STORMWATER POLLUTION PREVENTION PLAN

SITE DEVELOPMENTS

850 Rushmore Avenue
Village of Mamaroneck

Prepared for:
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850 Rushmore Avenue
Mamaroneck, NY 10543

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Appendices

1. INTRODUCTION

This SWPPP has been prepared for the property known as 850 Rushmore Avenue, located within the Village of Mamaroneck (tax parcel 9-46-44). The site has a total area of approximately 0.26 acres in size and is currently developed for single family use. Approximately 0.10 additional acres west of the site is included in our hydrograph model. Existing impervious cover, which includes a one-and-a-half-story dwelling, driveway, patio, gravel walkway, and pool, totals 0.12 acres. The remaining 0.24 acres is grassed/landscaped area, typical of residential lots. The Project proposes the construction of a two-story addition and a reconfiguration of the existing driveway, resulting in a total of 0.16 acres of impervious cover. Stormwater is conveyed primarily overland to the Village of Mamaroneck stormwater systems on Rushmore Ave and Bleeker Avenue and ultimately discharges to the West Basin of the Mamaroneck Harbor. The Project is located within the Mamaroneck River drainage basin, which drains to the Long Island Sound. The Project is serviced by public water and public sewer. The property is within the FEMA AE flood zone with a flood elevation of 12 feet. The FEMA National Flood Hazard FIRMette for the property is included as Appendix E.

2. REGULATORY COMPLIANCE

2.1. NYSDEC General Permit for Stormwater Discharges from Construction Activities (GP-0-20-001)

The following is an excerpt from the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-20-001);

Pursuant to Section 402 of the Clean Water Act ("CWA"), operators of small municipal separate storm sewer systems ("small MS4s"), located in urbanized areas ("UA") and those additionally designated by New York State are unlawful unless they are authorized by a National Pollutant Discharge Elimination System ("NPDES") permit or by a state permit program. New York's State Pollutant Discharge Elimination System ("SPDES") is an NPDES-approved program with permits issued in accordance with the Environmental Conservation Law ("ECL").

Only those small MS4 operators who develop and implement a stormwater management program (SWMP) and obtain permit coverage in accordance with Part II of this SPDES general permit are authorized to discharge stormwater from their small MS4 under this SPDES general permit. The Town of Mamaroneck is regulated under GP-0-15-003.

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 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 [of Appendix K, GP-0-20-001] that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The project does not trigger any of the above thresholds, therefore, coverage under the General Permit 0-20-001 is **not** required.

2.2. Village of Mamaroneck

This Stormwater Pollution Prevention Plan has been developed in accordance with "Village of Mamaroneck Code, Part II, General Legislation, Chapter 294 "Stormwater Management and Erosion and Sediment Control."

2.3. Design Criteria

The criteria for this Stormwater Pollution Prevention Plan (SWPPP) are as follows:

1. To develop an erosion and sediment control plan in accordance with the latest revision to the New York Standards and Specifications for Erosion and Sediment Controls (November 2016), which implements best management practices to stabilize disturbed areas, protect off site areas and sensitive areas and minimize the transport of sediment.
2. To demonstrate that temporary and permanent stormwater systems and facilities are designed in accordance with the latest revision to the New York State Stormwater Management Design Manual, January 2015 and that the stormwater discharge flow rates from the site after development do not exceed pre-development levels for all storms modeled.
3. To demonstrate that the water quality criteria of Section 9.3.2B of the New York State Stormwater Management Design Manual are met such that 25% WQv from disturbed impervious area 100% of new impervious surfaces is captured and treated using a “Standard Practice”.

3. METHODOLOGY

3.1. Planning

Stormwater facilities have been selected in accordance with Section 3.6 “Six Step Process for Stormwater Site Planning Practice and Selection” of the NYSDEC Stormwater Management Design Manual. This section of the “Manual” focuses on minimizing impacts to ecological systems by promoting green design to satisfy the entire or a portion of the Water Quality Volume, channel protection volume, overbank flood control and/or extreme flood control requirements. The Six Step Process for Stormwater Site Planning Practice and Selection are as follows:

1. Site Planning.
2. Determine Water Quality Treatment Volume (WQv).
3. Apply Runoff Reduction Techniques and Standards SMPs with RRv Capacity.
4. Determine the minimum RRv required.
5. Apply Standard Stormwater Management Practices to address remaining Water Quality Volume.
6. Apply Volume and Peak Rate Control Practices if still needed to meet Requirements.

3.2. Runoff Calculations

Runoff calculations were performed utilizing “Hydraflow Hydrographs” software, published by Autodesk, Inc. The software utilizes the principals of TR-55 and TR-20 to generate unit hydrographs. Rainfall events are generated utilizing Soil Conservation Service (SCS) Type III, 24-hour rainfall event for Westchester County, NY. The required design storms were taken from the New York State Stormwater Management Design Manual, dated January 2015. The rainfall return periods evaluated in this report are the 1-yr, 10-yr, 25-yr, and 100-yr, generating 2.8”, 5.1”, 6.4”and 9.0” of rainfall, respectively.

3.2.1. Curve Number

Curve Number (CN) is a rating assigned to a drainage area which determines the areas ability to infiltrate stormwater. CN is dependent on soil hydrologic group and ground cover. The lower the CN the more likely the area is to infiltrate stormwater. For impervious surfaces a CN of 98 is used.

3.2.2. Time of Concentration

Time of concentration (Tc) is defined as the time needed for water to flow from the most remote point in the drainage area or watershed to the design point or watershed outlet. The time of concentration is a function of the size, topography, geology, and land use of the drainage area or watershed and is used to determine the response of a drainage area or watershed to a rainfall event. A short Tc results in peak discharge flows at the design point shortly after the peak rainfall has occurred. A longer Tc means that water is exposed for a longer duration to infiltration and evaporation before it reaches the design point, effectively reducing the peak flow at the discharge point. For the purposes of stormwater modeling, the minimum Tc shall be at least two (2) times the hydrograph calculation time interval and shall not be less than 6 minutes.

3.3. Soil Classification

Soil data was taken from "Soil Map-Westchester County New York" published by the Web Soil Services, National Cooperative Soil Survey. The survey provides soil boundaries and properties including hydrologic group and Kf. The hydrologic soils group (HSG) is a rating for hydraulic conductivity.

The HSG rating is from A to D with A soils having the highest ability to transmit water into the soil structure and D-soils having the lowest.

The Kf factor normally varies from approximately zero to about 0.6. A Kf value of 0.17 denotes a very low erosion potential; a value of 0.32 shows moderate erosion potential; a value of 0.37 suggests a high and a value of 0.43 a very high erosion potential.

On-site soils and their related properties are summarized below in Table 3.3-1. A soils map and properties from "Web Soil Services" is included as Appendix A.

Table 3.3-1
Soil Properties

Map Unit	Site Area (%)	Soils Name	Depth to Restrictive Layer (cm)	Hydrologic Soil Group	Erosion Hazard Kf
UhB	63.7	Urban Land-Charlton complex, 3 to 8 percent slopes	0	D	No Rating
UIC	36.3	Urban Land – Charlton-Chatfield complex, rolling, very rocky	>200	N/A	No Rating

3.4. Soils Testing

Soils testing consists of the excavation of test pits or boring for identifying the soil strata and the depth to groundwater or restrictive layers, and percolation testing to determine the rate at which stormwater can be absorbed into the soils. It is not advisable to perform soils testing during the winter months, particularly when ambient air temperatures drop below freezing, as soils testing in frozen soils can produce inaccurate results. Test pits and percolation tests were performed by Catizone Engineering, P.C. on July 20, 2021, and July 21, 2021. Two test pits, TP-1 and TP-2 were excavated to the depth of 64". Ground water was encountered at 60" in the excavated test pits. Potential bedrock was also encountered at 60". Two percolation tests, P-1 and P-2 were performed at depths corresponding to the bottom of the proposed infiltration system. P-1 resulted in a stabilized percolation rate of 36 minute per inch. P-2 resulted in a stabilized percolation rate of less than 1 minutes per inch. Results are shown in Appendix F.

3.5. Unified Sizing Criteria

Water Quality (WQ) and Runoff Reduction (RR) management measures and designs described herein are in accordance with Chapter 4 of the NYSDEC Design Manual.

Section 4.2 of the NYSDEC Design Manual provides the following equation to determine the WQV:

$$WQ_V = \frac{(P)(R_V)(A)}{12}$$

Where:

WQ_V = Water Quality Volume (acre-feet)

P = 90% Rainfall event number (1.5", per Figure 4.1, NYSDEC Design Manual)

R_V = $0.05 + 0.009(I)$, Where (I) is percent of impervious cover

A = Site area in acres (Contributing Area)

Section 4.3 of the NYSDEC Design Manual provides the following equation to determine the RR_V:

$$RR_{v,min} = \frac{(P)(\overline{R}_V)(Aic)(S)}{12}$$

Where;

$RR_{V,min}$ = Minimum runoff reduction volume required from impervious area (acre-feet)

R_V = $0.05 + 0.009(I)$, Where (I) is 100% impervious

Aic = Total area of new impervious cover

S = Hydrologic Soil Group (HSG) Specific Reduction Factor (S)

4. STORMWATER MANAGEMENT

4.1. Design Point

Design Points represent the location where most runoff from an area exits the site or where impacts of development can be evaluated. The same design points are identified in post-development conditions so that a comparison can be made between the pre-development and post-development conditions. Accordingly, this report will evaluate the overall runoff from the site, to demonstrate that the stormwater discharge flow rates after development do not exceed pre-development levels.

The site design points have been identified as follows:

Site	Runoff from the site area flows overland and is conveyed to the existing stormwater facilities on Bleeker Avenue and Rushmore Avenue that drain into the Mamaroneck River drainage basin, which flows into the Long Island Sound.

4.2. Pre-Development Conditions

The Project area is currently a one-and-a-half-story dwelling, driveway, patio, gravel walkway, and pool, and landscaped area. A Pre-Development Drainage map is included in Appendix B.

Table 4.2-1 below summarizes the pre-development overland on-site runoff contributing to the Mamaroneck River Basin.

Table 4.2-1
Pre-Development Discharge Summary

Area Designation	Area ac	Tc (min)	CN	1-yr (2.8") cfs	10-yr (5.1") cfs	25-yr (6.4") cfs	100-yr (9.0") cfs
Area-A	0.36	6.0	86	0.55	1.29	1.71	2.55
SDP-A	-	-	-	**0.55**	**1.29**	**1.71**	**2.55**

Unit Hydrograph Analysis is included in Appendix C.

4.3. Post-Development Conditions

The Project proposes the construction of a two-story addition and a reconfigured driveway. Runoff from the Project area will be collected and routed through a subsurface infiltration system, reducing the peak outflow rate to levels that do-not exceed pre-development flow rates. The outflow will be routed to the existing site drainage system.

A Post-Development Drainage map is included in Appendix B.

Table 4.3-1 below summarizes the post-development overland on-site runoff contributing to the Mamaroneck River Basin.

Table 4.3-1
Post-Development Discharge Summary

Area Designation	Area ac	Tc min	CN	1-yr (2.8") cfs	10-yr (5.1") cfs	25-yr (6.4") cfs	100-yr (9.0") cfs
Area A1	0.32	6.0	87	0.51	1.17	1.55	2.29
Area A2	0.04	6.0	98	0.09	0.17	0.22	0.31
Area A2-Pond	-	-	-	0.04	0.09	0.12	0.20
SDP-A	-	-	-	**0.54**	**1.22**	**1.63**	**2.44**

Unit Hydrograph Analysis is included in Appendix C.

4.4. Stormwater Mitigation

The project proposes stormwater mitigation techniques in accordance with the New York Stormwater Management Design Manual, January 2015. The proposed mitigation techniques to achieve design criteria 2.3.2 are as follows;

- The planned development is proposed in areas that have already been disturbed or areas where disturbances and visual impacts are minimized.
- Installation of porous pavement, where applicable, to offset the areas of new impervious cover
- Repair/maintain outlet protection, where applicable, to minimize erosion downgradient of the discharge point.

4.4.1. Hydraulic Analysis of Ponds

A summary of the pre-development and post-development runoff rates for the design point are presented below.

Tables 4.4.1-1 summarizes the inflow and outflow of the Porous Pavers contributing to SDP-West.

Table 4.4.1-1
Porous Pavers Summary

Design Storm	Inflow cfs	Outflow cfs	Storage Volume cf	Water Elevation ft	Freeboard ft
1-yr (2.8")	0.09	0.04	80.50	9.09	1.41
10-yr (5.1")	0.17	0.09	147.00	9.24	1.26
25-yr (6.4")	0.22	0.12	176.00	9.28	1.22
100-yr (9.0")	0.31	0.20	228.00	9.35	1.15

The freeboard was calculated using an elevation of 10.50 ft. Based on a 45% void ration the porous pavement above the hundred-year elevation provides 36.4 cubic yards of flood storage to mitigate the 36.2 cubic yards of fill within the one-hundred-year flood zone.

Tables 4.4.1-2 summarizes the pre-development and post-development on-site runoff contributing to the Mamaroneck drainage basin.

Table 4.4.1-2
Pre-Development and Post Development Peak Discharge Rate Summary

Design Storm	Pre-Development Peak Outflow cfs	Post-Development Peak Outflow cfs	Peak Flow Rate Reduction cfs	Peak Flow Rate Reduction %
1-yr (2.8")	0.55	0.54	0.03	1.82%
10-yr (5.1")	1.29	1.22	0.07	5.43%
25-yr (6.4")	1.71	1.63	0.08	4.68%
100-yr (9.0")	2.55	2.44	0.11	4.31%

4.4.2. Mitigation of Stormwater Quality (WQv) and Runoff Reduction (RRv)

The project proposes to achieve the water quality requirements, using Alternative Standard Management Practices of infiltration (in the form of Porous Pavers as an Infiltration Trench). Beneath the Porous Pavers there is 1.77 ft of deep stone storage. Discharge is controlled by a 4" discharge pipe.

Calculations for required and provided WQv & RRv are included as Appendix D. WQv & RRv are summarized in Table 4.4.2-1 below:

Table 4.4.2-1
Required and Provided WQv & RRv

Drainage Area	Required WQv ac-ft	Required RR_V ac-ft	Provided WQv ac-ft	Provided RRv ac-ft
Site	0.010	0.002	0.027	0.027

5. CONSTRUCTION SEQUENCING AND PHASING

An erosion and sediment control plan in conformance with NYSDEC requirements is included in SD-203 Erosion and Sediment Control Plan, which also includes notes for construction phasing. The project is proposed to be constructed in a single phase:

The construction sequencing schedule is as follows:

1. Installation of temporary ESC measures.
2. Demolition of existing impervious driveway.
3. Excavation and construction of foundations.
4. Construction of garage addition and construction of porous driveway with infiltration trench.
5. Planting and stabilization.
6. Removal of temporary ESC measures.

6. MAINTENANCE AND OPERATIONS

Periodic long-term inspection and maintenance of the Stormwater Management Practices (SWMP) is essential to ensure that the facilities will function as designed. The facility operator shall be responsible for maintaining all onsite SWMP components. These components consist of the subsurface water quality facilities and the storm drainage collection system (pipes, drain inlets and manholes).

Table 6.1-1
Maintenance Schedule for Erosion and Sediment Control Devices

Practice / Item	Inspection Frequency	Maintenance Action	Corrective Action	NYS Blue Book
Temporary				
Silt Fence/ Reinforced silt fence	Daily	Check sediment accumulation. Check integrity.	Replace damaged sections. Repair damage from eroded soil. Remove sediment at 50% capacity.	5.54
Fabric Drop inlet Protection	Daily	Check sediment accumulation. Check integrity.	Remove sediment at 50% capacity.	5.57
Excavated drop inlet protection	Daily	Check sediment accumulation. Check integrity.	Remove sediment at 50% capacity	5.57
Check dam (Stone, Filter sock, Fiber roll)	Every runoff event	Visual, inter-structure erosion, damage, sediment build up	Repair damage, remove sediment as required, add more check dams if heavy inter-structure erosion	3.2
Riprap	Periodic	Visually inspect of scour, dislodged stones.	Control weed and brush growth as needed. Replace dislodged stones.	3.21
Dewatering device	Weekly, after runoff event	Check sediment levels, filter integrity.	Replace filter fabric as needed. Replace skimmer within 24hrs of malfunction. remove sediment at marked level/when reaching skimmer.	5.10
Sediment Basin	Daily (working days)	Check sediment levels, check for erosion.	Remove sediment at 50% capacity. Repair all damage from soil erosion at end of each work day.	5.19
Portable Sediment Tank	Daily	Check sediment levels, check outflow is clear.	Remove sediment at 50% capacity.	5.44
Earth dike, Sediment Dike, Filter sock,	(not specified)	Check for erosion and sediment accumulation.	Remove sediment at 75% accumulation. Repair erosion. Fill trench when tributary is stabilized.	3.14, 5.42, 5.7

Permanent				
Porous Pavement	Monthly	Visual inspection	Ensure that area is free of sediment, debris, and weeds	
	Monthly and after storms >0.5 inches	Visual inspection	Ensure that paving dewaters between storms	
	As needed	Visual inspection	Mow upland and adjacent areas, and seed bare areas	
	Typically, 3 to 4 times a year	Visual inspection	Vacuum sweep, or blow to keep surface free of sediments	
	Annual	Visual inspection	Inspect the surface for deterioration or spalling	
Catch Basins and Inlets	Yearly	Visual inspection of structure	Vacuum when depth exceeds 50% of the sump depth	
Stormwater Piping	Yearly	Visual inspection, confirm flow with garden hose	JetVac if catch basin and/or inlet sediment depth exceeds pipe invert.	
Underdrain	Yearly	Visual inspection	Ensure that drain is free of sediment	

Comprehensive descriptions of recommended inspection and required maintenance items and intervals for the SWMP are provided in the following publications:

- "New York State Standards and Specifications for Erosion and Sediment Control", published by New York State Department of Environmental Conservation, November 2016, or its latest revision.

6.1. Water Quality Devices

6.1.1. Inspections

Water quality devices shall be inspected per manufacturers requirements but not less than on an annual basis to ensure that the structure operates in the manner originally intended. The outlet should be inspected once every six (6) months for evidence of damage or clogging. Other problems which should be checked for include subsidence, erosion, accumulation of sediment, adequacy of upstream/downstream channel erosion control measures, and modifications to the pond or its contributing watershed that may influence its performance.

6.1.2. Debris and Litter Removal

Debris and litter will accumulate outlet control device and should be removed during regularly. Attention should be paid to floatable debris that can eventually clog outlet pipe.

6.1.3. Nuisance Control

Standing water or soggy conditions within the facilities bottom can create nuisance conditions such as odors, insects, weeds and debris. Most of these problems can be controlled through debris removal and by ensuring that outlet structures are kept free of debris and trash.

6.1.4. Structural Repairs and Replacement

Various inlet/outlet devices and standpipe or riser structures will deteriorate with time and may have to be replaced. Concrete pipes and risers should last from 50 to 75 years, while corrugated steel piping may have to be replaced after 15 to 25 years of use. Periodic repair may be required to extend the service life of the facilities.

6.1.5. Sediment Removal

Accumulated sediment should be removed as determined through inspection to preserve the available stormwater management capacity of the facilities, and to prevent the outlet orifices or filter medium from becoming clogged.

6.1.6. Catch Basins

Catch basins shall be cleaned out at least twice a year. Inlet structures usually are cleaned out with a vacuum truck. The resulting slurry of water, sediment and other contaminants should be discarded at an approved disposal facility such as treatment plant or approved.

6.1.7. Stormwater Piping

Stormwater piping is typically cleaned by means of a high-pressure water jet. The outlet pipe can be temporally plugged so that the sediment and debris washed down from up gradient pipes is not conveyed. The accumulated sediment can be removed manually or with a vacuum truck.

6.1.8. Grassed Area

Grassed Area maintenance is largely aimed at keeping the grass cover dense and vigorous and primarily involves periodic mowing, occasional spot reseeding, and weed control. Watering may also be necessary in times of drought, particularly in the first few months after establishment. Additionally, temporary or permanent erosion control matting may be required if the maintenance involves re-grading of the channel for re-establishment of the channel section or slope.

7. EROSION AND SEDIMENT CONTROLS

7.1. Overview

During construction, the potential for soil erosion and sedimentation will be controlled through the use of temporary soil erosion and sediment control devices. These devices shall be installed in accordance with New York State Standards and Specifications for Erosion and Sediment Control dated November 2016.

The soil erosion and sediment control plan will minimize the downstream erosion hazard by controlling runoff at its source, minimizing runoff from disturbed areas and de-concentrating stormwater runoff. The objectives of the erosion control plan will be achieved through the management of stormwater runoff during construction.

The owner/applicant must ensure that temporary and permanent soil erosion and sediment control features are designed, installed and maintained for the duration of the project, to prevent soil disturbance from construction operations from having a negative or adverse effect to adjacent properties.

7.2. Plan Contents

A sediment and erosion control plan has been developed to minimize the offsite transport of sediment associated with construction. The temporary soil erosion and sediment control measures may include:

7.2.1. Silt Fence

Silt fences consist of standard strength filter fabric with wire mesh reinforcement (or extra strength synthetic filter fabric) secured to supporting posts and entrenched at the base. The fence will be three feet high; with the wire fence reinforcement constructed of a minimum 14.5-gauge galvanized steel wire and a minimum mesh spacing of six inches. Fences will be secured in place by galvanized steel or wood posts set at six feet on-center. The filter fabric will be stapled to the up-gradient face of each fence. The purpose of silt fences is to intercept and detain sediment contained in sheet overland runoff from disturbed areas of limited extent. In addition, the silt fencing will physically delineate the limit of work on the down slope side of work areas.

Installation and Maintenance

Silt fences will be installed where the disturbed land is located at a minimum distance of ten feet from critical areas (streams and wetlands) are as indicated on plans.

Silt fences will be installed on the down slope side of work areas, as close to the disturbed areas as possible.

Filter fabric requirements and installation design criteria will be in accordance with the requirements in the New York State Standards and Specifications for Erosion and Sediment Control.

Sediment will be removed from behind silt fences when sediment has accumulated to one-third of the original height of the fence.

7.2.2. Mulch

Mulch shall be the other primary means of stabilizing areas of disturbed earth. Temporary stabilization of disturbed areas will be accomplished by using a mulch of wood chips created from the low-value trees cleared on site. These chips will be stockpiled and protected in a manner like a soil stockpile until needed. Straw mulch will be used for stabilized areas associated with permanent seeding.

Mulches shall be applied in accordance with the requirements of the New York State Standards and Specifications for Erosion and Sediment Control, with the top two inches of compacted or crusted soil loosened prior to application.

Mulching is a very commonly used, well-established and highly effective stabilization method. The mulching on site will be continuously inspected and maintained for ultimate effectiveness.

7.2.3. Sod

Where exposed soils have the potential to generate off-site sediment loading, sod can provide an immediate form of stabilization and extra protection to a disturbed area. Where applied, sod shall be blue grass or a bluegrass/red fescue mixture or a perennial ryegrass and machine cut with a uniform soil thickness of ¾ inch, plus or minus ¼ inch.

Sod shall be used at the discretion of the Owner, unless specifically required by the plans.

7.2.4. Permanent Vegetation

Permanent vegetation shall be used to provide a protective cover for exposed areas that have received final grading. Permanent stabilization shall be applied where topsoil has been placed or returned and incorporated into the soil surface. When used, this process shall be followed with the application of straw mulch to protect soil from erosion and seed from drying out. Permanent vegetation shall be placed in accordance with project plans.

7.2.5. Hydroseeding

Hydroseeding will be the means of providing temporary stabilization or permanent. The seed mix of fertilizer, water, and mulch will be applied as a mixture utilizing power equipment. The mix will be applied in two equal applications. Non-toxic, vegetable dyes will be used to determine the extent of coverage upon application. After grass has appeared, those areas that fail to show a uniform stand of grass will be re-seeded. This process will be repeated until all areas are covered with satisfactory growth. Seed mixtures appropriate to the soils, slopes, and uses will be selected in accordance with the New York State Standards and Specifications for Erosion and Sediment Control.

7.2.6. Erosion Control Blankets

Erosion control blankets typically consist of a rolled mat of interwoven straw and/or coconut fibers with a top and/or bottom layer of natural or synthetic netting and used to stabilize all areas with slopes greater than 20%. Erosion control blankets will also be used with hydroseeding as a temporary stabilization measure until final seeding. In addition, blankets can be used as a permanent stabilization measure to help retain topsoil and seed after final seeding, or as permanent turf reinforcement. This is possible because erosion control blankets are classified under the following categories: temporary, photodegradable; temporary, long-term; temporary, biodegradable; long-term biodegradable; and permanent.

7.2.7. Dust Control

Dust Control shall be accomplished using vegetative cover, mulch, spray adhesive, sprinkling or barriers. Water will be applied by sprinkler or water truck as necessary during grading operations to minimize sediment transport and maintain acceptable air quality conditions. Repetitive treatments will be done as needed until grades are paved or stabilized with vegetation.

7.2.8. Inlet Protection

Inlet protection consists of a filtering measure placed around or upstream of a storm drain used to trap sediment by temporary ponding runoff before it enters the storm drain. Inlet protection is not considered to be a primary means of sediment control and should be used with an overall integrated sediment control program. There are four types of storm drain inlet protection consisting of: excavated drop inlet protection, fabric drop inlet protection, stone and block drop inlet protection and curb drop inlet protection. Inlet protection shall be implemented for all inlets that could potentially be impacted by sediment laden runoff. Sediment shall be removed from the filters when sediment has accumulated to 50 percent of the filter's original height.

7.2.9. Concrete Waste

Discharge of excess or waste concrete and/or wash water from Concrete Ready-Mix Trucks will be allowed on the construction site, but only in specifically designated diked areas that have been prepared to prevent contact between the concrete and/or wash water and stormwater that will be discharged from the site or in locations where waste concrete can be placed into forms to make riprap or other useful concrete products. The cured residue from the concrete washout diked areas shall be disposed in accordance with applicable state and federal regulations. The jobsite superintendent is responsible for assuring that these procedures are followed.

7.2.10. Stabilization

The operator shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. This requirement does not apply in the following instances:

- Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.
- Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures need not be initiated on that portion of the site.

7.2.11. Dewatering

It is anticipated that dewatering will not be required during construction. If dewatering becomes necessary the contractor shall submit a dewatering plan including the size and number of pumps to be utilized, sediment tank size (minimum of 120 times the pump flow rate in GPM), locations and discharge conditions. Where possible, discharge shall be made to existing stormwater facilities.

8. TEMPORARY AND PERMANENT WASTEWATER FACILITIES

8.1. Sanitary Waste during Construction

Portable sanitary facilities will be provided on the construction site. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management Contractor, and as required by any local, state and federal regulations.

8.2. Sanitary Waste

The Project is serviced by public water provided by Westchester Joint Water Works. The project is serviced by public sewer and is within the Mamaroneck Sewer District. The project does not propose changes to the existing water or sewer systems.

9. CONSTRUCTION MATERIALS STORAGE AND SPILL PREVENTION RESPONSE (SPR)

During construction, building and waste materials are expected to be stored on site. A description of the controls to reduce pollutants from these materials, and storage practices to minimize exposure of materials and spill prevention response (SPR) are discussed below.

9.1. Non-Stormwater Discharges

The following non-storm water discharges are anticipated during this project:

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water (if encountered) associated with dewatering activities.

9.2. Materials Inventory

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled and stored appropriately, and in accordance with local, state and federal regulations.

- Concrete and Portland Cement
- Detergents
- Paints

- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Epoxy Based Mortars, Grouts, etc.
- Fertilizers

9.3. Spill Prevention

9.3.1. House Keeping

- Only needed products will be stored on-site by the Contractor.
- Except for bulk materials, the Contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the drawings.

9.3.2. Hazardous Materials

- Products will be kept in original containers unless the container is not re-sealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, and mixer washout waters will be collected on site.

9.3.3. Product Specific Practices

- **Petroleum Products**
  - All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- **Fertilizers**
  - Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- **Paints**
  - All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and applicable state and local regulations.
- **Concrete Trucks**
  - Contractors will provide designated truck washout areas on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction, washout areas will be properly stabilized

9.4. Spill Control Practices

In addition to the housekeeping and material management practices, the following practices will be followed for spill prevention and cleanup (if needed):

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures, and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as booms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill, a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The Contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

9.5. Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water, action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to the contacts listed below.

- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

9.6. Spill Notification

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A reportable spill is a quantity of five (5) gallons or more or any spill of oil which: (1) violates water quality standards, (2) produces a sheen on a surface water, or (3) causes a sludge or emulsion. This spill must be reported immediately to the agencies listed below.
- Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the following agencies:

Agency	Phone Number	Address
Police, Fire, and EMS	911	
Village of Mamaroneck Fire Department	(914) 825-8777	146 Palmer Avenue Mamaroneck, NY
NYS Department of Environmental Conservation (NYSDEC) Spill Reporting Hotline	(800) 457-7362	
National Response Center (USEPA)	(800) 424-8802	Region 2
Local Emergency Planning Committee (LEPC) Westchester County Office of Emergency Management	(914) 864-5450	200 Bradhurst Avenue Hawthorne, NY 10532
Westchester County Department of Health (WCDOH) Spill Reporting Hotline	(914) 813-5000	
U.S. Environmental Protection Agency (USEPA) EPCRA Information Hotline	(800) 535-0202	
U.S. Department of Labor and Occupational Safety and Health Administration (OSHA) Tarrytown, NY	(914) 524-7510	

10. CONCLUSIONS

This SWPPP has been prepared for the property known as 850 Rushmore Avenue, located within the Village of Mamaroneck (tax parcel 9-46-44). The site has a total area of approximately 0.26 acres in size and is currently developed for single family use. Approximately 0.10 additional acres west of the site is included in our hydrograph model. Existing impervious cover, which includes a one-and-a-half-story dwelling, driveway, patio, gravel walkway, and pool, totals 0.12 acres. The remaining 0.24 acres is grassed/landscaped area, typical of residential lots. The Project proposes the construction of a two-story addition and a reconfiguration of the existing driveway, resulting in a total of 0.16 acres of impervious cover. Stormwater is conveyed primarily overland to the Village of Mamaroneck stormwater systems on Rushmore Ave and Bleeker Avenue and ultimately discharges to the West Basin of the Mamaroneck Harbor. The Project is located within the Mamaroneck River drainage basin, which drains to the Long Island Sound. The Project is serviced by public water and public sewer. The property is within the FEMA AE flood zone with a flood elevation of 12 feet. The FEMA National Flood Hazard FIRMette for the property is included as Appendix E.

This Stormwater Pollution Prevention Plan demonstrates:

1. That an erosion and sediment control plan has been prepared in accordance with the latest revision to the New York Standards and Specifications for Erosion and Sediment Controls (November 2016), which implements best management practices to stabilize disturbed areas, protect off site areas and sensitive areas and minimize the transport of sediment.
2. That temporary and permanent stormwater systems and facilities have been designed in accordance with the latest revision to the New York State Stormwater Management Design Manual, January 2015 and that the stormwater discharge flow rates from the site after development do not exceed pre-development levels for all storms modeled.
3. That the water quality criteria of Section 9.3.2B of the New York State Stormwater Management Design Manual are met such that 25% WQv from disturbed impervious area 100% of new impervious surfaces is captured and treated using a “Standard Practice”.

APPENDIX A
WEB SOILS SERVICES SOILS MAP AND PROPERTIES

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Westchester County, New York

850 Rushmore Avenue

November 16, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:420 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 1:12,000.

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: Westchester County, New York
Survey Area Data: Version 16, 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 21, 2014—Aug 27, 2014

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UhB	Urban land-Charlton complex, 3 to 8 percent slopes	0.2	63.7%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky	0.1	36.3%
Totals for Area of Interest		**0.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Westchester County, New York

UhB—Urban land-Charlton complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wh1l
Elevation: 0 to 710 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent
Charlton and similar soils: 25 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Description of Charlton

Setting

Landform: Ground moraines, ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Leicester

Percent of map unit: 8 percent
Landform: Hills, depressions, drainageways, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield

Percent of map unit: 7 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Landform: Ridges
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton

Percent of map unit: 5 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

UIC—Urban land-Charlton-Chatfield complex, rolling, very rocky

Map Unit Setting

National map unit symbol: bd7n
Elevation: 0 to 1,000 feet
Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 115 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 40 percent
Charlton and similar soils: 20 percent
Chatfield and similar soils: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Hills, ridges, till plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Acid loamy till derived mainly from schist, gneiss, or granite

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 24 inches: sandy loam
H3 - 24 to 60 inches: sandy loam

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Chatfield

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from granite, gneiss, or schist

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 24 inches: flaggy silt loam
H3 - 24 to 28 inches: unweathered bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton

Percent of map unit: 5 percent
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: Unranked

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Hollis

Percent of map unit: 2 percent
Hydric soil rating: No

Sun

Percent of map unit: 2 percent

Landform: Depressions
Hydric soil rating: Yes

Palms

Percent of map unit: 1 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

AASHTO Group Index

The AASHTO Group Index is a refinement to the seven major groups of the AASHTO soil classification system. According to

this system, soil is classified into seven major groups: A -l through A-7. Soils classified into groups A-1, A-2. and A-3 are granular materials of which 35% or less of the particles pass through the No. 200 sieve. Soils of which more than 35% pass through the No. 200 sieve are classified into groups A-4, A-5, A-6, and A-7. These soils are mostly silt and clay-type materials.

The classifications system is based on the following criteria:

1. Grain size

a. Gravel ; fraction passing the 75-mm(3-in.) sieve and retained on the No. 10 (2-mm) U.S. sieve

b. sand: fraction passing the No. 10 (2-mm) U.S. sieve and retained on the No.200 (0.075-mm) U.S. sieve

c. Silt and clay: fraction passing the No. 200 U.S. sieve

2. Plasticity The term silty is applied when the fine fractions of the soil have a plasticity index of 10 or less. The term clayey is applied when the fine fractions have a plasticity index of 11 or more.

3. If cobbles and boulders (size larger than 75 mm) are encountered, they are excluded from the portion of the soil sample from which classification is made.

To evaluate the quality of a soil as a highway subgrade material, one must also incorporate a number called the group index (GI) with the groups and subgroups of the soil. This index is written in parentheses after the group or subgroup designation.

The group index is given by the equation:

GI = (F200-35)[0.2+ 0.005(LL- 40)] + 0.01(.F200-15)(PI- 10)

where:

F200 = percentage passing through the No. 200 sieve

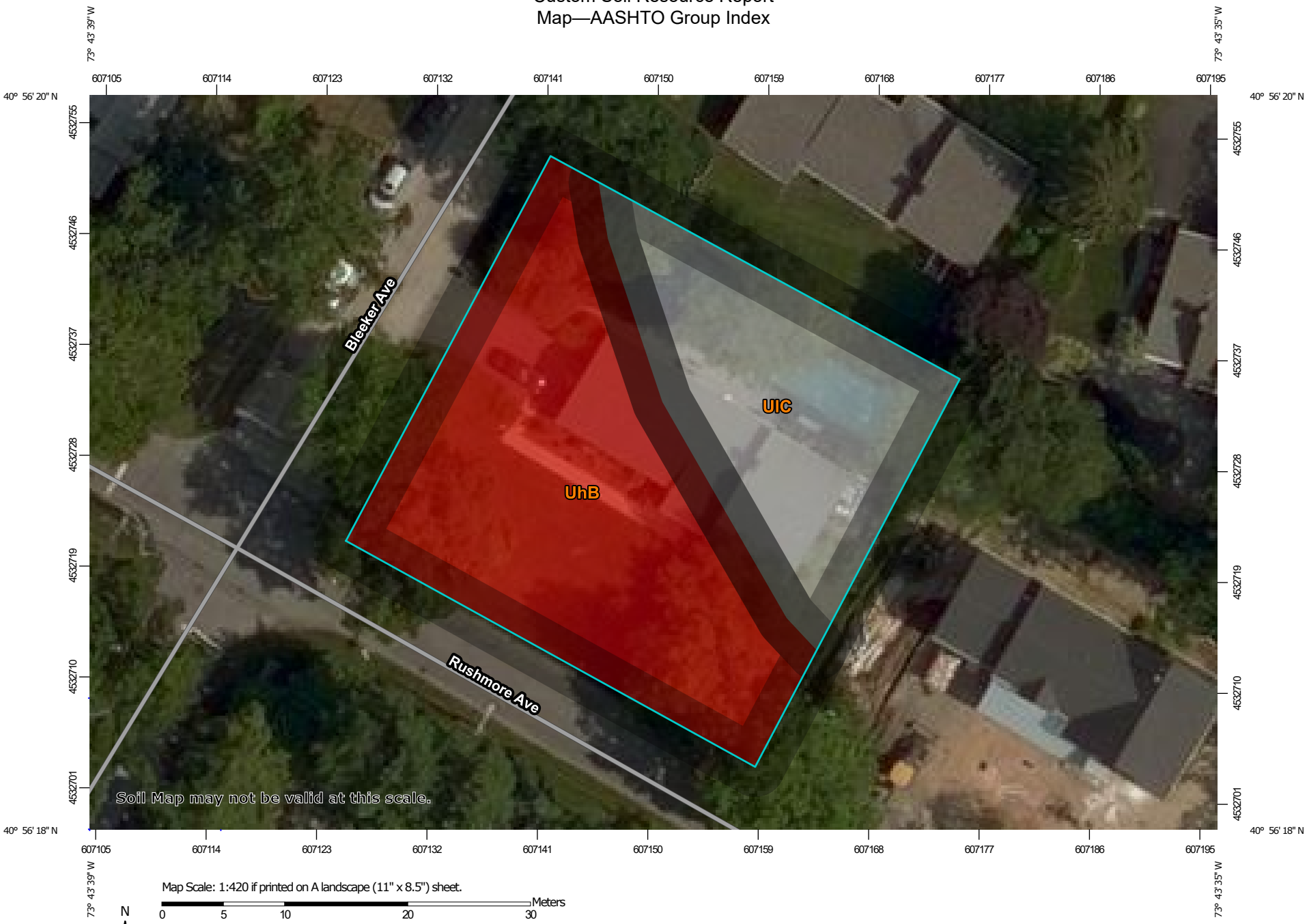
LL — liquid limit

PI : plasticity index

The group index is used typically to refine an AASHTO class but in the soil survey database is often used as a standalone soil attribute.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—AASHTO Group Index



Map Scale: 1:420 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

= 0

Not rated or not available

Soil Rating Lines

= 0

Not rated or not available

Soil Rating Points

= 0

Not rated or not available

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 1:12,000.

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: Westchester County, New York
Survey Area Data: Version 16, 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 21, 2014—Aug 27, 2014

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.

Table—AASHTO Group Index

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
UhB	Urban land-Charlton complex, 3 to 8 percent slopes	0	0.2	63.7%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky		0.1	36.3%
Totals for Area of Interest			**0.3**	**100.0%**

Rating Options—AASHTO Group Index

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

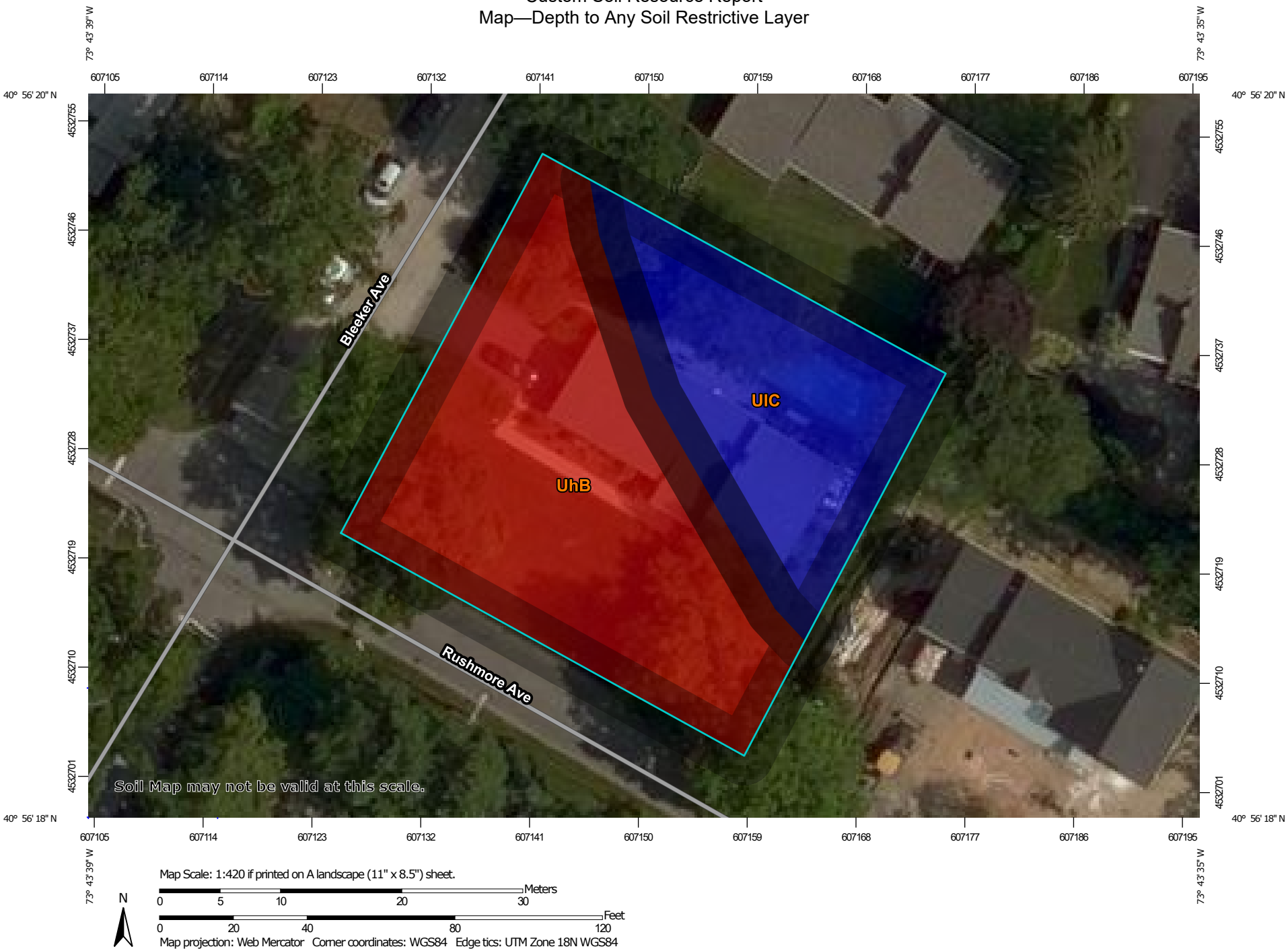
Depth to Any Soil Restrictive Layer

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "> 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer



Map Scale: 1:420 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

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 1:12,000.

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

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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)

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Soil Survey Area: Westchester County, New York
Survey Area Data: Version 16, 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 21, 2014—Aug 27, 2014

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.

Table—Depth to Any Soil Restrictive Layer

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
UhB	Urban land-Charlton complex, 3 to 8 percent slopes	0	0.2	63.7%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky	>200	0.1	36.3%
Totals for Area of Interest			**0.3**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group

Map Scale: 1:420 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

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 1:12,000.

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)

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Survey Area Data: Version 16, Jun 11, 2020

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Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
UhB	Urban land-Charlton complex, 3 to 8 percent slopes	D	0.2	63.7%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky		0.1	36.3%
Totals for Area of Interest			**0.3**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Water Features

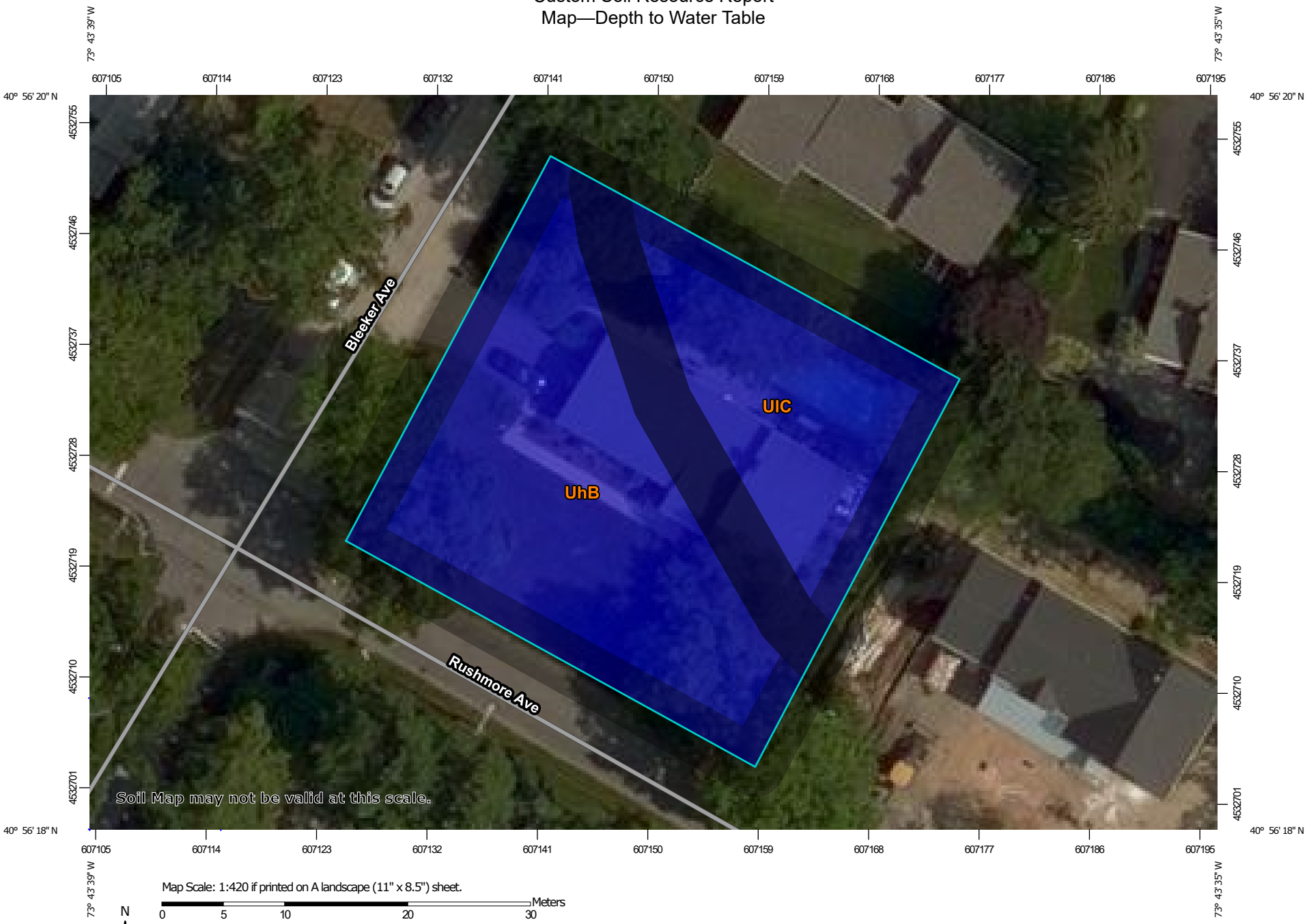
Water Features include ponding frequency, flooding frequency, and depth to water table.

Depth to Water Table

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report
Map—Depth to Water Table



Map Scale: 1:420 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

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 1:12,000.

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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)

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

Soil Survey Area: Westchester County, New York
Survey Area Data: Version 16, 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 21, 2014—Aug 27, 2014

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.

Table—Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
UhB	Urban land-Charlton complex, 3 to 8 percent slopes	>200	0.2	63.7%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky	>200	0.1	36.3%
Totals for Area of Interest			**0.3**	**100.0%**

Rating Options—Depth to Water Table

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

References

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APPENDIX B
PRE-DEVELOPMENT AND POST-DEVELOPMENT DRAINAGE MAP

CATIZONE ENGINEERING, P.C.
Civil Engineering Consultants

PRE-DEVELOPMENT DRAINAGE MAP

SEPTEMBER 30, 2022

850 RUSHMORE AVENUE

MAMARONECK, N.Y.

B.1

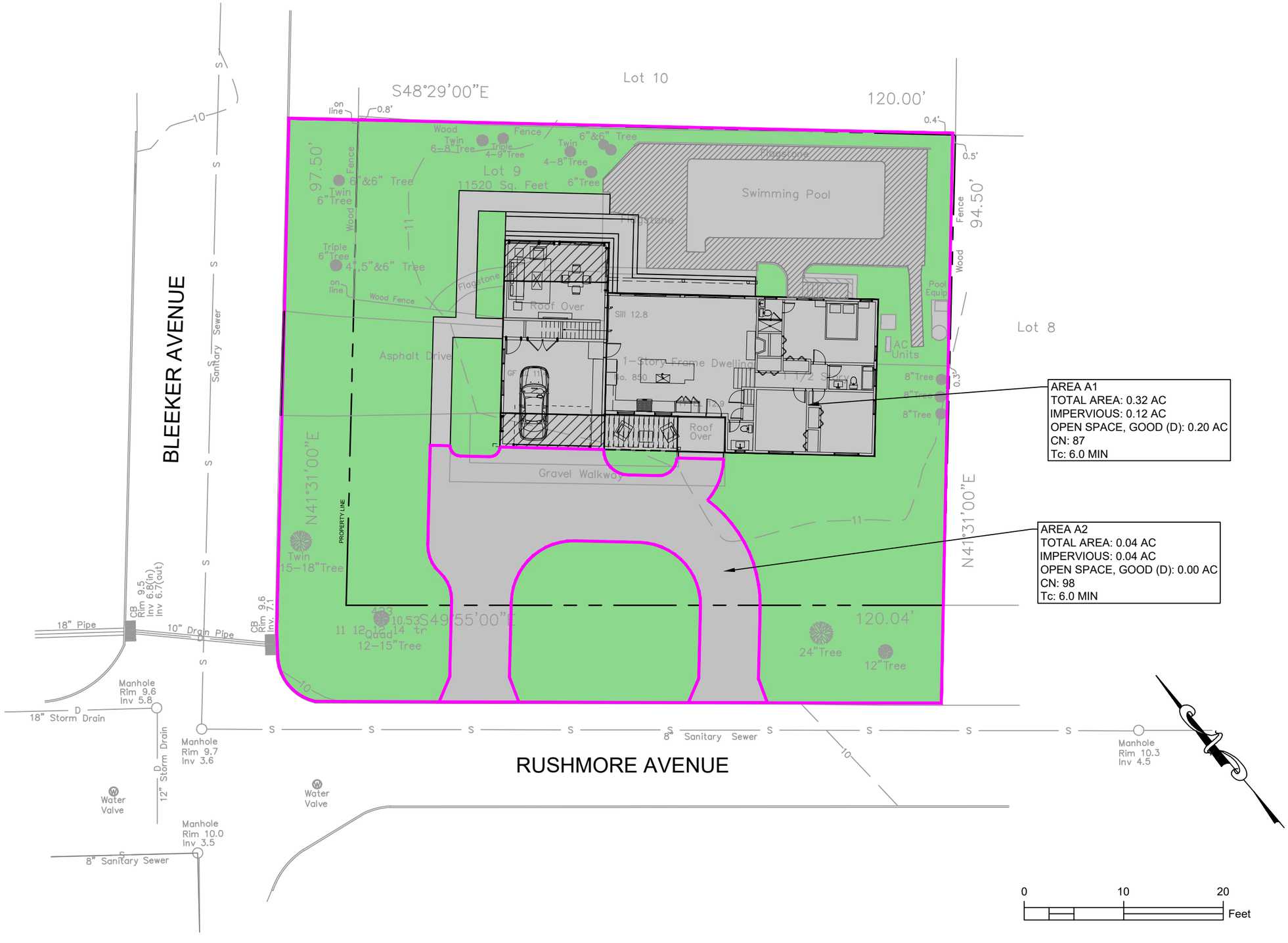
B.2

POST-DEVELOPMENT DRAINAGE MAP

SEPTEMBER 30, 2022

850 RUSHMORE AVENUE

MAMARONECK, N.Y.



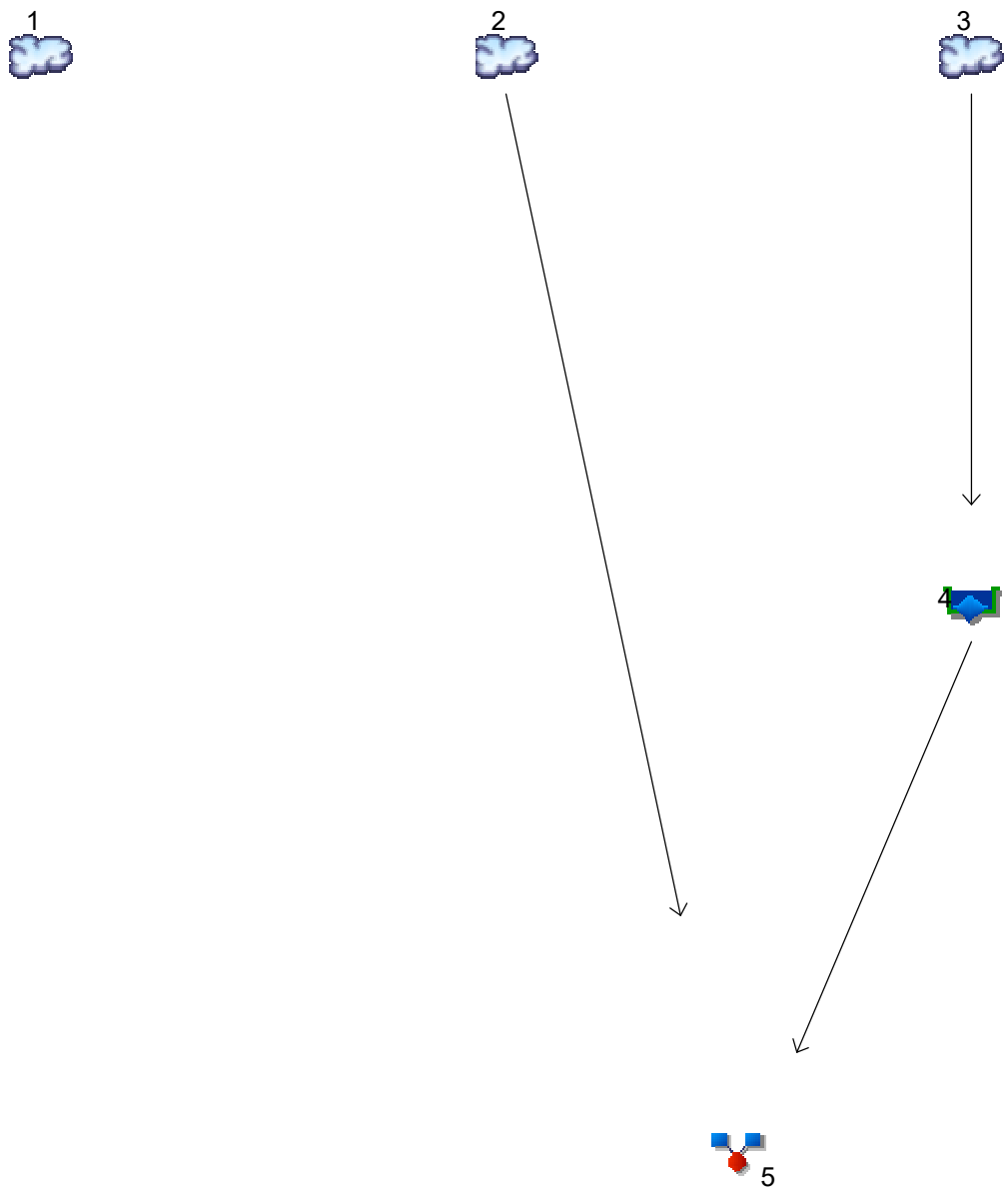
CATIZONE ENGINEERING, P.C.

Civil Engineering Consultants

APPENDIX C

PRE-DEVELOPMENT AND POST-DEVELOPMENT UNIT HYDROGRAPH ANALYSIS

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	Area A -Pre
2	SCS Runoff	Area A1-Post
3	SCS Runoff	Area A2-Post
4	Reservoir	Area A2-Pond-Post
5	Combine	SDP A-Post

Hydraflow Table of Contents

20023_Model_220929.gpw

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Friday, 09 / 30 / 2022

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	0.550	-------	-------	-------	1.287	1.709	-------	2.545	Area A -Pre
2	SCS Runoff	------	0.513	-------	-------	-------	1.171	1.545	-------	2.286	Area A1-Post
3	SCS Runoff	------	0.094	-------	-------	-------	0.173	0.217	-------	0.306	Area A2-Post
4	Reservoir	3	0.035	-------	-------	-------	0.087	0.120	-------	0.198	Area A2-Pond-Post
5	Combine	2, 4	0.543	-------	-------	-------	1.222	1.634	-------	2.443	SDP A-Post

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.550	3	726	1,829	------	------	------	Area A -Pre
2	SCS Runoff	0.513	3	726	1,705	------	------	------	Area A1-Post
3	SCS Runoff	0.094	3	726	350	------	------	------	Area A2-Post
4	Reservoir	0.035	3	741	348	3	9.09	80.5	Area A2-Pond-Post
5	Combine	0.543	3	726	2,053	2, 4	------	------	SDP A-Post

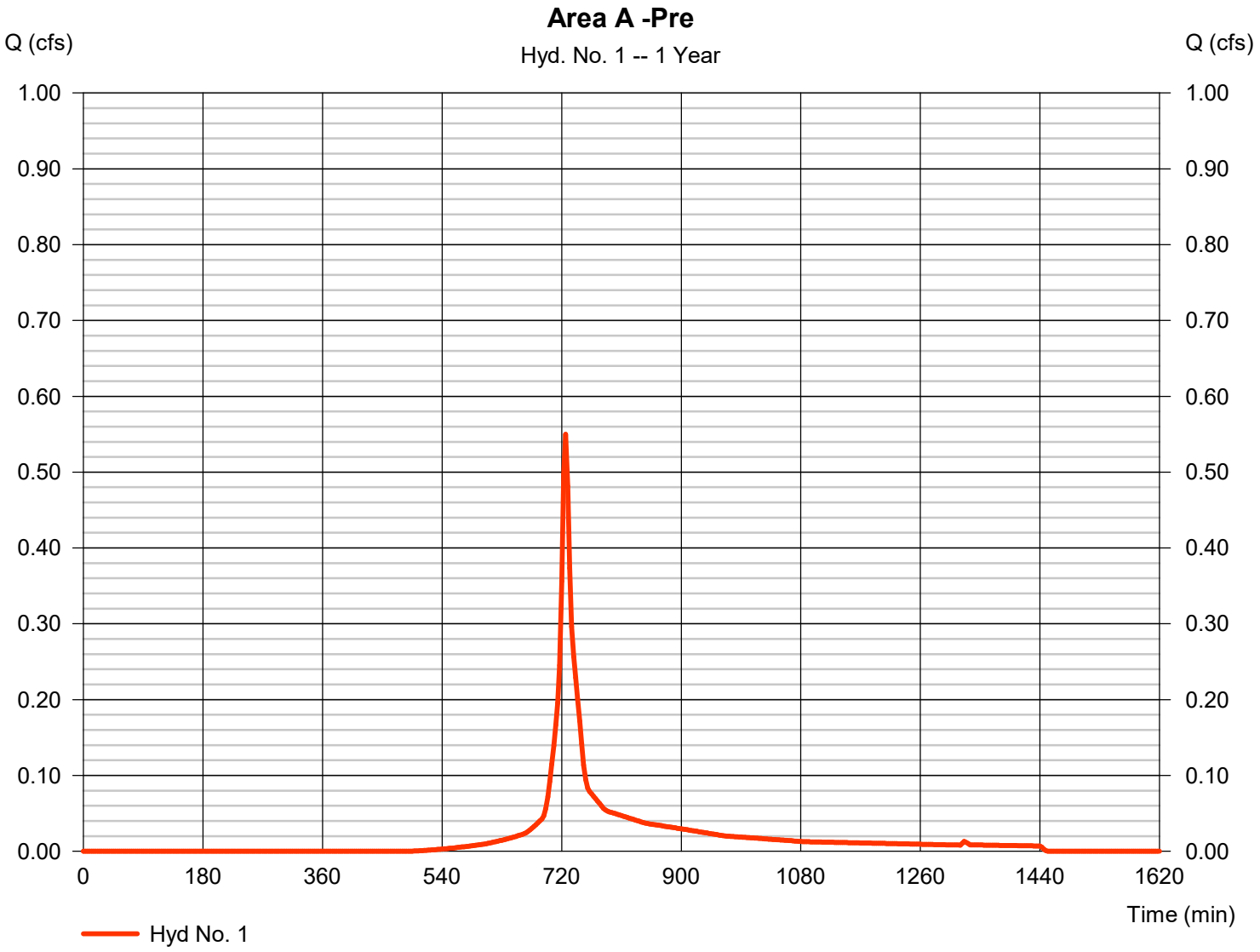
Hydrograph Report

Hyd. No. 1

Area A -Pre

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.550 cfs
Storm frequency	=	1 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	1,829 cuft
Drainage area	=	0.360 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.360 x 86)] / 0.360



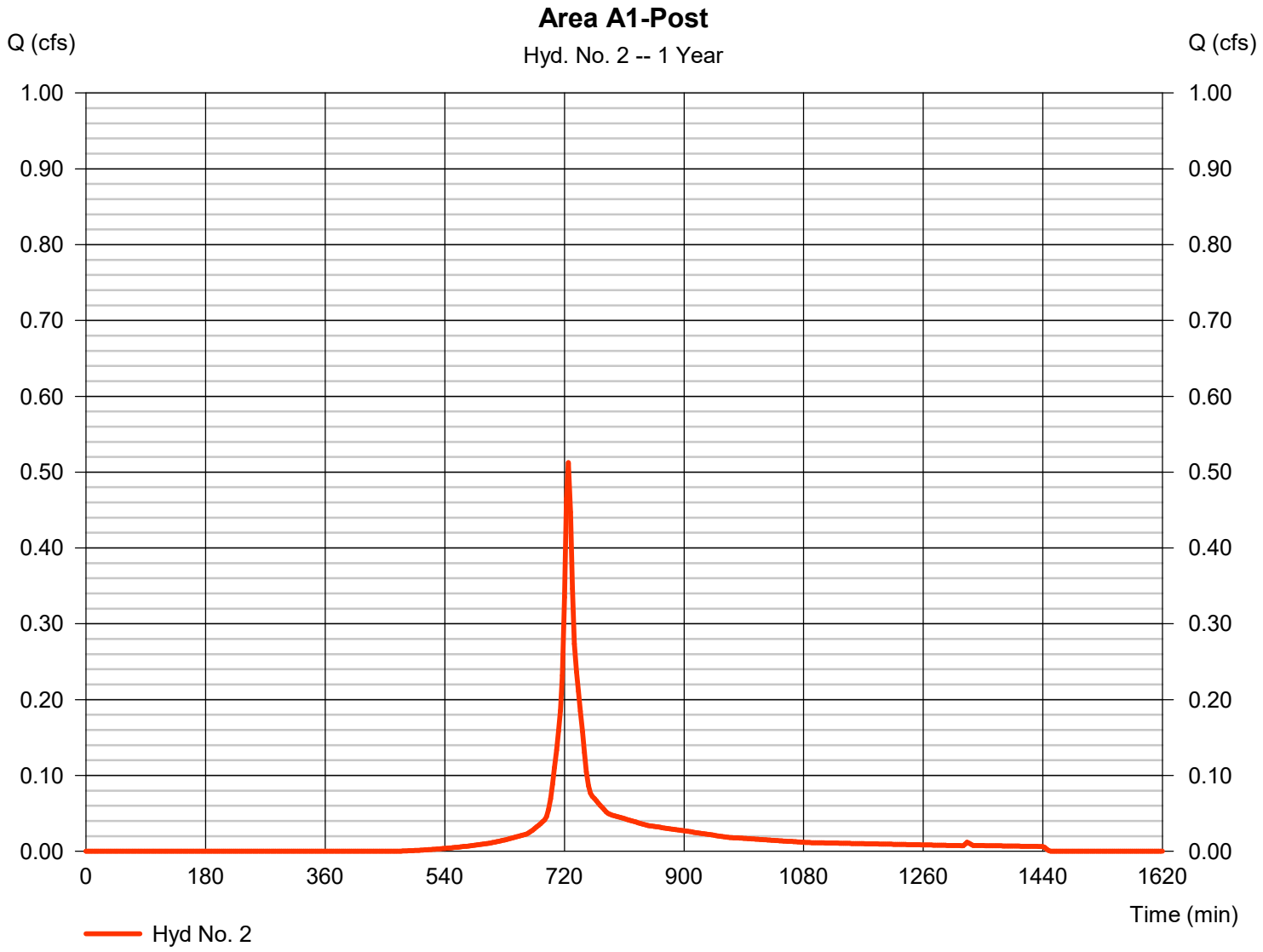
Hydrograph Report

Hyd. No. 2

Area A1-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.513 cfs
Storm frequency	=	1 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	1,705 cuft
Drainage area	=	0.320 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.320 x 87)] / 0.320



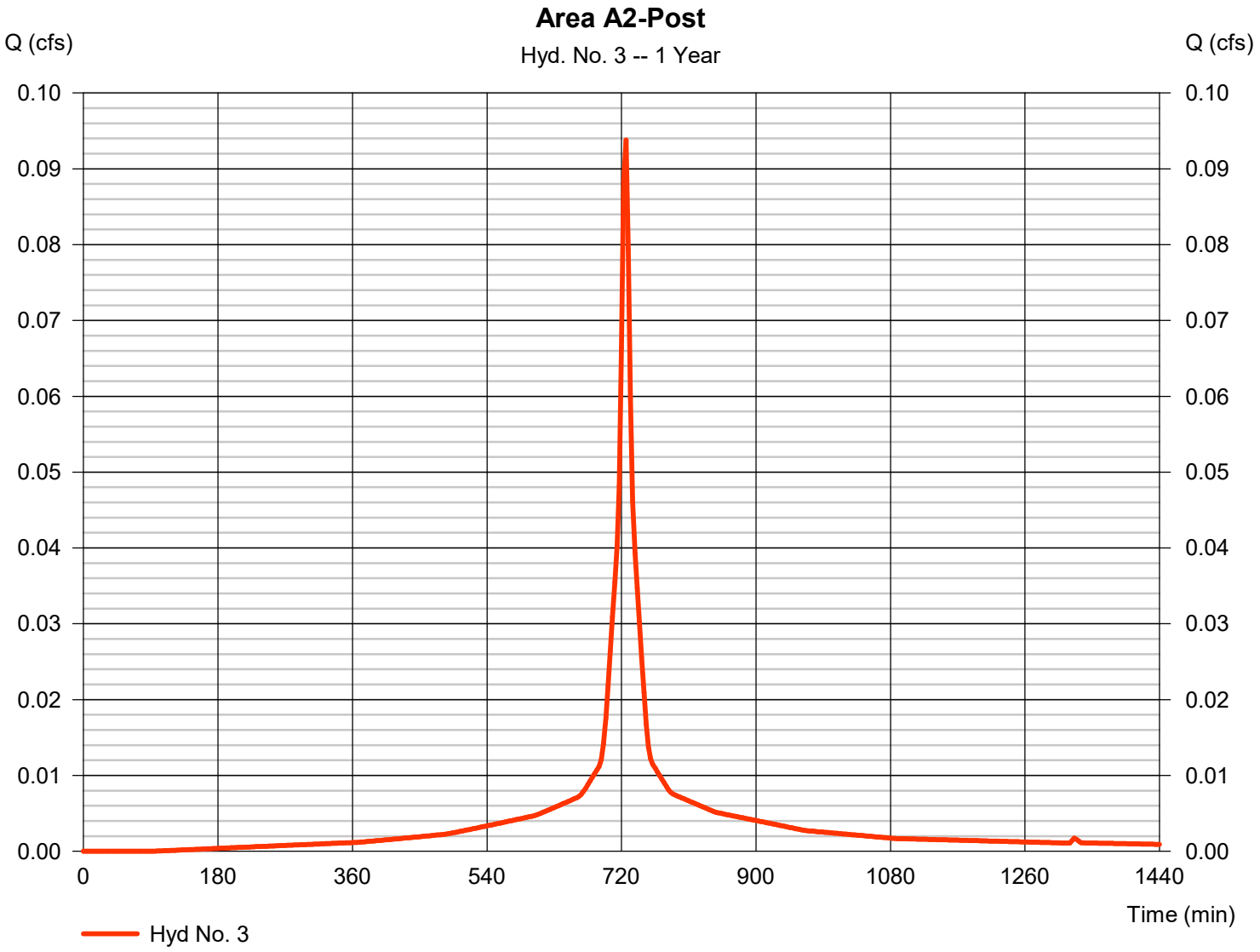
Hydrograph Report

Hyd. No. 3

Area A2-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.094 cfs
Storm frequency	=	1 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	350 cuft
Drainage area	=	0.040 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.040 x 98)] / 0.040



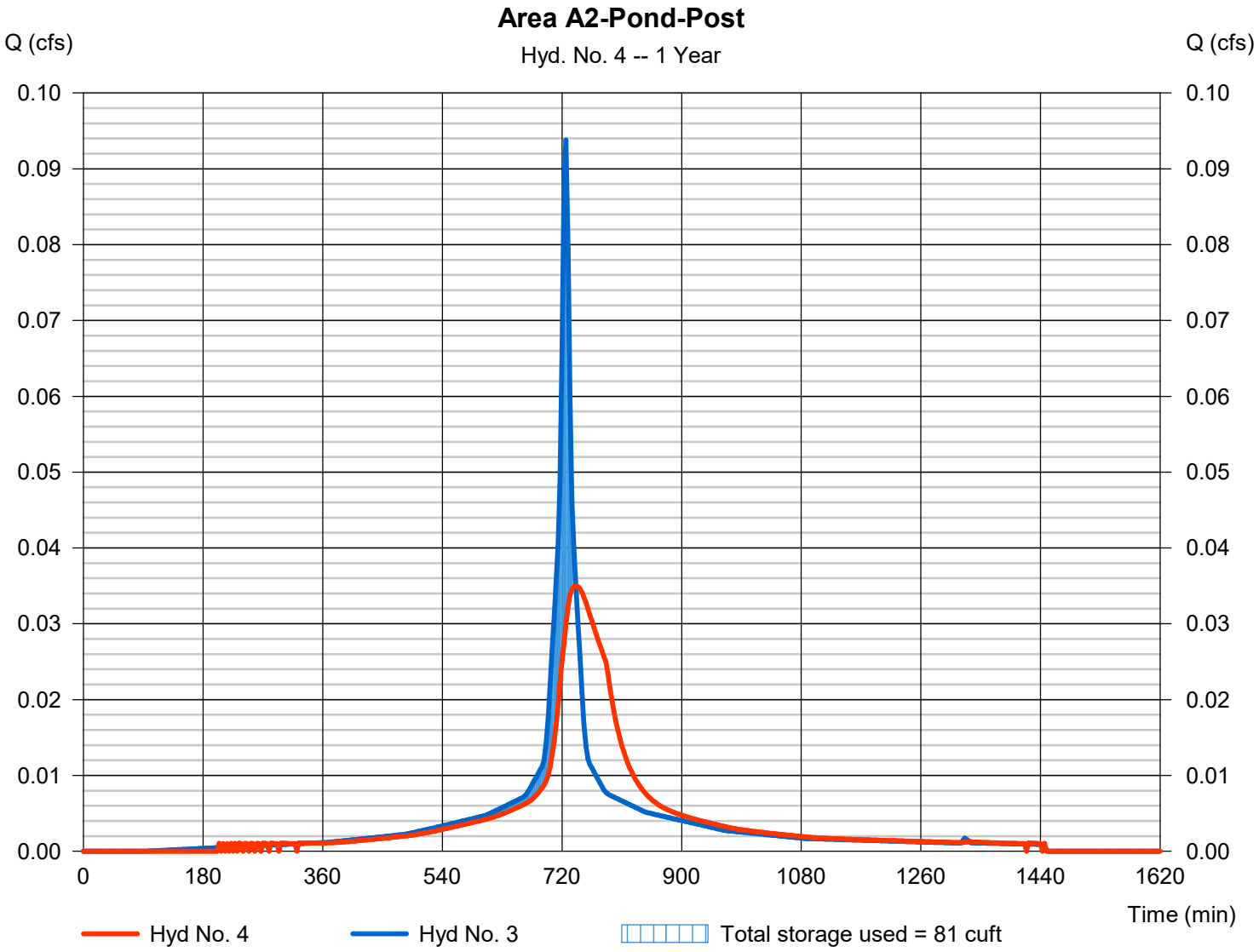
Hydrograph Report

Hyd. No. 4

Area A2-Pond-Post

Hydrograph type	=	Reservoir	Peak discharge	=	0.035 cfs
Storm frequency	=	1 yrs	Time to peak	=	741 min
Time interval	=	3 min	Hyd. volume	=	348 cuft
Inflow hyd. No.	=	3 - Area A2-Post	Max. Elevation	=	9.09 ft
Reservoir name	=	Infiltration Trench	Max. Storage	=	81 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Pond No. 2 - Infiltration Trench

Pond Data

UG Chambers -Invert elev. = 9.13 ft, Rise x Span = 0.33 x 0.33 ft, Barrel Len = 76.00 ft, No. Barrels = 1, Slope = 1.00%, Headers = No
Encasement -Invert elev. = 8.73 ft, Width = 25.00 ft, Height = 1.77 ft, Voids = 45.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	8.73	n/a	0	0
0.25	8.98	n/a	36	36
0.51	9.24	n/a	108	144
0.76	9.49	n/a	181	325
1.01	9.74	n/a	218	543
1.26	9.99	n/a	217	760
1.52	10.25	n/a	217	977
1.77	10.50	n/a	216	1,193
2.02	10.75	n/a	216	1,409
2.28	11.01	n/a	216	1,626
2.53	11.26	n/a	216	1,842

Culvert / Orifice Structures

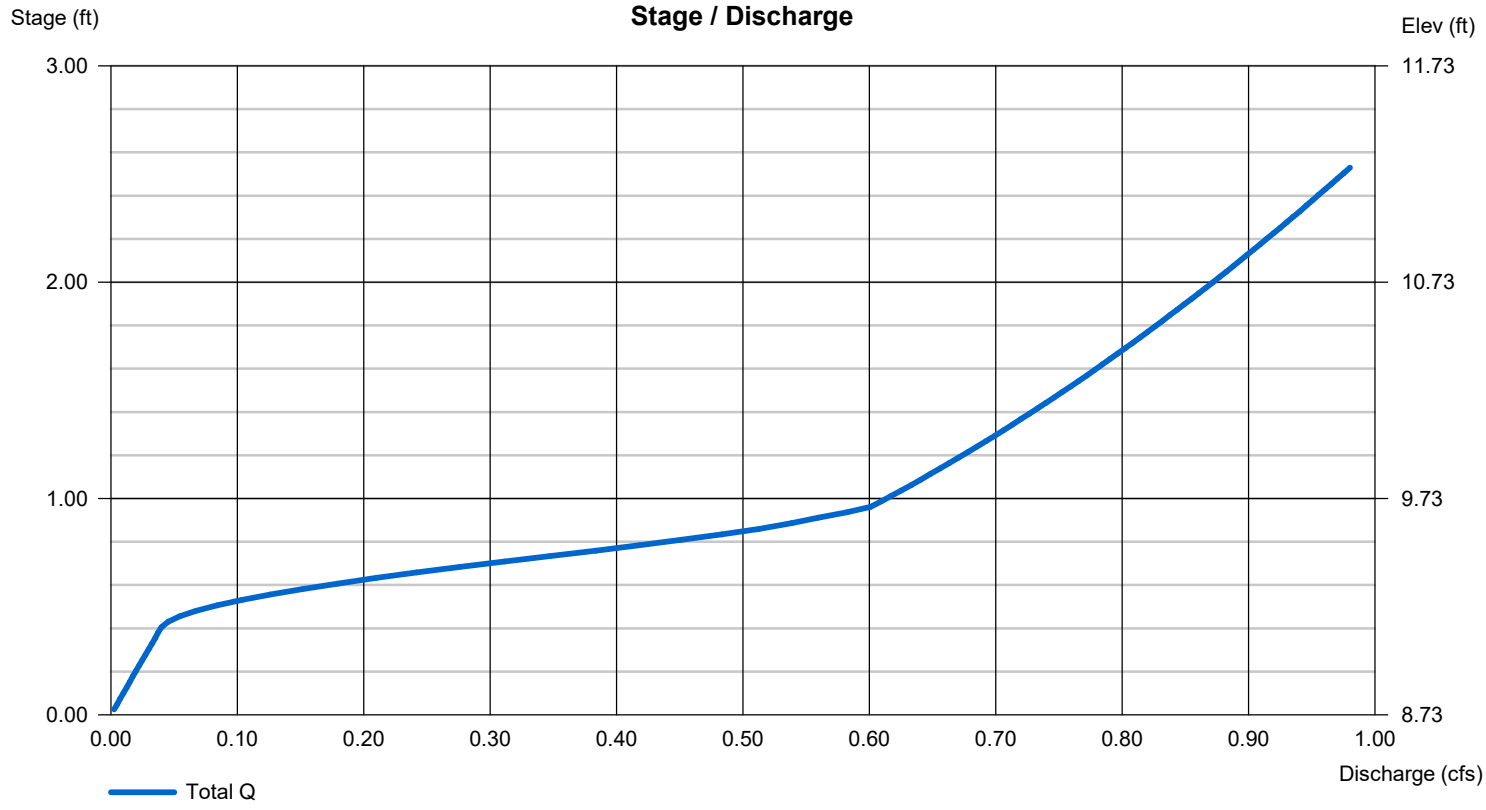
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 6.00	0.00	0.00	0.00
Span (in)	= 6.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 9.13	0.00	0.00	0.00
Length (ft)	= 76.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 1.670 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

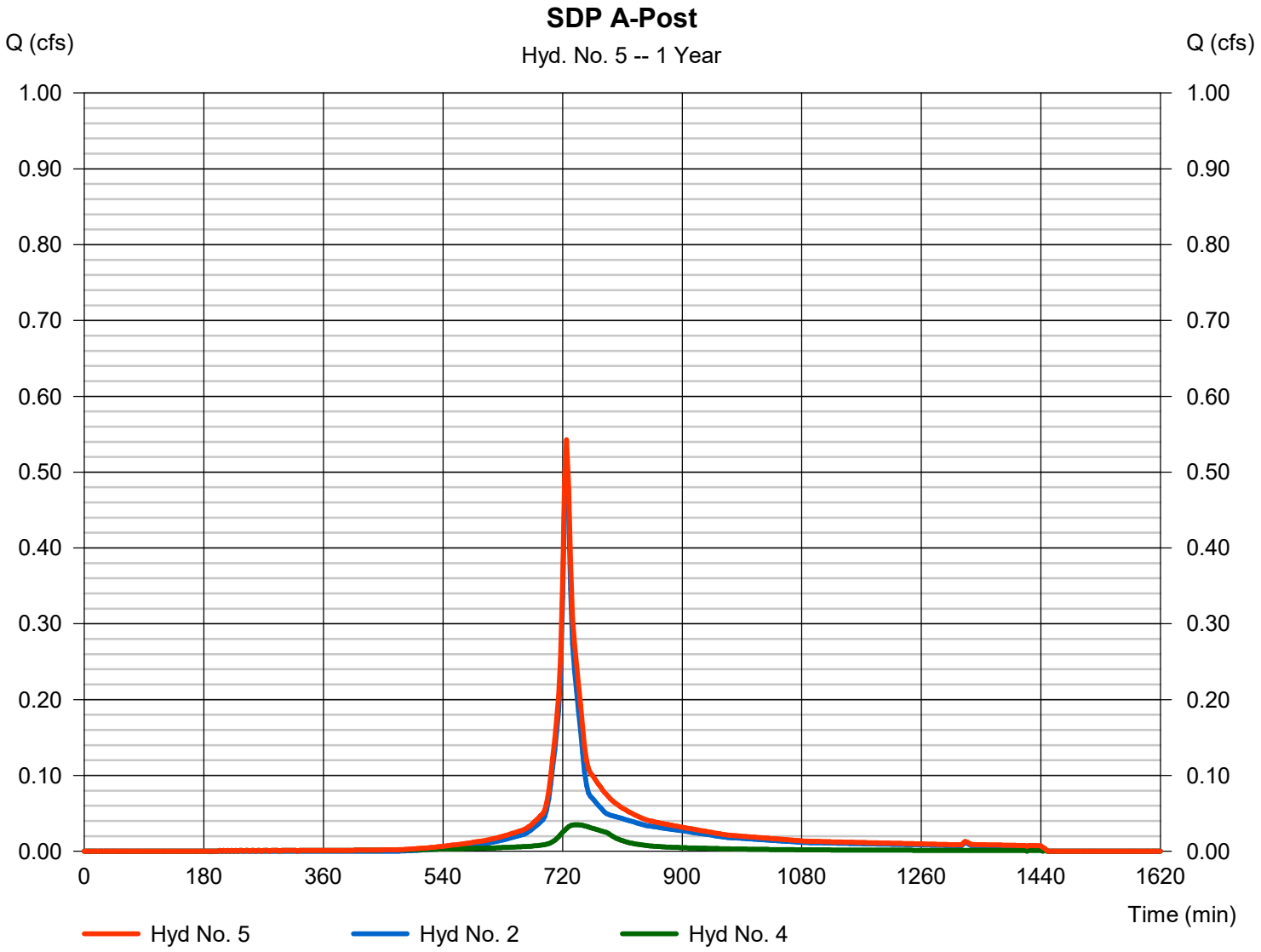


Hydrograph Report

Hyd. No. 5

SDP A-Post

Hydrograph type	=	Combine	Peak discharge	=	0.543 cfs
Storm frequency	=	1 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	2,053 cuft
Inflow hyds.	=	2, 4	Contrib. drain. area	=	0.320 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.287	3	726	4,362	------	------	------	Area A -Pre
2	SCS Runoff	1.171	3	726	3,987	------	------	------	Area A1-Post
3	SCS Runoff	0.173	3	726	662	------	------	------	Area A2-Post
4	Reservoir	0.087	3	735	661	3	9.24	147	Area A2-Pond-Post
5	Combine	1.222	3	726	4,648	2, 4	------	------	SDP A-Post

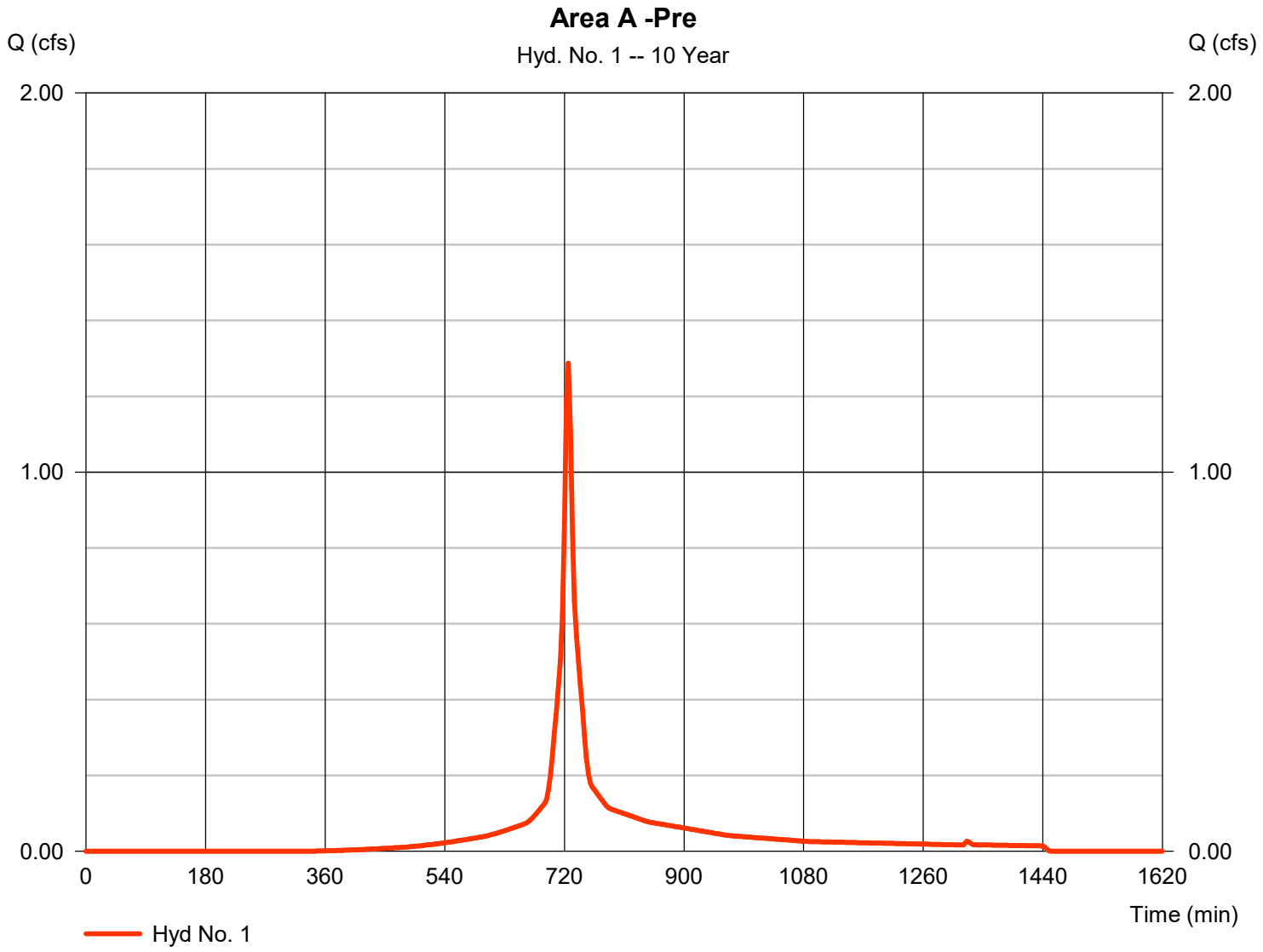
Hydrograph Report

Hyd. No. 1

Area A -Pre

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.287 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	4,362 cuft
Drainage area	=	0.360 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.10 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.360 x 86)] / 0.360



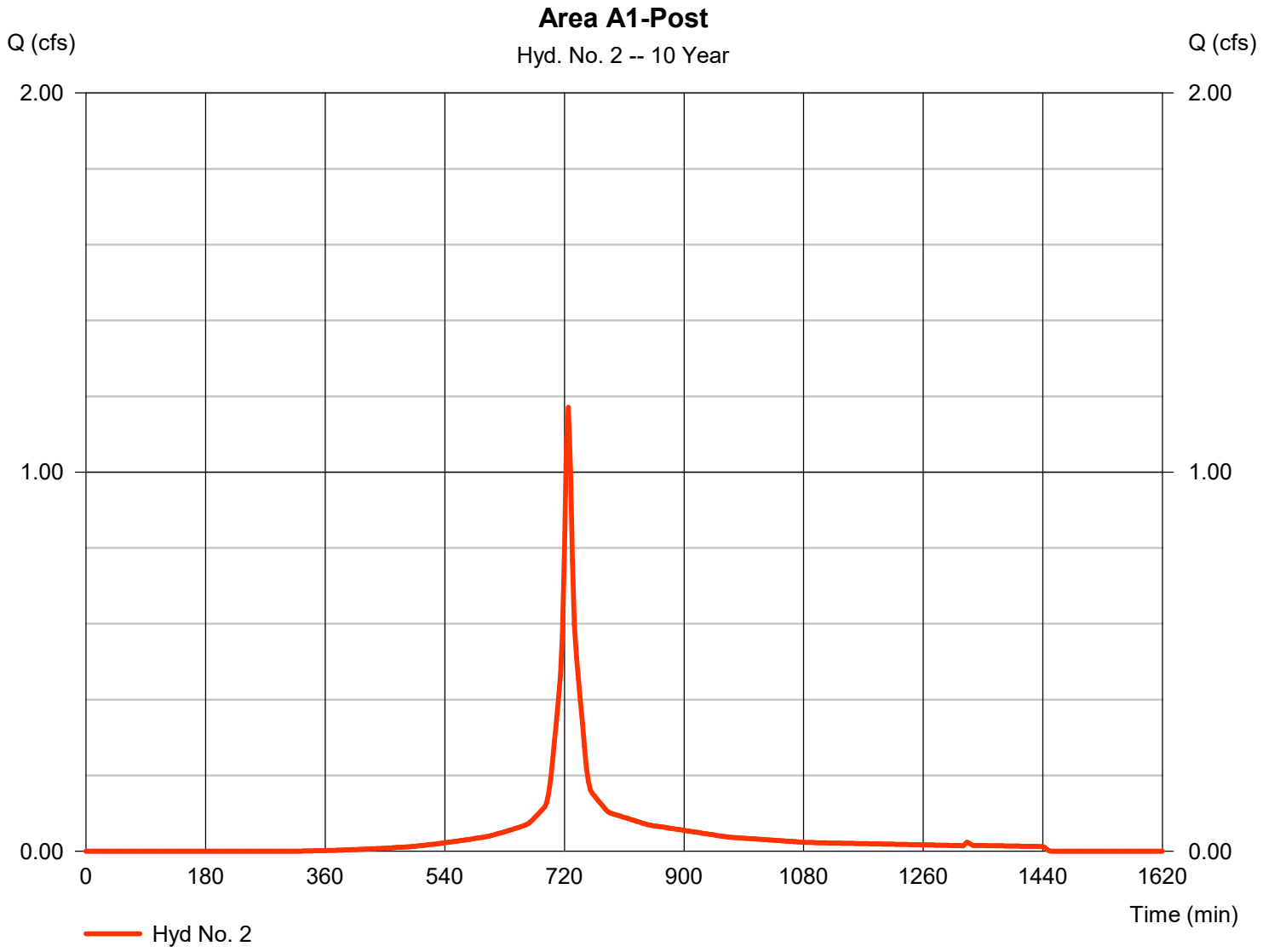
Hydrograph Report

Hyd. No. 2

Area A1-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.171 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	3,987 cuft
Drainage area	=	0.320 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.10 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.320 x 87)] / 0.320



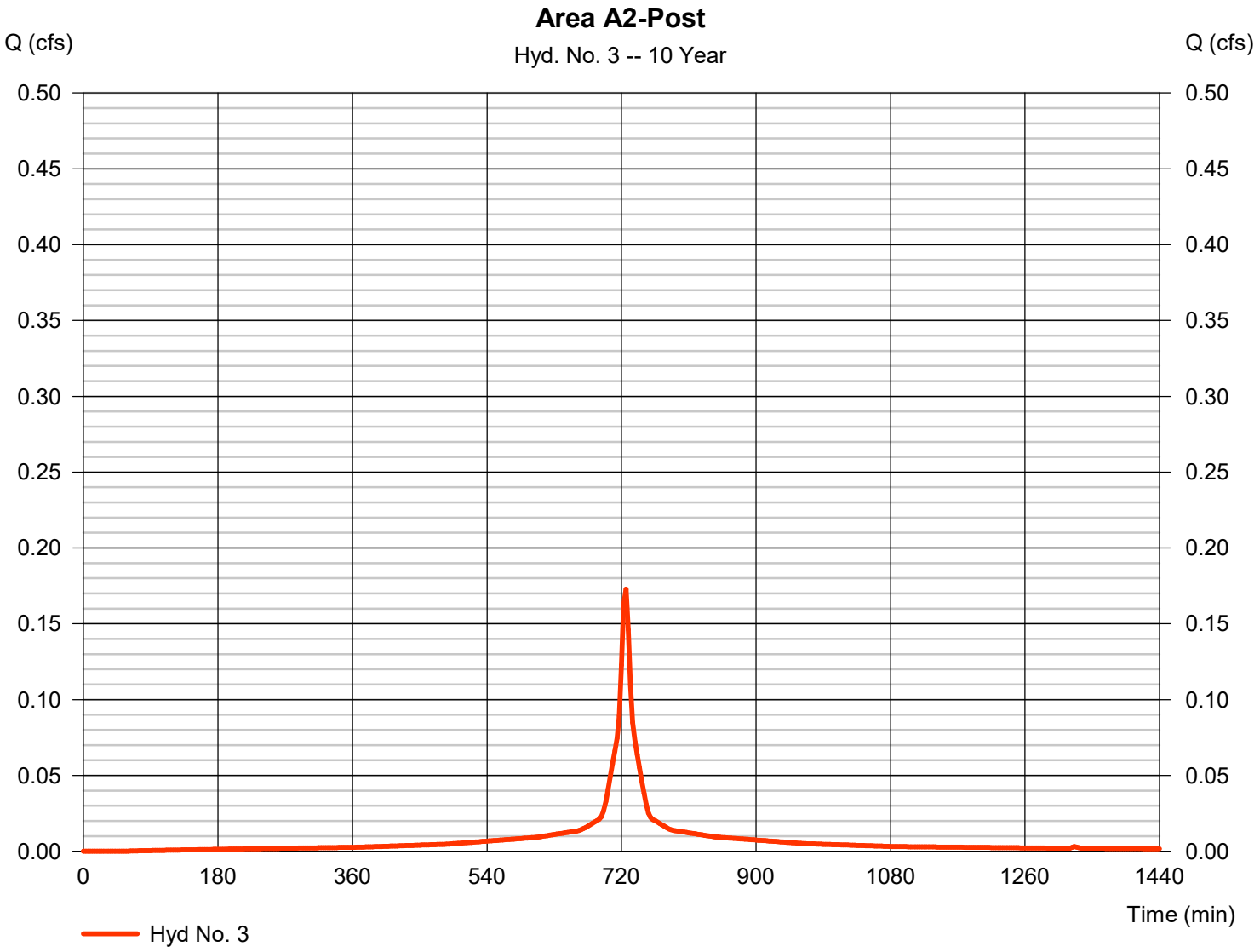
Hydrograph Report

Hyd. No. 3

Area A2-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.173 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	662 cuft
Drainage area	=	0.040 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.10 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.040 x 98)] / 0.040



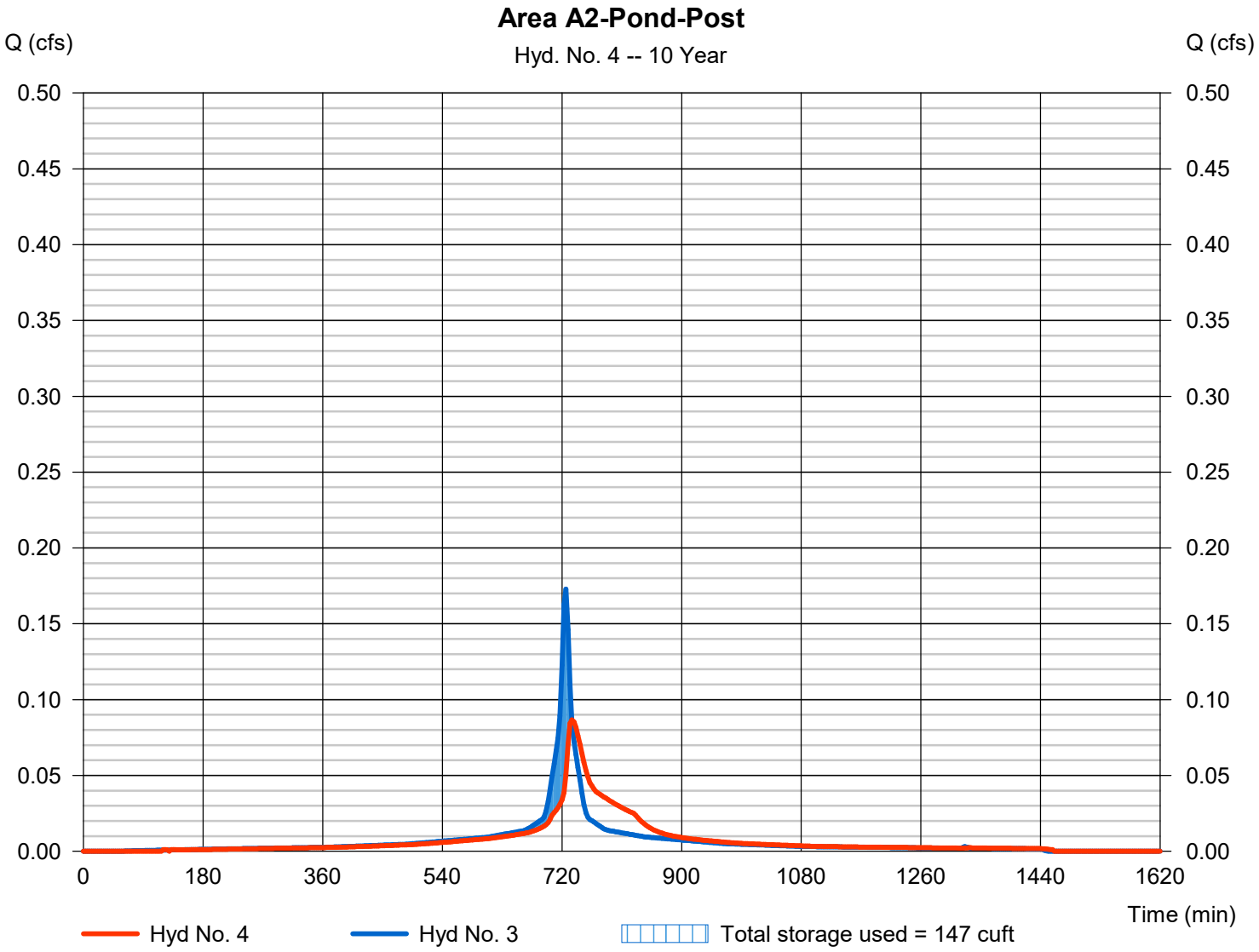
Hydrograph Report

Hyd. No. 4

Area A2-Pond-Post

Hydrograph type	=	Reservoir	Peak discharge	=	0.087 cfs
Storm frequency	=	10 yrs	Time to peak	=	735 min
Time interval	=	3 min	Hyd. volume	=	661 cuft
Inflow hyd. No.	=	3 - Area A2-Post	Max. Elevation	=	9.24 ft
Reservoir name	=	Infiltration Trench	Max. Storage	=	147 cuft

Storage Indication method used. Outflow includes exfiltration.

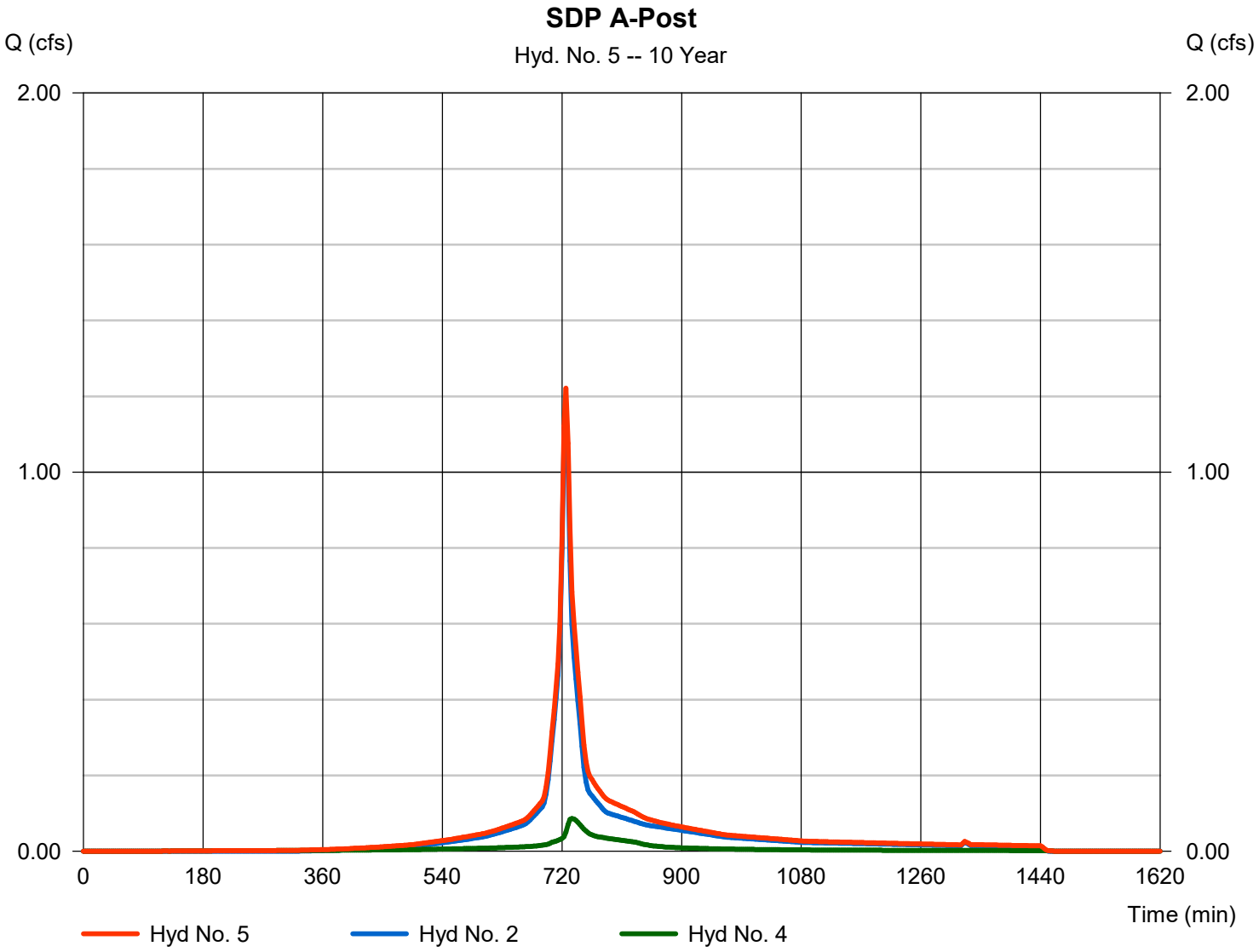


Hydrograph Report

Hyd. No. 5

SDP A-Post

Hydrograph type	=	Combine	Peak discharge	=	1.222 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	4,648 cuft
Inflow hyds.	=	2, 4	Contrib. drain. area	=	0.320 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.709	3	726	5,869	------	------	------	Area A -Pre
2	SCS Runoff	1.545	3	726	5,337	------	------	------	Area A1-Post
3	SCS Runoff	0.217	3	726	839	------	------	------	Area A2-Post
4	Reservoir	0.120	3	735	837	3	9.28	176	Area A2-Pond-Post
5	Combine	1.634	3	726	6,174	2, 4	------	------	SDP A-Post

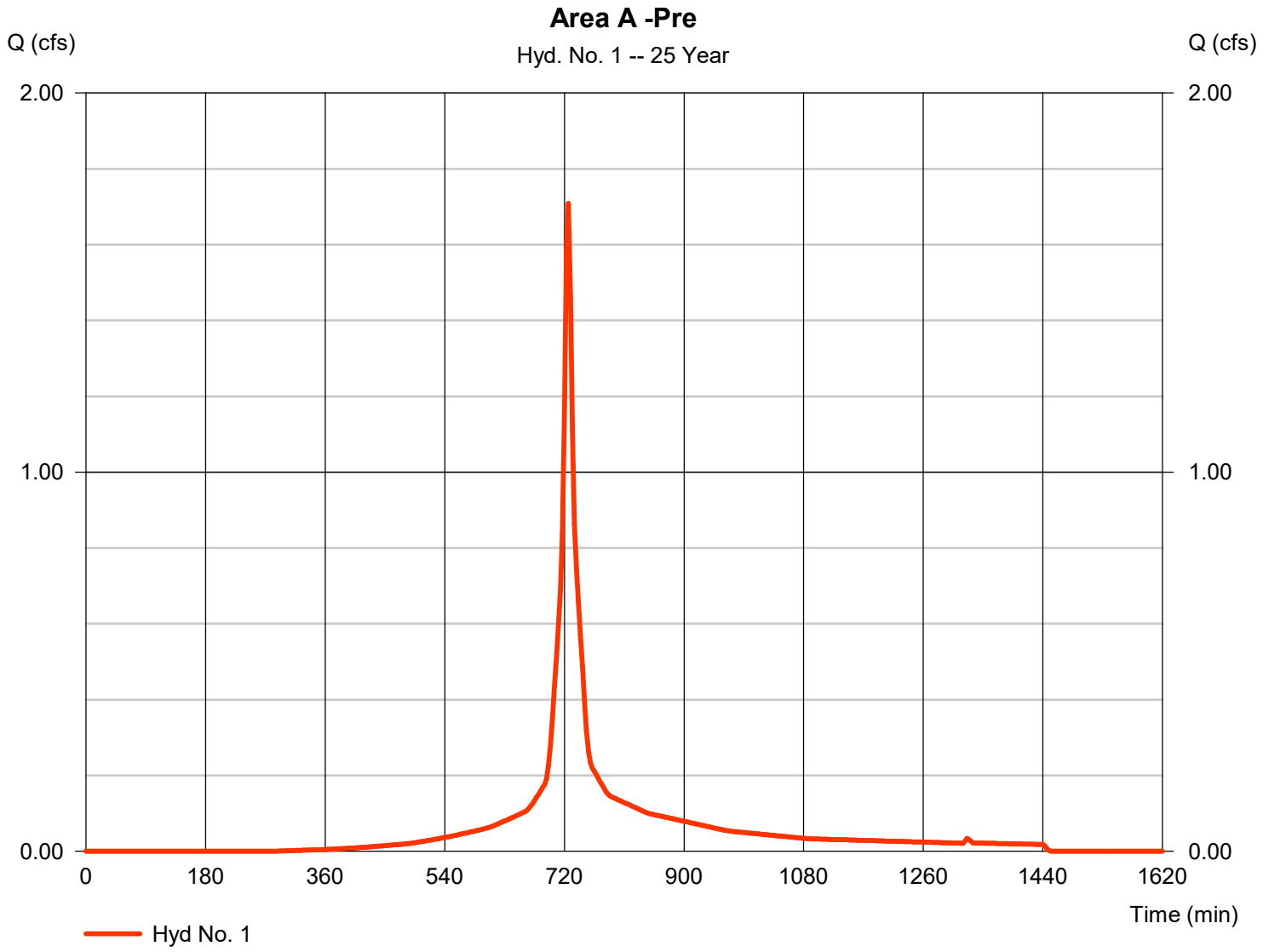
Hydrograph Report

Hyd. No. 1

Area A -Pre

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.709 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	5,869 cuft
Drainage area	=	0.360 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.360 x 86)] / 0.360



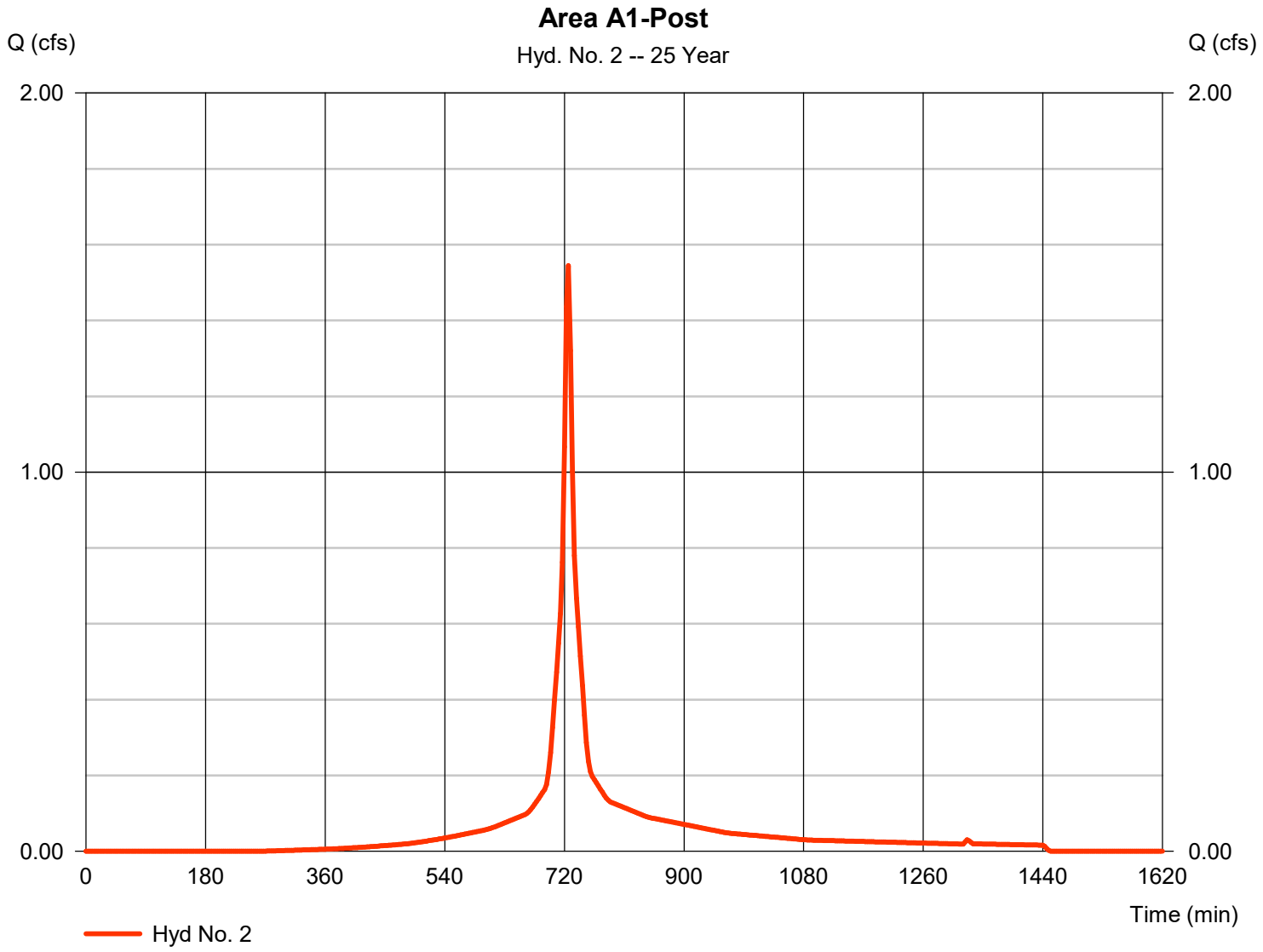
Hydrograph Report

Hyd. No. 2

Area A1-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.545 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	5,337 cuft
Drainage area	=	0.320 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.320 x 87)] / 0.320



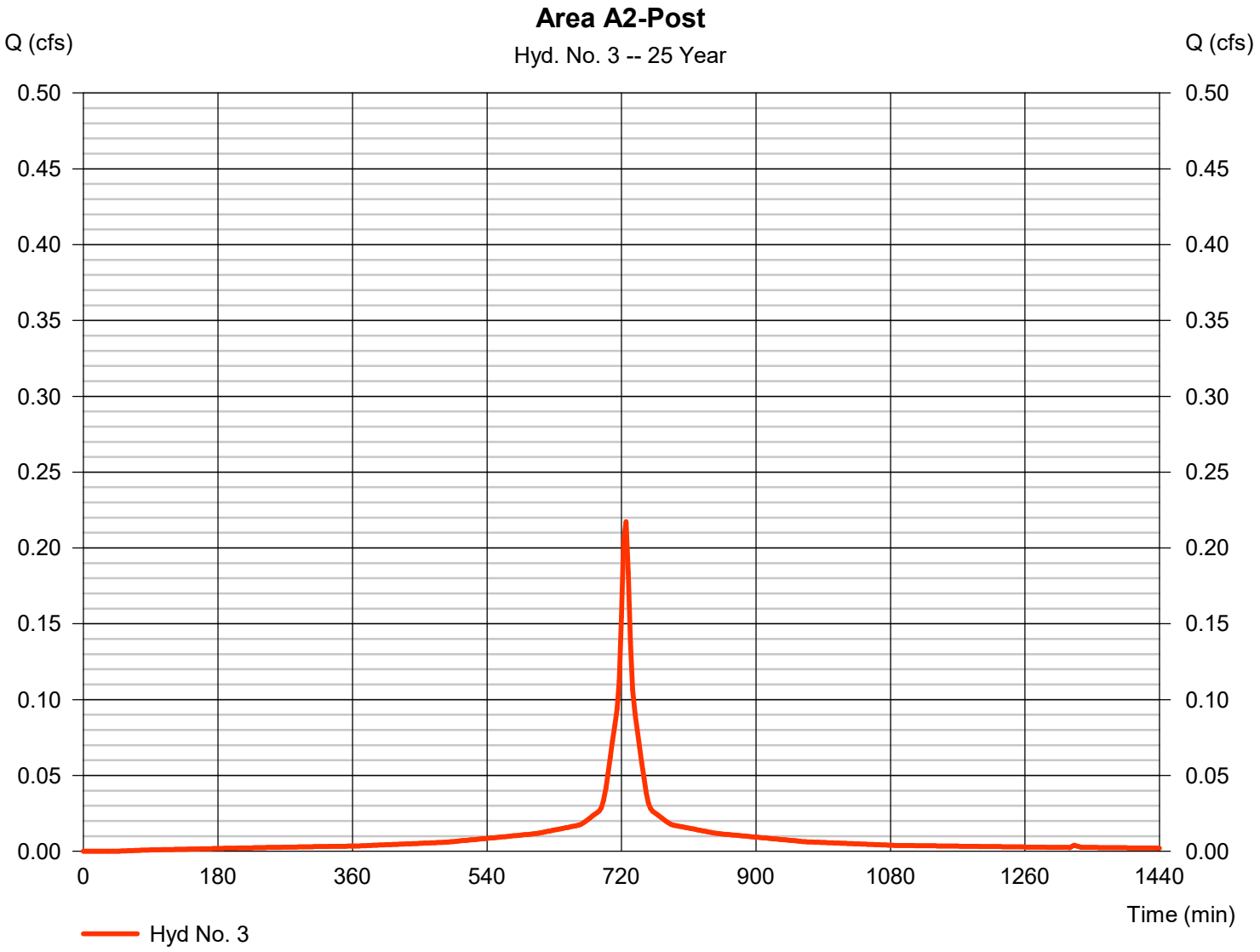
Hydrograph Report

Hyd. No. 3

Area A2-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.217 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	839 cuft
Drainage area	=	0.040 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.040 x 98)] / 0.040



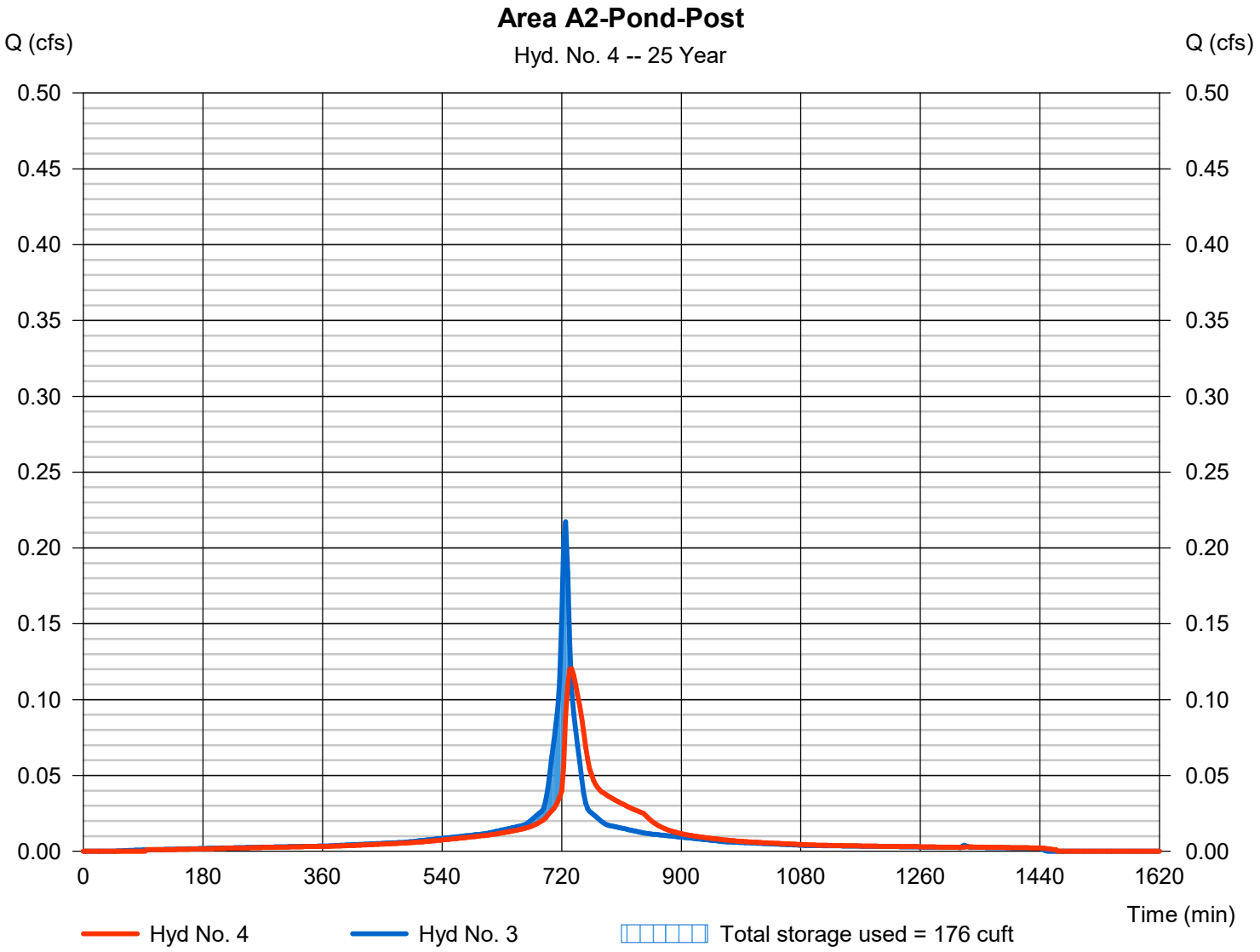
Hydrograph Report

Hyd. No. 4

Area A2-Pond-Post

Hydrograph type	=	Reservoir	Peak discharge	=	0.120 cfs
Storm frequency	=	25 yrs	Time to peak	=	735 min
Time interval	=	3 min	Hyd. volume	=	837 cuft
Inflow hyd. No.	=	3 - Area A2-Post	Max. Elevation	=	9.28 ft
Reservoir name	=	Infiltration Trench	Max. Storage	=	176 cuft

Storage Indication method used. Outflow includes exfiltration.

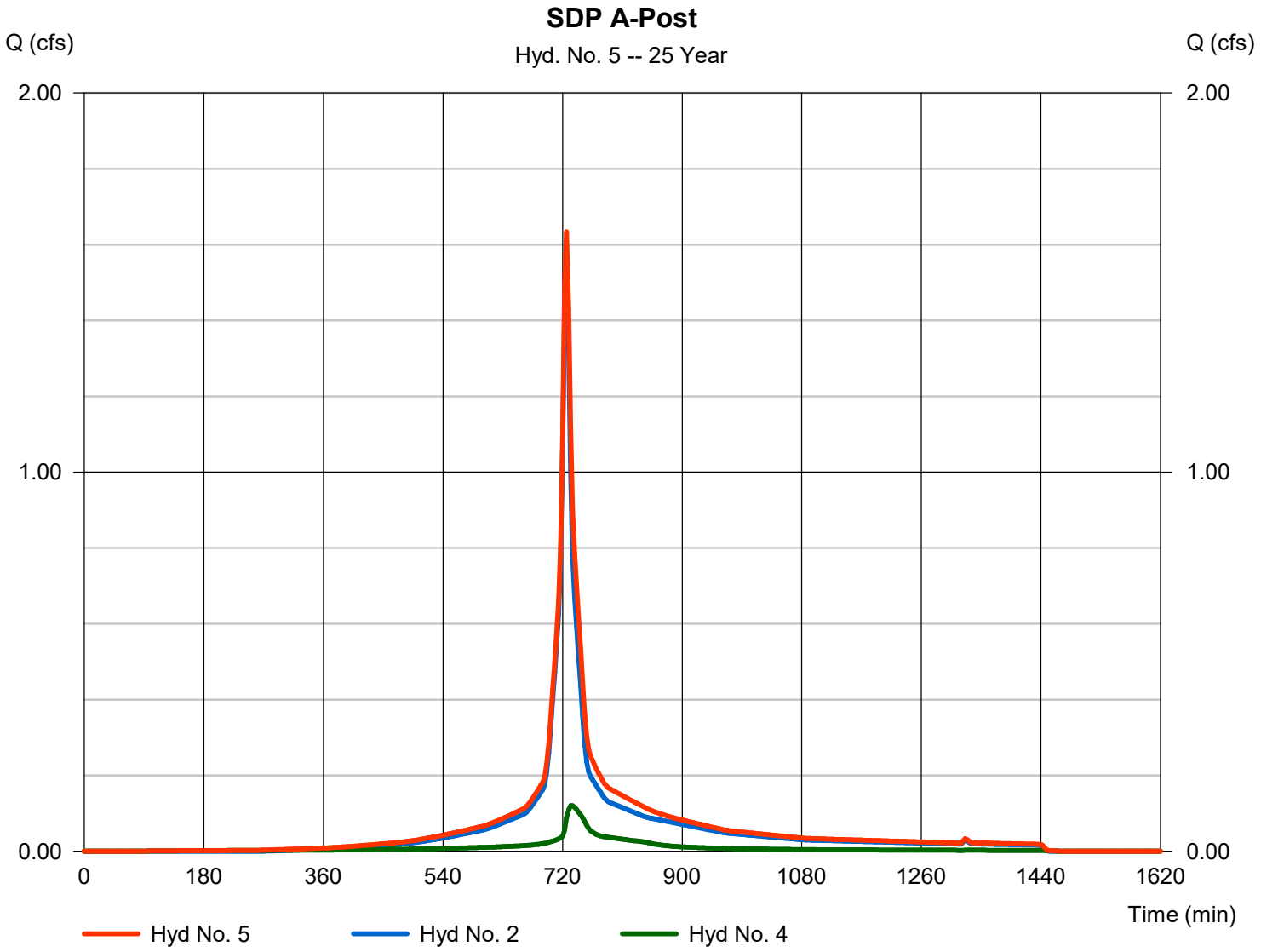


Hydrograph Report

Hyd. No. 5

SDP A-Post

Hydrograph type	=	Combine	Peak discharge	=	1.634 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	6,174 cuft
Inflow hyds.	=	2, 4	Contrib. drain. area	=	0.320 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.545	3	726	8,948	------	------	------	Area A -Pre
2	SCS Runoff	2.286	3	726	8,087	------	------	------	Area A1-Post
3	SCS Runoff	0.306	3	726	1,192	------	------	------	Area A2-Post
4	Reservoir	0.198	3	732	1,191	3	9.35	228	Area A2-Pond-Post
5	Combine	2.443	3	726	9,278	2, 4	------	------	SDP A-Post

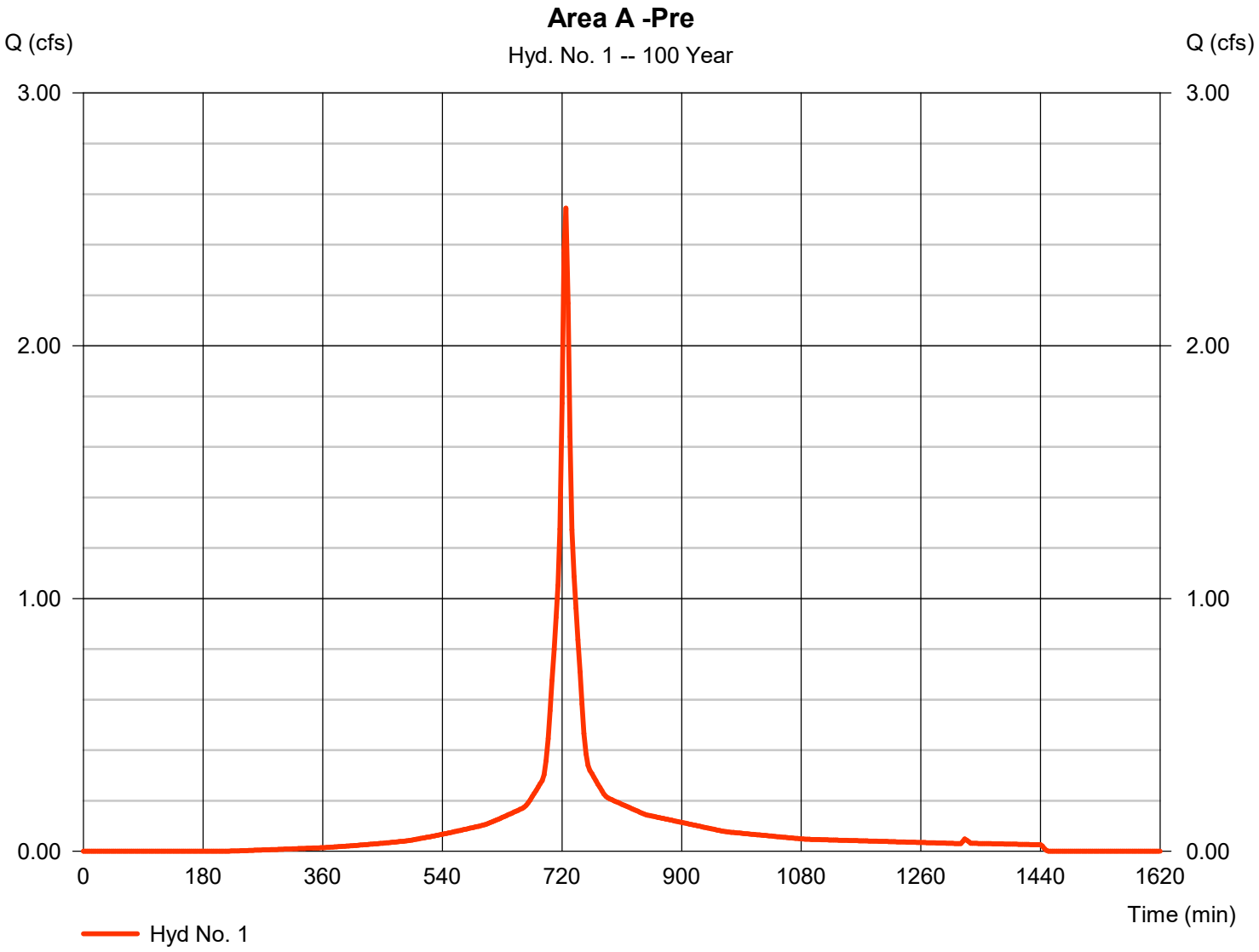
Hydrograph Report

Hyd. No. 1

Area A -Pre

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.545 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	8,948 cuft
Drainage area	=	0.360 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	9.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.360 x 86)] / 0.360



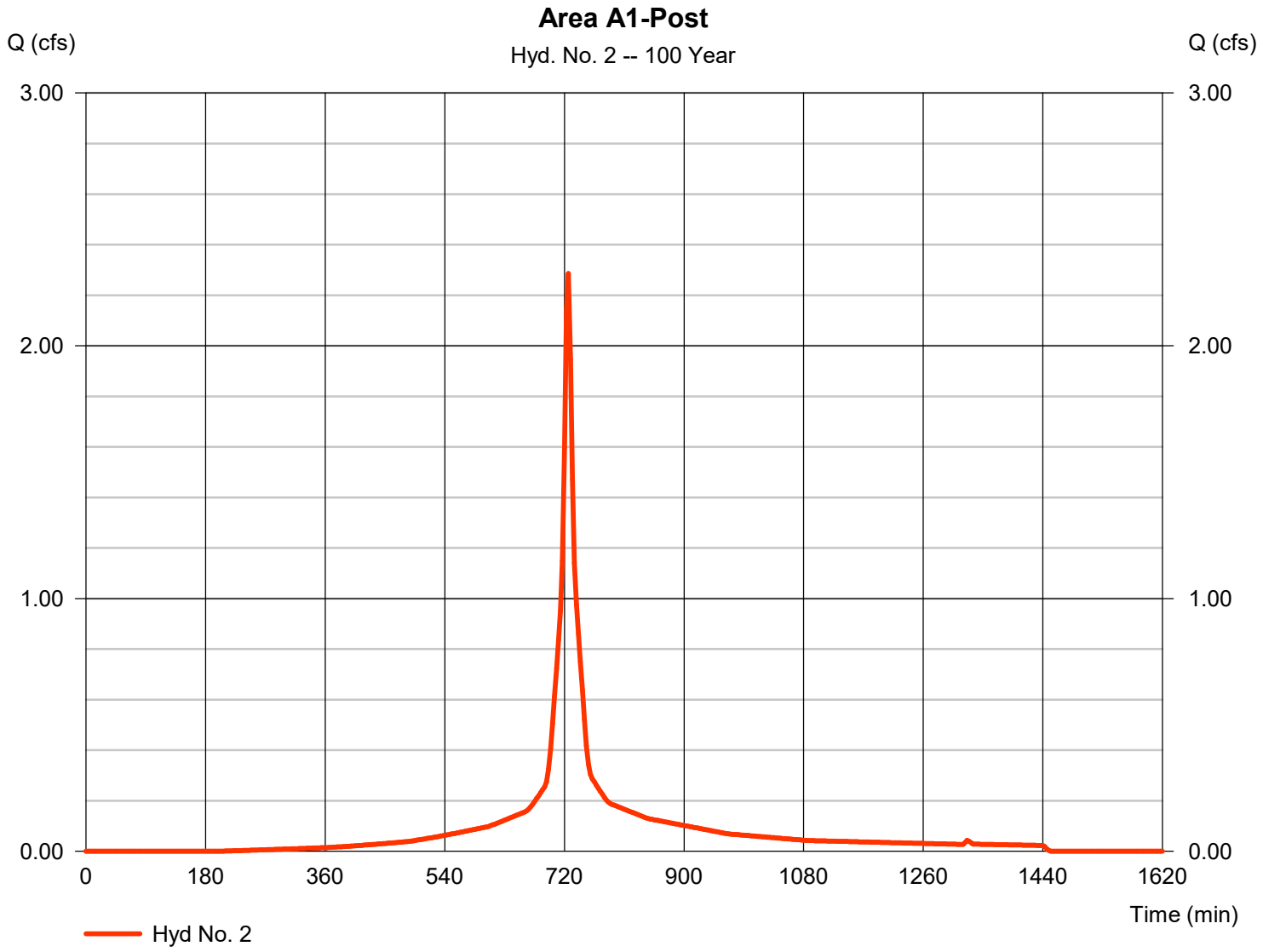
Hydrograph Report

Hyd. No. 2

Area A1-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.286 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	8,087 cuft
Drainage area	=	0.320 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	9.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.320 x 87)] / 0.320



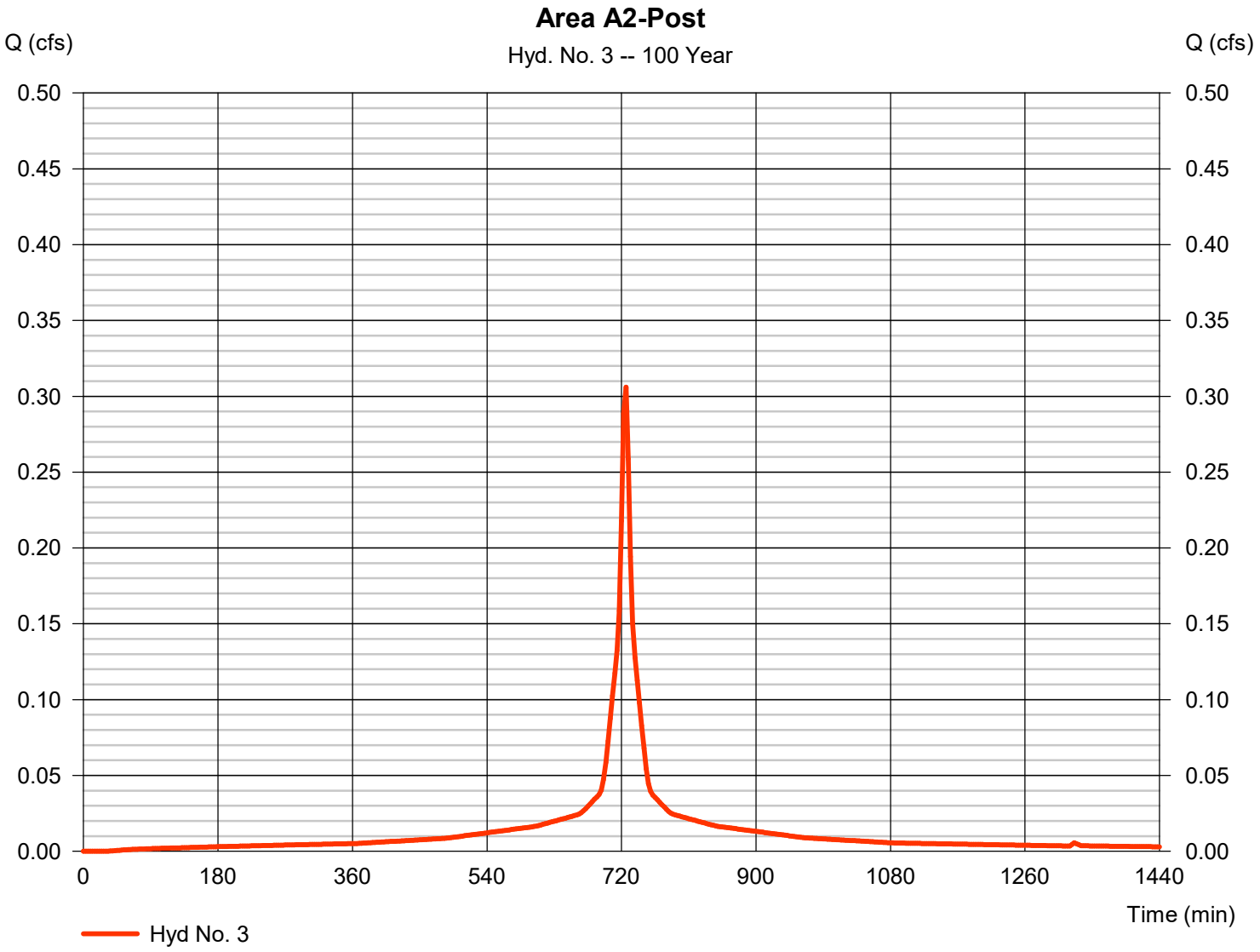
Hydrograph Report

Hyd. No. 3

Area A2-Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.306 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	1,192 cuft
Drainage area	=	0.040 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	9.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.040 x 98)] / 0.040



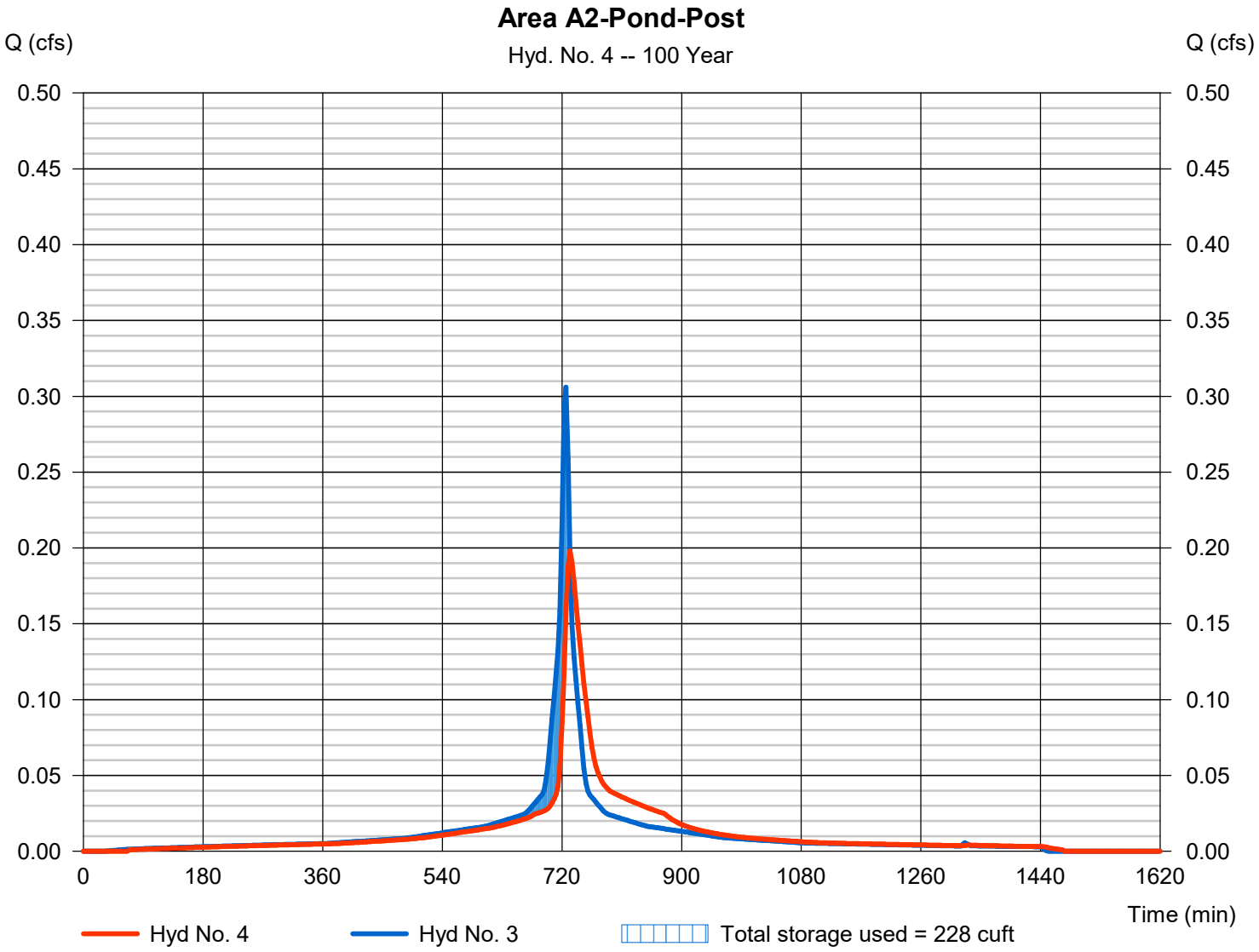
Hydrograph Report

Hyd. No. 4

Area A2-Pond-Post

Hydrograph type	=	Reservoir	Peak discharge	=	0.198 cfs
Storm frequency	=	100 yrs	Time to peak	=	732 min
Time interval	=	3 min	Hyd. volume	=	1,191 cuft
Inflow hyd. No.	=	3 - Area A2-Post	Max. Elevation	=	9.35 ft
Reservoir name	=	Infiltration Trench	Max. Storage	=	228 cuft

Storage Indication method used. Outflow includes exfiltration.

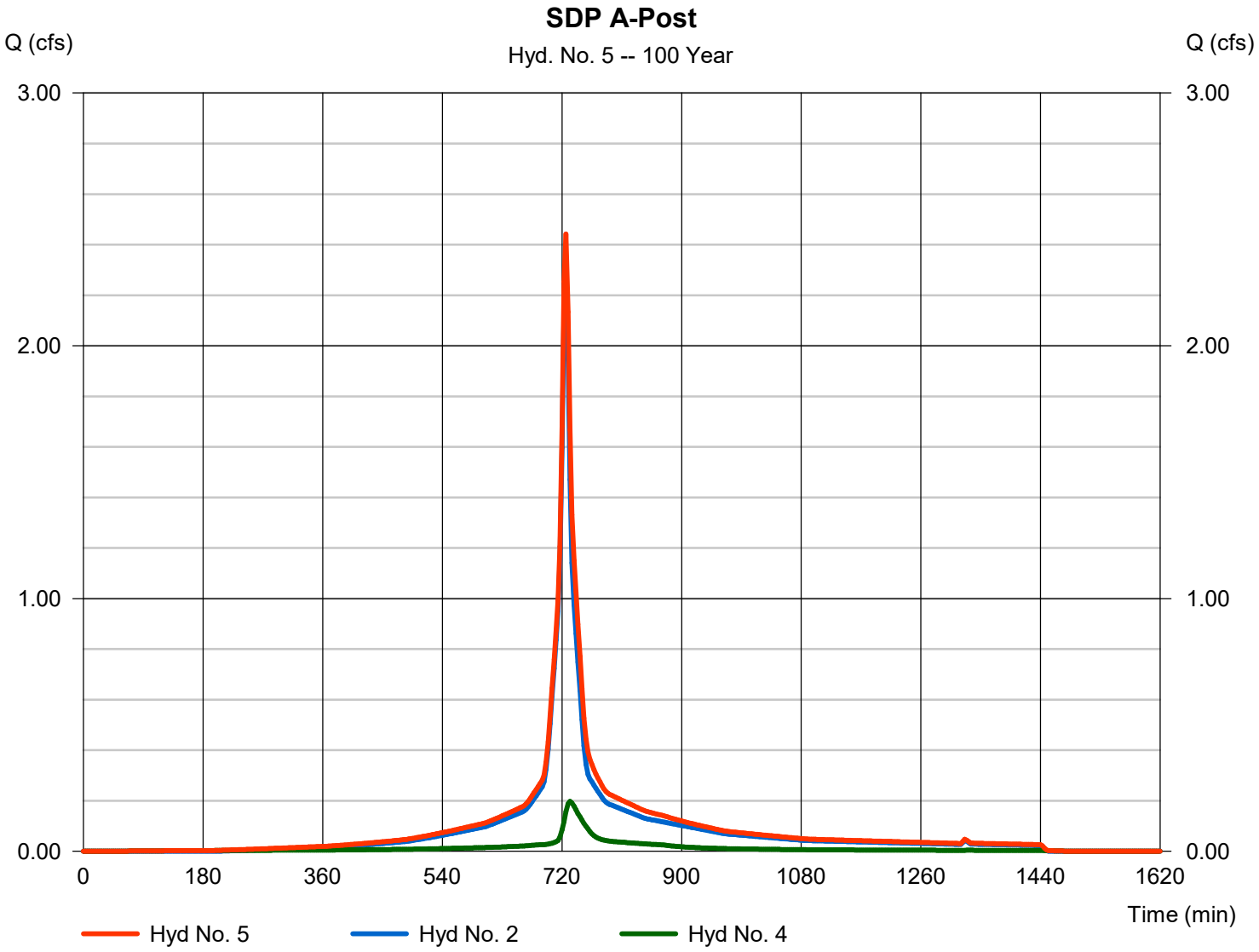


Hydrograph Report

Hyd. No. 5

SDP A-Post

Hydrograph type	=	Combine	Peak discharge	=	2.443 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	3 min	Hyd. volume	=	9,278 cuft
Inflow hyds.	=	2, 4	Contrib. drain. area	=	0.320 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: X:\ACAD\Standards\Stormwater\IDF\Southern Westchester 2015.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.80	3.40	0.00	0.00	5.10	6.40	7.60	9.00
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX D
STORMWATER SIZING CALCULATIONS

CATIZONE ENGINEERING, P.C.

CIVIL ENGINEERING CONSULTANTS
ONE WEST AVENUE, SUITE 219
LARCHMONT, NY 10538

Project: 850 Rushmore Avenue

Date: September 30, 2022

Job Number: 20023

Prepared By: DMG

Checked By: MAD

NYSDEC Stormwater Sizing Calculations	Design Point	SDP
Subsurface Infiltration System (Porous Pavers)	Drainage Area	Site

Site Data			
Description	Symbol	Value	Units
Design Storm (90% Rainfall Event Number)	P	1.50	inches
Hydrologic Soil Group (HSG)	S	0.40	
Total Site Area	A	0.36	Acre
Total Post Development Impervious Area	$A_{ic}1$	0.16	Acre
Total Pre Development Impervious Area	$A_{ic}2$	0.12	Acre
New Impervious Area	A_{ic}	0.03	Acre

Water Quality Volume (EQ: 1)			
25% Water Quality Volume (Existing Impervious)	WQ_V	0.004	Acre-Foot
Water Quality Volume (New Impervious)	WQ_V	0.006	Acre-Foot
Total Volume Required (New + Existing)	**WQ_V**	**0.010**	**Acre-Foot**

Runoff Reduction (EQ: 2)			
Minimum Runoff Reduction	**RR_V**	**0.002**	**Acre-Foot**

Provided Porous Pavement Area			
Surface Area Provided	A_P	**1,884**	SF
Porosity	n	0.40	
Gravel Bed Depth	d_t	1.54	Ft
Volume Provided	**WQ_V**	1,161.80	**CF**
	WQ_V	**0.027**	**Acre-Foot**
Provided Runoff Reduction (100% WQV)	**RR_V**	**0.027**	**Acre-Foot**

Equations

$$WQ_v = \frac{(P)(R_V)(A)}{12}$$ EQ: 1

Where;

P	=	90% Rainfall event number (1.5", per Figure 4.1, NYSDEC Design Manual)
R_V	=	0.05 + 0.009 x I Where (I) is percent of impervious cover
A	=	Site area in acres (Contributing Area)

$$RR_{v,min} = \frac{(P)(\overline{R}_V)(Aic)(S)}{12}$$ EQ: 2

Where;

R_V	=	0.05 + 0.009 x I Where (I) is 100% Impervious = 1.95
A_{ic}	=	Total area of new impervious cover
S	=	Hydrologic Soil Group (HSG) Specific Reduction Factor (S)

APPENDIX E

FEMA NATIONAL FLOOD HAZARD FIRMETTE

National Flood Hazard Layer FIRMette

FEMA

73°43'56"W 40°56'33"N

73°43'19"W 40°56'6"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/4/2021 at 9:23 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX F
SOIL TESTING

CATIZONE ENGINEERING, P.C.

CIVIL ENGINEERING CONSULTANTS

FIELD OBSERVATION

Project: 850 Rushmore Ave **Date:** 7/20/2021

Prepared By: D.M.G

Project No.: 20023 **Checked By:** M.A.D

CALCULATION: SOIL PRESOAK PERCOLATION TEST

Presoak Date: 7/20/2021 Run Date: 7/21/2021

Hole	Run	Clock Time			Percolation			Rate
		Start	Stop	Elapse	Start	Stop	Drop	
		(HH:MM)	(HH:MM)	(MM)	(Inches)	(Inches)	(Inches)	Min/Inch
P1		10:43			16”			
	1	8:18	8:37	19	20	21	1	19
	2	8:40	9:16	36	20	21	1	36
	3	9:17	9:53	36	20	21	1	36
	4	9:55	10:30	35	20	21	1	35
P2		10:45:30	11:02		21.5”	27”		
	1	8:21	8:23	2	19	22	3	1
	2	8:23	8:25	2	19	22	3	1
	3	8:25	8:27	2	19	22	3	1
	4	8:27	8:29	2	19	22	3	1

Perc Test Done By: Catizone Engineering, P.C

Design Professional: Pietro A. Catizone, P.E. **Seal:**

Signature:

CATIZONE ENGINEERING, P.C.

CIVIL ENGINEERING CONSULTANTS

FIELD OBSERVATION

Project: 850 Rushmore Ave **Date:** 7/20/2021

Prepared By: D.M.G

Project No.: 20023 **Checked By:** M.A.D

OBSERVATION: SOIL LOG

Depth	Hole: TP-1	Hole: TP-2	Hole:	Hole:
G.L.	0-9" Top soil	0-8" Top soil		
6"				
12"	9-30" Light brown silt and sand trace cobbles	8-25" Light brown silt and sand trace cobbles		
18"				
24"				
30"	30-46" Dark brown silt trace cobbles	25-42" dark brown silt trace cobbles		
36"				
42"		42-60" Grey silt/clay trace cobbles		
48"	46-64" Grey silt/clay trace cobbles			
54"				
60"				
66"				
72"				
78"				
84"				
90"				
96"				
102"				
108"				
114"				
120"				
G.W.	64" Seepage	60" Seepage		
Rock	64" Pot. bedrock	60" Pot. bedrock		

Deep Tests Made By: Lawrence Construction

Witnessed by Catizone Engineering, P.C.

Date of Observation: 7/202021

Engineer's Seal:

APPENDIX G
CONTRACTOR CERTIFICATION STATEMENT

Contractor Certification Statement

_____ NYR_____ _____

Name of Construction Site | DEC Permit ID | Municipality (MS4)

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 most current version New York State Pollution 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 State of New York and could subject me to criminal, civil and /or administrative proceedings.

Name _____ Title _____

Signature _____ Date _____

Company Name & Address _____ Phone_____

_____

Project Site Address 850 Rushmore Avenue

Provisions Responsible for _____

_____

_____

Information on the Trained Certified Contractor or Subcontractor

_____ _____ _____

Name of Trained Employee | Title of Trained Employee | NYSDEC SWT#

A copy of this signed contractor certification statement must be maintained in the SWPPP on site.