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL NOTIFY "DIG SAFELY NEW YORK" FOR LOCATION OF ALL UNDERGROUND UTILITIES. AT LEAST 2 TO 10 WORKING DAYS PRIOR TO ANY MECHANIZED WORK (DOES NOT INCLUDE THE DATE OF THE CALL) NOTICE MUST BE PROVIDED TO THE ONE-CALL NOTIFICATION SYSTEM, WHICH WILL TRANSMIT THE PROJECT INFORMATION TO INVOLVED MEMBERS SO THAT THEY CAN MARK THE LOCATION OF ANY FACILITIES AT THE EXCAVATION SITE

FOR EXCAVATION ON LONG ISLAND AND THE FIVE BOROUGHS OF NEW YORK CITY, NEW YORK 811 MUST BE CALLED AT 1-800-272-4480. FOR EXCAVATION ELSEWHERE IN NEW YORK STATE, DIG SAFELY NEW YORK MUST BE CALLED AT 1-800-962-7962. NOTIFICATION FOR EXCAVATION WORK ANYWHERE IN THE STATE CAN BE MADE BY DIALING 811. WHETHER DIALING THE 1-800 NUMBER OR 811, THERE IS NO CHARGE FOR THE CALL.

CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING TREES WHERE NECESSARY ON NEIGHBORING PROPERTY FROM ALL TYPES OF DAMAGE TO BOTH TRUNK AND ROOTS. LIMIT FILLING OVER TREE ROOTS TO 4" MAX.

LEGEND

- EXISTING FENCE
- NEW FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB
- NEW EDGE OF PAVEMENT
- NEW CURB (6")
- SITE PARCEL PROPERTY/R.O.W. LINE
- ADJACENT PROPERTY/R.O.W. LINES
- EASEMENT / BLDG SETBACKS LINE
- EXISTING WATER LINE
- NEW WATER LINE
- EXISTING UNDERGROUND ELEC
- NEW UNDERGROUND ELEC
- EXISTING OVERHEAD ELEC.
- NEW OVERHEAD ELEC.
- EXISTING GAS LINE
- NEW GAS LINE
- NEW GEOTHERMO LINES
- EXISTING COMBINED SEWER
- EXISTING SANITARY LINE
- NEW SANITARY LINE
- EXISTING STORM SEWER LINE
- NEW STORM SEWER LINE
- EXISTING CABLE/TELE
- NEW CABLE/TELE
- EXISTING CONCRETE AREAS
- NEW CONCRETE AREAS
- EX AREAS TO BE EXCAVATED
- EXISTING YARD DRAIN
- NEW YARD DRAIN
- EXISTING CATCH BASIN
- NEW CATCH BASIN
- EXISTING GAS VALVE
- NEW GAS VALVE
- EXISTING WATER VALVE
- NEW WATER VALVE
- EXISTING MANHOLE
- NEW MANHOLE
- EXISTING UTILITY POLE
- NEW UTILITY POLE
- EXISTING LIGHT FIXTURE
- NEW LIGHT FIXTURE
- EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT
- EXISTING CLEAN-OUT
- NEW CLEAN-OUT
- NEW GEOTHERMO WELL
- EXISTING SIGN
- NEW PARKING SPACE COUNT
- NEW TREE
- NEW SHRUB
- EXISTING TREE
- VEGETATION TO BE REMOVED
- INTERIOR GREEN SPACE



SITE LAYOUT PLAN

SCALE : 1"= 30'-0"

0 30 60 120

N

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER - BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE LAYOUT PLAN

STATE OF NEW YORK
ANDREW V. TERRANOVA
080634
LICENSED PROFESSIONAL ENGINEER

STAMP/SEAL

#	REVISION	DATE
2	REV PER TOWN COMMENTS	12/20/21
1	ISSUED FOR SITE PLAN REV.	11/12/21

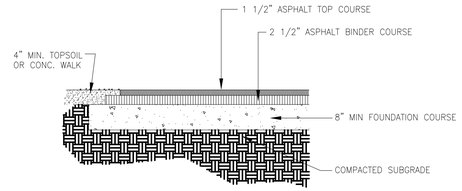
studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

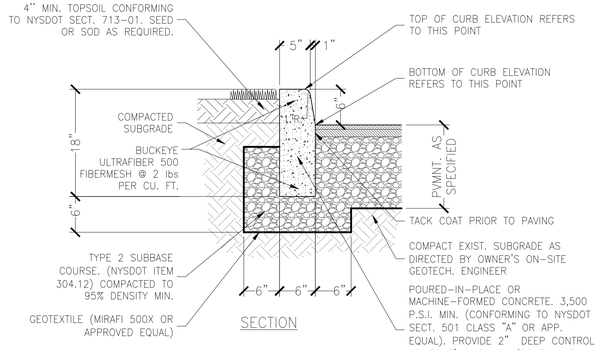
SHEET C1.0

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

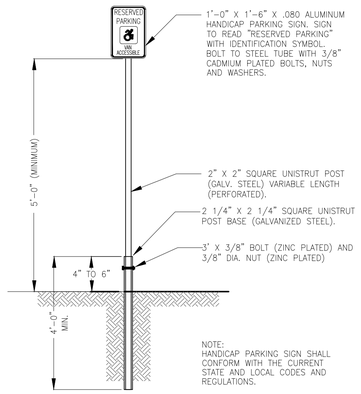
Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)



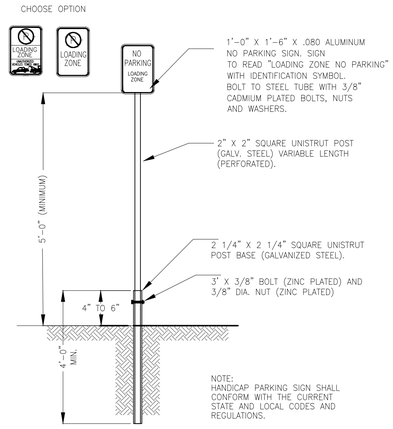
ASPHALT PAVEMENT DETAIL — A
SCALE: NONE



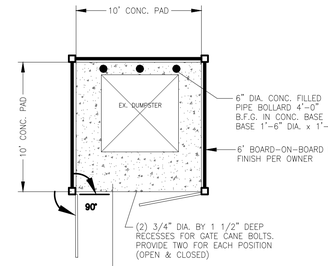
CURB DETAIL — B
SCALE : 1" = 1'-0"



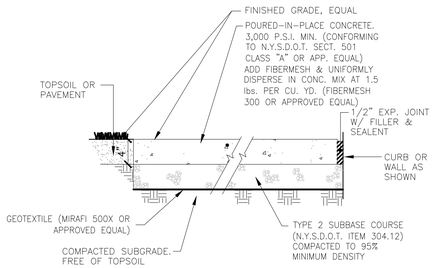
HANDICAP SIGN DETAIL — C
SCALE: NONE



NO PARKING SIGN DETAIL — D
SCALE: NONE



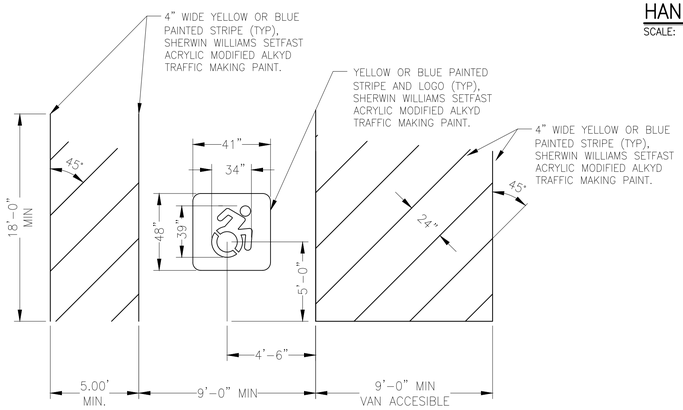
DUMPSTER ENCLOSURE — E
SCALE: NONE



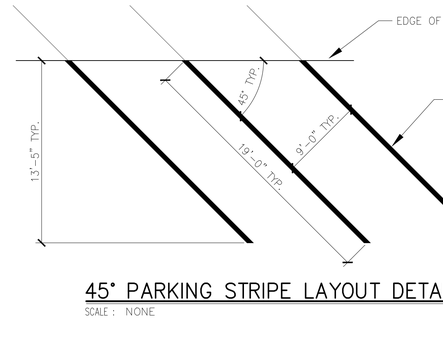
NEW CONCRETE SIDEWALK — F
NOT TO SCALE NOT TO SCALE

NOTES:

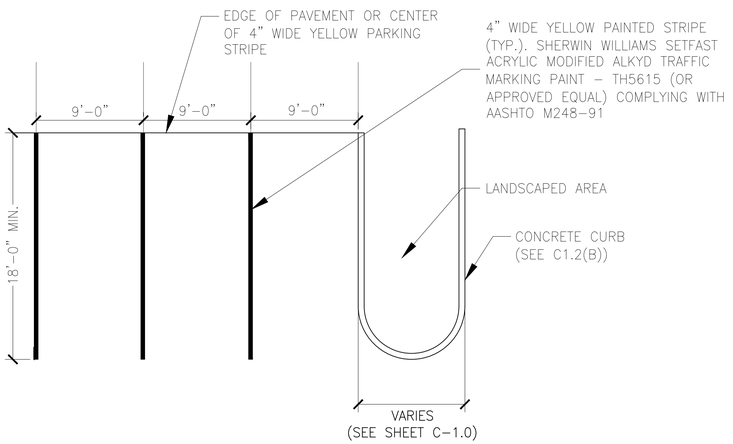
1. ALL CONCRETE FOR SIDEWALKS SHALL CONFORM TO N.Y.S.D.O.T. STANDARD SPECIFICATION 501. CONSTRUCTION SHALL CONFORM TO N.Y.S.D.O.T. STANDARD SPECIFICATION 608-3.
2. ALL CONCRETE AREAS SHALL BE SCORED 5' ON CENTER (OR AS NOTED ON SHEET C-1.1) WITH SAW-CUT CONTROL JOINTS 1-½ INCHES DEEP. ALL SCORED JOINTS SHALL BE SAW-CUT WITHIN 24 HOURS OF POURING CONCRETE
3. EXPANSION JOINTS IN CONCRETE AREAS SHALL BE NO MORE THAN 25' ON CENTER AND AT INTERFACES BETWEEN DRIVEWAYS, SIDEWALKS, SLABS, AND FOUNDATIONS. ALL SIDEWALK EDGES SHALL BE TOOLED WITH A ¼-INCH EDGE RADIUS WITHIN 24 HOURS OF POURING CONCRETE. INSTALL FELT BOARD EXPANSION JOINT. SCORE FELT AND REMOVE TO DEPTH OF ½" BELOW SLAB. PROVIDE SEAL WITH ½" INCH PRE-MOLDED RESILIENT JOINT FILLER AT ALL EXPANSION JOINTS.
4. PROVIDE DOWELS @ 12" C-C INTO FOUNDATION WHERE SIDEWALK ABUTS BUILDING WALLS AT DOOR ENTRANCES ONLY TO PREVENT FROST HEAVING. AT OTHER AREAS WHERE SIDEWALK ABUTS BUILDING WALLS PROVIDE ½" PRE-MOLDED EXPANSION JOINT WITH BACKER ROD AND SEALANT.
5. IN DRIVEWAY AREAS CONCRETE THICKNESS SHALL BE INCREASED TO 6 INCHES MINIMUM.
6. CONCRETE SHALL HAVE A SLUMP OF NO MORE THAN 5" AND AN AIR ENTRAINMENT OF 4-6%. THE USE OF CALCIUM CHLORIDE IS NOT PERMITTED. PROVIDE PROPER CONCRETE PROTECTION IN COLD WEATHER AND MAINTAIN PROPER CURING PROCEDURES IN CONFORMANCE WITH ALL A.C.I. REQUIREMENTS.



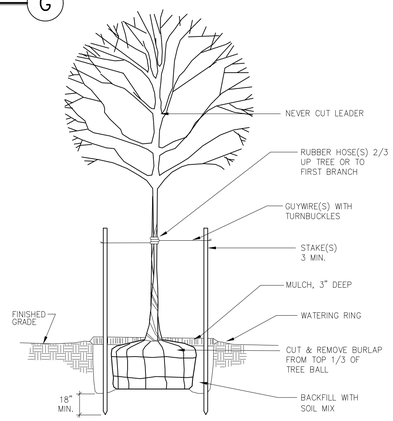
"HANDICAP" PAVEMENT STRIPING — G
SCALE: NONE



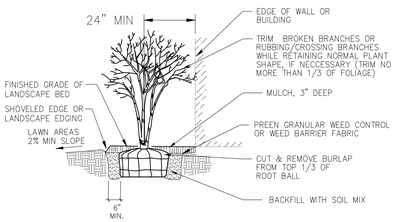
45° PARKING STRIPE LAYOUT DETAIL — H
SCALE : NONE



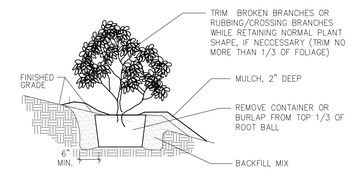
90° PARKING STRIPE LAYOUT DETAIL — I
SCALE : NONE



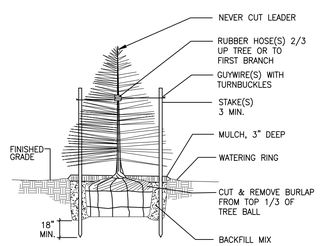
DECIDUOUS TREE PLANTING — I
SCALE : NONE



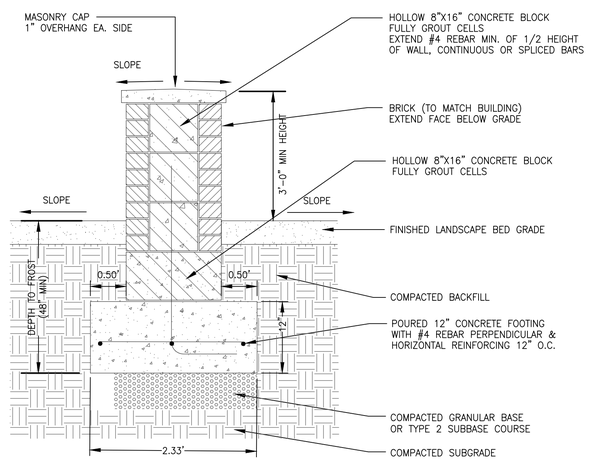
SHRUB PLANTING DETAIL — J
SCALE : NONE



SHRUB PLANTING DETAIL–SLOPE — K
SCALE : NONE



EVERGREEN TREE DETAIL — L
SCALE : NONE



BRICK WALL DETAIL — M
SCALE: NONE

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER – BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE CONSTRUCTION DETAILS

STATE OF NEW YORK · ANDREW V. TERRACCIANO · 080634 · LICENSED PROFESSIONAL ENGINEER

STAMP/SEAL

#	REVISION	DATE
2	REV PER TOWN COMMENTS	12/20/21
1	ISSUED FOR SITE PLAN REV.	11/12/21

studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET C1.1

Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

SITE NOTES

1. FOR REFERENCE INFORMATION SEE TOPOGRAPHIC SURVEY PREPARED BY WILLIAM SCHUTT ASSOCIATES JOB# 21171 DATED 8/30/21 INCLUDED WITH THIS SET OF SITE PLANS.
2. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF AMHERST STANDARDS AND NEW YORK STATE CODE REQUIREMENTS, AS WELL AS THE LATEST A.I.S.C., A.C.I., O.S.H.A., AND A.S.T.M. STANDARDS. WHERE CODES OVERLAP, THE CONTRACTOR SHALL COMPLY WITH THE MORE STRINGENT CODE.
3. WHERE A SPECIFIC MANUFACTURER'S PRODUCT IS CALLED OUT ON THIS SHEET OR ANY OTHER PLAN IN THIS SET OF DRAWINGS, THE CONTRACTOR MUST COMPLY WITH THE MANUFACTURER'S LATEST PRINTED INSTRUCTIONS AND RECOMMENDATIONS FOR INSTALLATION.
4. ANY TEMPORARY TRAFFIC CONTROL AND WARNING SIGNS SHALL CONFORM TO N.Y.S.D.O.T. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5. THE CONTRACTOR SHALL MAINTAIN ACCESSIBLE PASSAGEWAYS FOR TRAFFIC AND PEDESTRIANS TO EXISTING BUSINESSES WHICH WILL REMAIN IN OPERATION THROUGHOUT THE DURATION OF THE CONSTRUCTION.
6. ANY CAST-IN-PLACE CONCRETE SHALL CONFORM TO N.Y.S.D.O.T. STANDARD SPECIFICATIONS (SECTION 501). USE CLASS "C" FOR APRONS, OR STRUCTURAL SLABS. USE CLASS "D" FOR SIDEWALKS AND ALL OTHER GENERAL PURPOSE CONCRETE PAVEMENT ON SITE. CEMENT USED TO PRODUCE CONCRETE SHALL CONFORM WITH BOTH ACI 318 AND ASTM C1157. CONCRETE SHALL HAVE A SLUMP OF NO MORE THAN 5" AND AN AIR ENTRAINMENT OF 4-6%.
7. ALL CONCRETE CURBS, SIDEWALKS, APRONS, AND PADS SHALL BE CURED USING A PIGMENTED CURING COMPOUND CONFORMING TO A.S.T.M. C309.
8. ANY DEVIATION FROM ANY PLANS IN THIS DRAWING SET SHALL REQUIRE APPROVAL OF DESIGN ENGINEER AND THE TOWN OF AMHERST PLANNING AND BUILDING DEPARTMENTS, AS WELL AS THE APPROPRIATE UTILITY COMPANIES AND SERVICE PROVIDERS.
9. THE DESIGN ENGINEER (STUDIO T3) SHOULD BE IMMEDIATELY CONTACTED UPON DISCOVERY OF ANY ABOVEGROUND OR BELOW GROUND OBJECTS (BUILDING FOUNDATIONS, BURIED VAULTS, TREES, SIDEWALKS, PAVEMENT, RAILINGS, SIGNS, STOCKPILES, STUMPS, OR SIMILAR). WORK SHALL BE IMMEDIATELY SUSPENDED AND NOT COMMENCE UNTIL SUCH DISCOVERED OBJECTS ARE IDENTIFIED AND THE DESIGN ENGINEER (STUDIO T3) ISSUES EITHER A WRITTEN APPROVAL OR A SIGNED REVISED PLAN.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL NECESSARY FEES AND OBTAINING ALL NECESSARY PERMITS PRIOR TO THE START OF CONSTRUCTION. CONTACT TOWN OF AMHERST BUILDING DEPARTMENT FOR INSTRUCTIONS, PERMIT APPLICATIONS, AND FEES.
11. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES WHICH ARE TO BE PRESERVED FROM ALL POSSIBLE TYPES OF ROOT, TRUNK, AND LIMB DAMAGE; INCLUDING BUT NOT LIMITED TO, RETAINING WALLS WHICH PREVENT FILLING ON TOP OF ROOTS OR EXCAVATING TREE ROOTS AS REQUIRED.

CODE & SITE DATA

TOTAL PARCEL: 7.93 AC
SBL# 41.02-2-26.1
ZONED: COMMUNITY FACILITIES DISTRICT (CF)
TOTAL SOIL DISTURBANCE: 0.924 AC

GENERAL NOTE:

811

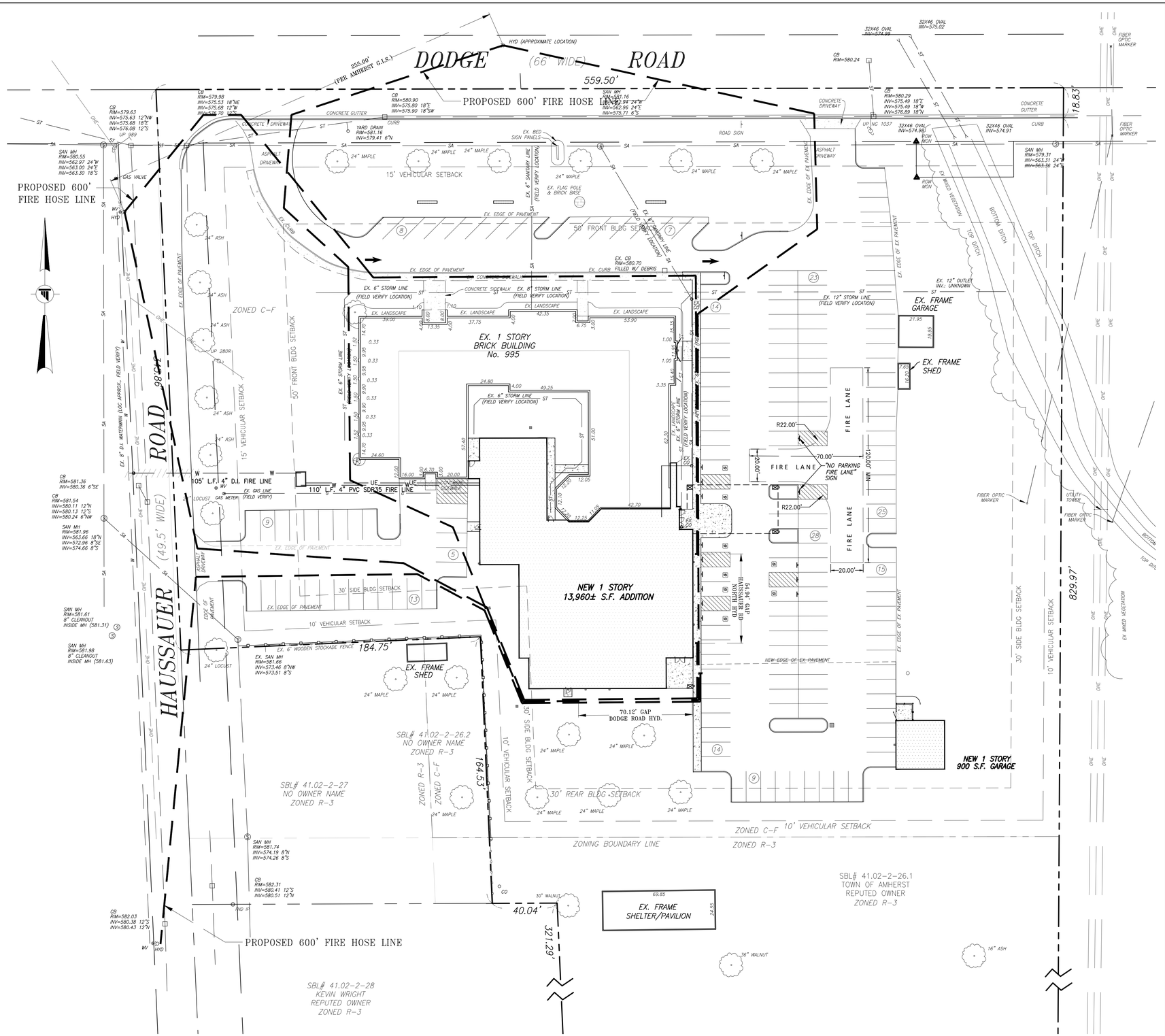
LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. (HORIZONTAL AND VERTICAL) THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES, JUST APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL NOTIFY "DIG SAFELY NEW YORK" FOR LOCATION OF ALL UNDERGROUND UTILITIES. AT LEAST 2 TO 10 WORKING DAYS PRIOR TO ANY MECHANIZED WORK (DOES NOT INCLUDE THE DATE OF THE CALL) NOTICE MUST BE PROVIDED TO THE ONE-CALL NOTIFICATION SYSTEM, WHICH WILL TRANSMIT THE PROJECT INFORMATION TO INVOLVED MEMBERS SO THAT THEY CAN MARK THE LOCATION OF ANY FACILITIES AT THE EXCAVATION SITE

FOR EXCAVATION ON LONG ISLAND AND THE FIVE BOROUGHS OF NEW YORK CITY, NEW YORK 811 MUST BE CALLED AT 1-800-272-4480. FOR EXCAVATION ELSEWHERE IN NEW YORK STATE, DIG SAFELY NEW YORK MUST BE CALLED AT 1-800-962-7962. NOTIFICATION FOR EXCAVATION WORK ANYWHERE IN THE STATE CAN BE MADE BY DIALING 811. WHETHER DIALING THE 1-800 NUMBER OR 811, THERE IS NO CHARGE FOR THE CALL.

CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING TREES WHERE NECESSARY ON NEIGHBORING PROPERTY FROM ALL TYPES OF DAMAGE TO BOTH TRUNK AND ROOTS. LIMIT FILLING OVER TREE ROOTS TO 4" MAX.

LEGEND

- EXISTING FENCE
- NEW FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB
- NEW EDGE OF PAVEMENT
- NEW CURB (6")
- SITE PARCEL PROPERTY/R.O.W. LINE
- ADJACENT PROPERTY/R.O.W. LINES
- EASEMENT / BLDG SETBACKS LINE
- EXISTING WATER LINE
- NEW WATER LINE
- EXISTING UNDERGROUND ELEC
- NEW UNDERGROUND ELEC
- EXISTING OVERHEAD ELEC.
- NEW OVERHEAD ELEC.
- EXISTING GAS LINE
- NEW GAS LINE
- NEW GEOTHERMO LINES
- EXISTING COMBINED SEWER
- EXISTING SANITARY LINE
- NEW SANITARY LINE
- EXISTING STORM SEWER LINE
- NEW STORM SEWER LINE
- EXISTING CABLE/TELE
- NEW CABLE/TELE
- EXISTING CONCRETE AREAS
- NEW CONCRETE AREAS
- EX AREAS TO BE EXCAVATED
- EXISTING YARD DRAIN
- NEW YARD DRAIN
- EXISTING CATCH BASIN
- NEW CATCH BASIN
- EXISTING GAS VALVE
- NEW GAS VALVE
- EXISTING WATER VALVE
- NEW WATER VALVE
- EXISTING MANHOLE
- NEW MANHOLE
- EXISTING UTILITY POLE
- NEW UTILITY POLE
- EXISTING LIGHT FIXTURE
- NEW LIGHT FIXTURE
- EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT
- EXISTING CLEAN-OUT
- NEW CLEAN-OUT
- NEW GEOTHERMO WELL
- EXISTING SIGN
- NEW PARKING SPACE COUNT
- NEW TREE
- NEW SHRUB
- EXISTING TREE
- VEGETATION TO BE REMOVED



SITE LAYOUT PLAN

SCALE : 1"= 30'-0"

0 30 60 120

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER - BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

FIRE ACCESSIBILITY PLAN

STATE OF NEW YORK
ANDREW J. TERRANOVA
LICENSED PROFESSIONAL ENGINEER
080634

STAMP/SEAL

#	REVISION	DATE
1	ISSUED FOR SITE PLAN REV.	12/20/21

studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET C1.2

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)

GRADING & DRAINAGE NOTES

1. FOR REFERENCE INFORMATION SEE TOPOGRAPHIC SURVEY PREPARED BY WILLIAM SCHUTT ASSOCIATES JOB# 21171 DATED 8/30/21 INCLUDED WITH THIS SET OF SITE PLANS.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL UNDERGROUND UTILITY LOCATIONS AND DEPTHS PRIOR TO THE START OF EXCAVATION.
3. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE THROUGH OUT THE CONSTRUCTION PROCESS AND UNTIL LAWN AREAS HAVE OBTAIN 80% COVERAGE.
4. ALL SOIL FILL AREAS SHALL BE PLACED IN 8" MAXIMUM LIFTS. FILL SHALL NOT BE PLACED ON FROZEN SOIL.
5. ALL SELECT FILL AREAS BENEATH PAVED AREAS SHALL BE COMPACTED TO A MINIMUM 95% DENSITY IN 6" MAXIMUM LIFTS AS DETERMINED PER ASTM D 1557.
6. WHEREVER POSSIBLE, EXCAVATED TOPSOIL SHALL BE STOCKPILED ON SITE AND RE-USED DURING LANDSCAPING AS NECESSARY.
7. BEFORE CONSTRUCTION BEGINS, A CERTIFIED LICENSED GEOTECHNICAL ENGINEER SHOULD CONDUCT A FOUNDATION AND SOIL INVESTIGATION IN CONFORMANCE WITH SECTIONS 1802.2 THOUGH 1802.6 OF THE NEW YORK STATE BUILDING CODES. ALL CONSTRUCTION, FILL, AND SITE PREPARATION SHALL MEET OR EXCEED ALL SPECIFICATIONS AND RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT.
8. FUTURE LAWN AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF TOPSOIL.
9. TILLING SHALL NOT BE PERFORMED WITHIN THE DRIP LINE OF EXISTING TREES TO REMAIN OR OVER EXISTING UNDERGROUND UTILITIES LESS THAN 24 INCHES BELOW GRADE.
10. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES WHICH ARE TO BE PRESERVED FROM ALL POSSIBLE TYPES OF ROOT, TRUNK, AND LIMB DAMAGE; INCLUDING BUT NOT LIMITED TO, RETAINING WALLS WHICH PREVENT FILLING ON TOP OF ROOTS OR EXCAVATING TREE ROOTS AS REQUIRED.
11. RETAINING WALLS WHICH PREVENT FILLING ON TOP OF ROOTS OR EXCAVATING TREE ROOTS AS REQUIRED.
12. ALL SELECT FILL AREAS BENEATH PAVED AREAS SHALL BE COMPACTED TO A MINIMUM 95% DENSITY IN 6" MAXIMUM LIFTS AS DETERMINED PER ASTM D 1557.
13. ALL PROPOSED STORM SEWER PIPE SPECIFIED AS HDPE SHALL BE HI-Q PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS (ADS) OR HANCOR INC. OR APPROVED EQUAL BY ENGINEER. CONFORMING TO ASTM F 405. HDPE STORM SEWERS SHALL MEET OR EXCEED AASHTO M294 STANDARDS.
14. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR STORM SEWER SYSTEM FAILURE DUE TO LACK OF INSPECTION OR MAINTENANCE.
15. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR ANY UTILITIES NOT SHOWN ON THIS PLAN OR ANY ACCIDENTAL RUPTURES DURING EXCAVATION OR CONSTRUCTION.
16. ALL NEW ROOF DRAIN LATERALS SHALL BE 6" DIAMETER PVC SDR-35 CONFORMING TO ASTM D 2665, ASTM D 3034, ASTM F 891, CSA-B182.2, OR CAN/CSA-B182.4.
17. ALL PIPE FITTINGS SHALL CONFORM TO ASTM D 2609, ASTM D 2464, ASTM D 2466, ASTM D 2467, CAN/CSA-B137.2, OR ASTM D 2665.
18. THE GENERAL CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTS AS REQUIRED BY THE LOCAL PLUMBING AND BUILDING DEPARTMENT, AS WELL AS TESTS REQUIRED IN THE N.Y.S. PLUMBING CODE SECTIONS 312.2 THRU 312.9.
19. ALL JOINTS OR JOINT SYSTEMS FOR CULVERTS, UNDERGROUND DETENTION SYSTEMS, AND STORM SEWERS SHALL BE SILT TIGHT, AND SHALL RESIST INFILTRATION OF SOIL PARTICLES THAT PASS THE NO. 200 SIEVE. IF GEOTEXTILE WRAP IS SPECIFIED FOR USE IN JOINTS, IT SHALL MEET AASHTO M288, WITH AN APPARENT OPENING SIZE (AOS) GREATER THAN 70.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL NECESSARY FEES AND OBTAINING ALL NECESSARY PERMITS PRIOR TO THE START OF CONSTRUCTION. CONTACT TOWN OF AMHERST BUILDING DEPARTMENT (631-7030) FOR INSTRUCTIONS, PERMIT APPLICATIONS, AND FEES.

GENERAL NOTE:

811

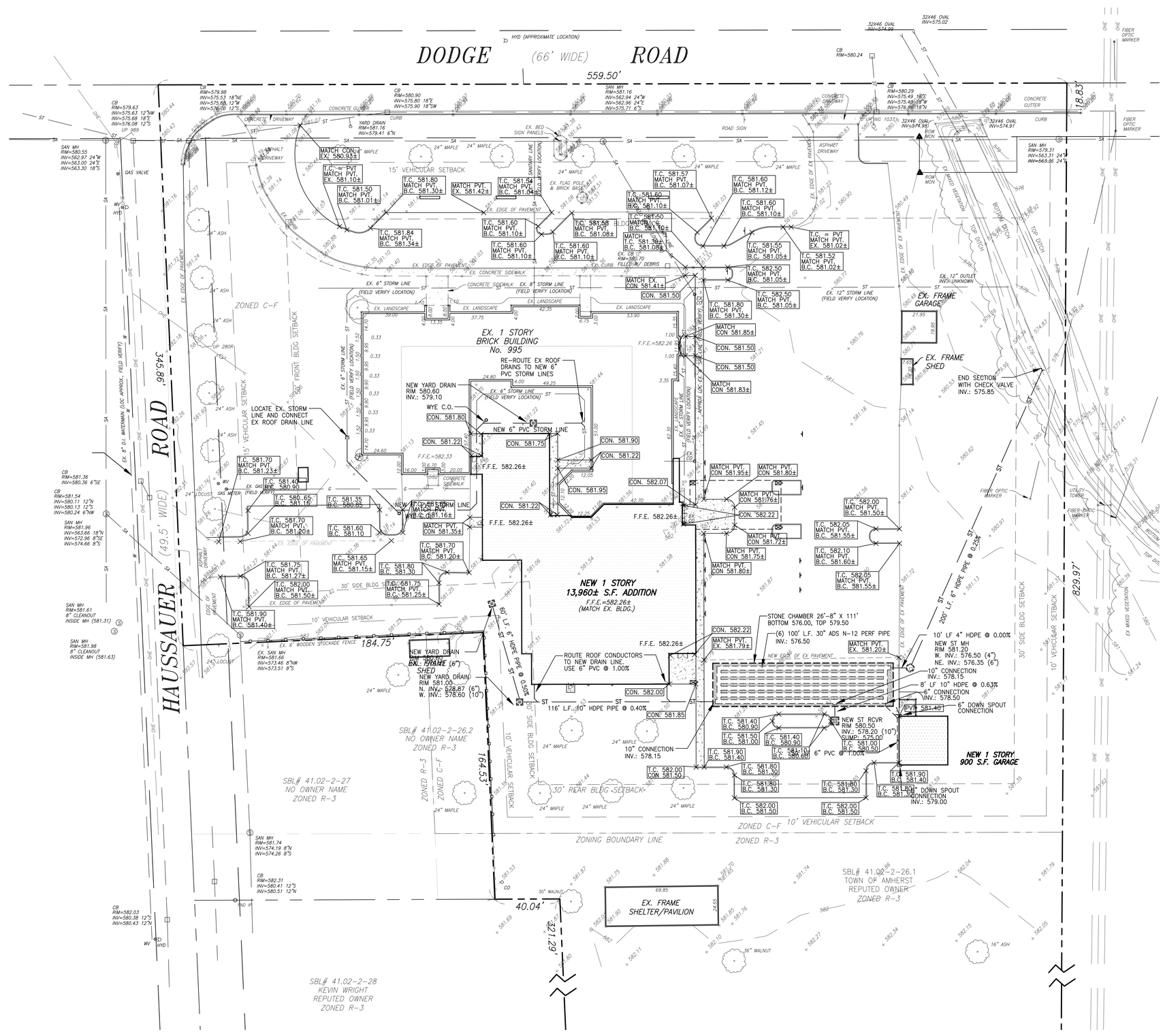
LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. (HORIZONTAL AND VERTICAL) THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES, JUST APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL NOTIFY "DIG SAFELY NEW YORK" FOR LOCATION OF ALL UNDERGROUND UTILITIES. AT LEAST 2 TO 10 WORKING DAYS PRIOR TO ANY MECHANIZED WORK (DOES NOT INCLUDE THE DATE OF THE CALL) NOTICE MUST BE PROVIDED TO THE ONE-CALL NOTIFICATION SYSTEM, WHICH WILL TRANSMIT THE PROJECT INFORMATION TO INVOLVED MEMBERS SO THAT THEY CAN MARK THE LOCATION OF ANY FACILITIES AT THE EXCAVATION SITE

FOR EXCAVATION ON LONG ISLAND AND THE FIVE BOROUGHS OF NEW YORK CITY, NEW YORK 811 MUST BE CALLED AT 1-800-272-4480. FOR EXCAVATION ELSEWHERE IN NEW YORK STATE, DIG SAFELY NEW YORK MUST BE CALLED AT 1-800-962-7962. NOTIFICATION FOR EXCAVATION WORK ANYWHERE IN THE STATE CAN BE MADE BY DIALING 811, WHETHER DIALING THE 1-800 NUMBER OR 811, THERE IS NO CHARGE FOR THE CALL.

CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING TREES WHERE NECESSARY ON NEIGHBORING PROPERTY FROM ALL TYPES OF DAMAGE TO BOTH TRUNK AND ROOTS. LIMIT FILLING OVER TREE ROOTS TO 4" MAX.

LEGEND

- EXISTING FENCE
- NEW FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB
- NEW EDGE OF PAVEMENT
- NEW CURB (6")
- SITE PARCEL PROPERTY/R.O.W. LINE
- ADJACENT PROPERTY/R.O.W. LINES
- EASEMENT / BLDG SETBACKS LINE
- EXISTING WATER LINE
- NEW WATER LINE
- EXISTING UNDERGROUND ELEC
- NEW UNDERGROUND ELEC
- EXISTING OVERHEAD ELEC.
- NEW OVERHEAD ELEC.
- EXISTING GAS LINE
- NEW GAS LINE
- NEW GEOTHERMO LINES
- EXISTING COMBINED SEWER
- EXISTING SANITARY LINE
- NEW SANITARY LINE
- EXISTING STORM SEWER LINE
- NEW STORM SEWER LINE
- EXISTING CABLE/TELE
- NEW CABLE/TELE
- EXISTING CONCRETE AREAS
- NEW CONCRETE AREAS
- EX AREAS TO BE EXCAVATED
- EXISTING YARD DRAIN
- NEW YARD DRAIN
- EXISTING CATCH BASIN
- NEW CATCH BASIN
- EXISTING GAS VALVE
- NEW GAS VALVE
- EXISTING WATER VALVE
- NEW WATER VALVE
- EXISTING MANHOLE
- NEW MANHOLE
- EXISTING UTILITY POLE
- NEW UTILITY POLE
- EXISTING LIGHT FIXTURE
- NEW LIGHT FIXTURE
- EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT
- EXISTING CLEAN-OUT
- NEW CLEAN-OUT
- NEW GEOTHERMO WELL
- EXISTING SIGN
- NEW PARKING SPACE COUNT
- NEW TREE
- NEW SHRUB
- EXISTING TREE
- VEGETATION TO BE REMOVED
- INTERIOR GREEN SPACE



SITE GRADING & DRAINAGE PLAN

SCALE : 1"= 30'-0"

0 30 60 120

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER – BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE GRADING & DRAINAGE PLAN

STATE OF NEW YORK
ANDREW V. TERRANOVA
080634
LICENSED PROFESSIONAL ENGINEER

STAMP/SEAL

#	REVISION	DATE
2	REV PER TOWN COMMENTS	12/20/21
1	ISSUED FOR SITE PLAN REV.	11/12/21

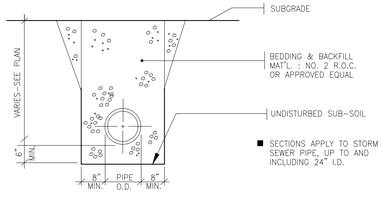
studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET
C2.0

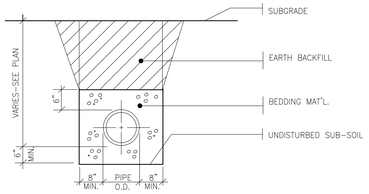
Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.



■ SECTIONS APPLY TO STORM SEWER PIPE, UP TO AND INCLUDING 24" I.D.

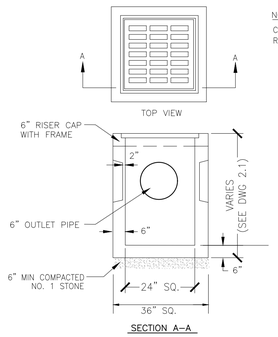
SECTION A: UNDER PAVEMENT



SECTION B: UNDER UN-PAVED AREAS

PIPE BEDDING TRENCH BACKFILL (A)

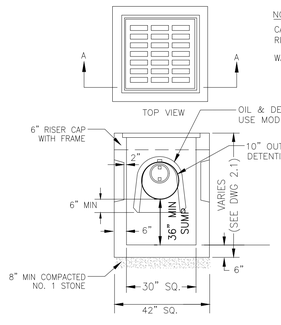
SCALE: NONE



NOTES:
CATCH BASIN: USE KISTNER 24" SQ
RIM: USE NEENAH R4832-B

KISTNER 24" SQ C.B. YARD DRAIN (B)

SCALE : NONE.

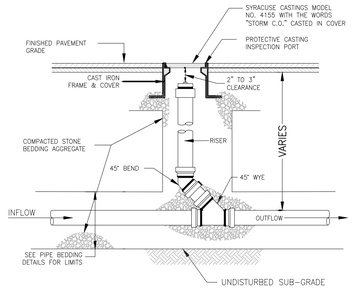


NOTES:
CATCH BASIN: USE KISTNER 30" SQ
RIM: USE NEENAH R4832-C

WATER QUALITY TREATMNET:
INSTALL OIL & DEBRIS STOP USE SNOUT BY BMP, INC. MODEL NUMBER 12R

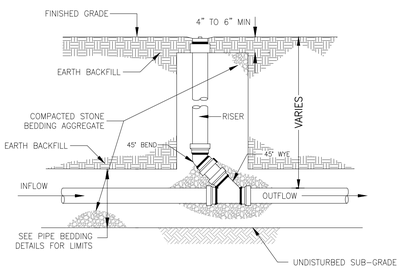
KISTNER 30" SQ CATCH BASIN (C)

SCALE : NONE.



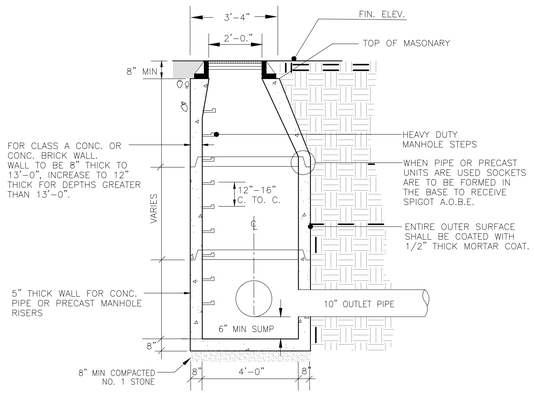
IN LINE CLEANOUT – UNDER PAVEMENT (D)

SCALE : NONE



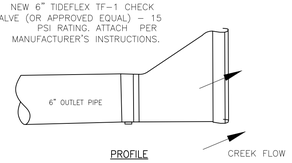
IN LINE CLEANOUT – UNDER LAWN (E)

SCALE : NONE



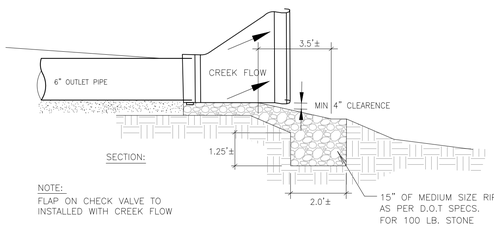
STORM MANHOLE DETAIL (F)

SCALE : NONE.



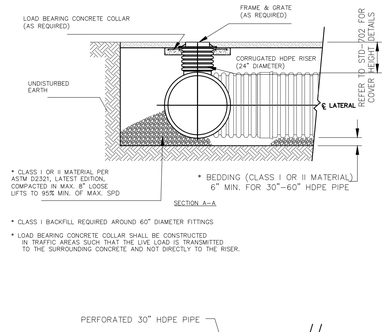
6" TIDEFLEX CHECK VALVE DETAIL (G)

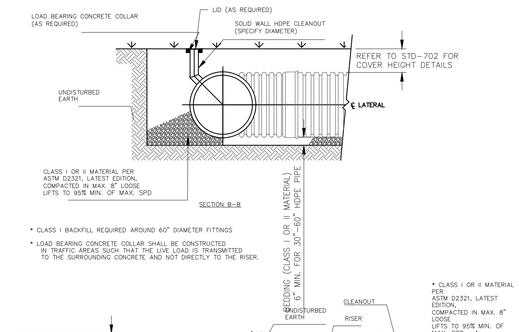
SCALE : NONE

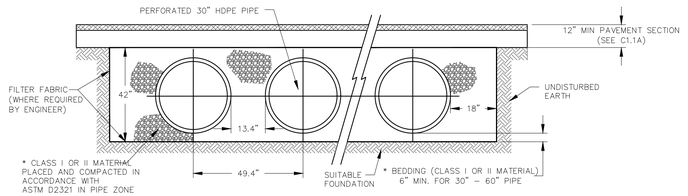


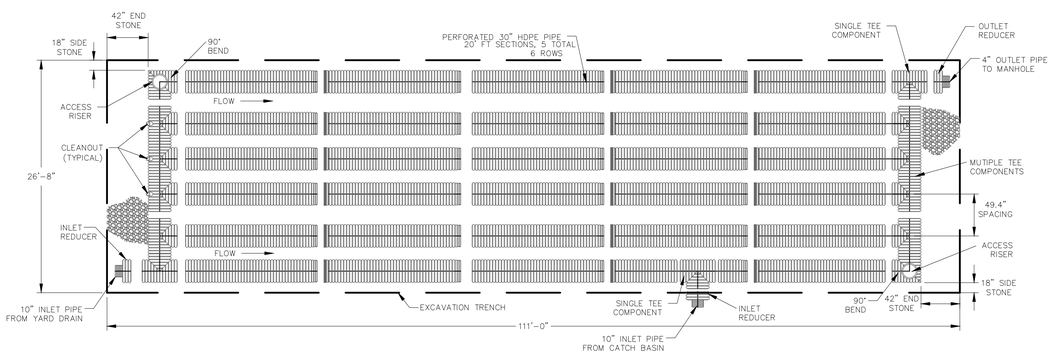
END SECTION TIDE FLEX (H)

SCALE : NONE









ADS N-12 UNDEGROUND DETENTION SYSTEM (I)

SCALE : NONE

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE ME/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER – BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE DRAINAGE DETAILS

STAMP/SEAL

#	REVISION	DATE
2	REV PER TOWN COMMENTS	12/20/21
1	ISSUED FOR SITE PLAN REV.	11/12/21

studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET C2.1

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

Attachment: SP-1988-21B (drawings 011322 (25069 : Sp-1988-21B)

UTILITY NOTES

1. FOR REFERENCE INFORMATION SEE TOPOGRAPHIC SURVEY PREPARED BY WILLIAM SCHUTT ASSOCIATES JOB# 21171 DATED 8/30/21 INCLUDED WITH THIS SET OF SITE PLANS.
2. FOR REFERENCE ALSO SEE EXACT UTILITY CONNECTION LOCATIONS AND DEPTHS ON ARCHITECTURAL, MECHANICAL, ELECTRICAL, H.V.A.C., AND PLUMBING PLANS.
3. EXISTING SERVICE UTILITY CONNECTIONS TO BE ABANDONED OR DISCONTINUED SHALL BE SHUT OFF BY THE RESPECTIVE UTILITY AGENCY PRIOR TO THE START OF WORK.
4. EXISTING UNDERGROUND UTILITY LINES TO REMAIN WHICH ARE UNCOVERED BY EXCAVATION SHALL BE ADEQUATELY SUPPORTED AND PROTECTED DURING EARTHWORK ACTIVITIES.
5. THE CONTRACTOR SHALL PROVIDE SLEEVES THROUGH NEW FOUNDATION WALLS AS NECESSARY FOR PROTECTING EXISTING AND PROPOSED UTILITY LINES.
6. THE EXISTING WATERLINE SHALL BE FIELD VERIFIED.
7. MAINTAIN A MINIMUM 12" INCHES OF VERTICAL SEPARATION BETWEEN THE OUTSIDE DIAMETER OF NEW WATERLINES AND THE OUTSIDE DIAMETER OF SANITARY OR STORM SEWER PIPING.
8. MAINTAIN A MINIMUM 5' FOOT OF HORIZONTAL SEPARATION BETWEEN THE OUTSIDE DIAMETER OF NEW WATERLINES AND THE OUTSIDE DIAMETER OF SANITARY OR STORM SEWER PIPING.
9. THE TOWN OF AMHERST WATER DEPARTMENT SHALL PERFORM ALL WATER LINE WORK FROM TAP IN POINT ON THE WATERMAIN TO THE VALVES ON THE RIGHT-OF-WAY LINE.
10. AS PER SECTION 111.1 OF THE NEW YORK STATE BUILDING CODE, ALL NEW GAS, TELEPHONE, CABLE TV, AND ELECTRICAL UTILITIES SHALL BE DESIGNED, SIZED, AND INSTALLED BY THE RESPECTIVE UTILITY AGENCIES.
11. AS PER SECT 608.1.2 OF THE NYS PLUMBING CODE PRIVATE WELLS SHALL BE INSTALLED BY A WELL DRILLER REGISTERED WITH THE NYSDEC IN CONFORMANCE WITH NYSDEC & NYSDOH REGULATIONS.
12. ALL NEW WATER LINE PIPING SHALL BE INSTALLED WITH A MIN. 5'-0" DEPTH OF COVER. ANY MECHANICAL JOINTS ON WATERLINES (IF USED) SHALL BE MADE IN CONFORMANCE TO ASTM D 3139 OR AWWA C111. JOINTS BETWEEN DIFFERENT PIPING MATERIALS SHALL CONFORM TO ASTM D 1869 OR ASTM F 477.
13. THE NEW FIRE PROTECTION SERVICE LINES SHALL BE INSTALLED AND OWNED BY TOWN OF AMHERST WATER DEPARTMENT UP TO THE RIGHT-OF-WAY LINE. THE REMAINING WATER LINE AND FIRE PROTECTION SERVICE LINE (INCLUDING THE NEW VALVES AND VALVE BOXES) SHALL BE INSTALLED BY THE CONTRACTOR AND PRIVATELY OWNED AND MAINTAINED BY THE OWNER.
14. THE FIRE PROTECTION LINE WITHIN THE PARCEL SHALL BE INSPECTED, TESTED, AND MAINTAINED IN CONFORMANCE WITH NFPA 25, AS PER SECTION 508.5.3 OF THE NEW YORK STATE FIRE CODE.
15. THE NEW RPZ BACKFLOW PREVENTION DEVICES AND WATER METERS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE OWNER.
17. ALL NEW WATER SERVICE LINES SHALL BE DISINFECTED IN CONFORMANCE WITH A.W.W.A. SPECIFICATION C-651 PRIOR TO THE BEGINNING OF SERVICE.
18. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR ANY UTILITIES NOT SHOWN ON THIS PLAN OR ANY ACCIDENTAL RUPTURES DURING EXCAVATION OR CONSTRUCTION.
19. ALL NEW SANITARY SEWERS SHALL BE PVC (SDR-35) AND SHALL CONFORM TO ASTM D 3034, ASTM D 2665, ASTM D 2949, ASTM F 891, CSA B182.2, OR CAN/CSA-B182.4 STANDARDS. ALL NEW SANITARY SEWER FITTINGS SHALL CONFORM TO ASTM D 2661, ASTM D 3311, ASTM F 628, OR ASTM D 2665. ALL COMPRESSION GASKETS FOR HUB AND SPIGOT PIPE AND FITTINGS SHALL CONFORM TO ASTM C 564.
20. JOINTS BETWEEN DIFFERENT PIPE MATERIALS SHALL BE MADE WITH A CONNECTION CONFORMING TO ASTM C 425, ASTM C 443, ASTM C 564, ASTM C 1173, ASTM D 1869, ASTM F 477, CAN/CSA A257.3M, OR CAN/CSA B602M.
21. ALL PVC WATERLINES SHALL MEET OR EXCEED THE LATEST ASTM D 2412, D 2152, D 1785, D 2241, D 2672, OR CAN/SCA-B137.3, AS WELL AS NSF 61. ALL FLEXIBLE PVC WATERLINE FITTINGS SHALL MEET OR EXCEED A.S.T.M. D3139. ALL COPPER WATERLINES SHALL MEET OR EXCEED THE LATEST ASTM B 75, B 88, B 251, OR B 447 SPECIFICATIONS, AS WELL AS NSF 61. ALL DUCTILE IRON WATERLINES SHALL BE CLASS 51 MINIMUM, AND SHALL MEET OR EXCEED THE LATEST ANSI / AWWA C151 / A21.51 OR C115 SPECIFICATIONS, AS WELL AS NSF 61. ALL DUCTILE IRON WATERLINES SHALL ALSO BE CEMENT-MORTAR LINED IN CONFORMANCE WITH AWWA C104.
22. ALL NEW WATERLINES, VALVES, AND APPURTENANCES THAT ARE IN CONTACT WITH POTABLE WATER SHALL BE NSF/ANSI 61 CERTIFIED. ALL NEW FIRE HYDRANTS SHALL REQUIRE INTERIOR COATINGS THAT ARE NSF 61 CERTIFIED. ALL COPPER PIPE FITTINGS SHALL CONFORM TO ASME B16.15, B16.18, B16.22, B16.23, B16.26, AND B16.29. ALL DUCTILE IRON PIPE FITTINGS SHALL CONFORM TO AWWA C110 AND C153. ALL PVC PIPE FITTINGS SHALL CONFORM TO ASTM D 2464, D 2466, D 2467, AND CAN/CSA-B137.2.
23. ALL NEW ROOF DRAIN LATERALS SHALL BE PVC (SDR-35) CONFORMING TO ASTM D 2729, ASTM D 3034, ASTM F 891, CSA-B182.2, OR CAN/CSA-B182.4. ALL NEW STORM SEWERS AND CULVERTS SHALL BE HDPE CONFORMING TO ASTM F 405 AND AASHTO M294.
24. A CERTIFIED BACKFLOW PREVENTION DEVICE TESTER RETAINED BY THE OWNER SHALL APPROVE AND CERTIFY SATISFACTORY INSTALLATION OF THE DEVICE WITHIN 45 DAYS OF THE INSTALLATION. THE COMPLETED DOH-1013 FORM SHALL BE SUBMITTED TO THE NEW YORK STATE HEALTH DEPARTMENT AND ERIE COUNTY WATER AUTHORITY WITHIN 30 DAYS OF TESTING THE DEVICE.
25. AN ANNUAL TEST TO CERTIFY THE DEVICE MEETS THE REQUIREMENTS OF AN ACCEPTABLE CONTAINMENT DEVICE SHALL BE COMPLETED BY A N.Y.S. CERTIFIED TESTER ON A YEARLY BASIS AND SUBMITTED TO THE NEW YORK STATE HEALTH DEPARTMENT AND ERIE COUNTY WATER AUTHORITY WITHIN 30 DAYS OF TESTING THE DEVICE.
26. NYSEG SHALL SUPPLY, INSTALL, OWN, AND MAINTAIN THE NEW GAS METER. NYSEG SHALL ALSO TAP, INSTALL, AND OWN THE NEW SERVICE LINE FROM MAIN TO NEW METER. CONTACT NYSEG (438-9803) FOR INSTRUCTIONS, INSTALLATION COORDINATION, INSPECTION APPOINTMENTS, PERMIT APPLICATIONS, AND FEES.
27. NYSEG SHALL SUPPLY THE NEW ELECTRIC METER. THE ELECTRIC CONTRACTOR SHALL INSTALL THE NEW EELCTRIC METER AND ELECTRIC CONDUITS IN COORDINATION WITH NYSEG. NYSEG SHALL ALSO TAP THE NEW SERVICE TO THE EXISTING UTILITY POLE. THE ELECTRIC CONTRACTOR SHALL LEAVE ENOUGH WIRE TO REACH THE SECONDARY BUSHING OF THE NEW POLE-MOUNTED TRANSFORMER. CONTACT NYSEG (438-9803) FOR INSTRUCTIONS, INSTALLATION COORDINATION, INSPECTION APPOINTMENTS, PERMIT APPLICATIONS, AND FEES.
28. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 12" VERTICAL SEPARATION DISTANCE BETWEEN EXISTING GAS AND ELECTRIC LINES AND NEW WATERLINES, STORM, OR SANITARY SEWERS. ALL NEW UNDERGROUND UTILITIES SHALL PASS BENEATH EXISTING ELECTRIC AND GAS LINES UNLESS CONSENT IS OTHERWISE GIVEN BY THE SERVICE PROVIDER OR EASEMENT OWNER.
29. THE GENERAL CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTS AS REQUIRED IN THE N.Y.S. PLUMBING CODE SECTIONS 312.2 THRU 312.9 AND AWWA C600.
30. ANY PLAIN END DUCTILE IRON WATERLINE PIPE SHALL BE JOINED TO FLANGED FITTINGS USING UNI-FLANGE UFA400 ADAPTER FLANGES OR APPROVED EQUAL. ANY PLAIN END PVC WATERLINE PIPE SHALL BE JOINED TO FLANGED FITTINGS USING UNI-FLANGE UFA900 ADAPTER FLANGES OR APPROVED EQUAL.
31. PVC WATERLINES WITH MECHANICAL JOINTS SHALL BE RESTRAINED USING UNI-FLANGE SERIES 1300 OR SERIES 1500 JOINT RESTRAINERS OR APPROVED EQUAL. PVC WATERLINES WITH BELL JOINTS SHALL BE RESTRAINED USING UNI-FLANGE SERIES 1350 JOINT RESTRAINERS OR APPROVED EQUAL. DUCTILE IRON WATERLINES WITH MECHANICAL JOINTS SHALL BE RESTRAINED USING UNI-FLANGE SERIES 1400 OR SERIES 1450 RESTRAINERS OR APPROVED EQUAL. PVC TO DUCTILE IRON CONNECTIONS WITH MECHANICAL JOINTS SHALL BE RESTRAINED USING UNI-FLANGE SERIES 1390 PIPE RESTRAINTS OR APPROVED EQUAL.
32. PVC WATERLINE CONNECTIONS TO PRESSURE FITTINGS OR ELBOWS SHALL BE RESTRAINED USING UNI-FLANGE SERIES 1360 PIPE RESTRAINTS OR APPROVED EQUAL.
33. ALL JOINTS OR JOINT SYSTEMS FOR CULVERTS, UNDERGROUND DETENTION SYSTEMS, AND STORM SEWERS SHALL BE SILT TIGHT, AND SHALL RESIST INFILTRATION OF SOIL PARTICLES THAT PASS THE NO. 200 SIEVE. IF GEOTEXTILE WRAP IS SPECIFIED FOR USE IN JOINTS, IT SHALL MEET AASHTO M288, WITH AN APPARENT OPENING SIZE (AOS) GREATER THAN 70. ALL JOINTS OR JOINT SYSTEMS FOR SANITARY SEWERS OR LATERALS SHALL BE WATER TIGHT TO LIMIT LEAKAGE TO A MAXIMUM RATE OF 100 GALLONS PER INCH-DIAMETER PER MILE PER DAY.
34. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL NECESSARY FEES AND OBTAINING ALL NECESSARY PERMITS PRIOR TO THE START OF CONSTRUCTION. CONTACT TOWN OF AMHERST BUILDING DEPARTMENT (651-7030) FOR INSTRUCTIONS, PERMIT APPLICATIONS, AND FEES.

LEGEND

- EXISTING FENCE
- NEW FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB
- NEW EDGE OF PAVEMENT
- NEW CURB (6")
- SITE PARCEL PROPERTY/R.O.W. LINE
- ADJACENT PROPERTY/R.O.W. LINES
- EASEMENT / BLDG SETBACKS LINE
- EXISTING WATER LINE
- NEW WATER LINE
- EXISTING UNDERGROUND ELEC
- NEW UNDERGROUND ELEC
- EXISTING OVERHEAD ELEC.
- NEW OVERHEAD ELEC.
- EXISTING GAS LINE
- NEW GAS LINE
- NEW GEOTHERMO LINES
- EXISTING COMBINED SEWER
- EXISTING SANITARY LINE
- NEW SANITARY LINE
- EXISTING STORM SEWER LINE
- NEW STORM SEWER LINE
- EXISTING CABLE/TELE
- NEW CABLE/TELE
- EXISTING CONCRETE AREAS
- NEW CONCRETE AREAS
- EX AREAS TO BE EXCAVATED
- EXISTING YARD DRAIN
- NEW YARD DRAIN
- EXISTING CATCH BASIN
- NEW CATCH BASIN
- EXISTING GAS VALVE
- NEW GAS VALVE
- EXISTING WATER VALVE
- NEW WATER VALVE
- EXISTING MANHOLE
- NEW MANHOLE
- EXISTING UTILITY POLE
- NEW UTILITY POLE
- EXISTING LIGHT FIXTURE
- NEW LIGHT FIXTURE
- EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT
- EXISTING CLEAN-OUT
- NEW CLEAN-OUT
- NEW GEOTHERMO WELL
- EXISTING SIGN
- NEW PARKING SPACE COUNT
- NEW TREE
- NEW SHRUB
- EXISTING TREE
- VEGETATION TO BE REMOVED
- INTERIOR GREEN SPACE

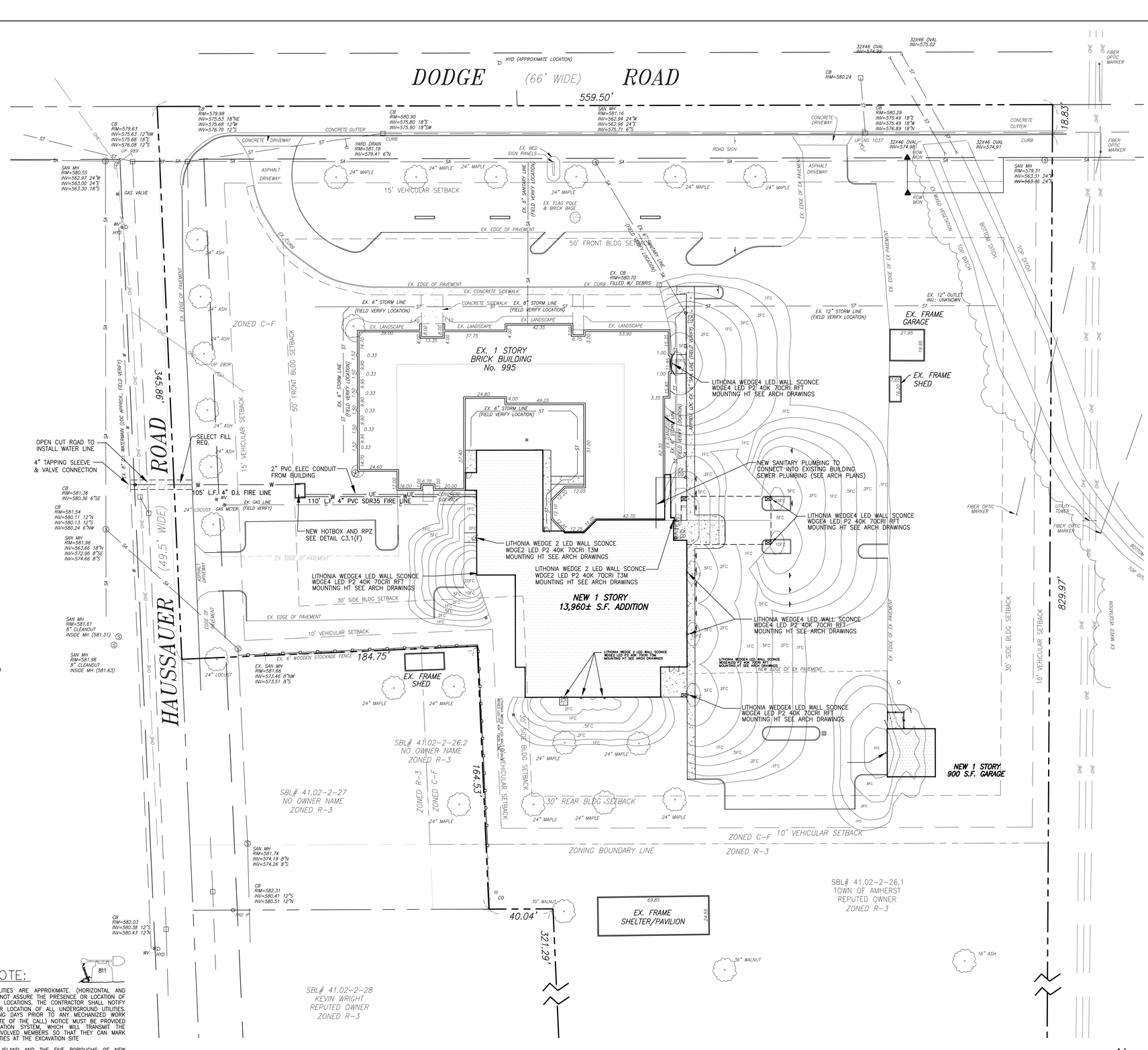
GENERAL NOTE:

811

LOCATION OF EXISTING UTILITIES ARE APPROXIMATE, (HORIZONTAL AND VERTICAL) THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES, JUST APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL NOTIFY "DIG SAFELY NEW YORK" FOR LOCATION OF ALL UNDERGROUND UTILITIES, AT LEAST 2 TO 10 WORKING DAYS PRIOR TO ANY MECHANIZED WORK (DOES NOT INCLUDE THE DATE OF THE CALL) NOTICE MUST BE PROVIDED TO THE ONE-CALL NOTIFICATION SYSTEM, WHICH WILL TRANSMIT THE PROJECT INFORMATION TO INVOLVED MEMBERS SO THAT THEY CAN MARK THE LOCATION OF ANY FACILITIES AT THE EXCAVATION SITE

FOR EXCAVATION ON LONG ISLAND AND THE FIVE BOROUGHS OF NEW YORK CITY, NEW YORK 811 MUST BE CALLED AT 1-800-272-4480. FOR EXCAVATION ELSEWHERE IN NEW YORK STATE, DIG SAFELY NEW YORK MUST BE CALLED AT 1-800-962-7962. NOTIFICATION FOR EXCAVATION WORK ANYWHERE IN THE STATE CAN BE MADE BY DIALING 811. WHETHER DIALING THE 1-800 NUMBER OR 811, THERE IS NO CHARGE FOR THE CALL.

CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING TREES WHERE NECESSARY ON NEIGHBORING PROPERTY FROM ALL TYPES OF DAMAGE TO BOTH TRUNK AND ROOTS. LIMIT FILLING OVER TREE ROOTS TO 4" MAX.



SITE LAYOUT PLAN

SCALE : 1"= 30'-0"

WELL WORSHIP CENTER - BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE UTILITY PLAN

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

STATE OF NEW YORK · ANDREW V. TERRANOVA · 080634 · LICENSED PROFESSIONAL ENGINEER

STAMP/SEAL

#	REVISION	DATE
1	ISSUED FOR SITE PLAN REV.	12/20/21

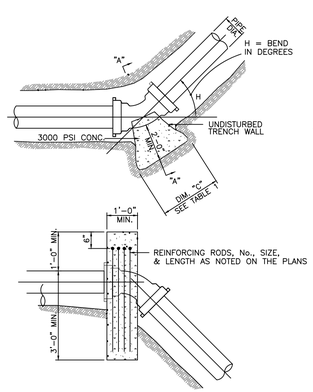
studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9004

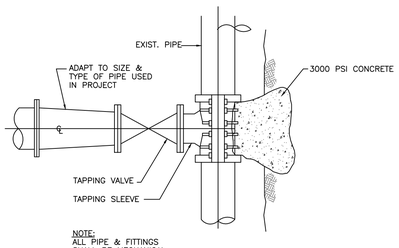
DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET C3.0

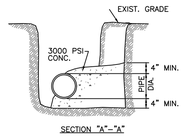
Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.





NOTE:
ALL PIPE & FITTINGS SHALL BE MECHANICAL DUCTILE IRON.



SECTION "A"–"A"

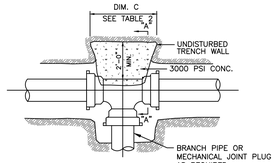
TABLES FOR 2800 P.S.F. SOIL BEARING LOAD AT 150 PSI TEST PRESSURE

TABLE 1

BEND	HORIZONTAL				VERTICAL	
	5° TO 45°		46° TO 90°		5° TO 45°	46° TO 90°
PIPE DIA. IN.	"C" FT. – IN.	CONC. C.Y.	"C" FT. – IN.	CONC. C.Y.	CONC. C.Y.	CONC. C.Y.
16	4–3	0.68	8–2	1.26	9.00	17.20
14	3–7	0.49	6–9	0.91	6.60	12.30
12	2–11	0.36	5–5	0.67	4.80	9.70
10	2–4	0.25	4–3	0.46	3.40	6.30
8	1–7	0.16	3–0	0.30	2.20	4.00
6	1–0	0.10	1–11	0.17	1.20	2.30

TABLE 2

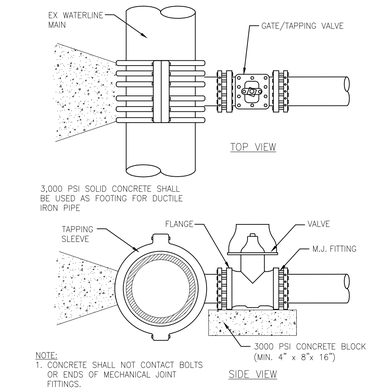
BRANCH PIPE DIA. IN.	"C"	QUAN. OF CONC. C.Y.	
	FT. – IN.	TEE'S & PLUGS	WYE'S
16	7–6	0.62	0.85
14	5–9	0.48	0.66
12	4–0	0.33	0.60
10	3–2	0.25	0.43
8	2–3	0.16	0.29
6	1–8	0.10	0.18



NOTE:
ALL VERTICAL BENDS OVER 5° FACING DOWN WITHOUT JOINT HARNESS SHALL BE ANCHORED AS SHOWN USING THE CONCRETE QUANTITIES FROM TABLE 1.

TYPICAL DETAILS FOR CONCRETE PRESSURE PIPE BACKING (B)

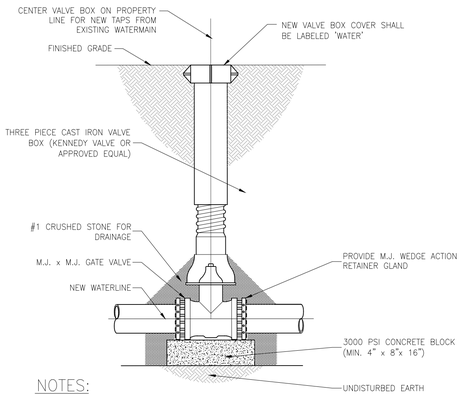
SCALE : 1" = 1'–0"



NOTE:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.

4"–24" TAPPING SLEEVE & VALVE ASSEMBLY (A)

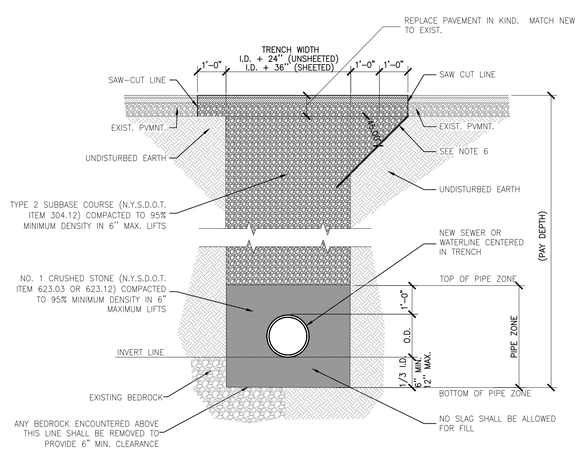
SCALE : NONE



NOTES:
1. VALVE SHALL NOT SUPPORT VALVE BOX.

WATER VALVE & VALVE BOX DETAIL (C)

SCALE : NONE



PAVEMENT REPLACEMENT DETAIL (E)

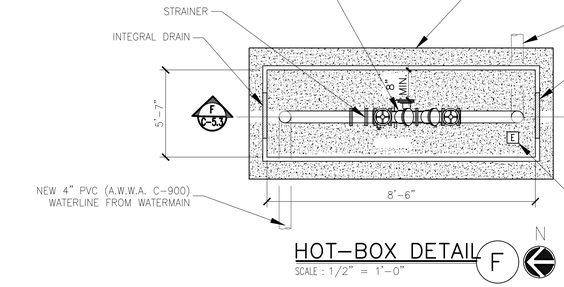
SCALE : 1/2" = 1'–0"

BLACKTOP REPLACEMENT

1. IF CONSTRUCTION IS PERFORMED BETWEEN OCTOBER 1 AND APRIL 1, THE CONTRACTOR IS REQUIRED TO PROVIDE 4" OF COLD PATCH FOR ALL PAVEMENT CUTS.
2. ALL OPEN CUTS WITHIN 50' OF AN INTERSECTION SHALL BE TOPPED WITH 4" OF COLD PATCH REGARDLESS OF THE TIME OF YEAR.
3. ALL ROAD CUTS ON HEAVILY TRAVELED HIGHWAYS ROADWAYS WILL REQUIRE 4" OF COLD PATCH (GENERALLY STATE AND COUNTY HIGHWAYS).
4. ALL TEMPORARY PAVEMENT PATCHES SHALL BE MAINTAINED BY THE CONTRACTOR.
5. SHEETING OR SHORING SHALL BE REQUIRED PER O.S.H.A. STANDARDS FOR WORKER SAFETY AND PROTECTION OF TRENCH AREA. ALL SHORING AND TRENCHING SHALL BE DONE AS DIRECTED BY THE OWNER'S ON–SITE GEOTECHNICAL ENGINEER AND SHALL REMAIN IN PLACE UNTIL ALL TRENCHING OPERATIONS ARE COMPLETED.
6. SELECT FILL (N.Y.S.D.O.T. ITEM 304.12) IS REQUIRED BENEATH NON–PAVED AREAS ADJACENT TO PAVED AREAS IF THE 45° LINE SHOWN ABOVE INTERCEPTS THE TRENCH ABOVE THE PIPE ZONE.
7. PIPE BEDDING AND MATERIAL AROUND THE PIPE ("NO. 1 CRUSHED STONE") SHALL CONFORM TO N.Y.S.D.O.T. TABLE 703–4, SIZE DESIGNATION 1, MATERIAL DESIGNATION 702–0201. OPTIONAL: PIPE BEDDING MATERIAL SHALL CONFORM TO CLASS I, II, OR III AS PER ASTM D 2321.
8. PIPE BEDDING AND TRENCH BACKFILL IN BERM OR SWALE AREAS SHALL BE CLAY OR NATIVE BACKFILL COMPACTED TO 95% PROCTOR DENSITY TO ELIMINATE THE POSSIBILITY OF PIPE UNDERMINING AND DUE TO SEEPAGE THROUGH THE PIPE ZONE.

SAW CUTS

1. PAVEMENT CUTS BY THE CONTRACTOR WILL BE MADE WITH A SAW, PNEUMATIC SPADE OR OTHER ACCEPTED MEANS PRIOR TO EXCAVATION.
2. FINAL PAVEMENT RESTORATION: THE CONTRACTOR WILL BE RESPONSIBLE TO SAW CUT AN ADDITIONAL 12" ON EACH SIDE OF THE DISTURBED TRENCH AREA, SO AS TO PROVIDE A UNIFORM STRAIGHT EDGE. THE CUT EDGE WILL THEN BE COATED WITH A BITUMINOUS SEAL COAT AND REPLACED IN THE MANNER DESCRIBED ABOVE.



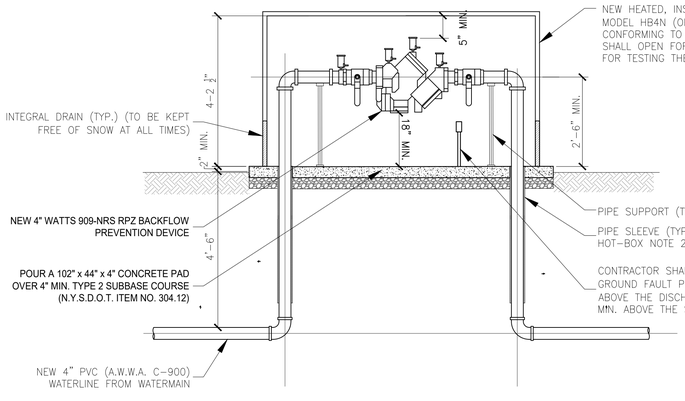
HOT–BOX DETAIL (F)

SCALE : 1/2" = 1'–0"

HOT BOX NOTES

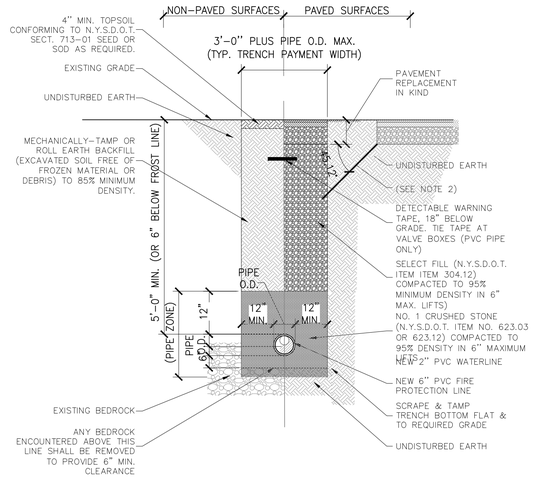
1. POUR A FULL CONCRETE PAD 4" THICK AROUND DEVICE ALLOWING A MINIMUM 1" RADIAL SPACE BETWEEN VALVE RISERS & PAD.
2. SIZE A PVC (SCH. 40) PIPE SLEEVE AS REQUIRED TO FIT IN THE RADIAL SPACE BETWEEN THE PAD AND THE VALVE RISERS. PACK THE ENTIRE LENGTH OF PIPE SLEEVE WITH FOAM INSULATION.
3. USE A MASONRY DRILL BIT TO DRILL THROUGH ANCHOR HINGE.
4. MARK AND MOUNT LOCKING HASP AND SUPPORT ROAD ANCHOR.
5. FOR HOT–ROKS USING SELF–REGULATING TAPE HEAT SOURCE, SECURE TAPE TO VALVE WITH WIRE TIES OR ELECTRICIAN'S TAPE.
6. THE HOT BOX SHALL BE EQUIPPED WITH SECURITY MEASURES SUCH AS LOCKING DOORS AND PANELS, FLOW ALARMS, AND INDICATOR LIGHTS.
7. FOR INSTALLATION INSTRUCTIONS CALL HOT–BOX / HOT–ROK MANUFACTURER AT 1–800–736–0238.
8. THE NEW WATER METER SHALL BE SUPPLIED, INSTALLED, OWNED, AND MAINTAINED BY THE TOWN OF AMHERST .
9. ALL PLUMBING WORK SHALL BE INSPECTED BY THE TOWN OF AMHERST PLUMBING INSPECTOR. ALL PLUMBING WORK SHALL BE PERFORMED BY A LICENSED AND INSURED PLUMBER CERTIFIED IN THE TOWN OF AMHERST
10. A CERTIFIED BACKFLOW PREVENTION DEVICE TESTER RETAINED BY THE OWNER SHALL APPROVE AND CERTIFY SATISFACTORY INSTALLATION OF THE DEVICE WITHIN 45 DAYS OF THE INSTALLATION. THE COMPLETED DOH–1013 FORM SHALL BE SUBMITTED TO THE NEW YORK STATE HEALTH DEPARTMENT AND ERIE COUNTY WATER WITHIN 30 DAYS OF TESTING THE DEVICE.
11. AN ANNUAL TEST TO CERTIFY THE DEVICE MEETS THE REQUIREMENTS OF AN ACCEPTABLE CONTAINMENT DEVICE SHALL BE COMPLETED BY A N.Y.S. CERTIFIED TESTER ON A YEARLY BASIS AND SUBMITTED TO THE NEW YORK STATE HEALTH DEPARTMENT AND ERIE COUNTY WATER AUTHORITY WITHIN 30 DAYS OF TESTING THE DEVICE.
12. ALL HOT BOX ENCLOSURES SHALL OPEN FOR LIGHT AND ACCESS FOR TESTING THE DEVICES.
13. PREVENT FREEZING BY WRAPPING DEVICES AND PIPES WITH A 90–WATT, 120–VOLT, SINGLE–PHASE HEAT TRACE TAPE.

CONCRETE SHALL HAVE A SLUMP OF NO MORE THAN 5" AND AN AIR ENTRAINMENT OF 4–6%. THE USE OF CALCIUM CHLORIDE IS NOT PERMITTED. PROVIDE PROPER CONCRETE PROTECTION IN COLD WEATHER AND MAINTAIN PROPER CURING PROCEDURES IN CONFORMANCEWITH ALL A.C.I. REQUIREMENTS.



HOT–BOX ELEVATION (F)

SCALE : 1/2" = 1'–0"



NOTE:
1. SHEETING OR SHORING SHALL BE REQUIRED PER O.S.H.A. STANDARDS FOR WORKER SAFETY AND PROTECTION OF WORK AREA AS DIRECTED BY OWNER'S ON–SITE GEOTECHNICAL ENGINEER.
2. SELECT FILL (N.Y.S.D.O.T. ITEM 304.12) IS REQUIRED FOR FULL DEPTH UNDER DRIVEWAYS, ROAD CROSSINGS, AND IF THE 45° LINE SHOWN ABOVE INTERCEPTS THE TRENCH ABOVE THE PIPE ZONE.
3. PIPE BEDDING AND MATERIAL AROUND THE PIPE ("NO. 1 CRUSHED STONE") SHALL CONFORM TO N.Y.S.D.O.T. TABLE 703–4, SIZE DESIGNATION 1, MATERIAL DESIGNATION 702–0201. OPTIONAL: CLASS I, II, OR III MATERIALS AS PER ASTM D 2321
4. IF SOFT MATERIALS OF POOR LOAD–BEARING QUALITY ARE FOUND AT THE BOTTOM OF THE TRENCH, STABILIZATION SHALL BE ACHIEVING BY EXCAVATING A MINIMUM OF TWO PIPE DIAMETERS AND BACKFILLING TO THE PIPE INVERT WITH PIPE BEDDING AND COMPACTING TO 95% DENSITY AS IN NOTE 5 ABOVE.

WATERLINE DETAIL (D)

SCALE : NONE

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER – BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

UTILITY CONSTRUCTION DETAILS

STATE OF NEW YORK
ANDREW V. TERRACE
080634
LICENSED PROFESSIONAL ENGINEER

STAMP/SEAL

#	REVISION	DATE
1	ISSUED FOR SITE PLAN REV.	12/20/21

studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21–274

SHEET
C3.1

Attachment: SP-1988-21B drawings 011322 (2506 : Sp-1988-21B)

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

LANDSCAPE NOTES

1. THE CONTRACTOR SHALL PROVIDE MAINTENANCE INCLUDING FERTILIZING, RE-SEEDING, AND WATERING AS REQUIRED DURING LANDSCAPE INSTALLATION AND PLANTING FOR A MINIMUM PERIOD OF 12 MONTHS FROM PLANTING DATE.
2. THE CONTRACTOR SHALL SCARIFY ALL NEW LAWN AREAS PRIOR TO SEEDING. REMOVE DEBRIS AND ROCKS TO 12" DEPTH PRIOR TO APPLYING TOPSOIL. LIME SOIL AS NECESSARY TO A pH OF 6.0. FERTILIZE WITH 600 lbs. OF 5-10-10 OR EQUIVALENT PER ACRE (14 lbs. PER EVERY 1000 SQ. FT.).
3. THE CONTRACTOR SHALL FURNISH AND INSTALL A 3" MINIMUM LAYER OF HIGH-QUALITY SHREDDED HARDWOOD BARK OR CEDAR MULCH IN ALL PLANTING BEDS, OR AS INDICATED.
4. ALL PROPOSED LANDSCAPE AREAS AND PLANTING BEDS SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND POOR UNSUITABLE SOILS TO A DEPTH OF 36" AND BACKFILLED WITH TOPSOIL AND THE PLANTING MIXTURE AS SPECIFIED IN THE DETAILS.
5. THE CONTRACTOR SHALL ERECT TEMPORARY CONSTRUCTION FENCING AROUND ALL EXISTING TREES TO REMAIN WITHIN THE PROJECT LIMITS TO PROTECT FROM SITE WORK DISTURBANCE.
6. UNLESS RECOMMENDED OTHERWISE BY THE SEED VENDOR OR THE LANDSCAPE CONTRACTOR, PERMANENT GRASS SEEDING SHALL CONSIST OF A MIXTURE OF THE FOLLOWING AT 5-8 LBS/1000 SQ FT.
   - KENTUCKY BLUEGRASS = 25% BY WEIGHT (98% MIN. PURITY: 85% MIN. GERMINATION)
   - PENN LAWN RED FESCUE = 25% BY WEIGHT (95% MIN. PURITY: 80% MIN. GERMINATION)
   - TRIPLE CROWN PERENNIAL RYE = 50% BY WEIGHT (95% MIN. PURITY: 90% MIN. GERMINATION)
7. HAND-BROADCASTING OR HYDRO-SEEDING AND HYDRO-MULCHING SHALL BE USED TO ESTABLISH ALL NEW LAWN AREAS.
8. IN AREAS WHERE DECORATIVE STONES OR MULCH MAY BE USED, THE CONTRACTOR SHALL INSTALL A QUALITY WOVEN LANDSCAPE FABRIC FOR WEED CONTROL BENEATH A 2"-3" LAYER OF LANDSCAPE STONE OR MULCH. THE CONTRACTOR SHALL APPLY PREEN WEED CONTROL PER MANUFACTURER'S APPLICATION INSTRUCTIONS IN PLACE OF LANDSCAPE FABRIC.
9. LIMIT SOIL PLACEMENT OVER EXISTING TREE AND SHRUB ROOTS TO A MAXIMUM OF 3 INCHES. IN EXPOSED ROOT AREAS WOOD MULCH SPREAD TO A DEPTH OF 4 INCHES SHALL BE USED TO PREVENT SOIL COMPACTION OVER THE ROOT SYSTEM.
10. IF ROOTS OF EXISTING TREES TO REMAIN NEED TO BE REMOVED TO ALLOW FOR NEW STRUCTURE, UNDERGROUND UTILITY, OR PAVEMENT INSTALLATION A CERTIFIED TREE SURGEON SHALL PERFORM ALL SUCH WORK AND SHALL PRUNE THE CANOPY TO AN EQUAL PROPORTION.
11. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES WHICH ARE TO BE PRESERVED FROM ALL POSSIBLE TYPES OF ROOT, TRUNK, AND LIMB DAMAGE; INCLUDING BUT NOT LIMITED TO, RETAINING WALLS WHICH PREVENT FILLING ON TOP OF ROOTS OR EXCAVATING TREE ROOTS AS REQUIRED.
12. ALL NEW LAWN AREAS SHALL HAVE A 6 INCH MINIMUM LAYER OF TOPSOIL BEFORE SEEDING.
13. NO TILLING SHALL NOT BE PERFORMED WITHIN THE DRIP LINE OF EXISTING TREES TO REMAIN OR OVER EXISTING UNDERGROUND UTILITIES LESS THAN 24 INCHES BELOW GRADE.
14. REMOVE ALL STICKS, RUBBISH, STONES, AND ANY DEBRIS COLLECTED DURING RAKING, MOWING, AND LAWN ESTABLISHMENT ACTIVITIES. DISPOSE OF AT AN APPROPRIATE OFF-SITE LOCATION PER LOCAL REGULATIONS.
15. SEEDING SHOULD BE DONE AFTER AUGUST 15 AND BEFORE MAY 15. THE DESIGN ENGINEER SHALL NOT BE RESPONSIBLE FOR SEED SURVIVAL OR GRASS ESTABLISHMENT IF SEEDING OCCURS OUTSIDE OF THIS TIME FRAME.
16. ALL TOPSOIL SHALL BE DISTRIBUTED TO A UNIFORM DEPTH AND NOT PLACED WHILE PARTIALLY FROZEN, MUDDY, OR ON FROZEN SLOPES OVER INCH, SNOW AND STANDING WATER PUDDLES. TOPSOIL PLACED ON SLOPES GREATER THAN 5% (20:1) SHALL BE PROMPTLY FERTILIZED, SEEDED, MULCHED, AND STABILIZED BY TRACKING WITH SUITABLE EQUIPMENT PER THE SPECIFICATIONS ABOVE.

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	NOTES
AB	Abies Concolor	Concolor Fir	6 Ft. Min.	13	B&B
AR	Acer rubrum 'Celebration'	Celebration Red Maple	2.5" CAL.	6	B&B
MS	Malus 'Robinson'	Robinson Crabapple	2.5" CAL.	3	B&B
PC	Pyrus calleryana 'Cleveland'	Cleveland Flowering Pear	2.5" CAL.	7	B&B
QC	Quercus Coccinea	Scarlet Oak	2.5" CAL.	5	B&B
FS	Forsythia x int 'Showoff'	Showoff Forsythia	36"/42"	21	#5 Can
JC	Juniperus sc. 'Blue Moffat'	Blue Moffat Juniper	5'/6' HT	5	B&B
IG	Ilex Glabra 'Compacta'	Dwarf Inkberry	24" HT	31	#5 Can
SB	Spiraea x b. 'Anthony Waterer	Anthony Waterer Spiraea	24" SP	23	#5 Can
SG	Spiraea x b. 'Goldflame'	Goldflame Spiraea	24" SP	12	#5 Can
SP	Syringa pubescens subsp. patula	Miss Kim Lilac	42" HT	6	#5 Can
TC	Taxus Cuspidata Capitata	Pryamidal Yew	42" HT	2	B&B
TM	Taxus x media densii	Densiformis Yew	24" SP	25	B&B
VB	Viburnum x burkwoodi	Burkwood Viburnum	36"/42" HT	15	B&B
WP	Weigela 'Prince'	Red Prince Weigela	36"/42" HT	9	#5 Can
CA	Calamagrostis x acutiflora	Karl Foerster Reed Grass	#3 Can	2	
HH	Hemerocallis 'Happy Returns'	Happy Returns Daylily	#2 Can	93	

GENERAL NOTE:

811

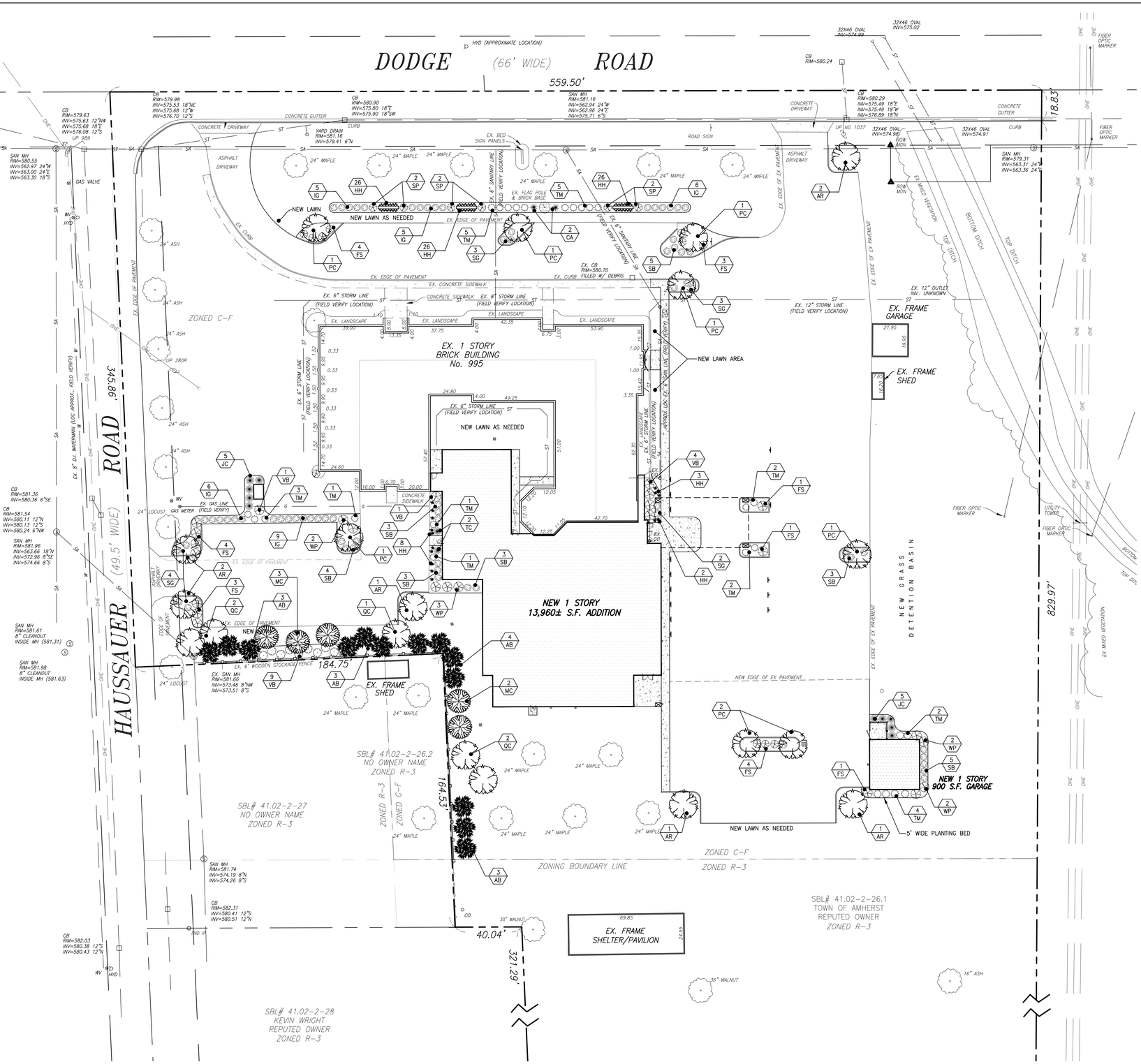
LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. (HORIZONTAL AND VERTICAL) THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES, JUST APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL NOTIFY "DIG SAFELY NEW YORK" FOR LOCATION OF ALL UNDERGROUND UTILITIES. AT LEAST 2 TO 10 WORKING DAYS PRIOR TO ANY MECHANIZED WORK (DOES NOT INCLUDE THE DATE OF THE CALL) NOTICE MUST BE PROVIDED TO THE ONE-CALL NOTIFICATION SYSTEM, WHICH WILL TRANSMIT THE PROJECT INFORMATION TO INVOLVED MEMBERS SO THAT THEY CAN MARK THE LOCATION OF ANY FACILITIES AT THE EXCAVATION SITE

FOR EXCAVATION ON LONG ISLAND AND THE FIVE BOROUGHS OF NEW YORK CITY, NEW YORK 811 MUST BE CALLED AT 1-800-272-4480. FOR EXCAVATION ELSEWHERE IN NEW YORK STATE, DIG SAFELY NEW YORK MUST BE CALLED AT 1-800-962-7962. NOTIFICATION FOR EXCAVATION WORK ANYWHERE IN THE STATE CAN BE MADE BY DIALING 811. WHETHER DIALING THE 1-800 NUMBER OR 811, THERE IS NO CHARGE FOR THE CALL.

CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING TREES WHERE NECESSARY ON NEIGHBORING PROPERTY FROM ALL TYPES OF DAMAGE TO BOTH TRUNK AND ROOTS. LIMIT FILLING OVER TREE ROOTS TO 4" MAX.

LEGEND

- EXISTING FENCE
- NEW FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB
- NEW EDGE OF PAVEMENT
- NEW CURB (6")
- SITE PARCEL PROPERTY/R.O.W. LINE
- ADJACENT PROPERTY/R.O.W. LINES
- EASEMENT / BLDG SETBACKS LINE
- EXISTING WATER LINE
- NEW WATER LINE
- EXISTING UNDERGROUND ELEC
- NEW UNDERGROUND ELEC
- EXISTING OVERHEAD ELEC.
- NEW OVERHEAD ELEC.
- EXISTING GAS LINE
- NEW GAS LINE
- NEW GEOTHERMO LINES
- EXISTING COMBINED SEWER
- EXISTING SANITARY LINE
- NEW SANITARY LINE
- EXISTING STORM SEWER LINE
- NEW STORM SEWER LINE
- EXISTING CABLE/TELE
- NEW CABLE/TELE
- EXISTING CONCRETE AREAS
- NEW CONCRETE AREAS
- EX AREAS TO BE EXCAVATED
- EXISTING YARD DRAIN
- NEW YARD DRAIN
- EXISTING CATCH BASIN
- NEW CATCH BASIN
- EXISTING GAS VALVE
- NEW GAS VALVE
- EXISTING WATER VALVE
- NEW WATER VALVE
- EXISTING MANHOLE
- NEW MANHOLE
- EXISTING UTILITY POLE
- NEW UTILITY POLE
- EXISTING LIGHT FIXTURE
- NEW LIGHT FIXTURE
- EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT
- EXISTING CLEAN-OUT
- NEW CLEAN-OUT
- NEW GEOTHERMO WELL
- EXISTING SIGN
- NEW PARKING SPACE COUNT
- NEW TREE
- NEW SHRUB
- EXISTING TREE
- VEGETATION TO BE REMOVED
- INTERIOR GREEN SPACE



SITE LANDSCAPE PLAN

SCALE : 1"= 30'-0"

0 30 60 120

N

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER - BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE LANDSCAPE PLAN

STATE OF NEW YORK
ANDREW V. TERRANOVA
088063
LICENSED PROFESSIONAL ENGINEER

STAMP/SEAL

#	REVISION	DATE
2	REV PER TOWN COMMENTS	12/20/21
1	ISSUED FOR LANDSCAPE REV	11/11/21

studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET C4.0

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)

DEMOLITION NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL NECESSARY FEES AND OBTAINING ALL NECESSARY PERMITS FOR CLEARING, SOIL EROSION PROTECTION, AND DISPOSING OF DEBRIS FROM SITE.
2. THE CONTRACTOR SHALL COORDINATE THE REMOVAL, RELOCATION, OR RE-ROUTING OF ANY UTILITIES WITH EACH RESPECTIVE UTILITY COMPANY. NOTIFY UTILITY COMPANIES OR AGENCIES AT LEAST 72 HOURS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL MAINTAIN ACCESSIBLE PASSAGEWAYS FOR TRAFFIC AND PEDESTRIANS TO EXISTING BUILDING WHICH WILL REMAIN IN OPERATION THROUGHOUT THE DURATION OF THE CONSTRUCTION.
4. THE CONTRACTOR SHALL FOLLOW ALL SOIL PREPARATION AND FOUNDATION CONSTRUCTION RECOMMENDATIONS AS STATED IN THE GEOTECHNICAL ENGINEERING REPORT.
5. CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING TREES WHICH ARE TO BE PRESERVED FROM ALL POSSIBLE TYPES OF ROOT, TRUNK, AND LIMB DAMAGE; INCLUDING BUT NOT LIMITED TO, RETAINING WALLS WHICH PREVENT FILLING ON TOP OF ROOTS OR EXCAVATING TREE ROOTS AS REQUIRED.
6. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR ANY UTILITIES NOT SHOWN ON THE SURVEY OR ANY ACCIDENTAL RUPTURES DURING EXCAVATION OR CONSTRUCTION. THE DESIGN ENGINEER (STUDIO T3) AND THE RESPECTIVE UTILITY COMPANIES SHALL BE IMMEDIATELY NOTIFIED BY THE INSTALLATION CONTRACTOR UPON DISCOVERY OF ANY SUCH ABOVEGROUND OR UNDERGROUND UTILITIES NOT SHOWN ON THE SURVEY. WORK SHALL BE IMMEDIATELY SUSPENDED AND NOT COMMENCE UNTIL SUCH DISCOVERED UTILITIES ARE IDENTIFIED AND THE DESIGN ENGINEER (STUDIO T3) ISSUES EITHER A WRITTEN APPROVAL OR A SIGNED REVISED PLAN.
7. THE DESIGN ENGINEER (STUDIO T3) SHOULD BE IMMEDIATELY CONTACTED UPON DISCOVERY OF ANY ABOVEGROUND OR BELOW GROUND OBJECTS (BUILDING FOUNDATIONS, BURIED VAULTS, TREES, SIDEWALKS, PAVEMENT, RAILINGS, SIGNS, STOCKPILES, STUMPS, OR SIMILAR). WORK SHALL BE IMMEDIATELY SUSPENDED AND NOT COMMENCE UNTIL SUCH DISCOVERED OBJECTS ARE IDENTIFIED AND THE DESIGN ENGINEER (STUDIO T3) ISSUES EITHER A WRITTEN APPROVAL OR A SIGNED REVISED PLAN.
8. THE GROUND SURFACE ON WHICH RIPRAP OR STONE EROSION PROTECTION IS TO BE PLACED SHALL BE CLEARED OF BRUSH, TREES, STUMPS, AND TOPSOIL.
9. ANY CAVITIES OR TRENCHES REMAINING FROM EXCAVATED FOOTINGS, FOUNDATION WALLS, PIPELINES, BASEMENTS, AND UNDERGROUND TANKS SHALL BE BACKFILLED WITH FLOWABLE FILL TO THE FROST LINE, AND TYPE 2 CRUSHER RUN STONE (NYSDOT ITEM 304.12) ABOVE THE FROST LINE, COMPACTED TO 95% DENSITY (IN 6" MAXIMUM LIFTS).
10. PROVIDE TEMPORARY SNOW-FENCING AROUND ALL EXISTING TREES, SHRUBS, OR LANDSCAPING TO REMAIN.
11. ALL LITTER AND DEBRIS SHALL BE SWEPT UP AND REMOVED FROM PAVED AREAS RATHER THAN HOSING INTO STORM DRAINS OR SWALES.

EROSION CONTROL NOTES:

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE:

1. CLEAR THE CONSTRUCTION ENTRANCE/EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.
2. GRADE THE ROAD FOUNDATION SO THAT THE ENTRANCE/EXIT WILL HAVE A CROSS SLOPE IN A DIRECTION, SO THAT ALL RUNOFF WILL BE DIRECTED AWAY FROM THE ADJACENT ROAD (IF APPLICABLE).
3. PLACE STONE TO THE DIMENSIONS SHOWN ON PLAN C5.1(A) AT A 6 INCH MINIMUM DEPTH.
4. USE WASHED STONE 2 INCH TO 3 INCH IN SIZE.
5. MAINTAIN THE CONSTRUCTION ENTRANCE/EXIT IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IF STONE BECOMES COMPACTED AND FILLED WITH MUD AND SEDIMENT AND IS NOT PERFORMING AS REQUIRED REPLACE CONSTRUCTION ENTRANCE WITH NEW STONE. SHOULD MUD BE TRACKED OR WASHED ONTO ADJACENT ROADS, REMOVE IMMEDIATELY.

LAND GRADING:

1. TEMPORARY DIVERSION SWALES SHALL BE CONSTRUCTED AS NECESSARY TO PREVENT ANY SOIL EROSION FROM OCCURRING DURING EXCAVATION. SWALES SHOULD OUTLET TO A TEMPORARY SEDIMENTATION BASIN (IF APPLICABLE).
2. SILT FENCE AND/OR ROCK CHECK DAMS SHALL BE PLACED WITHIN EXISTING AND PROPOSED SWALES AS PER DETAILS SHOWN ON C5.1(D) AND PER SPECIFICATIONS IN APPENDIX F OF THE SWPPP.
3. ALL CUT SLOPES SHALL BE FINE GRADED IMMEDIATELY AFTER ROUGH GRADING. THE SURFACE SHALL BE VEGETATED IMMEDIATELY TO PREVENT SOIL EROSION.
4. FILL SLOPES SHALL BE PLACED IN LAYERS NOT TO EXCEED 9 INCHES IN DEPTH AND COMPACTED.
5. THE SITE SHALL AT TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORM WATER RUN-OFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL DEVICES.

SEDIMENT FENCE:

1. ALL SEDIMENT (SILT) FENCE OR FILTER SOCK SHALL BE CONSTRUCTED AROUND THE TOPSOIL STOCKPILE AND OTHER AREAS NOTED ON PLAN, SEE DETAILS ON C5.1.

OUTLET STABILIZATION:

1. A RIP-RAP APRON SHALL BE LOCATED AT THE INLET/OUTLET OF ANY CULVERT OR STORM PIPE TO PREVENT SCOUR (SEE OUTLET STABILIZATION DETAIL ON C5.1G AND APPENDIX F FOR SPECIFICATIONS).
2. ALL STORM DRAINAGE OUTLETS SHALL BE STABILIZED, AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.

GENERAL:

1. REFER TO DRAWING NUMBER C 2.0 FOR LOT GRADING SPECIFICATIONS.
2. REFER TO DRAWING NUMBER C 5.0 – C 5.1 FOR ADDITIONAL EROSION CONTROL DETAILS AND NOTES.
3. THE LOCATIONS OF EROSION AND SEDIMENT CONTROL MEASURES, AS INDICATED IN THE CONTRACT DOCUMENTS, MAY REQUIRE FIELD ADJUSTMENTS DEPENDING ON THE SEQUENCE OF CONSTRUCTION ACTIVITIES, CONSTRUCTION METHODS, AND/OR ACTUAL FIELD CONDITIONS.
4. ALL CONSTRUCTION VEHICLES ENTERING OR LEAVING THE SITE SHALL USE THE CONSTRUCTION ENTRANCE. THE CONTRACTOR SHALL PREVENT TRACKING OR FLOWING OF MUD INTO STREETS OR AREAS OUTSIDE OF CONSTRUCTION LOCATION. ALL STREETS AT THE ENTRANCE(S) TO THE SITE SHALL BE KEPT FREE OF MUD AND DEBRIS DAILY.
5. DURING CONSTRUCTION, UNDER NO CIRCUMSTANCES SHALL CONCRETE TRUCK WASH WATER, MIXERS OR OTHER DEVICES BE ALLOWED TO BE DISCHARGED OR DUMPED INTO ANY STORM SEWER, CATCH BASIN, ROADSIDE DITCH OR POND ANYWHERE ON THE CONSTRUCTION SITE. ALL EXCESS CONCRETE OR WASH WATER SHALL BE DISPOSED OF AT AN APPROPRIATE OFFSITE LOCATION (SUCH AS A DESIGNATED LANDFILL) OR AS DIRECTED BY LOCAL AUTHORITIES.
6. GRADING, TOPSOILING, AND STABILIZING SECTIONS SHALL BE COMPLETED BEFORE EXCAVATION STARTS ON OTHER SECTIONS, IN ORDER NOT TO LEAVE ANY AREAS EXPOSED TO WIND AND RAIN EROSION FOR LONGER DURATION THAN NECESSARY.
7. ANY DISTURBED AREAS THAT ARE LEFT EXPOSED MORE THAN 7 DAYS, AND ARE NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE TEMPORARY SEEDING.
8. STORMWATER FROM DISTURBED AREAS MUST BE PASSED THROUGH A SEDIMENT TRAP, OR SILTATION FENCE BEFORE DISCHARGE BEYOND DISTURBED AREAS OR INTO INLETS OF OTHER DRAINAGE SYSTEMS.
9. TOPSOIL STOCKPILES SHALL NOT BLOCK DRAINAGE FLOWS DURING CONSTRUCTION. STOCKPILES SHALL NOT BE LOCATED NEAR SLOPES, ROADWAYS, SWALES, DRAINAGE INLETS, OR BODIES OF WATER. THE BASE OF ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCING OR SILT SOCK. IF NECESSARY, OR PER TOWN REGULATIONS TOPSOIL PILES CAN BE HYDROSEEDED WITH AN ANNUAL RYE GRASS TO HELP IN SOIL EROSION OR EXPOSURE.
10. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE DUMPSTER ON A DAILY BASIS. ABSOLUTELY NO CONSTRUCTION MATERIALS SHALL BE BURIED ON SITE.
11. ALL VEHICLES ON SITE DURING THE ENTIRE DURATION OF CONSTRUCTION SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. ANY PETROLEUM PRODUCTS USED SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. SPILL KITS SHALL BE INCLUDED WITH ANY FUELING SOURCES AND MAINTENANCE ACTIVITIES AS NECESSARY.
12. ALL PAINT CONTAINERS OR CURING COMPOUNDS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT IN USE. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT SHALL BE PROPERLY DISPOSED OF IN CONFORMANCE TO MANUFACTURER'S INSTRUCTIONS. SECURE OPEN BAGS OF CEMENT AND KEEP CEMENT POWDER AWAY FROM STREETS, CATCH BASINS, AND SWALES. PROTECT CONSTRUCTION MATERIALS FROM RAINFALL AND RUNOFF BY STORING UNDER COVER. AVOID STORING MATERIALS NEAR CATCH BASINS, SWALES, PONDS OR STORM SEWERS.
18. ALL WATER PUMPED FROM EXCAVATIONS SHOULD BE DIRECTED TO A SEDIMENT TRAP, SEDIMENT BASIN, OR FILTRATION DEVICE SHOWN ON THE EROSION CONTROL DETAILS.
19. ALL CATCH BASIN SUMPS SHALL BE CLEANED OUT & SOIL SEDIMENTS SHALL BE DISPOSED OF AT AN APPROPRIATE OFFSITE LOCATION.
20. ALL CHLORINATED WATER USED FOR FLUSHING WATERLINES SHALL BE DISCHARGED TO THE SANITARY SEWER AND NEVER TO ANY STORM SEWER, CATCH BASIN, SWALE, OR POND.
21. ALL PORTABLE TOILETS SHALL BE LOCATED AWAY FROM GUTTERS, CATCH BASINS, STORM SEWERS, AND WATERWAYS. PORTABLE TOILETS SHALL BE PLACED ON A FLAT, STABLE GROUND SURFACE NOT PRONE TO FLOODING. ALL PORTABLE TOILETS SHALL BE ANCHORED TO PREVENT BLOWING OVER DURING WINDSTORMS.
22. ANY DETERGENTS OR ACID CLEANERS WASHES USED TO CLEAN OR RINSE CONCRETE, STUCCO, MASONRY, ETC. SHALL NEVER BE DISCHARGED TO ANY STORM SEWER, CATCH BASIN, SWALE, OR POND.
23. AVOID ON-SITE STORAGE OF PETROLEUM PRODUCTS, PESTICIDES, FERTILIZERS, AND HERBICIDES. IF UNAVOIDABLE, ALL CHEMICALS SHALL BE STORED IN ORIGINAL PACKAGES IN A SEPARATELY DESIGNATED COVERED CONTAINMENT AREA AND AWAY FROM CATCH BASINS AND PONDS.
24. USE CLEAN OR RECYCLED WATER WHEN SPRINKLING SOIL FOR DUST CONTROL.
25. WHEN ACTIVITIES TEMPORARILY CEASE DURING CONSTRUCTION, SOIL STOCKPILES AND ANY EXPOSED SOILS SHOULD BE STABILIZED BY MULCH, SEEDED OR COVERED WITH TARPS NO MORE THAN 14 DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR MORE THAN THIRTY (30) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC WILL IMMEDIATELY RECEIVE TEMPORARY SEEDING WITH ANNUAL OR PERENNIAL RYE GRASS AT 30 lbs. PER ACRE, FOLLOWED BY MULCHING WITH STRAW AT A RATE OF 2 TO 2-½ TONS PER ACRE.
26. FOR CONSTRUCTION SITES WHERE SOIL DISTURBANCE ACTIVITIES HAVE BEEN TEMPORARILY SUSPENDED (I.E. WINTER SHUTDOWN) AND TEMPORARY STABILIZATION MEASURES HAVE BEEN APPLIED TO ALL DISTURBED AREAS, PROPER SITE INSPECTIONS ONCE EVERY THIRTY (30) CALENDAR DAYS AND NOTIFY THE REGIONAL OFFICE OF THE NYSDEC IN WRITING PRIOR TO REDUCING FREQUENCY OF INSPECTIONS.

LEGEND

- EXISTING FENCE
- NEW FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB
- NEW EDGE OF PAVEMENT
- NEW CURB (6")
- SITE PARCEL PROPERTY/R.O.W. LINE
- ADJACENT PROPERTY/R.O.W. LINES
- EASEMENT / BLDG SETBACKS LINE
- EXISTING WATER LINE
- NEW WATER LINE
- EXISTING UNDERGROUND ELEC
- NEW UNDERGROUND ELEC
- EXISTING OVERHEAD ELEC.
- NEW OVERHEAD ELEC.
- EXISTING GAS LINE
- NEW GAS LINE
- NEW GEOTHERMO LINES
- EXISTING COMBINED SEWER
- EXISTING SANITARY LINE
- NEW SANITARY LINE
- EXISTING STORM SEWER LINE
- NEW STORM SEWER LINE
- EXISTING CABLE/TELE
- NEW CABLE/TELE
- EXISTING CONCRETE AREAS
- NEW CONCRETE AREAS
- EX AREAS TO BE EXCAVATED
- LIMITS OF DISTURBANCE
- EXISTING YARD DRAIN
- NEW YARD DRAIN
- EXISTING CATCH BASIN
- NEW CATCH BASIN
- EXISTING GAS VALVE
- NEW GAS VALVE
- EXISTING WATER VALVE
- NEW WATER VALVE
- EXISTING MANHOLE
- NEW MANHOLE
- EXISTING UTILITY POLE
- NEW UTILITY POLE
- EXISTING LIGHT FIXTURE
- NEW LIGHT FIXTURE
- EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT
- EXISTING CLEAN-OUT
- NEW CLEAN-OUT
- NEW GEOTHERMO WELL
- EXISTING SIGN
- NEW PARKING SPACE COUNT
- NEW TREE
- NEW SHRUB
- EXISTING TREE
- VEGETATION TO BE REMOVED
- INTERIOR GREEN SPACE

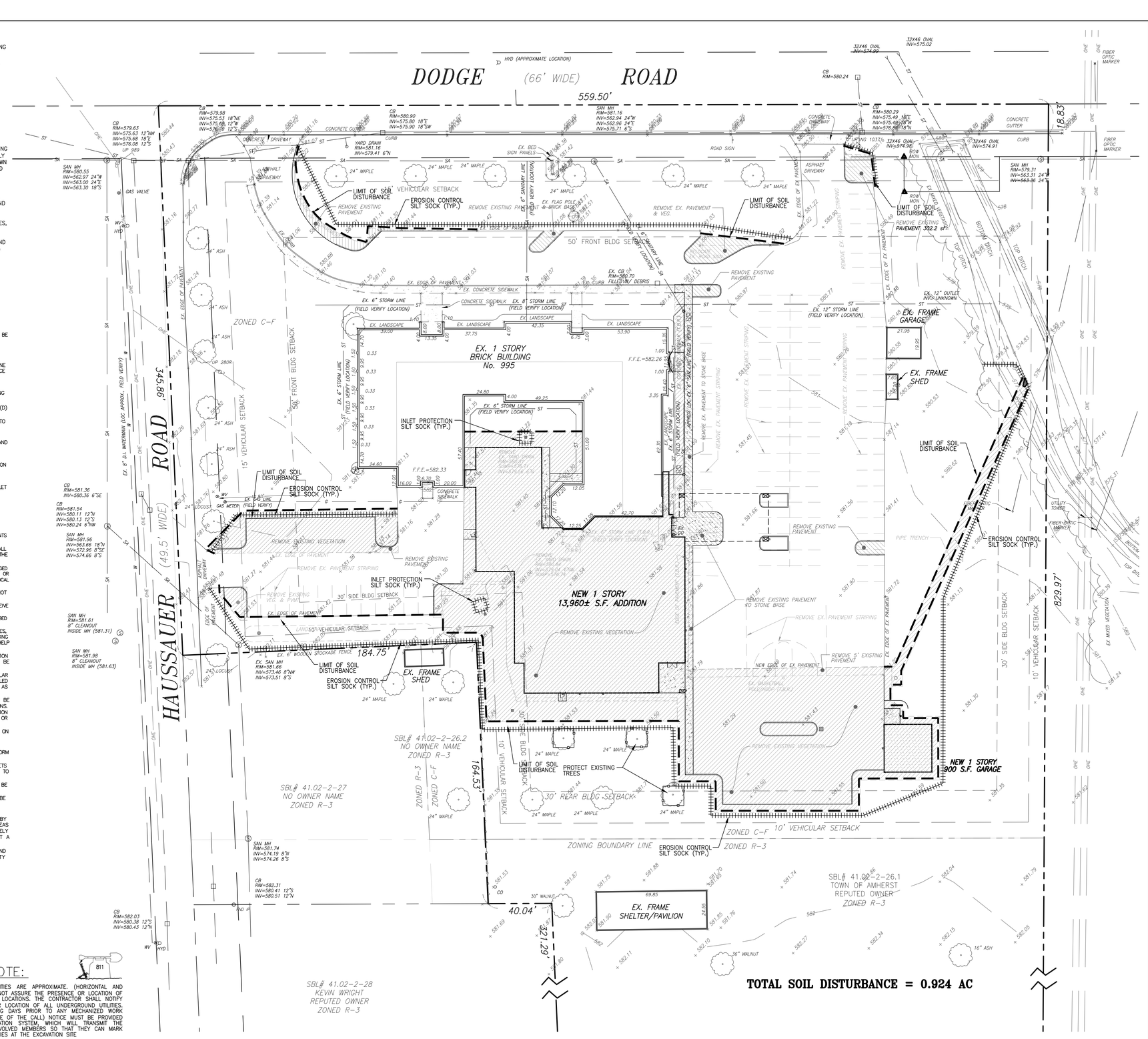
GENERAL NOTE:

811

LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. (HORIZONTAL AND VERTICAL) THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES, JUST APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL NOTIFY "DIG SAFELY NEW YORK" FOR LOCATION OF ALL UNDERGROUND UTILITIES, AT LEAST 2 TO 10 WORKING DAYS PRIOR TO ANY MECHANIZED WORK (DOES NOT INCLUDE THE DATE OF THE CALL) NOTICE MUST BE PROVIDED TO THE ONE-CALL NOTIFICATION SYSTEM, WHICH WILL TRANSMIT THE PROJECT INFORMATION TO INVOLVED MEMBERS SO THAT THEY CAN MARK THE LOCATION OF ANY FACILITIES AT THE EXCAVATION SITE

FOR EXCAVATION ON LONG ISLAND AND THE FIVE BOROUGHS OF NEW YORK CITY, NEW YORK 811 MUST BE CALLED AT 1-800-272-4480. FOR EXCAVATION ELSEWHERE IN NEW YORK STATE, DIG SAFELY NEW YORK MUST BE CALLED AT 1-800-962-7962. NOTIFICATION FOR EXCAVATION WORK ANYWHERE IN THE STATE CAN BE MADE BY DIALING 811. WHETHER DIALING THE 1-800 NUMBER OR 811, THERE IS NO CHARGE FOR THE CALL.

CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING TREES WHERE NECESSARY ON NEIGHBORING PROPERTY FROM ALL TYPES OF DAMAGE TO BOTH TRUNK AND ROOTS. LIMIT FILLING OVER TREE ROOTS TO 4" MAX.



SITE DEMOLITION & EROSION PLAN

SCALE : 1" = 30'-0"

N

0 30 60 120

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER – BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE DEMOLITION & EROSION CONTROL PLAN

STATE OF NEW YORK
ANDREW V. TERRAS
080634
LICENSED PROFESSIONAL ENGINEER

STAMP/SEAL

#	REVISION	DATE
2	REV PER TOWN COMMENTS	12/20/21
1	ISSUED FOR SITE PLAN REV.	11/12/21

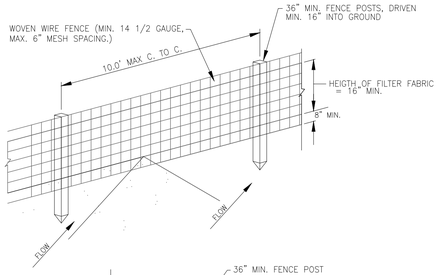
studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET C5.0

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)



SILT FENCE NOTES:

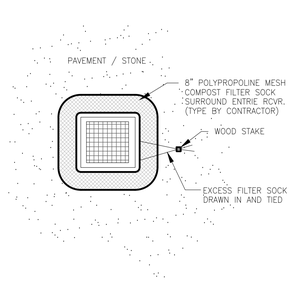
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND SECURELY FASTENED TO WIRE FENCE.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. TEMPORARY DRAINAGE DITCHES IN RIGHT-OF-WAY TO BE CONSTRUCTED AS NEEDED.

SILT FENCE

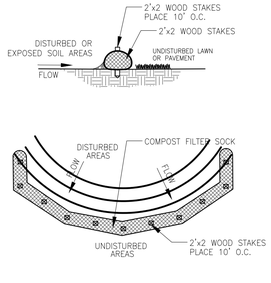
POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD
FENCE: WOVEN WIRE, 14 1/2 GAUGE 6" MAX. MESH OPENING
FILTER CLOTH: FILTER X, MIRAFI 100X, STABI-LINKA T140N OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

TEMPORARY SILT FENCE DETAIL — A

SCALE : NONE



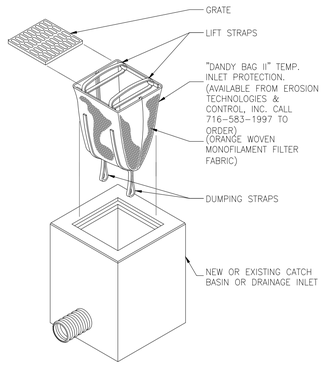
TYPE 1
USE AS REQUIRED AROUND RECEIVERS



TYPE 2
USE AS REQUIRED AROUND PERIMETER OR ALONG EDGE OF PAVEMENT/CONCRETE

FILTER SOCK PROTECTION — B

SCALE : NONE



ISOMETRIC VIEW

INSTALLATION INSTRUCTIONS:

1. REMOVE THE GRATE FROM THE CATCH BASIN AND STAND ON END.
2. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO THE DANDY BAG II UNIT SO THAT THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. THE GRATE SHOULD BE CRADLED BETWEEN THE UPPER AND LOWER STRAPS.
3. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE CATCH BASIN INLET FRAME, BEING CAREFUL THAT THE GRATE REMAINS IN PLACE AND BEING CAREFUL NOT TO DAMAGE THE DANDY BAG II UNIT.
4. CONTACT MANUFACTURER, SUPPLIER, OR DESIGNATED EROSION CONTROL INSPECTOR IF NECESSARY TO ASSIST IN INSTALLATION.

MAINTENANCE INSTRUCTIONS:

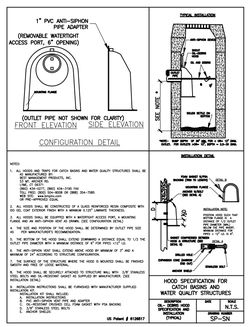
1. REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF THE CATCH BASIN AFTER EACH STORM EVENT.
2. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE DANDY BAG II UNIT. IF THE UNIT IS MORE THAN 1/3 FULL OF ACCUMULATED SEDIMENT, THE UNIT MUST BE EMPTIED.
3. TO EMPTY THE UNIT, USING THE LIFTING STRAPS LIFT THE UNIT OUT OF THE INLET AND REMOVE THE GRATE. TRANSPORT THE UNIT TO AN APPROPRIATE LOCATION FOR REMOVAL OF THE CONTENTS. HOLDING THE DUMPING STRAPS ON THE OUTSIDE AT THE BOTTOM OF THE UNIT, TURN THE UNIT UPSIDE DOWN, EMPTYING THE CONTENTS. REINSTALL UNIT AS PER INSTALLATION INSTRUCTIONS.
4. DISPOSE OF DEBRIS AND SEDIMENTS IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL LAWS AND REGULATIONS. IF UNIT IS TORN OR DAMAGED DISPOSE OF UNIT AND/OR ABSORBENT IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL LAWS AND REGULATIONS.

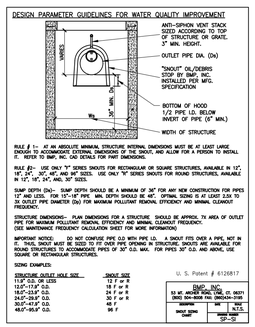
TEMPORARY INLET PROTECTION DETAIL — C

SCALE : NONE

CATCH BASIN INSERT MAINTENANCE INSTRUCTIONS

1. STRUCTURE SHOULD BE CLEANED WHEN SUMP CAPACITY IS HALF FULL. MONTHLY MONITORING IS RECOMMENDED TO ENSURE THE FUNCTIONALITY OF THE SYSTEM.
2. REMOVE ANY FLOATABLE DEBRIS ON A MONTHLY BASIS DURING INSPECTIONS.
3. EVERY 12 MONTHS THE SNOUT FITTING AND ANTI-SIPHON DEVICE SHOULD BE INSPECTED AND RINSED WITH A HOSE OR PRESSURE WASHER TO VERIFY IT IS WORKING PROPERLY AND CLEAR OF DEBRIS.
4. AFTER FLUSHING THE SNOUT DEVICE AS INSTRUCTED IN STEP 1 ABOVE, THE CATCH BASIN STRUCTURE AND SUMP SHALL BE CLEANED OF ALL FLOATING OIL AND SETTLED DEBRIS AND SEDIMENTS USING A VAC-TRON OR OTHER VACUUM OR SUCTION DEVICE.





CATCH BASIN INSERT DETAIL — D

SCALE : N.T.S.

THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE EXCAVATION & CONSTRUCTION TO ENSURE HE/SHE HAS THE FINAL SET OF DESIGN DOCUMENTS AS ISSUED FOR CONSTRUCTION. THIS PLAN IS CURRENT AS OF THE DATE IT WAS ISSUED. SUBSEQUENT UPDATES OF THIS PLAN BY THE DESIGN ENGINEER DOES NOT AFFORD ANY TRANSFEREES THE RIGHT TO RECEIVE SAID UPDATES, BUT PLACES THE RESPONSIBILITY TO THE TRANSFEREE TO OBTAIN UPDATED PLANS WHICH ARE ISSUED FOR CONSTRUCTION AS THESE MAY DIFFER FROM PREVIOUS PLANS ISSUED FOR PER OR BID.

WELL WORSHIP CENTER – BUILDING ADDITION

995 DODGE ROAD
AMHERST, NEW YORK 14226

SITE DEMOLITION & EROSION DETAILS

STAMP/SEAL



#	REVISION	DATE
2	REV PER TOWN COMMENTS	12/20/21
1	ISSUED FOR SITE PLAN REV.	11/12/21

studio T3
Engineering, PLLC
2495 Main Street, Suite 301
Buffalo, New York 14214
Phone: (716) 803-6400
Fax: (716) 810-9504

DRAWN BY: DAS
CHECKED BY: AT
JOB #21-274

SHEET
C5.1

Attachment: SP-1988-21B drawings 011322 (25069 : Sp-1988-21B)

WARNING: IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, PLANS, SPECIFICATIONS, OR REPORTS TO WHICH THE SEAL OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER HAS BEEN APPLIED.

DRAFT

(1/13/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst Planning Board

Project: SP-1988-21B

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Unlisted

Description of Action: A proposed 13,960 s.f. single-story addition of theWELLbuffalo church consisting of a 500-seat sanctuary, offices, activity space, associated parking expansion, landscaping, a 900 s.f. 1-story garage and ancillary site improvements. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 995 Dodge Road, Amherst, Erie County

Petitioner: theWELLbuffalo

Attachment: SP-1988-21_B_draft neg dec_011322 (25069 : Sp-1988-21B)

Reasons Supporting This Determination

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on December 22, 2021 reviewed the Grading, Drainage and Utility Plans submitted on December 20, 2021, Erosion Control Plan submitted on December 20, 2021 and Engineer's Report submitted on November 16, 2021. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. As the site is predominantly developed and the project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on December 20, 2021 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department in their review of December 13, 2021 and the Planning Department in their review of January 5, 2022 have reviewed the application documents, and determined in their review of theWELbuffalo building expansion that the subject project has or will have met the International Building Code – 2018 and the Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. However, the site has been previously disturbed and the project does not signifcaly increase the bounds of the developed area, therefore, it is anticipated the project will not impair the character or quality of important historical resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is a permitted use in the Community Facilities District (CF) and Residential District Three (R-3); neighboring adjoining uses are single-family residential to the west, the peanut line to the south and a National Grid right-of-way to the east, within a larger residential neighborhoods to the south and east zoned R-3; and therefore, the project remains compatible with surrounding land use.

6. The proposed project will include an expansion of the existing church which will not cause a major change in the use of either the quantity or type of energy.

Attachment: SP-1988-21_B_draft neg dec_011322 (25069 : Sp-1988-21B)

7. The project will not create any hazard to human health. The Fire Chief's Association on December 30, 2021**,** has reviewed the project and has no objections to the approval of the site plan, as all requirements of this agency have or will have been met.

8. The building addition will not cause a substantial adverse change in the use, or intensity of use, of land or in its capacity to support existing uses.

9. The function of the proposed place of worship will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated January 4, 2022 indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on December 16, 2021, Assessor on December 13, 2021, Plumbing Division on December 1, 2021, and Right-of-Way Agent on November 19, 2021. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Seconded by: Ayes; Noes Absent

**** Add substantive comments from public hearing.**
**** Add Planning Board conditions.**

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

RR/ac
X:\Current_Planning\Files\Site Plans\1988\SP-1988-21_B_(995_Dodge_Rd)_2021\SP-1988-21_B_draft neg dec_011322.doc
cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs'
Highway
Traffic/Safety
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
theWELLbuffalo, 995 Dodge Road, Getzville, NY 14068
Corey A. Auerbach, Esq., Barclay Damon, 200 Delaware Ave., Suite 1200, Buffalo, NY 14202
David Stutz, Studio T3 Engineering, PLLC, 2495 Main St., Suite 301, Buffalo, NY 14214

Attachment: SP-1988-21_B_draft neg dec_011322 (25069 : Sp-1988-21B)

Attachment: SP-1988-21_B_draft neg dec_011322 (25069 : Sp-1988-21B)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-1988-21B

PETITIONER

theWELLbuffalo
995 Dodge Road
Getzville, NY 14068

PROPERTY LOCATION

995 Dodge Road

WHEREAS, the Town of Amherst Planning Board on Thursday, January 13, 2022 held a virtual public hearing on a Site Plan for a 13,960 s.f. single story building addition, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project, and

WHEREAS, the Site Plan was referred to the Town's various review agencies, and

WHEREAS, in accordance with Section 8-7-9 of the Zoning Ordinance, the Planning Board finds that:

A. The proposed site plan is consistent with the development plan if one is required.

B. The proposed site plan is consistent with the purpose and specific requirements of the Zoning Ordinance or variances granted by the ZBA on 12/21/21 and generally consistent with the policies of the Comprehensive Plan.

C. Adequate services and utilities will be available prior to occupancy.

D. The site plan is consistent with all other applicable laws.

E. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

F. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

NOW THEREFORE BE IT FURTHER RESOLOVED that the Planning Board, in accordance with Part II, Chapter 83, Part IX, Section 1-2 of Town Law waives sidewalks required along Dodge Road and Haussauer Road until required at some future time by the Town Board, and

Attachment: SP-1988-21_B_draft resolution_011322 (25069 : Sp-1988-21B)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION
SP-1988-21B

PETITIONER	PROPERTY LOCATION
theWELLbuffalo	995 Dodge Road

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance approves said Site Plan subject to the following conditions:

1. That the consideration of signs is specifically excluded from this approval as they require a separate review and approval by the Town.

2. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced, enclosure shall be high enough to screen the dumpster(s) within.

3. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

4. That exterior wall surfaces of the addition shall meet §203-5-5-4C of Town Code unless the ZBA grants a variance.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

RR/ac
X:\Current_Planning\Files\Site Plans\1988\SP-1988-21_B_(995_Dodge_Rd)_2021\SP-1988-21_B_draft resolution_011322.doc_
cc: Amherst Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
ECDEP
NYSDOT
NYSDEC
theWELLbuffalo, 995 Dodge Road, Getzville, NY 14068
Corey A. Auerbach, Esq., Barclay Damon, 200 Delaware Ave., Suite 1200, Buffalo, NY 14202
David Stutz, Studio T3 Engineering, PLLC, 2495 Main St., Suite 301, Buffalo, NY 14214

Approved Plan: _____
Received: _____

Attachment: SP-1988-21_B_draft resolution_011322 (25069 : Sp-1988-21B)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

January 20, 2021

theWELLbuffalo
995 Dodge Road
Getzville, NY 14068

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-1988-21_B**; PROPOSED THE WELL BUFFALO – EXPANSION; PROPERTY LOCATED AT **995 DODGE ROAD**.

Dear Sir/Madam:

At its meeting of January 13, 2022 the Planning Board voted to **adjourn** decision on the subject site plan pending submittal of revised plans and materials that address the comments of Planning Departments letter dated January 5, 2022 and revised building elevations. *The public hearing for this item has been closed.*

This request will be placed on the Planning Board agenda for the February 17, 2022 meeting.

Please submit revised plans or required materials by Monday, January 31, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\1988\SP-1988-21_B_(995_Dodge_Rd)_2021\SP-1988-21_B_Adjournment Letter_011322.doc
cc: Corey A. Auerbach, Esq., Barclay Damon, 200 Delaware Ave., Ste. 1200, Buffalo, NY 14202
David Stutz, Studio T3 Engineering, PLLC 2495 Main St., Ste. 301, Buffalo, NY 14214

Attachment: SP-1988-21_B_adjournment_011322 (25069 : Sp-1988-21B)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

TABLED

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Site Plan and Relief from Conditions of Site Plan
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25070 A

PLANNING BOARD ITEM (ID # 25070)

Proposed the Preserve at Muir Woods Phase IV, SP-2021-24

Property located at 520 Campbell Boulevard (NCD)
Ciminelli Muir Woods, Petitioner

January 13, 2022

No comments were heard on this proposal. The Petitioner requested an adjournment. Ms. Penberthey moved to adjourn until the February Planning Board meeting. The motion was seconded by Mr. Giuliani and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ATTACHMENTS:

- SP-2021-24 application 011322 (PDF)
- SP-2021-24 drawings 011322 (PDF)
- SP-2021-24_draft neg dec_011322 (PDF)
- SP-2021-24_draft resolution_011322 (PDF)
- SP-2021-24_adjournment_011322 (PDF)

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Brittany Lee Penberthy, Board Member	
SECONDER:	Dal Giuliani, Board Member	
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy	
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.	

RECEIVED
NOV 15 2021
TOWN OF AMHERST
PLANNING DEPT.

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Major Site Plan Review

For Official Use

File #: SP 2021-24 **Acreage** 1.80 **Fee $** 1915—

Address Verified by Assessor's Office _____ VERIFIED BY _____ DATE

Materials Received by Planning Department JM 11/15/2021 RECEIVED BY DATE

Fee Paid to Town Clerk _____ RECEIVED BY _____ DATE

Site Plan Review		**Fill In Applicable Fees**
1 acre or less	$1,250.00	1250—
Each additional acre or fraction thereof	$ 650.00/acre	650—
Amendments to Site Plans	$1,200.00	
Request for Relief of / Change to Conditions of Site Plan Approval	$1,200.00	
Request for Extension of Site Plan Approval	$ 450.00	
Stormwater Pollution Prevention Plan		
1 - 4.99 Acres	$ 500.00	
5 - 10 Acres	$ 750.00	
>10 Acres	$1,000.00	
Affidavit Fee for Public Hearing	$ 15.00	15—
	TOTAL FEE:	$ 1915—

To Be Completed By Applicant

Petitioner: Name: Emanuelle Muir Woods c/o Sean Hopkins Esq

Address: Hopkins, Sorgi & McCarthy PLLC

5500 Main St Suite 343 Williamsville NY 14221

city state zip code

Phone: 716-510-4338 Fax: 716-242-0606

E Mail: shopkins@hsmlegal.com

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

MAJOR SITE PLAN APPLICATION (con't) ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney):

Name: Greenman-Pedersen Inc (Attn Ken Zollitsch)

Address: 4950 Genesee Street Suite 100

Buffalo (city) NY (state) 14225 (zip code)

Phone: 633 4844 Fax: 633 4940

E Mail: Kzollitsch@gpinet.com

Project Location (must be verified by Town Assessor's Office):

Address: 520 Campbell Blvd. (portion)

SBL No(s):

Project Name: Muir Woods Subdivision Ph 4.

Project Description: Proposed 8 lot subdivision fronting on Sierra Drive

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

If this petition is an amendment to a previously approved site plan, please describe the proposed changes (include type and size of existing structures and number of existing parking spaces):

	existing	proposed	total
Gross Floor Area (non-residential):	∅	∅	∅
Gross Floor Area Residential:			
Number of Residential Units:	0	8	8
Number of Parking Spaces:			

Acreage of Parcel: 1.80

(list each parcel separately)

Frontage on Public Roads:

(list each road separately)

Existing Zoning District(s) NCD-ND

Town of Amherst Planning Department, 5583 Main Street, Williamsville, NY 14221
(716) 631-7051; Fax: (716) 631-7153; Web: www.amherst.ny.us

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Exhibit 1 - Full Environmental Assessment Form Prepared pursuant to the State Environmental Quality Review Act ("SEQRA") with Attached Page 5[a] & Attachments "A" and "B"

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Full Environmental Assessment Form
Part 1 - Project and Setting

Prepared By: Sean Hopkins, Esq.
5500 Main Street, Suite 343
Williamsville, New York 14221
Tel: 716.510-4338
E-mail: shopkins@hsr-legal.com

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Sponsor Information.

Name of Action or Project: Preserve at Muir Woods Subdivision - Proposed 8 Lot Residential Subdivision		
Project Location (describe, and attach a general location map): 520 Campbell Boulevard, Town of Amherst - Erie County		
Brief Description of Proposed Action (include purpose or need): The project ("action") consists of a residential subdivision on a portion of the approximately 14.39 acres parcel at 520 Campbell Boulevard ("Project Site") consisting of eight lots for detached single-family homes. The portion of the Project Site to be developed as single-family homes on individuals lot consists of 1.80 acres of the Project Site [approximately 12.5%] that is properly zoned NCD-ND. No impacts to the 6.88 acres of jurisdictional federal on the Project Site are being proposed and a copy of the Jurisdictional Determination issued by the U.S. Army Corps of Engineers on July 12, 2017 is provided at Attachment "A" of this Part 1 of the Full EAF. The action has been defined broadly to include all required discretionary approvals and permits as well as all site improvements including the proposed detached single-family homes, driveways, grading, sanitary sewer and water lines and connections and all other required utility improvements. The project purpose is to develop the a portion of 520 Campbell Boulevard with frontage on a public roadway as single-family homes. The project is a Unlisted Action pursuant to the State Environmental Quality Review Act ("SEQRA") since none of the impacts cross the threshold for a Type I action contained in 6 NYCRR Part 617.4. The		
Name of Applicant/Sponsor: Ciminelli Real Estate Corporation c/o Sean Hopkins, Esq.	Telephone: 510-4338 E-Mail: shopkins@hsmlegal.com	
Address: 5500 Main Street, Suite 343		
City/PO: Williamsville	State: NY	Zip Code: 14221
Project Contact (if not same as sponsor; give name and title/role): Sean W. Hopkins, Esq., Attorney for Project Sponsor	Telephone: 510-4338 E-Mail: shopkins@hsr-legal.com	
Address: 5500 Main Street, Suite 343		
City/PO: Williamsville	State: NY	Zip Code: 14221
Property Owner (if not same as sponsor): Ciminelli Muir Woods LLC	Telephone: 631-8000 E-Mail: afaeth@ciminelli.com	
Address: 50 Fountain Plaza, Suite 500		
City/PO: Buffalo	State: NY	Zip Code:

Additional Project Contact: Ken Zollitsch, GPI Engineering
4950 Genesee Street, Suite 100
Buffalo, New York 14225
Tel: 716.989-3342
E-mail: kzollitsch@gpinet.com

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Council, Town Board, or Village Board of Trustees ☐Yes ☑No		
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Site Plan Approval and Final Plat Approval	November 15, 2021
c. City Council, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	Building Dept. - Building Permits; Engineering Department - SWPPP Approval	To be Determined
e. County agencies ☑Yes ☐No	ECHD - Sanitary Sewer, Water Approval and Realty Subdivision; ECWA - Water	To be Determined
f. Regional agencies ☐Yes ☐No		
g. State agencies ☑Yes ☐No	New York State Department of Environmental Conservation - SPDES Permit	To be Determined
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No
ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No
iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No
If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) [Note: The action will have no adverse impacts on the West Erie Canal Corridor.] ☑Yes ☐No
If Yes, identify the plan(s):
NYS Heritage Areas:West Erie Canal Corridor

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No
If Yes, identify the plan(s):

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
The portion of the Project Site to be developed as a eight lot residential subdivision is properly zoned NCD-ND.

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Williamsville Central School District

b. What police or other public protection forces serve the project site?
Town of Amherst Police Department

c. Which fire protection and emergency medical services serve the project site?
Getzville Fire Protection District and Twin City Ambulance

d. What parks serve the project site?
Nature View Park, Walton Woods Park and Ellicott Creek Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Detached single-family homes on individual lots.

b. a. Total acreage of the site of the proposed action? 14.39 acres
b. Total acreage to be physically disturbed? 1.8± acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 341± acres
[Note: 9.97 acres of 520 Campbell Boulevard will consist of Permanent Open Space subject to a Declaration of Restrictions.]

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % Units:

d. Is the proposed action a subdivision, or does it include a subdivision? ☑ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
Residential subdivision consisting of detached single-family homes on individual lots.
ii. Is a cluster/conservation layout proposed? ☐ Yes ☑ No
iii. Number of lots proposed? 8
iv. Minimum and maximum proposed lot sizes? Minimum 9,100± sqft Maximum 13,490± sqft

e. Will proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 3 months
ii. If Yes:
- Total number of phases anticipated
- Anticipated commencement date of phase 1 (including demolition) month year
- Anticipated completion date of final phase month year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

f. Does the project include new residential uses? ☑ Yes ☐ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	8			
At completion of all phases	8			

g. Does the proposed action include new non-residential construction (including expansions)? ☐ Yes ☑ No

If Yes,

i. Total number of structures _____

ii. Dimensions (in feet) of largest proposed structure: _____ height; _____ width; and _____ length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____ acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

_____

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No
If Yes, describe:

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:

i. Total anticipated water usage/demand per day: 4,200± gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑ Yes ☐ No
If Yes:

- Name of district or service area: Town of Amherst
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☑ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☑ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☑ No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:

i. Total anticipated liquid waste generation per day: 2,800± gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: Town of Amherst Water Pollution Control Facility
- Name of district: Town District 16
- Does the existing wastewater treatment plant have capacity to serve the project? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

- Do existing sewer lines serve the project site? ☑Yes ☐No
- Will line extension within an existing district be necessary to serve the project? ☐Yes ☑No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 0.5± acres (impervious surface)

_____ Square feet or 1.8± acres (parcel size)

ii. Describe types of new point sources. New point sources will be inletting/outletting the proposed stormwater facilities. The impervious surfaces include driveways and single family homes.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Runoff will be directed to new stormwater facilities which will outlet to the adjacent lake which will ultimately flow to Ellicott Creek

- If to surface waters, identify receiving water bodies or wetlands: Ellicott Creek
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Heavy equipment emissions during site construction.

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☑No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7am - 7pm
- Saturday: 7am - 7pm
- Sunday: To be determined
- Holidays: Not Anticipated

ii. During Operations:

- Monday - Friday: N/A
- Saturday: N/A
- Sunday: N/A
- Holidays: N/A

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

During construction activities, there will be temporary unavoidable noise impacts associated with the use of construction equipment and vehicles.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n.. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

Street fixtures and lighting on single family homes.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally describe proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

The primary use of the parcels in the vicinity of the Project Site is single-family homes on residential units. There are commercial uses at the intersection of Campbell Boulevard and North French Road and also multifamily uses to the south of the site on the east side of Campbell Boulevard.

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	0.5±	+ 0.5±
• Forested	1.4±	0.0±	-1.4±
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	6.11±	5.71±	-0.4±
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal) [federal wetlands]	6.88	6.88	0
• Non-vegetated (bare rock, earth or fill)	-	-	-
• Other Describe: Lawns and landscaping	0	1.3±	+ 1.3±

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐Yes ☑No
If Yes,
i. Identify Facilities:

e. Does the project site contain an existing dam? ☐Yes ☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No
If Yes:
i. Has the facility been formally closed? ☐Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☐No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? greater than 5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? 0 %

c. Predominant soil type(s) present on project site:

Ch - Cheektowaga	63 %
Cv - Cosad	37 %
	%

d. What is the average depth to the water table on the project site? Average: 0.0-1.5 feet

e. Drainage status of project site soils:
☐ Well Drained: ____% of site
☐ Moderately Well Drained: ____% of site
☑ Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: ____% of site
☐ 15% or greater: ____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? [There are 6.88 acres of federal wetlands located on the Project Site per the Jurisdictional Determination issued by the USACE on July 12, 2017. A copy is provided at Attachment "A."] ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? [The Applicant is not proposing any impacts to the 6.88 acres of federal wetlands.] ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters Approximate Size 6.88 Acres
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No
If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100 year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500 year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:
i. Name of aquifer: _____

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

m. Identify the predominant wildlife species that occupy or use the project site:
Typical suburban species

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐Yes ☑No

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

[Copy of No Impact Determination Letter issued by SHPO on October 10, 2001 provided at Attachment "B".]

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Ciminelli Real Estate Corporation Date November 15, 2021

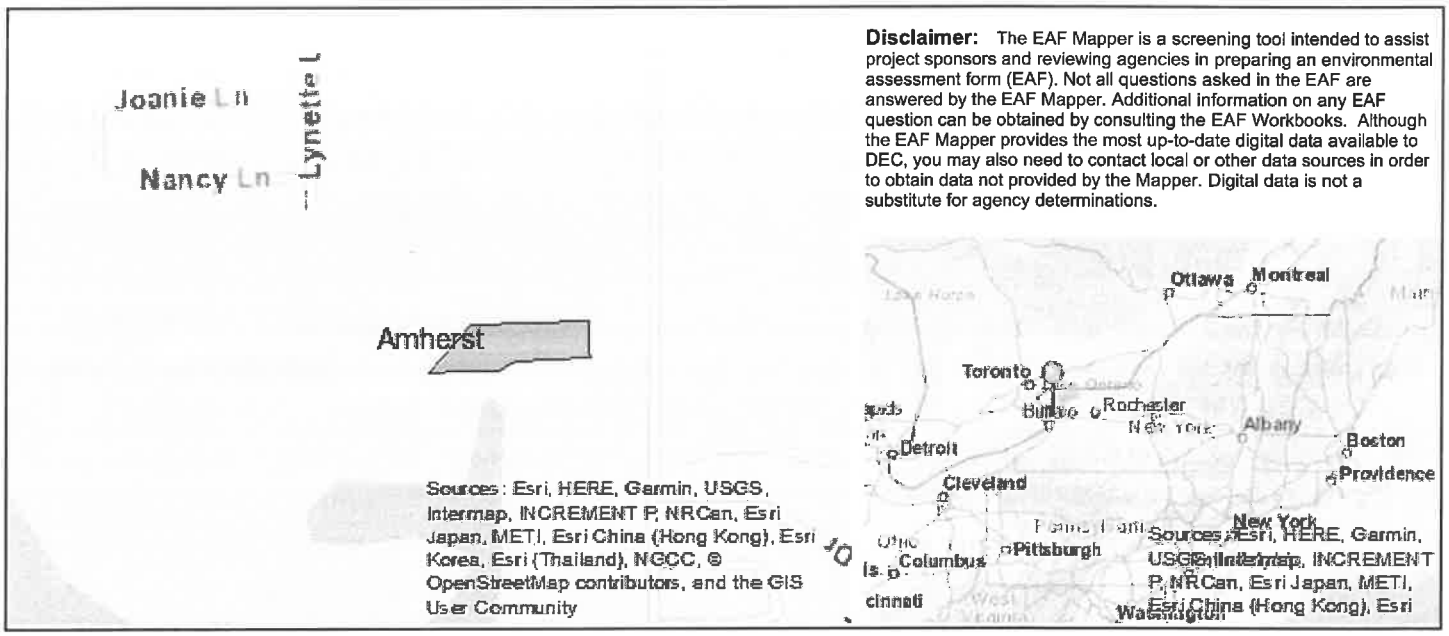
Signature _____ Title Attorney for Applicant/Project Sponsor

Sean W. Hopkins, Esq.

PRINT FORM

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

EAF Mapper Summary Report



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYS Heritage Areas:West Erie Canal Corridor
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National Register of Historic Places]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment A of Part 1 of Full Environmental Assessment Form – Jurisdictional Determination for 520 Campbell Boulevard Issued by the United States Army Corps of Engineers ("USACE") on July 12, 2017

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO
ATTENTION OF:

July 12, 2017

Regulatory Branch

SUBJECT: Preliminary Jurisdictional Determination for Department of the Army Application No. 2001-00067.

Ciminelli Real Estate Corporation
Centerpointe Corporate Park
350 Essjay Road
Williamsville, NY 14221

Dear Mr. Brad Packard:

I have reviewed the wetland delineation map you submitted for your request for a wetland boundary verification, located at 520 Campbell Boulevard which is directly adjacent to the Muir Woods project site, Town of Amherst, County of Erie, New York.

I have evaluated your submitted wetland delineation map and have determined that the wetland and water boundaries shown on the map accurately represent on-site conditions. Please note that this is a Preliminary Jurisdictional Determination (JD). Preliminary JDs are non-binding written indications that there may be waters of the United States (WOUS) on your parcel and approximate locations of those waters. Preliminary JDs are advisory in nature and may not be appealed.

Pursuant to Regulatory Guidance Letter 16-01, any permit application made in reliance on this Preliminary JD will be evaluated as though all wetlands or waters on the site are regulated by the Corps. Further, all waters, including wetlands will be used for purposes of assessing the area of project related impacts and compensatory mitigation. If you require a definitive response regarding Department of the Army jurisdiction for any or all of the waters identified on the submitted drawings, you may request an approved jurisdictional determination (AJD) from this office. If an AJD is requested, please be aware that this is often a lengthy process and we may require the submittal of additional information.

I have enclosed the Preliminary JD Form with this letter. The form and attached table identifies the extent of waters on the site and specific terms and conditions of the Preliminary JD. Please sign and return a copy of this form to my attention. If you do not respond within 15 days, we will presume concurrence and no additional follow up is necessary prior to finalizing an action.

In accordance with Regulatory Guidance Letter 05-02, "Preliminary jurisdictional determinations are not definitive determinations of areas within regulatory jurisdiction and do not have expirations dates." However, I strongly recommend that the boundaries of all aquatic resources on the parcel be re-evaluated by a qualified wetland biologist after five years of the

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Regulatory Branch

SUBJECT: Preliminary Jurisdictional Determination for Department of the Army Application No. 2001-00067.

date of this letter. This will ensure that any changes are appropriately identified and you do not inadvertently incur a violation of Federal law while constructing your project or working on your project site.

Lastly, this determination has been conducted only to identify the limits of waters that may be subject to Corps Clean Water Act or Rivers and Harbors Act jurisdiction. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are United States Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resource Conservation Service prior to starting work.

Questions pertaining to this matter should be directed to me at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207, or by e-mail at: martin.h.crosson@usace.army.mil

Sincerely,

Martin H. Crosson
Biologist

Enclosures

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ciminelli Real Estate Corporation	File Number: 2001-00067	Date: 07/12/2017
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- ***OBJECT:*** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Martin Crosson U.S. Army Corps of Engineers 1776 Niagara Street Buffalo, New York 14207 716-879-4346 martin.h.crosson@usace.army.mil	Attn: Jacob Siegrist Great Lakes and Ohio River Division CELRD-PD-REG 550 Main Street, Room 10524 Cincinnati, OH 45202-3222 513-684-2699; FAX 513-684-2460

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
Signature of appellant or agent.		

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

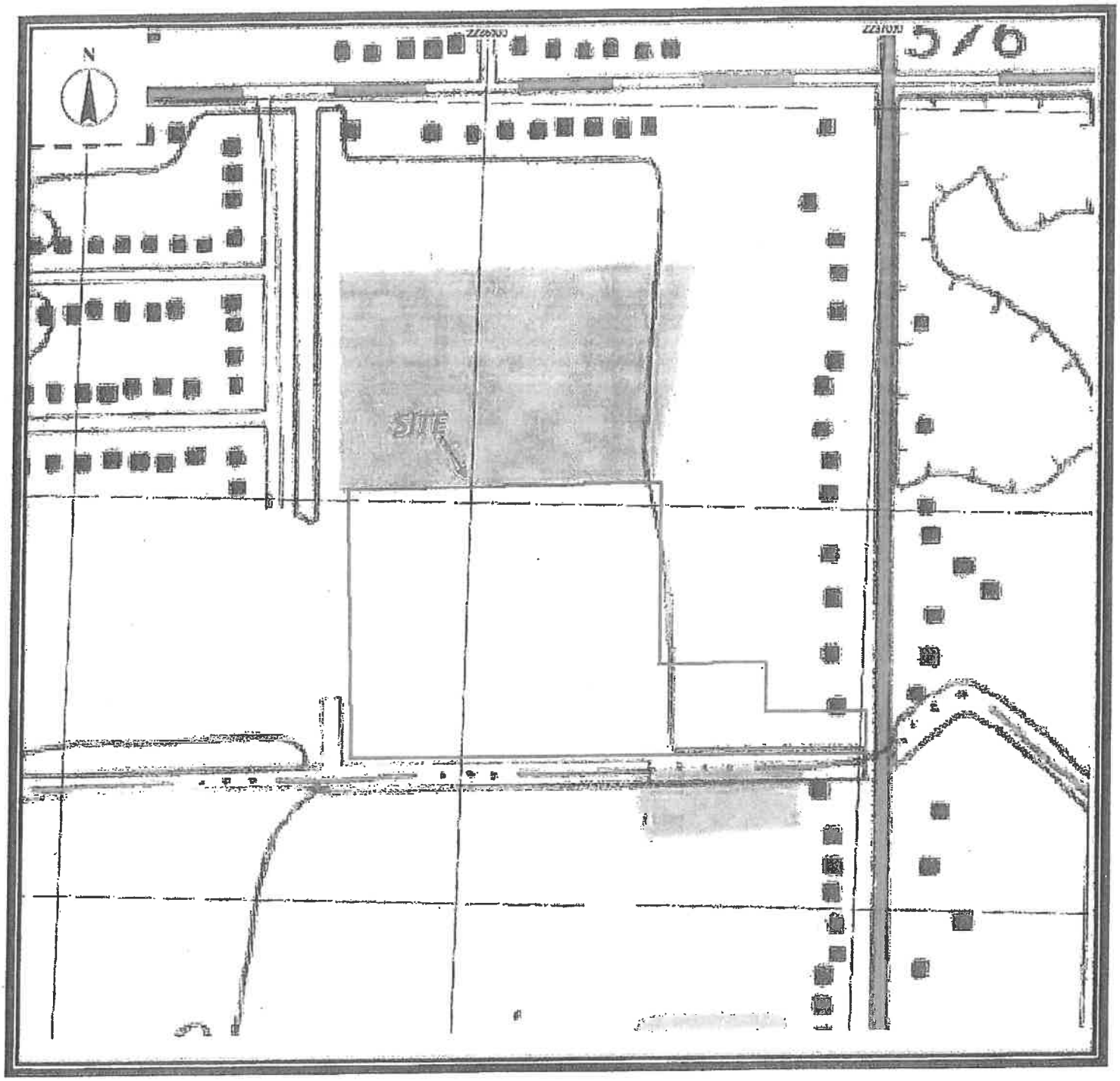


FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Tonawanda East Quadrangle / 2002 DeLorme

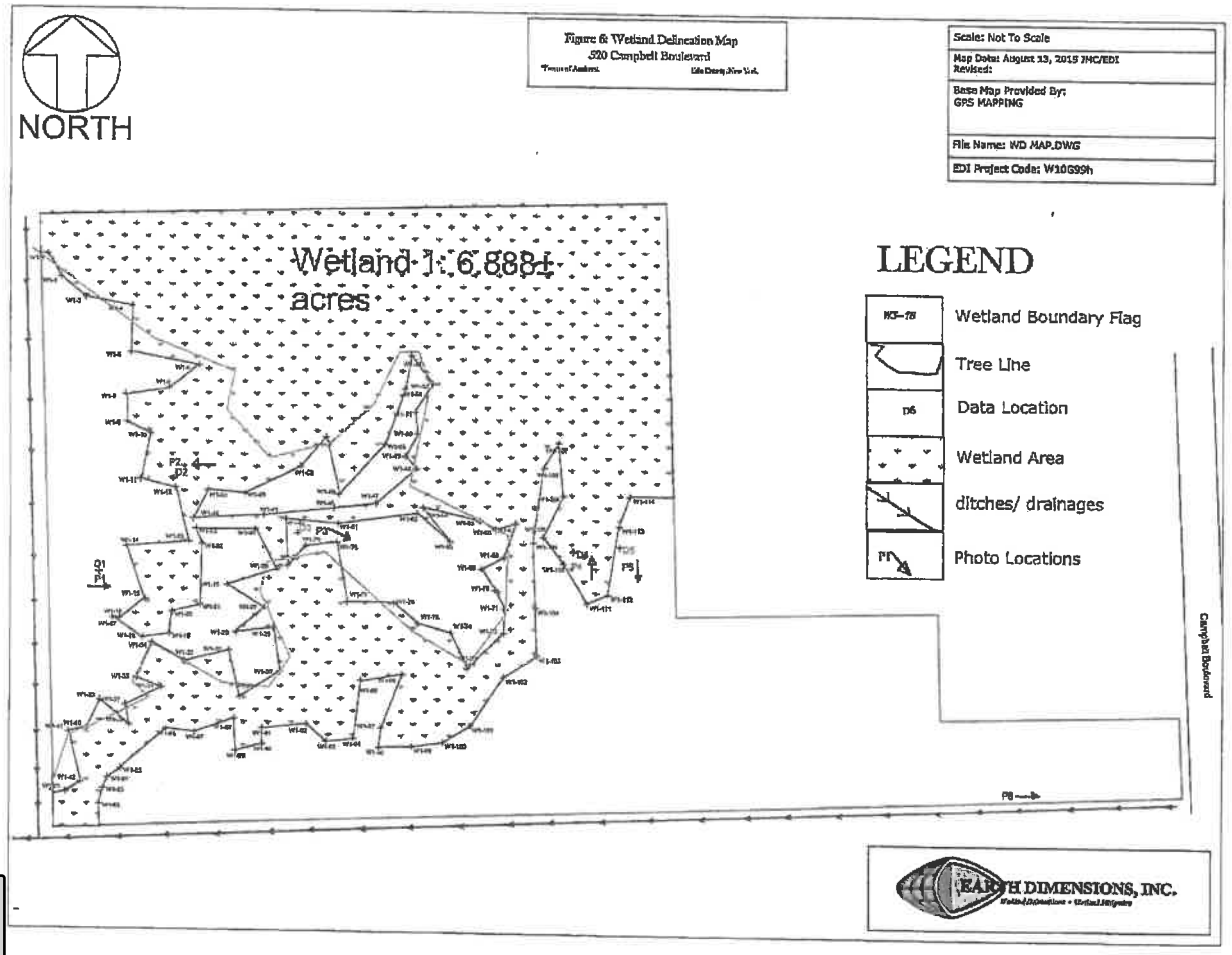
520 Campbell Boulevard

Town of Amherst, Erie County, New York

Ciminelli Real Estate Corporation
D/A Processing No. 2001-00067
Erie County, NY
Sheet 1 of 2

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Ciminelli Real Estate Corporation
D/A Processing No. 2001-00067
Erie County, NY
Sheet 2 of 2



PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: July 12, 2017.

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Ciminelli Real Estate Corporation
Centerpointe Corporate Park
350 Essjay Road
Williamsville, NY 14221

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: LRB Buffalo, Ciminelli Real Estate Corporation, 2001-00067.

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

State: New York County/parish/borough: Erie City: Amherst

Center coordinates of site (lat/long in degree decimal format):

Lat.: 43.03126° Long.: -78.77060°

Universal Transverse Mercator: 17

Name of nearest waterbody: Ellicott Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: July 12, 2017.

☒ Field Determination. Date(s): July 11, 2017.

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Wetland 1	43.03126°	-78.77060°	6.888	PSS/FO	404

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: Delineation Report completed by Earth Dimensions, Inc. dated August 20, 2015.
☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report. Rationale: _____.
☐ Data sheets prepared by the Corps: _____.
☐ Corps navigable waters' study: _____.
☐ U.S. Geological Survey Hydrologic Atlas: _____.
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: Tonawanda East NY USGS 7.5.
☒ Natural Resources Conservation Service Soil Survey. Citation: Erie County.
☒ National wetlands inventory map(s). Cite name: fws.gov – wetland data mapper.
☐ State/local wetland inventory map(s): _____.
☐ FEMA/FIRM maps: _____
☐ 100-year Floodplain Elevation is: ____. (National Geodetic Vertical Datum of 1929)
☐ Photographs:
☐ Aerial (Name & Date): _____.
☐ Other (Name & Date): _____.
☐ Previous determination(s). File no. and date of response letter: _____.
☐ Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

J. Martin D. Cronin 07/12/2017
Signature and date of
Regulatory staff member
completing PJD

07/13/2017
Signature and date of
person requesting PJD
(REQUIRED, unless obtaining
the signature is impracticable)[1]
By: Ciminelli Muir Woods, LLC
By: Ciminelli Real Estate Corporation,
its Managing Member
Brad Packard, Director of Development & Planning
Ciminelli Real Estate Corporation

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment B of Part 1 of Full Environmental Assessment Form – No Impact Determination Letter Issued by Ruth Pierpont of the NYS Office of Parks, Recreation and Historic Preservation dated October 10, 2021

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643

Bernadette Castro
Commissioner

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Exhibit 2 – Certified Copy of Resolution 2021-570 as Adopted by the Town Board on September 20, 2021

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TOWN OF AMHERST

TOWN CLERK'S OFFICE

5583 MAIN STREET
WILLIAMSVILLE, NEW YORK 14221
(716) 631-7021
FAX (716) 631-7152
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Kathleen Cooper
Deputy Town Clerk

Timothy Koller
Deputy Town Clerk

CERTIFICATE OF TOWN CLERK

I, Francina J. Spoth, Town Clerk of the Town of Amherst, in the County of Erie, State of New York, HEREBY CERTIFY, as follows:

That the attached Resolution 2021-570 "Request to Reclassify a Portion of 520 Campbell Boulevard and to Amend the Audubon Development Plan" is a true and exact copy of the Resolution enacted by the Town Board at its meeting on September 13, 2021.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of said Town of Amherst this 20th day of September, 2021.

Francina J. Spoth
Town Clerk
Town of Amherst, Erie County, NY

Sworn to before me
This 20th day of September, 2021

Notary Public

TIMOTHY J. KOLLER
No. 01KO6263885
Notary Public, State of New York
Qualified in Erie County
My Commission Expires 06/11/2024

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Amherst Town Board
5583 Main Street
Williamsville, NY 14221
www.amherst.ny.us

Francina J. Spoth
Town Clerk

Meeting: 09/13/21 07:00 PM
Department: Town Clerk
DOC ID: 23441

RESOLUTION 2021-570 **ADOPTED**

Request to Reclassify a Portion of 520 Campbell Boulevard and to Amend the Audubon Development Plan

Adoption of Local Law to Amend the Zoning Map
(520 Campbell Boulevard (portion), Z-2021-03)

RESOLVED, that pursuant to 6NYCRR Part 617 (SEQR) and Town Code Section 104, as amended, the requirements of SEQR have been completed and the Town Board issues the attached Negative Declaration, and be it further

RESOLVED, that pursuant to NYS Town Law Sec.272-a, the Town Board concurs with the findings of the Planning Board as stated in their resolution of May 28, 2021 that the proposed NCD-ND zoning at 520 Campbell Boulevard (portion) is consistent with the adopted Bicentennial Comprehensive Plan, as amended, and be it further

RESOLVED, that to the extent the proposed zoning is not consistent with the adopted Comprehensive Plan, the plan is hereby amended to be consistent with the proposed zoning at this location, and be it further

RESOLVED, that in accordance with Section 203-8-3 of the Town Code (Zoning), the Town Board adopts Local Law (#) to amend the Town zoning map subject to the following condition as recommended by the Planning Board

1. That future development of the site complies with the dimensional requirements set forth in the R-3 zoning district listed in §203-3-6(B) of Town Code.

2. That the 9.88 acres be donated to the Town of Amherst.

7/12/2021
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was opened at 7:44 PM.

Sean W. Hopkins, Esq., presented and answered questions.

The following Speaker addressed the Town Board:
Judy Colton, Sunshine Dr. - Questioned whether this rezoning would have any impact on the land near Bucyrus Heights

As there were no further speakers, Supervisor Kulpa motioned to adjourn the public hearing and set a decision date for August 9th. The motion was seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was adjourned at 8:04 PM.

8/09/2021
A motion to adjourn until Sept. 13th was made by Supervisor Kulpa, seconded by Councilmember Bucki and unanimously approved 5-0. The public hearing was adjourned at 7:13 PM.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

9/13/2021
A motion to open the public hearing was made by Supervisor Kulpa, seconded by Councilmember Lavin and unanimously approved 5-0. The public hearing was opened at 7:20 PM.

Sean W. Hopkins, Esq., presented and answered questions.

As there were no speakers, Supervisor Kulpa motioned to close the public hearing, seconded by Deputy Supervisor Berger and unanimously approved 5-0. The public hearing was closed at 7:23 PM.

A motion to approve was made by Supervisor Kulpa and seconded by Deputy Supervisor Berger. A motion was then made by Supervisor Kulpa to amend, seconded by Deputy Supervisor Berger and unanimously approved 5-0. Amendment adds a second condition.

A motion to approve as amended was made by Supervisor Kulpa, seconded by Deputy Supervisor Berger and approved via roll call vote 4-1 (Nay, Bucki).

RESULT:	**ROLL CALL VOTE (ADOPTED) [4 TO 1]**
MOVER:	Brian J. Kulpa, Supervisor
SECONDER:	Jacqualine Berger, Deputy Supervisor
AYES:	Kulpa, Berger, Lavin, Szukala
NAYS:	Bucki

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NEW YORK STATE
Bernadette Castro
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

October 10, 2001

Carolyn A. Pierce
CCRG
105 Robie Avenue
Buffalo, New York 14214

Dear Ms. Pierce:

Re: SEQRA
Muir Woods Mixed-Use Development
Amherst/Erie County
01PR0345

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Parks, Recreation and Historic Preservation Law, Section 14.09.

Based upon this review, it is the OPRHP's opinion that your project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Director

RLP:cmp

RECEIVED
OCT 16 2001
CIMINELLI DEVELOPMENT COMPANY, INC.

An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO
ATTENTION OF:

July 12, 2017

Regulatory Branch

SUBJECT: Preliminary Jurisdictional Determination for Department of the Army Application No. 2001-00067.

Ciminelli Real Estate Corporation
Centerpointe Corporate Park
350 Essjay Road
Williamsville, NY 14221

Dear Mr. Brad Packard:

I have reviewed the wetland delineation map you submitted for your request for a wetland boundary verification, located at 520 Campbell Boulevard which is directly adjacent to the Muir Woods project site, Town of Amherst, County of Erie, New York.

I have evaluated your submitted wetland delineation map and have determined that the wetland and water boundaries shown on the map accurately represent on-site conditions. Please note that this is a Preliminary Jurisdictional Determination (JD). Preliminary JDs are non-binding written indications that there may be waters of the United States (WOUS) on your parcel and approximate locations of those waters. Preliminary JDs are advisory in nature and may not be appealed.

Pursuant to Regulatory Guidance Letter 16-01, any permit application made in reliance on this Preliminary JD will be evaluated as though all wetlands or waters on the site are regulated by the Corps. Further, all waters, including wetlands will be used for purposes of assessing the area of project related impacts and compensatory mitigation. If you require a definitive response regarding Department of the Army jurisdiction for any or all of the waters identified on the submitted drawings, you may request an approved jurisdictional determination (AJD) from this office. If an AJD is requested, please be aware that this is often a lengthy process and we may require the submittal of additional information.

I have enclosed the Preliminary JD Form with this letter. The form and attached table identifies the extent of waters on the site and specific terms and conditions of the Preliminary JD. Please sign and return a copy of this form to my attention. If you do not respond within 15 days, we will presume concurrence and no additional follow up is necessary prior to finalizing an action.

In accordance with Regulatory Guidance Letter 05-02, "Preliminary jurisdictional determinations are not definitive determinations of areas within regulatory jurisdiction and do not have expirations dates." However, I strongly recommend that the boundaries of all aquatic resources on the parcel be re-evaluated by a qualified wetland biologist after five years of the

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

date of this letter. This will ensure that any changes are appropriately identified and you do not inadvertently incur a violation of Federal law while constructing your project or working on your project site.

Lastly, this determination has been conducted only to identify the limits of waters that may be subject to Corps Clean Water Act or Rivers and Harbors Act jurisdiction. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are United States Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resource Conservation Service prior to starting work.

Questions pertaining to this matter should be directed to me at 716-879-4346, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207, or by e-mail at: martin.h.crosson@usace.army.mil

Sincerely,

Martin H. Crosson
Biologist

Enclosures

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ciminelli Real Estate Corporation	File Number: 2001-00067	Date: 07/12/2017
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Martin Crosson U.S. Army Corps of Engineers 1776 Niagara Street Buffalo, New York 14207 716-879-4346 martin.h.crosson@usace.army.mil	Attn: Jacob Siegrist Great Lakes and Ohio River Division CELRD-PD-REG 550 Main Street, Room 10524 Cincinnati, OH 45202-3222 513-684-2699; FAX 513-684-2460

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Tonawanda East Quadrangle / 2002 DeLorme

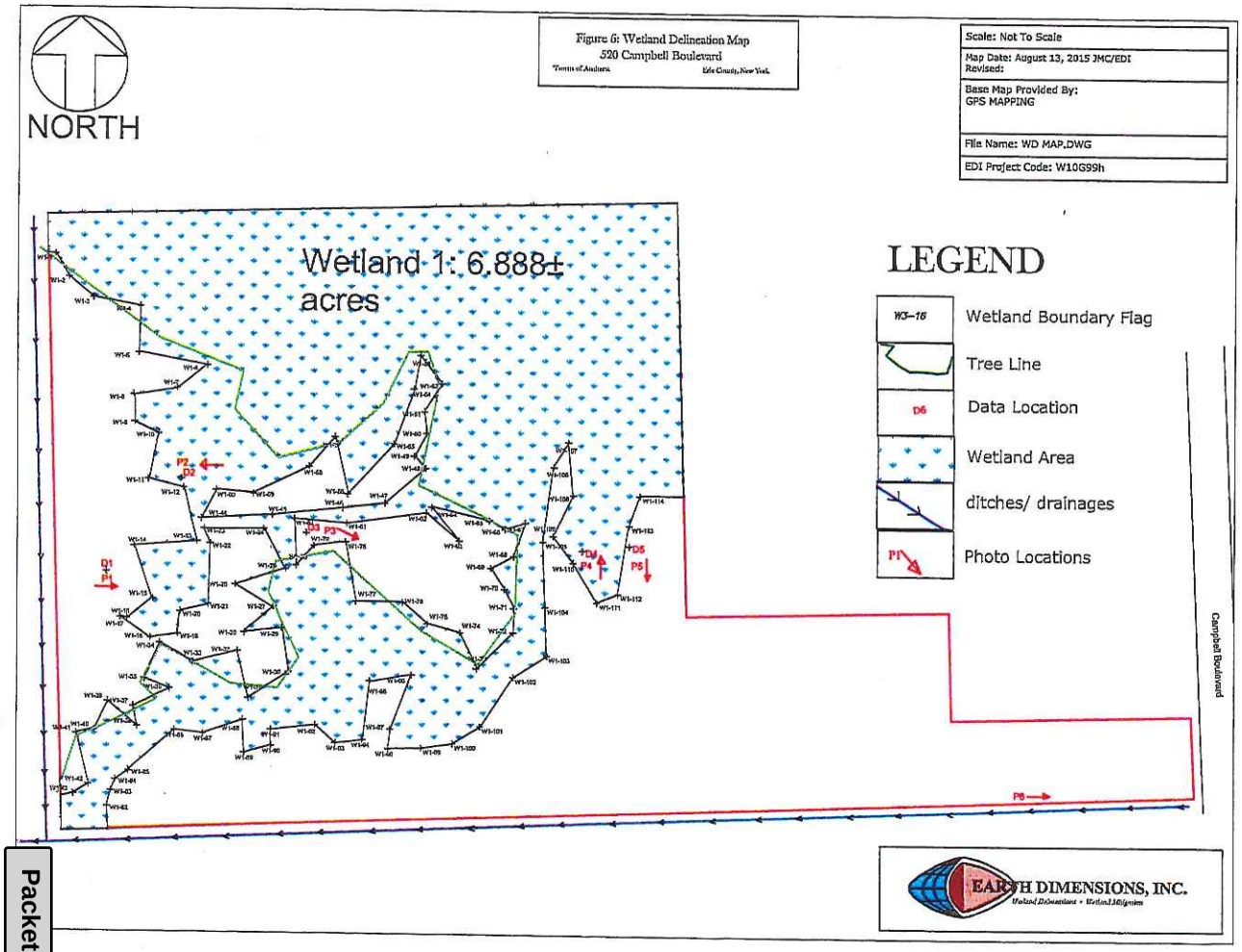
520 Campbell Boulevard

Town of Amherst, Erie County, New York

Ciminelli Real Estate Corporation
D/A Processing No. 2001-00067
Erie County, NY
Sheet 1 of 2

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Ciminelli Real Estate Corporation
D/A Processing No. 2001-00067
Erie County, NY
Sheet 2 of 2



PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: July 12, 2017.

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Ciminelli Real Estate Corporation
Centerpointe Corporate Park
350 Essjay Road
Williamsville, NY 14221

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: LRB Buffalo, Ciminelli Real Estate Corporation, 2001-00067.

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

State: New York County/parish/borough: Erie City: Amherst

Center coordinates of site (lat/long in degree decimal format):

Lat.: 43.03126° Long.: -78.77060°

Universal Transverse Mercator: 17

Name of nearest waterbody: Ellicott Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: July 12, 2017.

☒ Field Determination. Date(s): July 11, 2017.

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404
Wetland 1	43.03126°	-78.77060°	6.888	PSS/FO	404

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: Delineation Report completed by Earth Dimensions, Inc. dated August 20, 2015.
☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report. Rationale: _____.
☐ Data sheets prepared by the Corps: _____.
☐ Corps navigable waters' study: _____.
☐ U.S. Geological Survey Hydrologic Atlas: _____.
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: Tonawanda East NY USGS 7.5.
☒ Natural Resources Conservation Service Soil Survey. Citation: Erie County.
☒ National wetlands inventory map(s). Cite name: fws.gov – wetland data mapper.
☐ State/local wetland inventory map(s): _____.
☐ FEMA/FIRM maps: _____
☐ 100-year Floodplain Elevation is: ____. (National Geodetic Vertical Datum of 1929)
☐ Photographs:
☐ Aerial (Name & Date): _____.
☐ Other (Name & Date): _____.
☐ Previous determination(s). File no. and date of response letter: _____.
☐ Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Martin R. Cronin 07/12/2017
Signature and date of
Regulatory staff member
completing PJD

07/13/2017
Signature and date of
person requesting PJD
(REQUIRED, unless obtaining
the signature is impracticable)[1]
By: Ciminelli Muir Woods, LLC
By: Ciminelli Real Estate Corporation,
its Managing Member
Brad Packard, Director of Development & Planning
Ciminelli Real Estate Corporation

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

ENGINEER'S REPORT

MUIR WOODS SUBDIVISION
PHASE 4
Town of Amherst, New York

Prepared for:

Ciminelli Muir Woods, LLC
50 Fountain Plaza, Suite 500
Buffalo, New York 14202

Prepared by:

GPI

Greenman-Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, New York 14225



Job No. BUF-2013062.40

November 11, 2021

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TABLE OF CONTENTS

I. INTRODUCTION .....PAGE 3

II. DISCUSSION .....PAGE 4
A. SANITARY SEWERS.....PAGE 4
B. WATERMAINS .....PAGE 5
C. STORMWATER MANAGEMENT.....PAGE 5

APPENDIX A **SANITARY SEWER CALCULATIONS**

- SANITARY SEWER FLOW CALCULATIONS

APPENDIX B **STORMWATER MANAGEMENT**

- STORMWATER CALCULATIONS
- ORIGINAL DESIGN PONDPACK RESULTS
- PROPOSED DESIGN PONDPACK RESULTS
- STORM SEWER COMPUTATIONS
- DRAINAGE AREA MAP

APPENDIX C **ORIGINAL NOI AND SPDES**

STORMWATER EXHIBITS:

1. Site Location Map
2. Pre-Developed Watershed Delineation Map
3. Post Developed Watershed Delineation Map
4. Ellicott Creek Watershed Delineation Map
5. Site Soil Map

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

I. Introduction

The proposed development, Muir Woods Subdivision Phase Four, is located along the northern side of Sierra Drive near Campbell Boulevard in the Town of Amherst. The 1.75± development is part of the larger 118± acre Muir Woods Subdivision and will be constructed on a portion of an existing vacant parcel of land at 520 Campbell Boulevard (SBL: 27.19-1-34). The project site is bounded on the north and east by single family residential lots fronting Campbell Boulevard; bounded on the south by Sierra Drive; and bounded on the west by vacant land owned and controlled by the developer and Muir Woods Subdivision.

Muir Woods Subdivision Phase Four will consist of a total of eight (8) single family homes and was accounted for during the design of Muir Woods Subdivision. It is estimated that the population for the proposed development will be 28 persons (8 single family residences x 3.5 people/residence). The project is scheduled for a construction start in 2022.

Sanitary sewage service will be provided to the new homes by gravity sewers that were installed during the development of the earlier phases of the subdivision. The sanitary sewer laterals for each home will connect to the existing line along the north side of Sierra Drive and flow to the east to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst) which ties into the N. French Road Trunk Sewer and is tributary to the Town of Amherst Water Pollution Control Facility.

Water service for domestic use and firefighting will be provided by the water main located on the south side of Sierra Drive which was constructed during the earlier phases of the subdivision. The main was constructed by a private contractor, turned over to the Town of Amherst, and is operated and maintained under a lease management agreement with the Erie County Water Authority.

Storm drainage will be provided on site by rear yard drainage swales and storm sewers discharging into an existing ditch or an onsite retention pond, with both the pond and ditch ultimately discharge to the existing Muir Lake. Water quality, channel protection, and runoff reduction requirements were met during the design of the Muir Woods Subdivision per NYSDEC and Town requirements. Runoff reduction criteria was achieved by conserving natural areas and planting trees throughout the entire development.

Stormwater design of the Muir Woods Subdivision includes 133 single family lots and the additional 8 lots of Phase 4. Stormwater calculations that represent the entire site are provided in more detail within the Stormwater Pollution Prevention Plan (SWPPP) for the Muir Woods Development. A NYSDEC SPDES permit was obtained for SWPPP on 6/28/2018 under permit number NYR 11D909 and remains active.

Stormwater retention and detention facilities on site were designed in accordance with the New York State Stormwater Design Manual and the requirements of SPDES General Permit for Stormwater Discharges from Construction Activities, GP-0-15-002 and Town of Amherst stormwater standards.

The main text of this report summarizes the development of design. Detailed calculations

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

and supplemental information, forms, etc., are located in the appendices.

II Discussion

A. Sanitary Sewers

1. System Description and Design Flows

Each lot and single family house will be serviced by a 6-inch lateral service line which will connect to the existing 8-inch PVC (SDR-35) sanitary sewer pipe located along the northern side of Sierra Drive.

The estimated domestic sanitary sewer flow of 0.0028 mgd is expected from the 8 single family units (8 homes x 3.5 persons x 100 gpcd). The max flow is 0.01117 mgd (0.0028 mgd x a peaking factor of 3.99) and the minimum flow rate is 0.00056 mgd (0.0028 mgd x 20%).

2. Down Stream Routing of Flow and Capacity

The sanitary sewer flows to the existing 8-inch line along Sierra Drive to the existing Campbell Boulevard gravity sanitary sewer (owned, operated, and maintained by the Town of Amherst). The Campbell Boulevard systems flow north into the 36-inch Trunk Sewer along N. French Road. From there, sewage will flow westerly through the 36-inch Trunk Sewer along N. French Road to Sweet Home Road, at which point the Trunk Sewer becomes 48-inch and continues westerly to Sundridge Drive; the 48-inch Trunk Sewer flows to the north along Sundridge Drive and westerly into the Town of Amherst Water Pollution Control Facility (a.k.a. Plant #16) which has an average daily flow rate of 25.4 mgd and is designed for 36 mgd for the year 2006.

The downstream routing was analyzed during the initial design of the Muir Woods Subdivision and indicated that when adding the 0.1859 MGD peak design flows from the project to the measured flows the system appears to be operating at 67% of its full flow capacity at Node 1; 34% of its full flow capacity at Node 2; and 57% of its full flow capacity at Node 3 therefore, indicating that there is sufficient downstream capacity in the existing system to support the proposed development. There will be no negative impact on the downstream sewer. The full results of the monitoring and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

3. Observation of construction will be performed by consultant services agreement operating under the provisions of the Town of Amherst Public Improvement Permit process, overseen by the Town of Amherst Engineering Department.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

B. Watermains

1. System Description

Individual water services will be installed from the existing 8-inch PVC line on the south side of Sierra Drive. There is an existing hydrant located on the south side of Sierra Drive near the eastern portion of Phase 4 and an additional hydrant located on the east side of Sierra Drive near the western portion of Phase 4.

2. Design Flow

Erie County Water Authority (ECWA) standards require that design of new watermains be based on the following:

a. Design Population = 8 lots at 3.5 persons per lot = 28 persons
b. Average Daily Demand at 150 gallons per capita per day (gpcd) (28 persons x 150 gpcd)/1440 = 2.92 gpm
c. Maximum Daily Demand at two times average = 5.83 gpm
d. Peak Hourly Demand at three times average = 8.76 gpm

The required water demand for firefighting purposes are based on the Insurance Services Offices (ISO) Guide for Determination of Needed Fire Flow, Edition 05-2008. For One and Two-Family Dwellings not exceeding two stories in height, with a separation distance between structures of 11-30 feet, the fire flow required is 1000 gallons per minute.

Per Erie County Health Department, the system must be capable of supplying 3 gpm per single family home (3 gpm x 8 homes = 24 gpm) plus fire demand (1,000 gpm) which results in a peak flow of 1024 gpm.

Watermain sizing for the Muir Woods Subdivision was completed via hydraulic model utilizing the WaterCad program by Bentley. The full results and detailed analysis can be found within the Muir Woods Subdivision Engineers Report.

C. Stormwater Management

The 1.75± acre Muir Woods Subdivision Phase Four will be converted from a brushed and wooded area to an eight (8) lot development with attendant infrastructure. Stormwater quality and runoff reduction requirements were anticipated and accounted for during the design of the Muir Woods Subdivision. The anticipated construction is permitted under NYSDEC SPDES permit number NYR 11D909 obtained on 6/28/2018 and remains active. Runoff reduction for the site was achieved with conservation of natural areas and tree plantings throughout the development. A downstream analysis was preformed and showed a less than 1% increase in the flow in Ellicott Creek. In accordance with the NYS Stormwater Design Manual peak flow attenuation was determined to not be necessary. The retention ponds onsite provide water quality and channel protection volume only.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

The 1.75± acre Muir Woods Subdivision Phase Four storm drainage will be provided on site by new rear yard drainage systems discharging either to an existing culvert under Sierra Drive and south into an existing ditch or will flow to retention pond 1. Both the ditch and retention pond discharge to Muir Lake. Specific Phase 4 design calculations for storm sewer sizing are provided herein. No changes to the overall SWPPP and stormwater pond and ditch analysis were required for the final design of the current Phase 4 due to runoff from this phase being accounted for within the permitted design of the Muir Woods Subdivision.

The storm sewers are designed to flow full or in a non-surcharged state under future condition for a 10 year storm event. The storm retention facilities (wet ponds) were designed to temporarily store run-off from the post developed site, provide water quality enhancement, stream channel protection, and peak flow attenuation. Runoff reduction is being achieved through the use of conserved areas. See Appendix B for the storm sewer sizing calculations.

No portion of the proposed development lies within a 100 year flood plain as mapped on the Flood Insurance Rate Maps (FIRM's) for the Town of Amherst.

1. *Existing Conditions*

The area proposed for the Muir Woods Subdivision Phase 4 is divided into two sections. The eastern section is wooded and currently drains to the south toward a 12-inch HDPE culvert pipe that crosses Sierra Drive and flows to an existing ditch. This ditch flow southwest and discharges into the northeastern inlet of Muir Lake. The western section of Phase 4 is wooded and currently drains to the north into the conservation/wetland area. This area discharges into an existing ditch which flows west to the northwestern inlet of Muir Lake.

The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

2. *Post Developed Conditions*

The 1.75± acres of the site will be converted from a brushed and wooded area to eight (8) lots. During the initial design and development of the Muir Woods Subdivision all associated infrastructure, which includes one (1) bioretention area, two (2) wet ponds, and three (3) pretreatment chambers for stormwater quality and runoff reduction requirements in accordance with Town Drainage Policy and the New York State Stormwater Design Manual in compliance with GP-0-15-002 were previously designed, permitted, and constructed. Additional runoff reduction is achieved with conservation of natural areas and tree plantings throughout the development.

The eastern portion of Phase 4 will consist of seven (7) lots. A drainage swale will capture offsite run-on from the north as well as runoff from the lots. This swale will discharge to a 12-inch HDPE pipe that will connect to the existing 12-inch culvert crossing Sierra Drive and flow into an existing

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

ditch and ultimately to Muir Lake.

The western portion of Phase 4 will consist of one (1) lot. A drainage swale is proposed along the northern boundary of this lot to prevent runoff from flowing into the conservation/wetland area. The swale will discharge to retention pond 1 which was designed and constructed during earlier phases of the Muir Woods Subdivision. This pond discharges to an existing ditch which flows to Muir Lake.

Retention Pond 1:

The original design of retention pond 1 did not include the runoff from the 0.28± acre lot. Below are the updated calculations for the pond:

Two Stage Outlet: 1st Stage- 6-inch Orifice flow @ 571.0 2nd Stage – Weir Flow @ 572.50 discharging into 18-inch HDPE @ 0.74%	
Water Quality Volume Required	0.25 ac-ft
Water Quality Volume Provided	1.8455 ac-ft
Stream Channel Protection Volume Required	0.31 ac-ft
Stream Channel Protection Elevation	571.59
Stream Channel Protection Volume Provided	0.834 ac-ft
Stream Channel Protection Elevation Provided	572.50
Water Surface Elevation	571.0 ft.
Minimum Allowable Top of Bank	574.00 ft.

Routing of design storms through the wet pond results in the following:

Retention Pond 1:

1 YEAR - 24 HOUR STORM	
Peak Inflow Rate	6.54 cfs @ 12.10 hrs.
Volume of Inflow	0.507 ac-ft
Peak Discharge Rate	0.40 cfs @ 14.05 hrs.
Peak Elevation	571.54 ft
Peak Volume of Storage	2.122 ac-ft*

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10 YEAR - 24 HOUR STORM	
Peak Inflow Rate	14.71 cfs @ 12.10 hrs.
Volume of Inflow	1.145 ac-ft
Peak Discharge Rate	0.81 cfs @ 14.00 hrs.
Peak Elevation	572.27 ft
Peak Volume of Storage	2.529 ac-ft*

100 YEAR - 24 HOUR STORM	
Peak Inflow Rate	28.85 cfs @ 12.05 hrs.
Volume of Inflow	2.291 ac-ft
Peak Discharge Rate	5.27 cfs @ 12.60 hrs.
Peak Elevation	573.13 ft
Peak Volume of Storage	3.061 ac-ft*

*Storage Volume includes 1.8455 ac-ft below normal water elevation

1 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	6.30 cfs	0.41 cfs	0.40 cfs

10 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	14.15 cfs	0.81 cfs	0.81 cfs

25 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	18.64 cfs	1.38 cfs	1.61 cfs

100 Year–24 Hour Storm			
	Pre- Developed	Original Design	Post Developed
Peak Runoff Rate	27.75 cfs	4.79 cfs	5.27 cfs

The computer modeling results and full calculations for the downstream analysis and onsite water quality ponds are contained in Appendix B.

Due to the original design of Muir Woods Subdivision accounting for the development of Phase 4, no additional analysis was completed. The full analysis of Muir Lake as well as the total flows in Ellicott Creek can be found within the original design of Muir Woods Subdivision.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

APPENDIX A

Sanitary Sewer System

- SANITARY SEWER FLOW CALCULATIONS

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

GPI

Engineering | Design | Planning | Construction Management

Greenman-Pedersen, Inc. 4950 Genesee Street, Suite 100 Buffalo, NY 14225 t (716) 633-4844 f (716) 633-4940

Western New York Branches: Buffalo | Jamestown | Rochester

Project:	Muir Woods Subdivision Ph 4	By:	EJD	Date:	11/11/2021
Location:	Town of Amherst, New York	Checked:	KZ	Date:	

Sanitary Sewer Flow Calculations

** REFERENCE: NYSDEC Design Standards for Wastewater Treatment Works, 1988

No. of New Lots = 8

Total No. = 8

Design Population, p = 28 assumed no. of people per unit = 3.5

Design Average Flow

Hydraulic Loading = 100 gpcd x design population = 2800 gpd = **0.0028 mgd
1.94 gpm
0.00 cfs

Peaking Factor, PF = [(18+((p/1000)^0.5)) / (4+((p/1000)^0.5))] = 4.3595

Peak Design Flow = Design Average Flow x Peaking Factor = 12206 gpd = **0.0122 mgd**
8.48 gpm
0.02 cfs

NOTE: Per the "Recommended Standards for Wastewater Facilities, 2014 Edition - Section 11.243, b.
"The 100 gpcd figure shall be used in conjunction with a peaking factor from Figure 1(as calculated above), is intended to cover normal infiltration for systems built with modern construction techniques."

Infiltration and Inflow: (Remove 4 gallons of I&I from the existing sanitary sewer system per every 1 gallon of Peak Design Flow)

Required I&I removal = 4 x the Peak Design Flow = 33.91 gpm

Example of I&I Mitigation Based On Repair or Replacement of Defective Residential Laterals:

Determine the number of Defective Residential Laterals to be repaired or replaced

I&I Contribution per each Defective Residential Lateral = 30 **gpm**

No. of Defective Residential Laterals to be repaired or replaced = **2 laterals**

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TECHNICAL REVIEW OF PLANS AND SPECIFICATIONS
FOR SEWAGE AND WASTE TREATMENT SYSTEMS

PROJECT DATA

1. Type of Facility: Extension of an Existing Sanitary Sewer System
(Treatment Plant, Interceptor, Pumping Station, Additions, etc.)

2. Location: Muir Woods Subdivision Ph 4
Town of Amherst, New York

3. Type of Sewer System: Separate
(Separate or Combined)

4. Population to be Immediately Served: 28

Design Population: 28

5. Design Period: 2021

6. Hydraulic Loading

	Present Flow (mgd)	Design Flow (mgd)
Sanitary Sewage	0	0.0028
Institutional Waste	0	0
Industrial Waste	0	0
Infiltration	0	0
Total	0	0.0028
Minimum Flow	0	0.00056
Maximum Flow	0	0.0122

Engineer's Signature and Seal:

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
No. 131
LICENSED PROFESSIONAL ENGINEER

92-15-8 (5/77)
Formerly
BMW-65 (11/73)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

APPENDIX B

Stormwater Management

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

STORMWATER CALCULATIONS

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

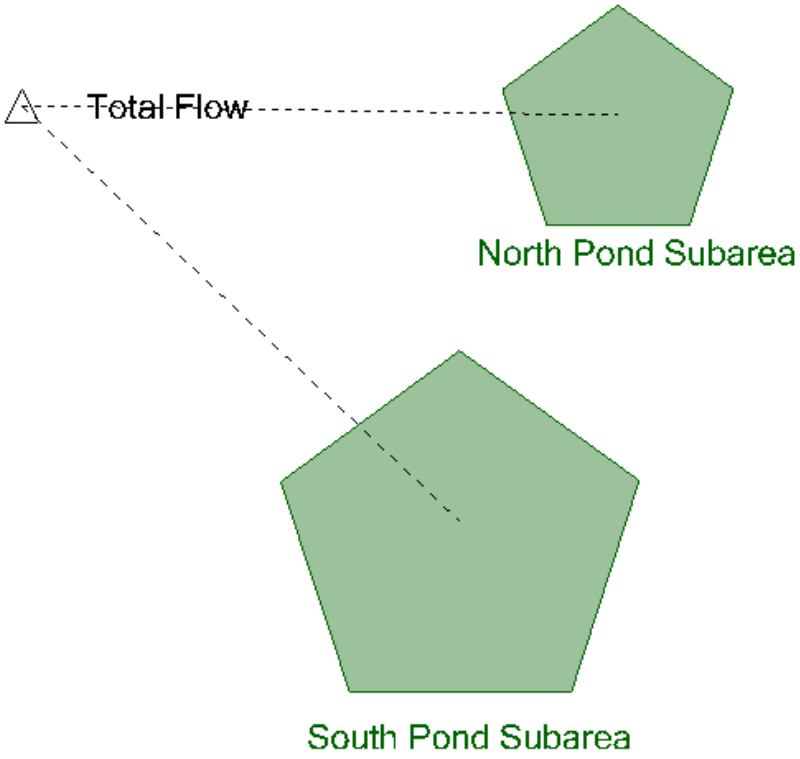
PRE-DEVELOPED CONDITIONS

Attachment: SP 2021-24 application 011022 (25070 : Sp 2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	Without WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	Without WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	Without WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	Without WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	Without WQ Ponds 1 Year 24 Hour	1	1.786	12.100	21.94
Total Flow	Without WQ Ponds 10 Year 24 Hour	10	3.959	12.100	48.65
Total Flow	Without WQ Ponds 25 Year 24 Hour	25	5.233	12.100	63.82
Total Flow	Without WQ Ponds 100 Year 24 Hour	100	7.836	12.100	94.04

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

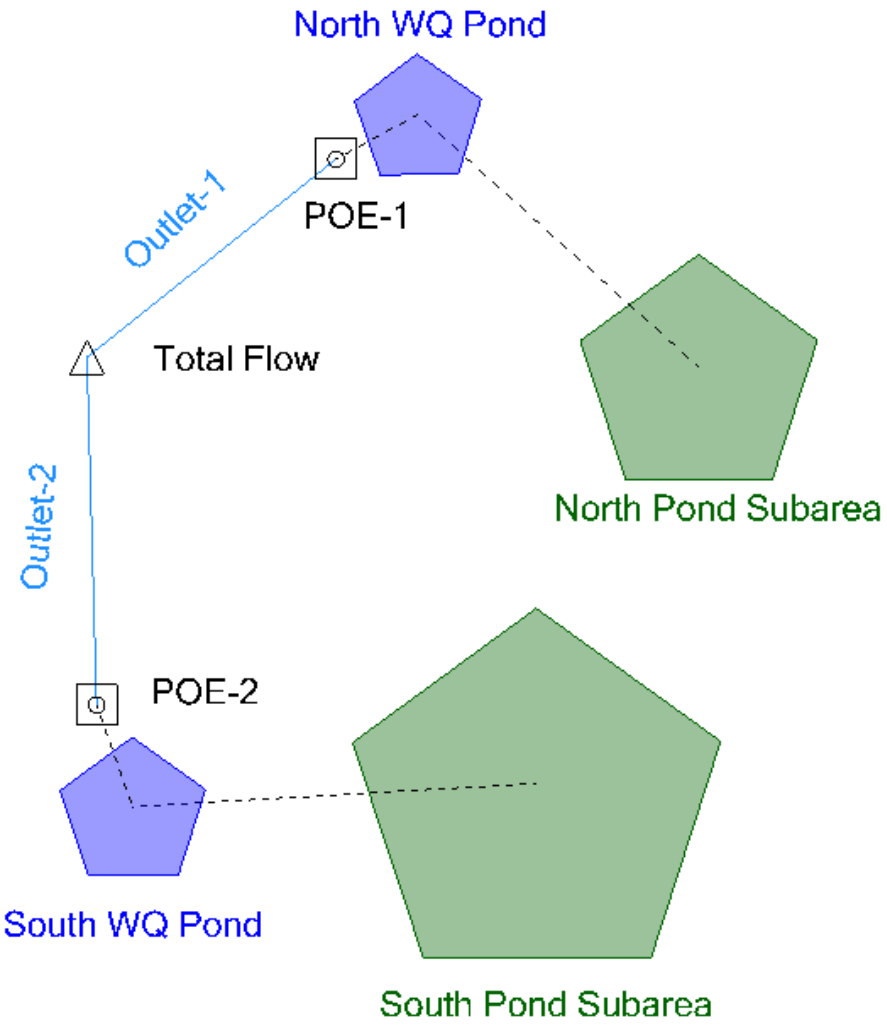
ORIGINAL DESIGN

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds



Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	0.999	14.650	1.10
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.739	12.500	11.08
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.833	12.400	18.27
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.323	12.450	31.37

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.488	12.100	6.30	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.324	14.000	0.39	571.52	2.111
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.101	12.100	14.15	(N/A)	(N/A)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.702	14.000	0.79	572.22	2.502
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.463	12.050	18.64	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.926	13.350	1.39	572.57	2.713
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.204	12.050	27.75	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.572	12.600	4.79	573.08	3.026
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

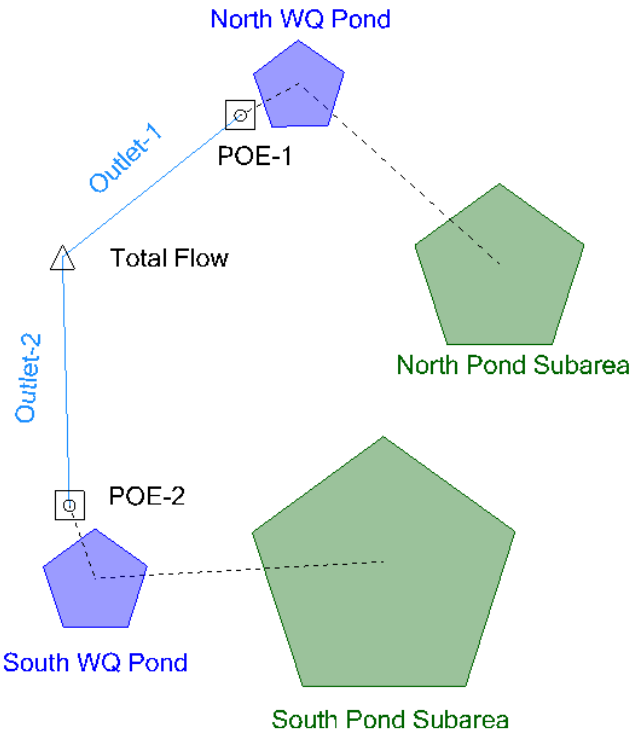
PROPOSED DESIGN

Attachment: SP 2021-24 application 011022 (25070 : Sp 2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

I POST-DEVELOPED CONDITIONS

A. Watershed Model



Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

B. Establish Sub-Basin Runoff Parameters

1. *Subarea P-1 (Onsite)*

Area = 1.47 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A B C D
Impervious Area- Paved & Roof	0.42 acres
Open Space; Lawn- Good	1.05 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.010 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.38 hr**

Shallow Concentrated Flow
Length, L = 266 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.65 ft/s
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 145 ft Slope, s = 0.002 ft/ft
Surface Type = Pipe Flow
Velocity, V = 3.00 ft/s
T_t = **0.01 hr**

Total Time of Concentration T_c = 0.38 hr. + 0.11 hr.+ 0.01 hr. = 0.50 hours

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

2. *Subarea P-2 (Onsite)*

Area = 0.28 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A	B	C	D
Impervious Area- Paved & Roof				0.06 acres
Open Space; Lawn- Good				0.22 acres

Time of Concentration:

Sheet Flow
Length, L = 10 ft Slope, s = 0.002 ft/ft
Ground Cover = Grass, Dense
Manning's "n" = 0.240
T_t = **0.11 hr**

Shallow Concentrated Flow
Length, L = 215 ft Slope, s = 0.005 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 1.06 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 0.11 hr.+ 0.06 hr. = 0.17 hours

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

3. ***Subarea O-1 (Offsite)***

Area = 4.5 acres

Soil Type: Type "D" 100 %

Land Use:	Hydrologic Soil Group A	B	C	D
Woods- Good				4.5 acres

Time of Concentration:

Sheet Flow
Length, L = 100 ft Slope, s = 0.008 ft/ft
Ground Cover = Woods, D. underbrush
Manning's "n" = 0.800
T_t = **1.11 hr**

Shallow Concentrated Flow
Length, L = 300 ft Slope, s = 0.007 ft/ft
Surface Type = Forest w/ Heavy Litter
Velocity, V = 0.20 ft/s
T_t = **0.41 hr**

Shallow Concentrated Flow
Length, L = 142 ft Slope, s = 0.002 ft/ft
Surface Type = Grassed Waterway
Velocity, V = 0.67 ft/s
T_t = **0.06 hr**

Total Time of Concentration T_c = 1.11 hr. + 0.41 hr.+ 0.06 hr. = 1.58 hours

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

RUN HYDROLOGIC MODELS FOR DEVELOPED CONDITIONS

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Project Summary	
Title	Muir Woods Subdivision
Engineer	JLB
Company	Greenman-Pedersen, Inc.
Date	5/9/2017

Notes	WQv & CPv Ponds Updated 11/10/2021 - EJD

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Table of Contents

	Master Network Summary	2
North WQ Pond	Elevation-Area Volume Curve, 100 years (With WQ Ponds 100 Year 24 Hour)	4
Composite Outlet Structure - 1	Outlet Input Data, 100 years (With WQ Ponds 100 Year 24 Hour)	5

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
North Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54
North Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71
North Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38
North Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85
South Pond Subarea	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64
South Pond Subarea	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50
South Pond Subarea	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19
South Pond Subarea	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Total Flow	With WQ Ponds 1 Year 24 Hour	1	1.011	14.650	1.11
Total Flow	With WQ Ponds 10 Year 24 Hour	10	2.763	12.500	11.10
Total Flow	With WQ Ponds 25 Year 24 Hour	25	3.880	12.400	18.30
Total Flow	With WQ Ponds 100 Year 24 Hour	100	6.399	12.450	31.89

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	0.507	12.100	6.54	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.336	14.050	0.40	571.54	2.122
North WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	1.145	12.100	14.71	(N/A)	(N/A)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
North WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	0.726	14.000	0.81	572.27	2.529
North WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	1.521	12.050	19.38	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	0.973	13.150	1.61	572.61	2.734
North WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	2.291	12.050	28.85	(N/A)	(N/A)
North WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	1.649	12.600	5.27	573.13	3.061
South WQ Pond (IN)	With WQ Ponds 1 Year 24 Hour	1	1.298	12.100	15.64	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 1 Year 24 Hour	1	0.675	15.450	0.71	571.90	2.516
South WQ Pond (IN)	With WQ Ponds 10 Year 24 Hour	10	2.858	12.100	34.50	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 10 Year 24 Hour	10	2.037	12.500	10.35	572.74	3.060
South WQ Pond (IN)	With WQ Ponds 25 Year 24 Hour	25	3.770	12.100	45.19	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 25 Year 24 Hour	25	2.907	12.400	17.40	573.17	3.358
South WQ Pond (IN)	With WQ Ponds 100 Year 24 Hour	100	5.632	12.100	66.47	(N/A)	(N/A)
South WQ Pond (OUT)	With WQ Ponds 100 Year 24 Hour	100	4.750	12.400	26.88	574.08	4.036

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Elevation-Area Volume Curve
Label: North WQ Pond
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
563.00	0.0	0.090	0.000	0.000	0.000
564.00	0.0	0.110	0.299	0.100	0.100
565.00	0.0	0.140	0.374	0.125	0.225
566.00	0.0	0.180	0.479	0.160	0.384
567.00	0.0	0.210	0.584	0.195	0.579
568.00	0.0	0.240	0.674	0.225	0.804
569.00	0.0	0.300	0.808	0.269	1.073
570.00	0.0	0.360	0.989	0.330	1.403
571.00	0.0	0.510	1.298	0.433	1.836
572.00	0.0	0.570	1.619	0.540	2.375
573.00	0.0	0.630	1.799	0.600	2.975
574.00	0.0	0.690	1.979	0.660	3.635

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Requested Pond Water Surface Elevations	
Minimum (Headwater)	563.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	574.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	571.00	574.00
Rectangular Weir	Weir - 1	Forward	Culvert - 1	572.50	574.00
Culvert-Circular	Culvert - 1	Forward	TW	571.00	574.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	18.0 in
Length	27.00 ft
Length (Computed Barrel)	27.00 ft
Slope (Computed)	0.007 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.500
Kb	0.018
Kr	0.500
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0078
M	2.0000
C	0.0379
Y	0.6900
T1 ratio (HW/D)	1.132
T2 ratio (HW/D)	1.293
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	572.70 ft	T1 Flow	7.58 ft³/s
T2 Elevation	572.94 ft	T2 Flow	8.66 ft³/s

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: With WQ Ponds 100 Year 24 Hour

Return Event: 100 years
Storm Event: 100 Year 24 Hour

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	571.00 ft
Orifice Diameter	6.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	572.50 ft
Weir Length	3.17 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Index

C

Composite Outlet Structure - 1 (Outlet Input Data, 100 years (With WQ Ponds 100 Year 24 Hour))...5, 6, 7

M

Master Network Summary...2, 3

N

North WQ Pond (Elevation-Area Volume Curve, 100 years (With WQ Ponds 100 Year 24 Hour))...4

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

STORM SEWER COMPUTATIONS AND DRAINAGE AREA MAP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

DRAINAGE COMPUTATIONS

SEWER LOCATION			TRIBUTARY AREA		RUNOFF COEFFICIENT			TIME OF CONCENTRATION			REQUIRED CAPACITY		DESIGN n = 0.012						PROFILE				EXISTING CAPACITY	
STREET	FROM	TO	A (ac)	ΣA (ac)	C	CA	ΣCA	IN CHANNEL (sec)	IN CHANNEL (min)	Tc (min)	i (in/hr)	q (cfs)	D (in)	V (fps)	Q_{full} (cfs)	LENGTH (ft)	s (%)		Rim	INV		Q (cfs)	% REQ'D
	Offsite	Swale	4.50	4.50	0.20	0.90	0.90			94.80	1.22	1.10											
	Western Swale	Daylight	0.84	0.84	0.40	0.34	0.34			30.00	2.45	0.82											
	Eastern Swale	Daylight	0.63	0.63	0.40	0.25	0.25			25.00	2.51	0.63											
	Daylight	Ex Culvert		5.97			1.49	55.20	0.92	99.60	1.18	1.76	12	2.63	1.81	145	0.22%		0.32				
	Ex Culvert	Ditch		5.97			1.49	11.00	0.18	100.52	1.18	1.75	12	7.46	7.06	82	3.35%		2.75				

COMPUTED BY: EJD DATE: 11/09/21

CHECKED BY: DATE:

LOCATION: Muir Woods Subdivision Ph 4

SHEET 1 OF 1

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Worksheet for Trapezoidal Channel - 1

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.002
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.47
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.4
Critical Slope	0.024
Velocity	0.98
Velocity Head	0.01
Specific Energy	0.51
Froude Number	0.314
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.4
Channel Slope	0.002
Critical Slope	0.024

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Worksheet for Trapezoidal Channel - 2

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

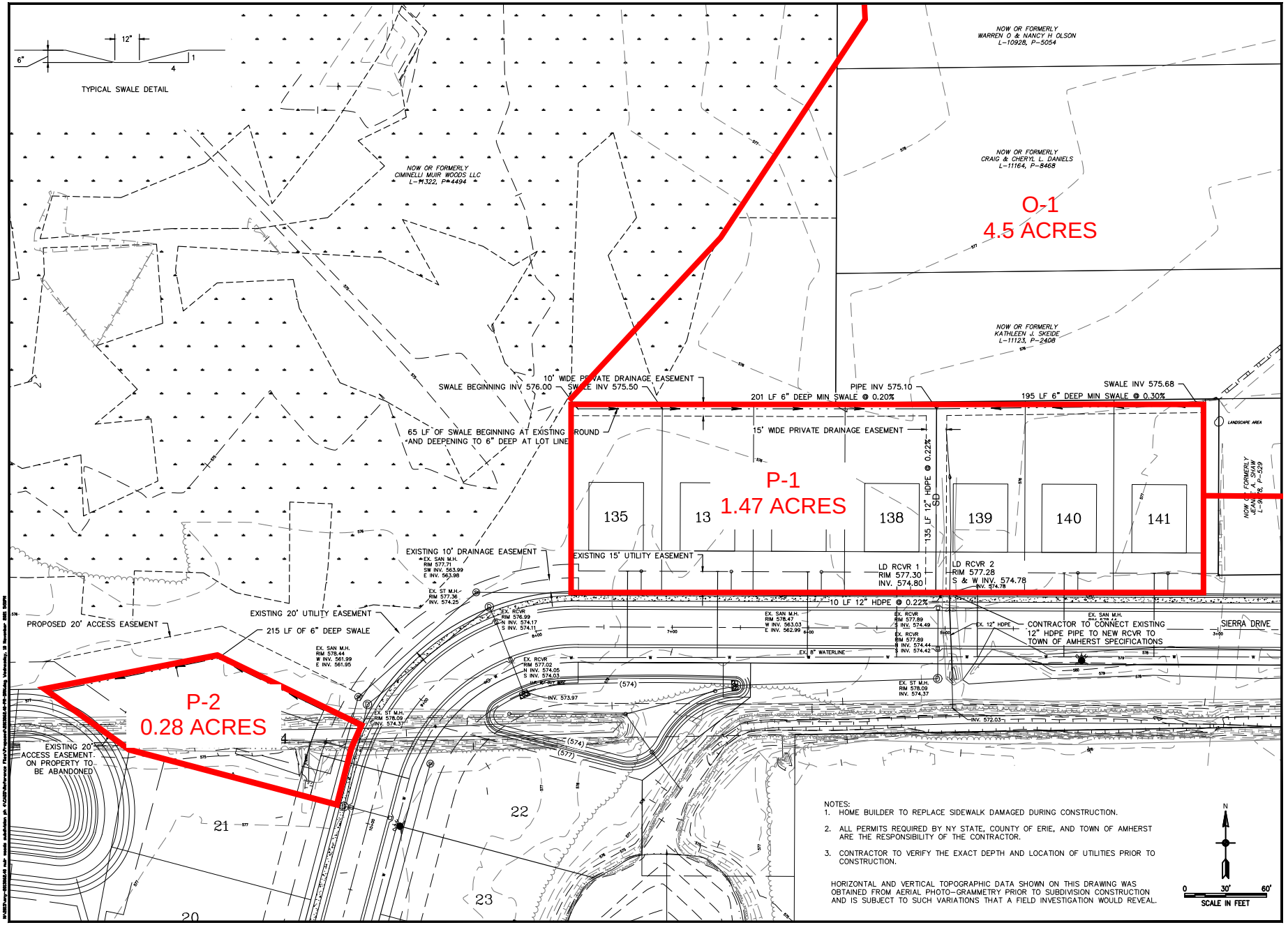
Input Data	
Roughness Coefficient	0.030
Channel Slope	0.003
Normal Depth	6.0
Left Side Slope	4.000
Right Side Slope	4.000
Bottom Width	1.00

Results	
Discharge	1.79
Flow Area	1.5
Wetted Perimeter	5.1
Hydraulic Radius	3.5
Top Width	5.00
Critical Depth	3.8
Critical Slope	0.023
Velocity	1.20
Velocity Head	0.02
Specific Energy	0.52
Froude Number	0.385
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Downstream Velocity	(N/A)
Upstream Velocity	(N/A)
Normal Depth	6.0
Critical Depth	3.8
Channel Slope	0.003
Critical Slope	0.023

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



GPI Engineering Design Planning Construction
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 1
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Wood
50 Fountain Plaza, S
Buffalo, NY 142

Muir Woods Subdivision, Phase 4
520 Campbell Blvd

STATE OF NEW YORK GREENMAN PEDERSEN, INC. LICENSED PROFESSIONAL ENGINEER No. 091

REVISIONS

NO.	REVISION

November 12, 20

DRAWN/DESIGN BY: THM | CHE

Drainage Pl

SCALE: 1" = 30'

WNY-2013062.4

03 OF 0

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

APPENDIX C

Original NOI and SPDES

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR ____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form bei coverage under this General Permit. Applica s of the permit and prepare a Stormwater Pol g this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

FOR REFERENCE ONLY- TO BE SUBMITTED VIA NYSDEC eNOI SYSTEM

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Ciminelli Muir Woods, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Packard

Owner/Operator Contact Person First Name
Brad

Owner/Operator Mailing Address
350 Essjay Road

City
Williamsville

State: NY
Zip: 14221-____

Phone (Owner/Operator): 716-631-8000
Fax (Owner/Operator): 716-631-8034

Email (Owner/Operator)
bpackard@cimineli.com

FED TAX ID
82-1214709 (not required for individuals)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Project Site Information

Project/Site Name
Muir Woods Subdivision

Street Address (NOT P.O. BOX)
520 Campbell Blvd & 1121 N French Rd

Side of Street
○ North ● South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Amherst

State NY | Zip 14228- | County Erie | DEC Region 9

Name of Nearest Cross Street
Lynette Ln

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
○ North ● South ○ East ○ West

Tax Map Numbers
Section-Block-Parcel
40.08-3-1.111

Tax Map Numbers
27.19-1-29

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting) 192411

Y Coordinates (Northing) 4770972

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME
● PASTURE/OPEN LAND	● SINGLE FAMILY SUBDIVISION — Number of Lots: 133
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	○ OTHER

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
118.9	41.7	0.0	15.9

5. Do you plan to disturb more than 5 acres of soil at any one time? ● Yes ○ No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	100 %

7. Is this a phased project? ● Yes ○ No

8. Enter the planned start and end dates of the disturbance activities.

Start Date	End Date
10/01/2017	10/01/2022

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Tributary To Ellicott Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ● Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ● Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ● **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ● **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ● **No**
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ● **No**

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Town of Amherst

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Greenman-Pedersen, Inc.

Contact Name (Last, Space, First)
Boudreau, Jessica

Mailing Address
4950 Genesee Street, Suite 100

City
Buffalo

State NY Zip 14225-

Phone 716-633-4844

Fax 716-633-4940

Email
JBoudreaut@gpinet.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ● Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ● Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ● **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

1.69 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
RR Techniques (Area Reduction)			
● Conservation of Natural Areas (RR-1)	33.30	and/or	
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
● Tree Planting/Tree Pit (RR-3)	2.07	and/or	0.69
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			
● Bioretention (F-5)			1.85
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
● Wet Pond (P-2)			11.79
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
○ Pocket Pond (P-5)			
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other [ ]	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.286 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ● **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.252 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

3.665 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

3.951

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

1.152 **acre-feet**

CPv Provided

1.188 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development . **CFS**

Post-development . **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development . **CFS**

Post-development . **CFS**

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ● Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Homeowner's Association

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

100% of the Water Quality Volume was not reduced for this site due to the poor infiltration qualities of the site soils (Type 'D') and the limiting head available.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ● Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP N Y R
- ○ Other
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ● **Yes** ○ **No**
If Yes, Indicate Size of Impact. 2.5

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. N Y R

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

Brad

MI

Print Last Name

Packard

Owner/Operator Signature

Date

/ /

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit
*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Ciminelli Muir Woods, LLC
2. Contact Person:	~~Brad Packard~~ Paul Ciminelli
3. Street Address:	350 Essjay Rd
4. City/State/Zip:	Williamsville, NY 14221
II. Project Site Information	
5. Project/Site Name:	Muir Woods Subdivision
6. Street Address:	520 Campbell Blvd & 1121 N. French Rd
7. City/State/Zip:	Amherst, NY 14228
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	Vaishali Reberholt P.E., CPESC
9. Title/Position:	Stormwater Management Officer
10. Date Final SWPPP Reviewed and Accepted:	06/27/2018
IV. Regulated MS4 Information	
11. Name of MS4:	Town of Amherst
12. MS4 SPDES Permit Identification Number: NYR20A	122
13. Contact Person:	Vaishali Reberholt P.E., CPESC
14. Street Address:	1100 N. Forest Rd
15. City/State/Zip:	Williamsville, NY 14221
16. Telephone Number:	716-631-7154

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:	Vaishali Reberholt, P.E., CPESC
Title/Position:	Stormwater Management Officer
Signature:	
Date:	06/27/18

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

7/5/2018

Ciminelli Muir Woods, LLC
Paul Ciminelli
350 Essjay Road
Williamsville, NY 14221

Re ACKNOWLEDGMENT of NOTICE of INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY General Permit No. GP-0-15-002

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-15-002 for the construction activities located at:

Muir Woods Subdivision
1121 North French Road & 520 Campbell Blvd
Amherst, NY 14228 County: **ERIE**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, ECL Article 70, discharges in accordance with GP-0-15-002 from the above construction site will be authorized **5** business days from **06/28/2018**, which is the date we received your final NOI, unless notified differently by the Department.

The permit identification number for this site is: **NYR11D909**. Be sure to include this permit identification number on any forms or correspondence you send us. When coverage under the permit is no longer needed, you must submit a Notice of Termination to the Department.

This authorization is conditioned upon the following:

1. The information submitted in the NOI received by the Department on **06/28/2018** is accurate and complete.

2. You have developed a Stormwater Pollution Prevention Plan (SWPPP) that complies with GP-0-15-002 which must be implemented as the first element of construction at the above-noted construction site.

3. Activities related to the above construction site comply with all other requirements of GP-0-15-002.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

4. Payment of the annual $110 regulatory fee, which is billed separately by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

5. Your SWPPP has been reviewed by the regulated, traditional land use control MS4 where your project is located and has been determined to be in substantive conformance with the requirements in the SPDES General Permit for Stormwater Discharges from MS4s.

6. Before disturbing greater than 5 acres of soil at any one time, you have obtained written authorization from the regulated, traditional land use control MS4 that has jurisdiction over the project.

7. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisfied.

8. You have obtained all necessary Department permits subject to the Uniform Procedures Act (UPA). You should check with your Regional Permit Administrator for further information.

***Note: Construction activities cannot commence until project review pursuant to SEQRA has been satisfied, when SEQRA is applicable; and, where required, all necessary Department permits subject to the UPA have been obtained.**

Please be advised that the Department may request a copy of your SWPPP for review.

Should you have any questions regarding any aspect of the requirements specified in GP-0-15-002, please contact Dave Gasper at (518) 402-8114 or the undersigned at (518) 402-8109.

Sincerely,

Toni Cioffi

Toni Cioffi
Environmental Program Specialist 1

PLEASE NOTE: EPA HAS FINALIZED THE eREPORTING RULE; AND, IN THE NEAR FUTURE, ALL NOIs WILL HAVE TO BE SUBMITTED ELECTRONICALLY.
BY FILING AN NOI ELECTRONICALLY, A PROJECT CAN TYPICALLY GAIN COVERAGE IN 5 BUSINESS DAYS COMPARED TO 10 BUSINESS DAYS FOR THE PAPER NOI.
INFORMATION ON THE eNOI CAN BE FOUND ON OUR WEBSITE AT:
http://www.dec.ny.gov/chemical/43133.html UNDER "FORMS."

cc RWE - 9
SWPPP Preparer
Greenman-Pedersen, Inc.
Plotar, Thomas
4950 Genesee Street, Suite 100
Buffalo, NY 14225

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

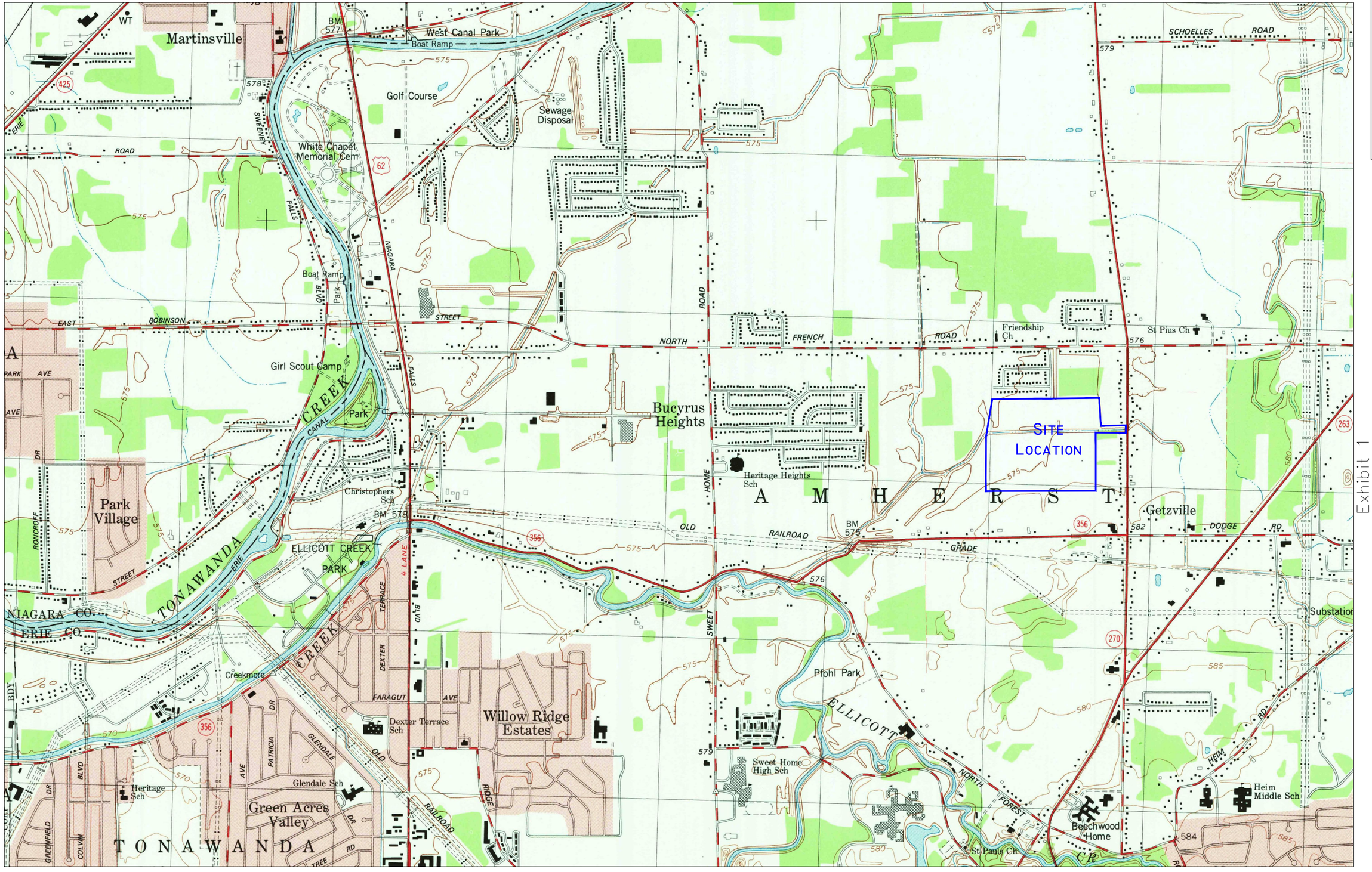
EXHIBITS

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

EXHIBIT 1

SITE LOCATION MAP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, N.Y. 14225
(716)853-4844 FAX (716)853-4846

GPI

JOB No.: BUF-2017014 DATE: MAY 201

Exhibit 1
Site Location Map
Muir Woods Subdivision
TOWN OF AMHERST, COUNTY OF ERIE, STATE OF NEW YORK

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

N:\2013\2013062 – Muir Woods\ENG\MODELS\DRAINAGE\2013062–basemap_Hydrology.dwg, Model, 2017/05/15 09:46 am

EXHIBIT 2

PRE-DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SUB 31
AREA = 234.88 ACRES

SUB 29
AREA = 229.32 ACRES

SUB 30
AREA = 190.46 ACRES

SUB 27
AREA = 112.31 ACRES

SUB 26B
AREA = 220.93 ACRES

SUB 28
AREA = 24.65 ACRES

SUB 26A
AREA = 118.92 ACRES

SUB D4DS
AREA = 280.91 ACRES

SUB R1
AREA = 14.58 ACRES

NOTE: TOPOGRAPHIC FEATURES TAKEN FROM TOWN OF AMHERST G.I.S. MAP

Exhibit 2
Existing Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, NY 14226
PH (716) 853-4444 FAX (716) 853-4480

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

EXHIBIT 3

POST DEVELOPED WATERSHED DELINEATION MAP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SUB 30
AREA = 425.34 ACRES

SUB 29
AREA = 229.32 ACRES

SUB 27
AREA = 112.31 ACRES

SUB 26B
AREA = 220.93 ACRES

SUB 28
AREA = 24.65 ACRES

SEE EXHIBIT 3A

SUB D4DS
AREA = 280.91 ACRES

SUB R1
AREA = 14.58 ACRES

NOTE: TOPOGRAPHIC FEATURES TAKEN FROM TOWN OF AMHERST G.I.S. MAP

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, NY 14226
PH (716) 853-4444 FAX (716) 853-4480

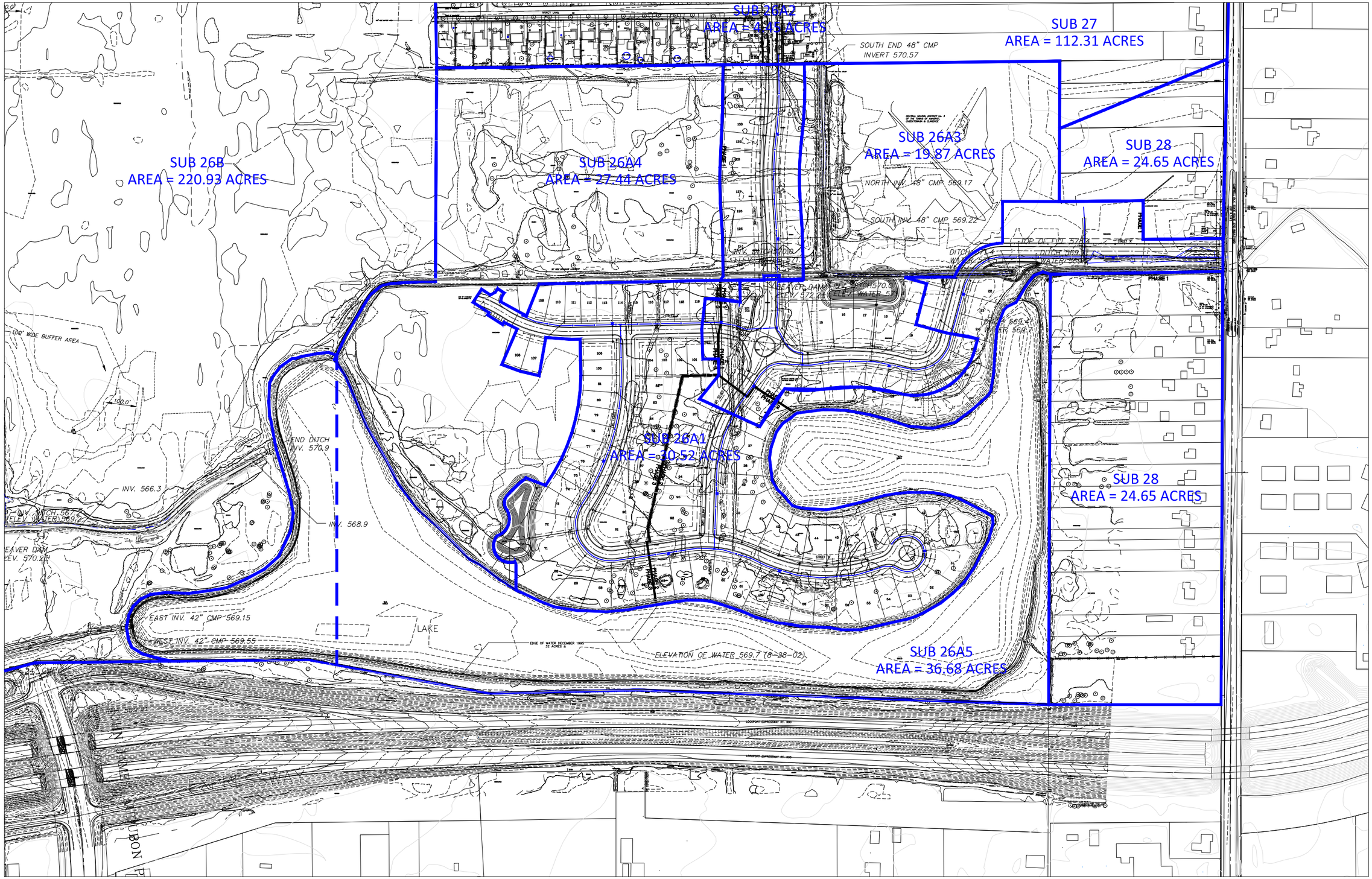
GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 3
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY NEW YORK

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

N:\2013\2013062 – Muir Woods\ENG\MODELS\DRAINAGE\hydrology 2017.dwg, Model, 2017/05/11 03:45 pm



GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
4950 GENESEE STREET, SUITE 165 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

GPI

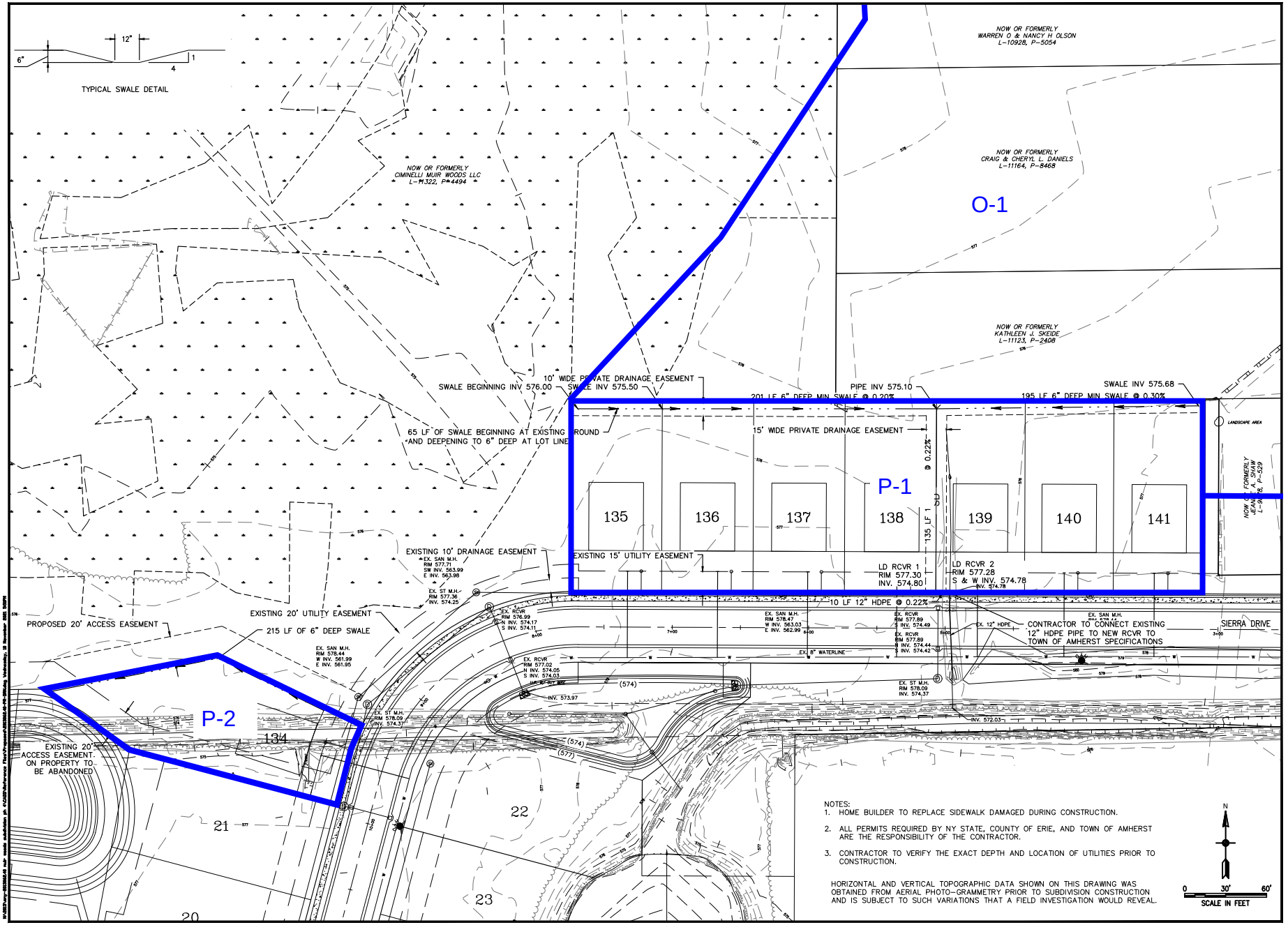
JOB No.: BUF-2013062

DATE: MAY 201

Exhibit 3A
Post Watershed Delineation Map
MUIR WOODS SUBDIVISION
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

N:\2013\2013062 – Muir Woods\ENG\MODELS\DRAINAGE\hydrology 2017.dwg, Model, 2017/05/11 03:46 pm



GPI Engineering Design Planning Construction
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 1
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Wood
50 Fountain Plaza, S
Buffalo, NY 142

Muir Woods Subdivision, Phase 4
520 Campbell Blvd

STATE OF NEW YORK GREENMAN PEDERSEN INC. LICENSED PROFESSIONAL ENGINEER No. 091

REVISIONS

NO.	REVISION

November 12, 20

DRAWN/DESIGN BY: THM | CHE

Drainage Pl

SCALE: 1" = 30'

WNY-2013062.4

03 OF 0

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

EXHIBIT 4

ELLICOTT CREEK WATERSHED DELINEATION MAP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING SURVEYING PLANNING
400 GENESEE STREET, SUITE 150 BUFFALO, NY 14225
(716) 853-0804 FAX (716) 853-0480

GPI

JOB No.: BUF-2013062 DATE: MAY 201

Exhibit 4

Ellicott Creek Watershed Delineation Map

MUIR WOODS SUBDIVISION

TOWN OF AMHERST, ERIE COUNTY, NEW YORK

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

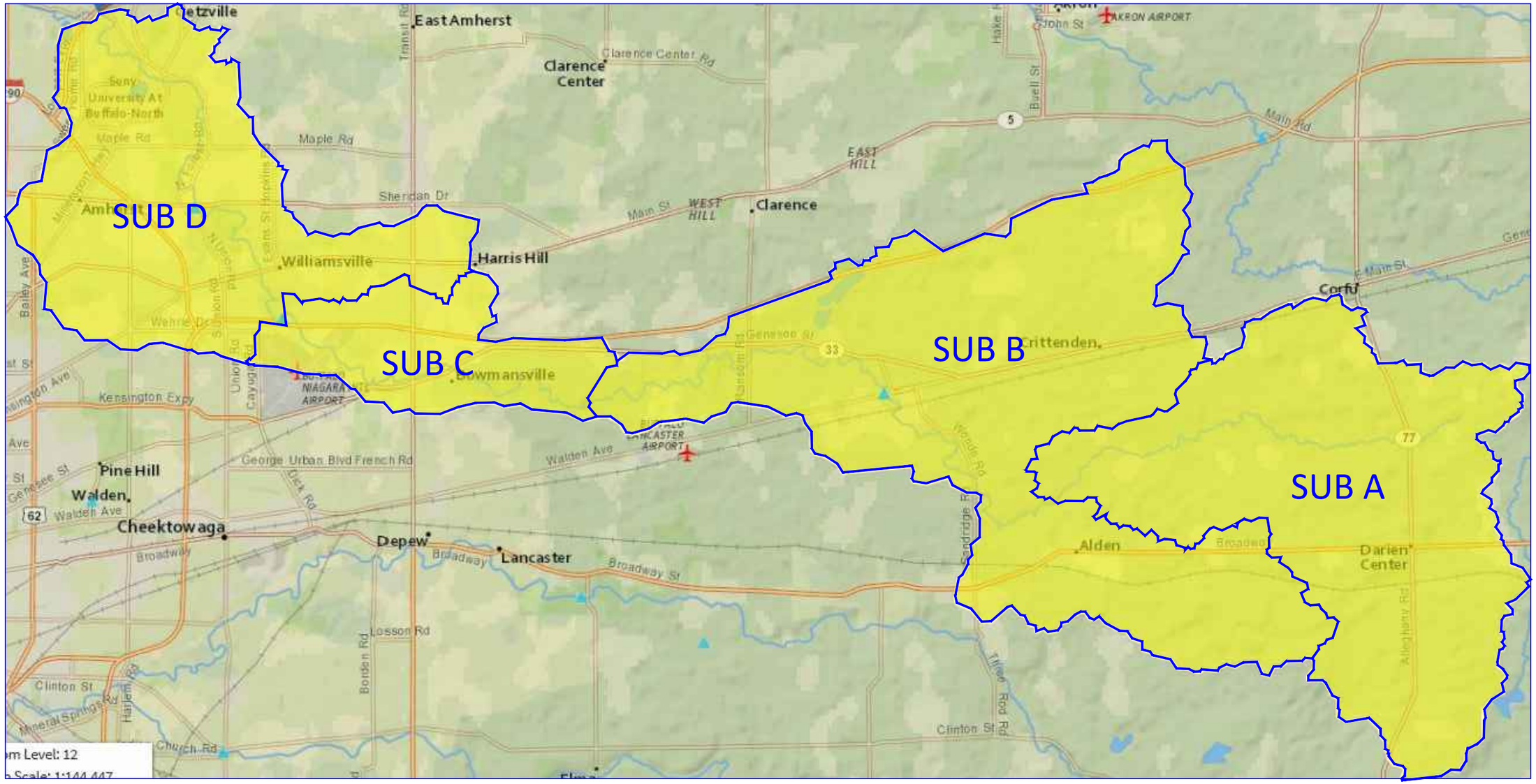
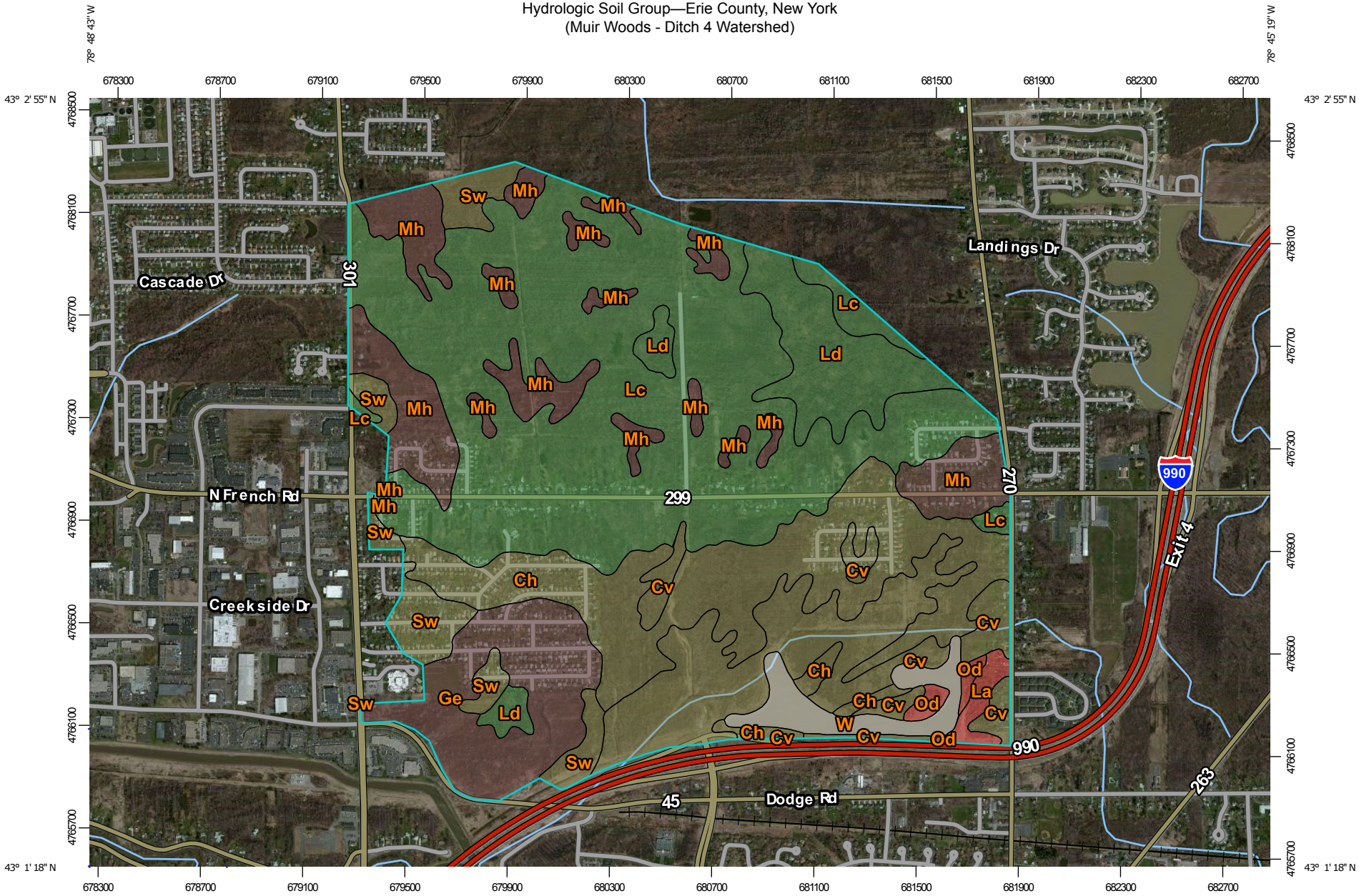

SUB D
SUB C
SUB B
SUB A
Getzville
East Amherst
Clarence Center
Clarence
Williamsville
Harris Hill
Corfu
Crittenden
Cheektowaga
Pine Hill
Walden
Depew
Lancaster
Alden
Darien Center
Akron
Akron Airport
Buffalo Niagara Airport
Buffalo Lancaster Airport
Maple Rd
Sheridan Dr
Main St
East Hill
West Hill
Main Rd
Broadway
Broadway St
Walden Ave
Clinton St
Losson Rd
Kensington Expy
George Urban Blvd
French Rd
Transit Rd
Bell St
Sandridge Rd
Tiffee Rd
Borden Rd
Harlem Rd
Mineral Springs Rd
Church Rd
Allegheny Rd
Genesee St
Bailey Ave
Union Rd
Sunset Rd
Beck Rd
Wehrle Dr
Clarence Center Rd
John St
Main St
Broadway
Walden Ave
Genesee St
Broadway
Broadway
Broadway

EXHIBIT 5

SITE SOIL MAP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)



Map Scale: 1:21,100 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Hydrologic Soil Group—Erie County, New York
(Muir Woods - Ditch 4 Watershed)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 15, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Erie County, New York (NY029)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ch	Cheektowaga fine sandy loam	C/D	188.2	15.4%
Cv	Cosad loamy fine sand	C/D	143.5	11.8%
Ge	Getzville silt loam	B/D	93.0	7.6%
La	Lakemont silt loam, 0 to 3 percent slopes	D	8.9	0.7%
Lc	Lamson very fine sandy loam	A/D	484.8	39.8%
Ld	Lamson mucky very fine sandy loam	A/D	77.0	6.3%
Mh	Minoa very fine sandy loam	B/D	129.7	10.6%
Od	Odessa silt loam, 0 to 3 percent slopes	D	6.5	0.5%
Sw	Swormville clay loam	C/D	56.6	4.6%
W	Water		30.9	2.5%
Totals for Area of Interest			**1,219.0**	**100.0%**

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TOWN OF AMHERST ATTACHMENT
State Environmental Quality Review
ENVIRONMENTAL ASSESSMENT FORM

Site Plan Application - Portion of 520 Campbell Boulevard from

1. For each applicable category of proposed new structures, including additions to existing structures, provide the following information for all soil types on the project site (*according to Soil Survey of Erie County, NY; Table 11, Building Site Development, pp 294-305):*

Soil Name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Cheektowaga [Ch]	Severe: wetness, too clayey	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
Cosad [Cv]	Severe: wetness, cutbanks cave, too clayey	Severe: wetness	Severe: wetness	Severe: wetness	Moderate: wetness

2. If the Soil survey indicates either "severe" or "moderate" suitability for the proposed types of construction, a geotechnical and hydrological analysis based on one test per 3.5 acres of project area must be provided (per Town Board resolution, 3/17/03, amended 6/16/03).

___ Geotechnical report attached __ Not applicable

[Note: Enclosed are three copies of the Geotechnical Report prepared by Glynn Group dated October 4, 2018].

3. Is your property located: On Youngs Road between Dodge and Klein Roads? □ Yes ✓ No
On Wehrle Dr. between Spindrift Dr. and Oakwood Rd? □ Yes ✓ No

If so, the property may be within an area of the Town that is affected by a moratorium on connections to the sanitary sewer system.

4. Are there alternative locations on the site for this project? □ Yes ✓ No

5. Location and size of real property owned by petitioner within one (1) mile of subject proposal:

The Petitioner owns the parcels of real property 1081 and 1121 North French Road which consist of nearly 330 acres of land.

6. Are you aware of current or future plans or intentions by others in the Town of Amherst to develop property within 1000± ft. of the present project request: □ Yes ✓ No

Describe: **There are current proposals to develop Site "B" of Muir Woods as student housing and Site "A" of Muir Woods as a mixed-use project.**

(Potential environmental impacts from adjacent or nearby projects undergoing the approval process will receive a coordinated environmental review to determine cumulative effects on common receivers (e.g. traffic and drainage corridors) and other relevant environmental concerns.)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

7. Maximum number of vehicular trips to be generated per hour upon completion of project: **8 vehicular trips during the weekday peak travel period.**

8. Will blasting occur during construction? □ Yes ✓ No

9. Does the project propose to connect and be tributary to the public sanitary sewer system? ✓ Yes □ No

10. Proposed net additional gallons per day (gpd) of sanitary sewer discharge upon completion of project:

    2,800 gpd average flow **11,200** gpd peak flow.

    (Please note that average flows of 2,500 gpd or greater will require an Engineer's Report that includes a detailed downstream sewer capacity analysis and the identification of and commitment to required I/I offset work during peak wastewater flow conditions.)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

GLYNN GROUP
ENGINEERING & ARCHITECTURE, PLLC

Civil • Geotechnical
Structural • Architecture
Material Testing • Consulting

October 4, 2018

Ciminelli Real Estate Corporation
350 Essjay Road
Williamsville, New York 14221

Attn: Mr. Matt Ciminelli

Subject: **Preliminary Geotechnical Evaluation**
520 Campbell Boulevard Rezoning
Town of Amherst, New York
GGEA 18-1263

Dear Mr. Ciminelli:

Glynn Group Engineering and Architecture, PLLC (GGEA) has prepared this preliminary geotechnical evaluation to assist in rezoning efforts for the proposed development of eight (8) lots along Sierra Drive in the Town of Amherst, New York. Sierra Drive is to intersect with Campbell Boulevard in the vicinity of address 520 and will be part of the Preserve at Muir Woods Subdivision Part 2. The project site is located on the west side of Campbell Boulevard approximately 0.25 miles south of North French Road. This geotechnical evaluation is based on one (1) SPT soil boring performed Earth Dimensions, Inc. (EDI) on September 25, 2018 at the approximate southern end of Lot 138. The site was forested and undeveloped prior to the construction of Sierra Drive.

The subsurface investigation was performed in accordance with ASTM D-1586 "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". Hollow stem augers were advanced through the overburden material to permit soil sample retrieval using a twenty-four inch long, two inch diameter split spoon sampler. Resistance values, or blow counts, were recorded for each six-inch advancement of the split spoon sampler and "N" values were calculated by totaling the resistance values for the 6/12 and 12/18 inch intervals. Retrieved soil samples were logged and visually classified by EDI in accordance with the ASEE System of Definition for Visual Identification of Soils (Burmister Classification System) and ASTM D-2488 "Standard Practice for Description and Identification of Soils (Visual – Manual Procedure)".

The soil boring was terminated in very dense glacial till at a depth of 35.0 feet below existing grade. Specific subsurface conditions can be found on the enclosed soil boring log, however subsurface conditions were found to be typical for the area and generally consist of moist, compact, silty sand (SM) to a depth of 2.5 feet, followed by moist, very stiff, lean clay with gravel (CL) to a depth of 10.0 feet, followed by extremely moist to wet, firm, lean clay (CL) to a depth of 12.0 feet, followed by wet, soft, lean clay (CL) to a depth of 25.5 feet, followed by moist, very dense, sandy silt with gravel (ML) to the boring termination depth of 35.0 feet. Bedrock is estimated at a depth of approximately 45 feet.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Groundwater was not encountered in the augers upon the completion of drilling efforts. The augers did not remain in the ground for an extended period of time to allow for groundwater to migrate through the soils and stabilize in the augers, nor was a groundwater monitoring well installed to obtain accurate groundwater elevation data. However, based on the moisture content and color of recovered soil samples, the stabilized groundwater elevation is estimated at a depth of approximately 10 feet below existing grade, where soils transition from moist to wet and begin to decrease in strength.

The native subsurface conditions at this property are of good structural quality in the upper 12 feet and will provide for the construction of shallow foundation systems for the proposed structures consisting of standard strip and spread footings. Although soft soils were encountered from approximately 12 to 14 feet, properly designed and constructed shallow foundation systems bearing within the upper stiff soils will provide adequate support for the proposed houses. The site is suitable for basement construction pending foundations are designed for an allowable bearing capacity not to exceed 2,500 psf.

In accordance with Section 1613 (Earthquake Loads) of the 2015 IBC, the site is classified as Seismic Site Class D. The site classification is based on the summation of N values for the upper 100 feet of soil in accordance with equation 20.4-2 of ASCE 7.

This completes the current scope of GGEA's services for this project. Foundation construction and design recommendations should be provided through the preparation of a full multi-boring geotechnical investigation and report prior to construction. Please contact GGEA if you should have any questions or if encountered subsurface conditions differ from those identified within this report.

Sincerely,

G. Edward Lover
Senior Geologist

STATE OF NEW YORK
MARK W. GLYNN
LICENSED PROFESSIONAL ENGINEER
LICENSE NO. 087453

Mark W. Glynn, P.E.
Consulting Engineer, Principal

/gel

encl. soil boring log, boring location plan, seismic site class

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

10G99j HOLE NO. B-1-18 SURF. ELEVATION —

PROJECT 520 Campbell Boulevard LOCATION North Side of Access Road

Town of Amherst, Erie County, NY

CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 09/25/18 COMPLETED 09/25/18

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	9						Extremely moist to wet gray (SILTY-CLAY) fill with 3 to 7% gravel, trace sand, stiff, massive soil structure, (CL).	Clayey soil fill with trace sand and gravel to 0.2 feet over sandy soil fill with little silt, trace clay to 2.3 feet over water sorted and deposited sand with little silt to 2.5 feet over clayey lake sediment with trace sand to 25.0 feet over silty glacial till with little to some gravel, little sand to end of boring.
	17		6			13		0.2	
				7					
					6				
	2	19							
	11		18			33		Moist faintly mottled orangish brown (SILTY-SAND) fill with mostly very fine to fine size sand, little silt, trace clay, compact, massive soil structure, (SM) tending toward (ML).	
				15					
					16				
	3	4							
5	15		7			19		2.3	
				12					
					15				
	4	9							
	23		8			18		Extremely moist brown (SILTY-SAND) with mostly very fine to fine size sand, little silt, compact, thinly bedded, (SM).	
				10					
					14			grades downward to 2.5	
	5	8							
	24		5			12		Moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (CL).	
				7					
					6				
10	6	6						grades downward to 8.0	
	20		4			8		Extremely moist gray (SILTY-CLAY) with trace sand, stiff, soft below 12.0 feet, thiny laminated with very thin coarse silt lenses, (CL).	
				4					
					4				
	7	3							
	19		2			4			
				2					
					4				
	8	3							
15	20		4			7			
				3					
					3				
	9	4							
	23		3			6			
				3					
20					2				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Jason Kryszak, Geologist, (cns) SHEET 1 OF 2

Note: Advanced bore hole with 2 1/4" ID x 6" OD hollow stem auger casing with continuous split spoon sampling to 16.0 feet and 5.0-foot interval sampling to end of boring at 35.0 feet. Bore hole was backfilled with cuttings to ground surface upon completion.

No water at completion.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

10G99j HOLE NO. B-1-18 SURF. ELEVATION —

PROJECT 520 Campbell Boulevard LOCATION North Side of Access Road

Town of Amherst, Erie County, NY

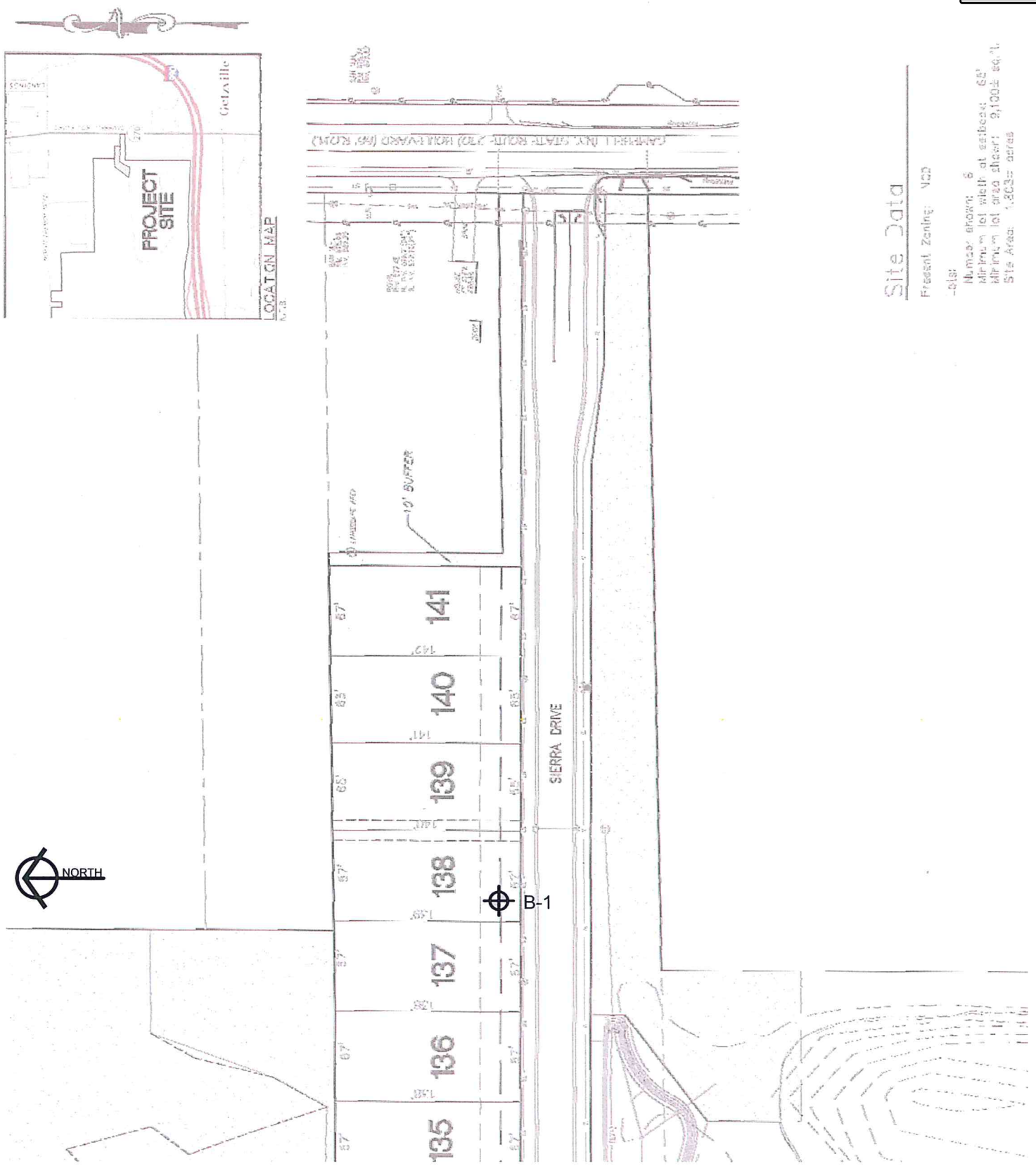
CLIENT Glynn Group Engineering & Architecture, PLLC DATE STARTED 09/25/18 COMPLETED 09/25/18

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
								Extremely moist gray (SILTY-CLAY) with trace sand, stiff, soft below 12.0 feet, thiny laminated with very thin coarse silt lenses, (CL).	
	10	2							
	24		2			5			
				3					
25					3			grades downward to 25.5	
								Moist gray gravelly (SANDY-SILT) with 15 to 25% gravel, occasional cobble, little sand, very dense, massive soil structure, (ML).	
	11	57							
	8		100/3						
30									
	12	26							
	15		40			127			
				87					
35					93			35.0	
								Boring completed at 35.0 feet	
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Jason Kryszak, Geologist, (cns) SHEET 2 OF 2

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

GGE
ENGINEERING • DESIGN
GLYNN GEOTECHNICAL ENGINEERING
415 S. TRANSIT STREET
LOCKPORT, NEW YORK 14094
VOICE (716) 625 - 6933 / FAX (716) 625-6983
www.glynngroup.com

PROJECT:	520 CAMPBELL BOULEVARD
SUBJECT:	SOIL BORING LOCATION PLAN
CLIENT:	CIMINELLI REAL ESTATE CORP

PROJ. NO.:	SCALE:	DATE:	BY:
18-1263	1"= 100'-0"	09.17.18	GEL

SHEET NO.: S1

Project : 520 Campbell Boulevard
Client: Ciminelli Real Estate Corporation
GGE # : 18-1263
Date: 10.04.18

B-1

	Depth (di)	N Value (Ni)
	2.5	13
	7.5	20
	2	8
	2	4
ASCE 7	11.5	6
Equation 20.4-2	19.5	75
	45	100

$$N = \frac{100}{\sum \frac{di}{Ni}}$$

***N* = 25.4**

ASCE 7
Table 20.3-1

$$15 \leq N \leq 50$$

SITE CLASS D

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

June 22, 2018

Ellen Kost, AICP, Assistant Planning Director
Town of Amherst Planning Department
5583 Main Street
Williamsville, NY 14221

Re: The Preserve at Muir Woods Subdivision – Final Plat Review [SP-2017-03FP]
Project Site: 1121 and 520 Campbell Boulevard
Applicant: Ciminelli Muir Woods, LLC
HSR File No. 10024.2

Dear Ms. Kost:

Attached as Exhibit "1" is a copy of the Declaration of Restrictions as recorded in at the Erie County Clerk's Office on Thursday, June 21st in Liber 11330 of Deeds at Page 8243 for the purpose of complying with the relevant portion of the Amended Findings Statement issued by the Town Board pursuant to the State Environmental Quality Review Act ("SEQRA") on December 7, 2015. A copy of the recording receipt is provided at the last page of the enclosed copy of the recorded Declaration of Restrictions.

The recording of the enclosed Declaration of Restrictions also satisfies the first bullet point contained in Site Plan Condition No. 10 as imposed by the Planning Board on September 14, 2017 stating as follows:

> "10. That the petitioner comply with all the requirements contained in the Muir Woods Findings statement amended by the Town Board on December 7, 2015 which include but are not limited to: Prohibiting construction vehicles from using Lynette Lane as a means of access (a deed restriction to be included with the sale of any lots within Sites C and D (Section 8F)."

Please feel free to contact me at 510-4338 or via e-mail at shopkins@hsr-legal.com if you have any questions regarding this letter or the enclosed copy of the Declaration of Restrictions as filed at the Erie County Clerk's Office on June 21st.

Sincerely,

HOPKINS SORGI & ROMANOWSKI PLLC

Sean W. Hopkins, Esq.

HOPKINS SORGI & ROMANOWSKI PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsr-legal.com • www.hsr-legal.com

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Enc.

cc: Stanley J. Sliwa, Esq., Town Attorney, Town Attorney's Office
Douglas Gesel, Senior Code Enforcement Officer, Building Department
Kathy Cooper, Deputy Town Clerk, Town Clerk's Office
Ken Zollitsch, LEED AP, Director of Land Planning, GPI Engineering [Via e-mail]
Adam Faeth, Esq., Ciminelli Real Estate Corporation [Via e-mail]
Matthew Ciminelli, Ciminelli Real Estate Corporation [Via e-mail]

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Exhibit 1 – Declaration of Restrictions for Muir Woods Project Recorded at the Erie County Clerk's Office on June 22, 2018 at in Liber 11330 of Deeds at Page 8243 with Copy of Recording Receipt Attached as Last Page

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

FILED
JUN 21 2018
ERIE COUNTY
CLERK'S OFFICE

Return Original to Box 460
Hopkins Sorgi & Romanowski PLLC
Attn: Sean W. Hopkins, Esq.

DECLARATION OF RESTRICTIONS

THIS DECLARATION OF RESTRICTIONS ("***Declaration***") is made as of the 8th day of June, 2018 by **CIMINELLI MUIR WOODS, LLC**, a limited liability company organized under the laws of the State of New York, having its office at 350 Essjay Road, Williamsville, NY ("***Declarant***") under facts and circumstances summarized by the following recitals:

WHEREAS, Declarant is the owner of real property consisting of approximately 326 acres of real property located at 1081 and 1121 North French Road (hereinafter "***Subject Property***") and that is more particularly by the metes and bounds legal description attached at **Schedule "1"** hereto;

WHEREAS, the Subject Property is zoned New Community District ("***NCD***") pursuant to the Zoning Map of the Town of Amherst and the use of land within the New Community District is regulated pursuant to the land use classifications contained in the Zoning Code of the Town of Amherst;

WHEREAS, Declarant petitioned the Town Board of the Town of Amherst (hereinafter "***Town Board***") to amend the land use classifications of portions of the Subject Property that is owned by the Declarant;

WHEREAS, on December 3, 2007, the Town Board issued a Findings Statement pursuant to the State Environmental Quality Review Act ("SEQRA") and the Town Board also voted to: 1.) approve Amendment #51 to the Audubon Development Plan, 2.) amend the land use classifications of portions of the Subject Property from NCD-Neighborhood District and NCD-Major Open Space to NCD-General Commercial, NCD-Restricted Industrial and NCD-Major Open Space;

WHEREAS, as the Town Board imposed conditions in connection with its decisions to issue a Findings Statement pursuant to SEQRA and amending the land use classifications of portions of the Subject Property;

WHEREAS, the Town Board issued an Amended Statement of Findings pursuant to SEQRA on December 7, 2015;

NOW, THEREFORE, in exchange for good and valuable consideration the sufficiency of which is acknowledged, the Declarant agrees to restrict the future use of the portions of the Subject Property (or its entirety when expressly specified) in accordance with the conditions imposed by the Town Board that are subject to this Declaration of Restrictions as follows

1. All construction equipment and vehicles that will be utilized in connection with the development the Subject Property pursuant to site plans and final plats to be approved by the Town of Amherst Planning Board shall be expressly prohibited from utilizing the existing streets within the Franklin Heights Subdivision, including but not limited to Lynette Lane, for purposes of egress and ingress to the Subject Property.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

2. The residential components of the project shall be prohibited from utilizing the condominium form of ownership.

3. On those portions of the Subject Parcel where commercial development (excluding all residential uses) will be located directly adjacent to existing residential areas (i.e. Bucyrus Heights), minimum setbacks have been established for the purpose of providing an adequate buffer. The following minimum setbacks will apply only to development of portions of the Subject Property that are directly adjacent to existing residential uses as of the date of this Declaration of Restrictions:

   - All commercial development (buildings and parking areas) will have a minimum setback of fifty feet (50'), with the area within forty feet (40') of adjacent residential property boundaries remaining undisturbed so that existing trees and brush remain as a buffer. The planting of additional trees and shrubs by the Declarant within the minimum setback area may be required by the Town of Amherst during the site plan review process to supplement the existing vegetation in order to provide adequate buffers.

   - A combination of earthen berms and new vegetation will be required in those portions of the minimum setback area where there is not sufficient existing vegetation to provide an adequate buffer. The minimum height at the top of berms shall be three feet (3'), and the maximum slope shall be 1 on 3 (33%) to promote the growth and long-term viability of trees and shrubs planted on the berms. Berms should have a natural appearance by varying their width and height. The Town of Amherst will verify compliance with this requirement during the site plan review process.

   - Site A: Site A is the western portion of the Subject Parcel that is proposed to be utilized for flex office/R&D buildings and it is located directly south of the existing Bucyrus Heights subdivision. A legal description of Site A is attached as **Schedule "2"**. The minimum setbacks for development within Site A shall be as follows:

     - 60 ft. minimum required building setback from residential lot line.

     - 60 ft. minimum required parking setback from residential lot line.

   - Site B: Site B is the center portion of the Subject Parcel that will be utilized for office space. A legal description of Site B is attached as **Schedule "3"**. The minimum setbacks for development within Site B shall be as follows:

     - 60 ft. minimum building setback from residential lot line. If the height of any proposed office buildings exceeds 50 feet, the required minimum building setback shall be equal to or greater than the height of the proposed office building.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

- 60 ft. minimum parking setback to residential lot line.

4. The following maximum building heights shall apply to the commercial components of the development of the Subject Parcel:

- Site A (western portion of the project site) – The maximum building height for buildings within Site A as described in **Schedule "2"** shall be as follows:
  - Maximum building height shall be 40 ft. as measured from the finished grade to the top of any parapet (excluding any rooftop mechanical equipment). All mechanical equipment shall be properly screened in accordance with the standards contained in the Zoning Code adopted by the Town Board in May of 2006.
- Site B (center portion of the Subject Parcel) – The maximum building height for buildings within Site B as described in **Schedule "3"** shall be as follows:
  - There will not be a maximum height for office buildings to be constructed on Site B. All office buildings to be constructed on Site B will be required to comply with a minimum required setback that shall be the greater of fifty feet (50') feet or the height of the proposed office building at the point of its maximum height (including rooftop mechanicals, etc.).

5. The portions of the Subject Property reclassified to New Community District – General Commercial ("NCD-GC") by the Town Board as described in the attached **Schedule "4"** shall be prohibited from being utilized for the following categories of land uses:

A. Automobile sales and service facilities (except vehicles used primarily on the subject property);

B. Veterinary clinics or kennels; and

C. Gasoline service stations shall be prohibited around the existing approximately 32 acre lake on the southeastern portion of the Subject Property.

The above restrictions contained in numbered paragraphs 1, 2, 3, 4 and 5 shall be binding on all parties claiming thereunder and shall run and touch the land except that the above restrictions can be changed, modified or eliminated by a majority vote of the Town Board.

[REMAINDER OF PAGE LEFT INTENTIONALLY BLANK
SIGNATURE(S) ON FOLLOWING PAGE]

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

IN WITNESS WHEREOF, the individual executing this Declaration of Restrictions on behalf of the Declarant has the full legal authority to enter execute this Declaration of Restrictions.

CIMINELLI MUIR WOODS, LLC

By: _____

Title: Paul F. Ciminelli
Managing Member

Print Name: _____

STATE OF NEW YORK)
COUNTY OF ERIE) ss.:

On this 8 day of June, 2018, before me, the undersigned, a notary public in and for said state, personally appeared Paul F. Ciminelli, personally known to me or proved to me on the basis of satisfactory evidence to the be the individual whose name is subscribed to within this instrument and acknowledged to me that he executed the same in his capacity, that they by his signature on the instrument, the individual or the person upon behalf of which the individual acted, executed the instrument.

Notary Public

KATHLEEN A. GUENTHER #01GU4675162
NOTARY PUBLIC, STATE OF NEW YORK
QUALIFIED IN ERIE COUNTY
My Commission Expires August 31, 2018

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SCHEDULE 1

LEGAL DESCRIPTION OF SUBJECT PROPERTY

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Amherst, County of Erie, State of New York, being part of Lots 70 & 76, Township 12, Range 7 of the Holland Land Company's Survey, bounded and described as follows.

COMMENCING at a point on the centerline of North French Road at the northwest corner of Lot 70 distant 4179.22 feet west of the northeast corner of Lot 70, being the intersection of the centerline of North French Road and the centerline of Campbell Boulevard;

THENCE: N-89°-22'-00"-E, along the centerline of North French Road being the north line of Lot 70, a distance of 285.00 feet to a point;

THENCE: S-01°-04'-00"-E a distance of 33.00 feet to the south line of North French Road and the POINT OF BEGINNING;

THENCE: S-01°-04'-00"-E a distance of 231.00 feet to a point;

THENCE: N-89°-22'-00"-E, parallel with the centerline of North French Road being the north line of Lot 70, a distance of 110.00 feet to a point;

THENCE: N-01°-04'-00"-W a distance of 231.00 feet to the south line of North French Road;

THENCE: N-89°-22'-00"-E, along the said south line of North French Road a distance of 243.00 feet to a point;

THENCE: S-01°-04'-00"-E a distance of 231.00 feet to a point;

THENCE: N-89°-22'-00"-E, parallel with the centerline of North French Road being the north line of Lot 70, a distance of 853.60 feet to the western most northwest corner of Franklin Heights Subdivision filed in the Erie County Clerk's Office under Map Cover 2240;

THENCE: S-01°-04'-00"-E and parallel with the west line of Lot 70 a distance of 739.86 feet to the southwest corner of said Map Cover 2240;

THENCE: N-89°-22'-00"-E and parallel with the centerline of North French Road being the north line of Lot 70, a distance of 1343.12 feet to the northwest corner of lands conveyed to the Central School District No. 3 of the Towns of Amherst, Cheektowaga and Clarence by deed recorded in the Erie County Clerk's Office in Liber 7318 of Deeds at page 367;

THENCE: S-00°-11'-28"-W, along the west line of said Central School District No. 3 of the Towns of Amherst, Cheektowaga and Clarence lands, a distance of 716.41 feet to the southwest corner thereof;

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

THENCE: N-89°-04'-14"-E, and parallel with the south line of lot 70 being the centerline of Dodge Road, along the south line of said Central School District No. 3 of the Towns of Amherst, Cheektowaga and Clarence lands, a distance of 711.46 feet a point distant 609.84 feet west of the centerline of Campbell Boulevard being the east line of Lot 70;

THENCE: S-00°-14'-01"-W, parallel with the centerline of Campbell Boulevard (east line of Lot 70), a distance of 1439.24 feet to the northerly line of the Lockport Expressway Section II;

THENCE: Along the northerly lines of said Lockport Expressway Section II, the following six (6) courses and distances;

1.) N-87°-56'-02"-W, a distance of 1367.40 feet to a point.
2.) S-88°-46'-36"-W, a distance of 504.31 feet to a point.
3.) N-79°-27'-19"-W, a distance of 612.88 feet to a point.
4.) S-89°-19'-05"-W, a distance of 916.15 feet to a point.
5.) S-75°-02'-22"-W, a distance of 970.22 feet to a point of curvature
6.) Southwesterly along a curve to the left having a radius of 6,848.00 feet an arc distance of 1,238.25, and a central angle of 10°-21'-37" and a chord length of 1,236.56 feet at a bearing of S-68°-07'-21"-W to the east corner of lands conveyed to Niagara Mohawk Power Corporation by deed recorded in the Erie County Clerk's Office in Liber 9173 of Deeds at page 51.

THENCE: N-55°-38'-22"-W a distance of 202.71 feet to the north corner of said lands conveyed to Niagara Mohawk Power Corporation by deed recorded in the Erie County Clerk's Office in Liber 9173 of Deeds at page 51;

THENCE: S-65°-24'-13"-W a distance of 599.16 feet to the north line of Dodge Road Relocation;

THENCE: N-85°-10'-51"-W along the northerly line of Dodge Road Relocation a distance of 40.58 feet to a point of curvature;

THENCE: Northwesterly along a curve to the right and along the northerly line of Dodge Road Relocation said curve having a radius of 586.62 feet an arc distance of 539.31 and a central angle of 52°-40'-30" to a point of tangency;

THENCE: N-32°-30'-21"-W and along the northerly line of Dodge Road Relocation a distance of 457.24 feet to a point of curvature;

THENCE: Northwesterly along a curve to the left and along the northerly line of Dodge Road Relocation said curve having a radius of 724.00 feet an arc distance of 747.17 and a central angle of 59°-07'-45" to a point of tangency;

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

THENCE: S-88°-21'-54"-W and along the northerly line of Dodge Road Relocation a distance of 173.47 feet to the east line of Sweet Home Road as appropriated by the County of Erie under Liber 10908 of Deeds at page 9632 and delineated on Map SK 353-1, Parcel 1;

THENCE: N-02°-04'-02"-W and along said east line of Sweet Home Road a distance of 90.42 feet to a point;

THENCE: N-88°-55'-52"-E a distance of 540.79 feet to a point;

THENCE: N-00°-55'-59"-W a distance of 109.75 feet to a point;

THENCE: N-88°-55'-52"-E a distance of 700.84 feet to a point;

THENCE: N-02°-04'-02"-W and parallel with the centerline of Sweet Home Road being the west line of Lot 76, a distance of 118.24 feet to the southwest corner of lands shown on a map of Pleasant Acres Subdivision Part II filed in the Erie County Clerk's Office under Map Cover 2273;

THENCE: N-88°-55'-52"-E along the south line of said Map Cover 2273 and along the south line of lands shown on a map of Pleasant Acres Subdivision Part III filed in the Erie County Clerk's Office under Map Cover 2305 and being parallel with the south line of Lot 76, a distance of 1843.00 feet to the southeast corner of said Map Cover 2305;

THENCE: N-01°-06'-07"-W along the east line of said Map Cover 2305 and along the east line of lands shown on a map Bucyrus Heights Subdivision Part IV filed in the Erie County Clerk's Office under Map Cover 2291 and their extension north a distance of 2433.88 feet to the south line of said North French Road;

THENCE: S-89°-37'-42"-E along the south line of said North French Road a distance of 1138.32 feet to an angle point;

THENCE: N-89°-22'-00"-E continuing along the south line of said North French Road a distance of 285.54 feet to the POINT or PLACE of BEGINNING, having an area of 325.46 acres be the same more or less.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SCHEDULE 2

LEGAL DESCRIPTION OF SITE A

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Amherst, County of Erie, State of New York, being Part of Lot 76, Township 12, Range 7 of the Holland Land Survey (so-called) bounded and described as follows:

COMMENCING at the point of intersection of the centerline of Dodge Road with the centerline of Sweet Home Road; thence: south along the centerline of Sweet Home Road, a distance of 86.08 feet to a point; thence: east, at right angles with said centerline, a distance of 679.33 feet to the POINT OR PLACE OF BEGINNING of the parcel hereinafter described:

THENCE: through lands now or formerly of New York State Urban Development Corporation, the following fifteen (15) courses and distances:

1.) N-00°-55'-59"-W, a distances of 304.81 feet to a point;
2.) N-88°-55'-52"-E, a distance of 625.24 feet to a point;
3.) N-02°-04'-02"-W, a distance of 118.24 feet to a point;
4.) N-88°-55'-52"-E, a distance of 506.27 feet to a point;
5.) S-01°-04'-08"-E, a distance of 120.35 feet to a point;
6.) S-64°-48'-00"-W, a distance of 35.05 feet to a point;
7.) S-29°-42'-37"-W, a distance of 135.73 feet to a point;
8.) S-06°-01'-17"-E, a distance of 361.98 feet to a point;
9.) S-45°-04'-18"-E, a distance of 271.44 feet to a point;
10.) S-01°-04'-00"-E, a distance of 314.49 feet to a point;
11.) S-65°-24'-13"-W, a distance of 407.54 feet to a point;
12.) N-85°-10'-51"-W, a distance of 34.02 feet to a point of curvature;
13.) Northwesterly, on a curve to the right having a radius of 561.62 feet, an arc distance of 516.33 feet to a point of tangency;
14.) N-32°-30'-21'-W, a distance of 457.24 feet to a point of curvature;
15.) Northwesterly, on a curve to the left having a radius of 749.00 feet, an arc distance of 272.69 feet to the above described POINT OR PLACE OF BEGINNING containing 24.812 acres be the same more or less.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SCHEDULE 3

LEGAL DESCRIPTION OF SITE B

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Amherst, County of Erie, State of New York, being Part of Lots 70 and 76, Township 12, Range 7 of the Holland Land Survey (so-called) bounded and described as follows:

COMMENCING at the southeasterly corner of Pleasant Acres Subdivision, Part III as shown on a map filed in the Erie County Clerk's Office under Map Cover 2305:

THENCE: N-88°-55'-52"-E, a distance of 25.49 feet to the POINT OR PLACE OF BEGINNING of the parcel hereinafter described:

THENCE: Through lands now or formerly of New York State Urban Development Corporation the following eighteen (18) courses and distances:

1.) N-01°-04'-00"-W, a distance of 399.46 feet to a point;
2.) S-89°-49'-30"-E, a distance of 1113.76 feet to a point;
3.) N-01°-04'-00"-W, a distance of 313.08 feet to a point;
4.) N-43°-56'-00"-E, a distance of 212.13 feet to a point;
5.) N-88°-56'-00"-E, a distance of 500.00 feet to a point;
6.) S-01°-04'-00"-E, a distance of 633.18 feet to a point;
7.) N-64°-16'-09"-E, a distance of 40.36 feet to a point of curvature;
8.) Northeasterly along a curve to the left having a radius 246.47 feet, an arc distance of 199.72 feet to a point of reverse curvature;
9.) Northeasterly along a curve to the right having a radius 290.00 feet, an arc distance of 139.68 feet to a point to a point;
10.) S-41°-06'-39"-E, along a radial line a distance of 42.58 feet to a point;
11.) Southwesterly along a curve to the left having a radius of 145.00 feet, an arc distance of 165.69 feet to a point of compound curvature;
12.) Southeasterly along a curve to the left having a radius of 1490.00 feet, an arc distance of 235.87 feet to a point to a point of tangency;
13.) S-26°-24'-00"-E, along a line a distance of 38.95 feet to a point of curvature;
14.) Southeasterly and Southwesterly along a curve to the right having a radius of 265.00 feet, an arc distance of 400.91 feet to a point to a point of compound curvature;
15.) Southwesterly along a curve to the right having a radius of 500.00 feet, an arc distance of 345.60 feet to a point to a point of reverse curvature;
16.) Southwesterly along a curve to the left having a radius of 100.00 feet, an arc distance of 99.07 feet to a point to a point of tangency;
17.) S-42°-22'-25"-W, a distance of 40.03 feet to a point of curvature;
18.) Southwesterly along a curve to the left having a radius of 215.00 feet, an arc distance of 161.56 feet to a point on the northerly boundary line of the Lockport Expressway;

THENCE: along the said northerly boundary of the Lockport Expressway the following three (3) courses and distances:

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

1.) S-89°-19'-05"-W, a distance of 248.17 feet to a point;
2.) S-75°-02'-22"-W, a distance of 970.22 feet to a point of curvature;
3.) Southwesterly along a curve to the left having a radius of 6848.00 feet an arc distance of 322.33 feet to a point:

THENCE: Through lands now or formerly of New York State Urban Development Corporation the following three (3) courses and distances:

1.) N-01°-04'-00"-W, a distance of 843.03 feet to a point;
2.) N-88°-55'-52"-E, a distance of 25.00 feet to a point;
3.) N-01°-04'-00"-W, a distance of 25.00 feet to the above described POINT OR PLACE OF BEGINNING containing 52.202 acres be the same more or less.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SCHEDULE 4

LEGAL DESCRIPTION OF PORTIONS OF SUBJECT PROPERTY RECLASSIFIED TO NEW COMMUNITY DISTRICT – GENERAL COMMERCIAL ("NCD-GC")

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Amherst, County of Erie, State of New York, being Part of Lots 70 and 76, Township 12, Range 7 of the Holland Land Survey (so-called) bounded and described as follows:

COMMENCING at the southeasterly corner of Pleasant Acres Subdivision, Part III as shown on a map filed in the Erie County Clerk's Office under Map Cover 2305:

THENCE: N-88°-55'-52"-E, a distance of 25.49 feet to the POINT OR PLACE OF BEGINNING of the parcel hereinafter described:

THENCE: Through lands now or formerly of New York State Urban Development Corporation the following thirty (30) courses and distances:

1.) N-01°-04'-00"-W, a distance of 399.46 feet to a point;
2.) S-89°-49'-30"-E, a distance of 1113.76 feet to a point;
3.) N-01°-04'-00"-W, a distance of 477.72 feet to a point;
4.) N-43°-56'-00"-W, a distance of 212.13 feet to a point;
5.) N-88°-56'-00"-E, a distance of 500.00 feet to a point;
6.) S-01°-04'-00"-E, a distance of 633.18 feet to a point;
7.) N-64°-16'-09"-E, a distance of 40.36 feet to a point of curvature;
8.) Northeasterly along a curve to the left having a radius 246.47 feet, an arc distance of 199.72 feet to a point of reverse curvature;
9.) Northeasterly along a curve to the right having a radius of 290.00 feet, an arc distance of 271.18 feet to a point;
10.) N-73°-15'-30"-E, a distance of 466.70 feet to a point;
11.) N-88°-48'-50"-E, a distance of 1197.84 feet to a point;
12.) S-00°-14'-01"-W, a distance of 470.19 feet to a point on a curve;
13.) Southwesterly and southeasterly along a curve to the left having a radius of 175.00 feet an arc distance of 442.29 feet to a point of compound curvature;
14.) Easterly along a curve to the left having a radius of 425.00 feet an arc distance of 145.78 feet to a point of reverse curvature;
15.) Easterly along a curve to the right having a radius of 500.00 an arc distance of 172.91 feet to a point of compound curvature;
16.) Southeasterly and southwesterly along a curve to the right having a radius of 185.00 an arc distance of 438.62 feet to a point of compound curvature;
17.) Southwesterly along a curve to the right having a radius of 475.00 feet an arc distance of 382.34 feet to a point of tangency;
18.) S-89°-22'-54"-W, a distance of 150.00 feet to a point;
19.) Westerly along a curve to the right having a radius of 500.00 feet an arc distance of 222.66 feet to a point of reverse curvature;

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

20.) Westerly along a curve to the left having a radius of 500.00 feet an arc distance of 341.90 feet to a point of reverse curvature;
21.) Westerly along a curve to the right having a radius of 585.00 feet an arc distance of 414.74 feet to a point of compound curvature;
22.) Northwesterly along a curve to the right having a radius of 1200.00 feet an arc distance of 986.04 feet to a point of reverse curvature;
23.) Northwesterly and southwesterly along a curve to the left having a radius of 145.00 an arc distance of 455.53 feet to a point of compound curvature;
24.) Southeasterly along a curve to the left having a radius of 1490.00 feet, an arc distance of 235.87 feet to a point to a point of tangency;
25.) S-26°-24'-00"-E, a distance of 38.95 feet to a point of curvature;
26.) Southwesterly along a curve to the right having a radius of 265.00 feet, an arc distance of 400.91 feet to a point to a point of compound curvature;
27.) Southwesterly along a curve to the right having a radius of 500.00 feet, an arc distance of 345.60 feet to a point to a point of reverse curvature;
28.) Southwesterly along a curve to the left having a radius of 100.00 feet, an arc distance of 99.07 feet to a point to a point of tangency;
29.) S-42°-22'-25"-W, a distance of 40.03 feet to a point of curvature;
30.) Southwesterly along a curve to the left having a radius of 215.00 feet, an arc distance of 161.56 feet to a point on the northerly boundary line of the Lockport Expressway;

Thence along the said northerly boundary of the Lockport Expressway the following three (3) courses and distances:

1.) S-89°-19'-05"-W, a distance of 248.17 feet to a point;
2.) S-75°-02'-22"-W, a distance of 970.22 feet to a point of curvature;
3.) Southwesterly along a curve to the left having a radius of 6848.00 feet an arc distance of 111.80 feet to a point:

THENCE: Through lands now or formerly of New York State Urban Development Corporation the following five (5) courses and distances:

1.) N-17°-38'-00"-W, a distance of 219.03 feet to a point of curvature;
2.) Northerly along a curve to the right having a radius of 500.00 feet an arc distance of 272.15 feet to a point of reverse curvature;
3.) Northerly along a curve to the left having a radius of 500.00 feet an arc distance of 127.60 feet to a point of tangency;
4.) N-01°-04'-08"-W, a distance of 200.00 feet to a point;
5.) S-88°-55'-52"-W, a distance of 125.00 feet to the above described POINT OR PLACE OF BEGINNING containing 87.733 acres be the same more or less.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

MICHAEL P. KEARNS, ERIE COUNTY CLERK
REF:

DATE:6/21/2018
TIME:4:01:37 PM
RECEIPT: 18114282

SEAN HOPKINS
ACCOUNT #: 0

ITEM - 01 774
RECD: 6/21/2018 4:07:17 PM
FILE: 2018123291 BK/PG D 11330/8243
CIMINELLI MUIR WOODS LLC
TOWN OF AMHERST
Recording Fees 105.00
Subtotal 105.00

TOTAL DUE $105.00
PAID TOTAL $105.00
PAID CREDIT $105.00
VISA # xxxx-

REC BY: Janet H
COUNTY RECORDER

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Traffic Impact Study

for

The Preserve at Muir Woods

Town of Amherst
Erie County, New York

December 2021

Project No. 41099

Prepared For:

Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Prepared By:

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TABLE OF CONTENTS

LIST OF TABLES ii
LIST OF FIGURES ii
LIST OF APPENDICES ii
LIST OF REFERENCES ii
EXECUTIVE SUMMARY iii

I. INTRODUCTION 1
II. LOCATION 1
III. EXISTING HIGHWAY SYSTEM 1
A. Vehicular Network Description 1
B. Multi-Modal Network Description 2
C. Planned Highway Improvements 2
IV. EXISTING TRAFFIC CONDITIONS 3
A. Peak Intervals for Analysis 3
B. Existing Traffic Volume Data 3
C. Field Observations 3
D. Existing Crash Investigation 4
E. License Plate Survey 6
V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH 6
VI. PROPOSED DEVELOPMENT 7
A. Description 7
B. *Site Traffic 7*
C. *Site Traffic Distribution 7*
VII. FULL DEVELOPMENT VOLUMES 8
VIII. CAPACITY ANALYSIS 8
A. Description of Capacity Analysis 8
B. Capacity Analysis Results 8
IX. LEFT-TURN TREATMENT WARRANT INVESTIGATION 10
X. SIGNAL WARRANT ANALYSIS 11
XI. CONCLUSIONS & RECOMMENDATIONS 14
XII. FIGURES 15

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

LIST OF TABLES

TABLE I EXISTING HIGHWAY SYSTEM 2
TABLE II EXISTING CRASH INVESTIGATION 5
TABLE III SITE GENERATED TRIPS 7
TABLE IV CAPACITY ANALYSIS RESULTS 9
TABLE V TRAFFIC SIGNAL WARRANT SUMMARY 13

LIST OF FIGURES

FIGURE 1 SITE LOCATION & STUDY AREA
FIGURE 2 LANE GEOMETRY & AVERAGE DAILY TRAFFIC
FIGURE 3 PEAK HOUR VOLUMES – 2021 EXISTING BASE CONDITIONS
FIGURE 4 PEAK HOUR VOLUMES – 2022 BACKGROUND CONDITIONS
FIGURE 5 CONCEPT SITE PLAN
FIGURE 6 TRIP DISTRIBUTION
FIGURE 7 SITE GENERATED TRIPS
FIGURE 8 PEAK HOUR VOLUMES – FULL DEVELOPMENT CONDITIONS

LIST OF APPENDICES

A1. COLLECTED TRAFFIC VOLUME DATA
A2. MISCELLANEOUS TRAFFIC DATA AND CALCULATIONS
A3. LOS CRITERIA/DEFINITIONS
A4. LEVEL OF SERVICE CALCULATIONS – EXISTING CONDITIONS
A5. LEVEL OF SERVICE CALCULATIONS – BACKGROUND CONDITIONS
A6. LEVEL OF SERVICE CALCULATIONS – FULL DEVELOPMENT CONDITIONS

LIST OF REFERENCES

1. Highway Capacity Manual 6th Edition. Transportation Research Board (TRB). The National Academies, Washington, DC. 2016.
2. Trip Generation, 11th Edition. Institute of Transportation Engineers. Washington, DC. 2021.
3. New York State Department of Transportation Traffic Data Viewer. 2021. Retrieved from https://www.dot.ny.gov/tdv.
4. Manual on Uniform Traffic Control Devices for Street and Highways (MUTCD). Federal Highway Administration. 2009.
5. Traffic Impact Study, Muir Woods Project. GPI. 2017.
6. A Policy on Geometric Design of Highways and Streets 7th Edition. AASHTO. 2018.
7. Initial Project Proposal. NYSDOT. 2021.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to update the March 2017 Traffic impact Study prepared by GPI for the Muir Woods Project. The study identifies and evaluates the potential traffic impacts associated with the remaining phases of the Preserve at Muir Woods located south of North French Road and east of Campbell Blvd in the Town of Amherst, Erie County, New York. Within this report, the operating characteristics of the access drives and impacts to the adjacent roadway network are identified and mitigating measures, if needed, are provided to minimize identified capacity or safety concerns.

To define traffic impact, this analysis establishes existing traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the final phase of the project.

The project site is bounded by a residential development and N French Rd to the north, an undeveloped wooded area to the east, Campbell Blvd to the west, and I-990 to the south. The site is currently undeveloped land with a subdivision street. The study area consists of the following intersections:

1. North French Road/Lynette Lane
2. North French Road/Campbell Boulevard
3. Campbell Boulevard/Sierra Drive
4. Campbell Boulevard/Dodge Road

The final phase of the project consists of 47 single family homes. Access to the site will be provided via two existing subdivision streets, Lynette Ln and Sierra Dr.

Construction of the final development phase is anticipated to reach full build-out within one year. The Town of Amherst was contacted to discuss any other specific developments that are currently approved or under construction that would generate additional traffic in the study area. No such projects were identified.

A review of historical NYSDOT traffic volume data on the study roadways in the vicinity of the site indicates that traffic has decreased between 2011 and 2019. To account for normal increases in background traffic growth, including any unforeseen developments in the project study area a growth rate of 0.5% per year has been applied to the existing traffic volumes, based upon historical traffic growth for the one-year build-out period.

CONCLUSIONS & RECOMMENDATIONS

This Traffic Impact Study identifies and evaluates the potential traffic impacts that can be expected from the final phase of the Preserve at Muir Woods project located south of North French Road and east of Campbell Blvd in the Town of Amherst, Erie County, New York. The results of this study determine that the existing transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections, with no mitigation required. The following sets forth the conclusions based upon the results of the analyses:

1. The final phase of the project is expected to generate approximately 10 entering/28 exiting vehicle trips during the AM peak hour and 31 entering/18 exiting vehicle trips during the PM peak hour at full build out.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

2. Crash analyses at the existing intersections did not identify any identifiable crash clusters or inherent safety deficiencies.

3. Evaluation of left turn treatment warrants at the North French Rd/Lynette Ln and Campbell Blvd/Sierra Dr intersections indicate that the guidelines for left-turn treatment are marginally met during the weekday PM peak hours at both locations. However, given that both left turn movements currently operate at LOS "A" with little to no delay and the projected left turn traffic volumes are relatively small, a left turn lane is not recommended at either location.

4. Evaluation of signal warrants at the North French Rd/Lynette Ln and Campbell Blvd/Sierra Dr intersections indicate that none of the warrants for signalization are met at either location and signalization of the intersections is not recommended.

5. The projected traffic impacts resulting from full development of the final phase of the project during both peak hours can be accommodated by the existing transportation network with no highway improvements.

6. For purposes of the environmental review of the final phase of the project pursuant to the State Environmental Quality Review Act (SEQRA), it is our firm's professional opinion that the final phase of the project will not result in any potentially significant adverse traffic impacts to the study area intersections.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

I. INTRODUCTION

The purpose of this report is to update the March 2017 Traffic impact Study prepared by GPI for the Muir Woods Project. The study identifies and evaluates the potential traffic impacts associated with the remaining phases of the Preserve at Muir Woods located south of North French Road and east of Campbell Blvd in the Town of Amherst, Erie County, New York. Within this report, the operating characteristics of the access drives and impacts to the adjacent roadway network are identified and mitigating measures, if needed, are provided to minimize identified capacity or safety concerns.

To define traffic impact, this analysis establishes existing traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the final phase of the project.

II. LOCATION

The project site is bounded by a residential development and N French Rd to the north, an undeveloped wooded area to the east, Campbell Blvd to the west, and I-990 to the south. The project site is currently undeveloped land with a subdivision street. The study area consists of the following intersections:

1. North French Road/Lynette Lane
2. North French Road/Campbell Boulevard
3. Campbell Boulevard/Sierra Drive
4. Campbell Boulevard/Dodge Road

The site location and study area are illustrated in **Figure 1** (all Figures are included at the end of this report).

III. EXISTING HIGHWAY SYSTEM

A. Vehicular Network Description

The following information outlined in **Table I** provides a description of the existing roadway network within project study area. **Figure 2** illustrates the lane geometry at each of the study intersections and the Annual Average Daily Traffic (AADT) volumes on the study roadways. The AADTs reflect the most recently collected data obtained from the New York State Department of Transportation (NYSDOT).

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY[1]	CLASS[2]	AGENCY[3]	SPEED LIMIT[4]	# OF TRAVEL LANES[5]	TRAVEL PATTERN/ DIRECTION	EST. AADT[6] & SOURCE[7]
North French Road (CR-299)	14	ECDPW	45	2	Two-way/ East-West	11,209 NYSDOT (2019)
Campbell Blvd (NY-270)	16	NYSDOT	40	2	Two-way/ North-South	7,893 NYSDOT (2018)
Dodge Road (CR-45)	16	ECDPW	40	2	Two-way/ East-West	4,809 NYSDOT (2018)
Lynette Ln	19	Town of Amherst	30	2	Two-way/ North-South	N/A
Sierra Dr	19	Town of Amherst	30	2	Two-way/ East-West	N/A

Notes:
1. Route Name/Number: "NY" = New York; "CR" = County Road
2. State Functional Classification of Roadway (All are Urban): 14 = Principal Arterial, 16 = Minor Arterial, 19 = Local
3. Jurisdictional Agency of Roadway. "NYSDOT" = New York State Department of Transportation; "ECDPW" = Erie County Department of Public Works
4. Posted or Statewide Limit in Miles per Hour (mph).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated AADT in Vehicles per Day (vpd).
7. AADT Source (Year).

B. Multi-Modal Network Description

This evaluation reviewed the study area's pedestrian, bicycle, and transit network via field and aerial reconnaissance. A description of the multi-modal infrastructure is described hereafter.

Pedestrian and Bicycle Facilities

There are sidewalks along the northwest, southwest, and southeast corners of the North French Rd/Campbell Blvd intersection that extend for various lengths depending on the approach. There is also a segment of sidewalk along the northwest corner of the Campbell Blvd/Dodge Rd intersection. There are no dedicated bicycle facilities in the study area, however, bicyclists are allowed to share the road with motorists on all roadways and utilize the existing shoulder space, when available, within the study area.

Transit Facilities

There is no public transport service within the study area.

C. Planned Highway Improvements

NYSDOT is currently designing highway improvements for NY Route 270 (Campbell Blvd) from North French Rd to Erie Co. Line and North French Rd from Campbell Blvd to I-990. The Campbell Blvd/North French Rd intersection is included within this project. Information contained within the Initial Project Proposal (IPP) dated June 2021 indicates that improvements may include a new westbound right turn lane on North French Rd, widening of

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

North French Rd from NY Route 270 to I-990 and possible signal upgrades at the NY Route 270/ North French Rd intersection.

These modifications will improve operating conditions at the NY Route 270/ North French Rd intersection and will relieve previously identified cut-through issues in the French Landings neighborhood.

IV. EXISTING TRAFFIC CONDITIONS

A. *Peak Intervals for Analysis*

Given the functional characteristics of the corridors and the land use proposed for the site (single family residential), the peak hours selected for analysis are the weekday commuter AM and PM peak periods. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. *Existing Traffic Volume Data*

Turning movement traffic counts were collected on Thursday, October 7th, 2021 by SRF Associates (SRF) at the study intersections described in Section II. Traffic counts were conducted between 7:00-10:00 AM for the weekday AM peak hour and 3:00 – 6:00 PM for the PM peak hour. The peak hour traffic periods generally occurred between 7:30-8:30 AM and 4:30-5:30 PM

All turning movement count data was collected on a typical weekday. No adverse weather conditions impacted the traffic counts and all schools in the vicinity of the study area were in session. The traffic volumes were reviewed to confirm the accuracy and relative balance of the collective traffic counts. The actual differences in traffic volumes can be attributed to temporal variations in traffic volumes as well as activity related to driveways located in the segments between the study intersections. **Figure 3** illustrates the weekday AM and PM peak hour volumes used for analysis purposes in this study.

C. *Field Observations*

The study intersections were observed during both peak intervals to assess current traffic operations. Signal timing information was obtained from the NYSDOT through a Freedom of Information (FOIL) request to determine peak hour phasing plans and phase durations during each interval. This information was used to support and/or calibrate capacity analysis models described in detail later in this report.

Operating conditions at the existing Sierra Drive/Lynette Lane intersection roundabout were also observed. At the time of field observations, there was no signage either approaching or within the roundabout. Vehicles were observed traveling in the wrong direction of the roundabout. The following changes are recommended to provide positive guidance for motorists and reduce/eliminate wrong way travel through the roundabout:

- Add appropriate signage on the roundabout approaches
- Add appropriate directional signage in the center of the roundabout
- If wrong way travel persists, the Town may want to consider constructing raised splitter islands on the approaches

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

D. Existing Crash Investigation

The purpose of this crash analysis is to identify inherent safety issues by studying and quantifying historical crashes at the study intersections and identifying potential crash patterns and clusters.

A crash cluster is defined as an abnormal occurrence of similar crash types occurring at approximately the same location or involving the same geometric features. The severity of the crashes should also be considered. A history of crashes is an indication that further analysis is required to determine the cause(s) of the crash(es) and to identify what actions, if any, could be taken to mitigate the crashes.

A crash investigation within the study area was conducted to assess the safety history from January 1, 2017, through December 31, 2019. The data was provided by the New York State Department of Motor Vehicles through a Freedom of Information (FOIL) request.

Given that the COVID-19 pandemic influenced daily travel in 2020, any reported crashes in 2020 were dismissed from the study.

Reportable (non-injury, injury, and fatal injury) type crashes are defined as damage to one person's property in the amount of $1,001 or more. The Non-Reportable type crashes result in property damage of $1,000 or less. Crash rates were computed for the study intersection and compared with NYSDOT average crash rates for similar intersections, as summarized in **Table II**. Intersection rates are listed as crashes per million entering vehicle (CR/MEV). Pertinent crash data is provided in the Appendices. There were no reported crashes at Campbell Blvd/Sierra Dr.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TABLE II: EXISTING CRASH INVESTIGATION

LOCATION:	North French Rd/Lynette Ln	North French Rd/ Campbell Blvd	Campbell Blvd/ Dodge Rd
Time of Day			
12:00 AM – 5:59 AM	1	1	1
6:00 AM – 8:59 AM	3	3	3
9:00 AM – 3:29 PM		11	5
3:30 PM – 5:59 PM		8	6
6:00 PM – 11:59 PM		6	1
Pavement Condition			
Dry	4	23	12
Wet			3
Snow/Ice		3	1
Slush			
Unclassified		3	
Type of Collision			
Pedestrian/Bicycle		1	
Right Angle	1	5	3
Sideswipe (Overtake)		2	1
Head On			
Rear End	1	12	6
Left Turn		4	3
Right Turn			
Fixed Object	1	1	1
Animal		1	
Other	1	3	2
Severity			
Fatal			
Injury		1	
Property Damage	3	12	11
Property Damage and Injury		10	2
Non-Reportable	1	6	3
Total	4	29	16
Average No. of Daily Vehicles Entering Intersection	10,442	22,294	14,063
Crash Rate (CR/MEV)	0.35	1.19	1.04
Statewide Average (CR/MEV)	0.18	0.54	0.54
Below or Above Statewide Average	1.9x Above	2.2x Above	1.9x Above

Note:
1. All roadways within the study area are not State roadways but are compared to Statewide average rates for informational purposes.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

North French Rd/Lynette Ln

As shown in the crash investigation table, the study intersection has a crash rate that is approximately 1.9 times higher than the statewide average crash rate for similar intersections. There was one reported crash at this intersection which was a collision with a fixed object. No discernable crash patterns were identified and there are no inherent safety deficiencies at this intersection.

North French Rd/Campbell Blvd

As shown in the crash investigation table, the study intersection has a crash rate that is approximately 2.2 times higher than the statewide average crash rate for similar intersections. Of the 29 total crashes, the predominant crash types were rear end (41%), and left turn (14%). Of the remaining crashes, one was a collision with an animal, and another was a fixed object accident. There are no inherent safety deficiencies at this intersection.

North French Rd/Dodge Rd

As shown in the crash investigation table, the study intersection has a crash rate that is approximately 1.9 times higher than the statewide average crash rate for similar intersections. Of the 16 total crashes, the predominant crash types were rear end (38%), left turn (19%), and right angle (19%). Of the remaining crashes, one was a collision with a fixed object. There are no inherent safety deficiencies at this intersection.

E. License Plate Survey

The intersections of North French Rd/Lynette Ln, Lynette Ln/Sierra Dr, and Campbell Blvd/Sierra Dr were observed to determine how much traffic, if any, use Lynette Ln and Sierra Dr to avoid the North French Rd/Campbell Blvd intersection. This was done by recording a portion of the license plates of the vehicles that went through each of the observed intersections during the weekday AM and PM peak hours. The license plate portions that were recorded at each intersection were then compared to see if any appeared at all three intersections.

It was determined that during the AM peak, there were two vehicles that used Lynette Ln and Sierra Dr to avoid the North French Rd/Campbell Blvd intersection. It should be noted that one of these vehicles was a school bus that travels this route to pick up students. During the PM peak no vehicles used Lynette Ln and Sierra Dr to avoid the North French Rd/Campbell Blvd intersection.

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of the final development phase is anticipated to reach full build-out within one year. The Town of Amherst was contacted to discuss any other specific developments that are currently approved or under construction that would generate additional traffic in the study area. No such projects were identified.

A review of historical NYSDOT traffic volume data on the study roadways in the vicinity of the site indicates that traffic has decreased between 2011 and 2019. To account for normal increases in background traffic growth, including any unforeseen developments in the project study area a growth rate of 0.5% per year has been applied to the existing traffic volumes, based upon historical traffic growth for the one-year build-out period. Future background traffic volumes are shown in **Figure 4**.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

VI. DEVELOPMENT

A. Description

The final phase of the project consists of 47 single family homes. Access to the site will be provided via two existing subdivision streets, Lynette Ln and Sierra Dr. **Figure 5** illustrates the approved site plan.

B. Site Traffic

The next step in evaluation of the potential traffic impacts related to the remaining phases of the Preserve at Muir Woods was to determine the additional traffic consisting of vehicle trips entering and exiting the project site that are attributable to the residential development. The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation, 11th Edition (2021), published by the Institute of Transportation Engineers (ITE), is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of adjacent street traffic, in this case the weekday AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

Table III shows the total site generated trips for the weekday AM and PM peak hours for the final development phase. All trip generation information has been included in the Appendices.

TABLE III: SITE GENERATED TRIPS

DESCRIPTION	ITE LAND USE CODE	SIZE[1]	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Single-Family Detached Housing	210	47 Units	10	28	31	18

The final phase of the project is expected to generate approximately 10 entering/28 exiting vehicle trips during the AM peak hour and 31 entering/18 exiting vehicle trips during the PM peak hour at full build out.

C. Site Traffic Distribution

The cumulative effect of site traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the driveways serving the site.

The proposed arrival/departure distribution of traffic to be generated at this site is considered a function of several parameters, including the following:

- Employment centers.
- Internal site circulation design.
- Site access intersection locations.
- Existing traffic patterns; and
- Existing traffic conditions and controls

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Figure 6 shows the anticipated trip distribution pattern percentages for the final development phase traffic. Figure 7 illustrates the peak hour site generated traffic based on those percentages.

VII. FULL DEVELOPMENT VOLUMES

Proposed design hour traffic volumes are developed for the AM and PM peak hours by combining the background traffic conditions (Figure 4) and the future Preserve at Muir Woods site-generated traffic volumes (Figure 7) to yield the traffic volumes under full development conditions. The resulting design hour volumes for the remaining phases of the Preserve at Muir Woods are illustrated in Figure 8 under full build-out conditions.

VIII. CAPACITY ANALYSIS

A. Description of Capacity Analysis

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis typically focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the conditions with little to no delay, and LOS "F" conditions with very long delays. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendix.

The standard procedure for capacity analysis of signalized and un-signalized intersections is outlined in the Highway Capacity Manual (HCM 2016) published by the Transportation Research Board (TRB). Traffic analysis software, SYNCHRO 11, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service (LOS) based on the HCM as an indicator of how well intersections operate. However, it is noted that capacity analysis results were derived using the HCM 2000 methodology for unsignalized intersections within Synchro as required by NYSDOT Region 5.

B. Capacity Analysis Results

Existing and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The future traffic conditions generated by the project were analyzed to assess the operation of the study area intersections. Capacity results for existing, background and full development conditions are listed in Table IV. The discussion following the table summarizes capacity conditions. All capacity analysis calculations are included in the Appendices.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TABLE IV: CAPACITY ANALYSIS RESULTS

INTERSECTION	2021 EXISTING BASE CONDITIONS				2022 BACKGROUND CONDITIONS				2022 FULL BUILD CONDITIONS			
	AM		PM		AM		PM		AM		PM	
1. North French Rd/Lynette Ln (U)												
WB Left - North French Rd	A	0.3	A	0.7	A	0.3	A	0.7	A	0.3	A	0.9
NB - Lynette Ln	B	12.9	C	15.6	B	13.0	C	15.7	B	13.0	C	16.7
2. North French Rd/Campbell Blvd (S)												
EB Left - North French Rd	B	18.2	C	24.3	B	18.2	C	24.6	B	18.0	C	25.4
EB Thru/Right - North French Rd	D	40.1	C	34.6	D	40.2	C	34.8	D	43.2	D	37.4
WB Left - North French Rd	B	19.0	C	20.5	B	19.1	C	20.6	B	19.1	C	21.0
WB Thru/Right - North French Rd	D	35.1	E	58.9	D	35.1	E	60.4	C	33.2	E	62.3
NB Left - Campbell Blvd	C	21.6	C	23.6	C	21.7	C	23.6	C	22.9	C	23.6
NB Thru/Right - Campbell Blvd	D	42.5	E	62.4	D	42.6	E	62.5	D	44.7	E	62.6
SB Left - Campbell Blvd	D	35.6	D	43.9	D	36.1	D	44.3	D	41.6	D	43.9
SB Thru/Right - Campbell Blvd	D	36.5	D	36.1	D	36.7	D	36.1	D	39.0	D	36.0
Overall LOS	***D***	***36.2***	***D***	***47.0***	***D***	***36.4***	***D***	***47.6***	***D***	***38.6***	***D***	***48.6***
Volume-to-Capacity (v/c) Ratio	***0.80***		***0.94***		***0.80***		***0.95***		***0.85***		***0.96***	
3. Campbell Blvd/Sierra Dr (U)												
EB Left - Sierra Dr	B	14.4	C	16.8	B	14.5	C	16.9	B	14.8	C	17.7
EB Right - Sierra Dr	B	11.6	B	10.0	B	11.6	B	10.0	B	11.8	B	10.1
NB Left - Campbell Blvd	A	0.4	A	0.6	A	0.4	A	0.6	A	0.6	A	0.8
4. Campbell Blvd/Dodge Rd (S)												
EB - Dodge Rd	B	14.6	B	17.8	B	14.5	B	17.9	B	15.0	B	17.9
WB - Dodge Rd	B	17.6	B	10.6	B	17.6	B	10.6	B	18.0	B	10.5
NB - Campbell Blvd	A	9.3	B	18.9	A	9.3	B	19.2	A	9.4	B	19.8
SB - Campbell Blvd	B	16.0	B	17.6	B	16.1	B	17.9	B	16.6	B	18.7
Overall LOS	***B***	***15.2***	***B***	***16.6***	***B***	***15.2***	***B***	***16.7***	***B***	***15.6***	***B***	***17.1***
Volume-to-Capacity (v/c) Ratio	***0.70***		***0.65***		***0.32***		***0.66***		***0.71***		***0.66***	

Notes:

1. A(2.8) = Level of Service (Delay in seconds per vehicle)
2. EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
3. (S) = Signalized; (U) = Unsignalized
4. N/A = Approach does not exist and/or was not analyzed during this condition
5. Green shaded cells indicate low delays, yellow shaded cells indicate moderate delays, red shaded cells indicate long delays.
6. The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays. A v/c ratio between 0.85 and 0.95 generally indicates an intersection is nearing capacity. Intersections with a v/c ratio of 1.0 or greater generally indicate conditions at or above capacity.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

North French Rd/Lynette Ln
All approaches operate at LOS "C" or better during both peak hours under all conditions. No changes in LOS are anticipated as a result of the project, therefore, no improvements are warranted or recommended.

North French Rd/Campbell Blvd
This intersection is shown to operate at LOS "E" or better for all movements under existing, background and full development conditions. The eastbound thru/right movement is anticipated to change form a LOS "C" to "D" during the PM peak hour as a result of the project. This is a result of a borderline condition as the threshold between LOS "C" and "D" is 35 seconds and the actual increase in delay is 2.6 seconds per vehicle. No improvements are warranted or recommended.

Campbell Blvd/Sierra Dr
All approaches operate at LOS "C" or better during both peak hours under all conditions. No changes in LOS are anticipated as a result of the project, therefore, no improvements are warranted or recommended.

Campbell Blvd/Dodge Rd
All approaches operate at LOS "B" or better during both peak hours under all conditions. No changes in LOS are anticipated as a result of the project, therefore, no improvements are warranted or recommended.

IX. LEFT-TURN TREATMENT WARRANT INVESTIGATION

Volume guidelines for left-turn treatments along North French Rd and Campbell Blvd at the development access points (Lynette Ln and Sierra Dr) were investigated using the Transportation Board's NCHRP Report 279, Intersection Channelization Design Guide, 1985. Provisions for left-turn lane facilities should be established where traffic volumes are high enough and safety considerations are enough to warrant the additional lane. This investigation analyzes warrants during the weekday AM and PM peak hours for the existing North French Rd/Lynette Ln and Campbell Blvd/Sierra Dr intersections under full development conditions.

At the North French Rd/Lynette Ln intersection, the combination of projected westbound traffic volumes turning left from North French Rd onto Lynette Ln (shown in Figure 3 and 8 of the TIS for existing and full development conditions, respectively) indicate that the guidelines for left-turn treatment are met during the weekday PM peak hour during existing and full build conditions. However, given that the westbound left turn movement currently operates at LOS "A", the final development phase of Muir Woods is expected to add 1(6) left turns, and the future traffic volumes making this left turn are less than 1 vehicle every 2 minutes, a left turn lane is not recommended at this location.

At the Campbell Blvd/Sierra Dr intersection, the combination of projected northbound traffic volumes turning left from Campbell Blvd onto Sierra Dr (shown in Figure 3 and 8 of the TIS for existing and full development conditions, respectively) indicate that the guidelines for left-turn treatment are marginally met during the weekday PM peak hour under full build conditions. Similar to the North French/Lynette Lane intersection, the northbound left turn movement currently operates at LOS "A", the final development phase of Muir Woods is expected to add 4(9) left turns, and the future traffic volumes making this left turn are less than 1 vehicle every 2 minutes, a left turn lane is not recommended at this location.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

X. SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis was completed at the North French Rd/Lynette Ln and Campbell Blvd/Sierra Dr intersections during existing and full build conditions as part of this report. The need for a traffic signal is determined by comprehensive investigation of existing and projected traffic conditions and physical characteristics at the location. The Standard Specifications Update for the adoption of the National MUTCD (FHWA) and the New York State Supplement were reviewed to investigate the need for a traffic control signal at this location under full build conditions. There are nine (9) warrants and they are as follows:

Warrant 1	Eight-Hour vehicular volume
Warrant 2	Four-Hour vehicular volume
Warrant 3	Peak Hour
Warrant 4	Pedestrian Volume
Warrant 5	School Crossing
Warrant 6	Coordinated Signal System
Warrant 7	Crash Experience
Warrant 8	Roadway Network
Warrant 9	Intersection Near a Grade Crossing

Detailed signal warrant calculations are attached. Prior to applying warrants, the MUTCD suggests consideration of the effects of right-turn volumes on the minor street approach, and a reduction taken in the number of right turning vehicles, where appropriate. A certain number of right-turn vehicles will execute a right-turn on the red indication without actuating a traffic signal (if one were in place). For purposes of being conservative, it is assumed that 0% of the minor street right-turning vehicles exiting the existing intersections will execute a right-turn on red maneuver and should, therefore be subtracted for the purposes of the warrant analysis. The posted speed limit on North French Rd and Campbell Blvd at the existing intersections is 45 MPH and 40 MPH, respectively, therefore, 70 percent thresholds in Table 4C-1, Figure 4C-2 and Figure 4C-4 are used as a basis for analysis.

North French Rd/Lynette Ln

Warrant 1 is subdivided into Condition A and Condition B. The Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. These conditions are satisfied when, for each of any eight hours of an average day, anticipated volumes on the artery and side road exceed the minimum values presented in Tables 4C-1 in the MUTCD. **Condition A is not met under existing and full build conditions. Condition B is not met under existing and full build conditions.**

Warrant 2, the Four-Hour Vehicular Volume signal warrant conditions, are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. This warrant stipulates that for any four hours of a day, minimum threshold volumes are met on the artery and side road. **This warrant is not met under existing and full development conditions.**

Warrant 3 is intended for application where minor street traffic suffers undue delay in entering or crossing the major street for one hour of the day. It stipulates that the warrant shall be applied in unusual cases (high-occupancy vehicle facilities – i.e., shopping centers) where a

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

large number of vehicles discharge over a short period of time. Based on the development, this warrant may be applicable. **This warrant is not met under existing and full build conditions.**

Warrant 4 is met when pedestrians experience excessive delay in crossing the major street (North French Rd) because the traffic volumes are so heavy. The intersection currently has low pedestrian activity. This warrant is not met.

Warrant 5 is met when a sufficient number of gaps in traffic do not exist for certain size and frequency of school children to cross the major roadway. Based on the future site conditions, this warrant is not applicable at this location and is not met.

Warrant 6 is met when a traffic signal is needed to maintain progressive movement and vehicle platooning in a coordinated signal system. Based on the current signal system along North French Rd, this warrant is not met.

Warrant 7 is intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal. The need for a traffic control signal shall be considered if *all* of the following criteria are met:

a. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce crash frequency. **Condition A is not satisfied.**

b. Five (5) or more reported crashes, of types susceptible to correction by a traffic signal, to have occurred within a 12-month period, each crash involving a personal injury or property damage. Four (4) crashes were documented in the crash analysis over a 36-month period. **Condition B is not satisfied.**

   Given that both Conditions A and B are not satisfied, this warrant is not satisfied.

Warrant 8 is met when a traffic signal might encourage concentration and organization of traffic flow on a roadway network. This warrant primarily focuses on two major intersecting roadways, which is not the case at the study intersection. Therefore, this warrant is not met.

Warrant 9 is applicable when an intersection is located near an at-grade rail crossing. This warrant is not applicable at this location.

Campbell Blvd/Sierra Dr

Warrant 1 is subdivided into Condition A and Condition B. The Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. These conditions are satisfied when, for each of any eight hours of an average day, anticipated volumes on the artery and side road exceed the minimum values presented in Tables 4C-1 in the MUTCD. **Condition A is not met under existing and full build conditions. Condition B is not met under existing and full build conditions.**

Warrant 2, the Four-Hour Vehicular Volume signal warrant conditions, are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. This warrant stipulates that for any four hours of a day, minimum

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

threshold volumes are met on the artery and side road. **This warrant is not met under existing and full development conditions.**

Warrant 3 is intended for application where minor street traffic suffers undue delay in entering or crossing the major street for one hour of the day. It stipulates that the warrant shall be applied in unusual cases (high-occupancy vehicle facilities – i.e., shopping centers) where a large number of vehicles discharge over a short period of time. Based on the development, this warrant may be applicable. **This warrant is not met under existing and full build conditions.**

Warrant 4 is met when pedestrians experience excessive delay in crossing the major street (Campbell Blvd) because the traffic volumes are so heavy. The intersection currently has low pedestrian activity. This warrant is not met.

Warrant 5 is met when a sufficient number of gaps in traffic do not exist for certain size and frequency of school children to cross the major roadway. Based on the future conditions, this warrant is not applicable at this location and is not met.

Warrant 6 is met when a traffic signal is needed to maintain progressive movement and vehicle platooning in a coordinated signal system. Based on the current signal system along Campbell Blvd, this warrant is not met.

Warrant 7 is intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal. The need for a traffic control signal shall be considered if *all* of the following criteria are met:

a. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce crash frequency. **Condition A is not satisfied.**

b. Five (5) or more reported crashes, of types susceptible to correction by a traffic signal, to have occurred within a 12-month period, each crash involving a personal injury or property damage. Four (4) crashes were documented in the crash analysis over a 36-month period. **Condition B is not satisfied.**

Given that both Conditions A and B are not satisfied, this warrant is not satisfied.

Warrant 8 is met when a traffic signal might encourage concentration and organization of traffic flow on a roadway network. This warrant primarily focuses on two major intersecting roadways, which is not the case at the study intersection. Therefore, this warrant is not met.

Warrant 9 is applicable when an intersection is located near an at-grade rail crossing. This warrant is not applicable at this location.

TABLE V: TRAFFIC SIGNAL WARRANT SUMMARY

WARRANT	SATISFACTION OF WARRANTS AT N FRENCH RD/LYNETTE LN	SATISFACTION OF WARRANTS AT CAMPBELL BLVD/SIERRA DR
1A – Eight-Hour Condition A	NOT SATISFIED	NOT SATISFIED
1B – Eight-Hour Condition B	NOT SATISFIED	NOT SATISFIED
2 – Four-Hour	NOT SATISFIED	NOT SATISFIED

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

TABLE V: TRAFFIC SIGNAL WARRANT SUMMARY

WARRANT	SATISFACTION OF WARRANTS AT N FRENCH RD/LYNETTE LN	SATISFACTION OF WARRANTS AT CAMPBELL BLVD/SIERRA DR
3 – Peak-Hour	NOT SATISFIED	NOT SATISFIED
4 – Pedestrian Volume	N/A	N/A
5 – School Crossing	N/A	N/A
6 – Coordinated Signal System	N/A	N/A
7 – Crash Experience	NOT SATISFIED	NOT SATISFIED
8 – Roadway Network	N/A	N/A
9 – Intersection Near a Grade Crossing	N/A	N/A

Table VI summarizes each warrant and the result of the investigation. Based on the expected delays under full development conditions and the results of the Traffic Signal Warrant Analysis, a three-colored traffic signal is not recommended for this intersection prior to full build out of the development.

XI. CONCLUSIONS & RECOMMENDATIONS

This Traffic Impact Study identifies and evaluates the potential traffic impacts that can be expected from the final phase of the Preserve at Muir Woods project located south of North French Road and east of Campbell Blvd in the Town of Amherst, Erie County, New York. The results of this study determine that the existing transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections, with no mitigation required. The following sets forth the conclusions based upon the results of the analyses:

1. The final phase of the project is expected to generate approximately 10 entering/28 exiting vehicle trips during the AM peak hour and 31 entering/18 exiting vehicle trips during the PM peak hour at full build out.

2. Crash analyses at the existing intersections did not identify any identifiable crash clusters or inherent safety deficiencies.

3. Evaluation of left turn treatment warrants at the North French Rd/Lynette Ln and Campbell Blvd/Sierra Dr intersections indicate that the guidelines for left-turn treatment are marginally met during the weekday PM peak hours at both locations. However, given that both left turn movements currently operate at LOS “A” with little to no delay and the projected left turn traffic volumes are relatively small, a left turn lane is not recommended at either location.

4. Evaluation of signal warrants at the North French Rd/Lynette Ln and Campbell Blvd/Sierra Dr intersections indicate that none of the warrants for signalization are met at either location and signalization of the intersections is not recommended.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

5. The projected traffic impacts resulting from full development of the final phase of the project during both peak hours can be accommodated by the existing transportation network with no highway improvements.

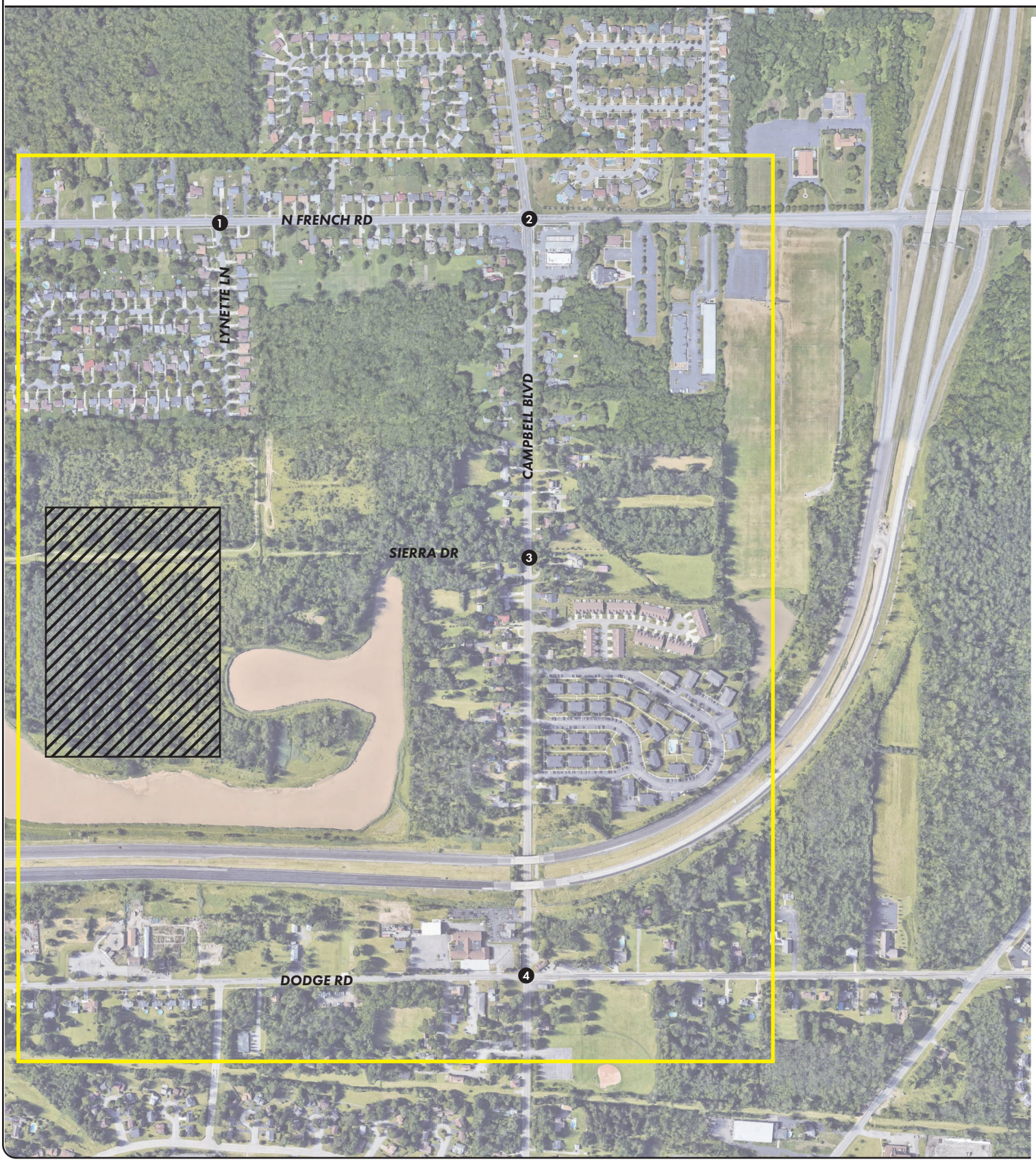
6. For purposes of the environmental review of the project pursuant to the State Environmental Quality Review Act (SEQRA), it is our firm's professional opinion that the final phase of the project will not result in any potentially significant adverse traffic impacts to the study area intersections.

XII. FIGURES

Figures 1 through 8 are included on the following pages.

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

FIGURE 1: SITE LOCATION AND STUDY AREA



Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Key

- # Study Intersection
- Study Area
- Site Location

PROPOSED ELLICOTT ROAD SUBDIVISION

TOWN OF AMHERST, ERIE COUNTY, NEW YORK

N

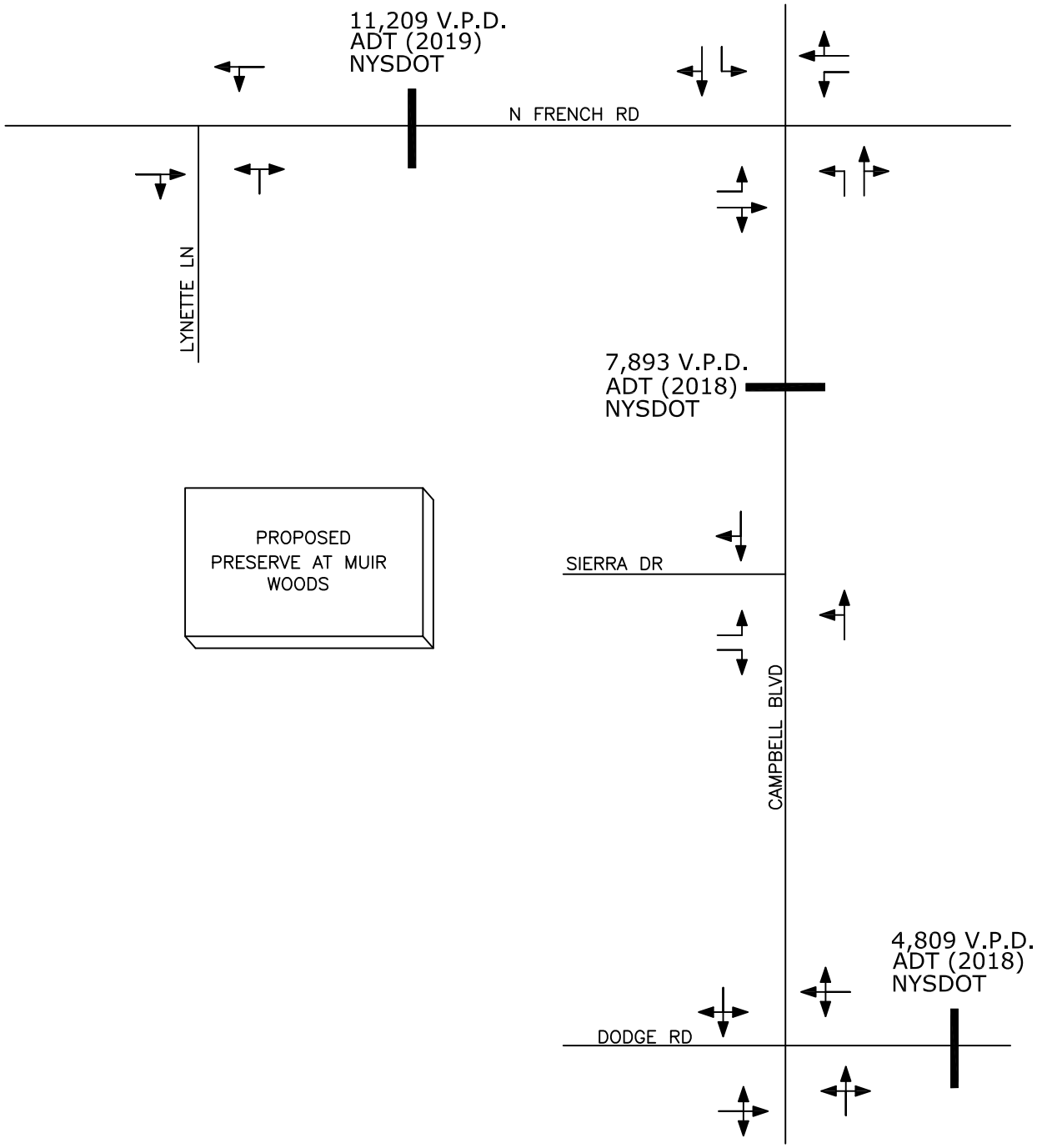
0 800 1600 2400

Feet

SRF ASSOCIATE

Transportation Planning / Engineering / Design

Note: All counts by New York State Dept of Transportation
V.P.D. = Vehicles Per Day



PROJECT NO: 41091

KEY

N

NOT TO SCALE

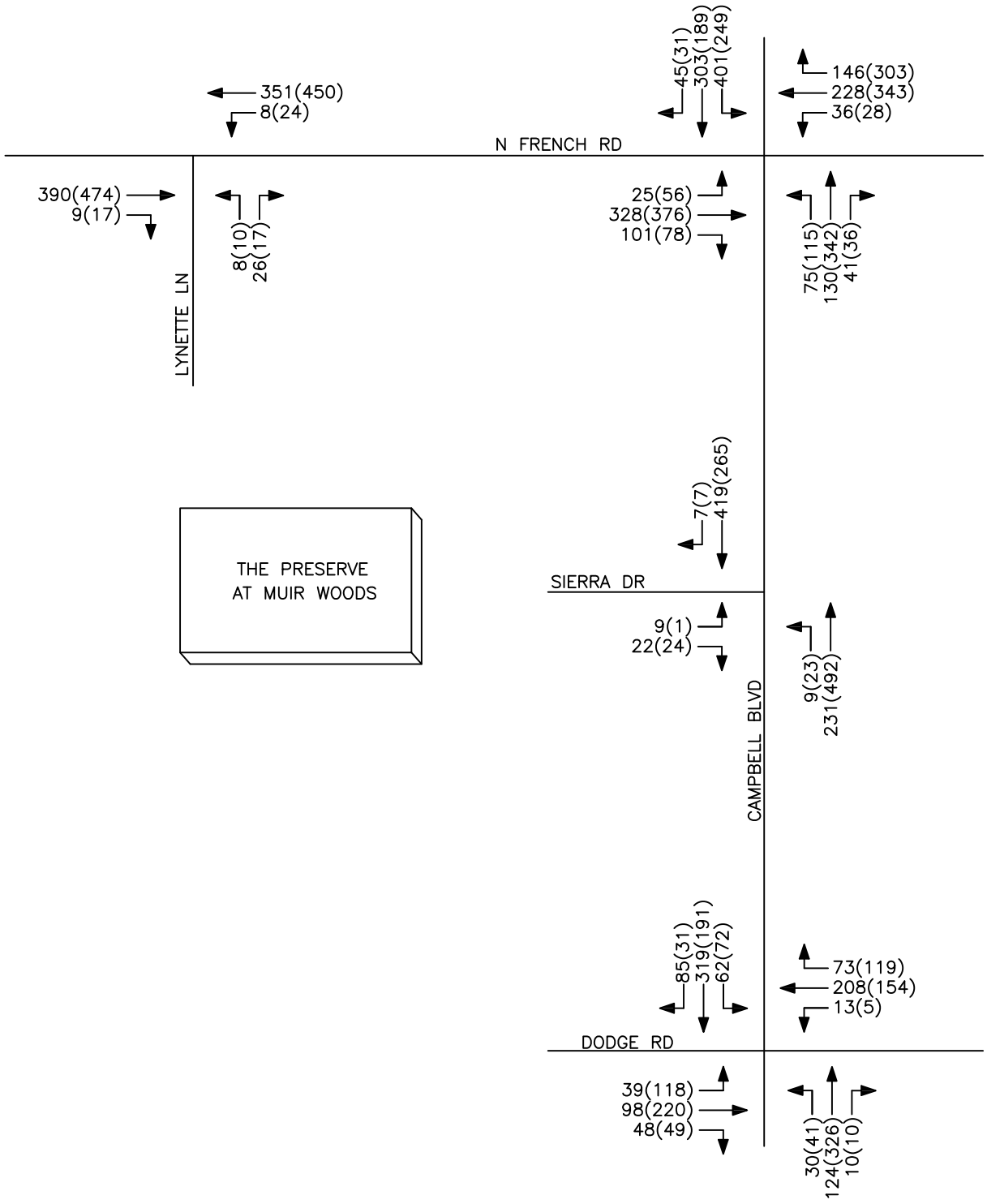
FIGURE 2

LANE GEOMETRY &
AVERAGE DAILY TRAFFIC

PROPOSED ELLICOTT RD SUBDIVISION,
TOWN OF ORCHARD PARK, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-1660

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



PROJECT NO: 41099

KEY
00(00) = AM(PM)

N
NOT TO SCALE

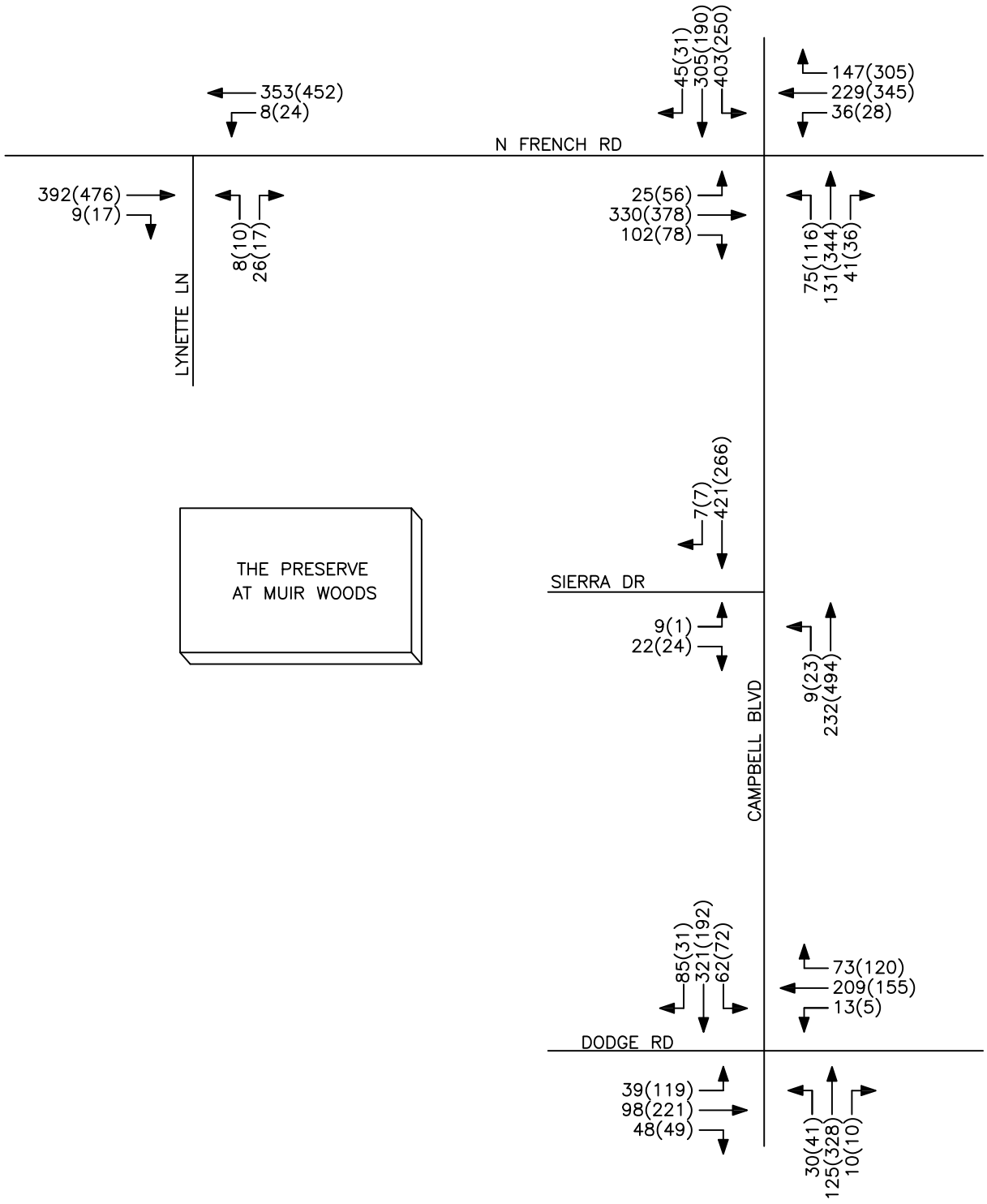
FIGURE 3

PEAK HOUR VOLUMES
2021 EXISTING CONDITIONS

THE PRESERVE AT MUIR WOODS
TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-1660

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



PROJECT NO: 41099

KEY
00(00) = AM(PM)

N
NOT TO SCALE

FIGURE 4

PEAK HOUR VOLUMES
2022 BACKGROUND CONDITIONS

THE PRESERVE AT MUIR WOODS
TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

LOT AREAS

LOT 1	7,852 ± Sq. Ft.	LOT 29	11,292 ± Sq. Ft.	LOT 57	11,414 ± Sq. Ft.	LOT 85	7,364 ± Sq. Ft.	LOT 113	7,020 ± Sq. Ft.
LOT 2	8,370 ± Sq. Ft.	LOT 30	11,181 ± Sq. Ft.	LOT 58	11,582 ± Sq. Ft.	LOT 86	7,461 ± Sq. Ft.	LOT 114	7,020 ± Sq. Ft.
LOT 3	8,560 ± Sq. Ft.	LOT 31	10,826 ± Sq. Ft.	LOT 59	11,713 ± Sq. Ft.	LOT 87	7,773 ± Sq. Ft.	LOT 115	7,020 ± Sq. Ft.
LOT 4	9,027 ± Sq. Ft.	LOT 32	10,370 ± Sq. Ft.	LOT 60	11,694 ± Sq. Ft.	LOT 88	8,309 ± Sq. Ft.	LOT 116	7,020 ± Sq. Ft.
LOT 5	8,385 ± Sq. Ft.	LOT 33	10,858 ± Sq. Ft.	LOT 61	11,211 ± Sq. Ft.	LOT 89	9,086 ± Sq. Ft.	LOT 117	7,020 ± Sq. Ft.
LOT 6	8,563 ± Sq. Ft.	LOT 34	17,044 ± Sq. Ft.	LOT 62	11,719 ± Sq. Ft.	LOT 90	9,753 ± Sq. Ft.	LOT 118	7,020 ± Sq. Ft.
LOT 7	8,686 ± Sq. Ft.	LOT 35	10,598 ± Sq. Ft.	LOT 63	11,481 ± Sq. Ft.	LOT 91	16,118 ± Sq. Ft.	LOT 119	7,020 ± Sq. Ft.
LOT 8	8,691 ± Sq. Ft.	LOT 36	10,031 ± Sq. Ft.	LOT 64	10,303 ± Sq. Ft.	LOT 92	18,613 ± Sq. Ft.	LOT 120	7,059 ± Sq. Ft.
LOT 9	9,105 ± Sq. Ft.	LOT 37	10,553 ± Sq. Ft.	LOT 65	10,162 ± Sq. Ft.	LOT 93	10,354 ± Sq. Ft.	LOT 121	13,510 ± Sq. Ft.
LOT 10	9,332 ± Sq. Ft.	LOT 38	11,321 ± Sq. Ft.	LOT 66	10,186 ± Sq. Ft.	LOT 94	9,885 ± Sq. Ft.	LOT 122	9,811 ± Sq. Ft.
LOT 11	9,217 ± Sq. Ft.	LOT 39	11,418 ± Sq. Ft.	LOT 67	11,578 ± Sq. Ft.	LOT 95	9,475 ± Sq. Ft.	LOT 123	9,656 ± Sq. Ft.
LOT 12	11,967 ± Sq. Ft.	LOT 40	16,024 ± Sq. Ft.	LOT 68	12,308 ± Sq. Ft.	LOT 96	9,422 ± Sq. Ft.	LOT 124	8,161 ± Sq. Ft.
LOT 13	13,723 ± Sq. Ft.	LOT 41	13,009 ± Sq. Ft.	LOT 69	14,773 ± Sq. Ft.	LOT 97	10,118 ± Sq. Ft.	LOT 125	8,099 ± Sq. Ft.
LOT 14	15,939 ± Sq. Ft.	LOT 42	11,813 ± Sq. Ft.	LOT 70	19,866 ± Sq. Ft.	LOT 98	15,693 ± Sq. Ft.	LOT 126	8,051 ± Sq. Ft.
LOT 15	11,655 ± Sq. Ft.	LOT 43	11,481 ± Sq. Ft.	LOT 71	26,397 ± Sq. Ft.	LOT 99	12,262 ± Sq. Ft.	LOT 127	11,611 ± Sq. Ft.
LOT 16	17,054 ± Sq. Ft.	LOT 44	11,334 ± Sq. Ft.	LOT 72	27,181 ± Sq. Ft.	LOT 100	6,746 ± Sq. Ft.	LOT 128	11,295 ± Sq. Ft.
LOT 17	19,483 ± Sq. Ft.	LOT 45	11,388 ± Sq. Ft.	LOT 73	21,415 ± Sq. Ft.	LOT 101	6,760 ± Sq. Ft.	LOT 129	7,833 ± Sq. Ft.
LOT 18	20,367 ± Sq. Ft.	LOT 46	11,560 ± Sq. Ft.	LOT 74	6,805 ± Sq. Ft.	LOT 102	6,760 ± Sq. Ft.	LOT 130	8,211 ± Sq. Ft.
LOT 19	13,687 ± Sq. Ft.	LOT 47	11,468 ± Sq. Ft.	LOT 75	6,981 ± Sq. Ft.	LOT 103	6,760 ± Sq. Ft.	LOT 131	8,012 ± Sq. Ft.
LOT 20	10,398 ± Sq. Ft.	LOT 48	11,660 ± Sq. Ft.	LOT 76	6,981 ± Sq. Ft.	LOT 104	9,233 ± Sq. Ft.	LOT 132	8,038 ± Sq. Ft.
LOT 21	11,243 ± Sq. Ft.	LOT 49	17,272 ± Sq. Ft.	LOT 77	6,981 ± Sq. Ft.	LOT 105	6,800 ± Sq. Ft.	LOT 133	8,001 ± Sq. Ft.
LOT 22	25,398 ± Sq. Ft.	LOT 50	27,296 ± Sq. Ft.	LOT 78	6,981 ± Sq. Ft.	LOT 106	9,165 ± Sq. Ft.		
LOT 23	8,842 ± Sq. Ft.	LOT 51	16,966 ± Sq. Ft.	LOT 79	6,981 ± Sq. Ft.	LOT 107	7,451 ± Sq. Ft.		
LOT 24	9,038 ± Sq. Ft.	LOT 52	12,775 ± Sq. Ft.	LOT 80	6,981 ± Sq. Ft.	LOT 108	7,451 ± Sq. Ft.		
LOT 25	11,282 ± Sq. Ft.	LOT 53	10,109 ± Sq. Ft.	LOT 81	6,976 ± Sq. Ft.	LOT 109	6,419 ± Sq. Ft.		
LOT 26	17,523 ± Sq. Ft.	LOT 54	11,774 ± Sq. Ft.	LOT 82	8,627 ± Sq. Ft.	LOT 110	7,366 ± Sq. Ft.		
LOT 27	18,829 ± Sq. Ft.	LOT 55	12,673 ± Sq. Ft.	LOT 83	7,809 ± Sq. Ft.	LOT 111	7,135 ± Sq. Ft.		
LOT 28	17,440 ± Sq. Ft.	LOT 56	12,470 ± Sq. Ft.	LOT 84	7,479 ± Sq. Ft.	LOT 112	7,020 ± Sq. Ft.		

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

TRUE NORTH

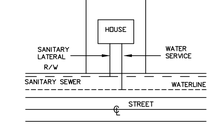
MARK J. ANDREWS, L.S.

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

RESERVED FOR ERIE COUNTY HEALTH DEPARTMENT

RESERVED FOR ERIE COUNTY DEPARTMENT OF FINANCE

SANITARY SEWER FACILITIES, EXISTING AND PROPOSED, AND WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THIS SUBDIVISION MAP ARE FOR THE PURPOSE OF COMPLIANCE WITH NEW YORK STATE REALTY SUBDIVISION LAW. GPI ENGINEERING, LANDSCAPE ARCHITECTURE AND SURVEYING, LLP ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SANITARY SEWER AND WATER FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.



NOTES:

ALL IMPROVEMENTS WILL BE INSTALLED UNDER TOWN PERMITS WITH ALL PLANS CONSISTENT WITH PRELIMINARY PLAT.

PUBLIC DRAINAGE EASEMENTS SHALL BE GRANTED TO THE TOWN OF AMHERST TO PROVIDE ACCESS TO STORM WATER FACILITIES. THESE EASEMENTS SHALL REMAIN FREE OF OBSTRUCTIONS.

PRIVATE DRAINAGE EASEMENTS SET FORTH ON THE SUBDIVISION MAP ARE FOR THE BENEFIT OF THE OWNERS OF PROPERTY WITHIN THE SUBDIVISION AND THE BENEFIT DERIVED FROM THESE EASEMENTS IS FOR THE PROPERTY ONLY AND THE TOWN OF AMHERST ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE THEREOF.

SEE SURVEY PREPARED BY GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP JOB NO. 2013062 DATED: DECEMBER 17, 2017

SUBDIVISION AREA: 41.39± Acres

OWNERS CONSENT FOR FILING :

OWNER DATE

APPROVED BY THE TOWN OF AMHERST PLANNING BOARD, ERIE COUNTY, NEW YORK :

CHAIRMAN DATE

FILED IN THE ERIE COUNTY CLERK'S OFFICE UNDER MAP COVER: DATE:

The preserve at Muir Woods

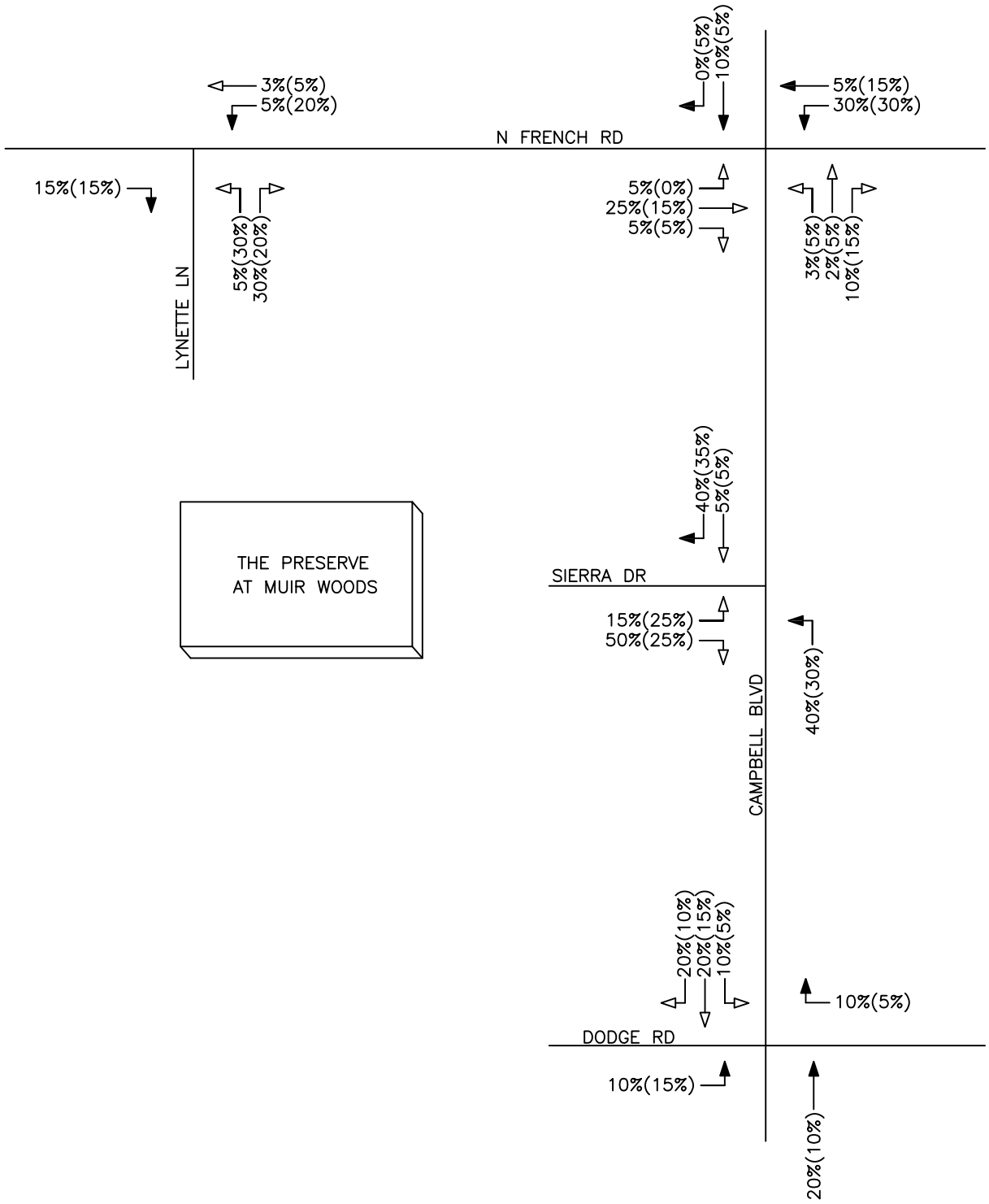
PART OF LOTS 70, TOWNSHIP 12, RANGE 7
HOLLAND LAND SURVEY
TOWN OF AMHERST, ERIE COUNTY, NEW YORK

GPI ENGINEERING, LANDSCAPE ARCHITECTURE & SURVEYING, LLP
ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE
4950 GENESEE STREET, SUITE 100
BUFFALO, NEW YORK 14225
(716) 633-4844 FAX 633-4940

Job No. 2013062 Date: MAY 2017

N:\2013\2013062 - Muir Woods\DWG\Survey Drawings\2013062-MUIR-WOODS-SUBDIVISION.dwg, Model, 2017/06/07 10:33 am

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



PROJECT NO: 41099

KEY

N

NOT TO SCALE

→ = ENTERING TRIPS

→ = EXITING TRIPS

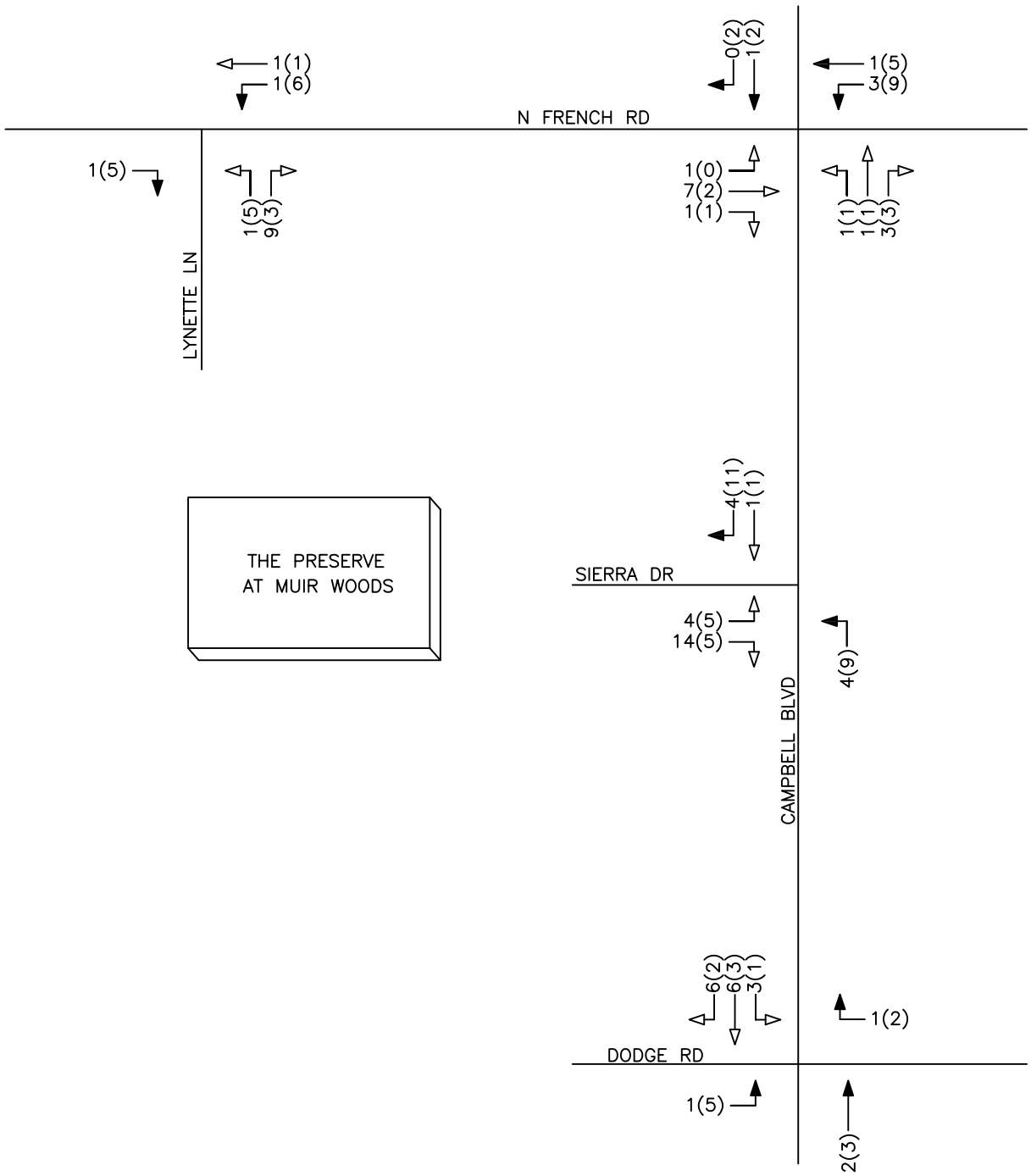
FIGURE 6

TRIP DISTRIBUTION

THE PRESERVE AT MUIR WOODS
TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-1660

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



PROJECT NO: 41099

KEY

N

NOT TO SCALE

00(00) = AM(PM)

→ = ENTERING TRIPS

→ = EXITING TRIPS

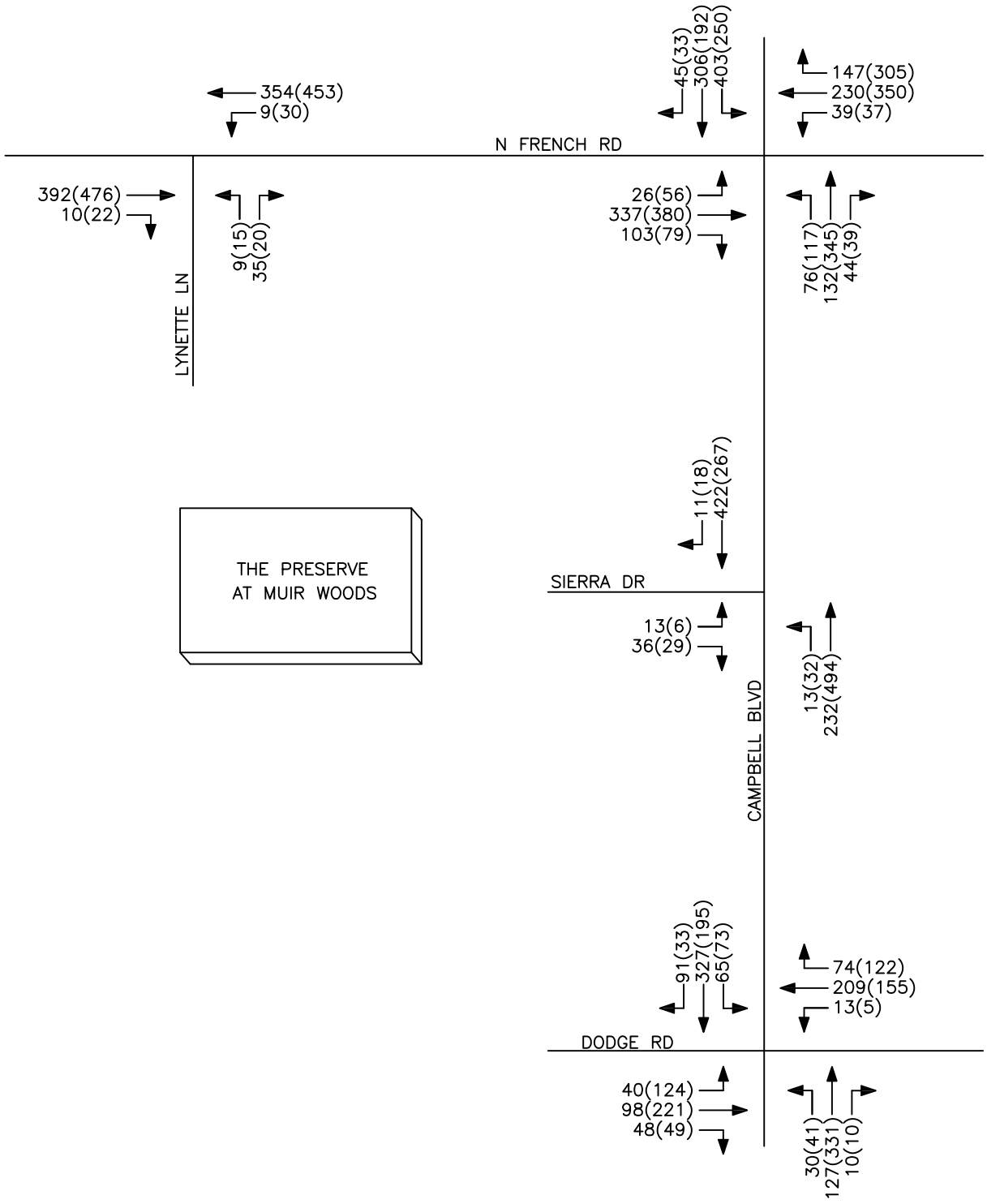
FIGURE 7

SITE GENERATED TRIPS

THE PRESERVE AT MUIR WOODS
TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)



PROJECT NO: 41099

KEY

00(00) = AM(PM)

N

NOT TO SCALE

FIGURE 8

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

THE PRESERVE AT MUIR WOODS
TOWN OF AMHERST, NY

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-1660

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

APPENDICES

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

A1

Collected Traffic Volume Data

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Dodge Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 1

Turning Movement Data

Start Time	Campbell Blvd Southbound							Dodge Rd Westbound							Campbell Blvd Northbound							Dodge Rd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	6	1	66	20	0	0	93	5	4	48	0	0	0	57	0	1	21	7	0	0	29	0	2	24	6	0	0	32	211
7:15 AM	13	5	64	11	0	0	93	11	3	49	1	0	0	64	3	0	31	10	0	0	44	8	4	25	2	0	0	39	240
7:30 AM	15	6	99	18	0	0	138	12	0	56	6	0	0	74	1	2	29	6	0	0	38	5	2	19	5	0	0	31	281
7:45 AM	29	4	78	21	0	1	132	18	4	57	3	0	0	82	0	1	25	3	0	0	29	11	3	28	12	0	0	54	297
Hourly Total	63	16	307	70	0	1	456	46	11	210	10	0	0	277	4	4	106	26	0	0	140	24	11	96	25	0	0	156	1029
8:00 AM	13	5	76	10	0	2	104	22	5	48	1	0	0	76	2	1	31	12	0	0	46	7	4	27	7	0	0	45	271
8:15 AM	12	1	66	13	0	0	92	9	3	47	3	0	0	62	2	1	39	9	0	0	51	9	7	24	15	0	0	55	260
8:30 AM	14	1	66	28	0	0	109	11	4	45	4	0	0	64	4	0	31	7	0	0	42	4	2	17	12	0	0	35	250
8:45 AM	11	2	55	11	0	0	79	12	2	34	2	0	0	50	2	1	48	10	0	0	61	14	3	12	11	0	0	40	230
Hourly Total	50	9	263	62	0	2	384	54	14	174	10	0	0	252	10	3	149	38	0	0	200	34	16	80	45	0	0	175	1011
9:00 AM	14	3	58	4	0	0	79	7	3	37	1	0	0	48	1	0	38	7	0	0	46	10	2	16	14	0	0	42	215
9:15 AM	19	3	52	5	0	0	79	5	1	44	3	0	0	53	0	2	31	5	0	0	38	7	1	15	4	0	0	27	197
9:30 AM	10	2	47	8	0	0	67	10	5	24	1	0	0	40	2	1	25	4	0	0	32	5	1	18	10	0	0	34	173
9:45 AM	8	3	50	13	0	0	74	6	2	31	0	0	0	39	0	0	30	6	0	0	36	7	3	21	11	0	0	42	191
Hourly Total	51	11	207	30	0	0	299	28	11	136	5	0	0	180	3	3	124	22	0	0	152	29	7	70	39	0	0	145	776
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	7	6	38	16	0	0	67	9	5	47	3	0	0	64	3	0	62	14	0	1	79	8	3	50	17	0	2	78	288
3:15 PM	17	1	52	16	0	0	86	10	5	28	1	0	0	44	2	0	73	5	0	0	80	16	1	47	11	0	0	75	285
3:30 PM	15	1	42	13	0	1	71	21	7	32	2	0	1	62	3	2	88	13	0	0	106	10	1	48	29	0	0	88	327
3:45 PM	7	1	53	15	0	0	76	23	4	43	2	0	0	72	5	1	77	11	0	0	94	14	2	46	19	0	0	81	323
Hourly Total	46	9	185	60	0	1	300	63	21	150	8	0	1	242	13	3	300	43	0	1	359	48	7	191	76	0	2	322	1223
4:00 PM	6	4	49	17	0	0	76	16	8	47	2	0	0	73	2	0	66	10	0	0	78	15	1	55	27	0	0	98	325
4:15 PM	6	6	55	19	0	0	86	14	8	42	4	0	0	68	4	1	88	5	0	0	98	15	1	54	19	0	0	89	341
4:30 PM	9	2	49	15	0	0	75	16	4	42	0	0	0	62	0	2	99	11	0	0	112	11	2	57	30	0	0	100	349
4:45 PM	3	2	45	23	0	0	73	22	6	39	1	0	0	68	1	0	59	8	0	0	68	12	2	56	24	0	0	94	303
Hourly Total	24	14	198	74	0	0	310	68	26	170	7	0	0	271	7	3	312	34	0	0	356	53	6	222	100	0	0	381	1318
5:00 PM	5	4	42	11	0	0	62	24	7	40	2	0	0	73	3	1	78	12	0	0	94	10	1	51	35	0	0	97	326
5:15 PM	6	0	55	23	0	1	84	29	11	33	2	0	0	75	1	2	90	10	0	0	103	8	3	56	29	0	0	96	358
5:30 PM	9	0	59	19	0	0	87	15	2	49	5	0	0	71	2	2	66	4	0	0	74	16	2	47	19	0	0	84	316
5:45 PM	11	0	55	21	0	0	87	15	3	45	2	0	1	65	2	0	77	14	0	0	93	8	0	56	22	0	0	86	331
Hourly Total	31	4	211	74	0	1	320	83	23	167	11	0	1	284	8	5	311	40	0	0	364	42	6	210	105	0	0	363	1331
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Grand Total	265	63	1371	370	0	5	2069	342	106	1007	51	0	2	1506	45	21	1303	203	0	1	1572	230	53	869	390	0	2	1542	6689

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Approach %	12.8	3.0	66.3	17.9	0.0	-	-	22.7	7.0	66.9	3.4	0.0	-	-	2.9	1.3	82.9	12.9	0.0	-	-	14.9	3.4	56.4	25.3	0.0	-	-	-
Total %	4.0	0.9	20.5	5.5	0.0	-	30.9	5.1	1.6	15.1	0.8	0.0	-	22.5	0.7	0.3	19.5	3.0	0.0	-	23.5	3.4	0.8	13.0	5.8	0.0	-	23.1	-
Motorcycles	2	0	6	0	0	-	8	0	0	1	1	0	-	2	0	0	5	0	0	-	5	0	0	1	1	0	-	2	17
% Motorcycles	0.8	0.0	0.4	0.0	-	-	0.4	0.0	0.0	0.1	2.0	-	-	0.1	0.0	0.0	0.4	0.0	-	-	0.3	0.0	0.0	0.1	0.3	-	-	0.1	0.3
Cars & Light Goods	255	62	1316	357	0	-	1990	330	104	985	49	0	-	1468	45	20	1241	192	0	-	1498	212	51	837	373	0	-	1473	6429
% Cars & Light Goods	96.2	98.4	96.0	96.5	-	-	96.2	96.5	98.1	97.8	96.1	-	-	97.5	100.0	95.2	95.2	94.6	-	-	95.3	92.2	96.2	96.3	95.6	-	-	95.5	96.1
Other Vehicles	8	0	46	12	0	-	66	12	1	21	1	0	-	35	0	0	51	11	0	-	62	18	2	30	16	0	-	66	229
% Other Vehicles	3.0	0.0	3.4	3.2	-	-	3.2	3.5	0.9	2.1	2.0	-	-	2.3	0.0	0.0	3.9	5.4	-	-	3.9	7.8	3.8	3.5	4.1	-	-	4.3	3.4
Bicycles on Road	0	1	3	1	0	-	5	0	1	0	0	0	-	1	0	1	6	0	0	-	7	0	0	1	0	0	-	1	14
% Bicycles on Road	0.0	1.6	0.2	0.3	-	-	0.2	0.0	0.9	0.0	0.0	-	-	0.1	0.0	4.8	0.5	0.0	-	-	0.4	0.0	0.0	0.1	0.0	-	-	0.1	0.2
Bicycles on Crosswalk	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	40.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	3	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	60.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

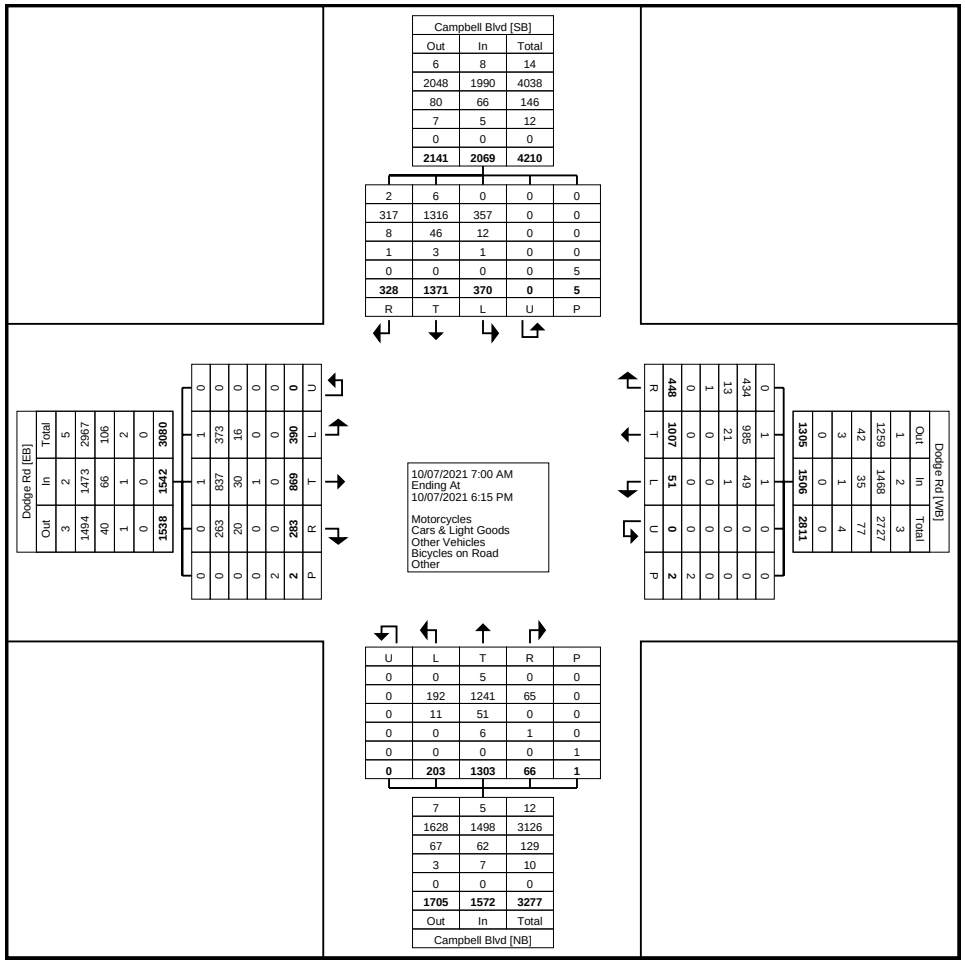
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Dodge Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 3



Turning Movement Data Plot

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Dodge Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Campbell Blvd Southbound							Dodge Rd Westbound							Campbell Blvd Northbound							Dodge Rd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	15	6	99	18	0	0	138	12	0	56	6	0	0	74	1	2	29	6	0	0	38	5	2	19	5	0	0	31	281
7:45 AM	29	4	78	21	0	1	132	18	4	57	3	0	0	82	0	1	25	3	0	0	29	11	3	28	12	0	0	54	297
8:00 AM	13	5	76	10	0	2	104	22	5	48	1	0	0	76	2	1	31	12	0	0	46	7	4	27	7	0	0	45	271
8:15 AM	12	1	66	13	0	0	92	9	3	47	3	0	0	62	2	1	39	9	0	0	51	9	7	24	15	0	0	55	260
Total	69	16	319	62	0	3	466	61	12	208	13	0	0	294	5	5	124	30	0	0	164	32	16	98	39	0	0	185	1109
Approach %	14.8	3.4	68.5	13.3	0.0	-	-	20.7	4.1	70.7	4.4	0.0	-	-	3.0	3.0	75.6	18.3	0.0	-	-	17.3	8.6	53.0	21.1	0.0	-	-	-
Total %	6.2	1.4	28.8	5.6	0.0	-	42.0	5.5	1.1	18.8	1.2	0.0	-	26.5	0.5	0.5	11.2	2.7	0.0	-	14.8	2.9	1.4	8.8	3.5	0.0	-	16.7	-
PHF	0.595	0.667	0.806	0.738	0.000	-	0.844	0.693	0.600	0.912	0.542	0.000	-	0.896	0.625	0.625	0.795	0.625	0.000	-	0.804	0.727	0.571	0.875	0.650	0.000	-	0.841	0.934
Motorcycles	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	65	16	301	59	0	-	441	57	11	201	12	0	-	281	5	5	117	28	0	-	155	30	14	90	37	0	-	171	1048
% Cars & Light Goods	94.2	100.0	94.4	95.2	-	-	94.6	93.4	91.7	96.6	92.3	-	-	95.6	100.0	100.0	94.4	93.3	-	-	94.5	93.8	87.5	91.8	94.9	-	-	92.4	94.5
Other Vehicles	4	0	18	3	0	-	25	4	1	7	1	0	-	13	0	0	7	2	0	-	9	2	2	8	2	0	-	14	61
% Other Vehicles	5.8	0.0	5.6	4.8	-	-	5.4	6.6	8.3	3.4	7.7	-	-	4.4	0.0	0.0	5.6	6.7	-	-	5.5	6.3	12.5	8.2	5.1	-	-	7.6	5.5
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	3	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

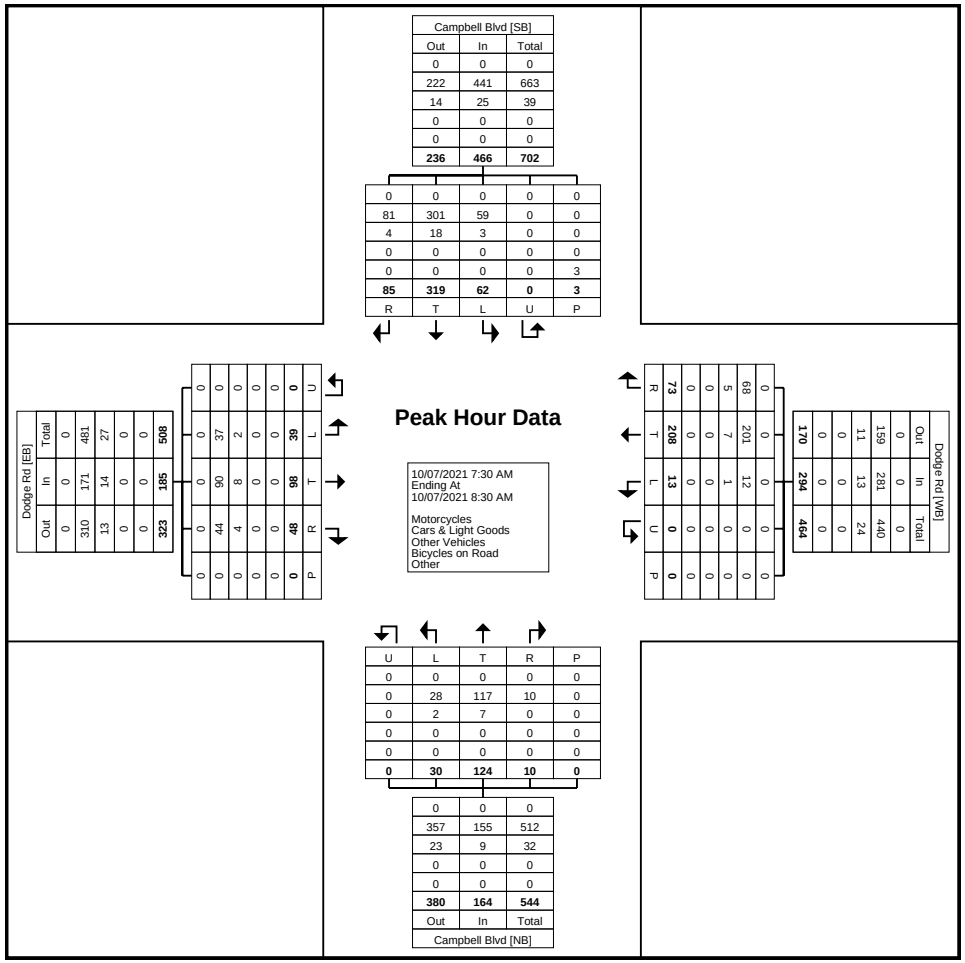
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Dodge Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 5



Turning Movement Peak Hour Data Plot (7:30 AM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Dodge Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Campbell Blvd Southbound							Dodge Rd Westbound							Campbell Blvd Northbound							Dodge Rd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
3:45 PM	7	1	53	15	0	0	76	23	4	43	2	0	0	72	5	1	77	11	0	0	94	14	2	46	19	0	0	81	323
4:00 PM	6	4	49	17	0	0	76	16	8	47	2	0	0	73	2	0	66	10	0	0	78	15	1	55	27	0	0	98	325
4:15 PM	6	6	55	19	0	0	86	14	8	42	4	0	0	68	4	1	88	5	0	0	98	15	1	54	19	0	0	89	341
4:30 PM	9	2	49	15	0	0	75	16	4	42	0	0	0	62	0	2	99	11	0	0	112	11	2	57	30	0	0	100	349
Total	28	13	206	66	0	0	313	69	24	174	8	0	0	275	11	4	330	37	0	0	382	55	6	212	95	0	0	368	1338
Approach %	8.9	4.2	65.8	21.1	0.0	-	-	25.1	8.7	63.3	2.9	0.0	-	-	2.9	1.0	86.4	9.7	0.0	-	-	14.9	1.6	57.6	25.8	0.0	-	-	-
Total %	2.1	1.0	15.4	4.9	0.0	-	23.4	5.2	1.8	13.0	0.6	0.0	-	20.6	0.8	0.3	24.7	2.8	0.0	-	28.6	4.1	0.4	15.8	7.1	0.0	-	27.5	-
PHF	0.778	0.542	0.936	0.868	0.000	-	0.910	0.750	0.750	0.926	0.500	0.000	-	0.942	0.550	0.500	0.833	0.841	0.000	-	0.853	0.917	0.750	0.930	0.792	0.000	-	0.920	0.958
Motorcycles	2	0	0	0	0	-	2	0	0	0	0	0	-	0	0	0	1	0	0	-	1	0	0	0	1	0	-	1	4
% Motorcycles	7.1	0.0	0.0	0.0	-	-	0.6	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.3	0.0	-	-	0.3	0.0	0.0	0.0	1.1	-	-	0.3	0.3
Cars & Light Goods	25	12	200	64	0	-	301	67	24	170	8	0	-	269	11	4	320	35	0	-	370	55	6	207	93	0	-	361	1301
% Cars & Light Goods	89.3	92.3	97.1	97.0	-	-	96.2	97.1	100.0	97.7	100.0	-	-	97.8	100.0	100.0	97.0	94.6	-	-	96.9	100.0	100.0	97.6	97.9	-	-	98.1	97.2
Other Vehicles	1	0	6	2	0	-	9	2	0	4	0	0	-	6	0	0	9	2	0	-	11	0	0	4	1	0	-	5	31
% Other Vehicles	3.6	0.0	2.9	3.0	-	-	2.9	2.9	0.0	2.3	0.0	-	-	2.2	0.0	0.0	2.7	5.4	-	-	2.9	0.0	0.0	1.9	1.1	-	-	1.4	2.3
Bicycles on Road	0	1	0	0	0	-	1	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	1	0	0	-	1	2
% Bicycles on Road	0.0	7.7	0.0	0.0	-	-	0.3	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.5	0.0	-	-	0.3	0.1
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

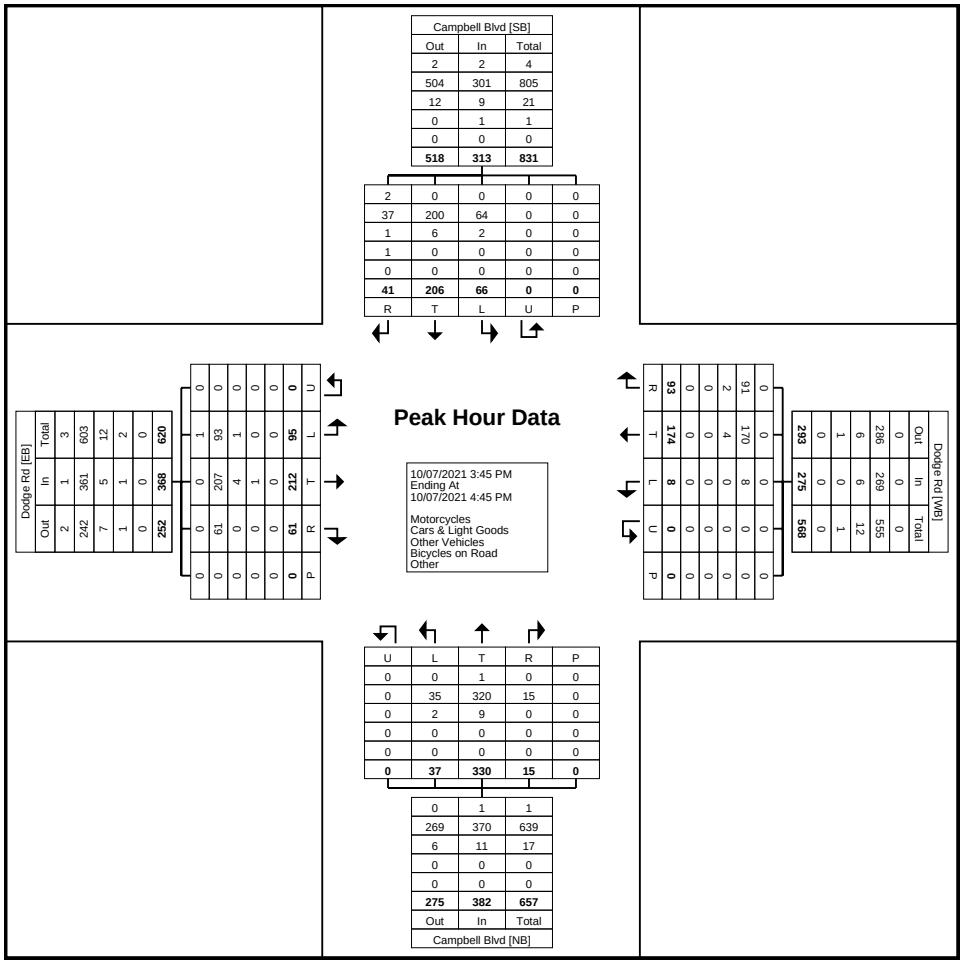
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Dodge Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 7



Turning Movement Peak Hour Data Plot (3:45 PM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Muir Woods Access Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Data

Start Time	Campbell Blvd Southbound					Campbell Blvd Northbound					Muir Woods Access Rd Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
7:00 AM	1	86	0	0	87	41	1	0	0	42	5	2	0	0	7	136
7:15 AM	2	86	0	0	88	45	2	0	0	47	9	4	0	0	13	148
7:30 AM	1	120	0	0	121	48	3	0	0	51	5	3	0	0	8	180
7:45 AM	1	118	0	1	119	57	3	0	0	60	8	0	0	0	8	187
Hourly Total	5	410	0	1	415	191	9	0	0	200	27	9	0	0	36	651
8:00 AM	1	93	0	0	94	68	1	0	0	69	5	4	0	0	9	172
8:15 AM	4	88	0	0	92	58	2	0	0	60	4	2	0	0	6	158
8:30 AM	1	89	0	0	90	49	3	0	0	52	4	0	0	0	4	146
8:45 AM	2	74	0	0	76	65	4	0	0	69	5	2	0	0	7	152
Hourly Total	8	344	0	0	352	240	10	0	0	250	18	8	0	0	26	628
9:00 AM	0	68	0	0	68	57	4	0	0	61	5	1	0	0	6	135
9:15 AM	1	65	0	0	66	42	3	0	0	45	3	2	0	0	5	116
9:30 AM	0	62	0	0	62	51	4	0	0	55	2	0	0	0	2	119
9:45 AM	1	60	0	0	61	44	3	0	0	47	4	0	0	0	4	112
Hourly Total	2	255	0	0	257	194	14	0	0	208	14	3	0	0	17	482
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	3	58	0	0	61	85	2	0	0	87	2	0	0	0	2	150
3:15 PM	1	77	0	0	78	94	4	0	0	98	4	1	0	0	5	181
3:30 PM	0	67	0	0	67	120	7	0	0	127	1	2	0	0	3	197
3:45 PM	1	60	0	0	61	112	5	0	0	117	6	1	0	0	7	185
Hourly Total	5	262	0	0	267	411	18	0	0	429	13	4	0	0	17	713
4:00 PM	1	71	0	0	72	105	7	0	0	112	7	1	0	0	8	192
4:15 PM	3	77	0	0	80	111	8	0	0	119	5	2	0	0	7	206
4:30 PM	3	69	0	0	72	131	4	0	0	135	5	0	0	0	5	212
4:45 PM	1	62	0	0	63	99	3	0	0	102	5	1	0	0	6	171
Hourly Total	8	279	0	0	287	446	22	0	0	468	22	4	0	0	26	781
5:00 PM	1	63	0	0	64	126	9	0	0	135	5	0	0	0	5	204
5:15 PM	2	71	0	0	73	136	7	0	0	143	9	0	0	0	9	225
5:30 PM	1	86	0	0	87	85	6	0	0	91	2	0	0	0	2	180
5:45 PM	0	73	0	0	73	95	5	0	0	100	5	0	0	0	5	178
Hourly Total	4	293	0	0	297	442	27	0	0	469	21	0	0	0	21	787
6:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	32	1844	0	1	1876	1924	100	0	0	2024	115	28	0	0	143	4043
Approach %	1.7	98.3	0.0	-	-	95.1	4.9	0.0	-	-	80.4	19.6	0.0	-	-	-

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Total %	0.8	45.6	0.0	-	46.4	47.6	2.5	0.0	-	50.1	2.8	0.7	0.0	-	3.5	-
Motorcycles	0	8	0	-	8	6	0	0	-	6	0	0	0	-	0	14
% Motorcycles	0.0	0.4	-	-	0.4	0.3	0.0	-	-	0.3	0.0	0.0	-	-	0.0	0.3
Cars & Light Goods	22	1768	0	-	1790	1834	98	0	-	1932	107	23	0	-	130	3852
% Cars & Light Goods	68.8	95.9	-	-	95.4	95.3	98.0	-	-	95.5	93.0	82.1	-	-	90.9	95.3
Other Vehicles	9	65	0	-	74	76	2	0	-	78	4	5	0	-	9	161
% Other Vehicles	28.1	3.5	-	-	3.9	4.0	2.0	-	-	3.9	3.5	17.9	-	-	6.3	4.0
Bicycles on Road	1	3	0	-	4	8	0	0	-	8	4	0	0	-	4	16
% Bicycles on Road	3.1	0.2	-	-	0.2	0.4	0.0	-	-	0.4	3.5	0.0	-	-	2.8	0.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

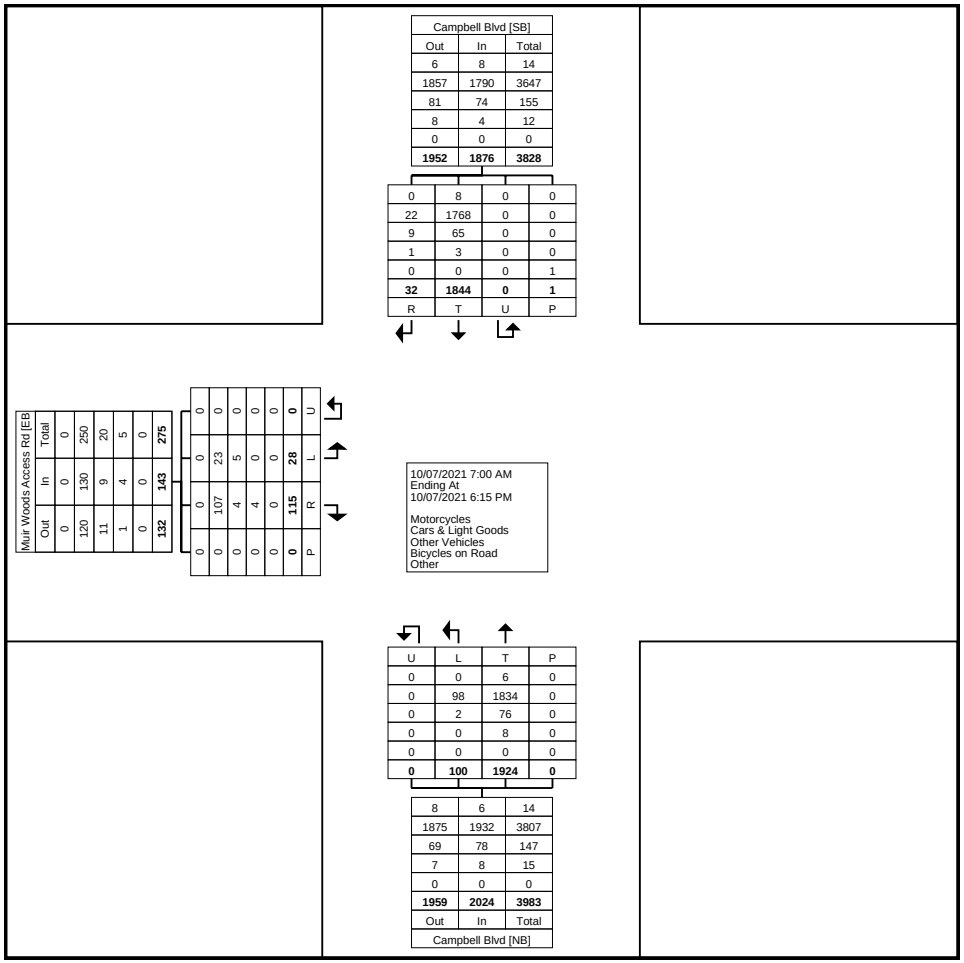
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Muir Woods Access Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021



Turning Movement Data Plot

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Muir Woods Access Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Campbell Blvd Southbound					Campbell Blvd Northbound					Muir Woods Access Rd Eastbound					
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Int. Total
7:30 AM	1	120	0	0	121	48	3	0	0	51	5	3	0	0	8	180
7:45 AM	1	118	0	1	119	57	3	0	0	60	8	0	0	0	8	187
8:00 AM	1	93	0	0	94	68	1	0	0	69	5	4	0	0	9	172
8:15 AM	4	88	0	0	92	58	2	0	0	60	4	2	0	0	6	158
Total	7	419	0	1	426	231	9	0	0	240	22	9	0	0	31	697
Approach %	1.6	98.4	0.0	-	-	96.3	3.8	0.0	-	-	71.0	29.0	0.0	-	-	-
Total %	1.0	60.1	0.0	-	61.1	33.1	1.3	0.0	-	34.4	3.2	1.3	0.0	-	4.4	-
PHF	0.438	0.873	0.000	-	0.880	0.849	0.750	0.000	-	0.870	0.688	0.563	0.000	-	0.861	0.932
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	4	391	0	-	395	218	9	0	-	227	18	9	0	-	27	649
% Cars & Light Goods	57.1	93.3	-	-	92.7	94.4	100.0	-	-	94.6	81.8	100.0	-	-	87.1	93.1
Other Vehicles	3	28	0	-	31	13	0	0	-	13	4	0	0	-	4	48
% Other Vehicles	42.9	6.7	-	-	7.3	5.6	0.0	-	-	5.4	18.2	0.0	-	-	12.9	6.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

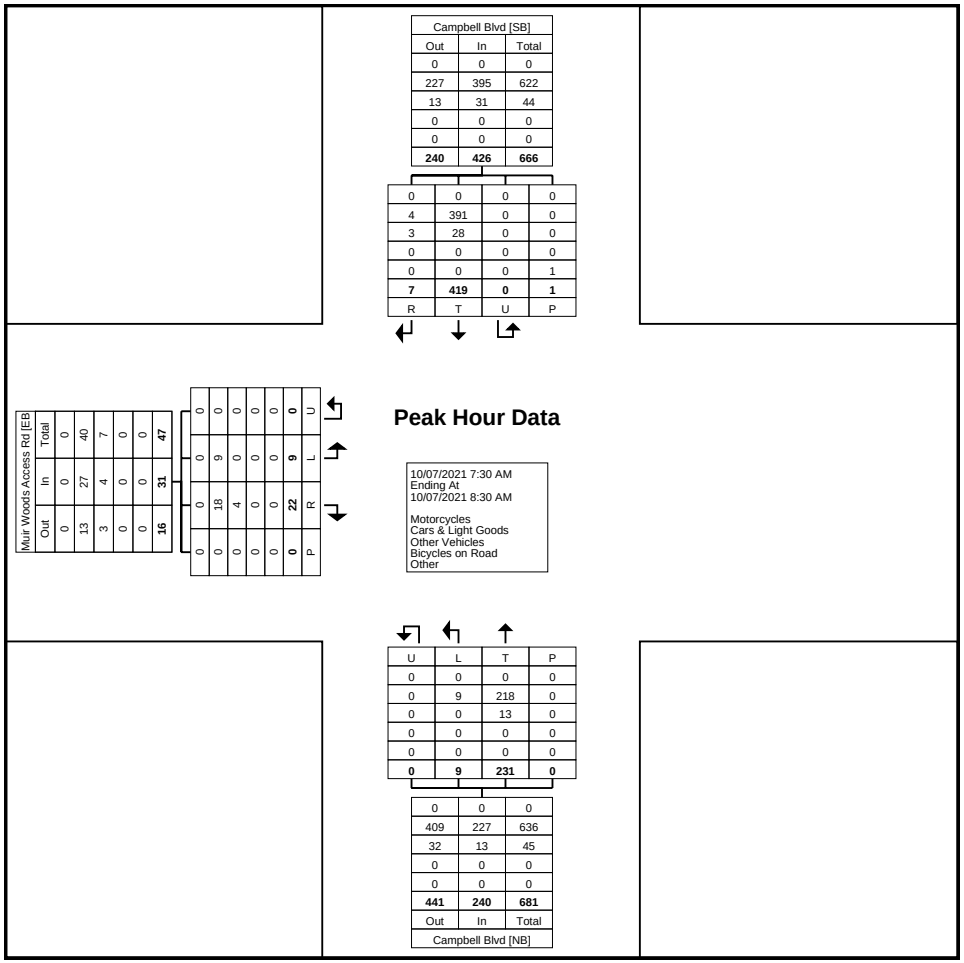
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Muir Woods Access Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021



Turning Movement Peak Hour Data Plot (7:30 AM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Muir Woods Access Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Campbell Blvd Southbound					Campbell Blvd Northbound					Muir Woods Access Rd Eastbound					
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Int. Total
4:30 PM	3	69	0	0	72	131	4	0	0	135	5	0	0	0	5	212
4:45 PM	1	62	0	0	63	99	3	0	0	102	5	1	0	0	6	171
5:00 PM	1	63	0	0	64	126	9	0	0	135	5	0	0	0	5	204
5:15 PM	2	71	0	0	73	136	7	0	0	143	9	0	0	0	9	225
Total	7	265	0	0	272	492	23	0	0	515	24	1	0	0	25	812
Approach %	2.6	97.4	0.0	-	-	95.5	4.5	0.0	-	-	96.0	4.0	0.0	-	-	-
Total %	0.9	32.6	0.0	-	33.5	60.6	2.8	0.0	-	63.4	3.0	0.1	0.0	-	3.1	-
PHF	0.583	0.933	0.000	-	0.932	0.904	0.639	0.000	-	0.900	0.667	0.250	0.000	-	0.694	0.902
Motorcycles	0	3	0	-	3	3	0	0	-	3	0	0	0	-	0	6
% Motorcycles	0.0	1.1	-	-	1.1	0.6	0.0	-	-	0.6	0.0	0.0	-	-	0.0	0.7
Cars & Light Goods	6	257	0	-	263	480	23	0	-	503	22	1	0	-	23	789
% Cars & Light Goods	85.7	97.0	-	-	96.7	97.6	100.0	-	-	97.7	91.7	100.0	-	-	92.0	97.2
Other Vehicles	0	5	0	-	5	6	0	0	-	6	0	0	0	-	0	11
% Other Vehicles	0.0	1.9	-	-	1.8	1.2	0.0	-	-	1.2	0.0	0.0	-	-	0.0	1.4
Bicycles on Road	1	0	0	-	1	3	0	0	-	3	2	0	0	-	2	6
% Bicycles on Road	14.3	0.0	-	-	0.4	0.6	0.0	-	-	0.6	8.3	0.0	-	-	8.0	0.7
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

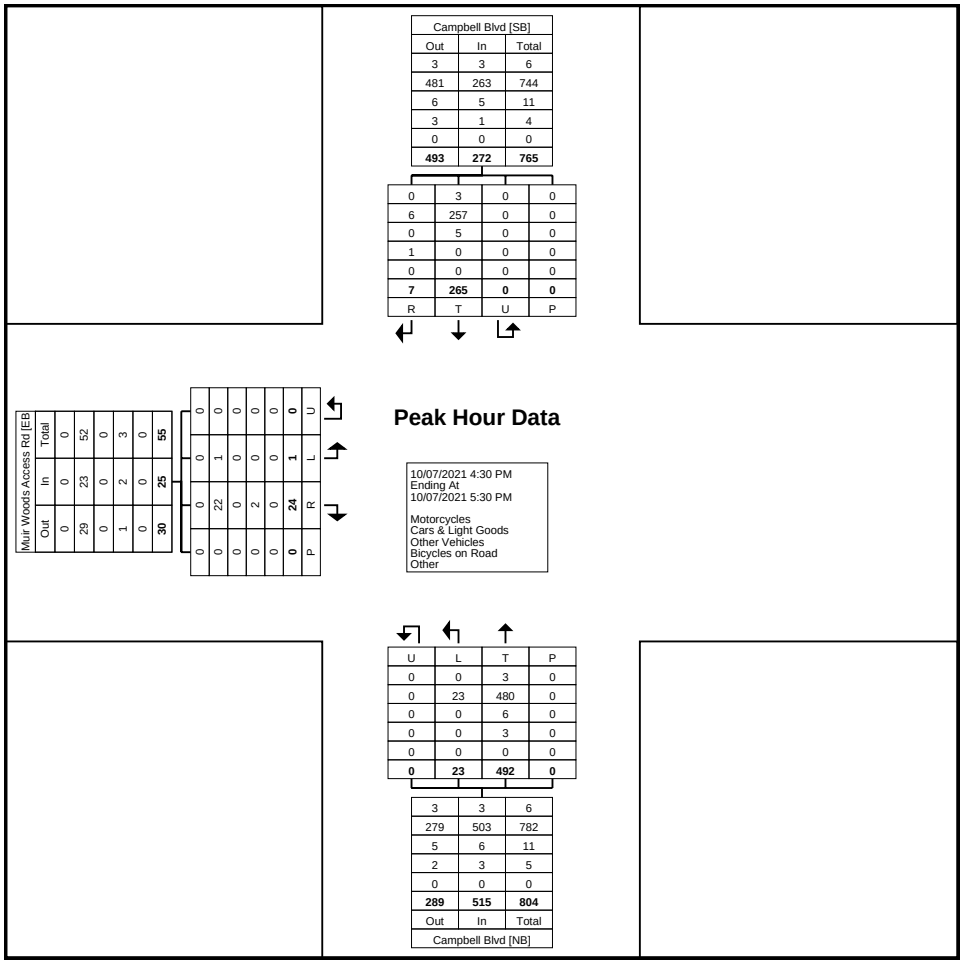
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: Muir Woods Access Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 7



Turning Movement Peak Hour Data Plot (4:30 PM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: N.French Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Data

Start Time	Campbell Blvd Southbound						N.French Rd Westbound						Campbell Blvd Northbound						N.French Rd Eastbound						Int. Total
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	
7:00 AM	3	2	63	91	0	159	23	4	34	6	0	67	6	2	27	11	0	46	21	4	50	4	0	79	351
7:15 AM	5	0	80	98	0	183	28	5	56	8	0	97	6	0	31	14	0	51	18	6	67	4	0	95	426
7:30 AM	10	0	91	120	0	221	35	8	61	8	0	112	10	3	19	24	0	56	31	1	78	4	0	114	503
7:45 AM	13	1	83	113	0	210	32	8	66	12	0	118	7	2	37	20	0	66	21	2	94	12	0	129	523
Hourly Total	31	3	317	422	0	773	118	25	217	34	0	394	29	7	114	69	0	219	91	13	289	24	0	417	1803
8:00 AM	10	3	69	100	0	182	14	5	56	6	0	81	11	0	31	17	0	59	22	1	74	4	0	101	423
8:15 AM	8	0	60	68	0	136	34	10	45	10	0	99	7	1	43	14	0	65	21	2	82	5	0	110	410
8:30 AM	7	1	78	81	0	167	27	7	60	8	0	102	6	1	31	23	0	61	13	1	60	3	0	77	407
8:45 AM	8	0	51	64	0	123	27	14	56	3	0	100	7	3	27	21	0	58	21	1	67	3	0	92	373
Hourly Total	33	4	258	313	0	608	102	36	217	27	0	382	31	5	132	75	0	243	77	5	283	15	0	380	1613
9:00 AM	2	1	49	53	0	105	14	22	48	3	0	87	3	2	35	20	0	60	15	3	69	2	0	89	341
9:15 AM	7	4	48	79	0	138	15	12	51	8	0	86	5	0	28	14	0	47	9	1	65	4	0	79	350
9:30 AM	3	0	46	68	0	117	18	17	44	4	0	83	8	0	33	14	0	55	12	2	70	2	0	86	341
9:45 AM	5	2	38	75	0	120	30	2	44	8	0	84	6	0	25	14	0	45	11	0	60	7	0	78	327
Hourly Total	17	7	181	275	0	480	77	53	187	23	0	340	22	2	121	62	0	207	47	6	264	15	0	332	1359
10:00 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00 PM	8	1	37	71	0	117	47	12	67	8	0	134	3	4	62	20	0	89	13	6	49	10	0	78	418
3:15 PM	6	4	63	63	0	136	59	10	82	11	0	162	7	0	64	21	0	92	13	1	72	9	0	95	485
3:30 PM	7	2	46	58	0	113	52	19	68	2	0	141	2	1	79	42	0	124	14	3	91	10	0	118	496
3:45 PM	6	1	43	71	0	121	70	12	70	4	0	156	6	1	93	28	0	128	19	4	95	11	0	129	534
Hourly Total	27	8	189	263	0	487	228	53	287	25	0	593	18	6	298	111	0	433	59	14	307	40	0	420	1933
4:00 PM	7	4	51	66	0	128	49	12	80	6	0	147	4	0	87	23	0	114	18	1	83	8	0	110	499
4:15 PM	8	2	52	77	0	139	59	10	77	5	0	151	7	3	79	28	0	117	12	6	96	6	0	120	527
4:30 PM	8	2	51	63	0	124	60	13	82	8	0	163	8	0	90	31	0	129	14	3	95	10	0	122	538
4:45 PM	5	2	43	66	0	116	68	13	82	8	0	171	6	1	78	16	0	101	16	1	82	22	0	121	509
Hourly Total	28	10	197	272	0	507	236	48	321	27	0	632	25	4	334	98	0	461	60	11	356	46	0	473	2073
5:00 PM	5	0	42	68	0	115	65	7	94	4	0	170	5	2	82	36	0	125	17	1	106	14	0	138	548
5:15 PM	8	1	53	52	0	114	70	7	85	8	0	170	12	2	92	32	0	138	25	1	93	10	0	129	551
5:30 PM	7	3	61	57	0	128	51	12	104	14	0	181	6	3	56	25	0	90	21	6	88	17	0	132	531
5:45 PM	5	2	50	46	0	103	35	11	71	10	0	127	17	5	45	28	0	95	19	1	65	13	0	98	423
Hourly Total	25	6	206	223	0	460	221	37	354	36	0	648	40	12	275	121	0	448	82	9	352	54	0	497	2053
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Grand Total	161	38	1348	1768	0	3315	983	252	1583	172	0	2990	165	36	1274	536	0	2011	416	58	1853	194	0	2521	10837

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Approach %	4.9	1.1	40.7	53.3	0.0	-	32.9	8.4	52.9	5.8	0.0	-	8.2	1.8	63.4	26.7	0.0	-	16.5	2.3	73.5	7.7	0.0	-	-
Total %	1.5	0.4	12.4	16.3	0.0	30.6	9.1	2.3	14.6	1.6	0.0	27.6	1.5	0.3	11.8	4.9	0.0	18.6	3.8	0.5	17.1	1.8	0.0	23.3	-
Motorcycles	0	0	3	3	0	6	3	2	3	0	0	8	0	0	4	2	0	6	1	0	10	0	0	11	31
% Motorcycles	0.0	0.0	0.2	0.2	-	0.2	0.3	0.8	0.2	0.0	-	0.3	0.0	0.0	0.3	0.4	-	0.3	0.2	0.0	0.5	0.0	-	0.4	0.3
Cars & Light Goods	156	37	1297	1647	0	3137	906	236	1531	156	0	2829	147	34	1220	504	0	1905	408	57	1776	186	0	2427	10298
% Cars & Light Goods	96.9	97.4	96.2	93.2	-	94.6	92.2	93.7	96.7	90.7	-	94.6	89.1	94.4	95.8	94.0	-	94.7	98.1	98.3	95.8	95.9	-	96.3	95.0
Other Vehicles	5	1	48	118	0	172	74	14	49	16	0	153	18	2	50	30	0	100	7	1	67	8	0	83	508
% Other Vehicles	3.1	2.6	3.6	6.7	-	5.2	7.5	5.6	3.1	9.3	-	5.1	10.9	5.6	3.9	5.6	-	5.0	1.7	1.7	3.6	4.1	-	3.3	4.7

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

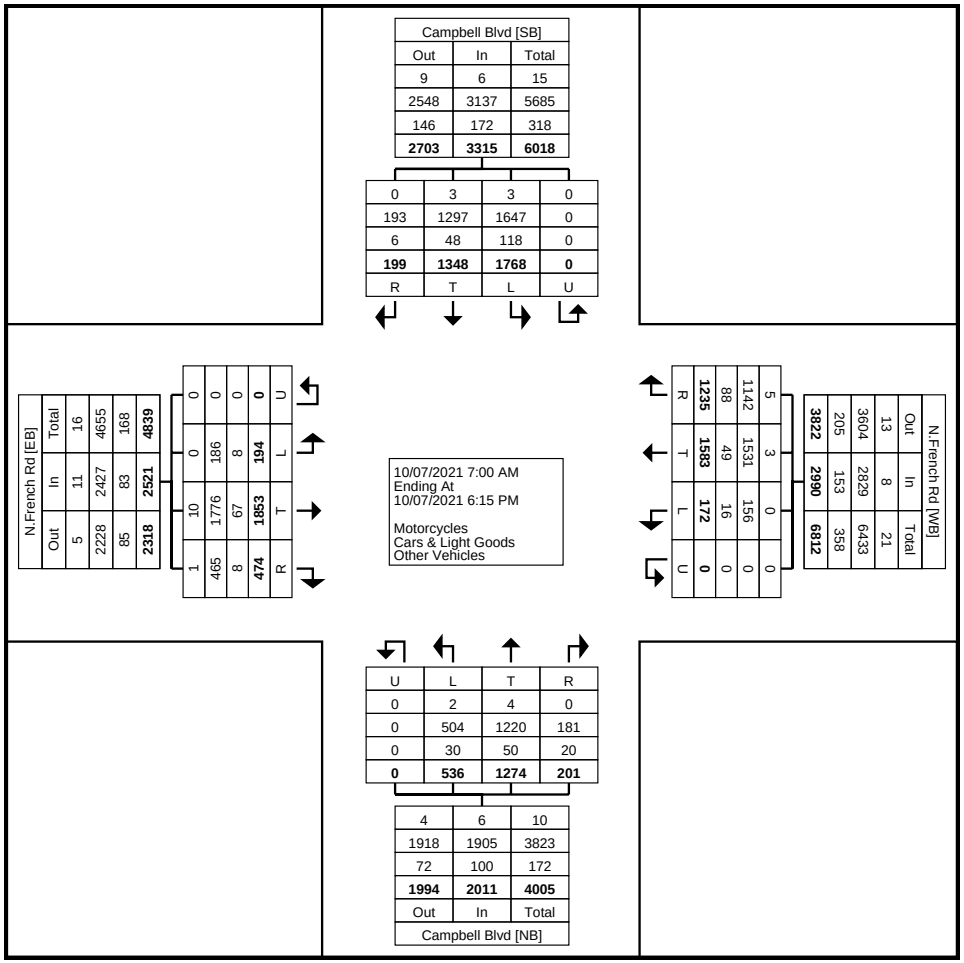
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: N.French Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 3



Turning Movement Data Plot

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: N.French Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Campbell Blvd Southbound						N.French Rd Westbound						Campbell Blvd Northbound						N.French Rd Eastbound						Int. Total
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	
7:15 AM	5	0	80	98	0	183	28	5	56	8	0	97	6	0	31	14	0	51	18	6	67	4	0	95	426
7:30 AM	10	0	91	120	0	221	35	8	61	8	0	112	10	3	19	24	0	56	31	1	78	4	0	114	503
7:45 AM	13	1	83	113	0	210	32	8	66	12	0	118	7	2	37	20	0	66	21	2	94	12	0	129	523
8:00 AM	10	3	69	100	0	182	14	5	56	6	0	81	11	0	31	17	0	59	22	1	74	4	0	101	423
Total	38	4	323	431	0	796	109	26	239	34	0	408	34	5	118	75	0	232	92	10	313	24	0	439	1875
Approach %	4.8	0.5	40.6	54.1	0.0	-	26.7	6.4	58.6	8.3	0.0	-	14.7	2.2	50.9	32.3	0.0	-	21.0	2.3	71.3	5.5	0.0	-	-
Total %	2.0	0.2	17.2	23.0	0.0	42.5	5.8	1.4	12.7	1.8	0.0	21.8	1.8	0.3	6.3	4.0	0.0	12.4	4.9	0.5	16.7	1.3	0.0	23.4	-
PHF	0.731	0.333	0.887	0.898	0.000	0.900	0.779	0.813	0.905	0.708	0.000	0.864	0.773	0.417	0.797	0.781	0.000	0.879	0.742	0.417	0.832	0.500	0.000	0.851	0.896
Motorcycles	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	3	4
% Motorcycles	0.0	0.0	0.0	0.2	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	1.1	0.0	0.6	0.0	-	0.7	0.2
Cars & Light Goods	36	4	308	403	0	751	97	22	230	26	0	375	29	4	116	68	0	217	89	9	296	17	0	411	1754
% Cars & Light Goods	94.7	100.0	95.4	93.5	-	94.3	89.0	84.6	96.2	76.5	-	91.9	85.3	80.0	98.3	90.7	-	93.5	96.7	90.0	94.6	70.8	-	93.6	93.5
Other Vehicles	2	0	15	27	0	44	12	4	9	8	0	33	5	1	2	7	0	15	2	1	15	7	0	25	117
% Other Vehicles	5.3	0.0	4.6	6.3	-	5.5	11.0	15.4	3.8	23.5	-	8.1	14.7	20.0	1.7	9.3	-	6.5	2.2	10.0	4.8	29.2	-	5.7	6.2

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

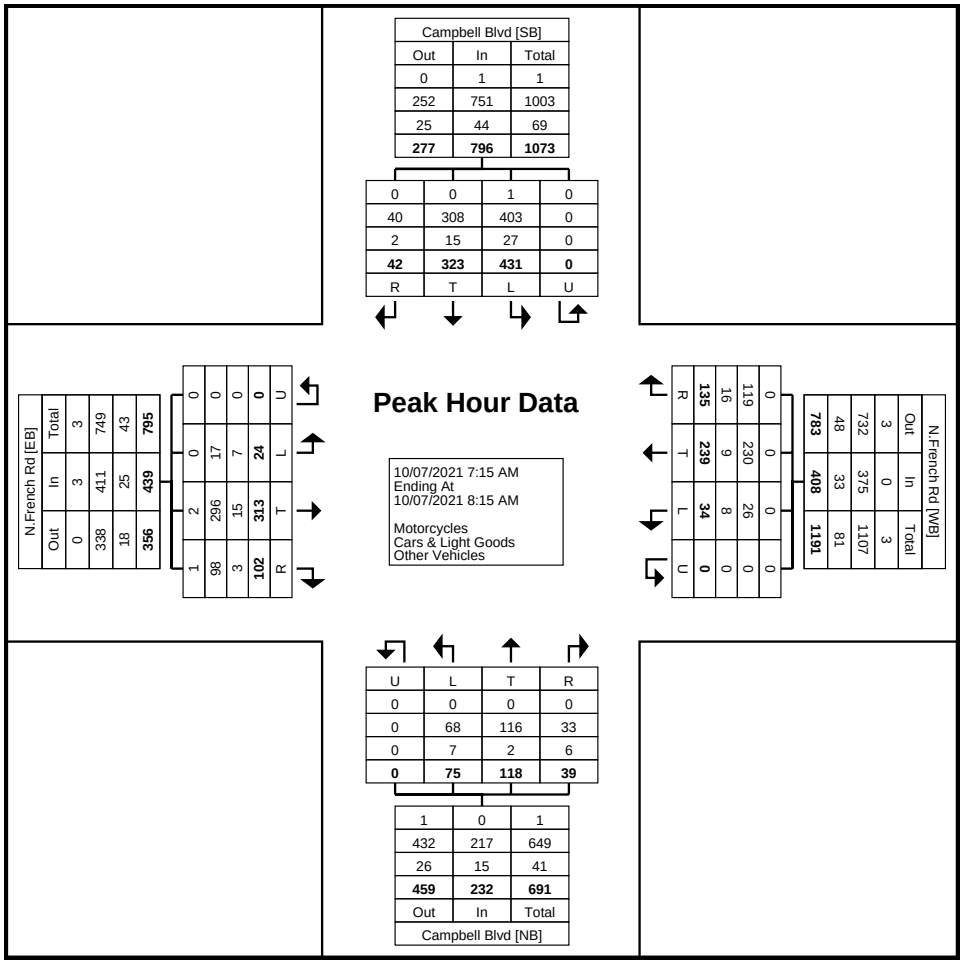
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: N.French Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 5



Turning Movement Peak Hour Data Plot (7:15 AM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: N.French Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Campbell Blvd Southbound						N.French Rd Westbound						Campbell Blvd Northbound						N.French Rd Eastbound						Int. Total
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	
4:30 PM	8	2	51	63	0	124	60	13	82	8	0	163	8	0	90	31	0	129	14	3	95	10	0	122	538
4:45 PM	5	2	43	66	0	116	68	13	82	8	0	171	6	1	78	16	0	101	16	1	82	22	0	121	509
5:00 PM	5	0	42	68	0	115	65	7	94	4	0	170	5	2	82	36	0	125	17	1	106	14	0	138	548
5:15 PM	8	1	53	52	0	114	70	7	85	8	0	170	12	2	92	32	0	138	25	1	93	10	0	129	551
Total	26	5	189	249	0	469	263	40	343	28	0	674	31	5	342	115	0	493	72	6	376	56	0	510	2146
Approach %	5.5	1.1	40.3	53.1	0.0	-	39.0	5.9	50.9	4.2	0.0	-	6.3	1.0	69.4	23.3	0.0	-	14.1	1.2	73.7	11.0	0.0	-	-
Total %	1.2	0.2	8.8	11.6	0.0	21.9	12.3	1.9	16.0	1.3	0.0	31.4	1.4	0.2	15.9	5.4	0.0	23.0	3.4	0.3	17.5	2.6	0.0	23.8	-
PHF	0.813	0.625	0.892	0.915	0.000	0.946	0.939	0.769	0.912	0.875	0.000	0.985	0.646	0.625	0.929	0.799	0.000	0.893	0.720	0.500	0.887	0.636	0.000	0.924	0.974
Motorcycles	0	0	2	0	0	2	1	0	0	0	0	1	0	0	3	0	0	3	0	0	4	0	0	4	10
% Motorcycles	0.0	0.0	1.1	0.0	-	0.4	0.4	0.0	0.0	0.0	-	0.1	0.0	0.0	0.9	0.0	-	0.6	0.0	0.0	1.1	0.0	-	0.8	0.5
Cars & Light Goods	26	5	183	237	0	451	255	38	335	27	0	655	31	5	338	114	0	488	72	6	371	56	0	505	2099
% Cars & Light Goods	100.0	100.0	96.8	95.2	-	96.2	97.0	95.0	97.7	96.4	-	97.2	100.0	100.0	98.8	99.1	-	99.0	100.0	100.0	98.7	100.0	-	99.0	97.8
Other Vehicles	0	0	4	12	0	16	7	2	8	1	0	18	0	0	1	1	0	2	0	0	1	0	0	1	37
% Other Vehicles	0.0	0.0	2.1	4.8	-	3.4	2.7	5.0	2.3	3.6	-	2.7	0.0	0.0	0.3	0.9	-	0.4	0.0	0.0	0.3	0.0	-	0.2	1.7

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

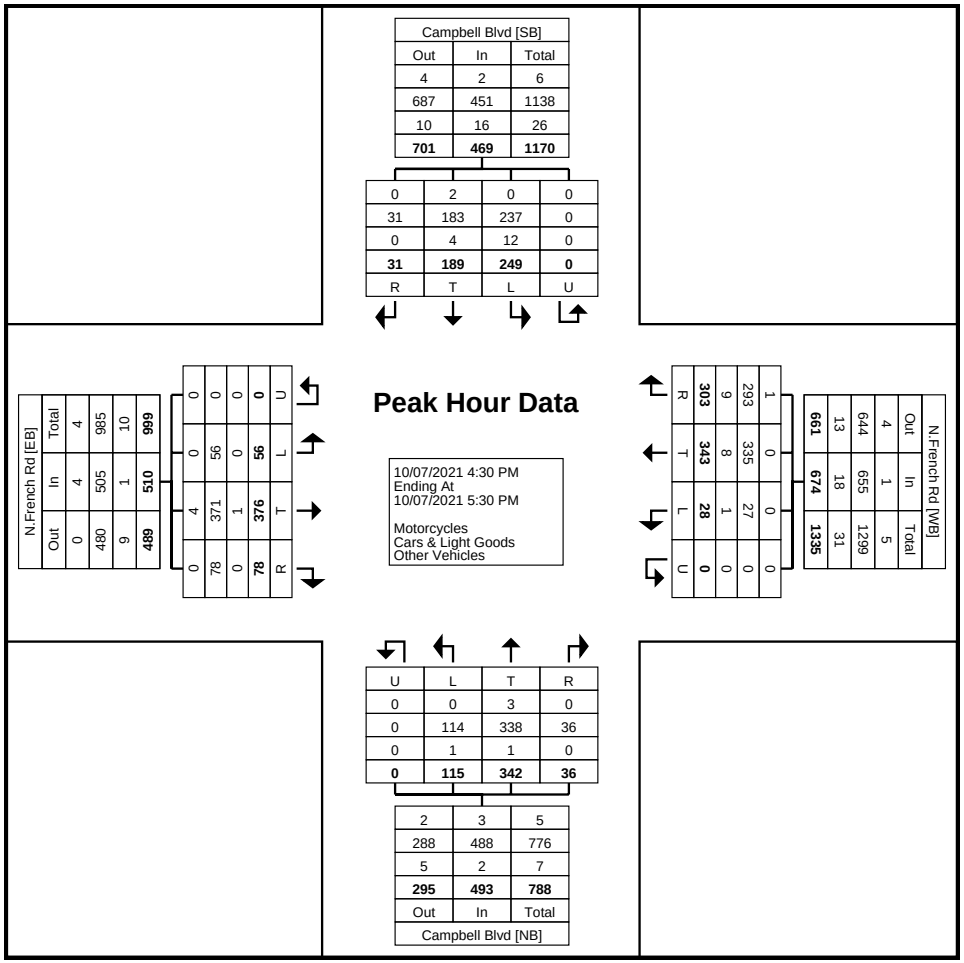
Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Buffalo, NY

October 7, 2021

Count Name: N.French Rd/Campbell Blvd
Site Code:
Start Date: 10/07/2021
Page No: 7



Turning Movement Peak Hour Data Plot (4:30 PM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Count Name: N.French Rd/Lynette Ln
Site Code:
Start Date: 10/07/2021

Turning Movement Data

Start Time	N.French Rd Westbound				Lynette Ln Northbound				N.French Rd Eastbound				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
7:00 AM	51	1	0	52	8	2	0	10	1	67	0	68	130
7:15 AM	73	2	0	75	13	3	0	16	0	92	0	92	183
7:30 AM	100	3	0	103	5	2	0	7	6	91	0	97	207
7:45 AM	101	1	0	102	6	2	0	8	1	115	0	116	226
Hourly Total	325	7	0	332	32	9	0	41	8	365	0	373	746
8:00 AM	88	2	0	90	6	2	0	8	0	85	0	85	183
8:15 AM	62	2	0	64	9	2	0	11	2	99	0	101	176
8:30 AM	88	3	0	91	7	2	0	9	1	82	0	83	183
8:45 AM	82	2	0	84	5	4	0	9	3	75	0	78	171
Hourly Total	320	9	0	329	27	10	0	37	6	341	0	347	713
9:00 AM	65	4	0	69	3	0	0	3	1	83	0	84	156
9:15 AM	65	2	0	67	4	0	0	4	1	78	0	79	150
9:30 AM	69	1	0	70	4	1	0	5	2	82	0	84	159
9:45 AM	67	1	0	68	4	3	0	7	3	78	0	81	156
Hourly Total	266	8	0	274	15	4	0	19	7	321	0	328	621
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	107	2	0	109	4	1	0	5	3	77	0	80	194
3:15 PM	112	3	0	115	7	5	0	12	5	86	0	91	218
3:30 PM	113	8	0	121	4	2	0	6	3	112	0	115	242
3:45 PM	103	9	0	112	3	2	0	5	3	126	0	129	246
Hourly Total	435	22	0	457	18	10	0	28	14	401	0	415	900
4:00 PM	108	9	0	117	12	2	0	14	3	94	0	97	228
4:15 PM	105	2	0	107	6	4	0	10	5	108	0	113	230
4:30 PM	116	9	0	125	2	1	0	3	2	115	0	117	245
4:45 PM	96	5	0	101	4	3	0	7	3	104	0	107	215
Hourly Total	425	25	0	450	24	10	0	34	13	421	0	434	918
5:00 PM	125	5	0	130	5	1	0	6	3	128	0	131	267
5:15 PM	113	5	0	118	6	5	0	11	9	127	0	136	265
5:30 PM	114	9	0	123	6	2	0	8	3	113	0	116	247
5:45 PM	88	6	0	94	5	4	0	9	1	116	0	117	220
Hourly Total	440	25	0	465	22	12	0	34	16	484	0	500	999
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	2211	96	0	2307	138	55	0	193	64	2333	0	2397	4897
Approach %	95.8	4.2	0.0	-	71.5	28.5	0.0	-	2.7	97.3	0.0	-	-
Total %	45.2	2.0	0.0	47.1	2.8	1.1	0.0	3.9	1.3	47.6	0.0	48.9	-
Motorcycles	9	0	0	9	2	0	0	2	0	12	0	12	23

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

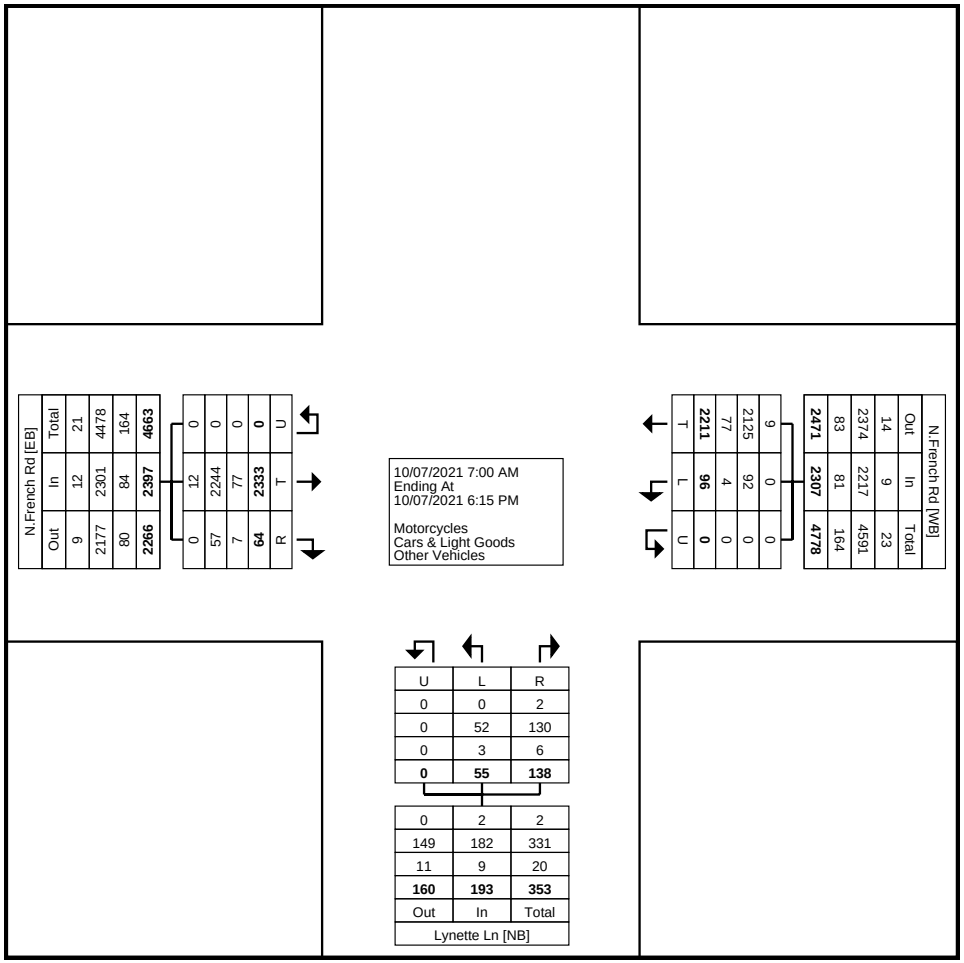
% Motorcycles	0.4	0.0	-	0.4	1.4	0.0	-	1.0	0.0	0.5	-	0.5	0.5
Cars & Light Goods	2125	92	0	2217	130	52	0	182	57	2244	0	2301	4700
% Cars & Light Goods	96.1	95.8	-	96.1	94.2	94.5	-	94.3	89.1	96.2	-	96.0	96.0
Other Vehicles	77	4	0	81	6	3	0	9	7	77	0	84	174
% Other Vehicles	3.5	4.2	-	3.5	4.3	5.5	-	4.7	10.9	3.3	-	3.5	3.6

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Count Name: N.French Rd/Lynette Ln
Site Code:
Start Date: 10/07/2021
Page No: 3



Turning Movement Data Plot

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Count Name: N.French Rd/Lynette Ln
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (7:15 AM)

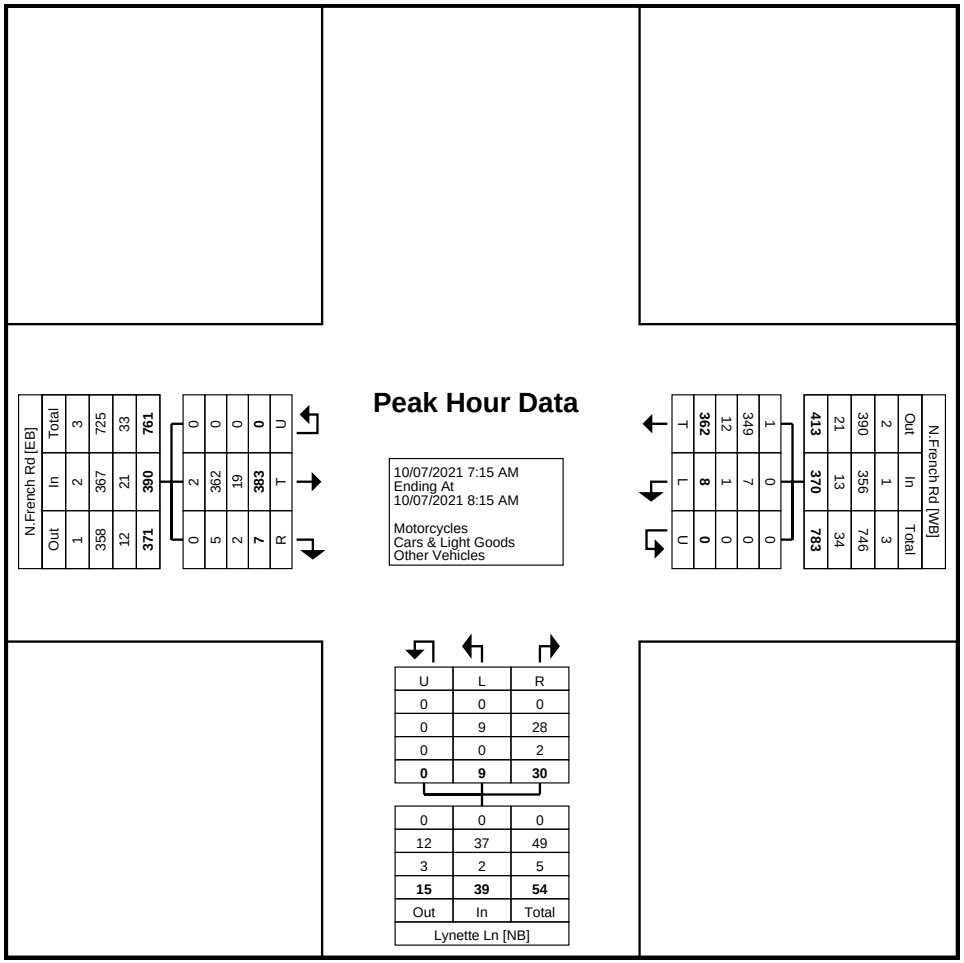
Start Time	N.French Rd Westbound				Lynette Ln Northbound				N.French Rd Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
7:15 AM	73	2	0	75	13	3	0	16	0	92	0	92	183
7:30 AM	100	3	0	103	5	2	0	7	6	91	0	97	207
7:45 AM	101	1	0	102	6	2	0	8	1	115	0	116	226
8:00 AM	88	2	0	90	6	2	0	8	0	85	0	85	183
Total	362	8	0	370	30	9	0	39	7	383	0	390	799
Approach %	97.8	2.2	0.0	-	76.9	23.1	0.0	-	1.8	98.2	0.0	-	-
Total %	45.3	1.0	0.0	46.3	3.8	1.1	0.0	4.9	0.9	47.9	0.0	48.8	-
PHF	0.896	0.667	0.000	0.898	0.577	0.750	0.000	0.609	0.292	0.833	0.000	0.841	0.884
Motorcycles	1	0	0	1	0	0	0	0	0	2	0	2	3
% Motorcycles	0.3	0.0	-	0.3	0.0	0.0	-	0.0	0.0	0.5	-	0.5	0.4
Cars & Light Goods	349	7	0	356	28	9	0	37	5	362	0	367	760
% Cars & Light Goods	96.4	87.5	-	96.2	93.3	100.0	-	94.9	71.4	94.5	-	94.1	95.1
Other Vehicles	12	1	0	13	2	0	0	2	2	19	0	21	36
% Other Vehicles	3.3	12.5	-	3.5	6.7	0.0	-	5.1	28.6	5.0	-	5.4	4.5

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Count Name: N.French Rd/Lynette Ln
Site Code:
Start Date: 10/07/2021



Turning Movement Peak Hour Data Plot (7:15 AM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Count Name: N.French Rd/Lynette Ln
Site Code:
Start Date: 10/07/2021

Turning Movement Peak Hour Data (5:00 PM)

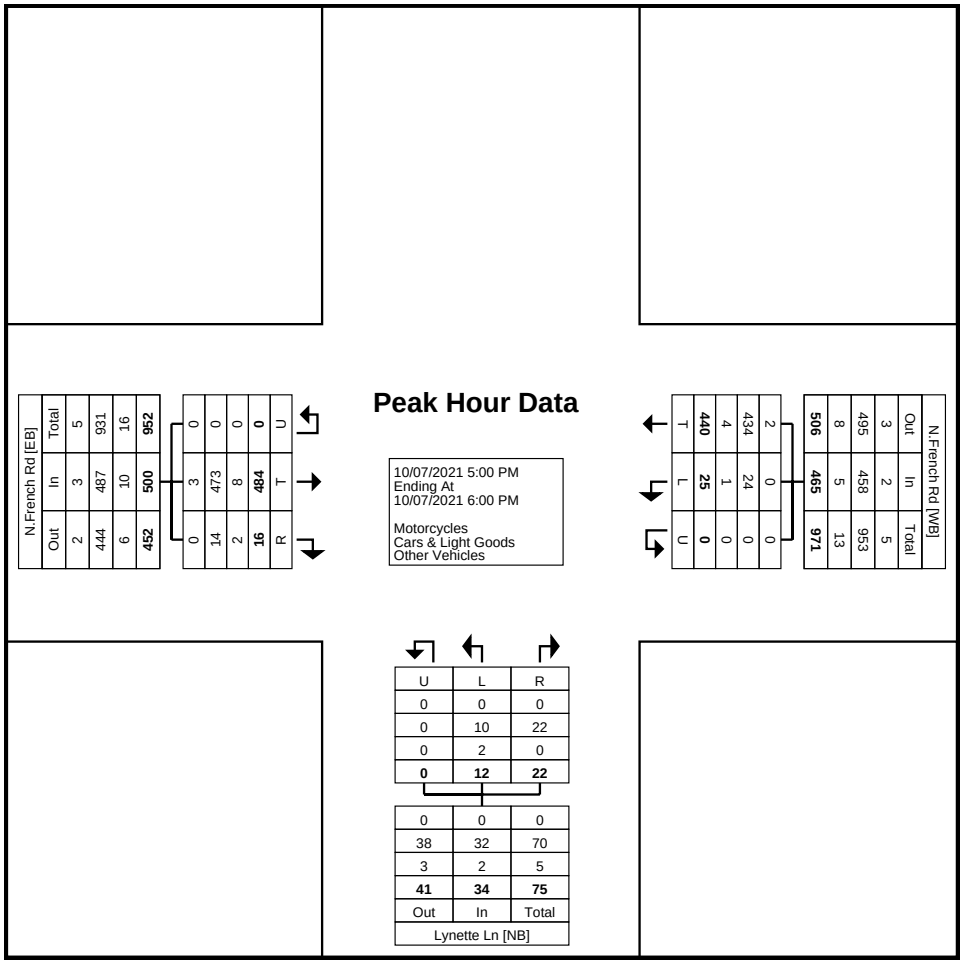
Start Time	N.French Rd Westbound				Lynette Ln Northbound				N.French Rd Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
5:00 PM	125	5	0	130	5	1	0	6	3	128	0	131	267
5:15 PM	113	5	0	118	6	5	0	11	9	127	0	136	265
5:30 PM	114	9	0	123	6	2	0	8	3	113	0	116	247
5:45 PM	88	6	0	94	5	4	0	9	1	116	0	117	220
Total	440	25	0	465	22	12	0	34	16	484	0	500	999
Approach %	94.6	5.4	0.0	-	64.7	35.3	0.0	-	3.2	96.8	0.0	-	-
Total %	44.0	2.5	0.0	46.5	2.2	1.2	0.0	3.4	1.6	48.4	0.0	50.1	-
PHF	0.880	0.694	0.000	0.894	0.917	0.600	0.000	0.773	0.444	0.945	0.000	0.919	0.935
Motorcycles	2	0	0	2	0	0	0	0	0	3	0	3	5
% Motorcycles	0.5	0.0	-	0.4	0.0	0.0	-	0.0	0.0	0.6	-	0.6	0.5
Cars & Light Goods	434	24	0	458	22	10	0	32	14	473	0	487	977
% Cars & Light Goods	98.6	96.0	-	98.5	100.0	83.3	-	94.1	87.5	97.7	-	97.4	97.8
Other Vehicles	4	1	0	5	0	2	0	2	2	8	0	10	17
% Other Vehicles	0.9	4.0	-	1.1	0.0	16.7	-	5.9	12.5	1.7	-	2.0	1.7

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Tri-State Traffic Data: New York Division
184 Baker Rd

Coatesville , Pennsylvania, United States 19320
610-517-2338 bkarz@tstdata.com

Count Name: N.French Rd/Lynette Ln
Site Code:
Start Date: 10/07/2021



Turning Movement Peak Hour Data Plot (5:00 PM)

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

A2

Miscellaneous Traffic Data and Calculations

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Proposed Preserve at Muir Woods, Town of Amherst, Erie County, NY

Documentation of Ambient Traffic Volume Growth

Roadway	Segment starts at	Segment end at	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Annual Growth
N French Rd	Sweet Home Rd	Campbell Blvd		11,479				10,390		11,282		11,209		-0.30%
Campbell Blvd	Dodge Rd	N French Rd				7,225		6,712			7,893			1.78%
Dodge Rd	Campbell Blvd	Millersport Hwy		6,663				5,393			4,809			-4.55%
Campbell Blvd	Rte 263	Dodge Rd				6,994			6,960	6,853				-0.51%
													AVERAGE	**-0.89%**

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

PROJECT DETAILS

Project Name:	Muir Woods	Type of Project:	
Project No:		City:	
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Amy Dake	Clients Name:	
Date:	11/4/2021	ZIP/Postal Code:	
State/Province:		No. of Scenarios:	2
Analysis Region:			

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	AM Peak	1	1	0		10	28	38
Scenario - 2	PM Peak	1	1	0		31	18	49

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Scenario - 1

Scenario Name: AM Peak
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	47	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	10	28	38
Data Source: Trip Generation Manual, 11th Ed					Ln(T) =0.91Ln(X) + 0.12	26%	74%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	26	74

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	10	28	0	0	10	28
	38		0		38	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	10	28	38

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	10	28	38
External Vehicle Trips	10	28	38
New Vehicle Trips	10	28	38

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Scenario - 2

Scenario Name: PM Peak
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	47	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	31	18	49
Data Source: Trip Generation Manual, 11th Ed					Ln(T) =0.94Ln(X) + 0.27	63%	37%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	31	18	0	0	31	18
	49		0		49	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	31	18	49

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	31	18	49
External Vehicle Trips	31	18	49
New Vehicle Trips	31	18	49

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

PROJECT: The Preserve at Muir Woods
LOCATION: Town of Amherst, New York
PEAK HOUR: AM Peak

Figure Number:		3a	4	6				7	8
			Num of yrs						
			1						
LOCATION NUMBER	INTERSECTION DESCRIPTION	Unadjusted Volumes	2022 Bkgd Vol	The Preserve at Muir Woods				Total Site Trips	Full Build Volumes
			0.5%	Enter Dist. %	Exit Dist. %	Trips IN 10	Trips OUT 28		
1	North French Road/ Lynette Ln								
	SR								
	ST								
	SL								
	WR								
	WT	351	353		3%		1	1	354
	WL	8	8	5%		1		1	9
	NR	26	26		30%		9	9	35
	NT								
	NL	8	8		5%		1	1	9
	ER	9	9	15%		1		1	10
	ET	390	392						392
	EL								
2	N French Rd/ Campbell Blvd								
	SR	45	45						45
	ST	303	305	10%		1		1	306
	SL	401	403						403
	WR	146	147						147
	WT	228	229	5%		1		1	230
	WL	36	36	30%		3		3	39
	NR	41	41		10%		3	3	44
	NT	130	131		2%		1	1	132
	NL	75	75		3%		1	1	76
	ER	101	102		5%		1	1	103
	ET	328	330		25%		7	7	337
	EL	25	25		5%		1	1	26
3	Campbell Blvd/ Sierra Dr								
	SR	7	7	40%		4		4	11
	ST	419	421		5%		1	1	422
	SL								
	WR								
	WT								
	WL								
	NR								
	NT	231	232						232
	NL	9	9	40%		4		4	13
	ER	22	22		50%		14	14	36
	ET								
	EL	9	9		15%		4	4	13
4	Campbell Blvd/ Dodge Rd								
	SR	85	85		20%		6	6	91
	ST	319	321		20%		6	6	327
	SL	62	62		10%		3	3	65
	WR	73	73	10%		1		1	74
	WT	208	209						209
	WL	13	13						13
	NR	10	10						10
	NT	124	125	20%		2		2	127
	NL	30	30						30
	ER	48	48						48
	ET	98	98						98
	EL	39	39	10%		1		1	40

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

PROJECT: The Preserve at Muir Woods
LOCATION: Town of Amherst, New York
PEAK HOUR: PM Peak

Figure Number:		3a	4	6				7	8
			Num of yrs						
			1						
LOCATION NUMBER	INTERSECTION DESCRIPTION	Unadjusted Volumes	2022 Bkgd Vol	The Preserve at Muir Woods				Total Site Trips	Full Build Volumes
			0.5%	Enter Dist. %	Exit Dist. %	Trips IN 31	Trips OUT 18		
1	North French Road/ Lynette Ln								
	SR								
	ST								
	SL								
	WR								
	WT	450	452		5%		1	1	453
	WL	24	24	20%		6		6	30
	NR	17	17		20%		3	3	20
	NT								
	NL	10	10		30%		5	5	15
	ER	17	17	15%		5		5	22
	ET	474	476						476
	EL								
2	N French Rd/ Campbell Blvd								
	SR	31	31	5%		2		2	33
	ST	189	190	5%		2		2	192
	SL	249	250						250
	WR	303	305						305
	WT	343	345	15%		5		5	350
	WL	28	28	30%		9		9	37
	NR	36	36		15%		3	3	39
	NT	342	344		5%		1	1	345
	NL	115	116		5%		1	1	117
	ER	78	78		5%		1	1	79
	ET	376	378		15%		2	2	380
	EL	56	56						56
3	Campbell Blvd/ Sierra Dr								
	SR	7	7	35%		11		11	18
	ST	265	266		5%		1	1	267
	SL								
	WR								
	WT								
	WL								
	NR								
	NT	492	494						494
	NL	23	23	30%		9		9	32
	ER	24	24		25%		5	5	29
	ET								
	EL	1	1		25%		5	5	6
4	Campbell Blvd/ Dodge Rd								
	SR	31	31		10%		2	2	33
	ST	191	192		15%		3	3	195
	SL	72	72		5%		1	1	73
	WR	119	120	5%		2		2	122
	WT	154	155						155
	WL	5	5						5
	NR	10	10						10
	NT	326	328	10%		3		3	331
	NL	41	41						41
	ER	49	49						49
	ET	220	221						221
	EL	118	119	15%		5		5	124

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Int #	North French Rd/Lynette Ln	Left turn	Rear-end	Overtaking	Right Angle	Right Turn	Head On	Side-swipe	Fixed Object	Backing	Other	Animal	Bike/Ped	Total	Injury	Non Injury	Non-Repo	Sum
1			1		1				1		1			4		3	1	4
	TOTALS	0	1	0	1	0	0	0	1	0	1	0	0		0	3	1	

	Northbound	Southbound	Eastbound	Westbound	Unknown	Totals
Left turn						0
Rear-end			1			1
Overtaking						0
Right Angle				1		1
Right Turn						0
Head On						0
Side-swipe						0
Fixed Object			1			1
Backing						0
Other			1			1
Bike/Ped						0
Animal						0
Totals	**0**	**0**	**3**	**1**	**0**	**4**

---

1 **North French Rd/Lynette Ln - 36 months**

ADT = Peak hour entering volume / k factor

ADT = 992 VPH / 0.095 = 10442.1053 VPD

$$\text{Rate} = \frac{4 \text{ Acc.}}{10442.1053 \text{ VPD}} \times \frac{1{,}000{,}000}{365 \text{ Days} \times 3.000 \text{ Yrs.}} = 0.35 \text{ Crash / MEV}$$

Int #																
2	North French Rd/Campbell Blvd															
	Left turn	Rear-end	Overtaking	Right Angle	Right Turn	Head On	Side-swipe	Fixed Object	Backing	Other	Animal	Bike/Ped	Total	Injury	Non Injury	Non-Repo	Sum
	4	12	2	5				1		3	1	1	29	11	12	6	29
TOTALS	4	12	2	5	0	0	0	1	0	3	1	1		11	12	6	

	Northbound	Southbound	Eastbound	Westbound	Unknown	Totals
Left turn	1			2	1	4
Rear-end	1	2	3	5	1	12
Overtaking		1			1	2
Right Angle	1	1		3		5
Right Turn						0
Head On						0
Side-swipe						0
Fixed Object			1			1
Backing						0
Other	1	1			1	3
Bike/Ped	1					1
Animal					1	1
Totals	**5**	**5**	**4**	**10**	**5**	**29**

2 **North French Rd/Campbell Blvd - 36 months**

ADT = Peak hour entering volume / k factor

ADT = 2118 VPH / 0.10 = 22294.7368 VPD

Rate = 29 Acc. x 1,000,000 / (22294.7368 VPD x 365 Days x 3.000 Yrs.) = 1.19 Crash / MEV

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Int #																
3	**Campbell Blvd/Sierra Dr**	Left turn	Rear-end	Overtaking	Right Angle	Right Turn	Head On	Side-swipe	Fixed Object	Backing	Other	Animal	Bike/Ped	**Total**	Injury	Non Injury	Non-Repo	**Sum**
														0				**0**
TOTALS		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	

	Northbound	Southbound	Eastbound	Westbound	Unknown	**Totals**
Left turn						**0**
Rear-end						**0**
Overtaking						**0**
Right Angle						**0**
Right Turn						**0**
Head On						**0**
Side-swipe						**0**
Fixed Object						**0**
Backing						**0**
Other						**0**
Bike/Ped						**0**
Animal						**0**
Totals	**0**	**0**	**0**	**0**	**0**	**0**

3 **Campbell Blvd/Sierra Dr - 36 months**

ADT = Peak hour entering volume / k factor

ADT = 812 VPH / 0.10 = 8547.368 VPD

Rate = 0 Acc. x 1,000,000 / (8547.3684 VPD x 365 Days x 3.000 Yrs.) = 0.00 Crash / MEV

Int #																	
4	**Campbell Blvd/Dodge Rd**																
	Left turn	Rear-end	Overtaking	Right Angle	Right Turn	Head On	Side-swipe	Fixed Object	Backing	Other	Animal	Bike/Ped	**Total**	Injury	Non Injury	Non-Repo	**Sum**
	3	6	1	3				1		2			**16**	2	11	3	**16**
TOTALS	**3**	**6**	**1**	**3**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**		**2**	**11**	**3**	

	Northbound	Southbound	Eastbound	Westbound	Unknown	**Totals**
Left turn		2	1			**3**
Rear-end	3	1	1	1		**6**
Overtaking	1					**1**
Right Angle	1	1		1		**3**
Right Turn						**0**
Head On						**0**
Side-swipe						**0**
Fixed Object	1					**1**
Backing						**0**
Other				2		**2**
Bike/Ped						**0**
Animal						**0**
Totals	**6**	**4**	**2**	**4**	**0**	**16**

---

4 **Campbell Blvd/Dodge Rd - 36 months**

ADT = Peak hour entering volume / k factor

ADT = 1336 VPH / 0.10 = 14063.16 VPD

$$\text{Rate} = \frac{16 \text{ Acc.} \times 1{,}000{,}000}{14063.158 \text{ VPD} \times 365 \text{ Days} \times 3.000 \text{ Yrs.}} = 1.04 \text{ Crash / MEV}$$

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

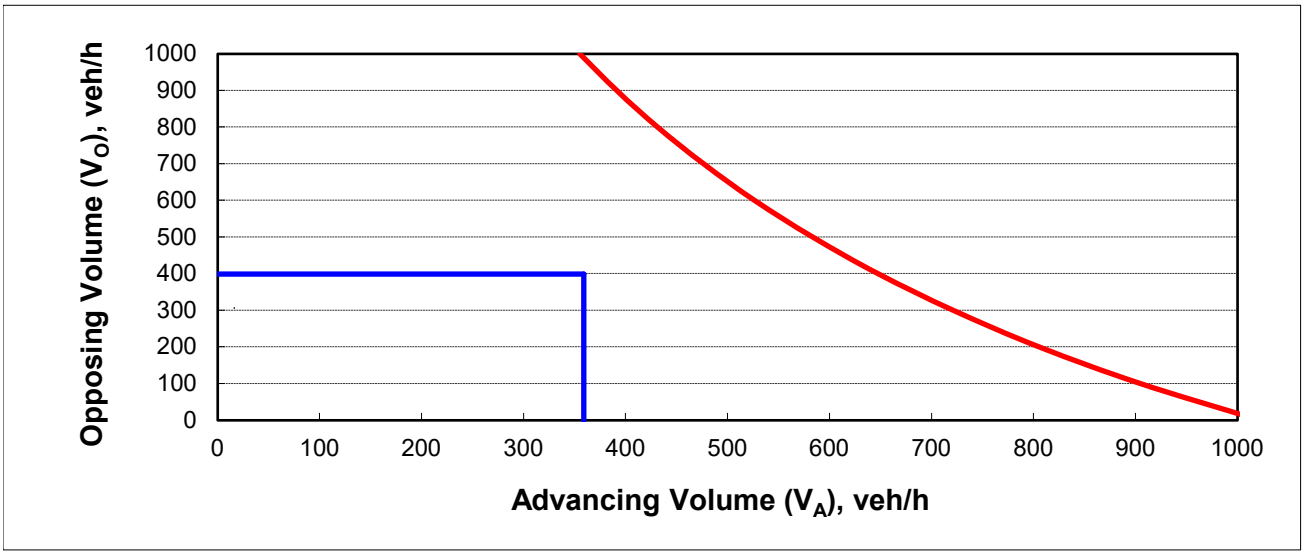
INPUT

Variable	Value
Major Approach	N French Rd/Lynette Ln - AM Peak
Approach	Westbound (Existing)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	359
Opposing volume (V_O), veh/h:	399

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	399	359	0
359	399	359	399



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	648
Guidance for determining the need for a major-road left-turn bay:	
Westbound (Existing) Left-turn treatment NOT warranted at N French Rd/Lynette Ln - AM Peak Intersect	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

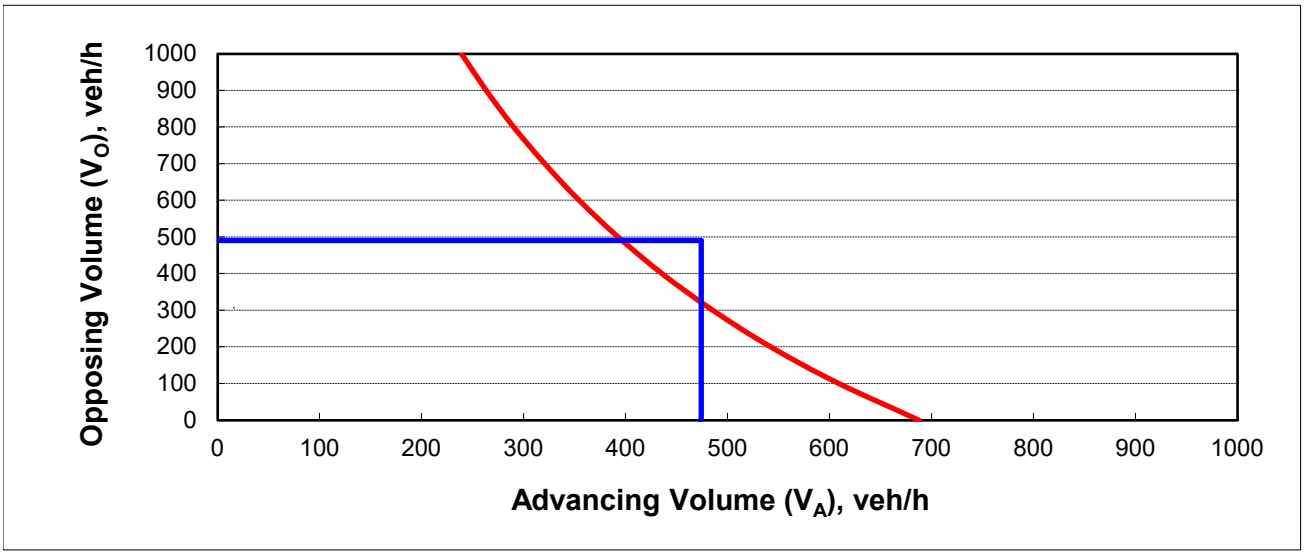
INPUT

Variable	Value
Major Approach	N French Rd/Lynette Ln - PM Peak
Approach	Westbound (Existing)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	5%
Advancing volume (V_A), veh/h:	474
Opposing volume (V_O), veh/h:	491

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	491	474	0
474	491	474	491



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	396
Guidance for determining the need for a major-road left-turn bay:	
Westbound (Existing) Left-turn treatment warranted at N French Rd/Lynette Ln - PM Peak Intersections	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

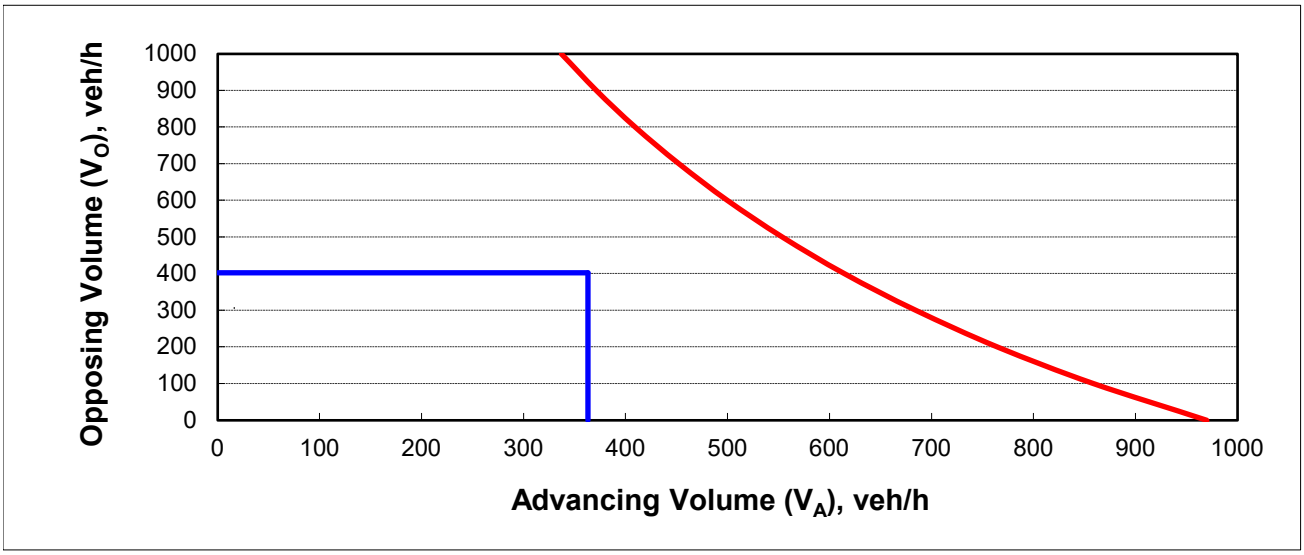
INPUT

Variable	Value
Major Approach	N French Rd/Lynette Ln - AM Peak
Approach	Westbound (Full Development)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	363
Opposing volume (V_O), veh/h:	402

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	402	363	0
363	402	363	402



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	613
Guidance for determining the need for a major-road left-turn bay:	
Westbound (Full Development) Left-turn treatment NOT warranted at N French Rd/Lynette Ln - AM Peak	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

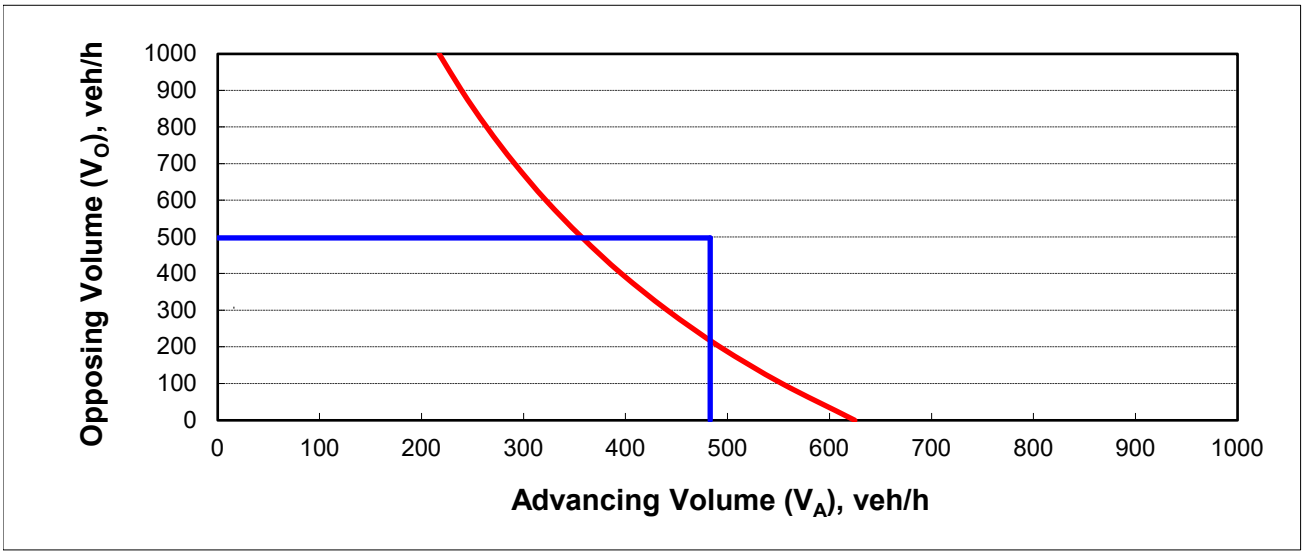
INPUT

Variable	Value
Major Approach	N French Rd/Lynette Ln - PM Peak
Approach	Westbound (Full Development)
Design Speed Limit - MPH	50
Percent of left-turns in advancing volume (V_A), %:	6%
Advancing volume (V_A), veh/h:	483
Opposing volume (V_O), veh/h:	498

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	498	483	0
483	498	483	498



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	357
Guidance for determining the need for a major-road left-turn bay:	
Westbound (Full Development) Left-turn treatment warranted at N French Rd/Lynette Ln - PM Peak Inter	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

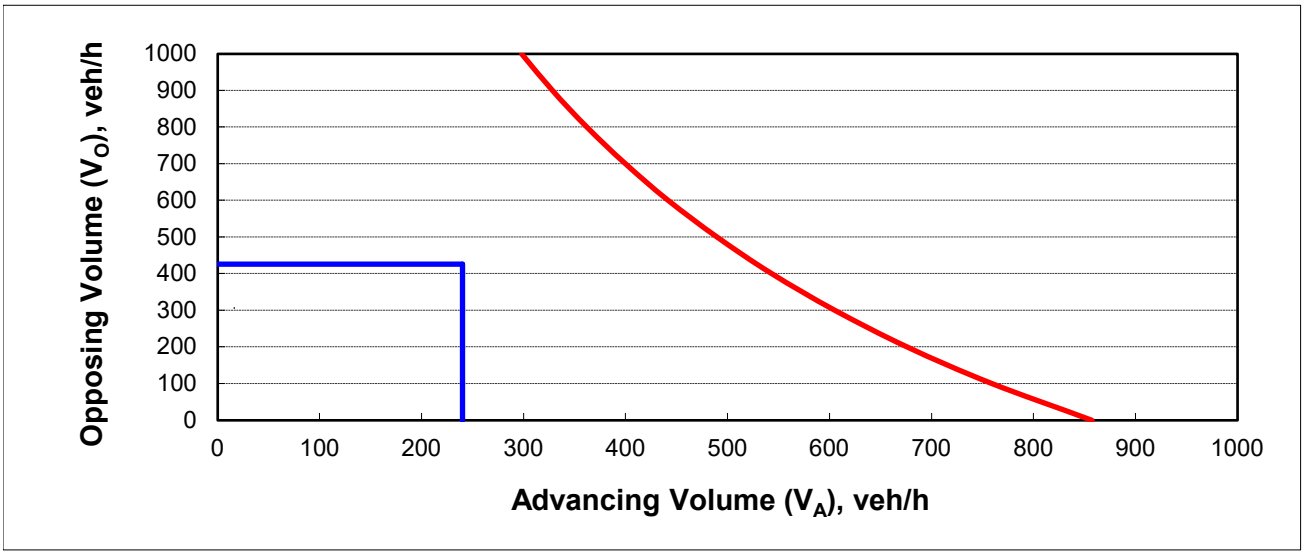
INPUT

Variable	Value
Major Approach	Campbell Blvd/Sierra Dr - AM Peak
Approach	Northbound (Existing)
Design Speed Limit - MPH	45
Percent of left-turns in advancing volume (V_A), %:	4%
Advancing volume (V_A), veh/h:	240
Opposing volume (V_O), veh/h:	426

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	426	240	0
240	426	240	426



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	529
Guidance for determining the need for a major-road left-turn bay:	
Northbound (Existing) Left-turn treatment NOT warranted at Campbell Blvd/Sierra Dr - AM Peak Intersec	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

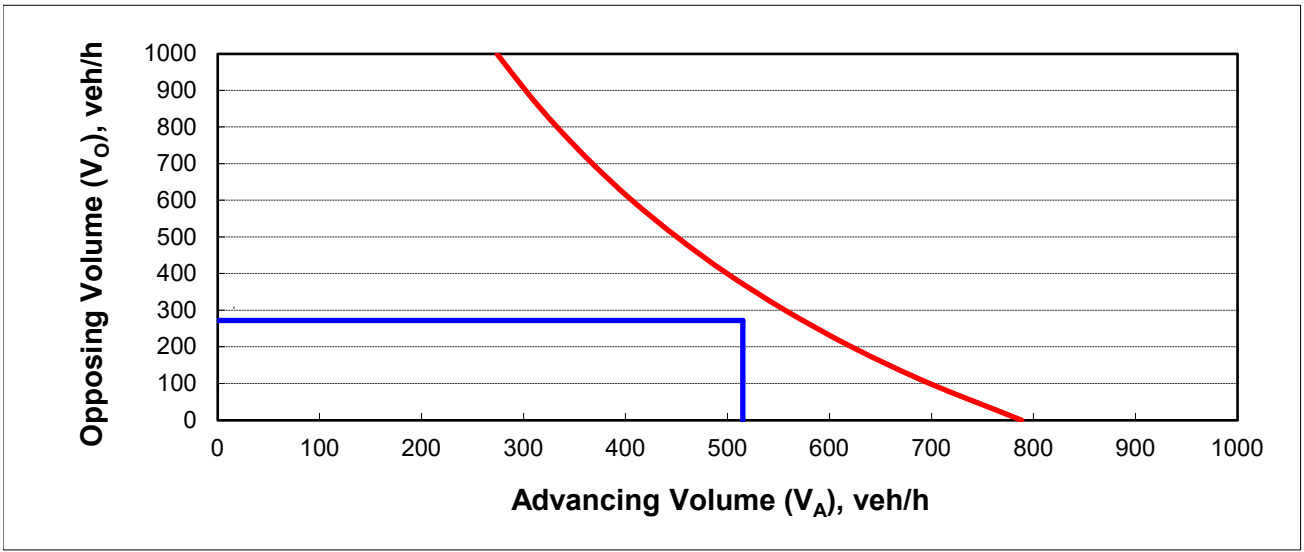
INPUT

Variable	Value
Major Approach	Campbell Blvd/Sierra Dr - PM Peak
Approach	Northbound (Existing)
Design Speed Limit - MPH	45
Percent of left-turns in advancing volume (V_A), %:	4%
Advancing volume (V_A), veh/h:	515
Opposing volume (V_O), veh/h:	272

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	272	515	0
515	272	515	272



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	574
Guidance for determining the need for a major-road left-turn bay:	
Northbound (Existing) Left-turn treatment NOT warranted at Campbell Blvd/Sierra Dr - PM Peak Intersec	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

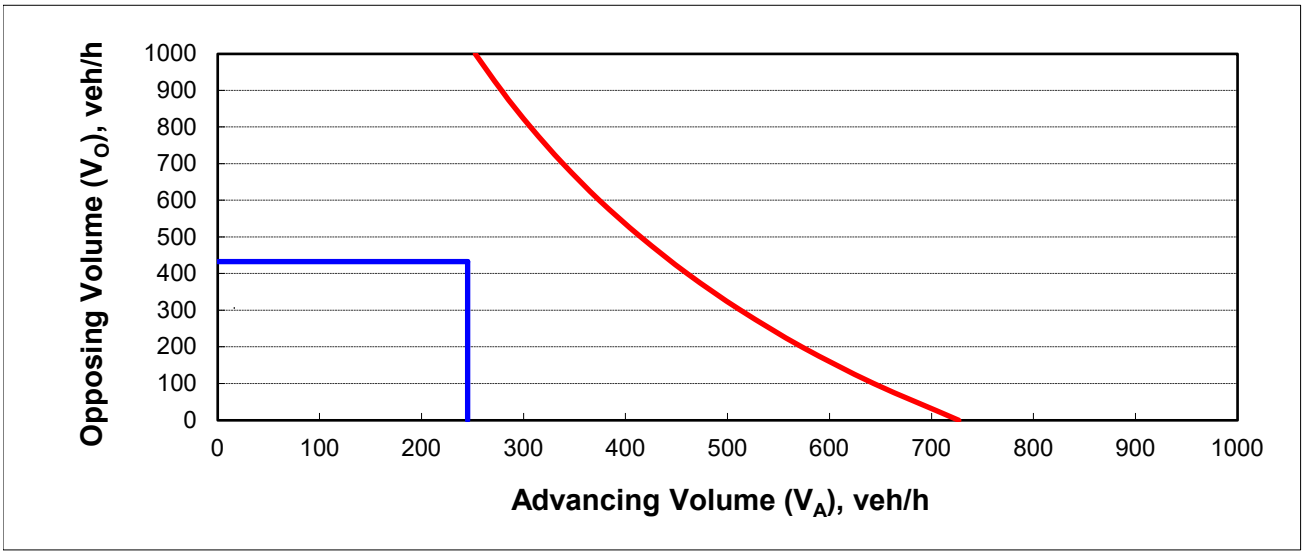
INPUT

Variable	Value
Major Approach	Campbell Blvd/Sierra Dr - AM Peak
Approach	Northbound (Full Development)
Design Speed Limit - MPH	45
Percent of left-turns in advancing volume (V_A), %:	5%
Advancing volume (V_A), veh/h:	245
Opposing volume (V_O), veh/h:	433

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	433	245	0
245	433	245	433



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	445
Guidance for determining the need for a major-road left-turn bay:	
Northbound (Full Development) Left-turn treatment NOT warranted at Campbell Blvd/Sierra Dr - AM Pea	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Guideline for determining left-turn Lane at a two-way stop-controlled intersection
TWO LANE ROADWAY

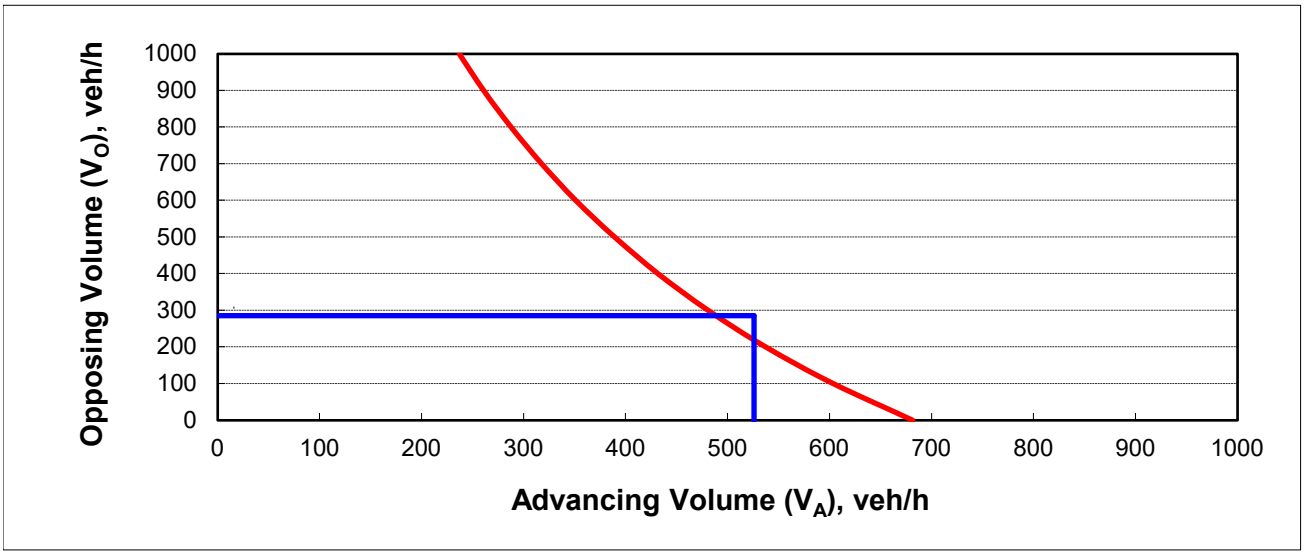
INPUT

Variable	Value
Major Approach	Campbell Blvd/Sierra Dr - PM Peak
Approach	Northbound (Full Development)
Design Speed Limit - MPH	45
Percent of left-turns in advancing volume (V_A), %:	6%
Advancing volume (V_A), veh/h:	526
Opposing volume (V_O), veh/h:	285

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PLOT - LINE 1		PLOT - LINE 2	
0	285	526	0
526	285	526	285



OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	489
Guidance for determining the need for a major-road left-turn bay:	
Northbound (Full Development) Left-turn treatment warranted at Campbell Blvd/Sierra Dr - PM Peak Inte	

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

Traffic Signal Warrant Analysis - North French Rd - The Preserve at Muir Woods - Existing Conditions
Town of Amherst, Erie County

Hour			Existing Fluctuation in Artery Volumes				**Full Build Conditions Artery Volume on N French Rd @ Lynette Ln**	Hourly Fluctuation of Residential Facility Driveway Traffic	**Total Hourly Volumes Lynette Ln - Full Build Conditions**	Warrant Analysis		
			per NYSDOT count on N French Rd	per NYSDOT count on N French Rd	per NYSDOT count on N French Rd	Hourly Fluctuation				Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4-hour)
			WB	EB	Two-Way	Two-Way	**Total**	Exiting		350/105	525/53	80 vph
7:00 AM	to	8:00 AM	338	523	861	7.68%	**759**	7.40%	**22**	N	N	N
8:00 AM	to	9:00 AM	424	514	938	8.37%	**827**	6.30%	**19**	N	N	N
9:00 AM	to	10:00 AM	314	351	665	5.93%	**586**	5.30%	**16**	N	N	N
10:00 AM	to	11:00 AM	308	333	641	5.72%	**565**	4.00%	**12**	N	N	N
11:00 AM	to	12:00 PM	332	360	692	6.17%	**610**	5.30%	**16**	N	N	N
12:00 PM	to	1:00 PM	398	420	818	7.30%	**721**	5.40%	**16**	N	N	N
1:00 PM	to	2:00 PM	389	372	761	6.79%	**671**	4.60%	**14**	N	N	N
2:00 PM	to	3:00 PM	407	396	803	7.16%	**708**	5.70%	**17**	N	N	N
3:00 PM	to	4:00 PM	458	402	860	7.67%	**758**	6.20%	**18**	N	N	N
4:00 PM	to	5:00 PM	534	536	1070	9.55%	**943**	7.60%	**23**	N	N	N
5:00 PM	to	6:00 PM	575	520	1095	9.77%	**965**	9.10%	**27**	N	N	N
6:00 PM	to	7:00 PM	387	330	717	6.40%	**632**	7.90%	**23**	N	N	N
7:00 PM	to	8:00 PM	268	257	525	4.68%	**463**	5.70%	**17**	N	N	N
8:00 PM	to	9:00 PM	212	244	456	4.07%	**402**	5.10%	**15**	N	N	N
9:00 PM	to	10:00 PM	198	181	379	3.38%	**334**	3.60%	**11**	N	N	N
10:00 PM	to	6:00 AM			0	0.00%	**0**	2.90%	**9**	N	N	N
					11209		9878		**297**			

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

Traffic Signal Warrant Analysis - North French Rd - The Preserve at Muir Woods - Full Build Conditions
Town of Amherst, Erie County

Hour			Existing Fluctuation in Artery Volumes				**Full Build Conditions Artery Volume on N French Rd @ Lynette Ln**	Hourly Fluctuation of Residential Facility Driveway Traffic	**Total Hourly Volumes Lynette Ln - Full Build Conditions**	Warrant Analysis		
			per NYSDOT count on N French Rd	per NYSDOT count on N French Rd	per NYSDOT count on N French Rd	Hourly Fluctuation				Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4-hour)
			WB	EB	Two-Way	Two-Way	**Total**	Exiting		350/105	525/53	80 vph
7:00 AM	to	8:00 AM	338	523	861	7.68%	**771**	7.40%	**28**	N	N	N
8:00 AM	to	9:00 AM	424	514	938	8.37%	**840**	6.30%	**24**	N	N	N
9:00 AM	to	10:00 AM	314	351	665	5.93%	**596**	5.30%	**20**	N	N	N
10:00 AM	to	11:00 AM	308	333	641	5.72%	**574**	4.00%	**15**	N	N	N
11:00 AM	to	12:00 PM	332	360	692	6.17%	**620**	5.30%	**20**	N	N	N
12:00 PM	to	1:00 PM	398	420	818	7.30%	**733**	5.40%	**21**	N	N	N
1:00 PM	to	2:00 PM	389	372	761	6.79%	**682**	4.60%	**18**	N	N	N
2:00 PM	to	3:00 PM	407	396	803	7.16%	**719**	5.70%	**22**	N	N	N
3:00 PM	to	4:00 PM	458	402	860	7.67%	**770**	6.20%	**24**	N	N	N
4:00 PM	to	5:00 PM	534	536	1070	9.55%	**959**	7.60%	**29**	N	N	N
5:00 PM	to	6:00 PM	575	520	1095	9.77%	**981**	9.10%	**35**	N	N	N
6:00 PM	to	7:00 PM	387	330	717	6.40%	**642**	7.90%	**30**	N	N	N
7:00 PM	to	8:00 PM	268	257	525	4.68%	**470**	5.70%	**22**	N	N	N
8:00 PM	to	9:00 PM	212	244	456	4.07%	**409**	5.10%	**20**	N	N	N
9:00 PM	to	10:00 PM	198	181	379	3.38%	**340**	3.60%	**14**	N	N	N
10:00 PM	to	6:00 AM			0	0.00%	**0**	2.90%	**11**	N	N	N
							0					
					11209		10042		**385**			

Key: N = Warrant not met for that hour
Y = Warrant is met for that hour
Hours when warrant is met

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

Traffic Signal Warrant Analysis - Campbell Blvd - The Preserve at Muir Woods - Existing Conditions
Town of Amherst, Erie County

Hour			Existing Fluctuation in Artery Volumes				Full Build Conditions Artery Volume on Campbell Blvd @ Sierra Dr	Hourly Fluctuation of Residential Facility Driveway Traffic	Total Hourly Volumes Sierra Dr - Full Build Conditions	Warrant Analysis		
			per NYSDOT count on N Campbell Blvd	per NYSDOT count on N Campbell Blvd	per NYSDOT count on N Campbell Blvd	Hourly Fluctuation				Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4-hour)
			NB	SB	Two-Way	Two-Way	Total	Exiting		350/140	525/70	115 vph
7:00 AM	to	8:00 AM	221	446	667	8.45%	655	7.40%	20	N	N	N
8:00 AM	to	9:00 AM	265	458	723	9.16%	709	6.30%	17	N	N	N
9:00 AM	to	10:00 AM	202	256	458	5.80%	449	5.30%	15	N	N	N
10:00 AM	to	11:00 AM	210	237	447	5.66%	439	4.00%	11	N	N	N
11:00 AM	to	12:00 PM	235	236	471	5.97%	462	5.30%	15	N	N	N
12:00 PM	to	1:00 PM	292	262	554	7.02%	544	5.40%	15	N	N	N
1:00 PM	to	2:00 PM	272	234	506	6.41%	497	4.60%	13	N	N	N
2:00 PM	to	3:00 PM	310	278	588	7.45%	577	5.70%	16	N	N	N
3:00 PM	to	4:00 PM	401	266	667	8.45%	655	6.20%	17	N	N	N
4:00 PM	to	5:00 PM	515	279	794	10.06%	779	7.60%	21	N	N	N
5:00 PM	to	6:00 PM	495	307	802	10.16%	787	9.10%	25	N	N	N
6:00 PM	to	7:00 PM	275	195	470	5.95%	461	7.90%	22	N	N	N
7:00 PM	to	8:00 PM	220	159	379	4.80%	372	5.70%	16	N	N	N
8:00 PM	to	9:00 PM	189	143	332	4.21%	326	5.10%	14	N	N	N
9:00 PM	to	10:00 PM	129	101	230	2.91%	226	3.60%	10	N	N	N
10:00 PM	to	6:00 AM			0	0.00%	0	2.90%	8	N	N	N
					7893		7745		275			

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

Traffic Signal Warrant Analysis - Campbell Blvd - The Preserve at Muir Woods - Full Build Conditions
Town of Amherst, Erie County

Hour			Existing Fluctuation in Artery Volumes				**Full Build Conditions Artery Volume on Campbell Blvd @ Sierra Dr**	Hourly Fluctuation of Residential Facility Driveway Traffic	**Total Hourly Volumes Sierra Dr - Full Build Conditions**	Warrant Analysis		
			per NYSDOT count on N Campbell Blvd	per NYSDOT count on N Campbell Blvd	per NYSDOT count on N Campbell Blvd	Hourly Fluctuation				Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2 (4-hour)
			NB	SB	Two-Way	Two-Way	**Total**	Exiting		350/140	525/70	115 vph
7:00 AM	to	8:00 AM	221	446	667	8.45%	**674**	7.40%	**28**	N	N	N
8:00 AM	to	9:00 AM	265	458	723	9.16%	**731**	6.30%	**24**	N	N	N
9:00 AM	to	10:00 AM	202	256	458	5.80%	**463**	5.30%	**20**	N	N	N
10:00 AM	to	11:00 AM	210	237	447	5.66%	**452**	4.00%	**15**	N	N	N
11:00 AM	to	12:00 PM	235	236	471	5.97%	**476**	5.30%	**20**	N	N	N
12:00 PM	to	1:00 PM	292	262	554	7.02%	**560**	5.40%	**21**	N	N	N
1:00 PM	to	2:00 PM	272	234	506	6.41%	**512**	4.60%	**18**	N	N	N
2:00 PM	to	3:00 PM	310	278	588	7.45%	**595**	5.70%	**22**	N	N	N
3:00 PM	to	4:00 PM	401	266	667	8.45%	**674**	6.20%	**24**	N	N	N
4:00 PM	to	5:00 PM	515	279	794	10.06%	**803**	7.60%	**29**	N	N	N
5:00 PM	to	6:00 PM	495	307	802	10.16%	**811**	9.10%	**35**	N	N	N
6:00 PM	to	7:00 PM	275	195	470	5.95%	**475**	7.90%	**30**	N	N	N
7:00 PM	to	8:00 PM	220	159	379	4.80%	**383**	5.70%	**22**	N	N	N
8:00 PM	to	9:00 PM	189	143	332	4.21%	**336**	5.10%	**20**	N	N	N
9:00 PM	to	10:00 PM	129	101	230	2.91%	**233**	3.60%	**14**	N	N	N
10:00 PM	to	6:00 AM			0	0.00%	**0**	2.90%	**11**	N	N	N
							0					
					7893		7982		**385**			

Key: N = Warrant not met for that hour
Y = Warrant is met for that hour
Hours when warrant is met

License Plate Study

North French Road & Lynette Lane

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
7:30 – 7:45	DLM		GPS	HGS
			CKN	EFS
			JDM	HXN
			JFG	GCM
			BXN	HLM
				CLY
				KLM
				ARY

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
7:45 – 8:00	350	118	YYZ	JNG
			DJV	JJV
			GWG	HSK
			HJF	GZP
				JFW
				FJS
				EBV
				DYD
				FA7

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
8:00 -8:15	KNA	KLV	ASA	GBU
	FKM ?		AY4006	8186
				BGG
				81173
				KTU
				JLM

PLATE PEELING OFF

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
8:15 – 8:30	AR23		AR23	KEA
	BLM			KLM
				KDU
				GCM
				JBG? → TINT COM UP THE TE
				86072

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

License Plate Study

North French Road & Lynette Lane

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
4:30 – 4:45	BAY	HBC		HVV
	HYL			GCM
	DJV			
	JFG			

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
4:45 – 5:00	BNL	DVF	DJV	FTX
	HSK	HXN	BNL	
	467	521	JEG	
	368	HUD		
		CTT		

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
5:00 -5:15	JBP	HEA	JHB	GGN
	HYM	CXT	GNL	JNB
	DZJ	KGU	HFA	HYM
		GHY		HXL

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Right from French onto Lynette	Left from French onto Lynette	Left from Lynette onto French	Right from Lynette onto French
	↘	↙	↰	↱
5:15 – 5:30	AMHERST POLICE CAR #107	KDW	FSB	KDW
	DNE	J60	GHL	
	GNL	351	KNC	
		HSX		
		351		
		CAE		
		JNB		

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/26/21

MIKE MEADOWS

License Plate Study

Campbell Blvd & Sierra Drive

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
7:30 – 7:45	~~[illegible]~~	~~[illegible]~~	JHK	JMC
			JLW	K37
			JQ2	1BL
				KGU

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/26/21

MIKE MEADOWS

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
7:45 – 8:00		HLK		JCG
		LAP		JHJ
				718-BUS
				APS
				KRU
				APL

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/26/21

5.a

MIKE MEADOWS

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
8:00 -8:15			HLD	JEZ
			L-ML	HJP
				EAY
				LML
				GTD
				KWA
				GTP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/21/21

MIKE MEADOWS

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
8:15 – 8:30		LKC	AFW	GRP
			KLC	DWH
				HBK
				JAS
				HZP
				584

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/26/21

MIKE MEADOWS

License Plate Study

Campbell Blvd & Sierra Drive

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
4:30 – 4:45	KG4	BYC	KLC	HLD
	CSM	SMU		
		CML		
		T3-		
		EFG		
		YNC		

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/26/21

MIKE MEADOWS

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
4:45 – 5:00	HYM	UAE	CGM	GLF
		JCA		HWD
		HNM		HLE
		VLO		DWI
				ACW

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/26/21

MIKE MEADOWS

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
5:00 -5:15		GLM	930 - TRUCK	KXZ
		JFK		VYF
		LEC		JAK
		INE		HPD
		APL		KEB
				JFW

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

10/26/21

MIKE MEADOWS

	Right from Campbell onto Sierra	Left from Campbell onto Sierra	Left from Sierra onto Campbell	Right from Sierra onto Campbell
5:15 – 5:30	GTW	HLL	KLC	HLZ
		AFW		HBK
		SBZ		
		JLL		

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

License Plate Study

Lynette Lane & Sierra Drive

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
7:30 – 7:45				ELF		HBC
						JME

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
7:45 – 8:00		JCA	LRU			118
		JHJ				350
		HBC				
		LRO				

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
8:00 – 8:15	400	EAY	KJU		HJS	EAY
			400		GTD	LMC
					KNA	CNL
						GTD

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
8:15 – 8:30		HME	HJS			ECG
		CDA	JBR			GRP
			HUD			JAS
			HJS			HZP

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

License Plate Study

Lynette Lane & Sierra Drive

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
4:30 – 4:45	CVL	DRV	KGY	GCM	KGH	HUD
	KNC	BYC	CSY		JSB	CDA
		GBV	ELF			
		JHB				

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
4:45 – 5:00		AHE DUX	GCM HWD HBL BLB JCA KNA		HWD	CDA DMJ

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
5:00 – 5:15		GCM	GLJ	HVM		JDU
		JFW	HVV			KFF
		JJJ				JFW
		EDG				
		JME				

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

	Sierra entering roundabout to Sierra	Sierra entering Roundabout Exit Right on Lynette	Sierra entering Roundabout Exit Left on Lynette	Lynette Entering Roundabout to Lynette	Lynette Entering Roundabout Exit Right on Sierra	Lynette Entering Roundabout Exit Left on Sierra
5:15 – 5:30		HRA	JLE			HSZ

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Station : 3197 - 270 @ Dodge (Standard File)

Phase [1.1.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0
Min Green	0	10	0	6	0	10	0	6	0	0	0	0	0	0	0	0
Passage	0	4	0	3	0	4	0	3	0	0	0	0	0	0	0	0
Max1	0	40	0	30	0	40	0	30	0	0	0	0	0	0	0	0
Max2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3	4.3	3	3.2	3.5	4.3	3.5	3.2	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Auto Exit																
Rest In Walk																

Phase Option [1.1.2]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable		ON		ON		ON		ON								
Auto Entry																
Non Act1																
Non Act2																
Lock Call																
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

ENTRY	Call Phases				From	to	From	to	From	to	From	to	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

ENTRY	Call Phases				From	to	From	to	From	to	From	to	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Prepared By	Date Implemented	Reviewed By	Traffic Engineer

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

Unit Parameters [1.2.1]

StartUp Flash	Auto Ped Clear	Backup Time	Red Revert	Aux Switch Function	Local Flash Start	Console Timeout	Yellow 3 Second Disable	Tone Disable	Omit Yellow Enable	MCE Timeout	Enable Run	Start Red Time	Phase Mode	Disable Init Ped	Diamond Mode	TOD Dim Enable	Extra Maps Enable	D Connector Enable	SDLC Retry Time	TS2 Det Faults	Stop Time Over Preempt
	OFF	900	3	STOPTM	RED	20	OFF	ON	OFF		ON	6	STD8	OFF	4PH	OFF	DEFAULT			ON	OFF

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

COMM, General Comm Parameters [6.1]

Station ID	Master Station ID	Fallback time	Allow Pencil	PORT	System-Up	Sys-Down	PC/Print	Aux 232
3197								

Port Parameters [6.2]

COMM	Mode	Baud	MsgTime	Duplex	Enable	DialTime	Modem	ModemTime	Tel#1	Tel#2
System Up(P-A)										
System Down(P-B)										
PC/Print(P-2)										

Overlap General Parameters [1.5.1]

Conflict Lock	Lock Inhibit	Program Card	Use Parent	Canadian Fast Flash
OFF	OFF	OFF	ON	

Overlap Program Parameters [1.5.2.1]

Overlap	Included Phases								Modifer Phases								Type	Green	Yellow	Red
Overlap 1																	NORMAL		3.5	1.5
Overlap 2																	NORMAL		3.5	1.5
Overlap 3																	NORMAL		3.5	1.5
Overlap 4																	NORMAL		3.5	1.5
Overlap 5																	NORMAL		3.5	1.5
Overlap 6																	NORMAL		3.5	1.5
Overlap 7																	NORMAL		3.5	1.5
Overlap 8																	NORMAL		3.5	1.5

Overlap Conflict Parameters+ [1.5.2.2]

Overlap	Conflicting Phases								Conflicting Overlaps								Conflicting Peds							
Overlap 1																								
Overlap 2																								
Overlap 3																								
Overlap 4																								
Overlap 5																								
Overlap 6																								
Overlap 7																								
Overlap 8																								

Detector, Vehicle Parameters 1-16 [5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	6	2	2	2	6	6	4	8	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0

Detector, Vehicle Parameters 17-32 [5.1]

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

Detector Alternate Program 1, Vehicle Parameters [5.5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Channels/SDLC, Assign to Phases [1.3.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PH/OLP #		2		4		6		8																
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH
Flash	YEL	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Flash 1-2 Hertz																								
Dimming Green																								
Dimming Yellow																								
Dimming Red																								
Alt Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Channel/SDLC, Parameters [1.3.3]

TOD Dim Enable	Extra Maps Enable	D Connector Enable	Single BIU Map	IO Mode	Preempt or Ext Output

Channel/SDLC, MMU Map [1.3.5]

MMU-to-Controller Channel Map

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Channel/SDLC, Permissive [1.3.4]

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Channel/SDLC, Permissive [1.3.7]

SDLC Device	Term/Fac								Detector								MMU	DIAG
BIU#	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
Present																		
Peer to Peer																		

Ring Sequence [1.2.4]

Ring	P1	P2	P3	P4	P5	P6	P7	P8
Ring 1	1	2	3	4				
Ring 2	5	6	7	8				
Ring 3								
Ring 4								

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

Alarms, Enable Events [1.6.1]

Event#	Event Enable
1	ON
2	ON
3	
4	ON
5	ON
6	ON
7	
8	
9	ON
10	
11	
12	ON
13	
14	ON
15	
16	
17	ON
18	ON
19	ON
20	ON
21	
22	
23	
24	
25	ON
26	
27	ON
28	ON
29	ON
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	ON
44	ON
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	
61	ON
62	
63	
64	

Alarms, Enable Alarms [1.6.4]

Alarm#	Alarm Enable
1	ON
2	ON
3	
4	ON
5	ON
6	ON
7	
8	
9	
10	
11	
12	ON
13	
14	ON
15	
16	
17	
18	
19	
20	ON
21	
22	
23	
24	
25	ON
26	
27	ON
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	

Preemption Times[3.1]/Phases[3.2]/Options[3.3]

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON	ON	ON	ON	ON
Override Higher	ON	ON	ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell	2	2	2	2	2	2
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell P1						
Dwell P2						
Dwell P3						
Dwell P4						
Dwell P5						
Dwell P6						
Dwell P7						
Dwell P8						
Dwell P9						
Dwell P10						
Dwell P11						
Dwell P12						
Dwell Ped1						
Dwell Ped2						
Dwell Ped3						
Dwell Ped4						
Dwell Ped5						
Dwell Ped6						
Dwell Ped7						
Dwell Ped8						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Alarms, Parameters [1.4.1]

Auto Flash Parameter

Yellow	Red	Mode	Source
45	20	PH OVER	D-CONN

Alarms, Parameters [1.6.7]

Preempt Event Enabled	Pattern Event Enabled
OFF	OFF

Alarms, Phases/Overlaps [1.4.2]

Auto Flash	1	2	3	4	5	6	7	8	9	10	11	12
Phases												
Overlaps												

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Station : 3197 - 270 @ Dodge (Standard File)

Preemption Times+[3.4]/Overlaps+[3.5]/Options+[3.6]

Preempt	1	2	3	4	5	6
Enable	ON	ON	ON	ON	ON	ON
Type	RAIL	RAIL	EMERG	EMERG	EMERG	EMERG
Skip Track						
Volt Mon Flash						
Coord in Preempt	ON	ON	ON	ON	ON	ON
Max2						
Return Max/Min	MAX	MAX	MAX	MAX	MAX	MAX
Extend Dwell						
Pattern						
Output Mode	DWELL	DWELL	DWELL	DWELL	DWELL	DWELL
Track Over 1						
Track Over 2						
Track Over 3						
Track Over 4						
Track Over 5						
Track Over 6						
Track Over 7						
Track Over 8						
Track Over 9						
Track Over 10						
Track Over 11						
Track Over 12						
Dwell Over 1						
Dwell Over 2						
Dwell Over 3						
Dwell Over 4						
Dwell Over 5						
Dwell Over 6						
Dwell Over 7						
Dwell Over 8						
Dwell Over 9						
Dwell Over 10						
Dwell Over 11						
Dwell Over 12						
Ped Clear						
Yellow						
Red						
Max Green						

Coordination, Modes,+ [2.1]

Modes

Operational	Correct	Maximum	Force-Off
	SHRT/LNG	MAX 1	FLOAT

Modes+

Mode	Leave Before	Leave After	Recycle	Stop In Walk	External	Auto Reset	Latch Sec Foff	Coord Easy Float	Yield Value	Coord NTCIP Yield Sign	Closed Loop Active
FRC	TIMED	TIMED	NO_RECYCLE	OFF	OFF	ON	OFF	OFF	0	+	ON

Coordination, Pattern 1-16 [2.1]

Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cycle Time																
Offset Time																
Split Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Coordination, Pattern 17-32 [2.1]

Pattern	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Cycle Time																
Offset Time																
Split Number	17	18	19	20	21	22	23	24								
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

Coordination, Splits [2.7.1]

Split Table1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

Split Table13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

TB Coor, Advanced Scheduler [4.3]

	Month												Day of Week							Day of Month										1										2										3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1																																																	1
2																																																			1
3																																																			1
4																																																			1
5																																																			1
6																																																			1
7																																																			1
8																																																			1
9																																																			1
10																																																			1
11																																																			1
12																																																			1
13																																																			1
14																																																			1
15																																																			1
16																																																			1
17																																																			1
18																																																			1
19																																																			1
20																																																			1
21																																																			1
22																																																			1
23																																																			1
24																																																			1
25																																																			1
26																																																			1
27																																																			1
28																																																			1
29																																																			1
30																																																			1
31																																																			1
32																																																			1

TB Coor, Day Plan [4.4]

Day Plan Table1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

Day Plan Table7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:17:04 AM

Station : 3197 - 270 @ Dodge (Standard File)

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Aux 2	Aux 3	Special 1	Special 2	Special 3	Special 4	Special 5	Special 6	Special 7	Special 8
1	1				0	0						
2	2				0	0						
3	3				0	0						
4	4				0	0						
5	5				0	0						
6	6				0	0						
7	7				0	0						
8	8				0	0						
9	9				0	0						
10	10				0	0						
11	11				0	0						
12	12				0	0						
13	13				0	0						
14	14				0	0						
15	15				0	0						
16	16				0	0						
17	17				0	0						
18	18				0	0						
19	19				0	0						
20	20				0	0						
21	21				0	0						
22	22				0	0						
23	23				0	0						
24	24				0	0						
25					0	0						
26					0	0						
27					0	0						
28					0	0						
29					0	0						
30					0	0						
31					0	0						
32					0	0						
33					0	0						
34					0	0						
35					0	0						
36					0	0						
37					0	0						
38					0	0						
39					0	0						
40					0	0						
41					0	0						
42					0	0						
43					0	0						
44					0	0						
45					0	0						
46					0	0						
47					0	0						
48					0	0						
49					0	0						
50					0	0						
51					0	0						
52					0	0						
53					0	0						
54					0	0						
55					0	0						
56					0	0						
57					0	0						
58					0	0						
59					0	0						
60					0	0						
61					0	0						
62					0	0						
63					0	0						
64					0	0						
99					0	0						
100	255				0	0						

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Phase [1.1.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk	0	7	0	0	0	0	0	7	0	0	0	0	0	0	0	0
Ped Clearance	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0	0
Min Green	6	10	6	10	6	10	6	10	0	0	0	0	0	0	0	0
Passage	3	3	3	2.7	3	3	3	2.7	0	0	0	0	0	0	0	0
Max1	20	45	20	50	20	45	20	50	0	0	0	0	0	0	0	0
Max2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.5	4.3	3.5	4.3	3.5	4.3	3.5	4.3	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Auto Exit																
Rest In Walk																

Phase Option [1.1.2]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Auto Entry																
Non Act1																
Non Act2																
Lock Call																
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

ENTRY	Call Phases				From	to	From	to	From	to	From	to	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

ENTRY	Call Phases				From	to	From	to	From	to	From	to	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Prepared By	Date Implemented	Reviewed By	Traffic Engineer

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Unit Parameters [1.2.1]

StartUp Flash	Auto Ped Clear	Backup Time	Red Revert	Aux Switch Function	Local Flash Start	Console Timeout	Yellow 3 Second Disable	Tone Disable	Omit Yellow Enable	MCE Timeout	Enable Run	Start Red Time	Phase Mode	Disable Init Ped	Diamond Mode	TOD Dim Enable	Extra Maps Enable	D Connector Enable	SDLC Retry Time	TS2 Det Faults	Stop Time Over Preempt
	OFF	900	3	STOPTM	RED	20	OFF	OFF	OFF		ON	6	STD8	OFF	4PH	OFF	DEFAULT			ON	OFF

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

COMM, General Comm Parameters [6.1]

Station ID	Master Station ID	Fallback time	Allow Pencil	PORT	System-Up	Sys-Down	PC/Print	Aux 232
3364								

Port Parameters [6.2]

COMM	Mode	Baud	MsgTime	Duplex	Enable	DialTime	Modem	ModemTime	Tel#1	Tel#2
System Up(P-A)										
System Down(P-B)										
PC/Print(P-2)										

Overlap General Parameters [1.5.1]

Conflict Lock	Lock Inhibit	Program Card	Use Parent	Canadian Fast Flash
OFF	OFF	OFF	ON	

Overlap Program Parameters [1.5.2.1]

Overlap	Included Phases								Modifer Phases								Type	Green	Yellow	Red
Overlap 1																	NORMAL		3.5	1.5
Overlap 2																	NORMAL		3.5	1.5
Overlap 3																	NORMAL		3.5	1.5
Overlap 4																	NORMAL		3.5	1.5
Overlap 5																	NORMAL		3.5	1.5
Overlap 6																	NORMAL		3.5	1.5
Overlap 7																	NORMAL		3.5	1.5
Overlap 8																	NORMAL		3.5	1.5

Overlap Conflict Parameters+ [1.5.2.2]

Overlap	Conflicting Phases								Conflicting Overlaps								Conflicting Peds							
Overlap 1																								
Overlap 2																								
Overlap 3																								
Overlap 4																								
Overlap 5																								
Overlap 6																								
Overlap 7																								
Overlap 8																								

Detector, Vehicle Parameters 1-16 [5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	5	2	1	6	2	6	2	6	7	4	3	8	8	4	8	4
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	0

Detector, Vehicle Parameters 17-32 [5.1]

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Detector Alternate Program 1, Vehicle Parameters [5.5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Channels/SDLC, Assign to Phases [1.3.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PH/OLP #	1	2	3	4	5	6	7	8			8	2												
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	PED	PED	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH
Flash	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Flash 1-2 Hertz																								
Dimming Green																								
Dimming Yellow																								
Dimming Red																								
Alt Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Channel/SDLC, Parameters [1.3.3]

TOD Dim Enable	Extra Maps Enable	D Connector Enable	Single BIU Map	IO Mode	Preempt or Ext Output

Channel/SDLC, MMU Map [1.3.5]

MMU-to-Controller Channel Map

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Channel/SDLC, Permissive [1.3.4]

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Channel/SDLC, Permissive [1.3.7]

SDLC Device	Term/Fac								Detector								MMU	DIAG
BIU#	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
Present																		
Peer to Peer																		

Ring Sequence [1.2.4]

Ring	P1	P2	P3	P4	P5	P6	P7	P8
Ring 1	1	2	3	4				
Ring 2	5	6	7	8				
Ring 3								
Ring 4								

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Alarms, Enable Events [1.6.1]

Event#	Event Enable
1	ON
2	ON
3	
4	ON
5	ON
6	ON
7	
8	
9	ON
10	
11	
12	ON
13	
14	ON
15	
16	
17	ON
18	ON
19	ON
20	ON
21	
22	
23	
24	
25	ON
26	
27	ON
28	ON
29	ON
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	ON
44	ON
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	
61	ON
62	
63	
64	

Alarms, Enable Alarms [1.6.4]

Alarm#	Alarm Enable
1	ON
2	ON
3	
4	ON
5	ON
6	ON
7	
8	
9	
10	
11	
12	ON
13	
14	ON
15	
16	
17	
18	
19	
20	ON
21	
22	
23	
24	
25	ON
26	
27	ON
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	

Preemption Times[3.1]/Phases[3.2]/Options[3.3]

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON	ON	ON	ON	ON
Override Higher	ON	ON	ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell	2	2	2	2	2	2
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell P1						
Dwell P2						
Dwell P3						
Dwell P4						
Dwell P5						
Dwell P6						
Dwell P7						
Dwell P8						
Dwell P9						
Dwell P10						
Dwell P11						
Dwell P12						
Dwell Ped1						
Dwell Ped2						
Dwell Ped3						
Dwell Ped4						
Dwell Ped5						
Dwell Ped6						
Dwell Ped7						
Dwell Ped8						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Alarms, Parameters [1.4.1]

Auto Flash Parameter

Yellow	Red	Mode	Source
45	20	CHANNEL	D-CONN

Alarms, Parameters [1.6.7]

Preempt Event Enabled	Pattern Event Enabled
OFF	OFF

Alarms, Phases/Overlaps [1.4.2]

Auto Flash	1	2	3	4	5	6	7	8	9	10	11	12
Phases												
Overlaps												

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Preemption Times+[3.4]/Overlaps+[3.5]/Options+[3.6]

Preempt	1	2	3	4	5	6
Enable	ON	ON	ON	ON	ON	ON
Type	RAIL	RAIL	EMERG	EMERG	EMERG	EMERG
Skip Track						
Volt Mon Flash						
Coord in Preempt	ON	ON	ON	ON	ON	ON
Max2						
Return Max/Min	MAX	MAX	MAX	MAX	MAX	MAX
Extend Dwell						
Pattern						
Output Mode	DWELL	DWELL	DWELL	DWELL	DWELL	DWELL
Track Over 1						
Track Over 2						
Track Over 3						
Track Over 4						
Track Over 5						
Track Over 6						
Track Over 7						
Track Over 8						
Track Over 9						
Track Over 10						
Track Over 11						
Track Over 12						
Dwell Over 1						
Dwell Over 2						
Dwell Over 3						
Dwell Over 4						
Dwell Over 5						
Dwell Over 6						
Dwell Over 7						
Dwell Over 8						
Dwell Over 9						
Dwell Over 10						
Dwell Over 11						
Dwell Over 12						
Ped Clear						
Yellow						
Red						
Max Green						

Coordination, Modes,+ [2.1]

Modes

Operational	Correct	Maximum	Force-Off
	SHRT/LNG	MAX 1	FLOAT

Modes+

Mode	Leave Before	Leave After	Recycle	Stop In Walk	External	Auto Reset	Latch Sec Foff	Coord Easy Float	Yield Value	Coord NTCIP Yield Sign	Closed Loop Active
FRC	TIMED	TIMED	NO_RECYCLE	OFF	OFF	ON	OFF	OFF	0	+	ON

Coordination, Pattern 1-16 [2.1]

Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cycle Time																
Offset Time																
Split Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Coordination, Pattern 17-32 [2.1]

Pattern	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Cycle Time																
Offset Time																
Split Number	17	18	19	20	21	22	23	24								
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Coordination, Splits [2.7.1]

Split Table1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Split Table13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Split Table24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord-Ph																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

TB Coor, Advanced Scheduler [4.3]

	Month											Day of Week							Day of Month									1									2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1																																																1
2																																																1
3																																																1
4																																																1
5																																																1
6																																																1
7																																																1
8																																																1
9																																																1
10																																																1
11																																																1
12																																																1
13																																																1
14																																																1
15																																																1
16																																																1
17																																																1
18																																																1
19																																																1
20																																																1
21																																																1
22																																																1
23																																																1
24																																																1
25																																																1
26																																																1
27																																																1
28																																																1
29																																																1
30																																																1
31																																																1
32																																																1

TB Coor, Day Plan [4.4]

Day Plan Table1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

Day Plan Table7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

NYSDOT - Region 5 Timing Sheet 10/7/2021 11:18:20 AM

Station : 3364 - 270 @ N French (Standard File)

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Aux 2	Aux 3	Special 1	Special 2	Special 3	Special 4	Special 5	Special 6	Special 7	Special 8
1	1				0	0						
2	2				0	0						
3	3				0	0						
4	4				0	0						
5	5				0	0						
6	6				0	0						
7	7				0	0						
8	8				0	0						
9	9				0	0						
10	10				0	0						
11	11				0	0						
12	12				0	0						
13	13				0	0						
14	14				0	0						
15	15				0	0						
16	16				0	0						
17	17				0	0						
18	18				0	0						
19	19				0	0						
20	20				0	0						
21	21				0	0						
22	22				0	0						
23	23				0	0						
24	24				0	0						
25					0	0						
26					0	0						
27					0	0						
28					0	0						
29					0	0						
30					0	0						
31					0	0						
32					0	0						
33					0	0						
34					0	0						
35					0	0						
36					0	0						
37					0	0						
38					0	0						
39					0	0						
40					0	0						
41					0	0						
42					0	0						
43					0	0						
44					0	0						
45					0	0						
46					0	0						
47					0	0						
48					0	0						
49					0	0						
50					0	0						
51					0	0						
52					0	0						
53					0	0						
54					0	0						
55					0	0						
56					0	0						
57					0	0						
58					0	0						
59					0	0						
60					0	0						
61					0	0						
62					0	0						
63					0	0						
64					0	0						
99					0	0						
100	255				0	0						

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

A3

Level of Service:
Criteria and Definitions

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

A4

Level of Service Calculations: Existing Conditions

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Lanes, Volumes, Timings
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2021 Existing AM

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	390	9	8	351	8	26
Future Volume (vph)	390	9	8	351	8	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.896	
Flt Protected				0.999	0.989	
Satd. Flow (prot)	1794	0	0	1822	1518	0
Flt Permitted				0.999	0.989	
Satd. Flow (perm)	1794	0	0	1822	1518	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	435			1566	914	
Travel Time (s)	6.6			23.7	20.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	33%	13%	4%	4%	13%
Adj. Flow (vph)	443	10	9	399	9	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	453	0	0	408	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2021 Existing AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	390	9	8	351	8	26
Future Volume (Veh/h)	390	9	8	351	8	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	443	10	9	399	9	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			453		865	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			453		865	448
tC, single (s)			4.2		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			99		97	95
cM capacity (veh/h)			1052		319	588

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	453	408	39
Volume Left	0	9	9
Volume Right	10	0	30
cSH	1700	1052	492
Volume to Capacity	0.27	0.01	0.08
Queue Length 95th (ft)	0	1	6
Control Delay (s)	0.0	0.3	12.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	12.9
Approach LOS			B

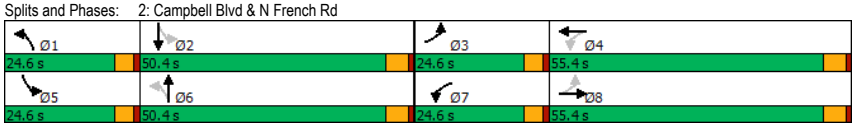
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

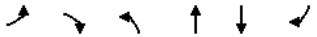
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	328	101	36	228	146	75	130	41	401	303	45
Future Volume (vph)	25	328	101	36	228	146	75	130	41	401	303	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	110		0	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.941			0.964			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1456	1758	0	1480	1639	0	1626	1674	0	1703	1773	0
Flt Permitted	0.304			0.212			0.531			0.422		
Satd. Flow (perm)	466	1758	0	330	1639	0	909	1674	0	756	1773	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			22			10			5	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1566			985			1650			1457	
Travel Time (s)		23.7			14.9			28.1			24.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	24%	5%	2%	22%	4%	17%	11%	7%	17%	6%	5%	5%
Adj. Flow (vph)	28	369	113	40	256	164	84	146	46	451	340	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	482	0	40	420	0	84	192	0	451	391	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	10.6	15.4		10.6	15.4		10.6	15.4		10.6	15.4	
Total Split (s)	24.6	55.4		24.6	55.4		24.6	50.4		24.6	50.4	
Total Split (%)	15.9%	35.7%		15.9%	35.7%		15.9%	32.5%		15.9%	32.5%	
Maximum Green (s)	20.0	50.0		20.0	50.0		20.0	45.0		20.0	45.0	
Yellow Time (s)	3.5	4.3		3.5	4.3		3.5	4.3		3.5	4.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.4		4.6	5.4		4.6	5.4		4.6	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0									7.0	
Flash Dont Walk (s)		15.0									15.0	
Pedestrian Calls (#/hr)		0									0	
Act Effct Green (s)	39.2	34.6		40.4	35.2		30.4	20.2		47.5	35.7	
Actuated g/C Ratio	0.39	0.35		0.41	0.35		0.31	0.20		0.48	0.36	
v/c Ratio	0.11	0.78		0.18	0.71		0.24	0.55		0.80	0.61	
Control Delay	18.2	40.1		19.0	35.1		21.6	42.5		35.6	36.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.2	40.1		19.0	35.1		21.6	42.5		35.6	36.5	
LOS	B	D		B	D		C	D		D	D	
Approach Delay		38.9			33.7			36.1			36.0	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 155			
Actuated Cycle Length: 99.6			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 36.2		Intersection LOS: D	
Intersection Capacity Utilization 74.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Campbell Blvd & N French Rd





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	22	9	231	419	7
Future Volume (vph)	9	22	9	231	419	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.998	
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1805	1369	0	1793	1762	0
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1805	1369	0	1793	1762	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	673			2201	1650	
Travel Time (s)	15.3			37.5	28.1	
Confl. Peds. (#/hr)			1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	18%	0%	6%	7%	43%
Adj. Flow (vph)	10	24	10	248	451	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	24	0	258	459	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	22	9	231	419	7
Future Volume (Veh/h)	9	22	9	231	419	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	10	24	10	248	451	8
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	724	456	460			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	724	456	460			
tC, single (s)	6.4	6.4	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	97	96	99			
cM capacity (veh/h)	392	572	1111			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	10	24	258	459
Volume Left	10	0	10	0
Volume Right	0	24	0	8
cSH	392	572	1111	1700
Volume to Capacity	0.03	0.04	0.01	0.27
Queue Length 95th (ft)	2	3	1	0
Control Delay (s)	14.4	11.6	0.4	0.0
Lane LOS	B	B	A	
Approach Delay (s)	12.4		0.4	0.0
Approach LOS	B			

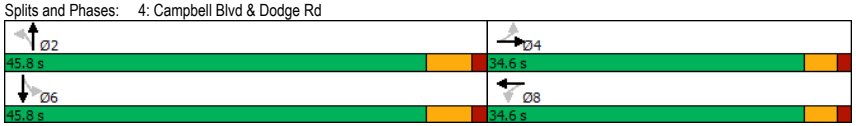
Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		32.5%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	98	48	13	208	73	30	124	10	62	319	85
Future Volume (vph)	39	98	48	13	208	73	30	124	10	62	319	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.967			0.992			0.975	
Flt Protected		0.990			0.998			0.991			0.993	
Satd. Flow (prot)	0	1691	0	0	1760	0	0	1765	0	0	1741	0
Flt Permitted		0.899			0.983			0.870			0.933	
Satd. Flow (perm)	0	1535	0	0	1733	0	0	1550	0	0	1635	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			23			6			20	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		951			1021			831			2201	
Travel Time (s)		16.2			17.4			14.2			37.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	8%	8%	8%	3%	7%	7%	6%	0%	5%	6%	5%
Adj. Flow (vph)	42	105	52	14	224	78	32	133	11	67	343	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	316	0	0	176	0	0	501	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.6	10.6		22.6	22.6		15.8	15.8		15.8	15.8	
Total Split (s)	34.6	34.6		34.6	34.6		45.8	45.8		45.8	45.8	
Total Split (%)	43.0%	43.0%		43.0%	43.0%		57.0%	57.0%		57.0%	57.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.6			4.6			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		13.8			13.8			19.2			19.2	
Actuated g/C Ratio		0.31			0.31			0.43			0.43	
v/c Ratio		0.40			0.57			0.26			0.70	
Control Delay		14.6			17.6			9.3			16.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.6			17.6			9.3			16.0	
LOS		B			B			A			B	
Approach Delay		14.6			17.6			9.3			16.0	
Approach LOS		B			B			A			B	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80.4		
Actuated Cycle Length: 44.3		
Natural Cycle: 55		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.70		
Intersection Signal Delay: 15.2		Intersection LOS: B
Intersection Capacity Utilization 64.7%		ICU Level of Service C
Analysis Period (min) 15		

Splits and Phases: 4: Campbell Blvd & Dodge Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	474	17	24	450	10	17
Future Volume (vph)	474	17	24	450	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.916	
Flt Protected				0.997	0.981	
Satd. Flow (prot)	1847	0	0	1855	1645	0
Flt Permitted				0.997	0.981	
Satd. Flow (perm)	1847	0	0	1855	1645	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	435			1566	914	
Travel Time (s)	6.6			23.7	20.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	12%	4%	2%	10%	0%
Adj. Flow (vph)	510	18	26	484	11	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	528	0	0	510	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	474	17	24	450	10	17
Future Volume (Veh/h)	474	17	24	450	10	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	510	18	26	484	11	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			528		1055	519
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			528		1055	519
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			97		95	97
cM capacity (veh/h)			1029		235	561

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	528	510	29
Volume Left	0	26	11
Volume Right	18	0	18
cSH	1700	1029	368
Volume to Capacity	0.31	0.03	0.08
Queue Length 95th (ft)	0	2	6
Control Delay (s)	0.0	0.7	15.6
Lane LOS		A	C
Approach Delay (s)	0.0	0.7	15.6
Approach LOS			C

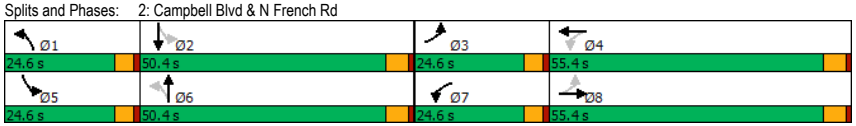
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	376	78	28	343	303	115	342	36	249	189	31
Future Volume (vph)	56	376	78	28	343	303	115	342	36	249	189	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	110		0	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.930			0.986			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1835	0	1736	1717	0	1787	1857	0	1719	1813	0
Flt Permitted	0.095			0.319			0.617			0.146		
Satd. Flow (perm)	180	1835	0	583	1717	0	1161	1857	0	264	1813	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			30			3			5	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1566			985			1650			1457	
Travel Time (s)		23.7			14.9			28.1			24.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	4%	2%	4%	1%	1%	0%	5%	3%	0%
Adj. Flow (vph)	58	388	80	29	354	312	119	353	37	257	195	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	468	0	29	666	0	119	390	0	257	227	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	10.6	15.4		10.6	15.4		10.6	15.4		10.6	15.4	
Total Split (s)	24.6	55.4		24.6	55.4		24.6	50.4		24.6	50.4	
Total Split (%)	15.9%	35.7%		15.9%	35.7%		15.9%	32.5%		15.9%	32.5%	
Maximum Green (s)	20.0	50.0		20.0	50.0		20.0	45.0		20.0	45.0	
Yellow Time (s)	3.5	4.3		3.5	4.3		3.5	4.3		3.5	4.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.4		4.6	5.4		4.6	5.4		4.6	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0									7.0	
Flash Dont Walk (s)		15.0									15.0	
Pedestrian Calls (#/hr)		0									0	
Act Effct Green (s)	59.7	54.0		57.1	50.9		42.6	31.2		55.4	39.3	
Actuated g/C Ratio	0.47	0.43		0.45	0.40		0.34	0.25		0.44	0.31	
v/c Ratio	0.31	0.59		0.09	0.94		0.27	0.85		0.78	0.40	
Control Delay	24.3	34.6		20.5	58.9		23.6	62.4		43.9	36.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.3	34.6		20.5	58.9		23.6	62.4		43.9	36.1	
LOS	C	C		C	E		C	E		D	D	
Approach Delay		33.4			57.3			53.3			40.2	
Approach LOS		C			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 155			
Actuated Cycle Length: 126.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 47.0		Intersection LOS: D	
Intersection Capacity Utilization 92.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Campbell Blvd & N French Rd





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	24	23	492	265	7
Future Volume (vph)	1	24	23	492	265	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.996	
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1805	1615	0	1878	1856	0
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1805	1615	0	1878	1856	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	673			2201	1650	
Travel Time (s)	15.3			37.5	28.1	
Confl. Peds. (#/hr)			1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	1	27	26	547	294	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	27	0	573	302	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	24	23	492	265	7
Future Volume (Veh/h)	1	24	23	492	265	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	27	26	547	294	8
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	898	299	303			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	898	299	303			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	98			
cM capacity (veh/h)	306	745	1268			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	1	27	573	302
Volume Left	1	0	26	0
Volume Right	0	27	0	8
cSH	306	745	1268	1700
Volume to Capacity	0.00	0.04	0.02	0.18
Queue Length 95th (ft)	0	3	2	0
Control Delay (s)	16.8	10.0	0.6	0.0
Lane LOS	C	B	A	
Approach Delay (s)	10.3		0.6	0.0
Approach LOS	B			

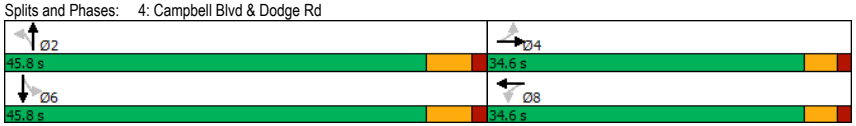
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	220	49	5	154	119	41	326	10	72	191	31
Future Volume (vph)	118	220	49	5	154	119	41	326	10	72	191	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.942			0.996			0.986	
Flt Protected		0.985			0.999			0.995			0.988	
Satd. Flow (prot)	0	1818	0	0	1756	0	0	1863	0	0	1804	0
Flt Permitted		0.826			0.993			0.929			0.821	
Satd. Flow (perm)	0	1525	0	0	1745	0	0	1739	0	0	1499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			54			3			11	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		951			1021			831			2201	
Travel Time (s)		16.2			17.4			14.2			37.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	2%	1%	0%	0%	4%	0%
Adj. Flow (vph)	126	234	52	5	164	127	44	347	11	77	203	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	412	0	0	296	0	0	402	0	0	313	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.6	10.6		22.6	22.6		15.8	15.8		15.8	15.8	
Total Split (s)	34.6	34.6		34.6	34.6		45.8	45.8		45.8	45.8	
Total Split (%)	43.0%	43.0%		43.0%	43.0%		57.0%	57.0%		57.0%	57.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.6			4.6			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		20.0			20.0			17.7			17.7	
Actuated g/C Ratio		0.41			0.41			0.36			0.36	
v/c Ratio		0.65			0.40			0.64			0.57	
Control Delay		17.8			10.6			18.9			17.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.8			10.6			18.9			17.6	
LOS		B			B			B			B	
Approach Delay		17.8			10.6			18.9			17.6	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.4			
Actuated Cycle Length: 48.8			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 78.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: Campbell Blvd & Dodge Rd



A5

Level of Service Calculations: Background Conditions

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Lanes, Volumes, Timings
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2022 Background AM

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	392	9	8	353	8	26
Future Volume (vph)	392	9	8	353	8	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.896	
Flt Protected				0.999	0.989	
Satd. Flow (prot)	1794	0	0	1822	1518	0
Flt Permitted				0.999	0.989	
Satd. Flow (perm)	1794	0	0	1822	1518	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	435			1566	914	
Travel Time (s)	6.6			23.7	20.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	33%	13%	4%	4%	13%
Adj. Flow (vph)	445	10	9	401	9	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	455	0	0	410	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2022 Background AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	392	9	8	353	8	26
Future Volume (Veh/h)	392	9	8	353	8	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	445	10	9	401	9	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			455		869	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			455		869	450
tC, single (s)			4.2		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			99		97	95
cM capacity (veh/h)			1050		317	587

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	455	410	39
Volume Left	0	9	9
Volume Right	10	0	30
cSH	1700	1050	490
Volume to Capacity	0.27	0.01	0.08
Queue Length 95th (ft)	0	1	6
Control Delay (s)	0.0	0.3	13.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	13.0
Approach LOS			B

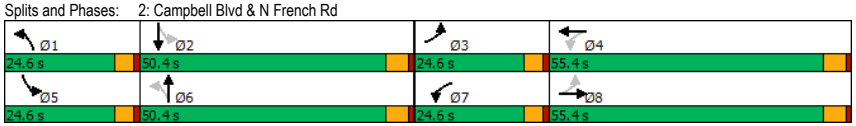
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	330	102	36	229	147	75	131	41	403	305	45
Future Volume (vph)	25	330	102	36	229	147	75	131	41	403	305	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	110		0	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.941			0.964			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1456	1758	0	1480	1639	0	1626	1674	0	1703	1775	0
Flt Permitted	0.303			0.209			0.529			0.422		
Satd. Flow (perm)	464	1758	0	325	1639	0	905	1674	0	756	1775	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			22			10			5	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1566			985			1650			1457	
Travel Time (s)		23.7			14.9			28.1			24.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	24%	5%	2%	22%	4%	17%	11%	7%	17%	6%	5%	5%
Adj. Flow (vph)	28	371	115	40	257	165	84	147	46	453	343	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	486	0	40	422	0	84	193	0	453	394	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	10.6	15.4		10.6	15.4		10.6	15.4		10.6	15.4	
Total Split (s)	24.6	55.4		24.6	55.4		24.6	50.4		24.6	50.4	
Total Split (%)	15.9%	35.7%		15.9%	35.7%		15.9%	32.5%		15.9%	32.5%	
Maximum Green (s)	20.0	50.0		20.0	50.0		20.0	45.0		20.0	45.0	
Yellow Time (s)	3.5	4.3		3.5	4.3		3.5	4.3		3.5	4.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.4		4.6	5.4		4.6	5.4		4.6	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0									7.0	
Flash Dont Walk (s)		15.0									15.0	
Pedestrian Calls (#/hr)		0									0	
Act Effct Green (s)	39.5	34.9		40.8	35.5		30.6	20.3		47.7	35.9	
Actuated g/C Ratio	0.39	0.35		0.41	0.35		0.31	0.20		0.48	0.36	
v/c Ratio	0.11	0.78		0.18	0.71		0.24	0.56		0.80	0.62	
Control Delay	18.2	40.2		19.1	35.1		21.7	42.6		36.1	36.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.2	40.2		19.1	35.1		21.7	42.6		36.1	36.7	
LOS	B	D		B	D		C	D		D	D	
Approach Delay		39.0			33.7			36.2			36.4	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 155			
Actuated Cycle Length: 100.1			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 36.4		Intersection LOS: D	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Campbell Blvd & N French Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	22	9	232	421	7
Future Volume (vph)	9	22	9	232	421	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.998	
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1805	1369	0	1793	1762	0
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1805	1369	0	1793	1762	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	673			2201	1650	
Travel Time (s)	15.3			37.5	28.1	
Confl. Peds. (#/hr)			1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	18%	0%	6%	7%	43%
Adj. Flow (vph)	10	24	10	249	453	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	24	0	259	461	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	22	9	232	421	7
Future Volume (Veh/h)	9	22	9	232	421	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	10	24	10	249	453	8
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	727	458	462			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	727	458	462			
tC, single (s)	6.4	6.4	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	97	96	99			
cM capacity (veh/h)	390	570	1109			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	10	24	259	461
Volume Left	10	0	10	0
Volume Right	0	24	0	8
cSH	390	570	1109	1700
Volume to Capacity	0.03	0.04	0.01	0.27
Queue Length 95th (ft)	2	3	1	0
Control Delay (s)	14.5	11.6	0.4	0.0
Lane LOS	B	B	A	
Approach Delay (s)	12.4		0.4	0.0
Approach LOS	B			

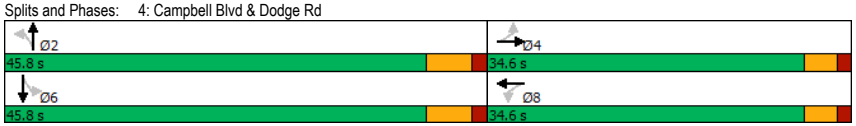
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	98	48	13	209	73	30	125	10	62	321	85
Future Volume (vph)	39	98	48	13	209	73	30	125	10	62	321	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.967			0.992			0.976	
Flt Protected		0.990			0.998			0.991			0.993	
Satd. Flow (prot)	0	1691	0	0	1760	0	0	1765	0	0	1742	0
Flt Permitted		0.899			0.983			0.871			0.933	
Satd. Flow (perm)	0	1535	0	0	1733	0	0	1552	0	0	1637	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			23			6			20	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		951			1021			831			2201	
Travel Time (s)		16.2			17.4			14.2			37.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	8%	8%	8%	3%	7%	7%	6%	0%	5%	6%	5%
Adj. Flow (vph)	42	105	52	14	225	78	32	134	11	67	345	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	317	0	0	177	0	0	503	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.6	10.6		22.6	22.6		15.8	15.8		15.8	15.8	
Total Split (s)	34.6	34.6		34.6	34.6		45.8	45.8		45.8	45.8	
Total Split (%)	43.0%	43.0%		43.0%	43.0%		57.0%	57.0%		57.0%	57.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.6			4.6			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		13.9			13.9			19.3			19.3	
Actuated g/C Ratio		0.31			0.31			0.43			0.43	
v/c Ratio		0.40			0.57			0.26			0.70	
Control Delay		14.5			17.6			9.3			16.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.5			17.6			9.3			16.1	
LOS		B			B			A			B	
Approach Delay		14.5			17.6			9.3			16.1	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.4			
Actuated Cycle Length: 44.5			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Campbell Blvd & Dodge Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	476	17	24	452	10	17
Future Volume (vph)	476	17	24	452	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.916	
Flt Protected				0.997	0.981	
Satd. Flow (prot)	1847	0	0	1855	1645	0
Flt Permitted				0.997	0.981	
Satd. Flow (perm)	1847	0	0	1855	1645	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	435			1566	914	
Travel Time (s)	6.6			23.7	20.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	12%	4%	2%	10%	0%
Adj. Flow (vph)	512	18	26	486	11	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	530	0	0	512	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	476	17	24	452	10	17
Future Volume (Veh/h)	476	17	24	452	10	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	512	18	26	486	11	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			530		1059	521
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			530		1059	521
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			97		95	97
cM capacity (veh/h)			1027		234	559

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	530	512	29
Volume Left	0	26	11
Volume Right	18	0	18
cSH	1700	1027	366
Volume to Capacity	0.31	0.03	0.08
Queue Length 95th (ft)	0	2	6
Control Delay (s)	0.0	0.7	15.7
Lane LOS		A	C
Approach Delay (s)	0.0	0.7	15.7
Approach LOS			C

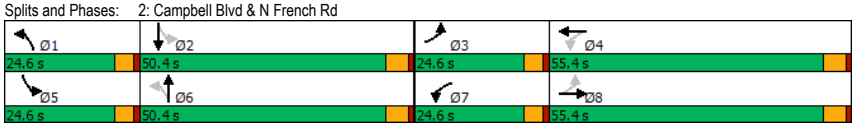
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	378	78	28	345	305	116	344	36	250	190	31
Future Volume (vph)	56	378	78	28	345	305	116	344	36	250	190	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	110		0	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.930			0.986			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1835	0	1736	1717	0	1787	1857	0	1719	1813	0
Flt Permitted	0.090			0.316			0.616			0.145		
Satd. Flow (perm)	171	1835	0	577	1717	0	1159	1857	0	262	1813	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			30			3			5	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1566			985			1650			1457	
Travel Time (s)		23.7			14.9			28.1			24.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	4%	2%	4%	1%	1%	0%	5%	3%	0%
Adj. Flow (vph)	58	390	80	29	356	314	120	355	37	258	196	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	470	0	29	670	0	120	392	0	258	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	10.6	15.4		10.6	15.4		10.6	15.4		10.6	15.4	
Total Split (s)	24.6	55.4		24.6	55.4		24.6	50.4		24.6	50.4	
Total Split (%)	15.9%	35.7%		15.9%	35.7%		15.9%	32.5%		15.9%	32.5%	
Maximum Green (s)	20.0	50.0		20.0	50.0		20.0	45.0		20.0	45.0	
Yellow Time (s)	3.5	4.3		3.5	4.3		3.5	4.3		3.5	4.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.4		4.6	5.4		4.6	5.4		4.6	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0									7.0	
Flash Dont Walk (s)		15.0									15.0	
Pedestrian Calls (#/hr)		0									0	
Act Effct Green (s)	59.7	54.0		57.1	50.9		42.9	31.5		55.6	39.6	
Actuated g/C Ratio	0.47	0.43		0.45	0.40		0.34	0.25		0.44	0.31	
v/c Ratio	0.32	0.60		0.09	0.95		0.27	0.85		0.78	0.40	
Control Delay	24.6	34.8		20.6	60.4		23.6	62.5		44.3	36.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.6	34.8		20.6	60.4		23.6	62.5		44.3	36.1	
LOS	C	C		C	E		C	E		D	D	
Approach Delay		33.7			58.7			53.4			40.4	
Approach LOS		C			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 155			
Actuated Cycle Length: 126.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 47.6		Intersection LOS: D	
Intersection Capacity Utilization 92.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Campbell Blvd & N French Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	24	23	494	266	7
Future Volume (vph)	1	24	23	494	266	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.996	
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1805	1615	0	1878	1856	0
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1805	1615	0	1878	1856	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	673			2201	1650	
Travel Time (s)	15.3			37.5	28.1	
Confl. Peds. (#/hr)			1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	1	27	26	549	296	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	27	0	575	304	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	24	23	494	266	7
Future Volume (Veh/h)	1	24	23	494	266	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	27	26	549	296	8
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	902	301	305			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	902	301	305			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	98			
cM capacity (veh/h)	304	743	1266			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	1	27	575	304
Volume Left	1	0	26	0
Volume Right	0	27	0	8
cSH	304	743	1266	1700
Volume to Capacity	0.00	0.04	0.02	0.18
Queue Length 95th (ft)	0	3	2	0
Control Delay (s)	16.9	10.0	0.6	0.0
Lane LOS	C	B	A	
Approach Delay (s)	10.3		0.6	0.0
Approach LOS	B			

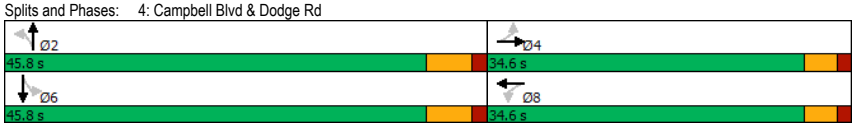
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	221	49	5	155	120	41	328	10	72	192	31
Future Volume (vph)	119	221	49	5	155	120	41	328	10	72	192	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.942			0.996			0.986	
Flt Protected		0.985			0.999			0.995			0.988	
Satd. Flow (prot)	0	1818	0	0	1756	0	0	1863	0	0	1804	0
Flt Permitted		0.824			0.993			0.929			0.820	
Satd. Flow (perm)	0	1521	0	0	1745	0	0	1739	0	0	1497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			54			2			10	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		951			1021			831			2201	
Travel Time (s)		16.2			17.4			14.2			37.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	2%	1%	0%	0%	4%	0%
Adj. Flow (vph)	127	235	52	5	165	128	44	349	11	77	204	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	414	0	0	298	0	0	404	0	0	314	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.6	10.6		22.6	22.6		15.8	15.8		15.8	15.8	
Total Split (s)	34.6	34.6		34.6	34.6		45.8	45.8		45.8	45.8	
Total Split (%)	43.0%	43.0%		43.0%	43.0%		57.0%	57.0%		57.0%	57.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.6			4.6			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		20.3			20.3			17.8			17.8	
Actuated g/C Ratio		0.41			0.41			0.36			0.36	
v/c Ratio		0.66			0.40			0.64			0.57	
Control Delay		17.9			10.6			19.2			17.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.9			10.6			19.2			17.9	
LOS		B			B			B			B	
Approach Delay		17.9			10.6			19.2			17.9	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.4			
Actuated Cycle Length: 49.2			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: Campbell Blvd & Dodge Rd



A6

Level of Service Calculations: Full Development Conditions

Attachment: SP-2021-24 application 011322 (25070 : Sp-2021-24)

Lanes, Volumes, Timings
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2022 Full Build AM

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	392	10	9	354	9	35
Future Volume (vph)	392	10	9	354	9	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.892	
Flt Protected				0.999	0.990	
Satd. Flow (prot)	1793	0	0	1821	1509	0
Flt Permitted				0.999	0.990	
Satd. Flow (perm)	1793	0	0	1821	1509	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	435			1566	914	
Travel Time (s)	6.6			23.7	20.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	33%	13%	4%	4%	13%
Adj. Flow (vph)	445	11	10	402	10	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	456	0	0	412	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2022 Full Build AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	392	10	9	354	9	35
Future Volume (Veh/h)	392	10	9	354	9	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	445	11	10	402	10	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			456		872	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			456		872	450
tC, single (s)			4.2		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			99		97	93
cM capacity (veh/h)			1049		315	586

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	456	412	50
Volume Left	0	10	10
Volume Right	11	0	40
cSH	1700	1049	500
Volume to Capacity	0.27	0.01	0.10
Queue Length 95th (ft)	0	1	8
Control Delay (s)	0.0	0.3	13.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	13.0
Approach LOS			B

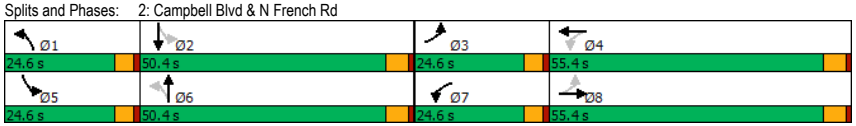
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	337	103	39	230	147	76	132	44	403	306	45
Future Volume (vph)	26	337	103	39	230	147	76	132	44	403	306	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	110		0	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.941			0.963			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1456	1758	0	1480	1639	0	1626	1671	0	1703	1775	0
Flt Permitted	0.334			0.196			0.519			0.406		
Satd. Flow (perm)	512	1758	0	305	1639	0	888	1671	0	728	1775	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			22			11			5	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1566			985			1650			1457	
Travel Time (s)		23.7			14.9			28.1			24.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	24%	5%	2%	22%	4%	17%	11%	7%	17%	6%	5%	5%
Adj. Flow (vph)	29	379	116	44	258	165	85	148	49	453	344	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	495	0	44	423	0	85	197	0	453	395	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	10.6	15.4		10.6	15.4		10.6	15.4		10.6	15.4	
Total Split (s)	24.6	55.4		24.6	55.4		24.6	50.4		24.6	50.4	
Total Split (%)	15.9%	35.7%		15.9%	35.7%		15.9%	32.5%		15.9%	32.5%	
Maximum Green (s)	20.0	50.0		20.0	50.0		20.0	45.0		20.0	45.0	
Yellow Time (s)	3.5	4.3		3.5	4.3		3.5	4.3		3.5	4.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.4		4.6	5.4		4.6	5.4		4.6	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0									7.0	
Flash Dont Walk (s)		15.0									15.0	
Pedestrian Calls (#/hr)		0									0	
Act Effct Green (s)	41.9	35.8		44.7	39.2		30.8	20.6		47.7	36.1	
Actuated g/C Ratio	0.40	0.34		0.43	0.38		0.30	0.20		0.46	0.35	
v/c Ratio	0.11	0.81		0.20	0.67		0.26	0.58		0.85	0.64	
Control Delay	18.0	43.2		19.1	33.2		22.9	44.7		41.6	39.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.0	43.2		19.1	33.2		22.9	44.7		41.6	39.0	
LOS	B	D		B	C		C	D		D	D	
Approach Delay		41.8			31.9			38.1			40.4	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 155			
Actuated Cycle Length: 103.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 38.6		Intersection LOS: D	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Campbell Blvd & N French Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	36	13	232	422	11
Future Volume (vph)	13	36	13	232	422	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.997	
Flt Protected	0.950			0.997		
Satd. Flow (prot)	1805	1369	0	1792	1755	0
Flt Permitted	0.950			0.997		
Satd. Flow (perm)	1805	1369	0	1792	1755	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	673			2201	1650	
Travel Time (s)	15.3			37.5	28.1	
Confl. Peds. (#/hr)			1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	18%	0%	6%	7%	43%
Adj. Flow (vph)	14	39	14	249	454	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	39	0	263	466	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	36	13	232	422	11
Future Volume (Veh/h)	13	36	13	232	422	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	14	39	14	249	454	12
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	738	461	467			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	738	461	467			
tC, single (s)	6.4	6.4	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	96	93	99			
cM capacity (veh/h)	383	568	1104			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	14	39	263	466
Volume Left	14	0	14	0
Volume Right	0	39	0	12
cSH	383	568	1104	1700
Volume to Capacity	0.04	0.07	0.01	0.27
Queue Length 95th (ft)	3	6	1	0
Control Delay (s)	14.8	11.8	0.6	0.0
Lane LOS	B	B	A	
Approach Delay (s)	12.6		0.6	0.0
Approach LOS	B			

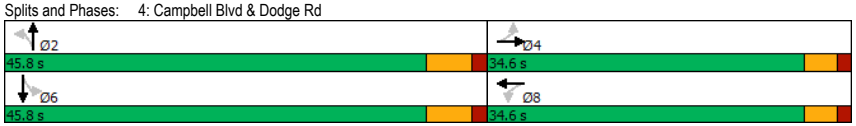
Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		32.9%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	98	48	13	209	74	30	127	10	65	327	91
Future Volume (vph)	40	98	48	13	209	74	30	127	10	65	327	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.966			0.992			0.975	
Flt Protected		0.989			0.998			0.991			0.993	
Satd. Flow (prot)	0	1689	0	0	1758	0	0	1765	0	0	1741	0
Flt Permitted		0.897			0.983			0.870			0.932	
Satd. Flow (perm)	0	1532	0	0	1731	0	0	1550	0	0	1634	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			24			6			21	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		951			1021			831			2201	
Travel Time (s)		16.2			17.4			14.2			37.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	8%	8%	8%	3%	7%	7%	6%	0%	5%	6%	5%
Adj. Flow (vph)	43	105	52	14	225	80	32	137	11	70	352	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	0	319	0	0	180	0	0	520	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.6	10.6		22.6	22.6		15.8	15.8		15.8	15.8	
Total Split (s)	34.6	34.6		34.6	34.6		45.8	45.8		45.8	45.8	
Total Split (%)	43.0%	43.0%		43.0%	43.0%		57.0%	57.0%		57.0%	57.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.6			4.6			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		14.2			14.2			20.0			20.0	
Actuated g/C Ratio		0.31			0.31			0.44			0.44	
v/c Ratio		0.40			0.57			0.26			0.71	
Control Delay		15.0			18.0			9.4			16.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.0			18.0			9.4			16.6	
LOS		B			B			A			B	
Approach Delay		15.0			18.0			9.4			16.6	
Approach LOS		B			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.4			
Actuated Cycle Length: 45.6			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Campbell Blvd & Dodge Rd



Lanes, Volumes, Timings
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2022 Full Build PM

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	476	22	30	453	15	20
Future Volume (vph)	476	22	30	453	15	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.922	
Flt Protected				0.997	0.979	
Satd. Flow (prot)	1843	0	0	1855	1646	0
Flt Permitted				0.997	0.979	
Satd. Flow (perm)	1843	0	0	1855	1646	0
Link Speed (mph)	45			45	30	
Link Distance (ft)	435			1566	914	
Travel Time (s)	6.6			23.7	20.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	12%	4%	2%	10%	0%
Adj. Flow (vph)	512	24	32	487	16	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	536	0	0	519	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Lynette Ln & N French Rd

The Preserve at Muir Woods
2022 Full Build PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	476	22	30	453	15	20
Future Volume (Veh/h)	476	22	30	453	15	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	512	24	32	487	16	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			536		1075	524
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			536		1075	524
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			97		93	96
cM capacity (veh/h)			1022		227	557

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	536	519	38
Volume Left	0	32	16
Volume Right	24	0	22
cSH	1700	1022	346
Volume to Capacity	0.32	0.03	0.11
Queue Length 95th (ft)	0	2	9
Control Delay (s)	0.0	0.9	16.7
Lane LOS		A	C
Approach Delay (s)	0.0	0.9	16.7
Approach LOS			C

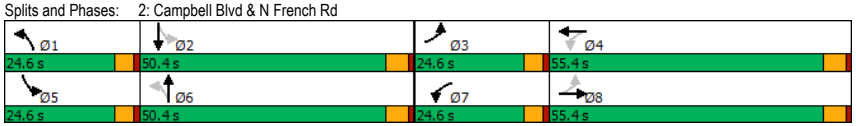
Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		58.5%	ICU Level of Service	B
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	380	79	37	350	305	117	345	39	250	192	33
Future Volume (vph)	56	380	79	37	350	305	117	345	39	250	192	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	110		0	125		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.930			0.985			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1835	0	1736	1717	0	1787	1855	0	1719	1812	0
Flt Permitted	0.082			0.288			0.614			0.146		
Satd. Flow (perm)	156	1835	0	526	1717	0	1155	1855	0	264	1812	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			30			4			6	
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1566			985			1650			1457	
Travel Time (s)		23.7			14.9			28.1			24.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	4%	2%	4%	1%	1%	0%	5%	3%	0%
Adj. Flow (vph)	58	392	81	38	361	314	121	356	40	258	198	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	473	0	38	675	0	121	396	0	258	232	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8			4			6			2		
Detector Phase	3	8		7	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	10.6	15.4		10.6	15.4		10.6	15.4		10.6	15.4	
Total Split (s)	24.6	55.4		24.6	55.4		24.6	50.4		24.6	50.4	
Total Split (%)	15.9%	35.7%		15.9%	35.7%		15.9%	32.5%		15.9%	32.5%	
Maximum Green (s)	20.0	50.0		20.0	50.0		20.0	45.0		20.0	45.0	
Yellow Time (s)	3.5	4.3		3.5	4.3		3.5	4.3		3.5	4.3	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.1	1.1		1.1	1.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.4		4.6	5.4		4.6	5.4		4.6	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0									7.0	
Flash Dont Walk (s)		15.0									15.0	
Pedestrian Calls (#/hr)		0									0	
Act Effct Green (s)	58.6	51.5		57.4	50.9		43.2	31.7		55.9	39.8	
Actuated g/C Ratio	0.46	0.41		0.45	0.40		0.34	0.25		0.44	0.31	
v/c Ratio	0.33	0.63		0.12	0.96		0.27	0.85		0.78	0.41	
Control Delay	25.4	37.4		21.0	62.3		23.6	62.6		43.9	36.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.4	37.4		21.0	62.3		23.6	62.6		43.9	36.0	
LOS	C	D		C	E		C	E		D	D	
Approach Delay		36.1			60.1			53.5			40.2	
Approach LOS		D			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 155			
Actuated Cycle Length: 126.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 48.6		Intersection LOS: D	
Intersection Capacity Utilization 93.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Campbell Blvd & N French Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	29	32	494	267	18
Future Volume (vph)	6	29	32	494	267	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.991	
Flt Protected	0.950			0.997		
Satd. Flow (prot)	1805	1615	0	1877	1848	0
Flt Permitted	0.950			0.997		
Satd. Flow (perm)	1805	1615	0	1877	1848	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	673			2201	1650	
Travel Time (s)	15.3			37.5	28.1	
Confl. Peds. (#/hr)			1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	7	32	36	549	297	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	32	0	585	317	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	29	32	494	267	18
Future Volume (Veh/h)	6	29	32	494	267	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	32	36	549	297	20
Pedestrians	1					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	929	308	318			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	929	308	318			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	96	97			
cM capacity (veh/h)	291	736	1252			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	7	32	585	317
Volume Left	7	0	36	0
Volume Right	0	32	0	20
cSH	291	736	1252	1700
Volume to Capacity	0.02	0.04	0.03	0.19
Queue Length 95th (ft)	2	3	2	0
Control Delay (s)	17.7	10.1	0.8	0.0
Lane LOS	C	B	A	
Approach Delay (s)	11.5		0.8	0.0
Approach LOS	B			

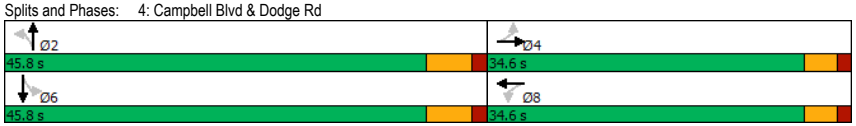
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	221	49	5	155	122	41	331	10	73	195	33
Future Volume (vph)	124	221	49	5	155	122	41	331	10	73	195	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.941			0.996			0.985	
Flt Protected		0.984			0.999			0.995			0.988	
Satd. Flow (prot)	0	1816	0	0	1754	0	0	1863	0	0	1802	0
Flt Permitted		0.818			0.993			0.929			0.814	
Satd. Flow (perm)	0	1510	0	0	1743	0	0	1739	0	0	1485	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			55			2			11	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		951			1021			831			2201	
Travel Time (s)		16.2			17.4			14.2			37.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	0%	0%	1%	3%	2%	1%	0%	0%	4%	0%
Adj. Flow (vph)	132	235	52	5	165	130	44	352	11	78	207	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	419	0	0	300	0	0	407	0	0	320	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	10.6	10.6		22.6	22.6		15.8	15.8		15.8	15.8	
Total Split (s)	34.6	34.6		34.6	34.6		45.8	45.8		45.8	45.8	
Total Split (%)	43.0%	43.0%		43.0%	43.0%		57.0%	57.0%		57.0%	57.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.2	3.2		3.2	3.2		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.6			4.6			5.8			5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		21.1			21.1			18.0			18.0	
Actuated g/C Ratio		0.42			0.42			0.36			0.36	
v/c Ratio		0.66			0.39			0.65			0.59	
Control Delay		17.9			10.5			19.8			18.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.9			10.5			19.8			18.7	
LOS		B			B			B			B	
Approach Delay		17.9			10.5			19.8			18.7	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.4			
Actuated Cycle Length: 50.2			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 80.2%		ICU Level of Service D	
Analysis Period (min) 15			

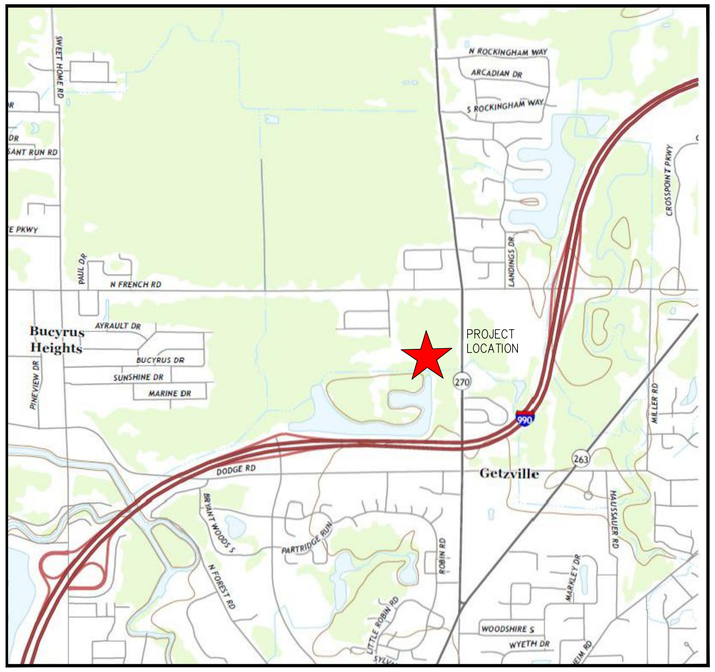
Splits and Phases: 4: Campbell Blvd & Dodge Rd



Muir Woods Subdivision, Phase 4

Ciminelli Muir Woods LLC

520 Campbell Blvd
Town of Amherst, NY 14068



PROJECT LOCATION MAP
N.T.S.

Sheet List Table	
Sheet Number	Sheet Title
00	Cover Sheet
01	Existing Conditions
02	Utility Plan
03	Drainage Plan
04	Site Details
05	Grading Plan
06	Erosion and Sediment Control Plan
07	Erosion and Sediment Control Details
08	Erosion and Sediment Control Notes
L-1	Landscape Plan

DAVID F. PRATT P.E. DATE: November 2021

STATE OF NEW YORK · GREENMAN PEDERSEN, INC. · LICENSED PROFESSIONAL ENGINEER · No. 151

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

GPI
Engineering
Design
Planning
Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

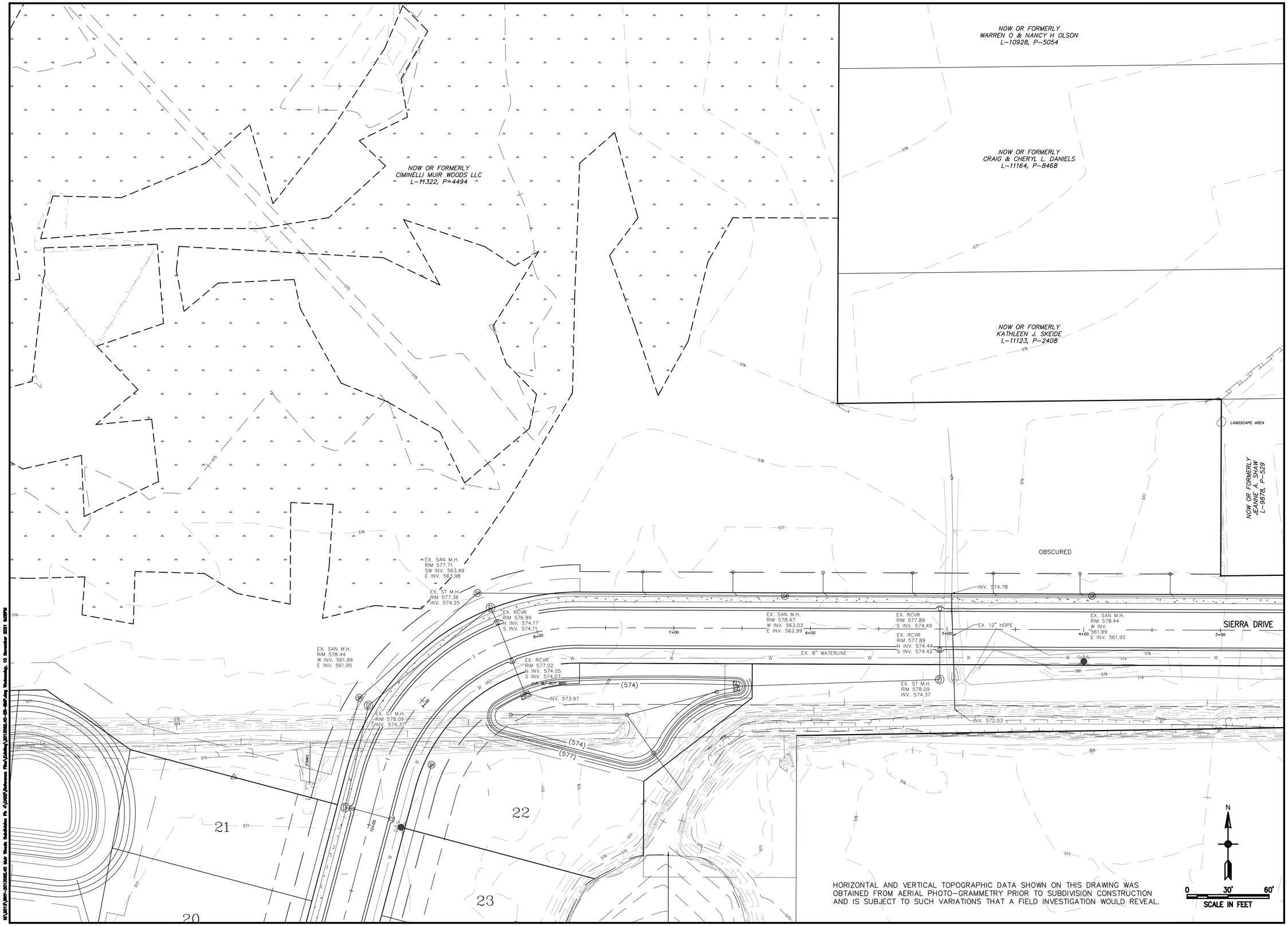
PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

WNY-2013062.40	November 12, 2021

SHEET NO.
00

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)



HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 131

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS

NO.	REVISION	DATE
----	----	----
----	----	----
----	----	----
----	----	----

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	DFP

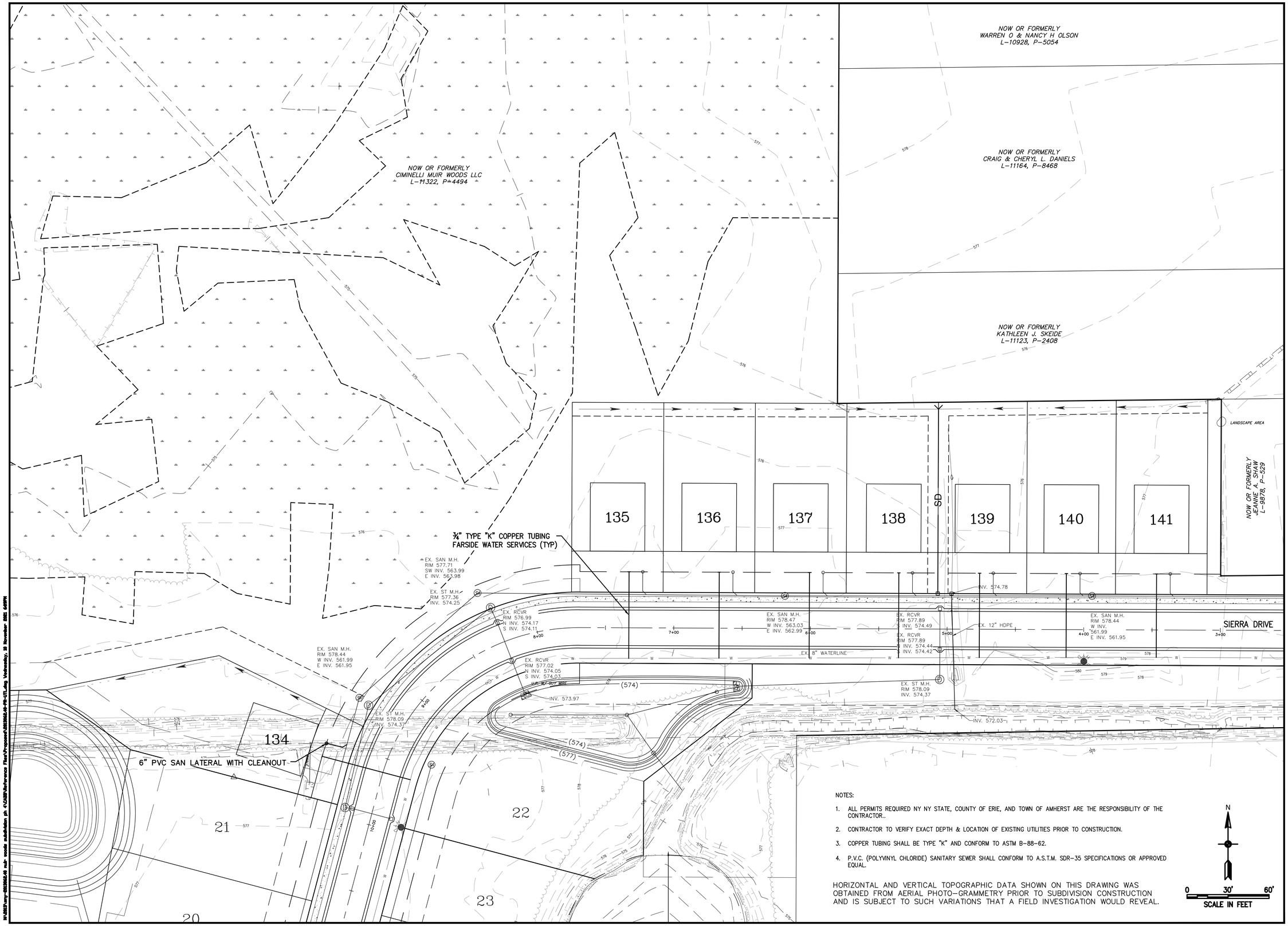
Existing Conditions

SCALE: 1" = 30'

WNY-2013062.40

01 OF 08

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)



NOTES:

1. ALL PERMITS REQUIRED NY NY STATE, COUNTY OF ERIE, AND TOWN OF AMHERST ARE THE RESPONSIBILITY OF THE CONTRACTOR..
2. CONTRACTOR TO VERIFY EXACT DEPTH & LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. COPPER TUBING SHALL BE TYPE "K" AND CONFORM TO ASTM B-88-62.
4. P.V.C. (POLYVINYL CHLORIDE) SANITARY SEWER SHALL CONFORM TO A.S.T.M. SDR-35 SPECIFICATIONS OR APPROVED EQUAL.

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
No. 131
LICENSED PROFESSIONAL ENGINEER

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS

NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	DFP

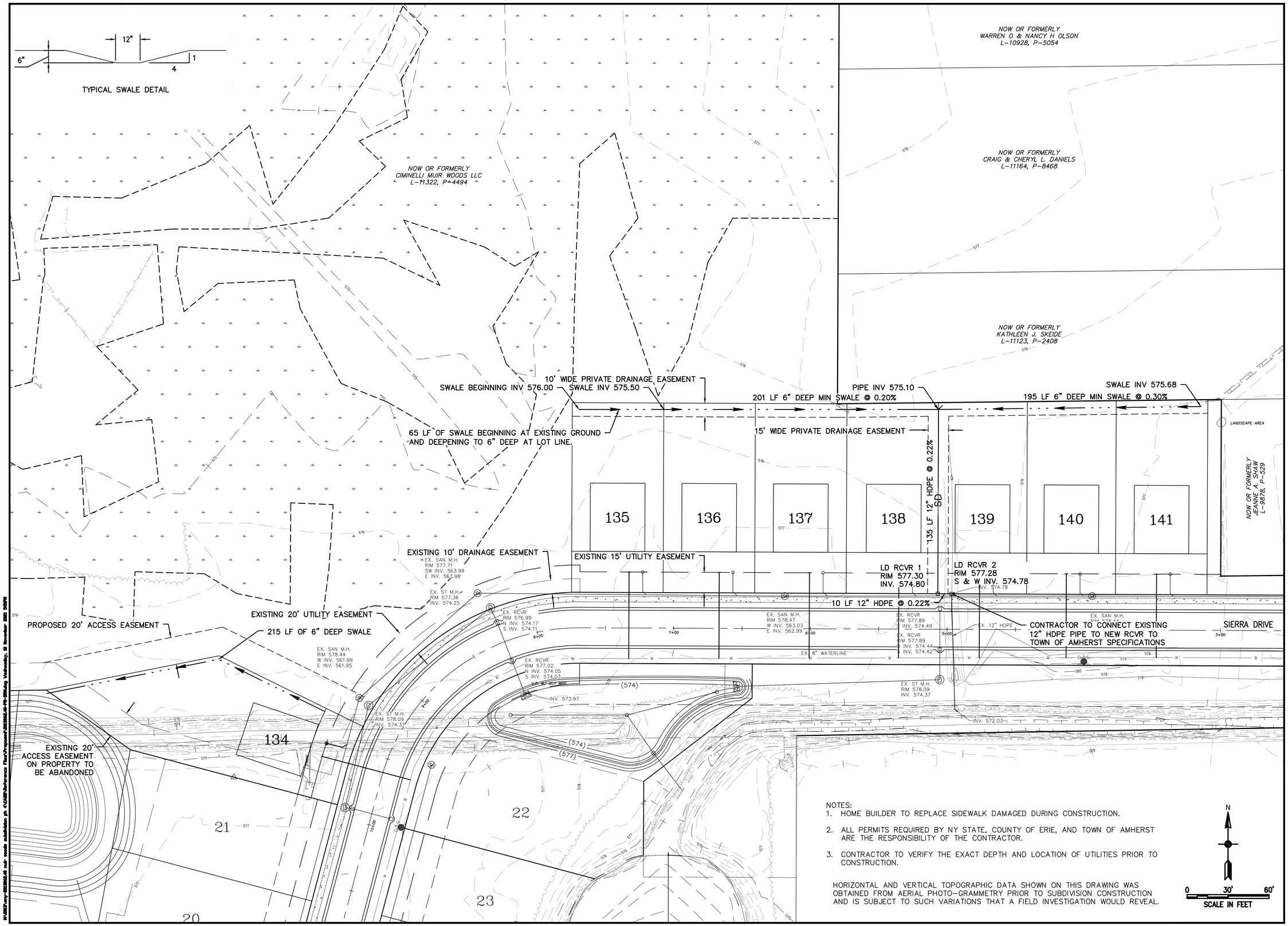
Utility Plan

SCALE: 1" = 30'

WNY-2013062.40

02 OF 08

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)



NOTES:
1. HOME BUILDER TO REPLACE SIDEWALK DAMAGED DURING CONSTRUCTION.
2. ALL PERMITS REQUIRED BY NY STATE, COUNTY OF ERIE, AND TOWN OF AMHERST ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR TO VERIFY THE EXACT DEPTH AND LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

N

0 30' 60'
SCALE IN FEET

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
No. 131
LICENSED PROFESSIONAL ENGINEER

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS

NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	DFP

Drainage Plan

SCALE: 1" = 30'

WNY-2013062.40

03 OF 08

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)

NOTES

1. All elevations refer to USGS NAVD83 datum.
2. The CONTRACTOR shall obtain necessary permits and furnish copies to the ENGINEER prior to commencing work.
3. The CONTRACTOR work area shall be confined to the limits of the right-of-ways and easements. The CONTRACTOR shall obtain any additional easements or work releases should the CONTRACTOR require additional area to accommodate his operations.
4. The CONTRACTOR shall provide maintenance and protection of traffic in accordance with the Erie County Highway Department standards and the NYSDOT Manual of Uniform Traffic Control Devices.
5. The locations and depths of existing underground utilities as shown on the plans and profiles are approximate. Other underground utilities not shown may be encountered. The CONTRACTOR shall perform test pits to verify the location and elevation of utilities at interconnections and crossings as shown, directed or required. The CONTRACTOR shall excavate in advance of the pipe laying operation and expose all existing underground utilities to prevent damage during construction and to determine required changes in grade necessary to install watermain to avoid conflicts.
6. The CONTRACTOR shall install those measures required to limit erosion of areas disturbed by the work. Clearing shall be performed on an as needed basis, phased to reduce erosion and visual impact.
7. Blasting will not be permitted.
8. No more than one connection may be made to any existing watermain prior to testing, disinfection, and approval of the Waterline Installation Completed Works Approval Report(s) by the Erie County Water Authority and the Erie County Health Department.
9. The Erie County Water Authority only shall operate existing valves and fire hydrants, including newly installed valves and fire hydrants that have been placed into service. The CONTRACTOR is advised that watertight conditions may not exist when existing valves are closed.
10. The CONTRACTOR shall have all equipment, manpower, and materials required on site and ready for use prior to commencing any shut-down or removing any existing facilities from service. The CONTRACTOR shall notify all affected customers of any shut-down at least 48 hours in advance. The CONTRACTOR shall notify the appropriate fire stations 48 hours in advance prior to taking any fire hydrants out of service. Any fire hydrants not in service shall be bagged in burlap or plastic. Any shut-down shall be limited to 4 consecutive hours. It may be necessary to schedule shut-downs at night, weekends, or other off hours so as to not affect schools, businesses or other customers, as determined by the ENGINEER. Shut-down requests shall be submitted to the Erie County Water Authority a minimum of 5 business days in advance of the requested shut-down date.

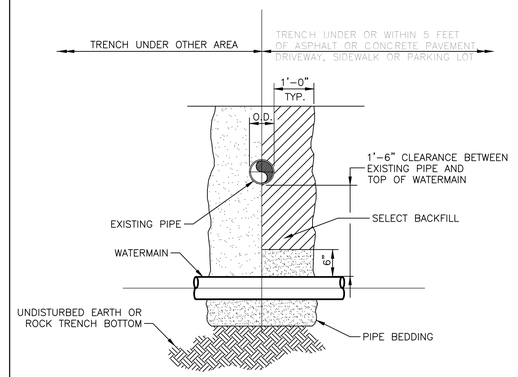
I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD29_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	SD29 DATE 3/05	REVISED 8/16

11. **All watermain piping shall be installed with a minimum of 5'-0" of cover.**
12. All watermain piping shall be installed with a minimum of 1'-6" of vertical clearance and 10'-0" of horizontal clearance from sanitary and storm piping, measured from the outside of the pipes at the point of crossing.
13. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with the select granular material.
14. The installation of the 90 degree bends in the watermain is not allowed, unless approved by the Erie County Water Authority.
15. Thrust restraint for watermain piping through 12-inch diameter shall consist of thrust blocks and pipe joint restraint.
16. The CONTRACTOR shall notify the owner of any utility pole in advance of any excavation work that will take place within 5'-0" of the utility pole. The CONTRACTOR shall include the cost of temporary pole support in the appropriate bid item.Where utility poles are required to be supported during construction, the CONTRACTOR shall make all necessary arrangements with the utility company.
17. If materials are encountered during the construction that are suspected of being contaminated, the CONTRACTOR shall immediately notify the NYSDEC for direction regarding testing, separation, containment and disposal procedures.
18. Existing fire hydrants removed during construction and not reinstalled as part of the work shall be returned to the Erie County Water Authority Service Center, 3030 Union Road, Cheektowaga.
19. The CONTRACTOR shall cold patch all trench excavations in traveled areas including roads, driveways, sidewalks, and parking areas.
20. The CONTRACTOR shall not restrict school bus access.
21. The use of existing fire hydrants for any reason is prohibited without prior approval of the Erie County Water Authority. This includes newly installed fire hydrants that have been placed into service.
22. The CONTRACTOR shall submit procedures for testing and disinfection of the watermain to the ENGINEER for approval.
23. The CONTRACTOR shall be present and assist in the Final Walk inspection. The CONTRACTOR shall provide sufficient personnel and equipment to demonstrate to the ENGINEER that all valves, fire hydrants and curb stops operate as required.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD30_GENERAL_NOTES

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL GENERAL NOTES	DWG. NO. SD30 DATE 3/05	REVISED 8/16



NOTES:

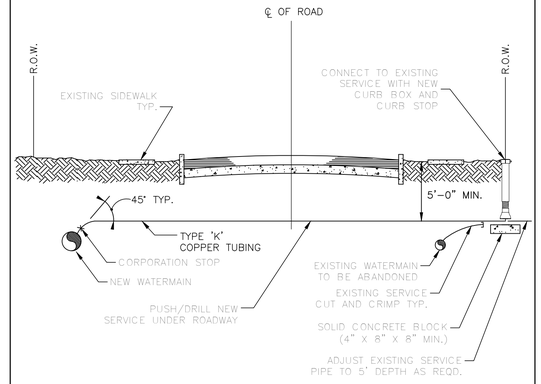
1. ALL EXISTING UTILITIES MUST BE SUPPORTED DURING CONSTRUCTION OF THE NEW WATERMAIN.
2. WHEN CROSSING A SEWERLINE WITH A NEW WATERMAIN, ONE FULL PIPE LENGTH (18. FT. MIN.) SHALL BE USED AT THE POINT OF CROSSING. THE WATERMAIN SHALL BE PLACED SO THAT BOTH JOINT ENDS ARE AS FAR AS POSSIBLE FROM THE EXISTING SEWERLINE.

SECTION

N.T.S.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD2_PIPE_CROSSING

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL PIPE CROSSING	DWG. NO. SD2 DATE 4/28/92	REVISED 7/16



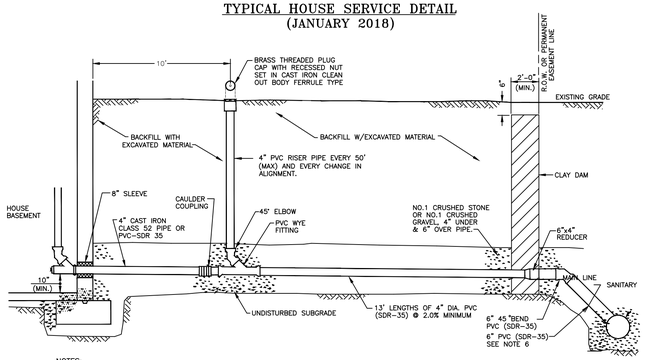
NOTES:

1. EXISTING SERVICES SHALL BE CRIMPED AND ABANDONED IN PLACE.
2. SERVICE SADDLES SHALL BE USED UNDER THE FOLLOWING CONDITIONS:
   A. WHEN SERVICES AND PLACED ON 4" OR SMALLER PIPES.
   B. WHEN SERVICES LARGER THAN 1" ARE PLACED ON A 6" PIPE.
   C. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON AN 8" PIPE.
   D. WHEN SERVICES LARGER THAN 1 1/2" ARE PLACED ON DUCTILE IRON PIPE.
   E. WHEN TAPPING ALL PLASTIC (PVC) PIPE.
   F. WHEN TAPPING ALL ASBESTOS-CEMENT PIPE.
3. CURB BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, OR CURB RAMPS.
4. USE POLYETHYLENE FOR 3/4" AND 1" SERVICES GREATER THAN 100 FEET IN LENGTH, AND FOR 1-1/2" AND 2" SERVICES GREATER THAN 60 FEET IN LENGTH. ALL POLYETHYLENE SERVICES SHALL INCLUDE A TRACER WIRE FOR DETECTION BY ECWA FORCES.
5. UNIONS ON COPPER TUBING ARE NOT ALLOWED UNLESS APPROVED BY ECWA PRIOR TO INSTALLATION.

I:\PUBLIC\ENGINEERING\CURRENT ECWA DETAILS\SD16_SERVICE_REPLACE SMO

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	STANDARD DETAIL SERVICE REPLACEMENT/INSTALLATION	DWG. NO. SD16 DATE 4/92	REVISED 10/20

TYPICAL HOUSE SERVICE DETAIL
(JANUARY 2018)

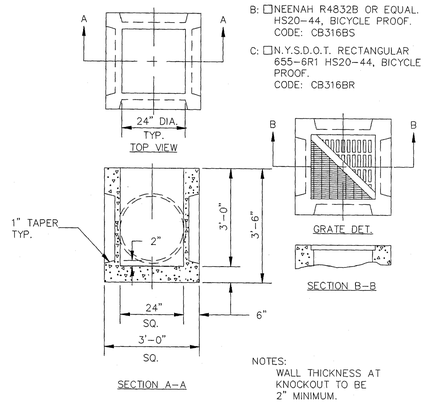


NOTES:

1. NO INSPECTION WILL BE PROVIDED WITHOUT A PERMIT. INSPECTIONS REQUIRE 48 HR. ADVANCE NOTICE FOR SCHEDULING.
2. ALL WORK MUST BE INSPECTED BY A COUNTY INSPECTOR
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM D-3034 OR THE LATEST ASTM SPECIFICATION D-3033/D-3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY CAST IRON MEETING THE REQUIREMENTS OF ASTM A74-42.
4. A MANUAL VALVE SHALL BE INSTALLED ON BASEMENT LAUNDRY DRAIN LINE.
5. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALKS OR DRIVEWAY AREAS. PREFERABLY LOCATED AT THE BACK OF THE SIDEWALK.
6. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
7. CONCRETE ENCASEMENT IF COVER DEPTH IS LESS THAN 4'-0" UNDER PAVED AREAS
8. FOR NEW CONSTRUCTION, AN 8x6 WYE WITH 6" PVC TO 6" 45° BEND, THEN 6" x 4" REDUCER IS USED.
9. A 6" CLEAN OUT IS REQUIRED AT R.O.W. WHENEVER THE MAIN SEWER IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF PAVEMENT.
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY ENCLOSED IN FENCING, OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE HOUSE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

SPECIFICATIONS:
CONCRETE: 4,000 P.S.I. @ 28 DAYS.
ENTRAINED AIR: 5% - 9%
STEEL: A.S.T.M. A496-A615 GRADE 60-80 KSI.
DESIGN LOADING: A.A.S.H.T.O. HS-20-44 WITH 30% IMPACT AND EQUIVALENT SOIL PRESSURE OF 130 (PSF). FLOATATION FORCES NOT ACCOUNTED FOR.
WEIGHT 2,268 LBS.

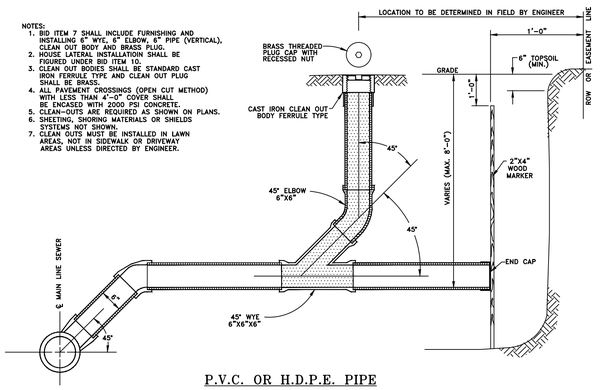
FRAME & GRATE:
A: ☐BY G.C..
CODE: CB315BS
B: ☐NEENAH R4832B OR EQUAL. HS20-44, BICYCLE PROOF.
CODE: CB316BS
C: ☐N.Y.S.D.O.T. RECTANGULAR 655-6R1 HS20-44, BICYCLE PROOF.
CODE: CB316BR



NOTES:
WALL THICKNESS AT KNOCKOUT TO BE 2" MINIMUM.

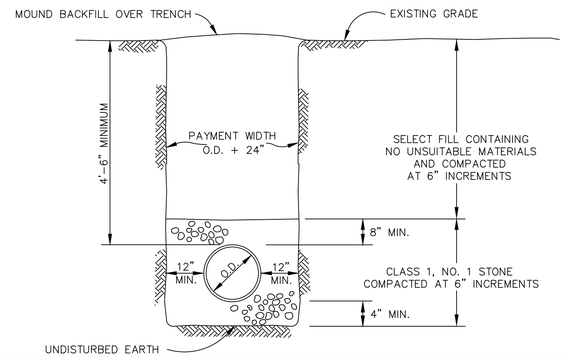
LIGHT DUTY RECEIVER (LD RCVR)

CLEAN-OUT DETAIL FOR SERVICE CONNECTION
(JANUARY 2012)



NOTES:
1. BID ITEM 7 SHALL INCLUDE FURNISHING AND INSTALLING 6" WYE, 6" ELBOW, 6" PIPE (VERTICAL), CLEAN OUT BODY AND BRASS PLUG. HOUSE LATERAL INSTALLATION SHALL BE FIGURED UNDER BID ITEM 10.
2. CLEAN OUT BODIES SHALL BE STANDARD CAST IRON FERRULE TYPE AND CLEAN OUT PLUG SHALL BE BRASS.
3. ALL PAVEMENT CROSSINGS (OPEN CUT METHOD) WITH LESS THAN 4'-0" COVER SHALL BE ENCASED WITH 2000 PSI CONCRETE.
4. CLEAN-OUTS ARE REQUIRED AS SHOWN ON PLANS.
5. SHEETING, SHORING MATERIALS OR SHIELDS SYSTEMS NOT SHOWN.
6. CLEAN OUTS MUST BE INSTALLED IN LAWN AREAS, NOT IN SIDEWALK OR DRIVEWAY AREAS UNLESS DIRECTED BY ENGINEER.

P.V.C. OR H.D.P.E. PIPE STORM SEWER TRENCH DETAILS



GPI Engineering Design Planning Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK · GREENMAN PEDERSEN, INC. · LICENSED PROFESSIONAL ENGINEER · No. 131 · DANIEL S. KERSTATTER
DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
----	----	----
----	----	----
----	----	----
----	----	----
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	DFP

Site Details

SCALE: NONE

WNY-2013062.40

04 OF 08

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)

Packet Pg. 3360

I:\2013\wny-2013062.40 muir woods subdivision ph 4\CAD\Design Plans\04 Site Details.dwg Wednesday, 10 November 2021 3:13PM

LEGEND

60	LOT NUMBER
B	GRADING TYPE
580.5	APPROX. MINIMUM GROUND ELEVATION AT HOUSE
→	DIRECTIONAL FLOW
578.8	APPROX. ELEVATION AT LOT CORNER

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L-11322, P-4494

NOW OR FORMERLY
WARREN O & NANCY H OLSON
L-10928, P-5054

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L-11164, P-8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L-11123, P-2408

NOW OR FORMERLY
JEANNE M. SMITH
L-9878, P-529

LANDSCAPE AREA

SIERRA DRIVE

SB

135	136	137	138	139	140	141
B	B	B	B	B	B	B
579.4	579.7	579.7	579.5	579.5	579.7	580.0
577.6	578.2	578.5	578.3	578.0	578.3	578.5	578.8

134 B 579.1 578.0

21 22 23 20

EX. SAN M.H.
RIM 577.71
SW INV. 563.99
E INV. 563.98

EX. ST M.H
RIM 577.36
INV. 574.25

EX. SAN M.H.
W INV. 561.99
E INV. 561.95

EX. ST M.H.
RIM 578.09
INV. 574.37

EX. RCVR
RIM 576.99
W INV. 574.17
S INV. 574.11

EX. RCVR
RIM 577.02
N INV. 574.05
S INV. 574.03

EX. SAN M.H.
RIM 578.47
W INV. 563.03
E INV. 562.99

EX. RCVR
RIM 577.89
S INV. 574.49

EX. RCVR
RIM 577.89
S INV. 574.44
S INV. 574.42

EX. ST M.H.
RIM 578.09
INV. 574.37

EX. 12" HDPE
INV. 574.78
INV. 572.03

EX. 8" WATERLINE

EX. SAN M.H.
RIM 578.44
W INV.
561.99
E INV. 561.95

(574) (574) (577)

INV. 573.97

OBSCURED

6+00 7+00 8+00 9+00 10+00 4+00 5+00 3+00

HORIZONTAL AND VERTICAL TOPOGRAPHIC DATA SHOWN ON THIS DRAWING WAS OBTAINED FROM AERIAL PHOTO-GRAMMETRY PRIOR TO SUBDIVISION CONSTRUCTION AND IS SUBJECT TO SUCH VARIATIONS THAT A FIELD INVESTIGATION WOULD REVEAL.

N

0 30' 60'
SCALE IN FEET

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN, INC.
LICENSED PROFESSIONAL ENGINEER
No. 131

DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
----	----	----
----	----	----
----	----	----
----	----	----
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	DFP

Grading Plan

SCALE: 1" = 30'

WNY-2013062.40

05 OF 08

W:\825\wny-2013062.40 muir woods subdivision ph 4\CAD\Reference Files\Proposed\2013062.40-PP-GRading Yesterday, 19 November 2021 1:52PM

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)

NOW OR FORMERLY
CIMINELLI MUIR WOODS LLC
L-11322, P-4494

NOW OR FORMERLY
WARREN O & NANCY H OLSON
L-10928, P-5054

NOW OR FORMERLY
CRAIG & CHERYL L. DANIELS
L-11164, P-8468

NOW OR FORMERLY
KATHLEEN J. SKEIDE
L-11123, P-2408

NOW OR FORMERLY
JEAN ANN LEW
L-9878, P-529

LANDSCAPE AREA

SIERRA DRIVE

SD

135 136 137 138 139 140 141

134 21 22 23 20

PS DC

SF JS W SD

6+00 7+00 8+00 9+00 10+00 4+00 5+00 3+00

(574) (577)

LEGEND

FILTER FABRIC DROP INLET PROTECTION	
LAND GRADING	
SILT FENCE	
ORANGE CONSTRUCTION FENCE	
STABILIZED CONSTRUCTION ENTRANCE	
PERMANENT SEEDING	PS
DUST CONTROL	DC
CHECK DAM	
INLET/OUTLET PROTECTION	

LEGEND
INDICATES AREA TO BE STRIPPED, GRADED & WHERE APPLICABLE, EITHER SEEDED OR PAVED (TYP.)

N

0 30' 60'
SCALE IN FEET

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4

520 Campbell Blvd
Town of Amherst, NY 14068

STATE OF NEW YORK
GREENMAN PEDERSEN INC.
LICENSED PROFESSIONAL ENGINEER
No. 131

DOCUMENT ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
---	---	---
---	---	---
---	---	---
---	---	---
NO.	REVISION	DATE

November 12, 2021

DRAWN/DESIGN BY	CHECKED BY
THM	DFP

Erosion and Sediment Control Plan

SCALE: 1" = 30'

WNY-2013062.40

06 OF 08

N:\GEN\WNY-2013062.40 Muir Woods Subdivision Ph 4\CAD\Reference Files\Proposed\2013062-ph4-PR-ESC.dwg Wednesday, 24 November 2021 1:45pm

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)

STANDARD AND SPECIFICATIONS FOR RECREATION AREA SEEDING



Definition & Scope

Establishing **permanent** grasses, legumes, vines, shrubs, trees, or other plants, or selectively reducing stand density and trimming woody plants, to improve an area for recreation. To increase the attractiveness and usefulness of recreation areas and to protect the soil and plant resources.

Conditions Where Practice Applies

On any area planned for recreation use, lawns, and areas that will be maintained in a closely mowed condition.

Specifications

ESTABLISHING GRASSES (Turfgrass)

The following applies for playgrounds, parks, athletic fields, camping areas, picnic areas, passive recreation areas such as lawns, and similar areas.

1. Time of Planting

Fall planting is preferred. Seed after August 15. In the spring, plant until May 15.

If seeding is done between May 15 and August 15, irrigation may be necessary to ensure a successful seeding.

2. Site Preparation

A. Install needed water and erosion control measures and bring area to be seeded to desired grades. A minimum of 4 in. topsoil is required.

B. Prepare seedbed by loosening soil to a depth of 4-6 inches and decompacting required areas per Soil Restoration Standard.

C. See Standard and Specification of Topsoiling.

D. Lime to a pH of 6.5. See Lime Application Standard.

E. **Fertilize as per soil test** or, if soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 850 pounds of 5-5-10 or equivalent per acre (20 lbs/1,000 sq. ft.). See Fertilizer Application Standard.

F. Incorporate lime and fertilizer in top 2-4 inches of topsoil.

G. Smooth. Remove sticks, foreign matter, and stones over 1 inch in diameter, from the surface. Firm the seedbed.

3. Planting

Use a cultipacker type seeder if possible. Seed to a depth of 1/8 to 1/4 inch. If seed is to be broadcast, cultipack or roll after seeding. If hydroseeded, lime and fertilizer may be applied through the seeder, and rolling is not practical.

4. Mulching

Mulch all seedings in accordance with Standard and Specifications for Mulching. Small grain straw is the best material.

5. Seed Mixtures

Select seed mixture for site conditions and intended use from Table 4.5.

6. Contact Cornell Cooperative Extension Turf Specialist for suitable varieties.

Turf-type tall fescues have replaced the old KY31 tall fescues. New varieties have finer leaves and are the most resistant grass to foot traffic. Do not mix it with fine textured grasses such as bluegrass and red fescue.

Common ryegrass and redtop, which are relatively short lived species, provide quick green cover. Improved lawn cultivars of perennial ryegrass provide excellent quality turf, but continue to lack winter hardiness.

Common white clover can be added to mixtures at the rate of 1-2 lbs/acre to help maintain green color during the dry summer period; however, they will not withstand heavy traffic. Avoid using around swimming areas as flowers attract bees which can be easily stepped on.

7. Fertilizing—First Year

Apply fertilizer as indicated by the soil test three to four weeks after germination (spring seedlings). If test results have not been obtained, apply 1 pound nitrogen/1,000 square feet using a complete fertilizer with a 2-1-1 or 4-1-3 ratio. Summer and early fall seedings, apply as above unless air temperatures are above 85°F for an extended period. Wait for cooler temperatures to fertilize. Late fall/ winter seedings, fertilize in spring.

8. Restrict Use

New seedlings should be protected from use for one full year or a spring and fall growth cycle where possible to allow development of a dense sod with good root structure.

MAINTAINING GRASSES

1. Maintain a pH of 6.0 - 7.0.

2. Fertilize in late May to early June as follows with 5-5-10 analysis fertilizer at the rate of 5 lbs./1,000 sq. ft. and repeat in late August if sod density is not adequate. Avoid fertilizing when heat is greater than 85°F. Top dress weak sod annually in the spring, but at least once every 2 to 3 years. **Fertilize in accordance with soil test analysis**, after determining adequate topsoil depth exists.

3. Aerate compacted or heavily used areas, like athletic fields, annually as soon as soil moisture conditions permit. Aerate area six to eight times using a spoon or hollow tine type aerator. Do not use solid spike equipment.

4. Reseed bare and thin areas annually with original seed mix.

Site - Use	Species (% by weight)	lbs/1,000 ft² (PLS)	lbs/acre (PLS)
Sunny Sites (well, moderately well, and somewhat poorly drained soils)	*Athletic fields and similar areas*		
	80% Hard fescue	2.4-3.2	105-138
	20% Perennial ryegrass	0.6-0.8	25-37
		3.0-4.0	130-175
	OR, for southern and eastern, NY 50% Hard fescue	1.5-2.0	65-88
	50% perennial ryegrass	1.5-2.0	65-87
		3.0-4.0	130-175
	OR, 100% Creeping Red Fescue	3.4-4.6	150-200
	General recreation areas and lawns (Medium to high maintenance)		
	65% Creeping red fescue	2.0-2.6	85-114
	20% Perennial ryegrass	0.6-0.8	26-35
	15% Fine fescue	0.4-0.6	19-26
		3.0-4.0	130-175
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Sunny Droughty Sites (general recreation areas and lawns, low maintenance) (somewhat excessively to excessively drained soils, excluding Long Island)	65% Fine fescue	2.6-3.3	114-143
	15% Perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
		4.0-5.0	175-220
	OR, 100% Creeping red fescue	3.4-4.6	150-200
Shady Dry Sites (well to somewhat poorly drained soils)	65% fine fescue	2.6-3.3	114-143
	15% perennial ryegrass	0.6-0.7	26-33
	20% Creeping red fescue	0.8-1.0	35-44
	OR	4.0-5.0	174-220
	80% blend of shade-tolerant Cereal rye	2.4-3.2	105-138
	20% perennial ryegrass	0.6-0.8	25-37
	OR	3.0-4.0	130-175
	100% Creeping red fescue	3.4-4.6	150-200
Shady Wet Sites (somewhat poor to poorly drained soils)	70% Creeping red fescue	1.4-2.1	60-91
	30% blend of shade-tolerant Hard fescue	0.6-0.9	25-39
	OR	2.0-3.0	85-130
	100% Chewings fescue	3.4-4.6	150-200

For varieties suitable for specific locations, contact Cornell Cooperative Extension Turf Specialist.
Reference: Thurn, M.C., N.W. Hummel, and A.M. Petrovic. Cornell Extension Pub. Info. Bulletin 185 Revised. HomeLawns Establishment and Maintenance. 1994.

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost fiber media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.

2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.

4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %						
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50

* Length in feet



5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of manmade foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**

6. The compost filter sock fabric material shall meet the

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

Table 5.1 - Compost Sock Fabric Minimum Specifications Table

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

STANDARD AND SPECIFICATIONS FOR GEOTEXTILE FILTER BAG



Definition & Scope

A **temporary** portable device through which sediment laden water is pumped to trap and retain sediment prior to its discharge to drainageways or off-site.

Condition Where Practice Applies

On sites where space is limited such as urban construction or linear projects (e.g. roads and utility work) where rights-of-way are limited and larger de-silting practices are impractical.

Design Criteria

1. Location - The portable filter bag should be located to minimize interference with construction activities and pedestrian traffic. It should also be placed in a location that is vegetated, relatively level, and provides for ease of access by heavy equipment, cleanout, disposal of trapped sediment, and proper release of filtered water.

   The filter bag shall also be placed at least 50 feet from all wetlands, streams or other surface waters.

2. Size - Geotextile filter bag shall be sized in accordance with the manufacturers recommendations based on the pump discharge rate.

Materials and Installation

1. The geotextile material will have the following attributes:

Minimum Grab Tensile Strength	200 lbs.
Minimum Grab Tensile Elongation	50 %
Minimum Trapezoid Tear Strength	80 lbs.
Mullen Burst Strength	380 psi
Minimum Puncture Strength	130 lbs
Apparent Opening Size	40 - 80 US sieve
Minimum UV Resistance	70%
Minimum Flow Thru Rate	70 gpm/sq ft

2. The bag shall be sewn with a double needle machine using high strength thread, double stitched "Joe" type capable of minimum roll strength of 100 lbs/inch (ASTM D4884).

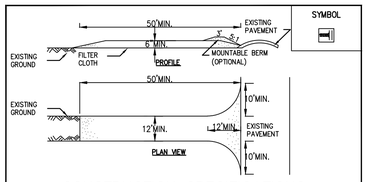
3. The geotextile filter bag shall have an opening large enough to accommodate a 4 inch diameter discharge hose with an attached strap to tie off the bag to the hose to prevent back flow.

4. The geotextile shall be placed on a gravel bed 2 inches thick, a straw mat 4 inches thick, or a vegetated filter strip to allow water to flow out of the bag in all directions.

Maintenance

1. The geotextile filter bag is considered full when remaining bag flow area has been reduced by 75%. At this point, it should be replaced with a new bag.

2. Disposal may be accomplished by removing the bag to an appropriate designated upland area, cut open, remove the geotextile for disposal, and spread sediment contents and seeded and mulched according to the vegetative plan.

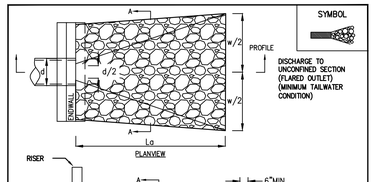


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 1–4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

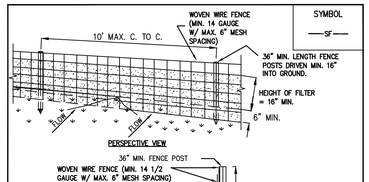


NOTE: APRON @ ZERO GRADE SIDE SLOPE 2:1

NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MINIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE

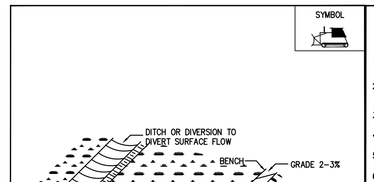


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

SILT FENCE



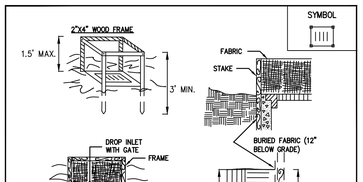
CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

LANDGRADING DETAIL

LANDGRADING SPECIFICATIONS



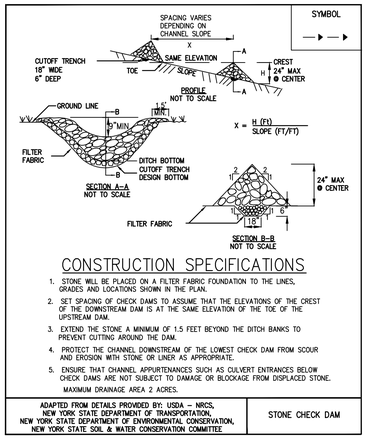
CONSTRUCTION SPECIFICATIONS

1. FABRIC SHALL HAVE AN EOS OF 40–85, BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" X 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM OF 18 INCH DEPTH. STAKES ARE TO BE DRIVEN UNTIL MAY BE EMBEDDED WITH THE USE OF WIRE BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" X 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FABRIC DROP INLET PROTECTION



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSURE THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE CHECK DAM

STANDARD AND SPECIFICATIONS FOR CONCRETE TRUCK WASHOUT



Definition & Scope

A temporary excavated or above ground lined constructed pit where concrete truck mixers and equipment can be washed after their loads have been delivered, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil.

Conditions Where Practice Applies

Washout facilities shall be provided for every project where concrete will be poured or otherwise formed on the site. This facility will receive highly alkaline wash water from the cleaning of chutes, mixers, hoppers, vibrators, placing equipment, trowels, and screeds. Under no circumstances will wash water from these operations be allowed to infiltrate into the soil or enter surface waters.

Design Criteria

Capacity: The washout facility should be sized to contain solids, wash water, and rainfall and sized to allow for the evaporation of the wash water and rainfall. Wash water shall be estimated at 7 gallons per chute and 50 gallons per hopper of the concrete pump truck and/or discharging drum. The minimum size shall be 8 feet by 8 feet at the bottom and 2 feet deep. If excavated, the side slopes shall be 2 horizontal to 1 vertical.

Location: Locate the facility a minimum of 100 feet from drainage swales, storm drain inlets, wetlands, streams and other surface waters. Prevent surface water from entering the structure except for the access road. Provide appropriate access with a gravel access road sloped down to the structure. Signs shall be placed to direct drivers to the facility after their load is discharged.

Liner: All washout facilities will be lined to prevent leaching of liquids into the ground. The liner shall be plastic sheeting with a minimum thickness of 10 mils with no holes or tears, and anchored beyond the top of the pit with an earthen berm, sand bags, stone, or other structural appurtenance except at the access point.

If pre-fabricated washouts are used they must ensure the capture and containment of the concrete wash and be sized based on the expected frequency of concrete pours. They shall be sited as noted in the location criteria.

Maintenance

- All concrete washout facilities shall be inspected daily. Damaged or leaking facilities shall be deactivated and repaired or replaced immediately. Excess rainwater that has accumulated over hardened concrete should be pumped to a stabilized area, such as a grass filter strip.
- Accumulated hardened material shall be removed when 75% of the storage capacity of the structure is filled. Any excess wash water shall be pumped into a containment vessel and properly disposed of off site.
- Dispose of the hardened material off-site in a construction/demolition landfill. On-site disposal may be allowed if this has been approved and accepted as part of the projects SWPPP. In that case, the material should be recycled as specified, or buried and covered with a minimum of 2 feet of clean compacted earthfill that is permanently stabilized to prevent erosion.
- The plastic liner shall be replaced with each cleaning of the washout facility.
- Inspect the project site frequently to ensure that no concrete discharges are taking place in non-designated areas.

STANDARD AND SPECIFICATIONS FOR DUST CONTROL



Definition & Scope

The control of dust resulting from land-disturbing activities, to prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the NYSDEC.

No polymer application shall take place without written approval from the NYSDEC.

Construction Specifications

A. **Non-driving Areas** – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. **Driving Areas** – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access route to provide short term limited dust control.

Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

Barriers – Woven geo-textiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A – 1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4' x 112.5' or 8' x 112.5'.	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Type of Soil Disturbance	Soil Restoration Requirement	Comments/Examples
No soil disturbance	Restoration not permitted	Preservation of Natural Features
Minimal soil disturbance	Restoration not required	Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D
	Aerate* and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)	
Areas where

POLLUTION PREVENTION

1. THE FOLLOWING GENERAL NOTES PROVIDE A DESCRIPTION OF POLLUTION PREVENTION MEASURES UTILIZED TO CONTROL LITTER, CONSTRUCTION CHEMICALS, CONSTRUCTION DEBRIS, AND STORAGE PRACTICES FROM BECOMING A POLLUTANT SOURCE TO STORMWATER DISCHARGES, AS WELL AS SPILL PREVENTION AND RESPONSE MEASURES.

2. MATERIAL DELIVERY AND STORAGE:

   A. LOCATE MATERIAL STORAGE AND DELIVERY AREAS AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   B. KEEP INVENTORY LOW.

   C. STORE DRY CHEMICALS AND BAGGED MATERIALS ON PALLETS.

   D. STORE ALL FLAMMABLE PRODUCTS AWAY FROM ANY HEAT AND/OR IGNITION SOURCE.

   E. PROVIDE SECONDARY CONTAINMENT FOR LIQUIDS.

   F. KEEP DESIGNATED STORAGE AREAS CLEAN AND WELL ORGANIZED. CONDUCT WEEKLY INSPECTIONS TO CHECK FOR DAMAGED CONTAINERS, LEAKS, ETC.

   G. COMPLY WITH STATE AND LOCAL REQUIREMENTS FOR STORAGE OF HAZARDOUS WASTE.

   H. DURING THE WET SEASON, COVER CHEMICALS, DRUMS, AND BAGGED MATERIALS TO PREVENT CONTACT WITH RAINWATER (E.G. TARPS, BINS, STRUCTURES).

   I. DURING THE WET SEASON, COVER SECONDARY CONTAINMENT AREAS TO PREVENT ACCUMULATION OF WATER.

   J. KEEP CHEMICALS LABELED AND IN ORIGINAL CONTAINERS.

   K. TRAIN EMPLOYEES AND CONTRACTORS ON THE PROPER USE OF STORAGE AREA.

3. SPILL PREVENTION AND CONTROL:

   A. NOTIFY ALL CONSTRUCTION WORKERS OF THE LOCATION OF MATERIALS UTILIZED FOR CLEANING UP SPILLS.

   B. STORE SPILL CLEANUP MATERIALS ON SITE AND NEAR POTENTIAL SPILL AREAS.

   C. KEEP COMMERCIALLY AVAILABLE SPILL KITS FOR CONSTRUCTION EQUIPMENT ON SITE.

   D. KEEP DRUMS, BARRELS, TEMPORARY STORAGE BAGS, OR EQUIVALENT MATERIALS FOR CONTAINMENT AND TRANSPORTATION ON SITE.

   E. KEEP ABSORBENT PADS, OIL BOOMS, MAT, OR EQUIVALENT MATERIALS ON SITE.

   F. KEEP WASHABLE, REUSABLE RAGS FOR CLEANING UP SMALL LUBRICANT LEAKS ON SITE.

   G. TRAIN EMPLOYEES AND SUBCONTRACTORS ON PROPER SPILL PREVENTION AND CONTROL METHODS.

   H. NEVER HOSE DOWN OR BURY DRY MATERIAL SPILLS. CLEANUP AS MUCH AS POSSIBLE AND DISPOSE OF PROPERLY.

   I. IN THE EVENT OF A SPILL OCCURRENCE, THE FOLLOWING ACTIONS ARE TO BE TAKEN:

      1. DOCUMENT THE SPILL AND REPORT TO THE PROJECT CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR.

      2. FOR SPILLS LESS THAN 5 GALLONS ON AN IMPERVIOUS SURFACE, ATTEMPT TO CONFINE AND CLEAN THE SPILL.

      3. FOR SPILLS GREATER THAN 5 GALLONS, ATTEMPT TO CONFINE THE SPILL AND CALL A REMEDIATION CONTRACTOR IF ASSISTANCE IS REQUIRED WITH PRODUCT RECOVERY AND CONTAINMENT.

      4. FOR SPILLS GREATER THAN 5 GALLONS, REPORT TO NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220) WITHIN TWO HOURS OF DISCOVERY.

      5. PROVIDE WRITTEN DOCUMENTATION OF THE SPILL.

      6. DISPOSAL OF RECOVERED MATERIALS MUST BE CONDUCTED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.

4. SOLID WASTE MANAGEMENT:

   A. PROVIDE AS MANY WASTE BINS AS NEEDED TO KEEP SITE CLEAN OF LITTER AND WASTE.

   B. DURING THE WET SEASON, WASTE BINS MUST BE COVERED TO PREVENT RUNOFF FROM TRASH.

   C. COLLECT TRASH ON A DAILY BASIS.

   D. ARRANGE FOR REGULAR WASTE COLLECTION BY A LICENSED TRASH HAULER.

   E. SEGREGATE AND RECYCLE WASTE MATERIALS (E.G. PAINTS, SOLVENTS, OIL, ETC.)

   F. PROVIDE COVERED WASTE BINS FOR DISPOSAL OF ALL EMPTY PRODUCTS (E.G. PAINTS, SOLVENTS, GLUES, PESTICIDES, ETC.)

   G. LOCATE WASTE CONTAINER STORAGE AREA(S) AT A MINIMUM DISTANCE OF 100 FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   H. PROVIDE SECONDARY CONTAINMENT FOR HAZARDOUS WASTE CONTAINERS.

   9. COMPLY WITH ALL LOCAL AND STATE SOLID WASTE DISPOSAL AND NUISANCE REQUIREMENTS.

   I. DO NOT HOSE OUT WASTE CONTAINERS ON SITE.

   J. TRAIN EMPLOYEES AND SUBCONTRACTORS TO USE PROPER SOLID WASTE MANAGEMENT.

5. VEHICLE/EQUIPMENT MAINTENANCE:

   A. DO NOT DISCHARGE VEHICLE/MACHINERY WASH WATERS OR SOLVENTS TO STORM DRAINS OR TO SURFACE WATER BODIES.

   B. LOCATE AREAS FOR FUELING AND MAINTENANCE AT A MINIMUM DISTANCE OF 100-FEET AWAY FROM ANY DRAIN INLET AND SURFACE WATER BODIES.

   C. ANY EQUIPMENT WHICH MUST BE REFUELED IN THE FIELD WILL BE REFUELED FROM TANKS CARRIED TO THE WORK SITE BY TRUCK.

   D. PREVENT SPILLS AND LEAKS DURING FUELING AND MAINTENANCE OPERATIONS.

   E. INSPECT AND MAINTAIN VEHICLES REGULARLY TO MINIMIZE LEAKS AND DRIPS; PLACE DRIP PANS OR ABSORBENT MATERIALS UNDER LEAK-PRONE MACHINERY WHEN IDLE.

   F. COMPLY WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS FOR FUEL STORAGE TANKS.

6. LANDSCAPING OPERATIONS:

   A. CAREFULLY FOLLOW RECOMMENDED USAGE INSTRUCTIONS FOR THE APPLICATION OF ALL FERTILIZER. DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED. AVOID APPLICATIONS OF FERTILIZERS PRIOR TO STORM EVENTS. APPLY FERTILIZERS IN MULTIPLE SMALLER APPLICATIONS, AS OPPOSED TO ONE LARGE APPLICATION. TRAIN EMPLOYEES AND SUBCONTRACTORS IN THE PROPER USE OF LANDSCAPE MATERIALS AND CHEMICALS.

7. CONCRETE WASTE MANAGEMENT:

   A. AVOID MIXING EXCESS AMOUNTS OF CONCRETE OR FRESH CEMENT ON SITE.

   B. STORE CONCRETE, GROUT, AND MORTAR UNDER COVER AND AWAY FROM DRAINAGE AREAS.

   C. DESIGNATE A WASH OUT AREA ON SITE AND INSURE THAT MATERIAL CAN NOT FLOW TO STORM DRAINS, OPEN DITCHES, STREETS, OR SURFACE WATER BODIES BY CONSTRUCTING A TEMPORARY PIT OR BERMED AREA.

   D. CONCRETE FROM WASHOUT AREA SHOULD BE ALLOWED TO SET. UPON COMPLETION OF THE CONCRETE WORK, THE CONTRACTOR SHALL BREAK UP, REMOVE, AND HAUL AWAY SOLID CONCRETE THAT HAS ACCUMULATED IN THE WASHOUT.

   E. TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER CONCRETE WASTE MANAGEMENT.

8. SANITARY/SEPTIC WASTE MANAGEMENT:

   A. LOCATE SANITARY FACILITIES FOR CONVENIENT ACCESS AND AT A MINIMUM OF 100 FEET AWAY FROM DRAIN INLETS AND SURFACE WATER BODIES.

   B. UNTREATED RAW WASTEWATER MAY NOT BE DISCHARGED TO LAND, THE STORM DRAIN SYSTEM, OR TO SURFACE WATER BODIES.

   C. SANITARY/SEPTIC FACILITIES SHOULD BE MAINTAINED IN GOOD WORKING ORDER BY A LICENSED SERVICE.

   D. ARRANGE REGULAR WASTE COLLECTION BY A LICENSED HAULER BEFORE FACILITIES OVERFLOW.

   E. IF WASHING OUT OF INTERIOR OR PORTABLE TOILETS IS NEEDED, INSURE THAT WASH WATER IS DISCHARGED TO LAND AND DOES NOT FLOW INTO STREET, THE STORM DRAIN SYSTEM, OR SURFACE WATER BODIES.

GENERAL ENVIRONMENTAL NOTES AND RESTRICTIONS

GENERAL NOTES:

1. THE CONTRACTOR SHALL HAVE KNOWLEDGE OF, AND WORK IN COMPLIANCE WITH THE TERMS AND CONDITIONS STATED IN THE PERMITS ISSUED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), AND IS SUBJECT TO THE SANCTIONS FOR VIOLATIONS OF SUCH PERMITS.

2. ALL ACTIVITIES AUTHORIZED UNDER THE PERMITS ISSUED BY THE NYSDEC MUST BE IN STRICT CONFORMANCE WITH THE DETAILS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. NONE OF THE ISSUED PERMITS ALLOW FOR THE RIGHT TO TRESPASS UPON THE LANDS OR INTERFERE WITH THE PROPERTY AND/OR RIPARIAN RIGHTS OF LANDOWNERS THAT ARE NOT PARTICIPANTS OF THE PROJECT.

4. THE CONTRACTOR SHALL NOTE THE CONDITION OF ANY EXISTING FENCE THAT MAY BE IMPACTED BY PROJECT CONSTRUCTION. FENCES THAT MUST BE REMOVED AND/OR CUT WILL HAVE A TEMPORARY GATE INSTALLED. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY GATE WILL BE REMOVED AND THE FENCE WILL BE REBUILT TO LIKE-NEW CONDITION AS DIRECTED BY THE LANDOWNER.

5. LOCAL FIRE DEPARTMENTS AND EMERGENCY MANAGEMENT TEAMS SHALL BE MADE AWARE OF HAZARDOUS CHEMICALS AND WASTE ON-SITE.

6. REPRESENTATIVES FROM THE NYSDEC SHALL BE PERMITTED TO INSPECT THE SITE AT ANY TIME DEEMED NECESSARY, TO ENSURE THAT ALL ACTIVITIES ARE IN ACCORDANCE WITH THE TERMS AND CONDITIONS SPECIFIED IN THE ISSUED PERMITS.

7. CROSSING OF EXISTING GAS TRANSMISSION PIPELINES OR ANY OTHER EXISTING UNDERGROUND UTILITY BY HEAVY EQUIPMENT SHALL BE RESTRICTED TO IMPROVED GRAVEL ACCESS ROAD CROSSINGS.

8. ALL CONSTRUCTION ACTIVITY, INCLUDING OPERATION OF MACHINERY, EXCAVATION, FILLING, GRADING, CLEARING OF VEGETATION, DISPOSAL OF WASTE, AND STOCKPILING OF MATERIAL MUST TAKE PLACE WITHIN THE APPROVED WORK AREA AS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLANS.

9. FUGITIVE DUST RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE MINIMIZED BY IMPLEMENTING APPROPRIATE CONTROL MEASURES. THESE MEASURES MAY INCLUDE THE APPLICATION OF MULCH, WATER, STONE, OR APPROVED CHEMICAL AGENTS ON ACCESS ROADS, EXPOSED SOILS, STOCKPILED SOILS, OR UNPAVED PUBLIC ROADS WHEN DRY AND WINDY CONDITIONS EXIST. A WATERING VEHICLE SHALL BE AVAILABLE FOR THE DURATION OF PROJECT ACTIVITIES, INCLUDING THROUGHOUT RESTORATION.

10. BLASTING IS NOT PERMITTED WITHOUT PRIOR TOWN APPROVAL AND ACQUISITION OF ALL REQUIRED PERMITS.

11. NOISE IMPACTS SHALL BE MINIMIZED AND MITIGATED TO THE EXTENT PRACTICABLE. CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT IN GOOD OPERATING CONDITIONS AND ALL MOTORS AND ENGINES WILL BE MUFFLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND WILL COMPLY WITH STATE ENVIRONMENTAL LAW, SUBCHAPTER E, PART 450 (NOISE FROM HEAVY MOTOR VEHICLES). ANY FAULTY NOISE SUPPRESSOR WILL BE REPAIRED OR REPLACED. EQUIPMENT WILL NOT BE LEFT RUNNING UNNECESSARILY, AND EXISTING TALL GROWING VEGETATION WILL BE MAINTAINED, TO THE MAXIMUM EXTENT PRACTICABLE, TO SERVE AS A NOISE BUFFER.

12. CONSTRUCTION ACTIVITY WILL ONLY OCCUR BETWEEN THE HOURS OF 7:00 A.M. AND 6:00 P.M. MONDAY THROUGH SATURDAY. AT THE DISCRETION OF THE TOWN OF AMHERST, WORK HOURS MAY BE EXPANDED.

13. WITHIN 100 FEET OF STATE-REGULATED WETLANDS AND 50 FEET OF OTHER WATER BODIES, REMOVE ONLY THE MINIMUM VEGETATION NECESSARY TO ALLOW CONSTRUCTION AND OPERATION OF THE FACILITY.

14. THE DISPOSAL OF TREES, BRUSH, OR OTHER DEBRIS IN ANY STREAM CORRIDOR, WETLAND, OR SURFACE WATER IS PROHIBITED.

15. CULVERTS SHALL BE SUFFICIENT SIZE AND CAPACITY TO PREVENT ALTERATION OF THE NATURAL FLOW. REFER TO CONSTRUCTION DRAWINGS FOR CULVERT SIZES.

16. THE USE OF EQUIPMENT IN ANY STREAM OR WETLAND AREA, UNLESS PERMITTED, IS STRICTLY PROHIBITED.

17. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PRECLUDE CONTAMINATION OF ANY WETLAND OR WATERWAY BY SUSPENDED SOLIDS, SEDIMENTS, FUELS, SOLVENTS, LUBRICANTS, EPOXY COATINGS, PAINTS, CONCRETE, LEACHATE, OR ANY OTHER ENVIRONMENTALLY DELETERIOUS MATERIALS ASSOCIATED WITH THE PROJECT. THESE MATERIALS SHALL BE STORED A MINIMUM OF 100 FEET FROM ANY WETLAND, STREAM, DITCH, WATERCOURSE, OR DRAINAGE. NO EQUIPMENT RE-FUELING SHALL OCCUR WITHIN THE SAME 100-FOOT AREA.

18. STREAMS AND WETLANDS WILL BE PROTECTED FROM INDIRECT IMPACTS DURING CONSTRUCTION BY UTILIZING VARIOUS EROSION AND SEDIMENT CONTROL MEASURES INDICATED IN THE EROSION AND SEDIMENT CONTROL DETAILS, INCLUDING SILT FENCES PLACED BETWEEN WATER RESOURCE BOUNDARIES AND CONSTRUCTION AREAS. EXPOSED SOIL WILL BE SEEDED AND/OR MULCHED, AS SOON AS PRACTICABLE, TO ASSURE THAT EROSION AND SILTATION IS KEPT TO A MINIMUM ALONG STREAM AND WETLANDS BOUNDARIES.

19. TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AS SOON AS PRACTICABLE AND APPROPRIATE, AS INDICATED IN THE EROSION AND SEDIMENT CONTROL PLANS. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY GRADING OR FILLING OPERATIONS AND INSTALLATIONS OF PROPOSED STRUCTURES OR UTILITIES. THEY SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AND/OR RE-VEGETATED. ADDITIONALLY, NO SITE PREPARATION WORK SHALL BE UNDERTAKEN UNTIL ALL REQUIRED EROSION CONTROL MEASURE HAVE BEEN INSTALLED.

20. SILTATION PREVENTION MEASURES, SUCH AS SILT FENCING AND STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, TO PREVENT MOVEMENT OF SILT AND TURBID WATERS FROM THE PROJECT SITE AND INTO ANY WATERCOURSE, STREAM, WATER BODY, OR WETLAND. THESE MEASURES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND THE AREA IS STABILIZED AND/OR RE-VEGETATED.

21. ALL DISTURBED AREAS WHERE SOIL WILL BE TEMPORARILY EXPOSED OR STOCKPILED FOR LONGER THAN ONE WEEK SHALL BE CONTAINED BY A CONTINUOUS LINE OF SILT FENCE PLACED ON THE DOWN SLOPE SIDE BETWEEN THE FILL AND WETLAND OR STATE-REGULATED 100-FOOT ADJACENT AREA. TARPS ARE AUTHORIZED TO SUPPLEMENT THESE APPROVED METHODS.

22. ALL AREAS OF SOIL DISTURBANCE RESULTING FROM THIS PROJECT SHALL BE STABILIZED IMMEDIATELY FOLLOWING PROJECT COMPLETION OR PRIOR TO NYSDEC PERMIT EXPIRATION, WHICHEVER COMES FIRST. THE NYSDEC APPROVED METHODOLOGIES AREA AS FOLLOWS:

   A. STABILIZATION OF THE ENTIRE DISTURBED AREA WITH APPROPRIATE VEGETATION (GRASSES, ETC.)
   B. TEMPORARILY STABILIZATION WITH STRAW MULCH OR JUTE MATTING OR OTHER SIMILAR NATURAL FIBER MATTING WITHIN ONE WEEK OF FINAL GRADING. TEMPORARY STABILIZATION SHALL BE MAINTAINED UNTIL A MATURE VEGETATIVE COVER IS ESTABLISHED

23. VISIBLE TURBID DISCHARGES FROM LAND CLEARING, GRADING OR EXCAVATING ACTIVITIES, OR DE-WATERING OPERATIONS SHALL NOT ENTER A STREAM, NAVIGABLE WATER, OR WETLAND. PRIOR TO ENTRY IN A STREAM, NAVIGABLE WATER, OR WETLAND, ANY SUCH DISCHARGE SHALL BE:

   A. RETAINED IN AN APPROPRIATELY MAINTAINED UPLAND SETTLING BASIN
   B. FILTERED THROUGH CRUSHED STONE, SAND, STRAW BALES, SILT SCREENING (MAXIMUM OPENING SIZE OF U.S. SIEVE NUMBER 20), ETC, OR;
   C. DIRECTED TO A GRASSY UPLAND AREA SUFFICIENT DISTANCE FROM THE STREAM TO PREVENT CHANGE IN TURBIDITY OF THE RECEIVING WATER.

24. IN THE EVENT THAT ARCHAEOLOGICAL MATERIALS, HUMAN REMAINS, OR EVIDENCE OF HUMAN BURIALS ARE ENCOUNTERED DURING CONSTRUCTION, ALL WORK IN THE VICINITY OF THE FIND SHALL BE IMMEDIATELY HALTED, THE FIND PROTECTED FROM FURTHER DAMAGE, AND THE CONSTRUCTION MANAGER AND ENVIRONMENTAL MONITOR ADVISED. THE PERMITEE IS REQUIRED TO NOTIFY THE LOCAL POLICE AND THE STATE HISTORIC PRESERVATION OFFICE IMMEDIATELY FOLLOWING SUCH A DISCOVERY.

INSPECTIONS

THE OWNER AND SITE CONTRACTOR SHALL HAVE A QUALIFIED PROFESSIONAL CONDUCT AN ASSESSMENT OF THE SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND TO CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROLS DESCRIBED IN THE SWPPP AND REQUIRED BY THE SPDES GENERAL PERMIT HAVE BEEN ADEQUATELY INSTALLED OR IMPLEMENTED TO ENSURE OVERALL PREPAREDNESS OF THE SITE FOR THE COMMENCEMENT OF CONSTRUCTION. AFTER COMMENCEMENT OF CONSTRUCTION, THE OWNER OR OPERATOR SHALL ENSURE THAT AT LEAST ONE TRAINED CONTRACTOR IS ON SITE ON A DAILY BASIS WHEN SOIL DISTURBANCE ACTIVITIES ARE BEING PERFORMED. FURTHER, THE OWNER SHALL HAVE A QUALIFIED PROFESSIONAL PERFORM SITE INSPECTIONS WEEKLY FOR SITES WITH DISTURBANCE AREAS OF LESS THAN FIVE (5) ACRES AND TWICE WEEKLY FOR SITES WITH DISTURBANCE AREAS OF GREATER THAN FIVE (5) ACRES. PRIOR TO FILING A NOTICE OF TERMINATION (NOT) FORM WITH NYSDEC FOR EACH PROJECT SITE OR AT THE END OF THE PERMIT TERM, THE OWNER SHALL HAVE THE QUALIFIED PROFESSIONAL PERFORM A FINAL SITE INSPECTION.

SPILL PREVENTION, CONTAINMENT, & COUNTER-MEASURES NOTES

1. GENERAL: PERSONNEL RESPONSIBLE FOR THE OVERSIGHT OF THE PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES INCLUDE:

   A. CONSTRUCTION MANAGER
   B. JOB-SITE COORDINATORS DESIGNATED BY THE CONSTRUCTION MANAGER

2. SPILLS SHALL BE IMMEDIATELY REPORTED TO THE OWNER BY THE CONTRACTOR. THE CONTRACTOR WILL KEEP AN UP-TO-DATE LIST OF QUALIFIED EMERGENCY RESPONSE CONTRACTORS WITH THE CAPABILITY OF REACHING THE PROJECT SITE QUICKLY. IN THE EVENT THAT A SPILL OCCURS ON THE SITE, THE FOLLOWING NOTIFICATION PROCEDURE WILL BE FOLLOWED.

   A. CONSTRUCTION TEAM LEADER NOTIFIES THE CONSTRUCTION MANAGER.
   B. CONSTRUCTION MANAGER NOTIFIES THE INSPECTOR DESIGNATED BY THE TOWN OF AMHERST.
   C. CONSTRUCTION MANAGER NOTIFIES THE OWNER AT (716-631-8000).
   D. THE OWNER NOTIFIES NYSDEC REGION 9 SPILL PREVENTION AND RESPONSE (716-851-7220).

PETROLEUM PRODUCTS & HAZARDOUS / CONTROLLED SUBSTANCES

1. PETROLEUM PRODUCTS AND HAZARDOUS OR CONTROLLED SUBSTANCES SHALL BE STORED AT THE TEMPORARY STORAGE AND STAGING AREA. IT IS ANTICIPATED THAT THE FOLLOWING HAZARDOUS OR CONTROLLED SUBSTANCES AND PETROLEUM PRODUCTS MAY BE STORED ON SITE IN REGULATORY APPROVED STORAGE CONTAINERS.

   A. GASOLINE
   B. DIESEL FUEL
   C. EQUIPMENT OILS AND LUBRICANTS
   D. COMMERCIAL FERTILIZER

EROSION AND SEDIMENT CONTROL PRACTICES

1. ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES TO CONFORM TO THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL. SELECT THE APPROPRIATE SESC MEASURES TO BEST CONTROL SOIL EROSION AND SEDIMENTATION, SHOULD SITE CONDITIONS WARRANT.

2. PROVIDE AND MAINTAIN SESC MEASURES IN ACCORDANCE WITH THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND SESC DRAWINGS TO EFFECTIVELY CONTAIN ALL SOIL MATERIAL WITHIN THE SITE CONSTRUCTION AREA WHEN RAINFALL IS IMMINENT.

   A. THE PLAN AND DETAILS SHOWN ARE INTENDED TO BE USED AS A GUIDE. ANY REVISIONS DEEMED NECESSARY SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

3. THE CONTROL MEASURES THAT CAN BE UTILIZED UTILIZED DURING THE PROJECT ARE SUMMARIZED BELOW:

   A. SILT FENCE: FENCE SHALL BE INSTALLED AROUND SOIL STOCKPILES, WHERE ROADWAY CUT/FILL SLOPES ARE LOCATED WITHIN 100 FEET OF WATERCOURSES, AT THE LOCATION OF UTILITY LINE STREAM CROSSINGS, AND BETWEEN WETLAND BOUNDARIES AND CONSTRUCTION AREAS.

   B. STABILIZED CONSTRUCTION ENTRANCE: STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED WHERE ALL ACCESS ROADS INTERSECT LOCAL, COUNTY OR STATE ROADS.

   C. TEMPORARY SWALE: A TEMPORARY SWALE IS TO BE CONSTRUCTED TO PREVENT RUNOFF FROM ENTERING DISTURBED AREAS BY INTERCEPTING AND DIVERTING IT TO A STABILIZED OUTLET OR TO INTERCEPT SEDIMENT LADEN WATER AND DIVERT IT TO A SEDIMENT TRAPPING DEVICE.

   D. EARTH DIKE: EARTH DIKES CAN ALSO BE INSTALLED FOR DIVERTING CLEAN WATER AWAY FROM DISTURBED AREAS AND/OR INTERCEPT AND DIRECT SEDIMENT LADEN WATER TO A SEDIMENT TRAPPING DEVICE.

   E. SEDIMENT TRAP: SEDIMENT TRAPS ARE INSTALLED IN DRAINAGE WAYS, NATURAL OR TEMPORARY, BY EXCAVATION AND/OR EMBANKMENT TO INTERCEPT SEDIMENT LADEN RUNOFF AND RETAIN THE SEDIMENT.

   F. SEDIMENT FILTER BAG: SEDIMENT FILTER BAGS SHALL BE USED TO FILTER WATER PUMPED FROM OPEN EXCAVATIONS. SEDIMENT FILTER BAGS SHALL BE USED DURING CULVERT INSTALLATIONS AND AT INTERCONNECT STREAM CROSSINGS.

   G. WATERING VEHICLE: THE WATERING VEHICLE SHALL BE USED TO PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM DISTURBED SOIL SURFACES THAT MAY CAUSE OFF-SITE DAMAGE, HEALTH HAZARDS, AND TRAFFIC SAFETY PROBLEMS. WATER WILL BE USED TO SPRAY THE SURFACE ON CONSTRUCTION ROADS, ACCESS POINTS, AND OTHER DISTURBED AREAS WHERE OFF-SITE DAMAGE MAY OCCUR IF DUST IS NOT CONTROLLED.

CONSTRUCTION SCHEDULE:

1. OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND SILT FENCE WHERE SHOWN ON EROSION AND SEDIMENT CONTROL PLAN.
4. INSTALL ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES AS DESIGNED ON PLANS.
5. PLACE EXCAVATED MATERIAL IN AREAS REQUIRING FILL. TOPSOIL TO BE STOCKPILED IN AN AREA APPROVED BY ENGINEER. STOCKPILED MATERIAL TO BE ENCLOSED BY SILT FENCE. STOCKPILES SHALL UNDERGO TEMPORARY STABILIZATION METHODS WITHIN 14 DAYS OF INACTIVITY.
6. INSTALL SITE UTILITIES AND STORM SEWERS.
7. CONSTRUCT BUILDINGS.
8. GRADE, TOPSOIL AND SEED AS SOON AS PRACTICAL UPON COMPLETION OF UTILITIES INSTALLATION.
9. ONCE ALL DISTURBED AREAS ARE VEGETATED, ALL TEMPORARY SEDIMENT CONTROL MEASURES CAN BE REMOVED. SITE CONTRACTOR MUST HAVE THE ENTIRE SITE STABILIZED PRIOR TO WITHDRAWING FROM SITE.

CONSTRUCTION SPECIFICATIONS

GENERAL SPECIFICATIONS FOR THE INSTALLATION OF THE EROSION AND CONTROL PRACTICES ARE SUMMARIZED BELOW.

1. SILT FENCE: FILTER FABRIC SHOULD BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION SHOULD BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO ALLOW FOR POOLING OF WATER. A 6 INCH DEEP TRENCH SHOULD BE EXCAVATED, MINIMIZING THE DISTURBANCE ON THE DOWNSIDE SLOPE. THE BOTTOM OF THE TRENCH SHOULD BE AT LEVEL GRADE. MAXIMUM DEVIATION FROM LEVEL GRADE SHOULD BE 1% AND NOT EXTEND MORE THAN 25 FEET. THE BOTTOM OF THE FENCE SHOULD BE ANCHORED BY PLACING FABRIC IN BOTTOM OF THE TRENCH, AND BACKFILLING AND COMPACTING THE FILL MATERIAL IN THE TRENCH. SUPPORT STAKES SHOULD BE DRIVEN 18 INCHES BELOW THE EXISTING GROUND SURFACE AT 8 FEET (MAX) INTERVALS. FILTER FABRIC SHOULD BE STRETCHED AND FASTENED TO THE UPSLOPE SIDE OF THE SUPPORT STAKES. AT FABRIC ENDS, BOTH ENDS SHOULD BE WRAPPED AROUND THE SUPPORT STAKE AND STAPLED. IF THE FABRIC COMES ALREADY ATTACHED TO THE STAKES, THE END STAKES SHOULD BE HELD TOGETHER WHILE THE FABRIC IS WRAPPED AROUND THE STAKES AT LEAST ONE REVOLUTION PRIOR TO DRIVING THE STAKES.

2. STABILIZED CONSTRUCTION ENTRANCE: CLEAR THE ENTRANCE/EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. PLACE GEOTEXTILE FABRIC OVERLAYED WITH STONE TO THE DIMENSIONS, GRADES, AND ELEVATION SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.

3. TEMPORARY SWALE:

   ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.

   DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.

   DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.

   ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE

   THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.

   FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.

   ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.

   STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR, SOD	LINED WITH 4-8" RIP-RAP OR RECYCLED CONCRETE EQUIVALENT
4	8.1-20.%	LINED WITH 4-8" RIP-RAP	ENGINEERED DESIGN

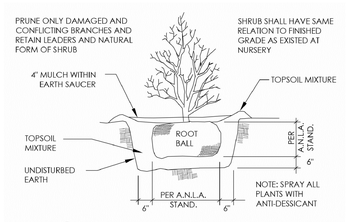
MAINTENANCE PLAN

ALL EROSION AND SEDIMENT POLLUTION CONTROL DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY. THE CONTROL DEVICES WILL BE INSPECTED AND MAINTAINED AS PRESCRIBED BELOW.

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY REPAIRS NEEDED WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT ACCUMULATIONS AT THE SILT FENCE SHALL BE REMOVED WHEN THE DEPTH OF THE SEDIMENT AT THE FENCE REACHES 0.5-FEET. REPAIRS WILL BE MADE TO THE FENCE TO MAINTAIN ITS BARRIER.
3. THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS OR STREETS. PERIODICALLY, THE ENTRANCE WILL BE TOP DRESSED WITH ADDITIONAL AGGREGATE TO MAINTAIN THE 6-INCH THICKNESS. ANY SEDIMENT WHICH IS SPILLED, DROPPED OR WASHED ONTO PUBLIC AND PRIVATE RIGHT-OF-WAYS SHALL BE REMOVED IMMEDIATELY.
4. SEDIMENT FILTER BAGS SHALL BE INSPECTED DAILY DURING USE. IF A PROBLEM IS DETECTED, PUMPING SHOULD CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED. FILTER BAGS WILL BE REPLACED WHEN THEY BECOME ½ FULL. SPARE BAGS SHOULD BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR FILLED.
5. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
6. DUST CONTROL MEASURES SHALL BE MAINTAINED THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED.

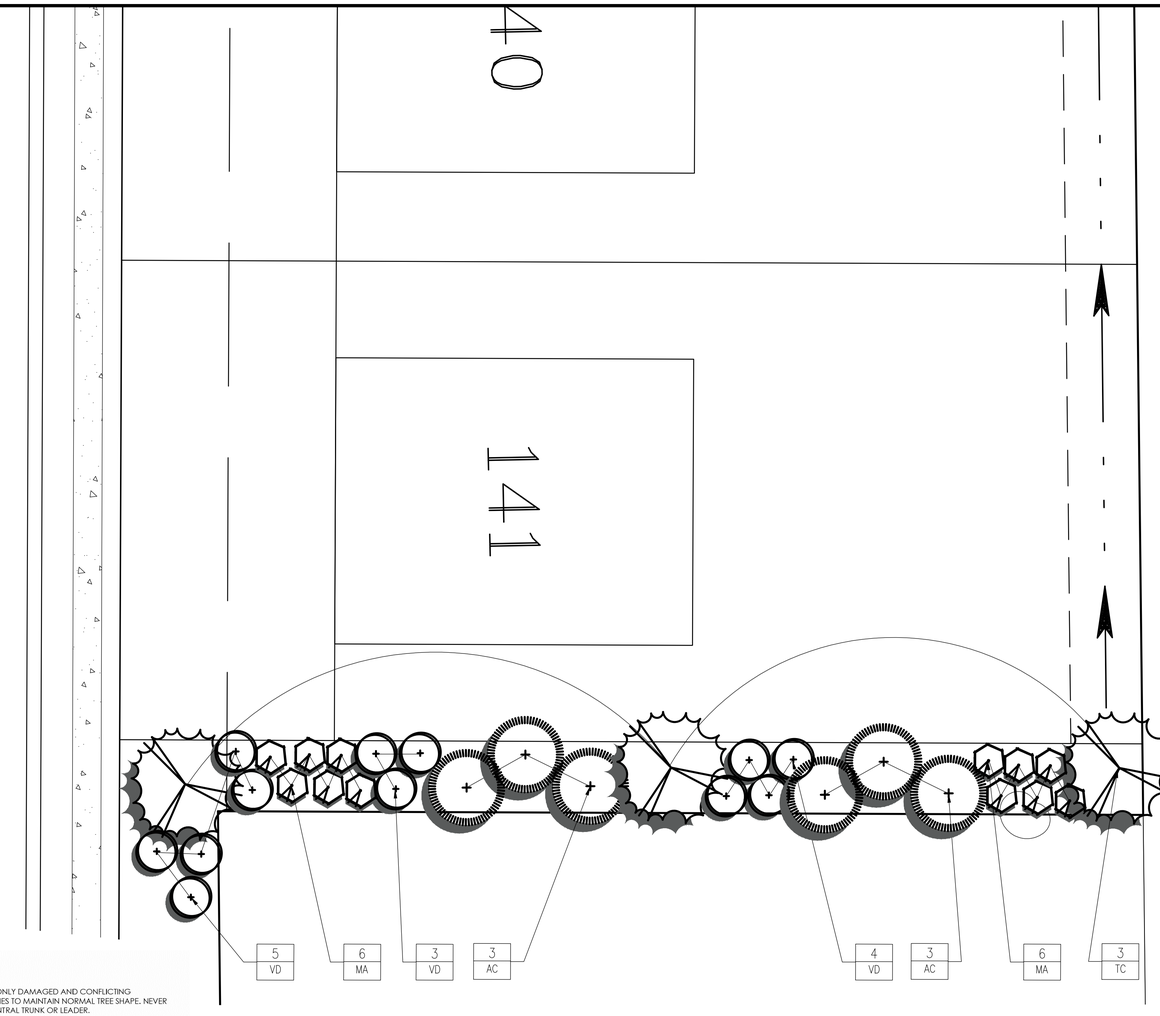
GPI
Engineering
Design
Planning
Construction Management
(716) 633-4844 GPINET.COM
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPAR



SHRUB PLANTING

SCALE: N.T.S.



0 10' 20' SCALE IN FEET N

LANDSCAPE NOTES:

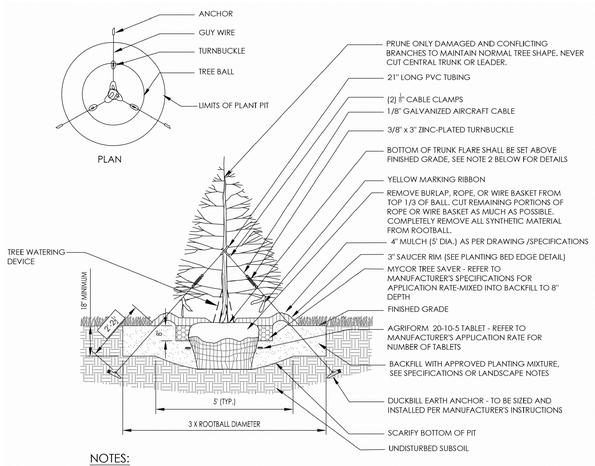
1. IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO VISIT THE SITE PRIOR TO BID MOBILIZATION, TO BECOME FAMILIAR WITH EXISTING CONDITIONS AT THE SITE.
2. STANDARDS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", ANSI Z60.1 (LATEST EDITION) REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE THE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIALS DELIVERED AND INSTALLED ON THIS PROJECT.
3. ALL PLANTS MUST BE HEALTHY, VIGOROUS AND FREE OF PESTS AND DISEASE.
4. ALL PLANTS MUST BE HARDY UNDER CLIMATE CONDITIONS THAT EXIST AT THE PROJECT SITE AND GROWN AT A NURSERY IN THE SAME HARDINESS ZONE AS THE PROJECT LOCATION.
5. ALL PLANTS MUST BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED ON THE PLANT LIST.
6. ANY PROPOSED DEVIATION TO THE LANDSCAPE PLAN MUST FIRST BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO THE INSTALLATION OF THE PROPOSED LANDSCAPING CHANGES.
7. ALL TREES MUST BE STRAIGHT–TRUNKED, INJURY FREE, HAVE A FULL, SYMMETRICAL CROWN (HEAD) AND MEET ALL REQUIREMENTS SPECIFIED (E.G. SINGLE STEM, MULTI–STEM, HEAVY BRANCHED, ETC.).
8. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS.
9. ANY DISCREPANCIES IN THE QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE).
10. ANY CONCERNS RELATED TO SITE CONDITIONS AND/OR PLANT LOCATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR DESIGN LANDSCAPE ARCHITECT (OWNER'S REPRESENTATIVE) PRIOR TO INSTALLATION.
11. ALL GRADING AND UTILITY WORK SHALL BE COMPLETED PRIOR TO INSTALLATION OF PLANT MATERIAL AND LANDSCAPE MULCH.
12. THE FINAL LOCATION OF TREES AND OTHER LANDSCAPING SHALL BE DETERMINED IN THE FIELD BASED ON UTILITY STAKEOUT AND SHALL NOT CONFLICT WITH TRAFFIC SIGNS AND/OR UTILITIES. STAKE OUT SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
13. PLANTING BACKFILL MIXTURE: 20 PARTS ON–SITE SOIL, 10 PARTS SCREENED TOPSOIL, 5 PARTS PEAT MOSS, 5 PARTS ALL GROW, 2.5 PARTS WELL ROTTED MANURE AND 10 LBS. 5–10–5 PLANTING FERTILIZER, MIXED THOROUGHLY PER CUBIC YARD.
14. MULCH ALL PLANT BEDS, AND INDIVIDUAL TREES IN LAWN AREAS WITH COMPOSTED AND AGED SHREDDED HARDWOOD BARK MULCH TO A DEPTH OF FOUR (4") INCHES UNLESS OTHERWISE SPECIFIED ON PLANTING DETAILS, OR AS DIRECTED BY THE LANDSCAPE ARCHITECT DUE TO SITE CONDITIONS. MULCH SAMPLE TO BE SUBMITTED TO THE OWNER AND THE OWNER'S REPRESENTATIVE FOR FINAL APPROVAL.
15. ANY PLANT WHICH TURNS BROWN, DEFOLIATES OR DIES PRIOR TO FINAL ACCEPTANCE BY THE OWNER, OR LANDSCAPE ARCHITECT, SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH THE SAME PLANT (SPECIES, VARIETY AND SIZE) AS SPECIFIED ON THE PLANT SCHEDULE (LIST).
16. THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIALS UNTIL THE PROJECT HAS RECEIVED FINAL ACCEPTANCE BY THE OWNER OR OWNER'S REPRESENTATIVE. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO: WATERING, MULCHING, FERTILIZING, SPRAYING (FUNGICIDE, PESTICIDE, ANTI–DESICANT), AS WELL AS RAISING PLANTS THAT HAVE SETTLED TOO DEEP OR REQUIRE STRAIGHTENING.
17. ALL AREAS DISTURBED BY SITE GRADING AND/OR UTILITY INSTALLATION SHALL RECEIVE APPROVED TOPSOIL (BASED ON APPROVED SAMPLES SUBMITTED BY THE CONTRACTOR) AND SPREAD TO A DEPTH NOT LESS THAN SIX (6") INCHES AFTER COMPACTION. TOPSOIL PLACED FOR LAWNS SHALL BE FINE GRADED, SEEDED, MULCHED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED (BY OTHERS). THIS IS EXCLUDING FOUNDATION PLANT BEDS, LANDSCAPE ISLANDS AND ENTRANCE AREAS. **TOPSOIL PLACEMENT IS NOT A PART OF THIS CONTRACT.**
18. LOCATIONS OF EXISTING BURIED UTILITIES SHOWN ON THE SITE PLAN ARE BASED UPON THE BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE TO CALL FOR A UTILITY STAKEOUT PRIOR TO COMMENCING PLANT INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, AND SITE APPURTENANCES WHICH OCCURS AS A RESULT OF LANDSCAPE INSTALLATION OPERATIONS.
19. EXISTING TREES INDICATED TO BE REMOVED SHALL OCCUR UNDER THE SITE CONTRACT FOR THIS PROJECT. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR NEW PLANTINGS OR RESTORATION OF THE DISTURBED AREA (LAWNS, PLANT BEDS).
20. EXISTING TREES TO REMAIN SHALL BE PROTECTED BY INSTALLING A TEMPORARY FENCE AT THE OUTER LIMITS OF THE TREE CANOPY.
21. ALL SHRUB BEDS ADJACENT TO LAWN AREAS SHALL HAVE A SPADED EDGE BORDER.

PLANTING LEGEND

PROP. LRG. EVERGREEN TREE

PROP. DECIDUOUS SHRUB

PROP. EVERGREEN SHRUB

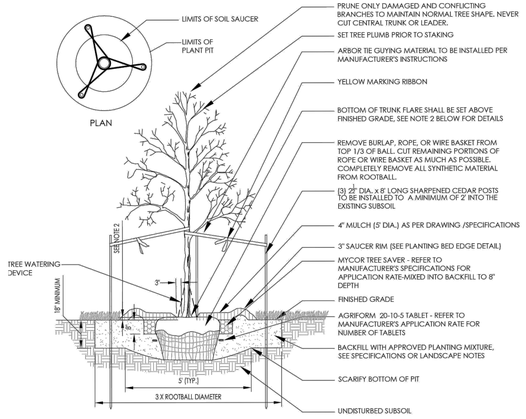


NOTES:

1. MAINTAIN A 2' MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   FOR SANDY OR LOAMY SOILS: 1"
   FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

EVERGREEN TREE PLANTING

SCALE: N.T.S.



NOTES:

1. MAINTAIN A 3" MINIMUM RADIUS CLEAR OF MULCH AROUND THE TRUNK.
2. THE DISTANCE BETWEEN THE BOTTOM OF THE TRUNK FLARE AND THE FINISHED GRADE SHALL BE AS FOLLOWS:
   2.1. FOR SANDY OR LOAMY SOILS: 1"
   2.2. FOR CLAY OR POORLY DRAINED SOILS: 3"
   THE CONTRACTOR SHALL REVIEW THE APPROPRIATE PLANTING DEPTH WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. WHEN TAGGING TREES AT THE NURSERY, MARK THE NORTH SIDE OF THE TREE IN THE FIELD AND WHEN INSTALLING, ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE

DECIDUOUS TREE PLANTING

SCALE: N.T.S.

MUIR WOODS SUBDIVISION PHASE 4 - Plant List

(November 2021)

Key	No.	Botanical Name	Common Name	Min. Size	Remarks
TREES					
AC	6	*Abies Concolor*	White Fir	7-8' Hgt.	B&B Full to ground
TC	3	*Tsuga Canadensis*	Canadian Hemlock	8-10' Hgt.	B&B; Full to ground
SHRUBS					
MA	12	*Mahonia aquifolium*	Oregon Hollygrape	4' hgt.	48" hgt. min.- Full
VD	12	*Viburnum dentatum*	Arrowwood Viburnum	3-4' hgt.	Balled & burlap
		(**) NOTE: Per Town of Amherst Zoning Ordinance Sect. 7-2-3 (A) (1) (g), all shrubs to be a minimum of 24-inches in height (at the time of planting)			

GPI Engineering Design Planning Construction Management
Greenman - Pedersen, Inc.
4950 Genesee Street, Suite 100
Buffalo, NY, 14225

PREPARED FOR
Ciminelli Muir Woods LLC
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

Muir Woods Subdivision, Phase 4
520 Campbell Blvd
Town of Amherst, NY 14068

REGISTERED LANDSCAPE ARCHITECT JOHN D. REDDINGTON 001930-1 STATE OF NEW YORK

WARNING: ALTERATIONS TO THIS DOCUMENT NOT CONFORMING TO SECTION 7209, SUBDIVISION 2, STATE EDUCATION LAW, ARE PROHIBITED

REVISIONS		
----	----	----
----	----	----
----	----	----
----	----	----
NO.	REVISION	DATE
	November 12, 2021	
DRAWN/DESIGN BY	CHECKED BY	
THM	DFP	

Landscape Plan

SCALE: 1" = 10'

WNY-2013062.40

L-1

\\WNFiles\WNY-Projects\SWS\WNY-2013062.40 Muir Woods Subdivision Ph 4\SWS\Reference Files\Proposed\2013062.40-PP-Utility Friday, 19 November 2021 9:56AM

Attachment: SP-2021-24 drawings 011322 (25070 : Sp-2021-24)

DRAFT

(1/13/2022)

SEQR
Negative Declaration

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst
Planning Board

Project: SP-2021-24

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Site Plan Review

SEQR Status: Unlisted Action

Description of Action: The project consists of a residential subdivision on a portion of an approximately 14.39 acre parcel located at 520 Campbell Boulevard consisting of eight lots for detached single-family homes. The portion of the project site to be developed as eight (8) single family homes on individual lots consists of 1.8 acres of the project site that is zoned NCD-ND with frontage on a public roadway. Work will include the site improvements not specifically stated above, including, stormwater, utilities, grading, lighting, paving, and landscaping.

Location: 520 Campbell Boulevard (portion), Amherst, Erie County

Petitioner: Ciminelli Muir Woods

Attachment: SP-2021-24_draft neg dec_011322 (25070 : Sp-2021-24)

REASONS SUPPORTING THIS DETERMINATION

Based on information submitted by the applicant including a Full Environmental Assessment Form (EAF) - Part I, (as amended) and a complete site plan application, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that this action will not have a significant impact on the environment, as follows:

1. The project is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems. The Engineering Department on December 2, 2021 reviewed the Grading, Drainage and Utility Plans, Erosion Control Plan, and Engineer's Report submitted on November 16, 2021 and Geotechnical Report prepared by Glynn Group Engineering & Architects, PLLC.

   The Stormwater Pollution Prevention Plan (SWPPP) submitted on November 16, 2021 was also reviewed. Based on its review of these documents, the Department has determined that the project has or will have met all applicable requirements and has no objection to its approval.

2. The project will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The Planning Department reviewed a Landscape Plan submitted on November 16, 2021 and determined that it meets or exceeds Zoning Ordinance requirements for greenspace. The Landscape Plan has or will have met all Zoning Ordinance and Town requirements for landscaping.

3. The project is not expected to create any material conflict with the Town Comprehensive Plan. The Building Department has reviewed the application documents, along with the Geotechnical Report submitted on October 4, 2018, and determined in their review of November 18, 2021 that the subject project has or will have met all Zoning Ordinance regulations.

4. The project is within an area identified by the State as having potential archaeological or historical significance. The NYS Office of Parks, Recreation and Historic Preservation has reviewed the project and, as stated in their letter of October 10, 2001, determined that there will be no impact on these resources.

5. The project will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The project is located in the New Community District – Neighborhood Development (NCD-ND) zoning district; neighboring uses are single family lots and zoned New Community District – Neighborhood Development or Suburban Agriculture (NCD-ND or NCD-SA); therefore, the project is consistent with surrounding land use.

6. The proposed subject development will include the creation of eight new single family residential lots which will not cause a major change in the use of either the quantity or type of energy.

Attachment: SP-2021-24_draft neg dec_011322 (25070 : Sp-2021-24)

7. The project will not create any hazard to human health. The Fire Chief's Council on December 6, 2021, has reviewed the project and has no objection to the approval of the site plan, as all requirements of this agency have or will have been met.

8. The project will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The proposed eight new single family residential lots will be consistent with the scale of surrounding land uses.

9. The proposed eight new single family residential lots will not significantly increase the number of people using the site over its previous level of use.

10. Review by the Town Traffic/Safety Board dated December 13, 2021, and NYSDOT dated _____ **indicate/indicates** that significant negative traffic impacts are not expected to result from the proposed project.

    Review of the Traffic Impact Study (TIS) prepared by SRF Associates, submitted to the planning Department on December 2021 and reviewed by the Town Traffic/Safety Board _____, and NYSDOT _____ indicates that significant negative traffic impacts are not expected to result from the proposed project.

11. A coordinated review of the project has been undertaken by Town Departments including, in addition to those mentioned above, Highway on November 30, 2021, Assessor on December 9, 2021, Plumbing Division on December 30, 2021, and Right-of-Way Agent on November 17, 2021. These reviews did not identify any potential significant adverse environmental issues and indicated that the proposal will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to cause significant negative environmental impacts.

Planning Board Approval
Moved by: ; Second by: Ayes; Noes Absent

_____ _____
signature & title of preparer Date

_____ _____
Robert J. Gilmour, Planning Board Chair Date

RR/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_(520_Campbell_Blvd)_2021\SP-2021-24_draft neg dec_011322.doc
cc: Amherst Town Clerk
Amherst Building Department
ECDEP
NYSDEC (type 1's)
NYSDOT (if on state hwy.)
Adam Faeth, Ciminelli Real Estate Corporation, 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221
Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Amy Drake, SRF Associates, 3495 Winton Place, Building E, Suite 110, Rochester, NY 14623

Attachment: SP-2021-24_draft neg dec_011322 (25070 : Sp-2021-24)

Attachment: SP-2021-24_draft neg dec_011322 (25070 : Sp-2021-24)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24

PETITIONER

Ciminelli Muir Woods
Adam Faeth
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

PROPERTY LOCATION

520 Campbell Boulevard (portion)

WHEREAS the Town of Amherst Planning Board on Thursday, January 13, 2021 held a public hearing on a site plan for the proposed eight lot residential subdivision, and

WHEREAS the Planning Board has reviewed the plans and specifications for the proposed project, and

WHEREAS the Site Plan has been referred to the Town's various review agencies and they have made findings on this project, and

WHEREAS the Planning Board finds that:

1. The proposed site plan is consistent with the intent, objectives and specific requirements of the Zoning Ordinance, specifically those of the New Community District, Section 5-2.

2. The proposed site plan is in conformity with the Approved Development Plan for the Audubon New Community.

3. Adequate services and utilities are or will be available prior to occupancy, and

4. Review of the US Army Corps of Engineers under Section 404 of the Clean Water Act is required since hydric / potentially hydric soils have been identified on the parcel. A Preliminary Jurisdictional Determination from the USACOE was issued on July 12, 2017.

5. Pursuant to Local Law #3-82, as amended, the Planning Board has determined that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

6. The Site Plan is consistent with all other applicable laws.

NOW THEREFORE BE IT RESOLVED that in accordance with 6 NYCRR, Part 617 and Local Law #3-82, as amended, the Planning Board has issued a Negative Declaration attached hereto, and

Attachment: SP-2021-24_draft resolution_011322 (25070 : Sp-2021-24)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SITE PLAN RESOLUTION (NCD)
SP-2021-24

PETITIONER	PROPERTY LOCATION
Ciminelli Muir Woods	520 Campbell Boulevard (portion)

NOW THEREFORE BE IT FURTHER RESOLVED that the Planning Board, in accordance with Section 8-15-9 of the Zoning Ordinance, approves said Site Plan, subject to the following conditions:

1. The developer complete the pedestrian trial segment within the Muir Woods Subdivision.

2. The developer contribute funds to improve the intersection of North French Road and Campbell Boulevard as determined by the NYSDOT.

3. That all dumpsters/trash containers and all mechanical equipment, utility structures, multiple meter boards, generators, and similar appurtenances, including those which are mounted on any part of a primary structure shall be appropriately screened with a fence, wall, and/or landscaping. Provide gate on dumpster enclosure that shall be closed whenever dumpster is not being serviced and enclosure shall be high enough to enclose entire dumpster within.

4. That as-built record drawings, including location of utilities, be provided to the Engineering Department prior to issuance of a Certificate of Occupancy by the Building Department.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

RR/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_(520_Campbell_Blvd)_2021\SP-2021-24_draft resolution_011322.doc
cc: Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety Coordinator
Highway Superintendent
Approved Plan: _____
Received: _____
Adam Faeth, Ciminelli Real Estate Corporation, 50 Fountain Plaza, Suite 500, Buffalo, NY 14202
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221
Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Amy Drake, SRF Associates, 3495 Winton Place, Building E, Suite 110, Rochester, NY 14623

Attachment: SP-2021-24_draft resolution_011322 (25070 : Sp-2021-24)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

January 20, 2021

Adam Faeth
Ciminelli Real Estate Corporation
50 Fountain Plaza, Suite 500
Buffalo, NY 14202

SUBJECT: MAJOR SITE PLAN REVIEW, **SP-2021-24**; PROPOSED 8 LOT SUBDIVISION MUIR WOODS PHASE 4, PROPERTY LOCATED AT **520 CAMPBELL BOULEVARD (PORTION)**.

Dear Mr. Faeth:

At its meeting of January 13, 2022 the Planning Board voted to **adjourn** the subject site plan at your request.

This request will be placed on the Planning Board agenda for the February 17, 2022 meeting.

Please submit revised plans or required materials by Monday, January 31, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

for Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Site Plans\2021\SP-2021-24_(520_Campbell_Blvd)_2021\SP-2021-24_Adjournment Letter_011322.doc
cc: Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221
Ken Zollitsch, Greenman-Pedersen, 4950 Genesee Street, Suite 100, Buffalo, NY 14225

Attachment: SP-2021-24_adjournment_011322 (25070 : Sp-2021-24)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Subdivisions & Relief from Conditions
Prepared By: Bryan Fadel
Initiator: Dan Howard
Sponsors:
DOC ID: 23436

TABLED

PLANNING BOARD ITEM (ID # 23436)

Proposed Sketch Plan for 18-Lot Subdivision, SUB-2021-01_SK

Property located at 166 Klein Road
Regency Builders LLC, Petitioner

August 19, 2021
No comments were heard on this proposal. The Petitioner requested an adjournment. Mr. Giuliani moved to adjourn and remove from the agenda until such time as the Petitioner requests placement on a future agenda. The motion was seconded by Mr. Chmiel and carried. Ayes 7, Noes 0.

January 13, 2022

No comments were heard on this proposal. The Petitioner requested an adjournment. Mr. Giuliani moved to adjourn until the February Planning Board meeting. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

HISTORY:

08/19/21	**Planning Board**	**ADJOURNED**	**Next: 01/13/22**

ATTACHMENTS:

- SUB-2021-01 application 081921 (PDF)
- SUB-2021-01 drawings 081921 (PDF)
- SUB-2021-01_SK_draft_Resolution_081921 (PDF)
- SUB-2021-01_SK_adjournment_081921 (PDF)
- SUB-2021-01 application 011322 (PDF)
- SUB-2021-01 drawings 011322 (PDF)
- SUB-2021-01_SK_draft resolution_011322 (PDF)
- SUB-2021-01_SK_adjournment_011322 (PDF)

RESULT:	**ADJOURNED [UNANIMOUS]**	**Next: 2/17/2022 6:30 PM**
MOVER:	Dal Giuliani, Board Member	
SECONDER:	Harbinder Gill, Board Member	
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy	
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.	

RECEIVED
JUN 21 2021
TOWN OF AMHERST
PLANNING DEPT.

TOWN OF AMHERST PLANNING DEPARTMENT

Application Subdivision Review

For Official Use

File # SUB-2021-01-SK **Acreage** _____ **Fee $** 1168.00

Type of Subdivision Application (check one):

Sketch Plan	✓
Preliminary Plat	____
Final Plat	____

Address Verified by Assessor's Office

_____
Verified By Date

		Fill In Applicable Fees
Sketch Plan	$1,150.00	✓
Preliminary Plat		
1 acre of less	$1,250.00	____
Each Additional acre or fraction thereof	$ 650.00/acre	____
Amendments to Subdivisions	$1,150.00	____
Request for Relief of / or Change to Conditions of Subdivision Approval	$1,150.00	____
Request for Extension of Subdivision Approval	$ 450.00	____
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	____
5-10 Acres	$ 750.00	____
>10 Acres	$1,000.00	____
Affidavit Fee for Public Hearing	$ 15.00	✓
Final Plat	$ 450.00	____
	TOTAL FEE:	$ 1168.00

Materials Received by Planning Department

TN 6/21/21
RECEIVED BY DATE

Materials Accepted by Town Clerk & Fee Paid

_____
RECEIVED BY DATE

To Be Completed By Applicant

Petitioner: Name: Regency Builders, LLC

Address: 4899 Meyer Road

Pendleton NY 14120
city state zip code

Phone: 867-0900 Fax: _____ E Mail: elasky@forbesdevcorp.com

Rev. 12/08
P/Currplan/Application Forms Working Document/Subdivision App.

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

SUBDIVISION REVIEW AND APPROVAL PROCEDURE con't. ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: Greenman-Pedersen, Inc. (Attn: Ken Zollitsch)

Address: 4950 Genesee Street, Suite 100

Buffalo (city) NY (state) 14225 (zip code)

Phone: 633-4844 Fax: 633-4940

E Mail: kzollitsch@gpinet.com

Subdivision Name: 166 Klein Road Subdivision

Subdivision Location & Address: 166 Klein Road (SBL 56.10-13-1)

Town of Amherst, Erie County, New York

Number of Sublots: 18+/- lots

Land is Presently Zoned R-3

Rev. 3/06, 12/20/07, 11/13/13
X:\Current_Planning\CURRPLAN\Application Forms 2008 Final\Subdivision Application 07-01-08(2).doc

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BUFFALO DISTRICT
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

TOWN OF AMHERST
PLANNING DEPT.

December 15, 2020

Regulatory Branch

SUBJECT: Determination of No Jurisdiction, Department of Army Application No. LRB-2015-01255

Mohammad Qasaymeh
33 Sanctuary Court
Buffalo, New York 14221

Dear Mr. Qasaymeh:

This pertains to the wetland delineation and walkover submitted on your behalf by Earth Dimensions, Inc for a recent request for a jurisdictional determination for the parcel of land located 166 Klein Road, Town of Amherst, Erie County, New York.

Section 404 of the Clean Water Act (CWA) establishes Corps of Engineers jurisdiction over the discharge of dredged or fill material into waters of the United States, including wetlands, as defined in 33 CFR Part 328.3.

I am hereby verifying the Federal wetland/waters boundary as shown on the attached wetland delineation map dated October 29, 2019. This verification will remain valid for a period of five (5) years from the date of this correspondence unless new information warrants revision of the delineation before the expiration. At the end of this period, a new wetland delineation will be required if a project has not been completed on this property or additional impacts are proposed for WOUS. Further this delineation/determination has been conducted to identify the limits of the Corps CWA jurisdiction for the particular site identified in this request. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resource Conservation Service prior to starting work.

Based upon my review of the submitted delineation and on-site observations, I have determined that aquatic resources Wetland 1, 2, 3 and Ditch 1 on the parcel are excluded waters as defined in the Navigable Waters Protection Rule. Therefore, these are not regulated under Section 404 of the CWA. Accordingly, you do not need Department of the Army authorization to commence work in these areas.

I encourage you to contact the appropriate state and local governmental officials to ensure that the proposed work complies with their requirements.

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

Regulatory Branch
SUBJECT: Determination of No Jurisdiction, Department of Army Application No. LRB-2015-01255

Finally, this letter contains an approved JD for the subject parcel. If you object to this JD, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal the above JD, you must submit a completed RFA form within 60 days of the date on this letter to the Great Lakes/Ohio River Division Office at the following address:

Suzanne Chubb
Regulatory Appeals Review Officer
US Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street, Room 10-714
Cincinnati, Ohio 45202-3222
Phone: 513-684-7261 Fax: 513-684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by February 13, 2021.

It is not necessary to submit an RFA to the Division office if you do not object to the determination in this letter.

Questions pertaining to this matter should be directed to me at (716) 879-4279 by writing to the following address: U.S. Army Corps of Engineers Regulatory Branch 1776 Niagara Street, Buffalo, New York 14207 or by e-mail at: Joseph.M.Rowley@usace.army.mil.

Sincerely,

Joseph Rowley
Physical Scientist

Enclosures
cc:

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: Mohammad Qasaymeh	File Number: LRB-2015-01255	Date: December 15, 2020
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Joseph Rowley U.S. Army Corps of Engineers 1776 Niagara Street Buffalo, New York 14207 Joseph.M.Rowley@usace.army.mil 716-879-4279	Suzanne Chubb Regulatory Appeals Review Officer US Army Corps of Engineers Great Lakes and Ohio River Division 550 Main Street, Room 10-714 Cincinnati, Ohio 45202-3222 Phone: 513-684-7261 Fax: 513-684-2460

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 15-DEC-2020
ORM Number: LRB-2015-01255 (Qasaymeh, Mohammad)
Associated JDs: N/A or ORM numbers and identifiers (e.g. HQS-2020-00001-MSW-MITSITE)
Review Area Location[1]:
State/Territory: NY City: Amherst County: Erie County
Center Coordinates of Review Area: Latitude 43.002604 Longitude -78.732741

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in section II.B).
- ☐ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
N/A	N/A	N/A	N/A

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters)[3]

(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
N/A	N/A	N/A	N/A

Tributaries ((a)(2) waters):

(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
N/A	N/A	N/A	N/A

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):

(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
N/A	N/A	N/A	N/A

Adjacent wetlands ((a)(4) waters):

(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
N/A	N/A	N/A	N/A

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a take, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12))[4]:

Exclusion Name	Exclusion Size	Exclusion[5]	Rationale for Exclusion Determination
Ditch 1	700 feet	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1)	Ditch 1 was a drainage feature observed during the April 2016 site visit. It appeared the ditch was excavated to alleviate rear yard drainage. However, during the site visit no bed or banks were observed within the ditch. In addition, no water or flow was observed in the ditch even though water was observed in the surrounding area and delineated wetlands. The ditch is not found on the USGS Clarence Center Quad. The ditch was vegetated and significantly covered in leaf litter with old fill piles and woody debris (cut logs) found throughout. The ditch is perched significantly higher in elevation then the maintained Town of Amherst ditch to the North. The ditch doesn't contribute direct flow to an A(1) water or is an A(1) water, the ditch was not constructed in a tributary, doesn't relocate a tributary nor or was the ditch constructed in an adjacent wetland. Finally, the ditch doesn't contribute perennial or intermittent flow during a particular year.
Wetland 1	0.417 acres	(b)(1) Non-adjacent wetland	In the delineation report, it states Wetland 2 is a hard wood swamp pocket located in the North portion of the delineated parcel. The soils are mapped potentially hydric. Vegetation found within this wetland is a mix of non-hydric and hydrophtic vegetation. A review of aerial imagery and other in-house resources show no drainage patterns coming or going from wetland 1. This was confirmed during the site visit. Wetland 1 is more than 41 linear feet from Ditch 1 and 100 linear feet from an excavated, maintained Town of Amherst ditch to the West. No A(1)-A(3) waters were identified directly abutting Wetland 1 during the site visit or an in-house review of aerial imagery, topo maps, the NYSDEC environmental resource or USFWS Wetland mapper. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to A (1) – A(3) waters. No natural or artificial barriers between Wetland 1 and A(1) – A(3) waters were found during the site visit. The wetland is not inundated by an A(1) – A(3) waters. Also, the NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means, "....flooding is not probable. The chance of flooding is nearly 0 percent in any year". All resources reviewed support the determination that Wetland 1 doesn't directly abut an A(1)-A(3) waters, is not separated from an A(1)-A(3) waters by a natural or man-made feature and is not adjacent to an A(1)-A(3) waters.
Wetland 2	0.398 acres	(b)(1) Non-adjacent wetland	In the delineation report, it states Wetland 2 is a hard wood/scrub-shrub swamp pocket located in the Center

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

			portion of the delineated parcel. The soils are mapped potentially hydric. Vegetation found within this wetland is a mix of non-hydric and hydrophtic vegetation. A review of aerial imagery and other in-house resources show no drainage patterns coming or going from wetland 2. This was confirmed during the site visit. Wetland 2 is more than 60 linear feet from Ditch 1 and 350 linear feet from an excavated, maintained Town of Amherst ditch to the West. No A(1)-A(3) waters were identified directly abutting Wetland 1 during the site visit or an in-house review of aerial imagery, topo maps, the NYSDEC environmental resource or USFWS Wetland mapper. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to A (1) – A(3) waters. No natural or artificial barriers between Wetland 2 and A(1) – A(3) waters were found during the site visit. The wetland is not inundated by an A(1) – A(3) waters. Also, the NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means, "….flooding is not probable. The chance of flooding is nearly 0 percent in any year". All resources reviewed support the determination that Wetland 1 doesn't directly abut an A(1)-A(3) waters, is not separated from an A(1)-A(3) waters by a natural or man-made feature and is not adjacent to an A(1)-A(3) waters.
Wetland 3	0.11 acres	(b)(1) Non-adjacent wetland	In the delineation report, it states Wetland 3 is a hard wood/scrub-shrub swamp pocket located in the Eastern portion of the delineated parcel. The soils are mapped potentially hydric. Vegetation found within this wetland is a mix of non-hydric and hydrophtic vegetation. A review of aerial imagery and other in-house resources show no drainage patterns coming or going from wetland 3. This was confirmed during the site visit. Wetland 3 is more than 31 linear feet from Ditch 1 and 550 linear feet from an excavated, maintained Town of Amherst ditch to the West. In addition, Wetland 3 is more than 150 linear feet from Klein Road to the East but no open drainage is located along the road. No A(1)-A(3) waters were identified directly abutting Wetland 3 during the site visit or an in-house review of aerial imagery, topo maps, the NYSDEC environmental resource or USFWS Wetland mapper. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to A (1) – A(3) waters. No natural or artificial barriers between Wetland 3 and A(1) – A(3) waters were found during the site visit. The wetland is not inundated by an A(1) – A(3) waters. Also, the NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means, "….flooding is not probable. The chance of flooding is

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

			nearly 0 percent in any year". All resources reviewed support the determination that Wetland 3 doesn't directly abut an A(1)-A(3) waters, is not separated from an A(1)-A(3) waters by a natural or man-made feature and is not adjacent to an A(1)-A(3) waters.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

_X_ Information submitted by, or on behalf of, the applicant/consultant: *Wetland delineation dated November 3, 2015 submitted by Earth Dimensions, Inc. Also, an additional walkover report dated October 29, 2019 submitted by Earth Dimensions, Inc.*
Rationale: The reports submitted by EDI contained accurate, completed data sheets, photographs, NWI map, web soil survey with hydric soil ratings and other supporting information.
___ Data sheets prepared by the Corps: *Title(s) and/or date(s).*
__X Photographs: Photographs included within the delineation report; Google Earth, ESRI
__X Corps Site visit(s) conducted on: April 2016
___ Previous Jurisdictional Determinations (AJDs or PJDs): N/A
___ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B.*
_X_ USDA NRCS Soil Survey: USDA/NRCS Web Soil Survey – Accessed Dec 10, 2020
_x_ USFWS NWI maps: USFWS Wetland Mapper – Accessed Dec 10, 2020
_X_ USGS topographic maps: USGS Clarence Center Quad – delineated parcel located

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	ORM Maps – Accessed Dec 10, 2020
State/Local/Tribal Sources	NYSDEC Freshwater Wetland Maps – no State regulated wetlands are within the vicinity of the delineated parcel – Accessed Dec 10, 2020
Other Sources	N/A.

B. Typical year assessment(s): N/A

C. Additional comments to support AJD: N/A

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

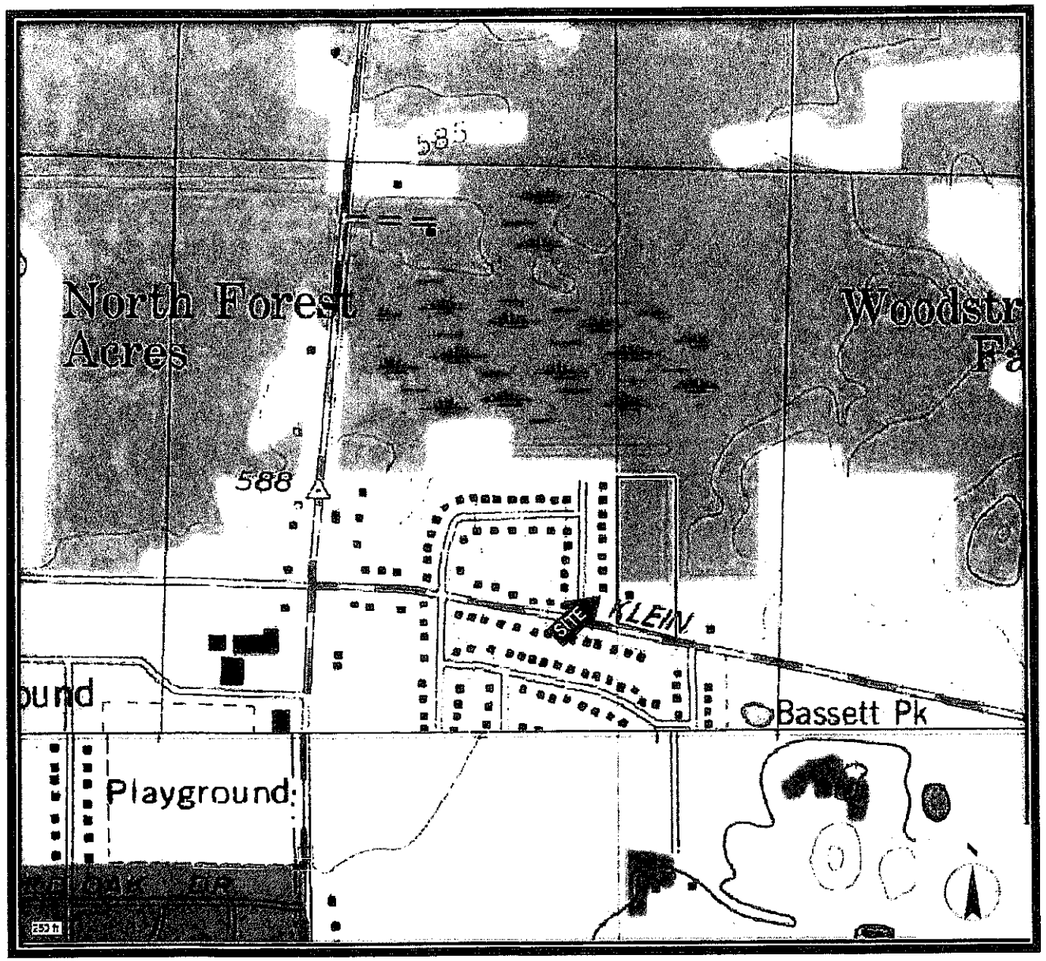


FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Clarence Center Quadrangle / 2002 DeLorme

166 Klein Road

Town of Amherst, Erie County, New York

Qasaymeh, Mohammad
LRB 2015-1255
County: Erie County
Quad: Clarence Center
Sheet 1 of 2

EARTH DIMENSIONS, INC.

6.a

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

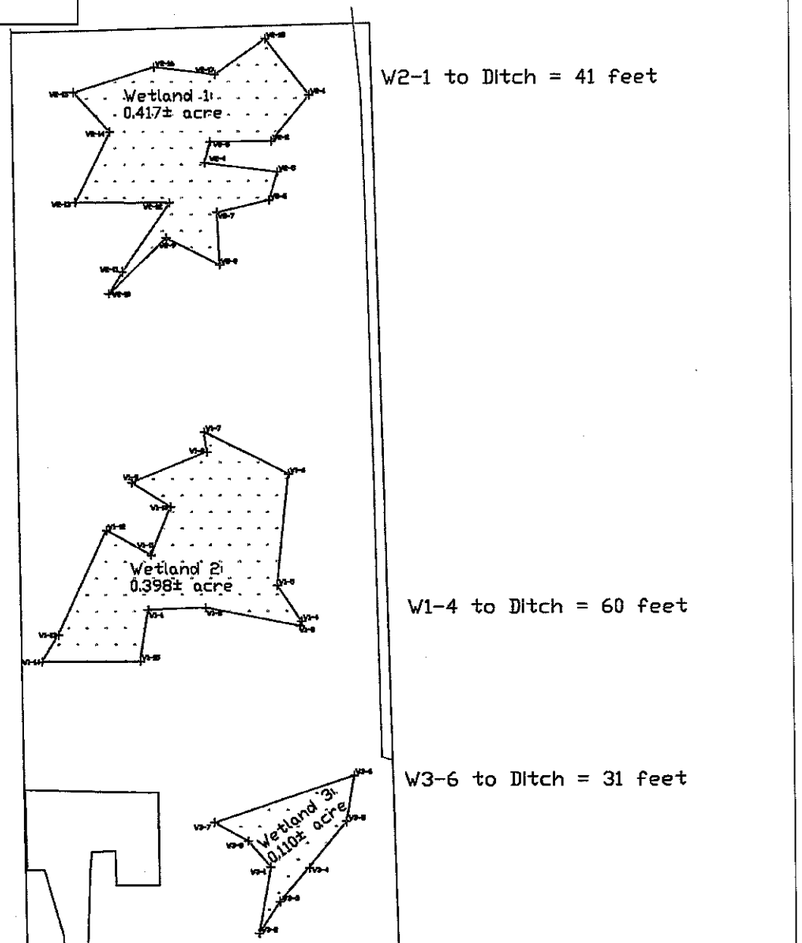
Packet Pg. 3384

Figure 8 - Wetland Delineation Map

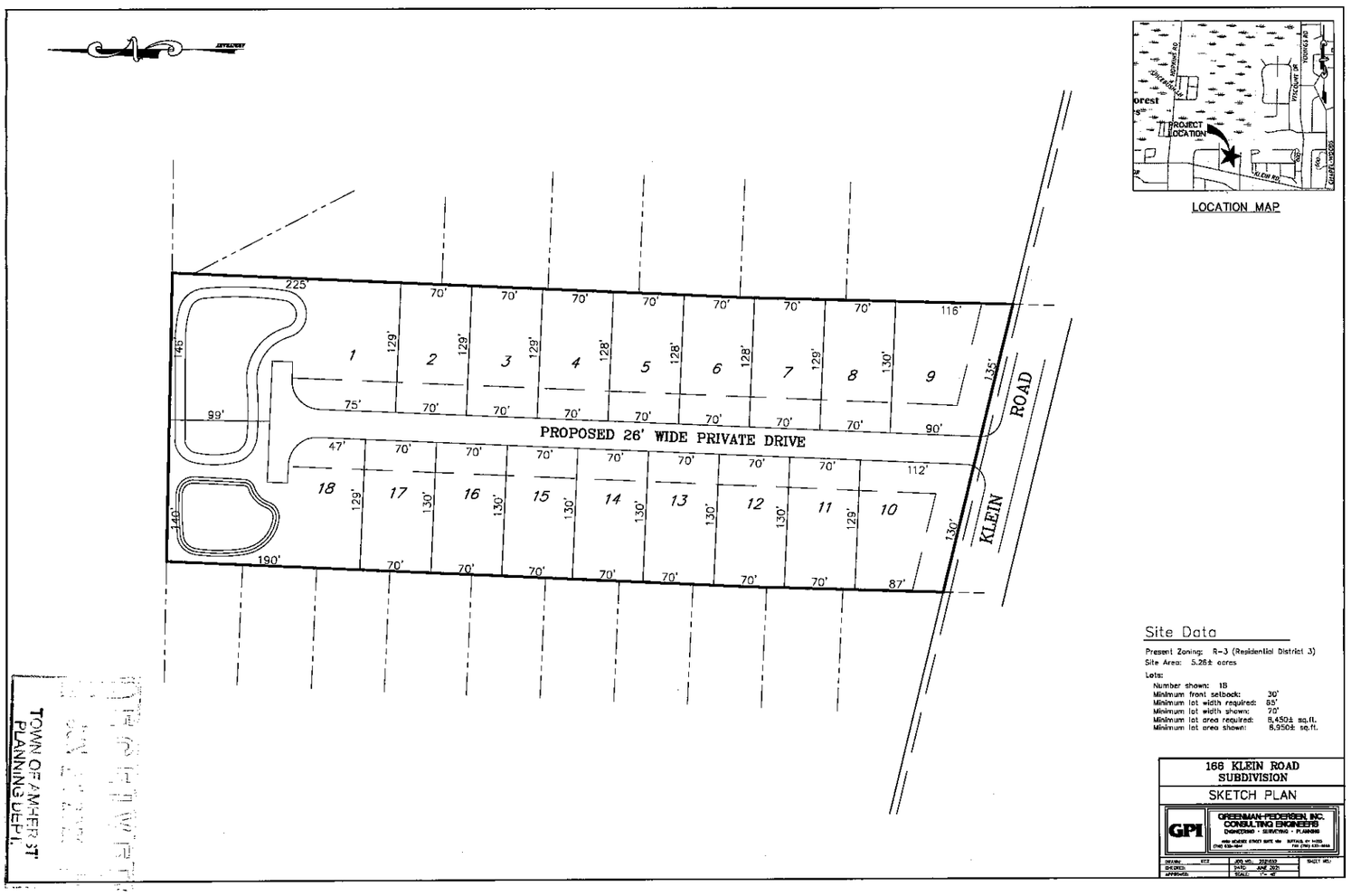
Town of Amherst Erie County, New York

EARTH DIMENSIONS, INC.

Qasaymeh, Mohammad
LRB 2015-1255
County: Erie County
Quad: Clarence Center
Sheet 2 of 2



Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)


PROPOSED 26' WIDE PRIVATE DRIVE
KLEIN ROAD
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
PROJECT LOCATION
LOCATION MAP
Site Data
Present Zoning: R-3 (Residential District 3)
Site Area: 5.28± acres
Lots:
Number shown: 18
Minimum front setback: 30'
Minimum lot width required: 85'
Minimum lot area required: 8,450± sq.ft.
Minimum lot area shown: 8,950± sq.ft.
166 KLEIN ROAD
SUBDIVISION
SKETCH PLAN
GPI
GREENMAN-PEDERSEN INC.
CONSULTING ENGINEERS
TOWN OF AMHERST
PLANNING DEPT.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish, Wildlife and Marine Resources, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7010 | F: (716) 851-7005
www.dec.ny.gov

October 19, 2015

RECEIVED
OCT 23 2015
EARTH DIMENSIONS, INC.

Mr. John Rinaldo
166 Klein Rd
Williamsville, NY 14221

Dear Mr. Rinaldo:

Wetland CC-10
Freshwater Wetland Determination
166 Klein Road
Town of Amherst, Erie County

This letter serves as notification that Senior Ecologist Charles Rosenburg and I, accompanied by Scott Livingstone of Earth Dimensions, Inc., completed a freshwater wetland determination for Wetland CC-10 in relation to your 166 Klein Road property, parcel # 56.10-13-1, on October 7, 2015. A small wetland, 0.23 acres in size, near the north edge of your property was determined to not be part of Wetland CC-10, which is currently mapped just north of your parcel. This wetland is relatively small in size, is a single wetland (versus one of a cluster of wetlands), exhibits a seasonally saturated/ shallowly flooded hydrologic regime, lacks Class 1 wetland characteristics, and is separated by a distance of 39-meters from extensive wetland on the Town parcel to the north (i.e., close to the DEC's 50-meter limit for extending jurisdiction).

Considering the wetland characteristics described above, this Department has determined that the 0.23-acre wetland does not significantly function as a unit with the extensive wetland area to the north in providing wetland benefits. Similarly, we believe the two wetland areas are not dependent on each other in providing wetland benefits. This analysis is specific to this parcel and this circumstance has no precedential value for any other site. Finally, no other wetlands were observed within 50 meters of the extensive area of Wetland CC-10 on the Town parcel to the north. Therefore, we determined that Wetland CC-10 does not extend into the 166 Klein Road parcel.

Please note that the regulated 100-foot adjacent area associated with the Wetland CC-10 boundary we identified within the Town parcel to the north does not extend into the 166 Klein Road parcel. Therefore, there is no Article 24 Freshwater

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

Wetlands jurisdiction within the parcel, so an Article 24 Freshwater Wetlands permit is not needed for development of the parcel.

Be advised that the U.S. Army Corps of Engineers may also have wetland jurisdiction irrespective of the Department of Environmental Conservation. For more information, you may contact the Corps at:

United States Army Corps of Engineers Regulatory Branch
1776 Niagara Street
Buffalo, New York 14207
Telephone: (716) 879-4330

If you have any questions about this wetland delineation, please feel free to call me in the Buffalo office at (716) 851-7010.

Sincerely,

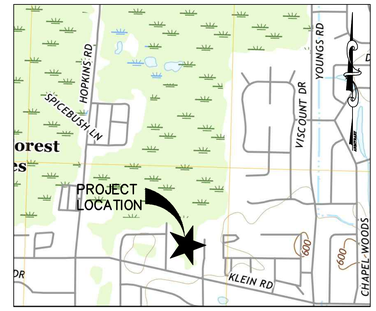
Angela G. Driscoll
Fish & Wildlife Technician I
Region 9 - Buffalo

AGD:dcg
wetlands\cc-10rinaldodeterltr

cc: Mr. Jay Ayoub, Prospective Buyer, Williamsville, New York
Scott Livingstone, Earth Dimensions, Inc., Elma, New York
Wetland CC-10 file

Attachment: SUB-2021-01 application 081921 (23436 : Sub-2021-01_Sk)

ARBITRARY



LOCATION MAP



Site Data

Present Zoning: R-3 (Residential District 3)

Site Area: 5.26± acres

Lots:

Number shown:	19 (Including Private Drive)
Minimum front setback:	30'
Minimum lot width required:	65'
Minimum lot width shown:	70'
Minimum lot area required:	8,450± sq.ft.
Minimum lot area shown:	8,950± sq.ft.

166 KLEIN ROAD SUBDIVISION

SKETCH PLAN

GPI
GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING · SURVEYING · PLANNING
4950 GENESEE STREET SUITE 100 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

DRAWN: KCZ	JOB NO.: 2021052		SHEET NO.:
CHECKED:	DATE: JULY 2021		
APPROVED:	SCALE: 1"= 40'		

Attachment: SUB-2021-01 drawings 081921 (23436 : Sub-2021-01 Sk)

D R A F T (8/19/21)
TOWN OF AMHERST
PLANNING BOARD
SKETCH PLAN RESOLUTION
SUB-2021-01_SK

PETITIONER
Regency Builders LLC
4899 Meyer Road
Pendleton, NY 14120

PROPERTY LOCATION
166 Klein Road

WHEREAS the Town of Amherst Planning Board on Thursday, August 19, 2021 held a public hearing on an 18-lot subdivision, "_____", and

WHEREAS the Planning Board has reviewed plans and specifications for the proposed Subdivision, and

WHEREAS the Subdivision has been referred to the Town's various review agencies, and

WHEREAS the Planning Board finds that:

1. The proposed subdivision is consistent with the intent, objectives and specific requirements of the Zoning Ordinance.

2. Adequate services and utilities are or will be available prior to occupancy.

3. The Subdivision is consistent with all other applicable laws.

4. Under Section 404 of the Clean Water Act, the US Army Corps of Engineers has determined that it has no jurisdiction.

NOW THEREFORE BE IT RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance and Part III of the Subdivision Regulations approves said Subdivision subject to the follow condition(s):

1.

NOW THEREFORE BE IT FURTHER RESOLVED that _____ Street/road be classified as local/collector/arterial street(s) and that sidewalks **are** required, and that the required ramps and/or curb cuts to meet ADA compliance be included and constructed with the P.I.P. for the roadway utilities.

NOW THEREFORE BE IT FURTHER RESOLVED that a lighting district is required for the proposed subdivision.

NOW THEREFORE BE IT FURTHER RESOLVED that recreation fees are required for the proposed subdivision lots in accordance with the adopted fee schedule.

Attachment: SUB-2021-01_SK_draft_Resolution_081921 (23436 : Sub-2021-01_Sk)

D R A F T (8/19/21)
TOWN OF AMHERST
PLANNING BOARD
SKETCH PLAN RESOLUTION
SUB-2021-01_SK

PETITIONER
Regency Builders LLC

PROPERTY LOCATION
166 Klein Road

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

DU/bf
X:\Current_Planning\Files\Subdivisions\SUB-2021\SUB-2021-01SK_(166_Klein_Rd)_2021\SUB-2021-01_SK_Resolution_081321.docx

cc: Town Clerk
Commissioner of Building
Town Engineer
Highway Superintendent
Fire Chiefs Council
ECDEP
Regency Builders LLC, 4899 Meyer Rd., Pendleton, NY 14120
Ken Zollitsch, Greenman-Pedersen Inc., 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221

Approved Plan: _____
Received: _____

Attachment: SUB-2021-01_SK_draft_Resolution_081921 (23436 : Sub-2021-01_Sk)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

August 26, 2021

Regency Builders LLC
4899 Meyer Road
Pendleton, New York 14120

SUBJECT: SKETCH PLAN REVIEW, **SUB-2021-01_SK,** FOR A PROPOSED; 18-LOT SUBDIVISION; PROPERTY LOCATED AT **166 KLEIN ROAD**.

Dear Sir/Madam:

At its meeting of August 19, 2021 the Planning Board voted to adjourn the subject Subdivision at your request to a date to be determined once the Traffic Impact Study is received by this department.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

for Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Subdivisions\SUB-2021\SUB-2021-01SK_(166_Klein_Rd)_2021\SUB-2021-01_SK_Adjournment Letter_082621.doc
cc: Ken Zollitsch, Greenman-Pedersen Inc., 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221

Attachment: SUB-2021-01_SK_adjournment_081921 (23436 : Sub-2021-01_Sk)

RECEIVED
JUN 21 2021
TOWN OF AMHERST
PLANNING DEPT.

TOWN OF AMHERST PLANNING DEPARTMENT

Application Subdivision Review

For Official Use

File # SUB-2021-01-SK **Acreage** _____ **Fee $** 1168.00

Type of Subdivision Application (check one):

Sketch Plan	✓
Preliminary Plat	____
Final Plat	____

Address Verified by Assessor's Office

_____
Verified By Date

		Fill In Applicable Fees
Sketch Plan	$1,150.00	✓
Preliminary Plat		
1 acre of less	$1,250.00	____
Each Additional acre or fraction thereof	$ 650.00/acre	____
Amendments to Subdivisions	$1,150.00	____
Request for Relief of / or Change to Conditions of Subdivision Approval	$1,150.00	____
Request for Extension of Subdivision Approval	$ 450.00	____
Stormwater Pollution Prevention Plan		
1-4.99 Acres	$ 500.00	____
5-10 Acres	$ 750.00	____
>10 Acres	$1,000.00	____
Affidavit Fee for Public Hearing	$ 15.00	✓
Final Plat	$ 450.00	____
	TOTAL FEE:	$ 1168.00

Materials Received by Planning Department

TN 6/21/21
RECEIVED BY DATE

Materials Accepted by Town Clerk & Fee Paid

_____
RECEIVED BY DATE

To Be Completed By Applicant

Petitioner: Name: Regency Builders, LLC

Address: 4899 Meyer Road

Pendleton NY 14120
city state zip code

Phone: 867-0900 Fax: _____ E Mail: elasky@forbesdevcorp.com

Rev. 12/08
P/Currplan/Application Forms Working Document/Subdivision App.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

SUBDIVISION REVIEW AND APPROVAL PROCEDURE con't. ***Page 2***

Representative (Architect, Engineer, Landscape Architect, Surveyor, or Attorney)**:**

Name: Greenman-Pedersen, Inc. (Attn: Ken Zollitsch)

Address: 4950 Genesee Street, Suite 100

Buffalo (city) NY (state) 14225 (zip code)

Phone: 633-4844 Fax: 633-4940

E Mail: kzollitsch@gpinet.com

Subdivision Name: 166 Klein Road Subdivision

Subdivision Location & Address: 166 Klein Road (SBL 56.10-13-1)

Town of Amherst, Erie County, New York

Number of Sublots: 18+/- lots

Land is Presently Zoned R-3

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BUFFALO DISTRICT
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

TOWN OF AMHERST
PLANNING DEPT.

December 15, 2020

Regulatory Branch

SUBJECT: Determination of No Jurisdiction, Department of Army Application No. LRB-2015-01255

Mohammad Qasaymeh
33 Sanctuary Court
Buffalo, New York 14221

Dear Mr. Qasaymeh:

This pertains to the wetland delineation and walkover submitted on your behalf by Earth Dimensions, Inc for a recent request for a jurisdictional determination for the parcel of land located 166 Klein Road, Town of Amherst, Erie County, New York.

Section 404 of the Clean Water Act (CWA) establishes Corps of Engineers jurisdiction over the discharge of dredged or fill material into waters of the United States, including wetlands, as defined in 33 CFR Part 328.3.

I am hereby verifying the Federal wetland/waters boundary as shown on the attached wetland delineation map dated October 29, 2019. This verification will remain valid for a period of five (5) years from the date of this correspondence unless new information warrants revision of the delineation before the expiration. At the end of this period, a new wetland delineation will be required if a project has not been completed on this property or additional impacts are proposed for WOUS. Further this delineation/determination has been conducted to identify the limits of the Corps CWA jurisdiction for the particular site identified in this request. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resource Conservation Service prior to starting work.

Based upon my review of the submitted delineation and on-site observations, I have determined that aquatic resources Wetland 1, 2, 3 and Ditch 1 on the parcel are excluded waters as defined in the Navigable Waters Protection Rule. Therefore, these are not regulated under Section 404 of the CWA. Accordingly, you do not need Department of the Army authorization to commence work in these areas.

I encourage you to contact the appropriate state and local governmental officials to ensure that the proposed work complies with their requirements.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Regulatory Branch
SUBJECT: Determination of No Jurisdiction, Department of Army Application No. LRB-2015-01255

Finally, this letter contains an approved JD for the subject parcel. If you object to this JD, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal the above JD, you must submit a completed RFA form within 60 days of the date on this letter to the Great Lakes/Ohio River Division Office at the following address:

Suzanne Chubb
Regulatory Appeals Review Officer
US Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street, Room 10-714
Cincinnati, Ohio 45202-3222
Phone: 513-684-7261 Fax: 513-684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by February 13, 2021.

It is not necessary to submit an RFA to the Division office if you do not object to the determination in this letter.

Questions pertaining to this matter should be directed to me at (716) 879-4279 by writing to the following address: U.S. Army Corps of Engineers Regulatory Branch 1776 Niagara Street, Buffalo, New York 14207 or by e-mail at: Joseph.M.Rowley@usace.army.mil.

Sincerely,

Joseph Rowley
Physical Scientist

Enclosures
cc:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: Mohammad Qasaymeh	File Number: LRB-2015-01255	Date: December 15, 2020
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Joseph Rowley U.S. Army Corps of Engineers 1776 Niagara Street Buffalo, New York 14207 Joseph.M.Rowley@usace.army.mil 716-879-4279	Suzanne Chubb Regulatory Appeals Review Officer US Army Corps of Engineers Great Lakes and Ohio River Division 550 Main Street, Room 10-714 Cincinnati, Ohio 45202-3222 Phone: 513-684-7261 Fax: 513-684-2460

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 15-DEC-2020
ORM Number: LRB-2015-01255 (Qasaymeh, Mohammad)
Associated JDs: N/A or ORM numbers and identifiers (e.g. HQS-2020-00001-MSW-MITSITE)
Review Area Location[1]:
State/Territory: NY City: Amherst County: Erie County
Center Coordinates of Review Area: Latitude 43.002604 Longitude -78.732741

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in section II.B).
- ☐ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
N/A	N/A	N/A	N/A

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters)[3]

(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
N/A	N/A	N/A	N/A

Tributaries ((a)(2) waters):

(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
N/A	N/A	N/A	N/A

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):

(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
N/A	N/A	N/A	N/A

Adjacent wetlands ((a)(4) waters):

(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
N/A	N/A	N/A	N/A

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a take, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12))[4]:

Exclusion Name	Exclusion Size	Exclusion[5]	Rationale for Exclusion Determination
Ditch 1	700 feet	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1)	Ditch 1 was a drainage feature observed during the April 2016 site visit. It appeared the ditch was excavated to alleviate rear yard drainage. However, during the site visit no bed or banks were observed within the ditch. In addition, no water or flow was observed in the ditch even though water was observed in the surrounding area and delineated wetlands. The ditch is not found on the USGS Clarence Center Quad. The ditch was vegetated and significantly covered in leaf litter with old fill piles and woody debris (cut logs) found throughout. The ditch is perched significantly higher in elevation then the maintained Town of Amherst ditch to the North. The ditch doesn't contribute direct flow to an A(1) water or is an A(1) water, the ditch was not constructed in a tributary, doesn't relocate a tributary nor or was the ditch constructed in an adjacent wetland. Finally, the ditch doesn't contribute perennial or intermittent flow during a particular year.
Wetland 1	0.417 acres	(b)(1) Non-adjacent wetland	In the delineation report, it states Wetland 2 is a hard wood swamp pocket located in the North portion of the delineated parcel. The soils are mapped potentially hydric. Vegetation found within this wetland is a mix of non-hydric and hydrophtic vegetation. A review of aerial imagery and other in-house resources show no drainage patterns coming or going from wetland 1. This was confirmed during the site visit. Wetland 1 is more than 41 linear feet from Ditch 1 and 100 linear feet from an excavated, maintained Town of Amherst ditch to the West. No A(1)-A(3) waters were identified directly abutting Wetland 1 during the site visit or an in-house review of aerial imagery, topo maps, the NYSDEC environmental resource or USFWS Wetland mapper. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to A (1) – A(3) waters. No natural or artificial barriers between Wetland 1 and A(1) – A(3) waters were found during the site visit. The wetland is not inundated by an A(1) – A(3) waters. Also, the NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means, "....flooding is not probable. The chance of flooding is nearly 0 percent in any year". All resources reviewed support the determination that Wetland 1 doesn't directly abut an A(1)-A(3) waters, is not separated from an A(1)-A(3) waters by a natural or man-made feature and is not adjacent to an A(1)-A(3) waters.
Wetland 2	0.398 acres	(b)(1) Non-adjacent wetland	In the delineation report, it states Wetland 2 is a hard wood/scrub-shrub swamp pocket located in the Center

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

			portion of the delineated parcel. The soils are mapped potentially hydric. Vegetation found within this wetland is a mix of non-hydric and hydrophtic vegetation. A review of aerial imagery and other in-house resources show no drainage patterns coming or going from wetland 2. This was confirmed during the site visit. Wetland 2 is more than 60 linear feet from Ditch 1 and 350 linear feet from an excavated, maintained Town of Amherst ditch to the West. No A(1)-A(3) waters were identified directly abutting Wetland 1 during the site visit or an in-house review of aerial imagery, topo maps, the NYSDEC environmental resource or USFWS Wetland mapper. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to A (1) – A(3) waters. No natural or artificial barriers between Wetland 2 and A(1) – A(3) waters were found during the site visit. The wetland is not inundated by an A(1) – A(3) waters. Also, the NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means, "….flooding is not probable. The chance of flooding is nearly 0 percent in any year". All resources reviewed support the determination that Wetland 1 doesn't directly abut an A(1)-A(3) waters, is not separated from an A(1)-A(3) waters by a natural or man-made feature and is not adjacent to an A(1)-A(3) waters.
Wetland 3	0.11 acres	(b)(1) Non-adjacent wetland	In the delineation report, it states Wetland 3 is a hard wood/scrub-shrub swamp pocket located in the Eastern portion of the delineated parcel. The soils are mapped potentially hydric. Vegetation found within this wetland is a mix of non-hydric and hydrophtic vegetation. A review of aerial imagery and other in-house resources show no drainage patterns coming or going from wetland 3. This was confirmed during the site visit. Wetland 3 is more than 31 linear feet from Ditch 1 and 550 linear feet from an excavated, maintained Town of Amherst ditch to the West. In addition, Wetland 3 is more than 150 linear feet from Klein Road to the East but no open drainage is located along the road. No A(1)-A(3) waters were identified directly abutting Wetland 3 during the site visit or an in-house review of aerial imagery, topo maps, the NYSDEC environmental resource or USFWS Wetland mapper. The wetland is a shallow surface concave depression that collects water and holds it long enough to provide wetland characteristics but does not drain to A (1) – A(3) waters. No natural or artificial barriers between Wetland 3 and A(1) – A(3) waters were found during the site visit. The wetland is not inundated by an A(1) – A(3) waters. Also, the NRCS/USDA Web Soil Survey "Flood Frequency Class" rating is "none" which means, "….flooding is not probable. The chance of flooding is

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

			nearly 0 percent in any year". All resources reviewed support the determination that Wetland 3 doesn't directly abut an A(1)-A(3) waters, is not separated from an A(1)-A(3) waters by a natural or man-made feature and is not adjacent to an A(1)-A(3) waters.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

_X_ Information submitted by, or on behalf of, the applicant/consultant: *Wetland delineation dated November 3, 2015 submitted by Earth Dimensions, Inc. Also, an additional walkover report dated October 29, 2019 submitted by Earth Dimensions, Inc.*
Rationale: The reports submitted by EDI contained accurate, completed data sheets, photographs, NWI map, web soil survey with hydric soil ratings and other supporting information.
___ Data sheets prepared by the Corps: *Title(s) and/or date(s).*
__X Photographs: Photographs included within the delineation report; Google Earth, ESRI
__X Corps Site visit(s) conducted on: April 2016
___ Previous Jurisdictional Determinations (AJDs or PJDs): N/A
___ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B.*
_X_ USDA NRCS Soil Survey: USDA/NRCS Web Soil Survey – Accessed Dec 10, 2020
_x_ USFWS NWI maps: USFWS Wetland Mapper – Accessed Dec 10, 2020
_X_ USGS topographic maps: USGS Clarence Center Quad – delineated parcel located

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	ORM Maps – Accessed Dec 10, 2020
State/Local/Tribal Sources	NYSDEC Freshwater Wetland Maps – no State regulated wetlands are within the vicinity of the delineated parcel – Accessed Dec 10, 2020
Other Sources	N/A.

B. Typical year assessment(s): N/A

C. Additional comments to support AJD: N/A

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

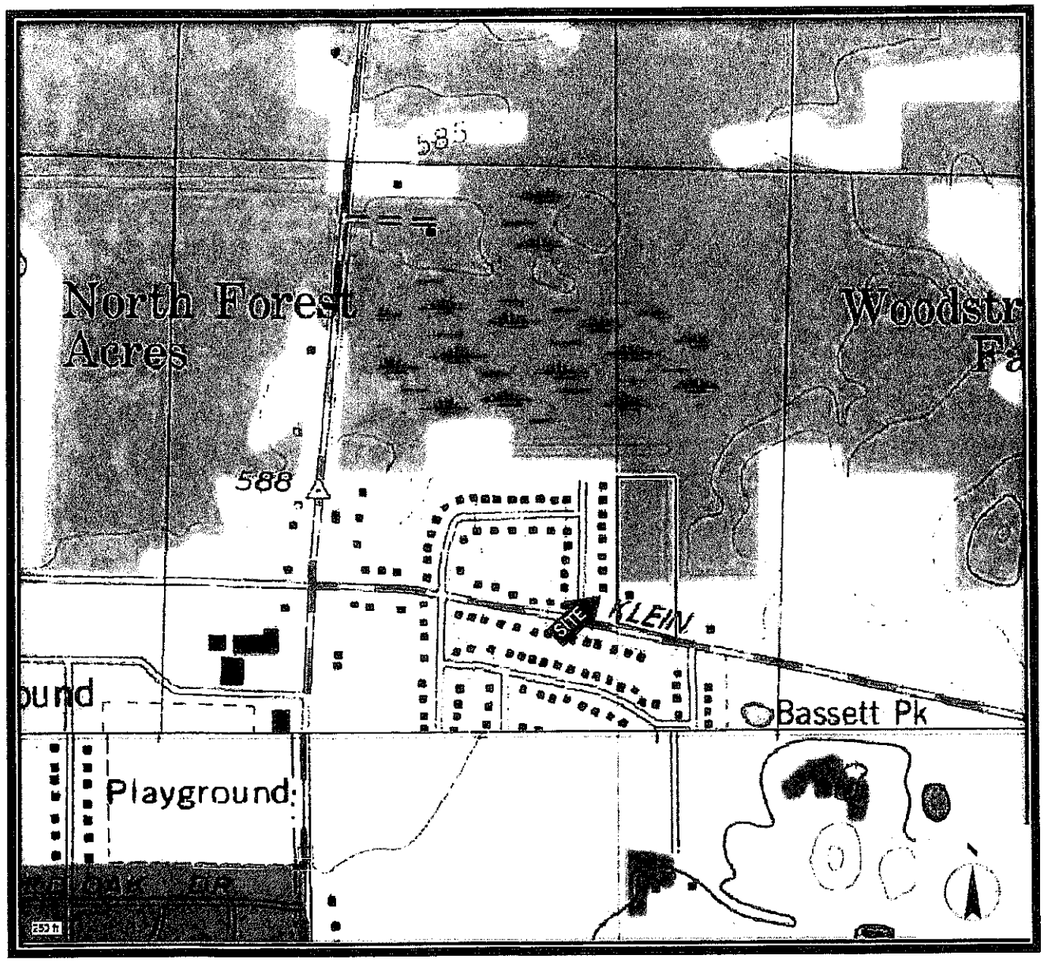


FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Clarence Center Quadrangle / 2002 DeLorme

166 Klein Road

Town of Amherst, Erie County, New York

Qasaymeh, Mohammad
LRB 2015-1255
County: Erie County
Quad: Clarence Center
Sheet 1 of 2

EARTH DIMENSIONS, INC.

6.e

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

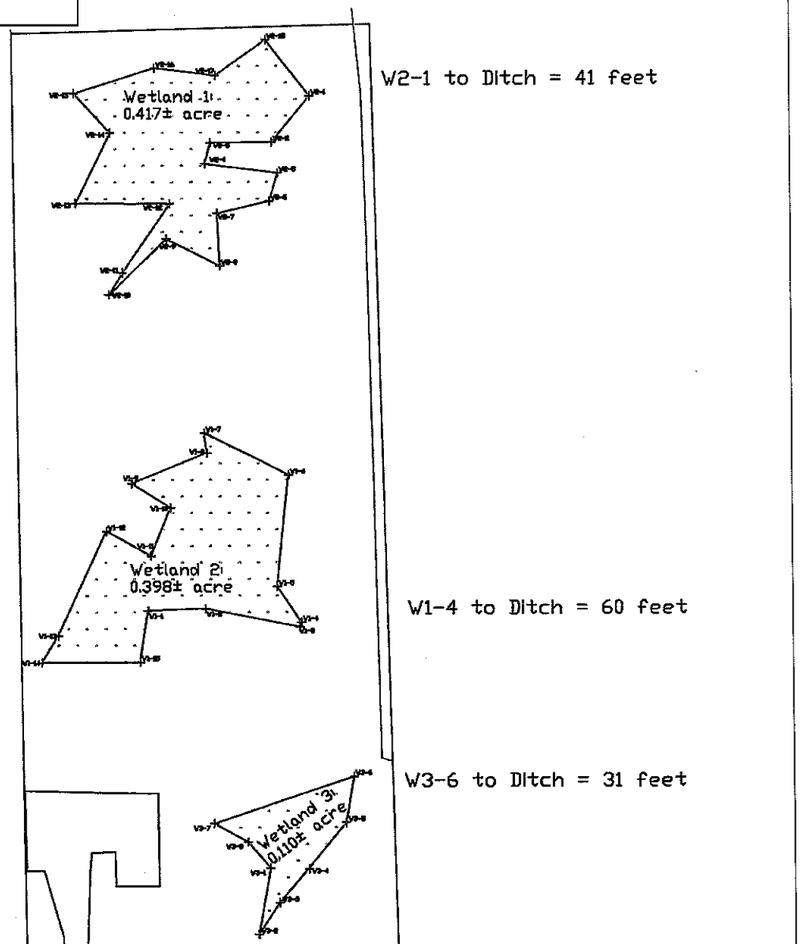
Packet Pg. 3403

Figure 8 - Wetland Delineation Map

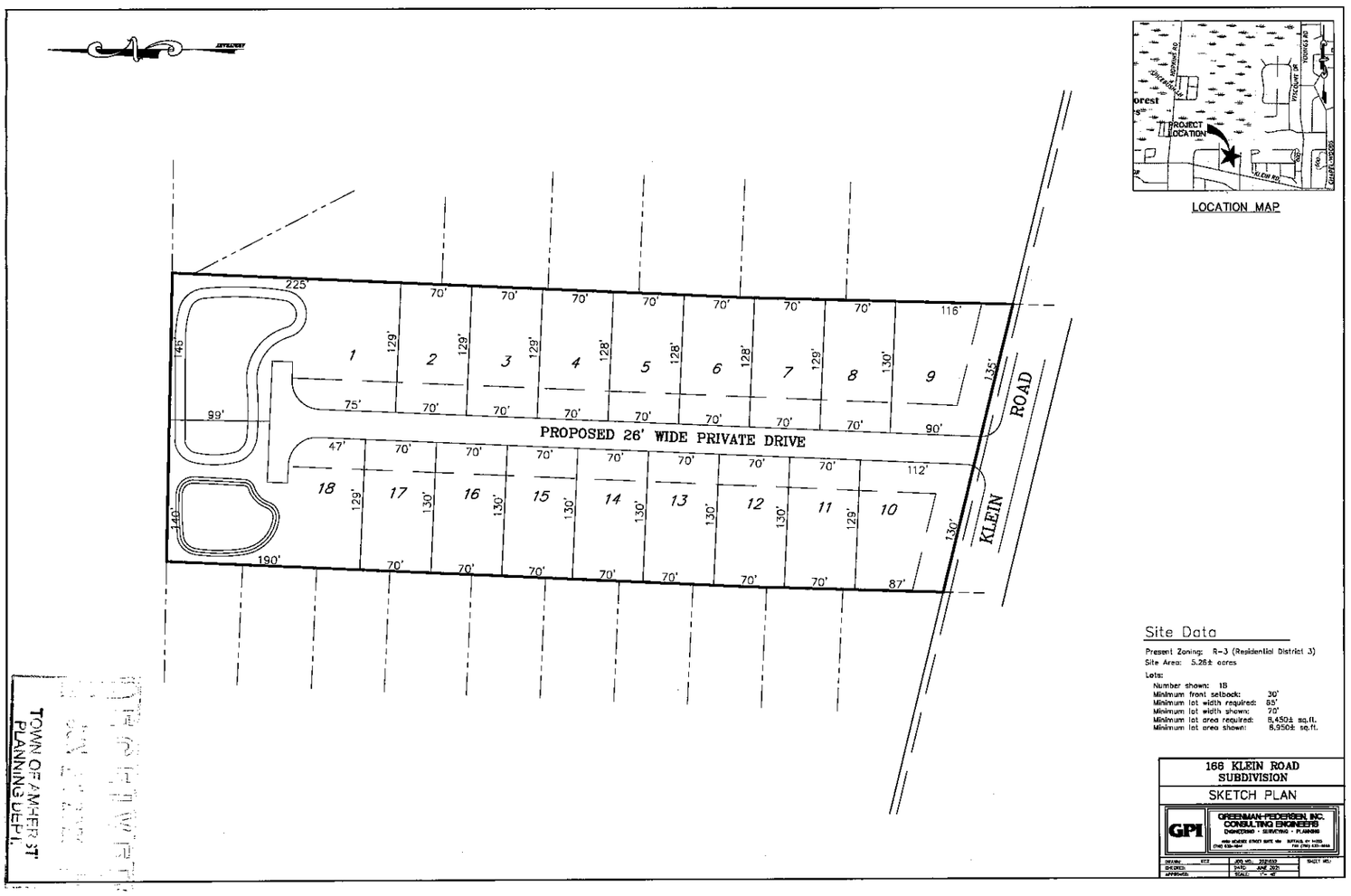
Town of Amherst Erie County, New York

EARTH DIMENSIONS, INC.

Qasaymeh, Mohammad
LRB 2015-1255
County: Erie County
Quad: Clarence Center
Sheet 2 of 2



Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)


PROPOSED 26' WIDE PRIVATE DRIVE
KLEIN ROAD
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
PROJECT LOCATION
LOCATION MAP
Site Data
Present Zoning: R-3 (Residential District 3)
Site Area: 5.28± acres
Lots:
Number shown: 18
Minimum front setback: 30'
Minimum lot width required: 85'
Minimum lot area required: 8,450± sq.ft.
Minimum lot area shown: 8,950± sq.ft.
166 KLEIN ROAD
SUBDIVISION
SKETCH PLAN
GPI
GREENMAN-PEDERSEN INC.
CONSULTING ENGINEERS
TOWN OF AMHERST
PLANNING DEPT.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish, Wildlife and Marine Resources, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7010 | F: (716) 851-7005
www.dec.ny.gov

October 19, 2015

RECEIVED
OCT 23 2015
EARTH DIMENSIONS, INC.

Mr. John Rinaldo
166 Klein Rd
Williamsville, NY 14221

Dear Mr. Rinaldo:

Wetland CC-10
Freshwater Wetland Determination
166 Klein Road
Town of Amherst, Erie County

This letter serves as notification that Senior Ecologist Charles Rosenburg and I, accompanied by Scott Livingstone of Earth Dimensions, Inc., completed a freshwater wetland determination for Wetland CC-10 in relation to your 166 Klein Road property, parcel # 56.10-13-1, on October 7, 2015. A small wetland, 0.23 acres in size, near the north edge of your property was determined to not be part of Wetland CC-10, which is currently mapped just north of your parcel. This wetland is relatively small in size, is a single wetland (versus one of a cluster of wetlands), exhibits a seasonally saturated/ shallowly flooded hydrologic regime, lacks Class 1 wetland characteristics, and is separated by a distance of 39-meters from extensive wetland on the Town parcel to the north (i.e., close to the DEC's 50-meter limit for extending jurisdiction).

Considering the wetland characteristics described above, this Department has determined that the 0.23-acre wetland does not significantly function as a unit with the extensive wetland area to the north in providing wetland benefits. Similarly, we believe the two wetland areas are not dependent on each other in providing wetland benefits. This analysis is specific to this parcel and this circumstance has no precedential value for any other site. Finally, no other wetlands were observed within 50 meters of the extensive area of Wetland CC-10 on the Town parcel to the north. Therefore, we determined that Wetland CC-10 does not extend into the 166 Klein Road parcel.

Please note that the regulated 100-foot adjacent area associated with the Wetland CC-10 boundary we identified within the Town parcel to the north does not extend into the 166 Klein Road parcel. Therefore, there is no Article 24 Freshwater

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Wetlands jurisdiction within the parcel, so an Article 24 Freshwater Wetlands permit is not needed for development of the parcel.

Be advised that the U.S. Army Corps of Engineers may also have wetland jurisdiction irrespective of the Department of Environmental Conservation. For more information, you may contact the Corps at:

United States Army Corps of Engineers Regulatory Branch
1776 Niagara Street
Buffalo, New York 14207
Telephone: (716) 879-4330

If you have any questions about this wetland delineation, please feel free to call me in the Buffalo office at (716) 851-7010.

Sincerely,

Angela G. Driscoll
Fish & Wildlife Technician I
Region 9 - Buffalo

AGD:dcg
wetlands\cc-10rinaldodeterltr

cc: Mr. Jay Ayoub, Prospective Buyer, Williamsville, New York
Scott Livingstone, Earth Dimensions, Inc., Elma, New York
Wetland CC-10 file

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Wetland and Waterbody Delineation Report

for

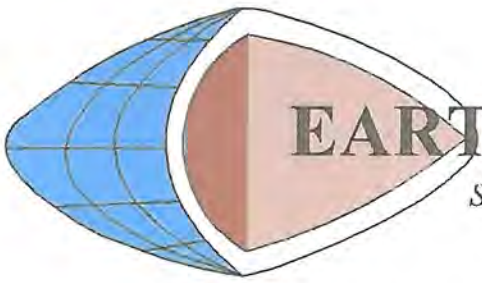
166 KLEIN ROAD

Town of Amherst

Erie County, New York

for

Elite Construction Development Corporation



EARTH DIMENSIONS, INC.

Soils Investigations • Wetland Delineations

November 3, 2015
EDI Project Code: **W1J15a**

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

REPORT SUMMARIZING THE RESULTS OF A WETLAND AND WATERBODY DELINEATION SURVEY OF

166 KLEIN ROAD

Prepared for Submission to:

U.S. ARMY CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207

AND

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
270 MICHIGAN AVENUE
BUFFALO, NEW YORK 14203

Prepared By:

EARTH DIMENSIONS, INC.
1091 JAMISON ROAD
ELMA, NEW YORK 14059

Prepared For:

JAY AYOUB
ELITE CONSTRUCTION DEVELOPMENT CORPORATION
230 PALMDALE DRIVE
WILLIAMSVILLE, NEW YORK 14221

REPORT DATE: November 3, 2015

EDI PROJECT CODE: W1J15a

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

PROJECT INFORMATION

Project Name	166 Klein Road
Street Address	166 Klein Road
SBL Number	56.10-13-1
Town	Amherst
County	Erie
State	New York
Latitude/Longitude (NAD83)	43.00292°N, 78.73273°W
Investigation Area	5.41± Acres
USGS 7.5 Minute Topographical Map	Clarence Center Quadrangle
Waterway	UNT to Ransom Creek
Hydrologic Unit Code	04120104
Date of Delineation	November 3, 2015
Consultant	Earth Dimensions, Inc. 1091 Jamison Road Elma, New York 14095
Point of Contact	Scott Livingstone (716)655-1717 slivingstone@earthdimensions.com
Engineer	N/A
Property Owner	John Rinaldo
Authority	Section 404
Permit/Letter Being Requested	Jurisdictional Determination

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

TABLE OF CONTENTS

ACKNOWLEDGEMENTS II

EXECUTIVE SUMMARY III

TABLE 1: WETLAND SUMMARY III

TABLE 2: STREAM & DRAINAGE SUMMARY IV

SECTION I: INTRODUCTION 1

SECTION II: SITE DESCRIPTION 2

SECTION III: PRELIMINARY DATA REVIEW 3

A. SUMMARY OF FINDINGS 3

1. *USGS 7.5 Minute Topographical Map* 3
2. *USFWS National Wetlands Inventory Map* 3
3. *Natural Resources Conservation Service Soils Map* 3
4. *NYSDEC Freshwater Wetlands Map* 4

B. RESULTS OF AGENCY INFORMATION REVIEW 4

SECTION IV: FIELD INVESTIGATION PROCEDURES 5

WETLANDS 5

STREAMS & DRAINAGES 8

SECTION V: RESULTS AND CONCLUSIONS 10

SECTION VI: RECOMMENDATIONS 12

APPENDIX A - FIGURES

FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP 14

FIGURE 2: NATIONAL WETLANDS INVENTORY MAP 15

FIGURE 3: NRCS ERIE COUNTY SOIL SURVEY MAP 16

FIGURE 4: NYSDEC ENVIRONMENTAL RESOURCE MAPPER 17

FIGURE 5: AERIAL PHOTOGRAPH 18

FIGURE 6: DRAINAGE MAP 19

FIGURE 7: GENERAL VEGETATION MAP 20

FIGURE 8: WETLAND DELINEATION MAP 21

APPENDIX B - DATA FORMS

APPENDIX C - SITE PHOTOGRAPHS

APPENDIX D - REFERENCES

APPENDIX E - WETLAND INVESTIGATION PERSONNEL

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

ACKNOWLEDGEMENTS

Elite Construction Development Corporation has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation study for 166 Klein Road located in the Town of Amherst, County of Erie and State of New York. EDI would like to thank Copy Market, Inc. for providing the duplicating and binding services.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

EXECUTIVE SUMMARY

Elite Construction Development Corporation has proposed the development of a 5.41± acre site located on the north side of Klein Road in the Town of Amherst, County of Erie, and State of New York. Elite Construction Development Corporation has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation report that would allow the U.S. Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC) to determine their jurisdictional authority over the investigation area, pursuant to Section 404 of the Clean Water Act and Articles 15 (Protection of Waters) and 24 (Freshwater Wetlands) of the New York State Environmental Conservation Law.

A preliminary review of available information pertaining to vegetation, soils, and hydrology in the project area was implemented prior to conducting a field investigation at the site. Sources of information included the United States Geological Survey (USGS), Natural Resources Conservation Service (NRCS), National Wetland Inventory (NWI), and NYSDEC Freshwater Wetland maps. The NRCS map indicates the presence of hydric soils and therefore the potential wetlands under federal jurisdiction. The NYSDEC map indicates the potential for wetland under state jurisdiction.

EDI applied methodology specified by the Corps of Engineers Wetlands Delineation Manual (January 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Version 2.0 (January 2012) to perform a delineation of Federal jurisdictional wetlands within the site. EDI identified two (2) wetland areas totaling 0.48± acre within the investigation area. One (1) linear drainage feature was identified along the eastern limits of the property during the investigation. The identification number of the wetlands, their acreage and boundary flags are as follows:

TABLE 1: WETLAND SUMMARY

Wetland Identification #	Geographic Center (NAD83)		Boundary Flag #	Total Acreage On-site	Wetland Type (Cowardin)	Wetland Type (Reschke)	Jurisdictional Determination
	Latitude	Longitude					
Wetland 1	43.00263	78.73274	W1-1 through W1-14	0.33±	PFO1E	Hardwood Swamp	Non-jurisdictional
Wetland 2	43.00355	78.73276	W2-1 through W2-12	0.15±	PFO1B	Hardwood Swamp	Non-jurisdictional
Total Wetland Acreage:				0.48±			

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

TABLE 2: STREAM & DRAINAGE SUMMARY

Stream Identification #	Waterway	DEC Class	Linear Feet On-site	Highwater Width (Ft)	Flow Regime	Substrate	Classification (Cowardin)	Jurisdictional Determination
Stream 1	UNT to Ransom Creek	N/A	587.3 feet	3 feet	Perennial	silt, detritus	R2UB4	Jurisdictional

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

SECTION I: INTRODUCTION

Elite Construction Development Corporation has proposed the development of a 5.41± acre site on the north side of Klein Road in the Town of Amherst, County of Erie, and State of New York. The project has been given the name 166 Klein Road and is located on USGS 7.5 minute quadrangle map indexed as Clarence Center/2002 DeLorme (Figure 1). The field work was completed on November 3, 2015 using a hand held Garmin GPSmap 62s to locate wetland and drainage boundaries.

Elite Construction Development Corporation has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation study at this site. The investigation was designed to facilitate a determination of the extent of USACE and NYSDEC jurisdiction over the project area pursuant to Section 404 of the Clean Water Act and Articles 15 (Protection of Waters) and 24 (Freshwater Wetlands) of the New York State Environmental Conservation Law.

EDI has performed a wetland delineation study at the site under guidelines specified by the *Corps of Engineers Wetlands Delineation Manual*, dated January 1987 (referred to hereafter as the Corps Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region version 2.0* (January 2012) (referred to hereafter as the Northcentral and Northeast Regional Supplement). The purpose of this report is to present EDI's methods, results, conclusions and recommendations with respect to the 166 Klein Road project site.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

SECTION II: SITE DESCRIPTION

The 166 Klein Road project area is comprised of a 5.41± acre rectangular shaped investigation area on the north side of Klein Road, east of Hopkins Road and west of Youngs Road, and is outlined on Figure 1 and depicted on the Wetland Delineation Map included in Appendix A (Figure 8).

The natural topography of the 166 Klein Road site is flat to gently sloping. The upland within the investigation area consisted of mown lawn and successional northern hardwood communities. The wetland areas were found to consist of hardwood swamp communities. The vegetative communities of the investigation area are described according to *Ecological Communities of New York State* (Edinger et al. 2014).

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

SECTION III: PRELIMINARY DATA REVIEW

A. SUMMARY OF FINDINGS

Several sources of information may be reviewed to facilitate the completion of a wetland delineation study. In some cases it is even possible to make a preliminary office wetland determination based upon available vegetation, soils, and hydrologic information for a project area. EDI completed a preliminary review of several data sources at the onset of this study. The results of the review are summarized as follows:

1. USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Figure 1 depicts the 166 Klein Road project site on the Clarence Center/2002 DeLorme quadrangle map. The figure depicts the flat to gently sloping topography of the site. No linear drainage features are shown within the investigation area.

2. USFWS NATIONAL WETLANDS INVENTORY MAP

Figure 2 depicts the National Wetlands Inventory (NWI) map obtained from the USFWS Wetland Mapper http://www.fws.gov/wetlands/Data/Mapper.html which shows no wetlands mapped within the investigation area.

3. NATURAL RESOURCES CONSERVATION SERVICE SOILS MAP

Figure 3 presents the project area outlined on a copy of the Erie County Soil Survey map from the National Cooperative Soil Survey. As shown on that figure, the site has the following soil types:

Soil Conservation Service Legend

Map Unit Symbol	Map Unit Name	Hydric Soil/Inclusions?
La	Lakemont silt loam, 0 to 3% slopes	Hydric Soil
Ut	Urban land-Odessa complex	Inclusions Possible

Lakemont silt loam: The Lakemont series consists of deep, poorly drained and very poorly drained soils of lake plains. They are nearly level soils formed in very slowly permeable reddish colored clayey lacustrine sediments. Slope ranges from 0 to 3 percent. Permeability is moderately slow in the surface

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

and very slow in the subsoil sand substratum. Mean annual temperature is about 48°F and mean annual precipitation is about 34 inches.

Urban land-Odessa complex: This complex consists of nearly level areas of Urban land and somewhat poorly drained Odessa soils. The Odessa soils formed in clayey lake-laid sediments. The typical area of this complex is 60% Urban land that is mostly covered by concrete, asphalt, buildings or other impervious surfaces, about 25% Odessa soils, and 15% other soils.

The U.S. Department of Agriculture's National Technical Committee for Hydric Soils Criteria has developed a list of soils that often display hydric soil characteristics. Hydric soil typically forms in places of the landscape where surface water periodically collects for some time and/or where groundwater discharges are sufficient to create waterlogged or anaerobic soils. Such anaerobic soils can support the growth and survival of hydrophytic vegetation that is tolerant of such conditions. Lakemont is a hydric soil and therefore may support wetland vegetation. Wetland hydrologic conditions, hydric soils, and hydrophytic vegetation are the three criteria of a wetland.

4. NYSDEC Freshwater Wetlands Map

The NYSDEC Freshwater Wetlands map obtained from the online NYSDEC Environmental Resource Mapper displays state jurisdictional Freshwater Wetland CC-10 within and adjacent to the investigation area.

B. RESULTS OF AGENCY INFORMATION REVIEW

The preliminary data review revealed that USACE may have jurisdiction over wetlands at the project location. The evidence consisted of hydric soils and soils with possible hydric inclusions depicted within the project area as shown on the NRCS map (Figure 3). NYSDEC may also have jurisdiction over wetlands at the project location as shown on the NYSDEC Resource Mapper (Figure 4). Therefore, it was considered necessary to perform a field investigation at the site in order to determine the presence of federal and/or state protected wetlands. The methods specified in the Corps of Engineers Wetlands Delineation Manual (January 1987) and Northcentral and Northeast Regional Supplement Version 2.0 (January 2012) were employed during the field investigation. Procedures, results, and conclusions of the wetland delineation study are presented in the remainder of this report.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

SECTION IV: FIELD INVESTIGATION PROCEDURES

WETLANDS

Step 1

EDI applied methodology specified by the 1987 Corps of Engineers Wetlands Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0, January 2012) to perform a delineation of Federal jurisdictional wetlands within the site. EDI used the Level 2 Routine Determination method (on-site inspection necessary) since insufficient information was available for making a determination for the entire project area. This methodology is consistent with Part IV, Section D of the Corps Manual.

Step 2

EDI's initial evaluation of the project area revealed that no atypical situations existed. If an atypical situation had existed, EDI would have used methodology outlined in Part IV, Section F of the Corps manual and/or Section 5 of the Northcentral and Northeast Supplement.

Step 3

EDI made the determination that normal environmental conditions were present, as the area was not lacking hydrophytic vegetation or hydrologic indicators due to annual, seasonal or long-term fluctuations in precipitation, surface water, or groundwater levels. The Northcentral and Northeast Supplement defines the growing season as beginning when one of the following indicators of biological activity are evident in a given year: (1) above-ground growth and development of vascular plants and/or (2) soil temperature measured at 12" below ground surface reaches 41°F. The end of the growing season is defined as the point at which deciduous species lose their leaves or the last herbaceous plants cease flowering and their leaves become dry or brown, whichever comes latest.

Step 4

In order to accurately identify the limits of various vegetative communities and extent of wetlands on-site, a routine determination method was used. As depicted in Appendix A and included in Appendix B, four (4) data points were used to characterize the site.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Step 5

The plant community inhabiting each observation point was characterized in accordance with methods specified in the Northcentral and Northeast Regional Supplement. Dominant plant species were identified within four vegetative strata (i.e. herb, sapling/shrub, tree and liana (woody vines) at each sampling point. The Northcentral and Northeast Regional Supplement defines the vegetative strata in the following manner:

Herb – A non-woody individual of a macrophytic species. Seedlings of woody plants (including vines) that are less than 3.28 feet in height are considered to be herbs.

Sapling/Shrub – A layer of vegetation composed of woody plants < 3.0 inches in diameter at breast height but greater than 3.28 feet in height, exclusive of woody vines.

Tree – A woody plant > 3.0 inches in diameter at breast height, regardless of height (exclusive of woody vines)

Liana – A layer of vegetation in forested plant communities that consist of woody vines greater than 3.28 feet in height.

As outlined in the manual, the quadrant sizes used for the vegetative strata were (i) a 3.28-foot radius for herbs; (ii) a ten-foot radius for saplings/shrubs and woody vines; and (iii) a 30-foot radius for trees. Dominant plant species were estimated using aerial coverage methods. Dominant species are defined in the Corps Manual as the most abundant plant species that when ranked in descending order of abundance and cumulatively totaled immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species comprising 20 percent or more of the total dominance measure.

The wetland indicator status (OBL, FACW, FAC, FACU, or UPL) listed for each identified species by the U.S. Fish and Wildlife Service in the National List of Plant Species that Occur in Wetlands: Northeast (Region 1) was recorded. The U.S. Fish and Wildlife wetland indicator status listings are defined as follows:

OBL – Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability < 1 percent) in nonwetlands.

FACW – Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in nonwetlands.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

FAC – Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and nonwetlands.

FACU – Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in nonwetlands.

UPL – Plants that occur rarely (estimated probability < 1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in nonwetlands under natural conditions.

The plant community data was summarized on the data forms provided in the Northcentral and Northeast Regional Supplement included in this report as Appendix B.

Step 6

Plant data from each observation point were tested against the hydrophytic vegetation criterion specified in the Corps Manual and Northcentral and Northeast Regional Supplement. The Northcentral and Northeast Regional Supplement identifies a four-tiered approach for making a determination of whether or not the hydrophytic vegetation criteria is met for a sample plot. Indicator 1 (Rapid Test for Hydrophytic Vegetation) was first applied to determine if all dominant species across all strata are rated OBL and/or FACW. If Indicator 1 did not meet the hydrophytic vegetation criteria, Indicator 2 was then applied (dominance test); if greater than 50% of all plant species across all strata were rated OBL, FACW, or FAC, the hydrophytic vegetation criteria was considered met. In rare cases, when Indicators 1 and 2 did not meet the hydrophytic vegetation criteria but soils and hydrology criteria were met, Indicators 3 (Prevalence Index) and 4 (Morphological Adaptations) were used to make a final determination. All observation points that met the hydrophytic vegetation criterion were considered potential wetlands. Soils were then characterized.

Step 7

The Corps Manual specifies that soils need not be characterized (and are assumed hydric soils) at sampling points meeting the hydrophytic vegetation criterion if: (i) all dominant plant species have an indicator status of OBL, or (ii) all dominant species have an indicator status of OBL and/or FACW, and the wetland boundary is abrupt (at least one dominant OBL species must be present). All observation points sampled during this field investigation were examined directly for soil and hydrologic characteristics.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Step 8

At observation points requiring a soil evaluation, soil borings were performed by an EDI Soil Scientist using methods specified in the Northcentral and Northeast Regional Supplement. Soil pits were dug using a tile spade. Testpits were generally dug to a depth of 20 inches below ground surface. Soils were examined for any of the hydric soil indicators, as outlined in the Field Indicators of Hydric Soils in the United States. A determination was made as to whether or not the hydric soil criterion was met. Soils data was recorded on the data forms included in Appendix B of this report.

Step 9

EDI's Soil Scientist examined hydrologic indicators using methods specified by the Northcentral and Northeast Regional Supplement at each observation point. The wetland hydrology criterion was met if: (i) one or more primary field indicators was materially present, (ii) available hydrologic records provided necessary evidence, or (iii) two or more secondary indicators were present. Results were recorded on data forms taken from the Corps Manual and are included in this report as Appendix B.

Step 10

A wetland determination was made for every observation point. If a sample plot met the hydrophytic vegetation, hydric soil, and wetland hydrology criteria, the area was considered to be wetland.

Step 11

Based on the results of the transected data, wetland boundaries were established for each identified wetland using survey ribbon labeled "wetland delineation" and numbered consecutively along each wetland boundary. As outlined in the Corps Manual, the placement of flags was based on the limits of areas where all three parameters were met. Wetland flags were labeled W1-1 through W1-14 and W2-1 through W2-12.

STREAMS & DRAINAGES

The federally regulated Ordinary High Water (OHW) mark of streams within the Project area were delineated utilizing the definitional criteria as presented in Title 33, Code of Federal Regulations, Part 328, and the USACE Regulatory Guidance Letter 05-05 – Guidance on Ordinary

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

High Water Mark Identification. Each stream is categorized in regard to its flow regime as perennial, intermittent, or ephemeral, as defined by the USACE. The Ordinary High Water (OHW) mark for each stream is surveyed using the handheld Garmin GPSmap 62s. Each stream is assigned a letter designation, and survey points are numbered consecutively. Substrate characteristics and water depth are noted. Streams classified as AA, A, B, C, C(t) and C(ts) in the State of New York are regulated by NYSDEC under Article 15 Use and Protection of Waters. Streams are given classifications which designate the level of protection afforded to each waterbody. Class AA and A are assigned to sources of drinking water. Class B streams are best suited for swimming and other contact recreation, but not drinking water. Class C streams identify waters that support fishing and non-contact activities. A classification with (t) designates a stream with the potential to support trout populations. A classification of (ts) identifies waters that may support trout spawning. Class D waters are the lowest classification, and are often highly imperiled.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

SECTION V: RESULTS AND CONCLUSIONS

Earth Dimensions, Inc. (EDI) has completed a wetland delineation study at 166 Klein Road located in the Town of Amherst, County of Erie, and State of New York. A field investigation was conducted by a Soil Scientist and a Wetland Ecologist from EDI. The wetland delineation study identified two (2) wetlands totaling 0.48 ± acre present within the site. In addition, a 587.3 foot linear ditch was identified along the eastern property limits. No open waterbodies were identified within the investigation area.

Figure 7 depicts the vegetative communities as they existed at the time of the investigation. The uplands within the investigation area were comprised of mown lawn and successional northern hardwood communities. The wetland areas were found to consist of hardwood swamp communities. The vegetative communities of the investigation area are described according to Ecological Communities of New York State (Edinger et al. 2014). No data was taken in the mown lawn community, however, species present were consistent with descriptions provided by Reschke.

The successional northern hardwood community was dominated by the following species: green ash (*Fraxinus pennsylvanica*), eastern cottonwood (*Populus deltoides*), black cherry (*Prunus serotina*), common buckthorn (*Rhamnus cathartica*), Tatarian honeysuckle (*Lonicera tatarica*) and common red raspberry (*Rubus ideaus*).

Wetland W1 is a 0.33± acre hardwood swamp dominated by green ash (*Fraxinus pennsylvanica*), common buckthorn (*Rhamnus cathartica*), calico aster (*Symphyotrichum lateriflorum*) and poison ivy (*Toxicodendron radicans*). Soils within wetland W1 are mapped as Lakemont Silt Loam and had a soil color of 10YR3/1 with 5% 10YR5/8 mottles. The texture is silt loam. This soil fits the NRCS F6 indicator (Redox Dark Surface). Wetland W1 has no apparent connection to drainages on-site and is therefore considered isolated and non-jurisdictional.

Wetland W2 is a 0.15± acre hardwood swamp dominated by silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*) and fowl mannagrass (*Glyceria striata*). Soils within wetland W1 are mapped as Lakemont Silt Loam and had a topsoil color of 10YR2/1 and a subsoil color of 10YR6/1 with 5% 10YR5/6 mottles. The texture is silt loam and very fine sandy loam.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

This soil fits the NRCS S4 indicator (Sandy Gleyed Matrix). Wetland W1 has no apparent connection to drainages on-site and is therefore considered isolated and non-jurisdictional.

Drainage 1 is identified as an unnamed tributary to Ransom Creek and flows northerly along the eastern limits of the investigation area, before turning westerly off-site to the northeast. This perennial channel is not identified by NYSDEC standards. The substrate consists of silt and detritus, with sparse vegetation along the banks. Within the project area, drainage S1 is approximately 3 feet wide (8 feet at top of bank) with an average water depth of 6 inches.

A map which depicts the site boundaries and the location of all observation points established during the field survey is included as Figure 8 in Appendix A of this report. Data forms are included as Appendix B. Appendix C includes representative photographs of the project area. Appendix D notes the references used during the preparation of this report and during the field investigation. Appendix E provides the names, addresses and phone numbers of the survey personnel involved in the wetland delineation study.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

SECTION VI: RECOMMENDATIONS

Two (2) wetland areas and one (1) linear drainage were identified during the course of a field investigation based upon the three parameter technique (vegetation, soils, and hydrology) outlined in the Corps Manual and Northcentral and Northeast Regional Supplement. It is EDI's professional opinion that the two wetland areas identified do not have a connection to Waters of the U.S. and are therefore non-jurisdictional. The unnamed tributary to Ransom Creek is assumed to be regulated by the USACE under Section 404 of the Clean Water Act. In a letter dated October 19, 2015, NYSDEC determined that wetland W2 is not connected to NYSDEC Freshwater Wetland CC-10. The letter stated that NYSDEC has no jurisdiction over any portion of the property under Article 24 of New York Conservation Law. USACE and NYSDEC approach their regulatory analyses by first considering avoidance of wetlands and minimization of wetland losses. EDI recommends the following:

(1) Submit this report to USACE with a request for a wetland boundary confirmation and jurisdictional determination.

(2) If no impacts are proposed to federal wetlands or drainages based on the outcome of the jurisdictional determination, it is the professional opinion of EDI that the project may proceed without the need for Section 404 Permit.

(3) If any federally jurisdictional wetland impacts are proposed, it is EDI's recommendation that a Joint Application for Permit and supporting documentation be submitted to the USACE and NYSDEC with a request for a Section 404 Permit and Section 401 Water Quality Certification.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

166 KLEIN ROAD

APPENDIX A - FIGURES

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

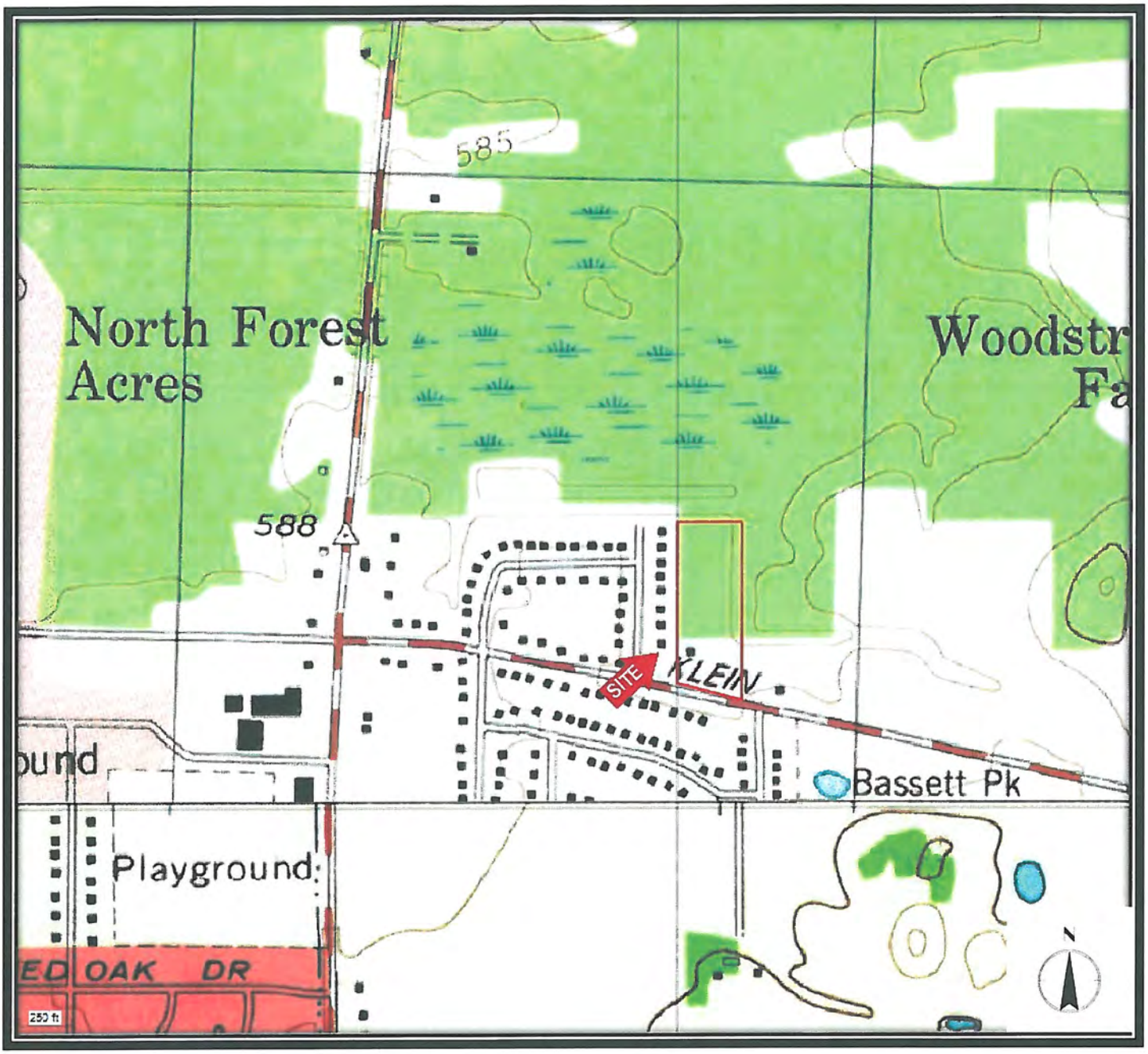


FIGURE 1: USGS 7.5 MINUTE TOPOGRAPHICAL MAP

Clarence Center Quadrangle / 2002 DeLorme

166 Klein Road

Town of Amherst, Erie County, New York

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



FIGURE 2: NATIONAL WETLANDS INVENTORY MAP

http://www.fws.gov/wetlands/data/mapper.HTML (Visited 10/21/15)

166 Klein Road

Town of Amherst, Erie County, New York

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

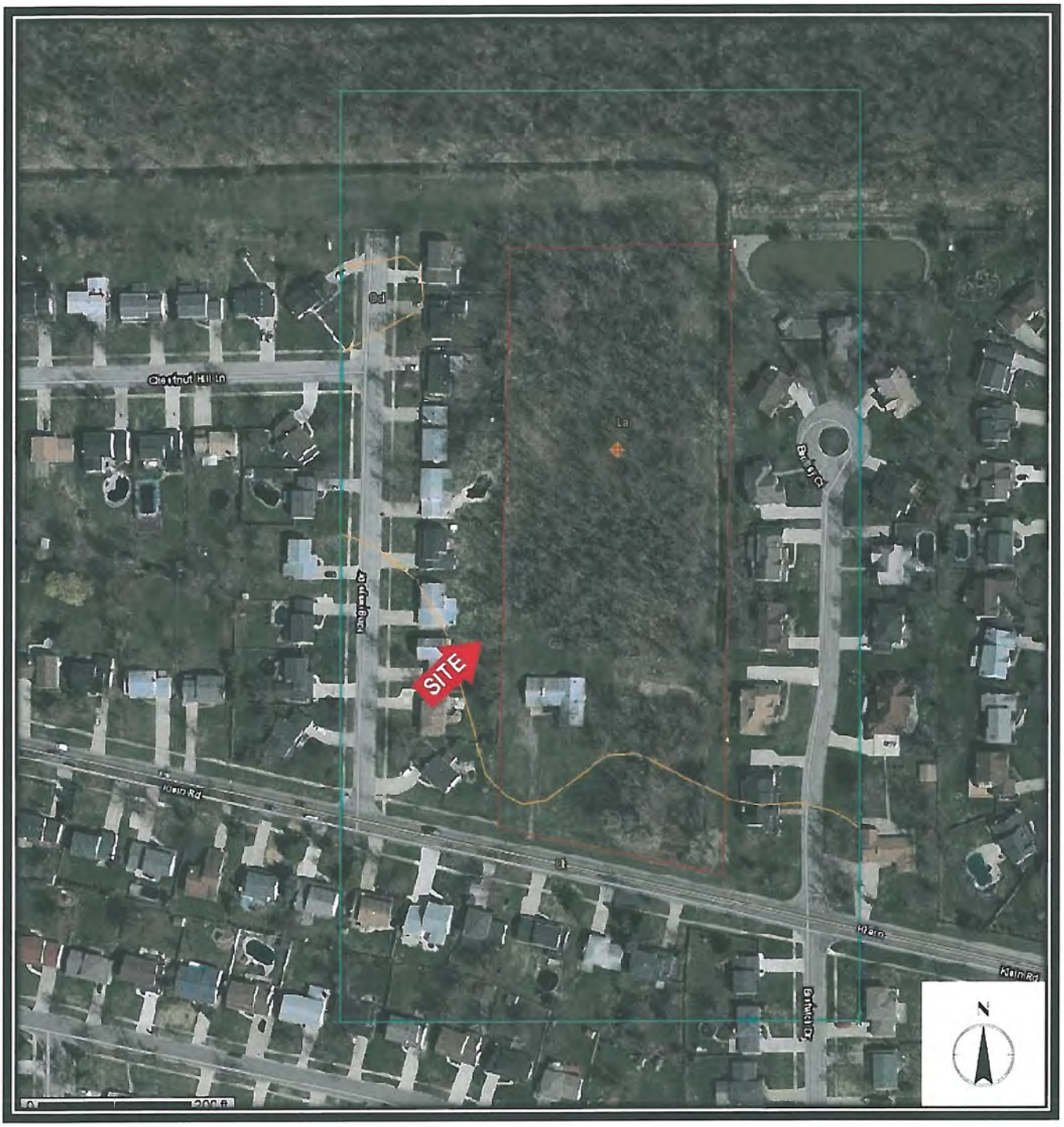


FIGURE 3: NRCS ERIE COUNTY SOIL SURVEY MAP

http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (Visited 10/21/15)

166 Klein Road

Town of Amherst, Erie County, New York

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

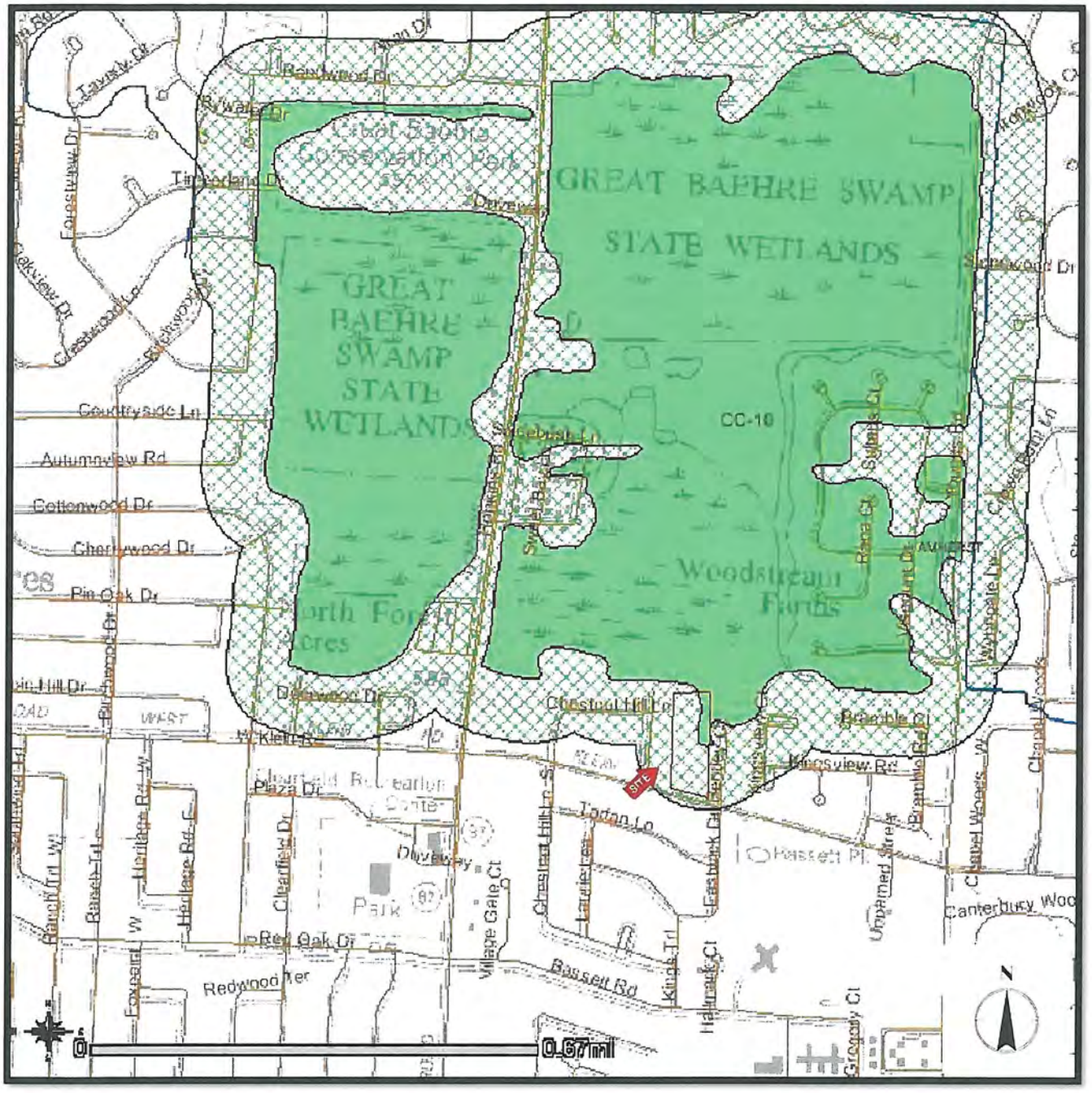


FIGURE 4: NYSDEC ENVIRONMENTAL RESOURCE MAPPER

http://www.dec.ny.gov/imsmaps/ERM/viewer.htm (Visited 10/21/15)

166 Klein Road

Town of Amherst, Erie County, New York

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



FIGURE 5: AERIAL PHOTOGRAPH

http://gis2.erie.gov/HTML5/ErieCountyNY/PublicLaunchPage.aspx (Visited 10/21/15)

166 Klein Road

Town of Amherst, Erie County, New York

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

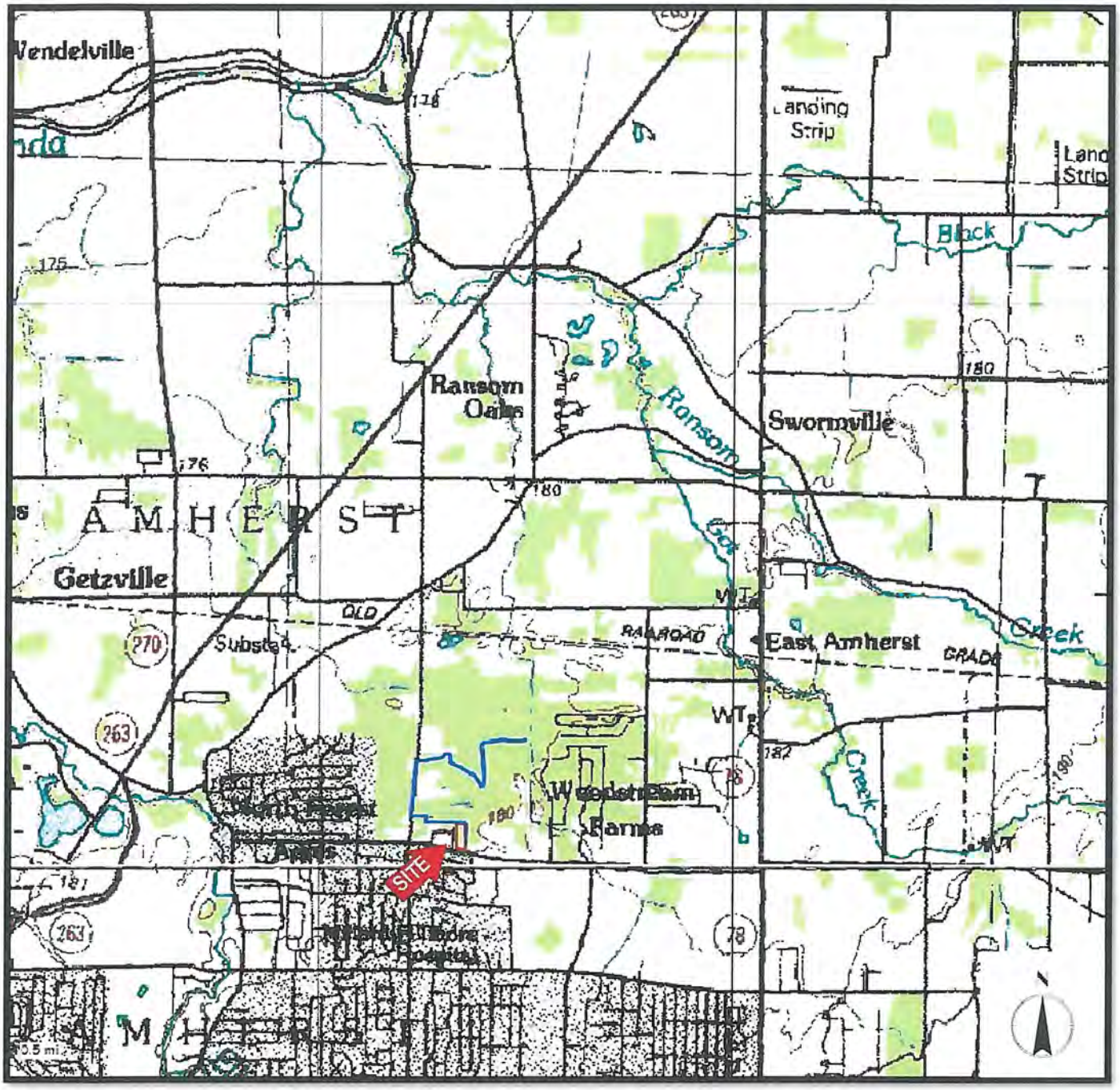


FIGURE 6: DRAINAGE MAP

Clarence Center Quadrangle / 2002 DeLorme

166 Klein Road

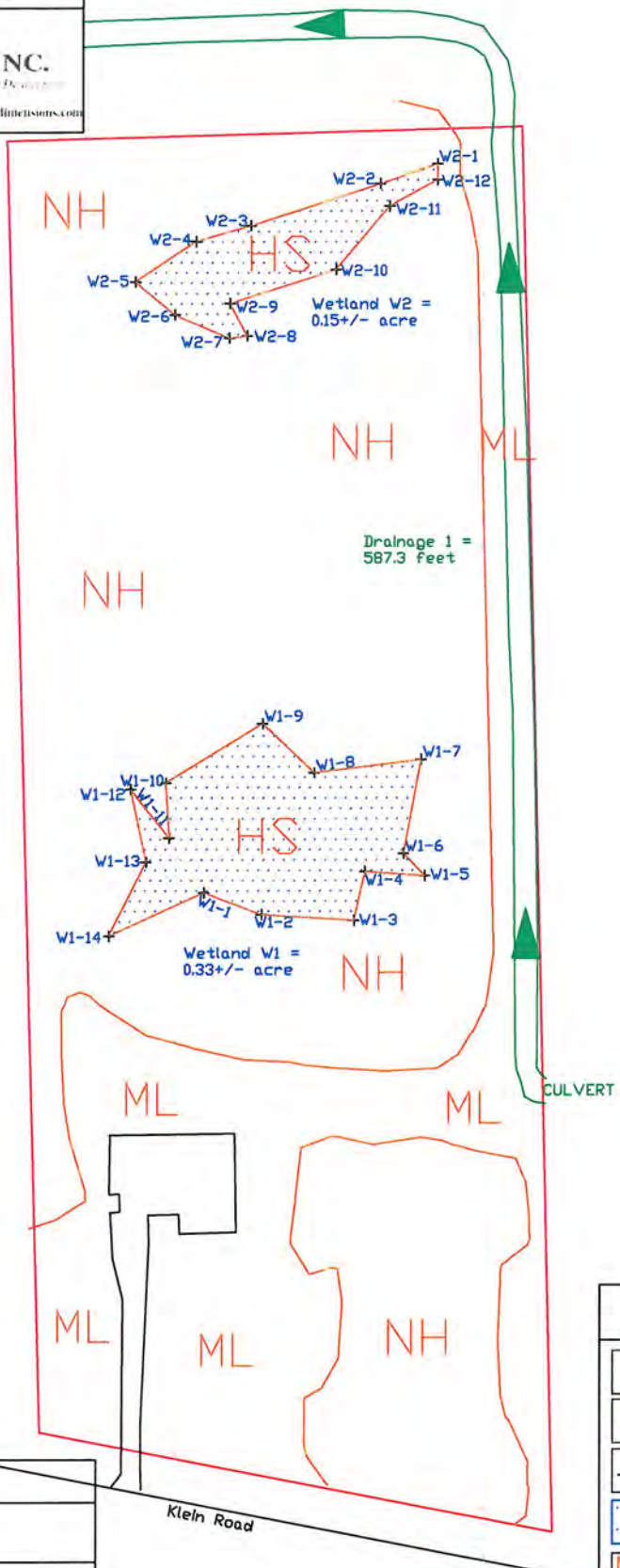
Town of Amherst, Erie County, New York

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Figure 8 - Wetland Delineation Map

Town of Amherst Erie County, New York

EARTH DIMENSIONS, INC.
1091 Jamison Road • Lima New York 14059
(716) 655-1717 • Fax (716) 655-2915 • www.earthdimensions.com



Scale: 0 50' 100'
Map Date: November 3, 2015/ TJS for EDI Revised:
Base Map Provided By: GPSMap 62s
File Name: Delineation map.dwg
EDI Project Code: W1J15a

LEGEND

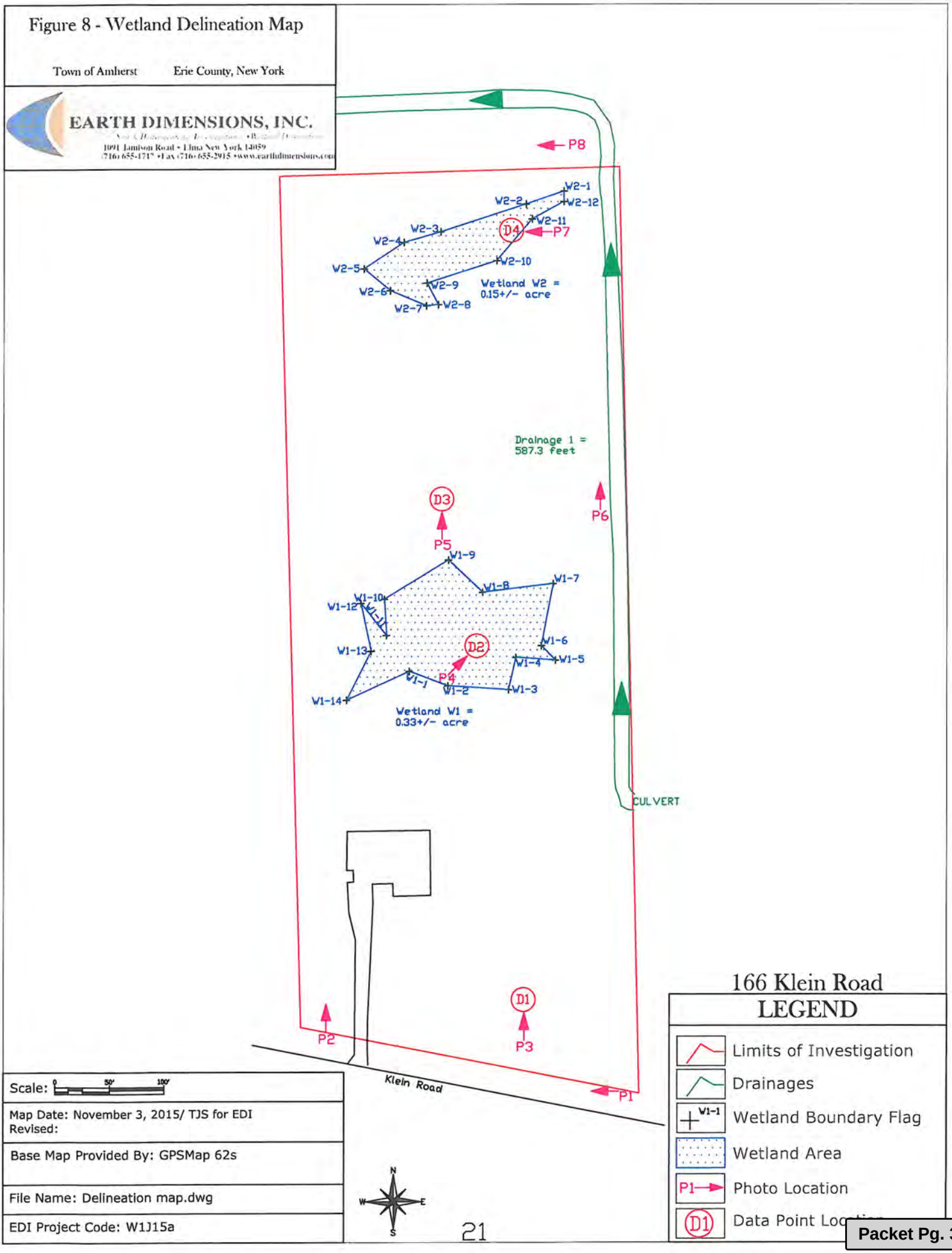
- Limits of Investigation
- Community Boundary
- W1-1 Wetland Boundary Flag
- Wetland Area
- ML Mown Lawn
- NH Northern Hardwood
- HS Hardwood Swamp

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Figure 8 - Wetland Delineation Map

Town of Amherst Erie County, New York

EARTH DIMENSIONS, INC.
1091 Jamison Road • Elma New York 14059
(716) 655-1717 • Fax (716) 655-2915 • www.earthdimensions.com



166 Klein Road

LEGEND

- Limits of Investigation
- Drainages
- W1-1 Wetland Boundary Flag
- Wetland Area
- P1 Photo Location
- D1 Data Point Location

Scale: 0 50' 100'
Map Date: November 3, 2015/ TJS for EDI Revised:
Base Map Provided By: GPSMap 62s
File Name: Delineation map.dwg
EDI Project Code: W1J15a

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

166 KLEIN ROAD

APPENDIX B - DATA FORMS

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 166 Klein Road Town/County: Amherst/Erie County Sampling Date: 11/03/2015

Applicant/Owner: Elite Construction Development Corp. State: New York Sampling Point: D1

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 56.10-13-1

Landform (hillslope, terrace, etc.): Flat plain Local relief (concave, convex, none): CONVEX Slope (%): 3

Subregion (LRR or MLRA) LRRL Lat: Long: Datum: NAD83

Soil Map Unit Name: Lakemont silt loam, 0-3 percent slopes NW I classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes	No X
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season W ater Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches): N/A
Water Table Present?	Yes	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15a

VEGETATION : Use scientific names of plants. Sampling Point: D1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	30	Y	FACW
2. Populus deltoides	20	Y	FAC
3. Ulmus americana	12	N	FACW
4.			
5.			
6.			
7.			
	62	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Rhamnus Cathartica	30	Y	FAC
2. Fraxinus pennsylvanica	8	N	FACW
3. Acer Saccharinum	3	N	FACW
4.			
5.			
6.			
7.			
	41	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Rhamnus Cathartica	3	N	FAC
2. Symphyotrichum cr: cordes	3	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	6	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW , or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW , or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is < 3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: Successional N. Hardwood

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # P3 **Direction of Photo** North

No hydrology present

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

SOIL Sampling Point: D1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	100					L	
7-12	10YR 6/1	100					LFS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- X Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

* NOTE - CONDITION IS APPARENTLY RELICT AS AREA IS CONVEX & CLEARLY DOES NOT HAVE WETLAND HYDROLOGY

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 166 Klein Road Town/County: Amherst/Erie County Sampling Date: 11/03/2015

Applicant/Owner: Elite Construction Development Corp. State: New York Sampling Point: DZ

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 56.10-13-1

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): CONCAVE Slope (%): 2-1

Subregion (LRR or MLRA) LRRL Lat: _____ Long: _____ Datum: NAD83

Soil Map Unit Name: Lakemont silt loam, 0-3 percent slopes NW I classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	If yes, optional Wetland Site ID: W1

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season W ater Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): N/A

Water Table Present? Yes _____ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15a

VEGETATION : Use scientific names of plants. Sampling Point: D2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	60	Y	FACW
2. Ulmus americana	10	N	FACW
3.			
4.			
5.			
6.			
7.			
	70	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Rhamnus cathartica	15	Y	FAC
2. Quercus bicolor	5	N	FACW
3. Fraxinus pennsylvanica	3	N	FACW
4.			
5.			
6.			
7.			
	23	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Symphyotrichum lutiflorum	20	Y	FAC
2. Polygonum virginianum	11	N	FAC
3. Poa palustris	7	N	FACW
4. Glyceria striata	4	N	OBL
5. Geum aleppicum	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron radicans	10	Y	FAC
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW , or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW , or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is < 3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: Hardwood Swamp

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # P4 **Direction of Photo** Northeast

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

SOIL

Sampling Point: DZ

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18"	10YR3/1	95	10YR5/8	5	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 166 Klein Road Town/County: Amherst/Erie County Sampling Date: 11/03/2015

Applicant/Owner: Elite Construction Development Corp. State: New York Sampling Point: D3

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 56.10-13-1

Landform (hillslope, terrace, etc.): 4.1 slope Local relief (concave, convex, none): CONVEX Slope (%): 3.5

Subregion (LRR or MLRA) LRRL Lat: _____ Long: _____ Datum: NAD83

* Soil Map Unit Name: Lakemont silt loam, 0-3 percent slopes NW I classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

* MISMAP - AREA IS A WELL DRAINED SOIL INCLUSION APPARENTLY PART OF A DISSECTED BEACH RIDGE

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9)
- __ Aquatic Fauna (B13)
- __ Marl Deposits (B15)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres on Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- __ Surface Soil Cracks (B6)
- __ Drainage Patterns (B10)
- __ Moss Trim Lines (B16)
- __ Dry-Season W ater Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Stunted or Stressed Plants (D1)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ Microtopographic Relief (D4)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): N/A
Water Table Present?	Yes ____	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Project Code: W1J15a

VEGETATION : Use scientific names of plants. Sampling Point: D3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	35	Y	FACU
2. Fraxinus pennsylvanica	27	Y	FACW
3. Acer rubrum	8	N	FAC
4.			
5.			
6.			
7.			
	71	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	18	Y	FACU
2. Rhamnus cathartica	10	N	FAC
3. Cornus amomum	2	N	FACW
4.			
5.			
6.			
7.			
	40	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Rubus idaeus	40	Y	FACW
2. Rubus allegheniensis	10	N	FACW
3. Potentilla simplex	8	N	FACW
4. Carex blanda	7	N	FAC
5. Geum aleppicum	5	N	FAC
6. Geum canadense	4	N	FAC
7. Solidago juncea	2	N	FACW
8.			
9.			
10.			
11.			
12.			
	76	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is < 3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: Successional N. hardwood

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # P5 **Direction of Photo** North

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

SOIL

Sampling Point: D3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					SiL	
8-12	10YR 5/4	100					LvFS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ____ No X

Remarks:

REMNANT BEACH RIDGE

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 166 Klein Road Town/County: Amherst/Erie County Sampling Date: 11/03/2015

Applicant/Owner: Elite Construction Development Corp. State: New York Sampling Point: DP4

Investigator(s): Scott Livingstone & Tom Somerville Section, Township, Range: 56.10-13-1

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA) LRRL Lat: _____ Long: _____ Datum: NAD83

Soil Map Unit Name: Lakemont silt loam, 0-3 percent slopes NW I classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?**	Yes Y No _____
Hydric Soil Present?	Yes Y No _____		
Wetland Hydrology Present?	Yes Y No _____	If yes, optional Wetland Site ID:	WZ

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season W ater Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	N/A
Water Table Present?	Yes ___ No X	Depth (inches):	N/A
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	N/A

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15a

VEGETATION : Use scientific names of plants.

Sampling Point: D4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer Saccharinum	40	Y	FACW
2. Acer rubrum	28	Y	FAC
3. Fraxinus pennsylvanica	5	N	FACW
4. Populus deltoides	5	N	FAC
5.			
6.			
7.			
	78	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	10	Y	FACW
2. Ulmus americana	8	N	FACW
3. Lindera benzoin	7	N	FACW
4. Rhamnus cathartica	1	N	FAC
5.			
6.			
7.			
	26	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Glyceria striata	8	Y	OBL
2. Symphyotrichum lateriflorum	5	N	FAC
3. Carex pensylvanica	3	N	NI
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	16	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is < 3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: Hardwood Swamp

Hydrophytic Vegetation Present? Yes X No __

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # P7 **Direction of Photo** West

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Project Code: W1J15A

SOIL

Sampling Point: D4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	100					SiL	
10-18	10YR 6/1	95	10YR 5/6	5	C	M	vfSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- X Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

166 KLEIN ROAD

APPENDIX C - SITE PHOTOGRAPHS

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



Photo 1: Facing west. Depicts the southern limits of the investigation area along Klein Road.



Photo 2: Facing north. Depicts the western limits of the investigation area from Klein Road.



Photo 3: Facing north. Depicts the successional northern hardwood community at data point D1.



Photo 4: Facing northeast. Depicts the hardwood swamp community of wetland W1 at data point D2.



Photo 5: Facing north. Depicts the successional northern hardwood community at data point D3.



Photo 6: Facing north. Depicts the unnamed tributary to Ransom Creek along the eastern property limits.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)



Photo 7: Facing west. Depicts the hardwood swamp community of wetland W2 at data point D4.



Photo 8: Facing west. Depicts the northern limits of the investigation area.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

166 KLEIN ROAD

APPENDIX D - REFERENCES

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

INFORMATIONAL REFERENCES USED BY EARTH DIMENSIONS INC.

Andrus, R.E. 1980. Sphagnaceae (Peat Moss Family) of New York State. Contributions to a Flora of New York State III, R.S. Mitchell (Ed.), Bulletin No. 442, New York State Museum, Albany, New York. 89 pp.

Benyus, J.M. 1989. The Field Guide to Wildlife Habitats of the Eastern United States. Fireside, Simon & Shuster, Inc., New York. 335 pp.

Britton, N.L., and H.A. Brown. 1970. An Illustrated Flora of the Northern United States and Canada, Volumes 1, 2, and 3. Dover Publications, Inc., New York. 2052 pp.

Brockman, C.F., R. Merrilees, and H.S. Zim. 1968. Trees of North America: A Field Guide to the Major Native and Introduced Species North of Mexico. Western Publishing, Inc. New York, New York. 280 pp.

Brown, L. 1979. Grasses: An Identification Guide. Peterson Nature Library. Houghton Mifflin Co., Boston. 240 pp.

Cobb, B. 1963. A Field Guide to the Ferns and Related Families. Houghton Mifflin Co., Boston. 281 pp.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe. 1979. Classification of Wetlands and Deep Water Habitats of the United States. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-79-31. 103 pp.

Eggers, S.D., and D.M. Reed. 1997. Wetland Plants and Plant Communities of Minnesota and Wisconsin. Second Edition. U.S. Army Corps of Engineers, St. Paul District, Minnesota. 263 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mass. 100 pp. plus appendices.

Hotchkiss, N. 1970. Common Marsh Plants of the United States and Canada. U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, Washington, D.C., Resource Publication 93.

Hurley, L.M. 1990. Field Guide to the Submerged Aquatic Vegetation of Chesapeake Bay. U.S. Fish and Wildlife Service, Chesapeake Bay Estuary Program, Annapolis, Maryland. 51 pp.

Knobel, E. 1977. Field Guide to the Grasses, Sedges, and Rushes of the United States. Dover publications, Inc., New York. 83 pp.

Little, E.L. 1980. The Audubon Society Field Guide to North American Trees (Eastern Region). Alfred A. Knopf, New York. 714 pp.

Magee, D.W. 1981. Freshwater Wetlands. University of Massachusetts Press, Amherst. 245 pp.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Mitchell, R.S., and G.C. Tucker. 1997. Revised Checklist of New York State Plants. Contributions to a Flora of New York State IV, R.S. Mitchell (Ed.). Bulletin No. 490, New York State Museum, Albany, New York. 400 pp.

Munsell Color Chart. (Munsell Color 1975).

National Wetland Inventory Maps. U.S. Department of the Interior, Fish and Wildlife Service, National Wetland Inventory, St. Petersburg, Florida. http://wetlandsfws.er.usgs.gov date visited: 2/4/2010

Niering, W.C., and N.C. Olmstead. 1979. The Audubon Society Field Guide to North American Wildflowers (Eastern Region). Alfred A. Knopf, New York. 887 pp.

New York State Code of Rules and Regulations (NYCRR). 1989. Protected Native Plants. NYCRR Part 193.3, June, 1989. New York State Department of Environmental Conservation.

New York Natural Heritage Program. 2002. New York Rare Plant Status List, February, 1989. S.M. Young, (Ed.), New York State Department of Environmental Conservation and The Nature Conservancy publication. 26 pp.

New York State Department of Environmental Conservation Freshwater Wetlands Maps, NYSDEC Environmental Resource Mapper, http://www.dec.ny.gov/imsmaps/ERM/viewer.htm

Newcomb, L. 1977. Newcomb's Wildflower Guide. Little, Brown and Co., Boston. 490 pp.

Ogden, E.C. 1981. Field Guide to Northeastern Ferns. Contributions to a Flora of New York State III, R.S. Mitchell (Ed.), Bulletin No. 444, New York State Museum, Albany, New York. 122 pp.

Peattie, D.C. 1991. A Natural History of Trees of Eastern and North America. Houghton Mifflin Co., Boston. 606 pp.

Peterson, RT., and M. McKenny. 1968. A Field Guide to Wildflowers of Northeastern and Northcentral North America. Houghton Mifflin Co., Boston. 420 pp.

Petrides, G.A. 1972. A Field Guide to Trees and Shrubs. Houghton Mifflin Co., Boston. 428 pp.

Prescott, G.W. 1969. How to Know the Aquatic Plants. Second Edition. William C. Brown Co., Dubuque, Iowa. 171 pp.

Raynal, D.J., and D. J. Leopold. 1999. Landowner's Guide to State-Protected Plants of Forests in New York State. New York Center for Forestry Research and Development, SUNY-ESF, Syracuse, New York. 92pp.

Reed, Porter B. Jr. 1988. National List of Plant Species that Occur in Wetlands: Northeast (Region 1). U.S. Fish and Wildlife Service, Washington, D.C. Biol. Rept. 88 (26.1). 112 pp.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

Reschke, C. 2002. Ecological Communities of New York State. New York Natural Heritage Program. NYSDEC, Latham, N.Y. (2nd Ed.) 136 pp.

Soil Conservation Service. 1975. Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys. U.S.D.A., Soil Conservation Service, U.S. Handbook 436.

Soil Conservation Service. 1988. New York Hydric Soils and Soils with Hydric Inclusions, revised July, 1988, Soil Conservation Service, Syracuse, New York, Technical Guide, Section II. 23 pp.

Simonds,R.L., and H.H. Tweedie. 1978. Wildflowers of the Great Lakes Region. Chicago Review Press, Chicago. 96 pp.

Symonds, G.W.D. 1958. The Tree Identification Book. Quill, New York. 272 pp.

Symonds, G.W.D. 1963. The Shrub Identification Book. William Morrow & Co., New York. 379 pp.

Tiner, R. W. Jr. 1988. A Field Guide to Nontidal Wetland Identification. Maryland Department of Natural Resources and U.S. Fish and Wildlife Service Cooperative Publication. Maryland Department of Natural Resources, Annapolis, Maryland. 283 pp. + 198 color plates.

United States Department and Agriculture & the Natural Resources Conservation Service (USDA, NRCS).Soil Conservation Service Soil Survey of Erie County, New York. U.S.D.A., Soil Conservation Service. 1986 http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

USDA, NRCS. 2009. The PLANTS Database (http://plants.usda.gov, 12/14/09). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

United States Geological Survey maps, Denver, Colorado. Buffalo SE Quadrangle/2002DeLorme.

U.S. Army Corps of Engineers. 2009. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-09-19. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service, A Wetlands and Deepwater Habitats Classification. May 3, 2002, http: //www.nwi.fws.gov/. June 16, 2002.

Zander, R.H., and G.J. Pierce. 1979. Flora of the Niagara Frontier Region. Bulletin of the Buffalo Society of Natural Sciences, Vol. 16 (Suppl. 2), Buffalo, New York. 110 pp

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

166 KLEIN ROAD

APPENDIX E - WETLAND INVESTIGATION PERSONNEL

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Soils and Hydrology Sampling
Scott Livingstone, Senior Soil Scientist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Vegetation Sampling
Tom Somerville, Ecologist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Report Preparation
Tom Somerville, Ecologist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_SK)

October 28, 2021

Thomas Voigt, Assistant Planner
Town of Amherst Planning Department
5583 Main Street
Williamsville, New York 14221

Re: Sketch Plan Application [SUB-02021-01SK]
Proposed 18 Lot Residential Subdivision – 166 Klein Road
Applicant: Regency Builders LLC
File No. 10066.10

Dear Tom:

Attached as Exhibit "1" is a copy of correspondence issued by Charles P. Rosenburg of the New York State Department of Environmental Conservation ("NYSDEC") dated today stating that neither NYSDEC Freshwater Wetland CC-10 nor its regulated 100-foot adjacent area extend onto the northern boundary of the property at 166 Klein Road ("Project Site") and that therefore the development of the Project Site as a residential subdivision in accordance with its existing R-3 zoning classification does not require an Article 24 Freshwater Wetlands permit from the NYSDEC.

If you have any questions regarding this letter or the status the proposed residential subdivision, please feel free to contact me at 510-4338 or via e-mail at shopkins@hsmlegal.com.

Sincerely,

HOPKINS SORGI & MCCARTHY PLLC

Sean W. Hopkins, Esq.

cc: Scott A. Marshall, Principal Planner, Town of Amherst Planning Dept. [Via e-mail]
Elliot Lasky, Regency Builders LCC [Via e-mail and mail]
Mohammad Qasaymeh [Via e-mail]
Kenneth C. Zollitsch, Director of Land Planning, Greenman-Pedersen, Inc. [Via e-mail]
Scott J. Livingstone, Wetlands Operations Manager, Earth Dimensions, Inc.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

HOPKINS SORGI & MCCARTHY PLLC
Attorneys at Law
5500 Main Street, Suite 343 • Williamsville, New York 14221
Direct: 716-510-4338 • E-mail: shopkins@hsmlegal.com • www.hsmlegal.com

Exhibit 1 – Correspondence Issued by Charles P. Rosenburg, Region 9 BEH Habitat Protection Manager, New York State Department of Environmental Conservation, dated October 28, 2021

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7010 | F: (716) 851-7005
www.dec.ny.gov

October 28, 2021

Mohammad Qasaymeh
33 Sanctuary Court
Buffalo, New York 14221

Dear Mohammad Qasaymeh:

Determination of No Article 24 Jurisdiction
Freshwater Wetland CC-10
166 Klein Road Parcel
Town of Amherst, Erie County

This letter serves as notification that Fish & Wildlife Technician, Molly Peck, and I completed a field inspection on October 5, 2021 of the wetland boundary delineation completed by Earth Dimensions, Inc. (EDI), within your 166 Klein Road property (Parcel 56.10-13-1) in the Town of Amherst. Scott Livingstone of EDI accompanied us. The objective of this inspection was to determine if wetlands present within the parcel meet New York State Department of Environmental Conservation (DEC) criteria for state wetlands jurisdiction.

A finger of Freshwater Wetland CC-10 is mapped within the northeast corner of this Klein Road parcel, extending eastward into the Bentley Court subdivision property. Please note that this wetland finger was legally removed pursuant to an Article 24 freshwater wetlands permit issued by the DEC in September 1986. That permit authorized construction of the Bentley Court subdivision. Subsequent to construction of this development, the true on-the-ground boundary of Wetland CC-10 is located >100 feet to the north of your Klein Road property, within the Town-owned parcel 56.01-1-4, and is separated from your property by a 75-foot wide National Grid right-of-way.

During the DEC's October 5, 2021 field inspection of your property, I verified the EDI wetland delineation which identified three small wetlands (ranging in size from 0.110 to 0.417 acre) within your property. These wetlands occur almost completely outside the former (i.e., mapped) boundary of Wetland CC-10, are relatively small in size, are not part of a vernal pool complex, exhibit a seasonally saturated/shallowly flooded hydrologic regime, lack DEC Class 1 wetland characteristics, and are separated by distances of approximately 39, 125, and 210 meters, respectively, from the current on-the-ground boundary of Wetland CC-10 within the Town-owned parcel to the north.

Considering the wetland characteristics described above, the DEC has determined that none of the three EDI-delineated wetlands substantively function as a unit with the extensive area of Wetland CC-10 to the north in providing wetland benefits. Similarly, we determined that none of the three EDI-delineated wetlands are dependent on each other or on Wetland CC-10, within the Town-owned parcel to the north, in providing wetland benefits. Therefore, we determined that Wetland CC-10 does not extend into the 166 Klein Road parcel.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

This determination is consistent with past wetland determinations by DEC in May 1990 and October 2015. This analysis is specific to this parcel and this circumstance has no precedential value for any other site.

Please be aware that wetland boundaries may change over time and this letter does not fix wetland boundaries indefinitely. The DEC will consider this wetland determination to be valid for five (5) years from the date of this letter.

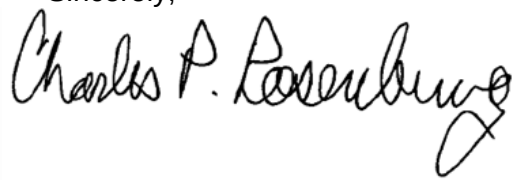
Please note that the regulated 100-foot adjacent area associated with the Wetland CC-10 boundary within the Town-owned parcel to the north does not extend into the 166 Klein Road parcel. Therefore, there is no Article 24 Freshwater Wetlands jurisdiction within the parcel, so an Article 24 Freshwater Wetlands permit is not needed for any activities proposed within the parcel.

Please be advised that the U.S. Army Corps of Engineers may have wetland jurisdiction irrespective of the Department of Environmental Conservation. For more information, you may contact the Corps at:

United States Army Corps of Engineers Regulatory Branch
1776 Niagara Street
Buffalo, New York 14207
Telephone: (716) 879-4330

If you have any questions about this wetlands determination, feel free to contact me in the Buffalo office at (716) 851-7024 or Charles.Rosenburg@dec.ny.gov.

Sincerely,



Charles P. Rosenburg
Region 9 BEH Habitat Protection Manager

CPR:ef

cc: Maureen Brady, Esq., NYSDEC Regional Attorney
David Denk, NYSDEC Division of Environmental Permits
Roy Jacobson, NYSDEC Bureau of Ecosystem Health
Katherine McNamara, NYSDEC Director of Legislative Affairs
Assemblywoman Karen McMahon
Elliot Lasky, Regency Homes, LLC
Scott Livingstone, Earth Dimensions Inc.
Wetland CC-10 file

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Traffic Impact Study

for the proposed

166 Klein Road Subdivision

Town of Amherst
Erie County, New York

October 8, 2021

Project No. 41088

Prepared For:

Regency BUILDERS, LLC.
www.RegencyBuildersLLC.com

PO Box 1454
Williamsville, New York 14231

Prepared By:

SRF ASSOCIATES
www.srfa.net
Transportation Planning / Engineering / Design

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

TABLE OF CONTENTS

LIST OF TABLES ii
LIST OF FIGURES ii
LIST OF APPENDICES iii
LIST OF REFERENCES iii
EXECUTIVE SUMMARY iv

I. INTRODUCTION 1
II. LOCATION 1
III. EXISTING HIGHWAY SYSTEM 1
A. Vehicular Network Description 1
B. Multi-Modal Network Description 2
IV. EXISTING TRAFFIC CONDITIONS 3
A. Peak Intervals for Analysis 3
B. Existing Traffic Volume Data 3
C. Field Observations 3
D. Existing Crash Investigation 3
V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH 6
VI. PROPOSED DEVELOPMENT 7
A. Project Description 7
B. Site Generated Traffic 7
C. Site Traffic Distribution 7
VII. FULL DEVELOPMENT VOLUMES 8
VIII. CAPACITY ANALYSIS 8
A. Description of Capacity Analysis 8
B. Capacity Analysis Results 8
IX. SIGHT DISTANCE EVALUTATION 11
X. CONCLUSIONS & RECOMMENDATIONS 12
XI. FIGURES 13

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

LIST OF TABLES

TABLE I EXISTING HIGHWAY SYSTEM 2
TABLE II EXISTING CRASH INVESTIGATION 5
TABLE III SITE GENERATED TRIPS 7
TABLE IV CAPACITY ANALYSIS RESULTS 9
TABLE V SIGHT DISTANCE REQUIREMENT AND MEASUREMENTS 12

LIST OF FIGURES

FIGURE 1 SITE LOCATION & STUDY AREA
FIGURE 2 LANE GEOMETRY & AVERAGE DAILY TRAFFIC
FIGURE 3 PEAK HOUR VOLUMES – 2021 EXISTING CONDITIONS
FIGURE 4 PEAK HOUR VOLUMES – 2023 BACKGROUND CONDITIONS
FIGURE 5 CONCEPT SITE PLAN
FIGURE 6 TRIP DISTRIBUTION
FIGURE 7 SITE GENERATED TRIPS
FIGURE 8 PEAK HOUR VOLUMES – FULL DEVELOPMENT CONDITIONS

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

LIST OF APPENDICES

A1. COLLECTED TRAFFIC VOLUME DATA

A2. MISCELLANEOUS TRAFFIC DATA AND CALCULATIONS

A3. LOS CRITERIA/DEFINITIONS

A4. LEVEL OF SERVICE CALCULATIONS – EXISTING CONDITIONS

A5. LEVEL OF SERVICE CALCULATIONS – BACKGROUND CONDITIONS

A6. LEVEL OF SERVICE CALCULATIONS – FULL DEVELOPMENT CONDITIONS

LIST OF REFERENCES

1. Highway Capacity Manual 6th Edition. Transportation Research Board (TRB). The National Academies, Washington, DC. 2016.
2. Trip Generation, 11th Edition. Institute of Transportation Engineers (ITE). Washington, DC. 2021.
3. New York State Department of Transportation (NYSDOT) Traffic Data Viewer. 2021. Retrieved from https://www.dot.ny.gov/tdv.
4. OnTheMap. U.S. Census Bureau. 2021.
5. Transportation Data Management System. Greater Buffalo-Niagara Regional Transportation Council (GBNRTC). Retrieved from http://www.gbnrtc.org/maps/. 2021.
6. A Policy on Geometric Design of Highways and Streets. The American Association of State Highway Transportation Officials (AASHTO). Washington, DC. 2011.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to evaluate the potential traffic impacts related to the proposed residential subdivision project at 166 Klein Road in the Town of Amherst, NY. Within this report, the operating characteristics of the proposed access point and impacts to the adjacent roadway network are evaluated and recommends mitigating measures (if needed) to minimize operational concerns.

To define traffic impact, this analysis establishes existing baseline traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

The proposed residential subdivision is located at 166 Klein Road between Kingswaye Drive and Bentley Court in the Town of Amherst, Erie County, New York. The project site is bounded by forested land to the north, residential development to the east, Klein Road to the south, and residential development to the west. Land uses in the vicinity of the proposed project include residential, medical, and service.

To ensure a comprehensive analysis of potential traffic impacts, our firm sought input from the Town of Amherst to determine the project study area. Based upon the input received, this study evaluated the existing intersections of:

- Klein Road/Hopkins Road (signalized)
- Klein Road/Kingswaye Drive (unsignalized)
- Klein Road/Bentley Court/Eastwick Drive (unsignalized)
- Klein Road/Youngs Road (signalized)

The proposed project consists of constructing 18 single family homes. Access to the proposed project will be provided via a single access point along Klein Road. **Figure 5** illustrates the proposed site plan.

Construction of the proposed project is anticipated to reach full build-out in approximately two years depending on market conditions. Town of Amherst personnel were contacted to discuss any other specific projects that are currently approved or under construction that would generate additional traffic in the study area. No projects were identified.

To account for normal increases in background traffic growth, including any unforeseen developments in the project study area, a growth rate of 0.5% was applied to the existing traffic volumes in the study area based upon a review of historical traffic information obtained from the New York State Department of Transportation.

CONCLUSIONS & RECOMMENDATIONS

This Traffic Impact Study identified and evaluated the potential traffic impacts that can be expected from the proposed residential subdivision at 166 Klein Road in the Town of Amherst, New York. The results of this study determined that the existing transportation network can adequately accommodate the projected traffic volumes and resulting minor impacts to study area intersections. The following sets forth the conclusions and recommendations based upon the results of the analyses:

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

1. The proposed project is expected to generate approximately four entering/12 exiting vehicle trips during the AM peak hour and 12 entering/seven exiting vehicle trips during the PM peak hour based upon ITE Trip Generation Manual data.

2. The existing crash investigation revealed a pattern of rear end crashes at the intersection of Klein Road/Hopkins Road and left turn crashes at the intersection of Klein Road/Youngs Road. Consideration may be given to installing "signal ahead" signs for westbound drivers approaching the intersection of Klein Road/Hopkins Road. For the intersection of Klein Road/Youngs Road, consideration may be given to modifying the signal and replacing the northbound/southbound permissive left turn movements to permissive/protected phasing. No other deficiencies were determined at this time.

3. Sufficient roadway access spacing for Klein Road is 125 feet to a conservative 245 feet from the closest edge of the pavement of one connection to the next closest edge of pavement of the next connection based upon its classification as a collector roadway and 35 mph posted speed limit.

4. Required sight distances are satisfied at the proposed site access location along Klein Road.

5. The projected minor traffic impacts resulting from full development of the proposed residential subdivision during both peak hours can be accommodated by the existing transportation network and study area intersections. No capacity improvements are required.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

I. INTRODUCTION

The purpose of this report is to evaluate the potential traffic impacts related to the proposed residential subdivision comprised of eighteen lots for single family homes to be located at 166 Klein Road in the Town of Amherst, NY. Within this report, the operating characteristics of the proposed access point and impacts to the adjacent roadway network are evaluated and recommends mitigating measures (if needed) to minimize operational concerns.

To define traffic impact, this analysis establishes existing baseline traffic conditions, projects background traffic flow including area growth, and determines the traffic operations that would result from the proposed project.

II. LOCATION

The proposed project consisting is located at 166 Klein Road between Kingswaye Drive and Bentley Court in the Town of Amherst, Erie County, New York. The project site is bounded by forested land to the north, residential development to the east, Klein Road to the south, and residential development to the west. Land uses in the vicinity of the proposed project include residential, medical, and service.

To ensure a comprehensive analysis of potential traffic impacts, our firm sought input from the Town of Amherst to determine the project study area. Based upon the input received, this study evaluated the existing intersections of:

- Klein Road/Hopkins Road (signalized)
- Klein Road/Kingswaye Drive (unsignalized)
- Klein Road/Bentley Court/Eastwick Drive (unsignalized)
- Klein Road/Youngs Road (signalized)

The project site location and study area are illustrated in **Figure 1** (all figures are included at the end of this report).

III. EXISTING HIGHWAY SYSTEM

A. Vehicular Network Description

The following information outlined in **Table I** provides a description of the existing roadway network within project study area. **Figure 2** illustrates the lane geometry at each of the study intersections and the Annual Average Daily Traffic (AADT) volumes on the study roadways. The AADTs reflect the most recently collected data obtained from the New York State Department of Transportation (NYSDOT). Where recent data is not available, traffic data is shown as an extrapolation of turning movement counts performed by SRF Associates (SRF) in 2021.

Functional classification of highways within the study area is determined by the NYSDOT and the Federal Highway Administration (FHWA). Definitions of the functional classifications shown in Table I are provided after the table.

Kingswaye Drive, Bentley Court, and Eastwick Drive are local streets.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY	CLASS[1]	AGENCY[2]	SPEED LIMIT[3]	TRAVEL LANES[4]	TRAVEL PATTERN/ DIRECTION	EST. AADT & SOURCE[5]
Klein Road	17	Town	35	2	Two-way/ East-West	12,424 NYSDOT (2017)
Hopkins Road (CR-87)	16	ECDPW	35	2	Two-way/ North-South	11,735-14,471 NYSDOT (2017)
Youngs Road	17	Town	45	2	Two-way/ North-South	6,978-12,920 NYSDOT (2017)

Notes:
1. State Functional Classification of Roadway.
2. Jurisdictional Agency of Roadway. "ECDPW" = Erie County Department of Public Works.
3. Posted or Statewide Limit in Miles per Hour (mph).
4. Total number of travel lanes. Excludes turning/auxiliary lanes developed at intersections.
5. Estimated AADT in Vehicles per Day (vpd). AADT Source (Year). SRF data determined via extrapolation of collected turning movement counts.

Urban Minor Arterial (Class 16)

An urban minor arterial provide service for trips of moderate length, serve geographic areas that are smaller than higher arterial roadways, and offer connectivity to higher arterial systems. These roadways distribute traffic to smaller geographic areas, provide more land access without disrupting neighborhood access, and provide urban connections for rural collectors.

Urban Major Collector (Class 17)

The collector street system provides both land access service and traffic circulation in higher density residential neighborhoods and commercial and industrial areas. The collector street distributes trips from the arterials through the area to their ultimate destination and vice versa (i.e., the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system). The collector street system may also service bus routes. Operating characteristics tend to include higher speeds and more signalized intersections.

B. Multi-Modal Network Description

This evaluation reviewed the study area's pedestrian, bicycle, and transit network via field and aerial reconnaissance. A description of the multi-modal infrastructure is described hereafter.

Pedestrian & Bicycle Facilities

Sidewalks are present throughout the study area. Klein Road has sidewalks on both sides from Hopkins Road to Kingswaye Drive and along the south side from Kingswaye Drive to Youngs Road.

There is a bike route from Klein Road to the north along the west side of Hopkins Road. No other dedicated facilities are present; however, cyclists are permitted to share the road with motorists on all roadways within the study area.

Transit Facilities

The Niagara Frontier Transportation Authority (NFTA) provides regional bus and rail service. There are no transit facilities within the study area.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

IV. EXISTING TRAFFIC CONDITIONS

A. Peak Intervals for Analysis

Given the functional characteristics of the corridors, adjacent land uses, and the proposed land use for the project site (residential), the peak hours selected for analysis are the weekday commuter AM and PM peak periods. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. Existing Traffic Volume Data

Turning movement traffic counts were collected by SRF at the study intersections described in Section II on Thursday, September 9, 2021. Traffic counts were conducted from 7:00-9:00 AM and 4:00-6:00 PM. The peak hour traffic periods generally occurred from 7:15-8:15 AM and 4:30-5:30 PM.

All turning movement count data was collected on a typical weekday. No adverse weather conditions impacted the traffic counts and all schools in the vicinity of the study area were in session. The traffic volumes were reviewed to confirm the accuracy and relative balance of the collective traffic counts. The actual differences in traffic volumes can be attributed to temporal variations in traffic volumes as well as activity related to driveways located in the segments between the study intersections. **Figure 3** illustrates the weekday AM and PM peak hour volumes used for analysis purposes in this study.

C. Field Observations

The study intersection was observed during both peak intervals to assess current traffic operations. Signal timing and phasing information was obtained from the Town of Amherst to determine peak hour phasing plans and phase durations during each interval. This information was used to support and/or calibrate capacity analysis models described in detail later in this report.

D. Existing Crash Investigation

The purpose of this crash analysis is to identify inherent safety issues by studying and quantifying historical crashes at the study intersections and identifying potential crash patterns and clusters.

A crash cluster is defined as an abnormal occurrence of similar crash types occurring at approximately the same location or involving the same geometric features. The severity of the crashes should also be considered. A history of crashes is an indication that further analysis is required to determine the cause(s) of the crash(es) and to identify what actions, if any, could be taken to mitigate the crashes.

A crash investigation within the study area was conducted to assess the safety history from January 1, 2017, through December 31, 2019. The data was provided by the New York State Department of Motor Vehicles through a Freedom of Information (FOIL) request.

Given that the COVID-19 pandemic influenced daily travel in 2020, any reported crashes in 2020 were dismissed from the study.

Reportable (non-injury, injury, and fatal injury) type crashes are defined as damage to one person's property in the amount of $1,001 or more. The Non-Reportable type crashes result in property damage of $1,000 or less. Crash rates were computed for the study intersection

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

and compared with NYSDOT average crash rates for similar intersections, as summarized in **Table II**. Intersection rates are listed as crashes per million entering vehicle (CR/MEV). Pertinent crash data is provided in the Appendices. There were no reported crashes at Klein Road/Kingswaye Drive.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

TABLE II: EXISTING CRASH INVESTIGATION

LOCATION:	Klein Road/ Hopkins Road	Klein Road/ Bentley Court/ Eastwick Drive	Klein Road/ Youngs Road
Time of Day			
12:00 AM – 5:59 AM	1		1
6:00 AM – 8:59 AM	1		6
9:00 AM – 3:29 PM	10	2	11
3:30 PM – 5:59 PM	5		3
6:00 PM – 11:59 PM	1	1	2
Pavement Condition			
Dry	10	2	10
Wet	4	1	3
Snow/Ice	2		7
Slush			1
Unclassified	2		2
Type of Collision			
Pedestrian/Bicycle			
Right Angle	3	2	5
Sideswipe (Overtake)	2	1	3
Head On			2
Rear End	8		4
Left Turn	1		7
Right Turn			1
Fixed Object	1		1
Animal	2		
Other	1		
Severity			
Fatal			
Injury	1		1
Property Damage	12	2	12
Property Damage and Injury	3	1	8
Non-Reportable	2		2
Total	18	3	23
Average No. of Daily Vehicles Entering Intersection	24,610	13,073	21,947
Crash Rate (CR/MEV)	0.67	0.21	0.96
Statewide Average (CR/MEV)	0.26	0.31	0.26
Below or Above Statewide Average	2.6x Above	Below	3.7x Above

Note:
1. All roadways within the study area are not State roadways but are compared to Statewide average rates for informational purposes.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Two of the four study intersections reported crash rates lower than the statewide average for similar intersections. The two remaining study intersections had crash rates higher than the statewide average for similar intersections and are described in greater detail. Notable crash clusters are approaches with three or greater identifiable consistent crash types.

Klein Road/Hopkins Road

As shown in the crash investigation table, the study intersection has a crash rate that is approximately 2.6 times higher than the statewide average crash rate for similar intersections. Eight of the 18 (44%) of the reported crashes were attributed to rear end collisions. This is characteristic of moderate to heavily trafficked signalized intersections. Two of the crashes occurred in the westbound direction and were reportedly attributed to unsafe speeds. To address the rear end crashes along Klein Road, "signal ahead" warning signs should be considered in advance of the intersection for the westbound approach. The remaining causes of the rear end crashes were generally due to "following too closely."

Klein Road/Youngs Road

As shown in the crash investigation table, the study intersection has a crash rate that is approximately 3.7 times higher than the statewide average crash rate for similar intersections. Of the 23 total crashes, the predominant crash types were left turn (30%), right angle (22%), and rear end (17%). The left turn crashes primarily occurred in the northbound and southbound directions and were generally attributed to "failure to yield the right of way." Sight distance is adequate at the intersection and there is a permissive-protective left-turn phase only for the westbound. Consideration should be given to modifying the signal and replacing the northbound/southbound permissive left turn movements to permissive/protected phasing.

Of the five total right angle crashes, two were attributed to "slippery pavement", one was "driver experience", one was "traffic control devices disregarded", and one was "failure to yield the right of way." Two of the four rear end crashes occurred in the southbound direction, one occurred in the northbound direction, and one was unclassified.

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of the proposed eighteen (18) lot residential subdivision is anticipated to reach full build-out in approximately two years depending on market conditions. Town of Amherst personnel were contacted to discuss any other specific projects that are currently approved or under construction that would generate additional traffic in the study area. No projects were identified.

To account for normal increases in background traffic growth, including any unforeseen developments in the project study area, a growth rate of 0.5% was applied to the existing traffic volumes in the study area based upon a review of historical traffic information obtained from the NYSDOT. All ambient growth calculations are included in the Appendices. The background traffic volumes are depicted in **Figure 4**.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

VI. PROPOSED DEVELOPMENT

A. Project Description

The proposed subdivision consists of eighteen (18) single family homes. Access to the proposed project will be provided via a single access point along Klein Road. **Figure 5** illustrates the proposed sketch plan for the residential subdivision.

B. Site Generated Traffic

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. Trip Generation Manual (11th Edition) published by the Institute of Transportation Engineers (ITE) is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of the adjacent street traffic and proposed land use, in this case, the weekday commuter AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

Table III shows the total site generated trips for the weekday commuter AM and PM peak hours for the proposed project. All trip generation information has been included in the Appendices.

TABLE III: SITE GENERATED TRIPS

DESCRIPTION	ITE LUC[1]	SIZE	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Single Family Housing	210	18 lots	4	12	12	7

Note:
1. LUC = Land Use Code.

The proposed residential subdivision is expected to generate approximately four entering/12 exiting vehicle trips during the AM peak hour and 12 entering/seven exiting vehicle trips during the PM peak hour based upon ITE Trip Generation Manual data.

C. Site Traffic Distribution

The cumulative effect of site-generated traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drives serving the site. The proposed arrival/departure distribution of traffic generated by the proposed project is considered a function of several parameters, including:

- Employment centers using Census Data
- Commercial centers
- Existing traffic patterns
- Existing traffic conditions and controls

Figure 6 shows the anticipated trip distribution pattern percentages for the traffic from the proposed project. **Figures 7** illustrates the peak hour project site-generated traffic based on those percentages.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

VII. FULL DEVELOPMENT VOLUMES

Proposed design hour traffic volumes are developed for the AM and PM peak hours by combining the background traffic conditions (Figure 4) and the new site generated traffic volumes (Figure 7) to yield the traffic volumes under full development conditions. The resulting design hour volumes for the proposed project are illustrated in **Figure 8** under full build-out conditions.

VIII. CAPACITY ANALYSIS

A. Description of Capacity Analysis

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, capacity analysis focuses on intersections, as opposed to highway segments.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the conditions with little to no delay, and LOS "F" conditions with very long delays. Suggested ranges of service capacity and an explanation of Levels of Service are included in the Appendices. LOS “C” or better is generally desirable, but LOS “D” for signalized locations and LOS “E” for unsignalized are generally acceptable during peak periods so long as the volume to capacity ratio (v/c) is below 1.0.

The standard procedure for capacity analysis of signalized and unsignalized intersections is outlined in the Highway Capacity Manual (HCM 2016) published by the Transportation Research Board (TRB). Traffic analysis software, Synchro 11, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service based on the HCM as an indicator of how well intersections operate.

B. Capacity Analysis Results

Existing and background operating conditions during the peak study periods are evaluated to determine a basis for comparison with the projected future conditions. The future traffic conditions generated by the project were analyzed to assess the operation of the study area intersections. Capacity results for existing, background and full development conditions are listed in **Table IV**. The discussion following the table summarizes capacity conditions.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

TABLE IV: CAPACITY ANALYSIS RESULTS

Town of A

INTERSECTION	2021 EXISTING CONDITIONS				2023 BACKGROUND CONDITIONS				2023 FULL DEVELOPMENT CONDITIONS			
	AM		PM		AM		PM		AM		PM	
1. Klein Road/Hopkins Road (S)												
EB Left - Klein Road	C	28.0	C	28.0	C	28.5	C	24.1	C	28.5	C	24.4
EB Thru/Right - Klein Road	D	40.6	E	73.5	D	41.2	D	52.3	D	41.4	D	52.9
WB Left - Klein Road	C	26.3	D	36.2	C	26.7	C	32.0	C	27.1	C	32.4
WB Thru/Right - Klein Road	D	48.6	E	56.8	D	50.0	D	42.0	D	51.6	D	42.2
NB Left - Hopkins Road	B	13.5	B	14.0	B	13.6	B	17.3	B	13.6	B	17.4
NB Thru - Hopkins Road	B	19.1	C	23.2	B	19.1	C	27.2	B	19.1	C	27.3
NB Right - Hopkins Road	A	2.6	A	2.4	A	2.6	A	2.9	A	2.6	A	2.9
SB Left - Hopkins Road	B	11.7	B	12.8	B	11.7	B	15.5	B	11.7	B	15.6
SB Thru/Right - Evans Street	C	25.6	C	22.7	C	25.9	C	26.8	C	25.9	C	26.9
Overall LOS	***C***	***29.3***	***D***	***37.8***	***C***	***29.8***	***C***	***32.2***	***C***	***30.2***	***C***	***32.4***
Volume-to-Capacity (v/c) Ratio	***0.87***		***1.00***		***0.88***		***0.92***		***0.89***		***0.93***	
2. Klein Road/Kingswaye Drive (U)												
EB - Klein Road	A	8.4	A	8.7	A	8.4	A	8.7	A	8.4	A	8.7
SB - Kingswaye Drive	C	15.2	C	21.7	C	15.3	C	22.0	C	15.4	C	22.2
3. Klein Road/Proposed Driveway (U)												
EB - Klein Road	NA		NA		NA		NA		A	8.4	A	8.8
SB - Proposed Driveway									B	14.8	C	18.4
4. Klein Road/Eastwick Drive/Bentley Court (U)												
EB - Klein Road	A	0.0	A	8.7	A	0.0	A	8.7	A	0.0	A	8.7
WB - Klein Road	A	8.6	A	8.9	A	8.6	A	9.0	A	8.6	A	9.0
NB - Eastwick Drive	B	14.4	C	17.2	B	14.5	C	17.5	B	14.6	C	17.6
SB - Bentley Court	C	20.1	D	26.4	C	20.3	D	26.9	C	20.6	D	27.2
5. Klein Road/Youngs Road (S)												
EB Left - Klein Road	B	15.6	B	16.5	B	15.7	B	16.6	B	15.8	B	16.6
EB Thru/Right - Klein Road	C	31.1	D	39.9	C	31.9	D	41.1	C	32.6	D	41.9
WB Left - Klein Road	B	11.6	A	7.7	B	11.8	A	7.8	B	11.8	A	7.8
WB Thru/Right - Klein Road	A	8.6	A	9.3	A	8.6	A	9.4	A	8.6	A	9.5
NB Left - Youngs Road	C	29.5	C	21.7	C	30.4	C	21.7	C	30.9	C	21.9
NB Thru - Youngs Road	B	17.7	C	24.7	B	17.8	C	24.9	B	17.8	C	24.9
NB Right - Youngs Road	A	1.6	A	5.1	A	1.7	A	5.0	A	1.7	A	5.0
SB Left - Youngs Road	B	16.7	B	16.8	B	16.8	B	16.9	B	16.8	B	16.9
SB Thru - Youngs Road	D	39.7	B	18.8	D	40.8	B	18.8	D	40.9	B	18.8
SB Right - Youngs Road	A	3.8	A	0.4	A	3.8	A	0.4	A	3.8	A	0.4
Overall LOS	***C***	***22.3***	***C***	***21.2***	***C***	***22.8***	***C***	***21.6***	***C***	***23.0***	***C***	***21.8***
Volume-to-Capacity (v/c) Ratio	***0.87***		***0.91***		***0.88***		***0.92***		***0.88***		***0.92***	

Notes:

1. A(2.8) = Level of Service (Delay in seconds per vehicle)
2. EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
3. (S) = Signalized; (U) = Unsignalized
4. N/A = Approach does not exist and/or was not analyzed during this condition
5. Green shaded cells indicate low delays, yellow shaded cells indicate moderate delays, red shaded cells indicate long delays.
6. The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays. A v/c ratio between 0.85 and 0.95 generally indicates an intersection is nearing capacity. Intersections with a v/c ratio of 1.0 or greater generally indicate conditions at or above capacity.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

1. KLEIN ROAD/HOPKINS ROAD

During the AM peak hour, all movements generally operate at LOS "D" or better under existing conditions with short to moderate delays. While most movements operate at LOS "D" or better during the PM peak hour, the eastbound thru/right and westbound thru/right movements operate at LOS "E" with moderate to long delays and queuing under existing conditions.

Between existing and background conditions, signal optimization is recommended during the PM peak hour to reduce projected delays and queuing conditions. With signal timing changes, notably increasing the green time given to the eastbound/westbound approaches by four seconds, all movements are projected to operate at LOS "D" or better.

No changes in LOS are projected because of the proposed project. The proposed project constitutes approximately 0.45% of total intersection traffic during the AM peak hour and 0.44% during the PM peak hour.

The projected minor traffic impacts resulting from the proposed project can be sufficiently accommodated by the existing intersection and no capacity improvements are recommended.

2. KLEIN ROAD/KINGSWAYE DRIVE

All movements operate at LOS "C" or better under existing, projected background, and future build conditions during both peak hours studied. No changes in LOS are projected because of the proposed project. The projected minor traffic impacts resulting from the proposed project can be sufficiently accommodated by the existing intersection and no capacity improvements are recommended.

3. KLEIN ROAD/PROPOSED DRIVEWAY

All movements operate at LOS "C" or better under projected future build conditions during both peak hours studied.

Access Management Considerations

Section 204-3-2-4-C (10) of the Town's Subdivision Regulations states as follows: "Minor or secondary street openings into collector or major arterial roads shall, in general, be at least 500 feet apart."

As proposed, the proposed roadway will be located approximately 290.07 feet from Kingswaye Drive (measured from the closest edge of the pavement of one connection to the next closest edge of pavement of the next connection) and 266.09 feet from Bentley Court.

Generally, the spacing of driveways "should reflect a balance between traffic and engineering conditions and needs; local development objectives; and existing land use characteristics (such as lot sizes, land use type, and frontage requirements)." Desirable access spacing is based upon functional classification of prevailing roadways and posted speeds. As speed limits rise, access spacing should also increase. Desired connection spacing is as follows based upon the posted speed limit and functional classification of the roadway:

- Posted speed 35 mph or less: 125 feet (collector and local roadways)
- Posted speed 40 mph: 245 feet (collector and local roadways)
- Posted speed 45 mph or greater: 440 feet (collector and local roadways)

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Sufficient access spacing for Klein Road is 125 feet to a conservative 245 feet from the closest edge of the pavement of one connection to the next closest edge of pavement of the next connection based upon its classification as a collector roadway and 35 mph posted speed limit.

4. KLEIN ROAD/EASTWICK DRIVE/BENTLEY COURT

All movements operate at LOS "D" or better under existing, projected background, and future build conditions during both peak hours studied. No changes in LOS are projected because of the proposed project. The projected minor traffic impacts resulting from the proposed project can be sufficiently accommodated by the existing intersection and no capacity improvements are recommended.

5. KLEIN ROAD/YOUNGS ROAD

All movements generally operate at LOS "C" or better under existing and projected background conditions with short to moderate delays during both peak hours studied. The exceptions are the eastbound thru/right and southbound thru movements, which operate at LOS "D".

No changes in LOS are projected because of the proposed project. The proposed project constitutes approximately only 0.33% of total intersection traffic during the AM peak hour and only 0.40% during the PM peak hour.

The projected minor traffic impacts resulting from the proposed project can be sufficiently accommodated by the existing intersection and no capacity improvements are recommended.

IX. SIGHT DISTANCE EVALUATION

Sight distance was investigated at the proposed site access location along Klein Road. Sight distance is provided at intersections to allow drivers to perceive the presence of potentially conflicting vehicles. This should occur in sufficient time for a motorist to stop or adjust their speed, as appropriate, to avoid a collision at the intersection. Sight distance is also provided at intersections to allow the drivers of stopped vehicles a sufficient view of the intersecting highway to anticipate and avoid potential incidents. If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate Stopping Sight Distance (SSD) for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. To enhance traffic operations, Intersection Sight Distances (ISD) that exceed SSD are desirable along the major road.

A Policy on Geometric Design of Highways and Streets published by the American Association of State Highway and Transportation Officials (AASHTO) in 2011 was used as a reference to establish the required SSD and desirable ISD.

The required SSD and desirable ISD for a left turn from a stop are based on the design speed (posted plus 5 MPH) for a given section of roadway. **Table V** depicts the results.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

TABLE V: SIGHT DISTANCE REQUIREMENT AND MEASUREMENTS

INTERSECTION	POSTED SPEED	DESIGN SPEED	REQUIRED SSD	DESIRABLE ISD	AVAILABLE SIGHT DISTANCE TO THE:	
					LEFT	RIGHT
Klein Road/ Proposed Access Road	35 mph	40 mph	305’	445’	ISD: >500’ SSD: >500’	ISD: >500’ SSD: >500’

The available sight distances exceed the required SSD and desirable ISD. No mitigation is required. Any brush and foliage along the sight lines should be maintained to ensure maximum visibility at the site access location.

X. CONCLUSIONS & RECOMMENDATIONS

This Traffic Impact Study identified and evaluated the potential traffic impacts that can be expected from the proposed residential subdivision at 166 Klein Road in the Town of Amherst, New York. The results of this study determined that the existing transportation network can adequately accommodate the projected traffic volumes and resulting minor impacts to study area intersections. The following sets forth the conclusions and recommendations based upon the results of the analyses:

1. The proposed project is expected to generate approximately four entering/12 exiting vehicle trips during the AM peak hour and 12 entering/seven exiting vehicle trips during the PM peak hour based upon ITE Trip Generation Manual data.

2. The existing crash investigation revealed a pattern of rear end crashes at the intersection of Klein Road/Hopkins Road and left turn crashes at the intersection of Klein Road/Youngs Road. Consideration may be given to installing “signal ahead” signs for westbound drivers approaching the intersection of Klein Road/Hopkins Road. For the intersection of Klein Road/Youngs Road, consideration may be given to modifying the signal and replacing the northbound/southbound permissive left turn movements to permissive/protected phasing. No other deficiencies were determined at this time.

3. Sufficient roadway access spacing for Klein Road is 125 feet to a conservative 245 feet from the closest edge of the pavement of one connection to the next closest edge of pavement of the next connection based upon its classification as a collector roadway and 35 mph posted speed limit.

4. Required sight distances are satisfied at the proposed site access location along Klein Road.

5. The projected minor traffic impacts resulting from full development of the proposed residential subdivision during both peak hours can be accommodated by the existing transportation network and study area intersections. No capacity improvements are required.

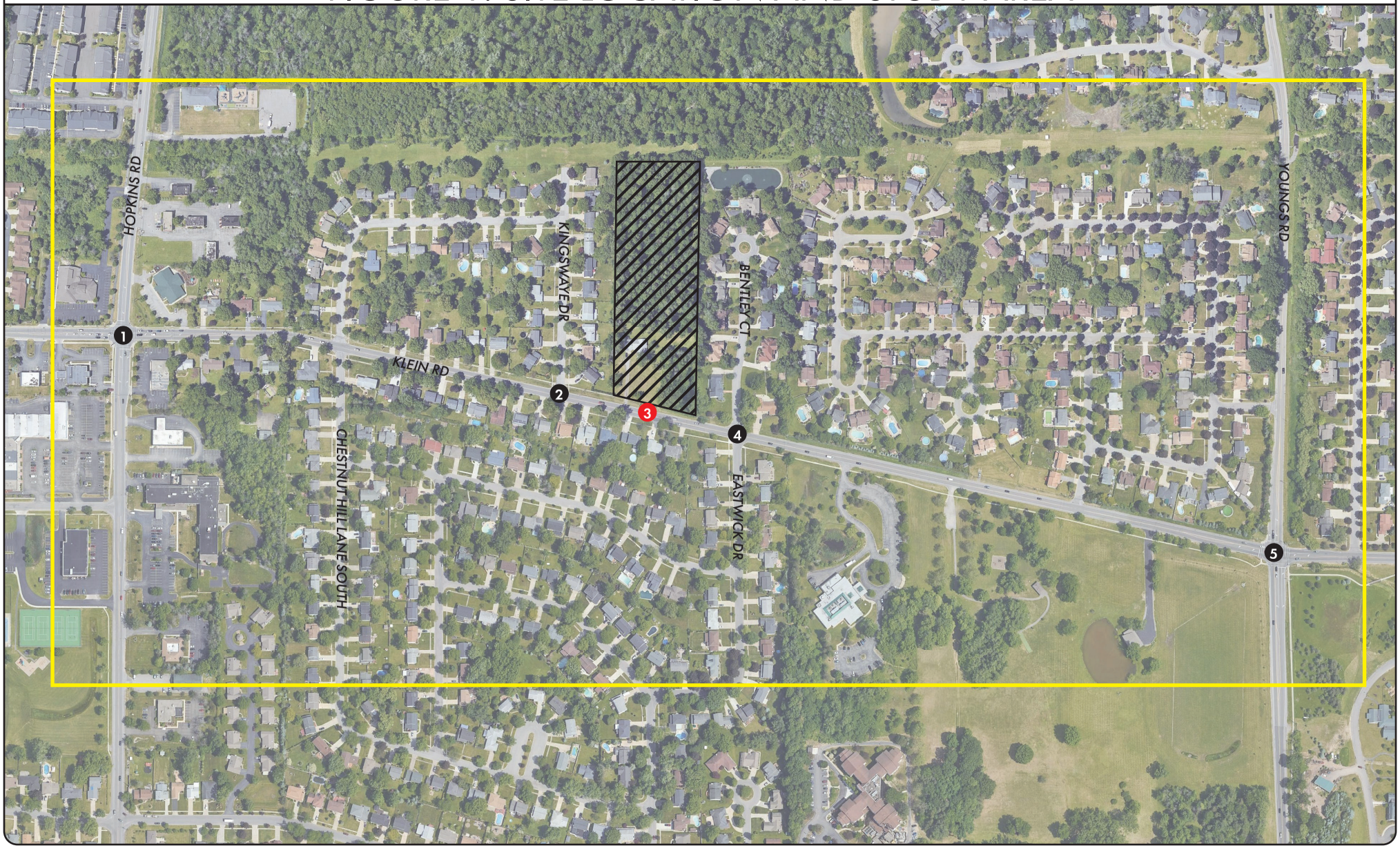
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

XI. FIGURES

Figures 1 through 8 are included on the following pages.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

FIGURE 1: SITE LOCATION AND STUDY AREA



Key

- Study Intersection
- Proposed Intersection
- Study Area
- Site Location

PROPOSED
166 KLEIN ROAD SUBDIVISION

N

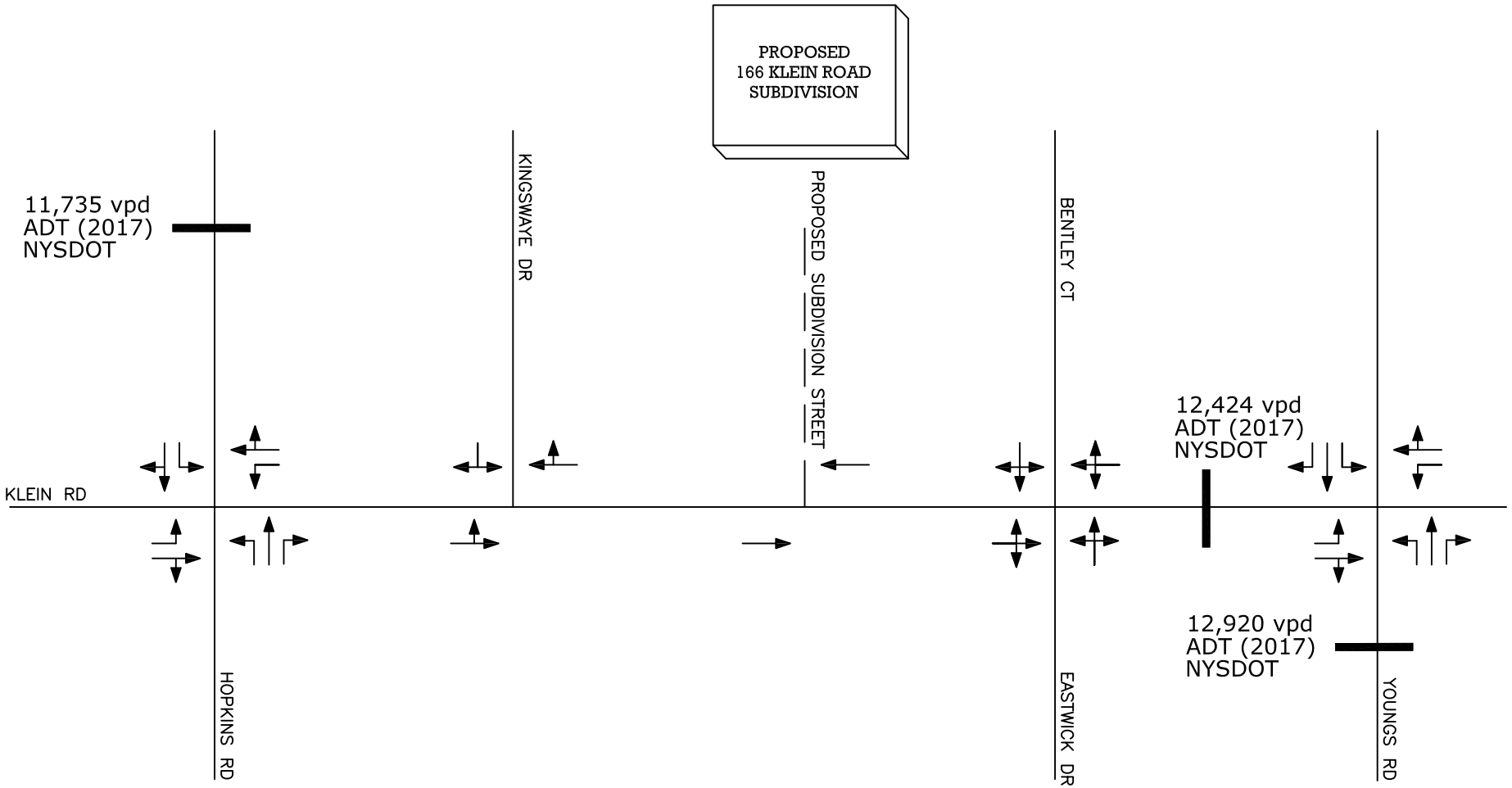
0 400
FEET

SRF ASSOCIATE

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Notes:

1. All AADT volumes by those noted:
   1.1. NYSDOT = New York State Department of Transportation.
2. V.P.D. = Vehicles per Day.



SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 2

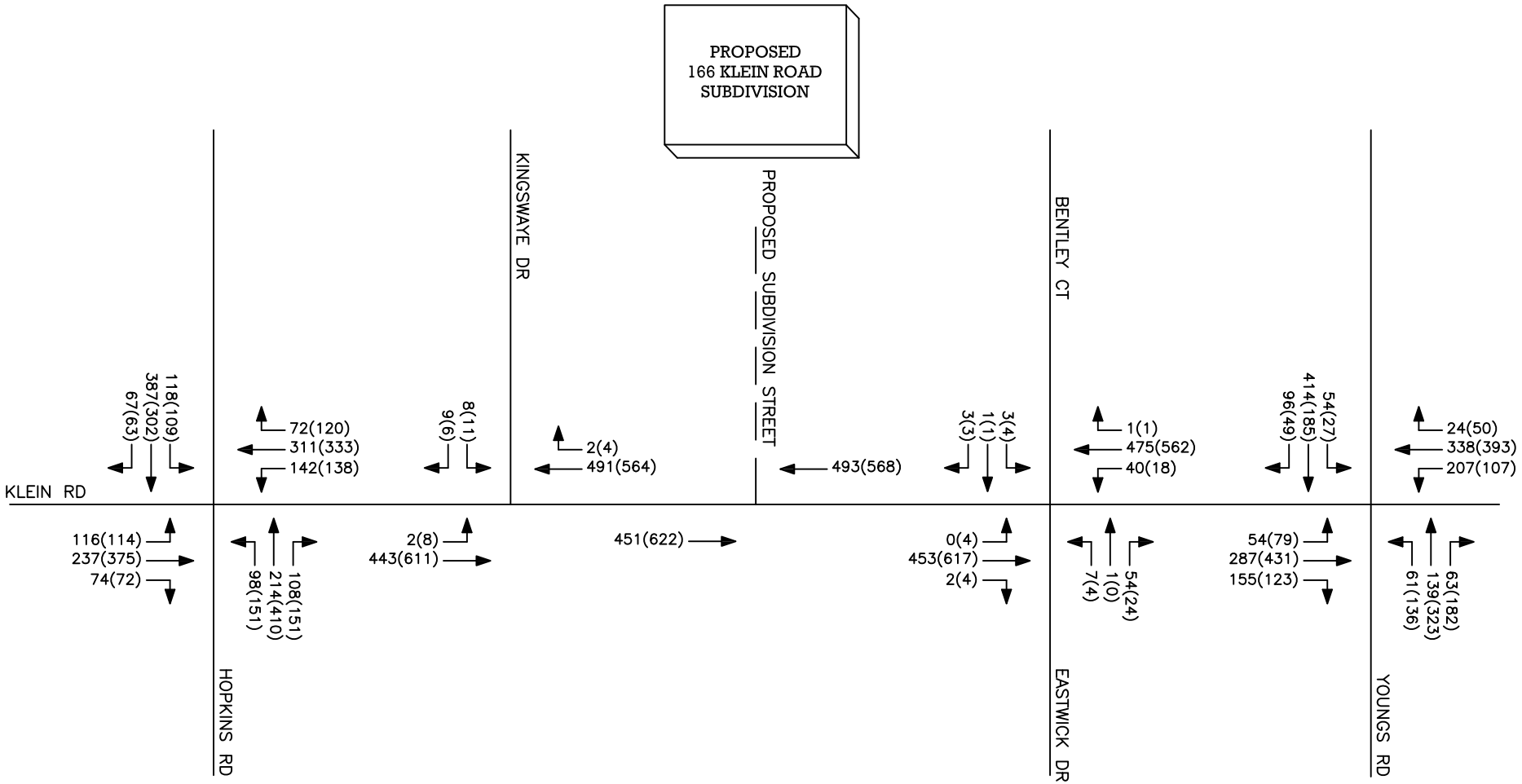
LANE GEOMETRY &
AVERAGE DAILY TRAFFIC

PROPOSED 166 KLEIN ROAD SUBDIVISION
TOWN OF AMHERST, NY

KEY

PROJECT NO: 41088

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



AM PEAK: 7:15–8:15
PM PEAK: 4:30–5:30

SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 3

PEAK HOUR VOLUMES
2021 EXISTING BASE CONDITIONS

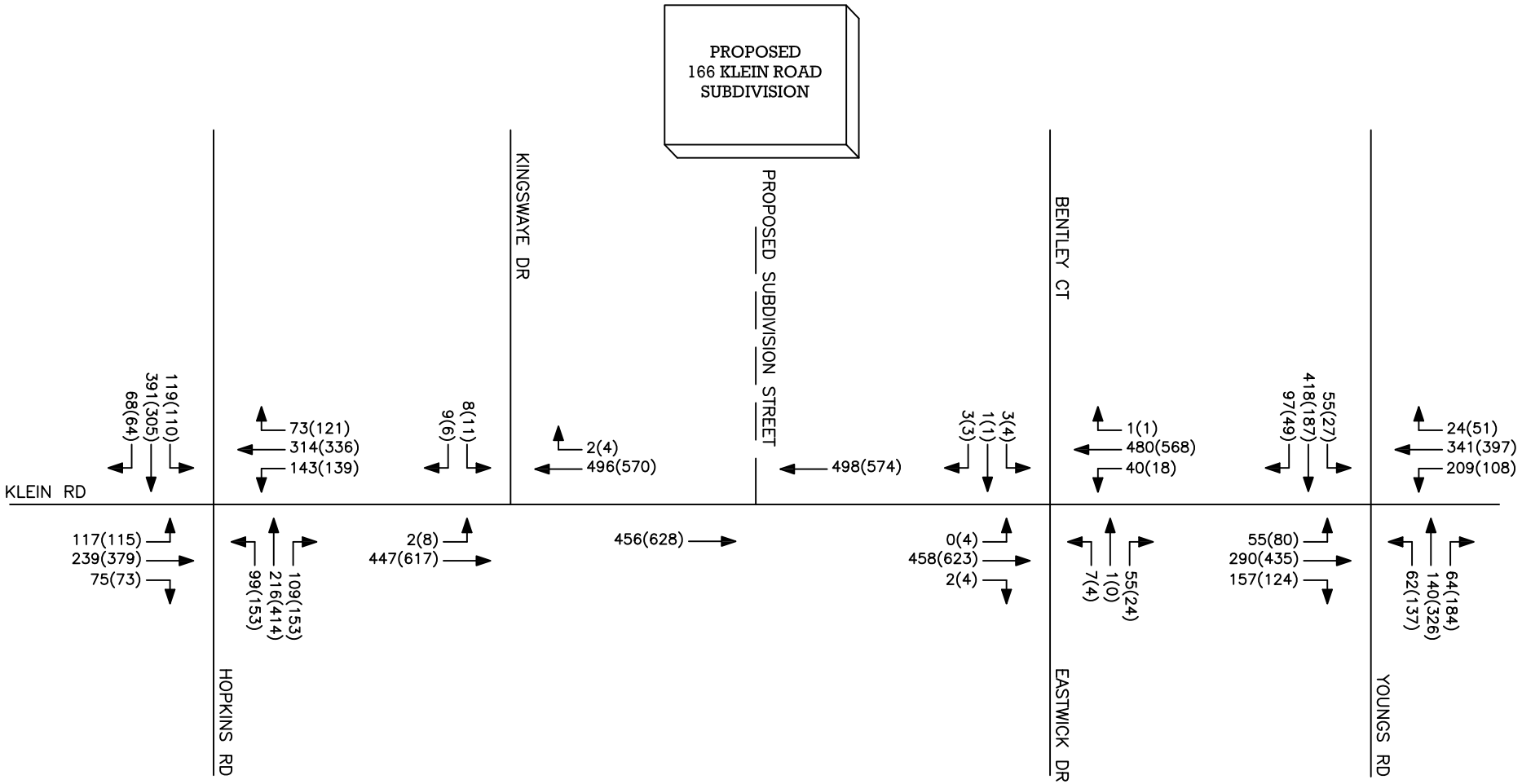
PROPOSED 166 KLEIN ROAD SUBDIVISION
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

PROJECT NO: 41088

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 4

PEAK HOUR VOLUMES
2023 BACKGROUND CONDITIONS

PROPOSED 166 KLEIN ROAD SUBDIVISION
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

PROJECT NO: 41088

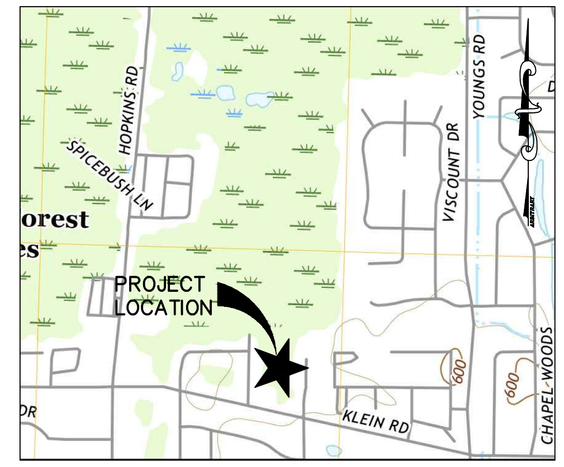
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

6.e

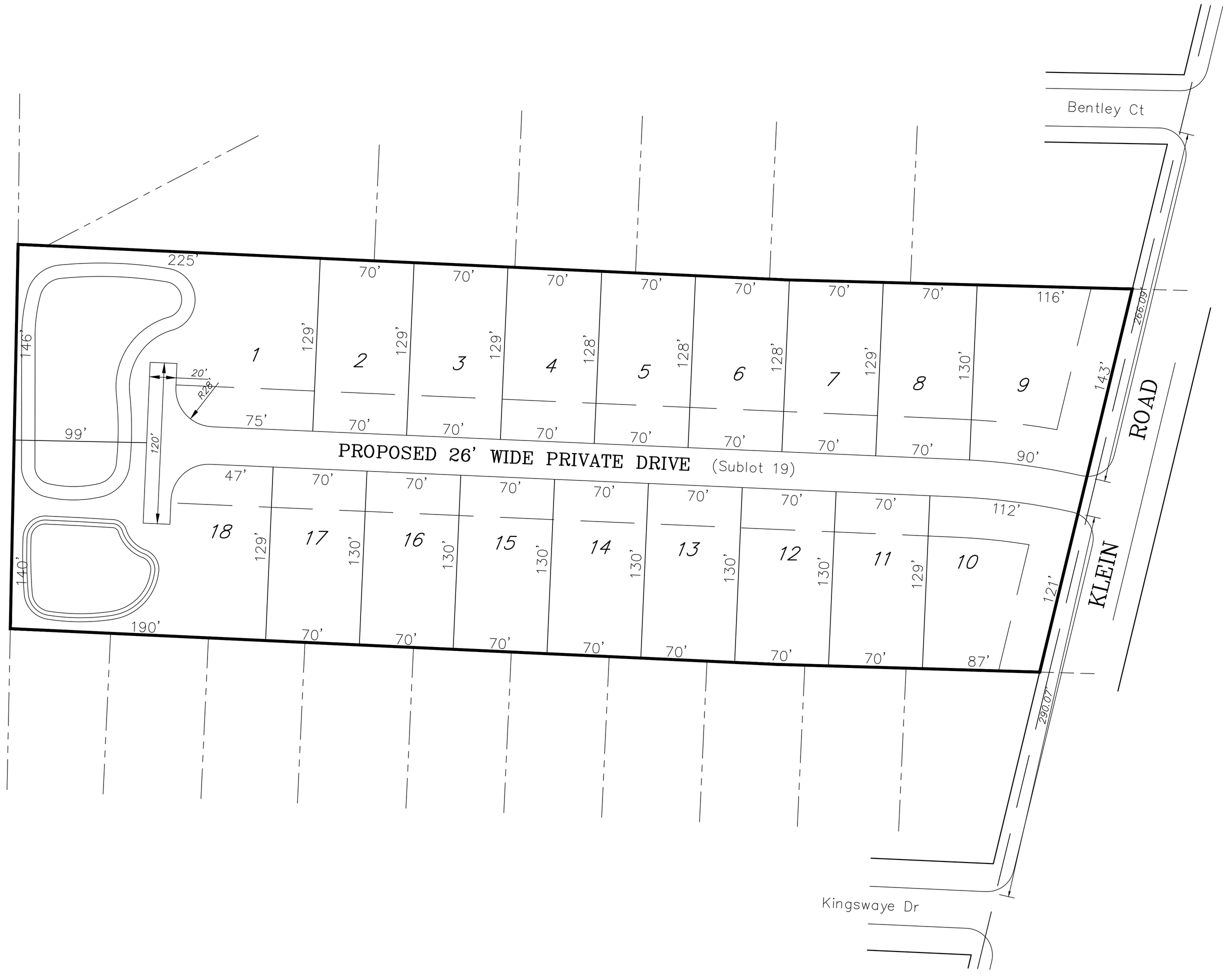
Attachment: SUB-2021-01 application 011322 (2343 : Sub-2021-01_SK)

Packet Pg. 3485

ARBITRARY



LOCATION MAP



Site Data

Present Zoning: R-3 (Residential District 3)

Site Area: 5.26± acres

Lots:

Number shown:	19 (Including Private Drive)
Minimum front setback:	30'
Minimum lot width required:	65'
Minimum lot width shown:	70'
Minimum lot area required:	8,450± sq.ft.
Minimum lot area shown:	8,950± sq.ft.

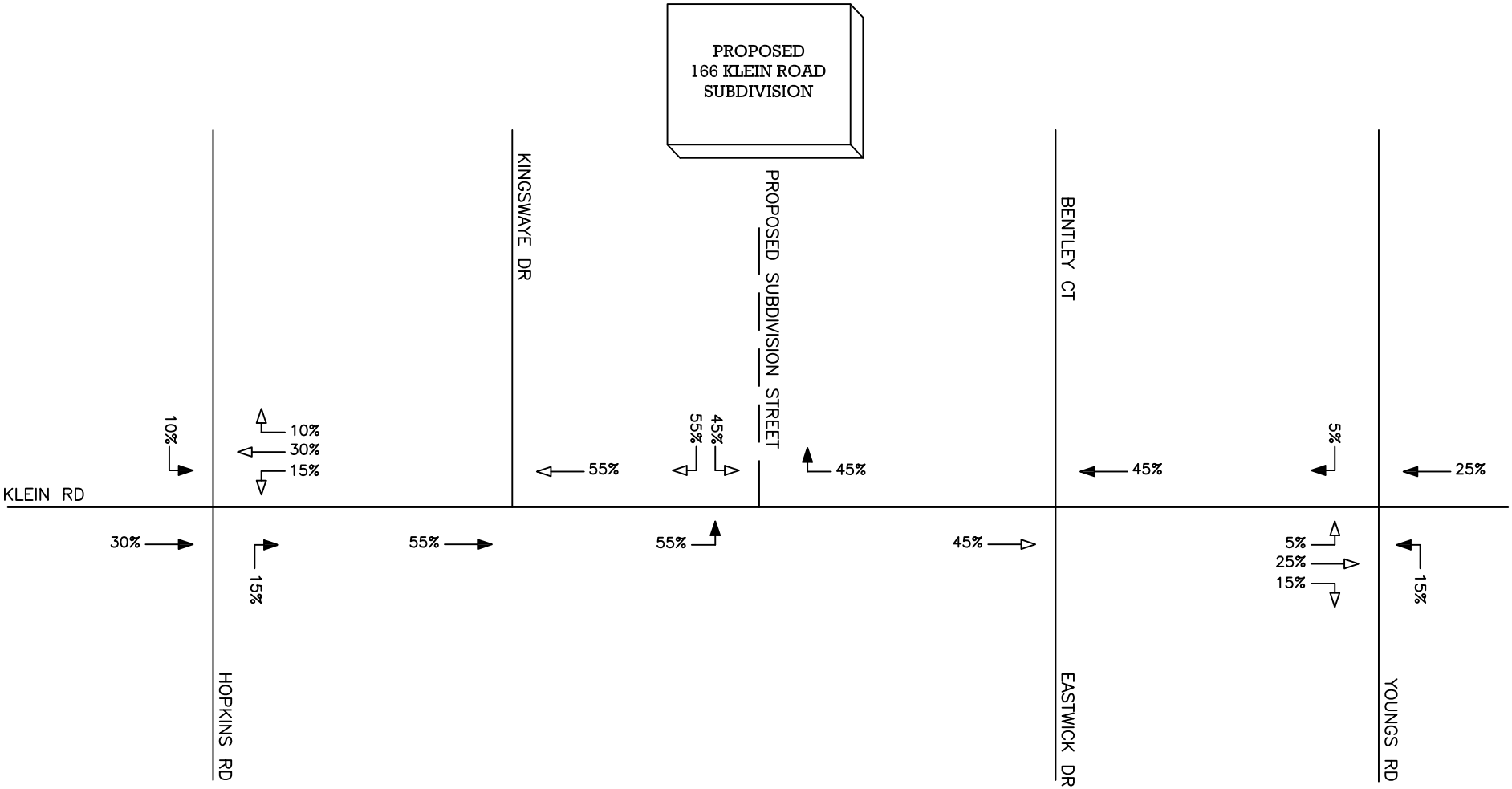
166 KLEIN ROAD SUBDIVISION

SKETCH PLAN

GPI

GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING · SURVEYING · PLANNING
4950 GENESEE STREET SUITE 100 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

DRAWN: KCZ	JOB NO.: 2021052	SHEET NO.:
CHECKED:	DATE: JULY 2021	
APPROVED:	SCALE: 1"= 40'	



SRF ASSOCIATES
Transportation Planning / Engineering / Design

N
NOT TO SCALE

FIGURE 6

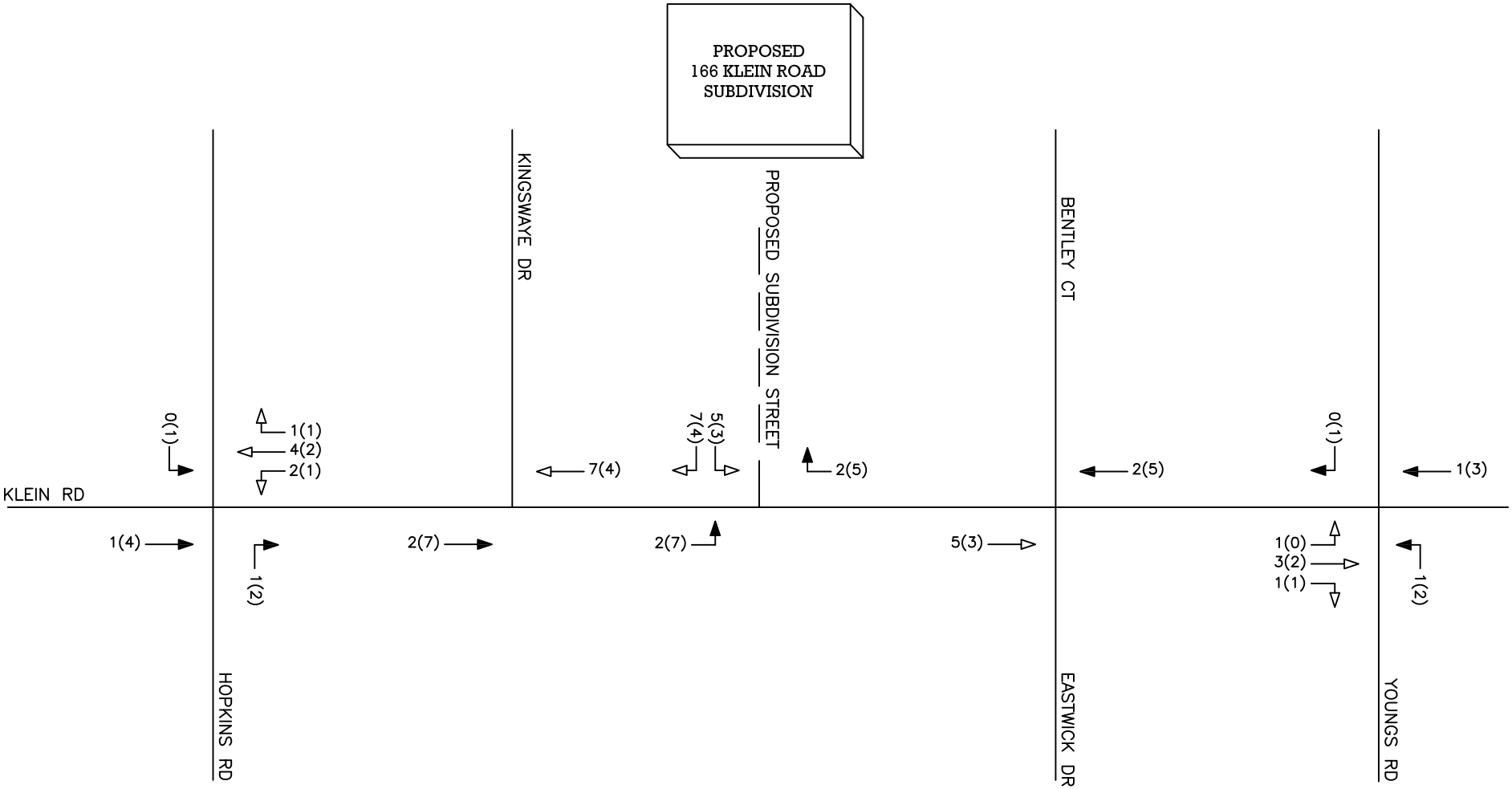
TRIP DISTRIBUTION

PROPOSED 166 KLEIN ROAD SUBDIVISION
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



SRF ASSOCIATES
Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

N
NOT TO SCALE

FIGURE 7

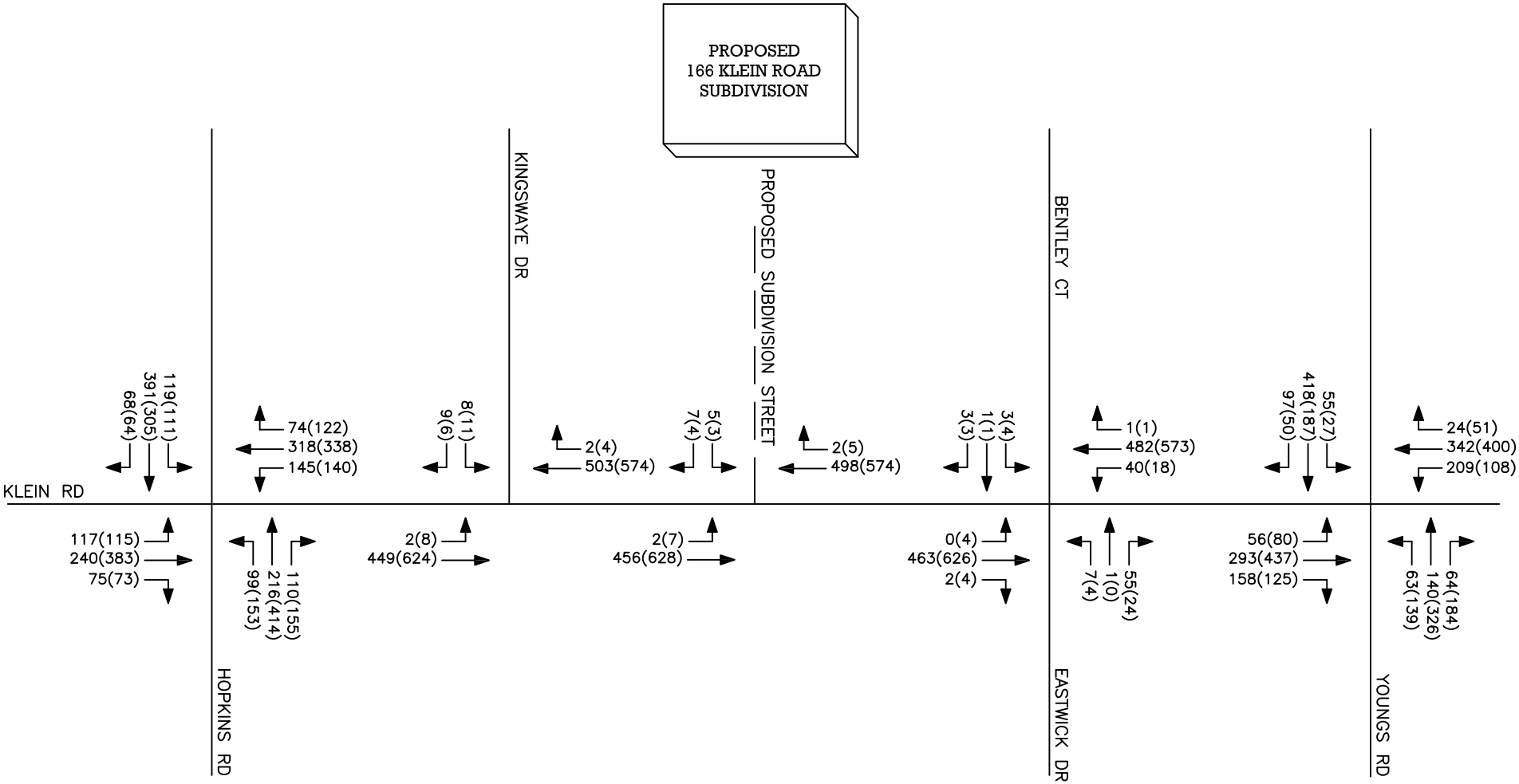
SITE GENERATED TRIPS

PROPOSED 166 KLEIN ROAD SUBDIVISION
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)
→ = ENTERING TRIPS
→ = EXITING TRIPS

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



SRF ASSOCIATES
Transportation Planning / Engineering / Design

N
NOT TO SCALE

FIGURE 8

PEAK HOUR VOLUMES
FULL DEVELOPMENT CONDITIONS

PROPOSED 166 KLEIN ROAD SUBDIVISION
TOWN OF AMHERST, NY

KEY

00(00) = AM(PM)

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

APPENDICES

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

A1

Collected Traffic Volume Data

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Bently Ct-Eastwick Dr
Site Code:
Start Date: 09/09/2021

Turning Movement Data

Start Time	Bently Ct Southbound					Klein Rd Westbound					Eastwick Dr Northbound					Klein Rd Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:00 AM	0	0	1	0	1	0	59	9	0	68	3	1	2	0	6	0	59	0	0	59	134
7:15 AM	0	0	1	0	1	0	103	18	0	121	16	0	2	0	18	1	95	0	0	96	236
7:30 AM	2	0	1	0	3	0	117	9	0	126	26	1	2	0	29	0	119	0	0	119	277
7:45 AM	1	1	1	0	3	0	141	11	0	152	5	0	1	0	6	0	108	0	0	108	269
Hourly Total	3	1	4	0	8	0	420	47	0	467	50	2	7	0	59	1	381	0	0	382	916
8:00 AM	0	0	0	0	0	1	114	2	0	117	7	0	2	0	9	1	131	0	0	132	258
8:15 AM	1	1	0	0	2	0	111	6	0	117	5	0	0	0	5	1	120	0	0	121	245
8:30 AM	0	0	2	0	2	1	122	8	0	131	8	0	0	0	8	1	91	0	0	92	233
8:45 AM	0	2	0	0	2	0	133	8	0	141	4	0	2	0	6	1	124	0	0	125	274
Hourly Total	1	3	2	0	6	2	480	24	0	506	24	0	4	0	28	4	466	0	0	470	1010
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	0	0	0	1	0	135	7	0	142	3	0	1	0	4	3	146	1	0	150	297
4:15 PM	1	0	0	0	1	0	126	6	0	132	10	0	2	0	12	0	152	1	0	153	298
4:30 PM	1	1	1	0	3	0	145	4	0	149	7	0	3	0	10	2	168	3	0	173	335
4:45 PM	0	0	1	0	1	0	140	5	0	145	7	0	0	0	7	0	144	0	0	144	297
Hourly Total	3	1	2	0	6	0	546	22	0	568	27	0	6	0	33	5	610	5	0	620	1227
5:00 PM	2	0	0	0	2	0	139	3	0	142	3	0	0	0	3	1	143	0	0	144	291
5:15 PM	0	0	2	0	2	1	138	6	0	145	7	0	1	0	8	1	162	1	0	164	319
5:30 PM	0	3	0	0	3	0	131	8	0	139	3	1	1	0	5	1	170	1	0	172	319
5:45 PM	0	0	1	0	1	1	98	6	0	105	5	0	0	0	5	1	119	0	0	120	231
Hourly Total	2	3	3	0	8	2	506	23	0	531	18	1	2	0	21	4	594	2	0	600	1160
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	9	8	11	0	28	4	1952	116	0	2072	119	3	19	0	141	14	2051	7	0	2072	4313
Approach %	32.1	28.6	39.3	0.0	-	0.2	94.2	5.6	0.0	-	84.4	2.1	13.5	0.0	-	0.7	99.0	0.3	0.0	-	-
Total %	0.2	0.2	0.3	0.0	0.6	0.1	45.3	2.7	0.0	48.0	2.8	0.1	0.4	0.0	3.3	0.3	47.6	0.2	0.0	48.0	-
Motorcycles	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
% Motorcycles	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	-	0.1	0.1
Cars & Light Goods	9	8	10	0	27	4	1915	109	0	2028	114	2	16	0	132	11	2010	7	0	2028	4215
% Cars & Light Goods	100.0	100.0	90.9	-	96.4	100.0	98.1	94.0	-	97.9	95.8	66.7	84.2	-	93.6	78.6	98.0	100.0	-	97.9	97.7
Other Vehicles	0	0	1	0	1	0	36	7	0	43	5	1	3	0	9	3	39	0	0	42	95
% Other Vehicles	0.0	0.0	9.1	-	3.6	0.0	1.8	6.0	-	2.1	4.2	33.3	15.8	-	6.4	21.4	1.9	0.0	-	2.0	2.2

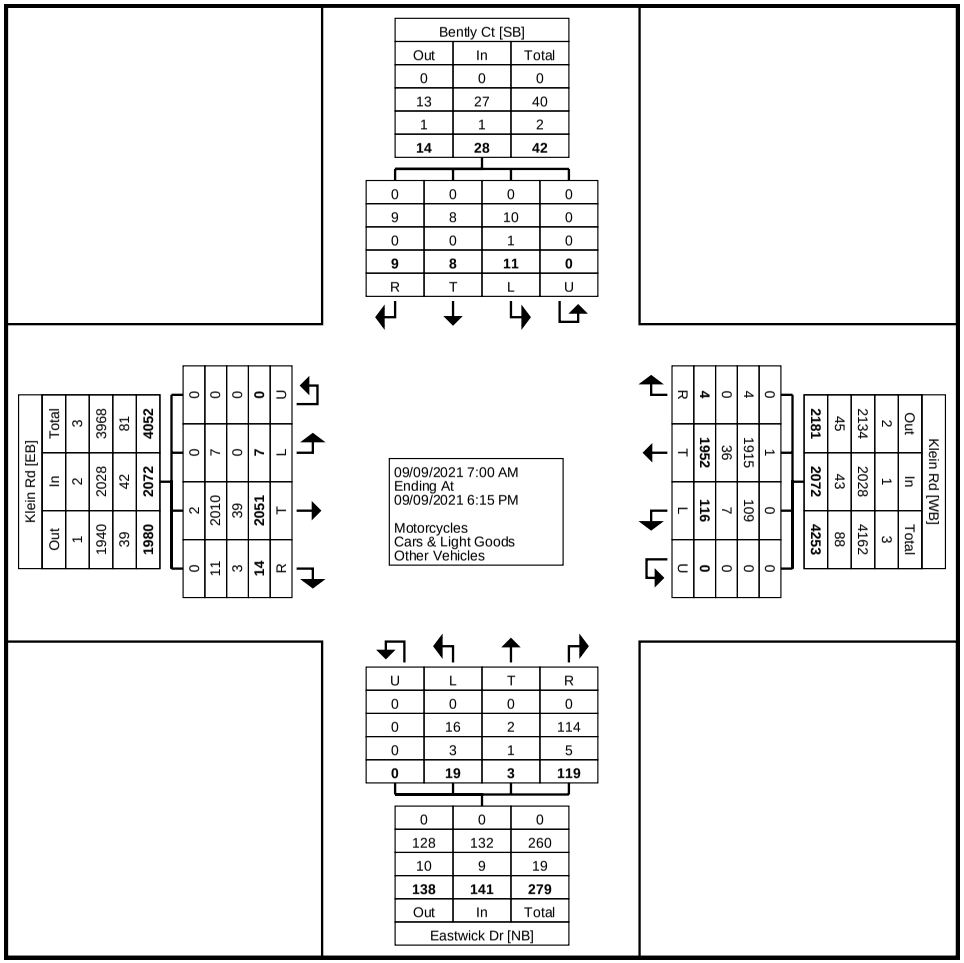
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Bently Ct-Eastwick Dr
Site Code:
Start Date: 09/09/2021



Turning Movement Data Plot

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Bently Ct-Eastwick Dr
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Bently Ct Southbound					Klein Rd Westbound					Eastwick Dr Northbound					Klein Rd Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:30 AM	2	0	1	0	3	0	117	9	0	126	26	1	2	0	29	0	119	0	0	119	277
7:45 AM	1	1	1	0	3	0	141	11	0	152	5	0	1	0	6	0	108	0	0	108	269
8:00 AM	0	0	0	0	0	1	114	2	0	117	7	0	2	0	9	1	131	0	0	132	258
8:15 AM	1	1	0	0	2	0	111	6	0	117	5	0	0	0	5	1	120	0	0	121	245
Total	4	2	2	0	8	1	483	28	0	512	43	1	5	0	49	2	478	0	0	480	1049
Approach %	50.0	25.0	25.0	0.0	-	0.2	94.3	5.5	0.0	-	87.8	2.0	10.2	0.0	-	0.4	99.6	0.0	0.0	-	-
Total %	0.4	0.2	0.2	0.0	0.8	0.1	46.0	2.7	0.0	48.8	4.1	0.1	0.5	0.0	4.7	0.2	45.6	0.0	0.0	45.8	-
PHF	0.500	0.500	0.500	0.000	0.667	0.250	0.856	0.636	0.000	0.842	0.413	0.250	0.625	0.000	0.422	0.500	0.912	0.000	0.000	0.909	0.947
Motorcycles	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Motorcycles	0.0	0.0	0.0	-	0.0	0.0	0.2	0.0	-	0.2	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	4	2	2	0	8	1	473	27	0	501	41	1	4	0	46	1	465	0	0	466	1021
% Cars & Light Goods	100.0	100.0	100.0	-	100.0	100.0	97.9	96.4	-	97.9	95.3	100.0	80.0	-	93.9	50.0	97.3	-	-	97.1	97.3
Other Vehicles	0	0	0	0	0	0	9	1	0	10	2	0	1	0	3	1	13	0	0	14	27
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	1.9	3.6	-	2.0	4.7	0.0	20.0	-	6.1	50.0	2.7	-	-	2.9	2.6

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

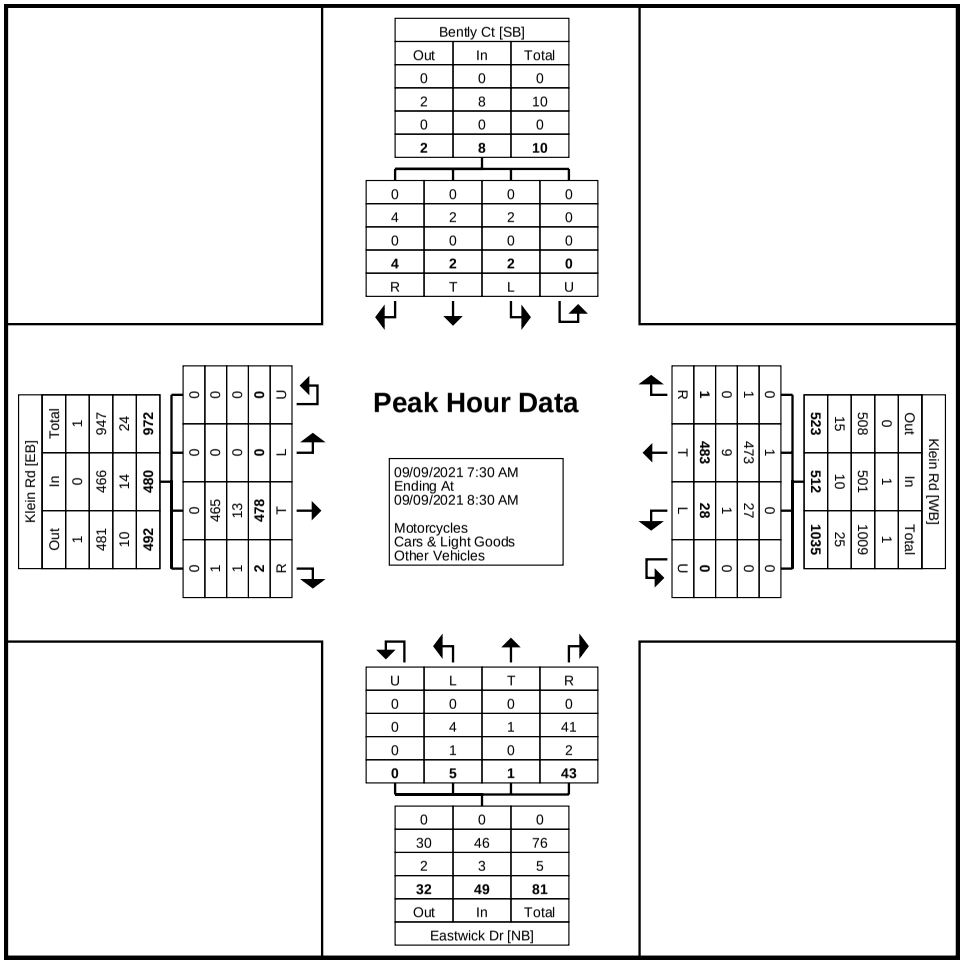
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Bently Ct-Eastwick Dr
Site Code:
Start Date: 09/09/2021



Turning Movement Peak Hour Data Plot (7:30 AM)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Bently Ct-Eastwick Dr
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Bently Ct Southbound					Klein Rd Westbound					Eastwick Dr Northbound					Klein Rd Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:30 PM	1	1	1	0	3	0	145	4	0	149	7	0	3	0	10	2	168	3	0	173	335
4:45 PM	0	0	1	0	1	0	140	5	0	145	7	0	0	0	7	0	144	0	0	144	297
5:00 PM	2	0	0	0	2	0	139	3	0	142	3	0	0	0	3	1	143	0	0	144	291
5:15 PM	0	0	2	0	2	1	138	6	0	145	7	0	1	0	8	1	162	1	0	164	319
Total	3	1	4	0	8	1	562	18	0	581	24	0	4	0	28	4	617	4	0	625	1242
Approach %	37.5	12.5	50.0	0.0	-	0.2	96.7	3.1	0.0	-	85.7	0.0	14.3	0.0	-	0.6	98.7	0.6	0.0	-	-
Total %	0.2	0.1	0.3	0.0	0.6	0.1	45.2	1.4	0.0	46.8	1.9	0.0	0.3	0.0	2.3	0.3	49.7	0.3	0.0	50.3	-
PHF	0.375	0.250	0.500	0.000	0.667	0.250	0.969	0.750	0.000	0.975	0.857	0.000	0.333	0.000	0.700	0.500	0.918	0.333	0.000	0.903	0.927
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
% Motorcycles	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	0.3	0.0	-	0.3	0.2
Cars & Light Goods	3	1	4	0	8	1	550	18	0	569	24	0	3	0	27	4	607	4	0	615	1219
% Cars & Light Goods	100.0	100.0	100.0	-	100.0	100.0	97.9	100.0	-	97.9	100.0	-	75.0	-	96.4	100.0	98.4	100.0	-	98.4	98.1
Other Vehicles	0	0	0	0	0	0	12	0	0	12	0	0	1	0	1	0	8	0	0	8	21
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	2.1	0.0	-	2.1	0.0	-	25.0	-	3.6	0.0	1.3	0.0	-	1.3	1.7

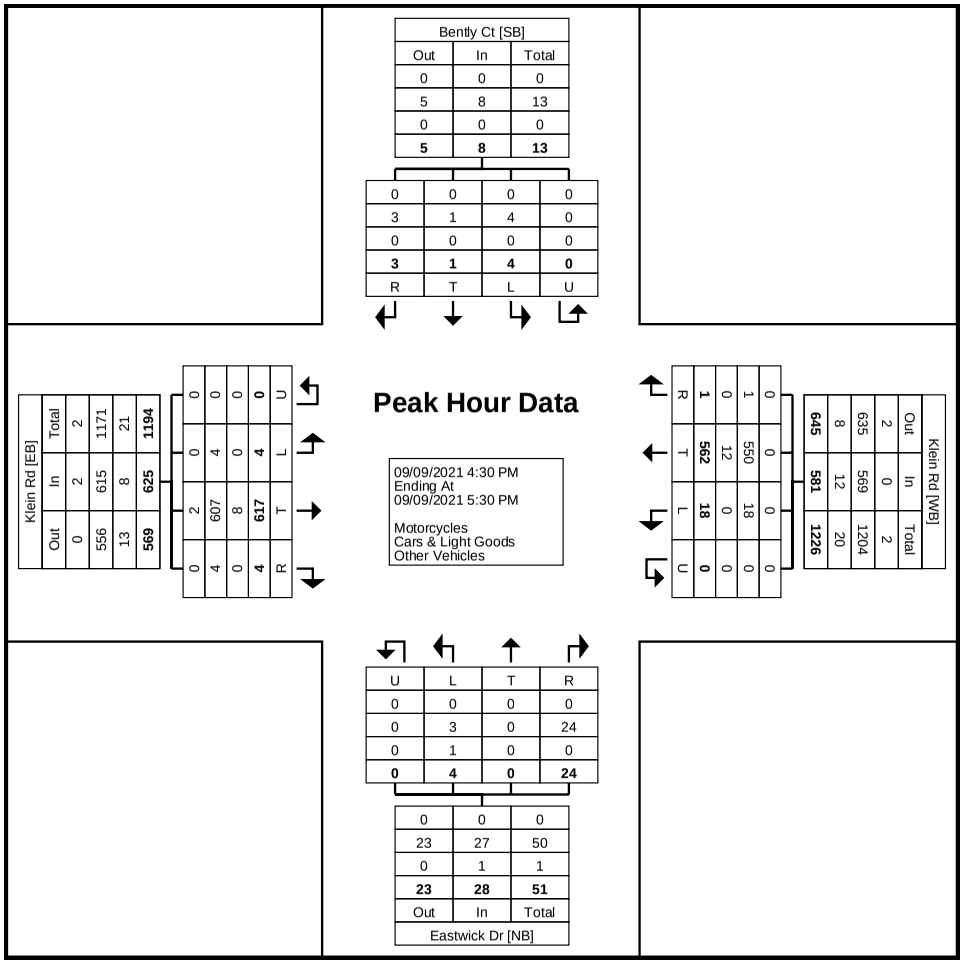
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Bently Ct-Eastwick Dr
Site Code:
Start Date: 09/09/2021



Turning Movement Peak Hour Data Plot (4:30 PM)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Hopkins Rd
Site Code:
Start Date: 09/09/2021

Turning Movement Data

Start Time	Hopkins Rd Southbound						Klein Rd Westbound						Hopkins Rd Northbound						W.Klein Rd Eastbound						Int. Total
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	
7:00 AM	10	1	58	18	0	87	8	0	40	17	1	66	7	5	45	16	0	73	13	1	31	7	0	52	278
7:15 AM	15	2	73	24	1	115	16	2	74	22	0	114	15	8	46	24	0	93	13	6	50	53	0	122	444
7:30 AM	19	4	81	33	0	137	18	1	73	41	0	133	17	7	64	32	0	120	22	2	60	26	0	110	500
7:45 AM	17	1	152	34	1	205	16	2	84	42	0	144	14	6	47	19	0	86	16	0	61	13	0	90	525
Hourly Total	61	8	364	109	2	544	58	5	271	122	1	457	53	26	202	91	0	372	64	9	202	99	0	374	1747
8:00 AM	9	0	81	27	2	119	14	3	80	37	0	134	20	21	57	23	0	121	13	2	66	24	0	105	479
8:15 AM	10	1	90	27	0	128	9	2	81	26	0	118	13	6	48	18	0	85	16	3	68	20	0	107	438
8:30 AM	13	0	89	27	0	129	16	4	78	33	0	131	8	9	60	18	1	96	12	1	53	15	0	81	437
8:45 AM	15	1	91	40	2	149	11	1	92	34	0	138	15	8	38	22	1	84	18	8	56	18	1	101	472
Hourly Total	47	2	351	121	4	525	50	10	331	130	0	521	56	44	203	81	2	386	59	14	243	77	1	394	1826
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	24	2	76	28	0	130	31	4	71	34	0	140	26	17	108	34	2	187	16	0	95	34	1	146	603
4:15 PM	16	1	72	29	1	119	31	3	70	22	0	126	22	15	120	22	0	179	16	1	97	28	0	142	566
4:30 PM	18	0	69	28	0	115	25	2	85	43	0	155	26	18	96	44	0	184	8	2	97	18	0	125	579
4:45 PM	21	1	67	22	1	112	26	1	83	31	0	141	22	15	108	33	1	179	17	4	77	34	0	132	564
Hourly Total	79	4	284	107	2	476	113	10	309	130	0	562	96	65	432	133	3	729	57	7	366	114	1	545	2312
5:00 PM	15	1	85	27	0	128	23	0	79	35	0	137	28	8	114	33	1	184	19	2	94	30	0	145	594
5:15 PM	7	0	81	32	0	120	40	3	86	29	0	158	22	12	92	41	1	168	17	3	107	32	0	159	605
5:30 PM	19	1	71	33	3	127	32	8	67	25	0	132	22	7	88	29	0	146	9	0	98	19	0	126	531
5:45 PM	23	0	65	23	0	111	22	8	58	14	0	102	29	6	68	19	0	122	9	0	81	32	0	122	457
Hourly Total	64	2	302	115	3	486	117	19	290	103	0	529	101	33	362	122	2	620	54	5	380	113	0	552	2187
Grand Total	251	16	1301	452	11	2031	338	44	1201	485	1	2069	306	168	1199	427	7	2107	234	35	1191	403	2	1865	8072
Approach %	12.4	0.8	64.1	22.3	0.5	-	16.3	2.1	58.0	23.4	0.0	-	14.5	8.0	56.9	20.3	0.3	-	12.5	1.9	63.9	21.6	0.1	-	-
Total %	3.1	0.2	16.1	5.6	0.1	25.2	4.2	0.5	14.9	6.0	0.0	25.6	3.8	2.1	14.9	5.3	0.1	26.1	2.9	0.4	14.8	5.0	0.0	23.1	-
Motorcycles	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	3
% Motorcycles	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Cars & Light Goods	247	15	1240	442	11	1955	332	44	1174	472	1	2023	300	166	1171	408	7	2052	224	34	1170	394	2	1824	7854
% Cars & Light Goods	98.4	93.8	95.3	97.8	100.0	96.3	98.2	100.0	97.8	97.3	100.0	97.8	98.0	98.8	97.7	95.6	100.0	97.4	95.7	97.1	98.2	97.8	100.0	97.8	97.3
Other Vehicles	4	1	60	10	0	75	6	0	26	13	0	45	6	2	28	19	0	55	10	1	20	9	0	40	215
% Other Vehicles	1.6	6.3	4.6	2.2	0.0	3.7	1.8	0.0	2.2	2.7	0.0	2.2	2.0	1.2	2.3	4.4	0.0	2.6	4.3	2.9	1.7	2.2	0.0	2.1	2.7

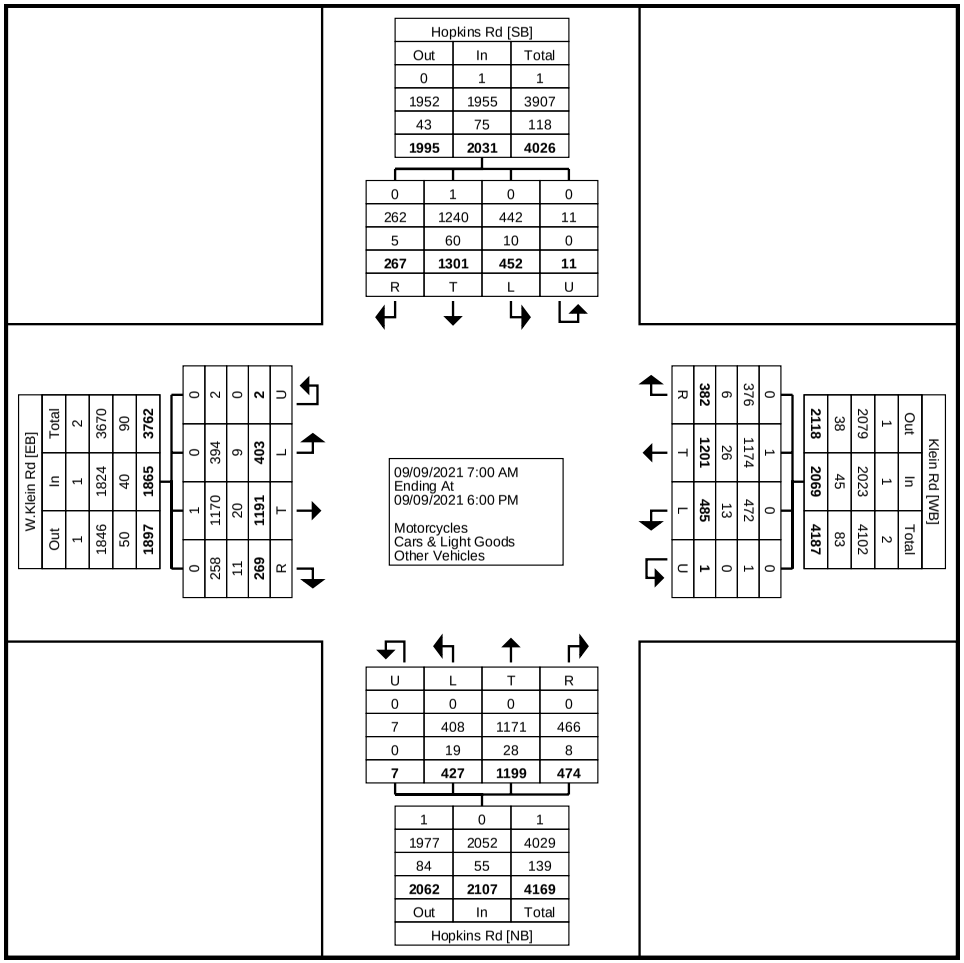
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Hopkins Rd
Site Code:
Start Date: 09/09/2021



Turning Movement Data Plot

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Hopkins Rd
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Hopkins Rd Southbound						Klein Rd Westbound						Hopkins Rd Northbound						W.Klein Rd Eastbound						
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Int. Total
7:15 AM	15	2	73	24	1	115	16	2	74	22	0	114	15	8	46	24	0	93	13	6	50	53	0	122	444
7:30 AM	19	4	81	33	0	137	18	1	73	41	0	133	17	7	64	32	0	120	22	2	60	26	0	110	500
7:45 AM	17	1	152	34	1	205	16	2	84	42	0	144	14	6	47	19	0	86	16	0	61	13	0	90	525
8:00 AM	9	0	81	27	2	119	14	3	80	37	0	134	20	21	57	23	0	121	13	2	66	24	0	105	479
Total	60	7	387	118	4	576	64	8	311	142	0	525	66	42	214	98	0	420	64	10	237	116	0	427	1948
Approach %	10.4	1.2	67.2	20.5	0.7	-	12.2	1.5	59.2	27.0	0.0	-	15.7	10.0	51.0	23.3	0.0	-	15.0	2.3	55.5	27.2	0.0	-	-
Total %	3.1	0.4	19.9	6.1	0.2	29.6	3.3	0.4	16.0	7.3	0.0	27.0	3.4	2.2	11.0	5.0	0.0	21.6	3.3	0.5	12.2	6.0	0.0	21.9	-
PHF	0.789	0.438	0.637	0.868	0.500	0.702	0.889	0.667	0.926	0.845	0.000	0.911	0.825	0.500	0.836	0.766	0.000	0.868	0.727	0.417	0.898	0.547	0.000	0.875	0.928
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars & Light Goods	60	7	370	116	4	557	62	8	302	140	0	512	64	42	206	92	0	404	62	10	232	113	0	417	1890
% Cars & Light Goods	100.0	100.0	95.6	98.3	100.0	96.7	96.9	100.0	97.1	98.6	-	97.5	97.0	100.0	96.3	93.9	-	96.2	96.9	100.0	97.9	97.4	-	97.7	97.0
Other Vehicles	0	0	17	2	0	19	2	0	9	2	0	13	2	0	8	6	0	16	2	0	5	3	0	10	58
% Other Vehicles	0.0	0.0	4.4	1.7	0.0	3.3	3.1	0.0	2.9	1.4	-	2.5	3.0	0.0	3.7	6.1	-	3.8	3.1	0.0	2.1	2.6	-	2.3	3.0

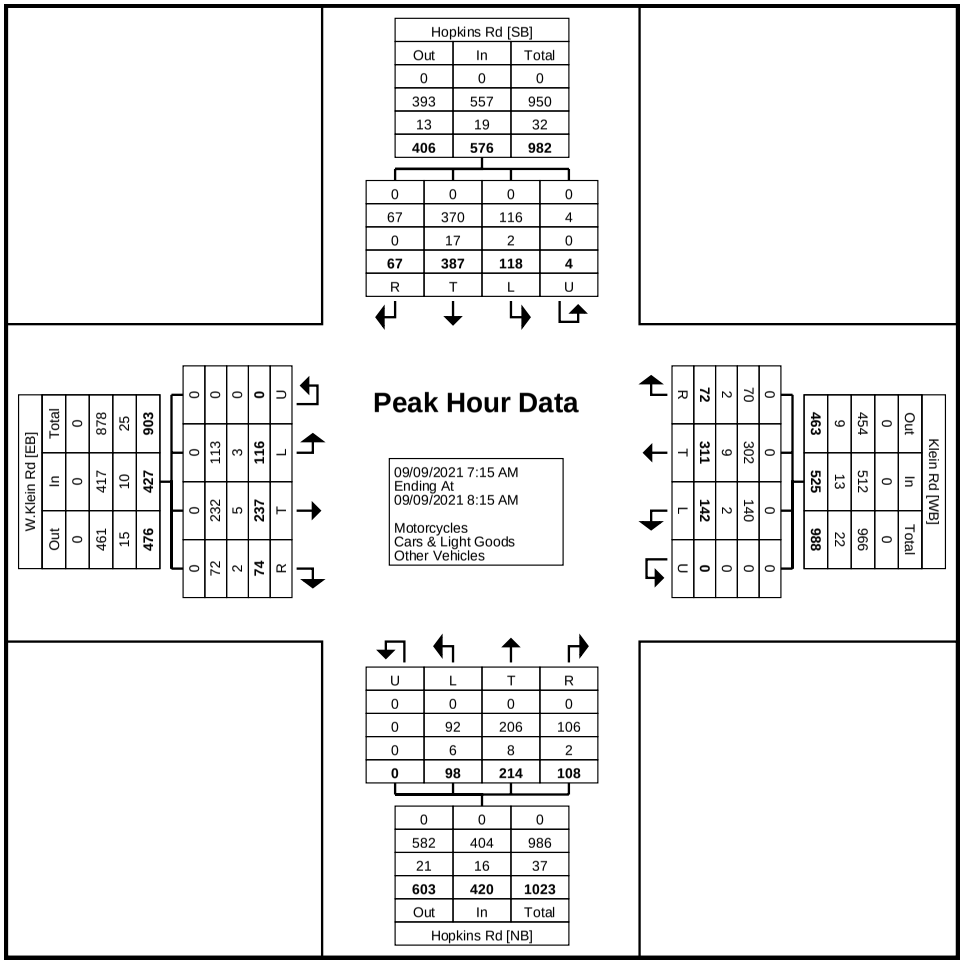
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Hopkins Rd
Site Code:
Start Date: 09/09/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:15 AM)

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Hopkins Rd
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Hopkins Rd Southbound						Klein Rd Westbound						Hopkins Rd Northbound						W.Klein Rd Eastbound						
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Int. Total
4:30 PM	18	0	69	28	0	115	25	2	85	43	0	155	26	18	96	44	0	184	8	2	97	18	0	125	579
4:45 PM	21	1	67	22	1	112	26	1	83	31	0	141	22	15	108	33	1	179	17	4	77	34	0	132	564
5:00 PM	15	1	85	27	0	128	23	0	79	35	0	137	28	8	114	33	1	184	19	2	94	30	0	145	594
5:15 PM	7	0	81	32	0	120	40	3	86	29	0	158	22	12	92	41	1	168	17	3	107	32	0	159	605
Total	61	2	302	109	1	475	114	6	333	138	0	591	98	53	410	151	3	715	61	11	375	114	0	561	2342
Approach %	12.8	0.4	63.6	22.9	0.2	-	19.3	1.0	56.3	23.4	0.0	-	13.7	7.4	57.3	21.1	0.4	-	10.9	2.0	66.8	20.3	0.0	-	-
Total %	2.6	0.1	12.9	4.7	0.0	20.3	4.9	0.3	14.2	5.9	0.0	25.2	4.2	2.3	17.5	6.4	0.1	30.5	2.6	0.5	16.0	4.9	0.0	24.0	-
PHF	0.726	0.500	0.888	0.852	0.250	0.928	0.713	0.500	0.968	0.802	0.000	0.935	0.875	0.736	0.899	0.858	0.750	0.971	0.803	0.688	0.876	0.838	0.000	0.882	0.968
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Motorcycles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	-	0.2	0.0
Cars & Light Goods	61	1	294	106	1	463	114	6	326	131	0	577	98	53	406	147	3	707	60	11	369	112	0	552	2299
% Cars & Light Goods	100.0	50.0	97.4	97.2	100.0	97.5	100.0	100.0	97.9	94.9	-	97.6	100.0	100.0	99.0	97.4	100.0	98.9	98.4	100.0	98.4	98.2	-	98.4	98.2
Other Vehicles	0	1	8	3	0	12	0	0	7	7	0	14	0	0	4	4	0	8	1	0	5	2	0	8	42
% Other Vehicles	0.0	50.0	2.6	2.8	0.0	2.5	0.0	0.0	2.1	5.1	-	2.4	0.0	0.0	1.0	2.6	0.0	1.1	1.6	0.0	1.3	1.8	-	1.4	1.8

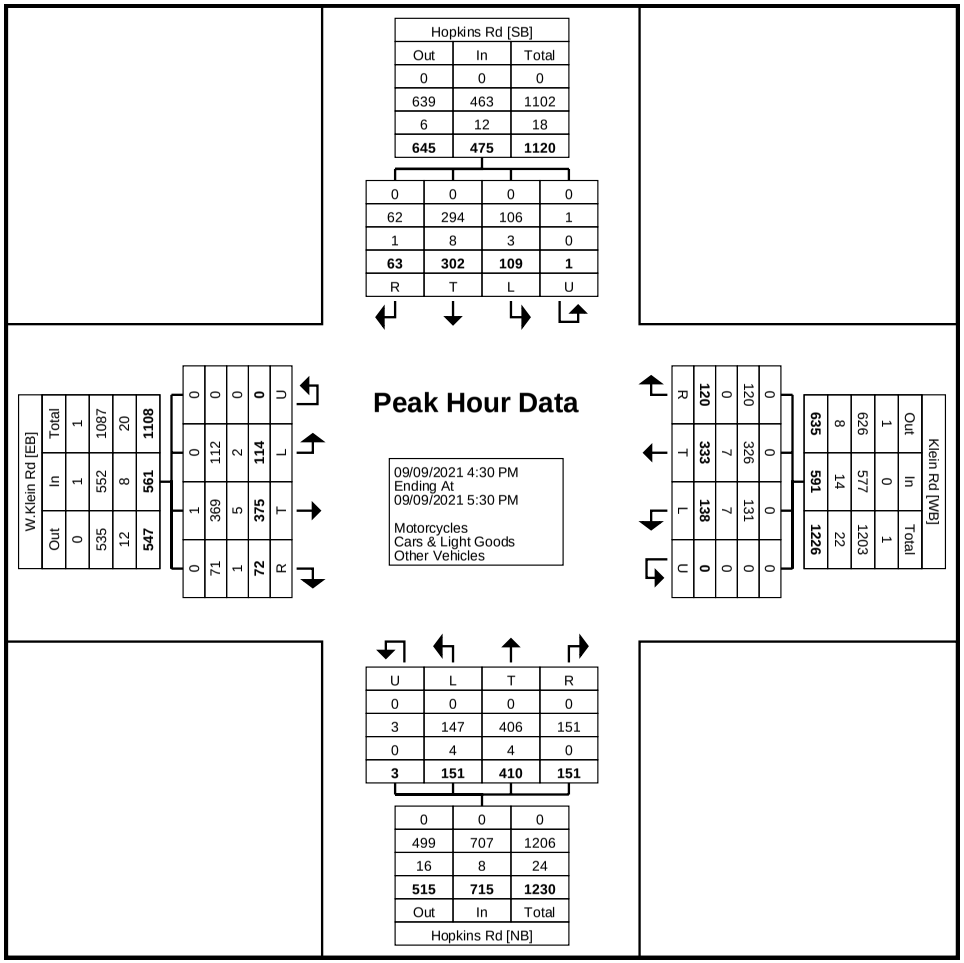
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Hopkins Rd
Site Code:
Start Date: 09/09/2021



Turning Movement Peak Hour Data Plot (4:30 PM)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Kingswaye Dr
Site Code:
Start Date: 09/09/2021

Turning Movement Data

Start Time	Kingswaye Dr Southbound				Klein Rd Westbound				Klein Rd Eastbound				
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
7:00 AM	0	0	0	0	1	58	0	59	56	0	0	56	115
7:15 AM	3	1	0	4	1	106	0	107	98	1	0	99	210
7:30 AM	3	2	0	5	0	130	0	130	113	0	0	113	248
7:45 AM	1	4	0	5	1	140	0	141	99	1	0	100	246
Hourly Total	7	7	0	14	3	434	0	437	366	2	0	368	819
8:00 AM	2	1	0	3	0	115	0	115	133	0	0	133	251
8:15 AM	1	1	0	2	0	115	0	115	117	1	0	118	235
8:30 AM	0	2	0	2	3	119	0	122	93	0	0	93	217
8:45 AM	0	1	0	1	1	135	0	136	124	0	0	124	261
Hourly Total	3	5	0	8	4	484	0	488	467	1	0	468	964
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	0	0	1	1	135	0	136	155	0	0	155	292
4:15 PM	1	1	0	2	3	127	0	130	147	1	0	148	280
4:30 PM	2	3	0	5	1	148	0	149	166	3	0	169	323
4:45 PM	1	4	0	5	1	141	0	142	140	3	0	143	290
Hourly Total	5	8	0	13	6	551	0	557	608	7	0	615	1185
5:00 PM	1	2	0	3	0	139	0	139	144	2	0	146	288
5:15 PM	2	2	0	4	2	136	0	138	161	0	0	161	303
5:30 PM	0	2	0	2	1	132	0	133	169	0	0	169	304
5:45 PM	0	1	0	1	2	100	0	102	119	2	0	121	224
Hourly Total	3	7	0	10	5	507	0	512	593	4	0	597	1119
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	18	27	0	45	18	1976	0	1994	2034	14	0	2048	4087
Approach %	40.0	60.0	0.0	-	0.9	99.1	0.0	-	99.3	0.7	0.0	-	-
Total %	0.4	0.7	0.0	1.1	0.4	48.3	0.0	48.8	49.8	0.3	0.0	50.1	-
Motorcycles	0	0	0	0	0	1	0	1	2	0	0	2	3
% Motorcycles	0.0	0.0	-	0.0	0.0	0.1	-	0.1	0.1	0.0	-	0.1	0.1
Cars & Light Goods	16	26	0	42	16	1939	0	1955	1992	14	0	2006	4003
% Cars & Light Goods	88.9	96.3	-	93.3	88.9	98.1	-	98.0	97.9	100.0	-	97.9	97.9
Other Vehicles	2	1	0	3	2	36	0	38	40	0	0	40	81
% Other Vehicles	11.1	3.7	-	6.7	11.1	1.8	-	1.9	2.0	0.0	-	2.0	2.0

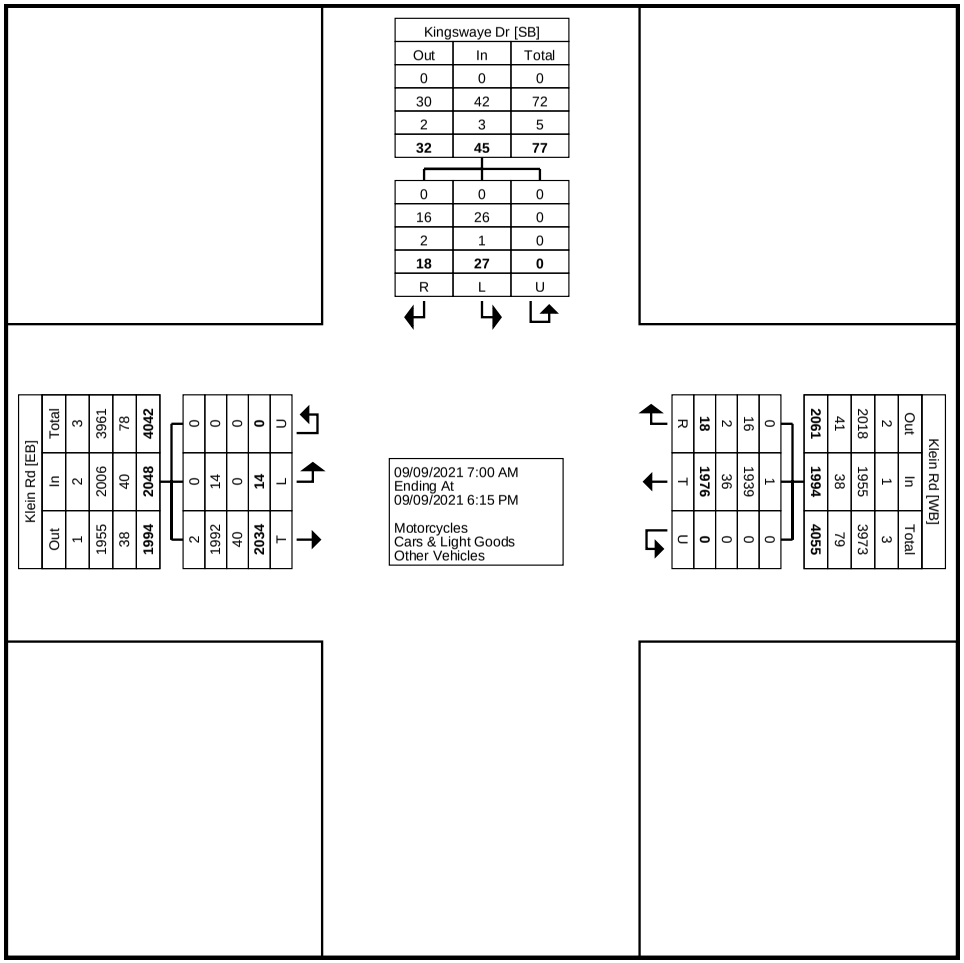
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Kingswaye Dr
Site Code:
Start Date: 09/09/2021



Turning Movement Data Plot

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Kingswaye Dr
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Kingswaye Dr Southbound				Klein Rd Westbound				Klein Rd Eastbound				
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
7:30 AM	3	2	0	5	0	130	0	130	113	0	0	113	248
7:45 AM	1	4	0	5	1	140	0	141	99	1	0	100	246
8:00 AM	2	1	0	3	0	115	0	115	133	0	0	133	251
8:15 AM	1	1	0	2	0	115	0	115	117	1	0	118	235
Total	7	8	0	15	1	500	0	501	462	2	0	464	980
Approach %	46.7	53.3	0.0	-	0.2	99.8	0.0	-	99.6	0.4	0.0	-	-
Total %	0.7	0.8	0.0	1.5	0.1	51.0	0.0	51.1	47.1	0.2	0.0	47.3	-
PHF	0.583	0.500	0.000	0.750	0.250	0.893	0.000	0.888	0.868	0.500	0.000	0.872	0.976
Motorcycles	0	0	0	0	0	1	0	1	0	0	0	0	1
% Motorcycles	0.0	0.0	-	0.0	0.0	0.2	-	0.2	0.0	0.0	-	0.0	0.1
Cars & Light Goods	6	8	0	14	1	487	0	488	448	2	0	450	952
% Cars & Light Goods	85.7	100.0	-	93.3	100.0	97.4	-	97.4	97.0	100.0	-	97.0	97.1
Other Vehicles	1	0	0	1	0	12	0	12	14	0	0	14	27
% Other Vehicles	14.3	0.0	-	6.7	0.0	2.4	-	2.4	3.0	0.0	-	3.0	2.8

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

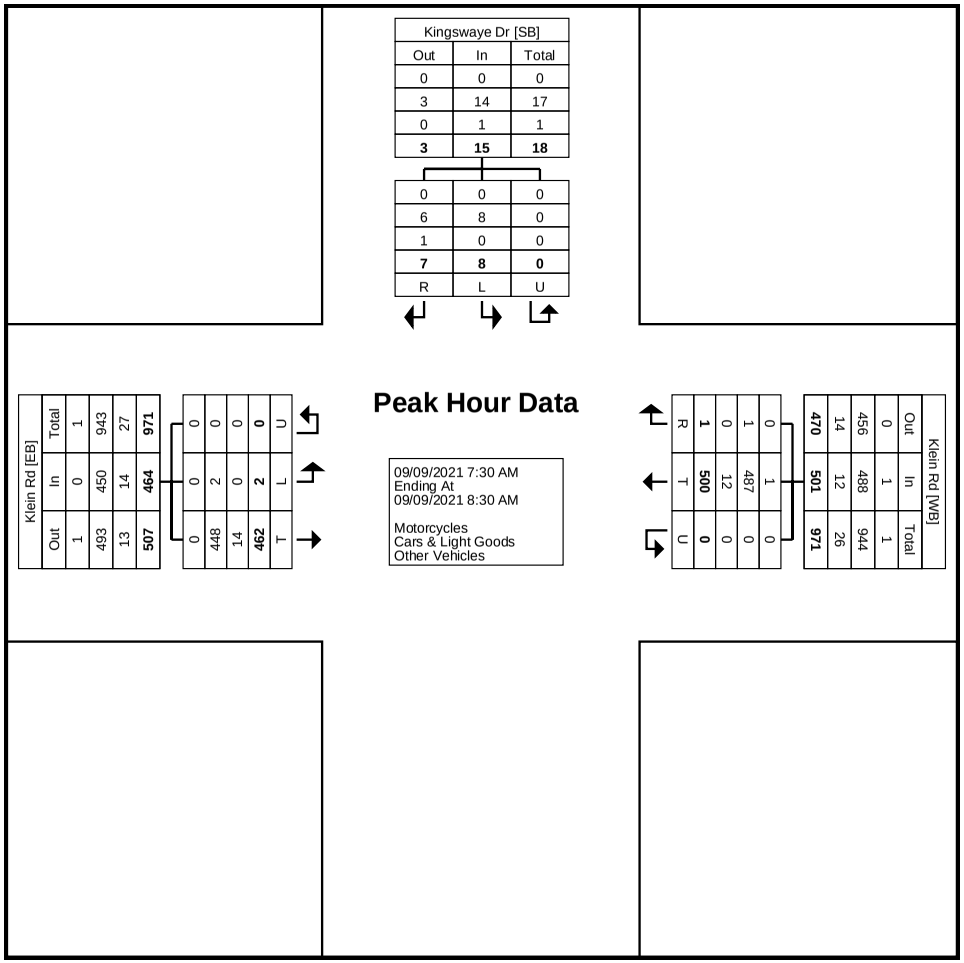
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Kingswaye Dr
Site Code:
Start Date: 09/09/2021



Turning Movement Peak Hour Data Plot (7:30 AM)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Kingswaye Dr
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Kingswaye Dr Southbound				Klein Rd Westbound				Klein Rd Eastbound				
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
4:30 PM	2	3	0	5	1	148	0	149	166	3	0	169	323
4:45 PM	1	4	0	5	1	141	0	142	140	3	0	143	290
5:00 PM	1	2	0	3	0	139	0	139	144	2	0	146	288
5:15 PM	2	2	0	4	2	136	0	138	161	0	0	161	303
Total	6	11	0	17	4	564	0	568	611	8	0	619	1204
Approach %	35.3	64.7	0.0	-	0.7	99.3	0.0	-	98.7	1.3	0.0	-	-
Total %	0.5	0.9	0.0	1.4	0.3	46.8	0.0	47.2	50.7	0.7	0.0	51.4	-
PHF	0.750	0.688	0.000	0.850	0.500	0.953	0.000	0.953	0.920	0.667	0.000	0.916	0.932
Motorcycles	0	0	0	0	0	0	0	0	2	0	0	2	2
% Motorcycles	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.3	0.0	-	0.3	0.2
Cars & Light Goods	6	11	0	17	4	552	0	556	601	8	0	609	1182
% Cars & Light Goods	100.0	100.0	-	100.0	100.0	97.9	-	97.9	98.4	100.0	-	98.4	98.2
Other Vehicles	0	0	0	0	0	12	0	12	8	0	0	8	20
% Other Vehicles	0.0	0.0	-	0.0	0.0	2.1	-	2.1	1.3	0.0	-	1.3	1.7

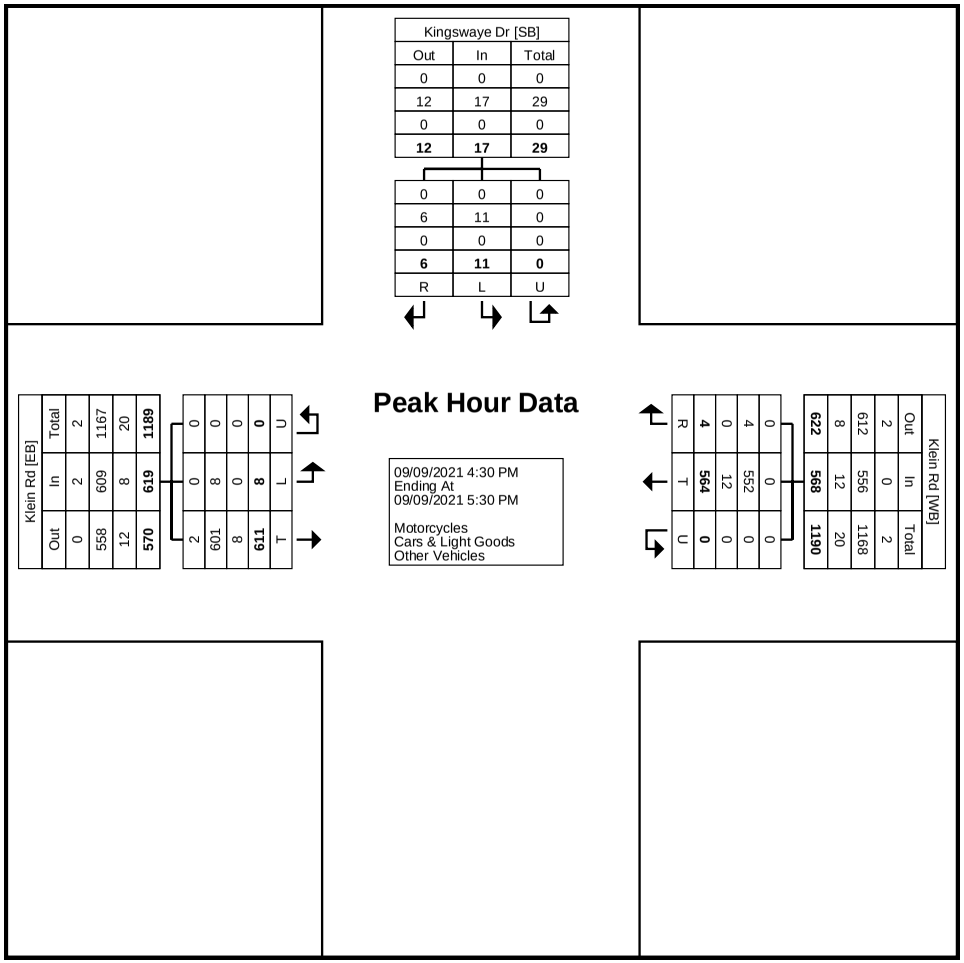
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Kingswaye Dr
Site Code:
Start Date: 09/09/2021



Turning Movement Peak Hour Data Plot (4:30 PM)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Youns Rd
Site Code:
Start Date: 09/09/2021

Turning Movement Data

Start Time	Youngs Rd Southbound						Klein Rd Westbound						Youngs Rd Northbound						Klein Rd Eastbound						Int. Total
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	
7:00 AM	6	3	63	7	0	79	3	0	44	32	0	79	4	12	14	6	0	36	19	5	29	4	0	57	251
7:15 AM	17	13	86	13	0	129	4	0	81	52	0	137	12	1	29	18	0	60	35	0	67	6	0	108	434
7:30 AM	17	14	107	17	0	155	3	2	77	43	0	125	13	5	39	19	0	76	36	4	72	19	0	131	487
7:45 AM	15	7	118	12	0	152	11	1	102	65	0	179	4	7	31	16	0	58	39	1	64	11	0	115	504
Hourly Total	55	37	374	49	0	515	21	3	304	192	0	520	33	25	113	59	0	230	129	10	232	40	0	411	1676
8:00 AM	8	5	103	12	0	128	2	1	78	47	0	128	15	6	40	8	0	69	35	5	84	18	0	142	467
8:15 AM	12	1	70	13	0	96	5	2	85	28	0	120	15	11	39	14	0	79	31	10	68	11	0	120	415
8:30 AM	20	2	64	10	0	96	4	0	89	22	0	115	8	1	33	25	0	67	30	14	56	4	0	104	382
8:45 AM	14	3	89	10	0	116	4	1	102	38	0	145	12	7	44	20	0	83	52	3	58	10	0	123	467
Hourly Total	54	11	326	45	0	436	15	4	354	135	0	508	50	25	156	67	0	298	148	32	266	43	0	489	1731
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	14	3	56	7	0	80	9	1	86	33	0	129	23	9	87	32	0	151	24	4	111	16	0	155	515
4:15 PM	10	6	58	10	0	84	6	0	64	29	0	99	19	9	96	46	0	170	23	5	106	17	0	151	504
4:30 PM	7	9	45	10	0	71	8	0	108	26	0	142	27	13	80	33	0	153	35	6	103	32	0	176	542
4:45 PM	5	6	47	7	0	65	13	0	92	25	0	130	34	15	76	33	0	158	31	5	107	16	0	159	512
Hourly Total	36	24	206	34	0	300	36	1	350	113	0	500	103	46	339	144	0	632	113	20	427	81	0	641	2073
5:00 PM	10	3	49	8	0	70	10	1	98	26	0	135	40	11	90	36	0	177	11	2	116	13	0	142	524
5:15 PM	5	4	44	2	0	55	17	1	95	30	0	143	31	11	77	34	0	153	29	4	105	18	0	156	507
5:30 PM	5	6	49	4	0	64	8	4	96	30	0	138	23	10	86	35	0	154	33	1	116	11	0	161	517
5:45 PM	4	5	46	8	0	63	6	8	63	26	0	103	29	17	78	34	0	158	22	0	91	23	0	136	460
Hourly Total	24	18	188	22	0	252	41	14	352	112	0	519	123	49	331	139	0	642	95	7	428	65	0	595	2008
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	169	90	1094	150	0	1503	113	22	1360	552	0	2047	309	145	939	409	0	1802	485	69	1353	229	0	2136	7488
Approach %	11.2	6.0	72.8	10.0	0.0	-	5.5	1.1	66.4	27.0	0.0	-	17.1	8.0	52.1	22.7	0.0	-	22.7	3.2	63.3	10.7	0.0	-	-
Total %	2.3	1.2	14.6	2.0	0.0	20.1	1.5	0.3	18.2	7.4	0.0	27.3	4.1	1.9	12.5	5.5	0.0	24.1	6.5	0.9	18.1	3.1	0.0	28.5	-
Motorcycles	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0	2	3
% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	0.4	-	0.1	0.0
Cars & Light Goods	163	90	1061	144	0	1458	111	22	1333	532	0	1998	297	144	917	402	0	1760	475	69	1322	224	0	2090	7306
% Cars & Light Goods	96.4	100.0	97.0	96.0	-	97.0	98.2	100.0	98.0	96.4	-	97.6	96.1	99.3	97.7	98.3	-	97.7	97.9	100.0	97.7	97.8	-	97.8	97.6
Other Vehicles	6	0	33	6	0	45	2	0	26	20	0	48	12	1	22	7	0	42	10	0	30	4	0	44	179
% Other Vehicles	3.6	0.0	3.0	4.0	-	3.0	1.8	0.0	1.9	3.6	-	2.3	3.9	0.7	2.3	1.7	-	2.3	2.1	0.0	2.2	1.7	-	2.1	2.4

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

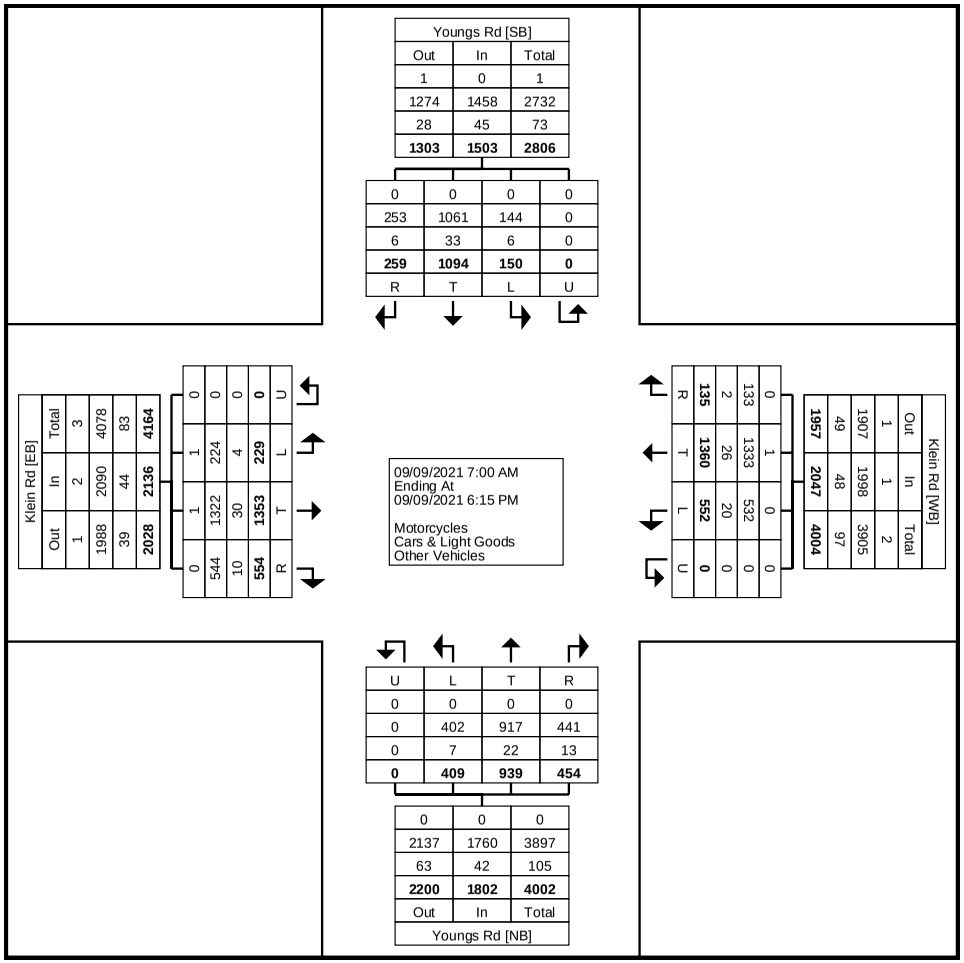
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Youns Rd
Site Code:
Start Date: 09/09/2021



Turning Movement Data Plot

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Youns Rd
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Youngs Rd Southbound						Klein Rd Westbound						Youngs Rd Northbound						Klein Rd Eastbound						
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Int. Total
7:15 AM	17	13	86	13	0	129	4	0	81	52	0	137	12	1	29	18	0	60	35	0	67	6	0	108	434
7:30 AM	17	14	107	17	0	155	3	2	77	43	0	125	13	5	39	19	0	76	36	4	72	19	0	131	487
7:45 AM	15	7	118	12	0	152	11	1	102	65	0	179	4	7	31	16	0	58	39	1	64	11	0	115	504
8:00 AM	8	5	103	12	0	128	2	1	78	47	0	128	15	6	40	8	0	69	35	5	84	18	0	142	467
Total	57	39	414	54	0	564	20	4	338	207	0	569	44	19	139	61	0	263	145	10	287	54	0	496	1892
Approach %	10.1	6.9	73.4	9.6	0.0	-	3.5	0.7	59.4	36.4	0.0	-	16.7	7.2	52.9	23.2	0.0	-	29.2	2.0	57.9	10.9	0.0	-	-
Total %	3.0	2.1	21.9	2.9	0.0	29.8	1.1	0.2	17.9	10.9	0.0	30.1	2.3	1.0	7.3	3.2	0.0	13.9	7.7	0.5	15.2	2.9	0.0	26.2	-
PHF	0.838	0.696	0.877	0.794	0.000	0.910	0.455	0.500	0.828	0.796	0.000	0.795	0.733	0.679	0.869	0.803	0.000	0.865	0.929	0.500	0.854	0.711	0.000	0.873	0.938
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars & Light Goods	54	39	408	53	0	554	19	4	332	202	0	557	40	19	131	59	0	249	144	10	277	52	0	483	1843
% Cars & Light Goods	94.7	100.0	98.6	98.1	-	98.2	95.0	100.0	98.2	97.6	-	97.9	90.9	100.0	94.2	96.7	-	94.7	99.3	100.0	96.5	96.3	-	97.4	97.4
Other Vehicles	3	0	6	1	0	10	1	0	6	5	0	12	4	0	8	2	0	14	1	0	10	2	0	13	49
% Other Vehicles	5.3	0.0	1.4	1.9	-	1.8	5.0	0.0	1.8	2.4	-	2.1	9.1	0.0	5.8	3.3	-	5.3	0.7	0.0	3.5	3.7	-	2.6	2.6

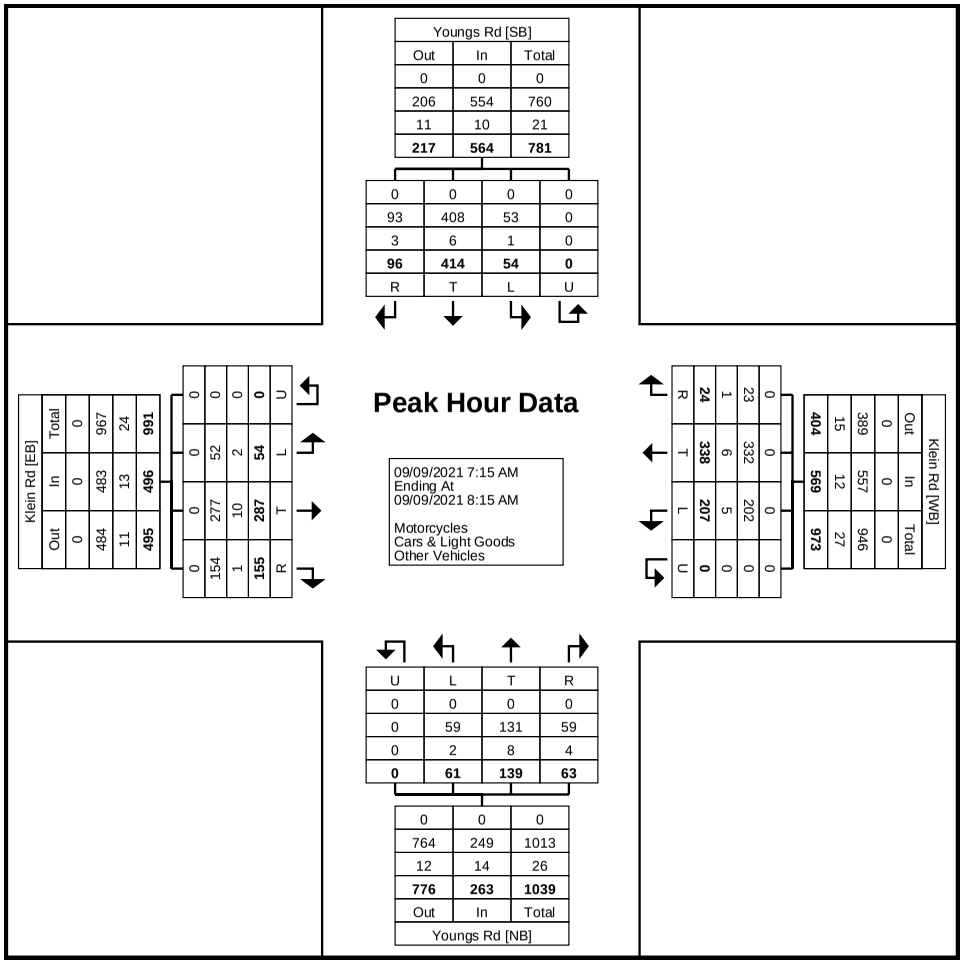
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Youns Rd
Site Code:
Start Date: 09/09/2021
Page No: 4



Turning Movement Peak Hour Data Plot (7:15 AM)

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Youns Rd
Site Code:
Start Date: 09/09/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Youngs Rd Southbound						Klein Rd Westbound						Youngs Rd Northbound						Klein Rd Eastbound						Int. Total
	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	Right	Right on Red	Thru	Left	U-Turn	App. Total	
4:30 PM	7	9	45	10	0	71	8	0	108	26	0	142	27	13	80	33	0	153	35	6	103	32	0	176	542
4:45 PM	5	6	47	7	0	65	13	0	92	25	0	130	34	15	76	33	0	158	31	5	107	16	0	159	512
5:00 PM	10	3	49	8	0	70	10	1	98	26	0	135	40	11	90	36	0	177	11	2	116	13	0	142	524
5:15 PM	5	4	44	2	0	55	17	1	95	30	0	143	31	11	77	34	0	153	29	4	105	18	0	156	507
Total	27	22	185	27	0	261	48	2	393	107	0	550	132	50	323	136	0	641	106	17	431	79	0	633	2085
Approach %	10.3	8.4	70.9	10.3	0.0	-	8.7	0.4	71.5	19.5	0.0	-	20.6	7.8	50.4	21.2	0.0	-	16.7	2.7	68.1	12.5	0.0	-	-
Total %	1.3	1.1	8.9	1.3	0.0	12.5	2.3	0.1	18.8	5.1	0.0	26.4	6.3	2.4	15.5	6.5	0.0	30.7	5.1	0.8	20.7	3.8	0.0	30.4	-
PHF	0.675	0.611	0.944	0.675	0.000	0.919	0.706	0.500	0.910	0.892	0.000	0.962	0.825	0.833	0.897	0.944	0.000	0.905	0.757	0.708	0.929	0.617	0.000	0.899	0.962
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.2	1.3	-	0.3	0.1
Cars & Light Goods	26	22	181	27	0	256	48	2	384	102	0	536	129	50	323	135	0	637	102	17	426	78	0	623	2052
% Cars & Light Goods	96.3	100.0	97.8	100.0	-	98.1	100.0	100.0	97.7	95.3	-	97.5	97.7	100.0	100.0	99.3	-	99.4	96.2	100.0	98.8	98.7	-	98.4	98.4
Other Vehicles	1	0	4	0	0	5	0	0	9	5	0	14	3	0	0	1	0	4	4	0	4	0	0	8	31
% Other Vehicles	3.7	0.0	2.2	0.0	-	1.9	0.0	0.0	2.3	4.7	-	2.5	2.3	0.0	0.0	0.7	-	0.6	3.8	0.0	0.9	0.0	-	1.3	1.5

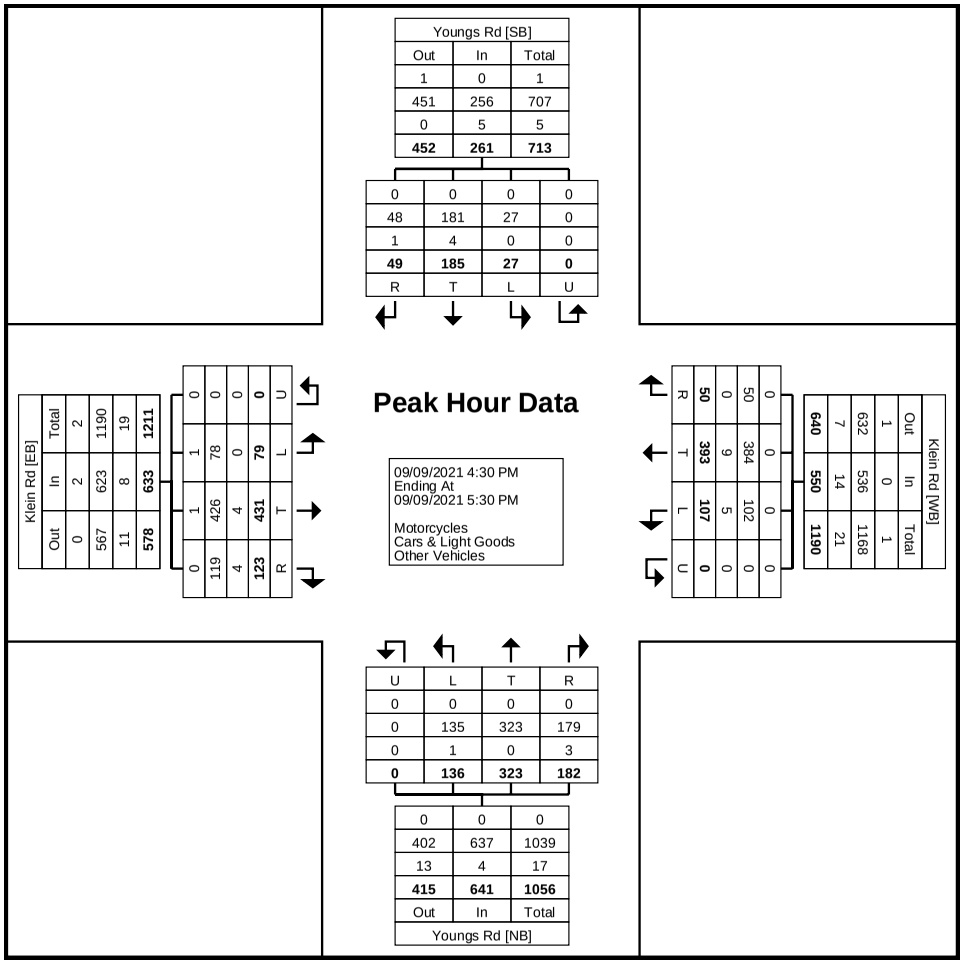
Tri-State Traffic Data: New York Division
1016 Hoosick Rd

Troy, New York, United States 12180
610-517-2338 bkarz@tstdata.com

Amherst, NY

September 9, 2021

Count Name: Klein Rd/Youns Rd
Site Code:
Start Date: 09/09/2021
Page No: 6



Turning Movement Peak Hour Data Plot (4:30 PM)

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

A2

Miscellaneous Traffic Data and Calculations

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

SRF ASSOCIATES
Transportation Planning / Engineering / Design

Proposed 166 Klein Rd Subdivision, Town of Amherst, Erie County, NY

Documentation of Ambient Traffic Volume Growth

Roadway	Segment starts at	Segment end at	2010	2011	2012	2013	2014	2015	2017	Annual Growth
Klein Rd	Youngs Rd	Hopkins Rd		11,958			11,749		12,424	0.64%
Youngs Rd	Maple Rd	Klein Rd	12,645			12,682			12,920	0.31%
Hopkins Rd	Klein Rd	Dodge Rd			11,489			11,603	11,735	0.42%
									AVERAGE	**0.46%**

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Accident Location Information System(ALIS)

Date: 9/9/2021 1:15:49 PM

Accident Verbal Description

18892_VDR

Date in this report covers the period - 4/1/2016-3/31/2021

Complete Accident data from NYSDMV is only available thru 3/31/2021 12:00:00 AM

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
4/4/2016 Mon 11:00 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2016-36184678**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: UNKNOWN
Manner of Collision: UNKNOWN Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3674 State of Registration: NY
Num of Occupants: 1 Driver's Age: 26 Sex: F Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 CAR/VAN/PICKUP Registered Weight: 3546 State of Registration: NY
Num of Occupants: 1 Driver's Age: Sex: Citation Issued:
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: UNKNOWN
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH EASTWICK DR
5/14/2016 Sat 11:00 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2016-36204031**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: NO PASSING ZONE
Manner of Collision: LEFT TURN (WITH OTHER CAR) Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 61 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4661 State of Registration: NY
Num of Occupants: 2 Driver's Age: 45 Sex: F Citation Issued: Y
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: TURNING IMPROPER, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: W KLEIN RD
AT INTERSECTION WITH HOPKINS RD
5/19/2016 Thu 12:29 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2016-36214252**
Accident Class: NON-REPORTABLE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 48 Sex: M Citation Issued: Y
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER

Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: FOLLOWING TOO CLOSELY, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 21 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
6/10/2016 Fri 11:00 AM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2016-36249715**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3481 State of Registration: NY
Num of Occupants: 2 Driver's Age: 66 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3174 State of Registration: NY
Num of Occupants: 1 Driver's Age: 22 Sex: M Citation Issued: Y
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: FOLLOWING TOO CLOSELY, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
6/15/2016 Wed 16:20 PM Persons Killed: 0 Persons Injured: 3 Extent of Injuries: BCC **Case: 2016-36257614**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (WITH OTHER CAR) Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4463 State of Registration: NY
Num of Occupants: 2 Driver's Age: 65 Sex: F Citation Issued: Y
Direction of Travel: SOUTH-EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: NOT APPLICABLE, FAILURE TO YIELD RIGHT OF WAY

Veh :2 CAR/VAN/PICKUP Registered Weight: 4045 State of Registration: NY
Num of Occupants: 2 Driver's Age: 55 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, UNKNOWN

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
6/9/2016 Thu 15:00 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2016-36282764**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 1
Type Of Accident: COLLISION WITH GUIDE RAIL Traffic Control: UNKNOWN
Manner of Collision: OTHER Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3865 State of Registration: NY
Num of Occupants: 1 Driver's Age: 19 Sex: M Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER

Packet Pg. 3517
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Pre-Accd Action: UNKNOWN

Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
7/24/2016 Sun 06:20 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2016-36333846**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: UNKNOWN
Manner of Collision: REAR END Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 68 Sex: M Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STARTING IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 OTHER Registered Weight: State of Registration: -3
Num of Occupants: 0 Driver's Age: Sex: Citation Issued:
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STARTING IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: W KLEIN RD
AT INTERSECTION WITH HOPKINS RD
8/15/2016 Mon 17:50 PM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: CC **Case: 2016-36342188**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 3
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :3 CAR/VAN/PICKUP Registered Weight: 3472 State of Registration: NY
Num of Occupants: 1 Driver's Age: 62 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3358 State of Registration: NY
Num of Occupants: 1 Driver's Age: 53 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4721 State of Registration: NY
Num of Occupants: 1 Driver's Age: 67 Sex: M Citation Issued: Y
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: DRIVER INATTENTION, FOLLOWING TOO CLOSELY

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
11/29/2016 Tue 09:45 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2016-36515472**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: UNKNOWN Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3100 State of Registration: NY
Num of Occupants: 1 Driver's Age: 40 Sex: F Citation Issued: N

Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STARTING IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 CAR/VAN/PICKUP Registered Weight: 3868 State of Registration: NY
Num of Occupants: 1 Driver's Age: 54 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
12/16/2016 Fri 19:24 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2016-36523646**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 3
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: CLOUDY
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4398 State of Registration: NY
Num of Occupants: 1 Driver's Age: 40 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3706 State of Registration: NY
Num of Occupants: 1 Driver's Age: 86 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: NOT APPLICABLE, FAILURE TO YIELD RIGHT OF WAY

Veh :3 CAR/VAN/PICKUP Registered Weight: 5840 State of Registration: NY
Num of Occupants: 2 Driver's Age: 54 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
2/5/2017 Sun 15:06 PM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: CC **Case: 2017-36594376**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: CLOUDY
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3049 State of Registration: NY
Num of Occupants: 2 Driver's Age: 28 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4572 State of Registration: NY
Num of Occupants: 1 Driver's Age: 17 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
2/13/2017 Mon 15:11 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2017-36604897**

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4330 State of Registration: NY
Num of Occupants: 1 Driver's Age: 55 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3481 State of Registration: NY
Num of Occupants: 1 Driver's Age: 75 Sex: F Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: UNSAFE SPEED, DRIVER INATTENTION

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
2/15/2017 Wed 06:55 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36607320**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (WITH OTHER CAR) Weather: CLOUDY
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3739 State of Registration: NY
Num of Occupants: 1 Driver's Age: 56 Sex: F Citation Issued: Y
Direction of Travel: SOUTH-EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: TRAFFIC CONTROL DEVICES DISREGARDED, DRIVER INATTENTION

Veh :2 CAR/VAN/PICKUP Registered Weight: 4611 State of Registration: NY
Num of Occupants: 1 Driver's Age: 39 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH EASTWICK DR
3/7/2017 Tue 14:22 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36633273**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: STOP SIGN
Manner of Collision: RIGHT ANGLE Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 BUS Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 48 Sex: F Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING RIGHT TURN
Apparent Factors: NOT APPLICABLE, FAILURE TO YIELD RIGHT OF WAY

Veh :2 CAR/VAN/PICKUP Registered Weight: 3351 State of Registration: NY
Num of Occupants: 1 Driver's Age: 22 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD

3/11/2017 Sat 06:50 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36655090**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 1
Type Of Accident: COLLISION WITH TREE Traffic Control: NONE
Manner of Collision: OTHER Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3096 State of Registration: NY
Num of Occupants: 1 Driver's Age: 61 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
5/5/2017 Fri 09:05 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36712336**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3424 State of Registration: NY
Num of Occupants: 1 Driver's Age: 33 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: OTHER (VEHICLE), NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3406 State of Registration: NY
Num of Occupants: 1 Driver's Age: 36 Sex: F Citation Issued: Y
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: NOT APPLICABLE, FOLLOWING TOO CLOSELY

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
5/26/2017 Fri 15:30 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36752377**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OVERTAKING Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3483 State of Registration: NY
Num of Occupants: 1 Driver's Age: 17 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, FAILURE TO YIELD RIGHT OF WAY

Veh :2 CAR/VAN/PICKUP Registered Weight: 5390 State of Registration: NY
Num of Occupants: 1 Driver's Age: 65 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
6/10/2017 Sat 09:46 AM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: CC **Case: 2017-36757791**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (AGAINST OTHER CAR) Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Veh :2 CAR/VAN/PICKUP Registered Weight: State of Registration: MD
Num of Occupants: 2 Driver's Age: 59 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4677 State of Registration: NY
Num of Occupants: 2 Driver's Age: 31 Sex: F Citation Issued: Y
Direction of Travel: NORTH-WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: DRIVER INATTENTION, FAILURE TO YIELD RIGHT OF WAY

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
6/13/2017 Tue 17:58 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36763020**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3250 State of Registration: NY
Num of Occupants: 1 Driver's Age: 26 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STARTING IN TRAFFIC
Apparent Factors: FOLLOWING TOO CLOSELY, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4097 State of Registration: NY
Num of Occupants: 1 Driver's Age: 23 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
6/30/2017 Fri 15:14 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36787894**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OVERTAKING Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4335 State of Registration: NY
Num of Occupants: 1 Driver's Age: 55 Sex: F Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: CHANGING LANES
Apparent Factors: UNSAFE LANE CHANGE, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3896 State of Registration: NY
Num of Occupants: 1 Driver's Age: 77 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
6/26/2017 Mon 16:20 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36803014**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: UNKNOWN
Manner of Collision: REAR END Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 59 Sex: F Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 OTHER Registered Weight: State of Registration: -3
Num of Occupants: 0 Driver's Age: Sex: Citation Issued:
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
8/11/2017 Fri 12:00 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36866399**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 OTHER Registered Weight: State of Registration: NY
Num of Occupants: 3 Driver's Age: 38 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STARTING IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 OTHER Registered Weight: State of Registration: -3
Num of Occupants: 0 Driver's Age: Sex: Citation Issued:
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING RIGHT TURN
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
8/19/2017 Sat 00:00 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36876673**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 1
Type Of Accident: COLLISION WITH TREE Traffic Control: UNKNOWN
Manner of Collision: OTHER Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3954 State of Registration: NY
Num of Occupants: 2 Driver's Age: 72 Sex: M Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
9/8/2017 Fri 17:16 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-36886782**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: NONE
Manner of Collision: REAR END Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3164 State of Registration: NY
Num of Occupants: 1 Driver's Age: 21 Sex: M Citation Issued: Y
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Apparent Factors: DRIVER INATTENTION, UNSAFE SPEED

Veh :2 CAR/VAN/PICKUP Registered Weight: 2745 State of Registration: NY
Num of Occupants: 1 Driver's Age: 18 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
10/7/2017 Sat 08:41 AM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: B **Case: 2017-36920059**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: HEAD ON Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT/ GRADE Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3573 State of Registration: NY
Num of Occupants: 1 Driver's Age: 62 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3296 State of Registration: NY
Num of Occupants: 1 Driver's Age: 20 Sex: M Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, DRIVER INATTENTION

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
10/19/2017 Thu 12:57 PM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: CC **Case: 2017-36939325**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (WITH OTHER CAR) Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT/ GRADE Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 2524 State of Registration: NY
Num of Occupants: 1 Driver's Age: 35 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2747 State of Registration: NY
Num of Occupants: 1 Driver's Age: 18 Sex: F Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
12/6/2017 Wed 14:45 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-37017212**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT TURN (AGAINST OTHER CAR) Weather: SNOW
Road Surface Condition: SLUSH Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 2528 State of Registration: NY
Num of Occupants: 1 Driver's Age: 75 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC

Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3546 State of Registration: NY
Num of Occupants: 1 Driver's Age: 22 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING RIGHT TURN
Apparent Factors: PAVEMENT SLIPPERY, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
12/15/2017 Fri 21:32 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-37034265**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: HEAD ON Weather: CLOUDY
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 6941 State of Registration: NY
Num of Occupants: 2 Driver's Age: 17 Sex: M Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: NOT APPLICABLE, PASSING OR LANE USAGE IMPROPERLY

Veh :2 CAR/VAN/PICKUP Registered Weight: 2845 State of Registration: NY
Num of Occupants: 1 Driver's Age: 17 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
12/30/2017 Sat 17:45 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2017-37099929**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 1
Type Of Accident: COLLISION WITH DEER Traffic Control: UNKNOWN
Manner of Collision: OTHER Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4294 State of Registration: NY
Num of Occupants: 1 Driver's Age: 56 Sex: M Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: UNKNOWN
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: EASTWICK DR
AT INTERSECTION WITH KLEIN RD
2/6/2018 Tue 19:47 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2018-37128885**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: STOP SIGN
Manner of Collision: RIGHT ANGLE Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3521 State of Registration: NY
Num of Occupants: 1 Driver's Age: 78 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3975 State of Registration: NY
Num of Occupants: 2 Driver's Age: 47 Sex: F Citation Issued: N
Direction of Travel: SOUTH-WEST Public Property Damage: OTHER School Bus Involved: OTHER

Packet Pg. 3521
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Pre-Accd Action: MAKING LEFT TURN

Apparent Factors: PASSING OR LANE USAGE IMPROPERLY, UNSAFE SPEED

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
3/15/2018 Thu 10:54 AM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2018-37187632**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 1
Type Of Accident: COLLISION WITH CURBING Traffic Control: NONE
Manner of Collision: OTHER Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4117 State of Registration: NY
Num of Occupants: 2 Driver's Age: 86 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: BRAKES DEFECTIVE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
3/23/2018 Fri 10:22 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2018-37201228**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3790 State of Registration: NY
Num of Occupants: 1 Driver's Age: 20 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2792 State of Registration: NY
Num of Occupants: 1 Driver's Age: 35 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: TRAFFIC CONTROL DEVICES DISREGARDED, REACTION TO OTHER UNINVOLVED VEHICL

County: Erie Muni: Amherst(T) Ref. Marker: Street: W KLEIN RD
AT INTERSECTION WITH HOPKINS RD
6/13/2018 Wed 16:49 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2018-37329947**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: NONE
Manner of Collision: LEFT TURN (AGAINST OTHER CAR) Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4353 State of Registration: NY
Num of Occupants: 4 Driver's Age: 35 Sex: F Citation Issued: Y
Direction of Travel: NORTH-WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3423 State of Registration: NY
Num of Occupants: 2 Driver's Age: 16 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH EASTWICK DR
6/29/2018 Fri 12:33 PM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: CC **Case: 2018-37355930**

Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: NONE
Manner of Collision: SIDESWIPE Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3410 State of Registration: NY
Num of Occupants: 1 Driver's Age: 42 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3805 State of Registration: NY
Num of Occupants: 1 Driver's Age: 20 Sex: F Citation Issued: Y
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: CHANGING LANES
Apparent Factors: UNSAFE SPEED, UNSAFE LANE CHANGE

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
8/5/2018 Sun 14:18 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2018-37417152**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3409 State of Registration: NY
Num of Occupants: 1 Driver's Age: 56 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2615 State of Registration: NY
Num of Occupants: 1 Driver's Age: 28 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STARTING IN TRAFFIC
Apparent Factors: NOT APPLICABLE, FOLLOWING TOO CLOSELY

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
8/9/2018 Thu 07:00 AM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2018-37424650**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (AGAINST OTHER CAR) Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4060 State of Registration: NY
Num of Occupants: 1 Driver's Age: 19 Sex: F Citation Issued: Y
Direction of Travel: NORTH-WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 2778 State of Registration: NY
Num of Occupants: 1 Driver's Age: 67 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD

Packet Pg. 3522
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

9/10/2018 Mon 14:19 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2018-37471401**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT/ GRADE Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3402 State of Registration: NY
Num of Occupants: 1 Driver's Age: 17 Sex: M Citation Issued: Y
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: FOLLOWING TOO CLOSELY, DRIVER INATTENTION

Veh :2 CAR/VAN/PICKUP Registered Weight: 3741 State of Registration: NY
Num of Occupants: 1 Driver's Age: 69 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
10/9/2018 Tue 10:57 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2018-37526231**
Accident Class: NON-REPORTABLE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 72 Sex: F Citation Issued: Y
Direction of Travel: NORTH-EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING RIGHT TURN
Apparent Factors: NOT APPLICABLE, FAILURE TO YIELD RIGHT OF WAY

Veh :2 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 69 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
10/27/2018 Sat 19:40 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2018-37549327**
Accident Class: INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: RAIN
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2856 State of Registration: NY
Num of Occupants: 1 Driver's Age: 22 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: UNSAFE SPEED, DRIVER INATTENTION

Veh :2 CAR/VAN/PICKUP Registered Weight: 3529 State of Registration: NY
Num of Occupants: 1 Driver's Age: 34 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
12/6/2018 Thu 08:04 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2018-37626808**
Accident Class: NON-REPORTABLE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 48 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 36 Sex: F Citation Issued: Y
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: UNSAFE SPEED, FOLLOWING TOO CLOSELY

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH W KLEIN RD
12/20/2018 Thu 13:58 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2018-37650157**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2976 State of Registration: NY
Num of Occupants: 2 Driver's Age: 17 Sex: F Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3246 State of Registration: NY
Num of Occupants: 2 Driver's Age: 65 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
1/5/2019 Sat 16:50 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-37673072**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4458 State of Registration: NY
Num of Occupants: 5 Driver's Age: 54 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3868 State of Registration: NY
Num of Occupants: 1 Driver's Age: 59 Sex: F Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: TRAFFIC CONTROL DEVICES DISREGARDED, FAILURE TO YIELD RIGHT OF WAY

Packet Pg. 3523
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
1/20/2019 Sun 14:34 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-37697190**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 5313 State of Registration: NY
Num of Occupants: 3 Driver's Age: 41 Sex: M Citation Issued: Y
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: PAVEMENT SLIPPERY, UNSAFE SPEED

Veh :2 CAR/VAN/PICKUP Registered Weight: 3777 State of Registration: NY
Num of Occupants: 1 Driver's Age: 57 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
1/21/2019 Mon 09:15 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-37699093**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3517 State of Registration: NY
Num of Occupants: 1 Driver's Age: 16 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: DRIVER INEXPERIENCE, UNSAFE SPEED

Veh :2 CAR/VAN/PICKUP Registered Weight: 3684 State of Registration: NY
Num of Occupants: 1 Driver's Age: 34 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
1/31/2019 Thu 12:49 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-37718660**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 5605 State of Registration: NY
Num of Occupants: 1 Driver's Age: 47 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: PAVEMENT SLIPPERY, UNSAFE SPEED

Veh :2 CAR/VAN/PICKUP Registered Weight: 2938 State of Registration: NY
Num of Occupants: 1 Driver's Age: 24 Sex: M Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD

Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
3/2/2019 Sat 14:07 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-37769370**
Accident Class: NON-REPORTABLE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OVERTAKING Weather: CLOUDY
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 23 Sex: F Citation Issued: Y
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: UNSAFE LANE CHANGE, PASSING OR LANE USAGE IMPROPERLY

Veh :2 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 44 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
4/21/2019 Sun 19:00 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2019-37847021**
Accident Class: INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (AGAINST OTHER CAR) Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DUSK
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4315 State of Registration: NY
Num of Occupants: 1 Driver's Age: 23 Sex: M Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3349 State of Registration: NY
Num of Occupants: 1 Driver's Age: 65 Sex: M Citation Issued: Y
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: W KLEIN RD
AT INTERSECTION WITH HOPKINS RD
6/27/2019 Thu 17:17 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2019-37951882**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 3
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :3 CAR/VAN/PICKUP Registered Weight: 5178 State of Registration: NY
Num of Occupants: 3 Driver's Age: 49 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3374 State of Registration: NY
Num of Occupants: 1 Driver's Age: 46 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2598 State of Registration: NY
Num of Occupants: 1 Driver's Age: 27 Sex: F Citation Issued: Y
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: FOLLOWING TOO CLOSELY, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
8/3/2019 Sat 10:39 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-38022728**
Accident Class: NON-REPORTABLE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OVERTAKING Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 76 Sex: F Citation Issued: Y
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: CHANGING LANES
Apparent Factors: NOT APPLICABLE, UNSAFE LANE CHANGE

Veh :2 CAR/VAN/PICKUP Registered Weight: State of Registration: NY
Num of Occupants: 2 Driver's Age: 41 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
9/17/2019 Tue 08:32 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-38078982**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (AGAINST OTHER CAR) Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3360 State of Registration: NY
Num of Occupants: 1 Driver's Age: 41 Sex: F Citation Issued: N
Direction of Travel: SOUTH-WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3948 State of Registration: NY
Num of Occupants: 1 Driver's Age: 18 Sex: M Citation Issued: N
Direction of Travel: SOUTH-EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: TURNING IMPROPER, DRIVER INEXPERIENCE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
9/19/2019 Thu 00:00 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-38169156**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: UNKNOWN
Manner of Collision: REAR END Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 OTHER Registered Weight: State of Registration: -3
Num of Occupants: 1 Driver's Age: Sex: M Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER

Pre-Accd Action: UNKNOWN
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :1 OTHER Registered Weight: State of Registration: NY
Num of Occupants: 2 Driver's Age: 44 Sex: F Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH HOPKINS RD
12/6/2019 Fri 14:32 PM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: CC **Case: 2019-38211342**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: NONE
Manner of Collision: OVERTAKING Weather: CLOUDY
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 4049 State of Registration: NY
Num of Occupants: 1 Driver's Age: 53 Sex: F Citation Issued: N
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2867 State of Registration: NY
Num of Occupants: 1 Driver's Age: 69 Sex: F Citation Issued: Y
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: CHANGING LANES
Apparent Factors: NOT APPLICABLE, UNSAFE LANE CHANGE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
12/11/2019 Wed 07:52 AM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2019-38220161**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: LEFT TURN (AGAINST OTHER CAR) Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3400 State of Registration: NY
Num of Occupants: 1 Driver's Age: 47 Sex: F Citation Issued: N
Direction of Travel: SOUTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: TRAFFIC CONTROL DEVICES DISREGARDED, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3345 State of Registration: NY
Num of Occupants: 1 Driver's Age: 18 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: MAKING LEFT TURN
Apparent Factors: NOT APPLICABLE, FAILURE TO YIELD RIGHT OF WAY

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
12/11/2019 Wed 11:13 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2019-38220194**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: RIGHT ANGLE Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3594 State of Registration: NY
Num of Occupants: 2 Driver's Age: 38 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Pre-Accd Action: STOPPED IN TRAFFIC

Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4665 State of Registration: NY
Num of Occupants: 1 Driver's Age: 22 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: PAVEMENT SLIPPERY, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
4/24/2020 Fri 12:00 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2020-38439826**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 1
Type Of Accident: COLLISION WITH OTHER FIXED OBJECT Traffic Control: UNKNOWN
Manner of Collision: OTHER Weather: UNKNOWN
Road Surface Condition: UNKNOWN Road Char.: UNKNOWN Light Condition: UNKNOWN
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 5781 State of Registration: NY
Num of Occupants: 1 Driver's Age: 68 Sex: M Citation Issued: N
Direction of Travel: UNKNOWN Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: BACKING
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: W KLEIN RD
AT INTERSECTION WITH HOPKINS RD
7/3/2020 Fri 00:14 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2020-38463395**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 1
Type Of Accident: COLLISION WITH CURBING Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: CLEAR
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD LIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 2579 State of Registration: NY
Num of Occupants: 1 Driver's Age: 25 Sex: F Citation Issued: Y
Direction of Travel: SOUTH-EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: UNKNOWN
Apparent Factors: UNKNOWN, ALCOHOL INVOLVEMENT

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
10/30/2020 Fri 13:00 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: C **Case: 2020-38612712**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: CLOUDY
Road Surface Condition: DRY Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 TRUCK Registered Weight: 33200 State of Registration: NY
Num of Occupants: 1 Driver's Age: 50 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: FOLLOWING TOO CLOSELY, NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 2900 State of Registration: NY
Num of Occupants: 1 Driver's Age: 45 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD
12/1/2020 Tue 15:03 PM Persons Killed: 0 Persons Injured: 2 Extent of Injuries: CC **Case: 2020-38656536**

Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: NONE
Manner of Collision: RIGHT ANGLE Weather: SNOW
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 7245 State of Registration: NY
Num of Occupants: 1 Driver's Age: 31 Sex: M Citation Issued: Y
Direction of Travel: WEST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: UNKNOWN
Apparent Factors: FAILURE TO YIELD RIGHT OF WAY, UNKNOWN

Veh :2 CAR/VAN/PICKUP Registered Weight: 2789 State of Registration: NY
Num of Occupants: 1 Driver's Age: 68 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

County: Erie Muni: Amherst(T) Ref. Marker: Street: YOUNGS RD
AT INTERSECTION WITH KLEIN RD
12/16/2020 Wed 17:50 PM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2020-38666867**
Accident Class: PROPERTY DAMAGE Police Agency: Num of Veh: 2
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: REAR END Weather: SNOW
Road Surface Condition: SNOW/ICE Road Char.: STRAIGHT AND LEVEL Light Condition: DARK-ROAD UNLIGHTED
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3941 State of Registration: NY
Num of Occupants: 1 Driver's Age: 54 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT ENTERED, NOT ENTERED

Veh :2 OTHER Registered Weight: State of Registration: NY
Num of Occupants: 1 Driver's Age: 78 Sex: M Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: GOING STRAIGHT AHEAD
Apparent Factors: NOT ENTERED, NOT ENTERED

County: Erie Muni: Amherst(T) Ref. Marker: Street: KLEIN RD
AT INTERSECTION WITH YOUNGS RD
1/30/2021 Sat 12:17 PM Persons Killed: 0 Persons Injured: 1 Extent of Injuries: B **Case: 2021-38726245**
Accident Class: PROPERTY DAMAGE AND INJURY Police Agency: AMHERST TOWN PD Num of Veh: 3
Type Of Accident: COLLISION WITH MOTOR VEHICLE Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: SNOW
Road Surface Condition: WET Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :2 CAR/VAN/PICKUP Registered Weight: 3452 State of Registration: NY
Num of Occupants: 1 Driver's Age: 52 Sex: M Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: SLOWED OR STOPPING
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :3 CAR/VAN/PICKUP Registered Weight: 2895 State of Registration: NY
Num of Occupants: 1 Driver's Age: 26 Sex: F Citation Issued: N
Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER
Pre-Accd Action: STOPPED IN TRAFFIC
Apparent Factors: NOT APPLICABLE, NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 4237 State of Registration: NY
Num of Occupants: 1 Driver's Age: 65 Sex: F Citation Issued: Y

Packet Pg. 3526
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Direction of Travel: EAST Public Property Damage: OTHER School Bus Involved: OTHER

Pre-Accd Action: SLOWED OR STOPPING

Apparent Factors: FOLLOWING TOO CLOSELY, CELL PHONE (HAND HELD)

County: Erie Muni: Amherst(T) Ref. Marker: Street: HOPKINS RD
AT INTERSECTION WITH KLEIN RD

2/3/2021 Wed 07:28 AM Persons Killed: 0 Persons Injured: 0 Extent of Injuries: **Case: 2021-38807894**
Accident Class: PROPERTY DAMAGE Police Agency: AMHERST TOWN PD Num of Veh: 1
Type Of Accident: COLLISION WITH FIRE HYDRANT Traffic Control: TRAFFIC SIGNAL
Manner of Collision: OTHER Weather: CLOUDY
Road Surface Condition: SLUSH Road Char.: STRAIGHT AND LEVEL Light Condition: DAYLIGHT
Loc. of Ped/Bicycle: NOT APPLICABLE Action of Ped/Bicycle: NOT APPLICABLE

Veh :1 CAR/VAN/PICKUP Registered Weight: 3953 State of Registration: NY
Num of Occupants: 1 Driver's Age: 28 Sex: F Citation Issued: N
Direction of Travel: NORTH Public Property Damage: OTHER School Bus Involved: OTHER

Pre-Accd Action: SLOWED OR STOPPING

Apparent Factors: NOT APPLICABLE, UNSAFE SPEED

Scenario - 1

Scenario Name: AM Peak
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	18	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	4	12	16
Data Source: Trip Generation Manual, 11th Ed					Ln(T) =0.91Ln(X) + 0.12	26%	74%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	26	74

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	4	12	0	0	4	12
	16		0		16	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	4	12	16

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	4	12	16
External Vehicle Trips	4	12	16
New Vehicle Trips	4	12	16

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Scenario - 2

Scenario Name: PM Peak
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	18	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	12	7	19
Data Source: Trip Generation Manual, 11th Ed					Ln(T) =0.94Ln(X) + 0.27	63%	37%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	12	7	0	0	12	7
	19		0		19	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	12	7	19

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	12	7	19
External Vehicle Trips	12	7	19
New Vehicle Trips	12	7	19

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

PROJECT: Proposed 166 Klein Rd Subdivision
LOCATION: Klein Road, Town of Amherst, New York
PEAK HOUR: AM Peak

Figure Number: 3 4 6 7 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2021 Existing Volumes	2023 Bkgd Vol 0.50%	Proposed Subdivision Enter Dist. %	Exit Dist. %	Trips IN 4	Trips OUT 12	Total Site Trips	Full Build Volumes
1	Klein Rd/ Hopkins Rd								
	SR	67	68						68
	ST	387	391						391
	SL	118	119	10%		0		0	119
	WR	72	73		10%		1	1	74
	WT	311	314		30%		4	4	318
	WL	142	143		15%		2	2	145
	NR	108	109	15%		1		1	110
	NT	214	216						216
	NL	98	99						99
	ER	74	75						75
	ET	237	239	30%		1		1	240
	EL	116	117						117
2	Klein Rd/ Kingswaye Dr								
	SR	9	9						9
	ST								
	SL	8	8						8
	WR	2	2						2
	WT	491	496		55%		7	7	503
	WL								
	NR								
	NT								
	NL								
	ER								
	ET	443	447	55%		2		2	449
	EL	2	2						2
3	Klein Rd/ Proposed Subdivision Street								
	SR				55%		7	7	7
	ST								
	SL				45%		5	5	5
	WR			45%		2		2	2
	WT	493	498						498
	WL								
	NR								
	NT								
	NL								
	ER								
	ET	451	456						456
	EL			55%		2		2	2
4	Klein Rd/ Bently Ct/Eastwick Dr								
	SR	3	3						3
	ST	1	1						1
	SL	3	3						3
	WR	1	1						1
	WT	475	480	45%		2		2	482
	WL	40	40						40
	NR	54	55						55
	NT	1	1						1
	NL	7	7						7
	ER	2	2						2
	ET	453	458		45%		5	5	463
	EL								
5	Klein Rd/ Youngs Rd								
	SR	96	97	5%		0		0	97
	ST	414	418						418
	SL	54	55						55
	WR	24	24						24
	WT	338	341	25%		1		1	342
	WL	207	209						209
	NR	63	64						64
	NT	139	140						140
	NL	61	62	15%		1		1	63
	ER	155	157		15%		1	1	158
	ET	287	290		25%		3	3	293
	EL	54	55		5%		1	1	56

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

PROJECT: Proposed 166 Klein Rd Subdivision
LOCATION: Klein Road, Town of Amherst, New York
PEAK HOUR: PM Peak

Figure Number: 3 4 6 7 8

Num of yrs: 2

LOCATION NUMBER	INTERSECTION DESCRIPTION	2021 Existing Volumes	2023 Bkgd Vol 0.50%	Proposed Subdivision Enter Dist. %	Exit Dist. %	Trips IN 12	Trips OUT 7	Total Site Trips	Full Build Volumes
1	Klein Rd/ Hopkins Rd								
	SR	63	64						64
	ST	302	305						305
	SL	109	110	10%		1		1	111
	WR	120	121		10%		1	1	122
	WT	333	336		30%		2	2	338
	WL	138	139		15%		1	1	140
	NR	151	153	15%		2		2	155
	NT	410	414						414
	NL	151	153						153
	ER	72	73						73
	ET	375	379	30%		4		4	383
	EL	114	115						115
2	Klein Rd/ Kingswaye Dr								
	SR	6	6						6
	ST								
	SL	11	11						11
	WR	4	4						4
	WT	564	570		55%		4	4	574
	WL								
	NR								
	NT								
	NL								
	ER								
	ET	611	617	55%		7		7	624
	EL	8	8						8
3	Klein Rd/ Proposed Subdivision Street								
	SR				55%		4	4	4
	ST								
	SL				45%		3	3	3
	WR			45%		5		5	5
	WT	568	574						574
	WL								
	NR								
	NT								
	NL								
	ER								
	ET	622	628						628
	EL			55%		7		7	7
4	Klein Rd/ Bently Ct/Eastwick Dr								
	SR	3	3						3
	ST	1	1						1
	SL	4	4						4
	WR	1	1						1
	WT	562	568	45%		5		5	573
	WL	18	18						18
	NR	24	24						24
	NT								
	NL	4	4						4
	ER	4	4						4
	ET	617	623		45%		3	3	626
	EL	4	4						4
5	Klein Rd/ Youngs Rd								
	SR	49	49	5%		1		1	50
	ST	185	187						187
	SL	27	27						27
	WR	50	51						51
	WT	393	397	25%		3		3	400
	WL	107	108						108
	NR	182	184						184
	NT	323	326						326
	NL	136	137	15%		2		2	139
	ER	123	124		15%		1	1	125
	ET	431	435		25%		2	2	437
	EL	79	80		5%		0	0	80

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Phase Times (next/2/2/2, next/2/2/7/6)

	1	2	3	4	5	6	7	8	
Movement	<-EB	NBT	<-SB	EBT	<-WB	SBT	<-NB	EBT	
Minimum Green	3	35	3	10	3	35	3	10	0 - 255 sec.
Passage	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0 - 25.5 sec.
Yellow	3.2	3.6	3.2	3.6	3.2	3.6	3.2	3.6	0.0 - 25.5 sec.
Red Clearance	1.1	1.8	1.1	1.8	1.1	1.8	1.1	1.8	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	10	35	10	25	10	35	10	25	0 - 255 sec
Max 2	15	36	15	30	15	36	15	30	0 - 255 sec
Walk	0	7	0	7	0	7	0	7	0 - 255 sec
Ped Clear	0	15	0	15	0	15	0	15	0 - 255 sec
Seconds Per Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	0	0	0	0	0	0	0	0 - 255 sec
Time to Reduce	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Gap	2.0	0.0	2.0	4.0	2.0	0.0	2.0	4.0	0.0 - 25.5 sec.
Max Variable Initial	0	0	0	0	0	0	0	0	0 - 255 sec
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Other Controller Functions (next/2/2/9)

Phase -->	1	2	3	4	5	6	7	8	
Inhibit Simultaneous Gap Out									X = On

Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage
Red Revert (+2seconds)	0.0	0 - 25.5 sec.
Auto Ped Clear		X = On
Flashing Don't Walk Thru Yellow		X = On
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec.
Change Sequence		X = On (After a download with a power on - off cycle)

Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Phase Times (next/2/2/2, next/2/2/7/6)

	1	2	3	4	5	6	7	8	
Movement	WBL	E/W						N/S	
Minimum Green	8	12	0	0	0	0	0	12	0 - 255 sec.
Passage	2.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0 - 25.5 sec.
Yellow	3.2	3.6	0.0	0.0	0.0	0.0	0.0	4.3	0.0 - 25.5 sec.
Red Clearance	1.1	1.4	0.0	0.0	0.0	0.0	0.0	1.1	0.0 - 25.5 sec. or 0 - 255 sec.
Max 1	12 ~~25~~	~~30~~	0	0	0	0	0	20	0 - 255 sec
22 Max 2	0	0	0	0	0	0	0	0	0 - 255 sec
Walk	0	7	0	0	0	0	0	7	0 - 255 sec
Ped Clear	0	15	0	0	0	0	0	12	0 - 255 sec
Seconds Per Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Time Before Reduction	0	0	0	0	0	0	0	0	0 - 255 sec
Time to Reduce	0	0	0	0	0	0	0	0	0 - 255 sec
Minimum Gap	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0 - 25.5 sec.
Max Variable Initial	0	0	0	0	0	0	0	0	0 - 255 sec
Max Extend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 25.5 sec.
Auto Max	0	0	0	0	0	0	0	0	0 - 255 sec
Inhibit Min Yellow									X = On
Red Decimal Off									X = On

Other Controller Functions (next/2/2/9)

Phase -->	1	2	3	4	5	6	7	8	
Inhibit Simultaneous Gap Out									X = On

Last Car Passage	2	0 = recall phase, 1 = last car passage, 2 = NOT recall - Not last car passage
Red Revert (+2seconds)	0.0	0 - 25.5 sec.
Auto Ped Clear		X = On
Flashing Don't Walk Thru Yellow		X = On
Soft Recall / Red Rest Delay	0.0	0 - 25.5 sec.
Change Sequence		X = On (After a download with a power on - off cycle)

Phase -->	1	2	3	4	5	6	7	8	
Red Clear Extension Detector	0	0	0	0	0	0	0	0	0 = none 1 - 32 = detector 1 - 32
Red Clear Extension Red Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 - 25.5 sec.

~~added~~ 3 seconds

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

A3

Level of Service: Criteria and Definitions

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Level of Service Criteria

Highway Capacity Manual 2016

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

A4

Level of Service Calculations: Existing Conditions

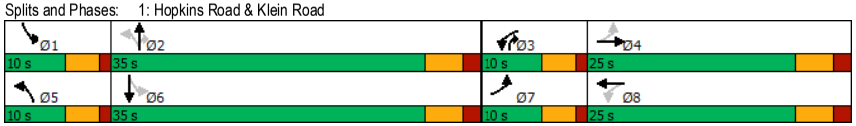
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	237	74	142	311	72	98	214	108	118	387	67
Future Volume (vph)	116	237	74	142	311	72	98	214	108	118	387	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	135		135	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	60			80			85			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964			0.972				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1791	0	1787	1793	0	1703	1827	1583	1770	1797	0
Flt Permitted	0.219			0.299			0.291			0.582		
Satd. Flow (perm)	404	1791	0	562	1793	0	522	1827	1583	1084	1797	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			14				116		12	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		962			630			760			709	
Travel Time (s)		18.7			12.3			14.8			13.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	2%	3%	1%	3%	3%	6%	4%	2%	2%	4%	0%
Adj. Flow (vph)	125	255	80	153	334	77	105	230	116	127	416	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	335	0	153	411	0	105	230	116	127	488	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	35.0	3.0	3.0	35.0	
Minimum Split (s)	9.5	27.4		9.5	27.4		9.5	40.4	9.5	9.5	40.4	
Total Split (s)	10.0	25.0		10.0	25.0		10.0	35.0	10.0	10.0	35.0	
Total Split (%)	12.5%	31.3%		12.5%	31.3%		12.5%	43.8%	12.5%	12.5%	43.8%	
Maximum Green (s)	5.7	19.6		5.7	19.6		5.7	29.6	5.7	5.7	29.6	
Yellow Time (s)	3.2	3.6		3.2	3.6		3.2	3.6	3.2	3.2	3.6	
All-Red Time (s)	1.1	1.8		1.1	1.8		1.1	1.8	1.1	1.1	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.3	5.4		4.3	5.4		4.3	5.4	4.3	4.3	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	0.3	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	
Recall Mode	None	None		None	None		None	None	None	None	None	

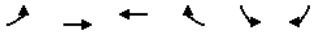
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	23.7	17.4		25.0	19.5		35.2	30.1	40.9	35.5	30.2	
Actuated g/C Ratio	0.31	0.23		0.33	0.26		0.47	0.40	0.54	0.47	0.40	
v/c Ratio	0.57	0.78		0.56	0.87		0.33	0.32	0.13	0.23	0.67	
Control Delay	28.0	40.6		26.3	48.6		13.5	19.1	2.6	11.7	25.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	28.0	40.6		26.3	48.6		13.5	19.1	2.6	11.7	25.6	
LOS	C	D		C	D		B	B	A	B	C	
Approach Delay		37.2			42.6			13.5			22.7	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	41	146		50	194		26	81	0	32	199	
Queue Length 95th (ft)	77	#264		92	#364		51	137	24	60	315	
Internal Link Dist (ft)		882			550			680			629	
Turn Bay Length (ft)	140			150			135		135	125		
Base Capacity (vph)	233	486		279	482		336	727	919	564	726	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.54	0.69		0.55	0.85		0.31	0.32	0.13	0.23	0.67	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 29.3		Intersection LOS: C	
Intersection Capacity Utilization 79.0%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Hopkins Road & Klein Road



Packet Pg. 3537
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	443	491	2	8	9
Future Volume (vph)	2	443	491	2	8	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.929	
Flt Protected					0.977	
Satd. Flow (prot)	0	1863	1861	0	1630	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	1863	1861	0	1630	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		850	605		536	
Travel Time (s)		16.6	11.8		12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	2%	0%	0%	11%
Adj. Flow (vph)	2	466	517	2	8	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	468	519	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	443	491	2	8	9
Future Vol, veh/h	2	443	491	2	8	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	2	0	0	11
Mvmt Flow	2	466	517	2	8	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	988	518
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	470	-
Critical Hdwy	4.1	-	-	-	6.4	6.31
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.399
Pot Cap-1 Maneuver	1057	-	-	-	276	540
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	633	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1057	-	-	-	275	540
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	633	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1057	-	-	-	372
HCM Lane V/C Ratio	0.002	-	-	-	0.048
HCM Control Delay (s)	8.4	0	-	-	15.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Packet Pg. 3538
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	453	2	40	475	1	7	1	54	3	1	3
Future Volume (vph)	0	453	2	40	475	1	7	1	54	3	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.882			0.942	
Flt Protected					0.996			0.995			0.979	
Satd. Flow (prot)	0	1857	0	0	1847	0	0	1549	0	0	1752	0
Flt Permitted					0.996			0.995			0.979	
Satd. Flow (perm)	0	1857	0	0	1847	0	0	1549	0	0	1752	0
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		605			1422			515			575	
Travel Time (s)		11.8			27.7			11.7			13.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	50%	8%	2%	0%	14%	0%	7%	0%	0%	0%
Adj. Flow (vph)	0	482	2	43	505	1	7	1	57	3	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	484	0	0	549	0	0	65	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	453	2	40	475	1	7	1	54	3	1	3
Future Vol, veh/h	0	453	2	40	475	1	7	1	54	3	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	50	8	2	0	14	0	7	0	0	0
Mvmt Flow	0	482	2	43	505	1	7	1	57	3	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	506	0	0	484	0	0	1077	1075	483	1104	1076	506
Stage 1	-	-	-	-	-	-	483	483	-	592	592	-
Stage 2	-	-	-	-	-	-	594	592	-	512	484	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.24	6.5	6.27	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.272	-	-	3.626	4	3.363	3.5	4	3.3
Pot Cap-1 Maneuver	1069	-	-	1048	-	-	186	221	574	190	221	570
Stage 1	-	-	-	-	-	-	543	556	-	496	497	-
Stage 2	-	-	-	-	-	-	471	497	-	548	555	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1069	-	-	1048	-	-	176	208	574	163	208	570
Mov Cap-2 Maneuver	-	-	-	-	-	-	176	208	-	163	208	-
Stage 1	-	-	-	-	-	-	543	556	-	496	469	-
Stage 2	-	-	-	-	-	-	441	469	-	492	555	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	14.4	20.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	447	1069	-	-	1048	-	-	246
HCM Lane V/C Ratio	0.148	-	-	-	0.041	-	-	0.03
HCM Control Delay (s)	14.4	0	-	-	8.6	0	-	20.1
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

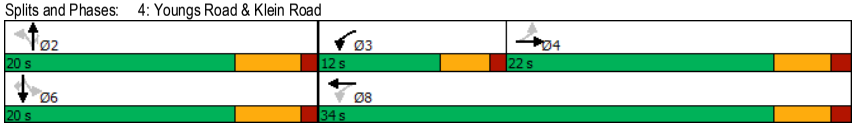
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	287	155	207	338	24	61	139	63	54	414	96
Future Volume (vph)	54	287	155	207	338	24	61	139	63	54	414	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		0	70		0	150		150	75		110
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	80			60			80			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.947			0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1748	0	1770	1842	0	1752	1792	1524	1770	1881	1568
Flt Permitted	0.533			0.199			0.284			0.663		
Satd. Flow (perm)	974	1748	0	371	1842	0	524	1792	1524	1235	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			10				127			127
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		410			1163			640			690	
Travel Time (s)		8.0			22.7			9.7			10.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	1%	2%	2%	4%	3%	6%	6%	2%	1%	3%
Adj. Flow (vph)	57	305	165	220	360	26	65	148	67	57	440	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	470	0	220	386	0	65	148	67	57	440	102
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	12.0	12.0		8.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	27.0	27.0		12.3	27.0		24.4	24.4	24.4	24.4	24.4	24.4
Total Split (s)	22.0	22.0		12.0	34.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	40.7%	40.7%		22.2%	63.0%		37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	17.0	17.0		7.7	29.0		14.6	14.6	14.6	14.6	14.6	14.6
Yellow Time (s)	3.6	3.6		3.2	3.6		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.4	1.4		1.1	1.4		1.1	1.1	1.1	1.1	1.1	1.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.3	5.0		5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		2.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	15.7	15.7		28.5	27.8		14.1	14.1	14.1	14.1	14.1	14.1
Actuated g/C Ratio	0.30	0.30		0.54	0.53		0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.20	0.84		0.54	0.39		0.46	0.31	0.13	0.17	0.87	0.20
Control Delay	15.6	31.1		11.6	8.6		29.5	17.7	1.6	16.7	39.7	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	31.1		11.6	8.6		29.5	17.7	1.6	16.7	39.7	3.8
LOS	B	C		B	A		C	B	A	B	D	A
Approach Delay		29.5			9.7			16.6			31.4	
Approach LOS		C			A			B			C	
Queue Length 50th (ft)	13	120		32	62		17	37	0	14	133	0
Queue Length 95th (ft)	36	#261		62	111		#59	77	8	37	#275	21
Internal Link Dist (ft)		330			1083			560			610	
Turn Bay Length (ft)	80			70			150		150	75		110
Base Capacity (vph)	317	605		408	1029		146	501	518	345	526	530
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.78		0.54	0.38		0.45	0.30	0.13	0.17	0.84	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 54			
Actuated Cycle Length: 52.3			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Youngs Road & Klein Road



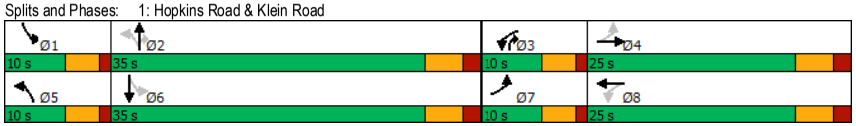
Packet Pg. 3540
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	375	72	138	333	120	151	410	151	109	302	63
Future Volume (vph)	114	375	72	138	333	120	151	410	151	109	302	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	135		135	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	60			80			85			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.960				0.850		0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1836	0	1719	1798	0	1752	1881	1615	1752	1800	0
Flt Permitted	0.195			0.186			0.384			0.368		
Satd. Flow (perm)	363	1836	0	337	1798	0	708	1881	1615	679	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			22				156		15	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		962			630			760			709	
Travel Time (s)		18.7			12.3			14.8			13.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	1%	1%	5%	2%	0%	3%	1%	0%	3%	3%	2%
Adj. Flow (vph)	118	387	74	142	343	124	156	423	156	112	311	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	461	0	142	467	0	156	423	156	112	376	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	35.0	3.0	3.0	35.0	
Minimum Split (s)	9.5	27.4		9.5	27.4		9.5	40.4	9.5	9.5	40.4	
Total Split (s)	10.0	25.0		10.0	25.0		10.0	35.0	10.0	10.0	35.0	
Total Split (%)	12.5%	31.3%		12.5%	31.3%		12.5%	43.8%	12.5%	12.5%	43.8%	
Maximum Green (s)	5.7	19.6		5.7	19.6		5.7	29.6	5.7	5.7	29.6	
Yellow Time (s)	3.2	3.6		3.2	3.6		3.2	3.6	3.2	3.2	3.6	
All-Red Time (s)	1.1	1.8		1.1	1.8		1.1	1.8	1.1	1.1	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.3	5.4		4.3	5.4		4.3	5.4	4.3	4.3	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	0.3	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	
Recall Mode	None	None		None	None		None	None	None	None	None	

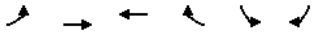
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	25.8	19.6		27.1	21.5		37.2	31.6	42.4	35.6	29.6	
Actuated g/C Ratio	0.33	0.25		0.34	0.27		0.47	0.40	0.53	0.45	0.37	
v/c Ratio	0.57	1.00		0.68	0.93		0.39	0.56	0.17	0.30	0.55	
Control Delay	28.0	73.5		36.2	56.8		14.0	23.2	2.4	12.8	22.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	28.0	73.5		36.2	56.8		14.0	23.2	2.4	12.8	22.7	
LOS	C	E		D	E		B	C	A	B	C	
Approach Delay		64.3			52.0			16.8			20.5	
Approach LOS		E			D			B			C	
Queue Length 50th (ft)	38	~229		47	~234		40	167	0	28	140	
Queue Length 95th (ft)	73	#421		#101	#425		72	262	27	54	225	
Internal Link Dist (ft)		882			550			680			629	
Turn Bay Length (ft)	140			150			135		135	125		
Base Capacity (vph)	222	462		214	502		407	749	941	388	681	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.53	1.00		0.66	0.93		0.38	0.56	0.17	0.29	0.55	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 79.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 37.8		Intersection LOS: D	
Intersection Capacity Utilization 85.5%		ICU Level of Service E	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Hopkins Road & Klein Road



Packet Pg. 3541
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	611	564	4	11	6
Future Volume (vph)	8	611	564	4	11	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.955	
Flt Protected		0.999			0.968	
Satd. Flow (prot)	0	1880	1861	0	1756	0
Flt Permitted		0.999			0.968	
Satd. Flow (perm)	0	1880	1861	0	1756	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		850	605		536	
Travel Time (s)		16.6	11.8		12.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Adj. Flow (vph)	9	657	606	4	12	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	666	610	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	611	564	4	11	6
Future Vol, veh/h	8	611	564	4	11	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	0	0
Mvmt Flow	9	657	606	4	12	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	610	0	-	0	1283	608
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	675	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	979	-	-	-	184	499
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	510	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	979	-	-	-	181	499
Mov Cap-2 Maneuver	-	-	-	-	181	-
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	510	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	21.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	979	-	-	-	234
HCM Lane V/C Ratio	0.009	-	-	-	0.078
HCM Control Delay (s)	8.7	0	-	-	21.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	617	4	18	562	1	4	0	24	4	1	3
Future Volume (vph)	4	617	4	18	562	1	4	0	24	4	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.883			0.949	
Flt Protected					0.998			0.993			0.976	
Satd. Flow (prot)	0	1880	0	0	1699	0	0	1612	0	0	1760	0
Flt Permitted					0.998			0.993			0.976	
Satd. Flow (perm)	0	1880	0	0	1699	0	0	1612	0	0	1760	0
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		605			1422			515			575	
Travel Time (s)		11.8			27.7			11.7			13.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	0%	12%	0%	25%	0%	0%	0%	0%	0%
Adj. Flow (vph)	4	663	4	19	604	1	4	0	26	4	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	671	0	0	624	0	0	30	0	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	617	4	18	562	1	4	0	24	4	1	3
Future Vol, veh/h	4	617	4	18	562	1	4	0	24	4	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	1	0	0	12	0	25	0	0	0	0	0
Mvmt Flow	4	663	4	19	604	1	4	0	26	4	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	605	0	0	667	0	0	1318	1316	665	1329	1318	605
Stage 1	-	-	-	-	-	-	673	673	-	643	643	-
Stage 2	-	-	-	-	-	-	645	643	-	686	675	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.35	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.725	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	983	-	-	932	-	-	120	159	464	133	159	501
Stage 1	-	-	-	-	-	-	409	457	-	465	472	-
Stage 2	-	-	-	-	-	-	425	472	-	441	456	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	983	-	-	932	-	-	115	153	464	122	153	501
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	153	-	122	153	-
Stage 1	-	-	-	-	-	-	407	454	-	462	457	-
Stage 2	-	-	-	-	-	-	408	457	-	414	453	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	17.2	26.4
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	324	983	-	-	932	-	-	177
HCM Lane V/C Ratio	0.093	0.004	-	-	0.021	-	-	0.049
HCM Control Delay (s)	17.2	8.7	0	-	8.9	0	-	26.4
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.2

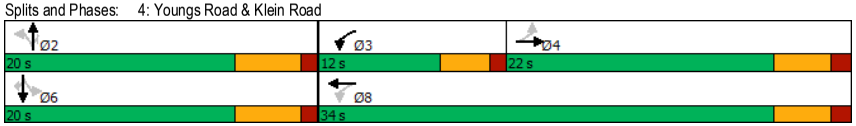
Packet Pg. 3543
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	431	123	107	393	50	136	323	182	27	185	49
Future Volume (vph)	79	431	123	107	393	50	136	323	182	27	185	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		0	70		0	150		150	75		110
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	80			60			80			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1811	0	1719	1835	0	1787	1900	1583	1805	1863	1583
Flt Permitted	0.498			0.185			0.636			0.425		
Satd. Flow (perm)	946	1811	0	335	1835	0	1196	1900	1583	808	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			18				190			127
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		410			1163			640			690	
Travel Time (s)		8.0			22.7			9.7			10.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	3%	5%	2%	0%	1%	0%	2%	0%	2%	2%
Adj. Flow (vph)	82	449	128	111	409	52	142	336	190	28	193	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	577	0	111	461	0	142	336	190	28	193	51
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	12.0	12.0		8.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	27.0	27.0		12.3	27.0		24.4	24.4	24.4	24.4	24.4	24.4
Total Split (s)	22.0	22.0		12.0	34.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	40.7%	40.7%		22.2%	63.0%		37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	17.0	17.0		7.7	29.0		14.6	14.6	14.6	14.6	14.6	14.6
Yellow Time (s)	3.6	3.6		3.2	3.6		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.4	1.4		1.1	1.4		1.1	1.1	1.1	1.1	1.1	1.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.3	5.0		5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		2.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	17.3	17.3		27.1	26.4		13.7	13.7	13.7	13.7	13.7	13.7
Actuated g/C Ratio	0.34	0.34		0.54	0.52		0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.25	0.91		0.28	0.48		0.44	0.65	0.34	0.13	0.38	0.10
Control Delay	16.5	39.9		7.7	9.3		21.7	24.7	5.1	16.8	18.8	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	39.9		7.7	9.3		21.7	24.7	5.1	16.8	18.8	0.4
LOS	B	D		A	A		C	C	A	B	B	A
Approach Delay		37.0			9.0			18.5			15.1	
Approach LOS		D			A			B			B	
Queue Length 50th (ft)	19	172		15	77		37	95	0	7	50	0
Queue Length 95th (ft)	49	#357		33	136		82	#173	38	23	97	1
Internal Link Dist (ft)		330			1083			560			610	
Turn Bay Length (ft)	80			70			150		150	75		110
Base Capacity (vph)	322	636		393	1075		350	556	598	236	545	553
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.91		0.28	0.43		0.41	0.60	0.32	0.12	0.35	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 54			
Actuated Cycle Length: 50.6			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 21.2		Intersection LOS: C	
Intersection Capacity Utilization 80.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Youngs Road & Klein Road



Packet Pg. 3544
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

A5

Level of Service Calculations: Background Conditions

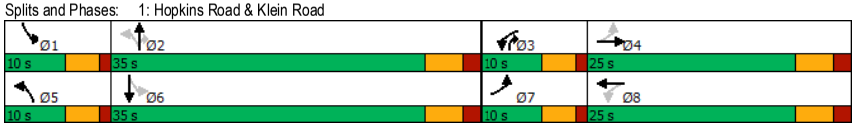
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	239	75	143	314	73	99	216	109	119	391	68
Future Volume (vph)	117	239	75	143	314	73	99	216	109	119	391	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	135		135	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	60			80			85			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964			0.972				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1791	0	1787	1793	0	1703	1827	1583	1770	1797	0
Flt Permitted	0.216			0.294			0.286			0.579		
Satd. Flow (perm)	398	1791	0	553	1793	0	513	1827	1583	1079	1797	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			14				117		12	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		962			630			760			709	
Travel Time (s)		18.7			12.3			14.8			13.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	2%	3%	1%	3%	3%	6%	4%	2%	2%	4%	0%
Adj. Flow (vph)	126	257	81	154	338	78	106	232	117	128	420	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	338	0	154	416	0	106	232	117	128	493	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	35.0	3.0	3.0	35.0	
Minimum Split (s)	9.5	27.4		9.5	27.4		9.5	40.4	9.5	9.5	40.4	
Total Split (s)	10.0	25.0		10.0	25.0		10.0	35.0	10.0	10.0	35.0	
Total Split (%)	12.5%	31.3%		12.5%	31.3%		12.5%	43.8%	12.5%	12.5%	43.8%	
Maximum Green (s)	5.7	19.6		5.7	19.6		5.7	29.6	5.7	5.7	29.6	
Yellow Time (s)	3.2	3.6		3.2	3.6		3.2	3.6	3.2	3.2	3.6	
All-Red Time (s)	1.1	1.8		1.1	1.8		1.1	1.8	1.1	1.1	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.3	5.4		4.3	5.4		4.3	5.4	4.3	4.3	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	0.3	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	
Recall Mode	None	None		None	None		None	None	None	None	None	

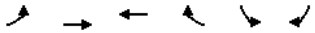
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	23.7	17.4		25.0	19.5		35.2	30.1	40.9	35.5	30.2	
Actuated g/C Ratio	0.31	0.23		0.33	0.26		0.47	0.40	0.54	0.47	0.40	
v/c Ratio	0.58	0.79		0.57	0.88		0.34	0.32	0.13	0.23	0.68	
Control Delay	28.5	41.2		26.7	50.0		13.6	19.1	2.6	11.7	25.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	28.5	41.2		26.7	50.0		13.6	19.1	2.6	11.7	25.9	
LOS	C	D		C	D		B	B	A	B	C	
Approach Delay		37.8			43.7			13.6			22.9	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	41	148		51	197		26	82	0	32	202	
Queue Length 95th (ft)	78	#268		92	#370		52	138	23	61	318	
Internal Link Dist (ft)		882			550			680			629	
Turn Bay Length (ft)	140			150			135		135	125		
Base Capacity (vph)	231	486		277	482		332	727	919	562	726	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.55	0.70		0.56	0.86		0.32	0.32	0.13	0.23	0.68	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 29.8		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Hopkins Road & Klein Road



Packet Pg. 3546
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	447	496	2	8	9
Future Volume (vph)	2	447	496	2	8	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.929	
Flt Protected					0.977	
Satd. Flow (prot)	0	1863	1861	0	1630	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	1863	1861	0	1630	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		850	605		536	
Travel Time (s)		16.6	11.8		12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	2%	0%	0%	11%
Adj. Flow (vph)	2	471	522	2	8	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	473	524	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	447	496	2	8	9
Future Vol, veh/h	2	447	496	2	8	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	2	0	0	11
Mvmt Flow	2	471	522	2	8	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	524	0	-	0	998	523
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	475	-
Critical Hdwy	4.1	-	-	-	6.4	6.31
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.399
Pot Cap-1 Maneuver	1053	-	-	-	273	537
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1053	-	-	-	272	537
Mov Cap-2 Maneuver	-	-	-	-	272	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	630	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1053	-	-	-	368
HCM Lane V/C Ratio	0.002	-	-	-	0.049
HCM Control Delay (s)	8.4	0	-	-	15.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	458	2	40	480	1	7	1	55	3	1	3
Future Volume (vph)	0	458	2	40	480	1	7	1	55	3	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.881			0.942	
Flt Protected					0.996			0.995			0.979	
Satd. Flow (prot)	0	1857	0	0	1847	0	0	1548	0	0	1752	0
Flt Permitted					0.996			0.995			0.979	
Satd. Flow (perm)	0	1857	0	0	1847	0	0	1548	0	0	1752	0
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		605			1422			515			575	
Travel Time (s)		11.8			27.7			11.7			13.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	50%	8%	2%	0%	14%	0%	7%	0%	0%	0%
Adj. Flow (vph)	0	487	2	43	511	1	7	1	59	3	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	489	0	0	555	0	0	67	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.7%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	458	2	40	480	1	7	1	55	3	1	3
Future Vol, veh/h	0	458	2	40	480	1	7	1	55	3	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	50	8	2	0	14	0	7	0	0	0
Mvmt Flow	0	487	2	43	511	1	7	1	59	3	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	512	0	0	489	0	0	1088	1086	488	1116	1087	512
Stage 1	-	-	-	-	-	-	488	488	-	598	598	-
Stage 2	-	-	-	-	-	-	600	598	-	518	489	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.24	6.5	6.27	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.272	-	-	3.626	4	3.363	3.5	4	3.3
Pot Cap-1 Maneuver	1064	-	-	1044	-	-	183	218	570	187	218	566
Stage 1	-	-	-	-	-	-	539	553	-	492	494	-
Stage 2	-	-	-	-	-	-	468	494	-	544	553	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1064	-	-	1044	-	-	173	205	570	160	205	566
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	205	-	160	205	-
Stage 1	-	-	-	-	-	-	539	553	-	492	465	-
Stage 2	-	-	-	-	-	-	437	465	-	487	553	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	14.5	20.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	444	1064	-	-	1044	-	-	242
HCM Lane V/C Ratio	0.151	-	-	-	0.041	-	-	0.031
HCM Control Delay (s)	14.5	0	-	-	8.6	0	-	20.3
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

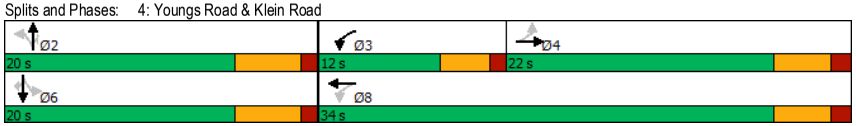
Packet Pg. 3548
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	290	157	209	341	24	62	140	64	55	418	97
Future Volume (vph)	55	290	157	209	341	24	62	140	64	55	418	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		0	70		0	150		150	75		110
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	80			60			80			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.947			0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1748	0	1770	1842	0	1752	1792	1524	1770	1881	1568
Flt Permitted	0.532			0.199			0.282			0.662		
Satd. Flow (perm)	972	1748	0	371	1842	0	520	1792	1524	1233	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			10				127			127
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		410			1163			640			690	
Travel Time (s)		8.0			22.7			9.7			10.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	1%	2%	2%	4%	3%	6%	6%	2%	1%	3%
Adj. Flow (vph)	59	309	167	222	363	26	66	149	68	59	445	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	476	0	222	389	0	66	149	68	59	445	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	12.0	12.0		8.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	27.0	27.0		12.3	27.0		24.4	24.4	24.4	24.4	24.4	24.4
Total Split (s)	22.0	22.0		12.0	34.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	40.7%	40.7%		22.2%	63.0%		37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	17.0	17.0		7.7	29.0		14.6	14.6	14.6	14.6	14.6	14.6
Yellow Time (s)	3.6	3.6		3.2	3.6		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.4	1.4		1.1	1.4		1.1	1.1	1.1	1.1	1.1	1.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.3	5.0		5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		2.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	15.8	15.8		28.5	27.8		14.1	14.1	14.1	14.1	14.1	14.1
Actuated g/C Ratio	0.30	0.30		0.54	0.53		0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.20	0.85		0.55	0.40		0.47	0.31	0.13	0.18	0.88	0.20
Control Delay	15.7	31.9		11.8	8.6		30.4	17.8	1.7	16.8	40.8	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	31.9		11.8	8.6		30.4	17.8	1.7	16.8	40.8	3.8
LOS	B	C		B	A		C	B	A	B	D	A
Approach Delay		30.1			9.8			16.8			32.2	
Approach LOS		C			A			B			C	
Queue Length 50th (ft)	14	122		32	63		18	38	0	14	136	0
Queue Length 95th (ft)	37	#266		63	112		#61	78	8	38	#279	22
Internal Link Dist (ft)		330			1083			560			610	
Turn Bay Length (ft)	80			70			150		150	75		110
Base Capacity (vph)	316	604		407	1026		145	500	517	344	525	529
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.79		0.55	0.38		0.46	0.30	0.13	0.17	0.85	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 54			
Actuated Cycle Length: 52.4			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Youngs Road & Klein Road



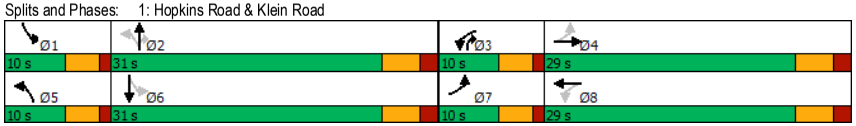
Packet Pg. 3549
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	379	73	139	336	121	153	414	153	110	305	64
Future Volume (vph)	115	379	73	139	336	121	153	414	153	110	305	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	135		135	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	60			80			85			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.960				0.850		0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1836	0	1719	1798	0	1752	1881	1615	1752	1800	0
Flt Permitted	0.191			0.175			0.352			0.335		
Satd. Flow (perm)	356	1836	0	317	1798	0	649	1881	1615	618	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			23				158		14	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		962			630			760			709	
Travel Time (s)		18.7			12.3			14.8			13.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	1%	1%	5%	2%	0%	3%	1%	0%	3%	3%	2%
Adj. Flow (vph)	119	391	75	143	346	125	158	427	158	113	314	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	466	0	143	471	0	158	427	158	113	380	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	35.0	3.0	3.0	35.0	
Minimum Split (s)	9.5	27.4		9.5	27.4		9.5	40.4	9.5	9.5	40.4	
Total Split (s)	10.0	29.0		10.0	29.0		10.0	31.0	10.0	10.0	31.0	
Total Split (%)	12.5%	36.3%		12.5%	36.3%		12.5%	38.8%	12.5%	12.5%	38.8%	
Maximum Green (s)	5.7	23.6		5.7	23.6		5.7	25.6	5.7	5.7	25.6	
Yellow Time (s)	3.2	3.6		3.2	3.6		3.2	3.6	3.2	3.2	3.6	
All-Red Time (s)	1.1	1.8		1.1	1.8		1.1	1.8	1.1	1.1	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.3	5.4		4.3	5.4		4.3	5.4	4.3	4.3	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	0.3	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	
Recall Mode	None	None		None	None		None	None	None	None	None	

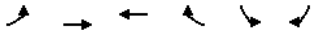
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	26.9	20.7		28.3	22.8		33.3	27.8	38.6	31.7	25.7	
Actuated g/C Ratio	0.35	0.27		0.37	0.30		0.43	0.36	0.50	0.41	0.34	
v/c Ratio	0.55	0.92		0.67	0.85		0.44	0.63	0.18	0.34	0.62	
Control Delay	24.1	52.3		32.0	42.0		17.3	27.2	2.9	15.5	26.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	24.1	52.3		32.0	42.0		17.3	27.2	2.9	15.5	26.8	
LOS	C	D		C	D		B	C	A	B	C	
Approach Delay		46.6			39.7			19.9			24.2	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	35	212		43	211		45	186	0	31	155	
Queue Length 95th (ft)	67	#377		#91	#380		82	289	30	61	249	
Internal Link Dist (ft)		882			550			680			629	
Turn Bay Length (ft)	140			150			135		135	125		
Base Capacity (vph)	234	576		222	572		365	683	899	347	613	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.51	0.81		0.64	0.82		0.43	0.63	0.18	0.33	0.62	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 85.9%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Hopkins Road & Klein Road



Packet Pg. 3550
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	617	570	4	11	6
Future Volume (vph)	8	617	570	4	11	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.955	
Flt Protected		0.999			0.968	
Satd. Flow (prot)	0	1880	1861	0	1756	0
Flt Permitted		0.999			0.968	
Satd. Flow (perm)	0	1880	1861	0	1756	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		850	605		536	
Travel Time (s)		16.6	11.8		12.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Adj. Flow (vph)	9	663	613	4	12	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	672	617	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	617	570	4	11	6
Future Vol, veh/h	8	617	570	4	11	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	0	0
Mvmt Flow	9	663	613	4	12	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	617	0	-	0	1296	615
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	681	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	973	-	-	-	181	495
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	506	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	973	-	-	-	178	495
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	506	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	973	-	-	-	230
HCM Lane V/C Ratio	0.009	-	-	-	0.079
HCM Control Delay (s)	8.7	0	-	-	22
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Packet Pg. 3551
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	623	4	18	568	1	4	0	24	4	1	3
Future Volume (vph)	4	623	4	18	568	1	4	0	24	4	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.883			0.949	
Flt Protected					0.998			0.993			0.976	
Satd. Flow (prot)	0	1880	0	0	1699	0	0	1612	0	0	1760	0
Flt Permitted					0.998			0.993			0.976	
Satd. Flow (perm)	0	1880	0	0	1699	0	0	1612	0	0	1760	0
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		605			1422			515			575	
Travel Time (s)		11.8			27.7			11.7			13.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	0%	12%	0%	25%	0%	0%	0%	0%	0%
Adj. Flow (vph)	4	670	4	19	611	1	4	0	26	4	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	678	0	0	631	0	0	30	0	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	623	4	18	568	1	4	0	24	4	1	3
Future Vol, veh/h	4	623	4	18	568	1	4	0	24	4	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	1	0	0	12	0	25	0	0	0	0	0
Mvmt Flow	4	670	4	19	611	1	4	0	26	4	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	612	0	0	674	0	0	1332	1330	672	1343	1332	612
Stage 1	-	-	-	-	-	-	680	680	-	650	650	-
Stage 2	-	-	-	-	-	-	652	650	-	693	682	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.35	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.725	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	977	-	-	927	-	-	117	156	459	130	156	497
Stage 1	-	-	-	-	-	-	406	454	-	461	468	-
Stage 2	-	-	-	-	-	-	421	468	-	437	453	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	977	-	-	927	-	-	112	150	459	119	150	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	112	150	-	119	150	-
Stage 1	-	-	-	-	-	-	403	451	-	458	453	-
Stage 2	-	-	-	-	-	-	404	453	-	410	450	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	17.5	26.9
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	318	977	-	-	927	-	-	173
HCM Lane V/C Ratio	0.095	0.004	-	-	0.021	-	-	0.05
HCM Control Delay (s)	17.5	8.7	0	-	9	0	-	26.9
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.2

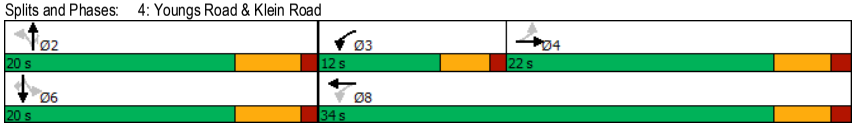
Packet Pg. 3552
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	435	124	108	397	51	137	326	184	27	187	49
Future Volume (vph)	80	435	124	108	397	51	137	326	184	27	187	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		0	70		0	150		150	75		110
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	80			60			80			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1811	0	1719	1835	0	1787	1900	1583	1805	1863	1583
Flt Permitted	0.495			0.185			0.635			0.418		
Satd. Flow (perm)	940	1811	0	335	1835	0	1195	1900	1583	794	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			18				192			127
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		410			1163			640			690	
Travel Time (s)		8.0			22.7			9.7			10.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	3%	5%	2%	0%	1%	0%	2%	0%	2%	2%
Adj. Flow (vph)	83	453	129	113	414	53	143	340	192	28	195	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	582	0	113	467	0	143	340	192	28	195	51
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	12.0	12.0		8.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	27.0	27.0		12.3	27.0		24.4	24.4	24.4	24.4	24.4	24.4
Total Split (s)	22.0	22.0		12.0	34.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	40.7%	40.7%		22.2%	63.0%		37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	17.0	17.0		7.7	29.0		14.6	14.6	14.6	14.6	14.6	14.6
Yellow Time (s)	3.6	3.6		3.2	3.6		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.4	1.4		1.1	1.4		1.1	1.1	1.1	1.1	1.1	1.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.3	5.0		5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		2.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	17.3	17.3		27.1	26.3		13.7	13.7	13.7	13.7	13.7	13.7
Actuated g/C Ratio	0.34	0.34		0.54	0.52		0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.26	0.92		0.29	0.48		0.44	0.66	0.34	0.13	0.39	0.10
Control Delay	16.6	41.1		7.8	9.4		21.7	24.9	5.0	16.9	18.8	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	41.1		7.8	9.4		21.7	24.9	5.0	16.9	18.8	0.4
LOS	B	D		A	A		C	C	A	B	B	A
Approach Delay		38.1			9.1			18.6			15.2	
Approach LOS		D			A			B			B	
Queue Length 50th (ft)	20	174		15	79		38	96	0	7	51	0
Queue Length 95th (ft)	50	#361		34	138		82	#177	38	23	98	1
Internal Link Dist (ft)		330			1083			560			610	
Turn Bay Length (ft)	80			70			150		150	75		110
Base Capacity (vph)	320	636		392	1074		350	556	599	232	545	553
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.92		0.29	0.43		0.41	0.61	0.32	0.12	0.36	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 54			
Actuated Cycle Length: 50.6			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 81.0%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Youngs Road & Klein Road



Packet Pg. 3553
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

A6

Level of Service Calculations: Full Development Conditions

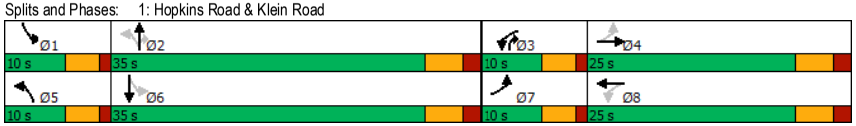
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	240	75	145	318	74	99	216	110	119	391	68
Future Volume (vph)	117	240	75	145	318	74	99	216	110	119	391	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	135		135	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	60			80			85			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964			0.972				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1791	0	1787	1793	0	1703	1827	1583	1770	1797	0
Flt Permitted	0.216			0.292			0.286			0.579		
Satd. Flow (perm)	398	1791	0	549	1793	0	513	1827	1583	1079	1797	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			14				118		12	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		962			630			760			709	
Travel Time (s)		18.7			12.3			14.8			13.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	2%	3%	1%	3%	3%	6%	4%	2%	2%	4%	0%
Adj. Flow (vph)	126	258	81	156	342	80	106	232	118	128	420	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	339	0	156	422	0	106	232	118	128	493	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	35.0	3.0	3.0	35.0	
Minimum Split (s)	9.5	27.4		9.5	27.4		9.5	40.4	9.5	9.5	40.4	
Total Split (s)	10.0	25.0		10.0	25.0		10.0	35.0	10.0	10.0	35.0	
Total Split (%)	12.5%	31.3%		12.5%	31.3%		12.5%	43.8%	12.5%	12.5%	43.8%	
Maximum Green (s)	5.7	19.6		5.7	19.6		5.7	29.6	5.7	5.7	29.6	
Yellow Time (s)	3.2	3.6		3.2	3.6		3.2	3.6	3.2	3.2	3.6	
All-Red Time (s)	1.1	1.8		1.1	1.8		1.1	1.8	1.1	1.1	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.3	5.4		4.3	5.4		4.3	5.4	4.3	4.3	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	0.3	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	
Recall Mode	None	None		None	None		None	None	None	None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	23.7	17.4		25.0	19.5		35.2	30.1	40.9	35.4	30.2	
Actuated g/C Ratio	0.31	0.23		0.33	0.26		0.47	0.40	0.54	0.47	0.40	
v/c Ratio	0.58	0.79		0.58	0.89		0.34	0.32	0.13	0.23	0.68	
Control Delay	28.5	41.4		27.1	51.6		13.6	19.1	2.6	11.7	25.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	28.5	41.4		27.1	51.6		13.6	19.1	2.6	11.7	25.9	
LOS	C	D		C	D		B	B	A	B	C	
Approach Delay		37.9			45.0			13.5			23.0	
Approach LOS		D			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 30.2		Intersection LOS: C	
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Hopkins Road & Klein Road



Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	449	503	2	8	9
Future Volume (vph)	2	449	503	2	8	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.929	
Flt Protected					0.977	
Satd. Flow (prot)	0	1863	1861	0	1630	0
Flt Permitted					0.977	
Satd. Flow (perm)	0	1863	1861	0	1630	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		850	328		536	
Travel Time (s)		16.6	6.4		12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	2%	0%	0%	11%
Adj. Flow (vph)	2	473	529	2	8	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	475	531	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	449	503	2	8	9
Future Vol, veh/h	2	449	503	2	8	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	2	0	0	11
Mvmt Flow	2	473	529	2	8	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	531	0	-	0	1007	530
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	477	-
Critical Hdwy	4.1	-	-	-	6.4	6.31
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.399
Pot Cap-1 Maneuver	1047	-	-	-	269	532
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	629	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1047	-	-	-	268	532
Mov Cap-2 Maneuver	-	-	-	-	268	-
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	629	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1047	-	-	-	363
HCM Lane V/C Ratio	0.002	-	-	-	0.049
HCM Control Delay (s)	8.4	0	-	-	15.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	463	2	40	482	1	7	1	55	3	1	3
Future Volume (vph)	0	463	2	40	482	1	7	1	55	3	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.881			0.942	
Flt Protected					0.996			0.995			0.979	
Satd. Flow (prot)	0	1857	0	0	1847	0	0	1548	0	0	1752	0
Flt Permitted					0.996			0.995			0.979	
Satd. Flow (perm)	0	1857	0	0	1847	0	0	1548	0	0	1752	0
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		277			1403			515			575	
Travel Time (s)		5.4			27.3			11.7			13.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	50%	8%	2%	0%	14%	0%	7%	0%	0%	0%
Adj. Flow (vph)	0	493	2	43	513	1	7	1	59	3	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	495	0	0	557	0	0	67	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	463	2	40	482	1	7	1	55	3	1	3
Future Vol, veh/h	0	463	2	40	482	1	7	1	55	3	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	50	8	2	0	14	0	7	0	0	0
Mvmt Flow	0	493	2	43	513	1	7	1	59	3	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	514	0	0	495	0	0	1096	1094	494	1124	1095	514
Stage 1	-	-	-	-	-	-	494	494	-	600	600	-
Stage 2	-	-	-	-	-	-	602	600	-	524	495	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.24	6.5	6.27	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.272	-	-	3.626	4	3.363	3.5	4	3.3
Pot Cap-1 Maneuver	1062	-	-	1038	-	-	181	216	565	184	215	564
Stage 1	-	-	-	-	-	-	535	550	-	491	493	-
Stage 2	-	-	-	-	-	-	466	493	-	540	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1062	-	-	1038	-	-	171	203	565	157	203	564
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	203	-	157	203	-
Stage 1	-	-	-	-	-	-	535	550	-	491	464	-
Stage 2	-	-	-	-	-	-	435	464	-	483	549	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	14.6	20.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	440	1062	-	-	1038	-	-	238
HCM Lane V/C Ratio	0.152	-	-	-	0.041	-	-	0.031
HCM Control Delay (s)	14.6	0	-	-	8.6	0	-	20.6
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

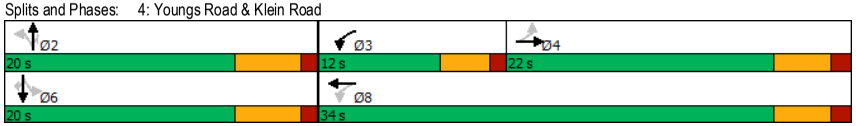
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

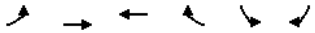
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	293	158	209	342	24	63	140	64	55	418	97
Future Volume (vph)	56	293	158	209	342	24	63	140	64	55	418	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		0	70		0	150		150	75		110
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	80			60			80			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.947			0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1748	0	1770	1842	0	1752	1792	1524	1770	1881	1568
Flt Permitted	0.531			0.198			0.282			0.662		
Satd. Flow (perm)	970	1748	0	369	1842	0	520	1792	1524	1233	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			10				127			127
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		430			1163			640			690	
Travel Time (s)		8.4			22.7			9.7			10.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	1%	2%	2%	4%	3%	6%	6%	2%	1%	3%
Adj. Flow (vph)	60	312	168	222	364	26	67	149	68	59	445	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	480	0	222	390	0	67	149	68	59	445	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	12.0	12.0		8.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	27.0	27.0		12.3	27.0		24.4	24.4	24.4	24.4	24.4	24.4
Total Split (s)	22.0	22.0		12.0	34.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	40.7%	40.7%		22.2%	63.0%		37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	17.0	17.0		7.7	29.0		14.6	14.6	14.6	14.6	14.6	14.6
Yellow Time (s)	3.6	3.6		3.2	3.6		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.4	1.4		1.1	1.4		1.1	1.1	1.1	1.1	1.1	1.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.3	5.0		5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		2.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	15.9	15.9		28.6	27.9		14.2	14.2	14.2	14.2	14.2	14.2
Actuated g/C Ratio	0.30	0.30		0.54	0.53		0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.20	0.85		0.55	0.40		0.48	0.31	0.13	0.18	0.88	0.20
Control Delay	15.8	32.6		11.8	8.6		30.9	17.8	1.7	16.8	40.9	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	32.6		11.8	8.6		30.9	17.8	1.7	16.8	40.9	3.8
LOS	B	C		B	A		C	B	A	B	D	A
Approach Delay		30.8			9.8			17.0			32.2	
Approach LOS		C			A			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 54			
Actuated Cycle Length: 52.5			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 4: Youngs Road & Klein Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	456	498	2	5	7
Future Volume (vph)	2	456	498	2	5	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.921	
Flt Protected					0.980	
Satd. Flow (prot)	0	1863	1861	0	1715	0
Flt Permitted					0.980	
Satd. Flow (perm)	0	1863	1861	0	1715	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		328	277		578	
Travel Time (s)		6.4	5.4		13.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	2	485	530	2	5	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	487	532	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	456	498	2	5	7
Future Vol, veh/h	2	456	498	2	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	2	485	530	2	5	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	532	0	-	0	1020	531
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1046	-	-	-	264	552
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1046	-	-	-	263	552
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	621	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1046	-	-	-	379
HCM Lane V/C Ratio	0.002	-	-	-	0.034
HCM Control Delay (s)	8.4	0	-	-	14.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

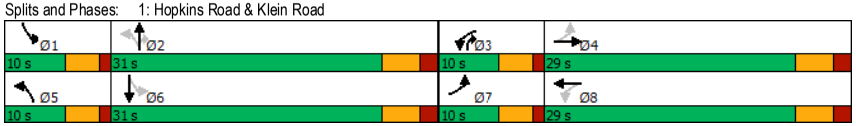
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	383	73	140	338	122	153	414	155	111	305	64
Future Volume (vph)	115	383	73	140	338	122	153	414	155	111	305	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140		0	150		0	135		135	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	60			80			85			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.960				0.850		0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1836	0	1719	1798	0	1752	1881	1615	1752	1800	0
Flt Permitted	0.188			0.175			0.351			0.335		
Satd. Flow (perm)	350	1836	0	317	1798	0	647	1881	1615	618	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			23				160		14	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		962			630			760			709	
Travel Time (s)		18.7			12.3			14.8			13.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	1%	1%	5%	2%	0%	3%	1%	0%	3%	3%	2%
Adj. Flow (vph)	119	395	75	144	348	126	158	427	160	114	314	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	470	0	144	474	0	158	427	160	114	380	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	

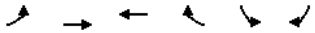
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	35.0	3.0	3.0	35.0	
Minimum Split (s)	9.5	27.4		9.5	27.4		9.5	40.4	9.5	9.5	40.4	
Total Split (s)	10.0	29.0		10.0	29.0		10.0	31.0	10.0	10.0	31.0	
Total Split (%)	12.5%	36.3%		12.5%	36.3%		12.5%	38.8%	12.5%	12.5%	38.8%	
Maximum Green (s)	5.7	23.6		5.7	23.6		5.7	25.6	5.7	5.7	25.6	
Yellow Time (s)	3.2	3.6		3.2	3.6		3.2	3.6	3.2	3.2	3.6	
All-Red Time (s)	1.1	1.8		1.1	1.8		1.1	1.8	1.1	1.1	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.3	5.4		4.3	5.4		4.3	5.4	4.3	4.3	5.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	0.3	0.3		0.3	0.3		0.3	0.3	0.3	0.3	0.3	
Recall Mode	None	None		None	None		None	None	None	None	None	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		15.0			15.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	27.0	20.9		28.4	22.9		33.3	27.8	38.6	31.7	25.7	
Actuated g/C Ratio	0.35	0.27		0.37	0.30		0.43	0.36	0.50	0.41	0.34	
v/c Ratio	0.55	0.93		0.67	0.86		0.44	0.63	0.18	0.35	0.62	
Control Delay	24.4	52.9		32.4	42.2		17.4	27.3	2.9	15.6	26.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	24.4	52.9		32.4	42.2		17.4	27.3	2.9	15.6	26.9	
LOS	C	D		C	D		B	C	A	B	C	
Approach Delay		47.1			39.9			19.9			24.3	
Approach LOS		D			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 32.4		Intersection LOS: C	
Intersection Capacity Utilization 86.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hopkins Road & Klein Road



Packet Pg. 3560
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	624	574	4	11	6
Future Volume (vph)	8	624	574	4	11	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.955	
Flt Protected		0.999			0.968	
Satd. Flow (prot)	0	1880	1861	0	1756	0
Flt Permitted		0.999			0.968	
Satd. Flow (perm)	0	1880	1861	0	1756	0
Link Speed (mph)		35	35		30	
Link Distance (ft)		850	328		536	
Travel Time (s)		16.6	6.4		12.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Adj. Flow (vph)	9	671	617	4	12	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	680	621	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	624	574	4	11	6
Future Vol, veh/h	8	624	574	4	11	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	0	0
Mvmt Flow	9	671	617	4	12	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	621	0	-	0	1308	619
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	689	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	969	-	-	-	178	492
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	969	-	-	-	175	492
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	22.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	969	-	-	-	227
HCM Lane V/C Ratio	0.009	-	-	-	0.081
HCM Control Delay (s)	8.7	0	-	-	22.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	626	4	18	573	1	4	0	24	4	1	3
Future Volume (vph)	4	626	4	18	573	1	4	0	24	4	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.883			0.949	
Flt Protected					0.999			0.993			0.976	
Satd. Flow (prot)	0	1880	0	0	1700	0	0	1612	0	0	1760	0
Flt Permitted					0.999			0.993			0.976	
Satd. Flow (perm)	0	1880	0	0	1700	0	0	1612	0	0	1760	0
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		277			1403			515			575	
Travel Time (s)		5.4			27.3			11.7			13.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	0%	12%	0%	25%	0%	0%	0%	0%	0%
Adj. Flow (vph)	4	673	4	19	616	1	4	0	26	4	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	681	0	0	636	0	0	30	0	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	626	4	18	573	1	4	0	24	4	1	3
Future Vol, veh/h	4	626	4	18	573	1	4	0	24	4	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	1	0	0	12	0	25	0	0	0	0	0
Mvmt Flow	4	673	4	19	616	1	4	0	26	4	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	617	0	0	677	0	0	1340	1338	675	1351	1340	617
Stage 1	-	-	-	-	-	-	683	683	-	655	655	-
Stage 2	-	-	-	-	-	-	657	655	-	696	685	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.35	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.725	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	973	-	-	924	-	-	116	154	457	129	154	494
Stage 1	-	-	-	-	-	-	404	452	-	458	466	-
Stage 2	-	-	-	-	-	-	418	466	-	435	451	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	973	-	-	924	-	-	111	148	457	118	148	494
Mov Cap-2 Maneuver	-	-	-	-	-	-	111	148	-	118	148	-
Stage 1	-	-	-	-	-	-	401	449	-	455	452	-
Stage 2	-	-	-	-	-	-	401	452	-	408	448	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	17.6	27.2
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	316	973	-	-	924	-	-	171
HCM Lane V/C Ratio	0.095	0.004	-	-	0.021	-	-	0.05
HCM Control Delay (s)	17.6	8.7	0	-	9	0	-	27.2
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.2

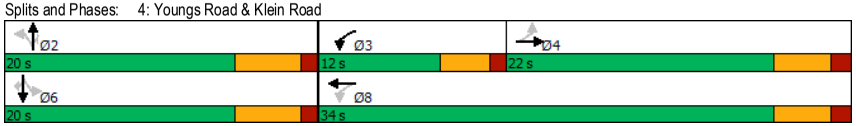
Packet Pg. 3562
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

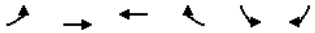
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	437	125	108	400	51	139	326	184	27	187	50
Future Volume (vph)	80	437	125	108	400	51	139	326	184	27	187	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		0	70		0	150		150	75		110
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	80			60			80			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1811	0	1719	1835	0	1787	1900	1583	1805	1863	1583
Flt Permitted	0.494			0.185			0.635			0.418		
Satd. Flow (perm)	939	1811	0	335	1835	0	1195	1900	1583	794	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			18				192			127
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		430			1163			640			690	
Travel Time (s)		8.4			22.7			9.7			10.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	3%	5%	2%	0%	1%	0%	2%	0%	2%	2%
Adj. Flow (vph)	83	455	130	113	417	53	145	340	192	28	195	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	585	0	113	470	0	145	340	192	28	195	52
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	12.0	12.0		8.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	27.0	27.0		12.3	27.0		24.4	24.4	24.4	24.4	24.4	24.4
Total Split (s)	22.0	22.0		12.0	34.0		20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	40.7%	40.7%		22.2%	63.0%		37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Maximum Green (s)	17.0	17.0		7.7	29.0		14.6	14.6	14.6	14.6	14.6	14.6
Yellow Time (s)	3.6	3.6		3.2	3.6		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.4	1.4		1.1	1.4		1.1	1.1	1.1	1.1	1.1	1.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.3	5.0		5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		2.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	17.3	17.3		27.1	26.3		13.7	13.7	13.7	13.7	13.7	13.7
Actuated g/C Ratio	0.34	0.34		0.54	0.52		0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.26	0.92		0.29	0.49		0.45	0.66	0.34	0.13	0.39	0.10
Control Delay	16.6	41.9		7.8	9.5		21.9	24.9	5.0	16.9	18.8	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	41.9		7.8	9.5		21.9	24.9	5.0	16.9	18.8	0.4
LOS	B	D		A	A		C	C	A	B	B	A
Approach Delay		38.7			9.1			18.6			15.1	
Approach LOS		D			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 54			
Actuated Cycle Length: 50.6			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 21.8		Intersection LOS: C	
Intersection Capacity Utilization 81.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: Youngs Road & Klein Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	628	574	7	3	4
Future Volume (vph)	7	628	574	7	3	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.923	
Flt Protected		0.999			0.979	
Satd. Flow (prot)	0	1880	1859	0	1717	0
Flt Permitted		0.999			0.979	
Satd. Flow (perm)	0	1880	1859	0	1717	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		328	277		578	
Travel Time (s)		7.5	6.3		13.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	2%	0%	0%	0%
Adj. Flow (vph)	8	675	617	8	3	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	683	625	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	628	574	7	3	4
Future Vol, veh/h	7	628	574	7	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	0	0
Mvmt Flow	8	675	617	8	3	4

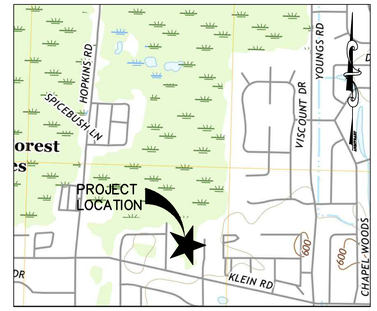
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	625	0	-	0	1312	621
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	691	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	966	-	-	-	177	491
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	501	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	966	-	-	-	175	491
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	501	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.4
HCM LOS			C

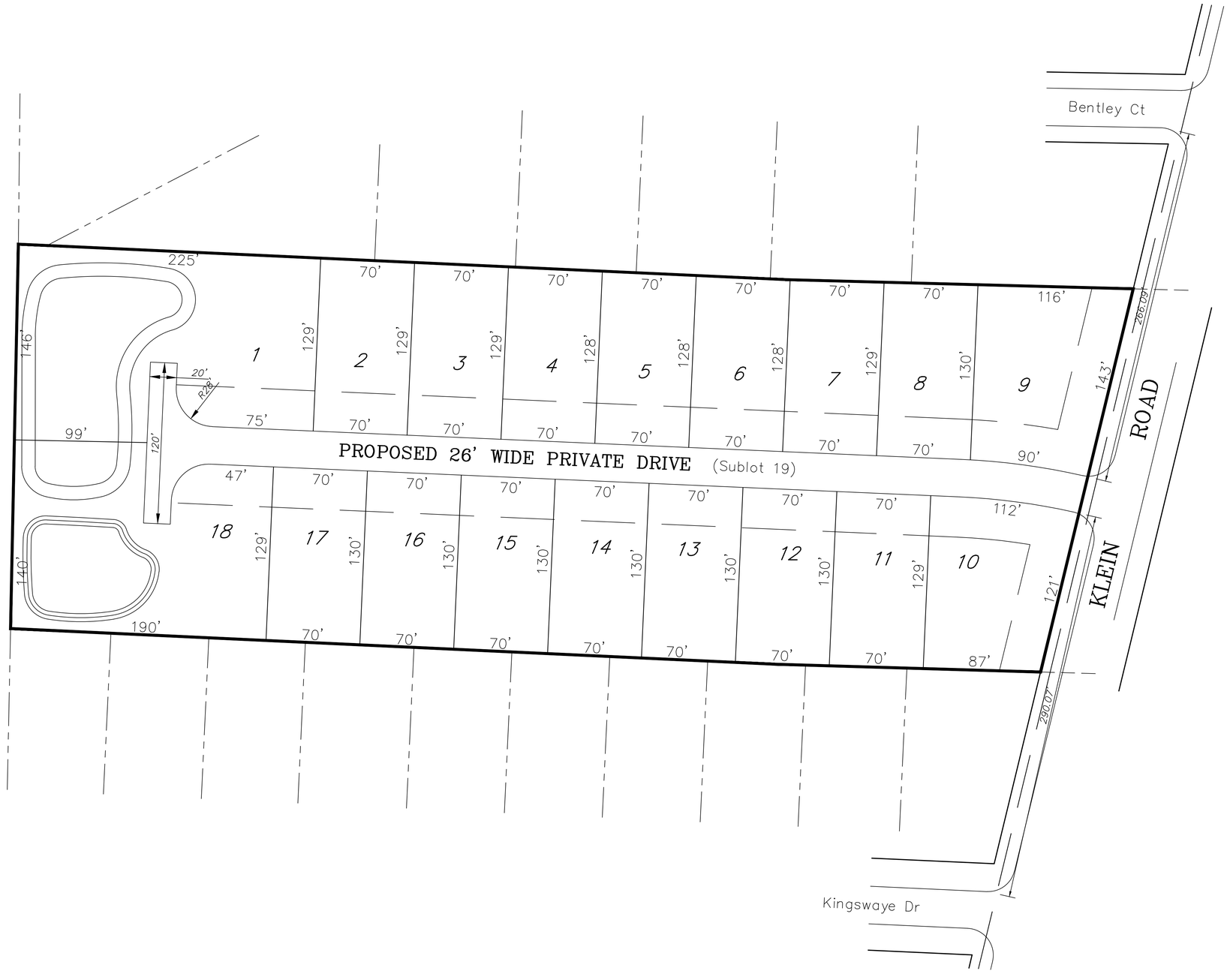
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	966	-	-	-	277
HCM Lane V/C Ratio	0.008	-	-	-	0.027
HCM Control Delay (s)	8.8	0	-	-	18.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Packet Pg. 3564
6.e
Attachment: SUB-2021-01 application 011322 (23436 : Sub-2021-01_Sk)

ARBITRARY



LOCATION MAP



Site Data

Present Zoning: R-3 (Residential District 3)

Site Area: 5.26± acres

Lots:

Number shown: 19 (Including Private Drive)
Minimum front setback: 30'
Minimum lot width required: 65'
Minimum lot width shown: 70'
Minimum lot area required: 8,450± sq.ft.
Minimum lot area shown: 8,950± sq.ft.

166 KLEIN ROAD SUBDIVISION

SKETCH PLAN

GPI
GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
ENGINEERING · SURVEYING · PLANNING
4950 GENESEE STREET SUITE 100 BUFFALO, NY 14225
(716) 633-4844 FAX (716) 633-4940

DRAWN: KCZ	JOB NO.: 2021052	SHEET NO.:
CHECKED:	DATE: JULY 2021	
APPROVED:	SCALE: 1"= 40'	

Attachment: SUB-2021-01 drawings 011322 (2343 : Sub-2021-01_Sk)

D R A F T (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SKETCH PLAN RESOLUTION
SUB-2021-01_SK

PETITIONER
Regency Builders LLC
4899 Meyer Road
Pendleton, NY 14120

PROPERTY LOCATION
166 Klein Road

WHEREAS the Town of Amherst Planning Board on Thursday, January 13, 2022 held a public hearing on a sketch plan for an 18-lot subdivision, and

WHEREAS the Planning Board has reviewed plans and specifications for the proposed sketch plan for a subdivision, and

WHEREAS a sketch plan for a Subdivision has been referred to the Town's various review agencies, and

WHEREAS the Planning Board finds that:

1. The proposed subdivision is consistent with the intent, objectives and specific requirements of the Zoning Ordinance.

2. Adequate services and utilities are or will be available prior to occupancy.

3. The Subdivision is consistent with all other applicable laws.

4. Under Section 404 of the Clean Water Act, the US Army Corps of Engineers has determined that it has no jurisdiction.

NOW THEREFORE BE IT RESOLVED that the Planning Board, in accordance with Section 8-7 of the Zoning Ordinance and Part III of the Subdivision Regulations approves said Subdivision subject to the follow conditions:

1. The petitioner must comply with the requirements of the New York State Department of Environmental Conservation, the Town of Amherst Stormwater Management Officer, the Town of Amherst Fire Chief's Association, and the Town of Amherst Planning Department and Zoning Enforcement Officer in their respective letters, prior to approval of a preliminary plat.

NOW THEREFORE BE IT FURTHER RESOLVED that the proposed private road requires sidewalks, and that the required ramps and/or curb cuts to meet ADA compliance be included and constructed with the P.I.P. for the roadway utilities.

Attachment: SUB-2021-01_SK_draft resolution_011322 (23436 : Sub-2021-01_Sk)

D R A F T (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
SKETCH PLAN RESOLUTION
SUB-2021-01_SK

PETITIONER	PROPERTY LOCATION
Regency Builders LLC	166 Klein Road

NOW THEREFORE BE IT FURTHER RESOLVED that a lighting district is required for the proposed subdivision.

NOW THEREFORE BE IT FURTHER RESOLVED that recreation fees are required for the proposed subdivision lots in accordance with the adopted fee schedule.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

TV/ac
X:\Current_Planning\Files\Subdivisions\SUB-2021\SUB-2021-01SK_(166_Klein_Rd)_2021\SUB-2021-01_SK_draft resolution_011322.docx
cc: Town Clerk
Commissioner of Building
Town Engineer
Highway Superintendent
Fire Chiefs Council
ECDEP
Regency Builders LLC, 4899 Meyer Rd., Pendleton, NY 14120
Ken Zollitsch, Greenman-Pedersen Inc., 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221

Approved Plan: _____
Received: _____

Attachment: SUB-2021-01_SK_draft resolution_011322 (23436 : Sub-2021-01_Sk)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor
Daniel C. Howard, AICP
Planning Director
Daniel J. Ulatowski, AICP
Assistant Planning Director

January 20, 2021

Regency Builders LLC
4899 Meyer Road
Pendleton, New York 14120

SUBJECT: SKETCH PLAN REVIEW, **SUB-2021-01_SK,** FOR A PROPOSED; 18-LOT SUBDIVISION; PROPERTY LOCATED AT **166 KLEIN ROAD**.

Dear Sir/Madam:

At its meeting of January 13, 2022 the Planning Board voted to **adjourn** the subject subdivision at your request.

This request will be placed on the Planning Board agenda for the February 17, 2022 meeting.

Please submit revised plans or required materials by Monday, January 31, 2022 so they may be reviewed prior to the meeting.

Should you have any questions regarding the Planning Board's decision, please do not hesitate to call us.

Very truly yours,

Daniel C. Howard, AICP
Planning Director

DH/ac
X:\Current_Planning\Files\Subdivisions\SUB-2021\SUB-2021-01SK_(166_Klein_Rd)_2021\SUB-2021-01_SK_Adjournment Letter_011322.doc
cc: Ken Zollitsch, Greenman-Pedersen Inc., 4950 Genesee Street, Suite 100, Buffalo, NY 14225
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main St., Suite 343, Williamsville, NY 14221

Attachment: SUB-2021-01_SK_adjournment_011322 (23436 : Sub-2021-01_Sk)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

ADOPTED

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Rezoning and Relief from Conditions of Rezoning
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25071

PLANNING BOARD ITEM (ID # 25071)

Request to Rezone 3.93± Acres of Land from GB to SC-3, Z-2021-10

Property located at 100 Maple Road
Aria Buf Maple LLC, Petitioner

The purpose of this rezoning request is to allow the petitioner to convert existing extended stay hotel into 112 apartments for lease. The rezoning request was a condition of the Zoning Board of Appeals Use Variance decision.

Peter Sorgi, Esq., Hopkins Sorgi & McCarthy, represented the petitioner, explained the proposal and was available to answer questions from the Board.

No further comments were heard on this proposal.

Following later discussion, Mr. Giuliani moved to approve the request based on the resolution.
The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ATTACHMENTS:

- Z-2021-10 application 011322 (PDF)
- Z-2021-10 drawings 011322 (PDF)
- Z-2021-10_draft resolution_011322 (PDF)
- Z-2021-10_signed_Resolution_011322 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.

Rezoning Application & Supporting Documentation
Rezoning of 100 Maple Road from GB to SC-3
Applicant: ARIA BUF MAPLE, LLC
Date: October 21, 2021

Prepared By: Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, NY 14221
Tel: 716.510-4338
E-mail: shopkins@hsmlegal.com

TOWN OF AMHERST PLANNING DEPARTMENT

Application for Rezoning Review and, if required Comprehensive Plan Amendment

For Official Use

File #: Z-2021-10 **Acreage** 3.93 **Fee $** 1765.00

Address Verified by Assessor's Office _____ VERIFIED BY DATE

Materials Accepted by Town Clerk & Fee Paid _____ ACCEPTED BY DATE

Materials Checked by Building Dept. _____ RECEIVED BY DATE

Materials Received by Planning Dept. 10/21/2021 RECEIVED BY DATE

		Fill In Applicable Fees
2 ACRES OR LESS	**$1,250**	$1,250.00
2 – 20 ACRES $1,250 + $250/acres or fraction thereof over 2 acres		$500.00
20 – 30 ACRES $5,700 + $150/acre or fraction thereof over 20 acres		_____
OVER 30 ACRES $6,900 +$75/acre or fraction thereof over 30 acres		_____
Request for Relief of/Change to Conditions of Zoning Approval	**$ 1,200**	_____
AFFIDAVIT FEE FOR PUBLIC HEARING	**$ 15.00**	$15.00
TOTAL FEE:		$ 1,765.00

[Note: A completed Short Environmental Assessment Form dated October 21, 2021 is attached as Exhibit "1".]

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

TO BE COMPLETED BY APPLICANT

1. **Petitioner:** Name: ARIA BUF MAPLE, LLC c/o Sean Hopkins, Esq.

Address: Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Williamsville, New York 14221
City State Zip Code

Phone: 510-4338 Fax:

E Mail shopkins@hsmlegal.com

2. **The undersigned hereby petitions the Honorable Town Board to rezone the following described property**

From: GB District

To: SC-3 District

3. **Street address of land to be rezoned:** (must be verified by Town Assessor's Office)

100 Maple Road

SBL #: 55.03-1-3.12

4. **Area of land to be rezoned** (in acres): 3.93 acres

5. **Owner of Land:**

Name: ARIA BUF MAPLE, LLC

Address: 180 N. University Avenue, Suite 200, Provo Utah 84601

Telephone: 716.510-4338 [Sean Hopkins, Esq.]

6. **Representative** (Architect, Engineer, Landscape Architect, Surveyor or Attorney):

Name: Sean W. Hopkins, Esq.

Address: 5500 Main Street, Suite 343
Williamsville, New York 14221
Tel: 716.510-4338 - E-mail: shopkins@hsmlegal.com
City State Zip Code

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

7. **Petitioner's interest in property**

_____Option to purchase

__X__Owner

_____Other (explain) _____

8. **The following are all others having an interest in this application and join herein with the petitioner named above:** (describe extent of interest; attach sheets as needed)

Not Applicable.

9. **Attach Survey and Legal description of land to be rezoned. The Survey must be prepared by a New York State Licensed Land Surveyor.** Legal description of property to be rezoned from GB to SC-3 is attached as Exhibit "2" and copy of the Survey of the property at 100 Maple Road is attached as Exhibit "3".

10. **Said property has the following deed restrictions or Covenants:** (attach copy) Not Applicable.

Liber _____ Page _____

11. **Information on proposed project:**

A. Description of the character of the proposed development:

See Exhibit 4.

B. Rationale for rezoning request:

1. Why was this site chosen?

See Exhibit 4.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

15. Open Space ownership and maintenance provisions (if applicable):

Greenspace and landscaping will be privately owned and maintained.

16. Basis for Findings (Sec. 8-3-5 of the Town Zoning Code) (Attach sheets and supplemental materials as necessary.)

A. The proposed zoning and development plan must be generally consistent with the policies of the Comprehensive Plan and the Town Zoning Ordinance.

1. State in detail why the proposed zoning is consistent with the adopted Town of Amherst Bicentennial Comprehensive Plan. Cite specific sections, maps, and/or figures in the plan that support the proposed zoning at this location (The Comprehensive Plan document is available at the Planning Department, Town Clerk's Office, Amherst libraries, or at www.amherst.ny.us). Add sheets as needed.

See Exhibit 5.

2. Pursuant to NYS Town Law Section 272a(11), "all Town land use regulations must be in accordance with a comprehensive plan adopted pursuant to this Section." The Town Board adopted the Comprehensive Plan pursuant to NYS Town Law 272 on January 2, 2007. If the rezoning is approved, the Town Board may require the Plan to be amended, as applicable.

Cite all text, map, and / or figures that must be amended to support the proposed zoning at this location (attach pages as necessary) and provide detailed suggested amendments.

See Exhibit 5.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

3. State why the proposed zoning is consistent with intent and objectives (Sec. 1-2-2) of the Zoning Ordinance:

See Exhibit 5.

B. Adequate Services and Utilities are available or are proposed to be made available with the construction of the development:

1. Sanitary Sewer
   Yes.
2. Storm Sewer/Drainage
   Yes.
3. Water
   Yes.
4. Other Yes.

C. Compatibility with the present zoning and conforming uses of nearby property and with the character of the neighborhood:

See Exhibit 5.

D. Suitability of the subject property for uses permitted by the current versus the proposed district:

See Exhibit 5.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

E. Whether the proposed change tends to improve the balance of uses, or meets a specific demand in the Town:

See Exhibit 5.

17. The petitioner encloses herewith the sum of $ 1,765.00 to pay the fee, and consents to the placement of a sign(s) at the described location identifying this request for a period of time to be determined by the Town Clerk.

18. The undersigned certifies that all information required to be disclosed pursuant to Section 809 of the General Municipal Law (see below) is as follows:

The undersigned swears or affirms that all statements made herein are true, that all drawings submitted correctly show the situation involved in this petition.

Counsel for Petitioner
Signature of Petitioner

Subscribed and sworn to before me this 21st day of October, 20 21

Notary Public, Erie County, New York

PATRICIA C. MAYNARD
Notary Public, State of New York
Registration No. 01MA6384435
Qualified in Erie County
Commission Expires Dec. 10, 2022

N.Y.S. General Municipal Law - Section 809 Disclosure in certain applications:

1. Every application, petition or request submitted for a variance, amendment, change of zoning, approval of a plat, exemption from a plat or official map, license or permit, pursuant to the provision of any ordinance, local law, rule or regulation constituting the zoning and planning regulations of a municipality shall state the name, residence and the nature and extent of the interest of any state office or any office or employee of such municipality or of a municipality of which such municipality is a part, in the person, partnership or association making such application, petition or request (hereinafter called the applicant) to the extent known to such applicant.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

2. For the purpose of this section an officer or employee shall be deemed to have an interest in the applicant when he, his spouse, or their brothers, sisters, parents, children, grandchildren, or the spouse of any of them

   (a) is the applicant, or
   (b) is an officer, director, partner or employee of the applicant, or
   (c) legally or beneficially owns or controls stock of a corporate applicant or is a member of a partnership or association applicant, or
   (d) is a party to an agreement with such an applicant, express or implied, whereby he may receive any payment or other benefit, whether or not for services rendered, dependent or contingent upon the favorable approval of such applicant, petition or request.

3. In the county of Nassau the provisions of subdivisions one and two of this section shall also apply to a party officer. "Party Officer" shall mean any person holding any position or office, whether by election, appointment or otherwise, in any party as defined by subdivision four or section two of the election law.

4. Ownership of less than five per cent of the stock of a corporation whose stock is listed on the New York or American Stock Exchanges shall not constitute an interest for the purposes of this section.

5. A person who knowingly and intentionally violates this section shall be guilty of a misdemeanor.

P/CurrPlan/Applications2007/Rezoning & Comp Plan Amend App.
10/08

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Exhibit 1 – Short Environmental Assessment Form Prepared Pursuant to the State Environmental Quality Review Act ("SEQRA") with Attachment "A"

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Short Environmental Assessment Form
Date: October 21, 2021

Short Environmental Assessment Form
Part 1 - Project Information

Prepared By:
Sean Hopkins, Esq.
Hopkins Sorgi & McCarthy PLLC
5500 Main Street, Suite 343
Wiliamsville, NY 14221
Tel: 716.510-4338
E-mail: shopkins@hsmlegal.com

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
Residence Inn Residential Redevelopment Project

Project Location (describe, and attach a location map):
100 Maple Road - Town of Amherst - Erie County

Brief Description of Proposed Action:
The Project Sponsor is converting the Residence Inn by Marriott located at 100 Maple Road ("Project Site") consisting of 14 two-story buildings (8 units per building) into a multifamily housing project consisting of a total of 112 studios and 1-bedroom units. An aerial photograph of the Project Site is provided at Exhibit "6" of the Rezoning Application. The proposed rezoning of the Project Site from GB to SC-3 will not result in any potentially significant adverse environmental impacts and as the issuance of a negative declaration by the Town Board pursuant to the State Environmental Quality Review Act ("SEQRA") is appropriate and justified. The Zoning Board of Appeals previously conducted an environmental review of the redevelopment project that resulted in its issuance of a negative declaration on July 20, 2020. A copy of the negative declaration issued by the Zoning Board of Appeals is provided at Attachment "A" of this Short Environmental Assessment Form.

Name of Applicant or Sponsor:	Telephone: 716.510-4338
ARIA BUF MAPLE, LLC, LLC c/o Sean Hopkins, Esq.	E-Mail: shopkins@hsmlegal.com

Address:
5500 Main Street, Suite 343

City/PO:	State:	Zip Code:
Williamsville	NY	14221

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: Town of Amherst Town Board - Rezoning of Project Site from GB to SC-3	☐	☑

3. a. Total acreage of the site of the proposed action? 3.93 acres
   b. Total acreage to be physically disturbed? <.1 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 3.93 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☑ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

		NO	YES	N/A
5. Is the proposed action, a. A permitted use under the zoning regulations?	[The Project Site is zoned General Business ("GB") District. The Zoning Board of Appeals granted a use variance for 1st floor apartment units during its meeting on July 20, 2020 subject to a condition that the Applicant seek a rezoning of the Project Site.]	☐	☑	☐
b. Consistent with the adopted comprehensive plan?		☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	☑	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☑
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies: _____ _____	☐	☑
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: _____ _____	☐	☑
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: _____ _____	☐	☑
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? [Note: There are not any wetlands located on the Project Site.] If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ _____ _____	☑	☐

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes, a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe:		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment:		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☐	☑
If Yes, describe: The Project Site has not been the subject of remediation for hazardous waste and the Project Sponsor is not aware of any nearby sites that have been or that are subject to remediation for regulated hazardous waste.		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: ARIA BUF MAPLE, LLC Date: October 21, 2021

Signature: Title: Counsel for Project Sponsor

Sean W. Hopkins, Esq.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

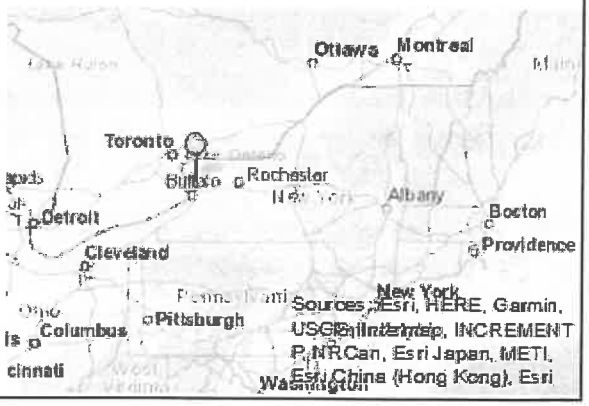
PRINT FORM

EAF Mapper Summary Report

Saturday, May 16, 2020 5:12 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	No
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	Yes

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Attachment "A" of Short Environmental Assessment Form – Negative Declaration Issued by the Zoning Board of Appeals Pursuant to SEQRA on July 21, 2020

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Amherst

Town of Amherst Planning Department *Erie County, New York*

Brian J. Kulpa
Supervisor

Daniel C. Howard, AICP
Planning Director

Ellen M. Kost, AICP
Assistant Planning Director

SEQR

NEGATIVE DECLARATION

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency:	Town of Amherst Zoning Board of Appeals	**Action:**	Use & Area Variances
Address:	5583 Main Street Williamsville, NY 14221 (716) 631-7051	**Date:**	July 21, 2020

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action:	Use and Area Variances
SEQR Status:	Unlisted action
Description of Action:	Granting a use variance to permit ground floor apartments as a principal use within the GB- General Business zoning district and an area variance to permit a reduction in required off street parking spaces.
Location:	100 Maple Road, Town of Amherst, Erie County, New York
Petitioner:	PEG Properties, LLC

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Reasons Supporting This Determination

Based on information submitted by the applicant, including a complete ZBA application, Short Environmental Assessment Form and supporting documentation, a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that the proposed request will not have a significant impact on the environment, as follows:

1. The action is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems.

2. The action will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources. The site is currently developed as a 112 unit motel.

3. Granting a use variance to permit ground floor apartments at the subject property and an area variance for a parking reduction is not expected to create any material conflict with the Town Comprehensive Plan. The Town's Comprehensive Plan has identified the subject property for a future rezoning to the Town's newly adopted mixed use zoning designation, which permits multifamily dwellings on the ground floor as of right. Additionally, the new mixed use regulations permit a 50 percent reduction in required off street parking. After the Town rezones the subject site to its desired mixed use zoning district the subject variances will no longer be needed.

4. The site is not within an area identified by the State as potentially containing significant cultural or archeological resources. The site is currently developed as a 112 unit motel and there will not be any impacts to cultural or archeological resources.

5. The action will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character.

6. The action will not cause a change in the use or the quantity of energy.

7. The action will not create a hazard to human health.

8. The action is not anticipated to change the intensity of the land use on this site from its current use.

9. The action is not anticipated to significantly increase the number of people using the site over its current level of use.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

10. Significant negative traffic impacts are not expected to result from the proposed action.

11. Coordinated reviews of the action by the Building and Planning Departments have not identified any significant environmental issues and indicate that the action will not have a significant damaging impact on the environment.

12. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to be causing significant negative environmental impacts.

Daniel J. Ulatowski, AICP
Principal Planner/ZEO

7/21/2020
date

John Radens, Chair

7/27/2020
date

DU/du
X:\Special_Projects\ZBA\SEQR NEG Dec attachements\100 Maple Road.docx
cc: Amherst Town Clerk
Amherst Building Department
Erie County DEP
Sean Hopkins, Esquire for PEG Properties, LLC

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Exhibit 2 – Legal Description of Property to be Rezoned from Suburban Agriculture District ("S-A") to Residential District Three ("R-3")

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

EXHIBIT 2 OF REZONING APPLICATION

LEGAL DESCRIPTION OF PROPERTY AT 100 MAPLE ROAD TO BE REZONED FROM GENERAL BUSINESS DISTRICT ("GB") TO SHALLOW RESIDENTIAL DISTRICT THREE ("SC-3")

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE TOWN OF AMHERST, COUNTY OF ERIE AND STATE OF NEW YORK, BE PART OF TOWN LOT NO. 73, TOWNSHIP 12, RANGE 7 OF THE HOLLAND LAND COMPANY'S SURVEY AND ALSO KNOWN AS PARCEL "B" OF A SUBDIVISION MAP OF THE LANDS OF AMHERST MANOR ASSOCIATES PREPARED BY CHARLES E. REED, PROFESSIONAL LAND SURVEYOR, DATED MAY 3, 1985, BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT MARKED BY AN IRON PIN AT THE INTERSECTION OF THE DIVISION UNE OF TOWN LOT NO. 73 AND TOWN LOT NO. 67 WITH THE NORTH STREET LINE OF MAPLE ROAD, ALSO KNOWN AS COUNTY ROAD 192;

THENCE (1) NORTH 0° 47' 30" EAST ALONG THE DIVISION LINE BETWEEN TOWN LOT NO. 73 AND TOWN LOT NO. 67, A DISTANCE OF 314.30 FEET TO A POINT;

THENCE (2) SOUTH 89° 16' 28" WEST ALONG THE SOUTH LINE OF LANDS NOW OR FORMERLY OWNED BY AMHERST MANOR APARTMENTS, A DISTANCE OF 517.13 FEET TO A POINT;

THENCE (3) SOUTH 0° 43' 32" EAST, A DISTANCE OF 126.50 FEET TO A POINT;

THENCE (4) SOUTH 56° 29' 19" WEST, A DISTANCE OF 80.68 FEET TO A POINT;

THENCE (5) SOUTH 0° 43' 32" EAST, A DISTANCE OF 57.00 FEET TO A POINT;

THENCE (6) SOUTH 27° 17' 27" EAST, A DISTANCE OF 38.01 FEET TO A POINT;

THENCE (7) SOUTH 0° 43' 32" EAST, A DISTANCE OF 53.00 FEET TO A POINT ON THE NORTHERLY STREET LINE OF MAPLE ROAD;

THENCE (8) NORTH 89° 16' 28" EAST ALONG THE NORTHERLY STREET LINE OF MAPLE ROAD, A DISTANCE OF 559.64 FEET TO THE POINT AND PLACE OF BEGINNING.

TOGETHER WITH THE BENEFITS OF AN AGREEMENT MADE BETWEEN AMHERST MANOR ASSOCIATES AND ROCKGATE INNS, A LIMITED PARTNERSHIP DATED SEPTEMBER 19, 1986 AND RECORDED DECEMBER 8, 1986 IN UBER 9652 OF DEEDS AT PAGE 315.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

BEING MORE CURRENTLY DESCRIBED AS:

ALL THAT TRACT OR PARCEL OF LAND CONTAINING 3.931 ACRES, MORE OR LESS, SITUATE IN THE TOWN OF AMHERST, COUNTY OF ERIE AND STATE OF NEW YORK, BEING PART OF LOT NO. 73, TOWNSHIP 12, RANGE 7 OF THE HOLLAND LAND COMPANY'S SURVEY AND ALSO KNOWN AS PARCEL "B" OF A SUBDIVISION MAP OF THE LANDS OF AMHERST MANOR ASSOCIATES PREPARED BY CHARLES E. REED, PROFESSIONAL LAND SURVEYOR, DATED MAY 3, 1985, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE DIVISION LINE OF TOWN LOTS 73 AND 67 WITH THE NORTHERLY RIGHT-OF-WAY LINE OF MAPLE ROAD (COUNTRY ROAD 197) (85 FOOT RIGHT-OF-WAY); THENCE

1. SOUTH 89° 11' 22" WEST, ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF MAPLE ROAD, A DISTANCE OF 559.64 FEET TO A POINT ON THE EASTERLY BOUNDARY UNE OF LANDS NOW OR FORMERLY OF 60 MAPLE ROAD LLC (T.A. NO. 0SS.003-0001-003.011), BEING PARCEL A OF THE AMHERST MANOR ASSOCIATES SUBDIVISION; THENCE

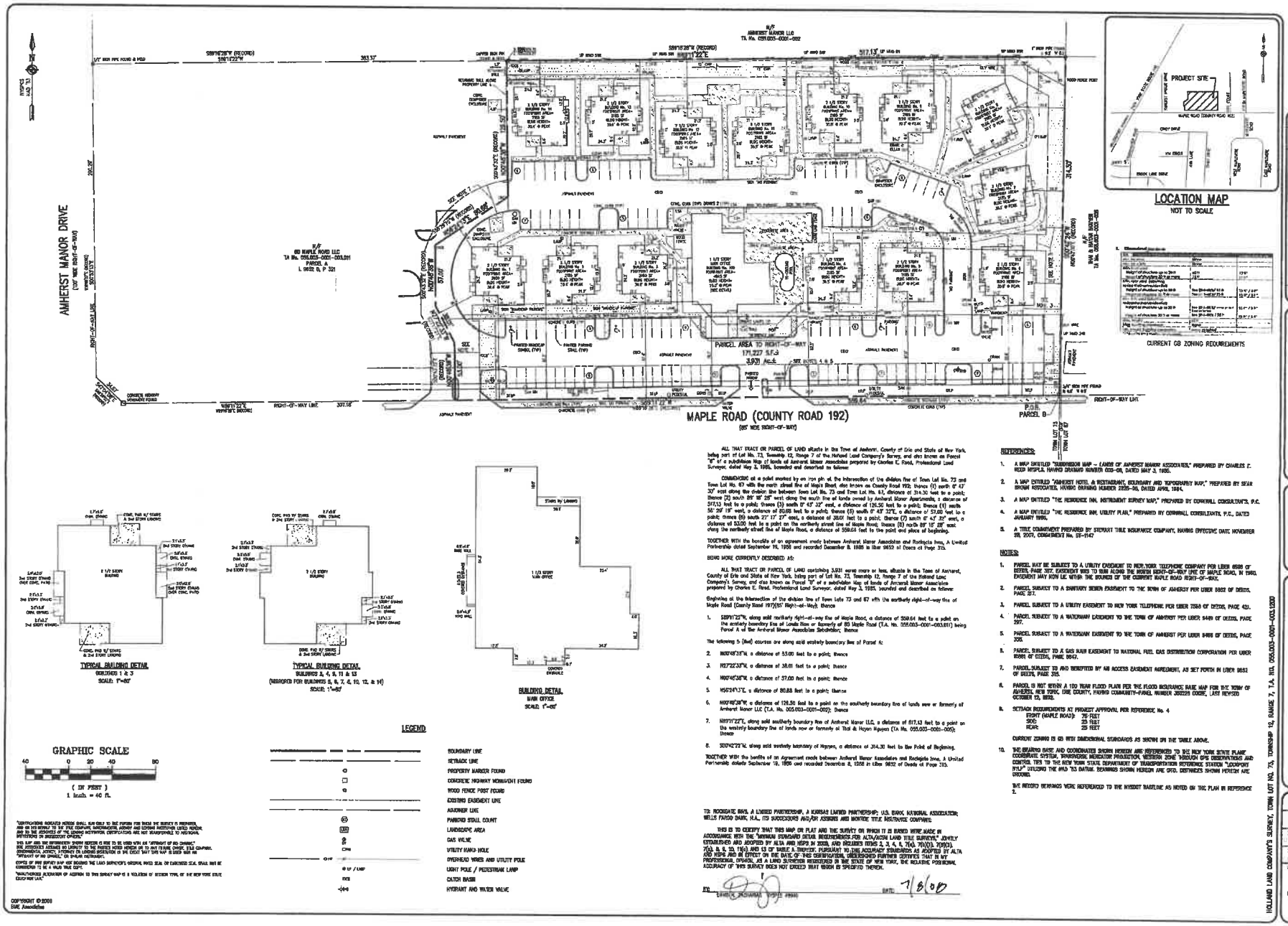
THE FOLLOWING 5 COURSES ARE ALONG SAID EASTERLY BOUNDARY LINE OF PARCEL A:

2. NORTH 00° 48' 38" WEST, A DISTANCE OF 53.00 FEET TO A POINT; THENCE
3. NORTH 27° 22' 33" WEST, A DISTANCE OF 38.01 FEET TO A POINT; THENCE
4. NORTH 00° 48' 38" WEST, A DISTANCE OF57.00 FEET TO A POINT; THENCE
5. NORTH 56° 24' 13" EAST, A DISTANCE OF 80.68 FEET TO A POINT; THENCE
6. NORTH 00° 48' 3811 WEST, A DISTANCE OF 126.50 FEET TO A POINT ON THE SOUTHERLY BOUNDARY LINE OF LANDS NOW OR FORMERLY OF AMHERST MANOR LLC (T.A. NO. 005.003-0001- 002); THENCE
7. NORTH 89° 11' 22" EAST, ALONG SAID SOUTHERLY BOUNDARY LINE OF AMHERST MANOR LLC, A DISTANCE OF 517.13 FEET TO A POINTON THE WESTERLY BOUNDARY LINE OF LANDS NOW OR FORMERLY OF THAI AND HAYAN NGUYEN (T.A. NO. 055.003-0001-005); THENCE
8. SOUTH 00° 42' 22" WEST, ALONG SAID WESTERLY BOUNDARY OF NGUYEN, A DISTANCE OF 314.30 FEET TO THE POINT OF BEGINNING.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Exhibit 3 – Reduced Size Copy of Survey of Project Site [Note: Full Size Copy of the Survey also attached]

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)



ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 73, Township 12, Range 7 of the Holland Land Company's Survey, and also known as Parcel "B" of a subdivision Map of lands of Amherst Manor Associates prepared by Charles E. Reed, Professional Land Surveyor, dated May 3, 1995, bounded and described as follows:

COMMENCING at a point marked by an iron pin at the intersection of the division line of Town Lot No. 73 and Town Lot No. 67 with the north street line of Maple Road, also known as County Road 192; thence (1) north 0° 43' 30" east along the division line between Town Lot No. 73 and Town Lot No. 67, distance of 314.30 feet to a point; thence (2) south 89° 16' 30" east along the south line of lands owned by Amherst Manor Apartments, a distance of 517.13 feet to a point; thence (3) south 0° 43' 30" east, a distance of 126.50 feet to a point; thence (4) south 36° 26' 19" west, a distance of 83.68 feet to a point; thence (5) south 0° 43' 30"E, a distance of 57.00 feet to a point; thence (6) south 27° 17' 27" east, a distance of 38.01 feet to a point; thence (7) south 0° 43' 30" east, a distance of 53.00 feet to a point on the northerly street line of Maple Road; thence (8) north 89° 16' 30" east along the northerly street line of Maple Road, a distance of 358.64 feet to the point and place of beginning.

TOGETHER with the benefits of an agreement made between Amherst Manor Associates and Rockgate Inns, A Limited Partnership dated September 19, 1996 and recorded December 8, 1998 in liber 9652 of Deeds at Page 315.

BEING MORE CURRENTLY DESCRIBED AS:

ALL THAT TRACT OR PARCEL OF LAND containing 3.931 acres more or less, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 73, Township 12, Range 7 of the Holland Land Company's Survey, and also known as Parcel "B" of a subdivision Map of lands of Amherst Manor Associates prepared by Charles E. Reed, Professional Land Surveyor, dated May 3, 1995, amended and described as follows:

Beginning at the intersection of the division line of Town Lots 73 and 67 with the northerly right-of-way line of Maple Road (County Road 192)(85' Right-of-Way); thence

1. S89°16'22"W, along said northerly right-of-way line of Maple Road, a distance of 358.64 feet to a point on the westerly boundary line of Lands now or formerly of 83 Maple Road (T.A. No. 055.003-0001-003.011) being Parcel A of the Amherst Manor Associates Subdivision; thence

The following 5 (five) courses are along said westerly boundary line of Parcel A:

2. N00°43'30"W, a distance of 53.00 feet to a point; thence
3. N27°27'27"W, a distance of 38.01 feet to a point; thence
4. N00°43'30"W, a distance of 57.00 feet to a point; thence
5. N56°34'17"E, a distance of 80.88 feet to a point; thence
6. N00°43'30"W, a distance of 126.50 feet to a point on the southerly boundary line of lands now or formerly of Amherst Manor LLC (T.A. No. 055.003-0001-002); thence
7. N89°16'22"E, along said southerly boundary line of Amherst Manor LLC, a distance of 517.13 feet to a point on the westerly boundary line of lands now or formerly of Thai & Hoyen Nguyen (T.A. No. 055.003-0001-005); thence
8. S00°43'23"W, along said westerly boundary of Nguyen, a distance of 314.30 feet to the Point of Beginning.

TOGETHER with the benefits of an Agreement made between Amherst Manor Associates and Rockgate Inns, A Limited Partnership dated September 19, 1996 and recorded December 8, 1998 in liber 9652 of Deeds at Page 315.

TO: ROCKGATE INNS, A LIMITED PARTNERSHIP; A KANSAS LIMITED PARTNERSHIP; U.S. BANK, NATIONAL ASSOCIATION; WELLS FARGO BANK, N.A., ITS SUCCESSORS AND/OR ASSIGNS AND MONROE TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2005, AND INCLUDES ITEMS 2, 3, 4, 6, 7(a), 7(b)(1), 7(c)(1), 7(d), 8, 9, 10, 11(a), AND 13 OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF NEW YORK, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.

BY: _____ DATE: 7/8/08

REFERENCES:

1. A MAP ENTITLED "SUBDIVISION MAP – LANDS OF AMHERST MANOR ASSOCIATES," PREPARED BY CHARLES E. REED HOSPLA, HAVING DRAWING NUMBER 003-08, DATED MAY 3, 1995.
2. A MAP ENTITLED "AMHERST HOTEL & RESTAURANT, BOUNDARY AND TOPOGRAPHY MAP," PREPARED BY SEAR BROWN ASSOCIATES, HAVING DRAWING NUMBER 2295-96, DATED APRIL 1996.
3. A MAP ENTITLED "THE RESIDENCE INN, INSTRUMENT SURVEY MAP," PREPARED BY CORNWALL CONSULTANTS, P.C.
4. A MAP ENTITLED "THE RESIDENCE INN, UTILITY PLAN," PREPARED BY CORNWALL CONSULTANTS, P.C., DATED JANUARY 1996.
5. A TITLE COMMITMENT PREPARED BY STEWART TITLE INSURANCE COMPANY, HAVING EFFECTIVE DATE NOVEMBER 28, 2007, CONVEYANCE No. SY-1142

NOTES:

1. PARCEL MAY BE SUBJECT TO A UTILITY EASEMENT TO NEW YORK TELEPHONE COMPANY PER LIBER 6588 OF DEEDS, PAGE 327. EASEMENT WAS TO RUN ALONG THE NORTH RIGHT-OF-WAY LINE OF MAPLE ROAD, IN 1960. EASEMENT MAY NOW LIE WITHIN THE BOUNDS OF THE CURRENT MAPLE ROAD RIGHT-OF-WAY.
2. PARCEL SUBJECT TO A SANITARY SEWER EASEMENT TO THE TOWN OF AMHERST PER LIBER 8802 OF DEEDS, PAGE 317.
3. PARCEL SUBJECT TO A UTILITY EASEMENT TO NEW YORK TELEPHONE PER LIBER 7260 OF DEEDS, PAGE 431.
4. PARCEL SUBJECT TO A WATERMAIN EASEMENT TO THE TOWN OF AMHERST PER LIBER 8489 OF DEEDS, PAGE 297.
5. PARCEL SUBJECT TO A WATERMAIN EASEMENT TO THE TOWN OF AMHERST PER LIBER 8488 OF DEEDS, PAGE 308.
6. PARCEL SUBJECT TO A GAS MAIN EASEMENT TO NATIONAL FUEL GAS DISTRIBUTION CORPORATION PER LIBER 10081 OF DEEDS, PAGE 8047.
7. PARCEL SUBJECT TO AND BENEFITED BY AN ACCESS EASEMENT AGREEMENT, AS SET FORTH IN LIBER 9652 OF DEEDS, PAGE 315.
8. PARCEL IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER THE FLOOD INSURANCE RATE MAP FOR THE TOWN OF AMHERST, NEW YORK, ERIE COUNTY, HAVING COMMUNITY-PANEL NUMBER 360228 0008E, LAST REVISED OCTOBER 16, 1992.
9. SETBACK REQUIREMENTS AT PROJECT APPROVAL PER REFERENCE No. 4

FRONT (MAPLE ROAD):	75 FEET
SIDE:	25 FEET
REAR:	25 FEET

CURRENT ZONING IS GB WITH DIMENSIONAL STANDARDS AS SHOWN ON THE TABLE ABOVE.

10. THE BEARING BASE AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, TRANSVERSE MERCATOR PROJECTION, WESTERN ZONE THROUGH GPS OBSERVATIONS AND CONTROL TIES TO THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REFERENCE STATION "LOCKPORT RTK" UTILIZING THE NAD '83 DATUM. BEARINGS SHOWN HEREON ARE GRID. DISTANCES SHOWN HEREON ARE GROUND.

THE RECORD BEARINGS WERE REFERENCED TO THE NYSDOT BASELINE AS NOTED ON THE PLAN IN REFERENCE 2.

7			
6			
5	ACCEPTED PER FIELD EDIT AND ADDED CERTIFICATION	7/8/08	KJW
4	REVISED PER COMMENTS	7/1/08	KJW
3	REVISED PER REVIEW OF TITLE COMMITMENT	7/1/08	KJW
2	ACCEPTED PER REVIEW FOR ISSUE	7/08/08	DMC
1	REVISIONS	DATE	BY

BME ASSOCIATES
10 LIFT BRIDGE LANE EAST
FAIRPORT, NEW YORK 14450
585-377-7360
FAX 585-377-7369
ENGINEERS, SURVEYORS, PLANNERS
LANDSCAPE ARCHITECTS

PROJECT: RESIDENCE INN – AMHERST
LOCATION: 100 MAPLE ROAD, AMHERST, ERIE COUNTY, NY
CLIENT: STATE, BLUE, SUBURB & PYNE, P.A.
DRAWING TITLE: ALTA/ACSM LAND TITLE SURVEY OF PARCEL B

PROJECT MANAGER	DATE
DR. ZACHERIAH	
PROJECT SURVEYOR	DATE
CHKD BY	DATE
QA REVIEW	
SCALE	DATE ISSUED
1"=40'	JUNE/JULY, 2008
PROJECT NO.	8904
DRAWING NO.	481

HOLLAND LAND COMPANY'S SURVEY, TOWN LOT NO. 73, TOWNSHIP 12, RANGE 7, T.A. NO. 055.003-0001-003.1000

COPYRIGHT ©2008 BME Associates

Packet Pg. 3590

7.a

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Exhibit 4 – Responses to Questions 11A & 11B of the Rezoning Application

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

EXHIBIT 4

REZONING OF 100 MAPLE ROAD FROM GB TO SC-3

Question 11(A): Description of the character of the proposed development:

Response to Question 11(A): The Applicant is seeking to amend the zoning classification of 100 Maple Road ("Project Site") from GB to SC so that the zoning classification will be consistent with the continued use of the Project Site as a multifamily project of 112 attached residential units for lease consisting of studio and one-bedroom units. An 11" x 17" size copy of the Site Plan [Drawing C-100] depicting the layout of the project is attached as **Exhibit "8"**. A color aerial photograph of the Project Site is attached as **Exhibit "6"**.

Question 11(B)(1): Rationale for rezoning request: 1. What was this site chosen?

Response to Question 11(B)(1): The Project Site is an appropriate location for the requested rezoning from GB to SC-3 given that Figure 6-A of the adopted Comprehensive designates the Project Site as appropriate as Suburban Corridor. A copy of Figure 6-A of the Comprehensive Plan is attached as **Exhibit "7"**.

Question 11(B)(2): Why cannot land be used with the existing zoning?

Response to Question 11(B)(2): The Project Site is currently zoned General Business District ("GB"), a zoning classification which does not permit first floor residential units. As such, the rezoning of the Project Site is necessary in connection with the continued long-term use of the Project Site as a project that includes first floor residential units for lease.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Question 11(B)(3): How will this rezoning impact surrounding properties?

Response to Question 11(B)(3): The requested rezoning of the Project Site from GB to DC-5 to accommodate the continued use of the Project Site as a residential project consisting of attached residential units for lease will not have any impacts on surrounding properties.

Question 11(B)(4): How will this rezoning impact the school system?

Response to Question 11(B)(4): The proposed project will have positive impacts on the school district since the property taxes that will be generated on an annual basis will be greater than the cost of providing educational services to the minimal number of school age children that will reside in the project. The demand for educational services for the project will be low given that the project is comprised exclusively of studios and one-bedroom units.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Exhibit 5 – Responses to Questions 16A, 16B, 16D & 16E of the Rezoning Application

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

EXHIBIT 5

REZONING OF 100 MAPLE ROAD FROM GB TO SC-3

Question 16(A)(1): **State in detail why the proposed zoning is consistent with the adopted Town of Amherst Bicentennial Comprehensive Plan. Cite specific sections, maps and/or figures in the plan that support the proposed zoning at this location.**

Response to Question 16(A)(1): The Town of Amherst adopted the Bicentennial Comprehensive Plan in January of 2007 after completing a lengthy planning process that included numerous public meetings and public hearings involving the Comprehensive Plan Advisory Committee, the Planning Board and the Town Board.[1] On December 14, 2020, the Town Board most recently adopted amendments to the Bicentennial Comprehensive Plan.

Figure 6-A of the adopted Bicentennial Comprehensive Plan is the titled Commercial and Mixed-Use Designations and it depicts the Project Site as appropriate for Suburban Corridor designation. A color copy of Figure 6 of the Comprehensive Plan is provided at **Exhibit "7"**.

Question 16(A)(2): **Cite all text, map, and/or figures that must be amended to support the proposed zoning at this location and provide detailed suggested amendments.**

Response to Question 16(A)(2): The rezoning of the Project Site from GB to SC-3 to accommodate the continued use of the Project Site as a multifamily project does not require an amendment of the Comprehensive Plan.

---

[1] A copy of the resolution adopted by the Town Board on January 2, 2007 for the purpose of adopting the Bicentennial Comprehensive Plan pursuant to Town Law Section 272-a is included at the beginning of the Comprehensive Plan. This resolution recites the lengthy planning history that incorporated numerous opportunities for public input as well as a coordinated environmental review pursuant to SEQRA that involved the preparation a Generic EIS and the issuance of a Findings Statement.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Question 16(A)(3): State why the proposed zoning is consistent with intent and objectives (Sec. 1-2-2) of the Zoning Ordinance:

Response to Question 16(A)(3): Section 1-2-1 of the Zoning Code is titled "Purpose" and it states as follows:

> *"The purpose of this Zoning Ordinance and the intent of the legislative authority in its adoption is to promote the environment of the town and its public health, safety, convenience, comfort, prosperity and the general welfare by regulating the use of buildings, other structures and land for residences, open space, public facilities, business, services, industry or other purposes; by regulating and restricting the bulk, height, design, building coverage and location of structures; by regulating and limiting population density; and for the aforesaid purposes, to divide the land within the limits of the town into districts of such number and dimensions generally consistent with the policies of the Comprehensive Plan and to provide procedures for the administration and amendment of said Zoning Ordinance."*

The proposed rezoning of the Project Site from GB to SC-3 to accommodate the continued use of the Project Site as a multifamily project is consistent with the "Purpose" of the Zoning Code. Section 1-2-2 of the Zoning Code sets forth the objectives of the Zoning Code. This section of the Zoning Code lists thirteen objectives that are discussed below as follows:

A. To protect the character and values of residential, institutional and public uses, business, commercial and manufacturing uses and to insure their orderly and beneficial development;

Response: The proposed rezoning of the Project Site from GB to SC-3 to accommodate the continued use of the Project Site for residential purposes will be consistent with the objective of protecting the character and value of existing land uses.

B. To provide adequate open spaces for light, air and outdoor uses to include public, common and private open space areas;

Response: The proposed rezoning of the Project Site from GB to SC-3 will not be inconsistent with this objective.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

C. To prevent overcrowding of land;

Response: The project is consistent with the type of development designated as appropriate for the Project Site.

D. To prevent excessive concentration of population and to prevent spare and uncoordinated development;

Response: The proposed rezoning of the Project Site from GB to SC-3 will not result in excessive concentration of population.

E. To regulate and control the location and spacing of buildings on the lot and in relation to the surrounding property generally consistent with the policies of the Comprehensive Plan.

Response: The responses to the Questions in Section 16 of the Rezoning Application as set forth above states the reasons the proposed rezoning is consistent with the policies of the Comprehensive Plan.

F. To protect persons and property from damage and injury due to fire or flood;

Response: The requested rezoning of the Project Site from GB to SC-3 will not result in any concerns regarding the protection of persons and property from damage and injury due to fire or flooding.

G. To preserve and protect significant natural features and vegetation, thereby preventing ecological damage and visual blight which occur when those features or vegetation are eliminated or substantially altered to serve development purposes only.

Response: The proposed rezoning of the Project Site from GB to SC-3 is not inconsistent with this objective. There are not significant natural features located on the Project Site.

H. To assure that structure and land use arrangements are aesthetically harmonious with nearby areas and structures.

Response: The propose rezoning of the Project Site from GB to SC-3 is not inconsistent with this objective.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

I. To regulate the location of buildings and intensity of uses in relation to streets according to plans so as to cause the least interference with and be damaged least by traffic movements and hence result in lessened street congestion and improved public safety.

Response: The proposed rezoning will not result in any changes to the existing access onto Maple Road. No new driveway connections to the roadway network are being proposed.

J. To establish zoning patterns that insure economical extensions for sewers, water supply waste disposal and other public utilities, as well as development of recreation, schools and other public facilities;

Response: The Project Site has access to sanitary sewer and water lines as well as necessary public utilities to continue to service the multifamily project.

K. To guide the future development of the town so as to being the gradual conformity of land, structures and uses generally consistent with the policies of the Comprehensive Plan.

Response: The proposed rezoning of the Project Site from GB to SC-3 is consistent with this objective since the existing multifamily project is consistent with the policies contained in the Comprehensive Plan.

L. To accomplish the specific intents and goals set forth in the introduction to the respective sections.

Response: The proposed rezoning of the Project Site from GB to SC-3 is consistent with this objective.

M. To protect the community from visual pollution resulting from the unregulated use of signs and other advertising devices.

Response: The proposed rezoning of the Project Site from GB to SC-3 is not inconsistent with this objective.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Question 16(C): **Compatibility with the present zoning and conforming uses of nearby property and with the character of the neighborhood:**

Response to Question 16(C): The proposed rezoning of the Project Site from GB to SC-3 is compatible with the present zoning and conforming uses of nearby properties and the character of the neighborhood. The Project Site is currently zoned GB which would allow more intensive land uses.

Question 16(D): **Suitability of the subject property for uses permitted by the current versus the proposed district:**

Response to Question 16(D): The Project Site is suitable for uses permitted by both the existing GB zoning classification and the proposed SC-3 zoning classification.

Question 16(E): **Whether the proposed change tends to improve the balance of uses, or meets a specific demand in the Town:**

Response to Question 16(D): The proposed change in the zoning classification of the Project Site from GB to SC-3 to accommodate the continued use of the Project Site as a multifamily project will have positive impacts on the balance of uses in the Town by providing smaller apartments that are affordable. The proposed zoning classification is consistent with the recommended land use per the adopted Comprehensive Plan.

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Exhibit 6 – Color Aerial Photograph of the Property at 100 Maple Road from the Erie County GIS

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Erie County On-Line Mapping Application





Legend

- Parcels
- Streets and Highways
  - Interstate
  - Primary State Road
  - Secondary State Road
  - County Road
  - Local Road

0 0.14 0.3 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere
THIS MAP IS NOT TO BE USED FOR NAVIGATION

ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

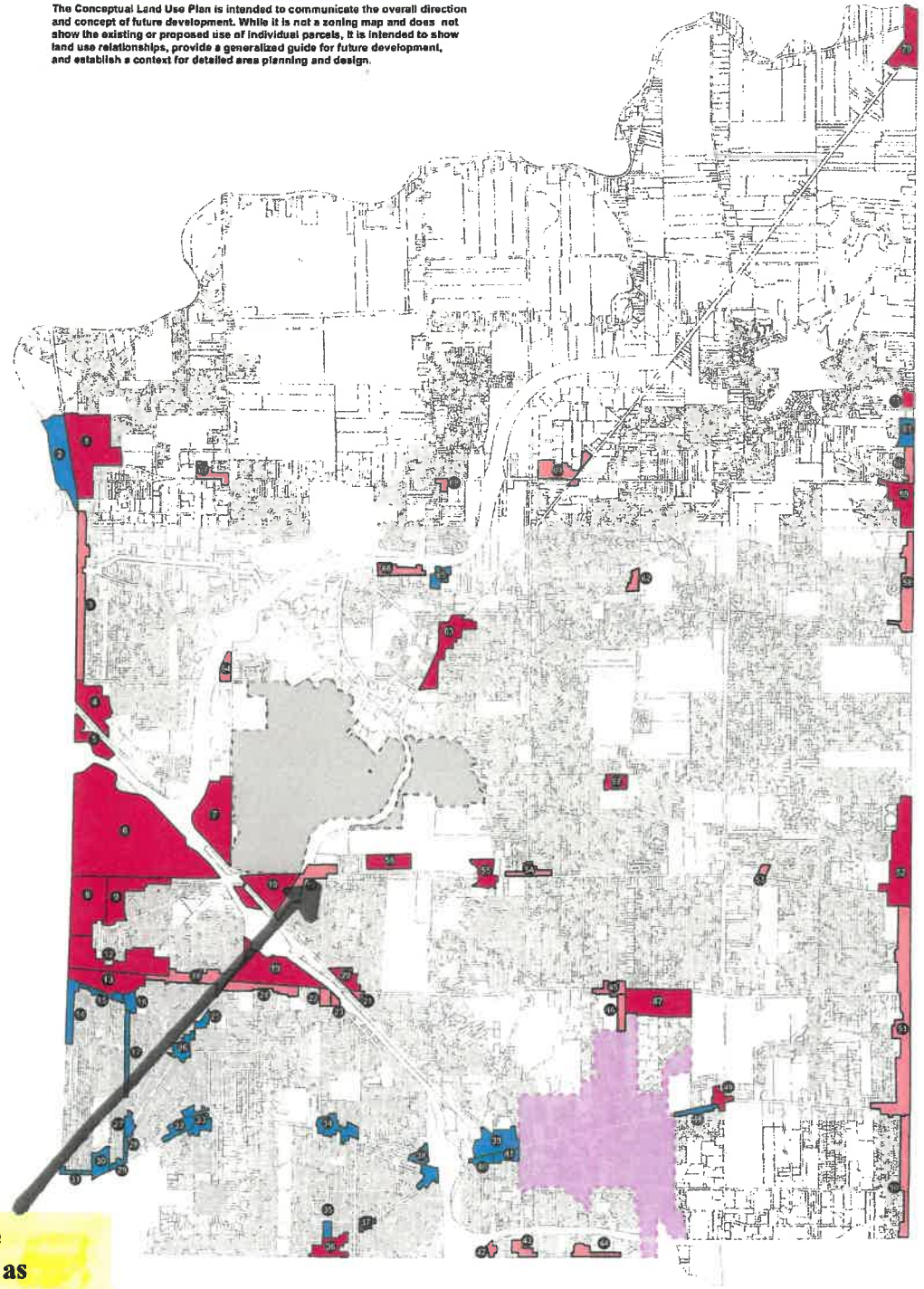
1: 9,028

Exhibit 7 – Figure 6-A of the Town of Amherst Comprehensive Plan

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Town of Amherst Bicentennial Comprehensive Plan

The Conceptual Land Use Plan is intended to communicate the overall direction and concept of future development. While it is not a zoning map and does not show the existing or proposed use of individual parcels, it is intended to show land use relationships, provide a generalized guide for future development, and establish a context for detailed area planning and design.



1. Wegmans (NFB)
2. Walgreens (NFB)
3. NFB / Ellicott Creek Strip
4. Home Depot (NFB)
5. Innkeepers Lane
6. Consumer Square / Ridge Lea
7. University Place
8. Boulevard Mall
9. Wegmans (Alberta)
10. Golden Triangle
11. Maple / Amherst Manor
12. Walmart (Sheridan)
13. Northtown Plaza
14. NFB Strip
15. Eggert Strip
16. Eggert / Bailey
17. Bailey Strip
18. Sheridan / Millersport Strip
19. Northtown Auto (Sheridan)
20. Sheridan / Sunrise - North Side
21. Sheridan / Sunrise - South Side
22. Sheridan / Harlem - West Side
23. Sheridan / Harlem - East Side
24. Sheridan / Getzville Strip
25. Millersport / Arcade
26. Six Corners
27. Bailey / Grover Cleveland
28. Bailey Live-Work
29. Main / Bailey
30. University Plaza
31. Kenmore Avenue
32. Eggertsville (Main / Eggert - West Side)
33. Eggertsville (Main / Eggert - East Side)
34. Snyder (Main / Harlem)
35. Harlem Strip
36. Harlem / Kensington
37. Kensington / Saratoga
38. Main / Kensington
39. West of Village - North of Main
40. West of Village - South of Main (West Side)
41. West of Village - South of Main (East Side)
42. Wehrle / South Forest
43. Wehrle / South Union
44. Wehrle / Cayuga
45. Sheridan / Hopkins
46. Evans Strip
47. Williamsville Place
48. Main Strip
49. Main / Youngs
50. Transit / Wehrle
51. Transit from Main to Maple
52. Transit / Maple
53. Maple / Ayer
54. Maple Strip
55. Maple / North Forest
56. Gun Club
57. Clearfield Plaza
58. Transit / Casey
59. Transit / North French
60. Transit / Dodge
61. Swormville
62. Hopkins / Dodge
63. Getzville Plaza
64. Sweet Home / Skinnersville
65. Campbell / Dodge
66. Dodge Strip
67. Sweet Home / North French
68. Campbell / North French
69. Crosspointe
70. Transit / Millersport
71. Transit Strip

Project Site Designated as Suburban Corridor

FIGURE 6-A

Commercial and Mixed-Use Designations

- Suburban Center
- Suburban Corridor
- Traditional Areas
- Village of Williamsville
- University at Buffalo

SOURCE NOTES:

Original Source Data Provided by the Town of Amherst Information Technology Department, URS Corporation and Wallace Roberts & Todd, LLC

Map Compiled by the Town of Amherst Planning Department

Date: December 2020

N

0 0.2 0.4 0.6 0.8 1 Miles

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Exhibit 8 – 11" x 17" Size Copy of the Site Plan [Drawing C-100 as Prepared by Carmina Wood Morris DPC

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

© Carmina Wood Morris PC
All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris PC is prohibited. WARNING: It is violation of article 145 section 7209N and 7301 of the New York State Education law for any person, unless acting under the direction of a registered architect. Retained engineer or land surveyor to alter this drawing. If altered such P.E., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

NOTES:

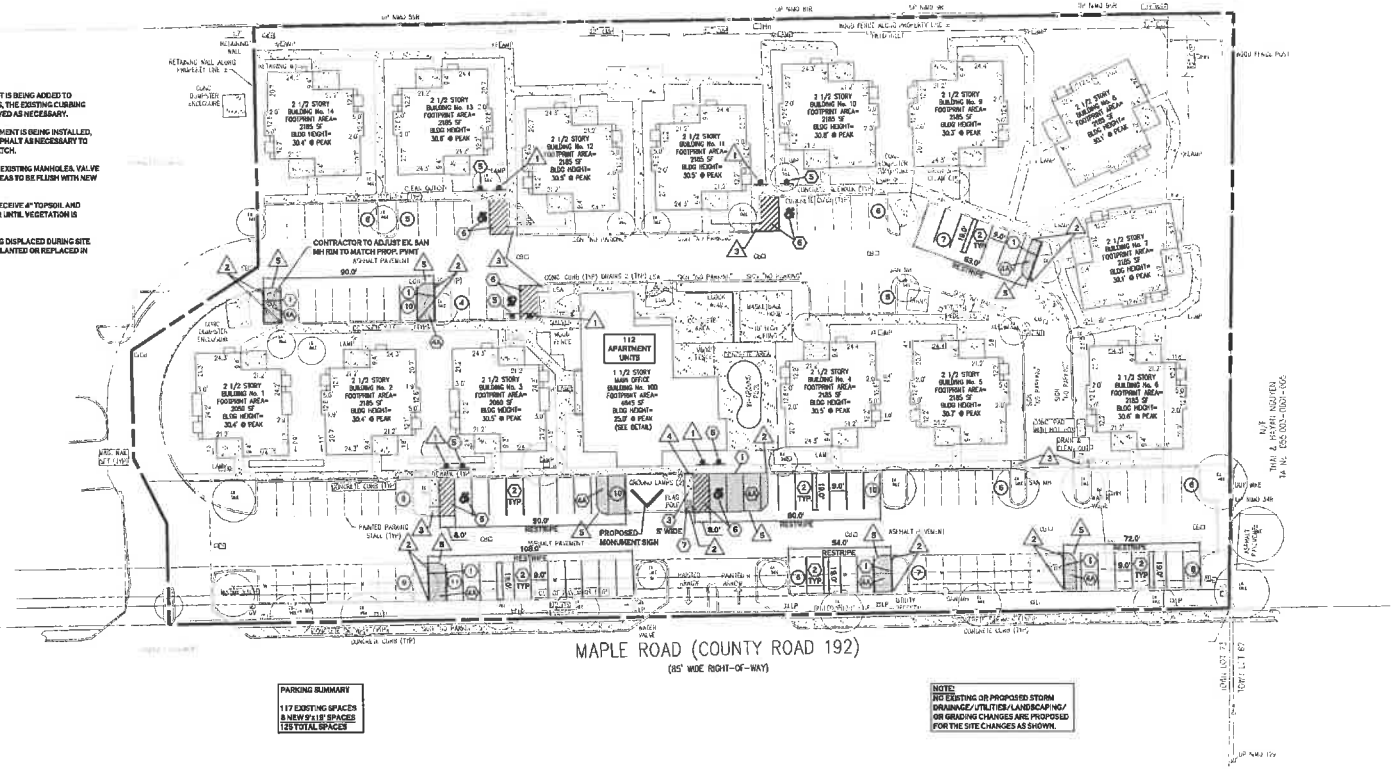
1. WHERE ADDITIONAL ASPHALT IS BEING ADDED TO CREATE NEW PARKING SPACES, THE EXISTING CURBING SHALL BE SAWCUT AND REMOVED AS NECESSARY.

2. WHERE NEW ASPHALT PAVEMENT IS BEING INSTALLED, SAWCUT EDGE OF EXISTING ASPHALT AS NECESSARY TO PROVIDE A CLEAN EDGE TO MATCH.

3. ADJUST RIM ELEVATIONS OF EXISTING MANHOLES, VALVE BOXES, ETC. IN NEW PAVED AREAS TO BE FLUSH WITH NEW PAVEMENT.

4. ALL DISTURBED AREAS TO RECEIVE 4" TOPSOIL AND SEED, CONTRACTOR TO WATER UNTIL VEGETATION IS ESTABLISHED.

5. ANY TREES OR LANDSCAPING DISPLACED DURING SITE MODIFICATIONS SHALL BE REPLANTED OR REPLACED IN KIND.



PARKING SUMMARY

117 EXISTING SPACES
8 NEW 9'x19' SPACES
125 TOTAL SPACES

NOTE:
NO EXISTING OR PROPOSED STORM DRAINAGE/UTILITIES/LANDSCAPING/ OR GRADING CHANGES ARE PROPOSED FOR THE SITE CHANGES AS SHOWN.

SITE PLAN

SCALE: 1"=30'

DETAIL LEGEND

1. CONCRETE CURB
2. 90° PARKING STALL
3. CONCRETE SIDEWALK
4A. STANDARD DUTY ASPHALT
5. HANDICAPPED PARKING SIGN
6. HANDICAPPED PAVEMENT MARKINGS
7. HANDICAPPED CURB RAMP

NOTE LEGEND

1. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
2. MATCH EXISTING CURB OR RUNOUT IN 2'
3. EXISTING SIDEWALK CURB RAMP
4. MATCH INTO EXISTING SIDEWALK
5. PROPOSED PAVEMENT SAWCUT LINE. MATCH INTO EX PAVEMENT

SITE LEGEND

PROPERTY LINE
PROPOSED CURB
PROPOSED SIDEWALK / CONCRETE PAD
PROPOSED ASPHALT PVMT
NUMBER OF PARKING SPACES (27)
PROPOSED SIGN

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS. CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

30' 30 0 30 60FL

Carmina Wood Morris PC
487 Main Street Suite 800
Buffalo, New York 14203
P 716.842.3186
F 716.842.0283

REVISIONS:

No.	Description	Date

PROJECT NAME:
New Construction
Apartment Conversion
100 Maple Road
Amherst, New York

Date: 09/2020
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Plan

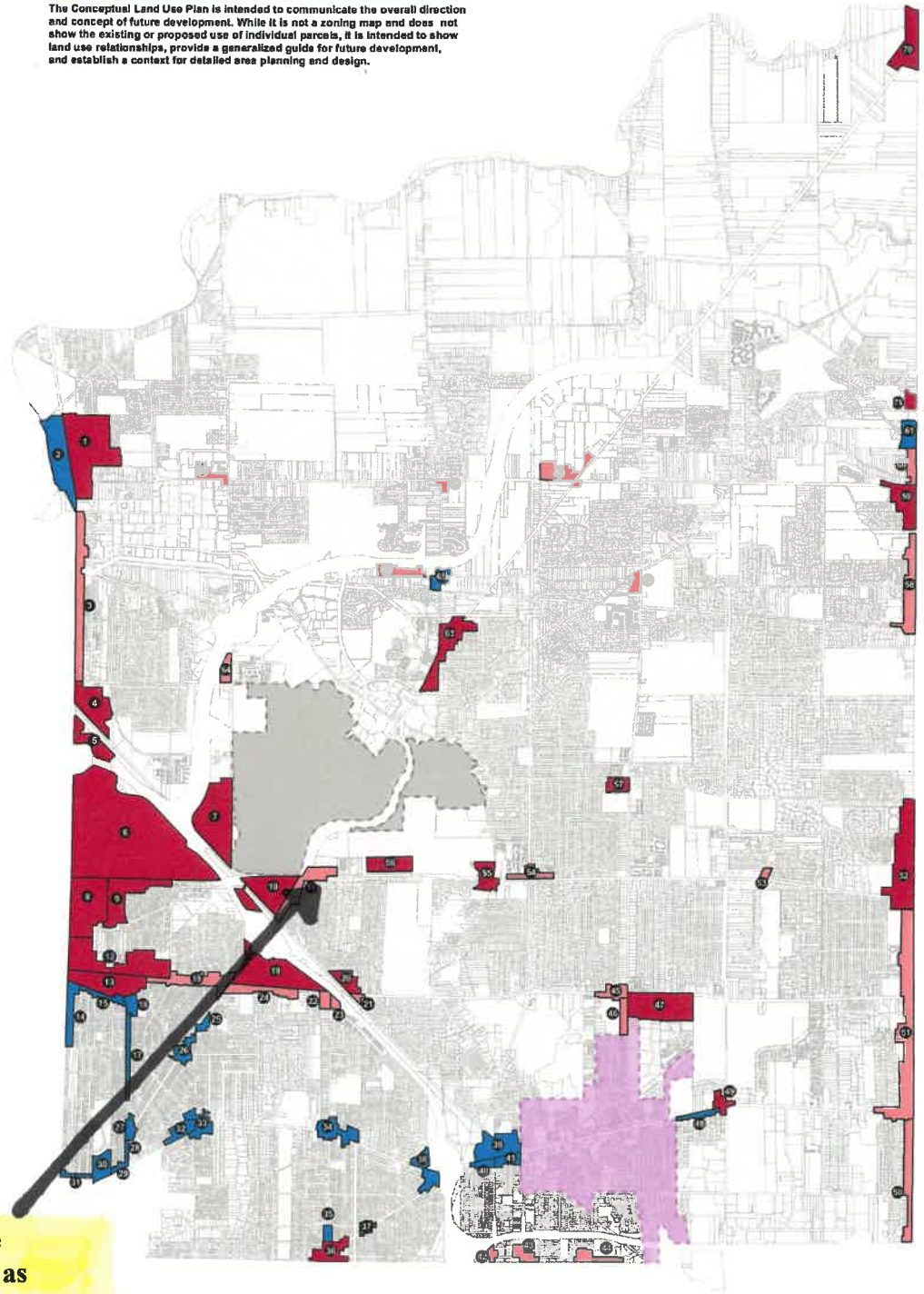
DRAWING NO.
C-100

Project no.: 20.102

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Town of Amherst Bicentennial Comprehensive Plan

The Conceptual Land Use Plan is intended to communicate the overall direction and concept of future development. While it is not a zoning map and does not show the existing or proposed use of individual parcels, it is intended to show land use relationships, provide a generalized guide for future development, and establish a context for detailed area planning and design.



1. Wegmans (NFB)
2. Walgreens (NFB)
3. NFB / Elicott Creek Strip
4. Home Depot (NFB)
5. Innkeepers Lane
6. Consumer Square / Ridge Lea
7. University Place
8. Boulevard Mall
9. Wegmans (Alberta)
10. Golden Triangle
11. Maple / Amherst Manor
12. Walmart (Sheridan)
13. Northtown Plaza
14. NFB Strip
15. Eggert Strip
16. Eggert / Bailey
17. Bailey Strip
18. Sheridan / Millersport Strip
19. Northtown Auto (Sheridan)
20. Sheridan / Sunrise - North Side
21. Sheridan / Sunrise - South Side
22. Sheridan / Harlem - West Side
23. Sheridan / Harlem - East Side
24. Sheridan / Getzville Strip
25. Millersport / Arcade
26. Six Corners
27. Bailey / Grover Cleveland
28. Bailey Live-Work
29. Main / Bailey
30. University Plaza
31. Kenmore Avenue
32. Eggertsville (Main / Eggert - West Side)
33. Eggertsville (Main / Eggert - East Side)
34. Snyder (Main / Harlem)
35. Harlem Strip
36. Harlem / Kensington
37. Kensington / Saratoga
38. Main / Kensington
39. West of Village - North of Main
40. West of Village - South of Main (West Side)
41. West of Village - South of Main (East Side)
42. Wehrle / South Forest
43. Wehrle / South Union
44. Wehrle / Cayuga
45. Sheridan / Hopkins
46. Evans Strip
47. Williamsville Place
48. Main Strip
49. Main / Youngs
50. Transit / Wehrle
51. Transit from Main to Maple
52. Transit / Maple
53. Maple / Ayer
54. Maple Strip
55. Maple / North Forest
56. Gun Club
57. Clearfield Plaza
58. Transit / Casey
59. Transit / North French
60. Transit / Dodge
61. Swormville
62. Hopkins / Dodge
63. Getzville Plaza
64. Sweet Home / Skinnersville
65. Campbell / Dodge
66. Dodge Strip
67. Sweet Home / North French
68. Campbell / North French
69. Crosspointe
70. Transit / Millersport
71. Transit Strip

Project Site Designated as Suburban Corridor

FIGURE 6-A

Commercial and Mixed-Use Designations

- Suburban Center
- Suburban Corridor
- Traditional Areas
- Village of Williamsville
- University at Buffalo

SOURCE NOTES:

Original Source Data Provided by the Town of Amherst Information Technology Department, URS Corporation and Wallace Roberts & Todd, LLC

Map Compiled by the Town of Amherst Planning Department

Date: December 2020

N

0 0.2 0.4 0.6 0.8 1 Miles

Attachment: Z-2021-10 application 011322 (25071 : Z-2021-10)

Attachment: Z-2021-10 drawings 011322 (25071 : Z-2021-10)

All rights reserved. Reuse of these documents without the expressed written permission of Carmina Wood Morris PC is prohibited. WARNING: It is violation of article 145 sections 7209N and 7301 of the New York State education law for any person, unless acting under the direction of a registered architect, licensed engineer or land surveyor to alter this drawing. If altered such R.A., P.E. or L.L.S. shall affix his or her seal, signature, the date, the notation "altered by" and a specific description of the alteration.

© Carmina Wood Morris PC

NOTES:

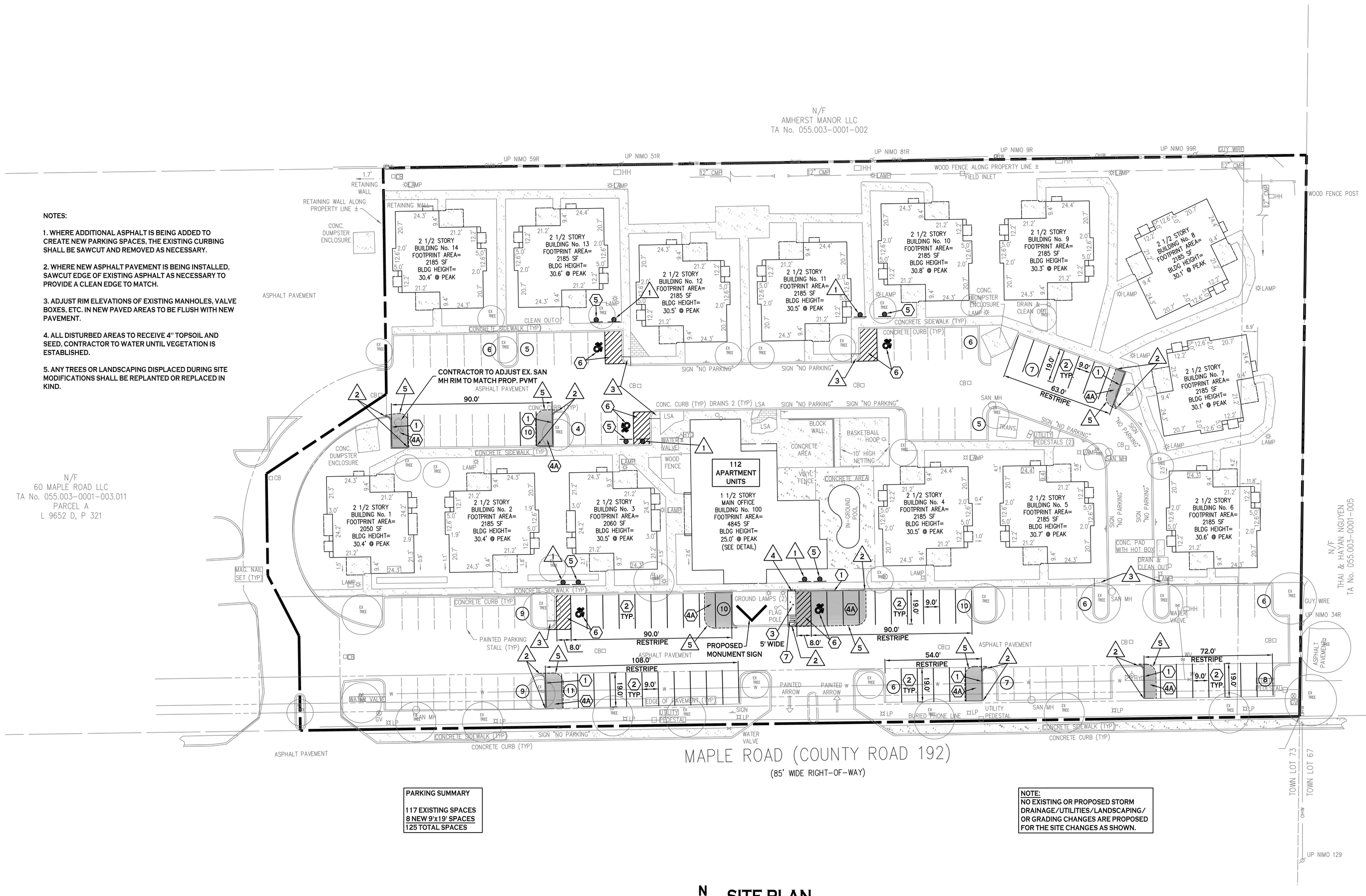
1. WHERE ADDITIONAL ASPHALT IS BEING ADDED TO CREATE NEW PARKING SPACES, THE EXISTING CURBING SHALL BE SAWCUT AND REMOVED AS NECESSARY.

2. WHERE NEW ASPHALT PAVEMENT IS BEING INSTALLED, SAWCUT EDGE OF EXISTING ASPHALT AS NECESSARY TO PROVIDE A CLEAN EDGE TO MATCH.

3. ADJUST RIM ELEVATIONS OF EXISTING MANHOLES, VALVE BOXES, ETC. IN NEW PAVED AREAS TO BE FLUSH WITH NEW PAVEMENT.

4. ALL DISTURBED AREAS TO RECEIVE 4" TOPSOIL AND SEED. CONTRACTOR TO WATER UNTIL VEGETATION IS ESTABLISHED.

5. ANY TREES OR LANDSCAPING DISPLACED DURING SITE MODIFICATIONS SHALL BE REPLANTED OR REPLACED IN KIND.



PARKING SUMMARY

117 EXISTING SPACES
8 NEW 9'x19' SPACES
125 TOTAL SPACES

NOTE:
NO EXISTING OR PROPOSED STORM DRAINAGE/UTILITIES/LANDSCAPING/ OR GRADING CHANGES ARE PROPOSED FOR THE SITE CHANGES AS SHOWN.

SITE PLAN

SCALE: 1"=30'

DETAIL LEGEND

1. CONCRETE CURB
2. 90° PARKING STALL
3. CONCRETE SIDEWALK
4A. STANDARD DUTY ASPHALT
5. HANDICAPPED PARKING SIGN
6. HANDICAPPED PAVEMENT MARKINGS
7. HANDICAPPED CURB RAMP

NOTE LEGEND

1. INSTALL "NO PARKING" SIGN, M.U.T.C.D. SIGN NO. P1-1C
2. MATCH EXISTING CURB OR RUNOUT IN 2'
3. EXISTING SIDEWALK CURB RAMP
4. MATCH INTO EXISTING SIDEWALK
5. PROPOSED PAVEMENT SAWCUT LINE, MATCH INTO EX PAVEMENT

SITE LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED SIDEWALK / CONCRETE PAD
- PROPOSED ASPHALT PVMT
- NUMBER OF PARKING SPACES (27)
- PROPOSED SIGN

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY OTHERS, CARMINA WOOD MORRIS, D.P.C. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

30' 30 0 30 60Ft.

Carmina Wood Morris PPC
487 Main Street Suite 600
Buffalo, New York 14203
P 716.842.3165
F 716.842.0263

REVISIONS:

No.	Description	Date

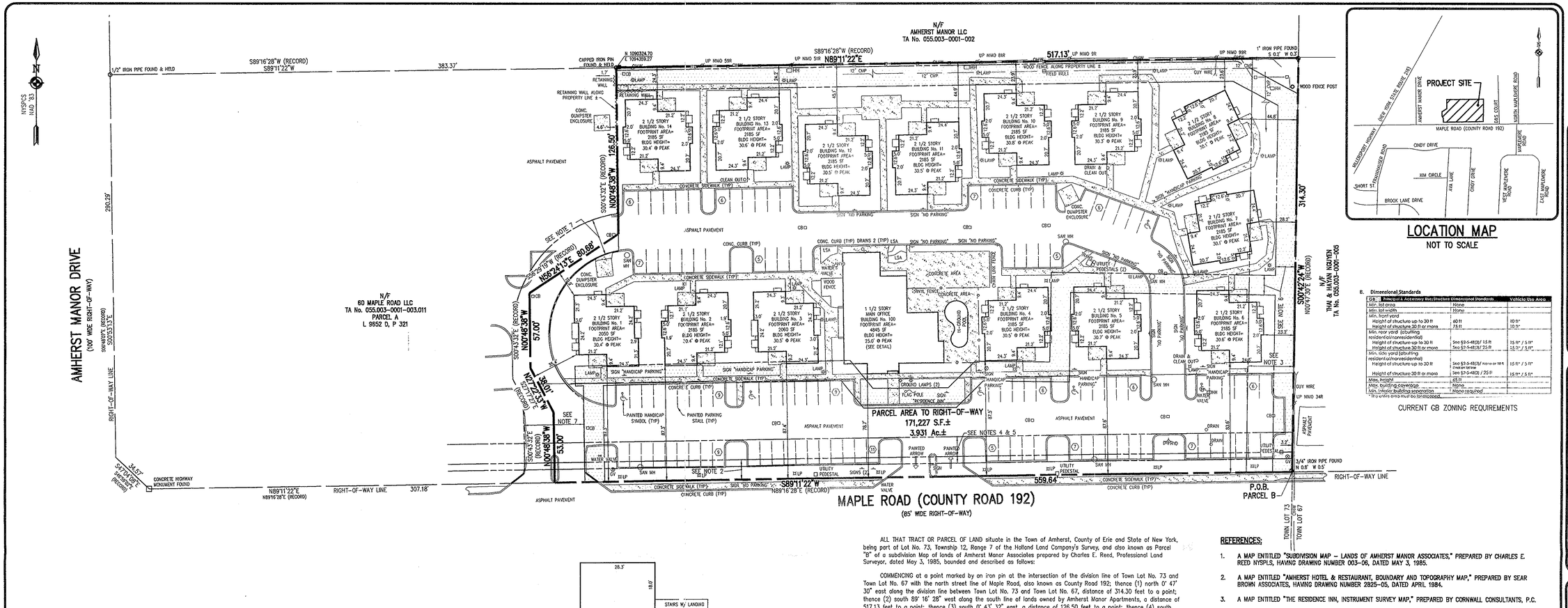
PROJECT NAME:
New Construction
Apartment Conversion
100 Maple Road
Amherst, New York

Date: 09/2020
Drawn by: C. Wood
Scale: As Noted

DRAWING NAME:
Site Plan

DRAWING NO.
C-100

Project no.: 20.102



LOCATION MAP
NOT TO SCALE

B. Dimensional Standards

GB Principal & Accessory Bus/Structure Dimensional Standards		Vehicle Use Area
Min. lot area	None	
Min. lot width	None	
Min. front yard		
Height of structure up to 30 ft	60 ft	10 ft*
Height of structure 30 ft or more	75 ft	10 ft*
Min. rear yard (abutting residential/nonresidential)		
Height of structure up to 30 ft	See §210-48(B)/ 15 ft	15 ft* / 5 ft*
Height of structure 30 ft or more	See §210-48(B)/ 25 ft	15 ft* / 5 ft*
Min. side yard (abutting residential/nonresidential)		
Height of structure up to 30 ft	See §210-48(B)/ none or 10 ft if set back	15 ft* / 5 ft*
Height of structure 30 ft or more	See §210-48(B) / 25 ft	15 ft* / 5 ft*
Max. height	65 ft	
Max. building coverage	None	
Min. interior building separation	None required	

* Try where area must be landscaped.

CURRENT GB ZONING REQUIREMENTS

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 73, Township 12, Range 7 of the Holland Land Company's Survey, and also known as Parcel "B" of a subdivision Map of lands of Amherst Manor Associates prepared by Charles E. Reed, Professional Land Surveyor, dated May 3, 1985, bounded and described as follows:

COMMENCING at a point marked by an iron pin at the intersection of the division line of Town Lot No. 73 and Town Lot No. 67 with the north street line of Maple Road, also known as County Road 192; thence (1) north 0° 47' 30" east along the division line between Town Lot No. 73 and Town Lot No. 67, distance of 314.30 feet to a point; thence (2) south 89° 16' 28" west along the south line of lands owned by Amherst Manor Apartments, a distance of 517.13 feet to a point; thence (3) south 0° 43' 32" east, a distance of 126.50 feet to a point; thence (4) south 56° 29' 19" west, a distance of 80.68 feet to a point; thence (5) south 0° 43' 32"E, a distance of 57.00 feet to a point; thence (6) south 27° 17' 27" east, a distance of 38.01 feet to a point; thence (7) south 0° 43' 32" east, a distance of 53.00 feet to a point on the northerly street line of Maple Road; thence (8) north 89° 16' 28" east along the northerly street line of Maple Road, a distance of 559.64 feet to the point and place of beginning.

TOGETHER WITH the benefits of an agreement made between Amherst Manor Associates and Rockgate Inns, A Limited Partnership dated September 19, 1986 and recorded December 8, 1986 in liber 9652 of Deeds at Page 315.

BEING MORE CURRENTLY DESCRIBED AS:

ALL THAT TRACT OR PARCEL OF LAND containing 3.931 acres more or less, situate in the Town of Amherst, County of Erie and State of New York, being part of Lot No. 73, Township 12, Range 7 of the Holland Land Company's Survey, and also known as Parcel "B" of a subdivision Map of lands of Amherst Manor Associates prepared by Charles E. Reed, Professional Land Surveyor, dated May 3, 1985, bounded and described as follows:

Beginning at the intersection of the division line of Town Lots 73 and 67 with the northerly right-of-way line of Maple Road (County Road 197)(85' Right-of-Way); thence

1. S89°11'22"W, along said northerly right-of-way line of Maple Road, a distance of 559.64 feet to a point on the easterly boundary line of Lands Now or formerly of 60 Maple Road (T.A. No. 055.003-0001-003.011) being Parcel A of the Amherst Manor Associates Subdivision; thence

The following 5 (five) courses are along said easterly boundary line of Parcel A:

2. N00°48'38"W, a distance of 53.00 feet to a point; thence
3. N27°22'33"W, a distance of 38.01 feet to a point; thence
4. N00°48'38"W, a distance of 57.00 feet to a point; thence
5. N56°24'13"E, a distance of 80.68 feet to a point; thence
6. N00°48'38"W, a distance of 126.50 feet to a point on the southerly boundary line of lands now or formerly of Amherst Manor LLC (T.A. No. 005.003-0001-002); thence
7. N89°11'22"E, along said southerly boundary line of Amherst Manor LLC, a distance of 517.13 feet to a point on the westerly boundary line of lands now or formerly of Thai & Hoyan Nguyen (TA No. 055.003-0001-005); thence
8. S00°42'22"W, along said westerly boundary of Nguyen, a distance of 314.30 feet to the Point of Beginning.

TOGETHER WITH the benfits of an Agreement made between Amherst Manor Associates and Rockgate Inns, A Limited Partnership datedd September 19, 1986 and recorded December 8, 1986 in Liber 9652 of Deeds at Page 315.

TO: ROCKGATE INNS, A LIMITED PARTNERSHIP, A KANSAS LIMITED PARTNERSHIP; U.S. BANK, NATIONAL ASSOCIATION; WELLS FARGO BANK, N.A., ITS SUCCESSORS AND/OR ASSIGNS AND MONROE TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2005, AND INCLUDES ITEMS 2, 3, 4, 6, 7(a), 7(b)(1), 7(b)(2), 7(c), 8, 9, 10, 11(a) AND 13 OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF NEW YORK, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.

BY: _____ DATE: 7/8/08
DAVID N. ZACHARIAS NYSPLS 49940

REFERENCES:

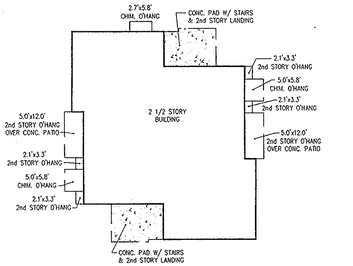
1. A MAP ENTITLED "SUBDIVISION MAP – LANDS OF AMHERST MANOR ASSOCIATES," PREPARED BY CHARLES E. REED NYSPLS, HAVING DRAWING NUMBER 003-06, DATED MAY 3, 1985.
2. A MAP ENTITLED "AMHERST HOTEL & RESTAURANT, BOUNDARY AND TOPOGRAPHY MAP," PREPARED BY SEAR BROWN ASSOCIATES, HAVING DRAWING NUMBER 2825-05, DATED APRIL 1984.
3. A MAP ENTITLED "THE RESIDENCE INN, INSTRUMENT SURVEY MAP," PREPARED BY CORNWALL CONSULTANTS, P.C.
4. A MAP ENTITLED "THE RESIDENCE INN, UTILITY PLAN," PREPARED BY CORNWALL CONSULTANTS, P.C., DATED JANUARY 1986.
5. A TITLE COMMITMENT PREPARED BY STEWART TITLE INSURANCE COMPANY, HAVING EFFECTIVE DATE NOVEMBER 28, 2007, COMMITMENT No. ST-1147

NOTES:

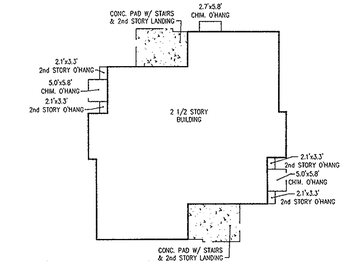
1. PARCEL MAY BE SUBJECT TO A UTILITY EASEMENT TO NEW YORK TELEPHONE COMPANY PER LIBER 6596 OF DEEDS, PAGE 397. EASEMENT WAS TO RUN ALONG THE NORTH RIGHT-OF-WAY LINE OF MAPLE ROAD, IN 1960. EASEMENT MAY NOW LIE WITHIN THE BOUNDS OF THE CURRENT MAPLE ROAD RIGHT-OF-WAY.
2. PARCEL SUBJECT TO A SANITARY SEWER EASEMENT TO THE TOWN OF AMHERST PER LIBER 6852 OF DEEDS, PAGE 217.
3. PARCEL SUBJECT TO A UTILITY EASEMENT TO NEW YORK TELEPHONE PER LIBER 7598 OF DEEDS, PAGE 421.
4. PARCEL SUBJECT TO A WATERMAIN EASEMENT TO THE TOWN OF AMHERST PER LIBER 9449 OF DEEDS, PAGE 297.
5. PARCEL SUBJECT TO A WATERMAIN EASEMENT TO THE TOWN OF AMHERST PER LIBER 9466 OF DEEDS, PAGE 358.
6. PARCEL SUBJECT TO A GAS MAIN EASEMENT TO NATIONAL FUEL GAS DISTRIBUTION CORPORATION PER LIBER 10881 OF DEEDS, PAGE 8847.
7. PARCEL SUBJECT TO AND BENEFITED BY AN ACCESS EASEMENT AGREEMENT, AS SET FORTH IN LIBER 9652 OF DEEDS, PAGE 315.
8. PARCEL IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER THE FLOOD INSURANCE RATE MAP FOR THE TOWN OF AMHERST, NEW YORK, ERIE COUNTY, HAVING COMMUNITY-PANEL NUMBER 360226 0008E, LAST REVISED OCTOBER 12, 1992.
9. SETBACK REQUIREMENTS AT PROJECT APPROVAL PER REFERENCE No. 4
   FRONT (MAPLE ROAD): 75 FEET
   SIDE: 25 FEET
   REAR: 25 FEET

   CURRENT ZONING IS GB WITH DIMENSIONAL STANDARDS AS SHOWN ON THE TABLE ABOVE.
10. THE BEARING BASE AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, TRANSVERSE MERCATOR PROJECTION, WESTERN ZONE THROUGH GPS OBSERVATIONS AND CONTROL TIES TO THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REFERENCE STATION "LOCKPORT NYLP" UTILIZING THE NAD '83 DATUM. BEARINGS SHOWN HEREON ARE GRID. DISTANCES SHOWN HEREON ARE GROUND.

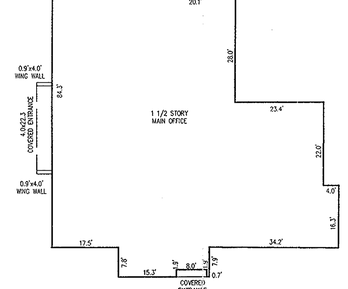
    THE RECORD BEARINGS WERE REFERENCED TO THE NYSDOT BASELINE AS NOTED ON THE PLAN IN REFERENCE 2.



TYPICAL BUILDING DETAIL
BUILDINGS 1 & 3
SCALE: 1"=80'



TYPICAL BUILDING DETAIL
BUILDINGS 2, 4, 9, 11 & 13
(MIRRORED FOR BUILDINGS 5, 6, 7, 8, 10, 12, & 14)
SCALE: 1"=80'



BUILDING DETAIL
MAIN OFFICE
SCALE: 1"=80'

LEGEND

	BOUNDARY LINE
	SETBACK LINE
○	PROPERTY MARKER FOUND
□	CONCRETE HIGHWAY MONUMENT FOUND
○	WOOD FENCE POST FOUND
	EXISTING EASEMENT LINE
	ADJOINER LINE
XX	PARKING STALL COUNT
LSA	LANDSCAPE AREA
GV	GAS VALVE
HH	UTILITY HAND HOLE
OHW	OVERHEAD WIRES AND UTILITY POLE
LP	LIGHT POLE / PEDESTRIAN LAMP
CB	CATCH BASIN
	HYDRANT AND WATER VALVE

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

"CERTIFICATIONS INDICATED HEREON SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS."

THIS MAP AND THE INFORMATION SHOWN HEREON IS NOT TO BE USED WITH AN "AFFIDAVIT OF NO CHANGE." BME ASSOCIATES ASSUMES NO LIABILITY TO THE PARTIES NOTED HEREON OR TO ANY FUTURE OWNER, TITLE COMPANY, GOVERNMENTAL AGENCY, ATTORNEY OR LENDING INSTITUTION IN THE EVENT THAT THIS MAP IS USED WITH AN "AFFIDAVIT OF NO CHANGE," OR SIMILAR INSTRUMENT.

COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYOR'S ORIGINAL INKED SEAL OR EMBOSSED SEAL SHALL NOT BE CONSIDERED TO BE A VALID TRUE COPY.

"UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY MAP IS A VIOLATION OF SECTION 7209, OF THE NEW YORK STATE EDUCATION LAW."

COPYRIGHT © 2008
BME Associates

Drawing Alteration
The following is an excerpt from the New York State Education Law Article 145 Section 7209 and applies to this drawing:
"It is a violation of this law for any person, unless he is acting under the direction of a licensed professional engineer or land surveyor to alter any item in any way. If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration."

	DATE	BY
7		
6		
5	7/8/08	KAW
4	1/14/08	KAW
3	1/11/08	KAW
2	1/08/08	DNZ
1	REVISED PER REVIEW FOR ISSUE	

REVISIONS
4 REVISED PER FIELD EDIT AND ADDED CERTIFICATION
3 REVISED PER COMMENTS
2 REVISED PER REVIEW OF TITLE COMMITMENT
1 REVISED PER REVIEW FOR ISSUE

BME ASSOCIATES
ENGINEERS SURVEYORS PLANNERS
LANDSCAPE ARCHITECTS
10 LIFT BRIDGE LANE EAST
FAIRPORT, NEW YORK 14450
585-377-7360
FAX 585-377-7309

PROJECT: RESIDENCE INN – AMHERST
LOCATION: 100 MAPLE ROAD, AMHERST, ERIE COUNTY, NY
CLIENT: GATES, BILES, SHIELDS & RYAN, P.A. 10851 MASTIN BLVD. SUITE 1000 OVERLAND PARK, KANSAS, 66210
DRAWING TITLE: ALTA/ACSM LAND TITLE SURVEY OF PARCEL B

HOLLAND LAND COMPANY'S SURVEY, TOWN LOT NO. 73, TOWNSHIP 12, RANGE 7, T.A. NO. 055.003-0001-003.1200

PROJECT MANAGER	DATE
DN ZACHARIAS	
PROJECT SURVEYOR	DATE
DN ZACHARIAS	
DRAWN BY	DATE
KA WOODS	
SCALE	DATE ISSUED
1"=40'	JANUARY, 2008
PROJECT NO.	
8904	
DRAWING NO.	
481	

Attachment: Z-2021-10 drawings 011322 (25071 : Z-2021-10)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-10

PETITIONER

ARIA BUF MAPLE, LLC
180 N. University Ave., Suite 200
Provo, UT 84601

PROPERTY LOCATION

100 Maple Road

WHEREAS the Town of Amherst Planning Board on Thursday, January 13, 2022 held a virtual public hearing on the proposed rezoning of land from General Business District (GB) to Shallow-Corridor-3 District (SC-3), and

WHEREAS the Planning Board has reviewed plans and other materials regarding the rezoning proposal, and

WHEREAS the materials and plans have been referred to the Town's various review agencies, and

WHEREAS in accordance with Section 8-3-5 of the Zoning Ordinance the Planning Board finds that:

A. The proposed zoning and development plan **is** generally consistent with the policies of the Comprehensive Plan and the Zoning Ordinance.

B. The proposal is consistent with the Conceptual Land Use Plan (Figure 6 of the Bicentennial Comprehensive Plan) which shows commercial office on this parcel surrounded by mixed residential uses. The proposal is also consistent with the Figure 6A of the Plan which recommends the "Maple/Amherst Manor" neighborhood be redeveloped in mixed-use manner.

C. The proposal is consistent with Section 5A-3-3, "Shallow Corridor 3 (SC-3)" because it reuses an existing motel site for a permitted use (multi-family residences) and utilizes a private access drive behind the existing 2½-story buildings.

D. There are adequate services and utilities available or proposed to be made available in the redevelopment of the parcel.

E. The proposal is compatible with the proposed zoning and conforming uses of nearby property and the character of the neighborhood.

F. The subject property is suitable for uses permitted by the current versus the proposed district.

Attachment: Z-2021-10_draft resolution_011322 (25071 : Z-2021-10)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-10

PETITIONER	PROPERTY LOCATION
ARIA BUF MAPLE, LLC	100 Maple Road

G. The proposed change does tend to improve the balance of uses, or meets a specific demand in the Town.

H. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

WHEREAS pursuant to Local Law #3-82, as amended, the Planning Board recommends that the Town Board determine that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

NOW THEREFORE BE IT RESOLVED that the Planning Board recommends to the Town Board in accordance with Section 8-3-4 of the Zoning Ordinance, that the rezoning request be approved subject to the following conditions:

1. The project shall require Minor Site Plan Review and Approval for the revision to the site indicated on the plan submitted with the application dated 9/2020.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Chair Date

GP/bf
X:\Current_Planning\Files\Rezonings\2021\Z-2021-10_(100_Maple_Rd)_2021\Z-2021-10_draft resolution_011322.doc
cc: Town Clerk
Commissioner of Building
Highway Superintendent
Town Engineer
Traffic/Safety Coordinator
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main Street, Suite 343, Williamsville, NY 14221
Chris Wood, Carmina Wood Morris, 487 Main Street, Suite 500, Buffalo, NY 14203
ARIA BUFF MAPLE, LLC, 180 N. University Ave., Suite 200, Provo, UT 84601

Attachment: Z-2021-10_draft resolution_011322 (25071 : Z-2021-10)

TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-10

PETITIONER

ARIA BUF MAPLE, LLC
180 N. University Ave., Suite 200
Provo, UT 84601

PROPERTY LOCATION

100 Maple Road

WHEREAS the Town of Amherst Planning Board on Thursday, January 13, 2022 held a virtual public hearing on the proposed rezoning of land from General Business District (GB) to Shallow-Corridor-3 District (SC-3), and

WHEREAS the Planning Board has reviewed plans and other materials regarding the rezoning proposal, and

WHEREAS the materials and plans have been referred to the Town's various review agencies, and

WHEREAS in accordance with Section 8-3-5 of the Zoning Ordinance the Planning Board finds that:

A. The proposed zoning and development plan is generally consistent with the policies of the Comprehensive Plan and the Zoning Ordinance.

B. The proposal is consistent with the Conceptual Land Use Plan (Figure 6 of the Bicentennial Comprehensive Plan) which shows commercial office on this parcel surrounded by mixed residential uses. The proposal is also consistent with the Figure 6A of the Plan which recommends the "Maple/Amherst Manor" neighborhood be redeveloped in mixed-use manner.

C. The proposal is consistent with Section 5A-3-3, "Shallow Corridor 3 (SC-3)" because it reuses an existing motel site for a permitted use (multi-family residences) and utilizes a private access drive behind the existing 2½-story buildings.

D. There are adequate services and utilities available or proposed to be made available in the redevelopment of the parcel.

E. The proposal is compatible with the proposed zoning and conforming uses of nearby property and the character of the neighborhood.

F. The subject property is suitable for uses permitted by the current versus the proposed district.

G. The proposed change does tend to improve the balance of uses, or meets a specific demand in the Town.

Attachment: Z-2021-10_signed_Resolution_011322 (25071 : Z-2021-10)

JAN21'22 PM 1:13 RCVD

TOWN OF AMHERST
PLANNING BOARD
ZONING RESOLUTION
Z-2021-10

PETITIONER

ARIA BUF MAPLE, LLC

PROPERTY LOCATION

100 Maple Road

H. Review by the US Army Corps of Engineers under Section 404 of the Clean Water Act may be waived because the parcel is developed.

WHEREAS pursuant to Local Law #3-82, as amended, the Planning Board recommends that the Town Board determine that the requirements of SEQR are complete and that the subject proposal is not expected to have a significant adverse effect on the environment.

NOW THEREFORE BE IT RESOLVED that the Planning Board recommends to the Town Board in accordance with Section 8-3-4 of the Zoning Ordinance, that the rezoning request be approved subject to the following conditions:

1. The project shall require Minor Site Plan review and approval for the revision to the site indicated on the plan submitted with the application dated September 2020.

The foregoing resolution was adopted by the Town of Amherst Planning Board, Thursday, January 13, 2022; moved by – Mr. Giuliani; seconded by – Mr. Gill; ayes 4, noes 0; absent 3 (Chmiel, Gelber, Raffaele).

Robert J. Gilmour, Chair

1-20-2022
Date

GP/ac
X:\Current_Planning\Files\Rezonings\2021\Z-2021-10_(100_Maple_Rd)_2021\Z-2021-10_resolution_011322.doc
cc: Town Clerk
Commissioner of Building
Highway Superintendent
Town Engineer
Traffic/Safety Coordinator
Sean Hopkins, Hopkins Sorgi & McCarthy, 5500 Main Street, Suite 343, Williamsville, NY 14221
Chris Wood, Carmina Wood Morris, 487 Main Street, Suite 500, Buffalo, NY 14203
ARIA BUFF MAPLE, LLC, 180 N. University Ave., Suite 200, Provo, UT 84601

JAN21 '22 PM 1:13 RCVD

Attachment: Z-2021-10_signed_Resolution_011322 (25071 : Z-2021-10)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

ADOPTED

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Miscellaneous
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25094

PLANNING BOARD ITEM (ID # 25094)

Proposed Local Law to Amend the Zoning Ordinance: Amendments to Chapter 203, Part 5A MIXED USE DISTRICTS, ZTA-2021-02

Town of Amherst, Petitioner

The draft local law is an amendment to the Town Zoning Ordinance which amends the text of the recently adopted Mixed-Use regulations. The amendments are necessary based on challenges experienced by the Planning Department with the application of the regulations and practical difficulties which may be encountered for land owners during redevelopment. The initial changes include, the ability to permit new buildings and additions without a required second functional story, allowing for decorative architectural elements up to 48" above the roof height, permitting pole signs within the center and corridor zoning districts and prohibiting such signs within the traditional infill districts, increased door entrance spacing in the village frontage type, flexibility in the block perimeter requirement when existing conditions present practical difficulties and permitting drive up ATM machines as an accessory use within the shallow corridor district. Subsequent draft changes to the Mixed-Use regulations are anticipated in the future after the Planning Department has consulted with its Code consultant.

Daniel Ulatowski, Assistant Planning Director, represented the petitioner, explained the proposal and was available to answer questions from the Board.

In response to the Board's questions, Mr. Ulatowski stated requiring 10% of parking spaces to be equipped with electronic vehicle charging stations is too excessive, requiring 1% of parking spaces to be equipped with electronic vehicle charging stations is more realistic and accurate based on usage.

No further comments were heard on this proposal.

Following discussion, Mr. Giuliani moved to approve the request based on the resolution. The motion was seconded by Mr. Gill and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ATTACHMENTS:

- ZTA-2021-02_011322(PDF)
- ZTA-2021-02_draft neg dec_011322 (PDF)
- ZTA-2021-02_draft resolution_011322 (PDF)
- ZTA-2021-02_signed_Resolution_011322 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.

TOWN OF AMHERST PLANNING DEPARTMENT

Comprehensive Plan And Zoning Text Amendment Application

File # ZTA-2021-02

1. Amend Comprehensive Plan ☐
2. Zoning Code Text Amendment ☒
3. Other ☐ _____

PETITIONER:

- ☒ Town Board
- ☐ Planning Board
- ☐ Zoning Board of Appeals
- ☐ Commissioner of Building
- ☐ Planning Director

Sections Proposed to be Amended: (Attach sheets as necessary.)

Part 5 A

_____

Description of Amendments: (Attached sheets as necessary.)

Text amendments to the Mixed Use Regulations to permit new buildings and additions without a required second functional story, allowing for decorative architectural elements of 48" above the roof height, permitting pole signs within the center and corridor zoning districts and prohibiting such signs within the traditional infill districts, increased door entrance spacing in the village frontage type to 50 feet and an amendment to the block perimeter requirement when existing conditions present practical difficulties _____

_____

_____

Materials Received by Planning Department _____
RECEIVED BY DATE

Materials Filed with Town Clerk _____
ACCEPTED BY DATE

P/Currplan/Application Comp Plan & Zoning Text Amend.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Zoning Text Amendment - Part 5A		
Project Location (describe, and attach a general location map): Town-wide		
Brief Description of Proposed Action (include purpose or need): Text amendments to the Mixed Use regulations (Part 5A) of the Town of Amherst Zoning Ordinance (Chapter 203). Text amendments include the removal of a requirement that new buildings and additions be provided with a required second functional story, allowing for decorative architectural elements of 48" above the roof height, permitting pole signs within the center and corridor zoning districts and prohibiting such signs within the traditional infill districts, increasing the door entrance spacing in the village frontage type to 50 feet and an amendment to the block perimeter requirement when existing conditions present practical difficulties.		
Name of Applicant/Sponsor: Town of Amherst	Telephone: (716) 631-7051 E-Mail:	
Address: 5583 Main Street		
City/PO: Williamsville	State: New York	Zip Code: 14201
Project Contact (if not same as sponsor; give name and title/role): Daniel J. Ulatowski, AICP, Assistant Planning Director/ZEO	Telephone: (716) 631-7051 E-Mail: dulatowski@amherst.ny.us	
Address: 5583 Main Street		
City/PO: Williamsville	State: New York	Zip Code: 14201
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Town Board (Legislative Approval)	
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Planning Board (Advisory)	December 13,2021
c. City, Town or Village Zoning Board of Appeals ☐Yes ☐No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☐Yes ☑No		
f. Regional agencies ☐Yes ☑No		
g. State agencies ☐Yes ☑No		
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes ☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☑Yes ☐No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?

b. Is the use permitted or allowed by a special or conditional use permit? n/a ☐ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Sweet Home, Williamsville, Amherst, Clarence

b. What police or other public protection forces serve the project site?
Town of Amherst Police Department

c. Which fire protection and emergency medical services serve the project site?
Snyder, Main-Transit, East Amherst, Getzville, North Amherst, Swormville, Ellicott Creek, North Bailey, Eggertsville, Willliamsville

d. What parks serve the project site?
All Town of Amherst parks

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?

b. a. Total acreage of the site of the proposed action? _____ acres
b. Total acreage to be physically disturbed? _____ acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☐ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☐ No
i. If No, anticipated period of construction: _____ months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

f. Does the project include new residential uses? ☐Yes☐

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☐Yes☐No

If Yes,

i. Total number of structures _____

ii. Dimensions (in feet) of largest proposed structure: _____height; _____width; and _____ length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes☐No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐Yes☐No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes☐No
If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐Yes☐No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes☐No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

_____

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No

If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____

_____

- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☐Yes ☐No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☐No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes ☐No

If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

_____

_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☐No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

- Do existing sewer lines serve the project site? ☐Yes ☐
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

_____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

_____

_____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☐Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or _____ acres (impervious surface)

_____ Square feet or _____ acres (parcel size)

ii. Describe types of new point sources. _____

_____

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

_____

_____

- If to surface waters, identify receiving water bodies or wetlands: _____

_____

_____

- Will stormwater runoff flow to adjacent properties? ☐Yes ☐ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

_____

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

_____

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

_____

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☐No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☐No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☐No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☐No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend

☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: _____
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: _____
- Saturday: _____
- Sunday: _____
- Holidays: _____

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☐ Yes ☐

If yes:

i. Provide details including sources, time of day and duration:

_____

_____

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☐ No

Describe: _____

_____

n. Will the proposed action have outdoor lighting? ☐ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

_____

_____

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☐ No

Describe: _____

_____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☐ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

_____

_____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☐ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:_____

_____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

_____

_____

_____

_____

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____

  _____
- Operation: _____

  _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____

  _____
- Operation: _____

  _____

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☐

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☐ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

_____

_____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

_____

_____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

_____

_____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

_____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

_____

_____

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☐ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

_____

_____

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces			
• Forested			
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)			
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)			
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: _____ _____			

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☐ No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☐ No
If Yes,
i. Identify Facilities:
_____
_____

e. Does the project site contain an existing dam? ☐ Yes ☐ No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☐ No
If Yes:
i. Has the facility been formally closed? ☐ Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____
iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☐ No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☐ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No
☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____
_____
_____
iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☐ No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? _____ feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☐ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site: _____ _____%
_____ _____%
_____ _____%

d. What is the average depth to the water table on the project site? Average: _____ feet

e. Drainage status of project site soils: ☐ Well Drained: _____% of site
☐ Moderately Well Drained: _____% of site
☐ Poorly Drained _____% of site

f. Approximate proportion of proposed action site with slopes: ☐ 0-10%: _____% of site
☐ 10-15%: _____% of site
☐ 15% or greater: _____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☐ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☐ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☐ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☐ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☐ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☐ No
If Yes:

i. Name of aquifer: _____

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

m. Identify the predominant wildlife species that occupy or use the project site: _____

_____ _____ _____

_____ _____ _____

n. Does the project site contain a designated significant natural community? ☐Yes ☐No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

_____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☐No

If Yes:

i. Species and listing (endangered or threatened):_____

_____

_____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐Yes ☐No

If Yes:

i. Species and listing:_____

_____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☐No

If yes, give a brief description of how the proposed action may affect that use: _____

_____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☐No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☐No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☐No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

_____

_____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☐No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☐ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☐ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☐ No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☐ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

See Attachment "A"

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Daniel J. Ulatowski, AICP Date December 13, 2021

Signature _____ Title Assistant Planning Director/ZEO

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

PRINT FORM

D R A F T
LOCAL LAW NO. _____ -2022

TOWN OF AMHERST
COUNTY OF ERIE, STATE OF NEW YORK

A Local Law Making Amendments To Chapter 203 Of The Code Of The Town Of Amherst, Also Known As The Zoning Code As Adopted By Local Law 6-2006.

Be it enacted by the Town Board of the Town of Amherst as follows:

Section 1. Title.

This Local Law shall be referred to as, "A Local Law Amending Chapter 203 of the Code of The Town of Amherst, "Section 5A Mixed Use Districts."

Section 2. Purpose

The purpose of this Local Law is to provide amendments to the Town's Mixed-Use district regulations to recognize existing developed conditions, address necessary text corrections and overall, further the implementation of the original intent of the mixed-use provisions.

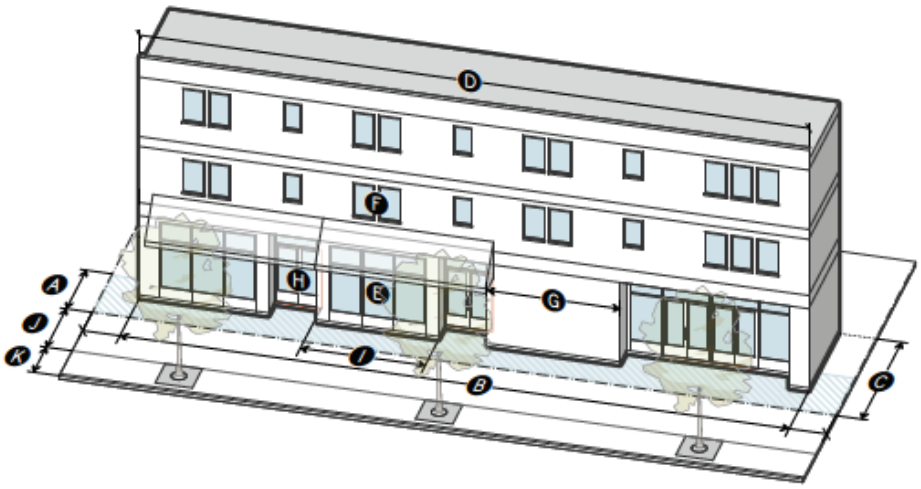
Section 3.

Chapter 203 of the Code of the Town of Amherst is amended as shown on the following pages

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

Proposed Text Changes to Part 5A, *(changes denoted by highlighted areas)*

5A-2-4. Village Frontage



BUILDING SETBACKS	
A Build-to zone	0' min/10' max
B Lot frontage	90% min
PARKING SETBACKS	
C Street	20' min
BUILDING MASS	
D Street-facing building length	200' max
STORY HEIGHT	
Ground floor elevation	0' min / 2' max
Ground story height	13' min
Upper story height	9' min

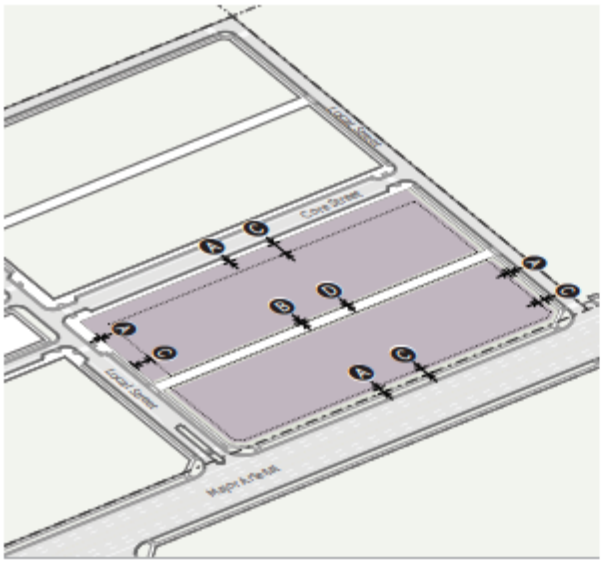
TRANSPARENCY	
E Ground story	70% min
F Upper story	20% min
G Blank wall length	15' max
PEDESTRIAN ACCESS	
H Street-facing entrance	Required
I Entrance spacing	30' max
STREETSCAPE	
J Clear pedestrian zone	10' min
K Curb zone	6' min
Tree planting type	Grates
Tree spacing	35' on-center avg.

Amend entrance Spacing to 50’ max.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

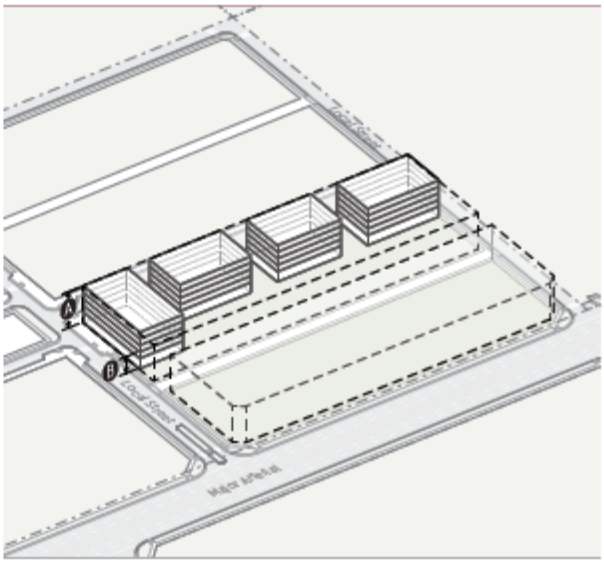
5A-3-7. CTR-5 Center 5

B. Site



LOT	
Width	0' min
BUILDING SETBACKS	
Ⓐ Street lot line	See 5A-4 Retrofit Frontages
Common lot line	0' min
Ⓑ Alley	5' min
PARKING SETBACKS	
Ⓒ Street lot line	See 5A-4 Retrofit Frontages
Common lot line	0' min
Ⓓ Alley	0' min
Ⓓ Alley	0' min

C. Building



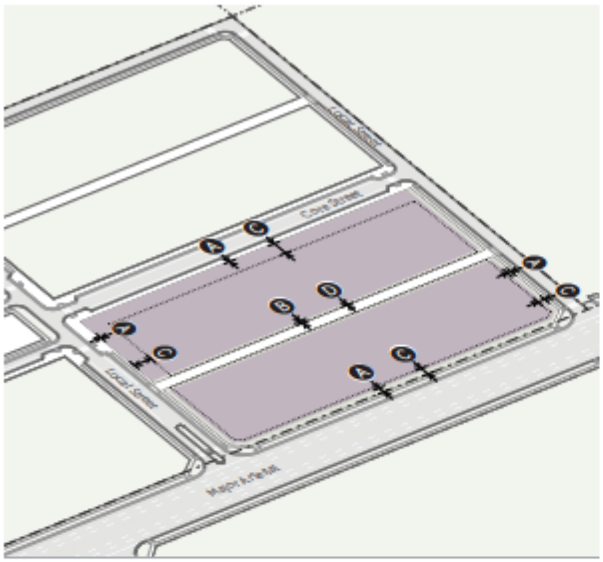
BUILDING MASS	
Ⓐ Maximum building height	5 stories/75' max
Ⓑ Minimum building height	2 stories/30' min
Street-facing building length	n/a
ACTIVATION	See 5A-4 Retrofit Frontages

Amend : Remove minimum building height.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

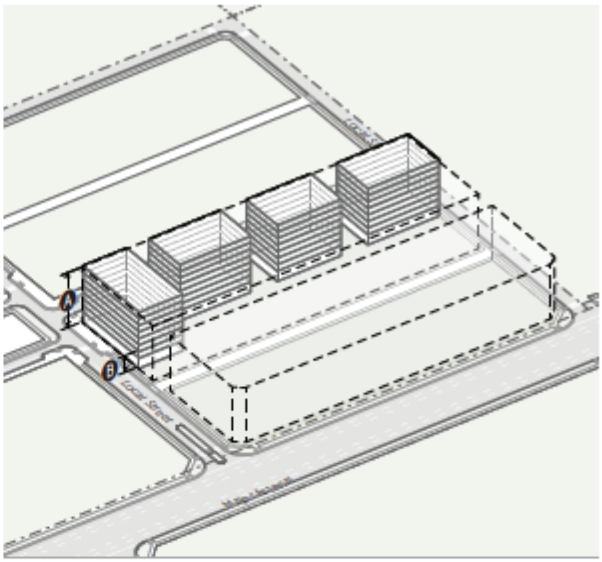
5A-3-8. CTR-8 Center 8

B. Site



LOT	
Area	0 SF min
Width	0' min
BUILDING SETBACKS	
Ⓐ Street lot line	See 5A-4 Retrofit Frontages
Common lot line	0' min
Ⓑ Alley	5' min
PARKING SETBACKS	
Ⓒ Street lot line	See 5A-4 Retrofit Frontages
Common lot line	0' min
Ⓓ Alley	0' min

C. Building



BUILDING MASS	
Ⓐ Maximum building height	8 stories/105' max
Ⓑ Minimum building height	2 stories/30' min
Street-facing building length	n/a
ACTIVATION	See 5A-4 Retrofit Frontages

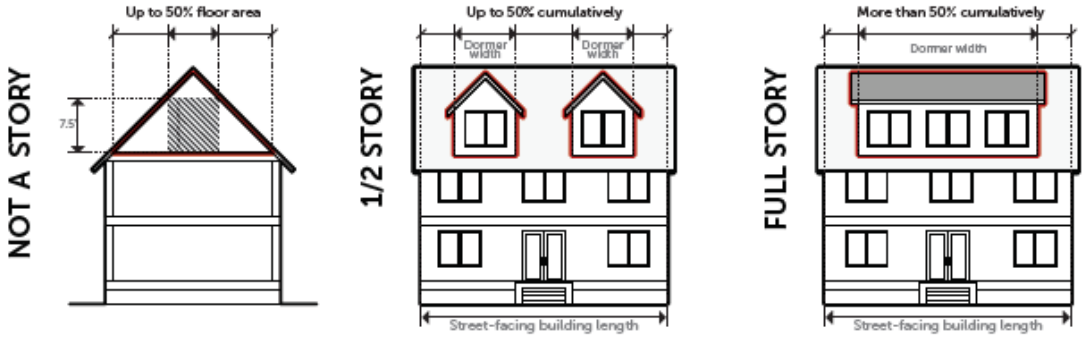
Amend : Remove minium building height.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

5A-7-8. Building Height

A. Stories

(1) A story counts as a half story if dormers are present on no more than 50% of the front or side building length. Where dormers exceed 50% of the front or side building length, it will be considered a full story.



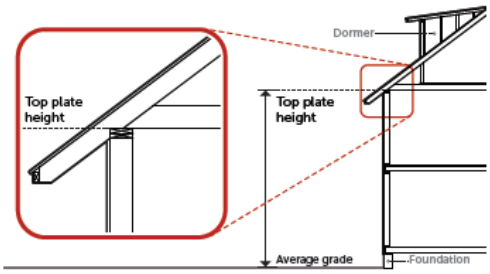
(2) An attic in a pitched roof form does not count as a story when no dormers are present and 50% or more of the attic floor area has a clear height of less than 7.5 feet as measured from the finished floor to the finished ceiling.

(3) Basements and mezzanines, as defined in the Building Code, do not count as a story.

~~(4) Minimum height requirements must be met using additional functional stories above the ground story containing conditioned space and covering the full extent of the ground story.~~ Strike language above

B. Top Plate Height

Top plate height is measured from average grade to the top of the wall plate that bears the roof structure.



C. Roof Pitch

The pitch of a roof is calculated based on the number of inches it rises vertically for every 12 inches it extends horizontally. For example, a roof that rises 6 inches for every 12 inches of horizontal run has a 6:12 pitch.

Add New Section D.

Decorative roof elements which do not serve as functional elements of a roof structure, such as pediments, cupolas, weather vanes and similar ornamentation may exceed the maximum building height listed in the building mass tables, providing such ornamentation does not exceed 48 inches in height and does not comprise more than 10 percent of the roof area.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

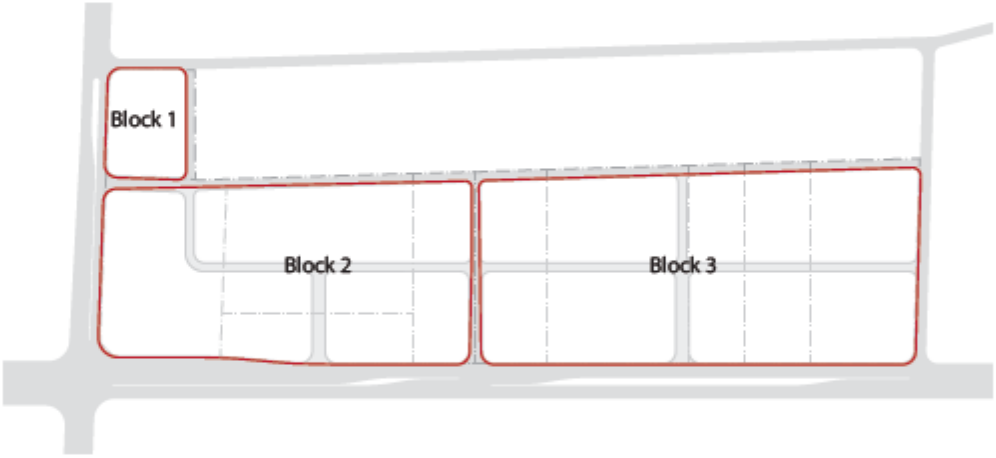
5A-7-12. Blocks

A. Perimeter

(1) A block is bounded by a public or private right-of-way or a street with a classification of local street or greater (not including an alley).

(2) Where a new street is provided along a lot line shared with another mixed use district, a Core Half-Street or Local Half-Street may be provided when neighboring property has not undergone redevelopment since the adoption of this Chapter 203.

(3) Block perimeter is measured along the edge of the property adjoining the right-of-way.



(4) The Zoning Administrator may waive the block perimeter requirements when steep slopes in excess of 25%, freeways, waterways, railroad lines, tree conservation areas, stream buffers, cemeteries, open space or utility easements would make the provision of a complete block infeasible.

(5) Where the block pattern is interrupted by public parkland (including a greenway), that is open and accessible to the public, pedestrian access points must be provided with a minimum spacing equal to maximum block length for the district.

Amend (4) above to read

The Planning Director may modify the block perimeter requirements when steep slopes in excess of 25%, freeways, waterways, railroad lines, tree conservation areas, stream buffers, cemeteries, open space, utility easements or when existing conditions make the provisions of a complete block structure infeasible, or warrant a larger block structure.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

5A-8-2. Mixed Use District Use Table

MIXED USE DISTRICTS	TI-2.5	TI-4	SC-3	DC-3	DC-5	CTR-2.5	CTR-5	CTR-8	Use Standards
OPEN USES									
None allowed	--	--	--	--	--	--	--	--	
RESIDENTIAL USES									
Single-family detached	P	P	P	P	P	P	P	P	
Multi-family dwelling	P	P	P	P	P	P	P	P	
Upper-story dwelling	P*	P*	P*	P*	P*	P*	P*	P*	6-2-6.
Assisted group living	P	P	P	P	P	P	P	P	
Senior citizen housing	P*	P*	P*	P*	P*	P*	P*	P*	6-2-2.
PUBLIC AND CIVIC USES									
Ambulance service	P	P	P	P	P	P	P	P	
Business college, commercial school	P	P	P	P	P	P	P	P	
College, university	--	--	--	--	P	--	P	P	
Day care	P*	P*	P*	P*	P*	P*	P*	P*	6-3-2.
Passenger Station	--	--	--	--	--	--	P	P	
Place of worship	P*	P*	P*	P*	P*	P*	P*	P*	6-3-3.
Public utility service structure or facility	P*	P*	P*	P*	P*	P*	P*	P*	6-3-4.
School, elementary/secondary (private)	P	P	P	P	P	P	P	P	
Telecommunication facility	S	S	S	S	S	S	S	S	§ 6-7
Utility, minor	P	P	P	P	P	P	P	P	
COMMERCIAL USES									
Animal care	P*	P*	P*	P*	P*	P*	P*	P*	6-4-1, 6-4-13, 6-8-7
Drive-through facility	--	--	P*	P*	P*	P*	P*	P*	4-8-4.
Lodging	P	P	P	P	P	P	P	P	
Medical	P	P	P	P	P	P	P	P	
Office	P	P	P	P	P	P	P	P	
Personal service	P	P	P	P	P	P	P	P	
Recreation, indoor	P	P	P	P	P	P	P	P	
Recreation, outdoor	--	--	--	S	S	S	S	S	
Restaurant	P	P	P	P	P	P	P	P	
Restaurant with outdoor dining	P*	P*	P*	P*	P*	P*	P*	P*	6-4-9.
Retail sales and service	P	P	P	P	P	P	P	P	
Sexually oriented business	--	--	--	--	--	--	--	--	§ 6-6
Vehicle sales, indoor	--	--	--	--	P	P	P	P	
Vehicle sales (outdoor), vehicle service	--	--	--	--	--	--	--	--	
INDUSTRIAL USES									
Light industrial	--	--	--	--	--	--	--	--	
Heavy industrial	--	--	--	--	--	--	--	--	
ACCESSORY USES									
All uses and structures customarily incidental to a principal use	P	P	P	P	P	P	P	P	

P = Permitted P* = Permitted with supplemental use standards S = Special Use (ZBA approval required) -- = Not Permitted

Add – "Meeting rooms for fraternal and civic organizations" as a permitted use under Public and Civic Uses.

Add: Drive Through ATM facility as a permitted use within the SC-3 Zoning District only when such location is a not along a property line which adjoins a protected district. All other drive through facility types shall be prohibited.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

Strike language

5A-9-1. Parking, ~~Loading and Stacking~~

All parking, loading and stacking must meet the requirements of 7-1, except as required below.

A. Minimum Parking in Mixed Use Districts

(1) Off-Street Vehicle Parking

Off-street parking facilities must be provided in quantities not less than set forth in the following schedule.

SCHEDULE OF PARKING REQUIREMENTS

RESIDENTIAL USES	
Single-family detached	1.0 space per dwelling unit
Attached dwelling	1.0 space per dwelling unit
Multi-family dwelling, upper-story dwelling, assisted group living, senior citizen housing	.75 space per efficiency unit 1.0 space per one or two-bedroom unit 1.5 space per three or more bedroom unit
PUBLIC AND CIVIC USES	
Ambulance service	2.5 spaces per 1,000 SF
Business college, commercial school	3.5 spaces per 1,000 SF
College, university	3.5 spaces per 1,000 SF
Day care	3.5 spaces per 1,000 SF
Place of worship	3.5 spaces per 1,000 SF
Public utility service structure or facility	2.5 spaces per 1,000 SF
School, elementary/secondary (private)	3.5 spaces per 1,000 SF
Telecommunication facility, minor utility	1 space per facility
COMMERCIAL USES	
Animal grooming, cat boarding facility, animal hospital or veterinarian	2 spaces per 1,000 SF
Lodging	.75 spaces per room
Medical	3.5 spaces per 1,000 SF
Office	2.5 spaces per 1,000 SF
Personal service	2.5 spaces per 1,000 SF
Recreation, indoor	2.5 spaces per 1,000 SF
Restaurant	4.0 spaces per 1,000 SF
Retail sales and service	2.5 spaces per 1,000 SF

Add: (gross square feet) each SF

D. Electric Vehicle Charging Stations

In the Mixed Use Districts, 10% of all parking spaces must be electric-vehicle (EV) ready, with a minimum of 2 EV-ready spaces for all parking lots over 20 spaces. Electric-vehicle ready means, at minimum, conduit or other means to connect power to each space is installed in advance.

Amend : reduce to 1% of all parking spaces.

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

Revise 7-8-7. Permitted Signs Table, as follows:

SIGN TYPE	RESIDENTIAL DISTRICTS	BUSINESS AND MIXED USE DISTRICTS	INDUSTRIAL DISTRICTS	ALL OTHER DISTRICTS
SIGNS NOT REQUIRING A PERMIT				
Address sign		✓	✓	✓
Construction sign	✓	✓	✓	✓
Incidental sign		✓	✓	✓
Fuel pump sign		✓	✓	✓
Home occupation sign	✓			✓
Political sign	✓	✓	✓	✓
Real estate sign	✓	✓	✓	✓
Window sign		✓	✓	✓
SIGNS REQUIRING A PERMIT				
Building Signs				
Awning sign		✓	✓	✓
Fascia sign		✓	✓	✓
Hanging sign		✓	✓	✓
Marquee sign		✓	✓	✓
Projecting sign		✓	✓	✓
Wall sign		✓	✓	✓
Menu Board		✓		
Freestanding Signs				
Ground sign		✓	✓	✓
Message center sign		✓***		✓***
Pole sign		✓**		✓**
Subdivision identification sign	✓			
Miscellaneous Signs				
Directory sign		✓	✓	✓

* In the ~~SC~~ district, in addition to the pole sign described in § 7-8-4, only wall, ground, hanging, fascia, and permanent changeable letter signs shall be permitted.

** Pole signs are not permitted in the OB, NB, ~~or~~ TNB overlay, SC-3, DC- and CTR- districts.

*** Message center signs are not permitted in the - TNB, PRD, PDD, ~~or~~ TND overlay, SC-3, DC- and CTR- districts or within 500 feet of a residential district.

Ground, wall and awning signs only are permitted in the LW-1 District.

Amend to read * in the SC- Shopping Center District

Amend highlighted text to read:
** Pole signs are not permitted in the OB, NB, TNB or the TI- Traditional Infill districts.
Such signs are permitted in the SC-3, DC-3, DC-5 and CTR-2.5, CTR-5 and CTR-8 districts subject to the following restriction:

Pole signs shall be permitted only on those parcels which are a “multiple development” and have a building which is at least 25,000 sf in area.

*** Message center signs are not permitted in the TNB, PRD, PDD, TND or the TI – Traditional Infill dis

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

Section 4. Effective Date

This Local Law shall take effect immediately and be filed in the Office of the Secretary of State in accordance with Section 27 of the Municipal Home Rule Law and published pursuant to Section 130 of the Town Law and Chapter 28 of the Code of the Town of Amherst.

Francina J. Spoth
Town Clerk
Town of Amherst
County of Erie, New York

Attachment: ZTA-2021-02_011322 (25094 : Zta-2021-02)

MOTION:
APPROVE ____ BY _____ 2nd _____ VOTE _____
DENY ____
TABLE ____
ADJOURN ____

	FOR	AGAINST	ABSTAIN		FOR	AGAINST	ABSTAIN
CHMIEL				GIULIANI			
GELBER				PENBERTHY			
GILL				RAFFAELE			
GILMOUR							

COMMENTS:_____
_____
_____
_____

PETITIONER *Miscellaneous #1*

Town of Amherst
5583 Main St.
Williamsville, NY 14221

REQUEST: Proposed Local Law to Amend the Zoning Ordinance: Amendments to Part 5A, Mixed-Use Regulations, ZTA-2021-02.

PROJECT DESCRIPTION: The draft local law is an amendment to the Town Zoning Ordinance which amends the text of the recently adopted Mixed-Use regulations. The amendments are necessary based on challenges experienced by the Planning Department with the application of the regulations and practical difficulties which may be encountered for land owners during redevelopment. The initial changes include, the ability to permit new buildings and additions without a required second functional story, allowing for decorative architectural elements up to 48" above the roof height, permitting pole signs within the center and corridor zoning districts and prohibiting such signs within the traditional infill districts, increased door entrance spacing in the village frontage type, flexibility in the block perimeter requirement when existing conditions present practical difficulties and permitting drive up ATM machines as an accessory use within the shallow corridor district. Subsequent draft changes to the Mixed-Use regulations are anticipated in the future after the Planning Department has consulted with its Code consultant.

DRAFT LOCAL LAW: See attached for draft local law.

REVIEW AGENCY REPORTS:

Building: Review Pending

Highway: Review Pending

Engineering: Review Pending.

Town Attorney: Review pending.

Attachment: ZTA-2021-02_draft neg dec_011322 (25094 : Zta-2021-02)

Zoning Enforcement Officer: Approved as submitted.

Fire Chief's Association: Review pending

OTHER AGENCIES:

NYSDEC: agrees the Town of Amherst should act as the SEQR Lead Agency. NYSDEC is not an involved agency and does not have any specific comments regarding the zoning ordinance amendments.

ECDEP: No recommendation; proposed action has been reviewed and determined to be of local concern.

Town of Tonawanda: No Comments

Town of Cheektowaga: No Comments

Town of Clarence: No Comments

Town of Pendelton: No Comments

City of Buffalo: No Comments

STAFF ANALYSIS

Consistency with Comprehensive Plan: The proposed changes have no policy implications and further the objectives of section 3.3.2, Commercial and Mixed-Use land use as described in the Comprehensive Plan. The proposed changes do not alter the Zoning Ordinance's consistency with the Comprehensive Plan.

Consistency with the Intent of the Zoning Ordinance: The proposed changes are consistent with the original intent of the mixed-use regulations. The changes recognize implementation challenges for existing developed properties and will allow for greater opportunities for redevelopment. The proposed changes are consistent with the intent of the Town Zoning Ordinance.

STAFF RECOMMENDATION:

SEQR

The subject request is a Type I action, FEAF Parts 1 & 2 completed. The SEQR determination of environmental significance is the responsibility the Town Board as the SEQR Lead Agency.

Text Amendments:

Approve, based on the attached resolution.

DU/ac
X:\Current_Planning\Files\Text Amendments\ZTA-2021\ZTA-2021-02 (Part 5A)\ZTA-2021-02_Blurb_011322 .doc_

Attachment: ZTA-2021-02_draft neg dec_011322 (25094 : Zta-2021-02)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
ZONING TEXT AMENDMENTS
ZTA-2021-02

PETITIONER
Town of Amherst
5583 Main Street
Williamsville, NY 14221

WHEREAS the Town of Amherst Planning Board on Thursday, January 13, 2022 held a remote public hearing on the proposed zoning ordinance text amendments, and

WHEREAS the Planning Board has reviewed materials regarding the proposed text amendments, and

WHEREAS the materials have been referred to the Town's various review agencies, and

WHEREAS per Chapter 203, Part 8, Section 8-5-5(A) & (B) of the Town Code, the Planning Board finds that:

1. The proposed text amendments are consistent with the remainder of the Zoning Ordinance, including, specifically, the following purpose statement as found in Section 1-2-2:

> To protect the character and values of residential, institutional and public uses, business, commercial and manufacturing uses and to insure their orderly and beneficial development, and to regulate and control the location and spacing of buildings on the lot and in relation to the surrounding property generally consistent with the policies of the Comprehensive Plan.

2. The proposed text amendment does not present a new idea not considered in the existing Ordinance, or does not represent a revision necessitated by changing circumstances over time.

3. The proposed text amendments does not correct an error in the Ordinance.

4. The proposed text amendments does not revise the Ordinance to comply with state or federal statutes or case law.

5. The proposed text amendments advance the public health, safety or welfare and is consistent with the Zoning Ordinance.

6. The proposed text amendments are generally consistent with the policies of the Comprehensive Plan.

NOW THEREFORE BE IT RESOLVED that the Planning Board recommends to the Town Board in accordance with Section 8-3-4 of the Zoning Ordinance, that the request be approved.

Attachment: ZTA-2021-02_draft neg dec_011322 (25094 : Zta-2021-02)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
ZONING TEXT AMENDMENTS
ZTA-2021-02

PETITIONER
Town of Amherst

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Planning Board Chair Date

DU/ac
X:\Current_Planning\Files\Text Amendments\ZTA-2021\ZTA-2021-02 (Part 5A)\ZTA-2021-02_Blurb_011322 .doc
cc: Town Clerk
Traffic/Safety Coordinator
Commissioner of Building
Highway Superintendent
Town Engineer

Attachment: ZTA-2021-02_draft neg dec_011322 (25094 : Zta-2021-02)

DRAFT (1/13/2022)
SEQR

NEGATIVE DECLARATION

NOTICE OF DETERMINATION OF NON-SIGNIFICANCE

Lead Agency: Town of Amherst
Town Board

Project: ZTA-2021-02

Address: 5583 Main Street
Williamsville, NY 14221
(716) 631-7051

Date:

This notice is issued pursuant to Part 617 and Local Law #3-82, as amended, of the implementing regulations pertaining to Article 8 (State Environmental Quality Review) of the Environmental Conservation Law.

The Lead Agency has determined that the proposed action described below will not have a significant adverse effect on the environment.

Title of Action: Proposed Zoning Ordinance Text Amendment to Amend Part 5A (Section 5A -Mixed -Use Regulations)

SEQR Status: Type 1

Description of Action: Text amendments to portions of the Mixed-Use regulations within the Town of Amherst Zoning Ordinance.

Location: Town of Amherst, Erie County, New York

Petitioner: Town of Amherst

Attachment: ZTA-2021-02_draft neg dec_011322 (25094 : Zta-2021-02)

Based on information submitted by the applicant, including a Full Environmental Assessment Form (EAF) - Part 1 and Part 2, a complete zoning text amendment application and a preliminary staff analysis was undertaken. Compared to the criteria listed in Section 617.7, all indications are that the proposed revisions to the Town Zoning Ordinance will not have a significant impact on the environment, as follows:

1. The action is not expected to cause a substantial adverse change in existing air quality, ground or surface water quality or quantity, or noise levels; a substantial increase in solid waste production; or a substantial increase in the potential for erosion, flooding, leaching or drainage problems.

2. The action will not result in the removal or destruction of large quantities of vegetation or fauna; or in significant adverse impacts to fish or wildlife species, habitats or other natural resources.

3. The action is not expected to create any material conflict with the Town Comprehensive Plan. The proposed amendment is intended to further implement a plan objective to encourage redevelopment that is compatible with established neighborhoods.

4. The text amendments may apply to areas identified by the State as potentially containing significant cultural or archeological resources. As requests for development of individual parcels or site plan applications are received, an analysis will be undertaken to ensure that future development will not impair the character or quality of important historical or cultural resources.

5. The action will not impair the character or quality of important aesthetic resources or of existing community or neighborhood character. The text amendments are designed to permit development that is consistent with surrounding land use and development.

6. The proposed text amendments will not cause a major change in the use of either the quantity or type of energy.

7. The proposed text amendments will not create any hazard to human health.

8. The proposed text amendments will not cause a substantial change in the use, or intensity of use, of land including agricultural, open space or recreational resources, or in its capacity to support existing uses. The proposed text amendments will allow development that is consistent with the scale of surrounding land uses.

9. The proposed text amendments will not significantly increase the number of people using sites over their previous level of use.

Attachment: ZTA-2021-02_draft neg dec_011322 (25094 : Zta-2021-02)

10. Coordinated reviews of the project have been undertaken by Town Departments**,** including Building, Planning and the Town Attorney, along with the Erie County Department of Environmental and Planning and NYSDEC. These reviews have not identified any significant environmental issues and indicate that the proposal will not have a significant damaging impact on the environment.

11. Issues not specifically mentioned above and/or those not specifically reviewed were not raised by Town departments, outside agencies or the public and are not determined to be causing significant negative environmental impacts.

_____ _____
Signature & title of preparer date

_____ _____
Brian J. Kulpa, Supervisor date

DU/ac
X:\Current_Planning\Files\Text Amendments\ZTA-2021\ZTA-2021-02 (Part 5A)\ZTA-2021-02_draft resolution_011322 .doc
cc: Amherst Town Clerk
Amherst Building Department
ECDEP
NYSDOT

Attachment: ZTA-2021-02_draft neg dec_011322 (25094 : Zta-2021-02)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
ZONING TEXT AMENDMENTS
ZTA-2021-02

PETITIONER
Town of Amherst
5583 Main Street
Williamsville, NY 14221

WHEREAS the Town of Amherst Planning Board on Thursday, January 13, 2022 held a remote public hearing on the proposed zoning ordinance text amendments, and

WHEREAS the Planning Board has reviewed materials regarding the proposed text amendments, and

WHEREAS the materials have been referred to the Town's various review agencies, and

WHEREAS per Chapter 203, Part 8, Section 8-5-5(A) & (B) of the Town Code, the Planning Board finds that:

1. The proposed text amendments are consistent with the remainder of the Zoning Ordinance, including, specifically, the following purpose statement as found in Section 1-2-2:

> To protect the character and values of residential, institutional and public uses, business, commercial and manufacturing uses and to insure their orderly and beneficial development, and to regulate and control the location and spacing of buildings on the lot and in relation to the surrounding property generally consistent with the policies of the Comprehensive Plan.

2. The proposed text amendment does not present a new idea not considered in the existing Ordinance, or does not represent a revision necessitated by changing circumstances over time.

3. The proposed text amendments does not correct an error in the Ordinance.

4. The proposed text amendments does not revise the Ordinance to comply with state or federal statutes or case law.

5. The proposed text amendments advance the public health, safety or welfare and is consistent with the Zoning Ordinance.

6. The proposed text amendments are generally consistent with the policies of the Comprehensive Plan.

NOW THEREFORE BE IT RESOLVED that the Planning Board recommends to the Town Board in accordance with Section 8-3-4 of the Zoning Ordinance, that the request be approved.

Attachment: ZTA-2021-02_draft resolution_011322 (25094 : Zta-2021-02)

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
ZONING TEXT AMENDMENTS
ZTA-2021-02

PETITIONER
Town of Amherst

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____; moved by - _____; seconded by - _____; ayes _, noes _; absent - ____.

_____ _____
Robert J. Gilmour, Planning Board Chair Date

DU/ac
X:\Current_Planning\Files\Text Amendments\ZTA-2021\ZTA-2021-02 (Part 5A)\ZTA-2021-02_draft resolution_011322 .doc
cc: Town Clerk
Traffic/Safety Coordinator
Commissioner of Building
Highway Superintendent
Town Engineer

Attachment: ZTA-2021-02_draft resolution_011322 (25094 : Zta-2021-02)

Attachment: ZTA-2021-02_draft resolution_011322 (25094 : Zta-2021-02)

TOWN OF AMHERST
PLANNING BOARD
ZONING TEXT AMENDMENTS
ZTA-2021-02

PETITIONER
Town of Amherst
5583 Main Street
Williamsville, NY 14221

WHEREAS the Town of Amherst Planning Board on Thursday, January 13, 2022 held a remote public hearing on the proposed zoning ordinance text amendments, and

WHEREAS the Planning Board has reviewed materials regarding the proposed text amendments, and

WHEREAS the materials have been referred to the Town's various review agencies, and

WHEREAS per Chapter 203, Part 8, Section 8-5-5(A) & (B) of the Town Code, the Planning Board finds that:

1. The proposed text amendments are consistent with the remainder of the Zoning Ordinance, including, specifically, the following purpose statement as found in Section 1-2-2:

> To protect the character and values of residential, institutional and public uses, business, commercial and manufacturing uses and to insure their orderly and beneficial development, and to regulate and control the location and spacing of buildings on the lot and in relation to the surrounding property generally consistent with the policies of the Comprehensive Plan.

2. The proposed text amendment does not present a new idea not considered in the existing Ordinance, or does not represent a revision necessitated by changing circumstances over time.

3. The proposed text amendments does not correct an error in the Ordinance.

4. The proposed text amendments does not revise the Ordinance to comply with state or federal statutes or case law.

5. The proposed text amendments advance the public health, safety or welfare and is consistent with the Zoning Ordinance.

6. The proposed text amendments are generally consistent with the policies of the Comprehensive Plan.

NOW THEREFORE BE IT RESOLVED that the Planning Board recommends to the Town Board in accordance with Section 8-3-4 of the Zoning Ordinance, that the request be approved.

JAN21 '22 PM 1:14 RCVD

Attachment: ZTA-2021-02_signed_Resolution_011322 (25094 : Zta-2021-02)

TOWN OF AMHERST
PLANNING BOARD
ZONING TEXT AMENDMENTS
ZTA-2021-02

PETITIONER
Town of Amherst

The foregoing resolution was adopted by the Town of Amherst Planning Board, January 13, 2022; moved by – Mr. Giuliani; seconded by – Mr. Gill; ayes 4, noes 0; absent 3 (Chmiel, Gelber, Raffaele).

Robert J. Gilmour, Planning Board Chair

1-20-2022
Date

DU/ac
X:\Current_Planning\Files\Text Amendments\ZTA-2021\ZTA-2021-02 (Part 5A)\ZTA-2021-02_resolution_011322 .doc
cc: Town Clerk
Traffic/Safety Coordinator
Commissioner of Building
Highway Superintendent
Town Attorney
Town Engineer

Attachment: ZTA-2021-02_signed_Resolution_011322 (25094 : Zta-2021-02)

JAN21 '22 PM 1:14 RCVD

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

ADOPTED

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Miscellaneous
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25073

PLANNING BOARD ITEM (ID # 25073)

Proposed Sidewalk Waiver Request, SWW-2021-07

Property located at 4224-4256 Ridge Lea Road
Benderson Development Company LLC, Petitioner

Mr. Giuliani moved to approve the request based on the resolution. The motion was seconded by Ms. Penberthy and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

Following discussion and the addition of conditions the motion was amended.

Ms. Penberthy moved to approve the request as amended. The motion was seconded by Mr. Giuliani and carried. Ayes 4, Noes 0, Absent 3 (Chmiel, Gelber, Raffaele).

ATTACHMENTS:

- SWW-2021-07_signed_Resolution_011322 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Brittany Lee Penberthy, Board Member
SECONDER:	Dal Giuliani, Board Member
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.

TOWN OF AMHERST
PLANNING BOARD
SIDEWALK WAIVER REQUEST
SWW-2021-07

PETITIONER

Benderson Development Company
James Boglioli, Esq.
570 Delaware Ave.
Buffalo, NY 14202

PROPERTY LOCATION

4224-4256 Ridge Lea Road

WHEREAS, the Town of Amherst Planning Board on Thursday, January 13, 2021 considered a request for a sidewalk waiver at 4224-4256 Ridge Lea Road, and

WHEREAS, the Planning Board reviewed the plans and specifications for the proposed project,

NOW THEREFORE BE IT RESOLVED that the Planning Board, in accordance with Chapter 83, Part IX, Section 1-2 of Town Code, **approves** the sidewalk waiver along the 1,202 ± LF portion of the property frontage on the east side of North Bailey Avenue, with the following condition;

1. That the property owner be required to construct the sidewalks or contribute to a project betterment fund when North Bailey Avenue is widened, reconstructed or if sidewalks are required by the Town Board.

The foregoing resolution was adopted by the Town of Amherst Planning Board, January 13, 2022; moved by - Penberthy; seconded by - Giuliani; ayes 4, noes 0; absent -3 (Chmiel, Gelber, Raffaele).

Robert J. Gilmour, Chair

1-20-2022
Date

TV/ac
X:\Current_Planning\Files\Sidewalk Waivers\SWW 2021\SWW-2021-07\SWW-2021-07_draft resolution_011322.doc
cc: Town Clerk
Commissioner of Building
Town Engineer
Fire Chiefs
Traffic/Safety
Highway Superintendent
James Boglioli, Benderson Development Company, 570 Delaware Avenue, Buffalo, NY 14202

JAN21'22 PM 1:14 RCVD

Attachment: SWW-2021-07_signed_Resolution_011322 (25073 : Sww-2021-07)

Amherst Planning Board
5583 Main Street
Williamsville, NY 14221

ADOPTED

Meeting: 01/13/22 06:30 PM
Department: Planning
Category: Miscellaneous
Prepared By: Amy Carrato
Initiator: Dan Howard
Sponsors:
DOC ID: 25306

PLANNING BOARD ITEM (ID # 25306)

Virtual Meetings Resolution

ATTACHMENTS:

- Virtual Public Meetings 011322 (PDF)
- Virtual_Meeting_Resolution_011322 (PDF)

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Dal Giuliani, Board Member
SECONDER:	Harbinder Gill, Board Member
AYES:	Robert J. Gilmour, Harbinder Gill, Dal Giuliani, Brittany Lee Penberthy
ABSENT:	Michael Chmiel, Stephanie S. Gelber, Joseph P. Raffaele Jr.

DRAFT (1/13/2022)
TOWN OF AMHERST
PLANNING BOARD
VIRTUAL MEETING RESOLUTION

WHEREAS, more than millions of New York State residents have been affected by COVID-19 and the disease has killed many New Yorkers since May 2020; and

WHEREAS, it is necessary to contain the pandemic that has brought widespread economic and social destruction; and

WHEREAS, many Amherst residents have experienced financial hardship due to measures that have been taken to contain the pandemic and such measures have closed businesses and schools, resulting in income loss across the State; and

WHEREAS, even as New York State enters a phase of economic recovery, the need for continued statutory protection and other public health measures as demonstrated by rates of transmission in COVID-19 in the State is ongoing; and

WHEREAS, for the foregoing reasons, it is necessary to temporarily alter certain provisions of the Open Meetings Law (Article 7 of the Public Officers Law) to ensure that certain public bodies can hold their meetings in a manner that balances the public's health and safety with the public's right to observe the proceedings;

NOW THEREFORE, BE IT RESOLVED, that the Town Board hereby provides authorization to any board, commission or local public party of the Town of Amherst as defined in General Construction Law §66, or committee or sub-committee of a similar body or entity of a political subdivision as defined in General Municipal Law §100, to take such action as authorized by law without permitting the public in-person access to the meetings; and

BE IT FURTHER RESOLVED, authorization is also given to hold such meetings remotely by conference or by similar service such as Zoom, provided that the public has the ability to view or listen to such proceedings and that such meetings are recorded and later transcribed if requested; and

BE IT FURTHER RESOLVED, that this resolution shall take effect immediately for the Planning Board's meetings and

BE IT FURTHER RESOLVED, that said authority shall expire and be deemed repealed when authority by the state legislature and/or New York State Governor has expired.

The foregoing resolution was adopted by the Town of Amherst Planning Board, _____;
moved by - _____; seconded by - _____; ayes , noes .

X:\Current_Planning\Planning Board\Resolutions\Virtual Public Meetings 011322.doc

Attachment: Virtual Public Meetings 011322 (25306 : Virtual Meetings Resolution)

TOWN OF AMHERST
PLANNING BOARD
VIRTUAL MEETING RESOLUTION

WHEREAS, more than millions of New York State residents have been affected by COVID-19 and the disease has killed many New Yorkers since May 2020; and

WHEREAS, it is necessary to contain the pandemic that has brought widespread economic and social destruction; and

WHEREAS, many Amherst residents have experienced financial hardship due to measures that have been taken to contain the pandemic and such measures have closed businesses and schools, resulting in income loss across the State; and

WHEREAS, even as New York State enters a phase of economic recovery, the need for continued statutory protection and other public health measures as demonstrated by rates of transmission in COVID-19 in the State is ongoing; and

WHEREAS, for the foregoing reasons, it is necessary to temporarily alter certain provisions of the Open Meetings Law (Article 7 of the Public Officers Law) to ensure that certain public bodies can hold their meetings in a manner that balances the public's health and safety with the public's right to observe the proceedings;

NOW THEREFORE, BE IT RESOLVED, that the Town Board hereby provides authorization to any board, commission or local public party of the Town of Amherst as defined in General Construction Law §66, or committee or sub-committee of a similar body or entity of a political subdivision as defined in General Municipal Law §100, to take such action as authorized by law without permitting the public in-person access to the meetings; and

BE IT FURTHER RESOLVED, authorization is also given to hold such meetings remotely by conference or by similar service such as Zoom, provided that the public has the ability to view or listen to such proceedings and that such meetings are recorded and later transcribed if requested; and

BE IT FURTHER RESOLVED, that this resolution shall take effect immediately for the Planning Board's meetings and

BE IT FURTHER RESOLVED, that said authority shall expire and be deemed repealed when authority by the state legislature and/or New York State Governor has expired.

The foregoing resolution was adopted by the Town of Amherst Planning Board, January 13, 2021; moved by – Mr. Giuliani; seconded by – Mr. Gill; ayes 4, noes 0, absent 3 (Chmiel, Gelber, Raffaele).

Robert J. Gilmour, Chair

1-20-2022
Date

X:\Current_Planning\Planning Board\Resolutions\Virtual Public Meetings 011322.doc

JAN21'22 PM 1:11 RCVD

Attachment: Virtual_Meeting_Resolution_011322 (25306 : Virtual Meetings Resolution)