NOTE:
This SWPPP was prepared in accordance with SPDES General Permit #GP-0-20-001. This SWPPP must be kept on the job site and available for use of contractors & sub-contractors. Certifications by Applicant/Developer and by the Contractors /Subcontractors are included. A copy of the Notice of Intent (NOI), which must be filed electronically at least 5 days prior to the commencement of any work together with the MS4 Acceptance Form, is included herein. Notice of Termination (NOT) must be filed when all storm water quality controls are in place and the site has been stabilized with specified vegetation. Sample Inspection Forms are included. Maintenance Plan is attached and includes both temporary and permanent facilities maintenance. This SWPPP, together with all required plans, completed inspection forms and a log of activities including any mitigation of items noted on inspection forms must be kept on the job site and available for inspection by regulatory authorities.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
& STORM WATER MANAGEMENT REPORT (SWMR)

1415 Washington Avenue Student Housing

City of Albany
County of Albany
State of New York

Applicant:
1415 Washington Property, LLC

Prepared by:
HERSHBERG & HERSHBERG
CONSULTING ENGINEERS
18 Locust Street
Albany, New York 12203
Phone: (518) 459-3096
Fax: (518) 459-5683
Web Site: Hhershberg.com

June 9, 2021
Revised 9/30/21

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INTRODUCTION:

Hershberg & Hershberg, Consulting Engineers and Land Surveyors, were retained by 1415 Washington Property, LLC (hereinafter the “Applicant”) whose address is Liberty Plaza #2800, New York, NY 10006 as site engineer for the construction of a student dormitory. This report is for the consideration of the Department of Water & Water Supply and the City of Albany Planning Board.

DESCRIPTION OF EXISTING SITE

PARCEL AREA

The site is developed and contains a 95 room hotel with surface parking (Cresthill Suites). The Tax Map Parcel is No.53.00-1-25 which has an area of 3.24 acres. The existing site statistics for project area are shown in Fig. No. 1 below. An aerial picture of site is shown in Fig. No. 2.

EXISTING COVERAGE STATISTICS			
Description	**Area (SF)**	**Area (acres)**	**%**
Green Area	61,385	1.41	43.5%
Building Area	22,079	0.50	15.5%
Paved Area	57,713	1.33	41.0%
Total Area	141,177	3.24	100.0%

Fig. No. 1 –Existing Coverage Statistics

Fig. No. 2 –Aerial Photo of Site

WATERCOURSES

There are a no watercourses which cross the project area.

FLOOD PLAIN

The entire project area lies within Zone X (Area of Minimal Flooding). See Mapping below.

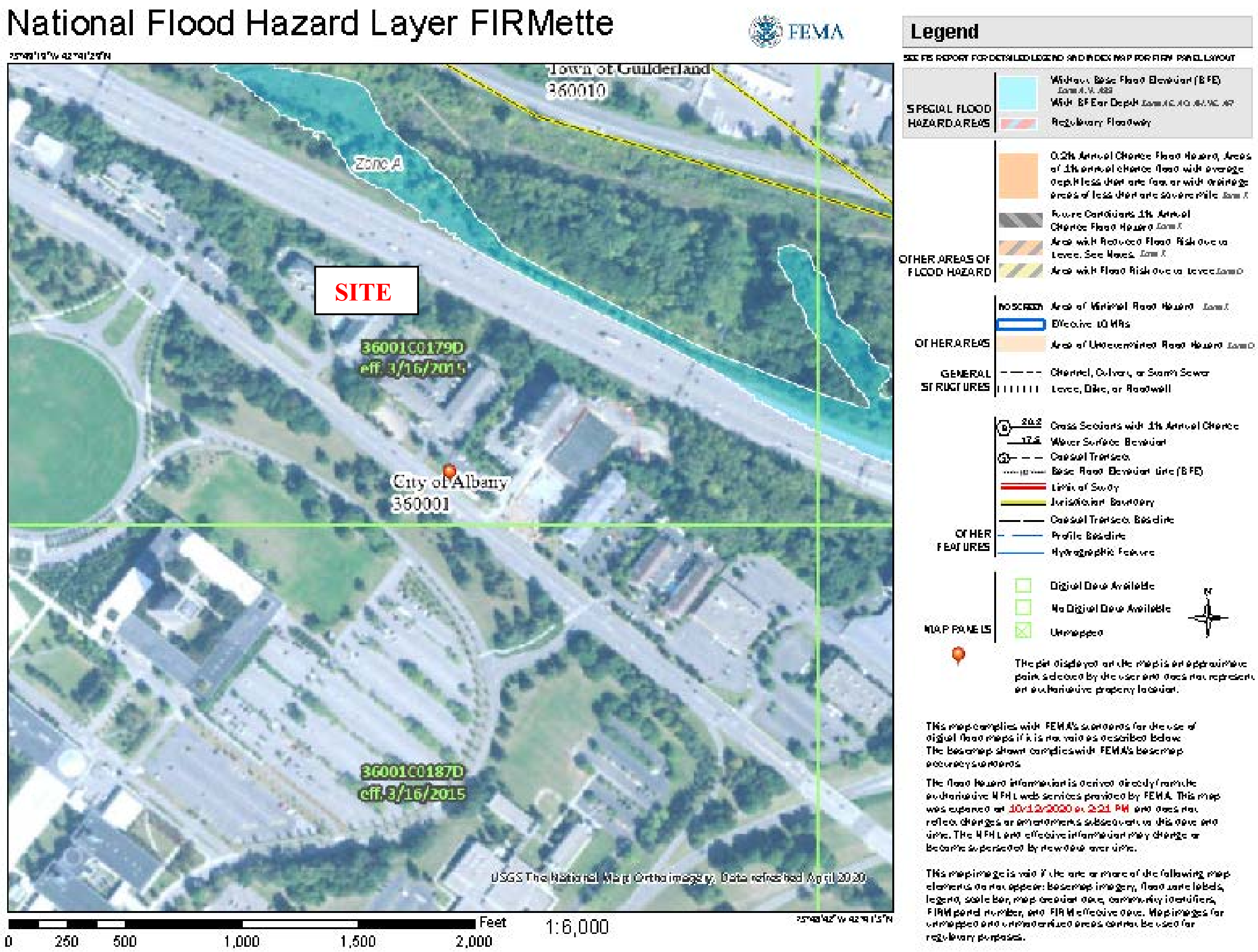


Fig. No. 3 – FEMA Firmette

EXISTING WETLANDS

There are no Federal Wetlands (Waters of the United States) or New York State Freshwater Wetlands mapped within the site. A copy of the National Wetland Inventory site data is reproduced below.

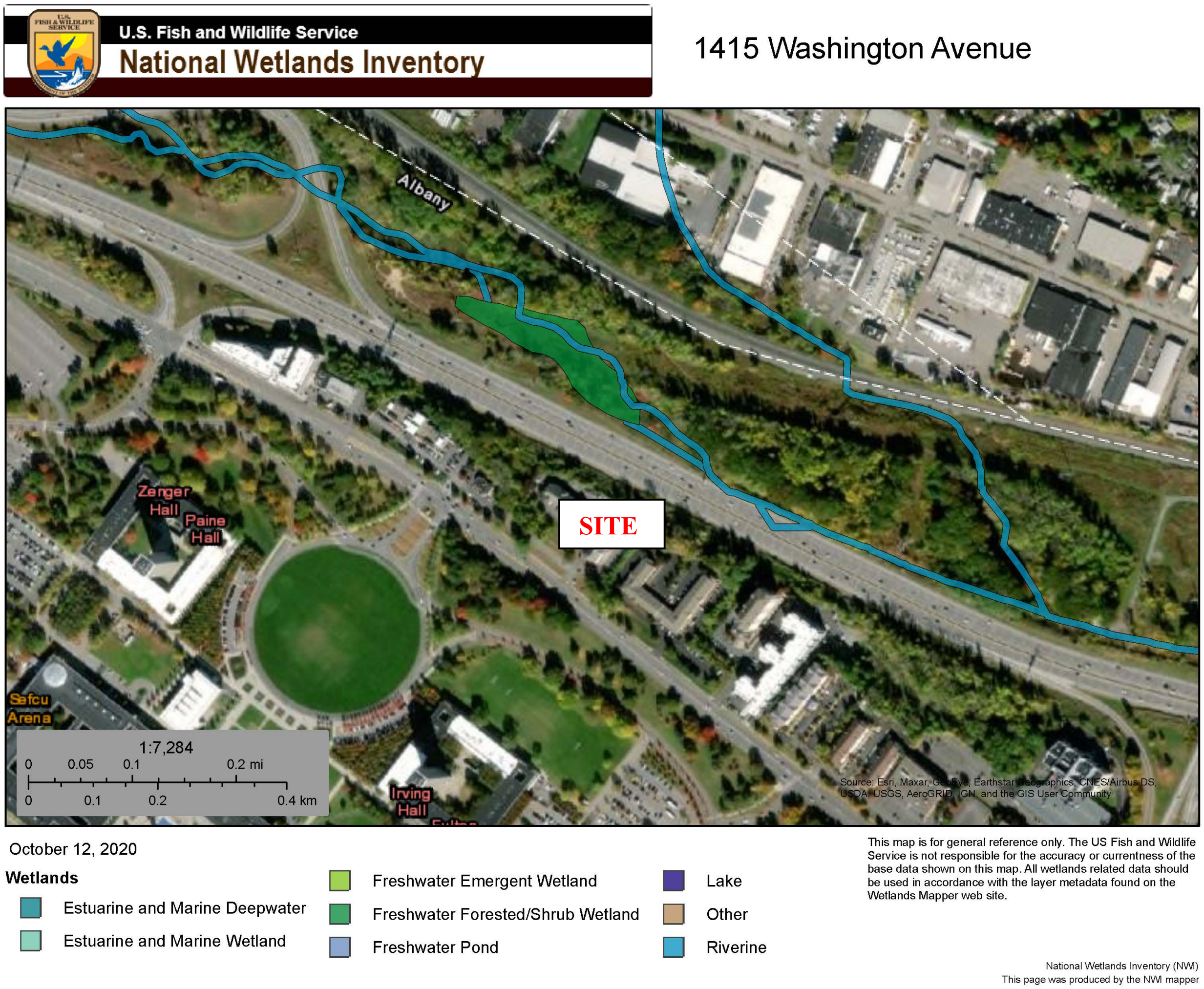


Fig. No. 4 – National Wetlands Inventory

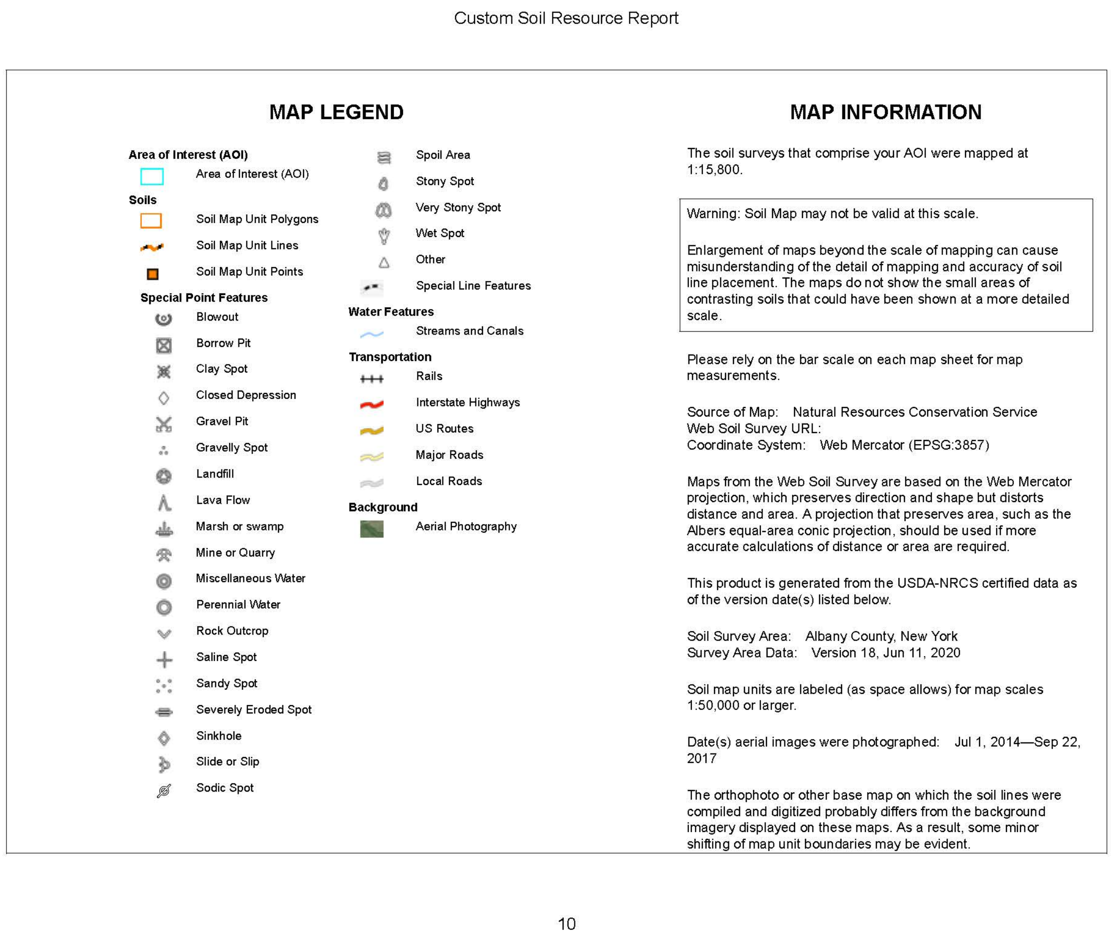
LISTED, ENDANGERED OR THREATENED SPECIES

NYSDEC Environmental Resource Mapper does not list any rare plants or animals within the area of the project.

EXISTING SOILS

The Albany County Soil Survey indicates the existing soils within the project area consist of Udipsamments, smoothed which is an assumed Hydrologic Class C soil. A soil map is reproduced below.

Fig. No. 5 – Soil Map from Web Soil Survey


Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)
Area of Interest (AOI)

Soils
Soil Map Unit Polygons
Soil Map Unit Lines
Soil Map Unit Points

Special Point Features
Blowout
Borrow Pit
Clay Spot
Closed Depression
Gravel Pit
Gravelly Spot
Landfill
Lava Flow
Marsh or swamp
Mine or Quarry
Miscellaneous Water
Perennial Water
Rock Outcrop
Saline Spot
Sandy Spot
Severely Eroded Spot
Sinkhole
Slide or Slip
Sodic Spot
Spoil Area
Stony Spot
Very Stony Spot
Wet Spot
Other
Special Line Features

Water Features
Streams and Canals

Transportation
Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background
Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Albany County, New York
Survey Area Data: Version 18, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2014—Sep 22, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

10

Fig. No. 6 – Map Legend and Map Information from Web Soil Survey

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ud	Udipsamments, smoothed	3.2	100.0%
Totals for Area of Interest		**3.2**	**100.0%**

Fig. No. 7 – Map Unit Legend from Web Soil Survey

A site-specific geotechnical analysis is included in Appendix # 3. The results of average infiltration rates at the six (6) Appendix D test locations shown below:

Infiltration Test No.	Infiltration Rate (iph)
I-1	**>24.0**
I-2	**17.5**
I-3	**10.8**
I-4	**17.0**
I-5	**12.3**
I-6	**10.2**

The average infiltration rate for the site is 15.3 inches per hour. Based upon the two sections cited below and to correct for the variable nature of the infiltration rates, allowing for the factor of safety of 2 the design value of 7.65 inches per hour was used. Also, in the eleven (11) borings on the site, the water table as encountered between 14 and 24 feet below the surface so that there will no limitation on the use of infiltration methods.

The *NYS Stormwater Management Design Manual* is silent on method of correction to be tied to field tests, there are other sources, two of which are quoted below:

The design permeability rate must be determined by field or laboratory testing. Since the actual permeability rate may vary from test results and may also decrease over time due to soil bed consolidation or the accumulation of sediments removed from the treated stormwater, a ***<u>factor of safety of two</u>*** *must be applied to the tested permeability rate to determine the design permeability rate. Therefore, if the tested permeability rate of the soils is 4 inches/hour, the design rate would be 2 inches/hour (i.e., 4 inches per hour/2). This design rate would then be used to compute the basin's maximum design storm drain time.*[1] (Emphasis added)

Design Infiltration Rate
The design infiltration rate, f_d *, should be set to equal* ***<u>one-half the infiltration rate</u>****, f, determined from the soil analysis*. [2](Emphasis added)

[1] New Jersey Stormwater Best Management Practices Manual, Chapter 9.5:, Standard for Infiltration Basins,• February 2004,• Page 9.5-4

The cited literature recommends that a rate of 50% of the measured infiltration rate could be employed.

EXISTING DRAINAGE:

The Pre-Development Tributary Map (See Appendix #2) establishes four existing tributary areas.

Tributary Area A – This area represents a portion of the existing pavement and surrounding grassed areas near Washington Avenue that drains toward the Right-Of-Way. This area contains 0.02 acres of impervious area and 0.14 acres of pervious area. The CN is 47 and Tc is 4.7 minutes.

Tributary Area B – This area represents the grassed areas at the east side of the property that drain toward 1395 Washington Avenue. This area contains 0.07 acres of pervious area. The CN is 39 and Tc is 3.7 minutes.

Tributary Area C – This area represents the grassed areas at the west side of the property that drain toward I-90. This area contains 0.50 acres of pervious area. The CN is 39 and Tc is 3.6 minutes.

Tributary Area D – This area represents the existing building, parking area, and surrounding grassed areas that drain toward a low spot where it recharges to groundwater. This area contains 1.81 acres of impervious area and 0.69 acres of pervious area. The CN is 82 and Tc is 5.1 minutes.

DESCRIPTION OF INTENDED SITE DEVELOPMENT AND USE

The Applicant proposes to demolish the existing 95 room hotel and construct a new student dormitory. The new building will have 240 ± dwelling units being a mixture of one, two, and four bedroom units. The total number of beds would be 560 ± beds. The building will be 5 stories and 4 stories over parking. There will be two partial levels of parking with a total parking for 207 ± cars. In addition to indoor amenity spaces, there will be an 8,000 SF ± community courtyard/ampitheater and an 8,300 SF plaza.

PROPOSED COVERAGE STATISTICS:

The proposed coverage statistics for the Project Site are shown below.

Description	Area (SF)	Area (acres)	%
Building Area	60,558	1.39	42.9%
Paved/Sidewalk Area	48,563	1.12	34.4%
Green Area	31,874	0.73	22.6%
Total Area	141,177	3.24	100.0%

Fig. No. 8 –Proposed Coverage Statistics

PROPOSED DRAINAGE:

The Post-Development Tributary Map (See Appendix #2) establishes four existing tributary areas.

Tributary Area 1 – This area represents a portion of the existing pavement and surrounding grassed areas near Washington Avenue that drains toward the Right-Of-Way. This area contains 0.02 acres of impervious area and 0.18 acres of pervious area. The CN is 47 and Tc is 4.6 minutes.

Tributary Area 2 – This area represents the grassed areas at the west side of the property that drains toward interstate 90. This area contains 0.23 acres of pervious area. The CN is 39 and Tc is 8.0 minutes.

Tributary Area 3 – This area represents portion of the porous pavement around the proposed building which is tributary to the ground water through porous pavement and infiltration basins. This area contains 0.86 acres of impervious area. The CN is 98 and Tc is 4.2 minutes.

Tributary Area 4 – This area represents a portion of the proposed building rooftop which is tributary to the underground basins. This area contains 0.73 acres of impervious area. The CN is 98 and Tc is 3.5 minutes.

Tributary Area 5 – This area represents the western portion of the proposed building which is tributary to the underground basins. This area contains 0.71 acres of impervious area. The CN is 98 and Tc is 3.9 minutes.

Tributary Area 6 – This area represents the northern portion of the asphalt driveway which is tributary to the underground basins through porous pavement and underdrains. This area contains 0.20 acres of impervious area. The CN is 98 and Tc is 4.0 minutes.

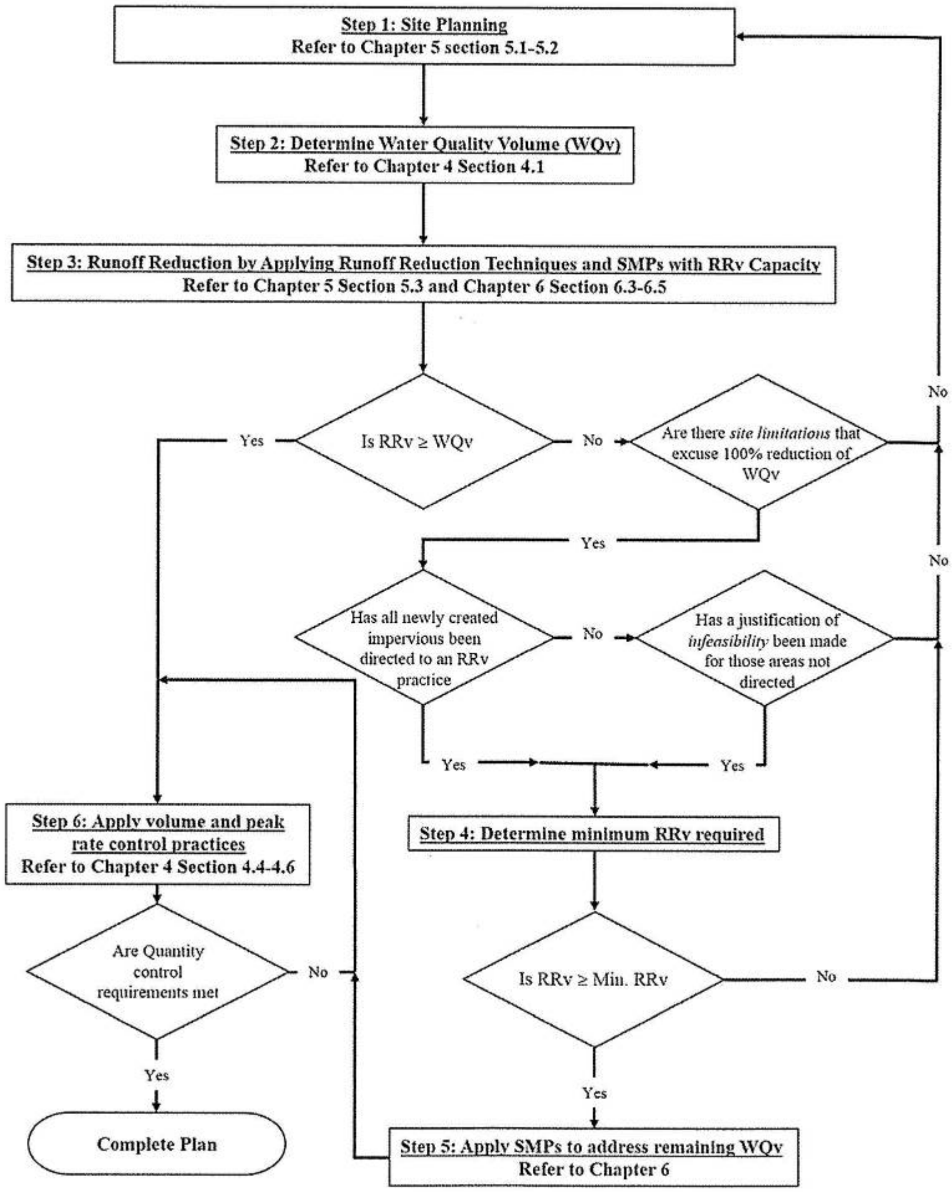
COMPLIANCE WITH GREEN INFRASTRUCTURE REQUIREMENTS UNDER SPDES GP#0-20-001

This includes consideration of the "The Six Step Process for Stormwater Site Planning and Practice Selection"[3] which is shown below:

[3] Page 3-1, *New York State Stormwater Management Design Manual, January 2015, Updated By New York State Department of Environmental Conservation.*

New York State Stormwater Management Design Manual
Chapter 3: Stormwater Management Planning
Section 3.6 The Six Step Process for Stormwater Site Planning and Practice Selection

Figure 3.1: Stormwater Site Planning and Practice Selection Flow Chart



3-1

Fig. No. 9 – Six Step Process

COMPLIANCE WITH SIX STEP PROCESS
STEP 1 – SITE PLANNING

The following steps were considered:

A. CONSERVE NATURAL AREAS

1. Preservation of Undisturbed Areas

   A portion of the grassed area will remain undisturbed.

2. Preservation of Buffers

   A portion of the grassed and wooded areas around the property line will remain undisturbed.

3. Reduction of Clearing and Grading

   The site has been previously cleared.

4. Locating Development in Less Sensitive Area

   This site is not a sensitive area.

5. Open Space Design

   This development does not lend itself to open space design.

6. Soil Restoration

   Soil will be restored by using de-compaction techniques prior to final lawn establishment. See Deep Ripping & Decompaction (April 2008) in Attachment No. 2. The minimum requirements from the New York State Stormwater Management Design Manual to avoid the reduction in drainage capacity of soils are reproduced below:

Using this Practice

During periods of relatively low to moderate subsoil moisture, the disturbed subsoils are returned to rough grade and the following Soil Restoration steps applied:

1) Apply 3 inches of compost over subsoil
2) Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils
3) Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site
4) Apply topsoil to a depth of 6 inches
5) Vegetate as required by approved plan.

Figure 5. 17 Soil aerator implement

At the end of the project an inspector should be able to push a 3/8" metal bar 12 inches into the soil just with body weight. Figures 5.16 and 5.17 show two attachments used for soil decompaction. Tilling (step 2 above) should not be performed within the drip line of any existing trees or over utility installations that are within 24 inches of the surface.

Compost shall be aged, from plant derived materials, free of viable weed seeds, have no visible free water or dust produced when handling, pass through a half inch screen and have a pH suitable to grow desired plants.

Maintenance

A simple maintenance agreement should identify where Soil Restoration is applied, where newly restored areas are/cannot be cleared, who the responsible parties are to ensure that routine vegetation improvements are made (i.e., thinning, invasive plant removal, etc.). Soil compost amendments within a filter strip or grass channel should be located in public right of way, or within a dedicated stormwater or drainage easement.

First year maintenance operations includes:

- Initial inspections for the first six months (once after each storm greater than half- inch)
- Reseeding to repair bare or eroding areas to assure grass stabilization
- Water once every three days for first month, and then provide a half inch of water per week during first year. Irrigation plan may be adjusted according to the rain event.
- Fertilization may be needed in the fall after the first growing season to increase plant vigor

Ongoing Maintenance:

Two points help ensure lasting results of decompaction:

1) Planting the appropriate ground cover with deep roots to maintain the soil structure
2) Keeping the site free of vehicular and foot traffic or other weight loads. Consider pedestrian footpaths. (Sometimes it may be necessary to de-thatch the turf every few years)

B. REDUCE IMPERVIOUS COVER

1. Roadway Reduction

   This development includes limited impervious cover in the roadway

2. Sidewalk Reduction

   This development includes limited sidewalks.

3. Driveways Reduction

   The driveways are reduced to the limited amount needed by the applicant.

4. Building Footprint Reduction

   The building footprint is the minimum size required by the applicant.

5. Parking Reduction

   This development provides the minimum parking spaces required by the applicant for vehicle storage.

COMPLIANCE WITH SIX STEP PROCESS
STEP 2 – DETERMINE WATER QUALITY VOLUME

Water Quality Volume (WQ_v) is computed based upon the following formula:[4]

$$WQ_v = \frac{(P)\,(R_v)\,(A)}{12}$$

Where WQ_v = water quality volume (acre-feet)

P = 90% rainfall event[5]

R_v = 0.05 + 0.009 I, where I is percent impervious cover

A = site area in acres

[4] **Ibid.**, Page 4-2

[5] **Ibid.**, Page 4-2, Figure 4.1

The Water Quality Volume (WQ_v) is computed in the Green Infrastructure Spreadsheet in Appendix #4 is 0.24 acre-feet.

<u>COMPLIANCE WITH SIX STEP PROCESS</u>
<u>STEP 3 – COMPLIANCE WITH RUNOFF REDUCTION VOLUME</u>

The applicant proposes to utilize a green infrastructure technique to provide the Runoff Reduction Volume through utilizing one Green Infrastructure Porous Pavement with infiltration capability to meet RR_v requirement.

<u>COMPLIANCE WITH SIX STEP PROCESS</u>
<u>STEP 4 – DETERMINE MINIMUM RUNOFF REDUCTION VOLUME</u>

The Minimum Runoff Reduction Volume (RR_v) is computed based upon the following formula:[6]

$$RR_v = \frac{(P)\,(R_v)\,(Ai)}{12}$$

Where RR_v = runoff reduction volume (acre-feet)

P = 90% rainfall event[7]

R_v = 0.05 + 0.009 I, where I is percent impervious cover

AiC = site impervious area in acres

S = Hydrologic Soil Group Specific Reduction Factor (0.55 for Class A)

Ai = (AiC) (S)

The Basic Runoff Reduction Volume (RR_v) is computed in Appendix #4 for the tributary area as 0.07 acre-feet for subject site.

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6 **Ibid.**, Page 4-6

7 **Ibid.**, Page 4-6

COMPLI ANCE WITH SIX STEP PROCESS
STEP 5 – APPLY SMP's TO ADDRESS REMAINING WQv

There is no remaining WQv to be addressed.

COMPLIANCE WITH SIX STEP PROCESS
STEP 6 – VOLUME AND PEAK CONTROL STORM WATER DESIGN:

As a storm event occurs, the storm water will be collected from either pavement, walks and landscaped areas and directed to a sediment structure below the garage floor or from underdrains beneath porous pavement. Roof drainage will also be collected and directed move to a sediment structure below the garage floor for Stormwater pretreatment. These sedimentation structures then overflows into the infiltration basin so that it can infiltrate and recharge to groundwater.

The TR-20 method was used to design the storm water management system for this project. Tributary areas are established as shown in Appendix 2. The storm water computation is performed for a Type II, 1 year, 24 hour storm Type II, 10 year, 24 hour storm and for a Type II, 100 year, 24 hour storm for Pre and Post Development Conditions utilizing HydroCAD10.0® and are shown in Appendix #5.

DISCHARGE COMPUTATIONS – EXISTING & DEVELOPED CONDITIONS:

The table below indicates that the developed condition mitigated discharges are equal to or less than the existing condition for all storms between a 1 year and a 100 year storm.

10/25/2021

Pre & Post Development Run-off Summary

		WQV STORM		1 YEAR STORM		10 YEAR STORM		100 YEAR STORM	
PRE	*POST*	PRE	*POST*	PRE	*POST*	PRE	*POST*	PRE	*POST*
R1		0.00		0.00		0.06		0.38	
	R1		0.00		0.00		0.02		0.34
R2		0.00		0.00		0.00		0.08	
	R2		0.00		0.00		0.00		0.00
R3		0.00		0.00		0.01		0.51	
	R3		0.00		0.00		0.00		0.18
R4		0.75		4.47		11.67		21.16	
	R4		0.07		0.73		0.86		4.51

Reach R4 represents drainage that recharges to groundwater.

Fig. No. 10 – Runoff Summary Table

OVERBANK FLOOD CONTROL CRITERIA

The overbank flood control criteria (Q_p) is met through controlling discharge from the ten year, 24 hour storm event to no greater than the predevelopment level. From the developed site, the discharge to Reach 1,2 and 3 is less than the predevelopment level.

EXTREME FLOOD CONTROL CRITERIA

The extreme flood control criteria (Q_f) is met through controlling discharge from the hundred year, 24 hour storm event to no greater than the predevelopment level. From the developed site, the discharge to Reach 1, 2 and 3 is less than the predevelopment level.

DESIGN CONSIDERATIONS:

The design of a storm drainage system for the subject site considered the following critical factors:

I. The rate of runoff during a design storm (taken as 1, 10, & 100 year frequencies) from the site in the developed condition will not exceed the rate of runoff from the site in the undeveloped state.

2. The storm system can accommodate the storm water for a 1, 10 & 100-year storm.

3. The storm drainage system should accommodate the drainage from the site during a 100 year storm without any damage to personal property.

4. This system is entirely compliant with the Green Techniques as defined in the New York State Stormwater Management Design Manual.

CONSTRUCTION SEQUENCING & SEDIMENTATION AND EROSION CONTROL DURING CONSTRUCTION

The construction sequence for this project is shown below. Approximate timing is indicated where applicable in red following steps.

Prior to commencement of any work this SWPPP

- ✓ Assure that copy of SWMR & SWPPP is on the site. ON COMMENCEMENT
- ✓ Establish Qualified Individual who will be performing site inspection. ON COMMENCEMENT
- ✓ Inspections must be performed by the qualified professional must be submitted to the MS4 Coordinator. FROM COMMENCEMENT UNTIL PROJECT COMPLETE
- ✓ Establish Trained Contractor who will be on site. At least one Trained Contractor must be on site whenever ground disturbing activities are being undertaken. ON COMMENCEMENT
- ✓ Establish contact person for Contractor/Subcontractor. ON COMMENCEMENT
- ✓ **IN CASE OF ANY SPILLS OF MATERIALS ON SITE, EXECUTE SPILL RESPONSE PLAN CONTAINED IN APPENDIX #8**

Construction Sequence

- ✓ Install traffic controls as required. PRIOR TO THE START OF ANY CONSTRUCTION
- ✓ Install construction fencing as required. PRIOR TO THE START OF ANY CONSTRUCTION
- ✓ Install silt fence or other controls as indicated on the plan. PRIOR TO COMMENCEMENT OF ANY GRADING – FENCE TO REMAIN IN PLACE UNTIL ALL AREAS ARE STABILIZED.

- ✓ Commence work on site.
- ✓ Grade and prepare stabilized construction access. PRIOR TO COMMENCEMENT OF ANY GRADING – STABILIZED CONSTRUCTION ACCESS TO REMAIN IN PLACE UNTIL ALL AREAS ARE STABILIZED.
- ✓ Establish fueling area. Relocate when required. MAINTAIN A FUELING AREA FOR EQUIPMENT UNTIL NO LONGER REQUIRED.
- ✓ The existing pavement must be kept swept clean to avoid tracking materials onto any streets. CONTINUOUSLY FROM INCEPTION TO COMPLETION OF STABILIZATION OR UNTIL PROJECT IS COMPLETE.
- ✓ Maintain this area clean of debris and verify condition and safety of storage of materials listed below. Requires daily inspection. CONTINUOUSLY FROM INCEPTION UNTIL PROJECT IS COMPLETE.
- ✓ Any construction materials, chemicals or construction debris must be stored in sealed receptacles, trailers or buildings. Any storage piles of materials meant for installation (i.e., sand, etc.) must be surrounded by sedimentation fence. The list of anticipated materials stored on site during construction is provided below and must be updated if any additional materials are utilized: CONTINUOUSLY FROM INCEPTION UNTIL PROJECT IS COMPLETE.
    - ❑ Select Fill
    - ❑ Fencing Materials
    - ❑ Pipes
    - ❑ Pipe Solvents
    - ❑ Concrete Structures
    - ❑ Reinforcing Steel
    - ❑ Brick
    - ❑ Concrete Additives
    - ❑ Concrete Sealers
- ✓ MSDS sheets must be available on site for all materials used or imported to the site. CONTINUOUSLY FROM INCEPTION UNTIL PROJECT IS COMPLETE.

- ✓ Any chemical spills must be contained immediately on site and reported to NYSDEC. CONTINUOUSLY FROM INCEPTION TO FILING OF NOTICE UNTIL PROJECT IS COMPLETE.
- ✓ Oil and grease spills from equipment shall be treated immediately. CONTINUOUSLY FROM INCEPTION UNTIL PROJECT IS COMPLETE.
- ✓ Direct drainage to storage system. PRIOR TO REMOVAL OF TEMPORARY PERIMETER SWALE AND CHECK DAMS.
- ✓ Complete construction of Project.
- ✓ Obtain approval of Project completion from the Department of Water & Water Supply,

HOUSEKEEPING SECTION

During construction any construction materials, chemicals or construction debris must be stored in sealed receptacles, trailers or buildings. Any storage piles of materials meant for installation (i.e., sand, etc.) must be surrounded by sedimentation fence. The list of anticipated materials stored on site during construction is provided below and must be updated if any additional materials are utilized:

- ❑ Select Fill
- ❑ Fencing Materials
- ❑ Pipes
- ❑ Pipe Solvents
- ❑ Concrete Structures
- ❑ Reinforcing Steel
- ❑ Brick
- ❑ Concrete Additives
- ❑ Concrete Sealers

MSDS sheets must be available on site for all materials used or imported to the site.

Any chemical spills must be contained immediately on site and reported to NYSDEC.

IN CASE OF ANY SPILLS OF MATERIALS ON SITE, EXECUTE SPILL RESPONSE PLAN CONTAINED IN APPENDIX #8

Oil and grease spills from equipment shall be treated immediately. Vehicle fueling must take place in designated area. Relocate designated fueling area when required.

DESCRIPTION OF NEED FOR WINTER CONDITION

The construction sequence for this project may require work between November 15^{th} and April 1^{st} of any year when construction is ongoing. Some unstabilized soil areas may exist on November 15^{th}. This Section is issued for use in the event that such conditions exist. The **STANDARD AND SPECIFICATIONS FOR WINTER STABILIZATION** (reproduced below) will apply to this project area. Accommodations for wintertime conditions are addressed below.

STANDARD AND SPECIFICATIONS FOR WINTER STABILIZATION

Definition & Scope

A temporary site specific, enhanced erosion and sediment control plan to manage runoff and sediment at the site during construction activities in the winter months to protect off-site water resources.

Conditions Where Practice Applies

This standard applies to all construction activities involved with ongoing land disturbance and exposure between November 15th to the following April 1st.

Design Criteria

1. Prepare a snow management plan with adequate storage for snow and control of melt water, requiring cleared snow to be stored in a manner not affecting ongoing construction activities.

2. Enlarge and stabilize access points to provide for snow management and stockpiling. Snow management activities must not destroy or degrade installed erosion and sediment control practices.

3. A minimum 25 foot buffer shall be maintained from all perimeter controls such as silt fence. Mark silt fence with tall stakes that are visible above the snow pack.

4. Edges of disturbed areas that drain to a waterbody within 100 feet will have 2 rows of silt fence, 5 feet apart, installed on the contour.

5. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, that restrict the flow of runoff and meltwater, shall be removed.

6. Sediment barriers must be installed at all appropriate perimeter and sensitive locations. Silt fence and other practices requiring earth disturbance must be installed before the ground freezes.

7. Soil stockpiles must be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. A barrier must be installed at least 15 feet from the toe of the stockpile to prevent soil migration and to capture loose soil.

8. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures should be initiated by the end of the next business day and completed within three (3) days. Rolled erosion control blankets must be used on all slopes 3 horizontal to 1 vertical or steeper.

9. If straw mulch alone is used for temporary stabilization, it shall be applied at double the standard rate of 2 tons per acre, making the application rate 4 tons per acre. Other manufactured mulches should be applied at double the manufacturer's recommended rate.

10. To ensure adequate stabilization of disturbed soil in advance of a melt event, areas of disturbed soil should be stabilized at the end of each work day unless:

    a. work will resume within 24 hours in the same area and no precipitation is forecast or;

    b. the work is in disturbed areas that collect and retain runoff, such as open utility trenches, foundation excavations, or water management areas.

11. Use stone paths to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated. Stone paths should be a minimum 10 feet in width but wider as necessary to accommodate equipment.

Maintenance

The site shall be inspected frequently to ensure that the erosion and sediment control plan is performing its winter stabilization function. If the site will not have earth disturbing activities ongoing during the "winter season", **all** bare exposed soil must be stabilized by established vegetation, straw or other acceptable mulch, matting, rock, or other approved material such as rolled erosion control products. Seeding of areas with mulch cover is preferred but seeding alone is not acceptable for proper stabilization.

Compliance inspections must be performed and reports filed properly in accordance with the SWPPP for all sites under a winter shutdown.

WINTER CONDITIONS ITEMS TO BE ADDRESSED

1. Identify areas within the site to store snow which is tributary to the temporary perimeter swale. As work progresses this area may move but positive drainage tributary to the temporary perimeter swale must be maintained.
2. Widen stabilized construction access points to a minimum of 28 feet. Where pavement forms a portion of that route, maintain 50 feet of stone pavement meeting the detail as shown on the SWPPP plan. Stockpile a minimum of 25 cubic yard of stone for the purposes of establishing stone access point after snow storms.

3, Where any areas at the street grade or within two feet of the street grade remain disturbed overnight, stabilize those areas using 6" of broken stone.

4. Where equipment or vehicles are traversing the bottom of the excavation, establish paths using 6" of broken stone.
5. At any point on the perimeter where drainage from accumulated snow or ice will drain away from the site protect these areas with fiber rolls or polyethylene coated check dam materials (Filtrexx, Erosion eel or equal).
6. If work is to cease for more than 3 days, stabilize all disturbed soils.

WINTER CONDITIONS SUMMARY:

The following is a summary of the required work if wintertime as presented by the preparer of this report:

1. The temporary system and control measures proposed herein and on the plans comply with the *New York State Standards and Specifications for Erosion and Sediment Control* dated July, 2016.
2. The winter stabilization complies with Standard and Specifications for Winter Stabilization as described *New York State Standards and Specifications for Erosion and Sediment Control* dated July, 2016.

MAINTENANCE PLAN

The Applicant will own and maintain the porous pavement on site. A maintenance plan has been developed and is contained in Appendix #6.

SUMMARY:

The following is a summary of the findings of this study as presented by the preparer of this report:

1. The 1, 10 & 100 year design storm meets the criteria of not exceeding the runoff rate from the existing site.

2. The storm drainage system will accommodate the drainage from the site for the 1, 10 & 100-year design storm.

3. Damage to personal property or adjacent will not occur when subjected by the 100 year storm as a result of this storm water management system.

4. This system is entirely compliant with SPDES #0-20-002 and with the Green Techniques as defined in the New York State Stormwater Management Design Manual.

5. The maintenance plan if followed will result in pavement and a storm water management system that can be readily maintained.

CONCLUSION:

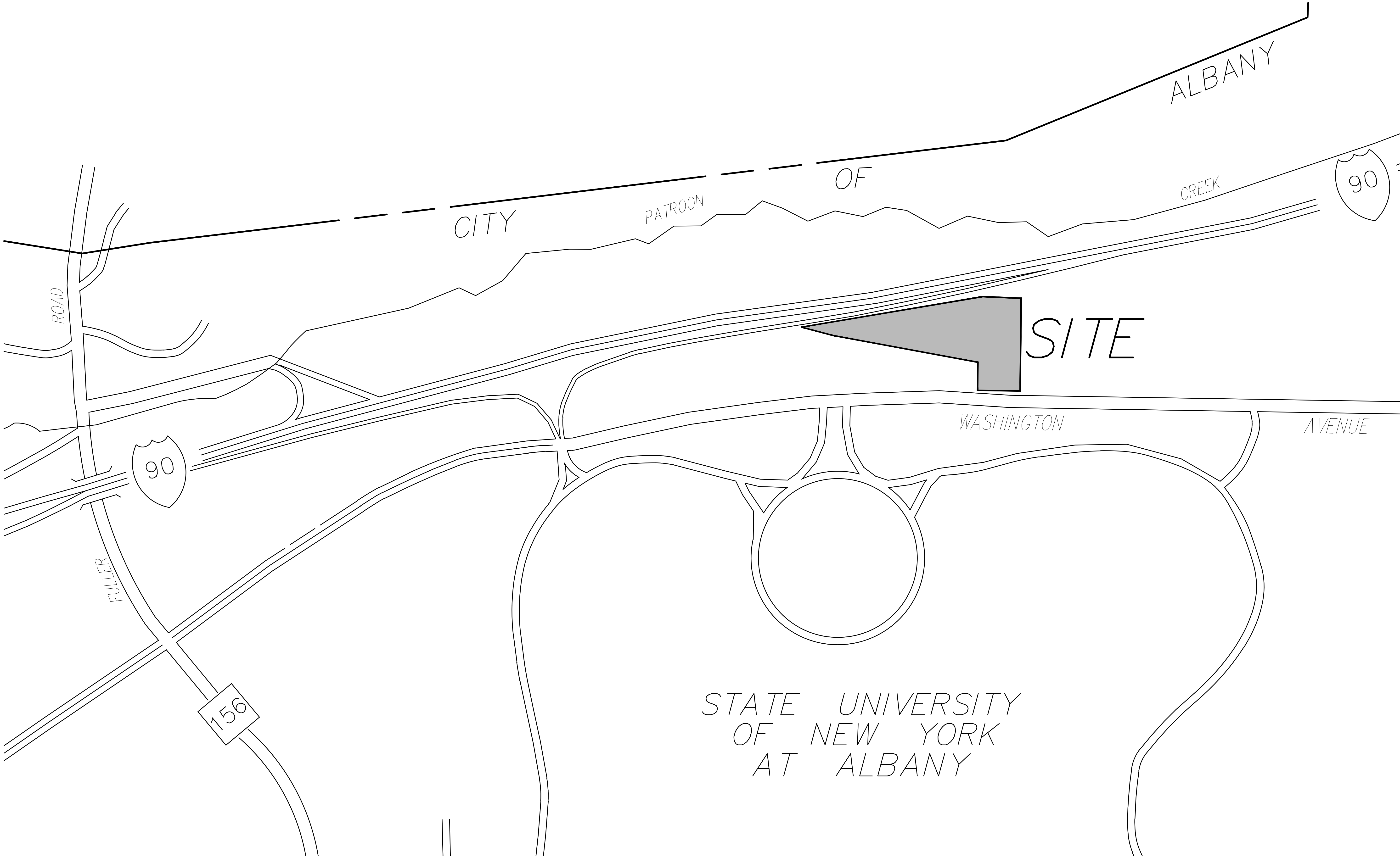
It is the conclusion of the Engineer that the drainage system, as designed, will function adequately and will not adversely affect adjacent or downstream properties.

Prepared by: ___________________________________
Daniel R. Hershberg, P.E. & L.S.
Lic. No. 44226

File:DRH/SWPPP/SWPPPSWMR20200015 REV 9 30 21.DOC

APPENDIX #1

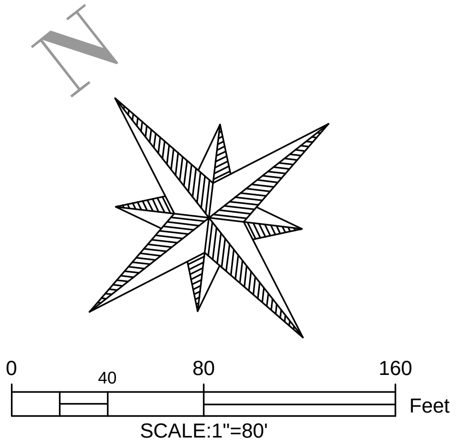
SITE LOCATION MAP



SITE LOCATION MAP

APPENDIX #2

TRIBUTARY AREA MAPS



1415 WASHINGTON AVENUE
ALBANY NEW YORK
PRE DEVELOPMENT TRIBUTARY AREA MAP

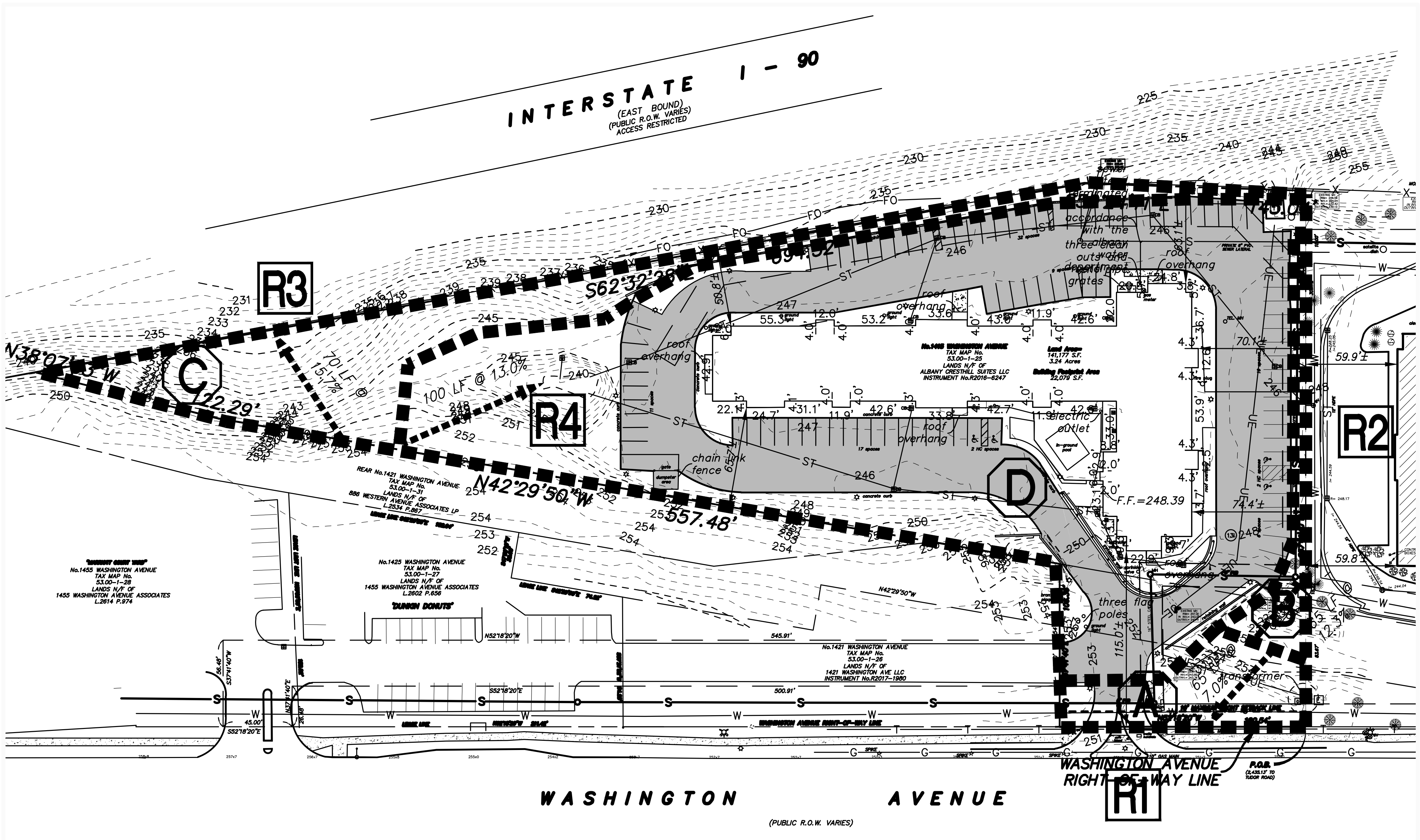
1 DENOTES TRIBUTARY AREA NODE

R1 DENOTES REACH NODE

PP DENOTES STORAGE NODE

DENOTES LIMITS OF TRIBUTARY AREA

DENOTES Tc / Tt



1415 WASHINGTON AVENUE
ALBANY NEW YORK
POST DEVELOPMENT TRIBUTARY AREA MAP

1 DENOTES TRIBUTARY AREA NODE

R1 DENOTES REACH NODE

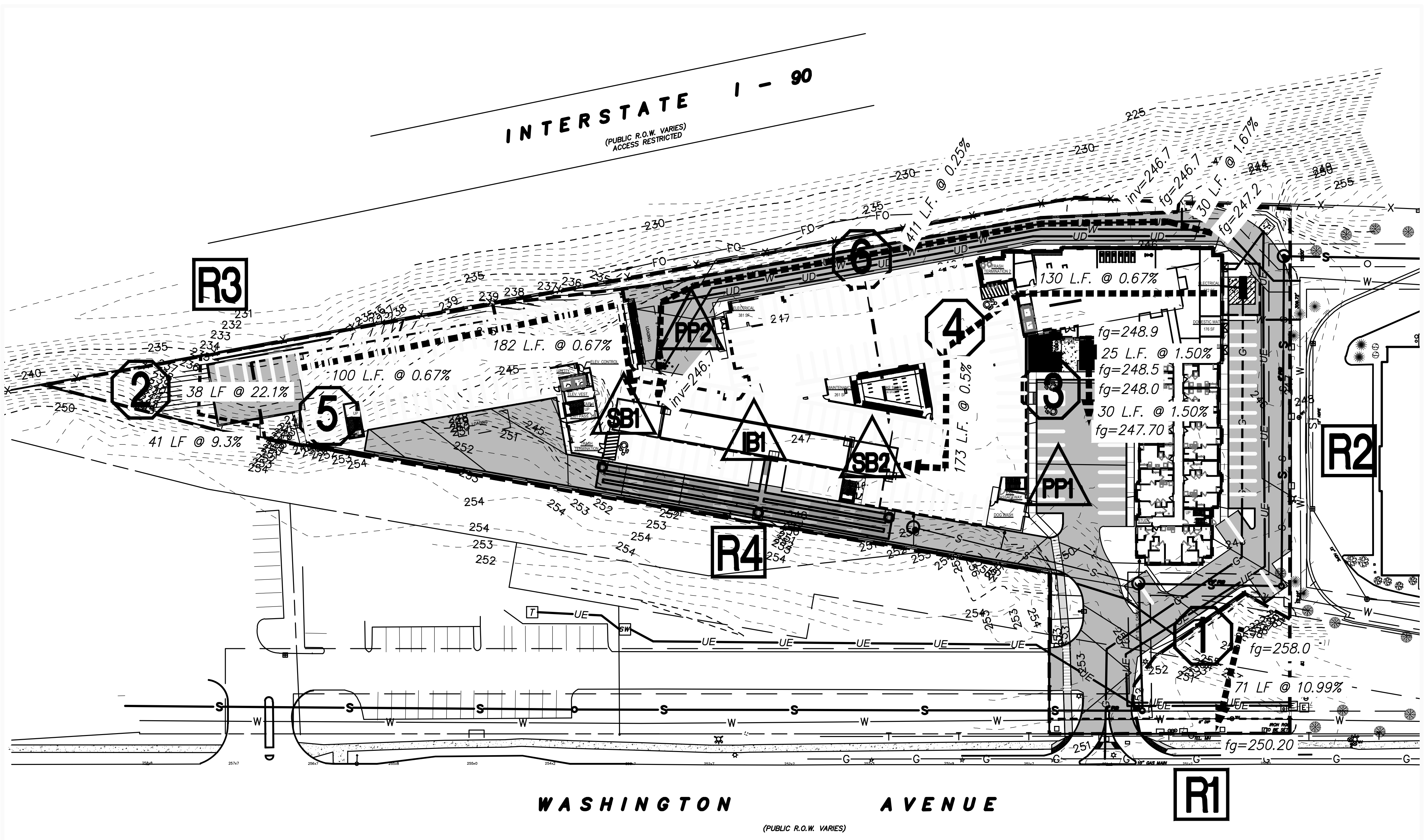
PP DENOTES STORAGE NODE

DENOTES LIMITS OF TRIBUTARY AREA

DENOTES Tc / Tt

0 40 80 160 Feet

SCALE:1"=80'



APPENDIX #3

GEOTECHNICAL REPORT
BY
DENTE ENGINEERING

Geotechnical Engineering Report

Proposed Student Housing
1415 Washington Avenue
Albany, New York
September 9, 2020
Terracon Project No. JB205071

Prepared for:
Scenic RE, LLC
New York, NY

Prepared by:
Terracon Consultants-NY, Inc
Dba Dente Group
Albany, New York

September 9, 2020

Terracon GeoReport

Scenic RE, LLC
157 Columbus Ave. Suite 515
New York, NY 10023

Attn: Mr. Evan Podob
p: (914) 879-2005
e: evan@scenicinvestment.com

Re: Geotechnical Engineering Report
Proposed Student Housing
1415 Washington Avenue
Albany, New York
Terracon Project No. JB205071

Dear Mr. Podob:

We have completed the Geotechnical Engineering services for the referenced project. This study was performed in general accordance with Dente Group proposal no. PJB205071 Rev. 3 (last revised July 29, 2020) which was authorized on July 30, 2020. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs and pavements for the proposed project.

We appreciate the opportunity to be of service to you. If you have any questions concerning this report or if we may be of further service, please contact us at your convenience.

Sincerely,
Terracon Consultants-NY, Inc.

John S. Hutchison, P.E.
Senior Engineer

Joseph Robichaud, Jr., P.E.
Sr. Associate / Office Manager

STATE OF NEW YORK
JOHN S. HUTCHISON
085390
LICENSED PROFESSIONAL ENGINEER

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents

Geotechnical Engineering Report
Proposed Student Housing
1415 Washington Avenue
Albany, New York
Terracon Project No. JB205071
September 9, 2020

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed student housing development at 1415 Washington Avenue in Albany, New York. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Pavement design and construction
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification per NYSBC
- Frost considerations

The geotechnical engineering scope of services for this project included the advancement of 17 conventional test borings to depths ranging from 8.0 to 77.0 feet below existing site grades. Of these, 11 of the borings were performed within the proposed building footprint (B-series), while the remaining six were performed at infiltration test locations (I-series, these located both in proposed paved areas and the proposed building footprint). The scope of services also included a limited laboratory testing program, and preparation of this summary report.

Maps indicating the site and test boring locations are included as the attached **Site Location** and **Exploration Plans**, respectively.

SITE CONDITIONS

Existing conditions at the site are summarized in the following table:

Item	Description
Parcel Information	The project is located at 1415 Washington Ave. in Albany, NY. Approximate geographic coordinates: 42.6896° N, 73.8184° W. The parcel is 3.24 acres in size.
Existing Improvements	Three-story hotel building with associated paved parking and stormwater management features. Also, an outdoor in-ground swimming pool.
Current Ground Cover	Asphalt pavement and landscaped grounds, wooded at west end.

Item	Description
Existing Topography	The site is situated between Washington Ave. and the Interstate 90 corridor. Grades about the existing building are relatively flat, at an elevation of approx. 248 feet. Elsewhere, grades are generally highest along the Washington Avenue frontage (upwards of roughly elevation 252 feet), and lowest at the west end of the site (as low as elevation 234 feet). A concrete retaining wall is located along the north property line, between the existing building and I-90, with grades behind the wall (building side) at approx. 248 feet and in front of the wall (I-90 side) as low as about 238 feet. A stormwater basin off the west edge of the existing parking area has an invert elevation of about 240 feet.
Geology	Review of geologic mapping indicates that units of lacustrine silt and clay, lacustrine sand, and dune sand are present in the site locale. The geologic mapping also indicates that bedrock underlying the project area consists of Normanskill shale.

Review of available historical aerial imaging and topographic mapping indicates the existing hotel building dates from circa 2001, and that pre-development ground surface elevations at the site were in the range of roughly 240 to 250 feet. No development pre-dating the exiting building is evident on maps dating back to 1893.

PROJECT DESCRIPTION

Our understanding of the project is summarized as follows:

Item	Description
Information Provided	■ Topographic survey and proposed site plan by Hershberg & Hershberg, no. C1 dated 1/24/2020 ■ Schematic floor plans and sections by SA+R dated 7/8/2020 ■ Density Study w/ floor plans and renderings by SA+R dated 1/2020
General Description	Project entails demolition of the existing building, and construction of a new student housing building.
Proposed Structure(s)	Plans call for a new building with a total of six levels, comprised of two main wings with a connecting structure. The long wing will be situated along the south property line, with parking on its lower two levels and residential space on its upper four levels. The north/east wing will feature parking on its lower level and residential space on its upper five levels. A maintenance area will be located between the two building wings on the lowest (partial basement) parking level, with an open plaza between the two wings above.
Building Construction	We understand the lowest one or two levels dedicated for parking will be of concrete podium style construction, and the upper residential levels will be of wood construction. We further understand there is a preference to support the building on conventional shallow spread foundations if feasible.

Item	Description
Maximum Loads	Anticipated foundation loads were not available at the time of this report. For the purposes of our evaluation, and on the basis of the proposed construction, we have assumed that individual column loads will not exceed 600 kips and wall loads will not exceed 18 kips/ft. We have also assumed that floor loads will not exceed 150 pounds per square foot.
Finished Floor Elevation	- Lowest parking and maintenance level (Level B1) at elev. 246 . xterior grade on north side of building also at this level - Upper parking on long wing, outdoor plaza level, and lowest residential floor on north/east wing (Level 1) at elev. 256
Grading/Slopes	Proposed grading plans were not provided. It appears that cuts upwards of about 5 feet and new fills upwards of about 10 feet will be required for construction based on the building floor levels.
Below-Grade Structures	Lowest parking level and maintenance area below grade in the south and central portions of the building. Proposed stormwater management details not provided, but subsurface infiltration galleries may be included.
Free-Standing Retaining Walls	We understand the existing retaining wall along the north property margin is anticipated to remain in place and be extended to the west to accommodate new filled grades in that direction.
Pavements	Plans call for new porous asphalt and/or concrete pavement with subsurface infiltration in the exterior parking areas. Conventional asphalt or concrete pavements are planned in the interior (within building footprint) parking areas. We assume the pavements will be subject to use primarily by automobiles with occasional light delivery trucks.

If any of the above information is incorrect, please let us know so we can review the conclusions and recommendations provided in this report for applicability to the actual design and update the report as appropriate.

As the design of the project progresses and site grading plans and building loads are fully developed, we should be retained to assess this site-specific information relative to the recommendations contained herein.

SUBSURFACE CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration results, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical analysis and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual subsurface logs. The logs can be found in the **Exploration Results** and the GeoModel in the **Figures** sections of this report.

Subsurface Profile

The following model layers were identified within the subsurface profile. For a more detailed view of the model layers with depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Fill**	Typically sandy soils with lesser amounts of foreign matter (e.g., wood, roots, gravel).
2	**Sand**	Native fine sand, generally with relatively little silt. Occasional silty layers which become more prevalent with depth.
3	**Silt & Clay**	Interlayered silt and clay deposits.

Topsoil between roughly 0.6 and 1.2 feet thick was present at the ground surface at four of the test boring locations, while asphalt pavement between approximately 0.2 and 0.4 feet thick was present at the ground surface at the remaining borehole locations. The pavement was underlain by an aggregate base course, typically between about 0.4 and 0.9 feet thick.

Beneath whatever surface materials were present, fill soils were identified at about half the locations investigated (9 of 17), extending to depths of about 3 to 11 feet below existing grade and typically deepest on the north end of the site between the existing building and retaining wall. The existing fills were found to consist generally of silty sands, along with relatively minor amounts of foreign matter such as wood, roots and gravel. The relative density of the fill as indicated by measured SPT N-values was typically loose to medium dense.

Native soils beneath the existing surface and/or fill materials were generally composed of fine sands with relatively minor amounts of silt. Silt layers were occasionally encountered within this deposit and the relative silt content in these granular soils tended to increase overall with depth. Silt and clay deposits were prevalent below the depth of about 65 feet. Where essentially granular, the native soils exhibited a loose to medium dense relative density, and where essentially cohesive, a medium stiff to very stiff consistency.

Consolidation testing conducted upon samples collected at nearby sites together with our local experience suggests the deeper cohesive soils are preconsolidated, i.e., they have experienced loads greater than the existing overburden loads in their geologic past and as a result have consolidated correspondingly. Deep exploration at nearby sites indicates these cohesive deposits extend to depths between about 100 and 115 feet where firm glacial tills composed of silt, clay, sand and gravel are encountered. The till is expected to extend to bedrock at depths in the 130 to 140-foot range.

Bedrock was not reached within the depths explored for this study.

Groundwater Conditions

Groundwater measurements were made as the boreholes were advanced and are reported on the attached subsurface logs. Based on these measurements and the recovery of wet soil samples, it appears that groundwater was about 10 to 25 feet below existing grade at the time of investigation, this equating to a groundwater table elevation in the range of about 225 to 230 feet.

While not disclosed through this study, water may at times become locally perched or trapped at shallower depths, particularly where fill is present. Groundwater conditions, and the extent of any perched water, should be expected to vary with seasonal fluctuations in precipitation and runoff. Additionally, grade adjustments on and around the site may affect the water table, as may drainage improvements on the site and surrounding properties.

INFILTRATION TESTING

Infiltration testing was performed adjacent to test borings I-1 through I-6. The testing was conducted in general accord with the guidelines in Appendix D of the NYS Stormwater Management Design Manual. Results of this testing are presented for your use in the **Exploration Results** attachment and summarized in tabular form below.

Location	Test Depth (ft)	Soil Description	Infiltration Rate (in/hr)
I-1	4.0	Dark brown silty sand (moist)	> 24
I-2	4.0	Dark brown silty sand (moist)	13.0
I-3	4.0	Brown poorly graded sand (moist)	9.0
I-4	4.0	Black silty sand w/ trace organics (moist)	14.0
I-5	4.0	Orangish brown poorly graded sand (moist)	11.0
I-6	4.0	Tannish brown poorly graded sand (moist)	8.5

Note: The infiltration rates indicated above represent the result of the last trial at each test location.

GEOTECHNICAL OVERVIEW

Provided that actual foundation loads do not exceed the limits assumed herein, the project site is considered generally suitable for support of the proposed student housing building using conventional shallow spread foundation and slabs-on-grade, although the presence of existing fill soils will impact on planning for design and construction. Based on the conditions disclosed by our investigation, we offer the following general conclusions.

- New foundations and floor slabs may be supported on undisturbed native soils, or on imported structural fill which is placed over the native soils after all existing fills and remains of former structures are removed, along with any otherwise unsuitable materials which may be found. Existing fill soils should not be relied upon for new foundation support.

- If existing fills throughout the site are similar in composition to those found in the test borings, consideration may be given to support of new pavements over the existing fills provided the subgrade surfaces are proof-rolled and stabilized as may be required. It should be understood the proof-rolling will lessen, but not eliminate, the possibility that settlement of pavements constructed over the existing fills may occur over time and require periodic maintenance.

- The soils excavated onsite should generally be suitable for reuse as new fill and backfill once cleansed of any oversize particles, unsuitable debris or organics, subject to the approval of the Geotechnical Engineer and based upon the conditions encountered at the time of construction.

- In general, groundwater is expected to be below foundation excavation depths and should not be a significant factor in planning for design and construction of the building. If perched water is encountered during construction, it is expected to be limited in volume and standard sump and pump methods should be sufficient for its removal. Dewatering is a means and methods consideration for the contractor.

It should be understood that if actual foundation loads exceed those assumed herein, shallow spread foundations may not be suitable for support of the structure; in this case the conclusions outlined in this report should be reevaluated and an alternative foundation system may be necessary.

The following sections of this report provide more detailed recommendations to assist in planning for the geotechnical aspects of the project. We should be provided with the opportunity to review plans and specifications prior to their release for bidding to confirm that our recommendations were properly understood and implemented, and to allow us to refine our recommendations, if warranted, based upon the final design. The **General Comments** section provides an understanding of the report limitations.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

Seismic Site Classification

In our estimation, the seismic Site Class is D. This classification is made based upon the results of standard penetration testing at the site and shear wave velocity testing completed in similar subsurface profiles in the general project area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth, if desired.

Liquefaction Potential

We have evaluated the liquefaction potential of the granular soils encountered beneath the water table at this site. In our estimation, the soils at this site possess a Factor of Safety against liquefaction in excess of 1.1 and, as such, do not present an excessive risk of liquefaction. It should be understood, however, that the design seismic event would cause the site's sand soils to consolidate during the ground shaking and the ground surface at the site to settle. These volumetric strains could cause buildings supported upon the grades to settle about a half inch during the design seismic event.

EARTHWORK

Earthwork is anticipated to include demolition of the existing building, clearing and grubbing, removal of existing pavements, stabilization of subgrade surfaces as necessary, foundation excavation and associated site fill and backfill. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered suitable in our geotechnical engineering evaluation for foundations, floor slabs and pavements.

If the owner elects to leave the existing fills in place beneath new pavements, proof-rolling and stabilization of the subgrades as described below will lessen but cannot eliminate the risk of settlement. If this risk cannot be accepted, the existing fills should be removed and replaced in their entirety as part of the site preparation.

Construction site safety is the sole responsibility of the contractor, who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility is neither implied nor shall it be inferred.

Site Preparation

Site preparation should begin with demolition of the existing building, along with stripping of existing topsoil, surficial organic matter and pavements as applicable from the proposed building and pavement areas. Any existing fills, old building foundations, slabs or below grade structures should be removed in their entirety from beneath the proposed building area, extending at least five feet beyond its perimeter. Outside the proposed building area, any foundation remains or old structures should be removed to a depth of at least three feet below new pavement surfaces.

Prior to placing fills to raise site grades and/or after cuts are made to the plan subgrade elevations, the subgrades should be proof-rolled/proof-compacted using a steel drum roller with a static weight of at least 10 tons. The roller should operate in its vibratory mode, unless requested otherwise by the Geotechnical Engineer observing the work, and travel at a speed not exceeding three feet per second (two miles per hour). The roller should complete at least 8 passes over all subgrade surfaces in opposing directions. The method of proof-rolling may be modified by the Geotechnical Engineer based upon the conditions revealed at the time of construction.

Soft areas identified by the proof-rolling should be investigated to determine the cause and stabilized accordingly. These investigations may include the excavation of test pits. If existing fills are found and determined by to be unsuitable by the Geotechnical Engineer, they should be removed and replaced as deemed necessary.

Fill Material Types

Structural Fill should be used as fill/backfill within the proposed building and pavement areas. The fill should consist of imported sand and gravel which meets the limits of gradation given below. Any imported materials should be free of recycled concrete, asphalt, bricks, glass, and pyritic shale rock.

IMPORTED STRUCTURAL FILL

Sieve Size	Percent Finer
3”	100
”	30 to 75
No. 40	5 to 40
No. 200	0 to 10

As previously noted, the reuse of excavated native soils and/or existing fill materials may be considered if approved by the Geotechnical Engineer and pending the conditions encountered at the time of construction. Any reuse of the existing fill would require that all organics, oversize particles and unsuitable foreign matter found therein be separated and wasted off-site.

Fill Compaction Requirements

Fills beneath the building pad and pavements should be placed in uniform loose layers no more than about one-foot thick where heavy vibratory compaction equipment is used. Smaller lifts should be used where hand operated equipment is required for compaction. Each lift should be compacted to no less than 95 percent of its maximum dry density as determined by the Modified

Proctor Compaction Test, ASTM D1557. In landscape areas, the compaction requirement may be relaxed to 90 percent of maximum dry density.

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to buildings can result in soil movements greater than those indicated in this report, which may in turn result in unsatisfactory differential floor slab and/or foundation displacements, cracked slabs and walls, or roof leaks.

Temporary Excavation Slopes

Excavations must be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P and its appendices, along with any state and local codes, as applicable. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed OSHA regulations. Flatter slopes than those stipulated by the regulations or temporary shoring may be required depending upon the soil conditions encountered and other external factors. OSHA regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of topsoil and unsuitable fills, proof-rolling, and mitigation of any areas identified as needing improvement through proof-rolling. Each lift of new compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the Geotechnical Engineer prior to placement of additional lifts.

Foundation bearing grades and subgrades for floor slabs, pavements and concrete pads should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

It should be understood that subsurface conditions will be more fully known when the site is excavated. The continuation of the Geotechnical Engineer into the construction phase of the project will allow for validation of the subsurface conditions assumed to exist for this study and in the development of the design recommendations in this report, along with assessing any variations, providing interim recommendations as necessary and reviewing associated design changes.

SHALLOW FOUNDATIONS

Design Parameters

Provided that actual design foundation loads do not exceed those estimated herein (maximum 600 kips for columns and 18 kips/ft for walls), the following parameters may be assumed for the design of shallow spread foundations. If actual foundation loads exceed this, the conclusions outlined in this report should be reevaluated and an alternative foundation system may be necessary.

The building should be constructed upon a subgrade which has been grubbed and cleared of any existing fills as described in the **Earthwork** section, with the building and pavement subgrades proof-rolled/proof-compacted as described therein. Any unstable areas should be investigated and the cause corrected. Structural fill should be used to level any depressions in the subgrade or for any grade increases that may be necessary.

Spread foundations which bear upon the proof-compacted native sand or structural fill soils used to increase grades may be proportioned using a maximum net allowable bearing pressure of 3,000 pounds per square foot (psf). Where local over-excavation is required beneath foundations to remove existing fill or otherwise improve bearing conditions, the excavation should extend horizontally beyond each side of the foundation a distance equal to at least one-half the depth of undercut below the final bearing grade elevation. Replacement material should meet the specification and compaction guidelines for structural fill as outlined in this report.

The foundations may alternatively be proportioned using an allowable bearing pressure of 4,000 psf when supported upon aggregate rock pads. The aggregate pads must extend at least two (2) feet beneath the foundations and two (2) feet beyond the foundation edges in each direction. The pads should be prepared by over-excavating the native site soils, followed by placement of a woven separation/stabilization geotextile (meeting NYSDOT standard specifications section 737-01 for separation or stabilization geotextile) over the exposed grades and a 2-foot-thick layer of clean crushed stone meeting ASTM C33 Blend 57 gradation. The aggregate should be thoroughly consolidated in lifts not exceeding 12 inches using a vibratory plate tamper or drum equipment suited to the actual conditions encountered and to the satisfaction of the Geotechnical Engineer. The geotextile must completely envelop the aggregate surfaces - bottom, sides and top.

Continuous foundations should have a minimum width of two feet, and isolated foundations should have a minimum width of three feet. All exterior foundations should be seated at least four feet below final adjacent grades for frost protection. Interior foundations (beneath heated spaces) should bear at a nominal depth of two feet or greater below finished floor to develop adequate bearing capacity.

A standard perimeter foundation drain (as described in the **Retaining Wall** section herein) should be included wherever exterior grades are greater in elevation than floor level or finished grade on the interior side.

Assuming that foundations are designed and constructed as recommended, total settlement is not expected to exceed about 1¼ inch, and differential settlement is not expected to exceed 1 inch. Any such settlement should occur as construction proceeds and within a few days of the application of each load increment.

Foundation Construction Considerations

Where foundations will bear on native soils or structural fill, the foundation bearing grades should be proof-compacted using a mechanical or large reversible plate tamper to densify the soils loosened by the excavation process unless otherwise directed by the Geotechnical Engineer observing the grades. If groundwater seepage occurs, proof-compacting should be eliminated, and a minimum six-inch thick base of clean crushed stone placed over a geotextile should be provided to establish a more uniform and stable base for construction and to assist in dewatering. The stone should be an ASTM C33 Blend 57 aggregate and the geotextile a non-woven synthetic filter fabric meeting NYSDOT standard specifications section 737-01 for drainage geotextile.

All final bearing grades should be relatively firm, stable, and free of loose soil, mud, water and frost. The Geotechnical Engineer should approve the condition of the foundation bearing grades immediately prior to placement of reinforcing steel and concrete.

FLOOR SLABS

Floor Slab Design Parameters

As previously indicated, we recommend that all existing fills be removed from beneath new floor slabs in addition to their removal from beneath new foundations and be replaced with structural fill. The floor slabs should be constructed upon a minimum six-inch thick subbase course which conforms to the requirements for NYSDOT Type 2 Subbase or ASTM C33 Blend 57 aggregate. Consideration should be given to using a thicker subbase course in areas subject to heavier loads and/or use, or those exposed to freezing temperatures.

The use of a vapor retarder along with a base course of ASTM C33 Blend 57 aggregate should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding its use and placement.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual.

Floor slab subgrades should be prepared as outlined in the **Earthwork** section herein. Under these conditions, a modulus of subgrade reaction equal to 150 pounds per cubic inch (pci/in) may be assumed at the top of the stone base layer for slab design purposes.

Floor Slab Construction Considerations

Even with the base course recommended above, we caution that the subgrades may not support repeated heavy construction traffic or telehandlers without suffering rutting and weaving that may be especially severe during wet seasons. If the grades are to be repeatedly traversed by these types of equipment, they should be reinforced as necessary to support them. Areas which become disturbed or weakened should be excavated and stabilized accordingly.

The Geotechnical Engineer should approve the condition of floor slab or pad subgrades immediately prior to placement of the subbase course. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

EARTH RETAINING WALL DESIGN

All earth-retaining foundation walls or structures should be designed to resist the lateral pressures generated by earth backfill and any temporary or permanent surcharge loads. Active earth pressures may be assumed for walls that are free to deflect as the backfill is placed and surcharge loads applied. At-rest earth pressures should be assumed for walls that are braced prior to backfilling or applying surcharge loads. The following design parameters are provided to assist in determining the lateral wall loads, whichever apply:

- Soil angle of internal friction - 30 degrees
- Coefficient of At-Rest earth pressure (k_o) - 0.50
- Coefficient of Active earth pressure (k_a) - 0.33
- Coefficient of Passive earth pressure (k_p) - 3.00
- Total unit weight of compacted soil - 125 pcf
- Coefficient of sliding friction - 0.35 (concrete on native soils or structural fill)

The recommended design parameters assume relatively level grades on either side of the wall, that the wall is backfilled with imported granular fill (reuse of excavated onsite soils for this purpose should be avoided), and that the backfill remains permanently well-drained. Water must not be allowed to collect against the wall unless the wall is designed to accommodate the added hydrostatic pressure. Drainage system recommendations are provided below.

Subsurface Drainage for Earth-Retaining Walls

Retaining structures should be provided with a foundation level drain which may consist of a nominal 4-inch diameter perforated PVC or corrugated HDPE pipe embedded at the base of a minimum 12-inch wide column of clean crushed stone (e.g., NYSDOT no. 1 and no. 2 size aggregate or ASTM C33 Blend 57 stone). The stone should be enveloped in an appropriate non-woven filter fabric (meeting NYSDOT standard specifications section 737-01 for drainage geotextile) to inhibit siltation. Backfill soils behind the crushed stone drainage layer should consist of imported granular fill. The drain line should be sloped to provide positive gravity drainage to daylight, stormwater system, or to a sump pit and pump.

Additionally, we note that subsurface infiltration of stormwater may result in localized groundwater mounding and recommend that this be considered in evaluation of the existing retaining wall and the design of any new sections of the wall. Modifications to either the drainage system or the wall itself may be necessary to accommodate elevated groundwater levels depending on the actual configuration and design parameters of the stormwater management system.

PAVEMENTS

Flexible Pavement Design

The pavement sections presented below were developed in general accord with AASHTO procedures using a reduced subgrade strength and local experience to account for frost, and to keep the anticipated pavement heave and cracking within generally tolerable limits. A subgrade resilient modulus (M_r) equal to 5,000 psi has been assumed for design purposes. Our design parameters assume the existing fills will be left in place and stabilized as detailed in the **Earthwork** section of this report. As previously indicated, the Owner must accept some degree of risk for pavement settlement, which may require periodic maintenance, if the existing fills are left in place.

Two conventional pavement sections were developed, a Light Duty section for automobile parking areas and a Heavy Duty section for entrance drives and areas subject to repeated truck traffic. Modifications should be made as appropriate where permeable pavements will be used.

For design purposes, it has been assumed that the pavement design life is 20 years, and that daily equivalent single axle loads (ESALs) are equal to 1 for the Light Duty section and 25 for the Heavy Duty section. If the traffic loads vary from these, we should be provided with the opportunity to refine the pavement section accordingly.

All materials should meet the requirements specified in the latest edition of the New York State Department of Transportation (NYSDOT) Standard Specifications for Construction and Materials.

Flexible Pavement Design				
Layer	**Material Description**	**NYSDOT Item Number**	**Thickness (inches)**	
			Light Duty	**Heavy Duty**
Top	Asphaltic Concrete	402.127303	1.5	1.5
Binder	Asphaltic Concrete	402.257903	2.0	3.0
Base	Crusher-Run Stone	304.12	8	12
Fabric	Stabilization Fabric	207.24	Single Ply	Single Ply

Any rigid pavements should be provided with a minimum six-inch thick base of crusher-run stone (NYSDOT Section 304-2.02, Type 2 material) placed over a stabilization fabric. The pavements may be designed assuming a modulus of subgrade reaction equal to 150 pounds per cubic inch at the top of the base layer.

Temporary Construction Access Roadways

The recommended pavement sections are not designed to support heavy construction traffic which may require thicker sections. The contractor should construct temporary haul routes and construction roadways onsite as appropriate for the weather conditions and the equipment in use, with consideration to the soil conditions encountered in specific areas.

Pavement Drainage

Accumulation of water on pavement subgrades should be avoided by grading the subgrade to a slope of at least two percent, and/or by providing underdrains. Swales should be provided at the pavement edges for drainage relief. Failure to provide adequate drainage will shorten pavement life.

Pavement Maintenance

All pavements require periodic care, and preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Settlement of pavements due to consolidation of the existing fills may also occur and require periodic maintenance.

Frost Considerations

Frost may penetrate beneath sidewalks and pavements and cause them to heave, and resulting displacements may be differential, particularly where sidewalks and pavements meet building doorways and along curbs. To limit the magnitude of heave and creation of such uneven joints to generally tolerable magnitudes for most winters, a 16-inch thick base of ASTM C33 Blend 57 crushed stone should be placed beneath sensitive sidewalk or pavement areas, along with an underdrain to relieve any collected waters. The crushed stone should be separated from the surrounding granular soils with a non-woven synthetic filter fabric meeting NYSDOT standard specifications section 737-01 for drainage geotextile.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

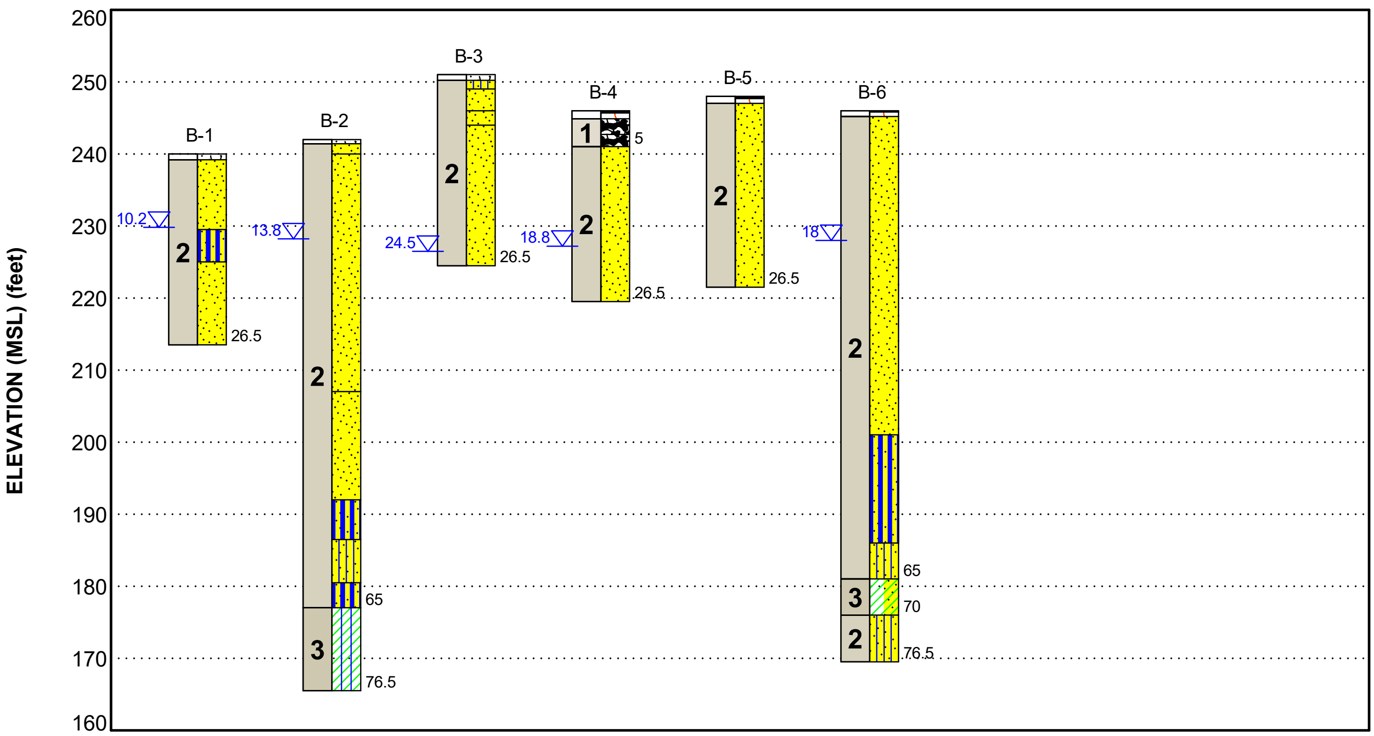
Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements and design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL
Proposed Student Housing ■ Albany, NY
Terracon Project No. JB205071



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Fill	Typically sandy soils with lesser amounts of foreign matter (e.g., wood, roots, gravel).
2	Sand	Native fine sand, generally with relatively little silt. Occasional silty layers which become more prevalent with depth.
3	Silt & Clay	Interlayered silt and clay deposits.

LEGEND

Topsoil
Poorly-graded Sand
Sandy Silt
Silty Sand
Silty Clay
Asphalt
Aggregate Base Course
Fill
Lean Clay with Sand

First Water Observation

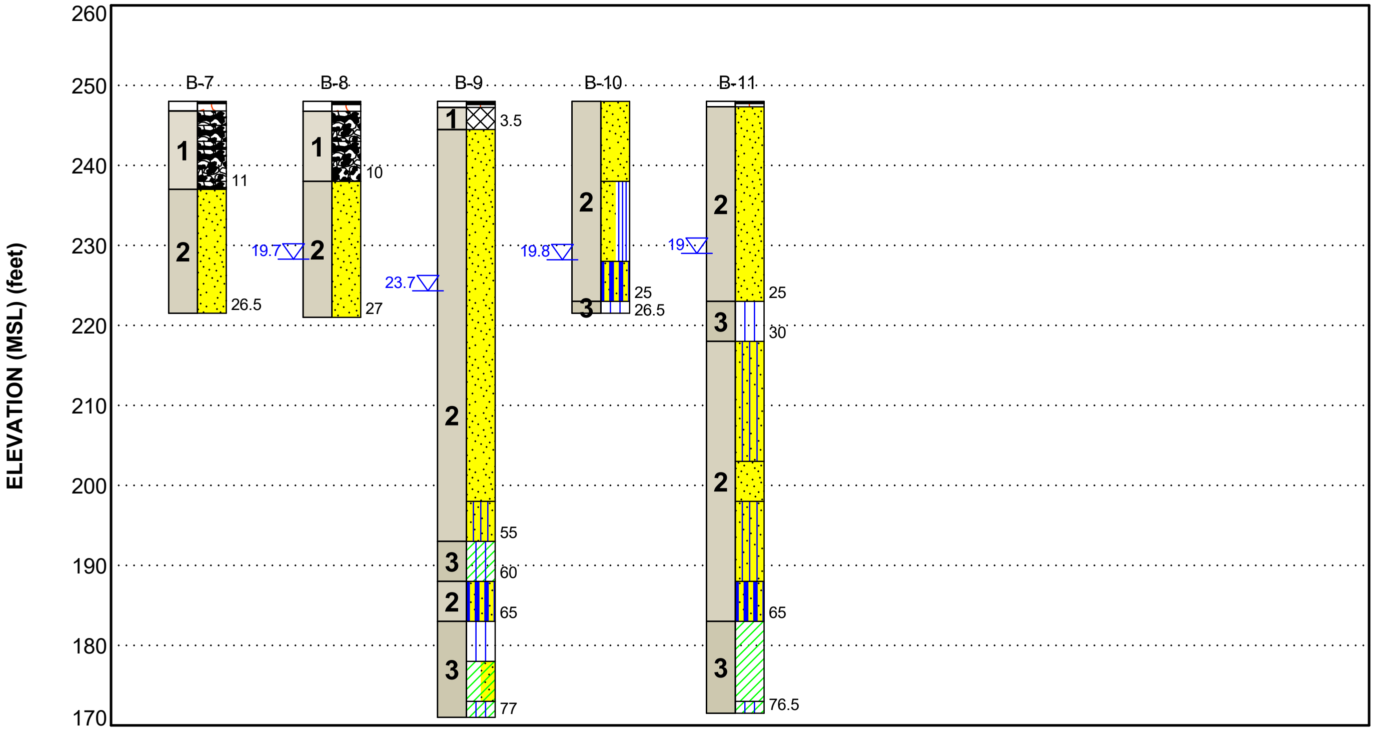
Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL

Proposed Student Housing ■ Albany, NY
Terracon Project No. JB205071

Terracon GeoReport



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
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2	**Sand**	Native fine sand, generally with relatively little silt. Occasional silty layers which become more prevalent with depth.
3	**Silt & Clay**	Interlayered silt and clay deposits.

LEGEND

- Asphalt
- Aggregate Base Course
- Fill
- Poorly-graded Sand
- Fill
- Silty Sand
- Silty Clay
- Sandy Silt
- Silt
- Lean Clay with Sand
- Poorly-graded Sand with Silt
- Lean Clay

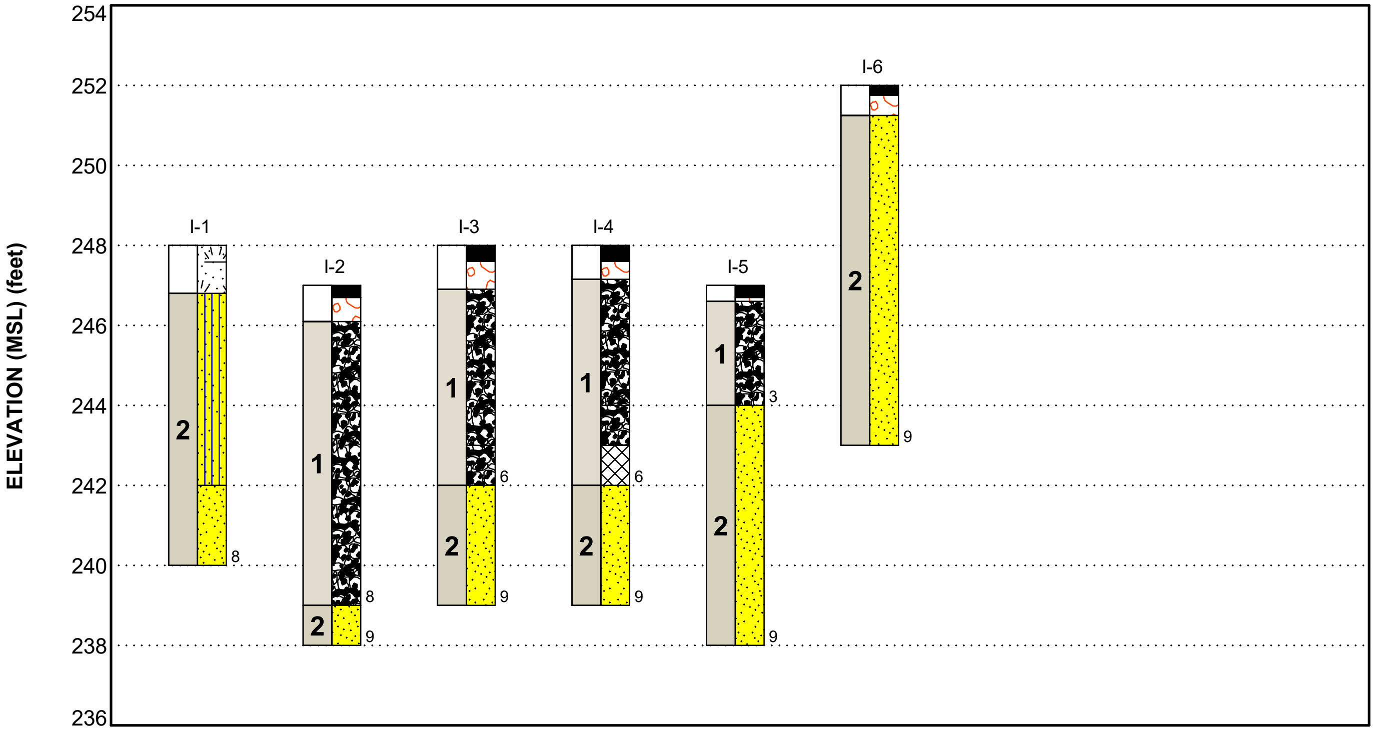
First Water Observation

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

GEOMODEL

Proposed Student Housing ■ Albany, NY
Terracon Project No. JB205071



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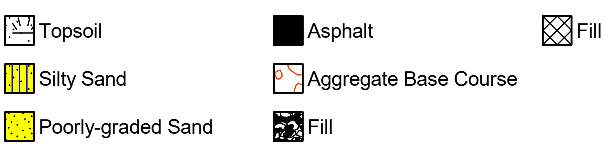
Model Layer	Layer Name	General Description
1	Fill	Typically sandy soils with lesser amounts of foreign matter (e.g., wood, roots, gravel).
2	Sand	Native fine sand, generally with relatively little silt. Occasional silty layers which become more prevalent with depth.
3	Silt & Clay	Interlayered silt and clay deposits.

LEGEND



First Water Observation

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Boring No.	Boring Depth (feet)	Location
B-1 thru B-11	26.5 to 77.0	Proposed building footprint
I-1 thru I-6	8.0 to 9.0	Infiltration test locations

Test Boring Layout and Elevations: The test boring locations were established in the field by Terracon using a hand-held GPS unit, taped measurements and/or visual reference from existing site features. The boreholes were located on the basis of the proposed building and parking layout provided to us, within the limitations of access, existing structures and utilities.

Ground surface elevation at each borehole location was estimated based upon our interpolation between topographic contours shown on the site plans provided to us. If more precise locations and/or elevations are desired, the as-drilled boring locations should be surveyed.

Test Boring Subsurface Exploration Procedures: The test borings were made using a standard rotary drill rig equipped with hollow stem augers. As the augers were advanced, the soils were sampled at intervals of five feet or less in accordance with the Standard Method for Penetration Test and Split-Barrel Sampling of Soils, ASTM D1586. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling 30-inches. The number of blows required to advance the sampling spoon the middle 12-inches of a normal 24-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the corresponding test depths. Upon completion of drilling the boreholes were backfilled with auger cuttings and/or sand, with the surface restored in kind in pavement areas.

Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. The sampling depths, penetration distances, and other sampling information were recorded on the field boring logs.

The soil samples were placed in appropriate containers and taken to our soils laboratory for classification by a Geotechnical Engineer. Final individual boring logs were prepared, and they represent the Geotechnical Engineer's interpretation of the field logs and include modifications as appropriate based on observations and/or testing of the samples in our laboratory.

Laboratory Testing

Selected recovered samples from the test borings were submitted for laboratory testing as part of the subsurface investigation, to confirm the visual classifications and to provide quantitative index properties for use in the geotechnical evaluation. This testing was performed in general accordance with the following standard methods:

- ASTM D2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil - and Rock by Mass (9 samples tested)
- ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils (w/o hydrometer) (7 samples tested)
- ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils (w/ hydrometer) (1 sample tested)
- ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (1 sample tested)

SITE LOCATION AND EXPLORATION PLANS

Contents:

Note: All attachments are one page unless noted above

SITE LOCATION

Proposed Student Housing ■ Albany, NY

September 2020 ■ Terracon Project No. JB205071

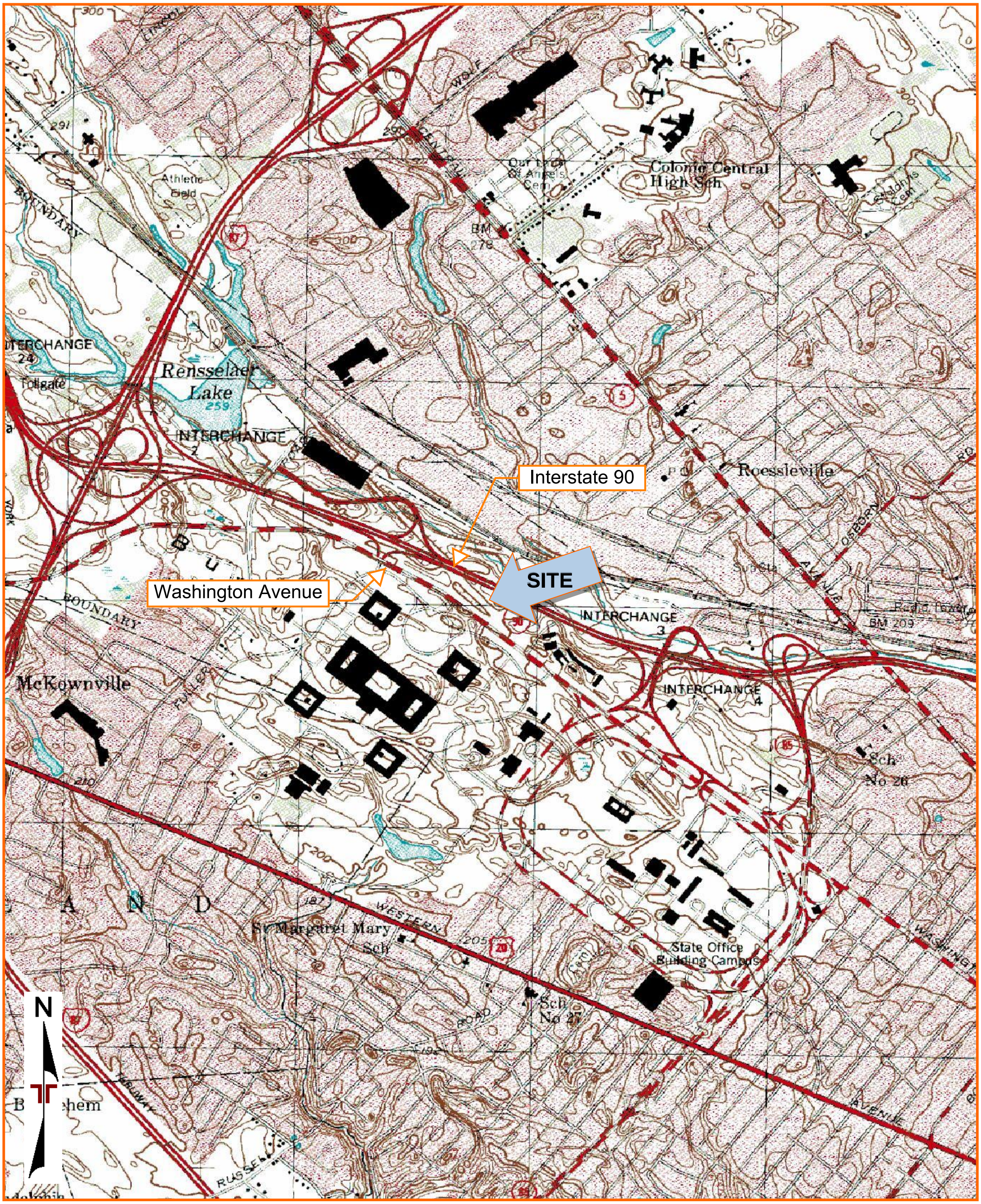


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: ALBANY, NY (1/1/1994).

EXPLORATION PLAN
Washington Avenue Student Housing - Albany, NY
Terracon Project No. JB205071

EXPLORATION RESULTS

Contents:

Test Boring Logs (25 pages)
Infiltration Test Results (3 pages)
Laboratory Test Results (10 pages)

Note: All attachments are one page unless noted above

BORING LOG NO. B-1

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC New York, NY

SITE: 1415 Washington Avenue Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6903° Longitude: -73.8197°

Approximate Surface Elev.: 240 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
		0.8	**TOPSOIL**	239+/-						
2			**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, very loose to loose				X	12	WH-WH-1-1 N=1	
							X	22	2-3-3-4 N=6	
					5		X	14	3-4-5 N=9	
		10.5		229.5+/-	10	▽				
			SANDY SILT (ML), brownish tan with gray mottling, wet, soft				X	12	1-1-2 N=3	
		15.0		225+/-	15					
			POORLY GRADED SAND (SP), fine grained, brown, wet, very loose to loose				X	12	1-1-2 N=3	
					20		X	14	1-2-2 N=4	
					25		X	18	2-3-4 N=7	
		26.5		213.5+/-						
			Boring Terminated at 26.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic
Boring moved 10'

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *After S-4*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-12-2020	Boring Completed: 08-12-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-2

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6902° Longitude: -73.8194°

Approximate Surface Elev.: 242 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.6	**TOPSOIL**	241.5+/-						
2	2.0	**POORLY GRADED SAND (SP)**, trace rootlets, fine grained, brownish tan, moist, very loose	240+/-	0–1.5		X	18	1-1-1-1 N=2	
		POORLY GRADED SAND (SP), fine grained, brownish tan, moist, very loose to loose		2–3.5		X	19	1-2-2-2 N=4	
				5		X	17	2-3-3 N=6	
				10		X	17	2-3-3 N=6	
					▽				
		Grades to wet		15		X	18	1-1-2 N=3	
				20		X	18	WH-1-1 N=2	
				25		X	12	3-3-4 N=7	
				30					

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic
Boring moved 12' west. About 1.5' elevation drop

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *After S-5*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-13-2020	Boring Completed: 08-13-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-2

PROJECT: **Proposed Student Housing**

CLIENT: **Scenic RE LLC**
New York, NY

SITE: **1415 Washington Avenue**
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6902° Longitude: -73.8194°

Approximate Surface Elev.: 242 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
2		**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, very loose to loose *(continued)*				X	10	2-4-4 N=8	
	35.0	**POORLY GRADED SAND (SP)**, with occasional silt lenses, fine grained, brownish tan, wet, medium dense	207+/-	35		X	12	4-5-9 N=14	
				40		X	17	4-5-7 N=12	
				45		X	18	4-5-7 N=12	
	50.0	**SANDY SILT (ML)**, with clay bands, brown, wet, stiff	192+/-	50		X	18	3-4-7 N=11	
	55.5	**SILTY SAND (SM)**, fine grained, gray, wet, medium dense	186.5+/-	55		X	18	5-11-15 N=26	
				60					

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic
Boring moved 12' west. About 1.5' elevation drop

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *After S-5*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-13-2020	Boring Completed: 08-13-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-2

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC New York, NY

SITE: 1415 Washington Avenue Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6902° Longitude: -73.8194°

Approximate Surface Elev.: 242 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
		SILTY SAND (SM), fine grained, gray, wet, medium dense *(continued)*				X	18	2-2-5 N=7	
2	61.0	**SANDY SILT (ML)**, with clay bands, gray, wet, medium stiff	181+/-						
3	65.0	**VARVED SILT AND CLAY (CL-ML)**, with fine sand lenses, gray, moist, very stiff	177+/-	65		X	17	3-5-13 N=18	
				70		X	18	5-8-10 N=18	
		Same. 3"-4" bands of fine sand		75		X	18	4-8-11 N=19	
	76.5	***Boring Terminated at 76.5 Feet***	165.5+/-						

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic
Boring moved 12' west. About 1.5' elevation drop

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

After S-5

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-13-2020	Boring Completed: 08-13-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-3

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6899° Longitude: -73.8192°

Approximate Surface Elev.: 251 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.8	**TOPSOIL**	250+/-						
2	2.0	**POSSIBLE FILL: SILTY SAND (SM)**, trace rootlets, trace brownish tan fine sand, fine grained, dark brown, moist, very loose	249+/-			X	18	1-1-1-1 N=2	
2	5.0	**POSSIBLE FILL: POORLY GRADED SAND (SP)**, trace rootlets, fine grained, brown, moist, very loose	246+/-			X	14	1-1-WH-WH N=1	
2	7.0	**POORLY GRADED SAND (SP)**, trace organics (black piece of wood), fine grained, brownish tan, moist, loose	244+/-	5		X	12	1-1-3 N=4	
2		**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, loose							
2		**Grades with silt (SP-SM)**		10		X	18	3-4-3 N=7	5.0
2				15		X	17	1-2-3 N=5	
2		**Grades to brown**		20		X	18	1-3-3 N=6	
2	26.5	**Same. Wet**	224.5+/-	25	▽	X	18	1-1-1 N=2	
		Boring Terminated at 26.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *At completion of drilling*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-12-2020	Boring Completed: 08-12-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-4

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6897° Longitude: -73.8189°

Approximate Surface Elev.: 246 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.3	**ASPHALT**	245.5+/-						
	1.1	**AGGREGATE BASE COURSE**	245+/-						
1	3.3	**FILL - SILTY SAND (SM)**, trace rootlets and black pieces of wood (organics), fine grained, dark brown to black, moist, medium dense	242.5+/-			X	17	9-10-6 N=16	
1	5.0	**FILL - POORLY GRADED SAND (SP)**, trace roots and organics, fine grained, brownish tan with dark brown sand, moist, medium dense	241+/-	5		X	22	6-6-4-4 N=10	
2		**POORLY GRADED SAND (SP)**, trace rootlets, fine grained, brownish tan, moist, loose				X	17	1-2-2-2 N=4	6.8
2		**Grades to brown**		10		X	17	3-3-4 N=7	
2				15		X	17	2-2-3 N=5	
2					▽				
2		**Grades to wet. Grades to very loose**		20		X	12	WH-1-2 N=3	
2	26.5		219.5+/-	25		X	14	WH-1-WH N=1	
		Boring Terminated at 26.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to running sands after S-6

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *After S-6*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-14-2020	Boring Completed: 08-14-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-5

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6895° Longitude: -73.8186°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.3	**ASPHALT**	247.5+/-						
	1.0	**AGGREGATE BASE COURSE**	247+/-						
2		**POORLY GRADED SAND (SP)**, fine grained, brown, moist, loose				X	18	3-5-7-8 N=12	
						X	20	6-4-5-5 N=9	
				5		X	16	2-3-3 N=6	5.4
				10		X	18	2-3-4 N=7	
		Grades to very loose		15		X	17	1-1-1 N=2	
		Grades to wet		20		X	8	1-2-3 N=5	
	26.5		221.5+/-	25		X	17	WH-1-1 N=2	

Boring Terminated at 26.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands @ S-6

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-14-2020	Boring Completed: 08-14-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-6

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6893° Longitude: -73.8184°

Approximate Surface Elev.: 246 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
		0.2	**ASPHALT**	246+/-						
		0.8	**AGGREGATE BASE COURSE**	245+/-						
2			**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, very loose to medium dense				X	17	4-5-7-7 N=12	
							X	22	6-6-4-4 N=10	
					5		X	13	2-2-2-2 N=4	
					10		X	12	1-2-2 N=4	
					15		X	14	1-1-1 N=2	
						▽				
			Grades wet		20		X	13	WR-WR-WH N=WH	
					25		X	17	WR-WR-1 N=1	
					30					

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *At completion of drilling*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-20-2020	Boring Completed: 08-20-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-6

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6893° Longitude: -73.8184°

Approximate Surface Elev.: 246 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH / DESCRIPTION / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
		POORLY GRADED SAND (SP), fine grained, brownish tan, moist, very loose to medium dense *(continued)*			X	6	3-4-7 N=11	
		Grades to grayish brown	35		X	3	2-2-2 N=4	
			40		X	19	5-7-12 N=19	
2		45.0 — 201+/-	45					
		SANDY SILT (ML), gray, wet, soft to stiff			X	14	4-6-7 N=13	27.8
			50		X	13	1-2-2 N=4	
			55		X	16	2-1-2 N=3	
		60.0 — 186+/-	60					

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *At completion of drilling*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-20-2020 | Boring Completed: 08-20-2020

Drill Rig: CME 55 | Driller: J. Lamm

Project No.: JB205071

BORING LOG NO. B-6

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6893° Longitude: -73.8184°

Approximate Surface Elev.: 246 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH / DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
2		**SILTY SAND (SM)**, gray, wet, medium dense				X	14	2-4-6 N=10	
		65.0	181+/-	65					
3		**LEAN CLAY (CL)**, with silty sand bands, gray, moist, medium stiff				X	19	WH-3-2 N=5	
		70.0	176+/-	70					
2		**SILTY SAND (SM)**, with clay seams, gray, moist to wet, medium dense				X	18	3-10-13 N=23	
				75		X	14	3-3-7 N=10	
		76.5	169.5+/-						
		Boring Terminated at 76.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

At completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-20-2020	Boring Completed: 08-20-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB205071 STUDENT HOUSING.GPJ TERRACON_DATATEMPLATE.GDT 9/9/20

BORING LOG NO. B-7

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC New York, NY

SITE: 1415 Washington Avenue Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6898° Longitude: -73.8185°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.3	**ASPHALT**	247.5+/-						
	1.2	**AGGREGATE BASE COURSE**	247+/-						
1	3.0	**FILL - SILTY SAND (SM)**, fine grained, brown, moist, medium dense	245+/-			X	17	9-8-8 N=16	
1	5.0	**FILL - POORLY GRADED SAND (SP)**, trace gravel, trace organic smell, fine grained, brown, moist, medium dense	243+/-	5		X	22	7-6-6-5 N=12	
1	6.0	**FILL - SILTY SAND (SM)**, trace black rootlets (organics), fine grained, dark brown, moist, very loose	242+/-			X	19	1-1-1-1 N=2	
1	10.0	**FILL - POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, very loose	238+/-	10					
1	11.0	**FILL - SILTY SAND (SM)**, trace black rootlets (organics), fine grained, dark brown, moist, very loose	237+/-			X	17	WH-1-1 N=2	
2		**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, loose		15		X	17	2-2-2 N=4	
2		**Grades to wet**		20		X	16	1-2-2 N=4	29.9
2	26.5		221.5+/-	25		X	17	1-2-3 N=5	

Boring Terminated at 26.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-14-2020	Boring Completed: 08-14-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-8

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC New York, NY

SITE: 1415 Washington Avenue Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6896° Longitude: -73.818°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.4	**ASPHALT**	247.5+/-						
	1.3	**AGGREGATE BASE COURSE**	247+/-						
1		**FILL - POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, brown, moist, medium dense				X	13	8-10-12 N=22	
						X	3	12-10-9-8 N=19	
	5.0		243+/-	5					
		FILL - SILTY SAND (SM), with black organics (wood and rootlets), dark brown, moist, loose				X	19	2-2-2-2 N=4	
						X	17	2-2-2-2 N=4	
		Large piece of gravel encountered				X	14	2-3-2-2 N=5	
	10.0		238+/-	10					
2		**POORLY GRADED SAND (SP)**, fine grained, brownish tan to brown, moist to wet, very loose to loose				X	19	2-2-2-2 N=4	
		Grades to brown		15		X	16	2-3-4-4 N=7	7.0
		Grades wet		20	▽	X	13	1-1-2-3 N=3	
				25		X	7	WH-1-2-2 N=3	
	27.0		221+/-						
		Boring Terminated at 27 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *At completion of drilling*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-21-2020	Boring Completed: 08-21-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-9

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6894° Longitude: -73.8176°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.4	**ASPHALT**	247.5+/-						
	0.8	**AGGREGATE BASE COURSE**	247.5+/-						
1		**POSSIBLE FILL: SILTY SAND (SM)**, trace gravel, brown with orange mottling, moist, medium dense				X	22	6-5-7-10 N=12	
	3.5		244.5+/-			X	22	12-8-6-6 N=14	
2		**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, very loose to loose		5		X	20	3-2-1-3 N=3	
						X	20	3-4-4-6 N=8	
				10		X	22	3-3-3-4 N=6	
				15		X	22	3-4-5-3 N=9	
		Grades to brown		20		X	20	2-3-3-2 N=6	
					▽				
		Grades wet		25		X	19	WH-WH-1-1 N=1	
				30					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *After S-8*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-24-2020	Boring Completed: 08-24-2020
Drill Rig: Diedrich D-50	Driller: S. Morey
Project No.: JB205071	

BORING LOG NO. B-9

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC New York, NY

SITE: 1415 Washington Avenue Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6894° Longitude: -73.8176°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH / Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
2	**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, very loose to loose *(continued)*				X	19	WH-2-3-3 N=5	
			35		X	17	1-3-3-5 N=6	
			40		X	7	WH-WH-2-1 N=2	
	Grades to gray		45		X	22	WH-WH-WH-2 N=WH	
	50.0	198+/-	50					
	SILTY SAND (SM), gray, wet, loose				X	19	WH-3-4-6 N=7	29.1
	55.0	193+/-	55					
3	**CLAYEY SILT (ML)**, gray, wet, medium stiff				X	19	WH-3-3-4 N=6	
	60.0	188+/-	60					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

After S-8

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-24-2020	Boring Completed: 08-24-2020
Drill Rig: Diedrich D-50	Driller: S. Morey
Project No.: JB205071	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL JB205071 STUDENT HOUSING.GPJ TERRACON_DATATEMPLATE.GDT 9/9/20

BORING LOG NO. B-9

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC New York, NY

SITE: 1415 Washington Avenue Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6894° Longitude: -73.8176°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
2		**SANDY SILT (ML)**, gray, wet, medium stiff				X	20	3-3-4-4 N=7	
	65.0		183+/-	65					
2		**SILT (ML)**, gray, wet, medium stiff				X	24	WH-3-2-3 N=5	
	70.0		178+/-	70					
3		**LEAN CLAY (CL)**, with silty sand seams, gray, wet, very stiff				X	19	3-7-10-16 N=17	
	75.0		173+/-	75					
		VARVED SILT AND CLAY (CL-ML), gray, moist, very stiff				X	24	4-10-6-6 N=16	
	77.0		171+/-						
		Boring Terminated at 77 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

After S-8

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-24-2020

Boring Completed: 08-24-2020

Drill Rig: Diedrich D-50

Driller: S. Morey

Project No.: JB205071

BORING LOG NO. B-10

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6891° Longitude: -73.8177°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
2		**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, loose to medium dense				X	14	5-7-7-8 N=14	
						X	23	8-6-5-5 N=11	
				5		X	18	1-3-3-3 N=6	
	10.0		238+/-						
		POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brownish tan, moist, very loose to loose		10		X	16	2-3-3 N=6	8.6
				15		X	12	1-1-1 N=2	
	20.0		228+/-		▽				
		SANDY SILT (ML), brown, wet, medium stiff		20		X	17	2-2-2 N=4	
	25.0		223+/-						
3		**SILT (ML)**, brown, wet, stiff		25		X	12	2-4-7 N=11	
	26.5		221.5+/-						
		Boring Terminated at 26.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *At completion of drilling*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-21-2020	Boring Completed: 08-21-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-11

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.689° Longitude: -73.818°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.3	**ASPHALT**	247.5+/-						
	0.7	**AGGREGATE BASE COURSE**	247.5+/-						
2		**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, very loose to loose				X	20	6-5-5-6 N=10	
						X	22	4-3-4-4 N=7	
				5		X	18	3-3-4-3 N=7	
				10		X	12	1-1-1 N=2	
		Grades to brown		15		X	18	1-1-2 N=3	
					▽				
		Grades wet		20		X	12	1-2-2 N=4	
	25.0		223+/-						
3		**SILT (ML)**, brown, wet, stiff		25		X	12	5-6-7 N=13	
	30.0		218+/-	30					

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *After S-6*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-24-2020	Boring Completed: 08-24-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-11

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.689° Longitude: -73.818°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
2		**SILTY SAND (SM)**, fine grained, brown, wet, loose				X	8	2-3-6 N=9	
				35		X	8	2-4-5 N=9	
				40		X	12	1-2-4 N=6	
	45.0	**POORLY GRADED SAND (SP)**, fine grained, brown, wet, loose	203+/-	45		X	18	2-3-6 N=9	
	50.0	**SILTY SAND (SM)**, fine grained, gray, wet, medium dense	198+/-	50		X	12	2-3-6 N=9	
				55		X	12	2-3-7 N=10	
	60.0		188+/-	60					

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

After S-6

30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-24-2020	Boring Completed: 08-24-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. B-11

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC New York, NY

SITE: 1415 Washington Avenue Albany, NY

LOCATION See Exploration Plan

Latitude: 42.689° Longitude: -73.818°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
2		**SANDY SILT (ML)**, with banded clay, gray, wet, stiff			X	18	2-3-6 N=9	
		65.0 — 183+/-	65					
3		**BANDED CLAY (CL)**, gray, moist, medium stiff to stiff			X	18	4-7-6 N=13	
			70		X	18	2-3-4 N=7	30.4
		75.0 — 173+/-	75					
		VARVED SILT AND CLAY (CL-ML), gray, moist, medium stiff			X	18	2-3-3 N=6	
		76.5 — 171.5+/-						
		Boring Terminated at 76.5 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.
Water added to hold running sands

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *After S-6*

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-24-2020	Boring Completed: 08-24-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. I-1

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.69° Longitude: -73.8193°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
			TOPSOIL							
		1.2		247+/-			X	17	WH-WH-WH-1 N=WH	
2			**SILTY SAND (SM)**, trace rootlets, fine grained, dark brown, moist, very loose							
			Some thicker tree roots				X	20	1-1-2-2 N=3	
			Same. Large tree root encountered. Medium dense		5		X	2	2-4-6-5 N=10	
		6.0		242+/-						
			POORLY GRADED SAND (SP), fine grained, brown, moist, loose				X	18	3-3-4-4 N=7	
		8.0		240+/-						
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.
Set 4" PVC 4' west of boring at 4' depth below grade

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-13-2020	Boring Completed: 08-13-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. I-2

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6899° Longitude: -73.8187°

Approximate Surface Elev.: 247 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.3	**ASPHALT**	246.5+/-						
	0.9	**AGGREGATE BASE COURSE**	246+/-						
1		**FILL - SILTY SAND (SM)**, with pieces of wood, rootlets, and brownish tan fine sand, dark brown, moist, loose					19	4-5-3-3 N=8	
							20	2-3-2-3 N=5	
				5			18	2-3-3-6 N=6	
	8.0		239+/-				24	6-7-5-7 N=12	
2	9.0	**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, medium dense	238+/-						
		Boring Terminated at 9 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.
Set 4" PVC at 4' below grade

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started:	Boring Completed:
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. I-3

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6897° Longitude: -73.8182°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH		ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.4	**ASPHALT**	247.5+/-						
	1.1	**AGGREGATE BASE COURSE**	247+/-						
1		**FILL - POORLY GRADED SAND WITH SILT (SP-SM)**, fine grained, brown, moist, medium dense				X	22	3-7-10 N=17	
						X	16	12-8-11-15 N=19	
	5.0		243+/-	5					
		FILL - GRAVEL (GP), with pieces of wood, gray, moist, medium dense				X	24	14-8-8-8 N=16	
2	6.0	**POORLY GRADED SAND (SP)**, trace rootlets, fine grained, brownish tan, moist, loose to medium dense	242+/-						
						X	19	6-5-4-6 N=9	
	9.0		239+/-						

Boring Terminated at 9 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.
Set 4" PVC at 4' below grade

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-21-2020	Boring Completed: 08-21-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. I-4

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6895° Longitude: -73.8176°

Approximate Surface Elev.: 248 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
	0.4	**ASPHALT**	247.5+/-						
	0.9	**AGGREGATE BASE COURSE**	247+/-						
1	4.0	**FILL - POORLY GRADED SAND (SP)**, brown, moist, medium dense	244+/-			X	20	7-7-4-5 N=11	
1	5.0	**FILL - SILTY SAND (SM)**, trace organics, black, moist, loose	243+/-			X	23	8-5-4-4 N=9	
1	6.0	**POSSIBLE FILL: POORLY GRADED SAND WITH SILT (SP-SM)**, trace rootlets, brown, moist, medium dense	242+/-	5		X	18	8-4-4-4 N=8	
2	9.0	**POORLY GRADED SAND (SP)**, fine grained, orangish brown, moist, loose **Grades to brownish tan**	239+/-			X	16	4-4-4-5 N=8	
		Boring Terminated at 9 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.
Set 4" PVC at 4' below grade

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started: 08-21-2020	Boring Completed: 08-21-2020
Drill Rig: CME 55	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. I-5

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.6896° Longitude: -73.8187°

Approximate Surface Elev.: 247 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
		0.3	**ASPHALT**	246.5+/-						
		0.4	**AGGREGATE BASE COURSE**	246.5+/-						
1		3.0	**FILL - SILTY SAND (SM)**, trace organics (rootlets and wood), dark brown, moist, medium dense	244+/-				22	1-5-6-4 N=11	
2			**POORLY GRADED SAND (SP)**, trace rootlets, fine grained, orangish brown, moist, loose					22	2-2-2-4 N=4	
			Grades to brownish tan		5			24	3-2-3-3 N=5	
		9.0		238+/-				24	3-4-5-5 N=9	

Boring Terminated at 9 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.
Set 4" PVC at 4' below grade

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started:	Boring Completed:
Drill Rig:	Driller: J. Lamm
Project No.: JB205071	

BORING LOG NO. I-6

PROJECT: Proposed Student Housing

CLIENT: Scenic RE LLC
New York, NY

SITE: 1415 Washington Avenue
Albany, NY

LOCATION See Exploration Plan

Latitude: 42.689° Longitude: -73.8183°

Approximate Surface Elev.: 252 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)
		0.3	**ASPHALT**	252+/-						
		0.8	**AGGREGATE BASE COURSE**	251.5+/-						
2			**POORLY GRADED SAND (SP)**, fine grained, brownish tan, moist, loose to medium dense					22	7-10-8-7 N=18	
								24	4-4-4-4 N=8	
					5			20	2-3-3-2 N=6	
		9.0		243+/-				22	2-2-2-2 N=4	

Boring Terminated at 9 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.
Set 4" PVC at 4' below grade

Hammer Type: Automatic

Advancement Method:
4 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Started:	Boring Completed:
Drill Rig:	Driller: J. Lamm
Project No.: JB205071	

DENTE
A Terracon COMPANY

INFILTRATION TEST RESULTS					
PROJECT: Proposed Student Housing				**PROJECT NO.** JB205071	
PROJECT LOCATION: Albany, New York				**TEST DATE:** 8/25/20	
WEATHER: Sunny, 75				**TESTER:** J.Lamm	
Test Location	**Test Depth (feet)**	**Trial No.**	**Water Drop (in)**	**Elapsed Time (min)**	**Infiltration Rate (inches/hour)**
I-1	4.0	1	24	12	> 24
		2	24	14	> 24
		3	24	17	> 24
		4	24	21	> 24
		Infiltration rate for trial no. 4 = > 24 inches per hour Average infiltration rate for trials no. 1-4 = > 24 inches per hour			
I-2	4.0	1	23	60	23
		2	18	60	18
		3	16	60	16
		4	13	60	13
		Infiltration rate for trial no. 4 = 13 inches per hour Average infiltration rate for trials no. 1-4 = 17.5 inches per hour			

Notes:

(1) Testing was conducted in general accord with the “Infiltration Testing Requirements” outlined in Appendix D of the New York State Stormwater Management Design Manual.

(2) Infiltration tests were located alongside companion test borings designated correspondingly.

SOIL CLASSIFICATION AT TEST DEPTH

Test Location I-1: Silty sand (SM) dark brown, moist

Test Location I-2: Silty sand (SM), dark brown, moist

INFILTRATION TEST RESULTS					
PROJECT: Proposed Student Housing			**PROJECT NO.** JB205071		
PROJECT LOCATION: Albany, New York			**TEST DATE:** 8/25/2020		
WEATHER: Sunny, 75			**TESTER:** J.Lamm		
Test Location	**Test Depth (feet)**	**Trial No.**	**Water Drop (in)**	**Elapsed Time (min)**	**Infiltration Rate (inches/hour)**
I-3	4.0	1	14	60	14
		2	11	60	11
		3	9	60	9
		4	9	60	9
		Infiltration rate for trial no. 4 = 9.0 inches per hour Average infiltration rate for trials no. 1-4 = 10.8 inches per hour			
I-4	4.0	1	21	60	21
		2	17	60	17
		3	16	60	16
		4	14	60	14
		Infiltration rate for trial no. 4 = 14.0 inches per hour Average infiltration rate for trials no. 1-4 = 17.0 inches per hour			

Notes:

(3) Testing was conducted in general accord with the “Infiltration Testing Requirements” outlined in Appendix D of the New York State Stormwater Management Design Manual.

(4) Infiltration tests were located alongside companion test borings designated correspondingly.

<u>SOIL CLASSIFICATION AT TEST DEPTH</u>

Test Location I-3: Poorly graded sand (SP), brown, moist

Test Location I-4: Silty sand (SM), black, organics, moist

INFILTRATION TEST RESULTS					
PROJECT: Proposed Student Housing				**PROJECT NO.** JB205071	
PROJECT LOCATION: Albany, New York				**TEST DATE:** 8/25/2020	
WEATHER: Sunny, 75				**TESTER:** J.Lamm	
Test Location	**Test Depth (feet)**	**Trial No.**	**Water Drop (in)**	**Elapsed Time (min)**	**Infiltration Rate (inches/hour)**
I-5	4.0	1	16	60	16
		2	10	60	10
		3	11	60	11
		Infiltration rate for trial no. 3 = 11.0 inches per hour Average infiltration rate for trials no. 1-3 = 12.3 inches per hour			
I-6	4.0	1	11	60	11
		2	11	60	11
		3	8.5	60	8.5
		Infiltration rate for trial no. 3 = 8.5 inches per hour Average infiltration rate for trials no. 1-3 = 10.2 inches per hour			

Notes:

(5) Testing was conducted in general accord with the “Infiltration Testing Requirements” outlined in Appendix D of the New York State Stormwater Management Design Manual.

(6) Infiltration tests were located alongside companion test borings designated correspondingly.

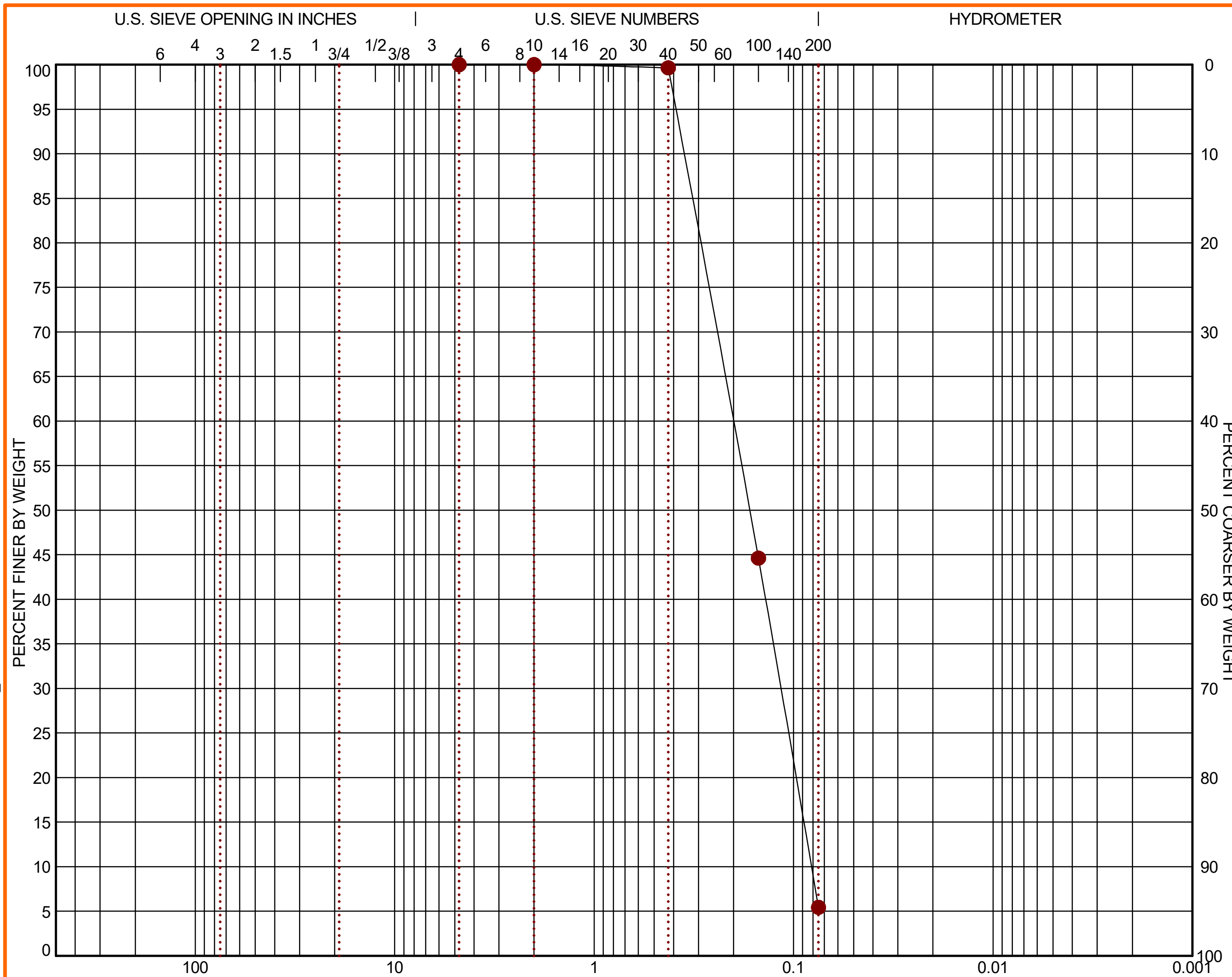
<u>SOIL CLASSIFICATION AT TEST DEPTH</u>

Test Location I-5: Poorly graded sand (SP), orangish brown, moist

Test Location I-6: Poorly graded sand (SP), tannish brown, moist

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-3	10 - 11.5	0.0	0.0	94.6		5.4		SP-SM

GRAIN SIZE

	●		
D_{60}	0.201		
D_{30}	0.116		
D_{10}	0.081		

COEFFICIENTS

	●		
C_C	0.82		
C_U	2.47		

●					
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#4	100.0				
#10	100.0				
#40	99.64				
#100	44.62				
#200	5.44				

SOIL DESCRIPTION

● POORLY GRADED SAND with SILT (SP-SM)

REMARKS

●

PROJECT: Proposed Student Housing

SITE: 1415 Washington Avenue
Albany, NY

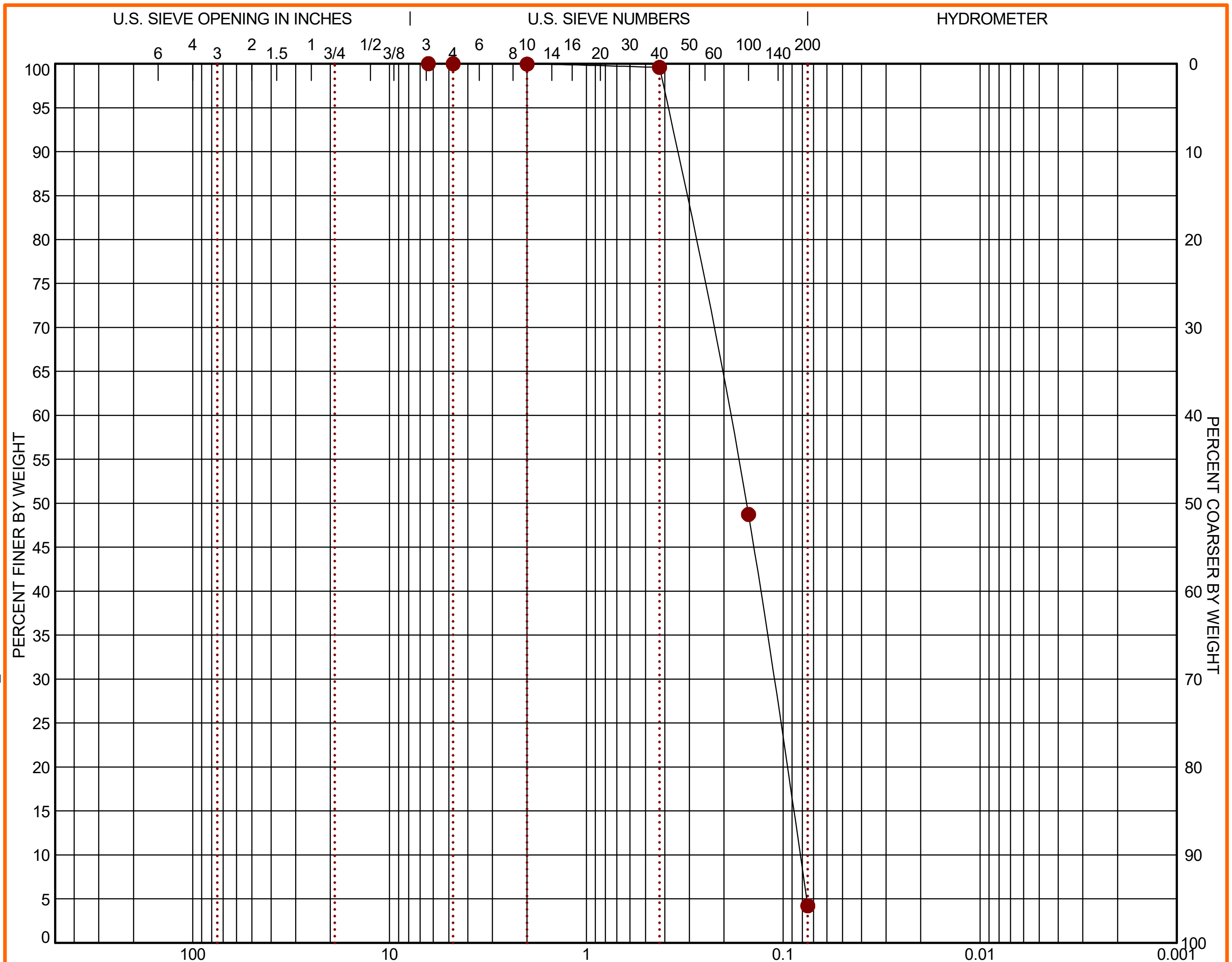
Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-4	5 - 7	0.0	0.0	95.8		4.2		SP

GRAIN SIZE	●		
D_{60}	0.189		
D_{30}	0.112		
D_{10}	0.082		

COEFFICIENTS	●		
C_C	0.81		
C_U	2.30		

●					
Sieve	**% Finer**	**Sieve**	**% Finer**	**Sieve**	**% Finer**
1/4"	100.0				
#4	100.0				
#10	99.96				
#40	99.58				
#100	48.73				
#200	4.21				

	SOIL DESCRIPTION
●	POORLY GRADED SAND (SP)

	REMARKS
●	

PROJECT: Proposed Student Housing

SITE: 1415 Washington Avenue
Albany, NY

Terracon
30 Corporate Cir Ste 201
Albany, NY

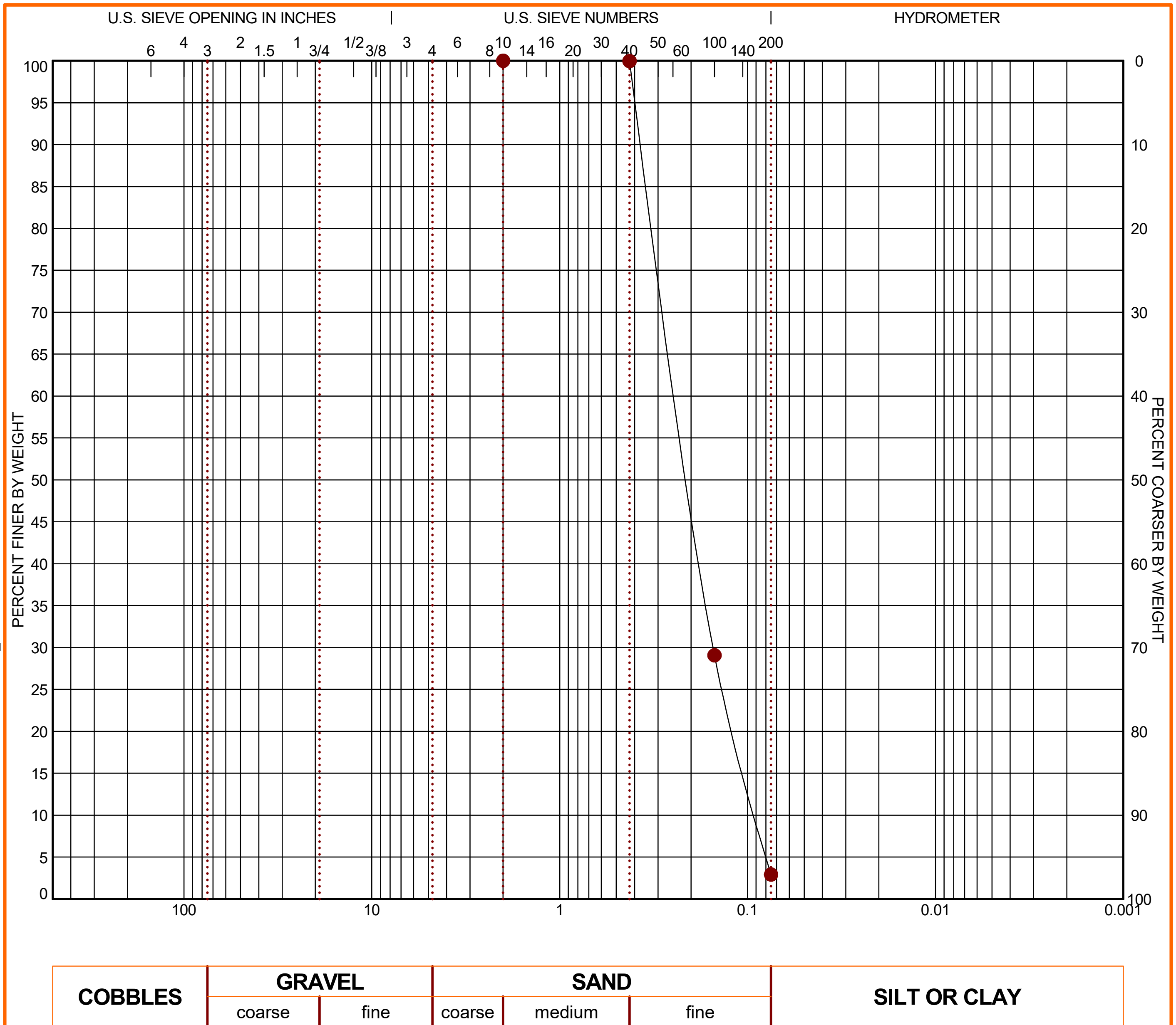
PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 JB205071 STUDENT HOUSING.GPJ TERRACON_DATATEMPLATE.GDT 9/4/20

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
● B-5	5 - 6.5	0.0	0.0	97.1		2.9		SP

GRAIN SIZE

	●		
D_{60}	0.236		
D_{30}	0.152		
D_{10}	0.09		

COEFFICIENTS

	●		
C_c	1.08		
C_u	2.61		

●					
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#10	100.0				
#40	99.96				
#100	29.08				
#200	2.92				

SOIL DESCRIPTION

● POORLY GRADED SAND (SP)

REMARKS

●

PROJECT: Proposed Student Housing

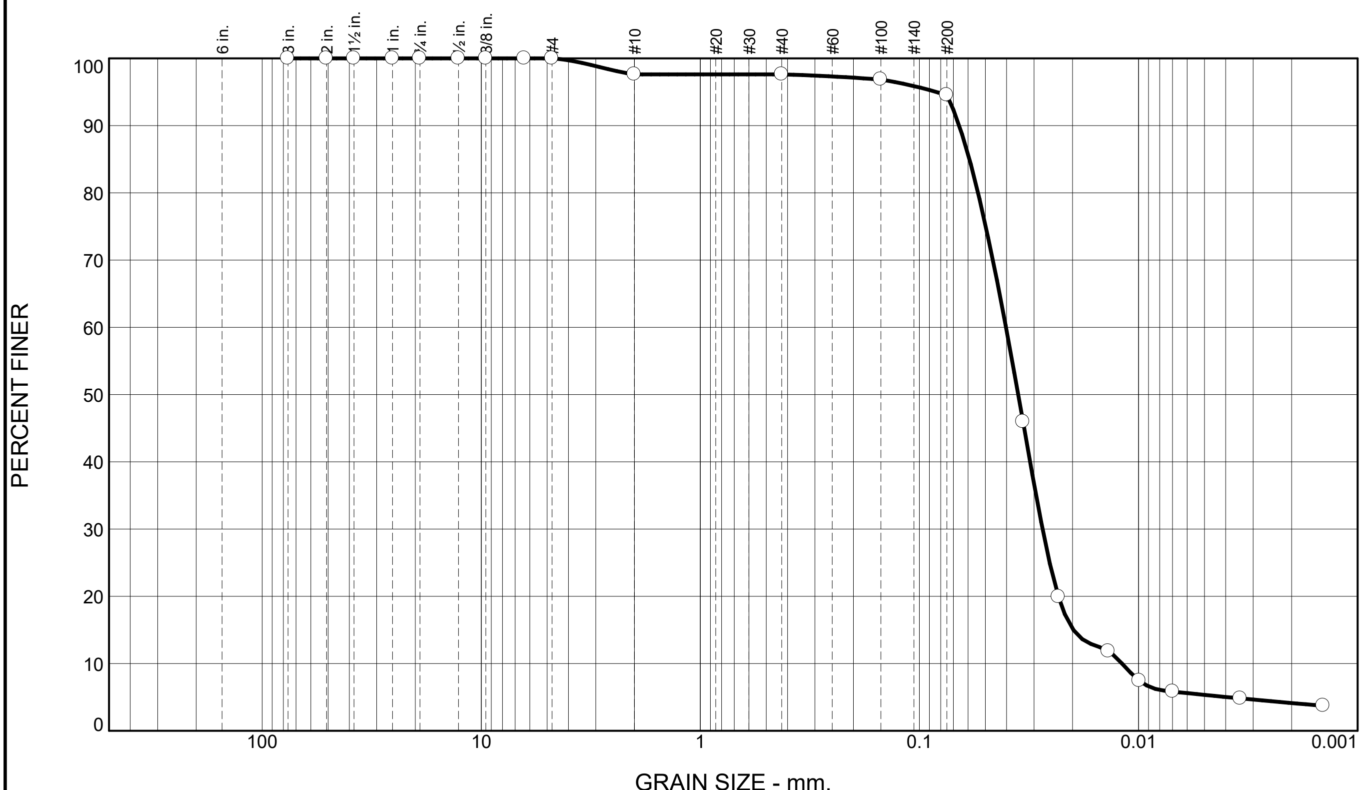
SITE: 1415 Washington Avenue
Albany, NY

Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.4	0.0	3.1	89.2	5.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
0.75"	100.0		
0.5"	100.0		
0.375"	100.0		
0.25"	100.0		
#4	100.0		
#10	97.6		
#40	97.6		
#100	96.8		
#200	94.5		

* (no specification provided)

Material Description

SILT, trace f-c sand and clay

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 0.0658 D_{85}= 0.0591 D_{60}= 0.0403
D_{50}= 0.0354 D_{30}= 0.0274 D_{15}= 0.0198
D_{10}= 0.0119 C_u= 3.38 C_c= 1.57

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Per ASTM D422

Source of Sample: Soil Borings **Depth:** 45'-46.5'
Sample Number: B-6/S-11

Date: 9-2-20

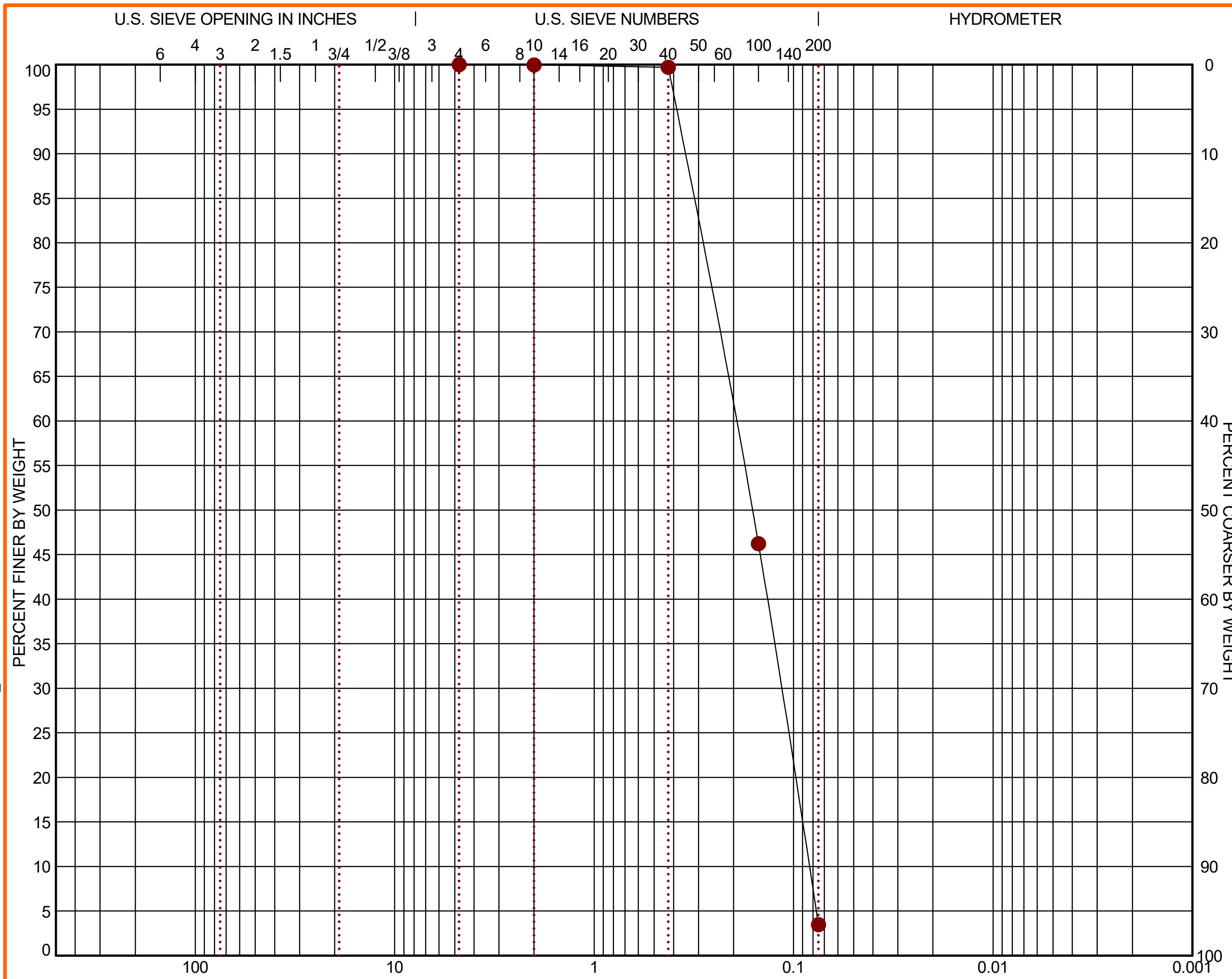
EVERGREEN TESTING, INC.
A Terracon Company
Watervliet, NY

Client: Scenic RE LLC
Project: Proposed Student Housing
Albany, NY
Project No: JB205071 **Figure** B-6/S-11

Tested By: AB **Checked By:** JH

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-7	20 - 21.5	0.0	0.0	96.5		3.5		SP

GRAIN SIZE	●		
D_{60}	0.196		
D_{30}	0.115		
D_{10}	0.083		

COEFFICIENTS	●		
C_C	0.81		
C_U	2.35		

●					
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#4	100.0				
#10	99.95				
#40	99.7				
#100	46.23				
#200	3.47				

	SOIL DESCRIPTION
●	POORLY GRADED SAND (SP)

	REMARKS
●	

PROJECT: Proposed Student Housing

SITE: 1415 Washington Avenue
Albany, NY

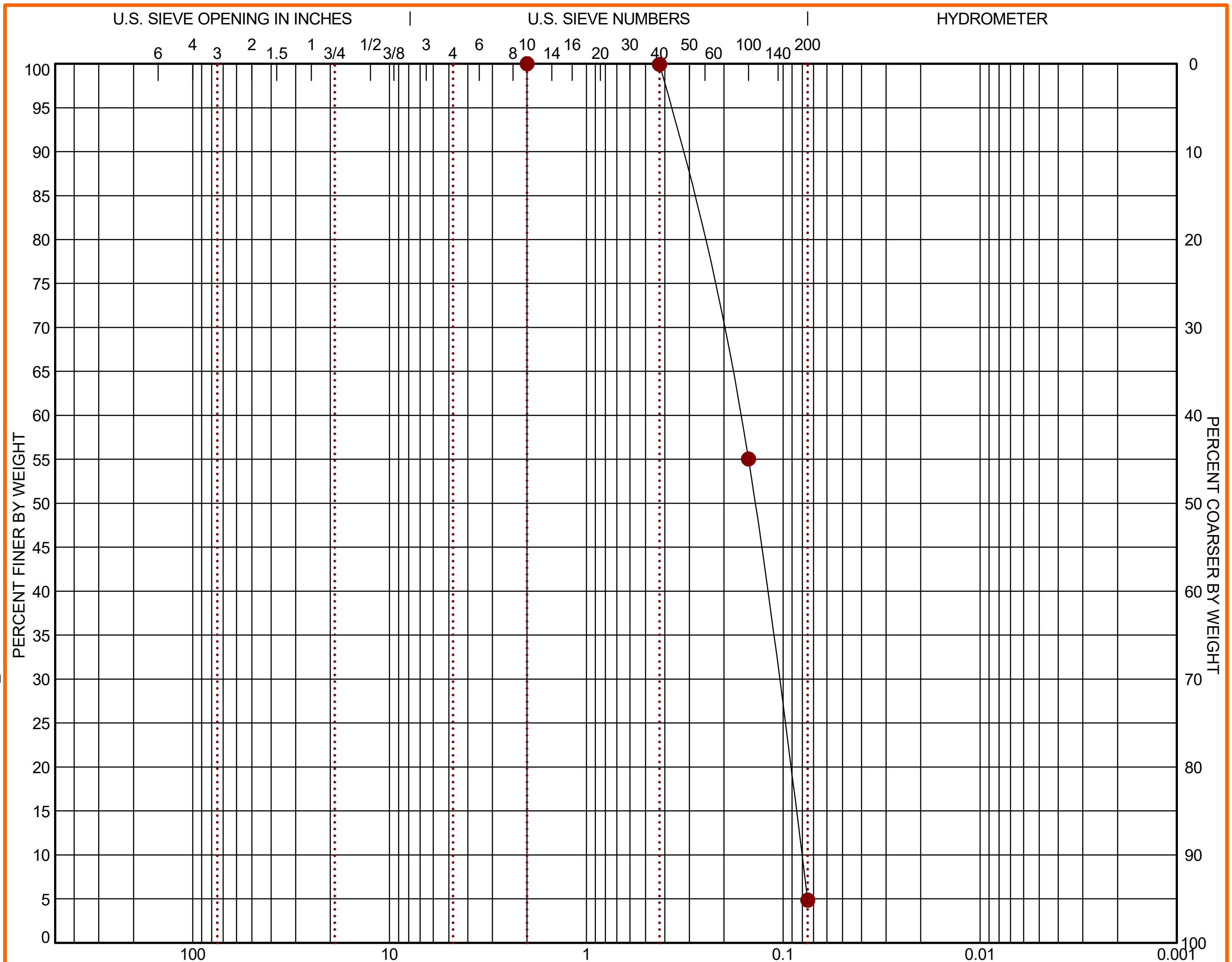
Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-8	15 - 17	0.0	0.0	95.1		4.9		SP

GRAIN SIZE

	●		
D_{60}	0.168		
D_{30}	0.106		
D_{10}	0.081		

COEFFICIENTS

	●		
C_C	0.83		
C_U	2.09		

●					
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#10	100.0				
#40	99.92				
#100	55.05				
#200	4.86				

SOIL DESCRIPTION

●	POORLY GRADED SAND (SP)

REMARKS

●	

PROJECT: Proposed Student Housing

SITE: 1415 Washington Avenue
Albany, NY

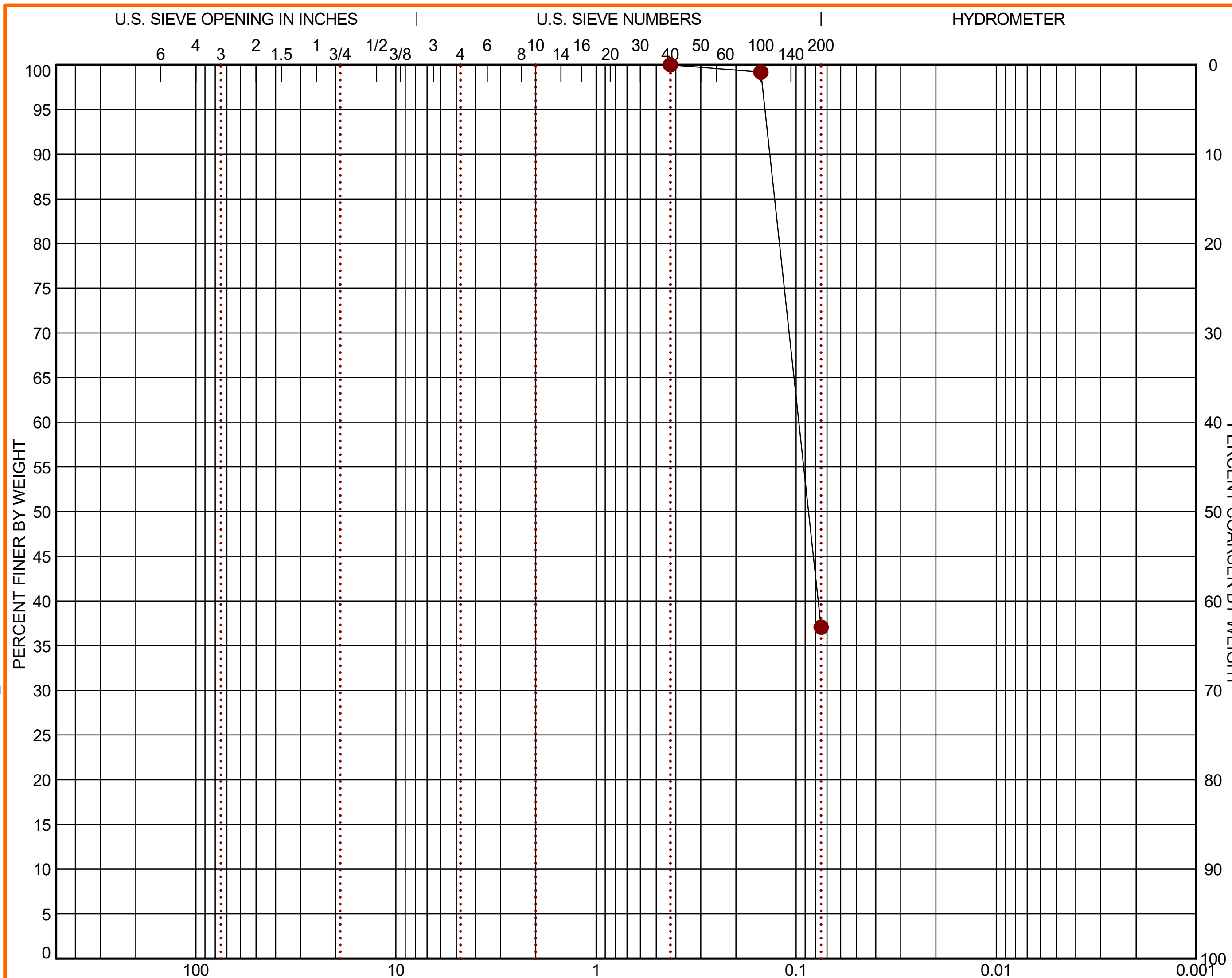
Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-9	50 - 52	0.0	0.0	62.9		37.1		SM

GRAIN SIZE

	●		
D_{60}	0.097		
D_{30}			
D_{10}			

COEFFICIENTS

	●		
C_C			
C_U			

●					
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#40 #100 #200	100.0 99.17 37.08				

SOIL DESCRIPTION

●	SILTY SAND (SM)

REMARKS

●	

PROJECT: Proposed Student Housing

PROJECT NUMBER: JB205071

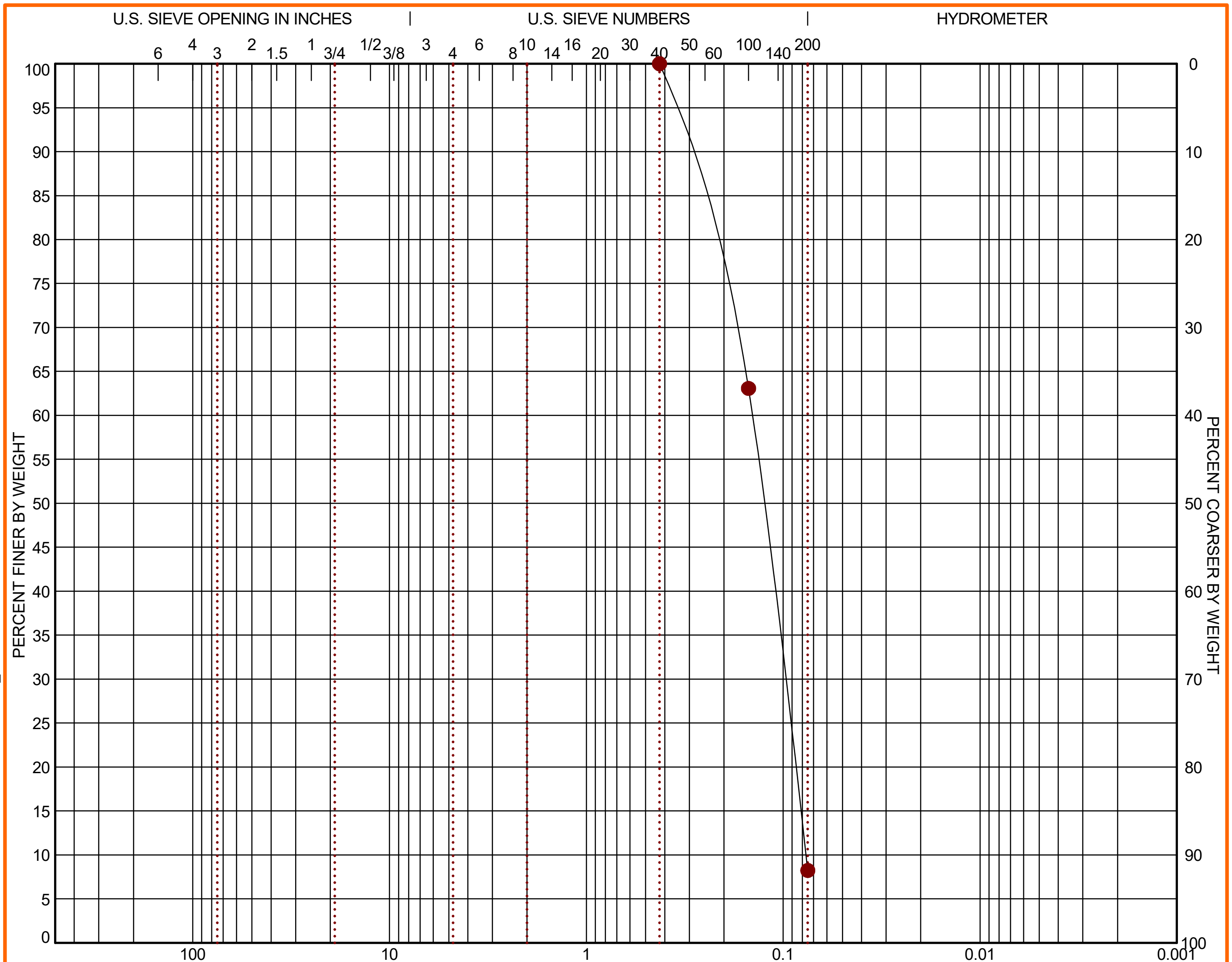
SITE: 1415 Washington Avenue
Albany, NY

CLIENT: Scenic RE LLC
New York, NY

Terracon
30 Corporate Cir Ste 201
Albany, NY

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-10	10 - 11.5	0.0	0.0	91.8		8.2		SP-SM

GRAIN SIZE

	●		
D_{60}	0.144		
D_{30}	0.099		
D_{10}	0.077		

COEFFICIENTS

	●		
C_C	0.88		
C_U	1.88		

●					
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#40	100.0				
#100	63.07				
#200	8.23				

SOIL DESCRIPTION

● POORLY GRADED SAND with SILT (SP-SM)

REMARKS

●

PROJECT: Proposed Student Housing

SITE: 1415 Washington Avenue
Albany, NY

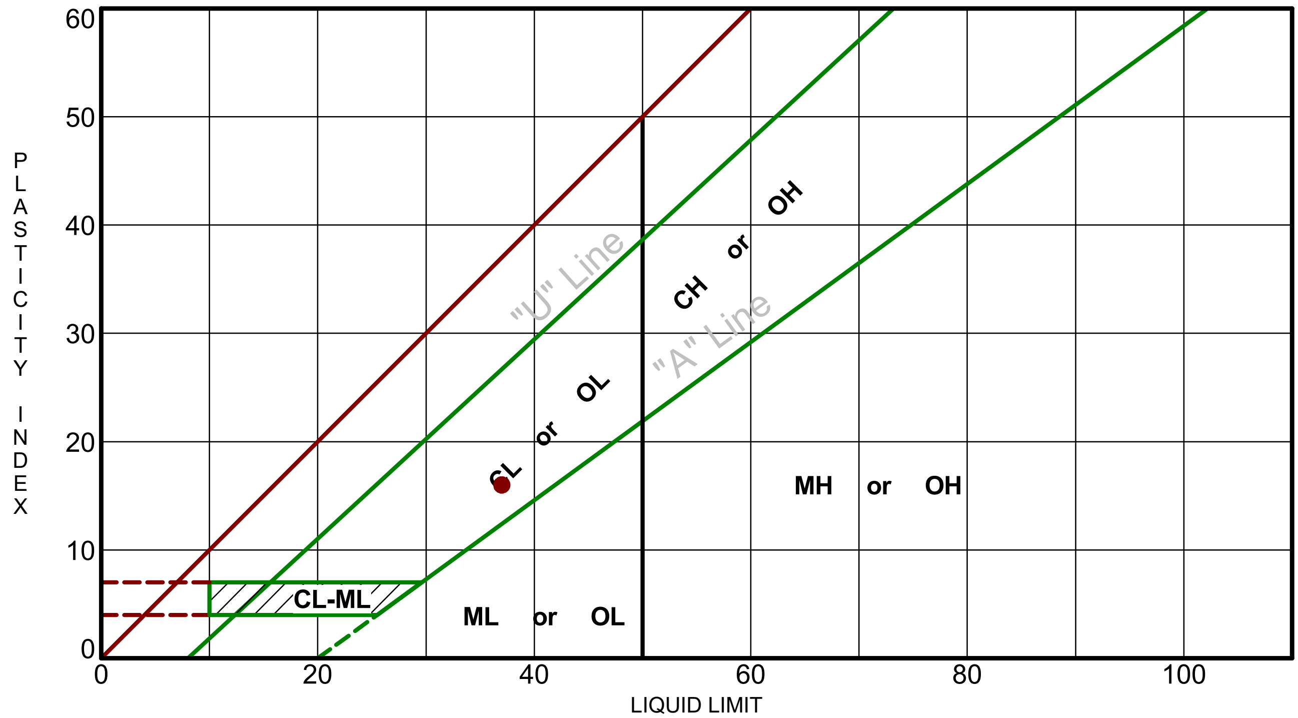
Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
● B-11	70 - 71.5	37	21	16		CL	Lean Clay

PROJECT: Proposed Student Housing

SITE: 1415 Washington Avenue
Albany, NY

Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

Summary of Laboratory Results

BORING ID	Depth (Ft.)	Water Content (%)
B-3	10 - 11.5	5
B-4	5 - 7	6.8
B-5	5 - 6.5	5.4
B-6	45 - 46.5	27.8
B-7	20 - 21.5	29.9
B-8	15 - 17	7
B-9	50 - 52	29.1
B-10	10 - 11.5	8.6
B-11	70 - 71.5	30.4

PROJECT: Proposed Student Housing

SITE: 1415 Washington Avenue
Albany, NY

Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB205071

CLIENT: Scenic RE LLC
New York, NY

SUPPORTING INFORMATION

Contents:

Note: All attachments are one page unless noted above

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Proposed Student Housing ■ Albany, NY

Terracon Project No. JB205071

SAMPLING	WATER LEVEL		FIELD TESTS	
Split Spoon	▽	**Water Initially Encountered**	**N**	**Standard Penetration Test Resistance (Blows/Ft.)**
	▽	**Water Level After a Specified Period of Time**	**(HP)**	**Hand Penetrometer**
	▼	**Water Level After a Specified Period of Time**	**(T)**	**Torvane**
		Cave In Encountered	**(DCP)**	**Dynamic Cone Penetrometer**
	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.		**UC**	**Unconfined Compressive Strength**
			(PID)	**Photo-Ionization Detector**
			(OVA)	**Organic Vapor Analyzer**

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification: Group Symbol	Soil Classification: Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]	GW	Well-graded gravel [F]
			$Cu < 4$ and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]	SW	Well-graded sand [I]
			$Cu < 6$ and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above “A” line	CL	Lean clay [K, L, M]
			PI < 4 or plots below “A” line [J]	ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above “A” line	CH	Fat clay [K, L, M]
			PI plots below “A” line	MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add “with cobbles or boulders, or both” to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\qquad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15   sand, add “with sand” to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add “with organic fines” to group name.

[I] If soil contains ≥ 15   gravel, add “with gravel” to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29   plus No. 200, add “with sand” or “with gravel,” whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add “sandy” to group name.

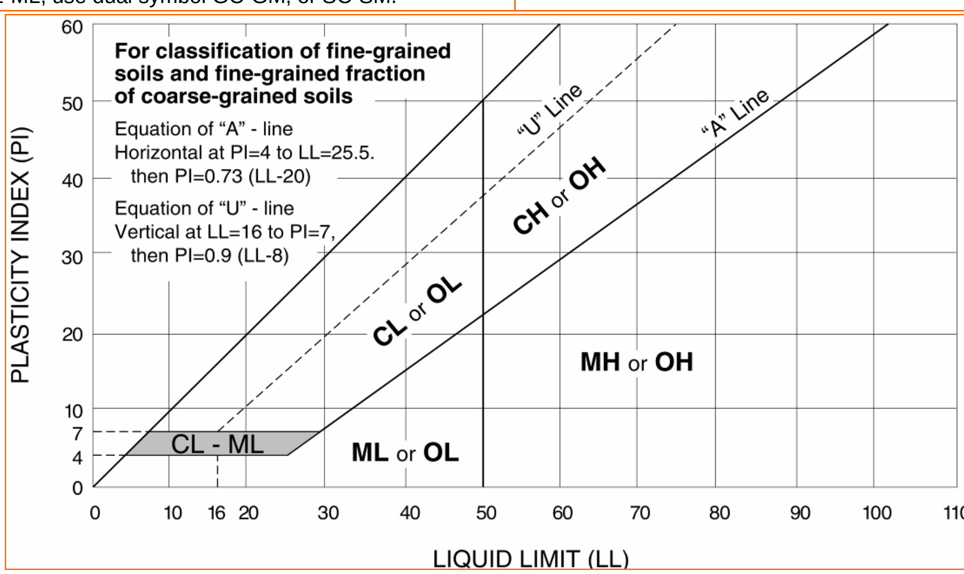
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add “gravelly” to group name.

[N] PI ≥ 4 and plots on or above “A” line.

[O] PI < 4 or plots below “A” line.

[P] PI plots on or above “A” line.

[Q] PI plots below “A” line.



APPENDIX #4

GREEN INFRASTRUCTURE WORKSHEET

Version 1.8 Total Water Quality Volume Calculation

Last Updated: 11/09/2015 WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?..						No
Design Point:	R1		*Manually enter P, Total Area and Impervious Cover.*			
P=	1.20	*inch*				

Breakdown of Subcatchments						
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Description**
1	1.39	1.39	100%	0.95	5,752	Infiltration Basin
2	1.85	1.13	61%	0.60	4,833	Porous Pavement
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	3.24	2.52	78%	0.75	**10,585**	**Subtotal 1**
Total	3.24	2.52	78%	0.75	**10,585**	**Initial WQv**

Identify Runoff Reduction Techniques By Area			
Technique	**Total Contributing Area** *(Acre)*	**Contributing Impervious Area** *(Acre)*	**Notes**
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques					
	Total Area *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient Rv**	**WQv** *(ft^3)*
"<<Initial WQv"	3.24	2.52	78%	0.75	10,585
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	**3.24**	**2.52**	78%	0.75	10,585
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	3.24	2.52	78%	0.75	**10,585**
WQv reduced by Area Reduction techniques					0

Version 1.8
Last Updated: 11/09/2015

Total Water Quality Volume Calculation

WQv(acre-feet) = [(P)(Rv)(A)] /12

0.24	**af**

0.24	**af**
0.00	**af**

Total Water Quality Volume Calculation

WQv(acre-feet) = [(P)(Rv)(A)] /12

Additional Subcatchments						
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Description**
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Subtotal	0.00	0.00			**0**	**Subtotal**

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

0.00	**af**

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

All Subcatchments						
Catchment	**Total Area** *(Acres)*	**Impervious Cover** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient** *Rv*	**WQv** *(ft^3)*	**Description**
1	1.39	1.39	1.00	0.95	5752.10	Infiltration
2	1.85	1.13	0.61	0.60	4,833	Porous
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**cf**	**cf**
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	1.85	1.13	4833	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	5625	127
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	1.39	1.39		
	Bioretention & Infiltration Bioretention	F-5	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
	Totals by Area Reduction	→	0.00	0.00	0	
	Totals by Volume Reduction	→	1.85	1.13	4833	
	Totals by Standard SMP w/RRV	→	1.39	1.39	5625	127
	Totals by Standard SMP	→	0.00	0.00		0
	Totals (Area + Volume + all SMPs)	→	3.24	2.52	10,458	127
	Impervious Cover √	okay				

	Total Area √	okay				

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B	3.24	40%
C		30%
D	**0.00**	20%
Total Area	3.24	
Calculate the Minimum RRv		
S =	**0.40**	
Impervious =	2.52	*acre*
Precipitation	1.2	*in*
Rv	0.95	
Minimum RRv	**4,171**	***ft3***
	0.10	af

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	10585	*0.243*
30	Total RRV Provided	10458	*0.240*
31	Is RRv Provided ≥WQv Required?	No	
32	Minimum RRv	4171	*0.096*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	127	*0.003*
34	Sum of Volume Reduced & Treated	10585	*0.243*
34	Sum of Volume Reduced and Treated	10585	*0.243*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?		

NOI QUESTIONS

98.80%

Planning

Practice	Description	Application
Preservation of Undisturbed Areas	Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain.	
Preservation of Buffers	Define, delineate and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands.	
Reduction of Clearing and Grading	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities.	
Locating Development in Less Sensitive Areas	Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact.	
Open Space Design	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.	
Soil Restoration	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of post construction practices.	
Roadway Reduction	Minimize roadway widths and lengths to reduce site impervious area	
Sidewalk Reduction	Minimize sidewalk lengths and widths to reduce site impervious area	
Driveway Reduction	Minimize driveway lengths and widths to reduce site impervious area	
Cul-de-sac Reduction	Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.	
Building Footprint Reduction	Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio.	
Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.	

Infiltration Basin Worksheet

Design Point:	R1						
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	1.39	1.39	1.00	0.95	5752.10	1.20	Infiltration Basin
Enter Impervious Area Reduced by Disconnection of Rooftops			100%	0.95	5,752	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						ft^3	
Pretreatment Techniques to Prevent Clogging							
Infiltration Rate			5.00	*in/hour*	Okay		
Pretreatment Sizing			50	*% WQv*	*25% minimum;* *50% if >2 in/hr* *100% if >5in/hour*		
Pretreatment Required Volume			2,876	ft^3			
Pretreatment Provided			3,000	ft^3			
Pretreatment Techniques utilized			*Sedimentation Basin*				
Size An Infiltration Basin							
Design Volume	5,752	ft^3	WQv				
Basal Area Required	2,301	ft^2	*Infiltration practices shall be designed to exfiltrate the entire WQv through the floor of each practice.*				
Basal Area Provided	2,500	ft^2					
Design Depth	2.50	*ft*					
Volume Provided	6,250	ft^3	*Storage Volume provided in infiltration basin area (not including pretreatment.*				
Determine Runoff Reduction							
RRv	**5,625**	ft^3	***90% of the storage provided in the basin or WQv whichever is smaller***				
Volume Treated	127	ft^3	*This is the portion of the WQv that is not reduced/infiltrated*				
Sizing √	OK		*The infiltration basin must provide storage equal to or greater than the WQv of the contributing area.*				

Infiltration Basin Worksheet

Total RRV	5,625.00
Total Area	1.39
Total Impervious Area	1.39
Total Volume Treated	127.10
Rooftop Disconnect Impervious Area Total	0.00

Porous Pavement Worksheet

$$Ap = Vw / (n \times dt)$$

Ap	Required porous pavement surface area	*ft2*	
Vw	Design Volume	*ft3*	
n	porosity of gravel bed/resevoir		*Assume .4 for gravel*
dt	depth of gravel bed/resevoir		

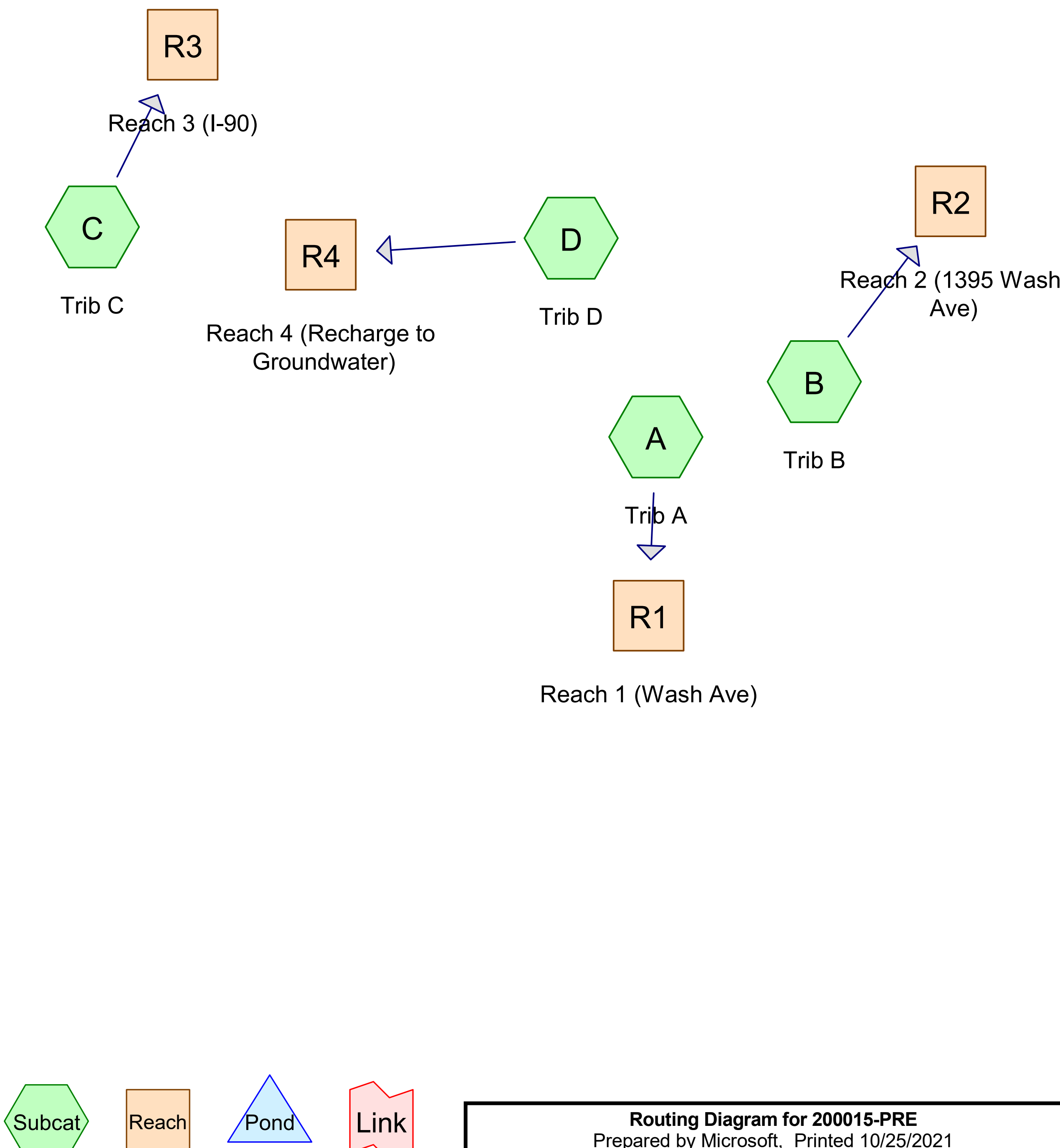
Design Point:	**R1**						
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
2	1.85	1.13	0.61	0.60	4832.98	1.20	Porous Pavement
Enter Soil Infiltration Rate							
Soil Inflitration Rate	5.00	*in/hour*					
Calculate Required Surface Area							
Design Volume	Vw	4,833	*ft^3*				
Are underdrains being used?		No	-				
Porosity of Gravel Bed	*n*	0.40	-				
Gravel Bed Depth	dt	2.50	*ft*				
Required Surface Area	Ap	4,833	*sf*				
Surface Area Provided		34,313	*sf*	*Dimensions of pavement can be provided here*			
Storage Volume Provided		34,313	*ft^3*				
Determine the Runoff Reduction							
RRv	**4,833**	*ft^3*					

Porous Pavement Worksheet

Total RRV	4,832.98
Total Area	1.85
Total Impervious Area	1.13

APPENDIX #5

HydroCAD10.0® CALCULATIONS



Routing Diagram for 200015-PRE
Prepared by Microsoft, Printed 10/25/2021
HydroCAD® 10.00 s/n 03289 © 2012 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.409	39	>75% Grass cover, Good, HSG A (A, B, C, D)
1.832	98	Paved parking, HSG A (A, D)
3.241	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
3.241	HSG A	A, B, C, D
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
3.241		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.409	0.000	0.000	0.000	0.000	1.409	>75% Grass cover, Good	A, B, C, D
1.832	0.000	0.000	0.000	0.000	1.832	Paved parking	A, D
3.241	**0.000**	**0.000**	**0.000**	**0.000**	**3.241**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Trib A Runoff Area=7,090 sf 12.93% Impervious Runoff Depth>0.00"
Flow Length=65' Slope=0.0700 '/' Tc=4.7 min CN=47 Runoff=0.00 cfs 0.000 af

Subcatchment B: Trib B Runoff Area=3,284 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=65' Slope=0.1230 '/' Tc=3.7 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment C: Trib C Runoff Area=21,814 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=70' Slope=0.1570 '/' Tc=3.6 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment D: Trib D Runoff Area=108,989 sf 72.37% Impervious Runoff Depth>0.91"
Flow Length=100' Slope=0.1300 '/' Tc=5.1 min CN=82 Runoff=4.47 cfs 0.190 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

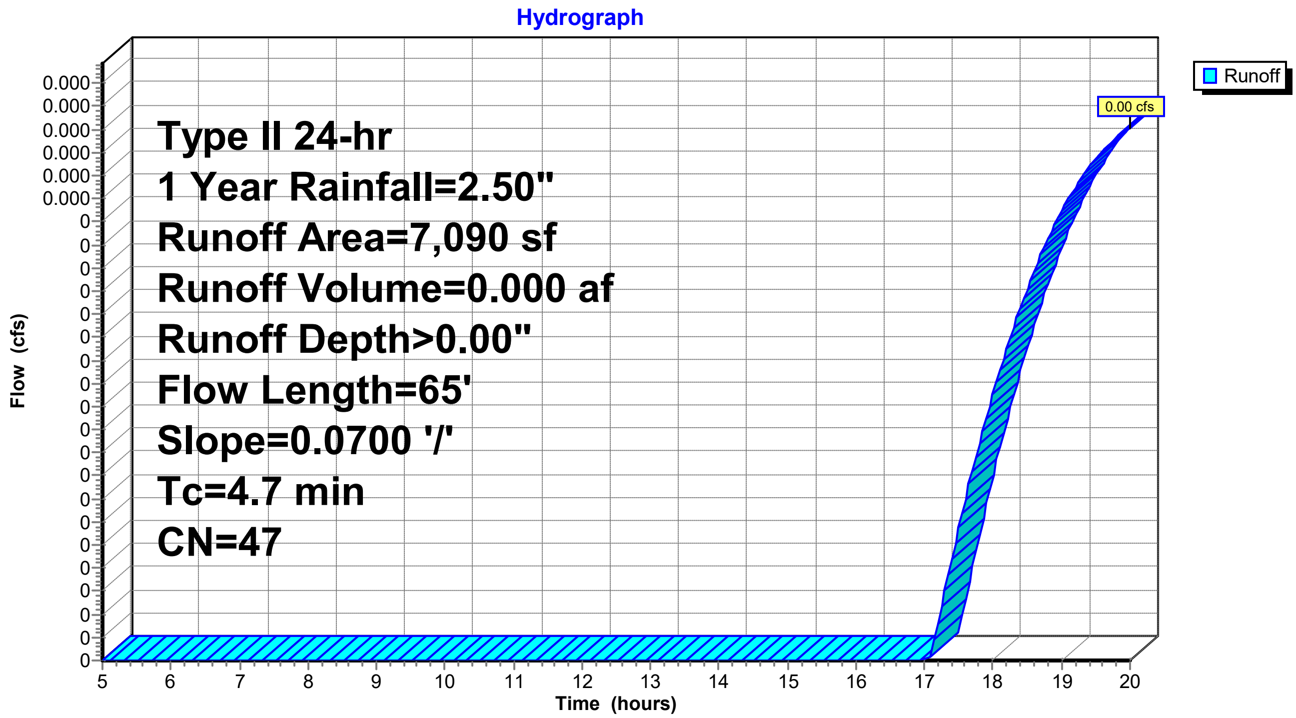
Reach R2: Reach 2 (1395 Wash Ave) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach R3: Reach 3 (I-90) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

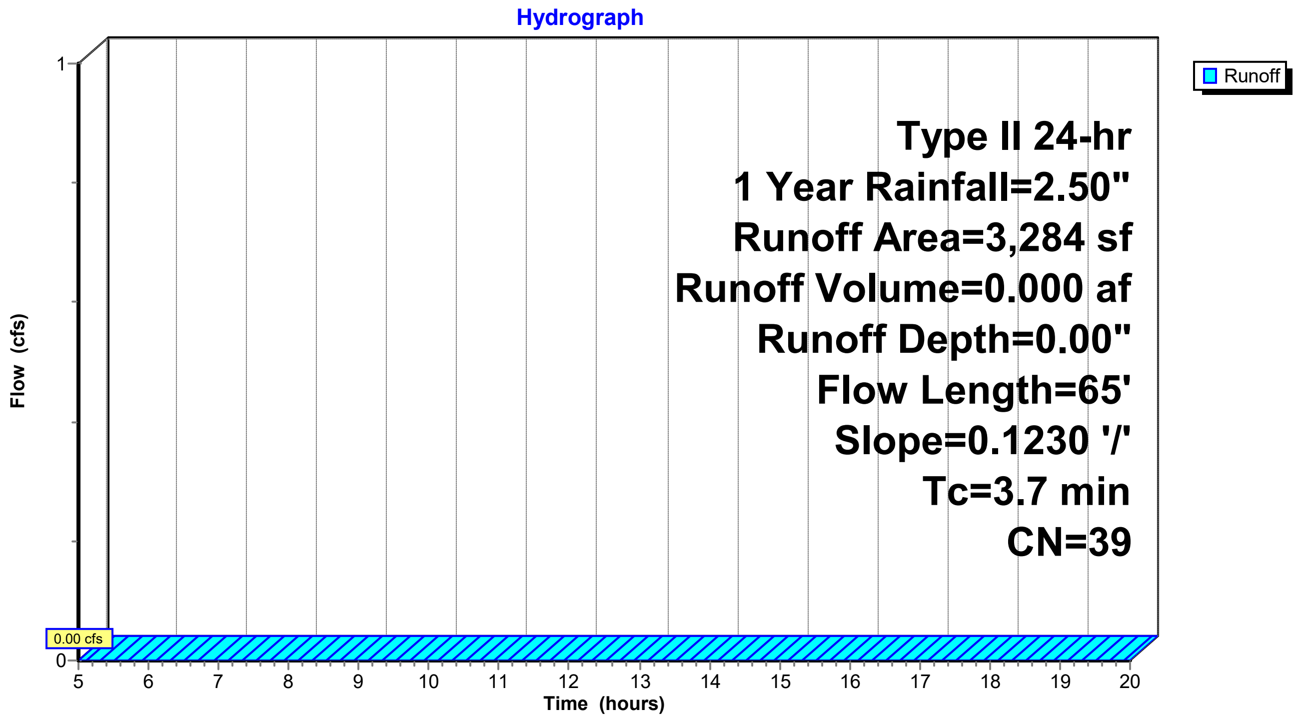
Reach R4: Reach 4 (Recharge to Groundwater) Inflow=4.47 cfs 0.190 af
Outflow=4.47 cfs 0.190 af

Total Runoff Area = 3.241 ac Runoff Volume = 0.190 af Average Runoff Depth = 0.70"
43.48% Pervious = 1.409 ac 56.52% Impervious = 1.832 ac

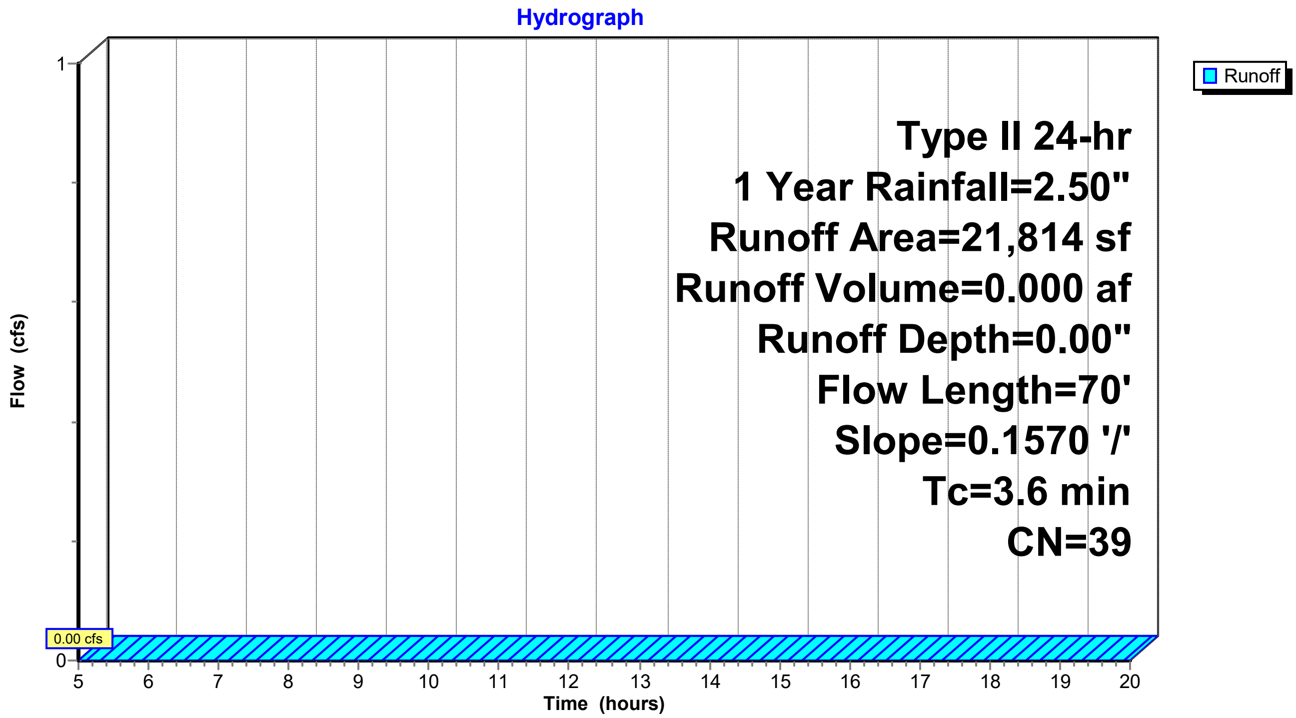
Subcatchment A: Trib A



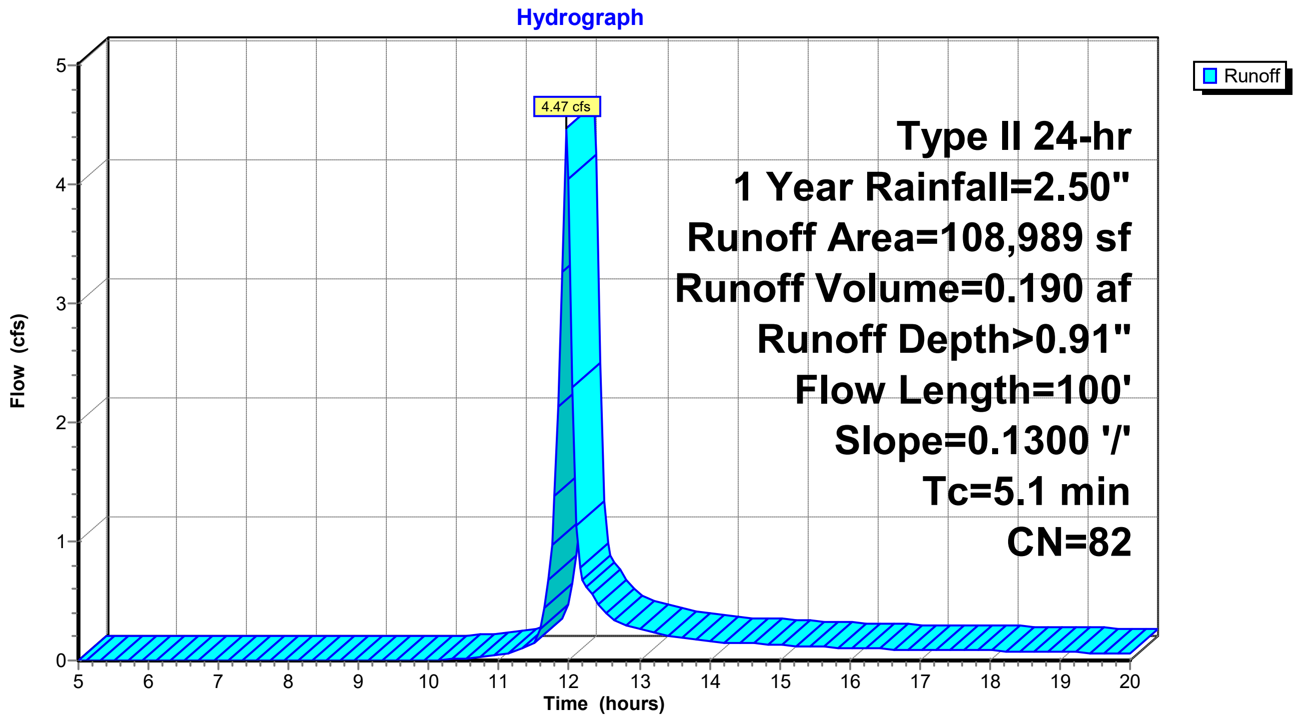
Subcatchment B: Trib B



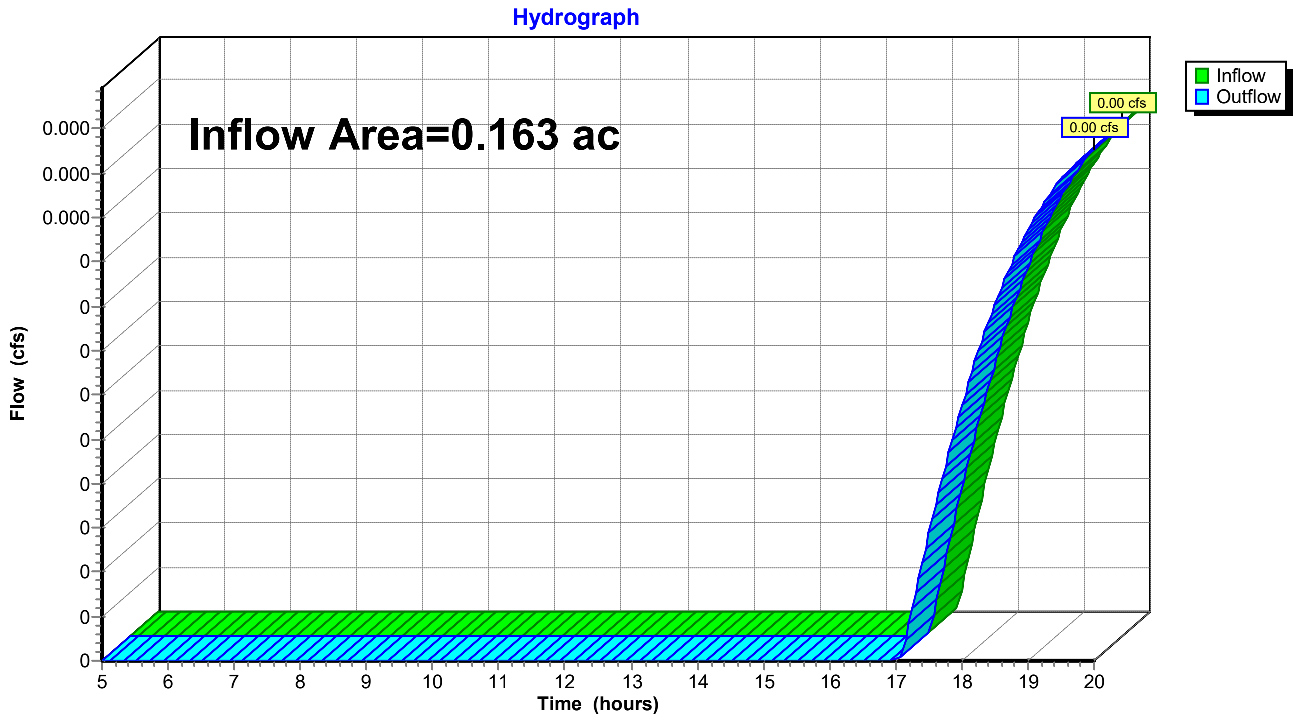
Subcatchment C: Trib C



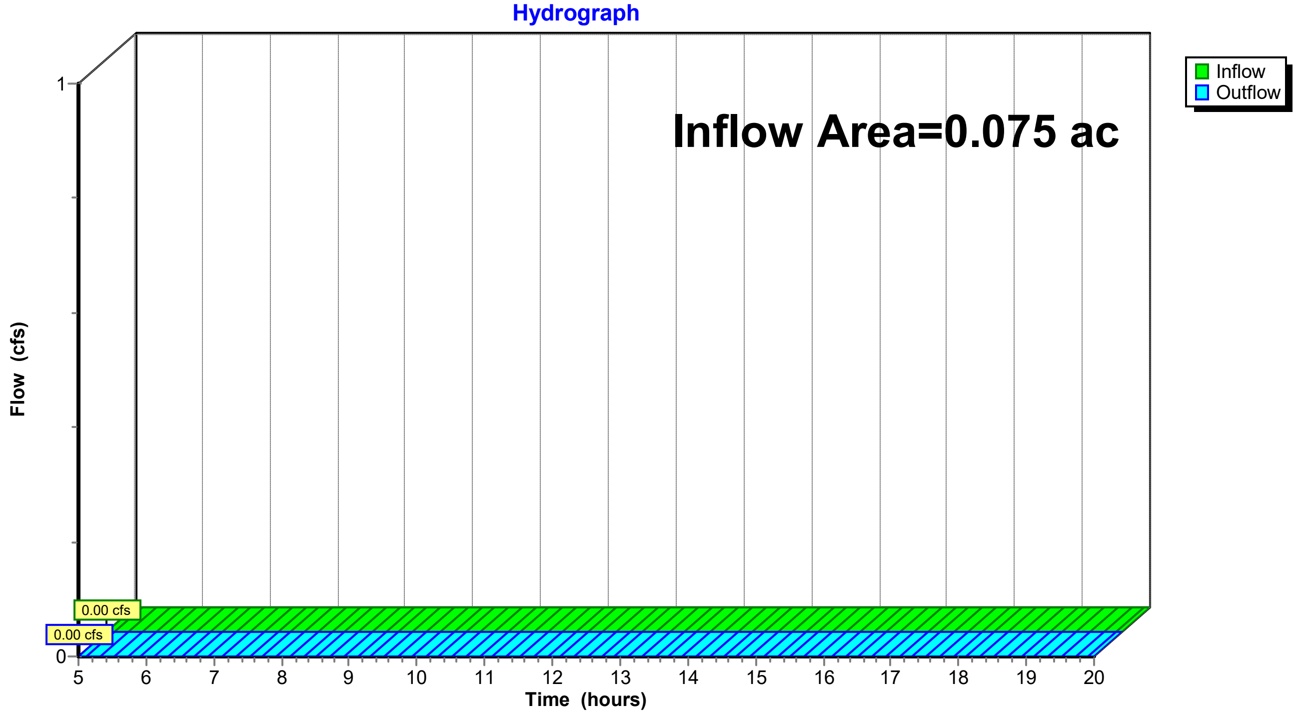
Subcatchment D: Trib D



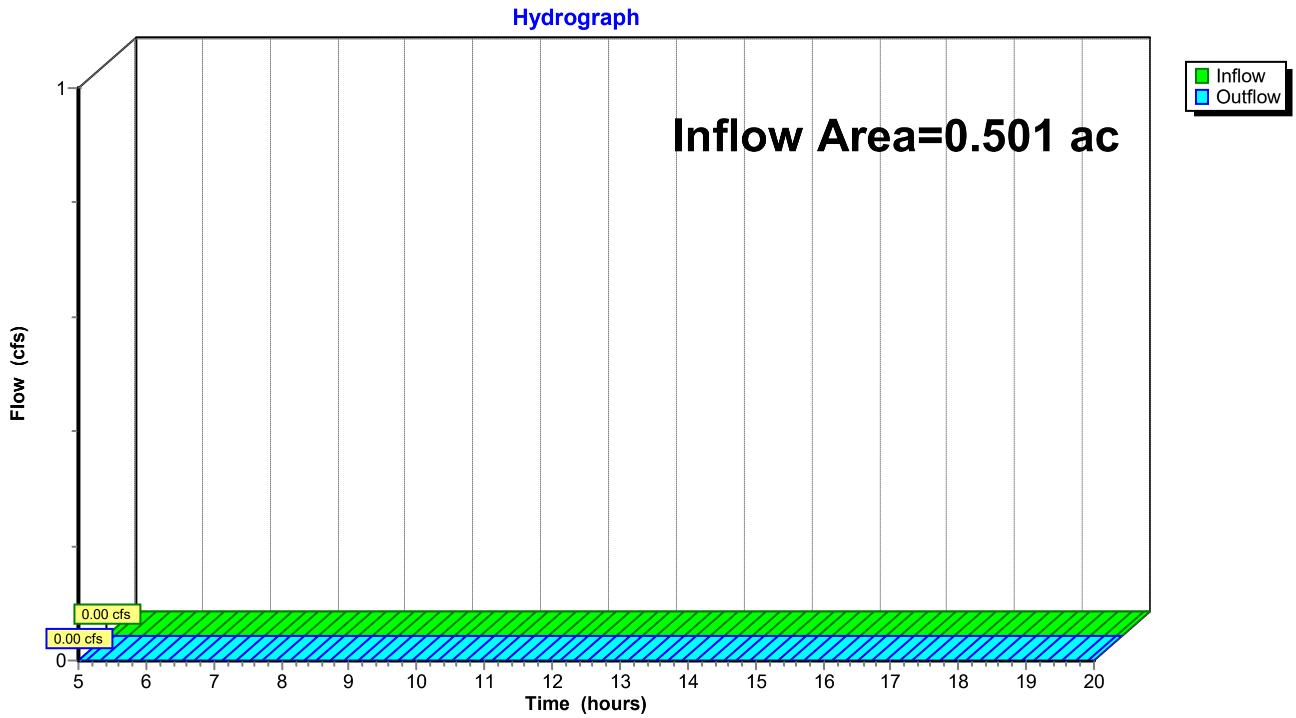
Reach R1: Reach 1 (Wash Ave)



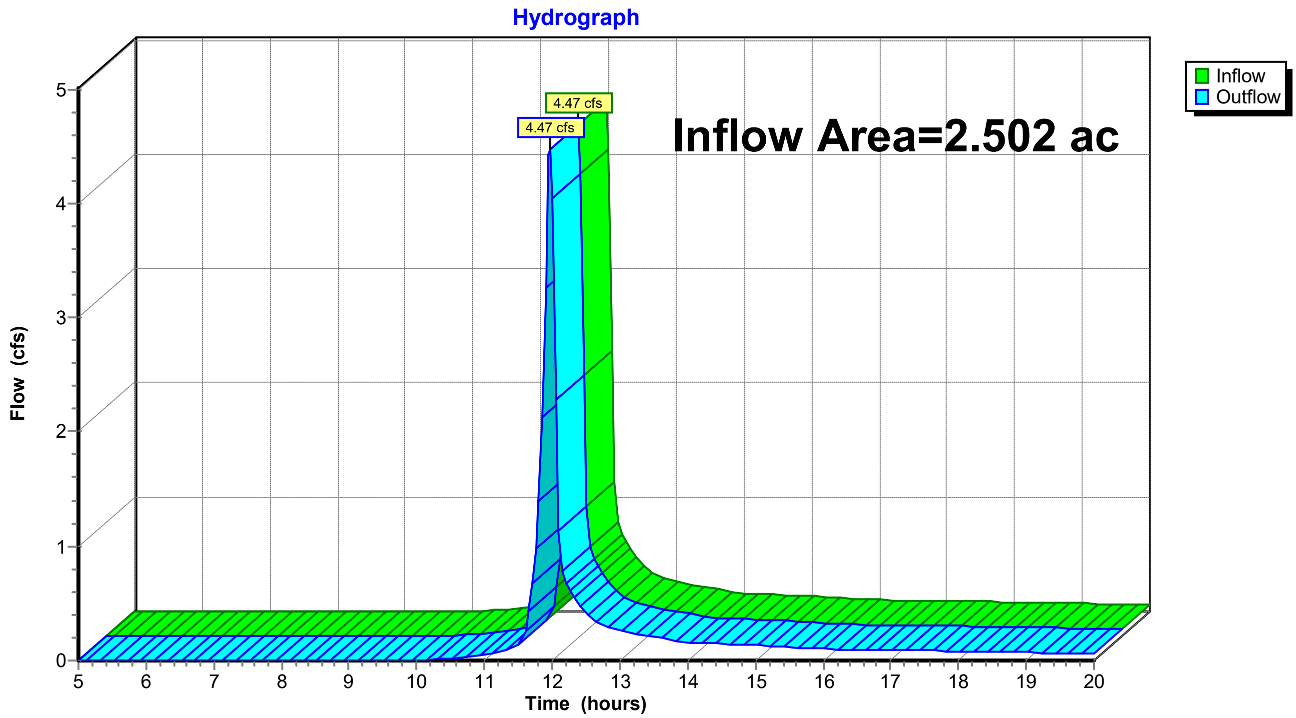
Reach R2: Reach 2 (1395 Wash Ave)



Reach R3: Reach 3 (I-90)



Reach R4: Reach 4 (Recharge to Groundwater)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Trib A Runoff Area=7,090 sf 12.93% Impervious Runoff Depth>0.31"
Flow Length=65' Slope=0.0700 '/' Tc=4.7 min CN=47 Runoff=0.06 cfs 0.004 af

Subcatchment B: Trib B Runoff Area=3,284 sf 0.00% Impervious Runoff Depth>0.08"
Flow Length=65' Slope=0.1230 '/' Tc=3.7 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment C: Trib C Runoff Area=21,814 sf 0.00% Impervious Runoff Depth>0.08"
Flow Length=70' Slope=0.1570 '/' Tc=3.6 min CN=39 Runoff=0.01 cfs 0.003 af

Subcatchment D: Trib D Runoff Area=108,989 sf 72.37% Impervious Runoff Depth>2.44"
Flow Length=100' Slope=0.1300 '/' Tc=5.1 min CN=82 Runoff=11.67 cfs 0.510 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.06 cfs 0.004 af
Outflow=0.06 cfs 0.004 af

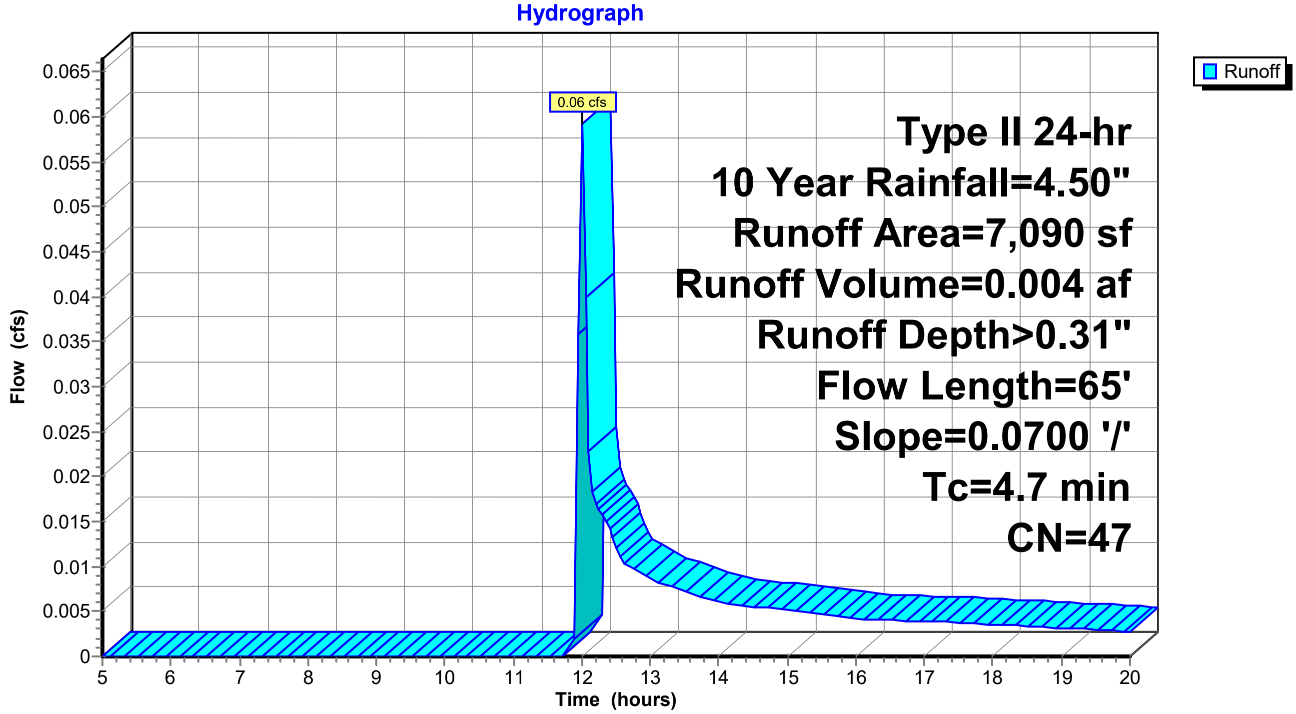
Reach R2: Reach 2 (1395 Wash Ave) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach R3: Reach 3 (I-90) Inflow=0.01 cfs 0.003 af
Outflow=0.01 cfs 0.003 af

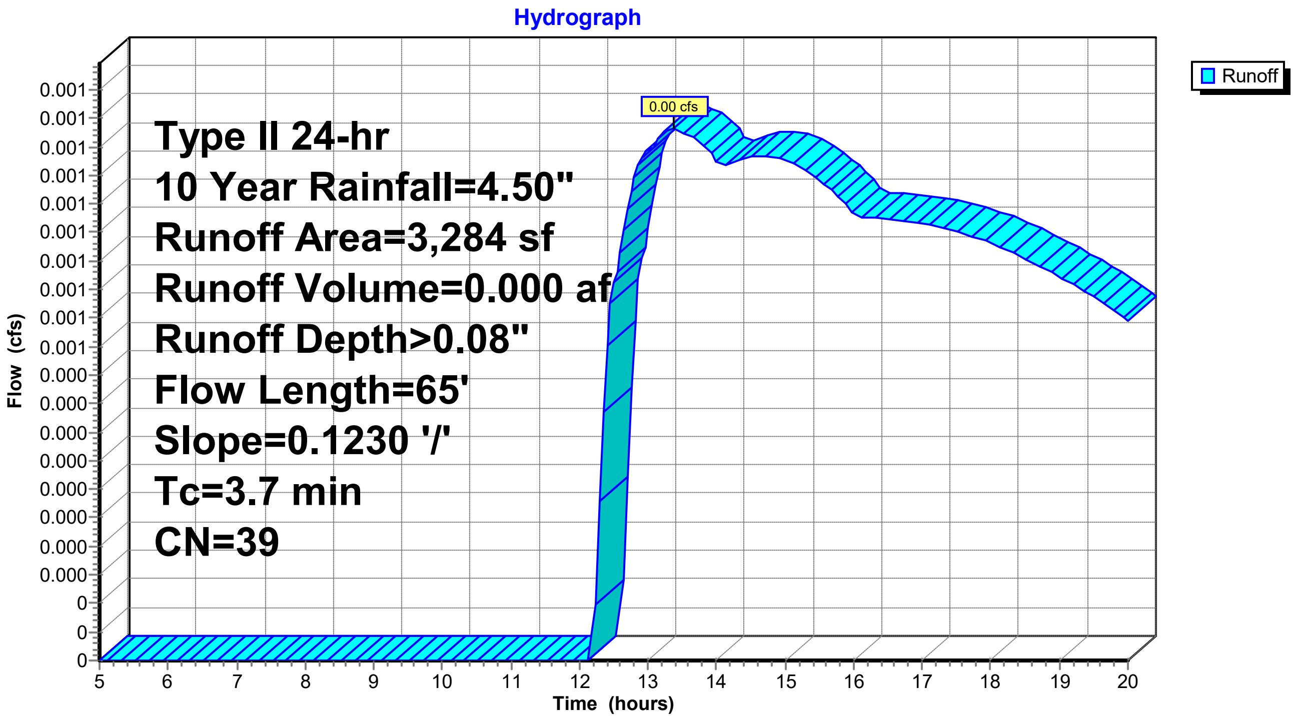
Reach R4: Reach 4 (Recharge to Groundwater) Inflow=11.67 cfs 0.510 af
Outflow=11.67 cfs 0.510 af

Total Runoff Area = 3.241 ac Runoff Volume = 0.518 af Average Runoff Depth = 1.92"
43.48% Pervious = 1.409 ac 56.52% Impervious = 1.832 ac

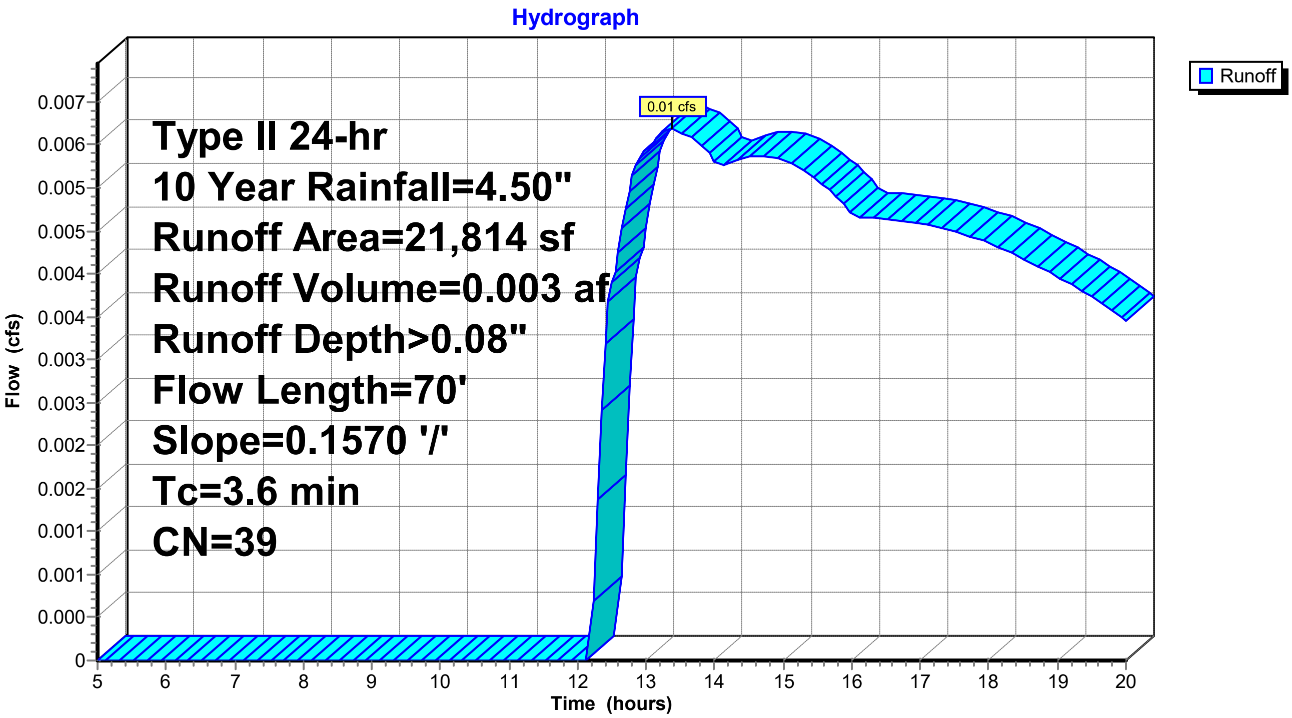
Subcatchment A: Trib A



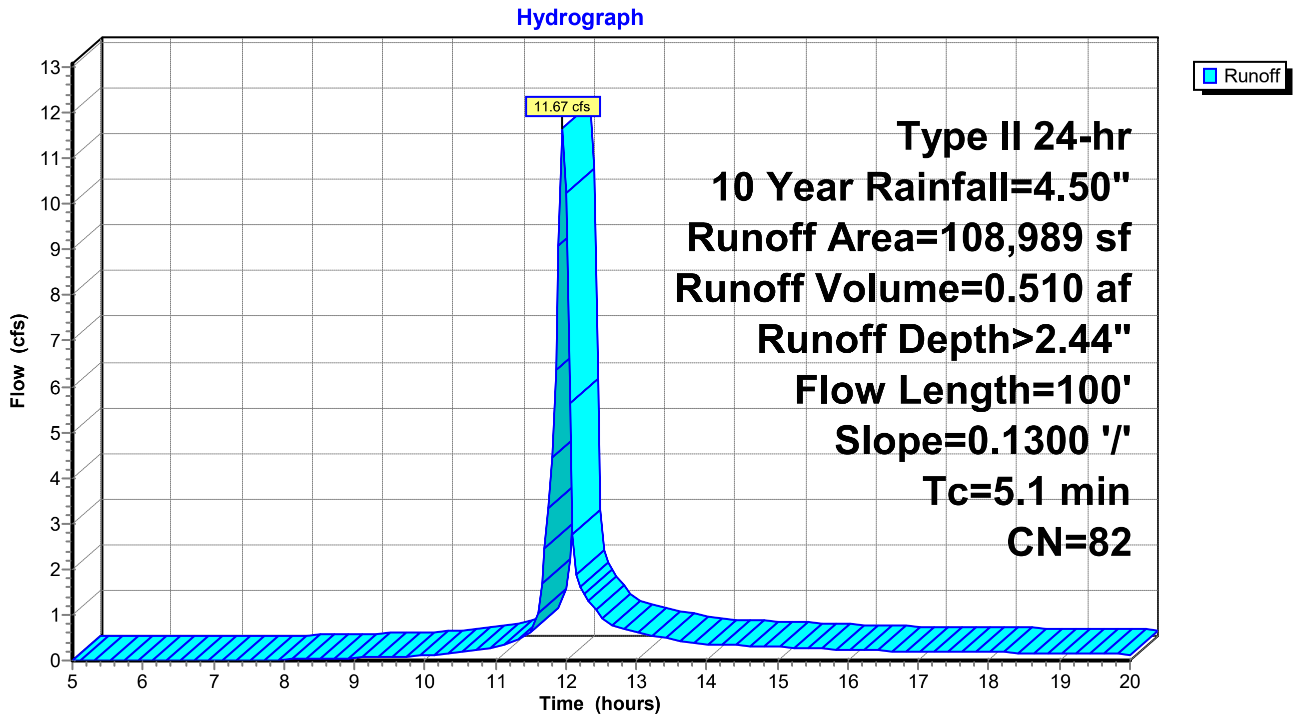
Subcatchment B: Trib B



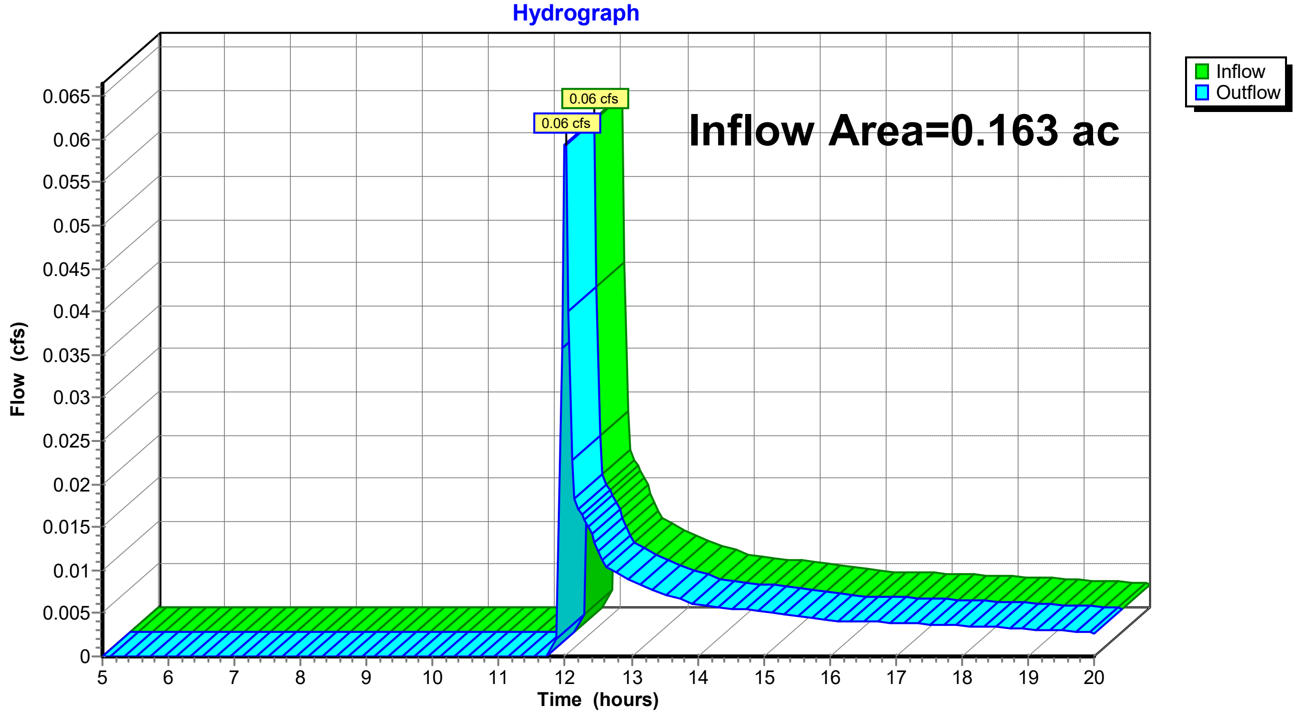
Subcatchment C: Trib C



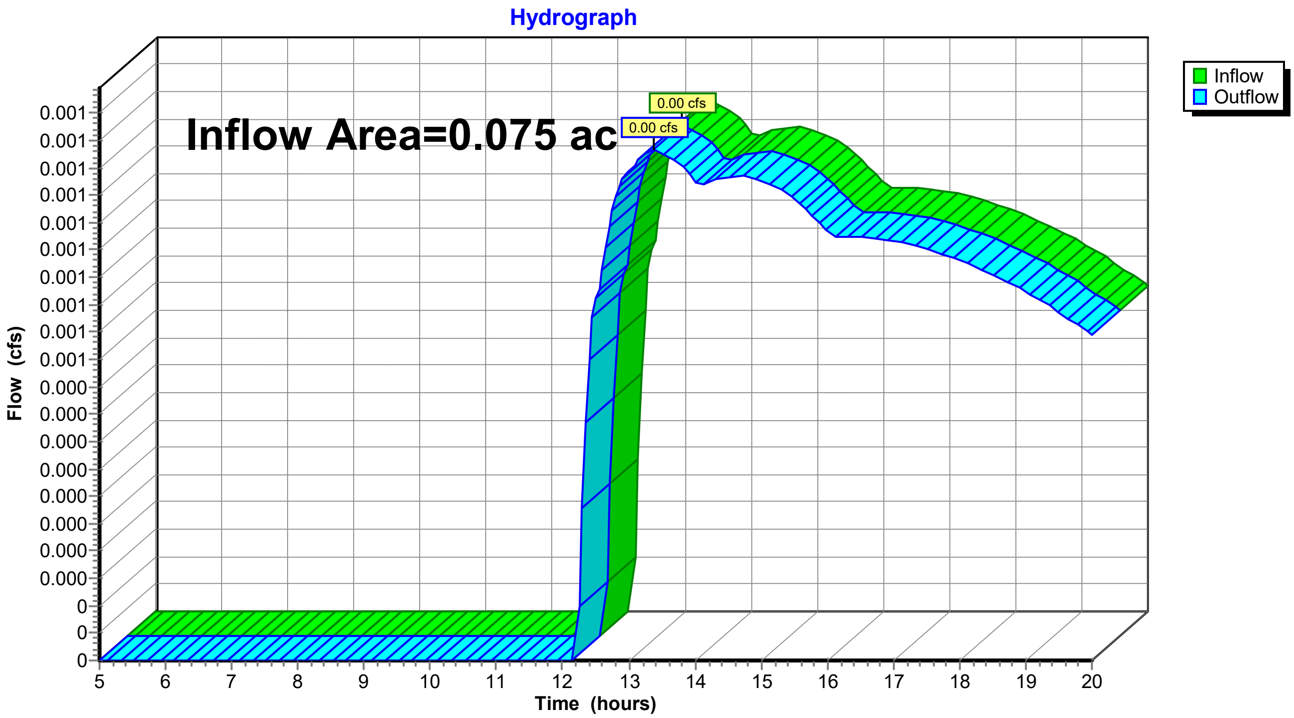
Subcatchment D: Trib D



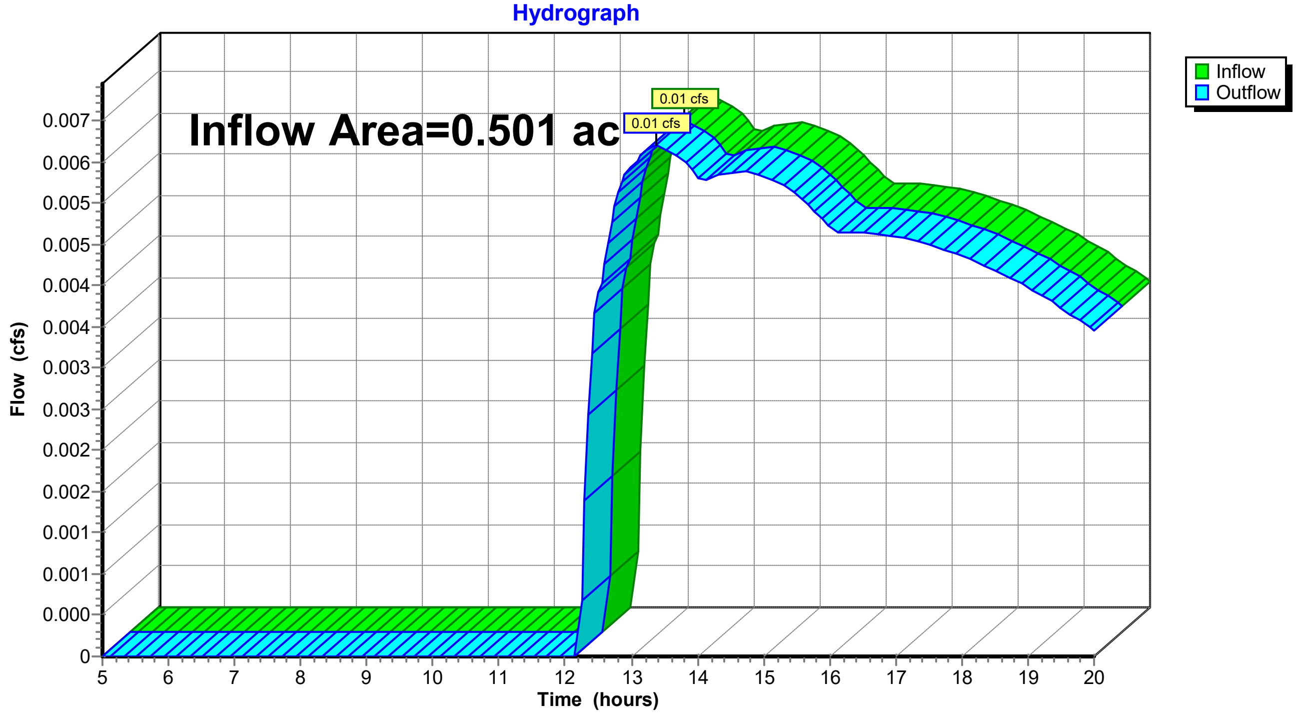
Reach R1: Reach 1 (Wash Ave)



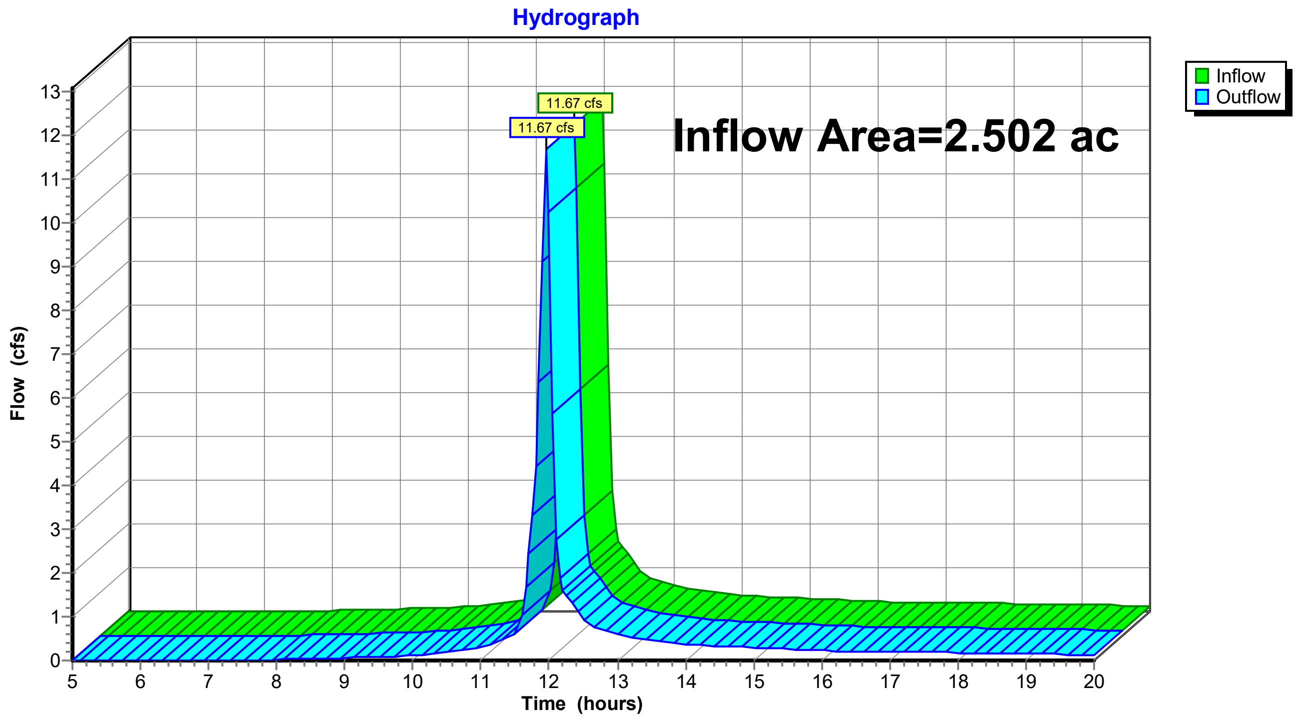
Reach R2: Reach 2 (1395 Wash Ave)



Reach R3: Reach 3 (I-90)



Reach R4: Reach 4 (Recharge to Groundwater)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Trib A Runoff Area=7,090 sf 12.93% Impervious Runoff Depth>1.24"
Flow Length=65' Slope=0.0700 '/' Tc=4.7 min CN=47 Runoff=0.38 cfs 0.017 af

Subcatchment B: Trib B Runoff Area=3,284 sf 0.00% Impervious Runoff Depth>0.65"
Flow Length=65' Slope=0.1230 '/' Tc=3.7 min CN=39 Runoff=0.08 cfs 0.004 af

Subcatchment C: Trib C Runoff Area=21,814 sf 0.00% Impervious Runoff Depth>0.65"
Flow Length=70' Slope=0.1570 '/' Tc=3.6 min CN=39 Runoff=0.51 cfs 0.027 af

Subcatchment D: Trib D Runoff Area=108,989 sf 72.37% Impervious Runoff Depth>4.60"
Flow Length=100' Slope=0.1300 '/' Tc=5.1 min CN=82 Runoff=21.16 cfs 0.959 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.38 cfs 0.017 af
Outflow=0.38 cfs 0.017 af

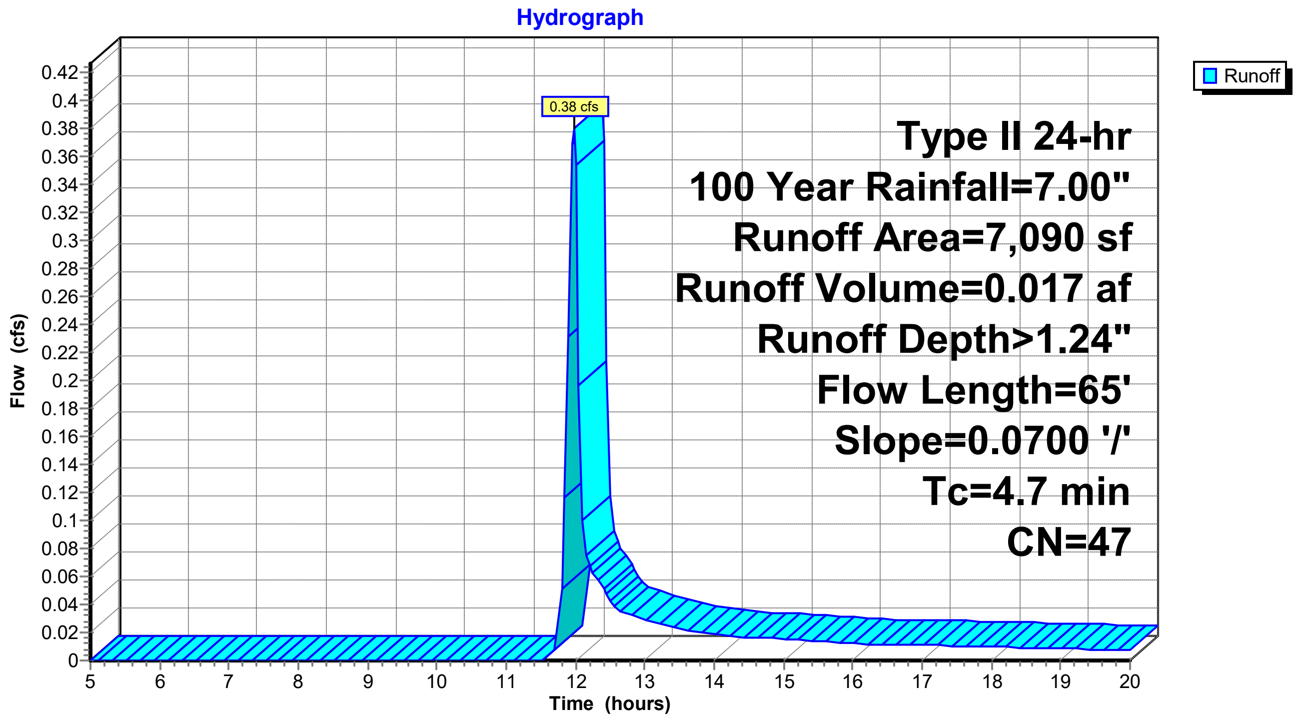
Reach R2: Reach 2 (1395 Wash Ave) Inflow=0.08 cfs 0.004 af
Outflow=0.08 cfs 0.004 af

Reach R3: Reach 3 (I-90) Inflow=0.51 cfs 0.027 af
Outflow=0.51 cfs 0.027 af

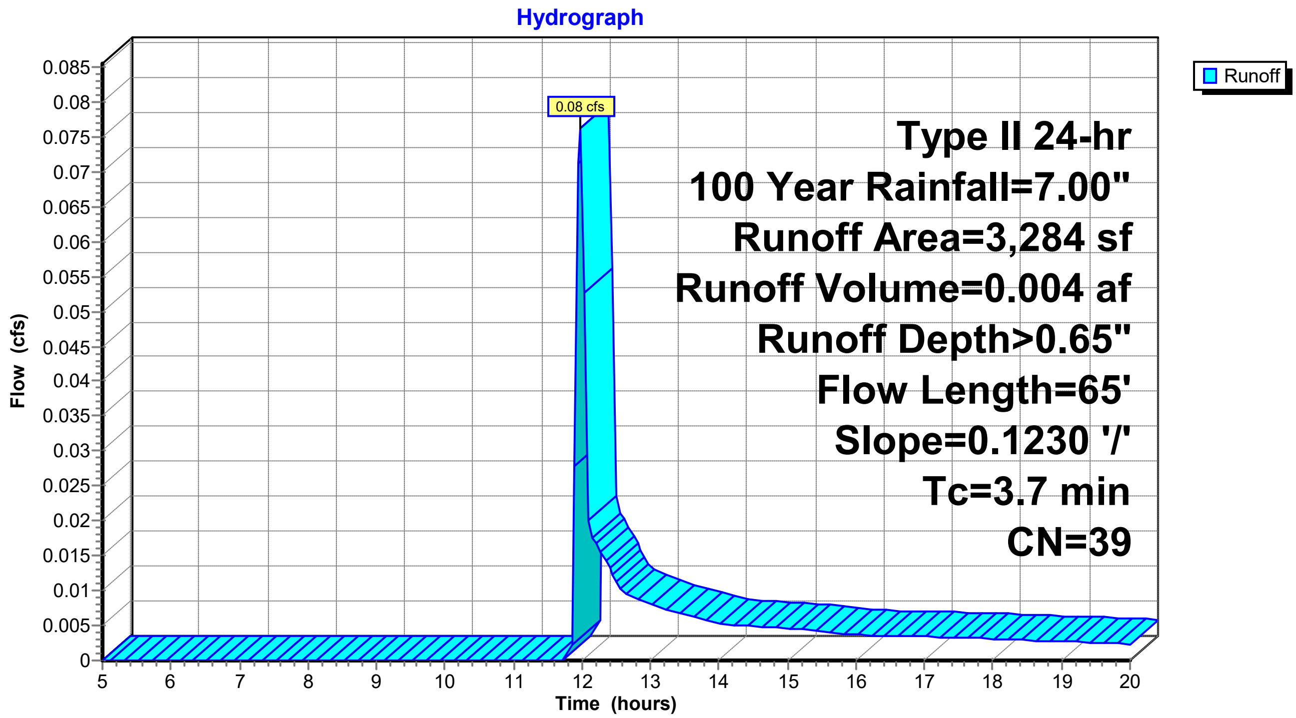
Reach R4: Reach 4 (Recharge to Groundwater) Inflow=21.16 cfs 0.959 af
Outflow=21.16 cfs 0.959 af

Total Runoff Area = 3.241 ac Runoff Volume = 1.007 af Average Runoff Depth = 3.73"
43.48% Pervious = 1.409 ac 56.52% Impervious = 1.832 ac

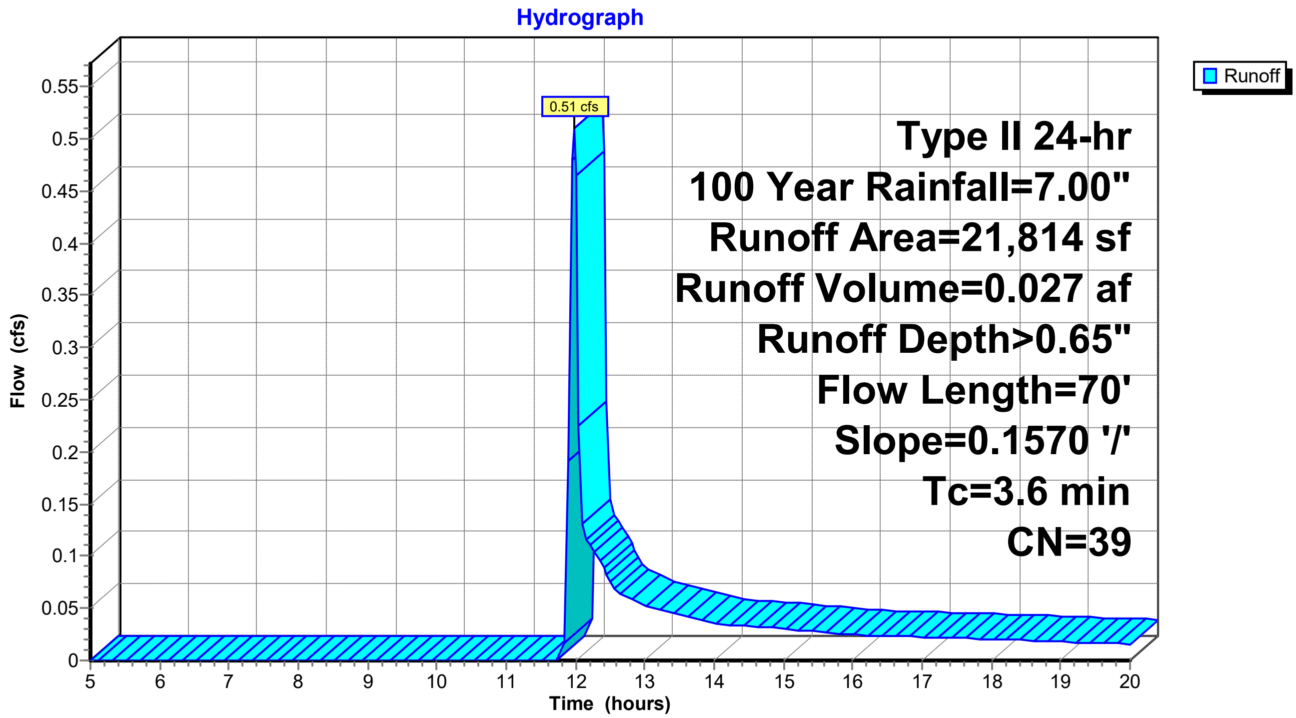
Subcatchment A: Trib A



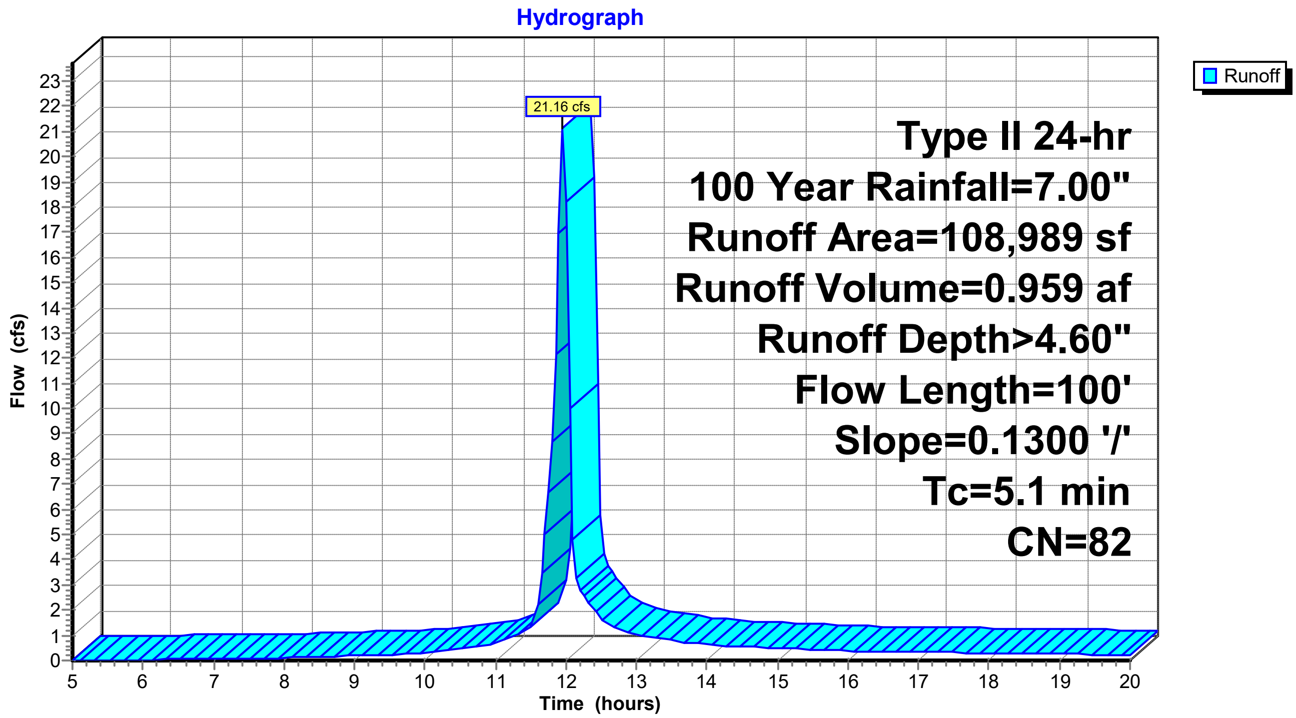
Subcatchment B: Trib B



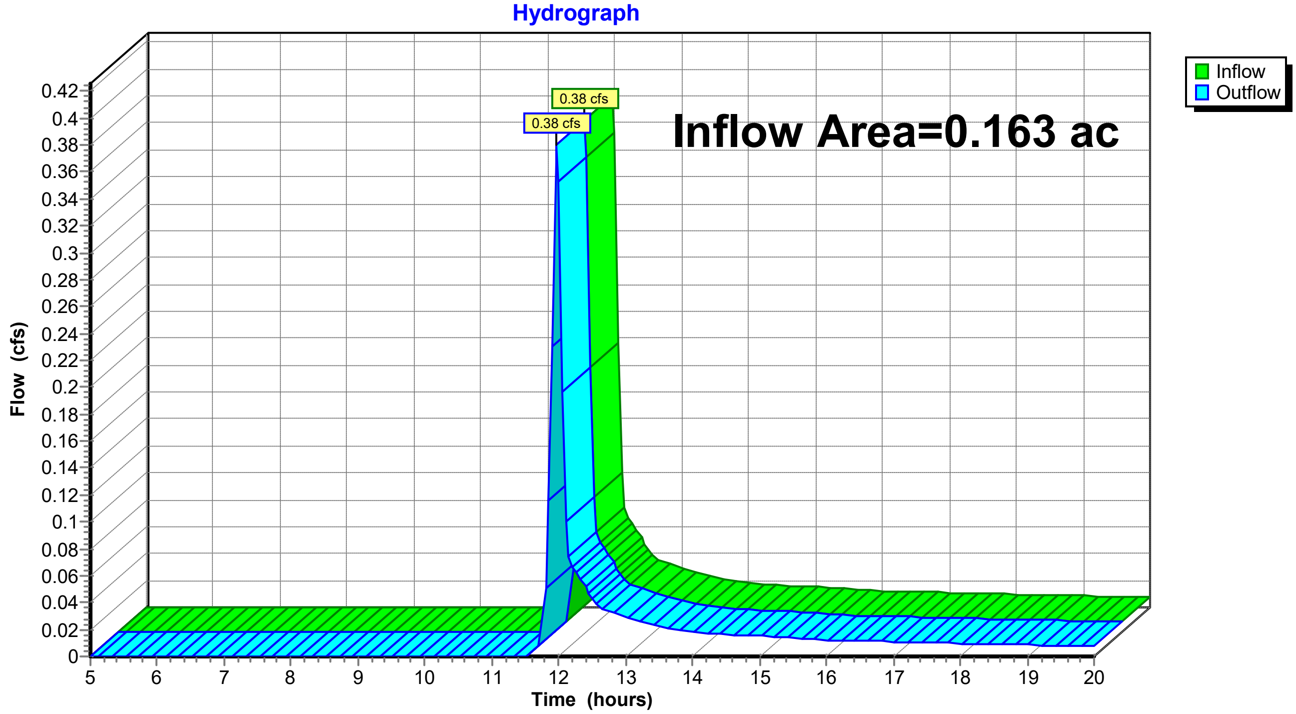
Subcatchment C: Trib C



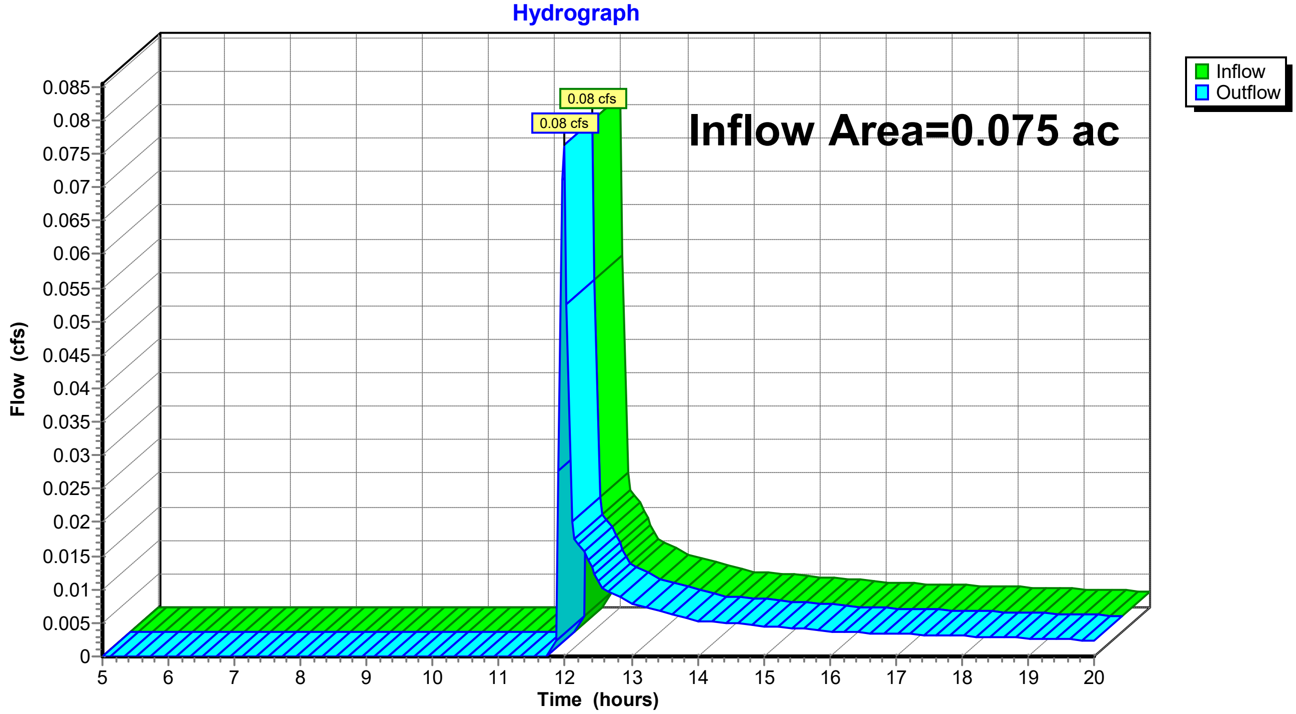
Subcatchment D: Trib D



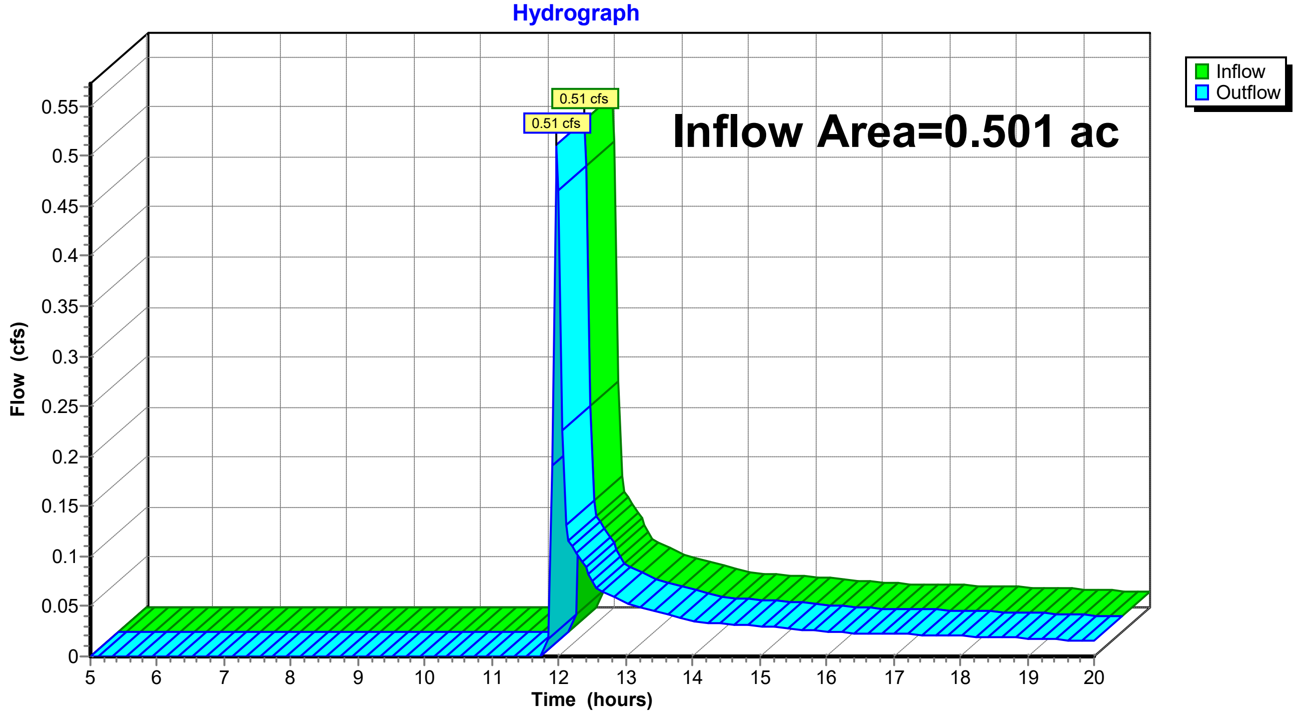
Reach R1: Reach 1 (Wash Ave)



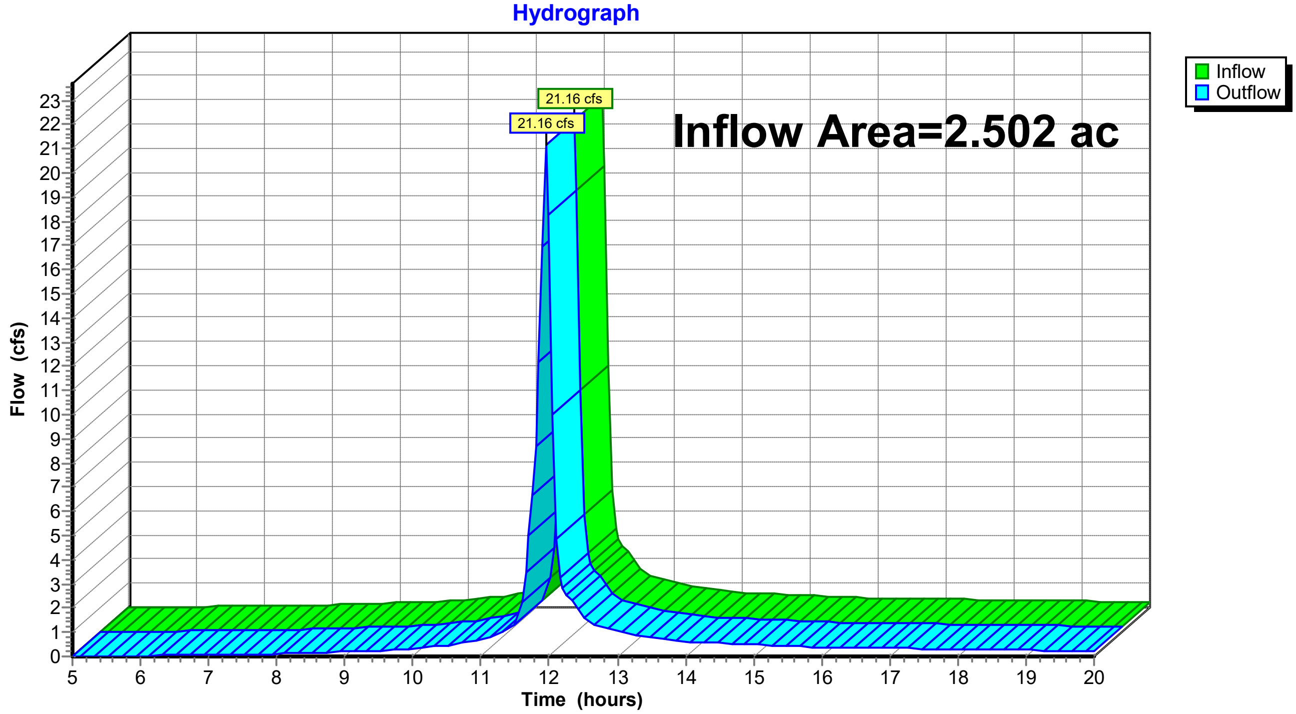
Reach R2: Reach 2 (1395 Wash Ave)



Reach R3: Reach 3 (I-90)



Reach R4: Reach 4 (Recharge to Groundwater)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Trib A Runoff Area=7,090 sf 12.93% Impervious Runoff Depth=0.00"
Flow Length=65' Slope=0.0700 '/' Tc=4.7 min CN=47 Runoff=0.00 cfs 0.000 af

Subcatchment B: Trib B Runoff Area=3,284 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=65' Slope=0.1230 '/' Tc=3.7 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment C: Trib C Runoff Area=21,814 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=70' Slope=0.1570 '/' Tc=3.6 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment D: Trib D Runoff Area=108,989 sf 72.37% Impervious Runoff Depth>0.17"
Flow Length=100' Slope=0.1300 '/' Tc=5.1 min CN=82 Runoff=0.75 cfs 0.036 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

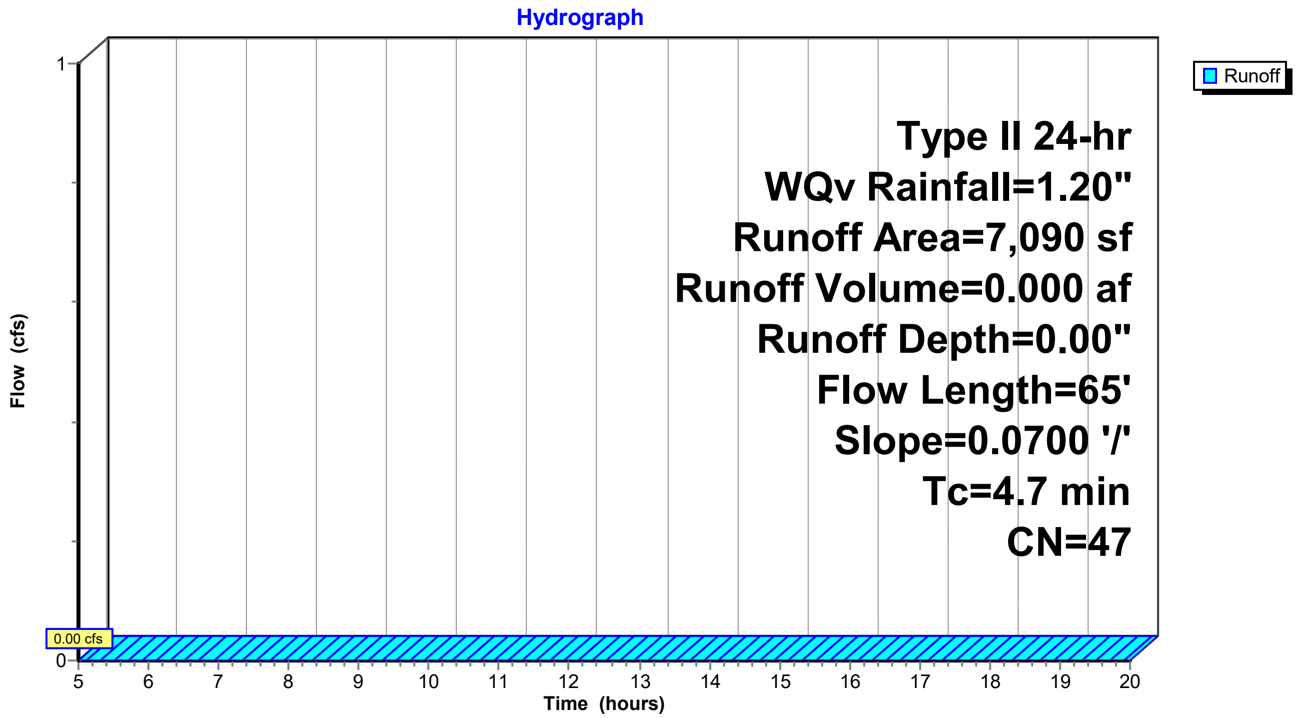
Reach R2: Reach 2 (1395 Wash Ave) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach R3: Reach 3 (I-90) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

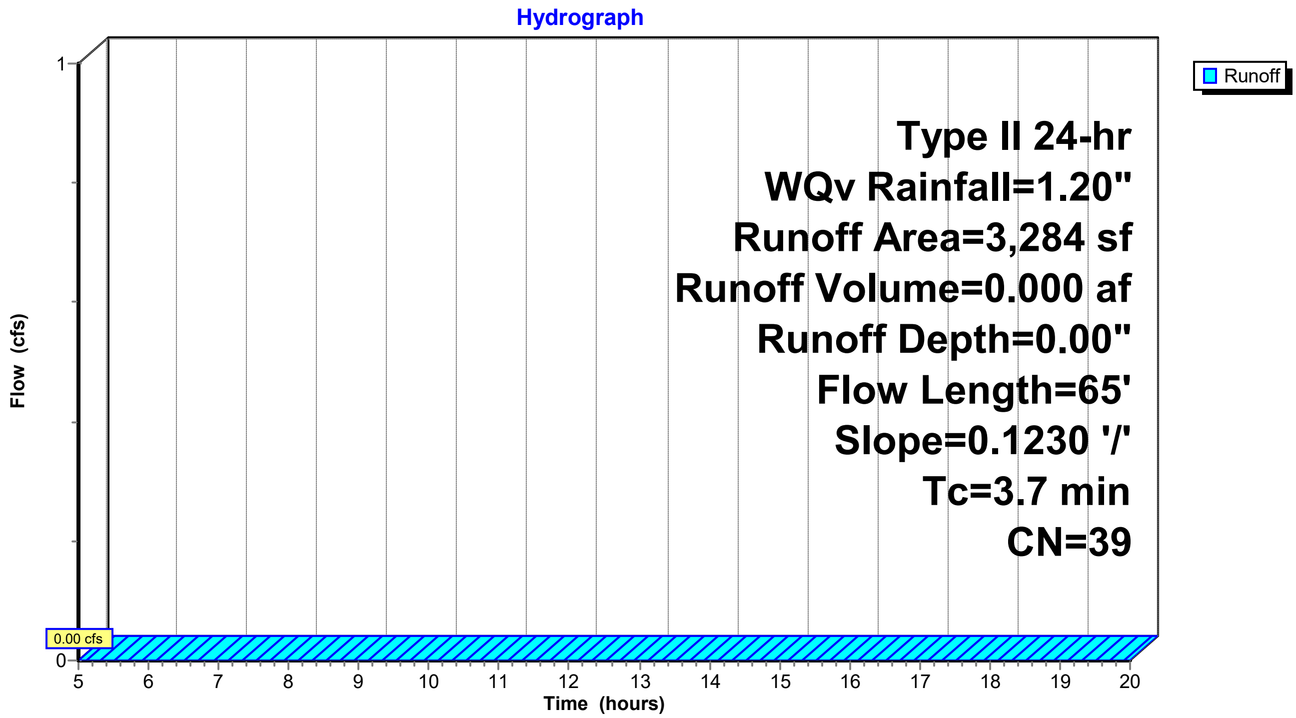
Reach R4: Reach 4 (Recharge to Groundwater) Inflow=0.75 cfs 0.036 af
Outflow=0.75 cfs 0.036 af

Total Runoff Area = 3.241 ac Runoff Volume = 0.036 af Average Runoff Depth = 0.13"
43.48% Pervious = 1.409 ac 56.52% Impervious = 1.832 ac

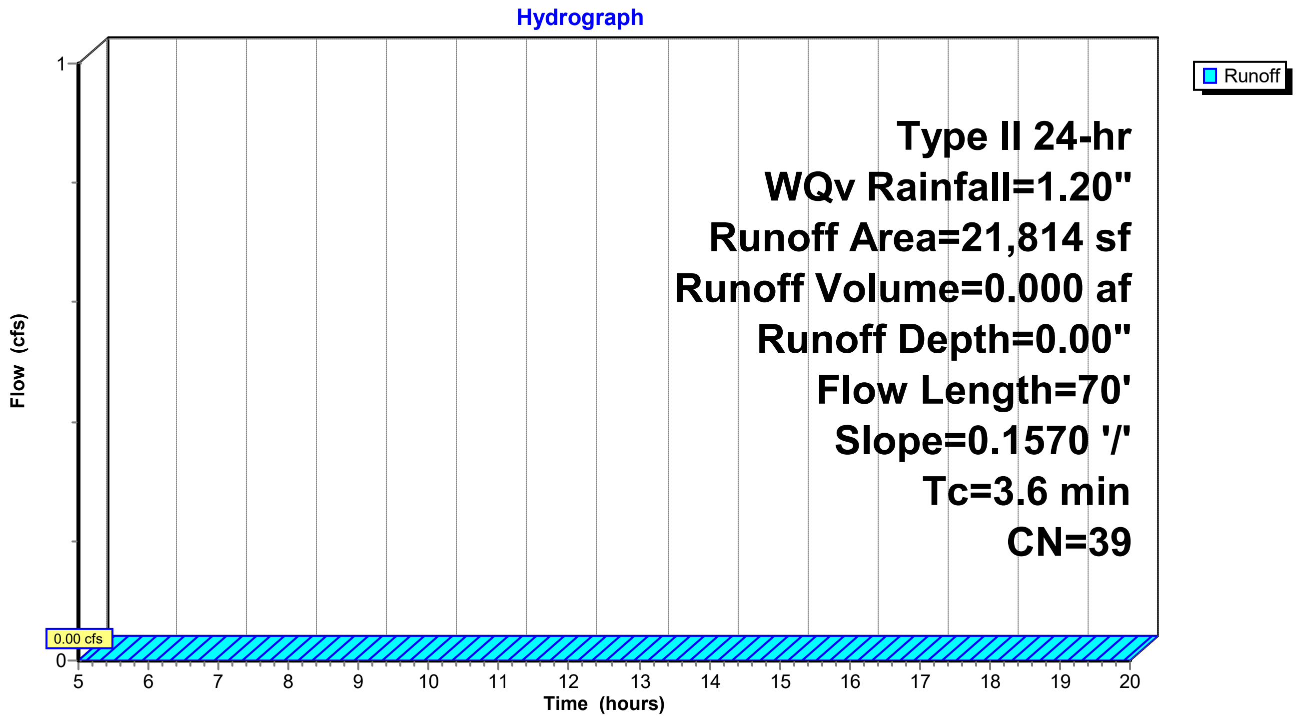
Subcatchment A: Trib A



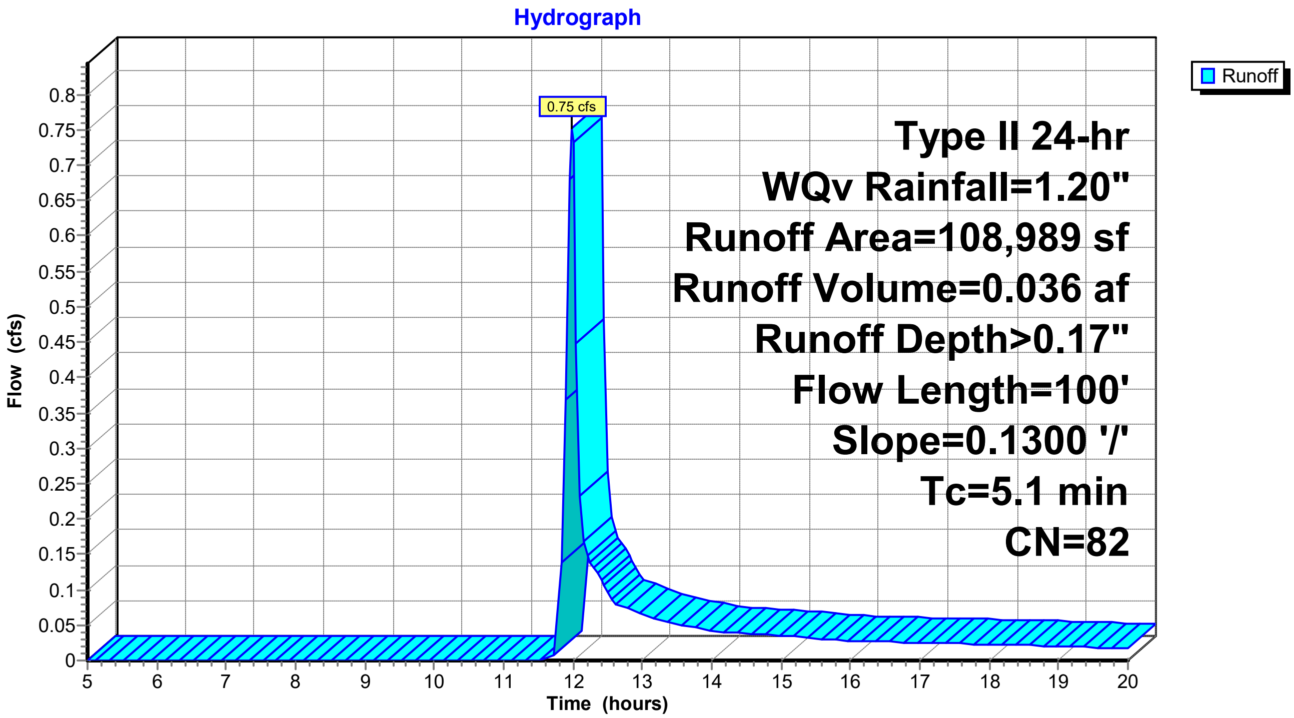
Subcatchment B: Trib B



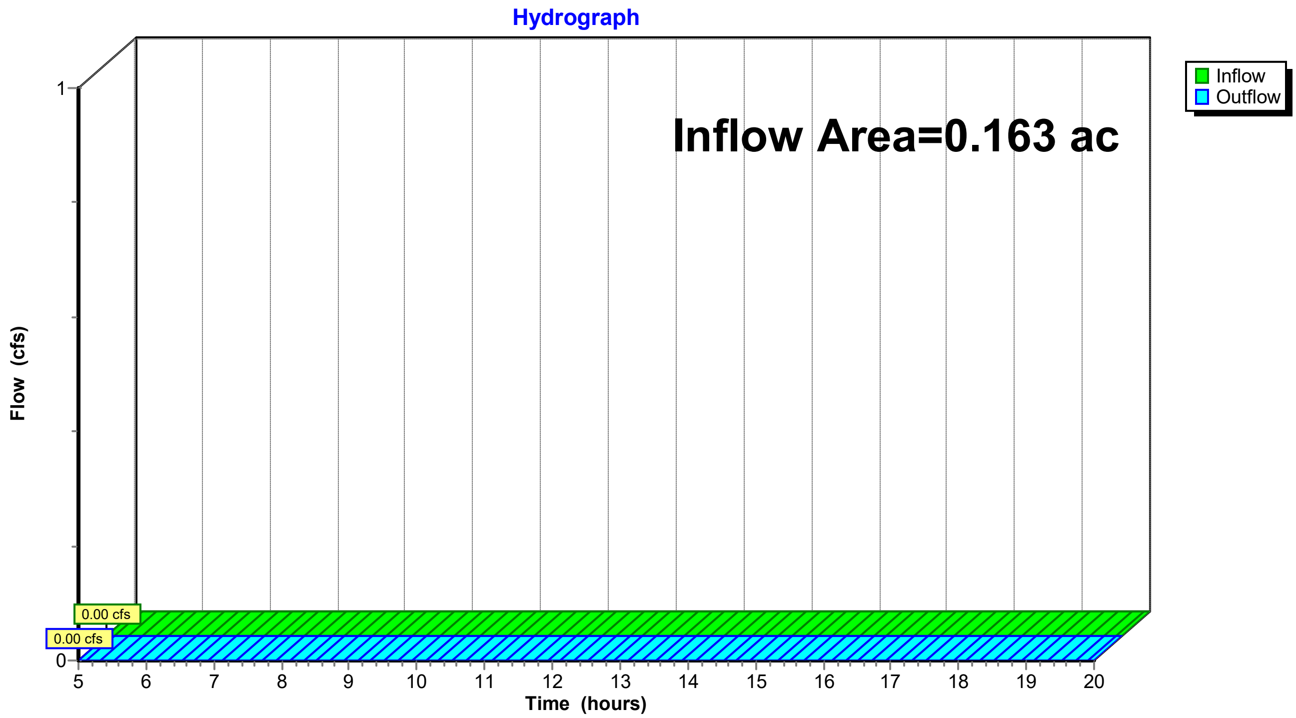
Subcatchment C: Trib C



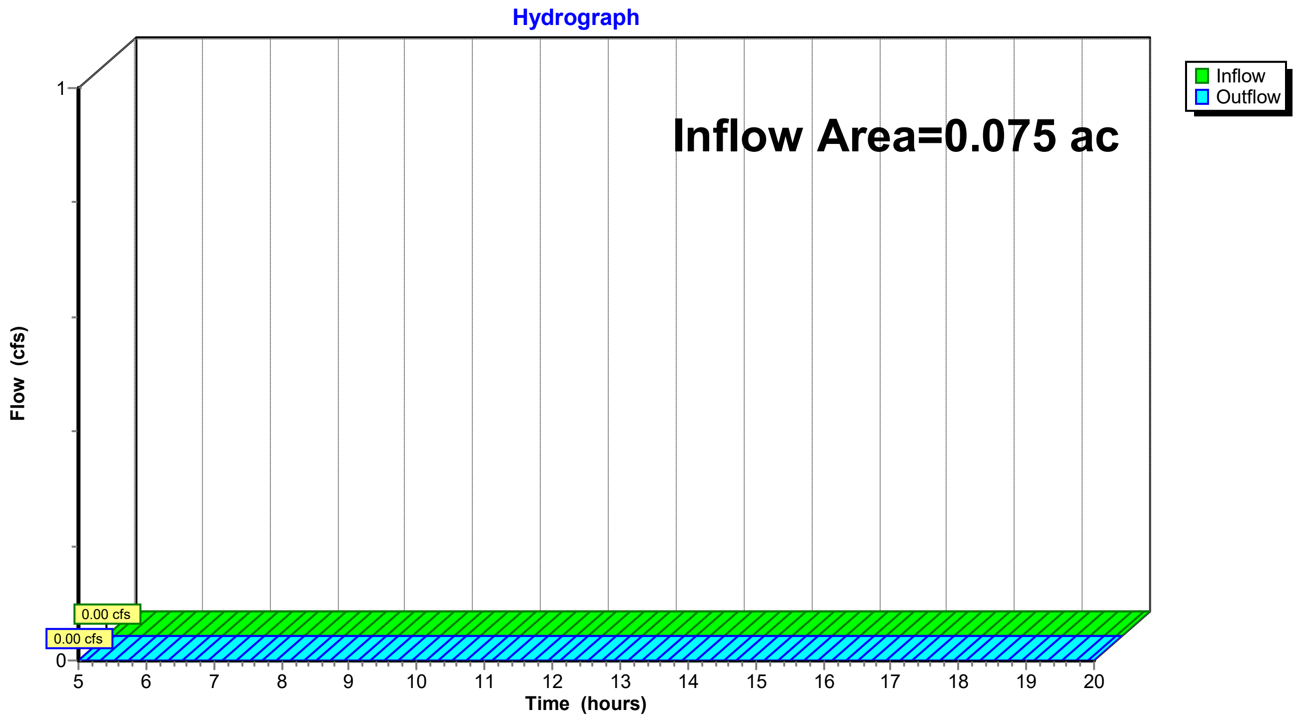
Subcatchment D: Trib D



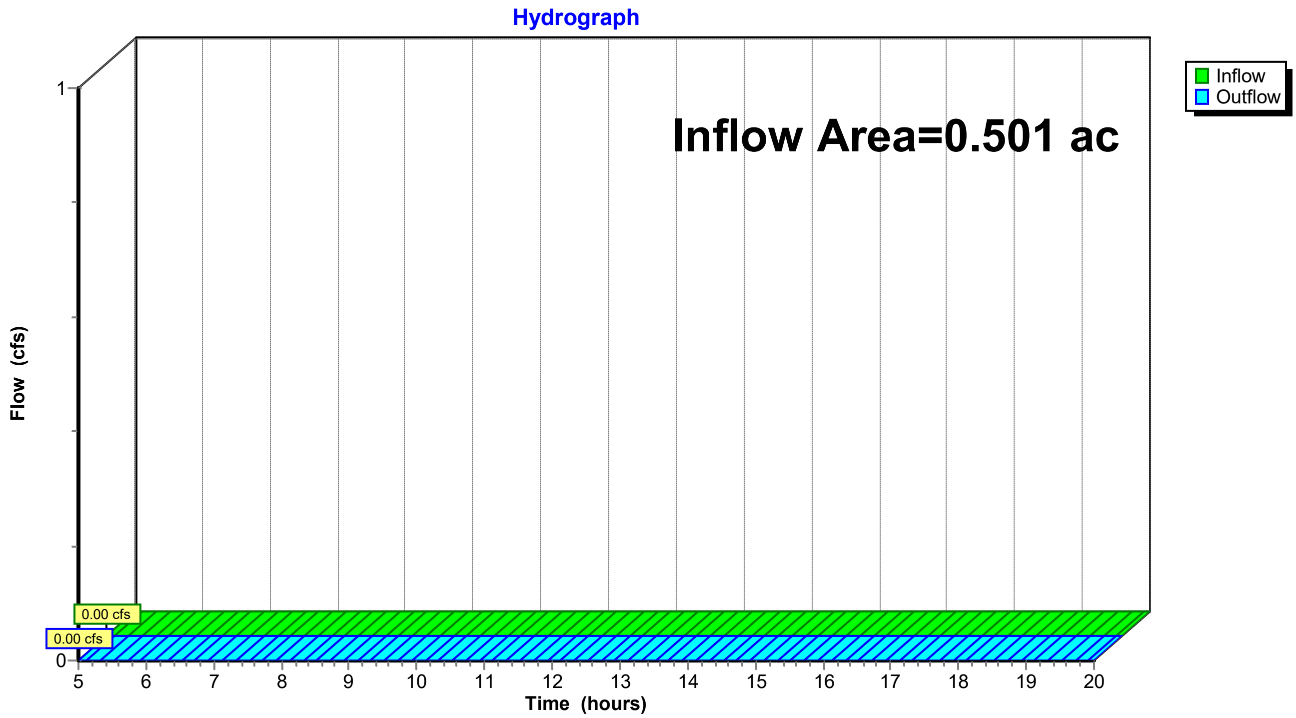
Reach R1: Reach 1 (Wash Ave)



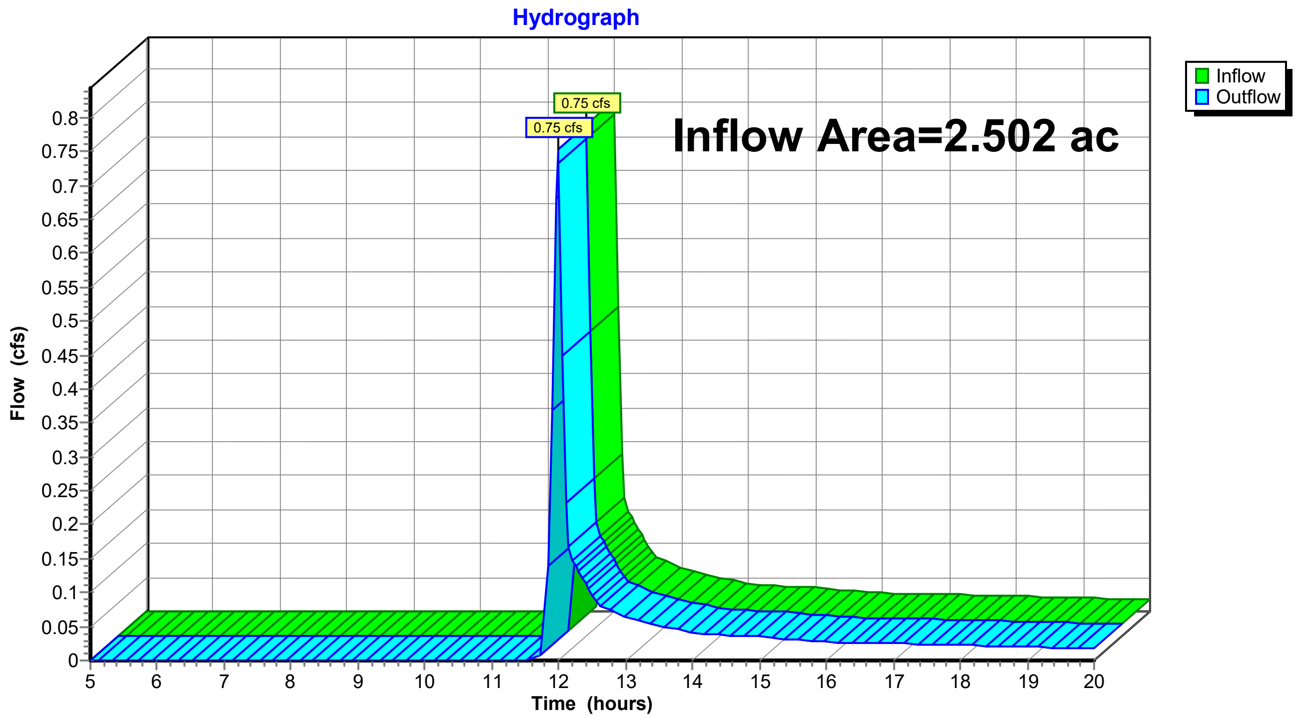
Reach R2: Reach 2 (1395 Wash Ave)

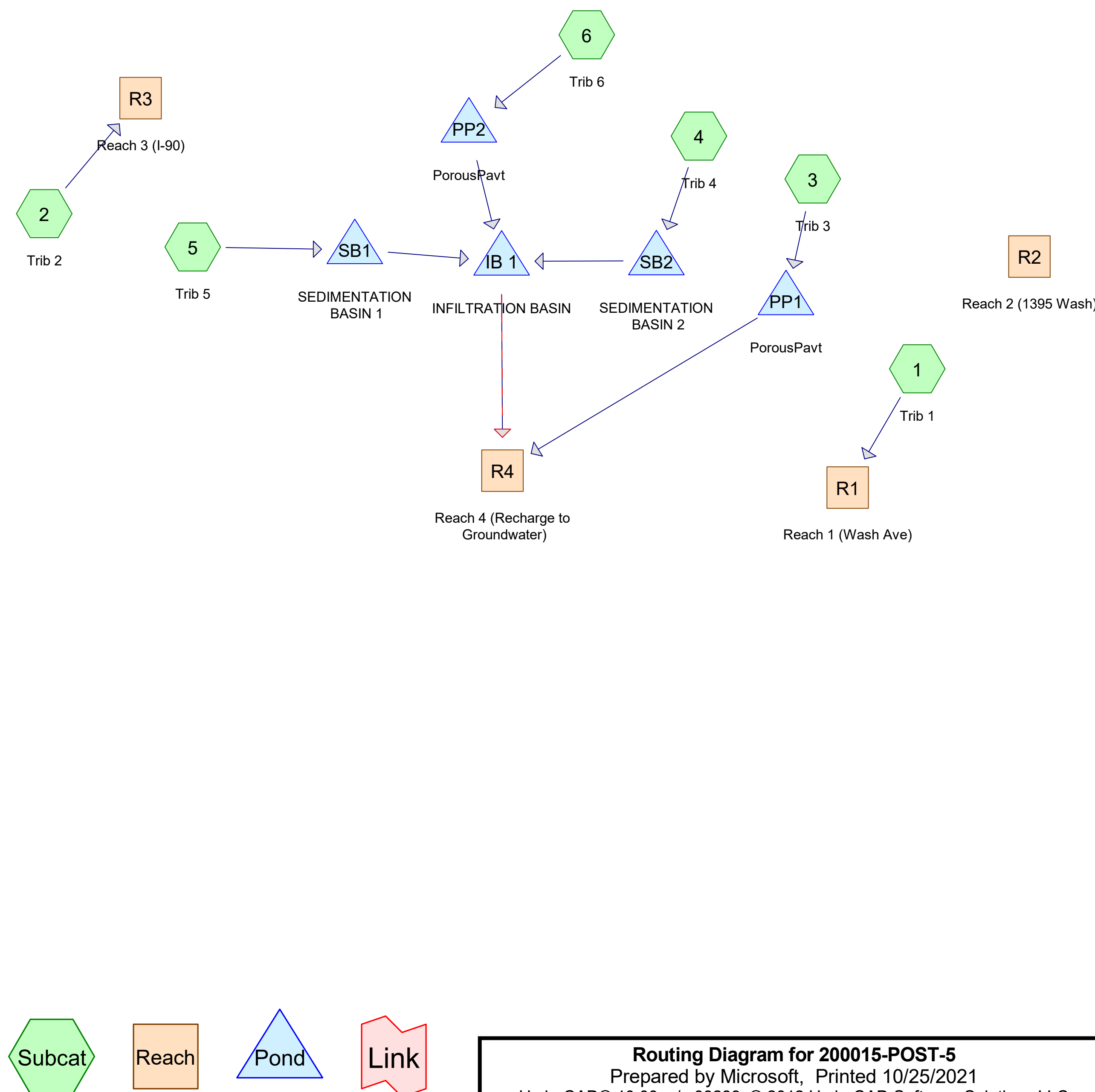


Reach R3: Reach 3 (I-90)



Reach R4: Reach 4 (Recharge to Groundwater)





Routing Diagram for 200015-POST-5
Prepared by Microsoft, Printed 10/25/2021
HydroCAD® 10.00 s/n 03289 © 2012 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.411	39	>75% Grass cover, Good, HSG A (1, 2)
0.069	98	Concrete Walks (3)
0.992	98	Paved parking, HSG A (3, 6)
1.439	98	Roofs, HSG A (4, 5)
0.028	98	Unconnected pavement, HSG B (1)
2.939	**90**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.841	HSG A	1, 2, 3, 4, 5, 6
0.028	HSG B	1
0.000	HSG C	
0.000	HSG D	
0.069	Other	3
2.939		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.411	0.000	0.000	0.000	0.000	0.411	>75% Grass cover, Good	1, 2
0.000	0.000	0.000	0.000	0.069	0.069	Concrete Walks	3
0.992	0.000	0.000	0.000	0.000	0.992	Paved parking	3, 6
1.439	0.000	0.000	0.000	0.000	1.439	Roofs	4, 5
0.000	0.028	0.000	0.000	0.000	0.028	Unconnected pavement	1
2.841	**0.028**	**0.000**	**0.000**	**0.069**	**2.939**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	4	0.00	0.00	173.0	0.0050	0.013	12.0	0.0	0.0
2	6	0.00	0.00	411.0	0.0050	0.013	6.0	0.0	0.0

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Trib 1 Runoff Area=9,127 sf 13.44% Impervious Runoff Depth=0.00"
Flow Length=76' Slope=0.0989 '/' Tc=4.6 min UI Adjusted CN=43 Runoff=0.00 cfs 0.000 af

Subcatchment 2: Trib 2 Runoff Area=10,000 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=183' Tc=8.0 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 3: Trib 3 Runoff Area=37,287 sf 100.00% Impervious Runoff Depth>2.23"
Flow Length=55' Slope=0.0150 '/' Tc=4.2 min CN=98 Runoff=3.12 cfs 0.159 af

Subcatchment 4: Trib 4 Runoff Area=31,832 sf 100.00% Impervious Runoff Depth>2.23"
Flow Length=303' Tc=3.5 min CN=98 Runoff=2.71 cfs 0.136 af

Subcatchment 5: Trib 5 Runoff Area=30,835 sf 100.00% Impervious Runoff Depth>2.23"
Flow Length=282' Slope=0.0067 '/' Tc=3.9 min CN=98 Runoff=2.60 cfs 0.132 af

Subcatchment 6: Trib 6 Runoff Area=8,925 sf 100.00% Impervious Runoff Depth>2.23"
Flow Length=441' Tc=4.0 min CN=98 Runoff=0.75 cfs 0.038 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach R2: Reach 2 (1395 Wash)
Outflow=0.00 cfs 0.000 af

Reach R3: Reach 3 (I-90) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach R4: Reach 4 (Recharge to Groundwater) Inflow=0.73 cfs 0.211 af
Outflow=0.73 cfs 0.211 af

Pond IB 1: INFILTRATION BASIN Peak Elev=242.17' Storage=2,795 cf Inflow=5.04 cfs 0.211 af
Primary=0.73 cfs 0.211 af Secondary=0.00 cfs 0.000 af Outflow=0.73 cfs 0.211 af

Pond PP1: PorousPavt Peak Elev=246.75' Storage=0 cf Inflow=3.12 cfs 0.159 af
Outflow=3.12 cfs 0.159 af

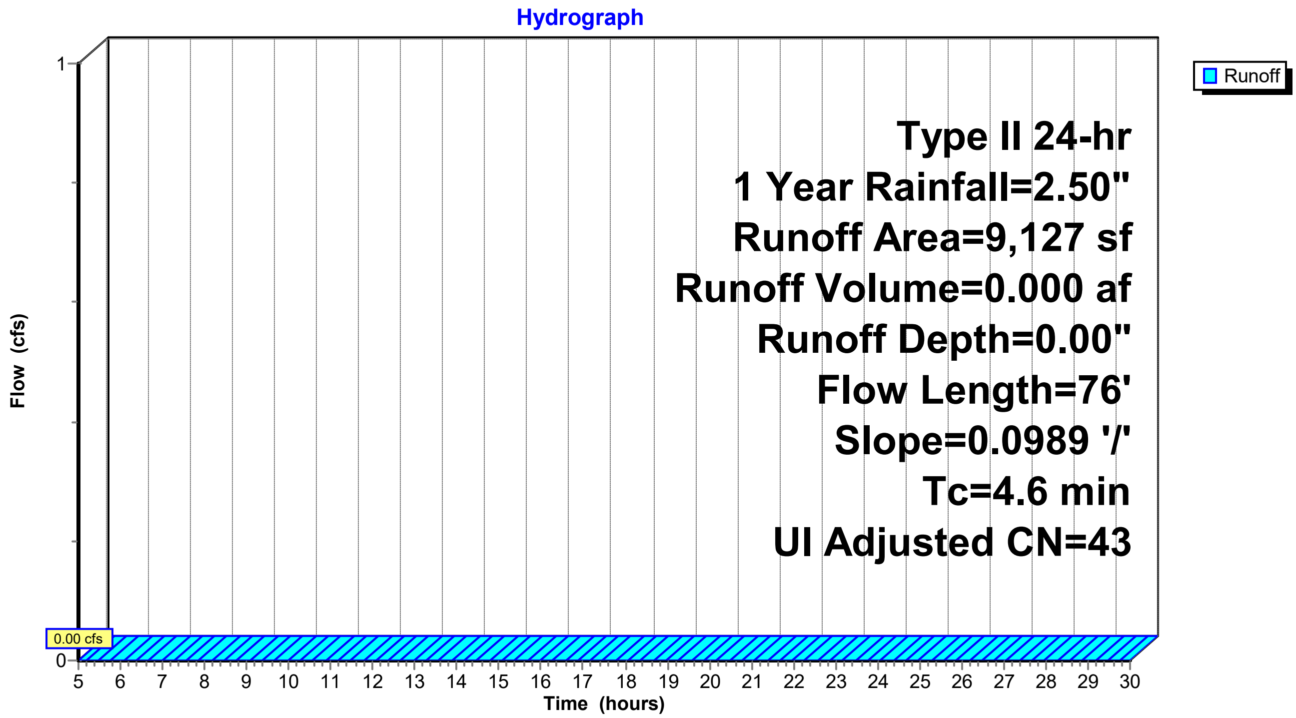
Pond PP2: PorousPavt Peak Elev=246.03' Storage=700 cf Inflow=0.75 cfs 0.038 af
Outflow=0.26 cfs 0.037 af

Pond SB1: SEDIMENTATION BASIN 1 Peak Elev=245.72' Storage=2,530 cf Inflow=2.60 cfs 0.132 af
Outflow=2.38 cfs 0.083 af

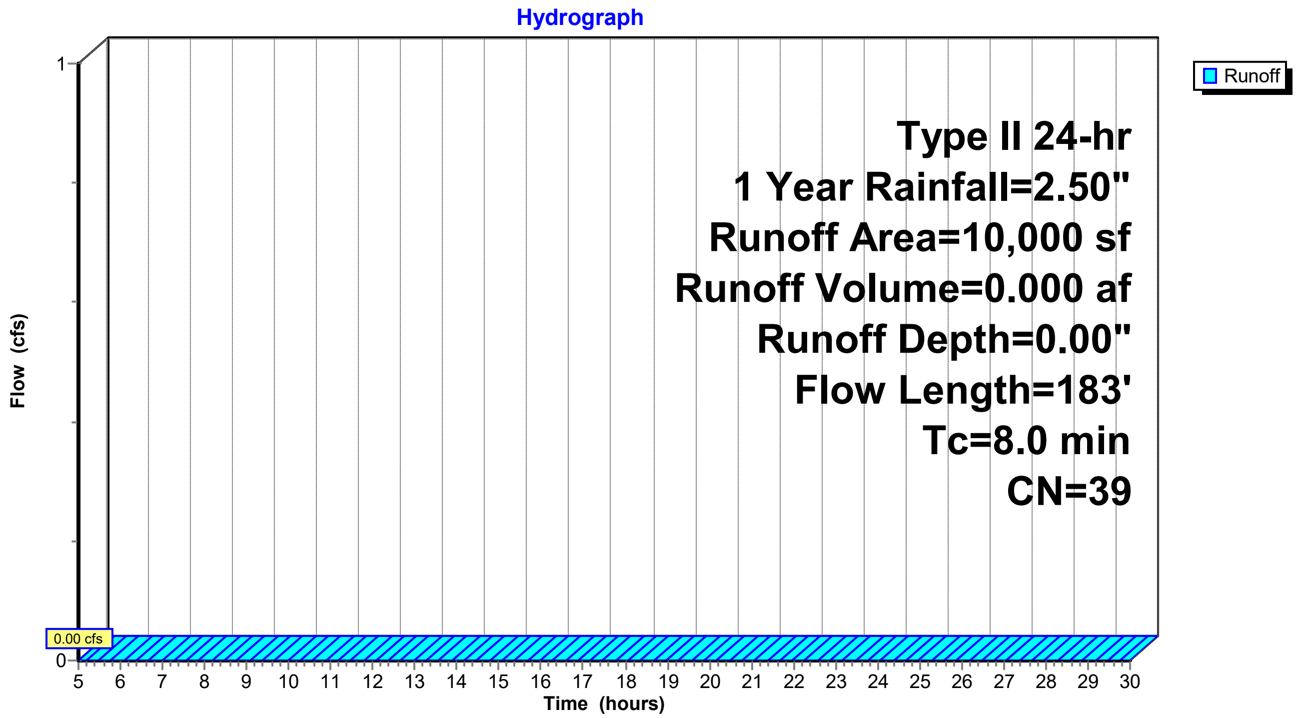
Pond SB2: SEDIMENTATION BASIN 2 Peak Elev=245.54' Storage=2,423 cf Inflow=2.71 cfs 0.136 af
Outflow=2.46 cfs 0.091 af

Total Runoff Area = 2.939 ac Runoff Volume = 0.465 af Average Runoff Depth = 1.90"
13.98% Pervious = 0.411 ac 86.02% Impervious = 2.528 ac

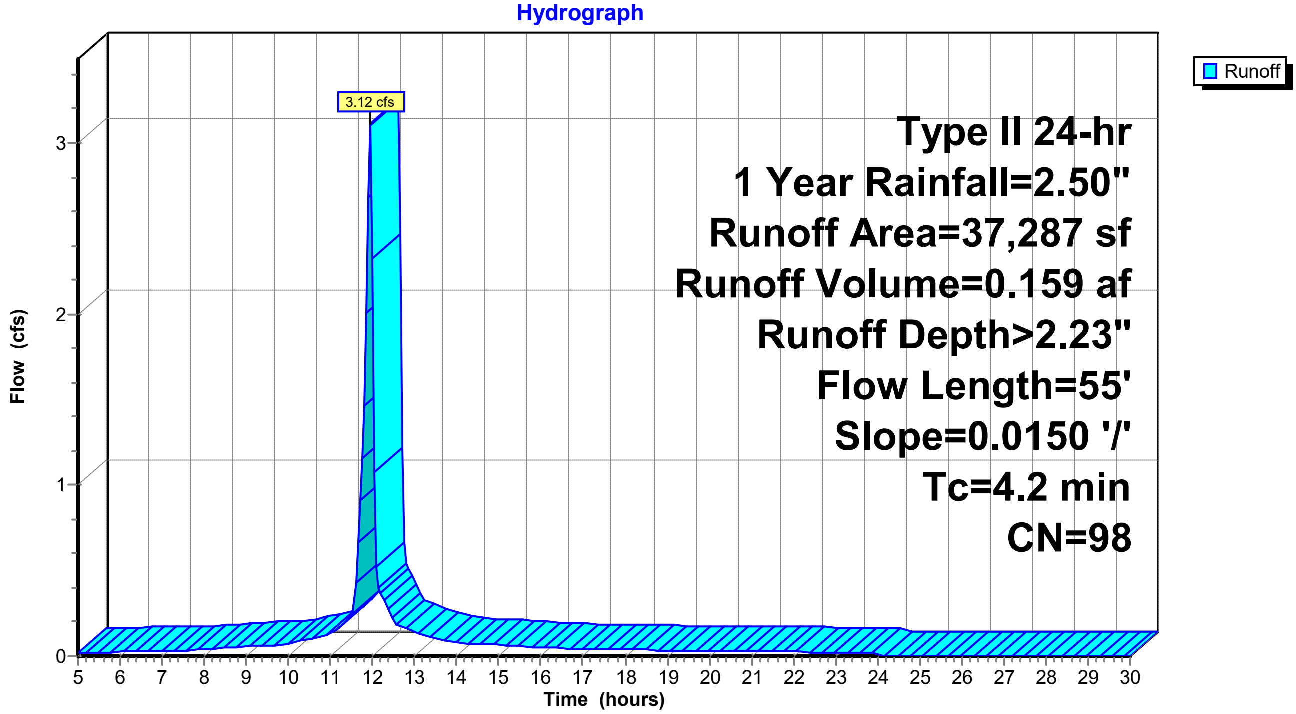
Subcatchment 1: Trib 1



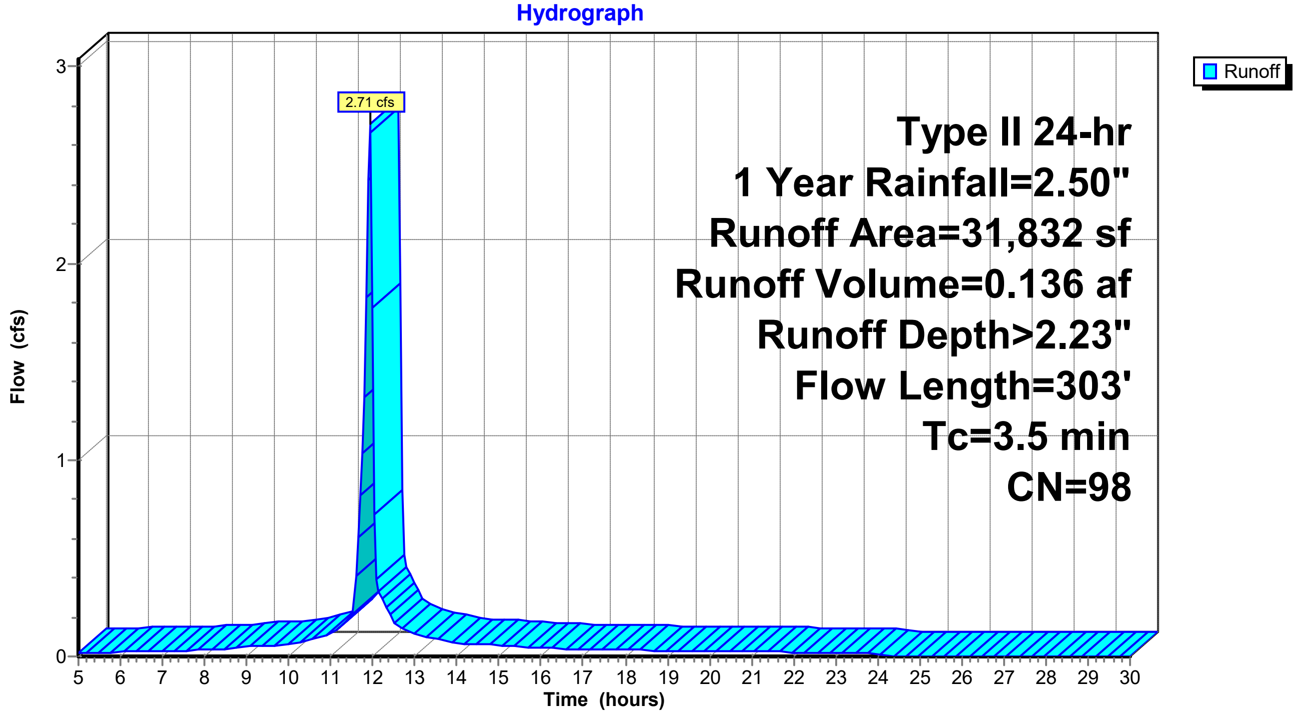
Subcatchment 2: Trib 2



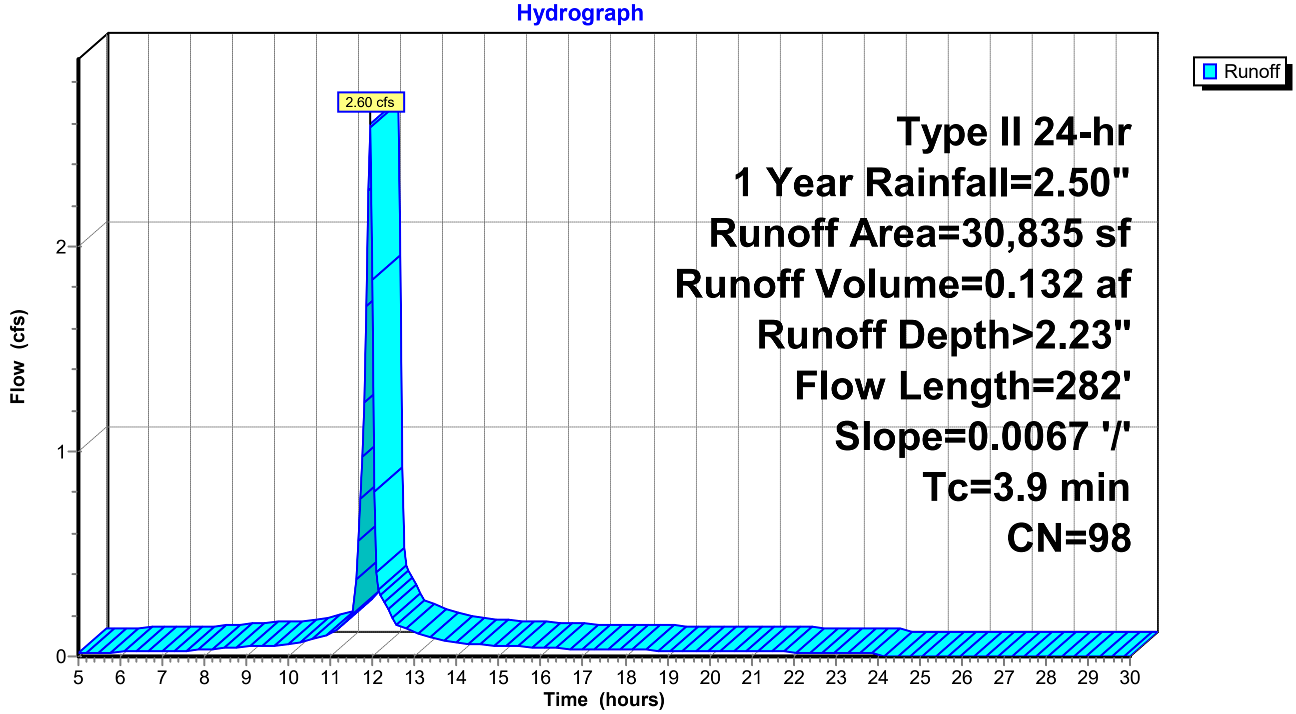
Subcatchment 3: Trib 3



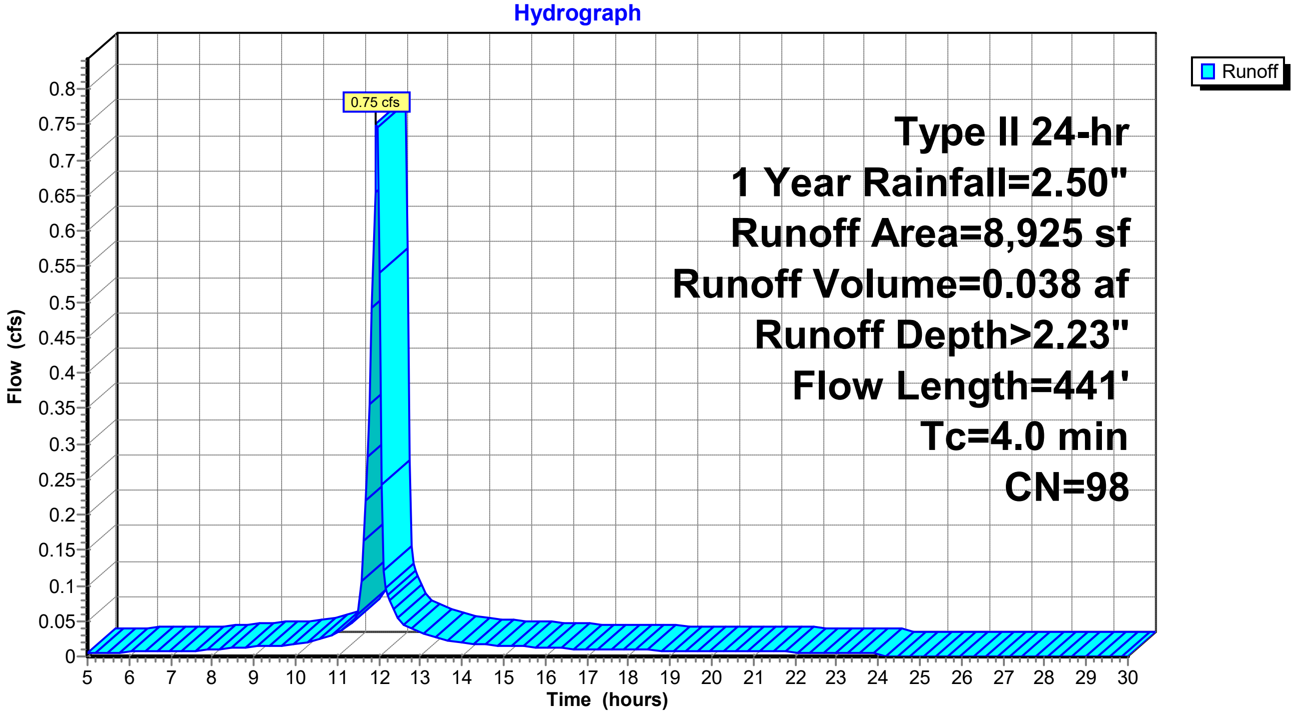
Subcatchment 4: Trib 4



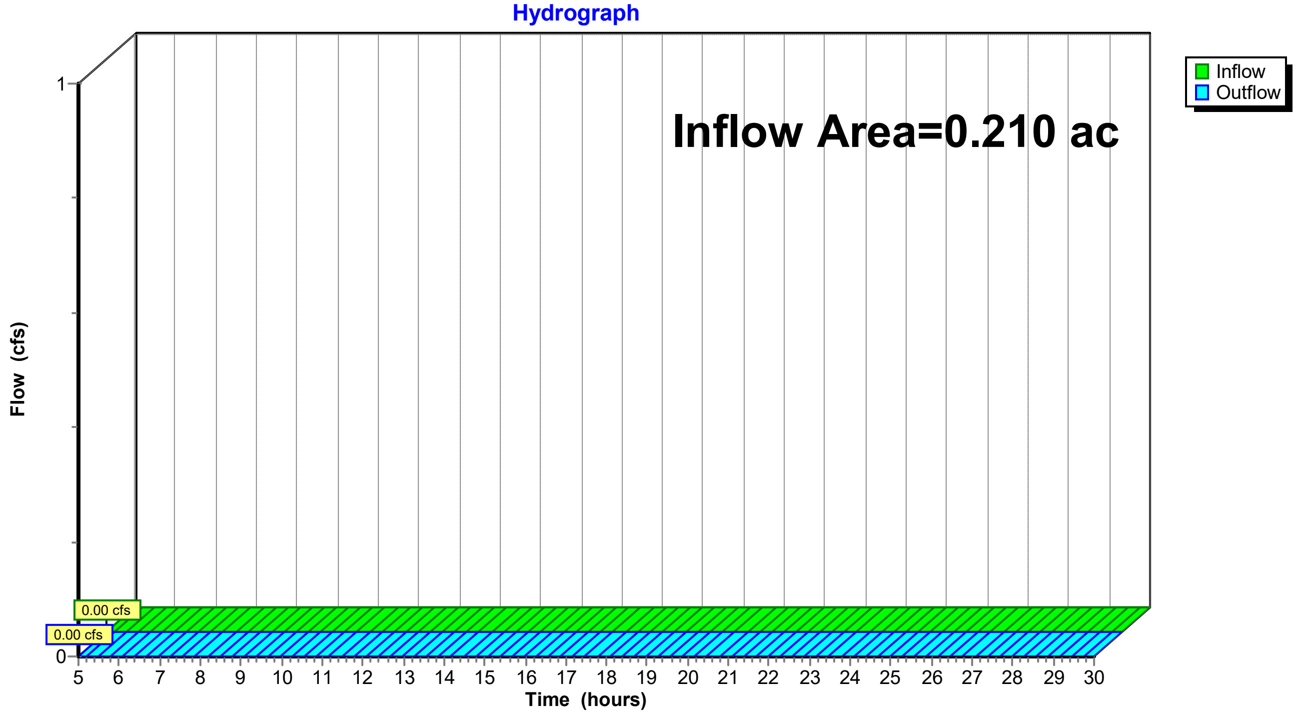
Subcatchment 5: Trib 5



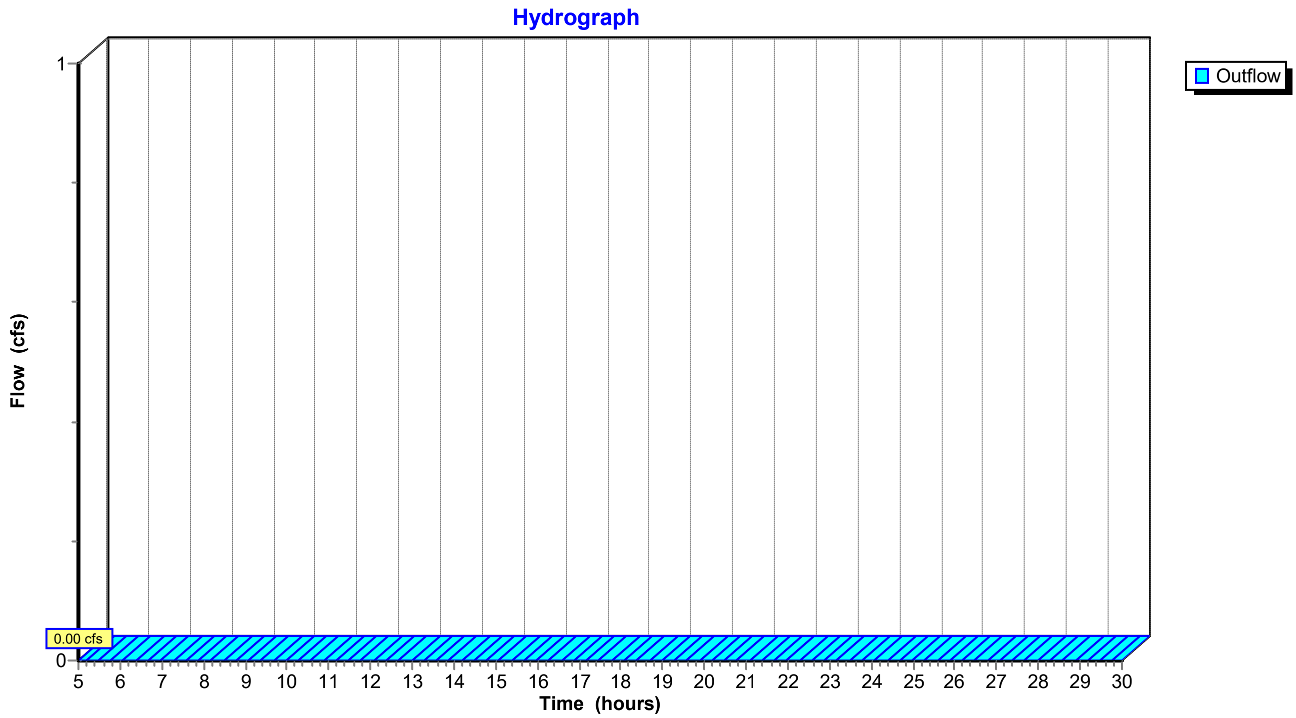
Subcatchment 6: Trib 6



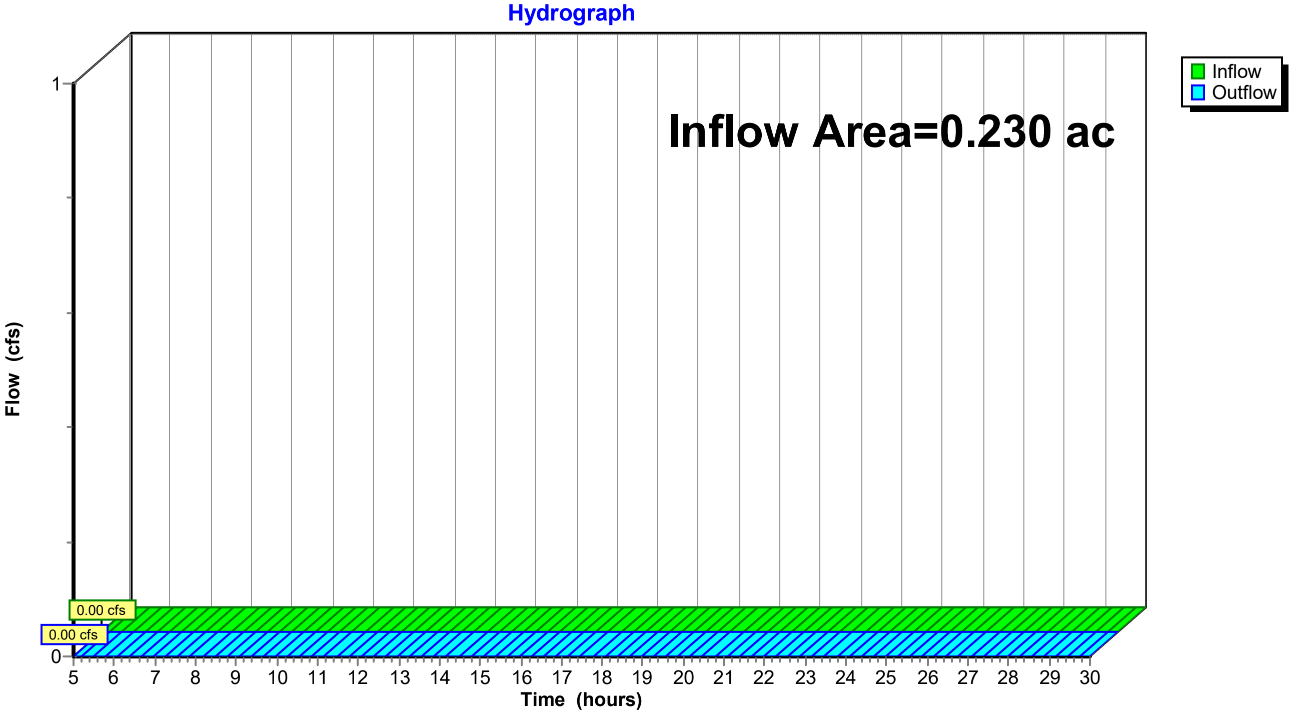
Reach R1: Reach 1 (Wash Ave)



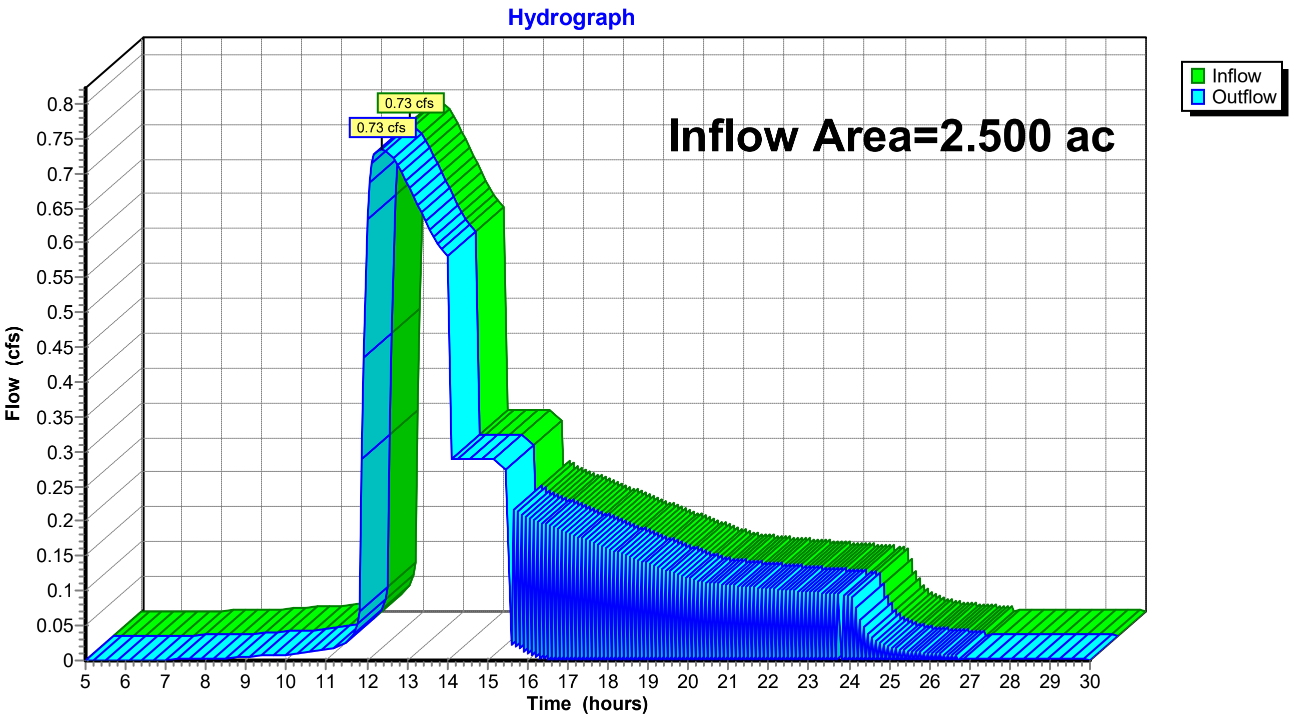
Reach R2: Reach 2 (1395 Wash)



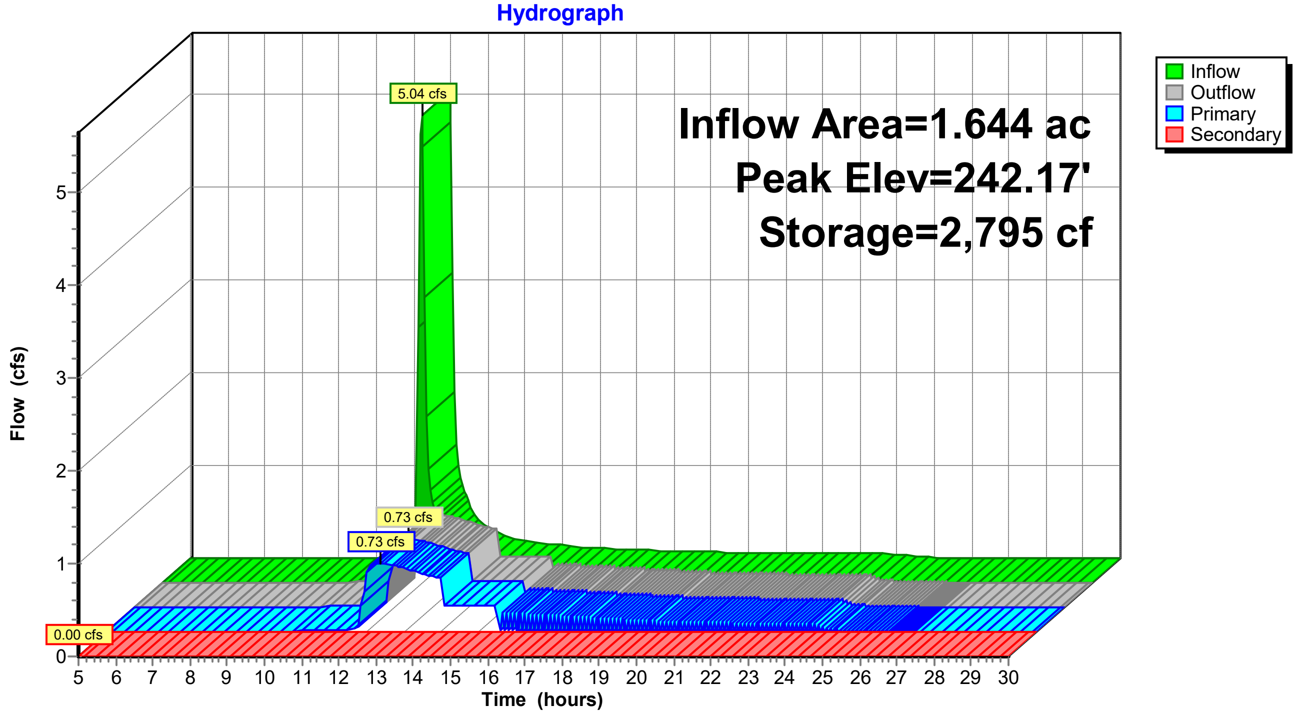
Reach R3: Reach 3 (I-90)



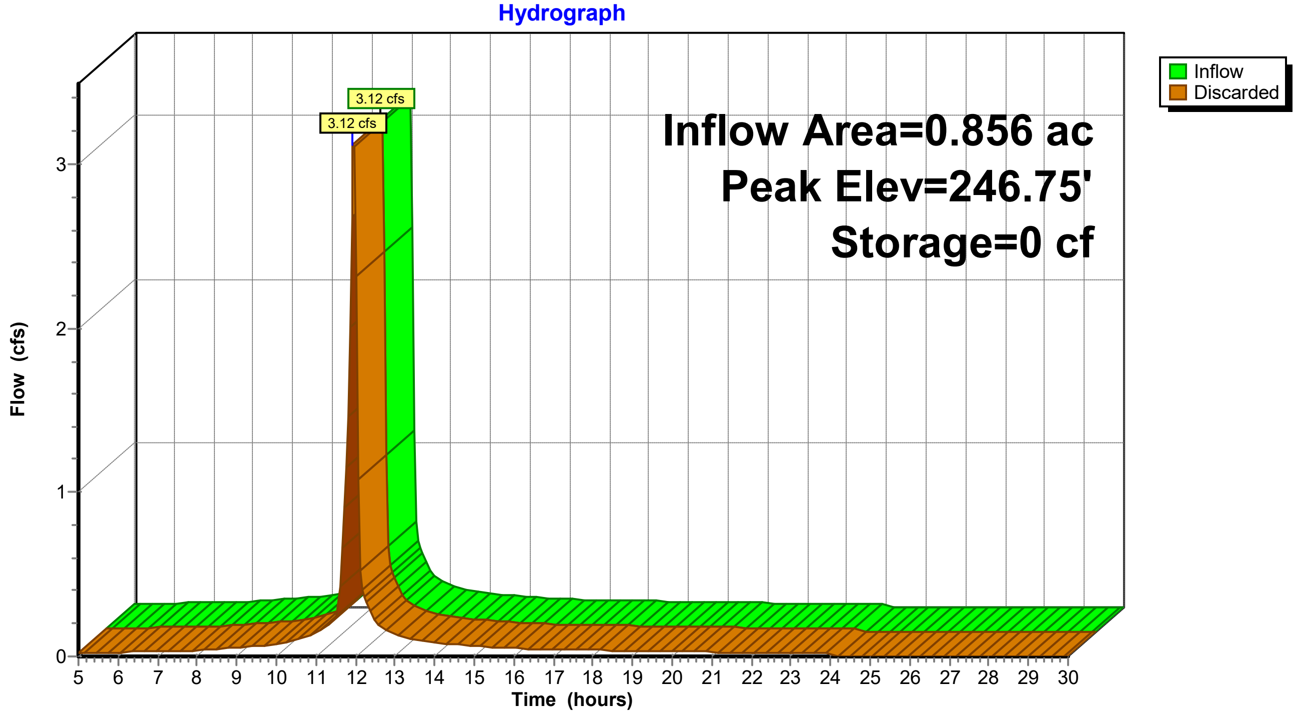
Reach R4: Reach 4 (Recharge to Groundwater)



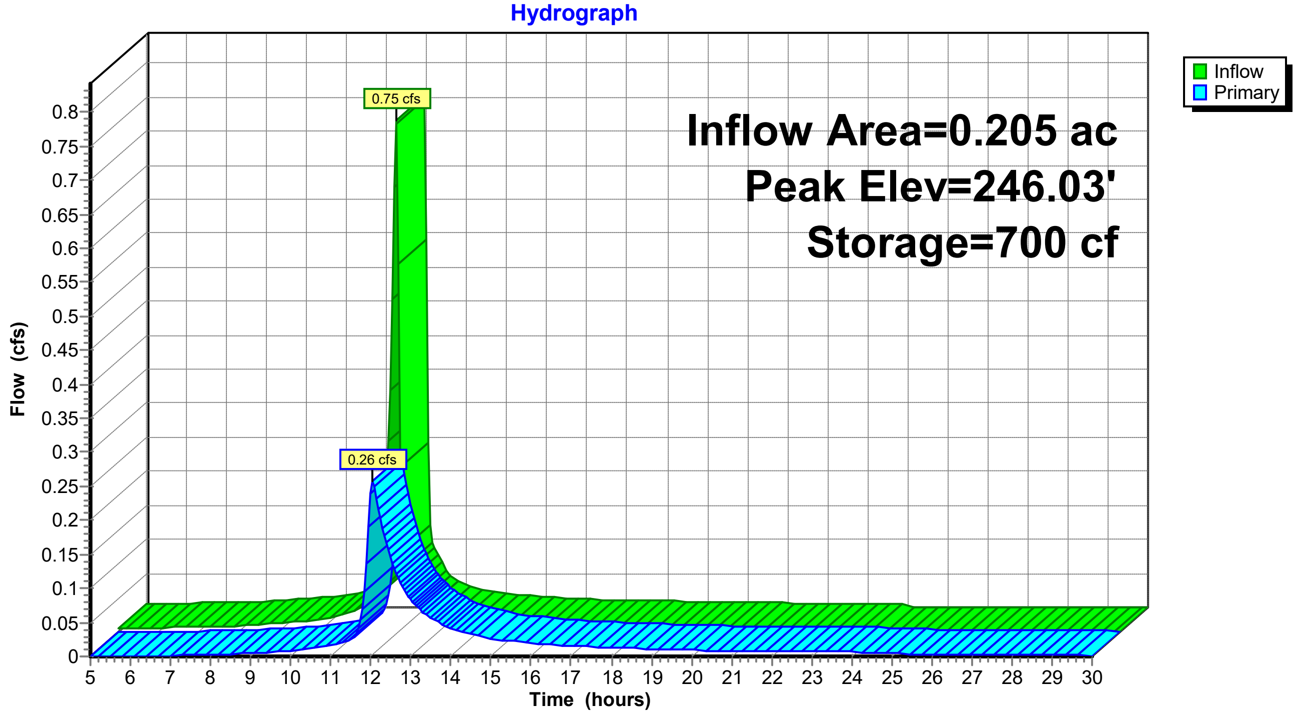
Pond IB 1: INFILTRATION BASIN



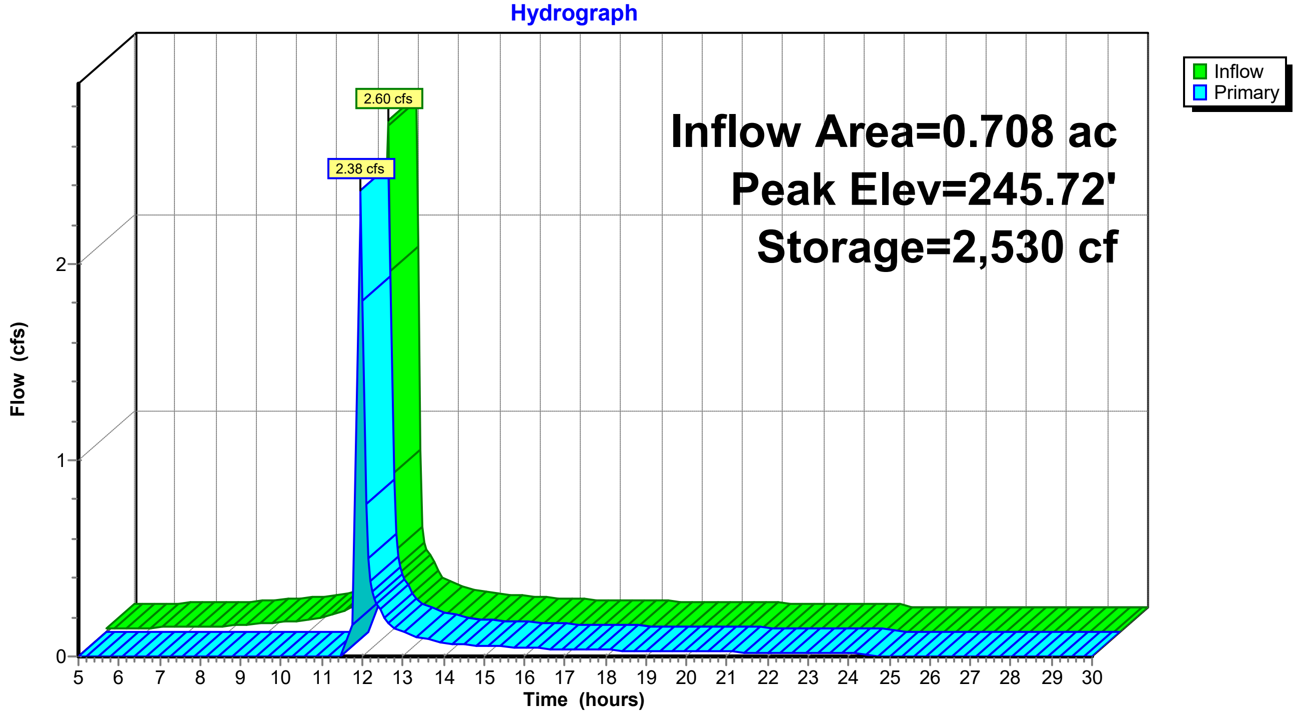
Pond PP1: PorousPavt



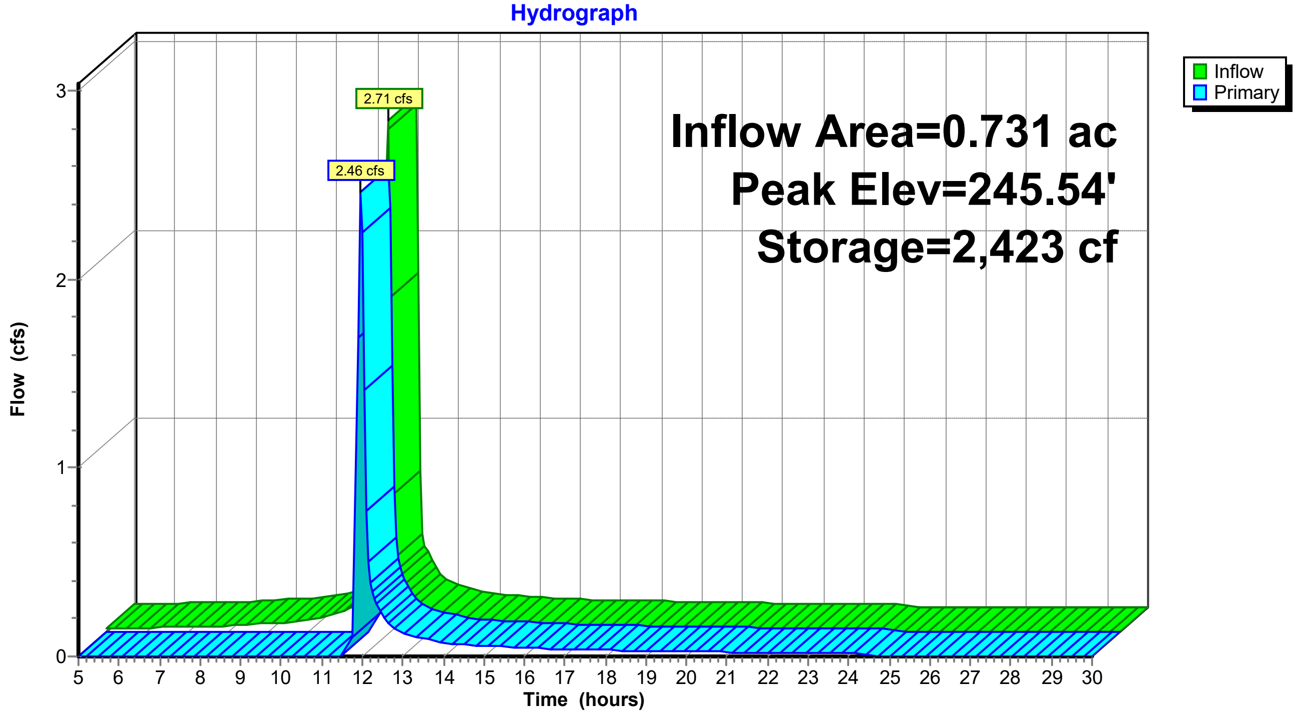
Pond PP2: PorousPavt



Pond SB1: SEDIMENTATION BASIN 1



Pond SB2: SEDIMENTATION BASIN 2



Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Trib 1 Runoff Area=9,127 sf 13.44% Impervious Runoff Depth=0.23"
Flow Length=76' Slope=0.0989 '/' Tc=4.6 min UI Adjusted CN=43 Runoff=0.02 cfs 0.004 af

Subcatchment 2: Trib 2 Runoff Area=10,000 sf 0.00% Impervious Runoff Depth=0.11"
Flow Length=183' Tc=8.0 min CN=39 Runoff=0.00 cfs 0.002 af

Subcatchment 3: Trib 3 Runoff Area=37,287 sf 100.00% Impervious Runoff Depth>4.14"
Flow Length=55' Slope=0.0150 '/' Tc=4.2 min CN=98 Runoff=5.69 cfs 0.295 af

Subcatchment 4: Trib 4 Runoff Area=31,832 sf 100.00% Impervious Runoff Depth>4.14"
Flow Length=303' Tc=3.5 min CN=98 Runoff=4.94 cfs 0.252 af

Subcatchment 5: Trib 5 Runoff Area=30,835 sf 100.00% Impervious Runoff Depth>4.14"
Flow Length=282' Slope=0.0067 '/' Tc=3.9 min CN=98 Runoff=4.75 cfs 0.244 af

Subcatchment 6: Trib 6 Runoff Area=8,925 sf 100.00% Impervious Runoff Depth>4.14"
Flow Length=441' Tc=4.0 min CN=98 Runoff=1.37 cfs 0.071 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.02 cfs 0.004 af
Outflow=0.02 cfs 0.004 af

Reach R2: Reach 2 (1395 Wash)
Outflow=0.00 cfs 0.000 af

Reach R3: Reach 3 (I-90) Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Reach R4: Reach 4 (Recharge to Groundwater) Inflow=0.86 cfs 0.472 af
Outflow=0.86 cfs 0.472 af

Pond IB 1: INFILTRATION BASIN Peak Elev=243.58' Storage=9,254 cf Inflow=9.45 cfs 0.472 af
Primary=0.86 cfs 0.472 af Secondary=0.00 cfs 0.000 af Outflow=0.86 cfs 0.472 af

Pond PP1: PorousPavt Peak Elev=246.79' Storage=502 cf Inflow=5.69 cfs 0.295 af
Outflow=3.97 cfs 0.299 af

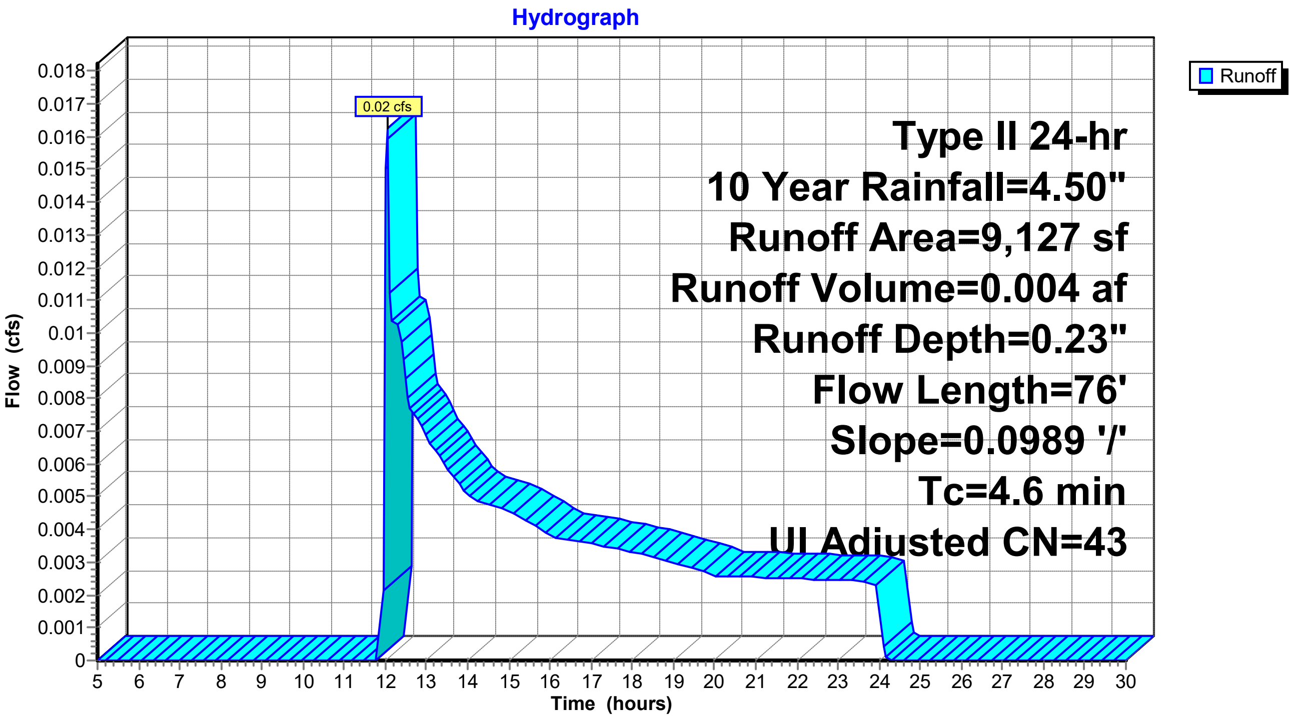
Pond PP2: PorousPavt Peak Elev=246.14' Storage=1,106 cf Inflow=1.37 cfs 0.071 af
Outflow=0.60 cfs 0.069 af

Pond SB1: SEDIMENTATION BASIN 1 Peak Elev=246.03' Storage=2,717 cf Inflow=4.75 cfs 0.244 af
Outflow=4.46 cfs 0.196 af

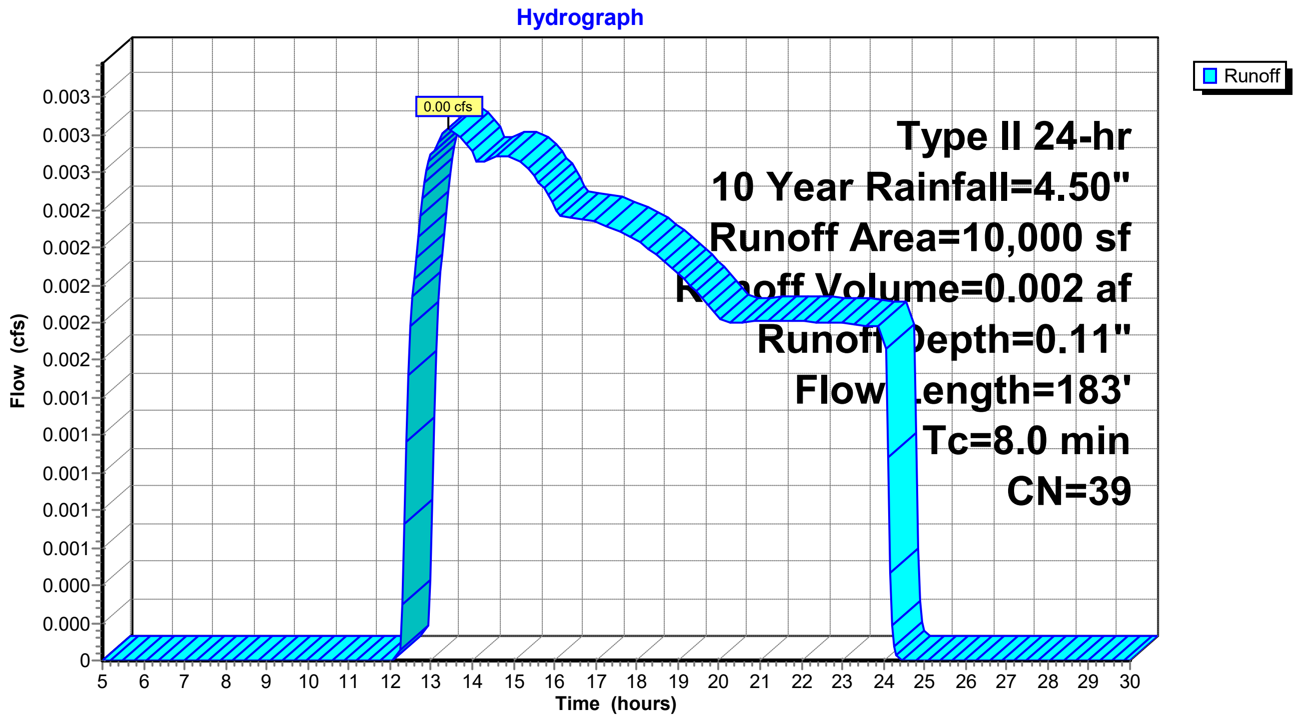
Pond SB2: SEDIMENTATION BASIN 2 Peak Elev=245.94' Storage=2,666 cf Inflow=4.94 cfs 0.252 af
Outflow=4.50 cfs 0.207 af

Total Runoff Area = 2.939 ac Runoff Volume = 0.868 af Average Runoff Depth = 3.54"
13.98% Pervious = 0.411 ac 86.02% Impervious = 2.528 ac

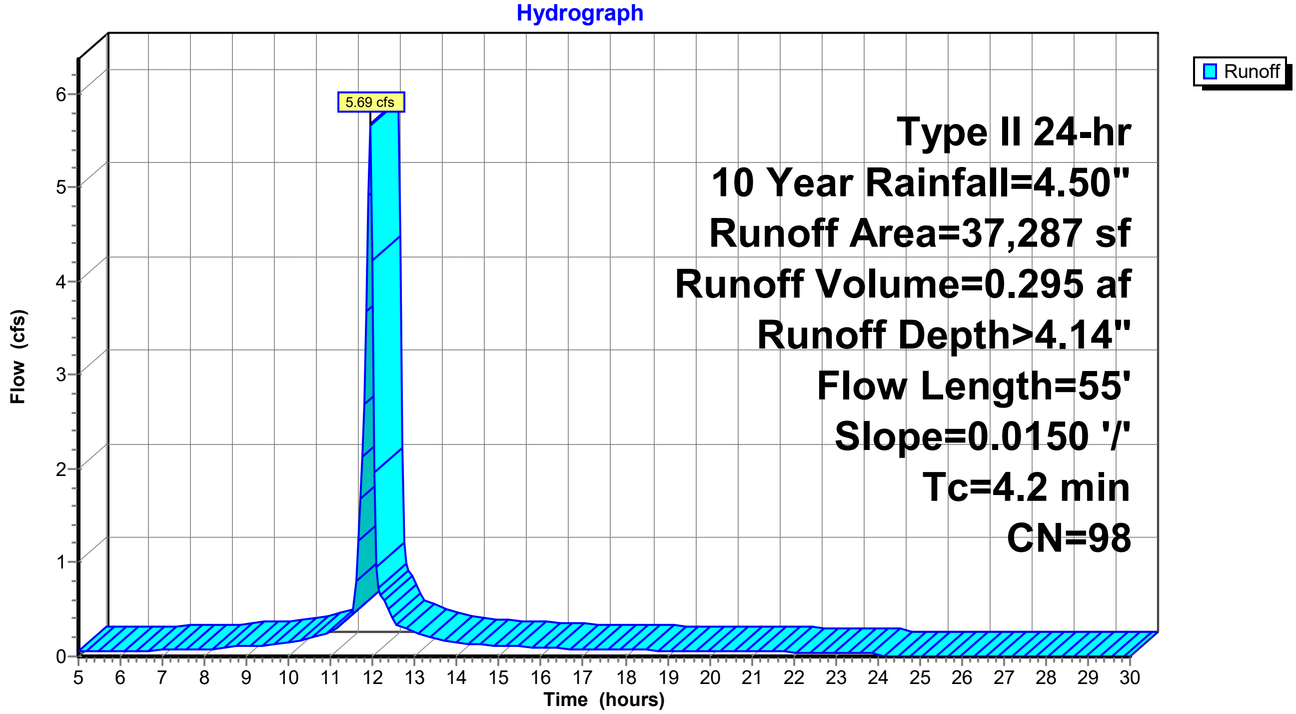
Subcatchment 1: Trib 1



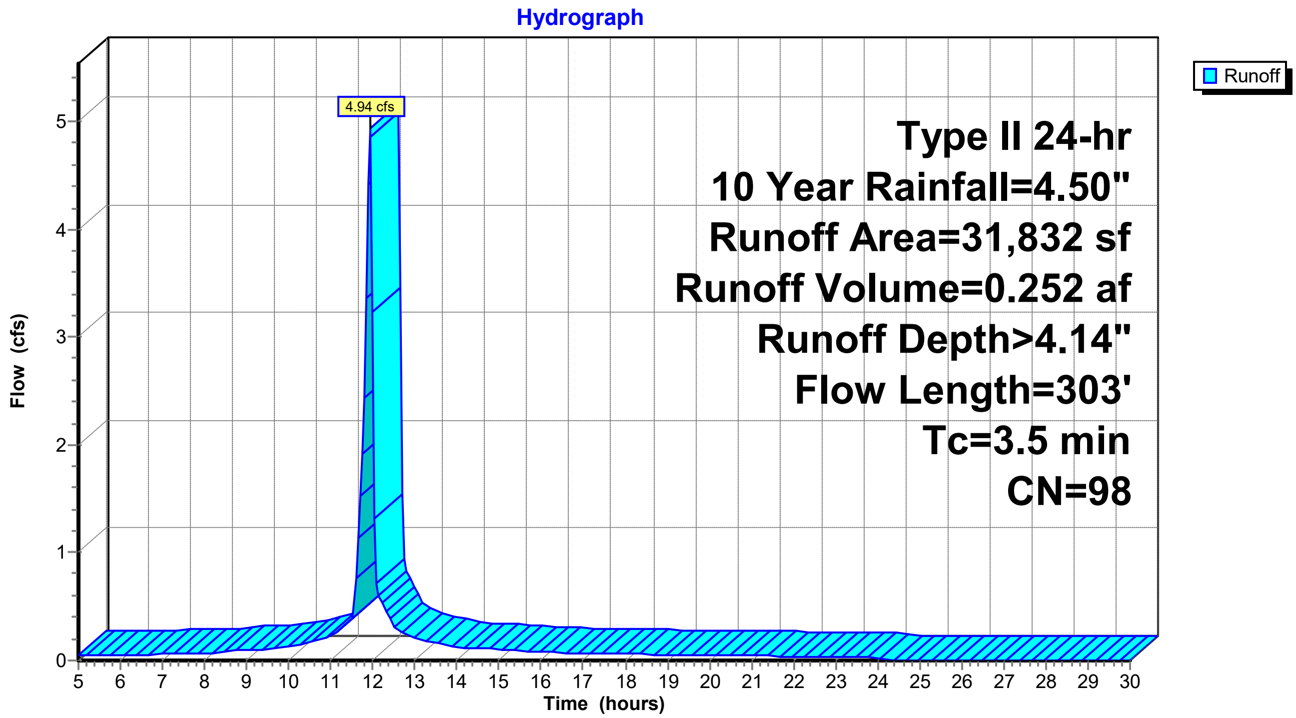
Subcatchment 2: Trib 2



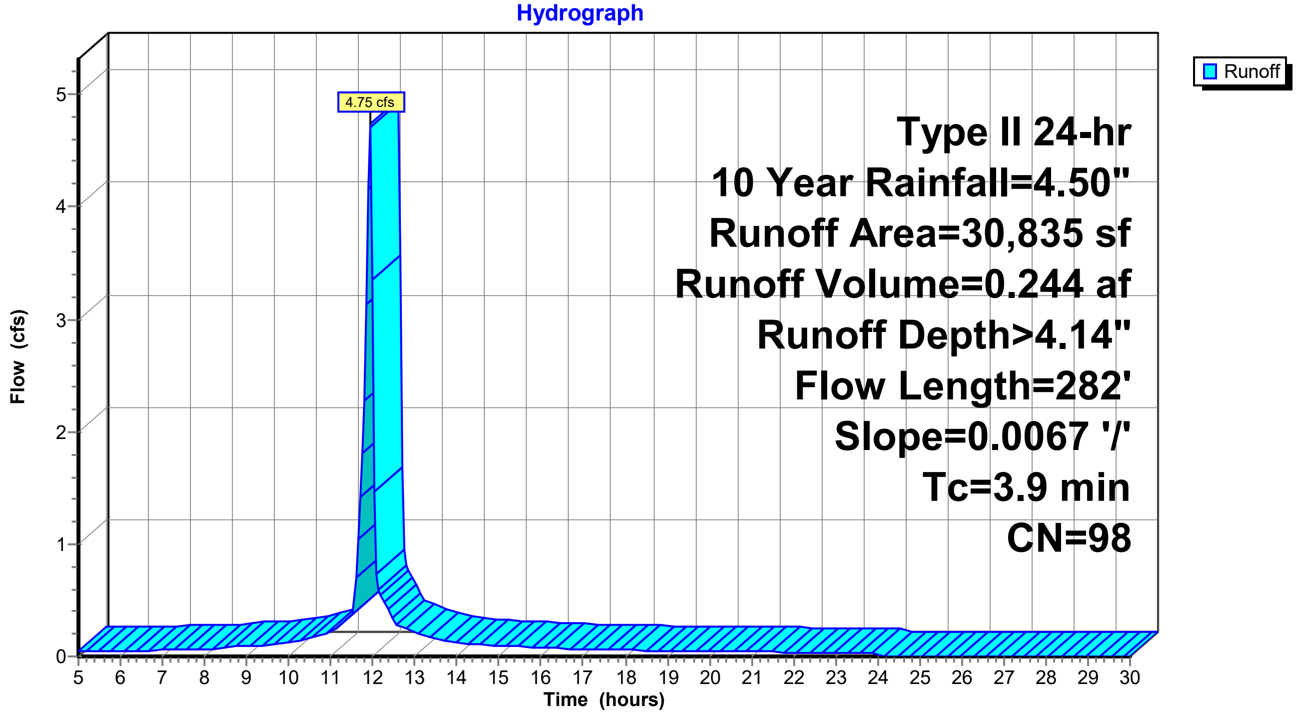
Subcatchment 3: Trib 3



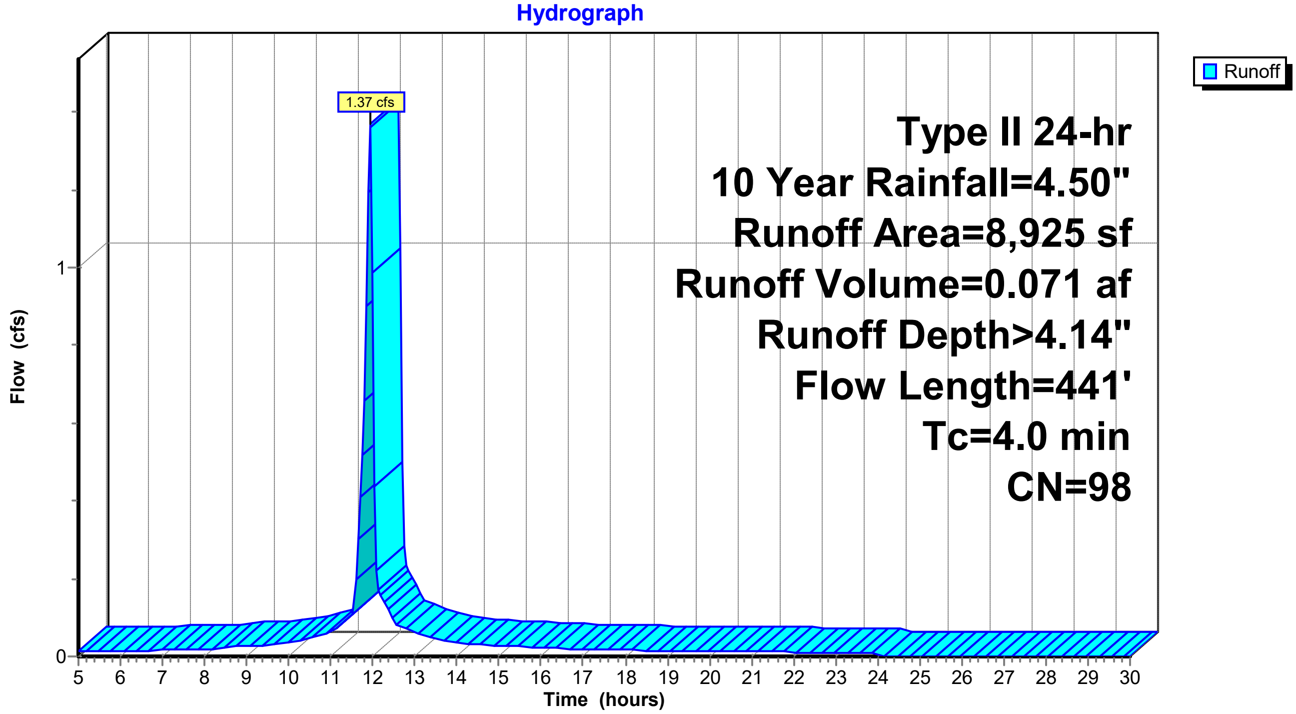
Subcatchment 4: Trib 4



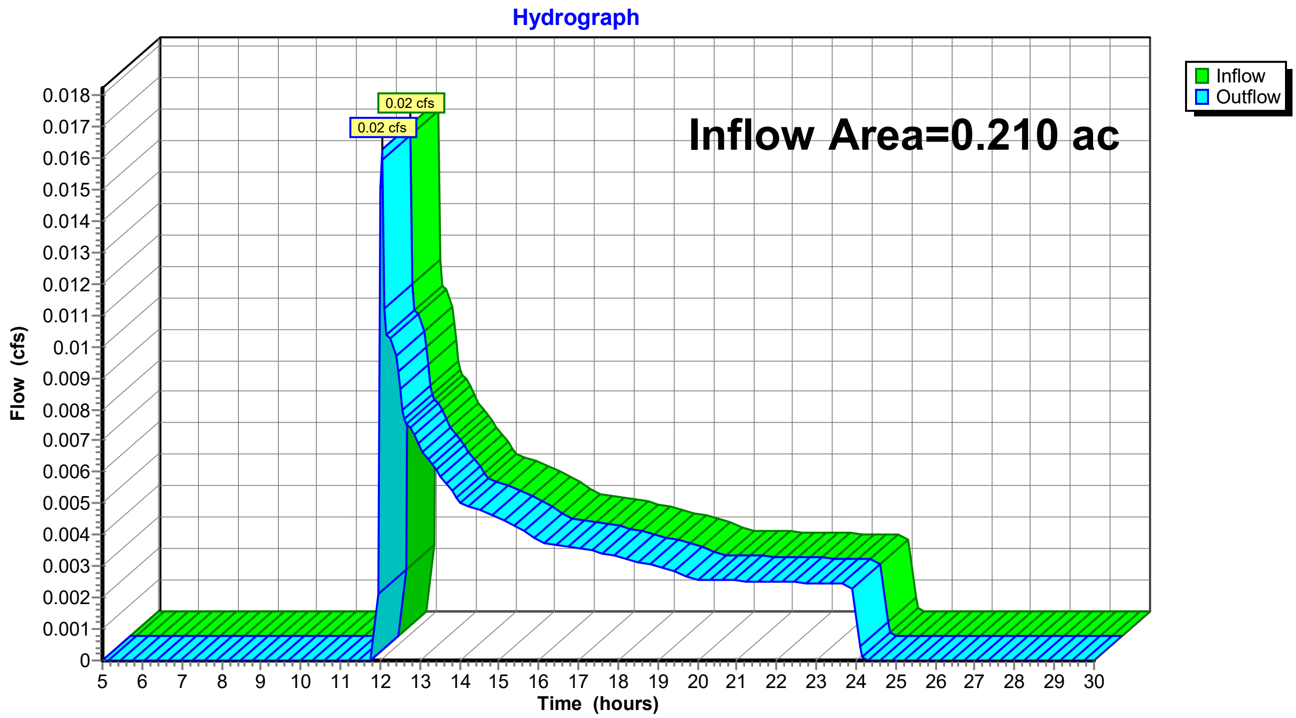
Subcatchment 5: Trib 5



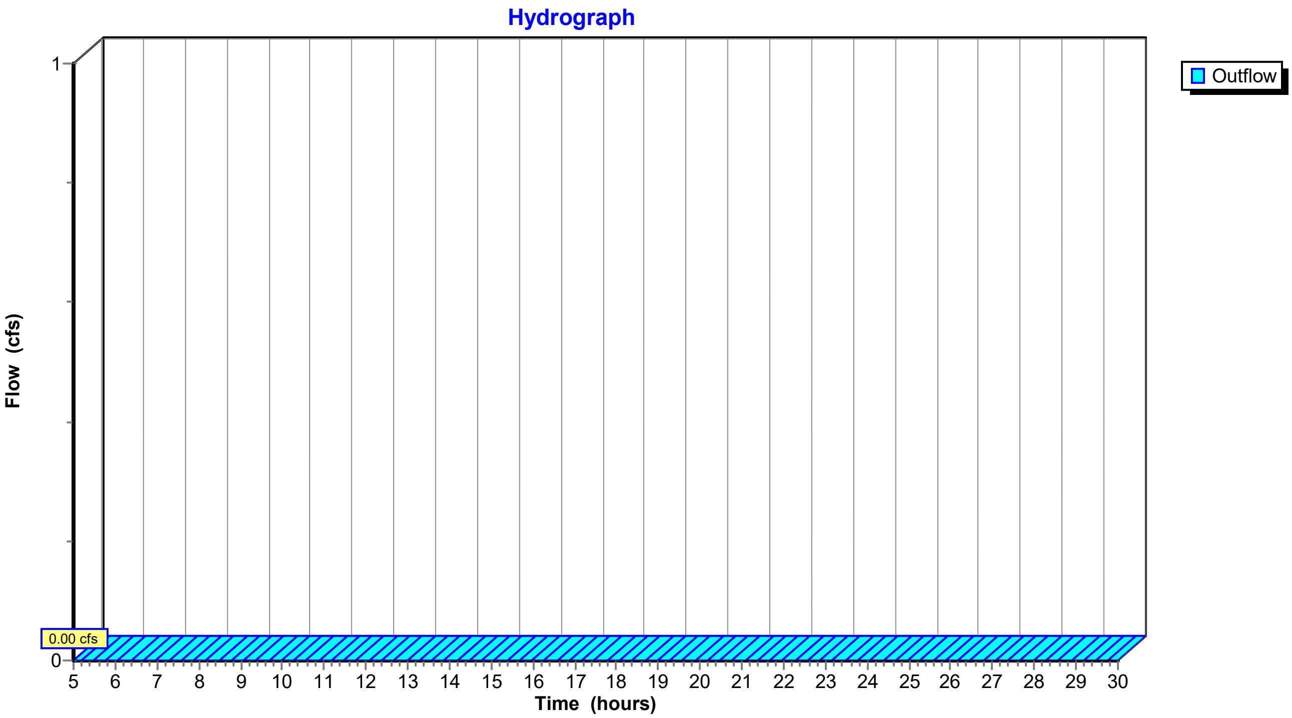
Subcatchment 6: Trib 6



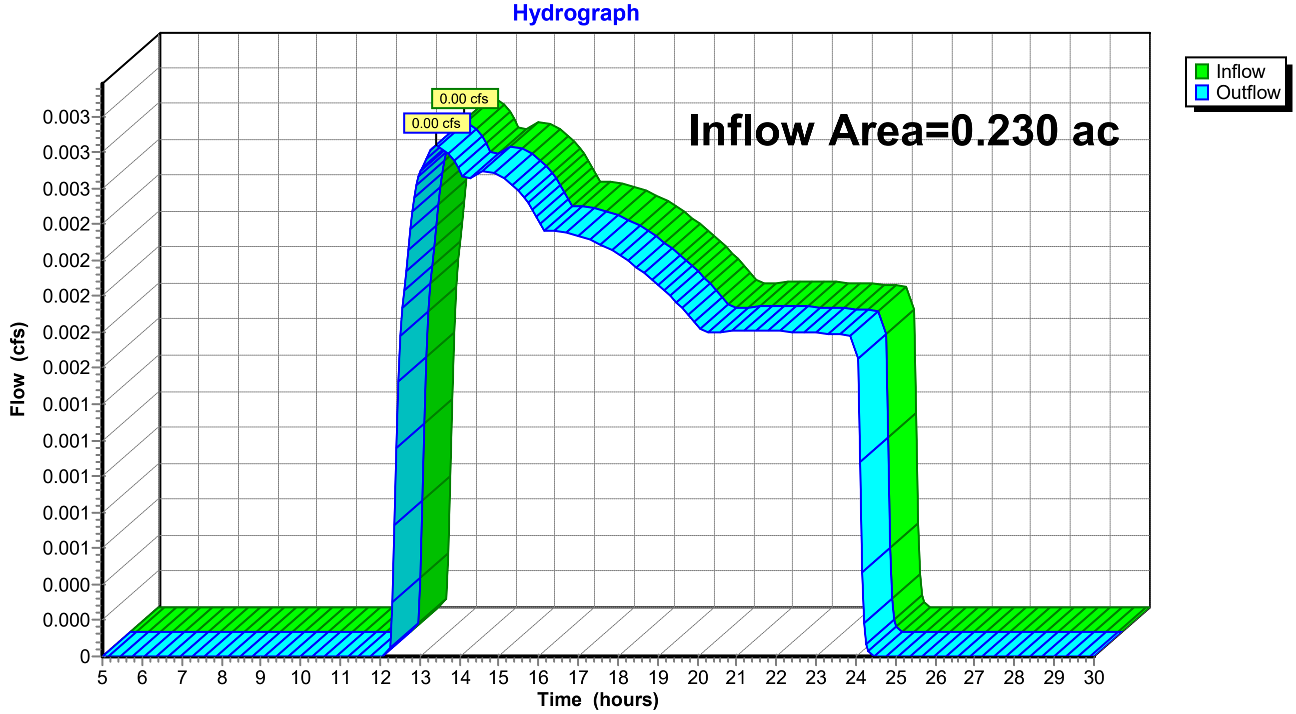
Reach R1: Reach 1 (Wash Ave)



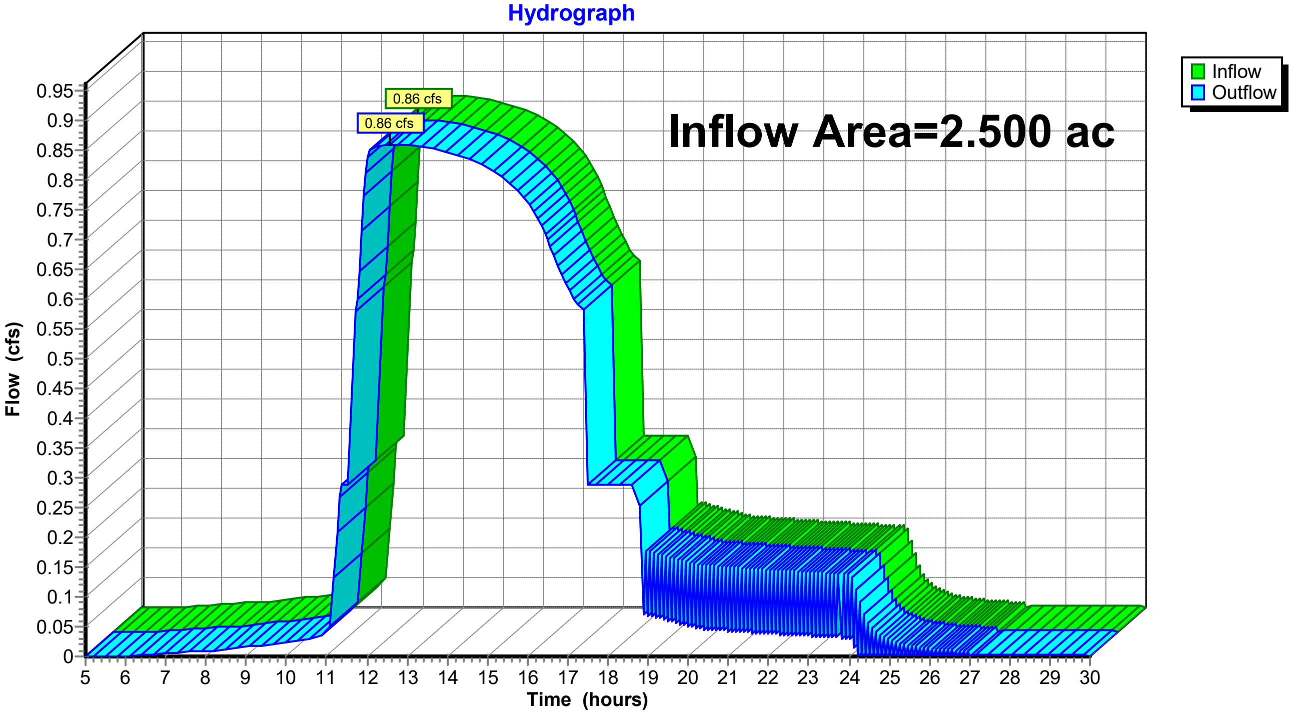
Reach R2: Reach 2 (1395 Wash)



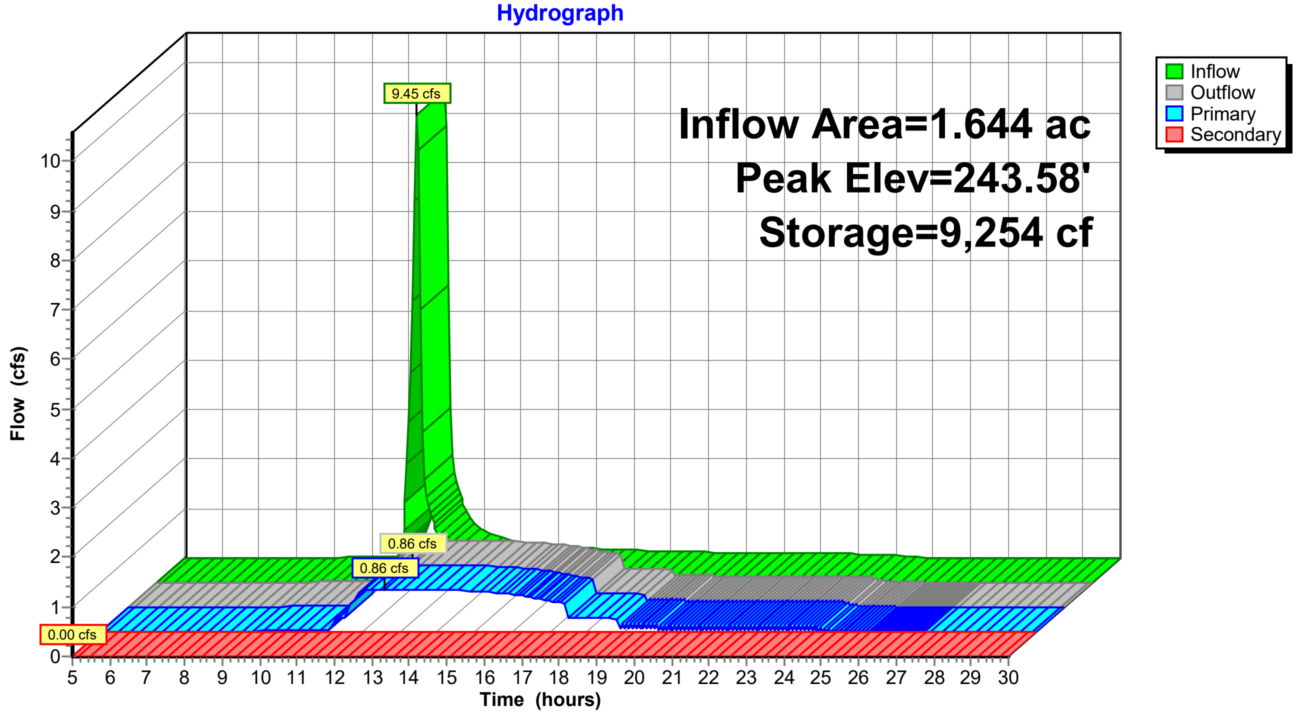
Reach R3: Reach 3 (I-90)



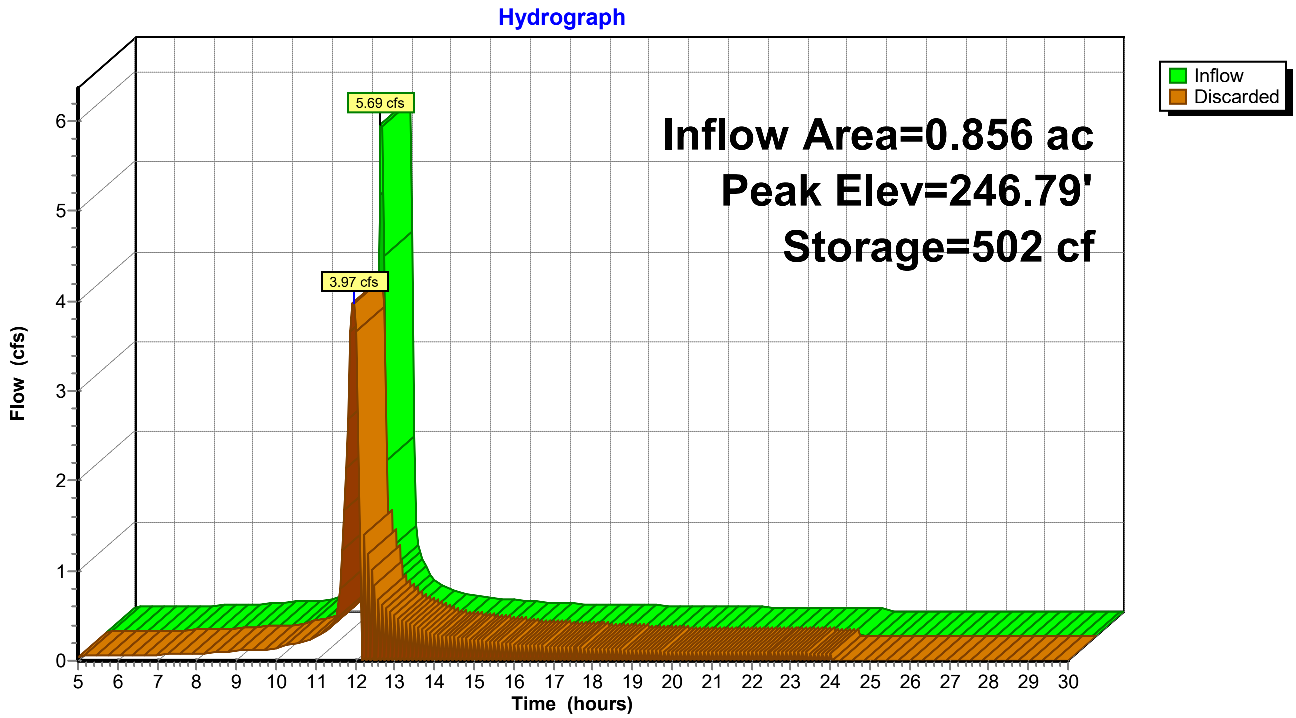
Reach R4: Reach 4 (Recharge to Groundwater)



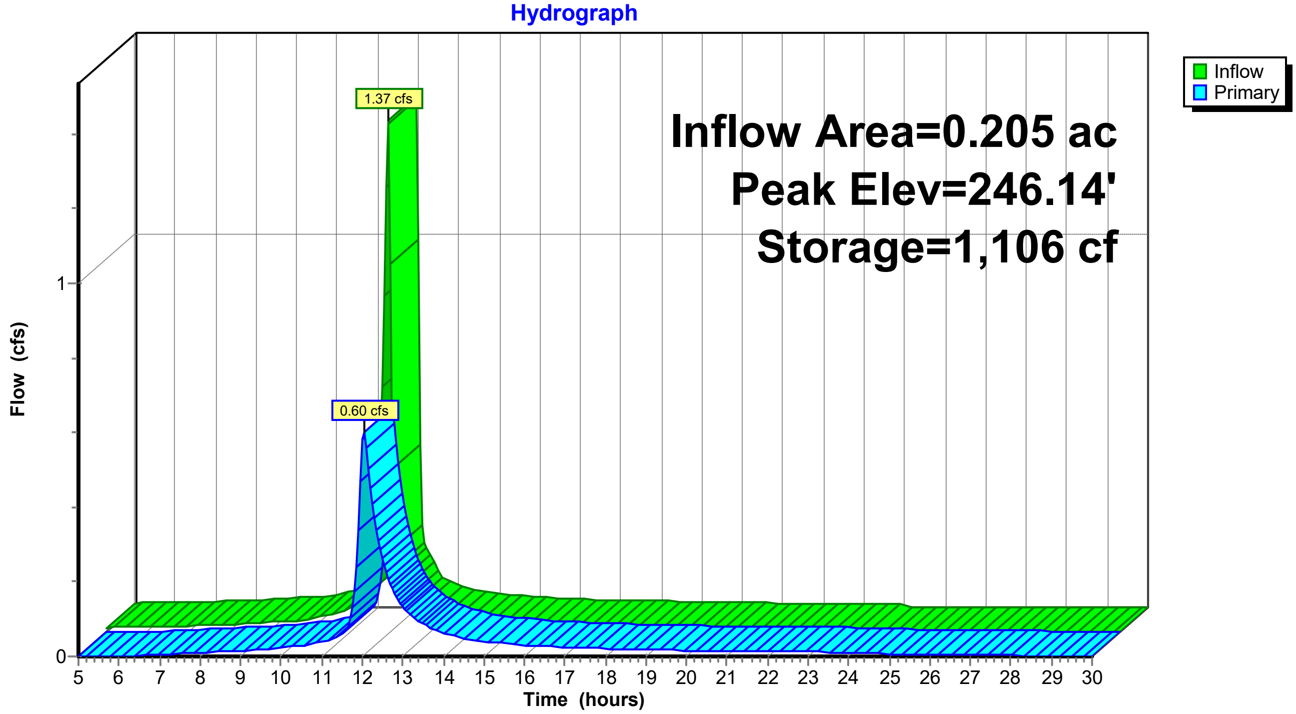
Pond IB 1: INFILTRATION BASIN



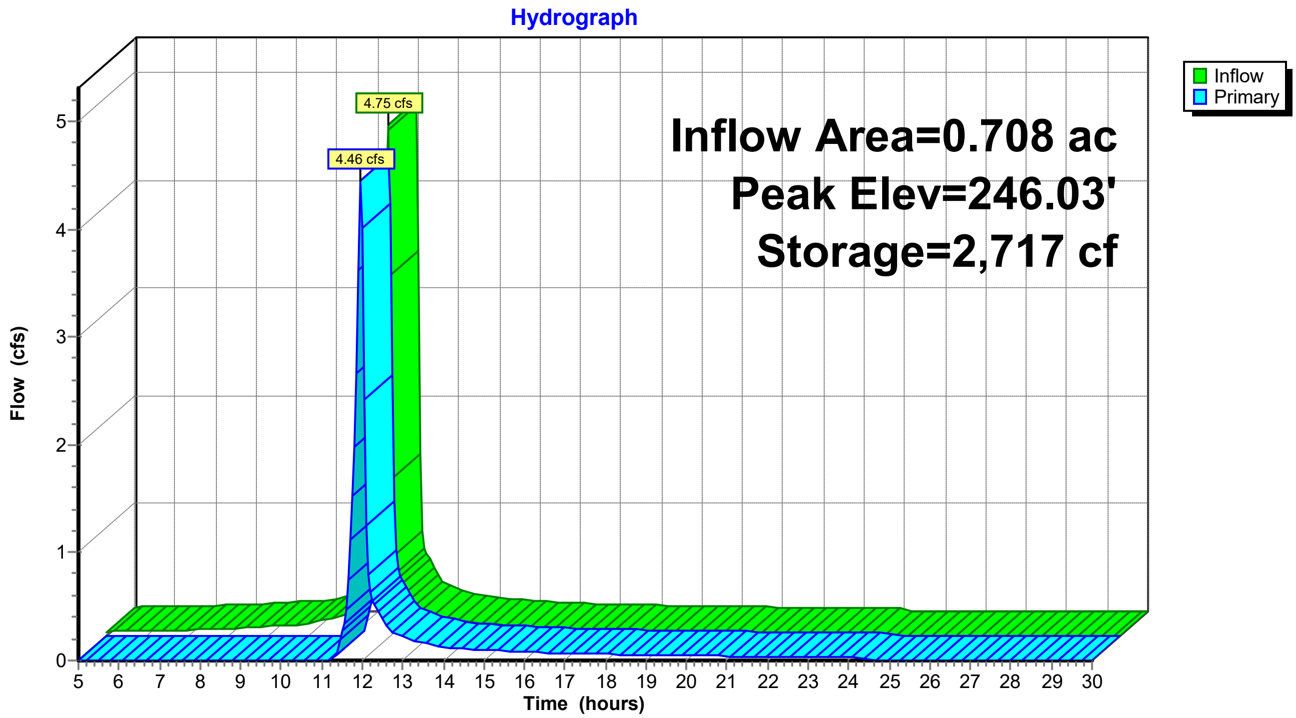
Pond PP1: PorousPavt



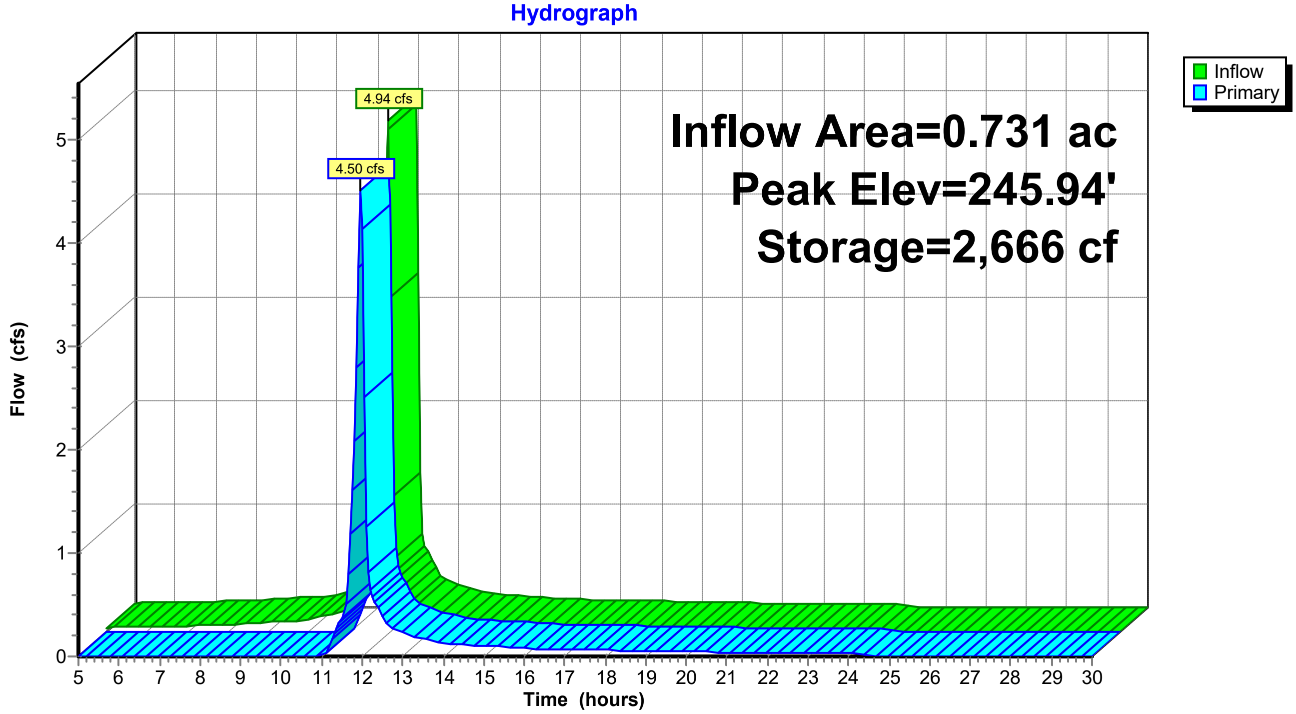
Pond PP2: PorousPavt



Pond SB1: SEDIMENTATION BASIN 1



Pond SB2: SEDIMENTATION BASIN 2



Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Trib 1 Runoff Area=9,127 sf 13.44% Impervious Runoff Depth=1.07"
Flow Length=76' Slope=0.0989 '/' Tc=4.6 min UI Adjusted CN=43 Runoff=0.34 cfs 0.019 af

Subcatchment 2: Trib 2 Runoff Area=10,000 sf 0.00% Impervious Runoff Depth=0.77"
Flow Length=183' Tc=8.0 min CN=39 Runoff=0.18 cfs 0.015 af

Subcatchment 3: Trib 3 Runoff Area=37,287 sf 100.00% Impervious Runoff Depth>6.50"
Flow Length=55' Slope=0.0150 '/' Tc=4.2 min CN=98 Runoff=8.88 cfs 0.464 af

Subcatchment 4: Trib 4 Runoff Area=31,832 sf 100.00% Impervious Runoff Depth>6.50"
Flow Length=303' Tc=3.5 min CN=98 Runoff=7.72 cfs 0.396 af

Subcatchment 5: Trib 5 Runoff Area=30,835 sf 100.00% Impervious Runoff Depth>6.50"
Flow Length=282' Slope=0.0067 '/' Tc=3.9 min CN=98 Runoff=7.41 cfs 0.384 af

Subcatchment 6: Trib 6 Runoff Area=8,925 sf 100.00% Impervious Runoff Depth>6.50"
Flow Length=441' Tc=4.0 min CN=98 Runoff=2.14 cfs 0.111 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.34 cfs 0.019 af
Outflow=0.34 cfs 0.019 af

Reach R2: Reach 2 (1395 Wash)
Outflow=0.00 cfs 0.000 af

Reach R3: Reach 3 (I-90) Inflow=0.18 cfs 0.015 af
Outflow=0.18 cfs 0.015 af

Reach R4: Reach 4 (Recharge to Groundwater) Inflow=4.51 cfs 0.797 af
Outflow=4.51 cfs 0.797 af

Pond IB 1: INFILTRATION BASIN Peak Elev=244.55' Storage=14,000 cf Inflow=14.47 cfs 0.796 af
Primary=0.86 cfs 0.660 af Secondary=3.67 cfs 0.137 af Outflow=4.51 cfs 0.797 af

Pond PP1: PorousPavt Peak Elev=246.92' Storage=2,316 cf Inflow=8.88 cfs 0.464 af
Outflow=3.97 cfs 0.469 af

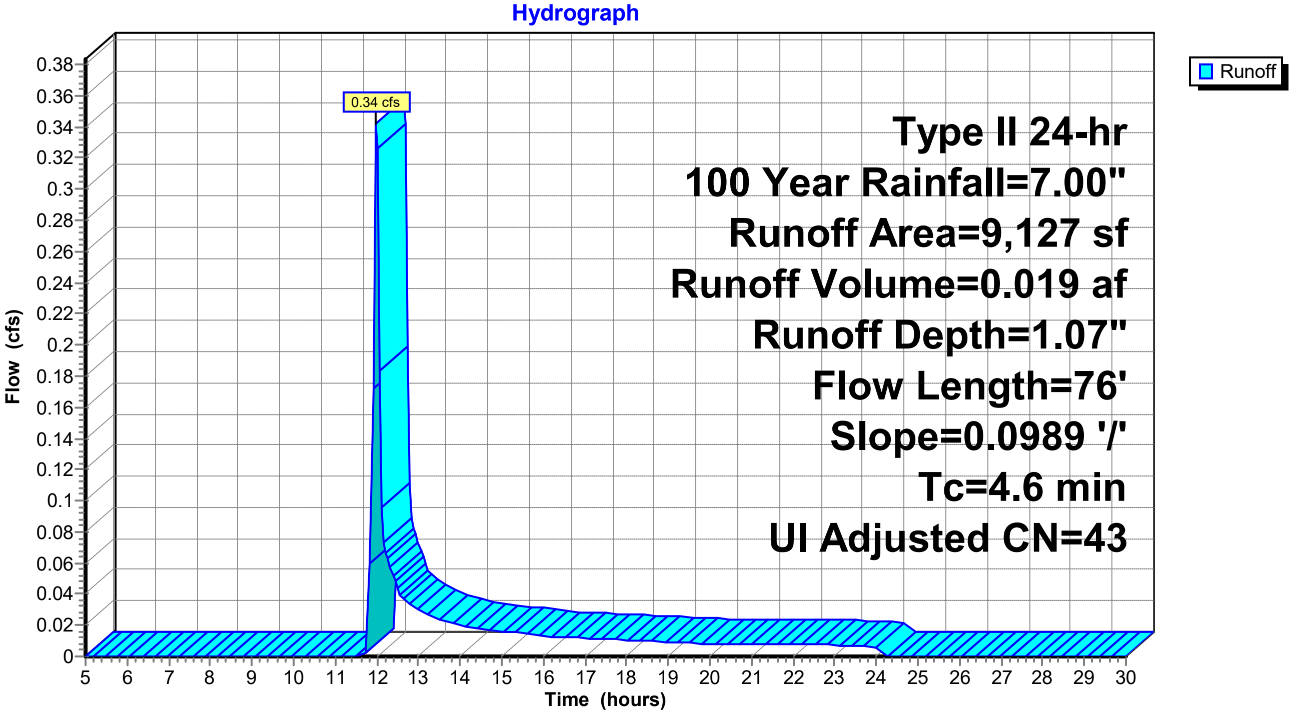
Pond PP2: PorousPavt Peak Elev=246.26' Storage=1,538 cf Inflow=2.14 cfs 0.111 af
Outflow=1.07 cfs 0.110 af

Pond SB1: SEDIMENTATION BASIN 1 Peak Elev=246.40' Storage=2,939 cf Inflow=7.41 cfs 0.384 af
Outflow=6.91 cfs 0.335 af

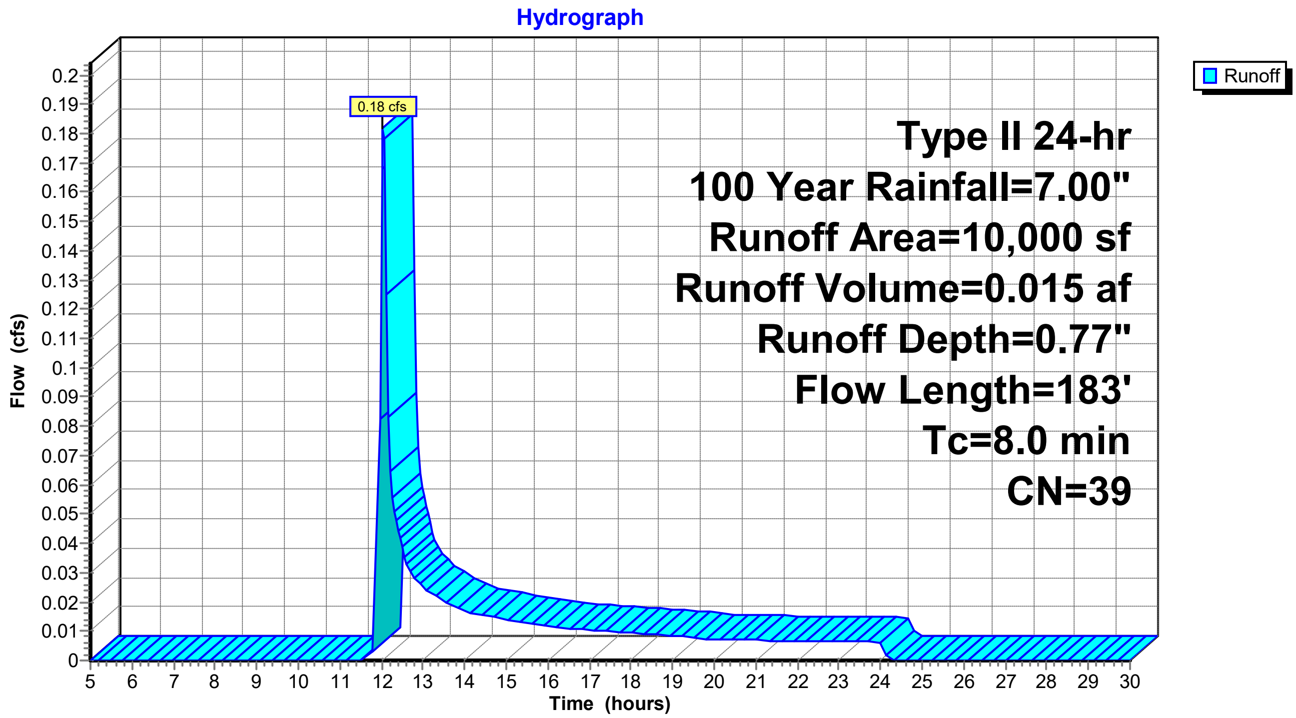
Pond SB2: SEDIMENTATION BASIN 2 Peak Elev=246.64' Storage=3,082 cf Inflow=7.72 cfs 0.396 af
Outflow=6.65 cfs 0.351 af

Total Runoff Area = 2.939 ac Runoff Volume = 1.388 af Average Runoff Depth = 5.67"
13.98% Pervious = 0.411 ac 86.02% Impervious = 2.528 ac

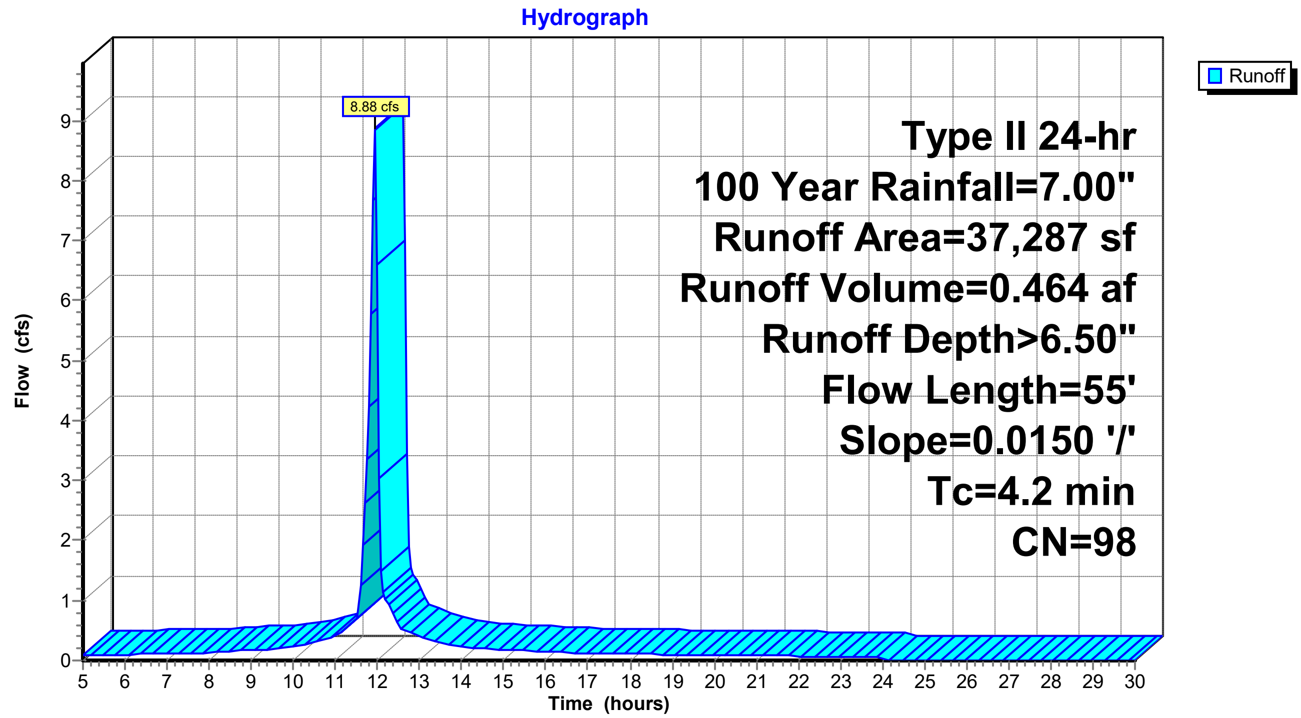
Subcatchment 1: Trib 1



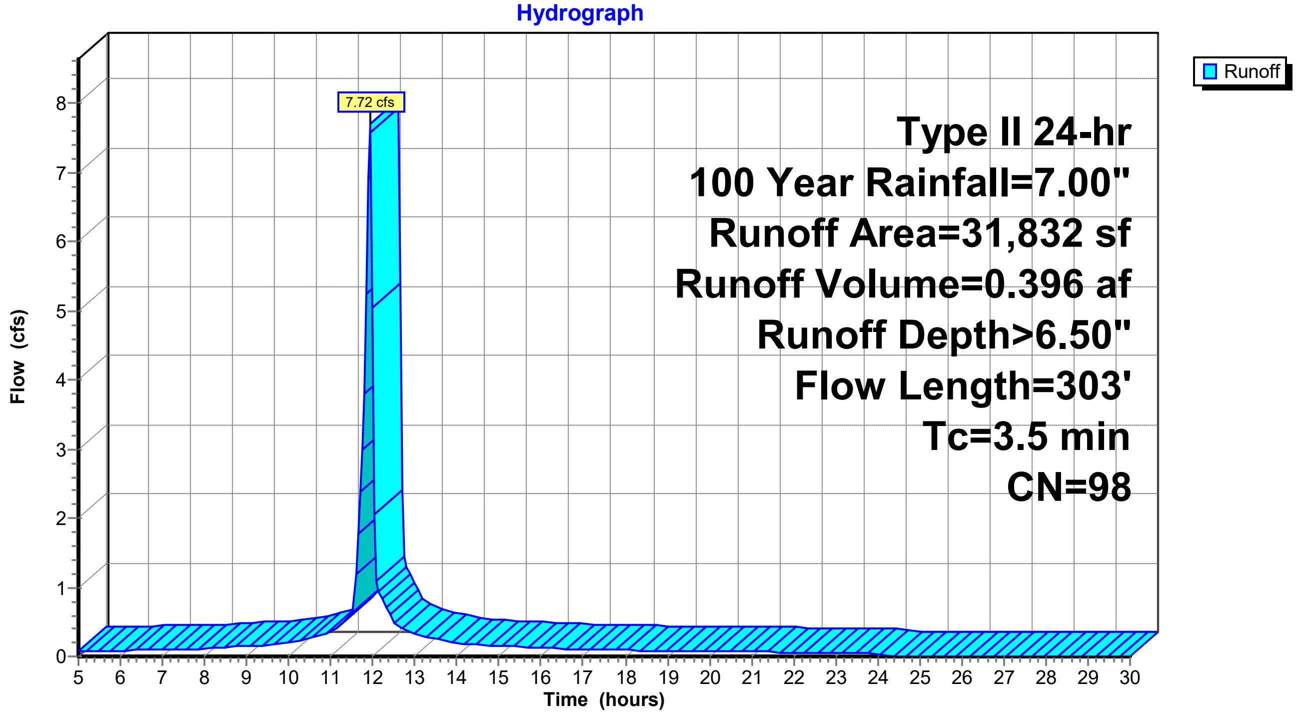
Subcatchment 2: Trib 2



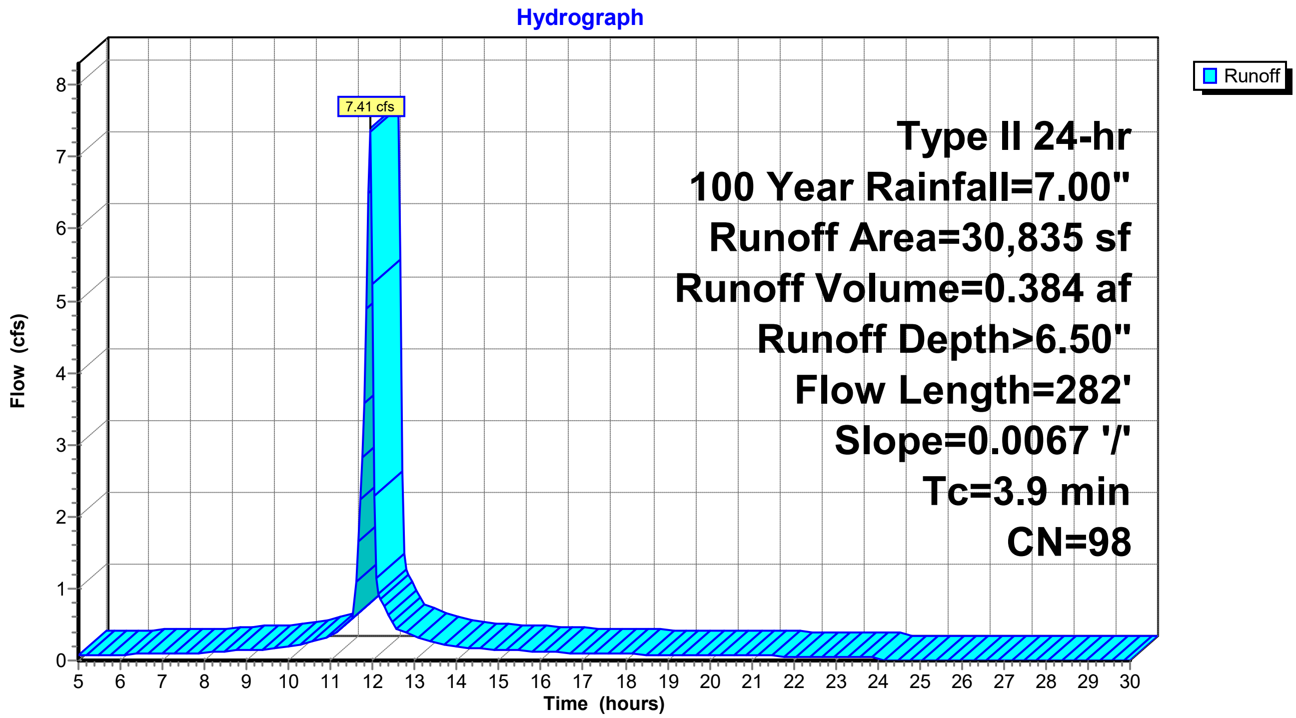
Subcatchment 3: Trib 3



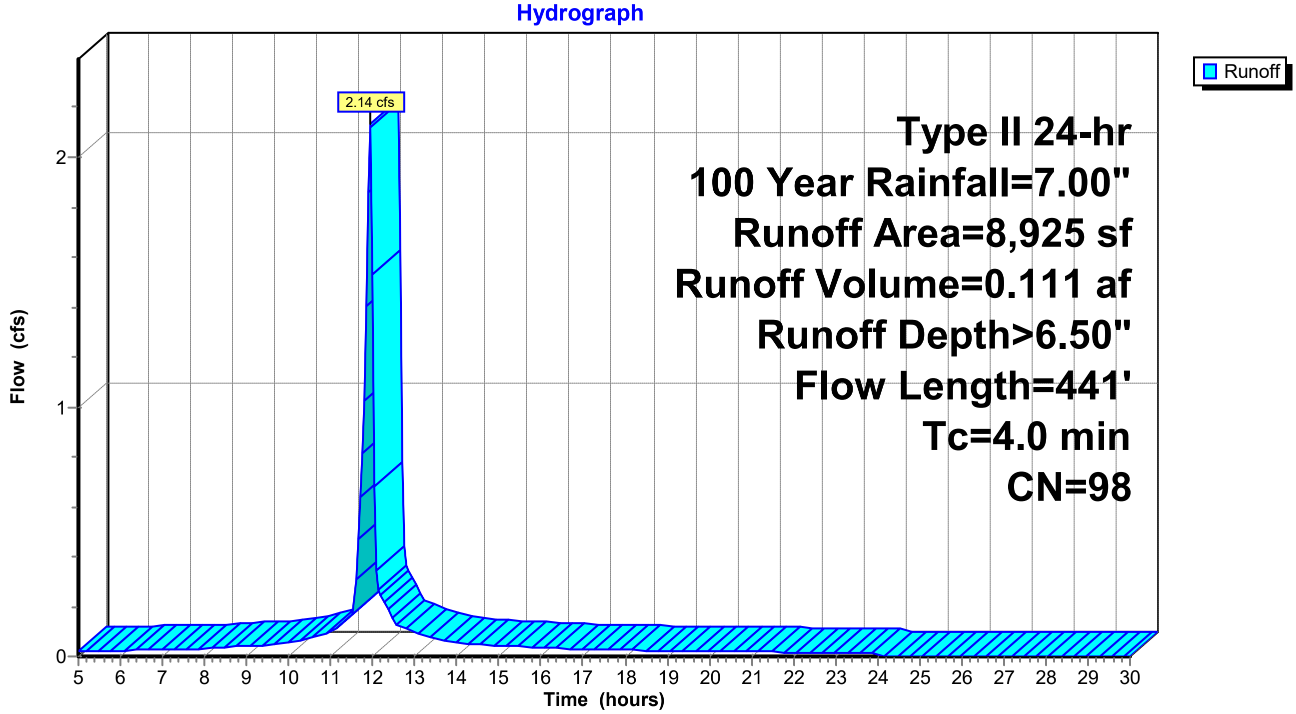
Subcatchment 4: Trib 4



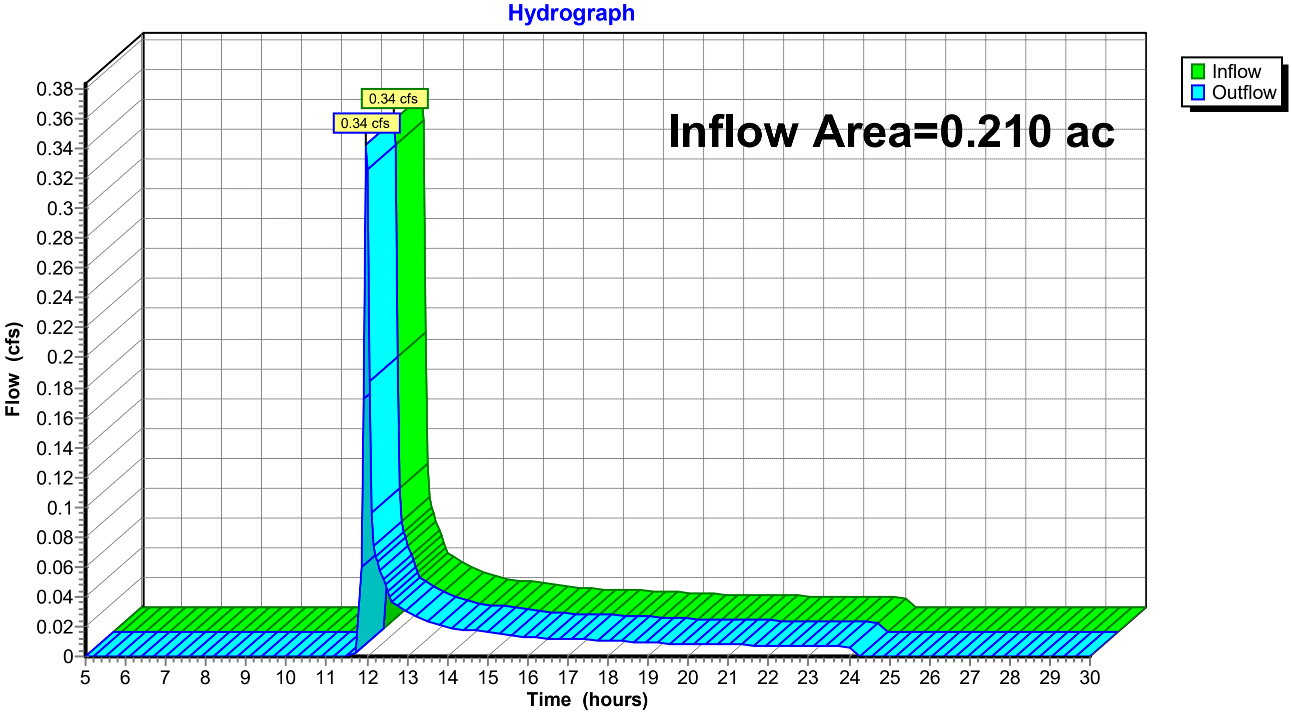
Subcatchment 5: Trib 5



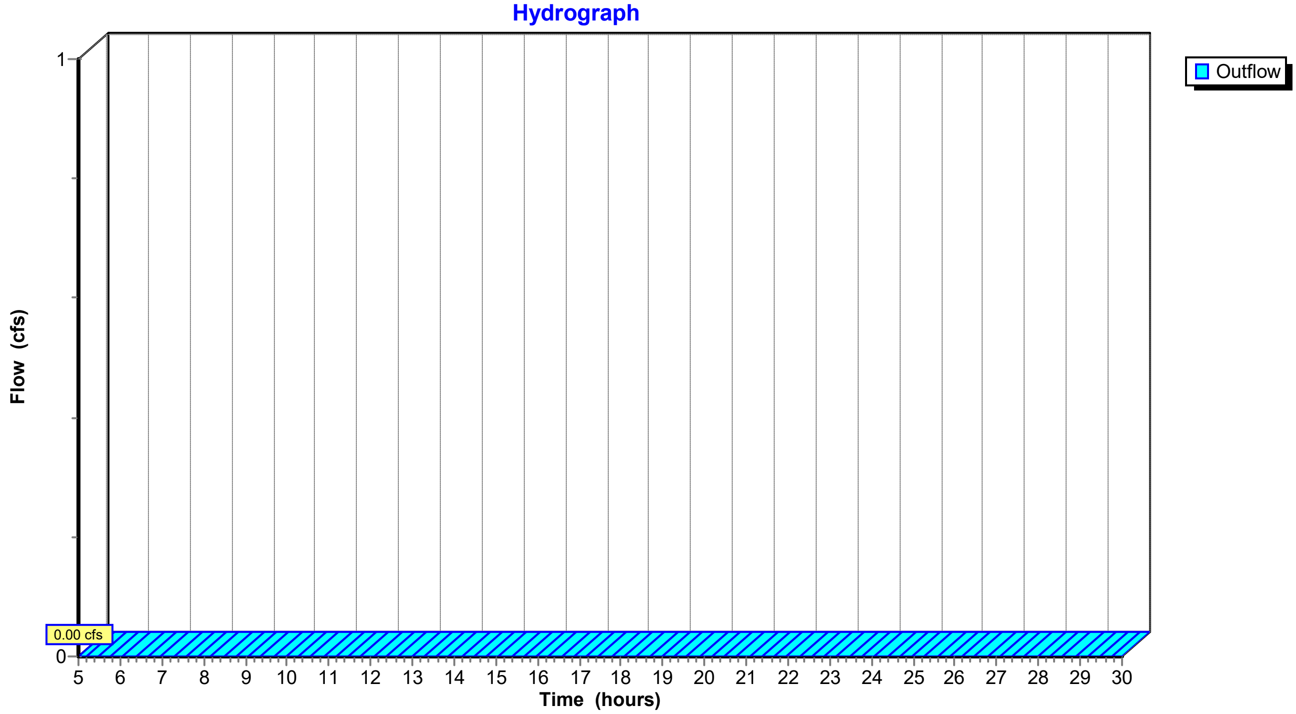
Subcatchment 6: Trib 6



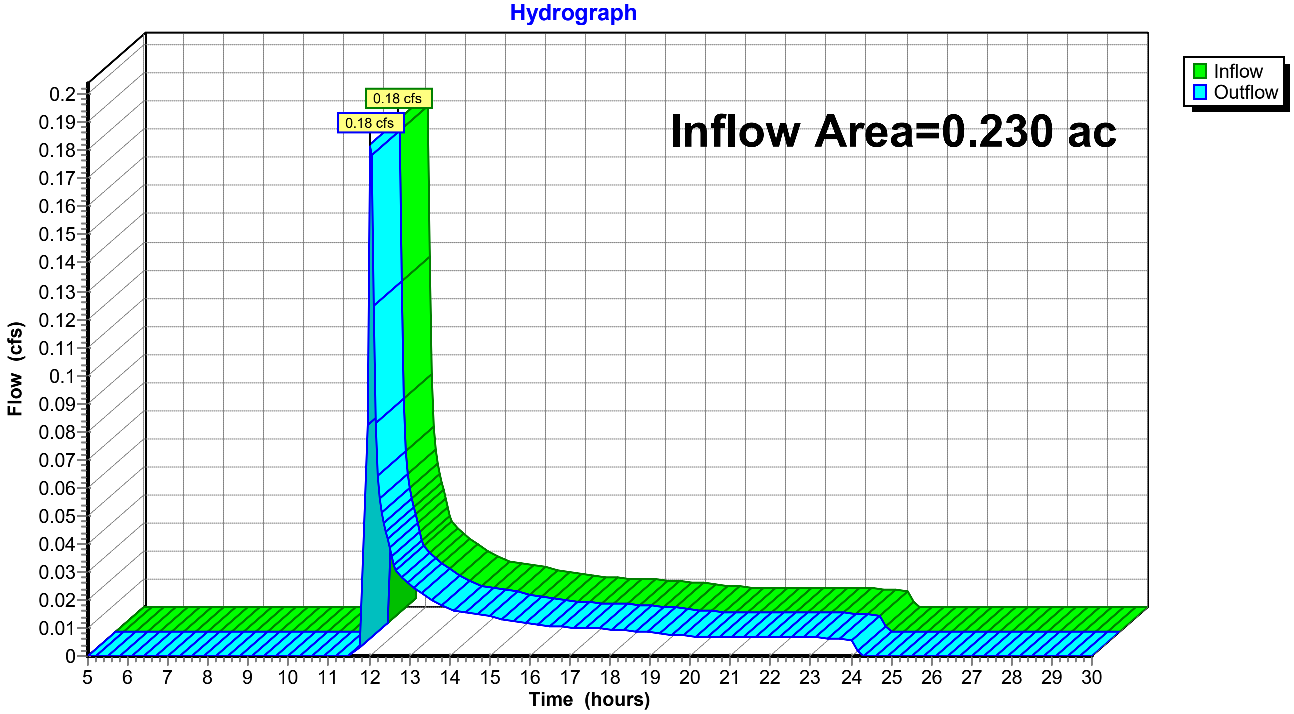
Reach R1: Reach 1 (Wash Ave)



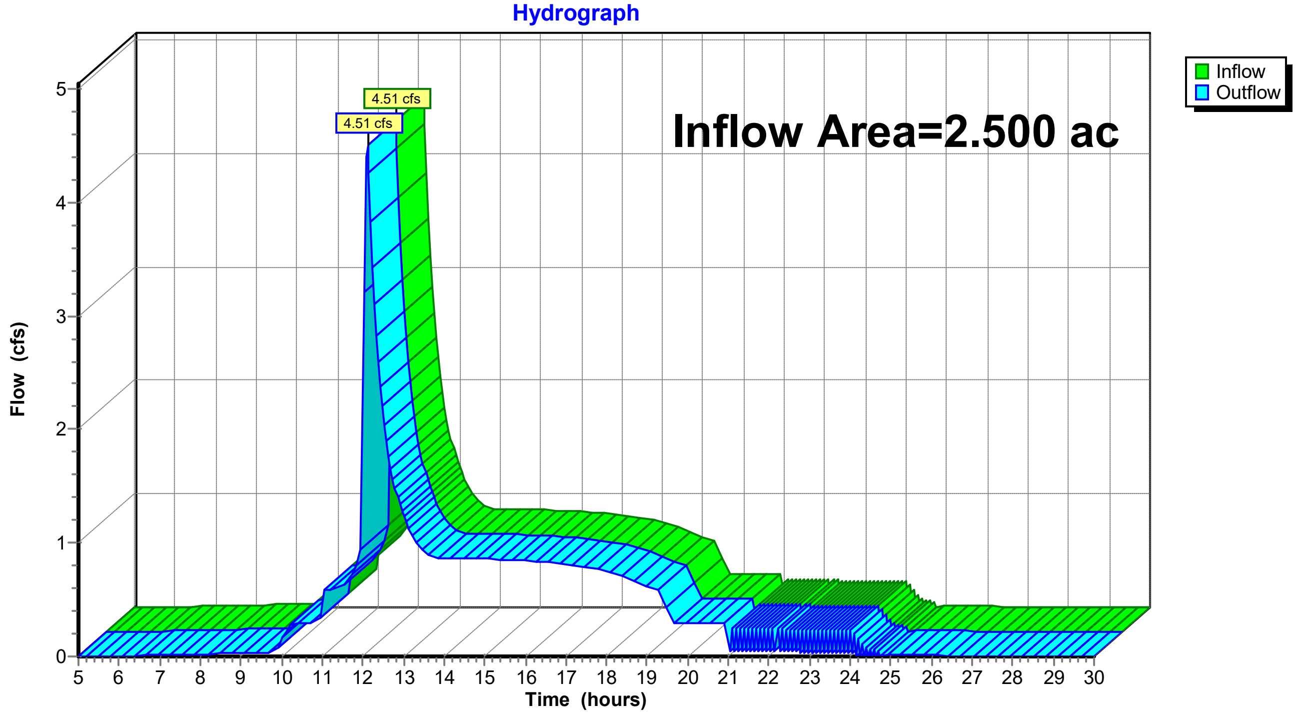
Reach R2: Reach 2 (1395 Wash)



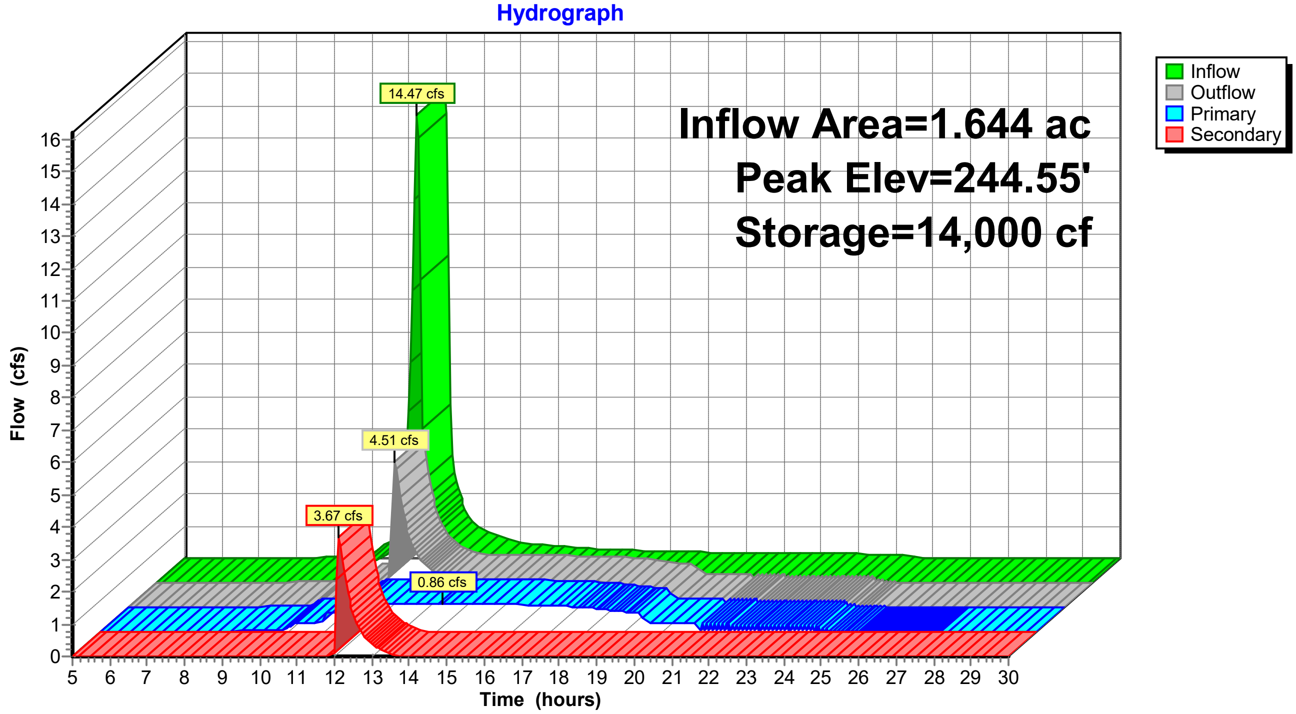
Reach R3: Reach 3 (I-90)



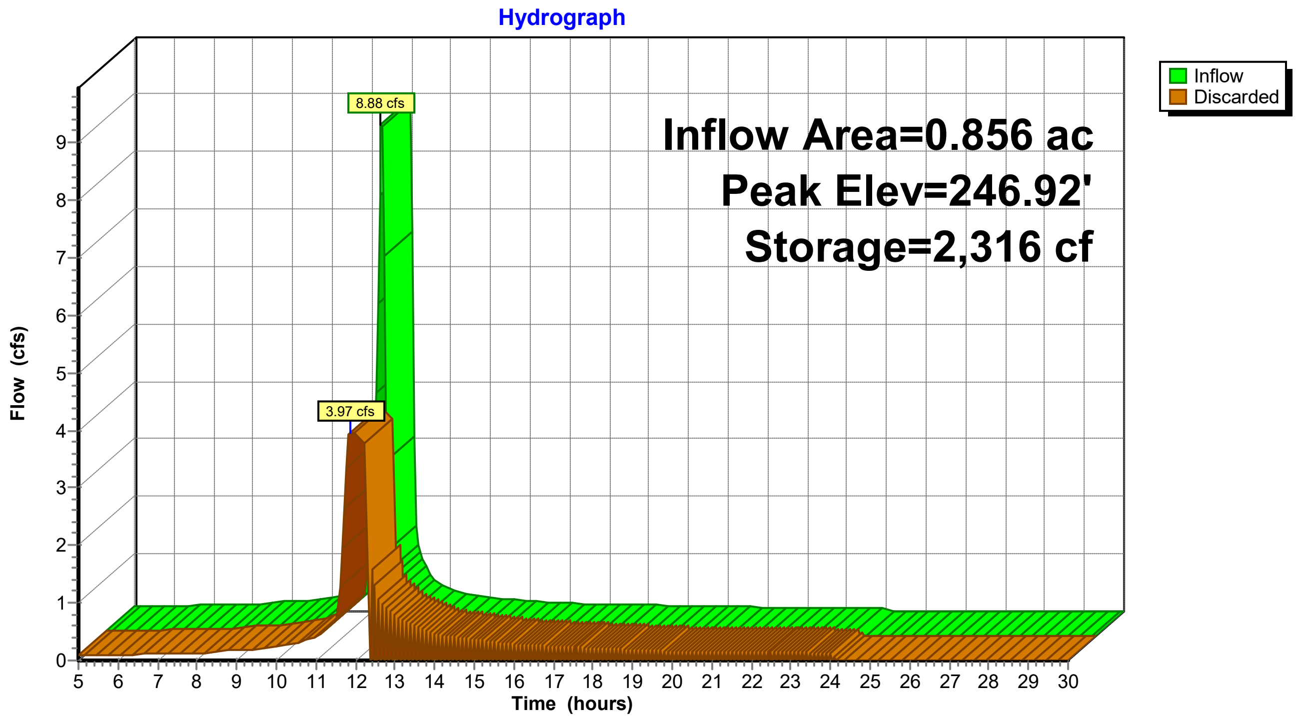
Reach R4: Reach 4 (Recharge to Groundwater)



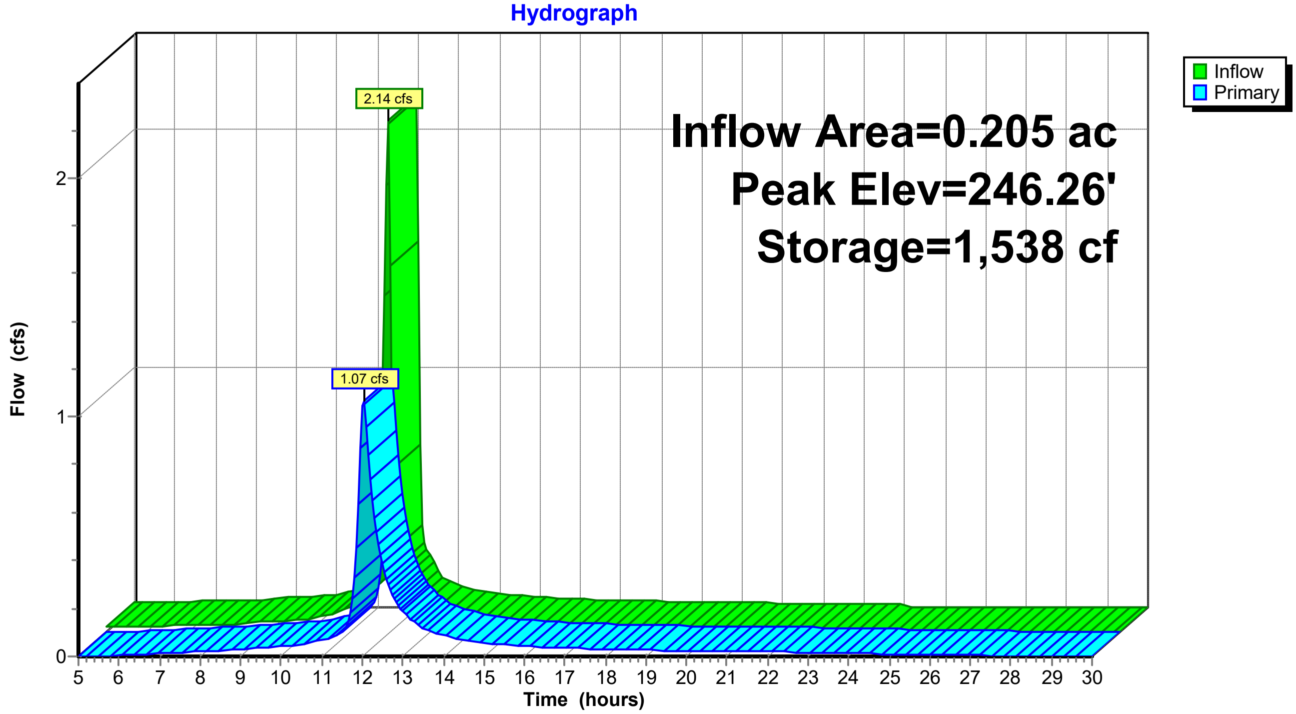
Pond IB 1: INFILTRATION BASIN



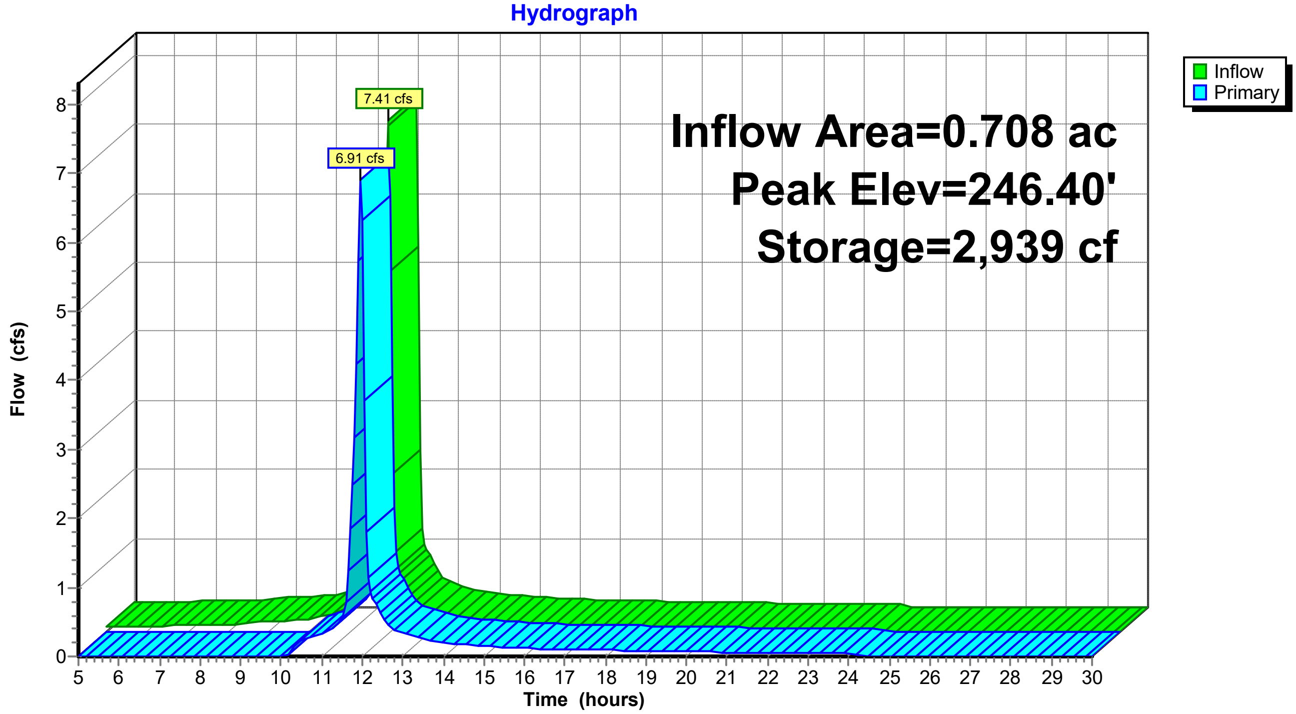
Pond PP1: PorousPavt



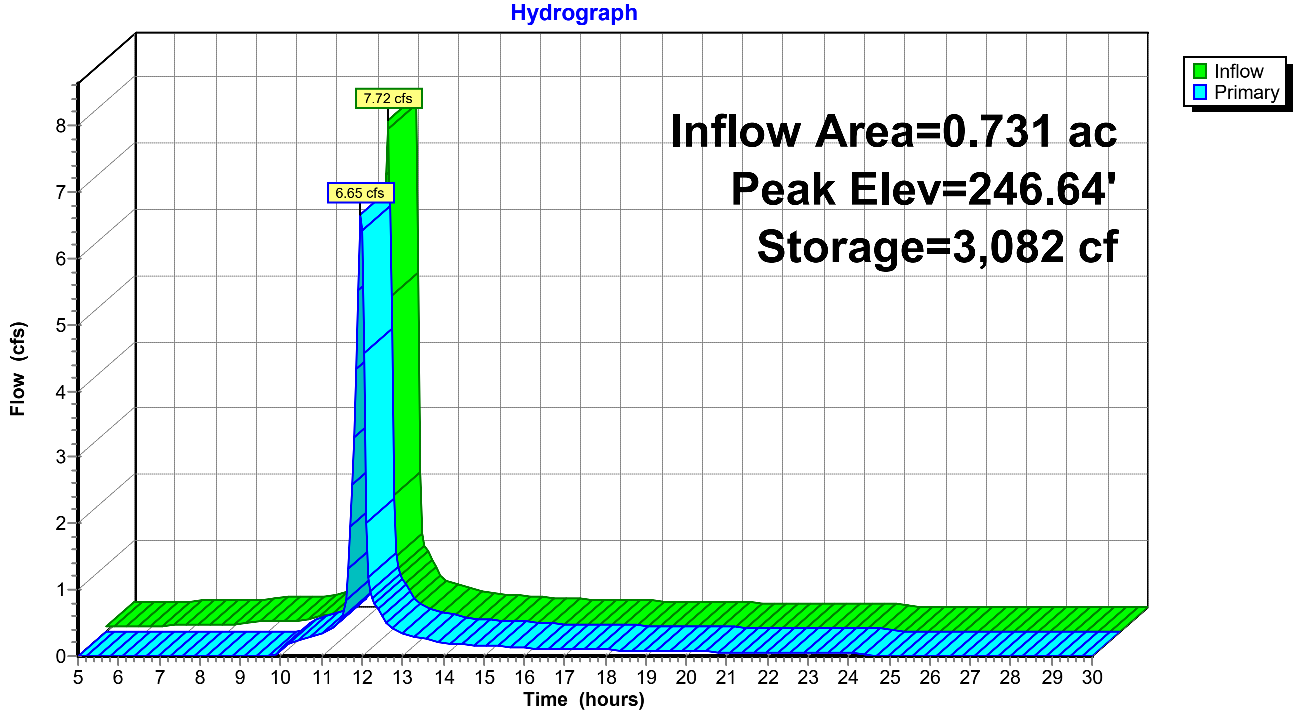
Pond PP2: PorousPavt



Pond SB1: SEDIMENTATION BASIN 1



Pond SB2: SEDIMENTATION BASIN 2



Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Trib 1 Runoff Area=9,127 sf 13.44% Impervious Runoff Depth=0.00"
Flow Length=76' Slope=0.0989 '/' Tc=4.6 min UI Adjusted CN=43 Runoff=0.00 cfs 0.000 af

Subcatchment 2: Trib 2 Runoff Area=10,000 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=183' Tc=8.0 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 3: Trib 3 Runoff Area=37,287 sf 100.00% Impervious Runoff Depth>0.98"
Flow Length=55' Slope=0.0150 '/' Tc=4.2 min CN=98 Runoff=1.43 cfs 0.070 af

Subcatchment 4: Trib 4 Runoff Area=31,832 sf 100.00% Impervious Runoff Depth>0.98"
Flow Length=303' Tc=3.5 min CN=98 Runoff=1.24 cfs 0.060 af

Subcatchment 5: Trib 5 Runoff Area=30,835 sf 100.00% Impervious Runoff Depth>0.98"
Flow Length=282' Slope=0.0067 '/' Tc=3.9 min CN=98 Runoff=1.19 cfs 0.058 af

Subcatchment 6: Trib 6 Runoff Area=8,925 sf 100.00% Impervious Runoff Depth>0.98"
Flow Length=441' Tc=4.0 min CN=98 Runoff=0.34 cfs 0.017 af

Reach R1: Reach 1 (Wash Ave) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach R2: Reach 2 (1395 Wash)
Outflow=0.00 cfs 0.000 af

Reach R3: Reach 3 (I-90) Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach R4: Reach 4 (Recharge to Groundwater) Inflow=0.07 cfs 0.040 af
Outflow=0.07 cfs 0.040 af

Pond IB 1: INFILTRATION BASIN Peak Elev=240.50' Storage=0 cf Inflow=0.07 cfs 0.040 af
Primary=0.07 cfs 0.040 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.040 af

Pond PP1: PorousPavt Peak Elev=246.75' Storage=0 cf Inflow=1.43 cfs 0.070 af
Outflow=1.43 cfs 0.070 af

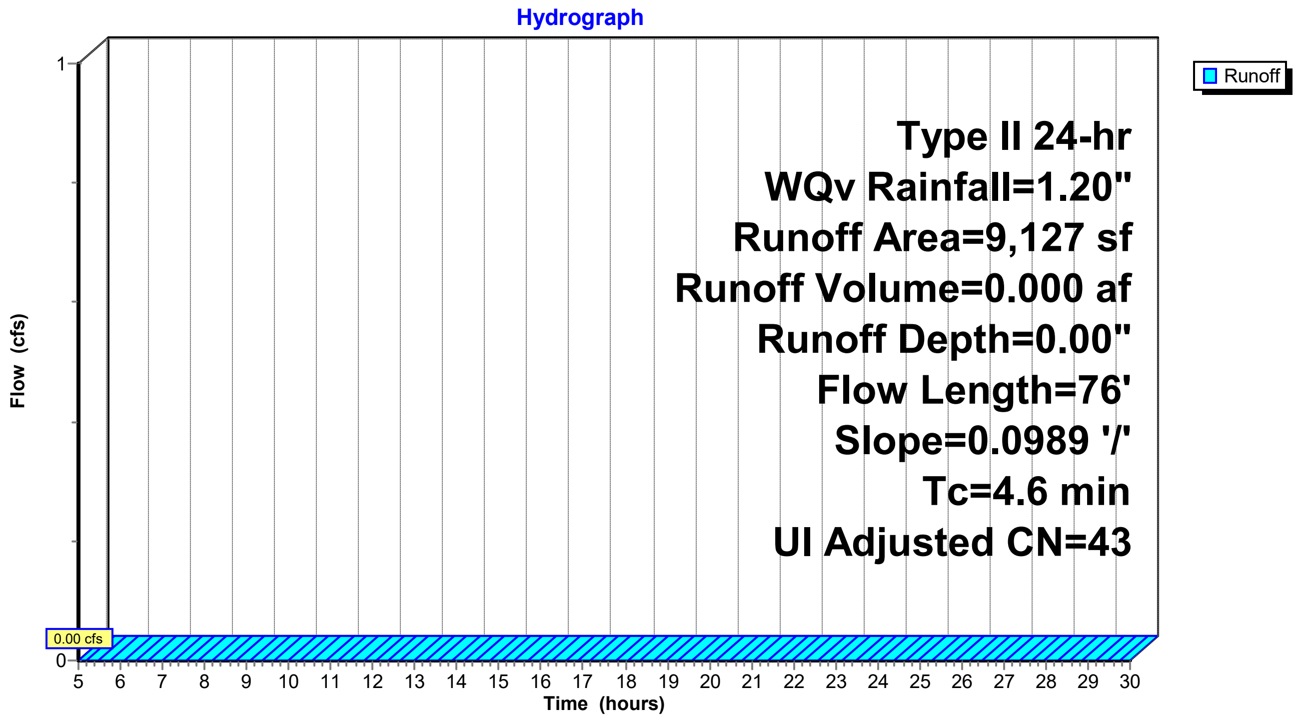
Pond PP2: PorousPavt Peak Elev=245.93' Storage=360 cf Inflow=0.34 cfs 0.017 af
Outflow=0.07 cfs 0.016 af

Pond SB1: SEDIMENTATION BASIN 1 Peak Elev=245.06' Storage=2,135 cf Inflow=1.19 cfs 0.058 af
Outflow=0.02 cfs 0.010 af

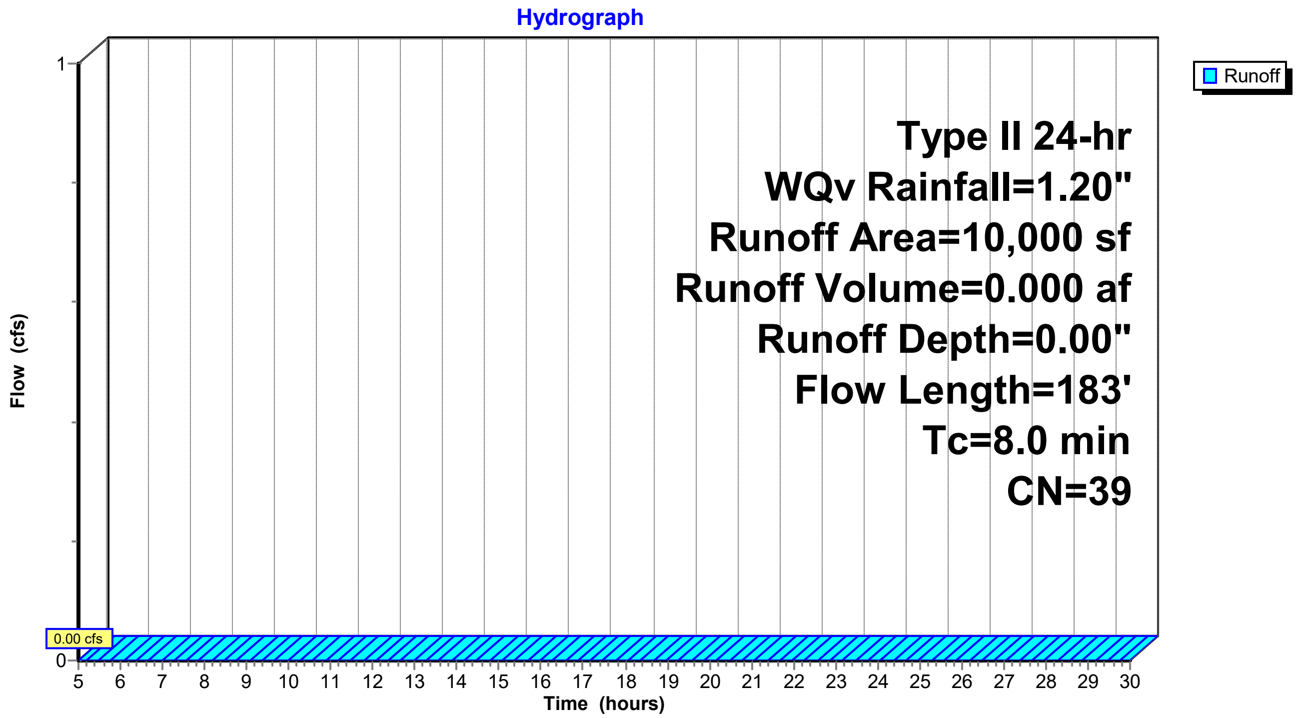
Pond SB2: SEDIMENTATION BASIN 2 Peak Elev=244.83' Storage=1,998 cf Inflow=1.24 cfs 0.060 af
Outflow=0.03 cfs 0.015 af

Total Runoff Area = 2.939 ac Runoff Volume = 0.204 af Average Runoff Depth = 0.83"
13.98% Pervious = 0.411 ac 86.02% Impervious = 2.528 ac

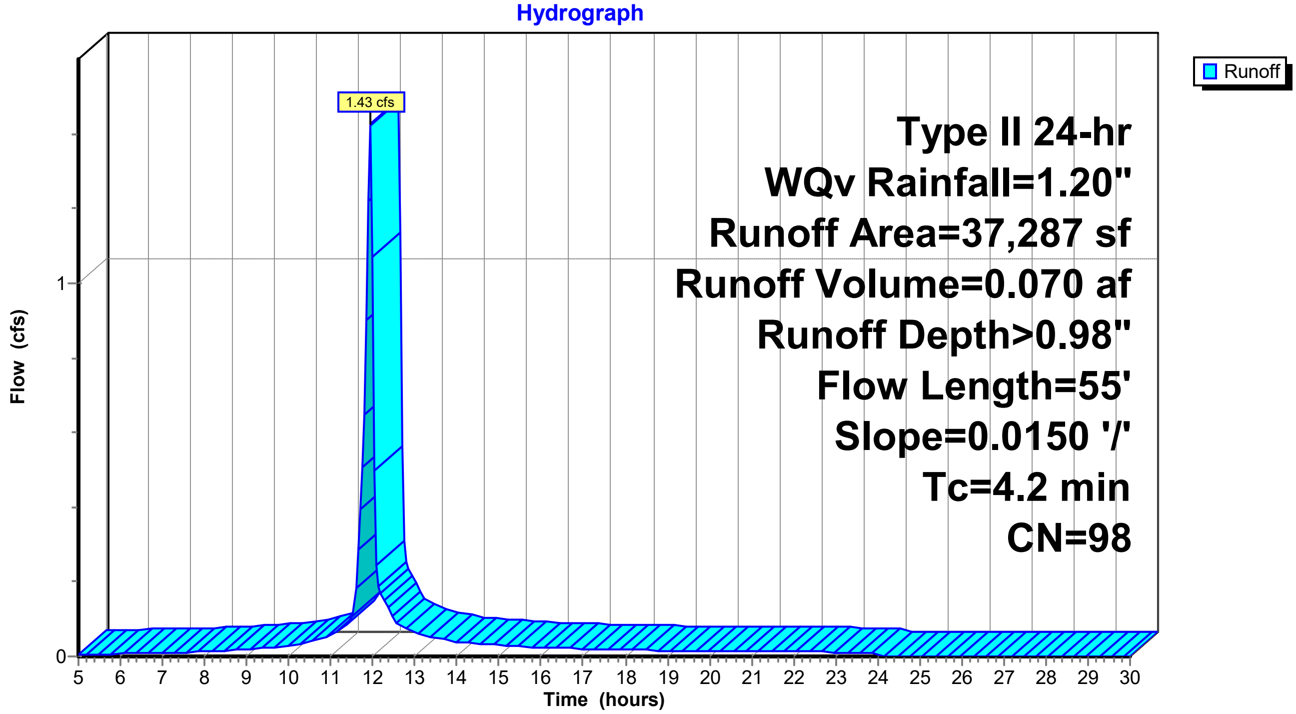
Subcatchment 1: Trib 1



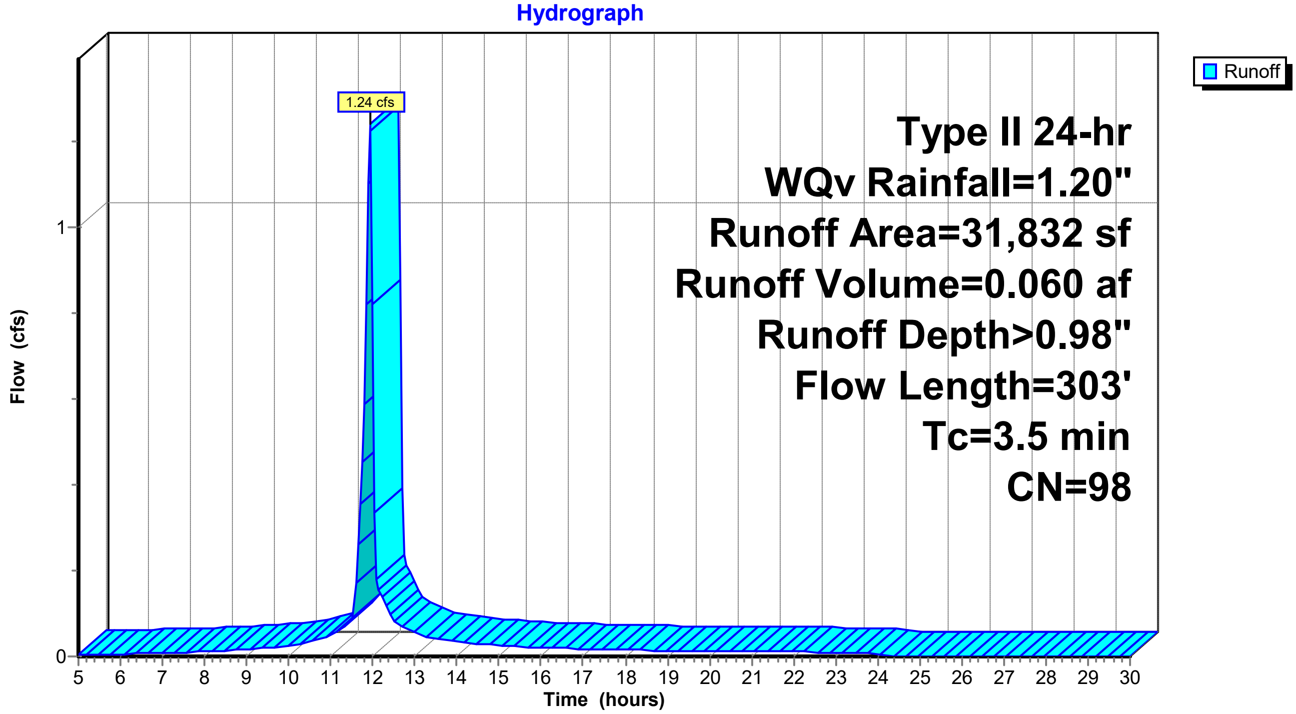
Subcatchment 2: Trib 2



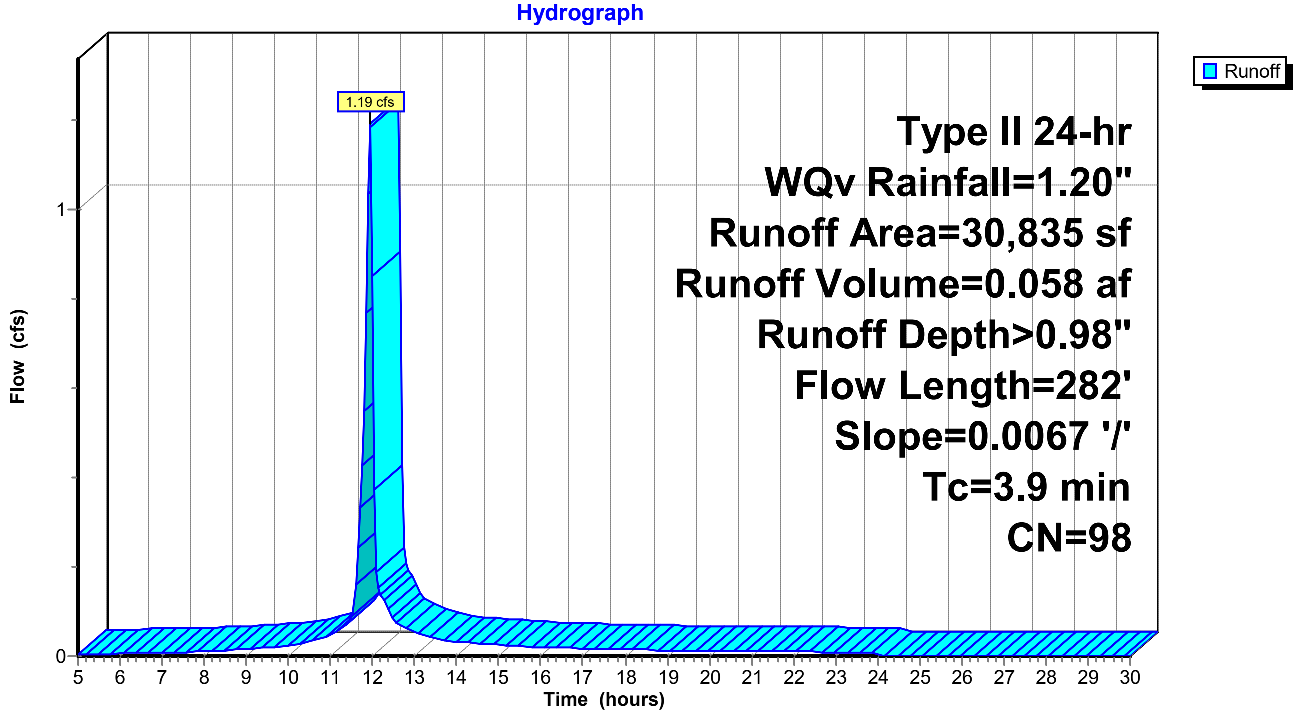
Subcatchment 3: Trib 3



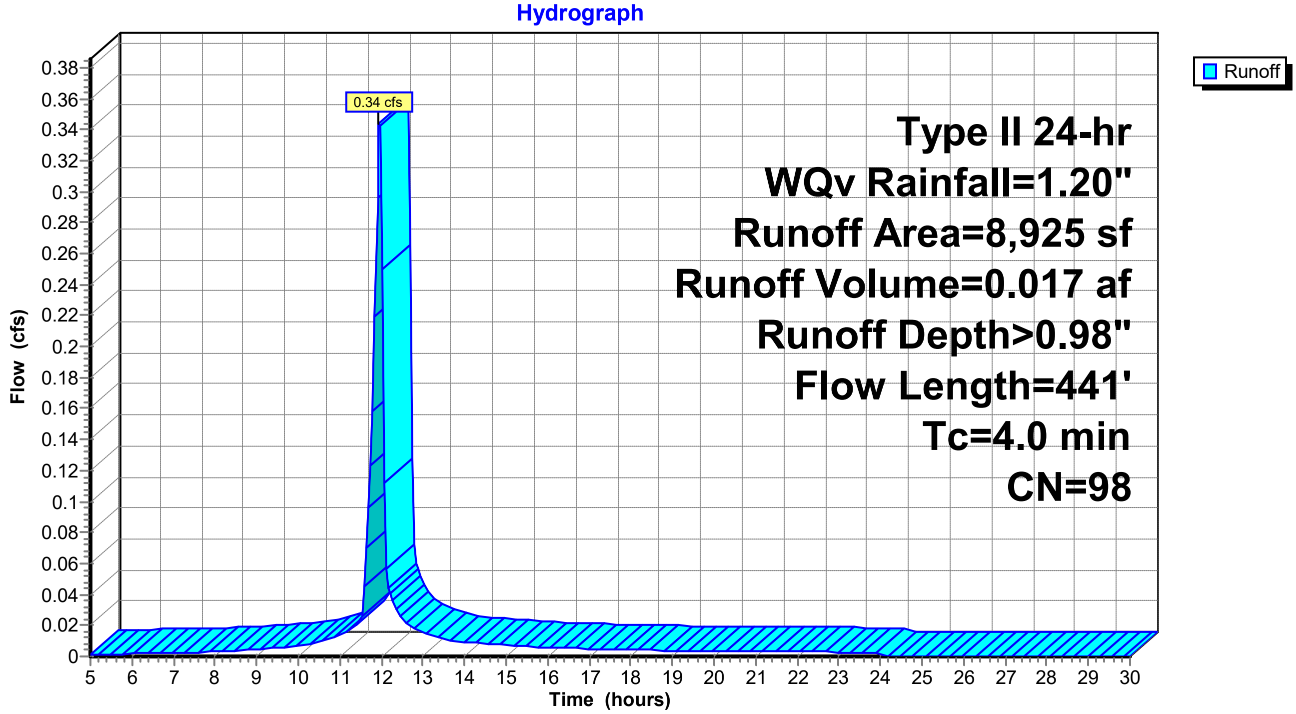
Subcatchment 4: Trib 4



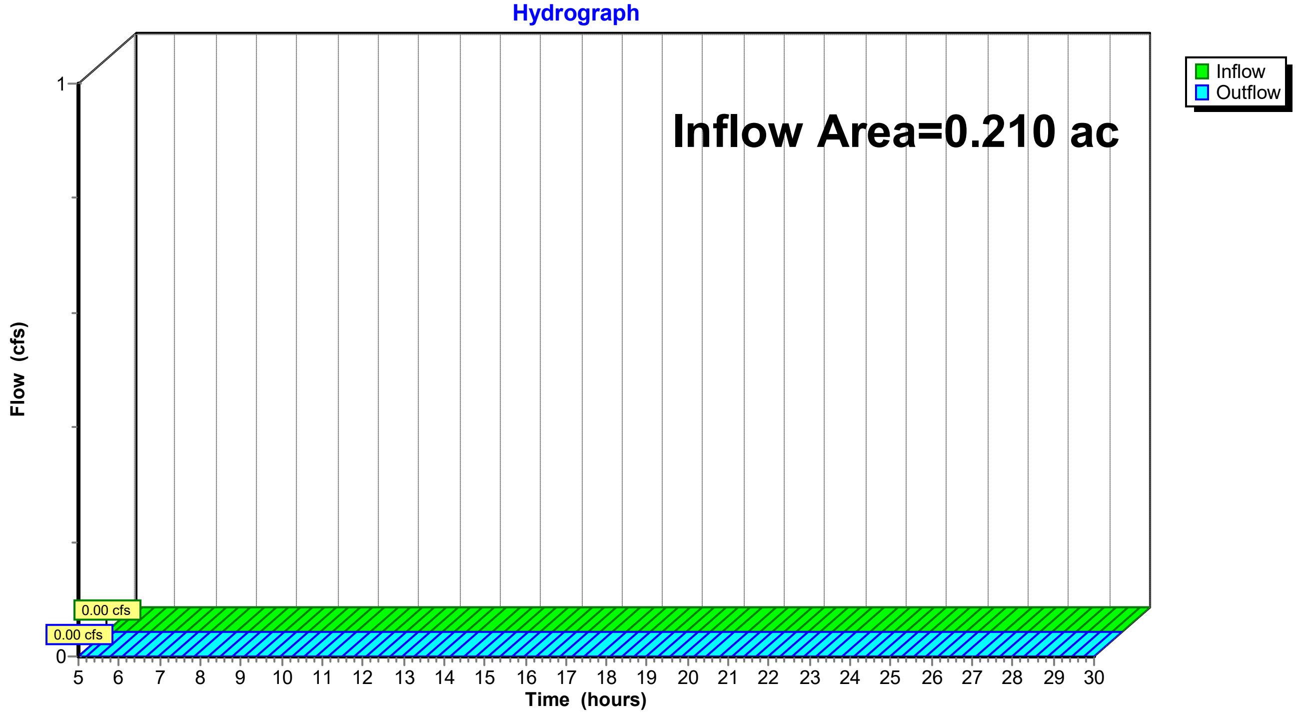
Subcatchment 5: Trib 5



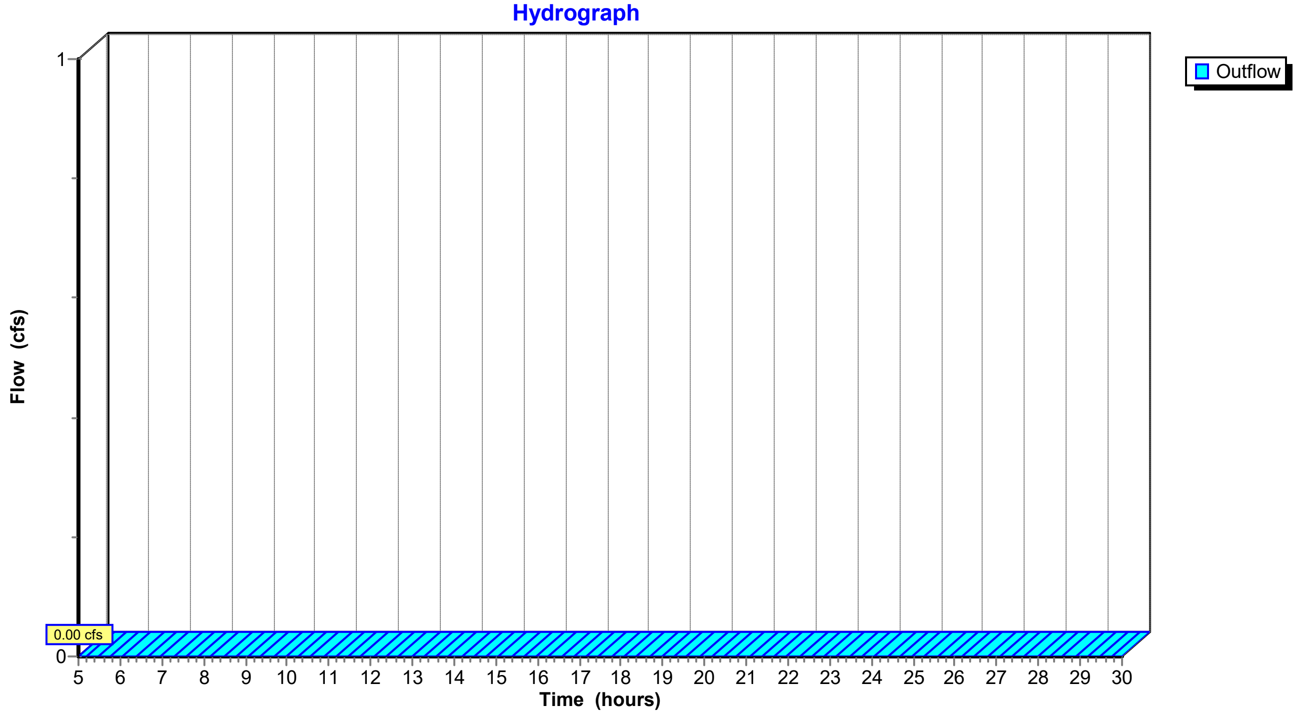
Subcatchment 6: Trib 6



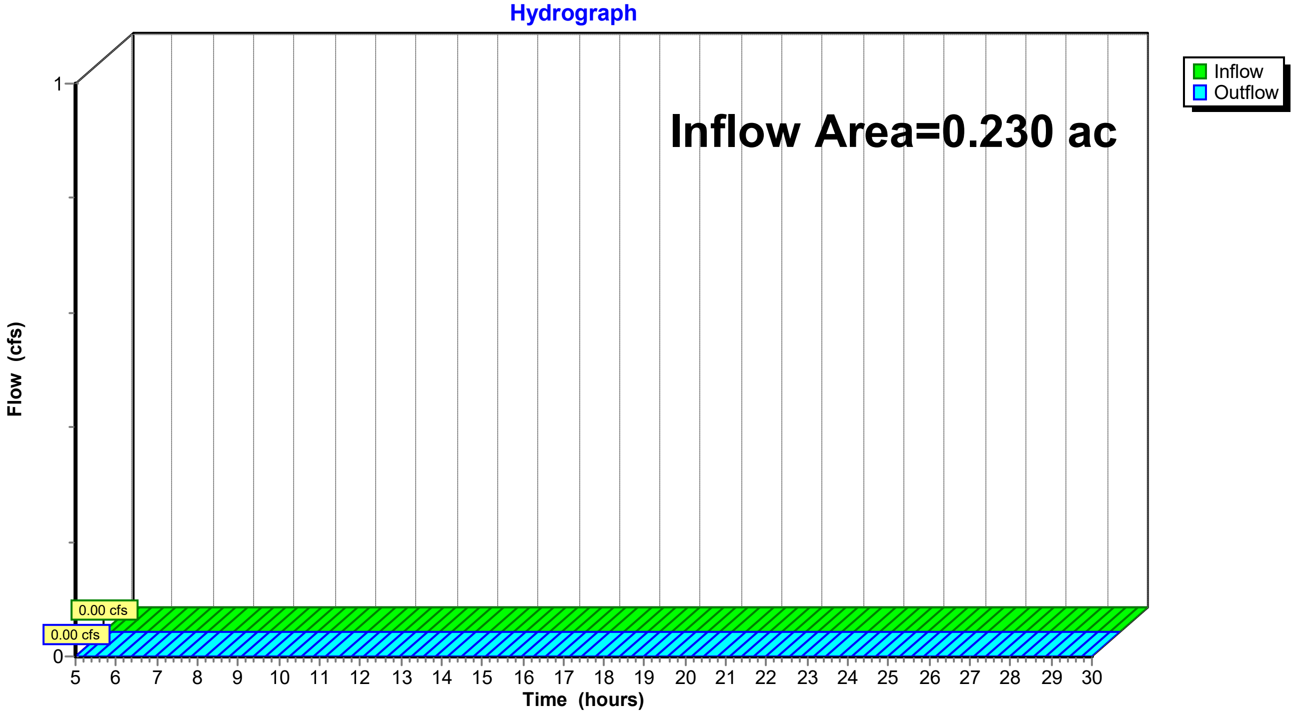
Reach R1: Reach 1 (Wash Ave)



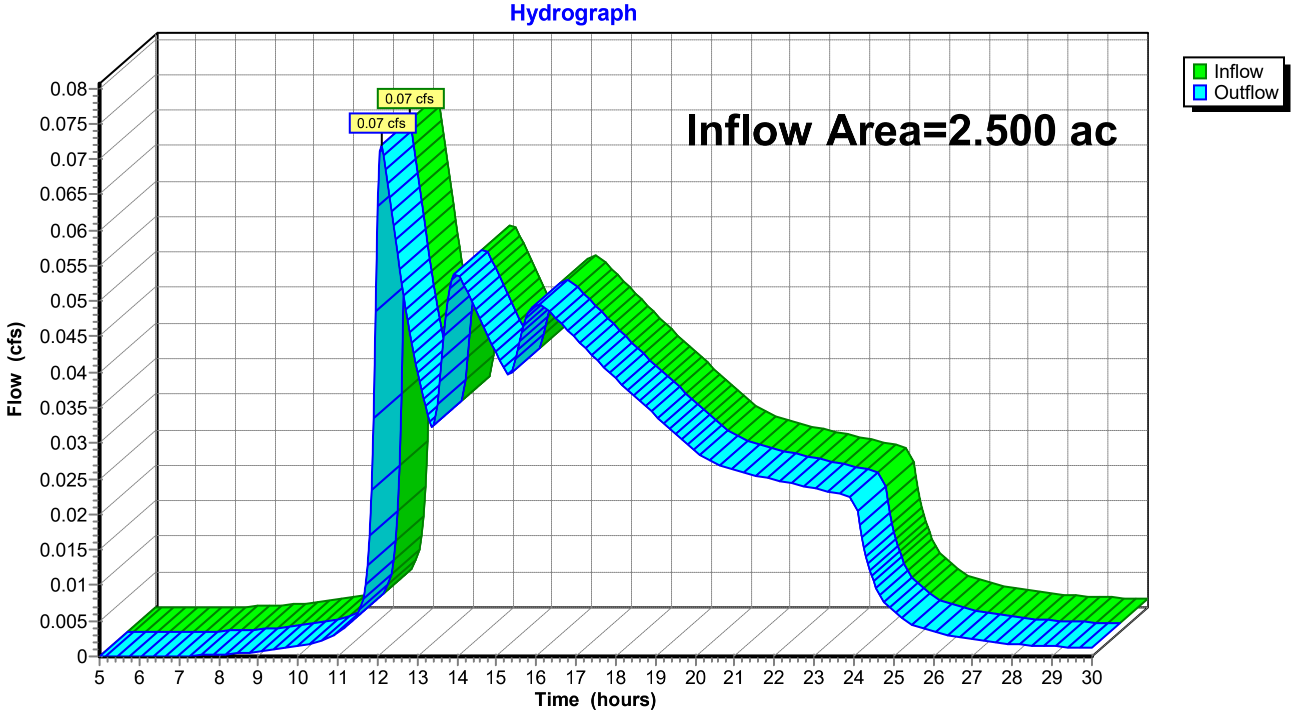
Reach R2: Reach 2 (1395 Wash)



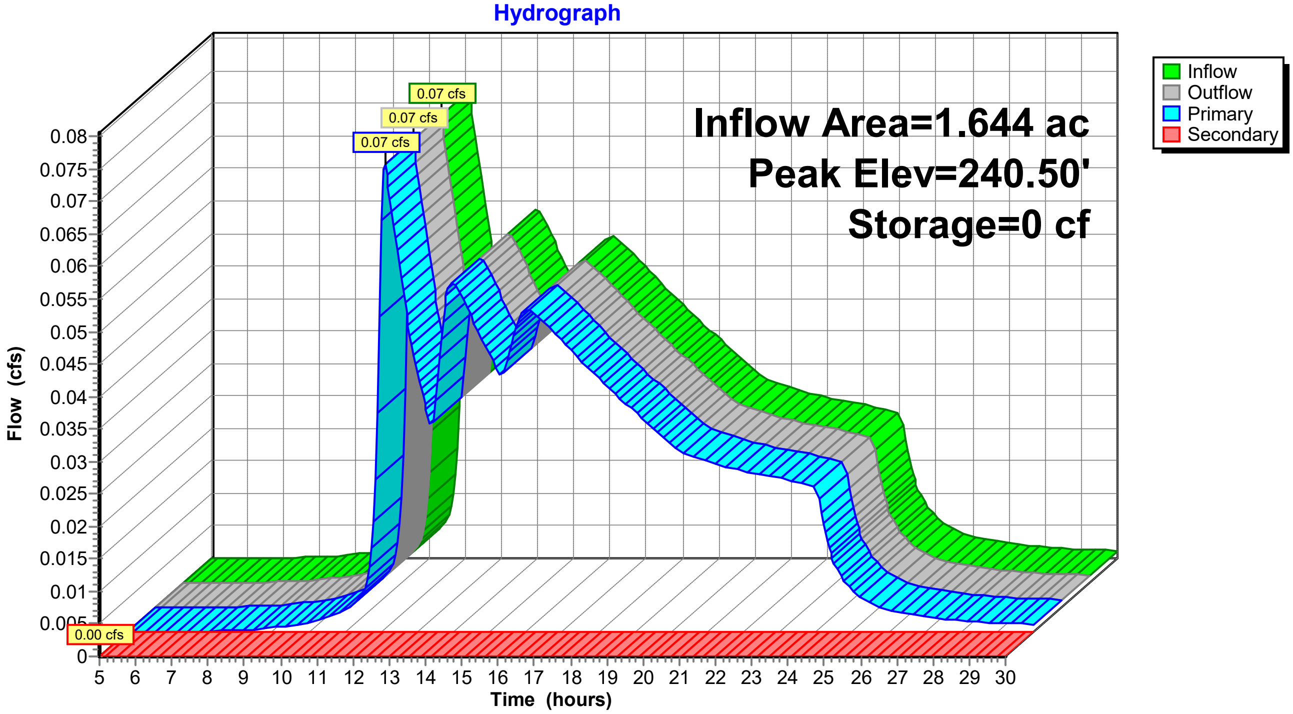
Reach R3: Reach 3 (I-90)



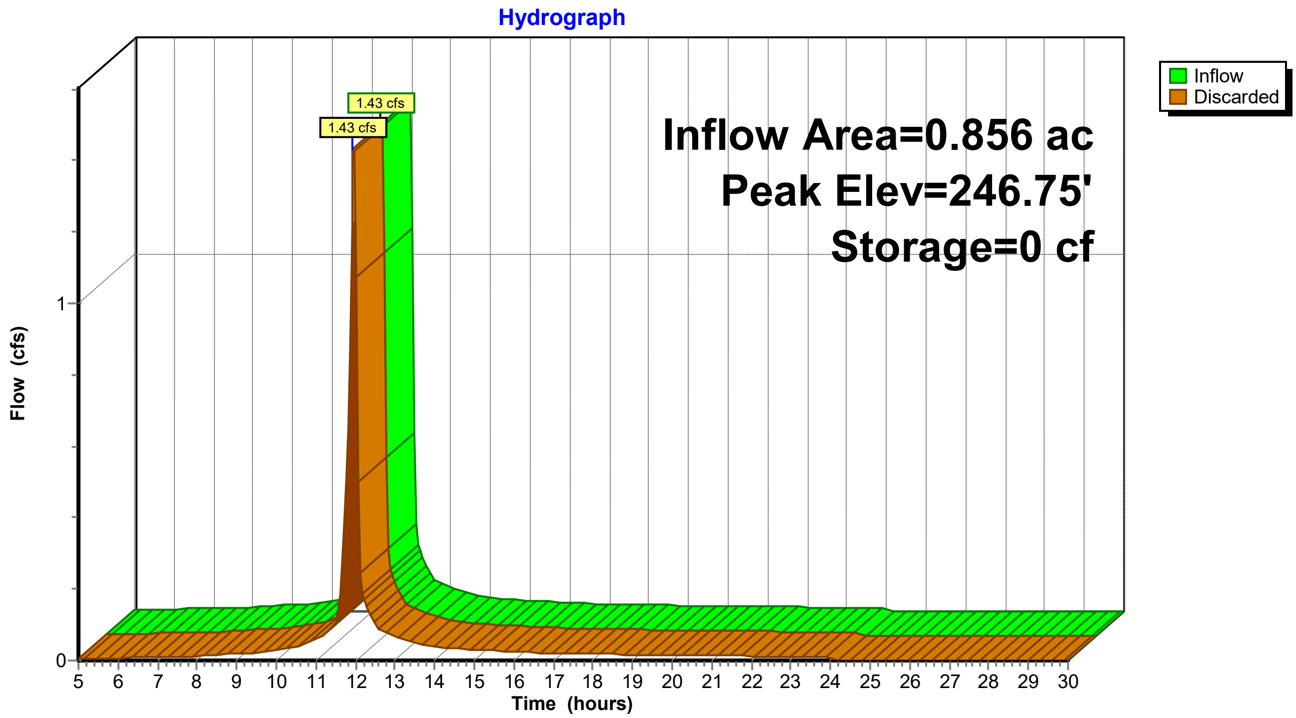
Reach R4: Reach 4 (Recharge to Groundwater)



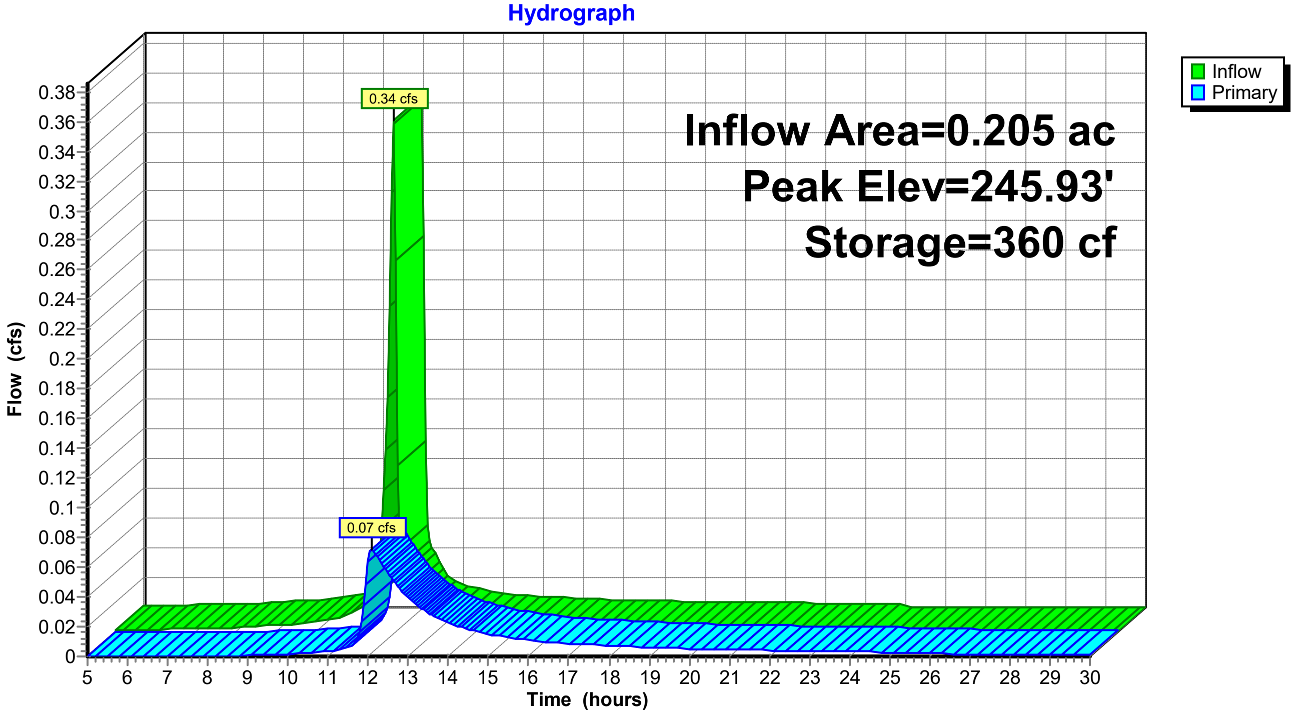
Pond IB 1: INFILTRATION BASIN



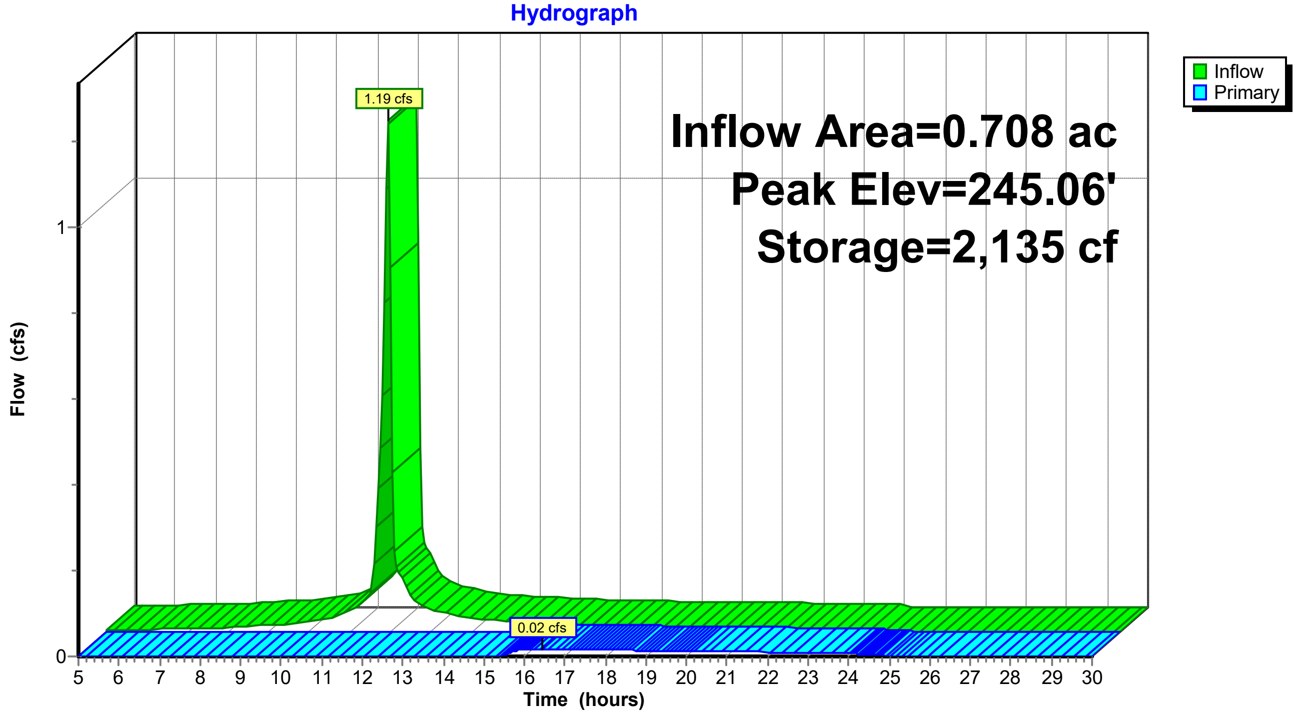
Pond PP1: PorousPavt



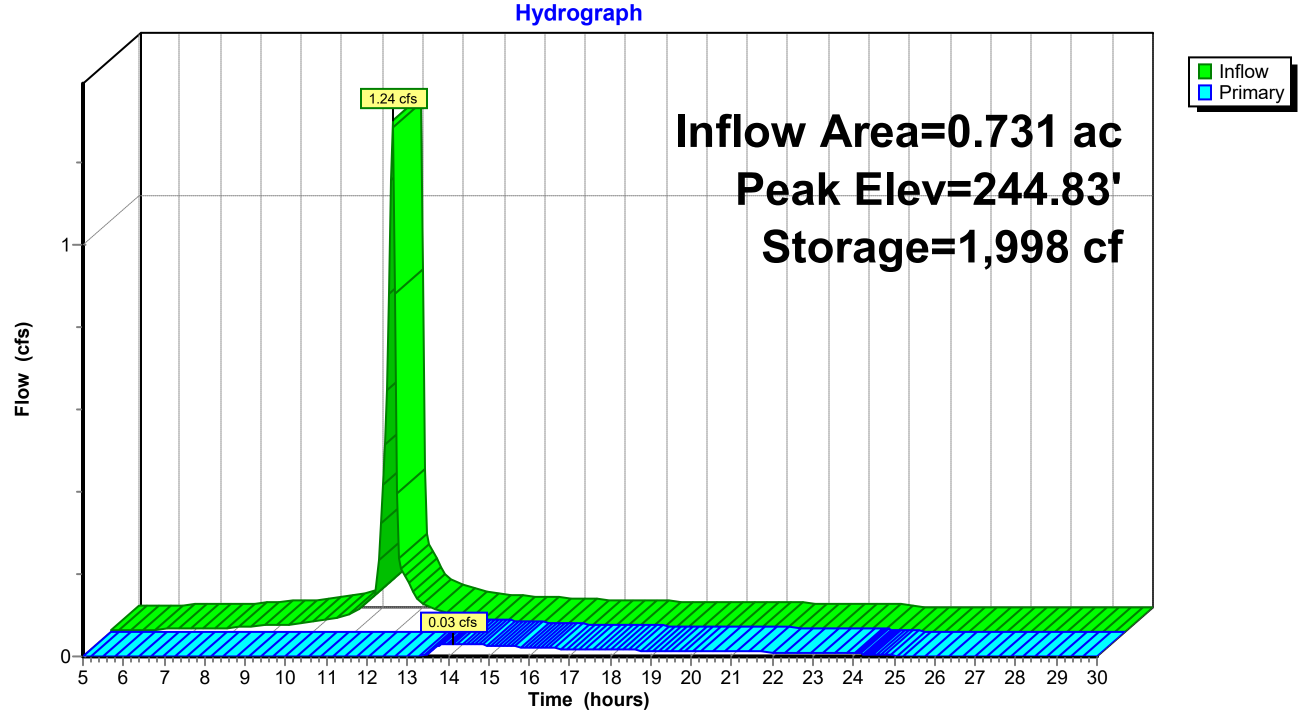
Pond PP2: PorousPavt



Pond SB1: SEDIMENTATION BASIN 1



Pond SB2: SEDIMENTATION BASIN 2



APPENDIX #6

MAINTENANCE PLAN

Facility Owner (Responsible Party):
1415 Washington Property LLC
Liberty Plaza #2800
New York, NY 10006

The facility owner will be responsible to provide capital funding for this facility. The source will be from infrastructure funds set aside for construction. On an annual basis the responsible party will budget funds to fund the annual operating and maintenance costs. The facility owner must maintain all drainage facilities, stormwater quantity control facilities and all stormwater quality control facilities in accordance with approved plans and with this maintenance manual. Complete inspection form and retain with SWPPP. Inspection may be performed by a Qualified Inspector or a Qualified Professional. The Qualified Inspector is defined in GP #0-20-001 as follows:

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s). It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years. It can also mean a person that meets the *Qualified Professional qualifications in addition to the Qualified Inspector qualifications.*

The Qualified Professional is defined in GP #0-20-001 as follows:

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics in order to prepare a SWPPP that conforms to the Department's technical standard. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

The elements of this SWPPP which require inspection include:

Overall Function of discharge structure and porous pavement
This inspection includes pipe from roof drains to the drywell sections and underdrain pipes from the dry well. Also examine the quality of vegetation cover. If vegetation is not in healthy condition report to owner and schedule another site visit after vegetation is restored to required levels.

Vegetation cover within the tributary area. The inspection shall verify that on lawns or other seeded areas that vegetation covers a minimum of 90% of the exposed ground. Other areas such as mulch beds or landscaped areas shall be inspected to verify that proper mulching is in place.

Housekeeping Section – This section describes items requiring regular checking and should be conducted on a daily basis.

Daily inspection.
Debris cleanup – Remove and dispose of all debris encountered on parking area, on lawn areas or in area adjacent to public right-of-way.

Materials storage – Verify that all materials identified in the Housekeeping Section have been properly stored.

Winter Conditions and Transition Periods - Follow winter conditions for construction between November 15th and April 1st.. After April 1st during spring thaw, if ground remains unstabilized extend winter conditions. Prior to November 15th, if freezing occurs and ground remains unstabilized extend winter conditions.

Oil & Grease – Any visible oil and grease shall be treated with proper materials to capture residue. Remove any materials from the site. If possible, determine cause of accumulation of oil & grease and address these.

Monthly inspection or inspection after every significant rainfall (0.5 inches in 24 hours) shall determine whether the following benchmarks are reached in which case appropriate action shall be taken.

Condition of vegetation –Areas with seeded lawns should be maintained in accordance with good cultural practices. Mow and remove clippings if required. Dead or diseased plant material shall be replaced.

Annual inspection shall determine whether the benchmarks listed in the checklist are met.

Operation, Maintenance and Management Inspection Checklist
(Complete in 2 Pages)

Project: Student Housing Project
Location: 1415 Washington Avenue
City of Albany, Albany County, NY
Date: ______________________________
Time: __________
Inspector: ______________________________

MAINTENANCE ITEM	SATISFACTORY(S)/ UNSATISFACTORY(U)	COMMENTS
DAILY		
1. Cleanup		
Contributing areas clean of debris	☐ **(S)** ☐ **(U)**	
2. Oil and Grease (Monthly)		
Keep Pavement area free of of oil & grease	☐ **(S)** ☐ **(U)**	
3. Vegetation Control (Monthly)		
Keep drainage area stabilized	☐ **(S)** ☐ **(U)**	
No evidence of erosion	☐ **(S)** ☐ **(U)**	
Area mowed and clipping removed	☐ **(S)** ☐ **(U)**	
4. Dry Wells and Pipes (Annual)		
Structure, Top & Frame in Good Cond.	☐ **(S)** ☐ **(U)**	
Silt build up less than 6 inches	☐ **(S)** ☐ **(U)**	
Vacuum clean if silt build up greater than 6 inches	☐ **(S)** ☐ **(U)**	
5. Winter Conditions and Transition Periods (Daily)		
Follow winter conditions for construction between November 15th and April 1st	☐ **(S)** ☐ **(U)**	
After April 1st during spring thaw, if ground remains unstabilized extend winter conditions	☐ **(S)** ☐ **(U)**	
Prior to November 15th, if freezing occurs and ground remains unstabilized extend winter conditions	☐ **(S)** ☐ **(U)**	

6. Porous Pavement (Spring, Summer & Fall)

Vacuum sweep porous pavement to remove salt deposits
and any fines deposited during winter
(Minimum is once a year) ☐ **(S)** ☐ **(U)**

High-pressure hosing to free pores **only if required** evidenced by deposits
are still visible after vacuum cleaning ☐ **(S)** ☐ **(U)**

Inspect Porous Pavement for any
evidence of failure ☐ **(S)** ☐ **(U)**

Comments:

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Actions to be Taken:

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Date of Inspection ______________

APPENDIX #7

MAINTENANCE AGREEMENT

STORMWATER MANAGEMENT SYSTEM MAINTENANCE AGREEMENT
1415 Washington Avenue

THIS AGREEMENT ("Agreement") is made and entered into on the ___ day of , 2020, by and between 1415 Washington Property LLC with an address at Liberty Plaza #2800 New York, NY 10006 (hereinafter referred to as the "Facility Owner"), and

CITY OF ALBANY, a municipal corporation with an address at 24 Eagle Street, Albany, New York 12207 (hereinafter referred to as the "City").

WITNESSETH:

WHEREAS, the Facility Owner is the owner of the subject parcel of land in the City of Albany, County of Albany and State of New York as more particularly located at 1415 Washington Avenue, Albany New York.

WHEREAS, the City and the Facility Owner desire that the stormwater management system be built in accordance with the approved project documents and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components; and

WHEREAS, the City has requested this legally binding and enforceable maintenance agreement from the Facility Owner; and

WHEREAS, the Facility Owner is representing the following design documents, with their City approved revisions, as containing all necessary information to construct, operate and maintain the stormwater management system for the lifetime of the facility:

a. Plan set submitted to the City representing a stormwater management system including stormwater collection, conveyance and storage using structures designed and specified by Hershberg & Hershberg, Consulting Engineers, sealed by Daniel R. Hershberg, P.E., as the Engineer of Record. The plan sheets showing features associated with the stormwater management system are listed below.

Sheet#	Date	Drawing Title
C-1	1/24/20 Rev: 10/16/20	Existing Conditions and Demolition Plan
C-2	1/24/20 Rev: 10/16/20	Site Plan
C-3	1/24/20 Rev: 10/16/20	Water Main Plan/Profile and Details
C-4	1/24/20 Rev: 10/16/20	Sanitary Sewer Plan/Profile and Details
C-5	1/24/20 Rev: 10/16/20	SWPPP Plan and Details
C-6	1/24/20 Rev: 10/16/20	Erosion and Sediment Control Plan
C-7	1/24/20 Rev: 10/16/20	Landscaping Plan
C-8	1/24/20 Rev: 10/16/20	Erosion and Sediment Control Details
C-9	1/24/20 Rev: 10/16/20	Site Details
C-10	1/24/20 Rev: 10/16/20	Lighting Plan

b. *STORM WATER POLLUTION PREVENTION PLAN (SWPPP) & STORM WATER MANAGEMENT REPORT (SWMR)*, 1415 Washington Avenue Student Housing prepared by Hershberg & Hershberg, Consulting Engineers and Land Surveyors, dated October 12, 2020,

IN CONSIDERATION THEREOF, the parties agree as follow:

1. The Facility Owner shall be responsible for maintaining the storm water facility in a manner to prevent silt from becoming tributary to the City's storm water drainage system.

2. Operation and maintenance, including inspection and cleaning of the full storm water drainage system, shall be the responsibility of the Facility Owner.

3. In the event the Facility Owner fails to maintain the system in a manner to control storm water the City may order the system cleaned and bill the Facility Owner the full cost of this work at labor cost (direct labor plus 50% salary burden) and materials (at cost) if work is performed by the Department of Water & Water Supply; or the cost of a subcontractor plus 10% of the subcontractor’s bill if the Department of Water & Water Supply obtains a subcontractor to perform the work. Invoices are payable to the Department of Water & Water Supply within ten (10) business days from the date of invoice. In the event payment for costs is not received within said ten (10) day period, the Department of Water & Water Supply shall have the right to file a lien in the amount of the invoice, together with reasonable costs of collection incurred in connection therewith, against the property of the Facility Owner.

4. The City has the right to access the premises for periodic inspections and to perform any maintenance of the stormwater system.

5. The Facility Owner shall disclose this Agreement to any successor or assignees in interest.

6. This Agreement is binding on the Facility Owner and any successor or assignees in interest hereof.

7. Facility Owner agrees to defend, indemnify, and save harmless the CITY and its officers, employees and agents, from and against all claims, actions, causes of action, injuries, damages, losses, liabilities, and expenses (including, without limitation, reasonable attorney's fees and court costs) arising out of, or in consequence of, any negligent or intentional act or omission of Facility Owner to the extent of its or their responsibility for such claims, actions, causes of action, injuries, damages, losses, liabilities, and expenses. The provisions of this Article shall survive any termination or expiration of this Agreement.

[Signatures on next page]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be signed by their duly authorized officers as of the day and year first above written.

CITY OF ALBANY, NEW YORK

BY:________________________
KATHY M. SHEEHAN
MAYOR, CITY OF ALBANY

REHABILITATION SUPPORT SERVICES, INC.

BY______________________-

STATE OF NEW YORK)
) ss.:
COUNTY OF ALBANY)

On the _ day of________________ , 202_, before me the undersigned, a Notary Public in and for said State, personally appeared _____________________ , personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or person upon behalf of which the individual acted, executed the instrument.

____
Notary Public

STATE OF NEW YORK)
) ss.:
COUNTY OF__________-)

On the _ day of________________ , 202_, before me the undersigned, a Notary Public in and for said State, personally appeared _____________________ , personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or person upon behalf of which the individual acted, executed the instrument.

____
Notary Public

APPENDIX #8

SPILL RESPONSE PLAN

SPILL RESPONSE PLAN

1415 Washington Avenue

In addition to the good housekeeping and material management practices discussed in relevant sections of this plan, the following practices will be implemented for spill prevention and cleanup:

Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies. Any spill in excess or suspected to be in excess of two gallons will be reported to the

NYSDEC Spill Response Unit. Notification to NYSDEC (1-800-457- 7362) must be completed within two hours of the discovery of the spill.

Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to: absorbent pads, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

All spills will be cleaned up immediately after discovery.

The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with spilled substance.

Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size.

The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

The contractor/trained individual will be the spill prevention and cleanup coordinator. He will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area on the onsite construction office or trailer.

A Spill Response Report notification are provided below.

SPILL RESPONSE REPORT

1415 Washington Avenue

Within 1 hour of a spill discovery less than 2 gallons in volume the following must be notified:

1415 Washington Property LLC, 914-879-2005

City of Albany, Randy Milano, P.E., City Engineer, 518-427-7481

City of Albany, Neil O'Connor, P.E., 518-434-5300

Within 1 hour of a spill discovery greater than 2 gallons in volume the following must be notified:

NYSDEC Spill Response Hotline 800-457-7362

1415 Washington Property LLC, 914-879-2005

City of Albany, Randy Milano, P.E., City Engineer, 518-427-7481

City of Albany, Neil O'Connor, P.E., 518-434-5300

Spill Response Contractor, *To Be Designated*

ATTACHMENT NO. 1

SPDES PERMIT #GP-0-20-001

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM
CONSTRUCTION ACTIVITIES**

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* ("SWPPP") the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

(i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;

(ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

(iii) *Minimize* the amount of soil exposed during *construction activity*;

(iv) *Minimize* the disturbance of *steep slopes*;

(v) *Minimize* sediment *discharge*s from the site;

(vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

(vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

(viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

(ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **<u>not</u>** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

    a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

        - 1-5 acres of disturbance - 20 feet
        - 5-20 acres of disturbance - 50 feet
        - 20+ acres of disturbance - 100 feet, or

    b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
        (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
        (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
        (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
        (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

    c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

(ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

(iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land* *use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, <u>in writing,</u> of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* <u>and</u> all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, <u>with the exception of</u>:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

   c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; <u>and</u> all areas of disturbance have achieved *final stabilization*; <u>and</u> all temporary, structural erosion and sediment control measures have been removed; <u>and</u> all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

<u>All definitions in this section are solely for the purposes of this permit.</u>

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres: • Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E • Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E • Construction of a barn or other *agricultural building*, silo, stock yard or pen.
The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land: All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
The following construction activities that involve soil disturbances of one (1) or more acres of land: • Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains • Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects • Pond construction • Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover • Cross-country ski trails and walking/hiking trails • Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development; • Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path. • Slope stabilization projects • Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* <u>and</u> do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

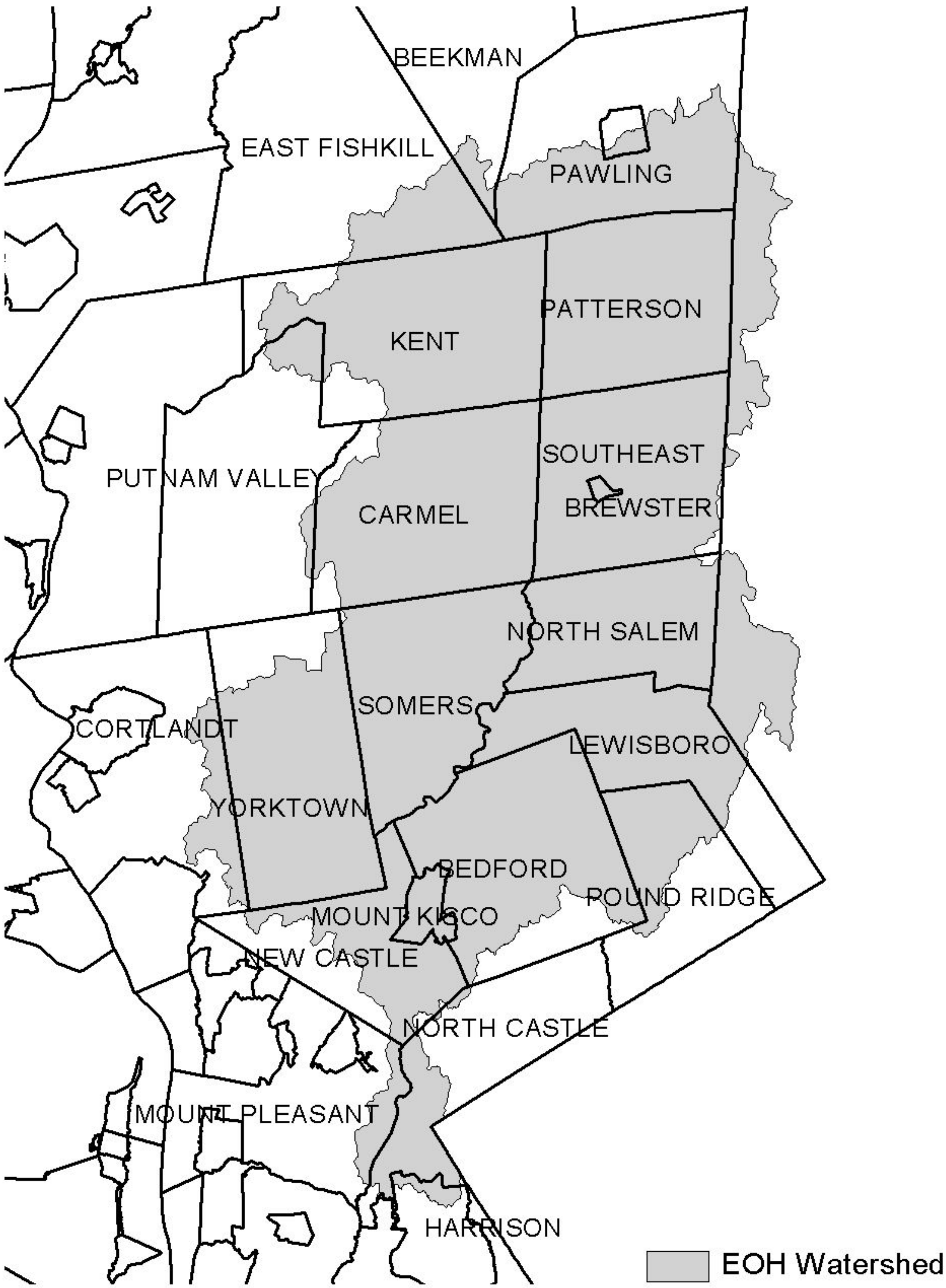


Figure 2 - Onondaga Lake Watershed

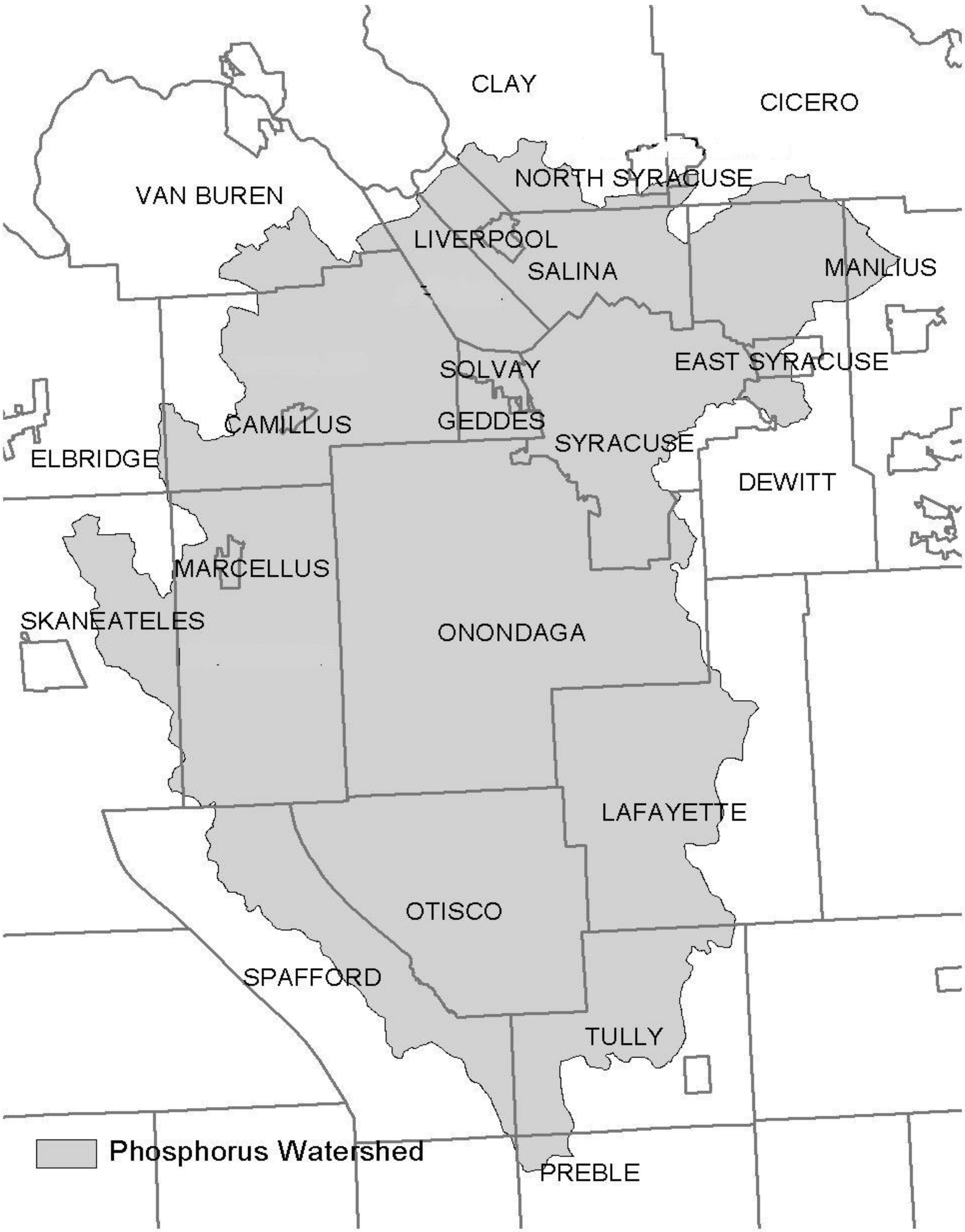


Figure 3 - Greenwood Lake Watershed

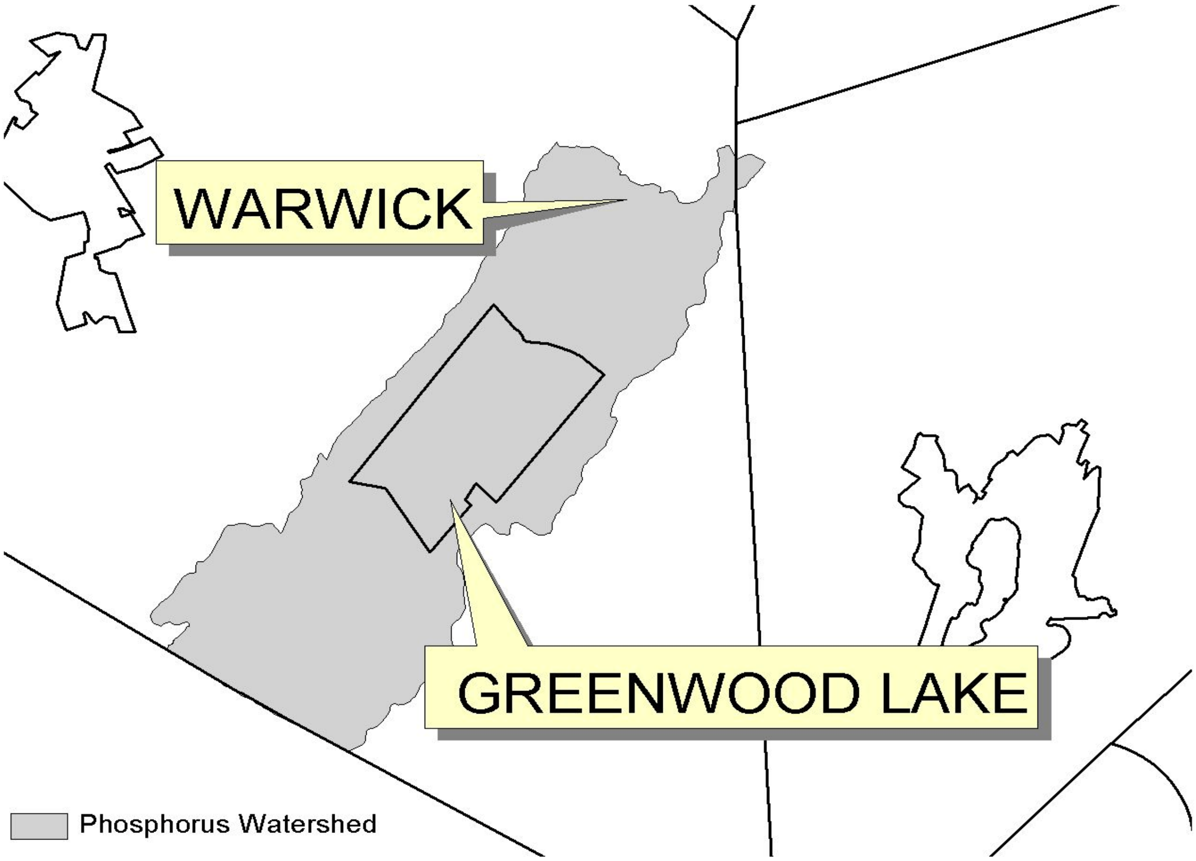


Figure 4 - Oscawana Lake Watershed

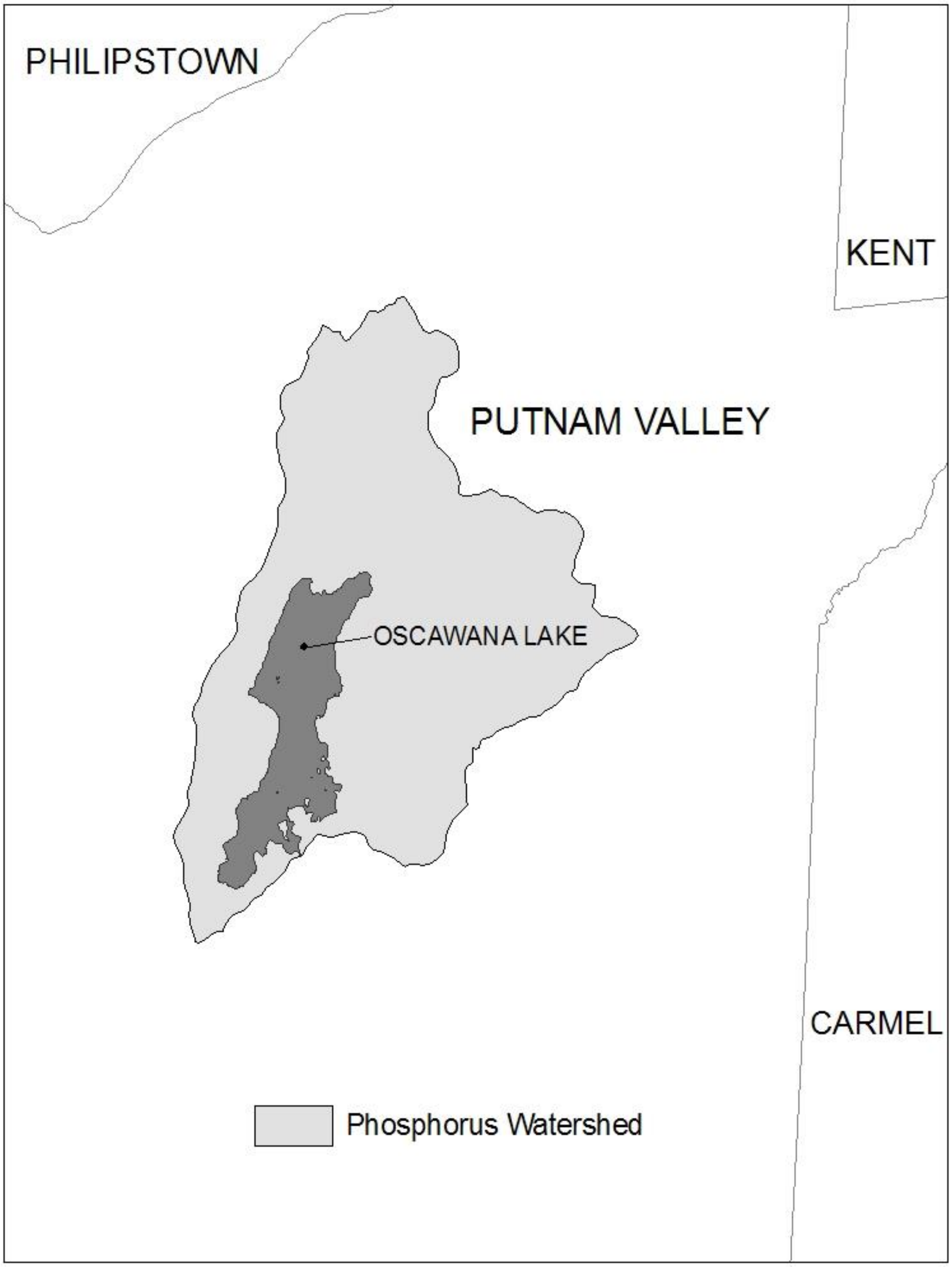
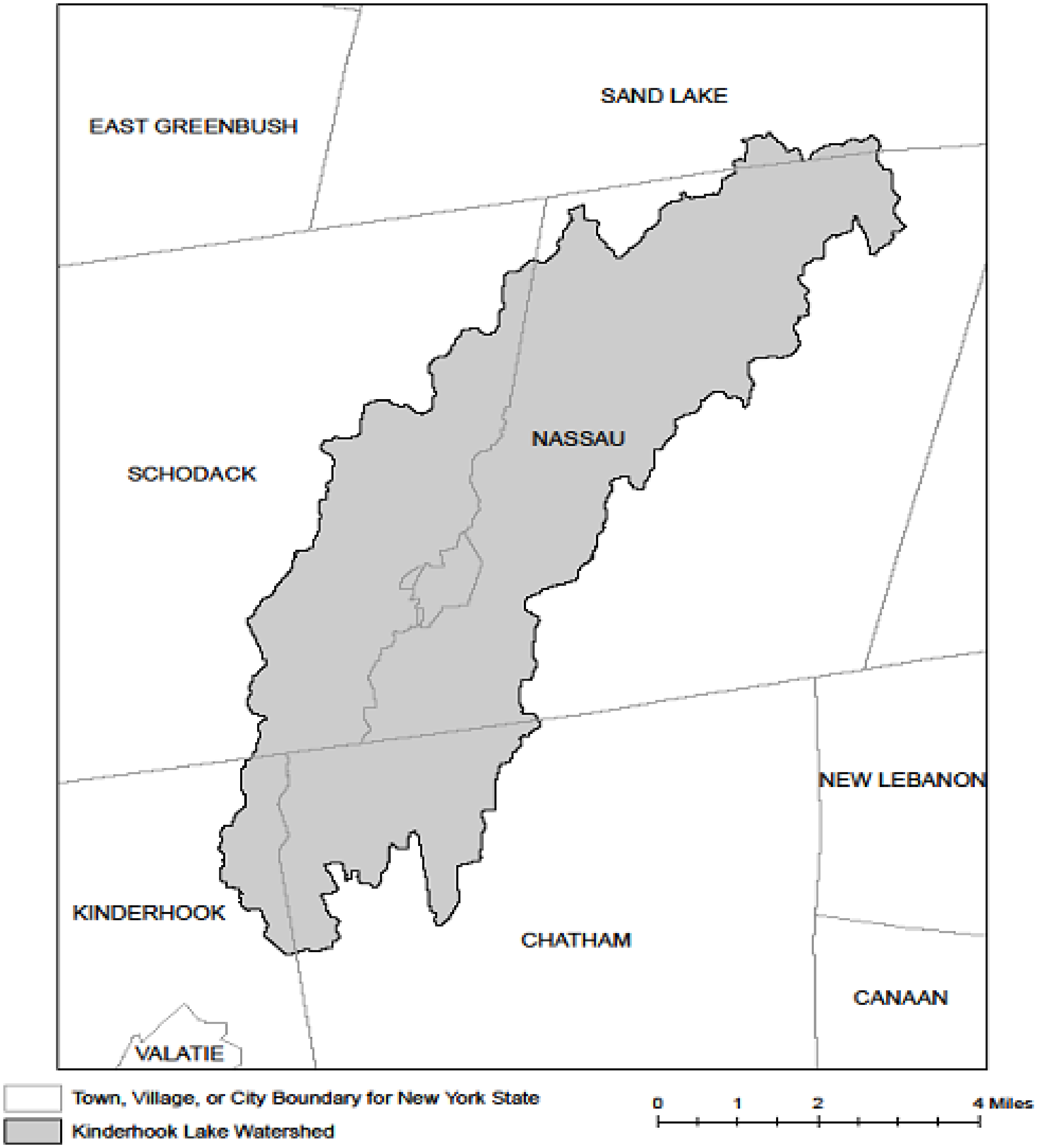


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	COVERING THE FOLLOWING COUNTIES:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS	DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, PO BOX 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

ATTACHMENT NO. 2

DEEP RIPPING & DECOMPACTION (APRIL 2008)

New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

Deep-Ripping and Decompaction

April 2008

New York State
Department of Environmental Conservation

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NYS Dept. of Agriculture & Markets)

Alternative Stormwater Management
Deep-Ripping and Decompaction

Description

The two-phase practice of 1) "Deep Ripping;" and 2) "Decompaction" (deep subsoiling), of the soil material as a step in the cleanup and restoration/landscaping of a construction site, helps mitigate the physically induced impacts of soil compression; i.e.: soil compaction or the substantial increase in the bulk density of the soil material.

Deep Ripping and Decompaction are key factors which help in restoring soil pore space and permeability for water infiltration. Conversely, the physical actions of cut-and-fill work, land grading, the ongoing movement of construction equipment and the transport of building materials throughout a site alter the architecture and structure of the soil, resulting in: the mixing of layers (horizons) of soil materials, compression of those materials and diminished soil porosity which, if left unchecked, severely impairs the soil's water holding capacity and vertical drainage (rainfall infiltration), from the surface downward.

In a humid climate region, compaction damage on a site is virtually guaranteed over the duration of a project. Soil in very moist to wet condition when compacted, will have severely reduced permeability. Figure 1 displays the early stage of the deep-ripping phase (Note that all topsoil was stripped prior to construction access, and it remains stockpiled until the next phase – decompaction – is complete). A heavy-duty tractor is pulling a three-shank ripper on the first of several series of incrementally deepening passes through the construction access corridor's densely compressed subsoil material. Figure 2 illustrates the approximate volumetric composition of a loam surface soil when conditions are good for plant growth, with adequate natural pore space for fluctuating moisture conditions.

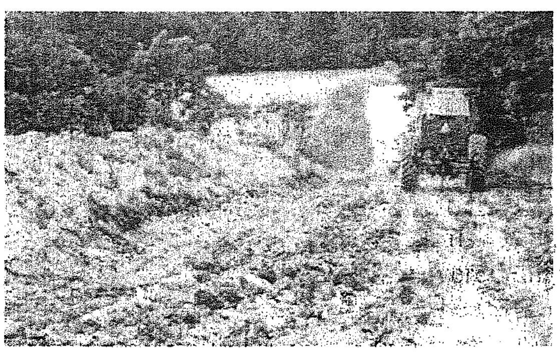


Fig. 1. A typical deep ripping phase of this practice, during the first in a series of progressively deeper "rips" through severely compressed subsoil.

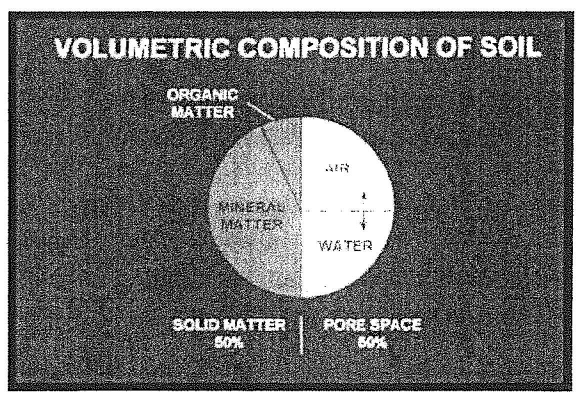


Fig. 2. About 50% of the volume of undisturbed loam surface soil is pore space, when soil is in good condition for plant growth. Brady, 2002.

Recommended Application of Practice

The objective of Deep Ripping and Decompaction is to effectively fracture (vertically and laterallly) through the thickness of the physically compressed subsoil material (see Figure 3), restoring soil porosity and permeability and aiding infiltration to help reduce runoff. Together with topsoil stripping, the "two-phase" practice of Deep Ripping and Decompaction first became established as a "best management practice" through ongoing success on commercial farmlands affected by heavy utility construction right-of-way projects (transmission pipelines and large power lines).


Fig. 3. Construction site with significant compaction of the deep basal till subsoil extends 24 inches below this exposed cut-and-fill work surface.

Soil permeability, soil drainage and cropland productivity were restored. For broader construction application, the two-phase practice of Deep Ripping and Decompaction is best adapted to areas impacted with significant soil compaction, on contiguous open portions of large construction sites and inside long, open construction corridors used as temporary access over the duration of construction. Each mitigation area should have minimal above-and-below-ground obstructions for the easy avoidance and maneuvering of a large tractor and ripping/decompacting implements. Conversely, the complete two-phase practice is not recommended in congested or obstructed areas due to the limitations on tractor and implement movement.

Benefits

Aggressive "deep ripping" through the compressed thickness of exposed subsoil before the replacement/respreading of the topsoil layer, followed by "decompaction," i.e.: "sub-soiling," through the restored topsoil layer down into the subsoil, offers the following benefits:

- Increases the project (larger size) area's direct surface infiltration of rainfall by providing the open site's mitigated soil condition and lowers the demand on concentrated runoff control structures

- Enhances direct groundwater recharge through greater dispersion across and through a broader surface than afforded by some runoff-control structural measures

- Decreases runoff volume generated and provides hydrologic source control

- May be planned for application in feasible open locations either alone or in conjunction with plans for structural practices (e.g., subsurface drain line or infiltration basin) serving the same or contiguous areas

- Promotes successful long-term revegetation by restoring soil permeability, drainage and water holding capacity for healthy (rather than restricted) root-system development of trees, shrubs and deep rooted ground cover, minimizing plant drowning during wet periods and burnout during dry periods.

Feasibility/Limitations

The effectiveness of Deep Ripping and Decompaction is governed mostly by site factors such as: the original (undisturbed) soil's hydrologic characteristics; the general slope; local weather/timing (soil moisture) for implementation; the space-related freedom of equipment/implement maneuverability (noted above in **Recommended Application of Practice**), and by the proper selection and operation of tractor and implements (explained below in **Design Guidance**). The more notable site-related factors include:

Soil

In the undisturbed condition, each identified soil type comprising a site is grouped into one of four categories of soil hydrology, Hydrologic Soil Group A, B, C or D, determined primarily by a range of characteristics including soil texture, drainage capability when thoroughly wet, and depth to water table. The natural rates of infiltration and transmission of soil-water through the undisturbed soil layers for Group A is "high" with a low runoff potential while soils in Group B are moderate in infiltration and the transmission of soil-water with a moderate runoff potential, depending somewhat on slope. Soils in Group C have slow rates of infiltration and transmission of soil-water and a moderately high runoff potential influenced by soil texture and slope; while soils in Group D have exceptionally slow rates of infiltration and transmission of soil-water, and high runoff potential.

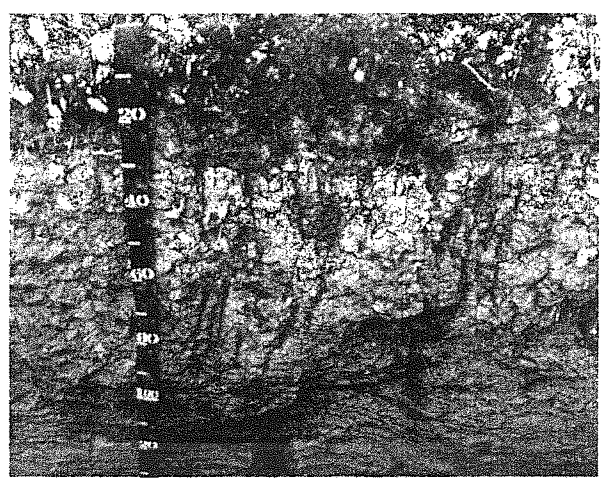


Fig. 4. Profile (in centimeters) displaying the infiltration test result of the natural undisturbed horizons of a soil in Hydrologic Soil Group C.

In Figure 4, the profile displays the undisturbed horizons of a soil in Hydrologic Soil Group C and the naturally slow rate of infiltration through the subsoil. The slow rate of infiltration begins immediately below the topsoil horizon (30 cm), due to the limited amount of macro pores, e.g.: natural subsoil fractures, worm holes and root channels. Infiltration after the construction-induced mixing and compression of such subsoil material is virtually absent; but can be restored back to this natural level with the two-phase practice of deep ripping and decompaction, followed by the permanent establishment of an appropriate, deep taproot lawn/ground cover to help maintain the restored subsoil structure. Infiltration after construction-induced mixing and compression of such subsoil material can be notably rehabilitated with the Deep Ripping and Decompaction practice, which prepares the site for the appropriate long-term lawn/ground cover mix including deep taproot plants such as clover, fescue or trefoil, etc. needed for all rehabilitated soils.

Generally, soils in Hydrologic Soil Groups A and B, which respectively may include deep, well-drained, sandy-gravelly materials or deep, moderately well-drained basal till materials, are among the easier ones to restore permeability and infiltration, by deep ripping and decompaction. Among the many different soils in Hydrologic Soil Group C are those unique glacial tills having a natural fragipan zone, beginning about 12 to 18 inches (30 – 45cm), below surface. Although soils in Hydrologic Soil Group C do require a somewhat more carefully applied level of the Deep Ripping and Decompaction practice, it can greatly benefit such affected areas by reducing the runoff and fostering infiltration to a level equal to that of pre-disturbance.

Soils in Hydrologic Soil Group D typically have a permanent high water table close to the surface, influenced by a clay or other highly impervious layer of material. In many locations with clay subsoil material, the bulk density is so naturally high that heavy trafficking has little or no added impact on infiltration; and structural runoff control practices rather than Deep Ripping and Decompaction should be considered.

The information about Hydrologic Soil Groups is merely a general guideline. Site-specific data such as limited depths of cut-and-fill grading with minimal removal or translocation of the inherent subsoil materials (as analyzed in the county soil survey) or, conversely, the excavation and translocation of deeper, unconsolidated substratum or consolidated bedrock materials (unlike the analyzed subsoil horizons' materials referred to in the county soil survey) should always be taken into account.

Sites made up with significant quantities of large rocks, or having a very shallow depth to bedrock, are not conducive to deep ripping and decompation (subsoiling); and other measures may be more practical.

Slope

The two-phase application of 1) deep ripping and 2) decompaction (deep subsoiling), is most practical on flat, gentle and moderate slopes. In some situations, such as but not limited to temporary construction access corridors, inclusion areas that are moderately steep along a project's otherwise gentle or moderate slope may also be deep ripped and decompacted. For limited instances of moderate steepness on other projects, however, the post-construction land use and the relative alignment of the potential ripping and decompaction work in relation to the lay of the slope should be reviewed for safety and practicality. In broad construction areas predominated by moderately steep or steep slopes, the practice is generally not used.

Local Weather/Timing/Soil Moisture

Effective fracturing of compressed subsoil material from the exposed work surface, laterally and vertically down through the affected zone is achieved only when the soil material is moderately dry to moderately moist. Neither one of the two-phases, deep ripping nor decompaction (deep subsoiling), can be effectively conducted when the soil material (subsoil or replaced topsoil) is in either a "plastic" or "liquid" state of soil consistency. Pulling the respective implements legs through the soil when it is overly moist only results in the "slicing and smearing" of the material or added "squeezing and compression" instead of the necessary fracturing. Ample drying time is needed for a "rippable" soil condition not merely in the material close to the surface, but throughout the material located down to the bottom of the physically compressed zone of the subsoil.

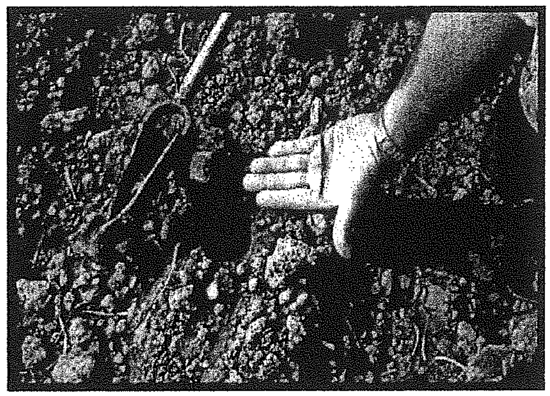


Fig. 5. Augered from a depth of 19 inches below the surface of the replaced topsoil, this subsoil sample was hand rolled to a 1/8-inch diameter. The test shows the soil at this site stretches out too far without crumbling; it indicates the material is in a plastic state of consistence, too wet for final decompaction (deep subsoiling) at this time.

The "poor man's Atterberg field test" for soil plasticity is a simple "hand-roll" method used for quick, on-site determination of whether or not the moisture level of the affected soil material is low enough for: effective deep ripping of subsoil; respreading of topsoil in a friable state; and final decompaction (deep subsoiling). Using a sample of soil material obtained from the planned bottom depth of ripping, e.g.: 20 - 24 inches below exposed subsoil surface, the sample is hand rolled between the palms down to a 1/8-inch diameter thread. (Use the same test for stored topsoil material before respreading on the site.) If the respective soil sample crumbles apart in segments no greater than 3/8 of an inch long, by the time it is rolled down to 1/8 inch diameter, it is low enough in moisture for deep ripping (or topsoil replacement), and decompaction. Conversely, as shown in Figure 5, if the rolled sample stretches out in increments greater than 3/8 of an inch long before crumbling, it is in a "plastic" state of soil consistency and is too wet for subsoil ripping (as well as topsoil replacement) and final decompaction.

Design Guidance

Beyond the above-noted site factors, a vital requirement for the effective Deep Ripping and Decompaction (deep subsoiling), is implementing the practice in its distinct, two-phase process:

1) Deep rip the affected thickness of exposed subsoil material (see Figure 10 and 11), aggressively fracturing it before the protected topsoil is reapplied on the site (see Figure 12); and

2) Decompact (deep subsoil), simultaneously through the restored topsoil layer and the upper half of the affected subsoil (Figure 13). The second phase, "decompaction," mitigates the partial recompaction which occurs during the heavy process of topsoil spreading/grading. Prior to deep ripping and decompacting the site, all construction activity, including construction equipment and material storage, site cleanup and trafficking (Figure 14), should be finished; and the site closed off to further disturbance. Likewise, once the practice is underway and the area's soil permeability and

rainfall infiltration are being restored, a policy limiting all further traffic to permanent travel lanes is maintained.

The other critical elements, outlined below, are: using the proper implements (deep, heavy-duty rippers and subsoilers), and ample pulling-power equipment (tractors); and conducting the practice at the appropriate speed, depth and pattern(s) of movement.

Note that an appropriate plan for the separate practice of establishing a healthy perennial ground cover, with deep rooting to help maintain the restored soil structure, should be developed in advance. This may require the assistance of an agronomist or landscape horticulturist.

Implements

Avoid the use of all undersize implements. The small-to-medium, light-duty tool will, at best, only "scarify" the uppermost surface portion of the mass of compacted subsoil material. The term "chisel plow" is commonly but incorrectly applied to a broad range of implements. While a few may be adapted for the moderate subsoiling of non-impacted soils, the majority are less durable and used for only lighter land-fitting (see Figure 6).

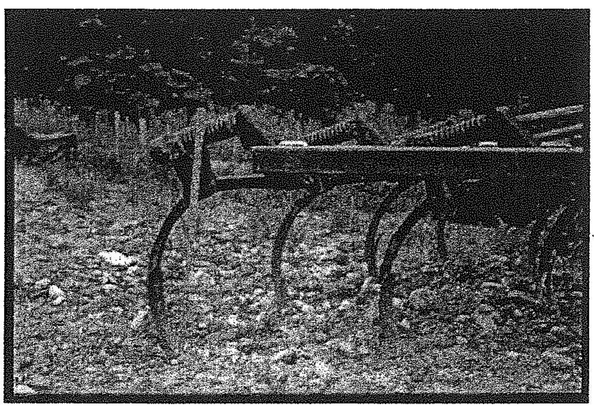


Fig. 6. A light duty chisel implement, not adequate for either the deep ripping or decompaction (deep subsoiling) phase.

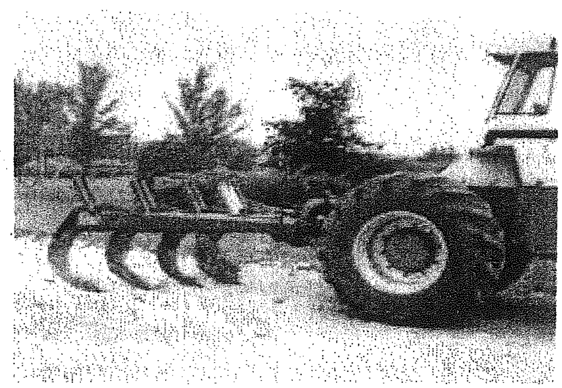


Fig. 7. One of several variations of an agricultural ripper. This unit has long, rugged shanks mounted on a steel V-frame for deep, aggressive fracturing through Phase 1.

Use a "heavy duty" agricultural-grade, deep ripper (see Figures 7,9,10 and 11) for the first phase: the lateral and vertical fracturing of the mass of exposed and compressed subsoil, down and through, to the bottom of impact, prior to the replacement of the topsoil layer. (Any oversize rocks which are uplifted to the subsoil surface during the deep ripping phase are picked and removed.) Like the heavy-duty class of implement for the first phase, the decompaction (deep subsoiling) of Phase 2 is conducted with the heavy-duty version of the deep subsoiler. More preferable is the angled-leg variety of deep subsoiler (shown in Figures 8 and 13). It minimizes the inversion of the subsoil and topsoil layers while laterally and vertically fracturing the upper half of the previously ripped subsoil layer and all of the topsoil layer by delivering a momentary, wave-like "lifting and shattering" action up through the soil layers as it is pulled.

Pulling-Power of Equipment

Use the following rule of thumb for tractor horsepower (hp) whenever deep ripping and decompacting a significantly impacted site: For both types of implement, have at least 40 hp of tractor pull available for each mounted shank/ leg.

Using the examples of a 3-shank and a 5-shank implement, the respective tractors should have 120 and 200 hp available for fracturing down to the final depth of 20-to-24 inches per phase. Final depth for the deep ripping in Phase 1 is achieved incrementally by a progressive series of passes (see Depth and Patterns of Movement, below); while for Phase 2, the full operating depth of the deep subsoiler is applied from the beginning.

The operating speed for pulling both types of implement should not exceed 2 to 3 mph. At this slow and managed rate of operating speed, maximum functional performance is sustained by the tractor and the implement performing the soil fracturing. Referring to Figure 8, the implement is the 6-leg version of the deep angled-leg subsoiler. Its two outside legs are "chained up" so that only four legs will be engaged (at the maximum depth), requiring no less than 160 hp, (rather than 240 hp) of pull. The 4-wheel drive, articulated-frame tractor in Figure 8 is 174 hp. It will be decompacting this unobstructed, former construction access area simultaneously through 11 inches of replaced topsoil and the upper 12 inches of the previously deep-ripped subsoil. In constricted areas of Phase 1) Deep Ripping, a medium-size tractor with adequate hp, such as the one in Figure 9 pulling a 3-shank deep ripper, may be more maneuverable.

Fig. 8. A deep, angled-leg subsoiler, ideal for Phase 2 decompaction of after the topsoil layer is graded on top of the ripped subsoil.

Fig. 9. This medium tractor is pulling a 3-shank deep ripper. The severely compacted construction access corridor is narrow, and the 120 hp tractor is more maneuverable for Phase 1 deep ripping (subsoil fracturing), here.

Some industrial-grade variations of ripping implements are attached to power graders and bulldozers. Although highly durable, they are generally not recommended. Typically, the shanks or "teeth" of these rippers are too short and stout; and they are mounted too far apart to achieve the well-distributed type of lateral and vertical fracturing of the soil materials necessary to restore soil permeability and infiltration. In addition, the power graders and bulldozers, as pullers, are far less maneuverable for turns and patterns than the tractor.

Depth and Patterns of Movement

As previously noted both Phase 1 Deep Ripping through significantly compressed, exposed subsoil and Phase 2 Decompaction (deep subsoiling) through the replaced topsoil and upper subsoil need to be performed at maximum capable depth of each implement. With an implement's guide wheels attached, some have a "normal" maximum operating depth of 18 inches, while others may go deeper. In many situations, however, the tractor/implement operator must first remove the guide wheels and other non essential elements from the implement. This adapts the ripper or the deep subsoiler for skillful pulling with its frame only a few inches above surface, while the shanks or legs, fracture the soil material 20-to-24 inches deep.

There may be construction sites where the depth of the exposed subsoil's compression is moderate, e.g.: 12 inches, rather than deep. This can be verified by using a ¾ inch cone penetrometer and a shovel to test the subsoil for its level of compaction, incrementally, every three inches of increasing depth. Once the full thickness of the subsoil's compacted zone is finally "pieced" and there is a significant drop in the psi measurements of the soil penetrometer, the depth/thickness of compaction is determined. This is repeated at several representative locations of the construction site. If the thickness of the site's subsoil compaction is verified as, for example, ten inches, then the Phase 1 Deep Ripping can be correspondingly reduced to the implement's minimum operable depth of 12 inches. However, the Phase 2 simultaneous Decompation (subsoiling) of an 11 inch thick layer of replaced topsoil and the upper subsoil should run at the subsoiling implements full operating depth.

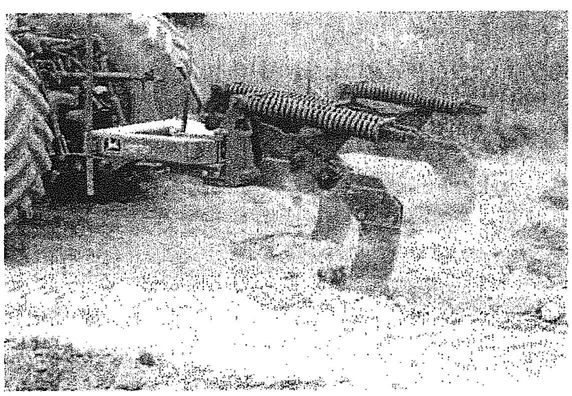


Fig. 10. An early pass with a 3-shank deep ripper penetrating only 8 inches into this worksite's severely compressed subsoil.

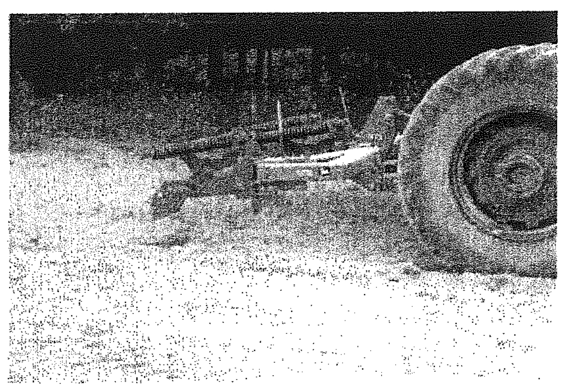


Fig. 11. A repeat run of the 3-shank ripper along the same patterned pass area as Fig. 9; here, incrementally reaching 18 of the needed 22 inches of subsoil fracture.

Typically, three separate series (patterns) are used for both the Phase 1 Deep Ripping and the Phase 2 Decompaction on significantly compacted sites. For Phase 1, each series begins with a moderate depth of rip and, by repeat-pass, continues until full depth is reached. Phase 2 applies the full depth of Decompation (subsoiling), from the beginning.

Every separate series (pattern) consists of parallel, forward-and-return runs, with each progressive pass of the implement's legs or shanks evenly staggered between those from the previous pass. This compensates for the shank or leg-spacing on the implement, e.g., with 24-to-30 inches between each shank or leg. The staggered return pass ensures lateral and vertical fracturing actuated every 12 to 15 inches across the densely compressed soil mass.

Large, Unobstructed Areas
For larger easy areas, use the standard patterns of movement:

- The first series (pattern) of passes is applied lengthwise, parallel with the longest spread of the site; gradually progressing across the site's width, with each successive pass.

- The second series runs obliquely, crossing the first series at an angle of about 45 degrees.

- The third series runs at right angle (or 90 degrees), to the first series to complete the fracturing and shattering on severely compacted sites, and avoid leaving large unbroken blocks of compressed soil material. (In certain instances, the third series may be optional, depending on how thoroughly the first two series loosen the material and eliminate large chunks/blocks of material as verified by tests with a ¾-inch cone penetrometer.)

Fig. 12. Moderately dry topsoil is being replaced on the affected site now that Phase 1 deep ripping of the compressed subsoil is complete.

Fig. 13. The same deep, angled-leg subsoiler shown in Fig. 7 is engaged at maximum depth for Phase 2, decompaction (deep soiling), of the replaced topsoil and the upper subsoil materials.

Corridors
In long corridors of limited width and less maneuverability than larger sites, e.g.: along compacted areas used as temporary construction access, a modified series of pattern passes are used.

- First, apply the same initial lengthwise, parallel series of passes described above.

- A second series of passes makes a broad "S" shaped pattern of rips, continually and gradually alternating the "S" curves between opposite edges inside the compacted corridor.

- The third and final series again uses the broad, alternating S pattern, but it is "flip-flopped" to continually cross the previous S pattern along the corridor's centerline. This final series of the S pattern curves back along the edge areas skipped by the second series.

Maintenance and Cost

Once the two-phase practice of Deep Ripping and Decompation is completed, two items are essential for maintaining a site's soil porosity and permeability for infiltration. They are: planting and maintaining the appropriate ground cover with deep roots to maintain the soil structure (see Figure 15); and keeping the site free of traffic or other weight loads.

Note that site-specific choice of an appropriate vegetative ground-cover seed mix, including the proper seeding ratio of one or more perennial species with a deep taproot system and the proper amount of lime and soil nutrients (fertilizer mix) adapted to the soil-needs, are basic to the final practice of landscaping, i.e: surface tillage, seeding/planting/fertilizing and culti-packing or mulching is applied. The "maintenance" of an effectively deep-ripped and decompacted area is generally limited to the successful perennial (long-term) landscape ground cover; as long as no weight-bearing force of soil compaction is applied.

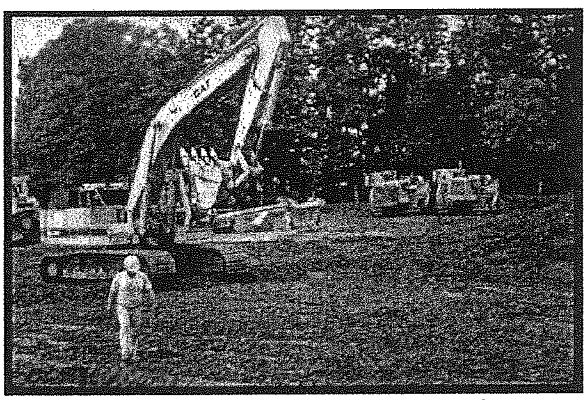


Fig. 14. The severely compacted soil of a temporary construction yard used daily by heavy equipment for four months; shown before deep ripping, topsoil replacement, and decompaction.

Fig. 15. The same site as Fig. 14 after deep ripping of the exposed subsoil, topsoil replacement, decompaction through the topsoil and upper subsoil and final surface tillage and revegetation to maintain soil permeability and infiltration.

The Deep Ripping and Decompaction practice is, by necessity, more extensive than periodic subsoiling of farmland.The cost of deep ripping and decompacting (deep subsoiling), will vary according to the depth and severity of soil-material compression and the relative amount of tractor and implement time that is required. In some instances, depending on open maneuverability, two-to-three acres of compacted project area may be deep-ripped in one day. In other situations of more severe compaction and - or less maneuverability, as little as one acre may be fully ripped in a day. Generally, if the Phase 1) Deep Ripping is fully effective, the Phase 2) Decompaction should be completed in 2/3 to 3/4 of the time required for Phase 1.

Using the example of two acres of Phase 1) Deep Ripping in one day, at $1800 per day, the net cost is $900 per acre. If the Phase 2) Decompacting or deep subsoiling takes 3/4 the time as Phase 1, it costs $675 per acre for a combined total of $1575 per acre to complete the practice (these figures do not include the cost of the separate practice of topsoil stripping and replacement). Due to the many variables, it must be recognized that cost will be determined by the specific conditions or constraints of the site and the availability of proper equipment.

Resources

Publications:

- American Society of Agricultural Engineers. 1971. *Compaction of Agricultural Soils.* ASAE.
- Brady, N.C., and R.R. Weil. 2002. *The Nature and Properties of Soils. 13th ed.* Pearson Education, Inc.
- Baver, L.D. 1948. *Soil Physics.* John Wiley & Sons.
- Carpachi, N. 1987 (1995 fifth printing). *Excavation and Grading Handbook, Revised. 2nd ed.* Craftsman Book Company
- Ellis, B. (Editor). 1997. Safe & Easy Lawn Care: The Complete Guide to Organic Low Maintenance Lawn. Houghton Mifflin.
- Harpstead, M.I., T.J. Sauer, and W.F. Bennett. 2001. *Soil Science Simplified. 4th ed.* Iowa State University Press.
- Magdoff, F., and H. van Es. 2000. *Building Soils for Better Crops. 2nd ed.* Sustainable Agricultural Networks
- McCarthy, D.F. 1993. *Essentials of Soil Mechanics and Foundations, Basic Geotechnics 4th ed.* Regents/Prentice Hall.
- Plaster, E.J. 1992. *Soil Science & Management. 3rd ed.* Delmar Publishers.
- Union Gas Limited, Ontario, Canada. 1984. *Rehabilitation of Agricultural Lands, Dawn-Kerwood Loop Pipeline; Technical Report.* Ecological Services for Planning, Ltd.; Robinson, Merritt & Devries, Ltd. and Smith, Hoffman Associates, Ltd.
- US Department of Agriculture in cooperation with Cornell University Agricultural Experiment Station. Various years. *Soil Survey of (various names) County, New York.* USDA.

Internet Access:

- Examples of implements:

V-Rippers. Access by internet search of *John Deere Ag -New Equipment for 915* (larger-frame model) *V-Rippe;* and, *for 913* (smaller-frame model) *V-Ripper.* Deep, angled-leg subsoiler. Access by internet search of: B*igham Brothers Shear Bolt Paratill-Subsoiler.* http://salesmanual.deere.com/sales/salesmanual/en_NA/primary_tillage/2008/feature/rippers/915v_pattern_frame.html?sbu=ag&link=prodcat Last visited March 08.

- Soils data of USDA Natural Resources Conservation Service. *NRCS Web Soil Survey.* http://websoilsurvey.nrcs.usda.gov/app/ and *USDA-NRCS Official Soil Series Descriptions; View by Name.* http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi . *Last visited Jan. 08.*

- Soil penetrometer information. Access by internet searches of: *Diagnosing Soil Compaction using a Penetrometer (soil compaction tester), PSU Extension;* as well as *Dickey-john Soil Compaction Tester.* http://www.dickey-johnproducts.com/pdf/SoilCompactionTest.pdf and http://cropsoil.psu.edu/Extension/Facts/uc178pdf Last visited Sept. 07

ATTACHMENT NO. 3

COMPLETED NOTICE OF INTENT

NOI for coverage under Stormwater General Permit for Construction Activity
version 1.31

(Submission #: HP3-G8XS-0C2Y8, version 1)

Details

Submission Alias	1415 Washington Avenue
Originally Started By	Daniel Hershberg
Submission ID	HP3-G8XS-0C2Y8
Submission Reason	New
Status	Draft
Active Steps	Form Submitted

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
1415 Washington Property LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Podob

Owner/Operator Contact Person First Name
Evan

Owner/Operator Mailing Address
Liberty Plaza #2800

City
New York

State
NY

Zip
10006

Phone
9148792005

Email
Evan@scenicinvestment.com

Federal Tax ID
NONE PROVIDED

Project Location

Project/Site Name
1415 Washington Avenue Student Apartments

Street Address (Not P.O. Box)
1415 Washington Avenue

Side of Street
North

City/Town/Village (THAT ISSUES BUILDING PERMIT)
ALBANY

State
NY

Zip
12205

DEC Region
4

County
ALBANY

Name of Nearest Cross Street
West University Drive

Distance to Nearest Cross Street (Feet)
530

Project In Relation to Cross Street
East

Tax Map Numbers Section-Block-Parcel
53.00-1-25

Tax Map Numbers
53.00-1-25

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
42.68951505937346,-73.81839828391769

Project Details

2. What is the nature of this project?
Redevelopment with no increase in impervious area

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Multifamily Residential

Post-Development Future Land Use
Multifamily Residential

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

---

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
3.24

Total Area to be Disturbed (acres)
2.87

Existing Impervious Area to be Disturbed (acres)
1.83

Future Impervious Area Within Disturbed Area (acres)
1.79

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
100

B (%)
0

C (%)
0

D (%)
0

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
8/1/2021

End Date
4/1/2023

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Patroon Creek

9a. Type of waterbody identified in question 9?
River Off Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
No

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
No

16. What is the name of the municipality/entity that owns the separate storm sewer system?
NONE PROVIDED

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Hershberg & Hershberg

Contact Name (Last, Space, First)
Hershberg, Daniel

Mailing Address
18 Locust Street

City
ALBANY

State
NY

Zip
12203

Phone
5184593096

Email
dan@hhershberg.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form

3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification

NONE PROVIDED
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Silt Fence
Stabilized Construction Entrance
Storm Drain Inlet Protection

Biotechnical
None

Vegetative Measures
None

Permanent Structural
None

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Reduction of Clearing and Grading
Driveway Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.216

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.216

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.064

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
0

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
.216

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
0.183

CPv Provided (acre-feet)
0.309

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
0.1

Post-Development (CFS)
0.0

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
0.9

Post-Development (CFS)
0.5

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
NONE PROVIDED

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
NONE PROVIDED

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
2.25

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Swale (O-1)
NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload

> NONE PROVIDED
> **Comment**
> NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form

> NONE PROVIDED
> **Comment**
> NONE PROVIDED

Status History

	User	Processing Status
10/14/2020 9:45:44 AM	Daniel Hershberg	Draft

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted		
Under Review	DAVID GASPER	

ATTACHMENT NO. 4

NOTICE OF TERMINATION
(BLANK FOR FUTURE USE)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: 4a.Telephone:

5. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. ☐ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
***Date final stabilization completed** (month/year): ____

9b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ☐ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? ☐ yes ☐ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed?
☐ yes ☐ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? ☐ yes ☐ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

☐ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

☐ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

☐ For post-construction stormwater management practices that are privately owned, the deed of record has been modified to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

☐ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? ______________________________ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? ☐ yes ☐ no
(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:
(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

ATTACHMENT NO. 5

CERTIFICATION OF CONTRACTOR

Contractor/Subcontractor SWPPP Certification

NOTE: This SWPPP identifies for each measure identified in the SWPPP, the contractor(s) and subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the SWPPP must sign a copy of the certification statement. All certifications must be included in the SWPPP. Additionally, new contractors and subcontractors need to similarly certify. All contractors and subcontractors identified in a SWPPP shall sign a copy of this certification statement before undertaking any construction activity at the site identified in the SWPPP:

I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

SERVICES PROVIDED BY THIS CONTRACTOR/SUBCONTRACTOR:

(Contractor/Subcontractor must complete)

List all trades covered: ____

____

____
Signature

____
Name & Title (Print or Type)

____
Name of Entity Constituting Contractor/Subcontractor (Print or Type)

____
Address of Entity Constituting Contractor/Subcontractor (Print or Type)

____
Phone Number/Fax Number of Entity Constituting Contractor/Subcontractor (Print or Type)

Signatory Requirements – This SWPPP certification shall be signed as follows:

a. For a corporation: by (1) a president, secretary, treasurer, or vice- president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decision making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

ATTACHMENT NO. 6

CERTIFICATION OF OWNER/DEVELOPER

Owner/Developer SWPPP Certification

I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

____
Signature

____
Name (Print or Type)

____
Title (Print or Type)

____
Name of Entity Constituting Owner/Developer (Print or Type)

____
Address of Entity Constituting Owner/Developer (Print or Type)

____
Phone Number/Fax Number of Entity Constituting Owner/Developer (Print or Type)

Signatory Requirements – This SWPPP certification shall be signed as follows:

a. For a corporation: by (1) a president, secretary, treasurer, or vice- president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decision making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

ATTACHMENT NO. 6
SAMPLE INSPECTION FORM
FOR USE
DURING CONSTRUCTION
UNTIL FILING OF NOTICE OF TERMINATION
(NOT)
UNDER SPDES GENERAL PERMIT
(GP# 0-20-001)

SPDES GP-0-15-002
Part IV.C.4
Inspection Form
(Attach additional pages as required)

a. Date and time of inspection;____

b. Name and title of person(s) performing inspection;

____

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

____

d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

____
____
____
____

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody;

____
____
____
____

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

____
____
____

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

____
____

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
k. Identification and status of all corrective actions that were required by previous inspection;

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

ATTACHMENT NO. 7
POROUS PAVEMENT

REVIEW OF POROUS PAVEMENT SECTION
APPLICABLE TO SOILS WITH AN INFILTRATION RATE OF 2" PER HOUR OR GREATER.

By: Daniel R. Hershberg, P.E. & L.S., Managing Partner, Hershberg & Hershberg

The purpose of this review is to establish a suitable pavement and subgrade section for porous asphalt pavement in soils with an infiltration rate exceeding 2" per hour. The author has in excess of 30 years experience utilizing porous asphalt pavement in the Albany, NY area, specifically in an area dominated by Colonie & Elnora Loamy Fine Sands with infiltration rates between 2 and 20 inches per hour. Each component of the proposed section is reviewed herein.

Asphaltic Concrete

The asphaltic concrete is generically described in Table 5.15 of the New York State Stormwater Design Manual (NYSWDM). Under References listed in Chapter 5 is the *University of New Hampshire Stormwater Center, UNCSC Design Specifications for Porous Asphalt Pavement and Infiltration Beds (UNSCSC Design Specifications)*. I agree with much of the information contained although I tend to prefer a little finer mix of aggregate than the one called for in these design specifications. The switch to Performance Graded Asphalt Cement (PGAC) from AC-10 or AC-20 has improved the durability of the mix by reducing the incidence of cold weather cracking. However, this has resulted in the use of a 'softer' asphalt cement. Asphalt mixtures are therefore more prone to tire scuffing and aggregate "kick-out" especially during periods of hot weather during the first season of use. In order to resolve this, we recommend using Polymer Enhanced asphalt mixes. This concurs with the UNCSC Design Specifications. The polymer enhanced performance graded asphalt is the mix shown on the attached detail. This basically produces a mix similar to the requirements in Table 5.15 listed below with the exception of depth of asphaltic concrete.

However, there is one area where I disagree with *UNSCSC Design Specifications*. This has to do with the recommended asphalt binder recommended in the mix. The asphalt mix is shown in Table 5 below.

Table 5. Porous asphalt mix design criteria.

Sieve Size (inch/mm)	Percent Passing (%)
0.75/19	100
0.50/12.5	85-100
0.375/9.5	55-75
No.4/4.75	10-25
No.8/2.36	5-10
No.200/0.075 (#200)	2-4
Binder Content (AASHTO T164)	6.0-6.5%
Air Void Content by Corelok (ASTM D6752)*	16.0-20.0%
Air Void Content by Paraffin wax (AASHTO T275)*	18.0-22.0%
Draindown (ASTM D6390)**	<= 0.3 %
Retained Tensile Strength (AASHTO 283)***	>= 80 %

Using a percentage of 6.0 – 6.5% Asphalt Binder can lead to problems because there is inadequate stone surface area without the presence of substantial fines to bind the asphalt binder in place. This could potentially cause asphalt binder to segregate to the bottom (see photo below). Therefore, I recommend using a nominal 4.5% of asphalt binder.

Core taken 3 days after placement with 6.5% asphalt binder .
Note accmulation of asphalt binder at the bottom of core.

New York State Stormwater Management Design Manual Chapter 5

Table 5.15 Material Specifications for Porous Pavement

Material	Specification			Notes
	Porous Asphalt	Porous Concrete	Permeable Paver	
Pavement	3”-7” Bituminous mix ½” Nominal Maximum Aggregate Size ≥18% Air Voids (50 gyrations) Draindown ≤0.3%	4”-8” Portland Cement Type I or II (ASTM C 150), No. 8 (ASTM 33), Agg.:Cement Ratio 4:1 to 4.5:1 Water/Cement Ratio 0.28-0.35	Varied shapes and sizes, 8%-10% surface opening, manufacturer specification, flow rate 5 in/hr or no less than 10% void	
Choker course	4”-8” depth AASHTO No. 57	None	2” AASHTO No. 8 stone over 4” of No. 57	Should be double-washed and clean and free of all fines
Filter Layer	8”-12” No. 2 stone	No. 2 stone	No. 2 stone	Depth based on structural, storage, and hydraulic requirements. Double-washed, clean, free of fines
Drainage Layer	The underlying native soils should be separated from the filter layer by a 3 inch layer pea gravel over a reservoir course with at min. a 4 inch layer of choker stone (AASHTO No. 3 or 5). For design variation of thickness, storage, underdrain measure, and cold climate frost depth consult UNHSC design specification for reservoir course (UNHSC, 2009)			Sand should be placed between stone reservoir and choker stone, on top of underlying native soils.
Underdrain	Where system as a whole needs to meet storage/release criteria and overflow piping to minimize chance of clogging. 4”-6” perforated PVC (AASHTO M 252) pipe, with 3/8-inch perforations at 6 inches on center, solid connectors; each pipe at minimum 0.5% slope, 20 feet apart. Extend cleanout pipes to the surface with vented caps at Ts & Ys.			
Filter Fabric (optional)	Needled, non-woven, polypropylene geotextile with grab tensile strength greater or equal to 120 lbs (ASTM D4632), Mullen Burst strength greater or equal to 225 lbs/sq in (ASTM D3786), Flow rate greater than 125 gpm/sf (ASTM D4491) and Apparent Opening Size US # 70 or # 80 sieve (ASTM D4751). Geotextile AOS selection is based on the percent passing the No. 200 sieve in “A” Soil subgrade, using FHWA or AASHTO selection criteria			
Impermeable Liner	Minimum thirty mil PVC geomembrane liner covered by 8 to 12 oz/yd^2 non-woven geotextile. Required only for Karst region and brown field applications.			
Observation Well	Perforated 4-6 inch vertical PVC pipe (AASHTO M 252), with lockable cap installed flush with the surface with surface cap.			

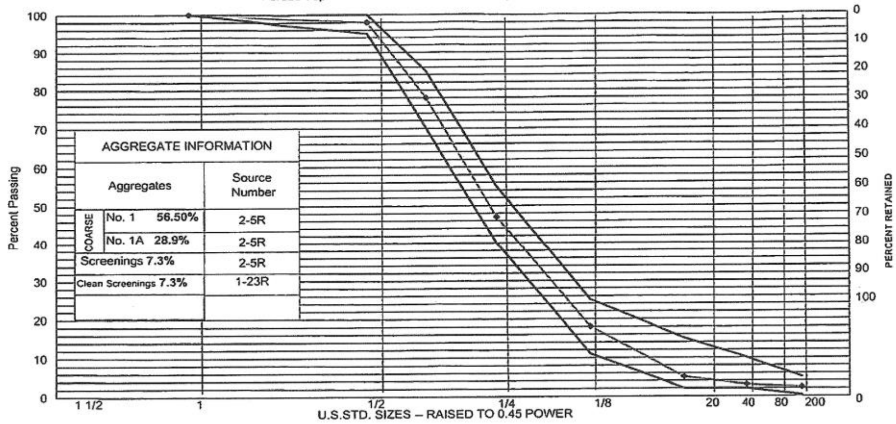
August 2010 5-121

Excerpt from NYSSWDM

BR-261c (2/89)

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
MATERIALS BUREAU
JOB MIX FORMULA
Porous Top

Facility No. 10018 Formula No. 1
Plant Plant # 33, King Road Materials Region 1
Plant Location Fac # 10018 Town of Colonie
Submitted By Lizette Strait Date 09/22/10
(SUBMISSION INSTRUCTIONS ON BACK)



AGGREGATE INFORMATION

	Aggregates	Source Number
COARSE	No. 1 56.50%	2-5R
COARSE	No. 1A 28.9%	2-5R
	Screenings 7.3%	2-5R
	Clean Screenings 7.3%	1-23R

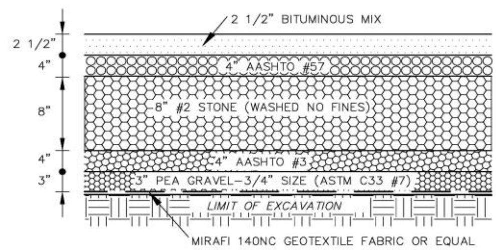
Sieve Size		2"	1 1/2"	1"	1/2"	3/8"	1/4	1/8	#16	#40	N0. 200	Asphalt Content (Percent)
% Passing	1. General Limits			100	95 - 100	70-85	40-55	10-25	2-15	2-10	2 - 5	
	2. JMF Range			100	95 - 100	71 - 85	40 - 54	11 - 25	1 - 15	0 - 7	0.3 - 4.3	
	3. Target Value			100	98	78	47	18	8	3	2.3	4.5

Asphalt Grade
As Needed
~~PG 64-22~~
PG 64-22P

Approved by [signature]
Remarks

Date 9/22/10

Sieve Size		Percent Passing AASHTO #3	Percent Passing ASTM C33SC Size #7	Percent Passing AASHTO #57
MM	In			
62.5	2.5	100		100
50	2	95–100		100
37.5	1½	35– 70		100
25	1	0–15	100	75–100
18.75	¾"	–	90–100	–
12.5	½	0 –5	20–55	25–60
9.5	3/8	<5	0–15	25
4.75	#4	<5	0–5	0–10
2.36	#8	<5	0	0–5



COMPLIANT WITH JUNE 2010 NYSSWDM

DRIVEWAY & AUTOMOBILE PARKING LOT POROUS PAVEMENT

NOT TO SCALE

PROPOSED SECTION

Choker Course

Both the *University of New Hampshire Stormwater Center, UNCSC Design Specifications for Porous Asphalt Pavement and Infiltration Beds (UNSCSC Design Specifications)* and Table 5.15 of the New York State Stormwater Design Manual (NYSWDM) set a minimum depth of 4 inches for the choker course. AASHTO 57 clean stone is selected and the proposed section concurs with this. There is little need for any depth greater than 4 inches. An advantage of this layer is that it provides adequate support for paving equipment above the #2 stone filter layer.

Filter Layer

Table 5.15 of the New York State Stormwater Design Manual (NYSWDM) sets a minimum depth of 8 inches for the filter layer of clean #2 stone. The *University of New Hampshire Stormwater Center, UNCSC Design Specifications for Porous Asphalt Pavement and Infiltration Beds (UNSCSC Design Specifications)* describes a layer of bank run gravel with controlled permeability. The proposed section utilizes clean #2 Broken Stone is consistent with designs used for the past 30+ years the Albany area by the author. I believe that quality control is better managed with the clean broken stone than with bank-run gravel. Due to the rapid infiltration rate, any greater depth is not necessary to provide protection against freezing.

Drainge Layer

Table 5.15 of the New York State Stormwater Design Manual (NYSWDM) sets a depth of 4 inches for the reservoir layer of AASHTO #3 or AASHTO #5 with a layer of 3” of Pea Gravel (ASTM C33 #7) on top. The proposed section utilizes these depths of both materials. I believe that there is a benefit to reversing these layers. By placing the pea stone layer beneath the reservoir layer you provide a break for any potential capillary rise which may occur as described below.

Groundwater mounding and capillary rise in Colonie & Elnora Fine Loamy Sands and similar soils

A study entitled *Simulation of Groundwater Mounding Beneath Hypothetical Stormwater Infiltration Basins,* Scientific Investigations Report 2010–5102, U.S. Department of the Interior, U.S. Geological Survey allows for an adequate review of the potential for mounding of the groundwater beneath porous pavement. Mounding generally requires an increase in impervious area. Since porous asphalt pavement is pervious, groundwater mounding is not likely to take place unless significant other areas are tributary to the area of the pavement or if a large depth of overburden is removed. In either case, the impact on groundwater table can be estimated and considered when designing the required clearance from groundwater table.

Given the small interstitial space in fine sands, (i.e., Colonie & Elnora Fine Loamy Sands where 100% passes the #10 sieve and in excess of 65% passes the #40 sieve), my experience has been that small areas (sometimes as small as one or two square feet) can experience a very localized capillary rise. This cannot be computed or predicted as it is subject to a number of local variables and conditions. Capillary rise in fine sands rarely exceeds 25 cm, but his could be enough to impact the entire drainage layer and reduce its effectiveness. In order to eliminate any potential for these areas of capillary rise impacting the reservoir layer or the filter layer, placing the pea gravel with a much larger interstitial space below the reservoir stone will effectively stop these intrusions into the drainage layer. These areas are normally small and do not impact the general functioning of the porous pavement, however I have observed porous pavements designed by others where local “pumping” of sands takes place due to the capillary rise.

<u>Geotextile Layer</u>

Table 5.15 of the New York State Stormwater Design Manual (NYSWDM) indicates that a geotextile layer is optional. Give the low cost of providing geotechnical fabric beneath pavements, I use this primarily to increase the pavement longevity. It also prevents the pea gravel layer from penetrating into the soil below,

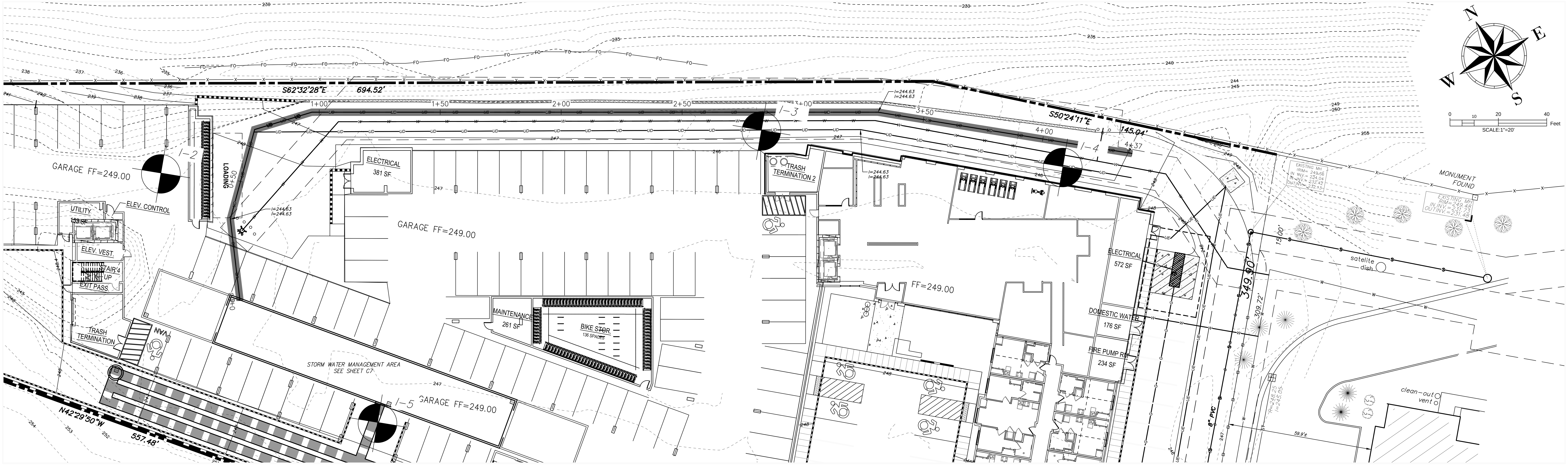
<u>Conclusion and Engineer’s Opinion</u>

It is the author’s opinion that the proposed section can be utilized universally as an acceptable design as per the NYSSWDM in any soil with an infiltration rate which exceeds two inches per hour. This is based upon experience and observations of multiple installations over a period in excess of 30 years. Where infiltration rates are between 0.5 inches per hour and 2 inches per hour, certain changes depths of filter layer and/or the reservoir course should be considered,

MAP POCKET #1

MAP C-6

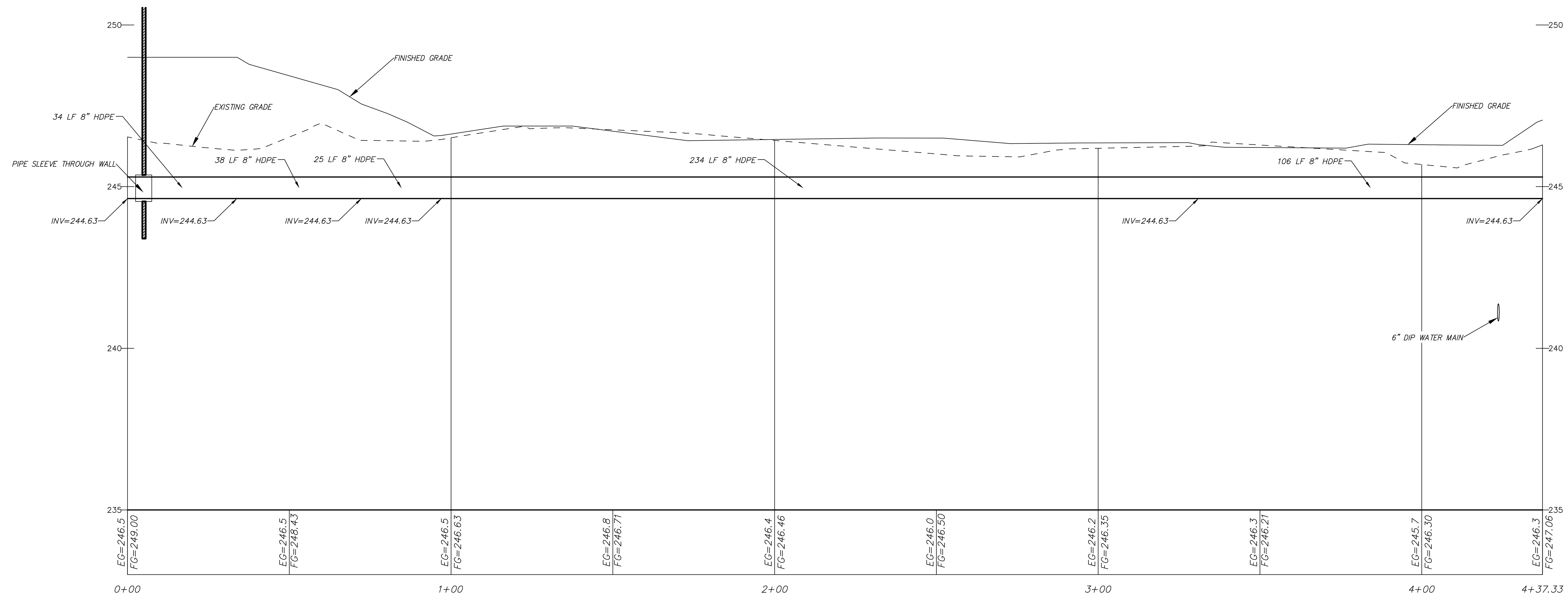
SWPP PLAN



STORM WATER POLLUTION PREVENTION PLAN

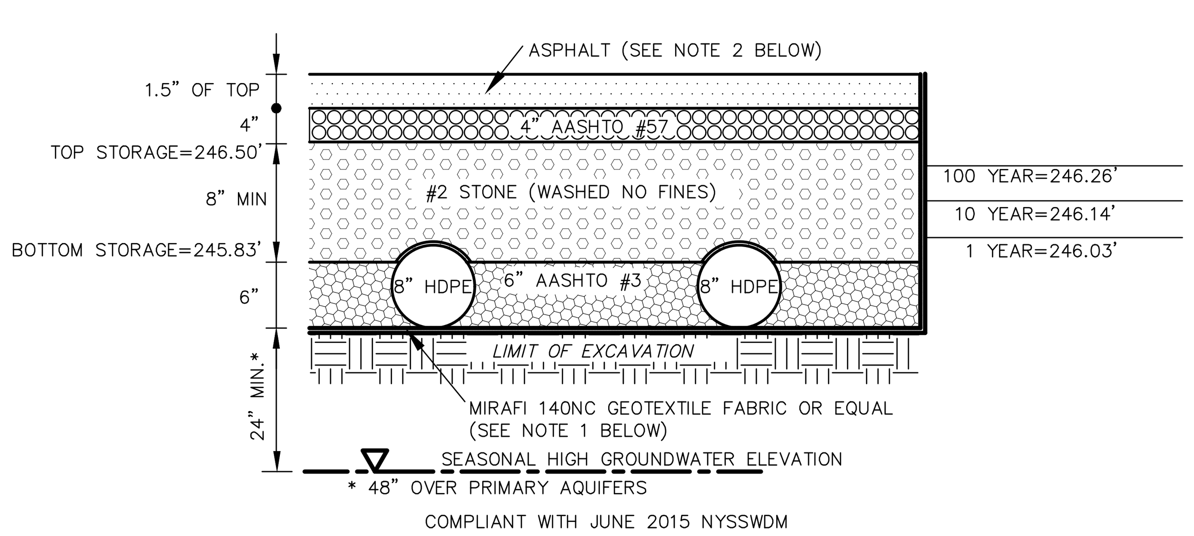
SCALE:1"=20'

INFILTRATION TEST RESULTS	
TEST PIT NUMBER	AVERAGE INFILTRATION RATE (INCHES/HOUR)
I-1	24.0
I-2	17.5
I-3	10.8
I-4	17.0
I-5	12.3
I-6	10.2



STORM WATER POLLUTION PREVENTION PROFILE

SCALE=1"=20' (H) 1"=2' (V)



COMPLIANT WITH JUNE 2015 NYSSWDM

PAVEMENT SECTION

CRITICAL POROUS PAVEMENT NOTES:

1. SUB GRADE MUST BE DECOMPACTED IN ACCORDANCE WITH NYSDEC REGULATIONS IMMEDIATELY PRIOR TO INSTALLATION OF THE GEOTEXTILE FABRIC.
2. DESIGN MIX MUST HAVE POLYMER ADDITIVE AND WILL NOT BE ACCEPTED WITHOUT.

Sieve Size		Percent Passing AASHTO	Percent Passing AASHTO
MM	In	#3	#57
62.5	2.5	100	100
50	2	95–100	100
37.5	1½	35– 70	100
25	1	0–15	75–100
18.75	¾"	–	–
12.5	½	0 –5	25–60
9.5	3/8	<5	25
4.75	#4	<5	0–10
2.36	#8	<5	0–5

SUB BASE GRADATION

1/C6

ROADWAY POROUS PAVEMENT

NOT TO SCALE

HERSHBERG & HERSHBERG

Consulting Engineers and Land Surveyors

18 Locust Street
Albany, New York 12203

ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, IS ILLEGAL

STATE OF NEW YORK
DANIEL R. HERSHBERG
044226
LICENSED PROFESSIONAL ENGINEER & LAND SURVEYOR

REMARKS	DATE
RESPONSE REVISIONS	12/30/20
GENERAL REVISIONS	6/8/21
RESPONSE REVISIONS	7/12/21
GENERAL REVISIONS	8/4/21
AWD COMMENTS DATED 8/20/21	8/26/21
COMMENT REVISIONS	10/25/21

REVISIONS

STORM WATER POLLUTION PREVENTION PLAN
1415 WASHINGTON AVENUE
CITY OF ALBANY
COUNTY OF ALBANY, STATE OF NEW YORK

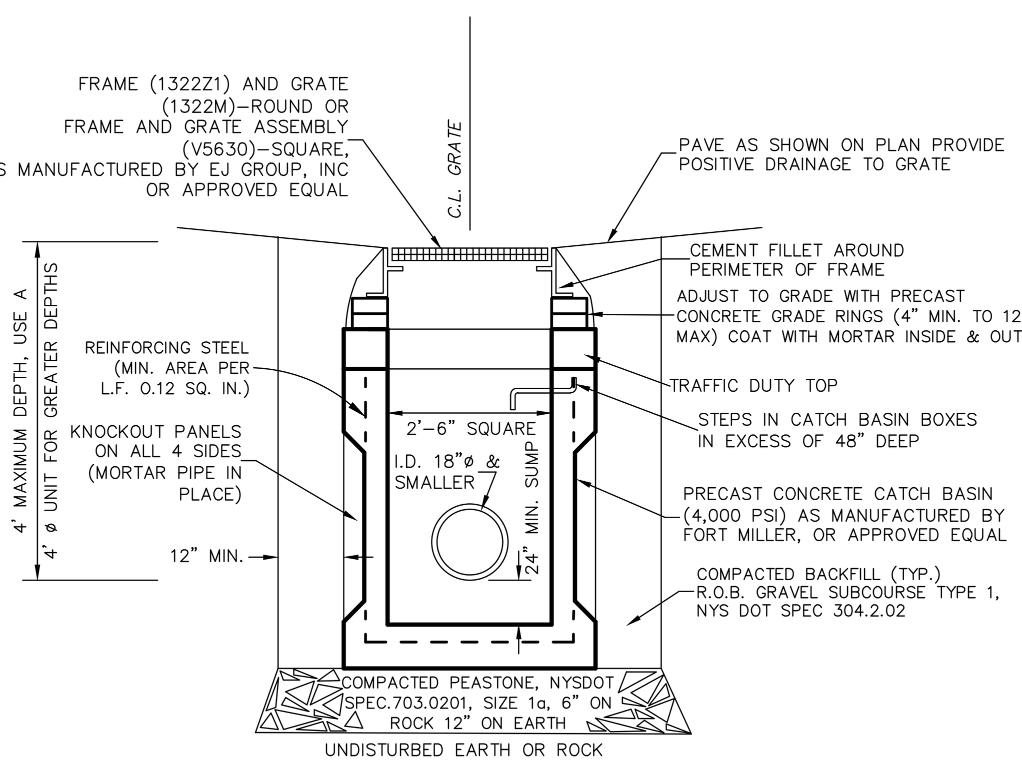
FILE: 200015 | SCALE: AS NOTED | BY: WM | CHK: DRH | DATE: 1/24/2020 | 200015-5.DWG

C6/15

MAP POCKET #2

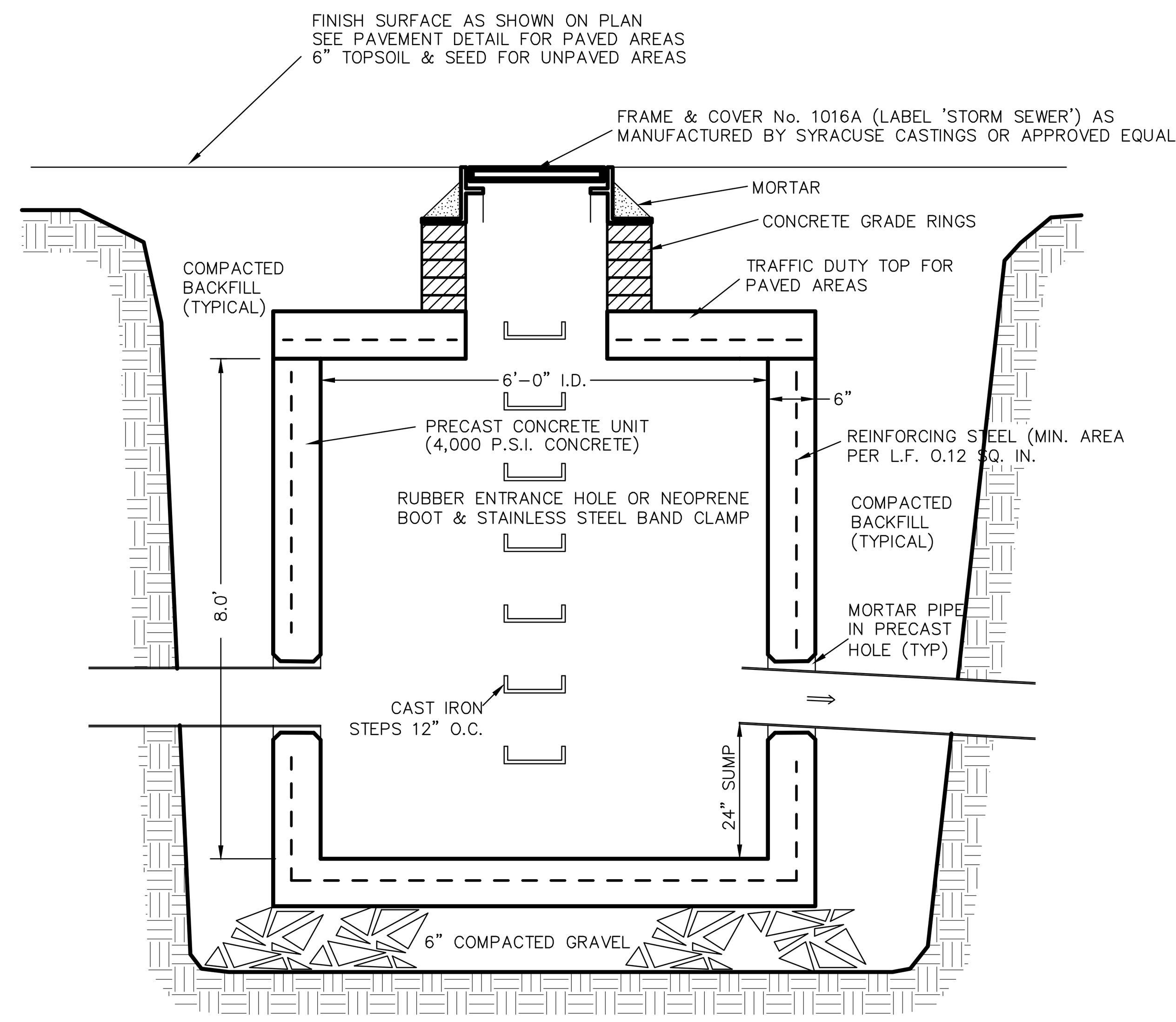
MAP C-7

SWPP DETAILS

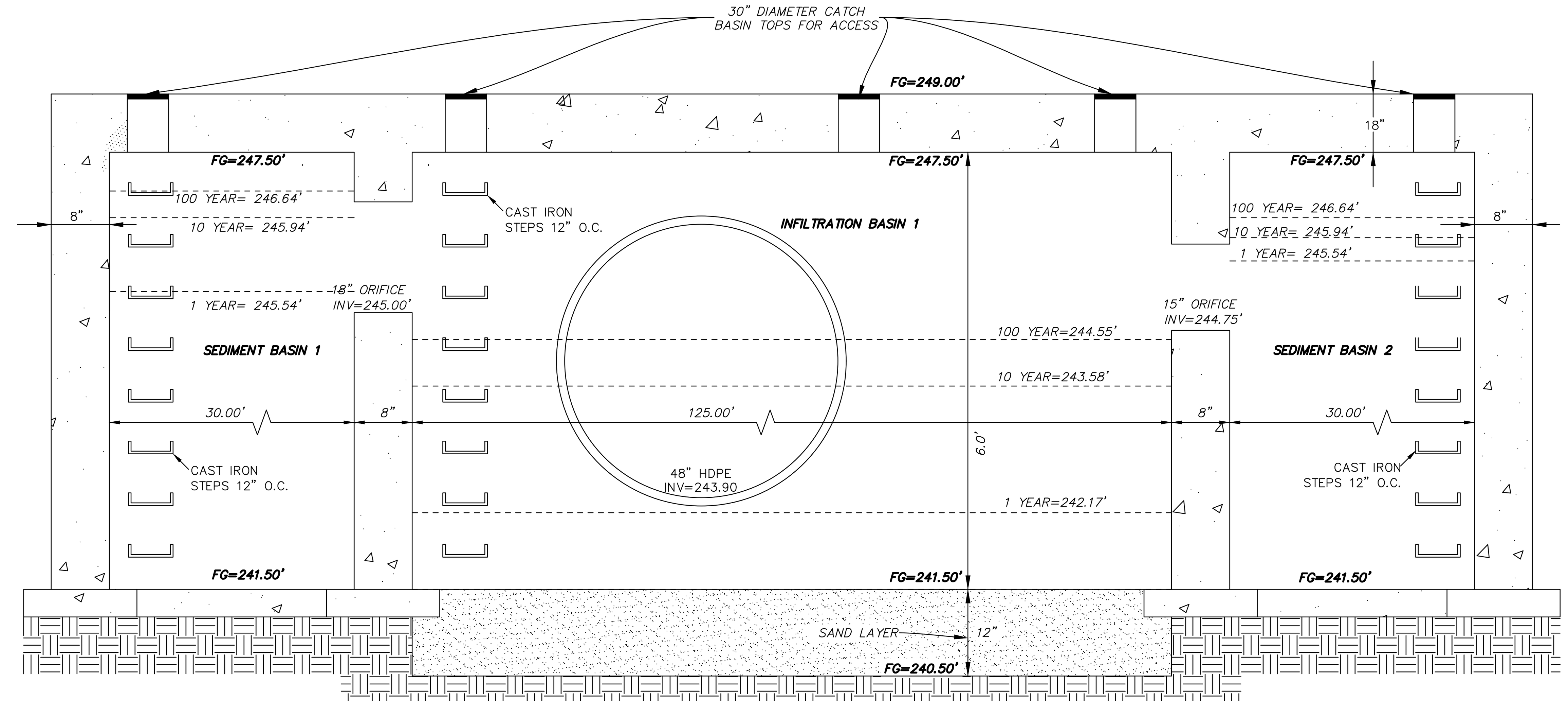


NOTES:
1. THE UPPERMOST STEP SHALL BE 4" TO 10" BELOW THE LOWERMOST GRADE RING AND NO DEEPER THAN 24" BELOW THE RIM OF THE STRUCTURE
2. THIS STRUCTURE IS TO BE USED ONLY IF IT CAN ACCOMMODATE PIPE AND FRAME AND GRATE SIZE

1/C7 CATCH BASIN DETAIL
NOT TO SCALE

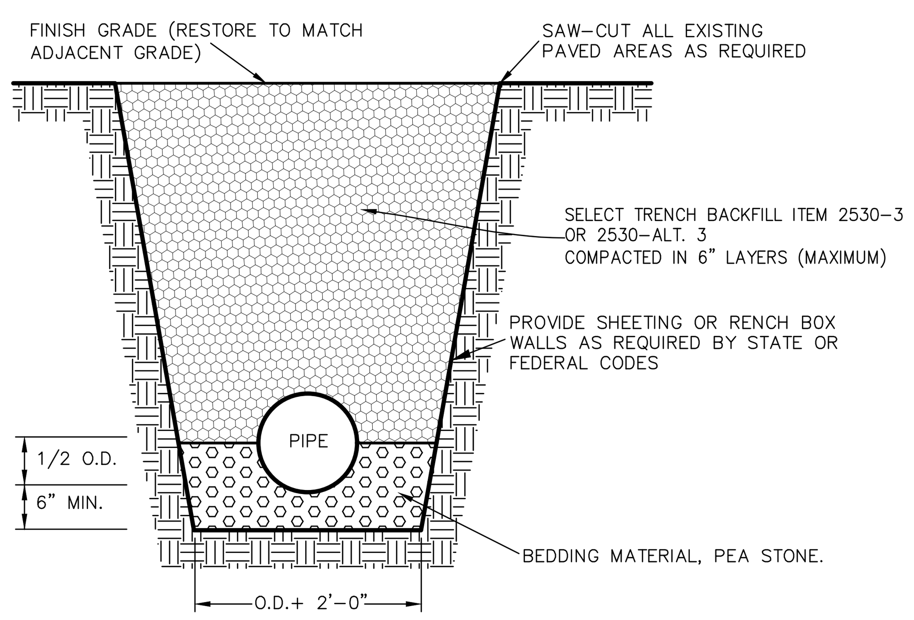


1/C7 STORM MANHOLE DETAIL
NOT TO SCALE

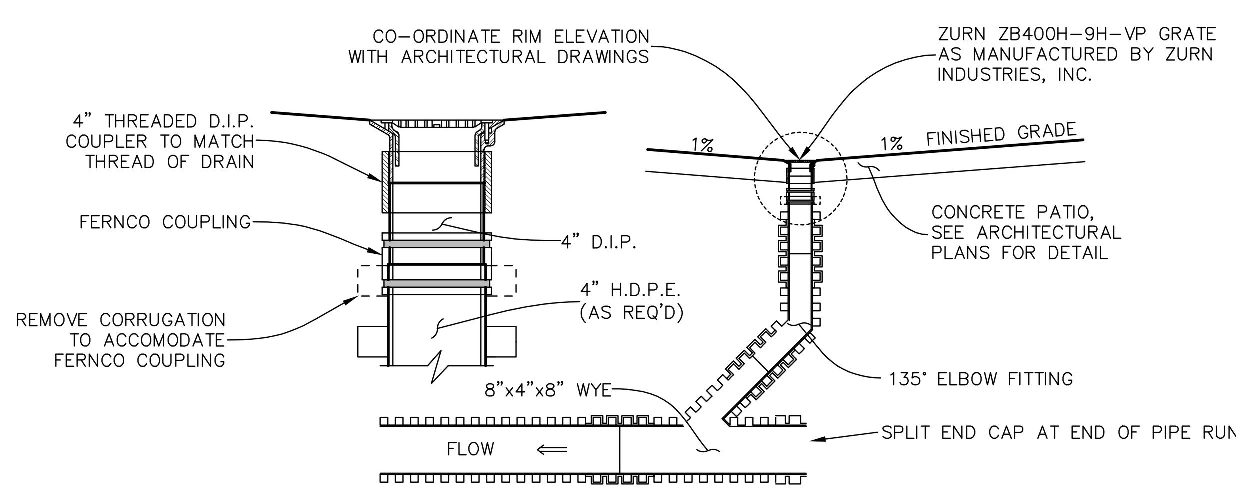


NOTE:
1. SUBMIT SHOP DRAWINGS STAMPED BY A NYS LICENSED ENGINEER SHOWING DETAILS OF CONCRETE SLAB, WALLS, AND FOOTINGS.

2/C7 SEDIMENT AND INFILTRATION BASINS DETAIL
NOT TO SCALE



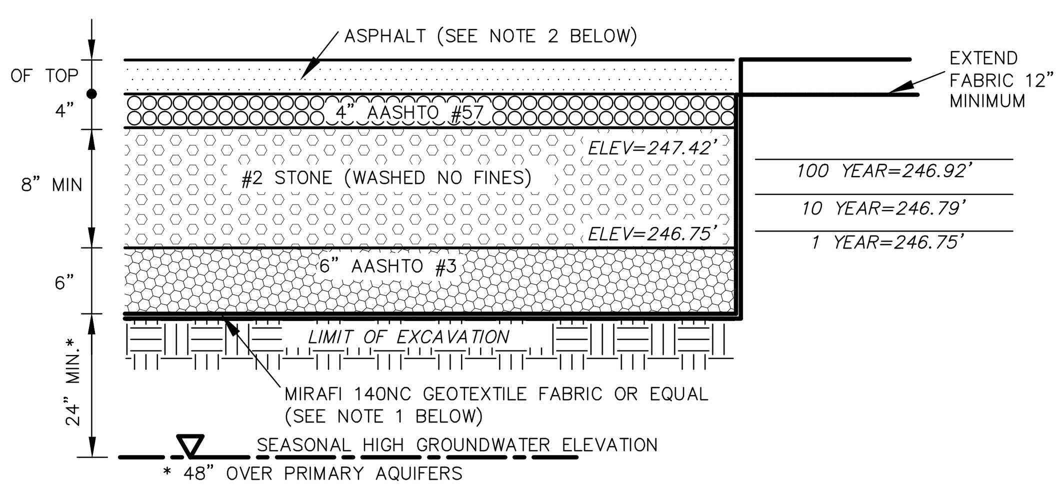
3/C7 TYPICAL STORM SEWER TRENCH DETAIL
NOT TO SCALE



4/C7 YARD DRAIN DETAIL
NOT TO SCALE

SUB BASE GRADATION

Sieve Size MM	Sieve Size In	Percent Passing AASHTO #3	Percent Passing AASHTO #57
62.5	2.5	100	100
50	2	95–100	100
37.5	1½	35– 70	100
25	1	0–15	75–100
18.75	¾"	–	–
12.5	½	0 –5	25–60
9.5	3/8	<5	25
4.75	#4	<5	0–10
2.36	#8	<5	0–5



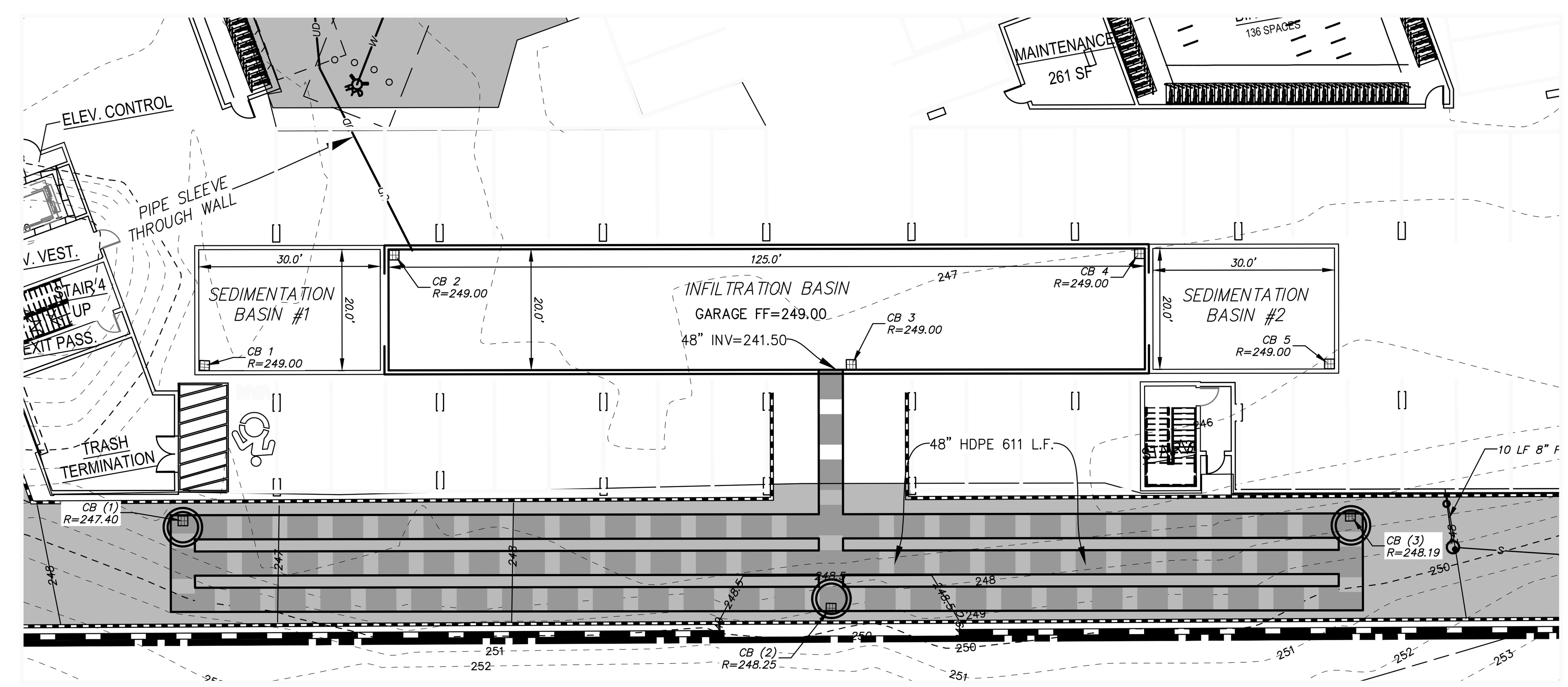
PAVEMENT SECTION

CRITICAL POROUS PAVEMENT NOTES:

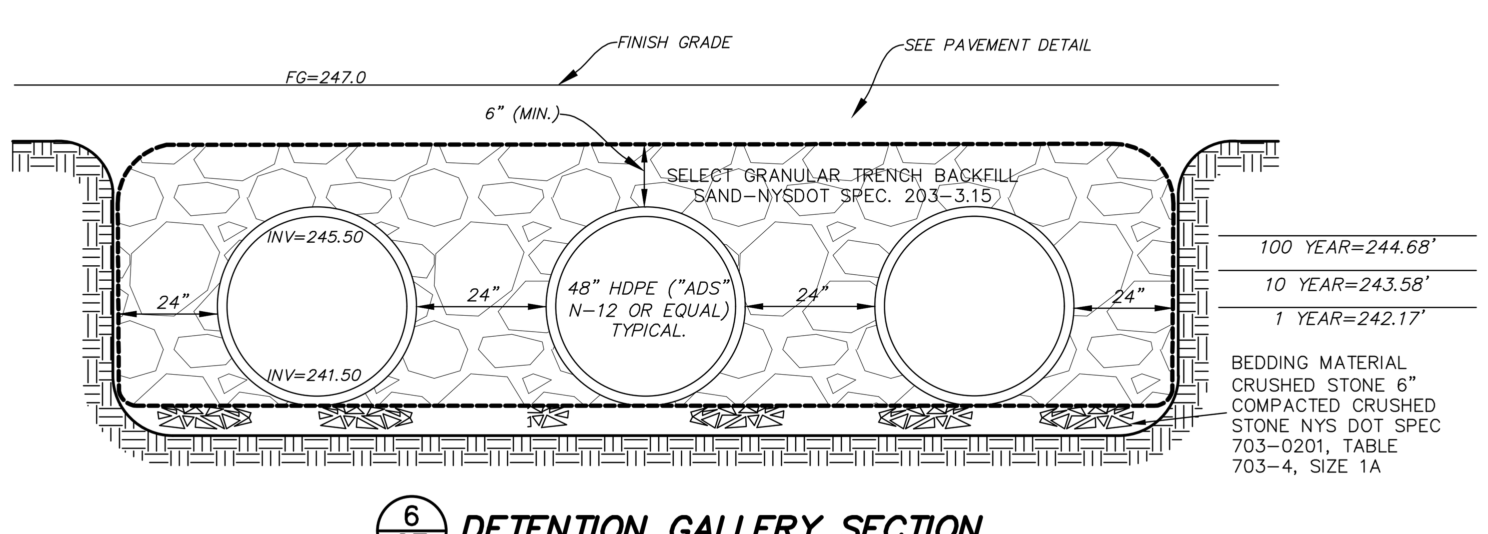
1. SUB GRADE MUST BE DECOMPACTED IN ACCORDANCE WITH NYSDEC REGULATIONS IMMEDIATELY PRIOR TO INSTALLATION OF THE GEOTEXTILE FABRIC.

2. DESIGN MIX MUST HAVE POLYMER ADDITIVE AND WILL NOT BE ACCEPTED WITHOUT.

5/C7 ROADWAY POROUS PAVEMENT
NOT TO SCALE



SEDIMENT AND INFILTRATION BASIN PLAN
SCALE: 1"=20'



6/C7 DETENTION GALLERY SECTION
NOT TO SCALE

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STATE OF NEW YORK — DANIEL R. HERSHBERG — LICENSED PROFESSIONAL ENGINEER AND LAND SURVEYOR — 044226

DATE	REMARKS
12/30/20	RESPONSE REVISIONS
6/8/21	GENERAL REVISIONS
7/12/21	RESPONSE REVISIONS
8/4/21	GENERAL REVISIONS
8/26/21	AND COMMENTS DATED 8/20/21
10/25/21	COMMENT REVISIONS

REVISIONS

SWPPP PLAN AND DETAILS
1415 WASHINGTON AVENUE
CITY OF ALBANY
COUNTY OF ALBANY, STATE OF NEW YORK

FILE: 200015 | SCALE: AS NOTED | BY: WM | CHK: DRH | DATE: 1/24/2020 | 200015-5.DWG

C7/15

MAP POCKET #3

MAP C-8

EROSION AND SEDIMENT CONTROL PLAN

EROSION AND SEDIMENT CONTROL NOTES

1. THIS PROJECT IS AUTHORIZED UNDER NYSDEC SPDES GENERAL PERMIT GP-0-20-001.

2. ANY CONTRACTOR INVOLVED IN EARTHWORK ACTIVITIES, INCLUDING BUT NOT LIMITED TO: CLEARING, GRADING AND TRENCHING, SHALL REVIEW ALL PERMIT CONDITIONS AND CERTIFY UNDERSTANDING OF THESE CONDITIONS, IN WRITING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT ALL EROSION CONTROLS DESCRIBED IN GP-0-20-001, AND IT IS NOT THE INTENT OF THESE DRAWINGS TO REPLACE OR DISSEMINATE THE PERMIT REQUIREMENTS. THE CONTRACTOR SHALL REMAIN IN COMPLIANCE WITH THE PERMIT AT ALL TIMES.

3. AT ALL TIMES SOIL DISTURBING ACTIVITIES SHALL REMAIN LESS THAN 1 ACRE. THE CONTRACTOR SHALL COORDINATE EARTHWORK ACTIVITIES AND IMPLEMENTATION OF SOIL STABILIZATION MEASURES TO ENSURE COMPLIANCE TO THIS PERMIT REQUIREMENT. THE SITE WILL BE MONITORED AT ALL TIMES TO ENSURE SOIL DISTURBANCE DOES NOT EXCEED 1 ACRE. IF THE SOIL DISTURBANCE EXCEEDS ONE ACRE AT ANY TIME, A STOP WORK ORDER WILL ISSUED UNTIL THE SITE RECEIVES COVERAGE UNDER SPDES GENERAL PERMIT FOR CONSTRUCTION ACTIVITY.

4. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION AND EQUIPMENT ENTRANCE WHENEVER PRACTICABLE.

5. DISTURBED AREAS SHALL BE STABILIZED WITHIN 14 DAYS OF COMPLETION OR SUSPENSION OF GRADING OPERATIONS.

6. INSTALL TEMPORARY & PERMANENT SEEDING IN ACCORDANCE WITH THE NEW YORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL STANDARD AND SPECIFICATION FOR TEMPORARY CONSTRUCTION AREA SEEDING AND FOR MULCHING:

<u>STANDARD AND SPECIFICATIONS FOR TEMPORARY CONSTRUCTION AREA PLANTINGS, PAGE 4.58:</u>
WATER MANAGEMENT PRACTICES MUST BE INSTALLED AS APPROPRIATE FOR SITE CONDITIONS. THE AREA MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE. LARGE DEBRIS AND ROCKS ARE USUALLY REMOVED. SEEDBED MUST BE SEEDED WITHIN 24 HOURS OF DISTURBANCE OR SCARIFICATION OF THE SOIL SURFACE WILL BE NECESSARY PRIOR TO SEEDING.

FERTILIZER OR LIME ARE NOT TYPICALLY USED FOR TEMPORARY SEEDINGS.

IF: SPRING OR SUMMER OR EARLY FALL, THEN SEED THE AREA WITH RYEGRASS (ANNUAL OR PERENNIAL) AT 30 LBS. PER ACRE. (APPROXIMATELY 0.7 LB./1000 SQ. FT. OR USE 1 LB./1000 SQ. FT.)

IF: LATE FALL OR EARLY WINTER, THEN SEED CERTIFIED 'AROOSTOOK' WINTER RYE (CEREAL RYE) AT 1000 LBS. PER ACRE (2.5 LBS./1000 SQ. FT.).

ANY SEEDING METHOD MAY BE USED THAT WILL PROVIDE UNIFORM APPLICATION OF SEED TO THE AREA AND RESULT IN RELATIVELY GOOD SOIL TO SEED CONTACT.

MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/ACRE (APPROX. 90 LBS./1000 SQ. FT. OR 2 BALES). QUALITY OF HAY OR STRAW MULCH ALLOWABLE WILL BE DETERMINED BASED ON LONG TERM USE AND VISUAL CONCERNS. MULCH ANCHORING WILL BE REQUIRED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE OF CONCERN. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL (NYLON WEB OR MESH) MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS. <u>CAUTION</u> IS ADVISED WHEN USING NYLON OR OTHER SYNTHETIC PRODUCTS. THEY MAY BE DIFFICULT TO REMOVE PRIOR TO FINAL SEEDING AND CAN BE A HAZARD TO YOUNG WILDLIFE SPECIES.

<u>MULCH ANCHORING GUIDE – TABLE 4.3, PAGE 4.41:</u>

TABLE 4.3
MULCH ANCHORING GUIDE

ANCHORING METHOD OR MATERIAL	KIND OF MULCH TO BE ANCHORED	HOW TO APPLY
PEG AND TWINE	HAY OR STRAW	AFTER MULCHING, DIVIDE AREAS INTO BLOCKS APPROXIMATELY 1 SQ. YD. IN SIZE. DRIVE 4-6 PEGS PER BLOCK TO WITHIN 2" TO 3" OF SOIL SURFACE. SECURE MULCH TO SURFACE BY STRETCHING TWINE BETWEEN PEGS IN CRISS-CROSS PATTERN ON SECURE TWINE AROUND EACH PEG WITH 2 OR MORE TIGHT TURNS. DRIVE PEGS FLUSH WITH SOIL. DRIVING STAKES INTO GROUND TIGHTENS THE TWINE.
MULCH NETTING	HAY OR STRAW	STAPLE THE LIGHT-WEIGHT PAPER, JUTE, WOOD FIBER, OR PLASTIC NETTINGS TO SOIL SURFACE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. SHOULD BE BIODEGRADABLE. MOST PRODUCTS ARE NOT SUITABLE FOR FOOT TRAFFIC.
WOOD CELLULOSE FIBER	HAY OR STRAW	APPLY WITH HYDROSEEDER IMMEDIATELY AFTER MULCHING. USE 500 LBS. WOOD FIBER PER ACRE. SOME PRODUCTS CONTAIN AN ADHESIVE MATERIAL ("TACKIFIER"), POSSIBLY ADVANTAGEOUS.
MULCH ANCHORING TOOL	HAY OR STRAW	APPLY MULCH AND PULL A MULCH ANCHORING TOOL (BLUNT, STRAIGHT DISCS) OVER MULCH AS NEAR TO THE CONTOUR AS POSSIBLE. MULCH MATERIAL SHOULD BE "TUCKED" INTO SOIL SURFACE ABOUT 3".
TACKIFIER	HAY OR STRAW	MIX AND APPLY POLYMERIC AND GUM TACKIFIERS ACCORDING TO MANUFACTURER'S INSTRUCTIONS. AVOID APPLICATION DURING RAIN. A 24-HOUR CURING PERIOD AND A SOIL TEMPERATURE HIGHER THAN 45° FAHRENHEIT ARE REQUIRED.

7. INSTALL PERMANENT RIP-RAP AT ALL PIPE END SECTIONS AT TIME OF INSTALLATION OF PIPE.

8. DURING EXCAVATION OF TEMPORARY SEDIMENT BASIN, FIELD VERIFY A MINIMUM OF 2' SEPARATION DISTANCE FROM GROUND WATER ELEVATION TO SURFACE SAND FILTERS WITH AN IMPERMEABLE BOTTOM AND 3' WITH A PERMEABLE BOTTOM. NOTIFY ENGINEER IMMEDIATELY IF THESE MINIMUM SEPARATION REQUIREMENTS DO NOT EXIST FOR ALTERNATIVE MEANS OF STORMWATER POLLUTION PREVENTION.

9. SEE REMAINDER OF PLANS FOR PERMANENT IMPROVEMENTS. PERMANENT IMPROVEMENTS SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY.

10. PAVED AREAS ARE TO BE SWEPT DAILY TO REMOVE ANY SEDIMENT AND ALL NEWLY PAVED AREAS SHALL BE DIRECTED TO THE TEMPORARY OR FINAL SEDIMENT CONTROL BASINS.

CONSTRUCTION SEQUENCING AND SEDIMENTATION AND EROSION CONTROL DURING CONSTRUCTION

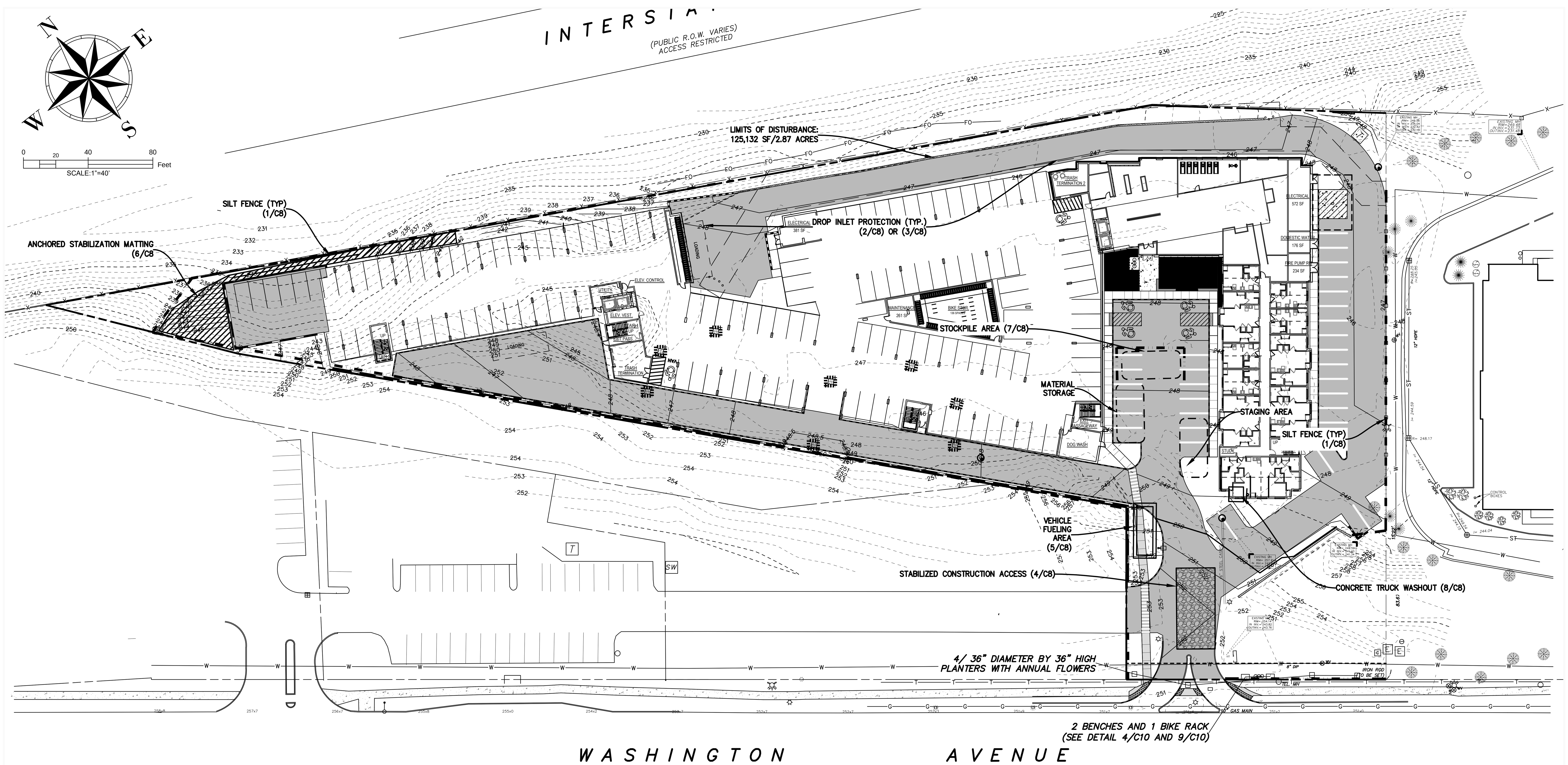
THE CONSTRUCTION SEQUENCE FOR THIS PROJECT WILL BE GOVERNED BY THE EROSION AND SEDIMENT CONTROL PLAN.

<u>CONSTRUCTION SEQUENCE</u>

- ✓ *COMMENCE WORK ON SITE. WITHIN 10 DAYS OF PRE-CONSTRUCTION MEETING*
- ✓ *INSTALL SEDIMENTATION FENCE AS INDICATED ON THE PLAN. PRIOR TO COMMENCEMENT OF ANY GRADING - FENCE TO REMAIN IN PLACE UNTIL ALL AREAS ARE STABILIZED.*
- ✓ *UNDERTAKE BUILDING DEMOLITION INCLUDING ASBESTOS ABATEMENT AND UTILITY SHUTOFFS. CLOSE WATER SERVICE AT VALVE PENDING THE ABANDONMENT OF THE WATER MAIN SECTION AS DESCRIBED BELOW. PRIOR TO NEW CONSTRUCTION ITEMS BEING UNDERTAKEN.*
- ✓ *GRADE AND PREPARE CONSTRUCTION ACCESS. PRIOR TO COMMENCEMENT OF ANY GRADING - CONSTRUCTION ENTRANCE TO REMAIN IN PLACE UNTIL ALL AREAS ARE STABILIZED.*
- ✓ *THE EXISTING PAVEMENT MUST BE KEPT SWEPT CLEAN TO AVOID TRACKING MATERIALS ONTO ANY STREETS. CONTINUOUSLY FROM INCEPTION TO COMPLETION OF STABILIZATION OR FILING OF NOTICE OF TERMINATION.*
- ✓ *MAINTAIN THIS AREA CLEAN OF DEBRIS AND VERIFY CONDITION AND SAFETY OF STORAGE OF MATERIALS LISTED BELOW. REQUIRES DAILY INSPECTION. CONTINUOUSLY FROM INCEPTION TO FILING OF NOTICE OF TERMINATION.*
- ✓ *ANY CONSTRUCTION MATERIALS, CHEMICALS OR CONSTRUCTION DEBRIS MUST BE STORED IN SEALED RECEPTACLES, TRAILERS OR BUILDINGS. ANY STORAGE PILES OF MATERIALS MEANT FOR INSTALLATION (I.E., SAND, ETC.) MUST BE SURROUNDED BY SEDIMENTATION FENCE. THE LIST OF ANTICIPATED MATERIALS STORED ON SITE DURING CONSTRUCTION IS PROVIDED BELOW AND MUST BE UPDATED IF ANY ADDITIONAL MATERIALS ARE UTILIZED: CONTINUOUSLY FROM INCEPTION TO FILING OF NOTICE OF TERMINATION.*
  - ❑ *SELECT FILL*
  - ❑ *CONCRETE STRUCTURES*
  - ❑ *PIPES*
  - ❑ *PIPE SOLVENTS*
  - ❑ *CONCRETE FOR BUILDING*
  - ❑ *ROOFING MATERIALS FOR BUILDING*
  - ❑ *METAL MATERIALS FOR BUILDING*
  - ❑ *BUILDING MATERIALS FOR BUILDING*
- ✓ *MSDS SHEETS MUST BE AVAILABLE ON SITE FOR ALL MATERIALS USED OR IMPORTED TO THE SITE. CONTINUOUSLY FROM INCEPTION TO FILING OF NOTICE OF TERMINATION.*
- ✓ *ANY CHEMICAL SPILLS MUST BE CONTAINED IMMEDIATELY ON SITE AND REPORTED TO NYSDEC. CONTINUOUSLY FROM INCEPTION TO FILING OF NOTICE OF TERMINATION.*
- ✓ *OIL AND GREASE SPILLS FROM EQUIPMENT SHALL BE TREATED IMMEDIATELY. CONTINUOUSLY FROM INCEPTION TO FILING OF NOTICE OF TERMINATION.*
- ✓ *COMMENCE INSTALLATION OF THE TEMPORARY SEDIMENT TRAP AND INTERCEPTION SWALE. PRIOR TO PLACEMENT OF SLAB .*
- ✓ *CLEAN INTERCEPTION SWALE AND SEDIMENT TRAP AS REQUIRED. CONTINUOUSLY FROM INSTALLATION UNTIL FILING OF NOTICE OF TERMINATION.*
- ✓ *PERFORM DEEP RIPPING AND DECOMPACTION AS NECESSARY. PRIOR TO INSTALLATION OF PIPE GALLERY FOR INFILTRATION. DELAY THIS STEP TILL IMMEDIATELY BEFORE THE RECHARGE GALLERY IS INSTALLED. THIS STEP MUST BE OBSERVED BY THE DESIGN ENGINEER. SEE ATTACHMENT NO. 8.*
- ✓ *INSTALL RECHARGE GALLERY WHEN STAGING OR ADDITIONAL ACTIVITIES ARE NO LONGER REQUIRED IN THESE AREAS. ABANDON TEMPORARY SEDIMENT TRAP AND ANY TEMPORARY SWALES. CONNECT ROOF DRAINAGE TO RECHARGE BASIN. RESTORE TRENCHES. WHEN APPROPRIATE.*
- ✓ *RESTORE PAVEMENT AND LAWNS. PRIOR TO FILING OF NOTICE OF TERMINATION.*
- ✓ *CLEAN THE RECHARGE GALLERY STRUCTURE OF ANY ACCUMULATED SILT. PRIOR TO FILING OF NOTICE OF TERMINATION.*
- ✓ *FINE GRADE LANDSCAPE BEDS. PRIOR TO FILING OF NOTICE OF TERMINATION.*
- ✓ *PLACE LANDSCAPE MATERIALS. PRIOR TO FILING OF NOTICE OF TERMINATION.*
- ✓ *SEED AND MULCH. PRIOR TO FILING OF NOTICE OF TERMINATION.*
- ✓ *OBTAIN APPROVAL ON NOTICE OF TERMINATION FROM MS4 COORDINATOR AFTER SITE HAS ACHIEVED >80% GRASS COVER. PRIOR TO FILING OF NOTICE OF TERMINATION.*
- ✓ *FILE NOTICE OF TERMINATION.*

<u>WINTER CONDITIONS ITEMS TO BE ADDRESSED</u>

1. Identify areas within the site to store snow which is tributary to the temporary perimeter swale. As work progresses this area may move but positive drainage tributary to the temporary perimeter swale must be maintained.
2. Widen stabilized construction access points to a minimum of 28 feet. Where pavement forms a portion of that route, maintain 50 feet of stone pavement meeting the detail as shown on the SWPPP plan. Stockpile a minimum of 25 cubic yard of stone for the purposes of establishing stone access point after snow storms.
3, Where any areas at the street grade or within two feet of the street grade remain disturbed overnight, stabilize those areas using 6" of broken stone.
4. Where equipment or vehicles are traversing the bottom of the excavation, establish paths using 6" of broken stone.
5. At any point on the perimeter where drainage from accumulated snow or ice will drain away from the site protect these areas with fiber rolls or polyethylene coated check dam materials (Filtrexx, Erosion eel or equal).
6. If work is to cease for more than 3 days, stabilize all disturbed soils.



<u>EROSION AND SEDIMENT CONTROL PLAN</u>
SCALE: 1"=40'

ESC LEGEND

- SILT FENCE
- LIMITS OF DISTURBANCE
- DROP INLET PROTECTION
- FUELING AREA
- STOCKPILE, STAGING, AND MATERIAL STORAGE AREA

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE JULY 2016 "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL." (aka: THE BLUE BOOK) EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.

2. IT IS THE INTENT OF THESE PLANS AND NOTES TO BE USED AS A GUIDE BY THE CONTRACTOR TO ENSURE THAT NO ERODED MATERIAL MIGRATES FROM THE SITE OR ENTERS ANY WATER COURSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THIS GOAL IS MET, BY IMPLEMENTING THESE PLANS AND ANY ADDITIONAL MEANS THAT MAY BE NECESSARY. FURTHER MEASURES MAY BE REQUIRED BY THE CITY, VILLAGE, OR TOWN ENGINEER. WHILE MANY OF THE EROSION CONTROL DETAILS CONTAINED WITHIN THESE PLANS ARE TAKEN DIRECTLY FROM THE BLUE BOOK, THE CONTRACTOR SHOULD CONSIDER ANY OF THE DETAILS CONTAINED IN THE JULY 2016 NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL AS ACCEPTABLE PRACTICE IN THE APPROPRIATE APPLICATION.

3. THE DEVELOPER/CONTRACTOR OR HIS BUILDER SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES WEEKLY AND AFTER EACH RAINFALL EVENT THROUGH THE ENTIRE DEVELOPMENT PROCESS. TO ASSURE PROPER FUNCTION, SILTATION BARRIERS SHALL BE MAINTAINED IN GOOD CONDITION AND REINFORCED, EXTENDED, REPAIRED, RE-SEEDED AND PROTECTED FROM FURTHER EROSION. ALL SEDIMENT ACCUMULATED SHALL BE REMOVED AND CONTAINED IN APPROPRIATE SPOIL AREAS. WATER SHALL BE APPLIED TO NEWLY SEEDED AREAS AS NEEDED UNTIL GRASS COVER IS WELL ESTABLISHED. DURING THESE PERIODIC INSPECTIONS, THE FOLLOWING ITEMS SHOULD BE PAID PARTICULAR ATTENTION:
   - A. THE BASIN INLET LOCATIONS SHALL BE INSPECTED FOR SILT ACCUMULATION CAUSED BY THE LACK OF ESTABLISHED SURROUNDING VEGETATION.
   - B. CATCH BASINS SHALL BE CHECKED FOR SEDIMENT ACCUMULATION.
   - C. RIP-RAP OUTLET PROTECTION SHALL ALSO BE CHECKED FOR SEDIMENT ACCUMULATION. IF SIGNIFICANT AMOUNTS OF SEDIMENT ACCUMULATE, RIP-RAP SHALL BE REMOVED AND REPLACED.
   - D. STONE CHECK DAMS AND SILT FENCING SHALL BE INSPECTED REGULARLY FOR UNDERMINING AND DETERIORATION.
   - E. SEEDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.

4. EROSION CONTROL DEVICES SHALL NOT BE REMOVED UNTIL THE ENGINEER HAS APPROVED FINAL STABILIZATION.

5. STONE CHECK DAMS AND SILT FENCE SHALL BE INSTALLED IN ACCORDANCE WITH PLAN AND DETAIL LOCATIONS AND AS DESCRIBED IN GP-0-20-001.

6. PRIOR TO CONSTRUCTION OF ANY PHASE, THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED.

7. CONSTRUCTION TRAFFIC SHALL NOT CROSS STREAMS OR DITCHES EXCEPT AT SUITABLE CROSSING FACILITIES. EQUIPMENT SHALL NOT OPERATE, UNNECESSARILY,

8. EXISTING PAVEMENT AREAS SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER.

9. WATER TRUCKS SHALL BE USED TO MINIMIZE DUST POLLUTION ON SITE, AND ON ADJACENT ROADWAYS ROADWAY AREAS AS DIRECTED BY THE ENGINEER.

10. ANY WATER PUMPED AS A RESULT OF DEWATERING ACTIVITIES SHALL BE PUMPED INTO A DEWATERING PIT.

11. CONCRETE WASHOUT AREAS SHALL BE DESIGNATED BY THE DESIGN ENGINEER AND PROTECTED IN ACCORDANCE WITH GP-0-20-001.

12. ALL AREAS DISTURBED IN THE CONSTRUCTION PROCESS SHALL BE RE-SEEDED AS SOON AS PRACTICABLE. PARTICULAR CARE SHALL BE TAKEN TO RE-SEED DISTURBED SLOPES IN A TIMELY MANNER.

13. IT IS RECOMMENDED THAT ALL EROSION CONTROL DEVICES BE PLACED FOR THE ENTIRE PHASE AS SHOWN ON THE EROSION CONTROL PLAN. PLACEMENT MAY BE DONE, HOWEVER, TO SUIT CONSTRUCTION SEQUENCING AS APPROVED BY THE ENGINEER.

14. STOCK PILES SHALL BE PROTECTED BY A SEDIMENT CONTROL FENCE OR TEMPORARY SEDIMENT CONTROL TRENCH PER GP-0-20-001. THESE FENCES/TRENCHES SHALL BE MAINTAINED IN GOOD CONDITION UNTIL SAID STOCK PILES ARE REMOVED AND STOCK PILING AREAS ARE PERMANENTLY STABILIZED.

15. STOCK PILES SHALL BE SEEDED UPON SUSPENSION OF WORK OR IF MATERIAL IS NOT TO BE USED WITHIN 14 DAYS, IN ACCORDANCE WITH GP-0-20-001.

16. IN NO CASE SHALL ERODIBLE MATERIALS BE STOCKPILED WITHIN 25 FEET OF ANY DITCH, STREAM OR OTHER SURFACE WATER BODY.

17. SILT FENCING SHALL BE INSTALLED AT THE DOWN GRADIENT PERIMETERS OF ALL SLOPES TO BE GRADED, PRIOR TO GRADING OPERATIONS.

18. SEDIMENT STILLING BASINS SHALL BE UTILIZED TO PREVENT OFF SITE EROSION.

19. THE STORMWATER DETENTION PONDS AND CUT-OFF SWALES SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF ADJACENT AREAS.

20. WHERE NECESSARY, TEMPORARY GRADING WILL BE REQUIRED TO ROUTE STORMWATER TO CUT OFF SWALES AND DETENTION PONDS.

21. UPON INSTALLATION OF ANY CATCH BASIN, INSTALL EXCAVATED DROP INLET PROTECTION, THIS SHALL REMAIN UNTIL THE DRAINAGE AREA IS STABILIZED.

22. PRIOR TO ANY CONSTRUCTION ALL FEDERAL JURISDICTIONAL WETLANDS SHALL BE FIELD LOCATED AND DELINEATED WITH SILT FENCING AND ORANGE CONSTRUCTION FENCE. THE ORANGE FENCING SHALL BE INSTALLED AT THE ESTABLISHED WETLAND BUFFER LINE, AND THE SILT FENCE SHALL BE LOCATED BETWEEN THE BUFFER AND THE JOB SITE.

23. CLEARING OPERATIONS SHALL BE LIMITED TO ACTIVE WORK AREAS.

24. CARE SHALL BE TAKEN TO PRESERVE AS MUCH EXISTING VEGETATION AS POSSIBLE AND HEALTHY TREES OF DESIRABLE SPECIES SHALL BE PROTECTED.

25. RIP-RAP OUTLET PROTECTION: RIP-RAP SHALL BE PROVIDED AT CULVERT LOCATIONS AS INDICATED ON THESE DRAWINGS. THE RIP-RAP SHALL PROTECT SIDE SLOPES FROM EROSION, AND SHALL BE ESTABLISHED AS THE CULVERT IS INSTALLED.

26. STORM INLET PROTECTION: IMMEDIATELY FOLLOWING COMPLETION OF ANY AND ALL OF THE PROPOSED STORM DRAIN INLETS, STORM DRAIN INLET PROTECTION SHALL BE CONSTRUCTED. THIS PROTECTION SHALL FUNCTION TO PREVENT SEDIMENT ENTRANCE INTO THE STORM DRAINS. PROTECTION SHALL BE MAINTAINED IN GOOD CONDITION UNTIL THE DRAINAGE AREAS HAVE BEEN PERMANENTLY STABILIZED.

27. STONE CHECK DAMS SHALL BE PROVIDED AT ALL STORMWATER OUTLETS UNTIL VEGETATION HAS BEEN STABILIZED.

28. RECP (ROLLED EROSION CONTROL PRODUCT) SHALL BE JUTE OR EXCELSIOR MATTING. PROVIDE 4" MIN TOPSOIL AND SEED WITH KENTUCKY BLUEGRASS, CREEPING RED FESCUE AND PERENIAL RYGRASS AT A RATE OF 25, 20 AND 10 LBS PER ACRE RESPECTIVELY.

29. EROSION AND SEDIMENT CONTROL MEASURES SHALL INCLUDE A SWPPP MONITORING PROFESSIONAL AS WELL AS COORDINATION WITH MUNICIPALITY OFFICIALS IN ADDITION TO INSPECTION ROLES OF CONTRACTOR AND/OR SITE CONTRACTOR.

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REMARKS	DATE
RESPONSE REVISIONS	12/30/20
GENERAL REVISIONS	6/8/21
RESPONSE REVISIONS	7/12/21
GENERAL REVISIONS	8/4/21
AND COMMENTS DATED 8/20/21	8/26/21
COMMENT REVISIONS	10/25/21

REVISIONS

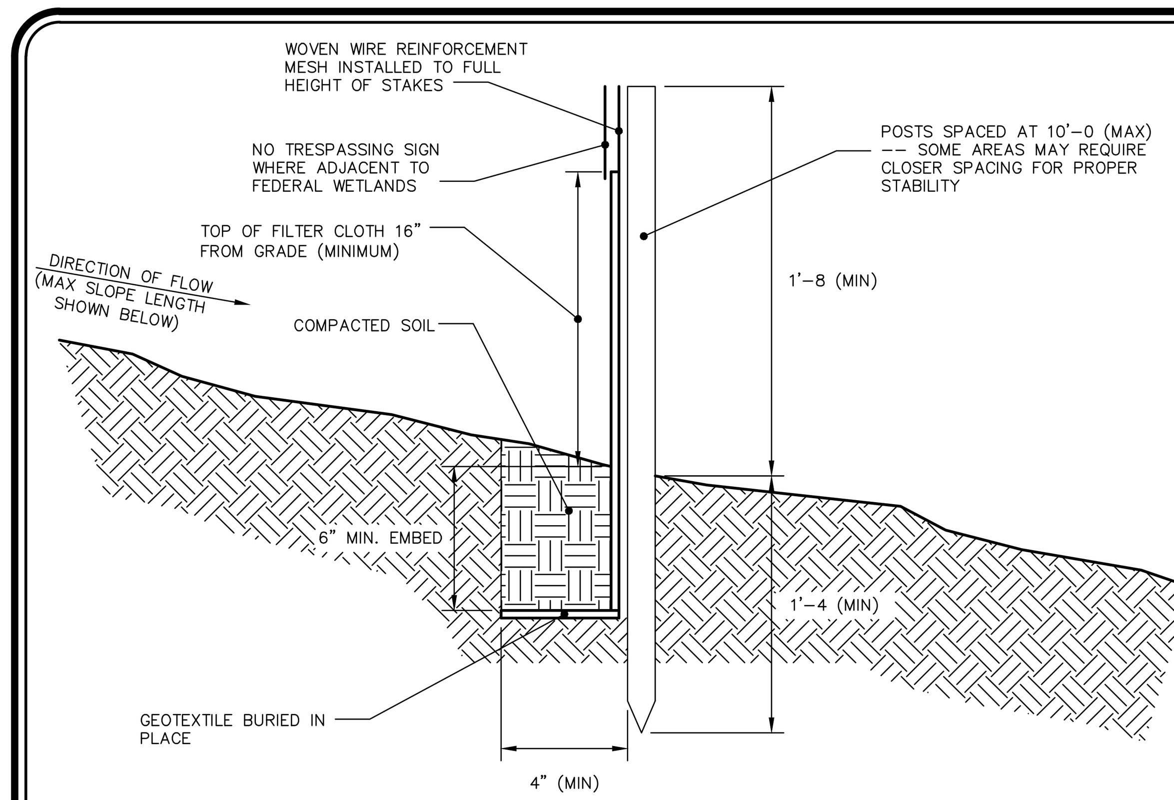
EROSION AND SEDIMENT CONTROL PLAN
1415 WASHINGTON AVENUE
CITY OF ALBANY
COUNTY OF ALBANY, STATE OF NEW YORK

SCALE: AS NOTED | BY: WM | CHK: DRH | DATE: 1/24/2020 | FILE: 200015 | 200015-5.DWG

MAP POCKET #4

MAP C-9

EROSION & SEDIMENT CONTROL DETAILS



MAXIMUM ALLOWABLE SLOPE LENGTH

MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUNOFF TO A SECTION OF SILT FENCE SHALL BE AS FOLLOWS:

SLOPE STEEPNESS:	MAX. SLOPE LENGTH:
1:2	25 FT
1:3	50 FT
1:4	75 FT
1:5 OR FLATTER	100 FT

NOTE: MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO SILT FENCE SECTION SHALL NOT EXCEED 1/4 ACRE PER 100 FT OF FENCE. CONCENTRATED DISCHARGE OF SEDIMENT LADEN WATER SHALL NOT BE ALLOWED TO FLOW DIRECTLY TO THE FENCING.

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

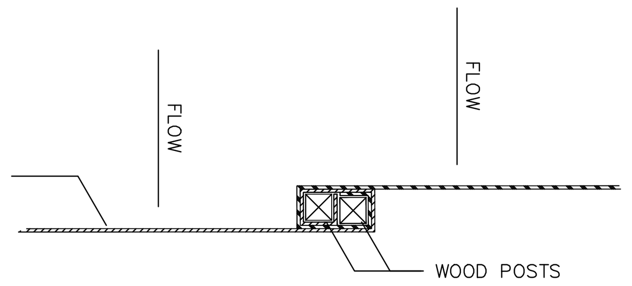
1. INSTALL SILT FENCE IN ACCORDANCE WITH "THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", SECTION 7A.
2. WOVEN WIRE FENCE SHALL BE 12 1/2 GA., 6" MAXIMUM MESH OPENING, FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
3. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE WRAPPED TOGETHER PER SILT FENCE JOINT DETAIL ON THIS SHEET.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN ACCUMULATION REACHES 1/2 OF DESIGN CAPACITY OF FENCE (1/2 HEIGHT OF FILTER FABRIC) OR WHEN "BULGES" DEVELOP IN FENCING.

POSTS: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD

FENCE: WOVEN WIRE, 12 1/2 GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

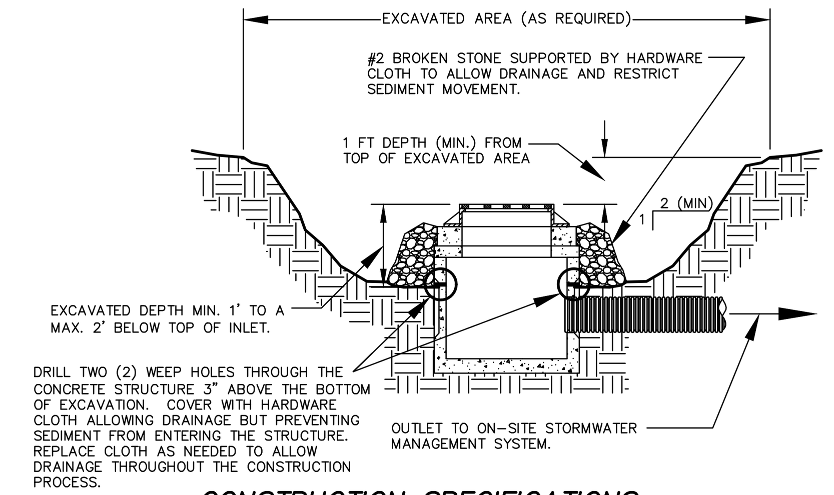


WRAP ENDS OF SILT FENCE SECTIONS TOGETHER TO PREVENT FLOW OF SEDIMENT BETWEEN SECTIONS

SILT FENCE JOINT DETAIL

1/C9 SILT FENCE DETAIL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS:

1. INSTALL INLET PROTECTION IN ACCORDANCE WITH THE JULY 2016 "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".

2. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.

3. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.

4. WEEP HOLES SHALL BE PROTECTED BY 2"ø STONE OR GRAVEL.

5. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL EXCAVATION WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.

6. THE MAXIMUM DRAINAGE AREA SHALL BE 1 ACRE.

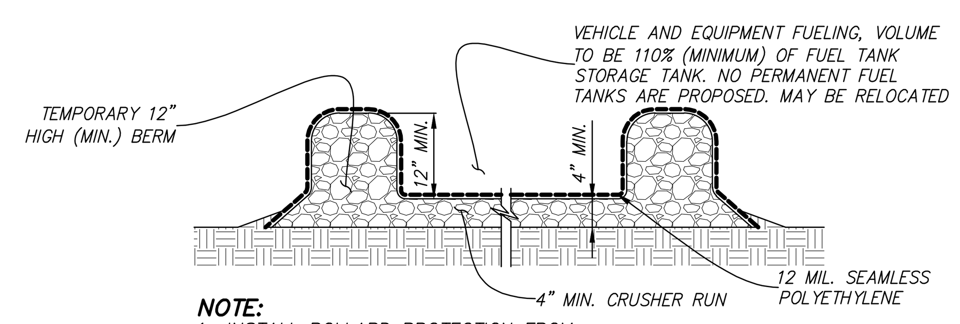
DESIGN CRITERIA:

LIMIT THE DRAINAGE AREA TO THE INLET DEVICE TO ONE (1) ACRE. EXCAVATED SIDE SLOPES SHALL BE NO STEEPER THEN 2:1. THE MINIMUM DEPTH SHALL BE 1 FOOT AND THE MAXIMUM DEPTH 2 FEET AS MEASURED FROM THE CREST OF THE INLET STRUCTURE. SHAPE THE EXCAVATED BASIN TO FIT CONDITIONS WITH THE LONGEST DIMENSION ORIENTATED TOWARD THE LONGEST INFLOW AREA TO PROVIDE MAXIMUM TRAP EFFICIENCY. THE CAPACITY OF THE EXCAVATED BASIN SHOULD BE ESTABLISHED TO CONTAIN 900 CUBIC FEET PER ACRE OF DISTURBED AREA. WEEP HOLES, PROTECTED BY FABRIC AND STONE, SHOULD BE PROVIDED FOR DRAINING THE TEMPORARY POOL.

INSPECT AND CLEAN THE EXCAVATED BASIN AFTER EVERY STORM. SEDIMENT SHOULD BE REMOVED WHEN 50 PERCENT OF THE STORAGE VOLUME IS ACHIEVED. THIS MATERIAL SHOULD BE INCORPORATED INTO THE SITE IN A STABILIZED MANNER.

2/C9 EXCAVATED DROP INLET PROTECTION

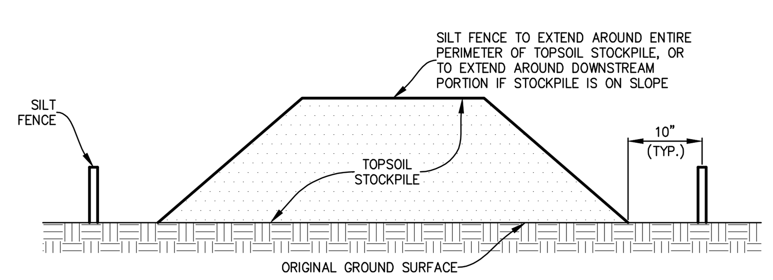
NOT TO SCALE



NOTE:
1. INSTALL BOLLARD PROTECTION FROM CONSTRUCTION ACTIVITY (4' O.C. MIN.).

5/C9 VEHICLE AND EQUIPMENT FUELING DETAIL

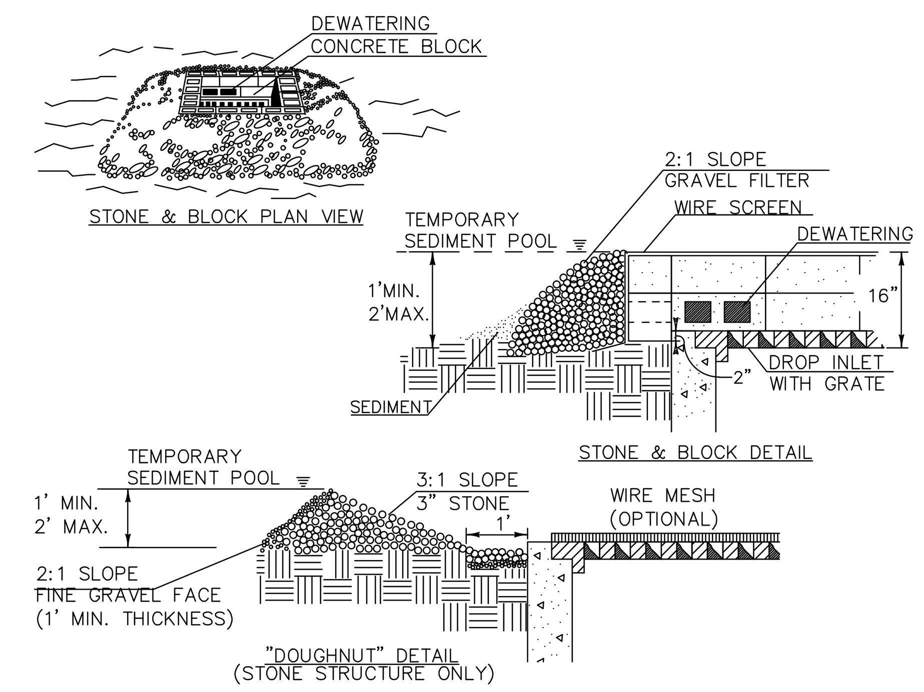
NOT TO SCALE



NOTES:
1. AN ON-SITE DRAINAGE SWALE SHALL BE LOCATED BETWEEN THE TOPSOIL STOCKPILE AND OFF-SITE PROPERTY.
2. REFERENCE IS MADE TO THE SILT FENCE DETAIL FOR MATERIALS AND INSTALLATION METHODS.
3. IF THE STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, IT SHALL BE STABILIZED WITH BURLAP MATTING OR SEEDED WITHIN 7 DAYS OF COMPLETION TO MINIMIZE EROSION.
4. INSPECTION OF SILT FENCES SHALL BE AT LEAST ONCE PER WEEK AND AFTER RAIN EVENTS IN EXCESS OF 1/2". REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. SEDIMENT TRAPPED BY THE FENCES SHALL BE REMOVED AND PROPERLY DISPOSED OF WHENEVER SIGNIFICANT ACCUMULATION OCCURS.
6. SILT FENCES SHALL BE MAINTAINED IN PLACE UNTIL TOPSOIL STOCKPILE HAS BEEN ELIMINATED AND SHALL BE REMOVED ONLY WHEN DIRECTED BY THE CITY.

7/C9 TEMPORARY TOPSOIL STOCKPILE DETAIL

NOT TO SCALE

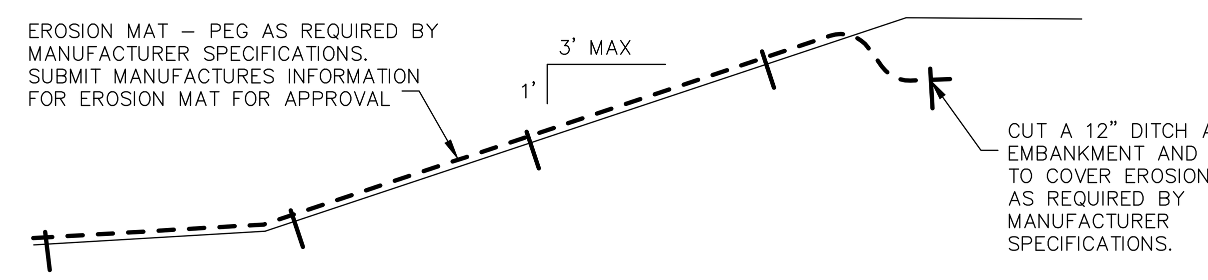


CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2" MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2"- 3/4" IN DIAMETER PLACED 2" BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1' THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3" STONE AS SHOWN ON THE DRAWINGS. MAXIMUM DRAINAGE AREA 1 ACRE

3/C9 STONE AND BLOCK DROP INLET PROTECTION DETAIL

NOT TO SCALE

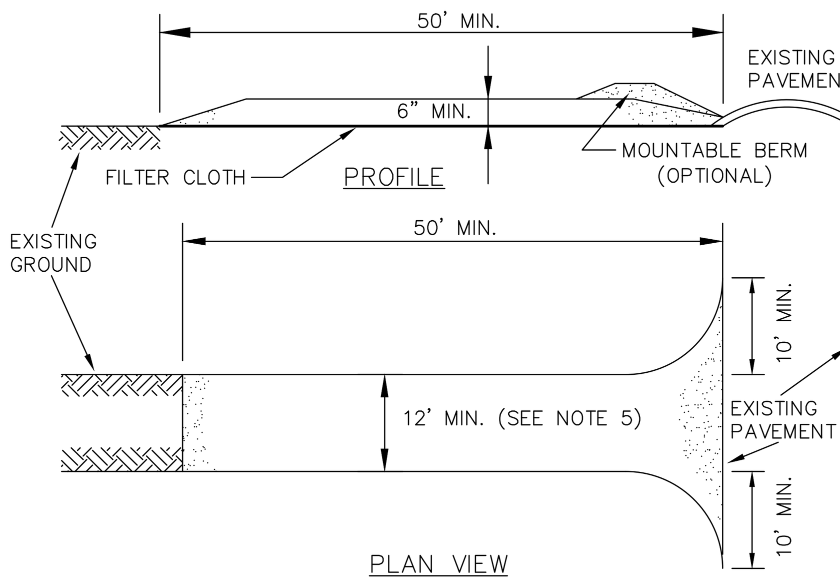


NOTE:

USE THIS DETAIL AS REQUIRED TO STABILIZE SLOPES DURING CONSTRUCTION AND UPON COMPLETION OF CLEARING AND GRADING TO PREVENT EROSION OF SLOPES.

6/C9 ANCHORED STABILIZATION MATTING DETAIL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS:

1. INSTALL CONSTRUCTION ACCESS IN ACCORDANCE WITH "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", SECTION 7A.

2. STONE SIZE -USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

3. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).

4. THICKNESS- NOT LESS THAN (6) INCHES.

5. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. IF CONSTRUCTED AS THE ONLY ENTRANCE TO THE SITE, WIDTH SHALL BE TWENTY-FOUR (24) FEET.

6. STABILIZATION FABRIC - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

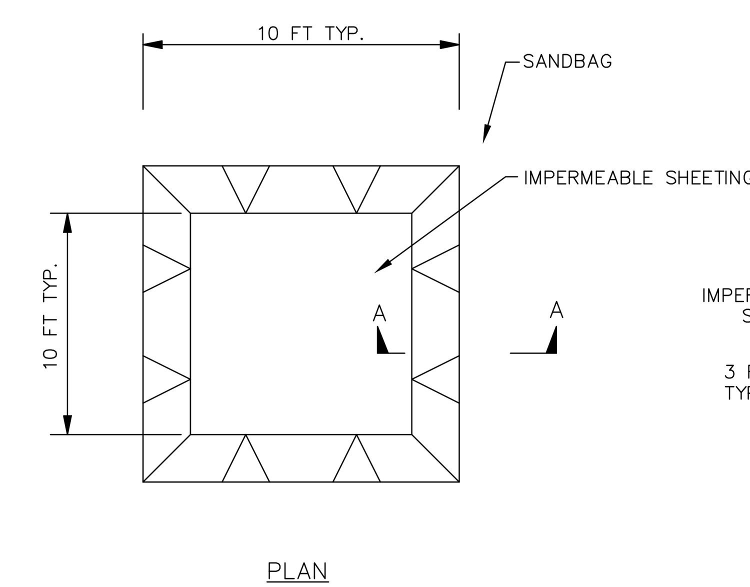
7. MAINTENANCE - THE ACCESS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8. WHEN WASHING IS REQUIRED. IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS ONTO AN APPROVED SEDIMENT TRAPPING DEVICE.

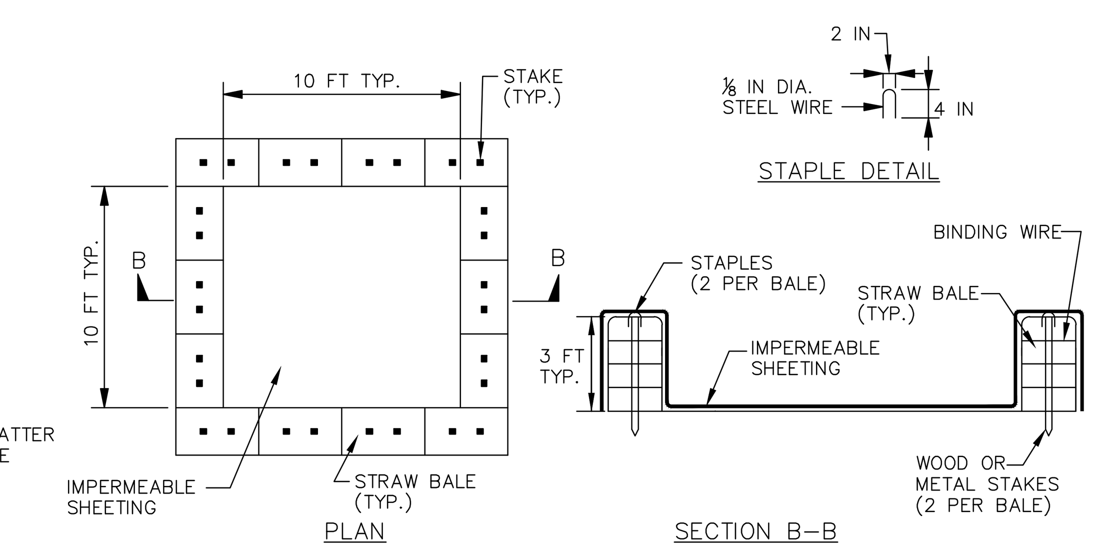
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

4/C9 STABILIZED CONSTRUCTION ACCESS DETAIL

NOT TO SCALE

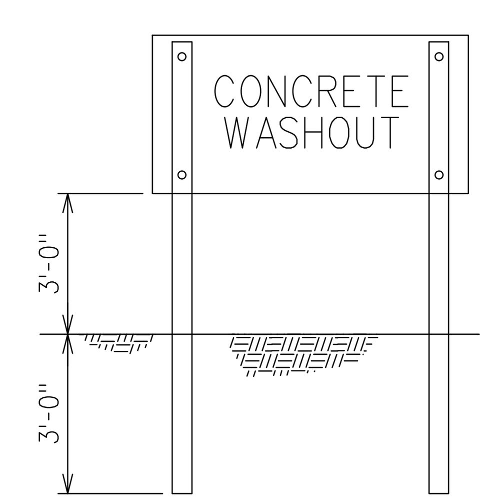


EXCAVATED WASHOUT STRUCTURE



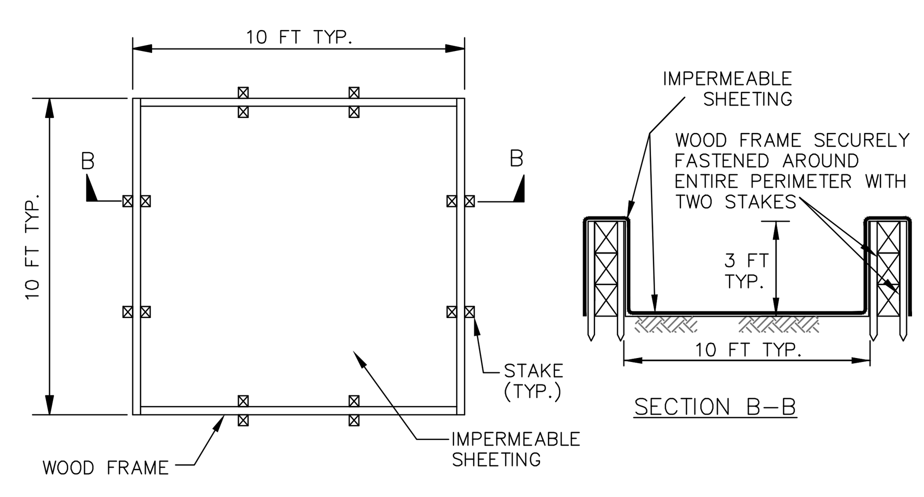
NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES



CONCRETE WASHOUT SIGN DETAIL

(OR EQUIVALENT)



WASHOUT STRUCTURE WITH WOOD PLANKS

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

8/C9 ONSITE CONCRETE TRUCK WASHOUT STRUCTURE DETAIL

NOT TO SCALE

HERSHBERG & HERSHBERG
Consulting Engineers and Land Surveyors
18 Locust Street
Albany, New York 12203

STATE OF NEW YORK · DANIEL R. HERSHBERG · LICENSED PROFESSIONAL ENGINEER & LAND SURVEYOR · 044226

DATE	REMARKS
10/16/20	FULL SET OF PLANS
6/8/21	GENERAL REVISIONS
7/12/21	RESPONSE REVISIONS
8/4/21	GENERAL REVISIONS
8/26/21	AMD. COMMENTS DATED 8/20/21
10/25/21	COMMENT REVISIONS

REVISIONS

EROSION AND SEDIMENT CONTROL DETAILS
1415 WASHINGTON AVENUE
CITY OF ALBANY
COUNTY OF ALBANY, STATE OF NEW YORK

SCALE: AS NOTED | BY: WM | CHK: DRH | DATE: 1/24/2020 | 200015-5.DWG | FILE: 200015

POCKET #5

EMPTY MAP POCKET

FOR ADDENDUMS