TOWN OF NEWBURGH
PLANNING BOARD
TECHNICAL REVIEW COMMENTS

PROJECT NAME:	**MOFFAT PROPERTIES, LLC**
PROJECT NO.:	**22-14**
PROJECT LOCATION:	**224 & 226 NY - 17K**
	SECTION 32, BLOCK 29, LOT 64 & 65
REVIEW DATE:	**24 MARCH 2023**
MEETING DATE:	**2 MARCH 2023**
PROJECT REPRESENTATIVE:	**INDEPENDENCE ENGINEERING**

1. A City of Newburgh Flow Acceptance letter is required for the project.
2. The FAA approval of the Site Plan is required regarding the need for lighting.
3. ARB submission is required to be reviewed by the Planning Board.
4. Compliance with the recently adopted Tree Preservation Ordinance must be documented on the plans.
5. Label the proposed fence around the Stormwater Management facility.
6. Identify size of water service lateral on the plan sheets.
7. A Design Report for the sanitary sewer pump station should be provided.
8. Hydraulic loading from the facility should be identified.
9. Upon a review of the pump on elevations and discharge capacity of the pump, it appears that the pump will run less than one minute per cycle. The applicant's representative are requested to evaluate this.
10. SWPPP submission is under review.
11. Tree Preservation Law was submitted to the applicant's representative on 2 November 2022, when this office transmitted the ordinance to each applicant's representative that appeared before the Board in 2022.

Respectfully submitted,

MHE Engineering, D.P.C.

Patrick J. Hines
Principal
PJH/kbw

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STORMWATER MANAGEMENT REPORT and SWPPP DOCUMENT TOWN OF NEWBURGH & NYSDOT

FOR

Moffat Properties – NY Route 17-K

224-226 Route 17-K
Town of Newburgh
Orange County, New York
Tax Lot 89-1-64 & 89-1-65

Prepared by:

Independence ENGINEERING LLC
102 Farnsworth Avenue, Suite 310, Bordentown, NJ 08505

Neil E. Sander, PE
NY Professional Engineer License 87961

June 2022
Revised: October 2022
Revised: December 2022
Revised: February 2023

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Appendices

I

Site Information

Location and Surrounding Uses

The Moffat Properties – NY Route 17-K site in the Town of Newburgh, Orange County, New York consists of a total of 5.915 acres located in the IB Interchange Business District. The properties are located at 224 and 226 NY Route 17-K, Town of Newburg, Orange County, New York 12550. The tracts are also known as Tax Lots 89-1-64 and 89-1-65.

Existing Conditions

The project site is currently composed of an abandoned landscaping operation occupied by a one-story dwelling, a one-story retail store, five wooden sheds and numerous hardscapes including paved areas, block walls and ornamental paving stones. The project site is bounded to the south by Route 17K across which is Stewart Airport, to the west by forested land and a commercial property, to the north by forested land, and to the east by residential lots and another commercial establishment. There is one (1) existing right-in-right-out driveway that leads to the paved parking area. There is a circular gravel driveway toward the one-story dwelling.

An existing water connection along route 17-K exists and is to remain. The current one-story dwelling and one-story retail store are connected to an on-site septic pit, located along the southeast boundary of the project site. There is currently no stormwater management on the site. The site is served by natural gas via a connection to the main gas line along route 17-K.

A stream traverses the western property and is located within a floodplain that also contains wetlands. Per a site wide wetland delineation, additional wetlands were located in proximity to the western boundary and wells at the eastern boundary. The property is relatively evenly sloped in the front and rear center of the property, with steeper slopes toward the eastern and western property lines. Existing elevations range from 508 to 478 above MSL.

Proposed Conditions

The applicant proposes to demolish the existing structures and residual landscape business items and construct an approximately 11,790 s.f. warehouse building with a wash bay and office area, a parking area along the front (south) side of the building, a paved driveway along the remaining sides of the building, and a gravel area to be used for storage. The two (2) existing driveway entrances will be replaced by one (1) full movement new driveway collocated with one of the existing.

A stormwater management facility will be constructed on the property along the front of the building, in the southern section of the property, along Route 17-K.

Soil Types

The soils information for the project is found on the NRCS's website in the "Web Soil Survey, http://websoilsurvey.nrcs.usda.gov". The Soil Survey Area is Orange County, New York and the Survey Area Data is Version 22, August 29, 2021. The following soil types are found on the site:

Soil Type	Symbol	Soil Group
Udifluvents – Fluvaquents Complex (95%), Frequently Flooded	UF	A
Erie Extremely Stony Soils (5%), Gently Sloping	ESB	D

II

Hydrology

Stormwater Management Design Criteria

The Stormwater Management Plan described herein has been designed according to the following publications and criteria:

- Chapter 157. Stormwater Management, Town of Newburgh NY.
- New York State Stormwater Management Design Manual, most current version.
- New York Standards and Specifications for Erosion and Sediment Control, most current version.
- "Urban Hydrology for Small Watersheds" (Technical Release No. 55), published by the United States Department of Agriculture, Soil Conservation Service, dated June 1986.

Watershed Summaries

The site consists of A soils in the front and D soils in a small area in the back. D-soils are located within Pre-Developed Drainage areas A, D, and E, and Post Developed Drainage areas A, D, E, and Basin B inflow. All drainage areas run from a high point along the crest of the property to either the eastern property line (Drainage area A and Basin outfall) or to the western property line. The post developed Time of Concentration is shorter due to the proposed construction taking up the middle section of the property and cutting the pre-developed time of concentration paths.

Pre-Developed Drainage Area A
This drainage area drains to the western property line into an existing creek that is to remain undisturbed. The total area is 3.135 acres with a runoff CN of 50.5. This area includes the existing driveway and part of the existing house and a large area in the back that is mostly gravel. The areas along the creek are wooded. This is the largest predeveloped drainage area on the site and the only one flowing to the west.

Pre-Developed Drainage Area B
This drainage area drains to the eastern property line toward the existing creek that is to remain undisturbed. The total area is 1.429 acres with a runoff CN of 58.5. The existing residential dwelling and the majority of the existing commercial building are part of this drainage area. A large area in the back containing gravel and storage areas area included in this drainage area.

Pre-Developed Drainage Area C
Draining also to the eastern property line, this area contains 0.463 acres with a CN of 45.1. This area contains mostly woods, some gravel, and parts of an existing shed.

Pre-Developed Drainage Area D
Area D also drains to the eastern property line and contains 0.604 acres with a CN of 45.2. A small portion of a shed, some gravel, and mostly woods are located within this drainage area.

Pre-Developed Drainage Area E
The smallest drainage area at 0.284 acres with a CN value of 79.4 drains to the east and contains mostly woods.

Post Development Bypass A
This area is the remaining untreated section of Pre-Developed Drainage Area A. It is draining to the existing creek towards the west and is 1.53 acres with a CN value of 42. This area is mostly wooded, with some areas re-vegetated with a meadow type mix.

Post Development Basin B inflow

This basin inflow contains the entire proposed impervious including the building, paved parking and loading, and gravel storage area. Runoff is collected via a storm sewer system and discharged into the wet basin. The outflow pipe for this basin is discharging towards the creek to the west per the direction and suggestion of the Town of Newburgh review engineer. The area is 3.41 acres with a CN of 79.

Post Development Bypass B
The leftover area from the Pre-Developed area B contains 0.43 acres with a CN of 36. It drains to the eastern property line and consists of wooded area and the open space will be maintained grass.

Post Development Bypass C
This area consists of 0.15 acres mostly wooded area and open space area for a CN of 34. It also drains to the east.

Post Development Bypass D
0.19 acres of wooded and open space area with a CN of 42 drains to the east.

Post Development Bypass E
This area drains to the east and contains mostly woods. It is comprised of 0.205 acres with a CN of 79.

Peak Runoff Rate and Quantity Control

Per the requirements of paragraph 157-6, the required reductions have been provided for the project. The project proposes a wet basin with a bottom elevation of 477.00 and a w.s.e.l. of 481.00. The post developed flow rates and volumes have been reduced to be less than pre-developed for flow going to the stream towards the west and the wetlands to the east. Based on aerial imagery, these flow channels combine approximately seven hundred (700') feet downstream on the airport property. The rainfall intensities used for the storm events are taken from the Cornell Extreme Precipitation Database and are 4.7, 5.9, and 8.33 inches for the 10, 25, and 100-year storm events, respectively.
This parcel is not a redevelopment activity as defined in Chapter 9 of the NY State Stormwater Design Manual.

Rate Control

Site West – DA A				
Event	Pre-Dev (cfs)	Post Developed (cfs)	Reduction (cfs)	Reduction (%)
10-year	2.721	0.882	-1.839	67.59%
25-year	5.249	1.377	-3.872	73.77%
100-year	11.31	3.335	-7.975	70.51%

Site East – DA B, C, D, E combined				
Event	Pre-Dev (cfs)	Post Developed (cfs)	Reduction (cfs)	Reduction (%)
10-year	4.090	0.555	-3.535	86.43%
25-year	6.548	0.829	-5.719	87.34%
100-year	12.070	1.848	-10.222	84.69%

The above results were generated using Hydrology Studio Software V 3.0.0.26. The results can be found in the appendices in the back of this report.

Water Quality Volume (WQv)

- Compute Impervious Cover for entire site

I = 2.96 acres / 5.915 acres = 50.0%

- Compute Runoff Coefficient Rv

Rv = 0.05 + 0.009 (I)
= 0.05 + 0.009 * (50.0) = 0.50

- Compute WQv for entire site

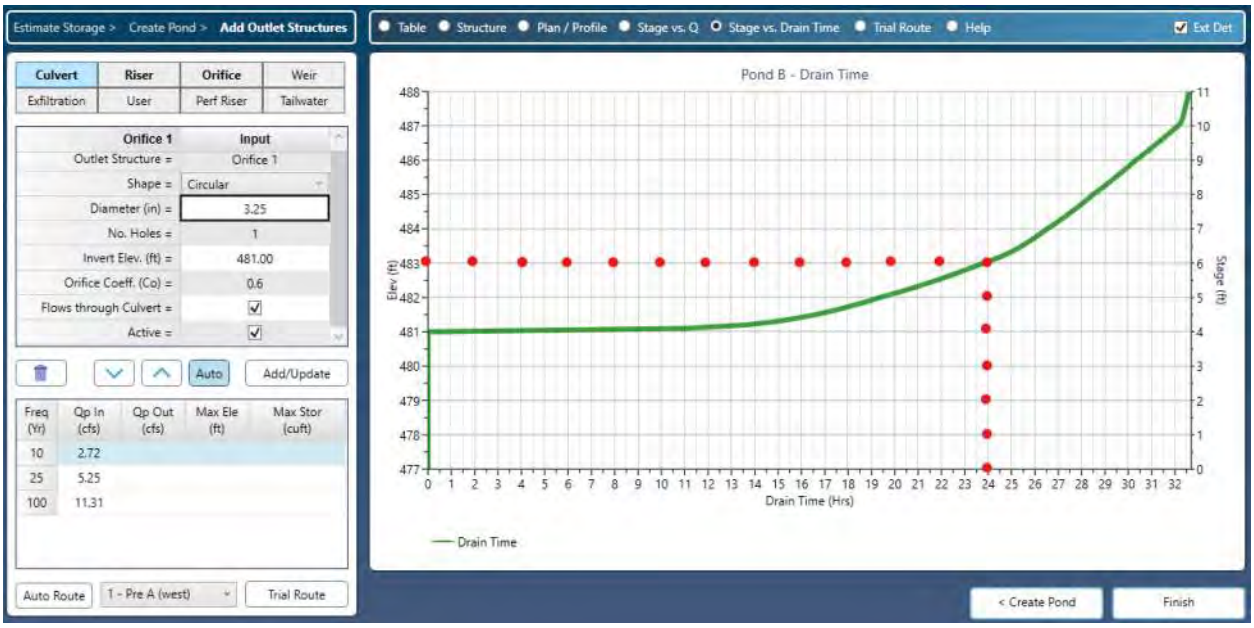
Use the 90% capture rule with 1.4" of rainfall. (taken from figure 4.1, Chapter 8 New York State Stormwater Management Design Manual)

WQv = (1.4") (Rv) (A) (1/12)
= (1.4") (0.50) (5.915) (1/12)
= 0.345 ac-ft (15,030 cuft)

Permanent Pool volume is 5,749 cuft measured from elevation 477.00 to 481.00 (see pond report in appendix).

This leaves 15,030 – 5,749 = 9,281 cuft to be sized for Extended Detention (ED) volume. The proposed pond contains 15,058 cuft volume at elevation 483.00.

The ED volume needs to be released in 24 hours. Utilizing a 3.25" orifice at the permanent water surface elevation of 481.00 achieves this.



Runoff Reduction Volume (RRv)

Dense weathered rock and bedrock was encountered at depths ranging between approximately 1.8 and 5.0 feet below ground surface.

The minimum RRv to be achieved can be calculated as follows:

RRvmin = (1.4") (Rv) (Aic) (S) (1/12)

Rv = 0.05 + 0.009 * (100.0) = 0.95
Aic = new impervious only
= 2.96 acres proposed impervious – 1.073 acres pre developed impervious

= 1.887 acres
S = A soils
= 0.55 (from page 4-6, chapter 4, NYS SWM Design Manual)

RRvmin = (1.4”) (0.95) (1.887) (0.55) (1/12)
= 0.115 ac-ft (5,011 cuft)

As described above, the WQv is provided in the permanent pond and via Extended Detention.

III

Storm Sewer System

Design Criteria

All closed conveyances were designed in accordance with section Chapter 157.

The storm system has been designed for the 25-year storm event, with a 5-minute intensity of 7.71 inches. All pipes are designed using HDPE with a minimum pipe size of twelve (12”) inches.

Methodology

Peak flow rates to each collection point were calculated using the Rational Method, which calculates peak flow as the product of the area draining to the collection point, the rainfall intensity of the design storm, and a composite factor reflecting upstream cover conditions:

Q = C * I * A

where:
Q = runoff
C = cover number
I = rainfall intensity
A = drainage area

Closed conveyance systems were then designed for capacity using Manning’s Equation, calculated using Microsoft Excel.

IV

Erosion and Sediment Control

Various other E&S BMPs are proposed, or are to be implemented when needed, to preserve the quality of downstream waters during the construction process. These E&S BMPs should be inspected after every heavy rainfall or on a regular basis. The responsibility to maintain the BMPs in working order lies with the site contractor. The BMPs include but are not limited to;

Silt Fence
Super silt fence shall only be utilized as a baffle in the sediment basins. Silt fence shall be used only around topsoil stockpiles unless Compost Filter Sock is requested.

Compost Filter Sock
Compost filter socks are more efficient than standard and super silt fence and are utilized in lieu of silt fence. It shall be used as a sediment barrier along the limit of disturbance perimeter and can be used around topsoil stockpiles.

Rock Filter Outlet
Rock filter outlets are proposed to address potential failure at sediment barriers. Wherever a sediment barrier has failed due to an unanticipated concentrated flow, a rock filter outlet should be installed unless that concentrated flow can be otherwise directed away from the barrier.

Erosion Control Blankets
Erosion control blankets (ECBs) are proposed on all slopes of 3H:1V or steeper and as a protective lining for newly constructed channels.

Hydraulically Applied Blankets
As an alternative to the Erosion Control Blankets, Hydraulically Applied Blankets can be used on all slopes up to and including 1H:1V as a protective and stabilizing liner. Hydraulically Applied Blankets are not suitable for point discharge/high flow areas like swales.

Sediment Basin
One sediment basin is proposed for the project. The sediment basin will be graded to permanent conditions.

Topsoil Stockpiles
Various areas have been identified on the plans as topsoil stockpile areas. The stockpiles should have a maximum slope of 3H:1V and a maximum height of 35 feet.

Rock Construction Entrance
One Rock Construction Entrance is proposed. The entrance should be maintained to the specified dimension and the capacity to remove sediment from the tires by adding rock when necessary. A stockpile of rock material should be maintained on site for this purpose. Sediment deposited on public roadways should be removed and returned to the construction site immediately.

Pumped Water Filter Bag
Dewatering operations may be necessary during construction. Pumped water filter bags shall be available for this purpose. The filter bag shall discharge to a well vegetated area when dewatering is underway.

Inlet Protection
Inlet protection shall be installed where shown on the plan, and berm installed to aid in getting runoff into these inlets.

Rock Filter
Rock filters can be used to control runoff within constructed channels until the channel has been equipped with protective lining.

Construction/demolition wastes management plan

Procedures must be implemented which ensure that the proper measures for the recycling or disposal of waste materials associated with or from the project site will be undertaken in accordance with department regulations. Waste is defined as a material whose original purpose has been completed and which is directed to a disposal, processing or beneficial use facility or is otherwise disposed of, processed or beneficially used.

The following items of construction/demolition wastes are anticipated as a result of the proposed residential development:

* Solid wastes resulting from the construction of the residential buildings, sewers, roadways, landscape improvements etc. Including, but not limited to, wood, plaster, metals, plastic, asphaltic substances, bricks, block and unsegregated concrete.

* Solid wastes resulting from the demolition of the existing residential outbuildings, storm sewers, roadways, etc. Including, but not limited to, wood, plaster, metals, asphaltic substances, bricks, block and unsegregated concrete.

* Solid wastes resulting from land clearing operations including, but not limited to, wood, trees, brush, stumps and vegetative material. Construction/demolition waste does not include municipal waste, hazardous waste, residential septage, waste oil, residual waste, fuel-contaminated soil, or waste tires. If any of these waste materials are generated or otherwise resultant of the construction/demolition activities, a separate individual management plan must be developed and implemented in accordance with the Pennsylvania solid waste management act.

Directions for recycling/disposing of construction wastes:

* Woody materials derived from land clearing are considered waste under the department of environmental protection's waste regulations, therefore no trees, brush, stumps and vegetative material resulting from land clearing operations shall be disposed of on site or otherwise disposed of except in strict accordance with construction waste disposal regulations.

* All material suitable for recycling should be collected, separated and transported to a permitted recycling center for processing.

* All other construction waste materials must be collected on-site in containers suitable for the purpose (i.e. Dumpsters) and transported to a permitted solid waste disposal facility for proper disposal.

Soil/rock disposal areas:

Uncontaminated, nonwater-soluble, nondecomposable inert solid material such as soil, rock, stone, gravel, brick and block, concrete and used asphalt may be used to level an area or bring the area to grade or otherwise used in non-structural fill areas. Large boulders are not expected due to the existing subsurface geological conditions; however large boulders should only be used in a fill condition outside the limits of any road rights-of-way or utility easements as may be permitted by the municipal authorities.

Any onsite storage of hazardous materials/potential pollutants, such as diesel fuel, shall be stored onsite surrounded by on earthen dike or other secondary containment system having a storage volume equal to 150% of tank capacity, to contain potential pollutants. Any additional means of containing releases should be accessible from a petroleum storage area: this would include various absorbent materials. In the event of a release a licensed environmental consulting company should be contacted for spill cleanup assistance. Furthermore, all equipment, when not in use, shall be parked onsite in an area that, should potential pollutants leak, they will be contained within the immediate area and will not be inadvertently conveyed to drainage swales and away from the project. Any leakage of pollutants from storage vessels or equipment shall be cleaned up and disposed of offsite in a legal manner.

Fueling area (fa): equipment fueling and maintenance, oil changing, etc. Shall be performed away from watercourses, ditches, or storm drains, in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secondary containment shall be provided for all fuel oil storage tanks (see above). These areas must be inspected every seven days and within 24 hrs. Of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that spill prevention control and countermeasures (spcc) requirements may apply. An spcc plan is required for sites with one single aboveground tank of 660 gallons or more, accumulative aboveground storage of 1330 gallons or more, or 42,000 gallons of underground storage.

Open burning: - no materials may be burned on site for this project.

Dust control/suppressants: dust control is required to prevent nuisance conditions. Dust controls must be used in accordance with the manufacturer's specifications and not be applied in a manner, which would result in a discharge to waters of the state. Isolation distances from bridges, catch basins, and other drainageways must be observed. Application (excluding water) may not occur when precipitation is imminent as noted in the short-term forecast. Used oil may not be applied for dust control.

Concrete washout (cw): concrete washout areas shall be installed and utilized as containment for washing equipment of uncured concrete and associated liquids. Suggested locations for concrete washout areas are shown on the plans. However, fewer or additional locations shall be installed as needed per the details shown on sheet c2200.

Spill reporting requirements: spills on pavement shall be absorbed with sawdust, kitty litter or other absorbent material and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to idem (888-233-7745). The local fire department, and the local emergency planning committee within 30 min. Of the discovery of the release. All spills, which result in contact with waters of the state, must be reported to the idem hotline.

Pollution treatment will be achieved in the proposed large flat bottom basin that includes a riprap apron at the inflow pipe. The majority of the runoff captured by the basin is from the proposed gravel area. The gravel is considered porous pavement and will work as a filter to remove pollutants.

V

Post Construction Permanent Controls

Wet Pond
A wet pond is proposed as a post construction permanent control. A wet pond is a stormwater basin that includes a permanent pool for water quality treatment and additional capacity above the permanent pool for temporary runoff storage. Wet ponds treat incoming stormwater runoff by allowing particles to settle and algae to take up nutrients. The primary removal mechanism is settling as stormwater resides in the pool and pollutant intake, particularly of nutrients, also occurs through biological activity in the pond. The wet pond shall be inspected bi-annually and following each rainfall event greater than 3 inches. Inspect for invasive vegetation. Sediment shall be removed, and the basins should be restored to its original dimensions prior to the accumulation of sediment. Inspect for damage to the embankment. Examine to ensure that inlet and outlet devices are free of debris and operational. Repair any undercut or eroded areas.
The property owner is responsible to schedule regular inspections and provide any maintenance and repair.

Re-vegetating disturbed areas
Planting landscaping where indicated on the landscaping plan. Protect the existing trees where listed and protect steep slopes along the perimeter.
Seasonal mowing and pruning may be required to keep the vegetation at bay.
The property owner is responsible to schedule regular inspections and provide any maintenance needed.

Storm Sewer system
As Stormwater Runoff is collected and conveyed through storm sewer pipes, heat exchange starts between the runoff and the underground pipes. This "first flush" strategy assumes that the heat from the runoff is extracted prior to getting to the wet pond and thus improving the water quality.

Summary Report

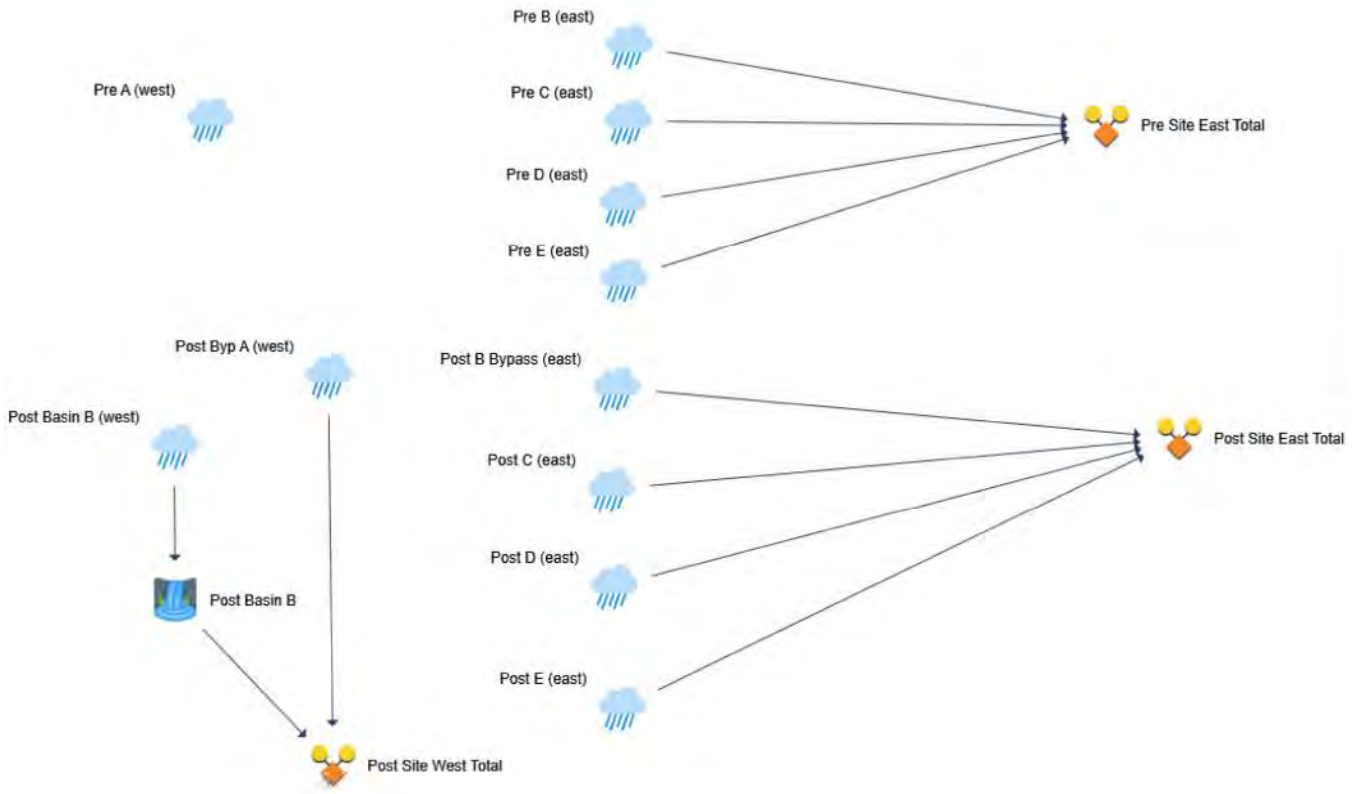
1

Basin Model

Hydrology Studio v 3.0.0.26

Project Name:

02-14-2023



Hydrograph 10-yr Summary

Project Name:

02-14-2023

Hydrology Studio v 3.0.0.26

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre A (west)	2.721	12.07	10,121	----		
2	NRCS Runoff	Pre B (east)	2.681	12.10	9,424	----		
3	NRCS Runoff	Pre C (east)	0.246	12.13	1,220	----		
4	NRCS Runoff	Pre D (east)	0.389	12.10	1,603	----		
5	NRCS Runoff	Pre E (east)	0.795	12.10	2,714	----		
6	Junction	Pre Site East Total	4.090	12.10	14,961	2, 3, 4, 5		
7	NRCS Runoff	Post Byp A (west)	0.095	12.40	1,242	----		
8	NRCS Runoff	Post Basin B (west)	9.885	12.07	29,536	----		
9	NRCS Runoff	Post B Bypass (east)	0.004	15.23	101	----		
10	NRCS Runoff	Post C (east)	0.001	17.10	16.9	----		
11	NRCS Runoff	Post D (east)	0.012	12.40	153	----		
12	NRCS Runoff	Post E (east)	0.555	12.10	1,894	----		
13	Junction	Post Site East Total	0.555	12.10	2,165	9, 10, 11, 12		
14	Pond Route	Post Basin B	0.829	13.20	29,517	8	483.93	20,609
15	Junction	Post Site West Total	0.882	12.93	30,758	7, 14		

Hydrograph 25-yr Summary

Project Name:

02-14-2023

Hydrology Studio v 3.0.0.26

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre A (west)	5.249	12.07	17,237	----		
2	NRCS Runoff	Pre B (east)	4.107	12.10	14,141	----		
3	NRCS Runoff	Pre C (east)	0.547	12.13	2,202	----		
4	NRCS Runoff	Pre D (east)	0.822	12.07	2,847	----		
5	NRCS Runoff	Pre E (east)	1.111	12.10	3,805	----		
6	Junction	Pre Site East Total	6.548	12.10	22,995	2, 3, 4, 5		
7	NRCS Runoff	Post Byp A (west)	0.426	12.13	3,025	----		
8	NRCS Runoff	Post Basin B (west)	13.90	12.07	41,666	----		
9	NRCS Runoff	Post B Bypass (east)	0.027	12.40	400	----		
10	NRCS Runoff	Post C (east)	0.004	13.67	97.0	----		
11	NRCS Runoff	Post D (east)	0.052	12.13	372	----		
12	NRCS Runoff	Post E (east)	0.781	12.10	2,672	----		
13	Junction	Post Site East Total	0.829	12.10	3,540	9, 10, 11, 12		
14	Pond Route	Post Basin B	1.093	13.27	41,646	8	484.91	27,363
15	Junction	Post Site West Total	1.377	12.33	44,672	7, 14		

Hydrograph 100-yr Summary

Project Name:

02-14-2023

Hydrology Studio v 3.0.0.26

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre A (west)	11.31	12.07	34,557	----		
2	NRCS Runoff	Pre B (east)	7.215	12.10	24,635	----		
3	NRCS Runoff	Pre C (east)	1.298	12.10	4,684	----		
4	NRCS Runoff	Pre D (east)	1.918	12.07	5,959	----		
5	NRCS Runoff	Pre E (east)	1.761	12.10	6,119	----		
6	Junction	Pre Site East Total	12.07	12.10	41,397	2, 3, 4, 5		
7	NRCS Runoff	Post Byp A (west)	2.177	12.07	8,331	----		
8	NRCS Runoff	Post Basin B (west)	22.18	12.07	67,491	----		
9	NRCS Runoff	Post B Bypass (east)	0.274	12.10	1,479	----		
10	NRCS Runoff	Post C (east)	0.061	12.13	423	----		
11	NRCS Runoff	Post D (east)	0.268	12.07	1,024	----		
12	NRCS Runoff	Post E (east)	1.250	12.10	4,328	----		
13	Junction	Post Site East Total	1.848	12.10	7,253	9, 10, 11, 12		
14	Pond Route	Post Basin B	1.455	13.60	67,472	8	486.77	43,036
15	Junction	Post Site West Total	3.335	12.10	75,802	7, 14		

Pre-developed Tc

2

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 8/29/2022

Watershed: **Pre Drainage Area A (north)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		grass		
Manning's Roughness Coefficient, n (table 3-1)		0.41		
Flow Length, L	ft.	100		
Two Year 24 Hour Rainfall, P2	in.	2.6		
Land Slope, s	ft/ft	0.0500		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2419		
Sheet flow Subtotal Tt =	**hr**			**0.2419**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	26		
Watercourse Slope, s	ft/ft	0.4808		
Average Velociity, V (figure 3-1)	fps	11.19		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0006		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0006**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.2426
T lag = 0.6Tt = 0.1455

Total Hydraulic Length = 126
Total Elevation Change = 17.5
Average Slope = 13.89%

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 8/29/2022

Watershed: **Pre Drainage Area B (south)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B	B - C	
Surface Description (table 3-1)		gravel	grass	
Manning's Roughness Coefficient, n (table 3-1)		0.011	0.41	
Flow Length, L	ft.	46	54	
Two Year 24 Hour Rainfall, P2	in.	2.6	2.6	
Land Slope, s	ft/ft	.0543	0.0556	
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0070	0.1417	
Sheet flow Subtotal Tt =	**hr**			**0.1486**

Shallow concentrated flow

	Segment ID	C - D		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	150		
Watercourse Slope, s	ft/ft	0.0500		
Average Velociity, V (figure 3-1)	fps	3.61		
$Tt = \frac{L}{(3600 \times V)}$	hr	0.0115		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0115**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1602
T lag = 0.6Tt = 0.0961

Total Hydraulic Length = 250
Total Elevation Change = 13.0
Average Slope = 5.20%

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 8/29/2022

Watershed: **Pre Drainage Area C (south)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B	B - C	
Surface Description (table 3-1)		grass	woods	
Manning's Roughness Coefficient, n (table 3-1)		0.41	0.4	
Flow Length, L	ft.	25	37	
Two Year 24 Hour Rainfall, P2	in.	2.6	2.6	
Land Slope, s	ft/ft	.0500	0.0946	
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0798	0.0830	
Sheet flow Subtotal Tt =	**hr**			**0.1628**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	10		
Watercourse Slope, s	ft/ft	0.4500		
Average Velociity, V (figure 3-1)	fps	10.82		
$Tt = \frac{L}{(3600 \times V)}$	hr	0.0003		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0003**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1630
T lag = 0.6Tt = 0.0978

Total Hydraulic Length = 72
Total Elevation Change = 9.3
Average Slope = 12.85%

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 8/29/2022

Watershed: **Pre Drainage Area D (south)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		gravel		
Manning's Roughness Coefficient, n (table 3-1)		0.011		
Flow Length, L	ft.	60		
Two Year 24 Hour Rainfall, P2	in.	2.6		
Land Slope, s	ft/ft	.0583		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0084		
Sheet flow Subtotal Tt =	**hr**			**0.0084**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	25		
Watercourse Slope, s	ft/ft	0.1800		
Average Velociity, V (figure 3-1)	fps	6.85		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0010		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0010**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0094
T lag = 0.6Tt = 0.0056

Total Hydraulic Length = 85
Total Elevation Change = 8.0
Average Slope = 9.41%

Use 6 minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 8/29/2022

Watershed: **Pre Drainage Area E (south)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		woods		
Manning's Roughness Coefficient, n (table 3-1)		0.4		
Flow Length, L	ft.	65		
Two Year 24 Hour Rainfall, P2	in.	2.6		
Land Slope, s	ft/ft	.0654		
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.1510		
Sheet flow Subtotal Tt =	**hr**			**0.1510**

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure 3-1)	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1510
T lag = 0.6Tt = 0.0906

Total Hydraulic Length = 65
Total Elevation Change = 4.3
Average Slope = 6.54%

Post-developed Tc

3

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 2/14/2023

Watershed: **Post Bypass Area A (west)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		grass		
Manning's Roughness Coefficient, n (table 3-1)		0.41		
Flow Length, L	ft.	12		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0833		
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0362		
Sheet flow Subtotal Tt =	**hr**			**0.0362**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	26		
Watercourse Slope, s	ft/ft	0.4808		
Average Velociity, V (figure 3-1)	fps	11.19		
$Tt = \frac{L}{(3600 \times V)}$	hr	0.0006		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0006**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0368
T lag = 0.6Tt = 0.0221

Total Hydraulic Length = 38
Total Elevation Change = 13.5
Average Slope = 35.53%

Use 6 Minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 2/14/2023

Watershed: **Post Drainage Area Basin B (east)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		gravel		
Manning's Roughness Coefficient, n (table 3-1)		0.011		
Flow Length, L	ft.	100		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0200		
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0193		
Sheet flow Subtotal Tt =	**hr**			**0.0193**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	184		
Watercourse Slope, s	ft/ft	0.0380		
Average Velociity, V (figure 3-1)	fps	3.15		
$Tt = \frac{L}{(3600 \times V)}$	hr	0.0162		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0162**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID	D - E		
Structure 'From' - 'To'		Pipe		
Flow Length, L	ft	353		
Pipe Diameter, D	in	15.00		
Manning's Roughness Coefficient, n		0.011		
Pipe Slope, s	ft/ft	0.005		
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps	6.33		
$Tt = \frac{L}{(3600 \times V)}$	hr	0.0155		
Pipe flow Subtotal Tt =	**hr**			**0.0155**

Total Tt = 0.0510
T lag = 0.6Tt = 0.0306

Total Hydraulic Length = 637
Total Elevation Change = 17.0
Average Slope = 2.67%

Use 6 Minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 2/14/2023

Watershed: **Post Bypass Area B (east)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		grass		
Manning's Roughness Coefficient, n (table 3-1)		0.41		
Flow Length, L	ft.	16.8		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.4167		
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0249		
Sheet flow Subtotal Tt =	**hr**			**0.0249**

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure 3-1)	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0249
T lag = 0.6Tt = 0.0149

Total Hydraulic Length = 16.8
Total Elevation Change = 7.0
Average Slope = 41.67%

Use 6 Minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 2/14/2023

Watershed: **Post Bypass Area C (east)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		woods		
Manning's Roughness Coefficient, n (table 3-1)		0.4		
Flow Length, L	ft.	10		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.1500		
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0242		
Sheet flow Subtotal Tt =	**hr**			**0.0242**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	10		
Watercourse Slope, s	ft/ft	0.4500		
Average Velociity, V (figure 3-1)	fps	10.82		
$Tt = \frac{L}{(3600 \times V)}$	hr	0.0003		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0003**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0245
T lag = 0.6Tt = 0.0147

Total Hydraulic Length = 20
Total Elevation Change = 6.0
Average Slope = 30.00%

Use 6 Minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 2/14/2023

Watershed: **Post Bypass Area D (east)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		woods		
Manning's Roughness Coefficient, n (table 3-1)		0.4		
Flow Length, L	ft.	20		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.2500		
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0344		
Sheet flow Subtotal Tt =	**hr**			**0.0344**

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure 3-1)	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0344
T lag = 0.6Tt = 0.0206

Total Hydraulic Length = 20
Total Elevation Change = 5.0
Average Slope = 25.00%

Use 6 minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 2/14/2023

Watershed: **Post Bypass Area E (east)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		woods		
Manning's Roughness Coefficient, n (table 3-1)		0.4		
Flow Length, L	ft.	65		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0654		
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.1510		
Sheet flow Subtotal Tt =	**hr**			**0.1510**

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure 3-1)	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1510
T lag = 0.6Tt = 0.0906

Total Hydraulic Length = 65
Total Elevation Change = 4.3
Average Slope = 6.54%

Pre-developed Cn

4

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 08/29/22

Watershed: **Pre Drainage Area A (north)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.311	30.51
A	Open Space-Poor	68	0.982	66.81
A	Gravel	76	0.191	14.54
A	Woods - Good	30	1.329	39.87
D	Open Space--Poor	89	0.005	0.48
D	Woods-Good	79	0.315	24.91
	Totals =		3.135	177.11

Composite Cn = $\frac{177.11}{3.13}$ = 56.50

USE Cn = 57

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 08/29/22

Watershed: **Pre Drainage Area B (south)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.237	23.25
A	Open Space--Poor	68	0.852	57.91
A	Gravel	76	0.183	13.94
A	Woods - Good	30	0.157	4.71
Totals =			1.429	99.81

Composite Cn = $\frac{99.81}{1.43}$ = 69.83

USE Cn = 70

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 08/29/22

Watershed: **Pre Drainage Area C (south)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.042	4.15
A	Open Space--Poor	68	0.197	13.40
A	Gravel	76	0.008	0.58
A	Woods - Good	30	0.216	6.47
Totals =			0.463	24.60

Composite Cn = $\frac{24.60}{0.46}$ = 53.17

USE Cn = 53

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 08/29/22

Watershed: **Pre Drainage Area D (south)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.018	1.76
A	Open Space--Poor	68	0.285	19.36
A	Gravel	76	0.011	0.81
A	Woods - Good	30	0.249	7.48
D	Open Space--Poor	89	0.001	0.11
D	Woods-Good	79	0.040	3.18
Totals =			0.604	32.70

Composite Cn = $\frac{32.70}{0.60}$ = 54.13

USE Cn = 54

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 08/29/22

Watershed: **Pre Drainage Area E (south)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
D	Open Space--Poor	89	0.026	2.27
D	Woods-Good	79	0.259	20.45

Totals =	0.284	22.72

Composite Cn = $\frac{22.72}{0.28}$ = 79.90

USE Cn = 80

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Post-developed Cn

5

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 02/14/23

Watershed: **Post Bypass Area A (west)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.007	0.71
A	Open Space-Good	39	0.184	7.18
A	Gravel	76	0.000	0.00
A	Woods - Good	30	0.993	29.78
D	Open Space-Good	80	0.028	2.20
D	Woods-Good	79	0.316	24.99
D	Gravel	91		0.00
			0.000	
Totals =			1.528	64.86

Composite Cn = $\frac{64.86}{1.53}$ = 42.45

USE Cn = 42

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 02/14/23

Watershed: **Post Drainage Area Basin B (east)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	1.472	144.26
A	Open Space-Good	39	0.576	22.47
A	Gravel	76	1.362	103.49
D	Woods-Good	79	0.000	0.00
D	Gravel	91	0.000	0.00

Totals = 3.410 270.21

Composite Cn = 270.21 / 3.41 = 79.25

USE Cn = 79

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 02/14/23

Watershed: **Post Bypass Area B (east)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.000	0.00
A	Open Space-Good	39	0.298	11.62
A	Gravel	76	0.000	0.00
A	Woods - Good	30	0.132	3.96
Totals =			0.430	15.58

Composite Cn = $\frac{15.58}{0.43}$ = 36.24

USE Cn = 36

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 02/14/23

Watershed: **Post Bypass Area C (east)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.000	0.00
A	Open Space-Good	39	0.064	2.51
A	Gravel	76	0.000	0.00
A	Woods - Good	30	0.088	2.65
Totals =			0.153	5.16

Composite Cn = $\frac{5.16}{0.15}$ = 33.79

USE Cn = 34

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 02/14/23

Watershed: **Post Bypass Area D (east)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.000	0.00
A	Open Space-Good	39	0.061	2.39
A	Gravel	76	0.000	0.00
A	Woods - Good	30	0.093	2.80
D	Open Space-Good	80	0.009	0.73
D	Woods-Good	79	0.025	1.96
D	Gravel	91	0.000	0.00
Totals =			0.188	7.88

Composite Cn = $\frac{7.88}{0.19}$ = 41.80

USE Cn = 42

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: NES
Date: 6/14/2022
Rev'd: 02/14/23

Watershed: **Post Bypass Area E (east)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.000	0.00
A	Open Space-Good	39	0.000	0.00
A	Gravel	76	0.000	0.00
A	Woods - Good	30	0.000	0.00
D	Open Space-Good	80	0.026	2.07
D	Woods-Good	79	0.179	14.12
D	Gravel	91	0.000	0.00
Totals =			0.205	16.20

Composite Cn = $\frac{16.20}{0.20}$ = 79.13

USE Cn = 79

24 hr RAINFALL

(per Cornell Extreme Precipitation Database)

1 year	10 year	25 year	100 year
2.60	4.70	5.90	8.33

Pre- and Post-developed Hydrographs

6

Hydrograph Report

Project Name:

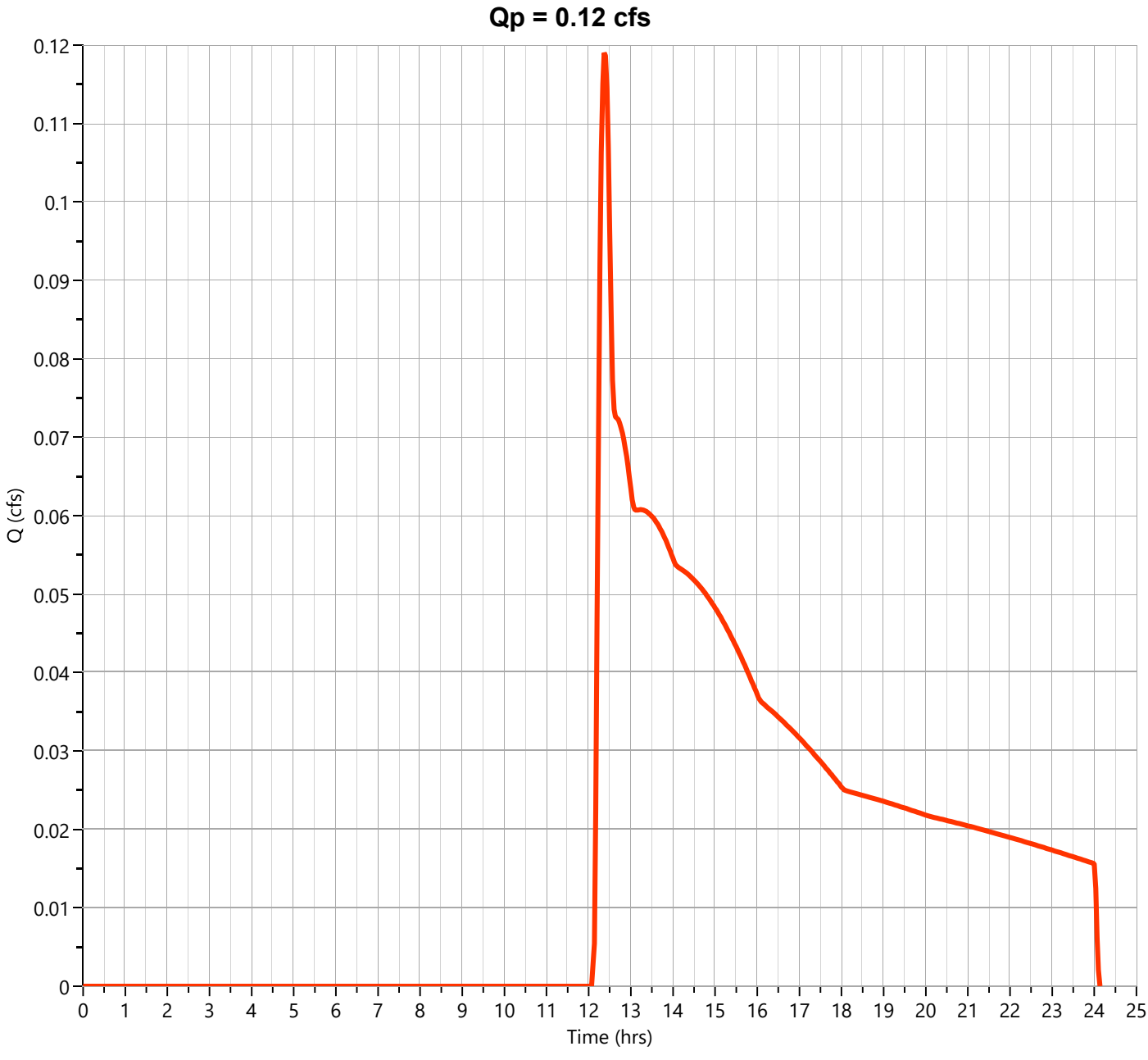
Hydrology Studio v 3.0.0.26

02-14-2023

Pre A (west)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.119 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.37 hrs
Time Interval	= 2 min	Runoff Volume	= 1,471 cuft
Drainage Area	= 3.135 ac	Curve Number	= 57
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

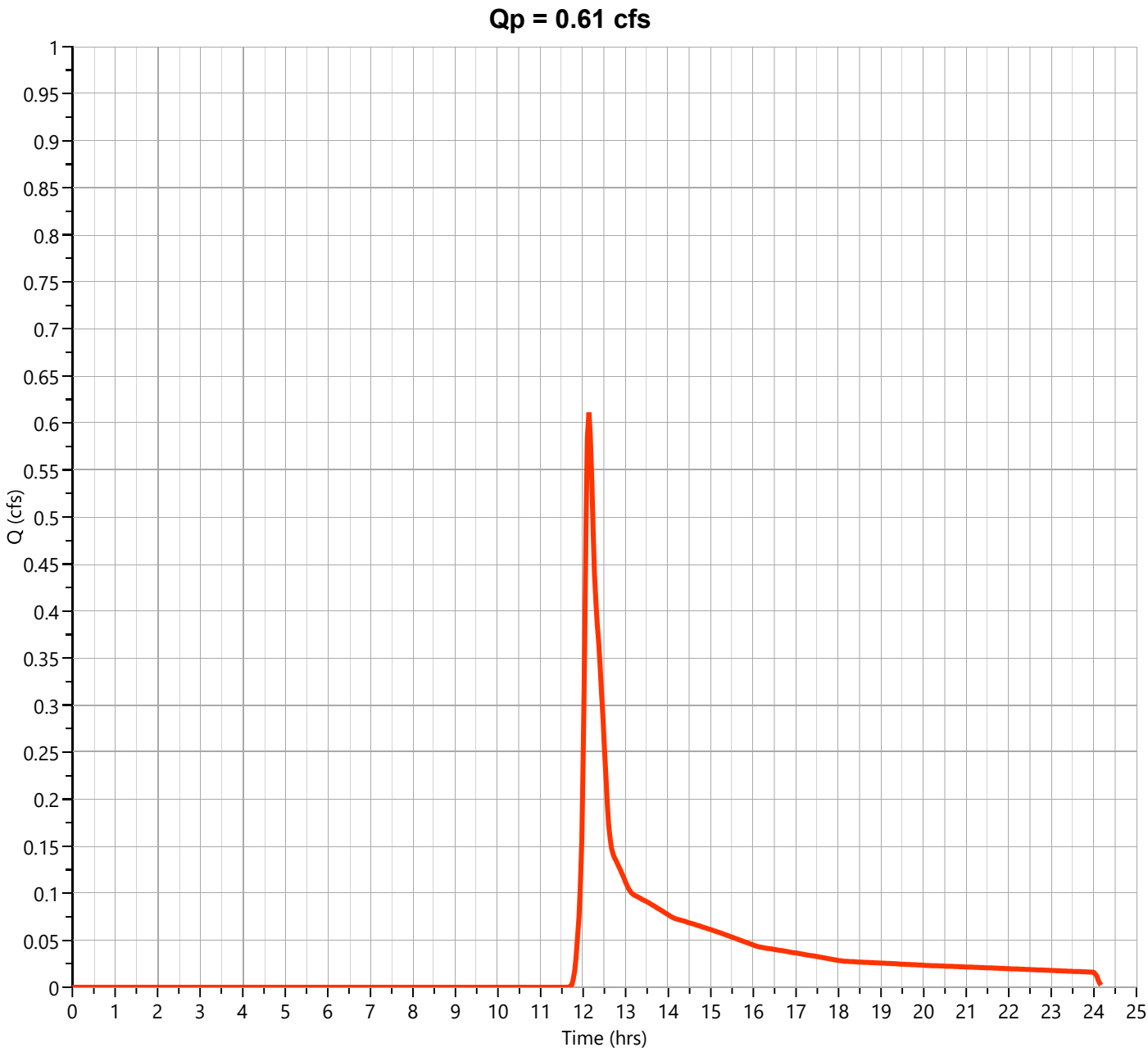
Hydrology Studio v 3.0.0.26

02-14-2023

Pre B (east)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.611 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 2,614 cuft
Drainage Area	= 1.429 ac	Curve Number	= 70
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

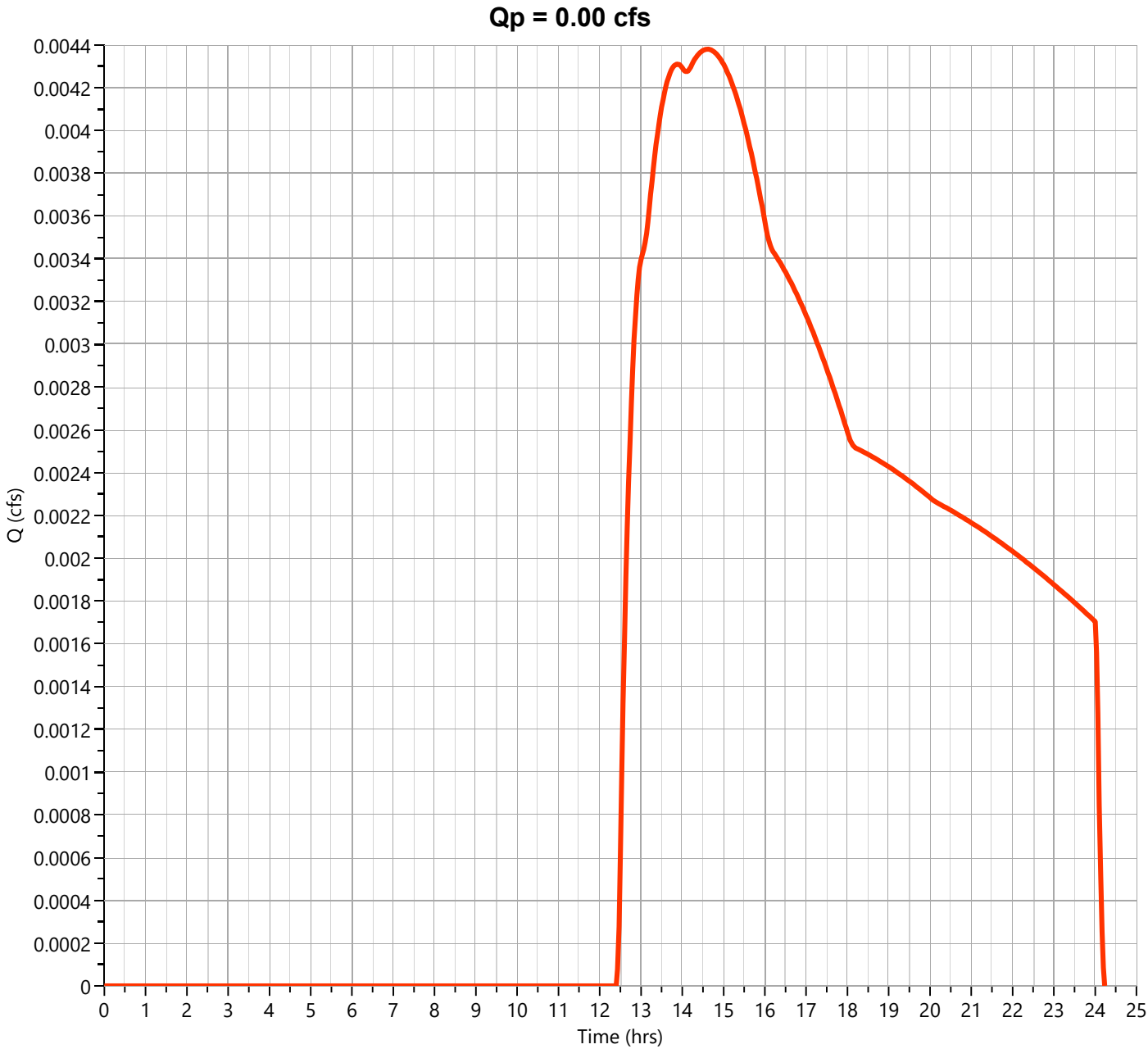
Hydrology Studio v 3.0.0.26

02-14-2023

Pre C (east)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.004 cfs
Storm Frequency	= 1-yr	Time to Peak	= 14.60 hrs
Time Interval	= 2 min	Runoff Volume	= 118 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

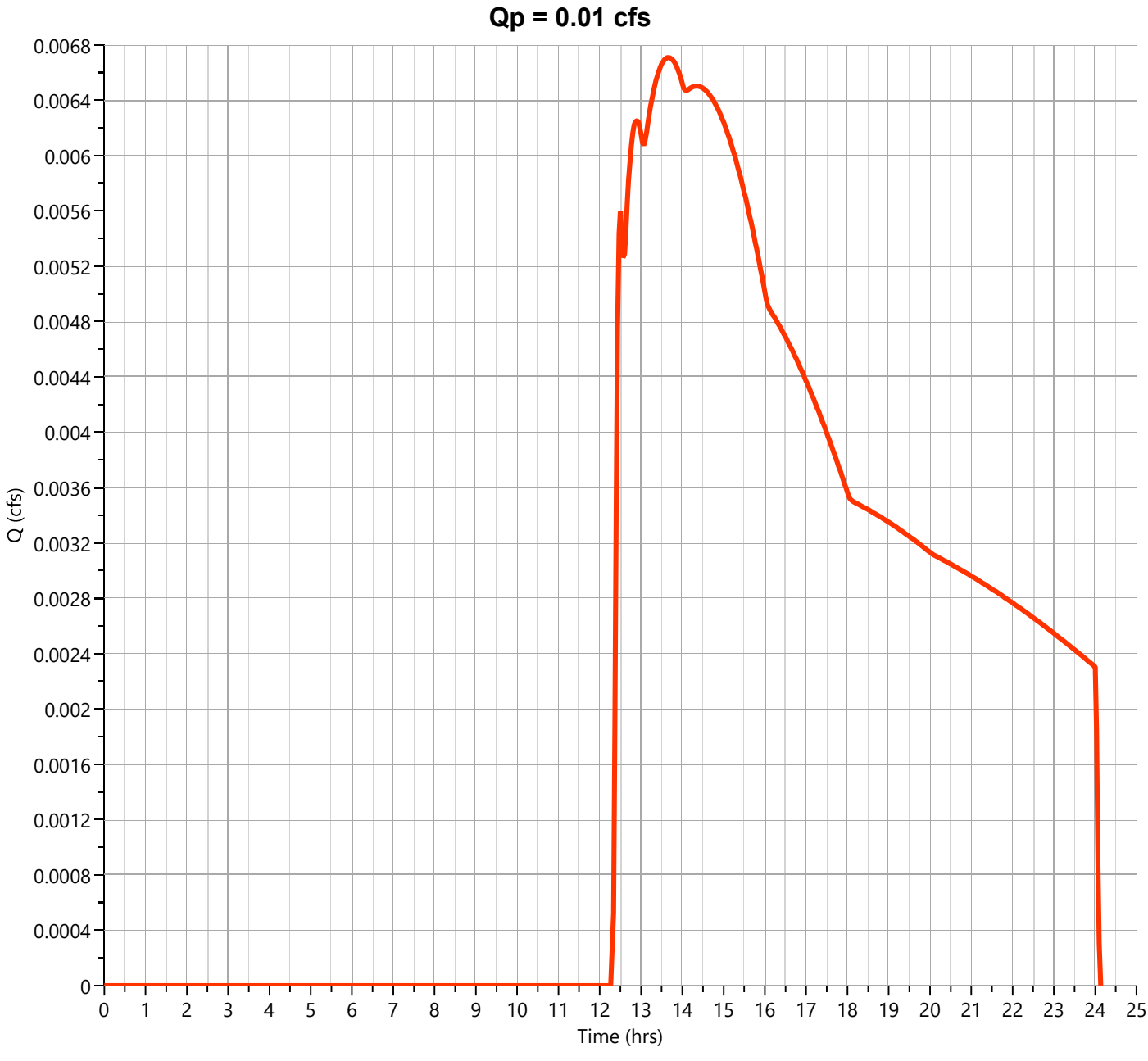
Hydrology Studio v 3.0.0.26

02-14-2023

Pre D (east)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.007 cfs
Storm Frequency	= 1-yr	Time to Peak	= 13.67 hrs
Time Interval	= 2 min	Runoff Volume	= 175 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

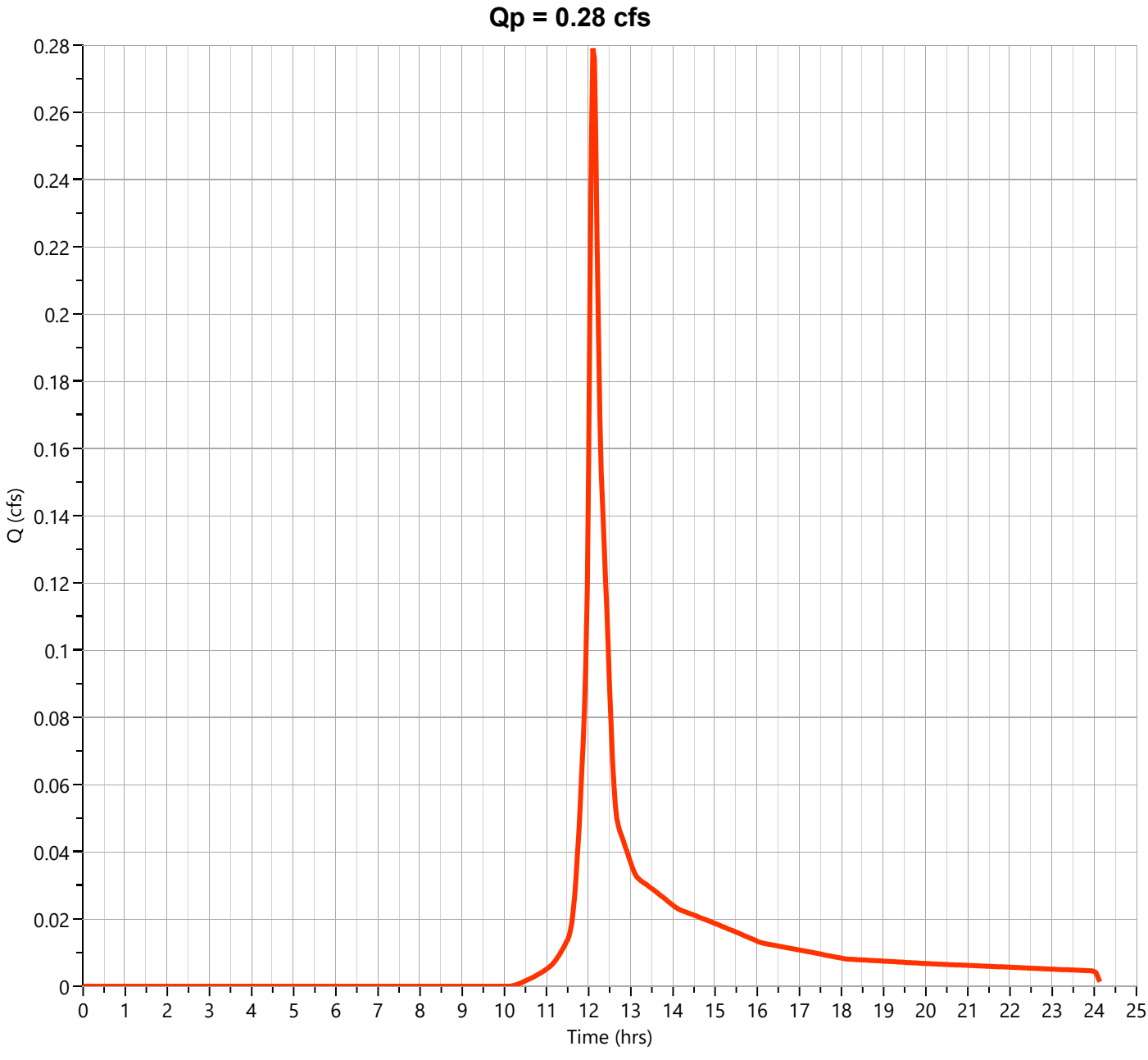
Hydrology Studio v 3.0.0.26

02-14-2023

Pre E (east)

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.279 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 988 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

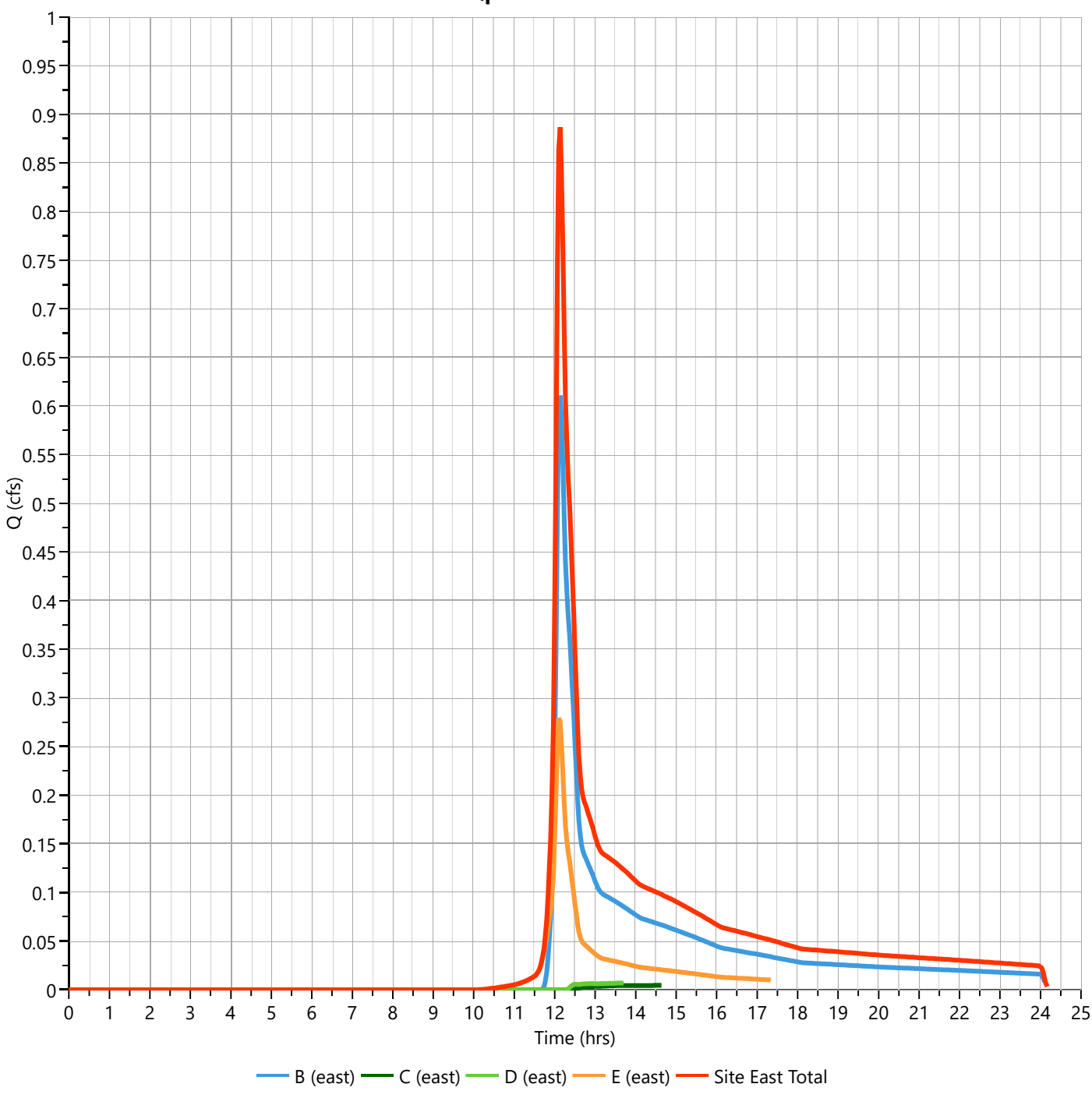
Hydrology Studio v 3.0.0.26

02-14-2023

Pre Site East Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 0.887 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,896 cuft
Inflow Hydrographs	= 2, 3, 4, 5	Total Contrib. Area	= 2.78 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

Post Byp A (west)

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 1.53 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

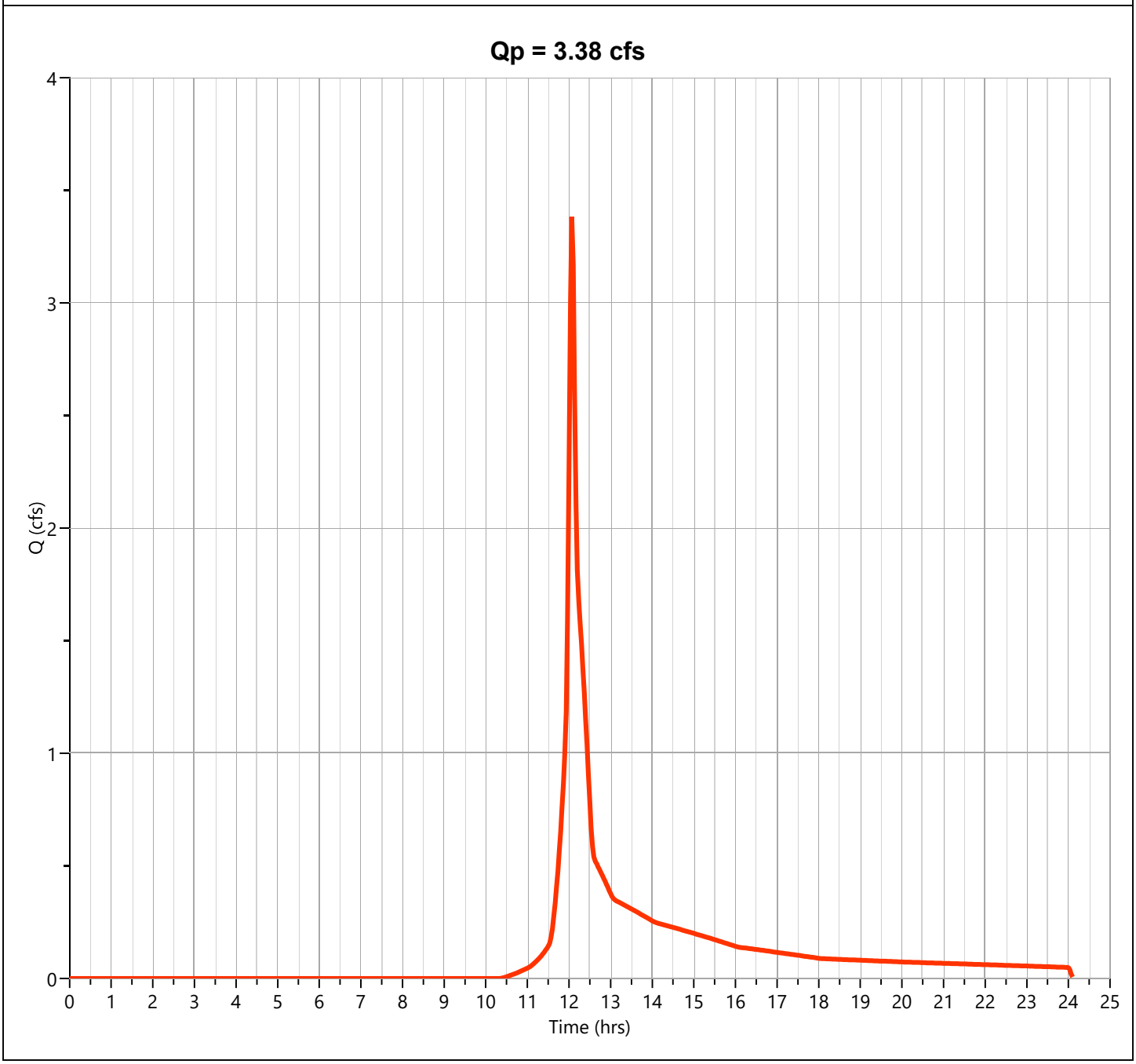
Hydrology Studio v 3.0.0.26

02-14-2023

Post Basin B (west)

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.381 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 10,504 cuft
Drainage Area	= 3.41 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

Post B Bypass (east)

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.43 ac	Curve Number	= 36
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

Post C (east)

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.15 ac	Curve Number	= 34
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

Post D (east)

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.188 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

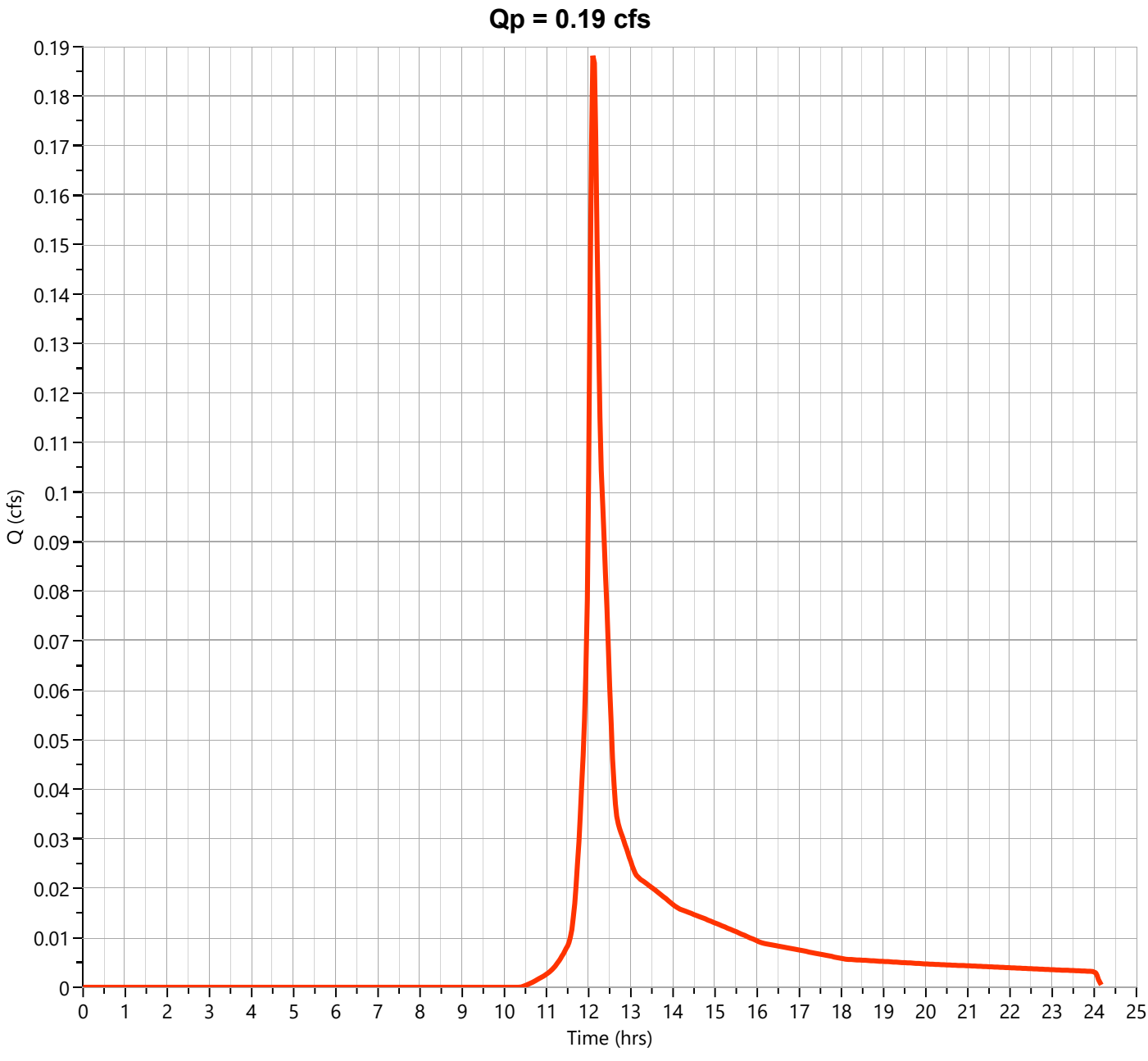
Hydrology Studio v 3.0.0.26

02-14-2023

Post E (east)

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.188 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 674 cuft
Drainage Area	= 0.205 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 2.60 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

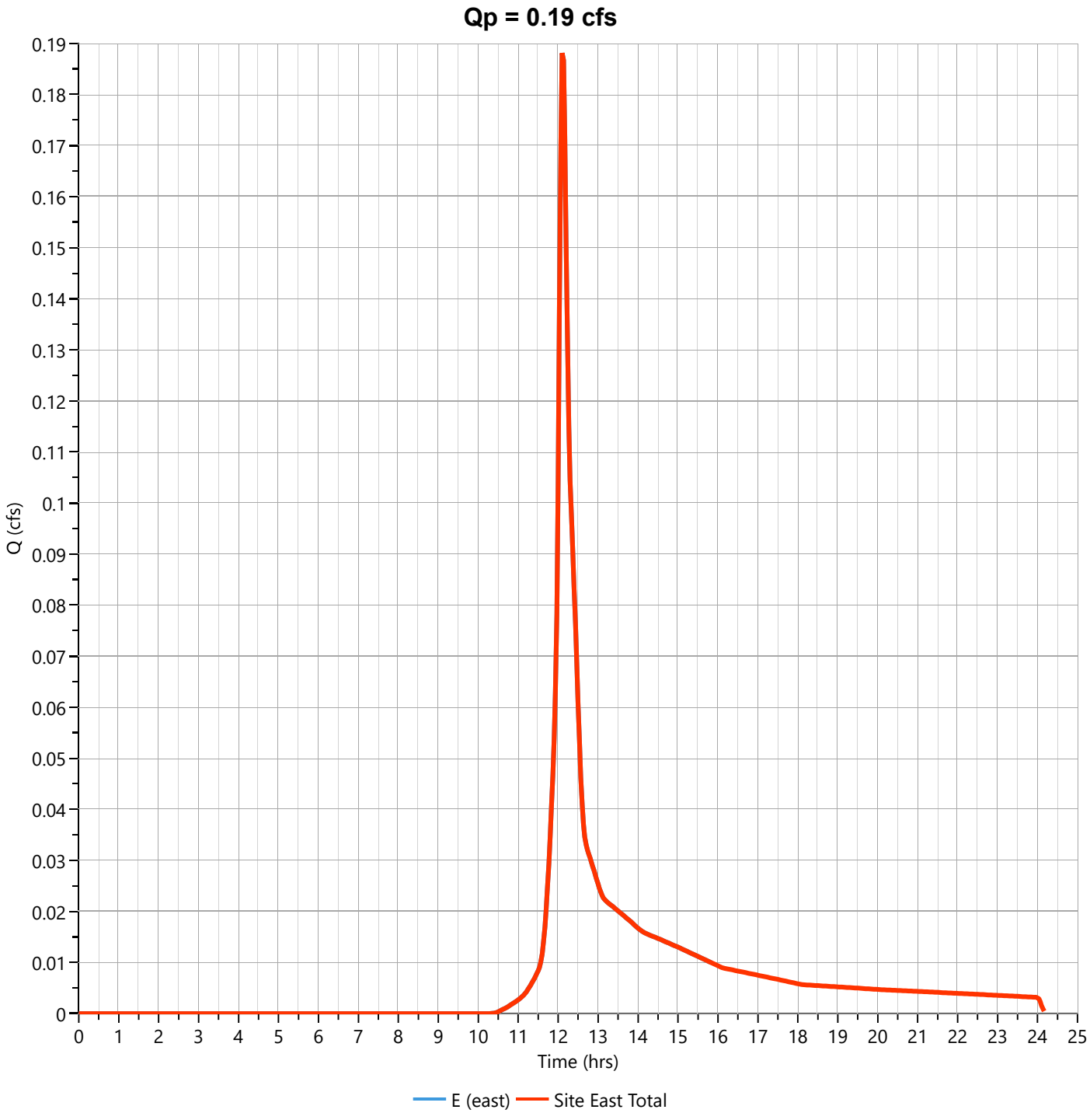
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site East Total

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 0.188 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 674 cuft
Inflow Hydrographs	= 9, 10, 11, 12	Total Contrib. Area	= 0.973 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

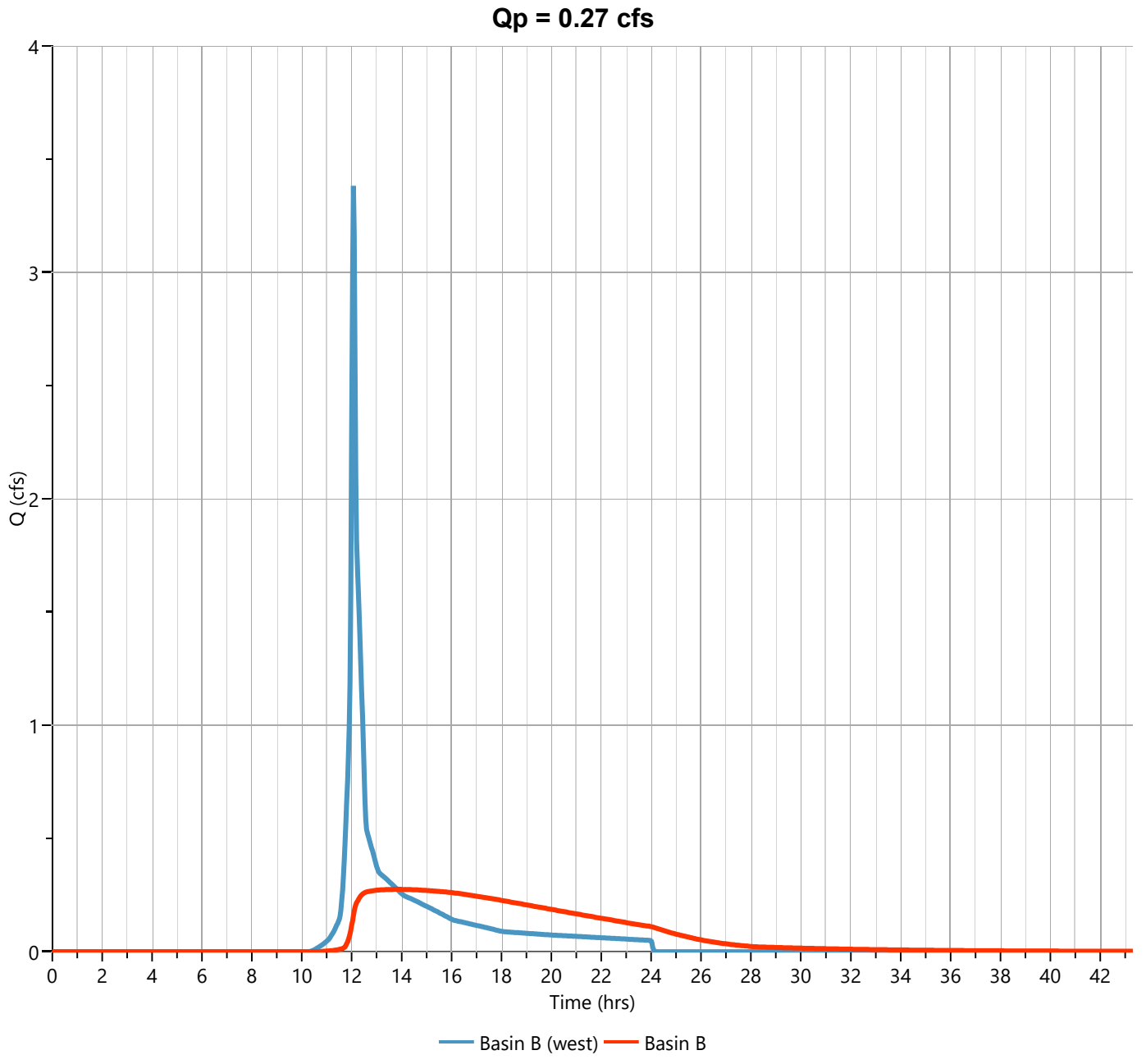
Post Basin B

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.275 cfs
Storm Frequency	= 1-yr	Time to Peak	= 13.83 hrs
Time Interval	= 2 min	Hydrograph Volume	= 10,484 cuft
Inflow Hydrograph	= 8 - Basin B (west)	Max. Elevation	= 482.12 ft
Pond Name	= Pond B	Max. Storage	= 10,582 cuft
Routing Option	= Wet Pond	Wet Pond Elevation	= 481.00 ft

Pond Routing by Storage Indication Method

Center of mass detention time = 4.10 hrs



Hydrograph Report

Project Name:

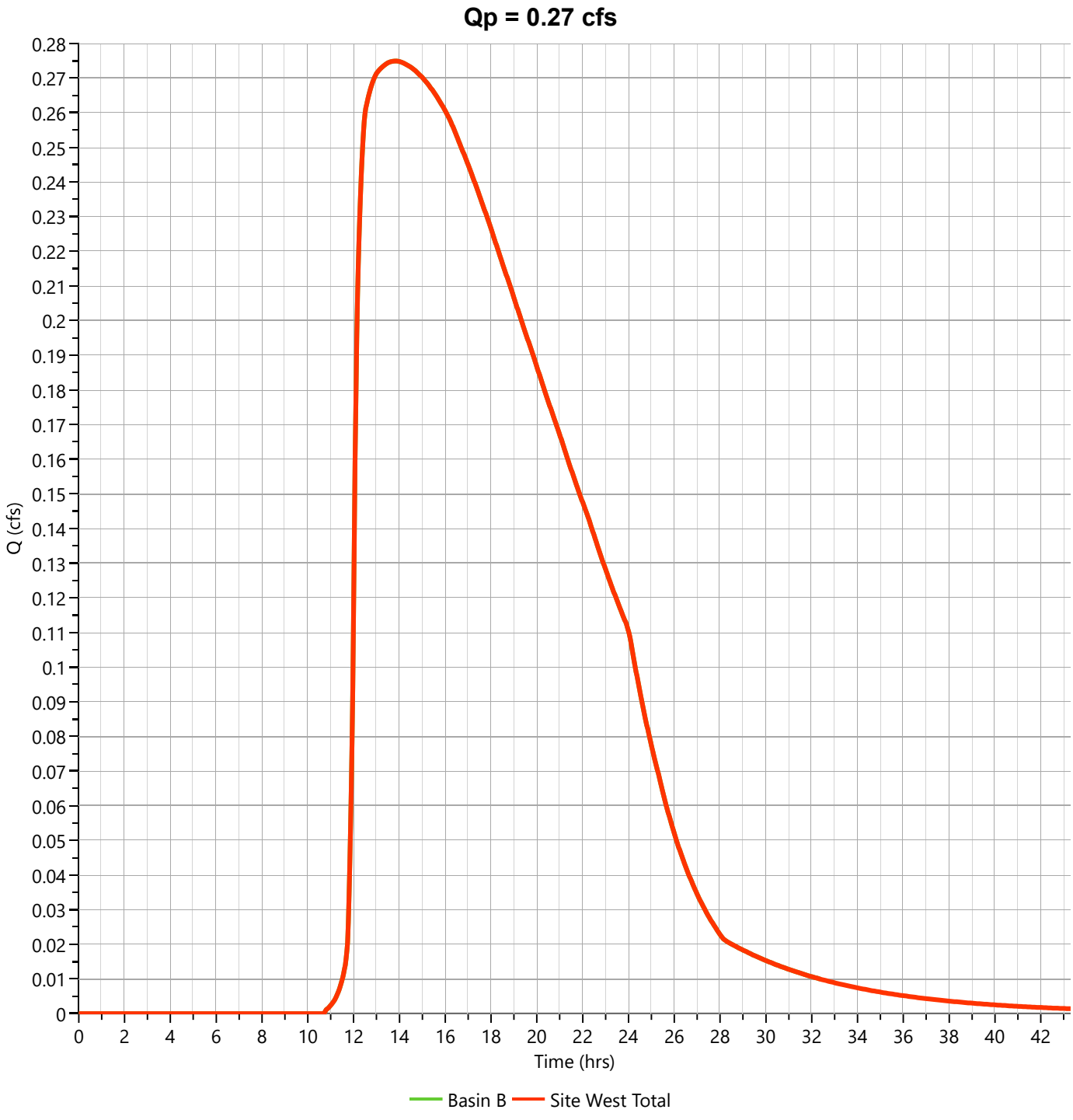
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site West Total

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 0.275 cfs
Storm Frequency	= 1-yr	Time to Peak	= 13.83 hrs
Time Interval	= 2 min	Hydrograph Volume	= 10,484 cuft
Inflow Hydrographs	= 7, 14	Total Contrib. Area	= 1.53 ac



Hydrograph Report

Project Name:

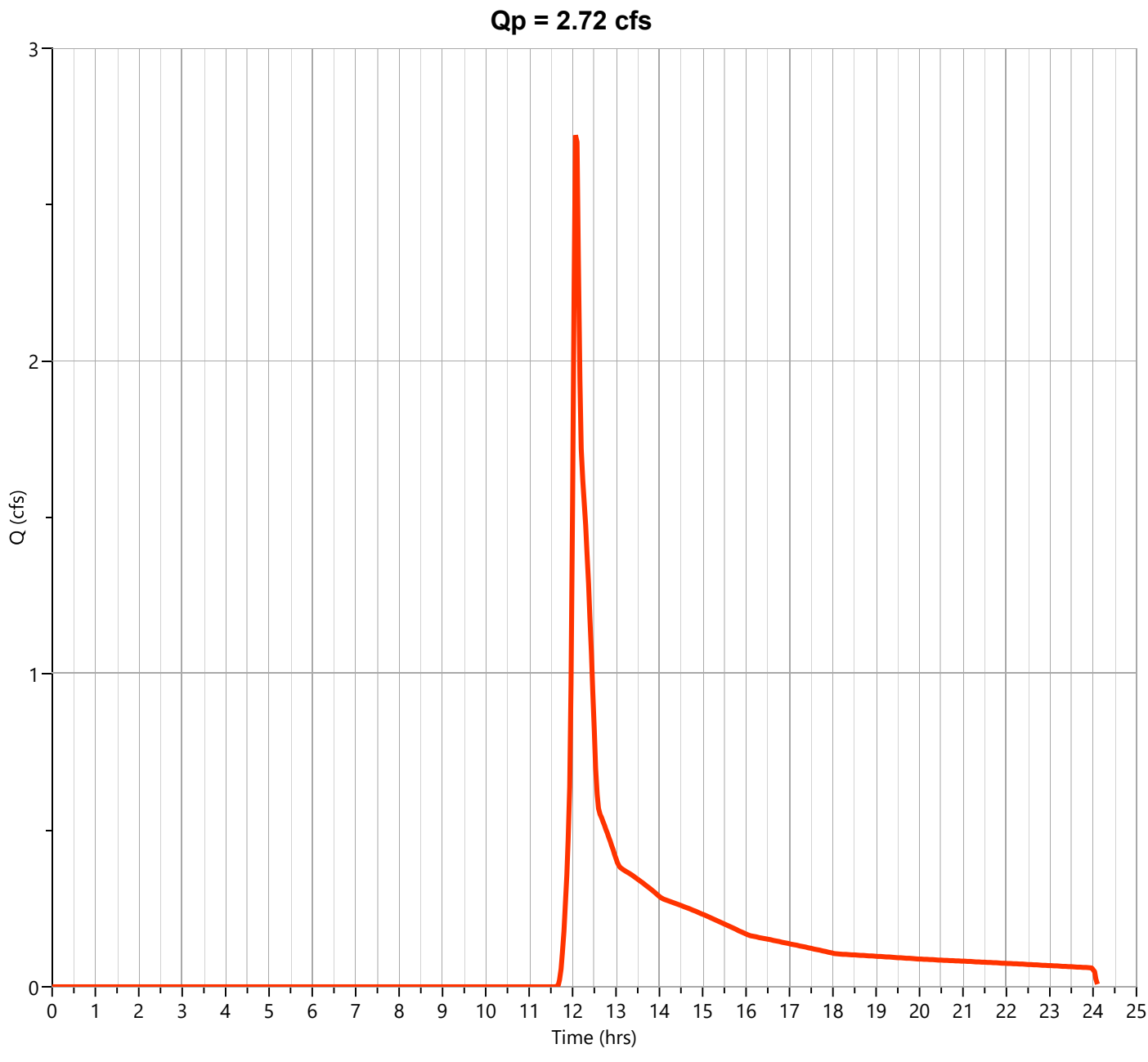
Hydrology Studio v 3.0.0.26

02-14-2023

Pre A (west)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.721 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 10,121 cuft
Drainage Area	= 3.135 ac	Curve Number	= 57
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

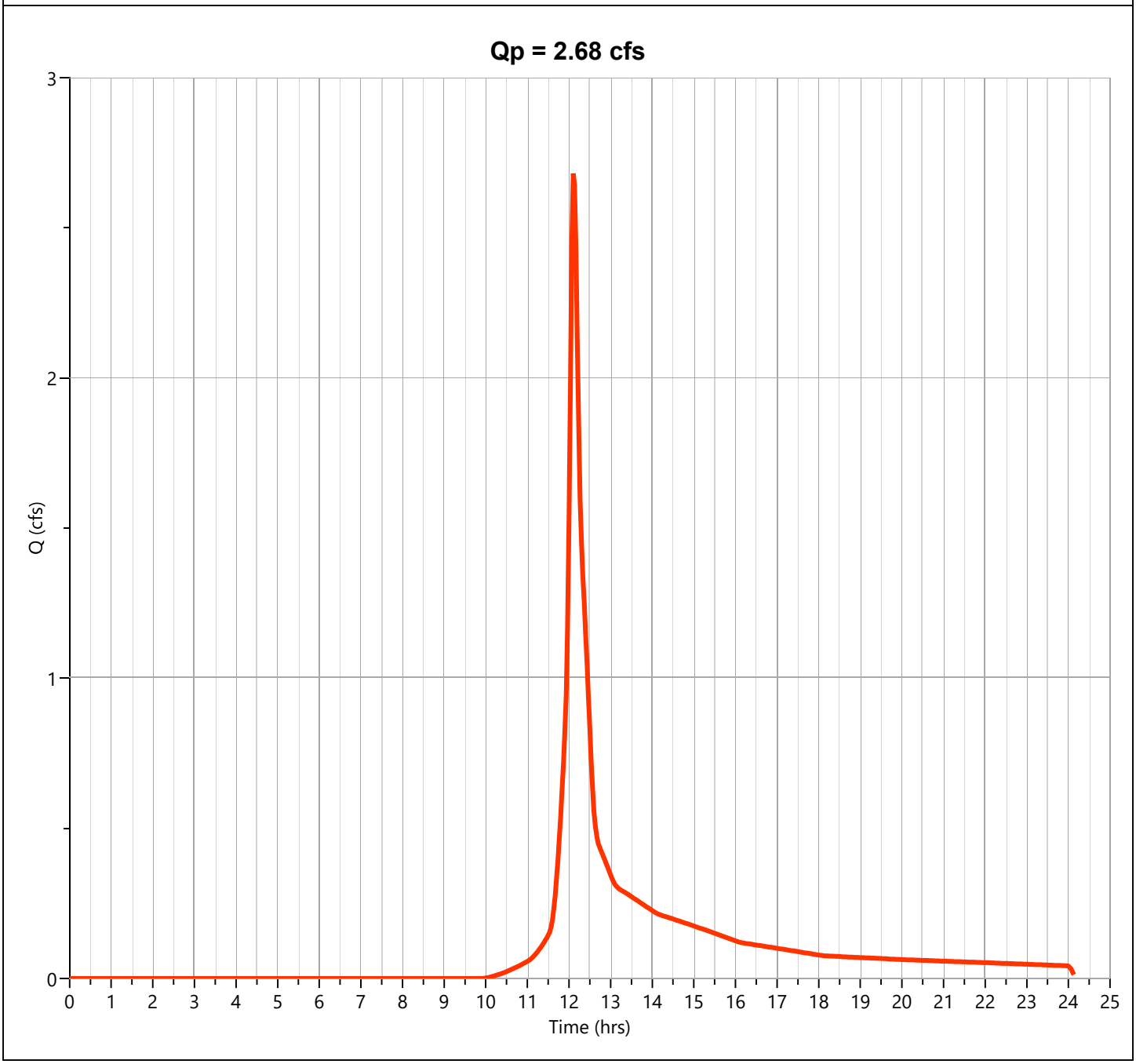
Hydrology Studio v 3.0.0.26

02-14-2023

Pre B (east)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.681 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 9,424 cuft
Drainage Area	= 1.429 ac	Curve Number	= 70
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

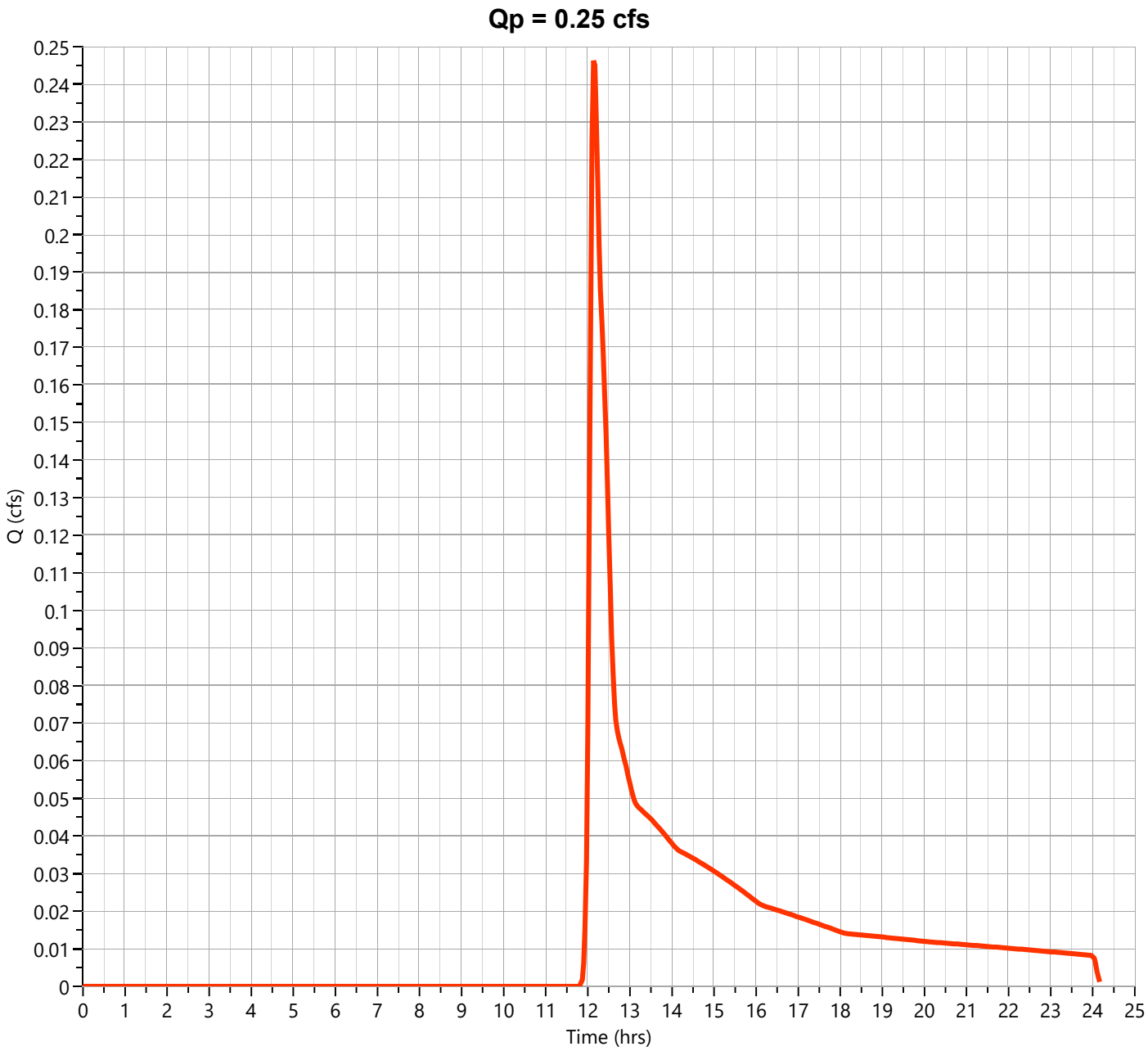
Hydrology Studio v 3.0.0.26

02-14-2023

Pre C (east)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.246 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 1,220 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

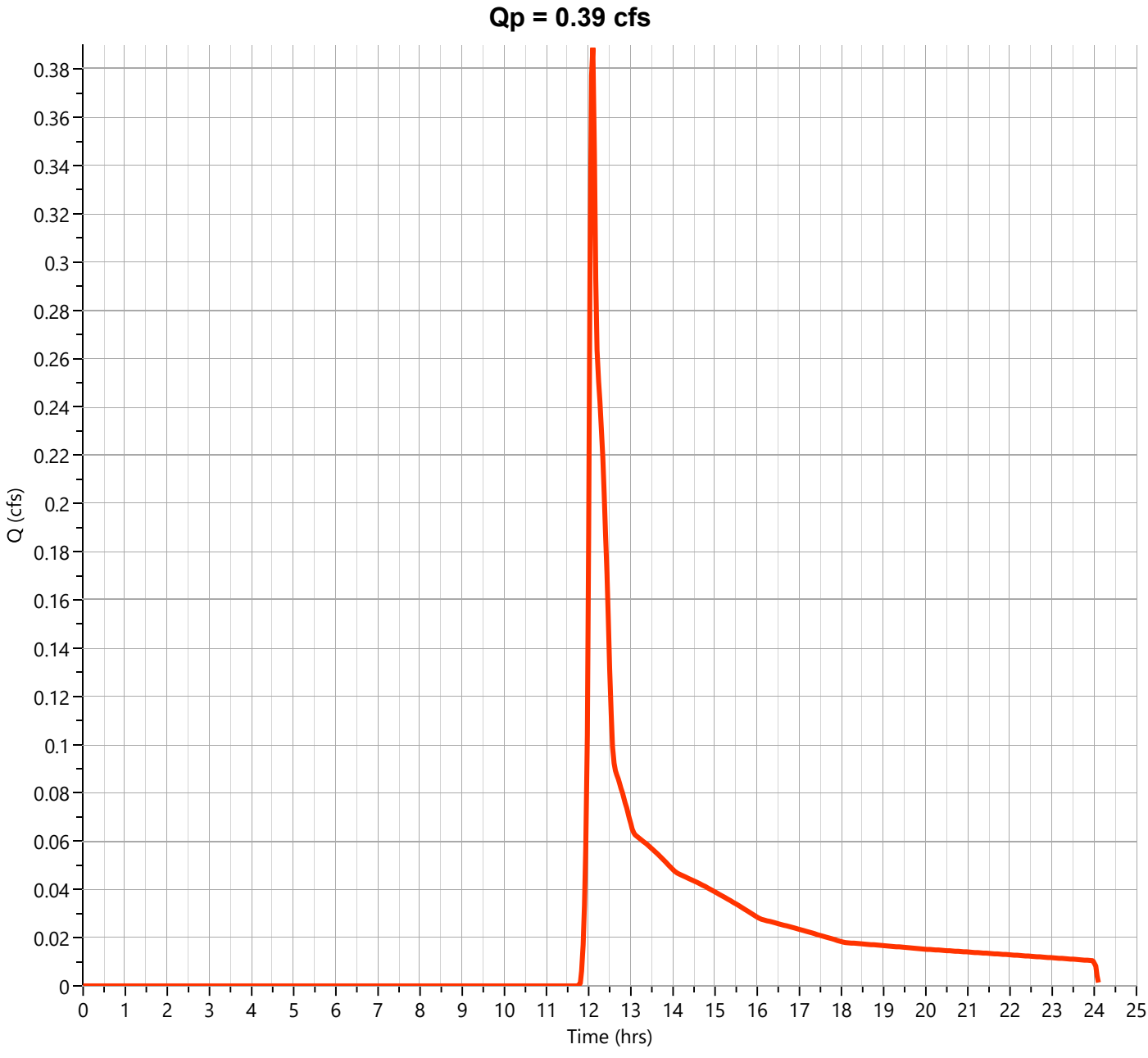
Hydrology Studio v 3.0.0.26

02-14-2023

Pre D (east)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.389 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,603 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

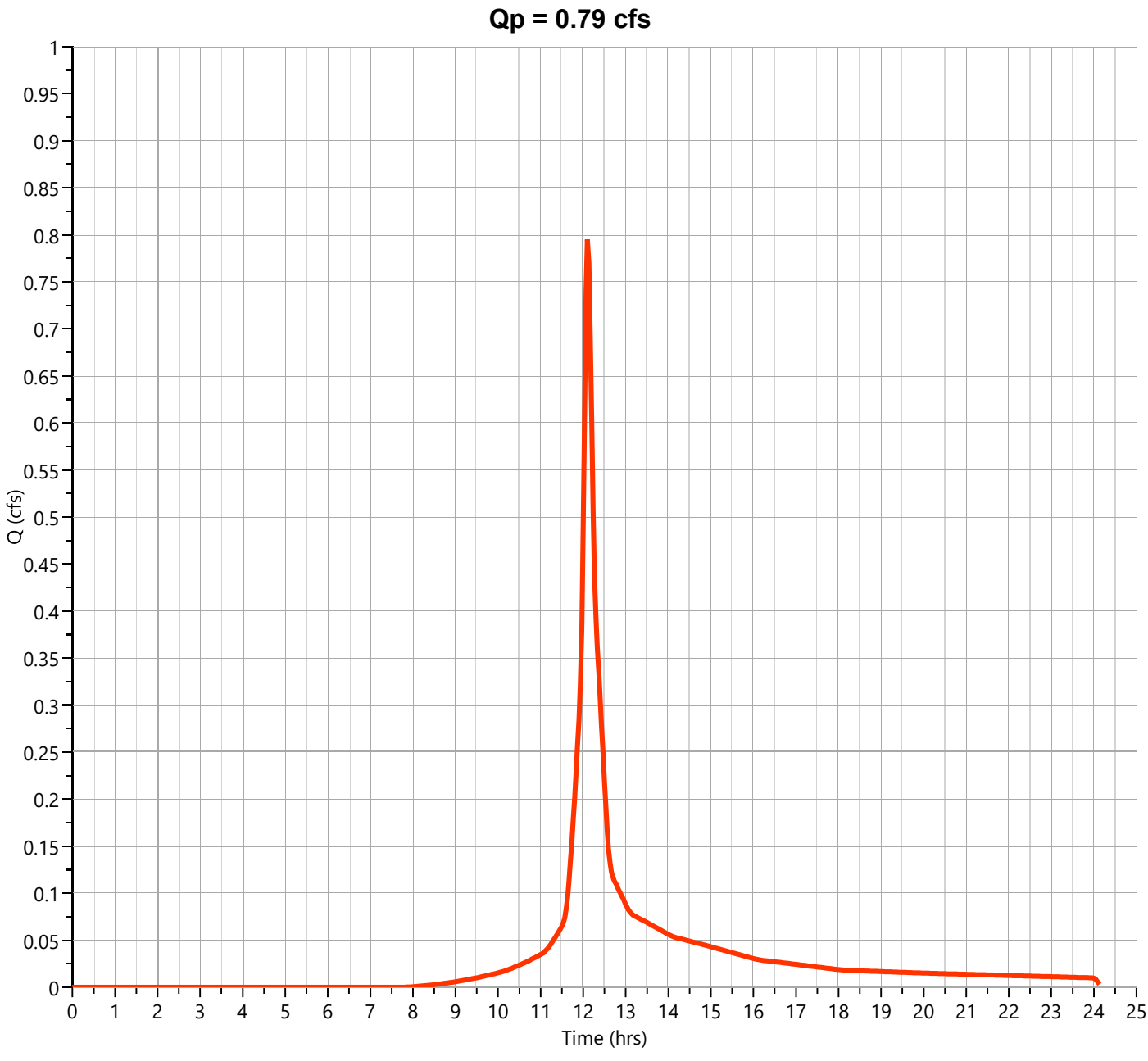
Hydrology Studio v 3.0.0.26

02-14-2023

Pre E (east)

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.795 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 2,714 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

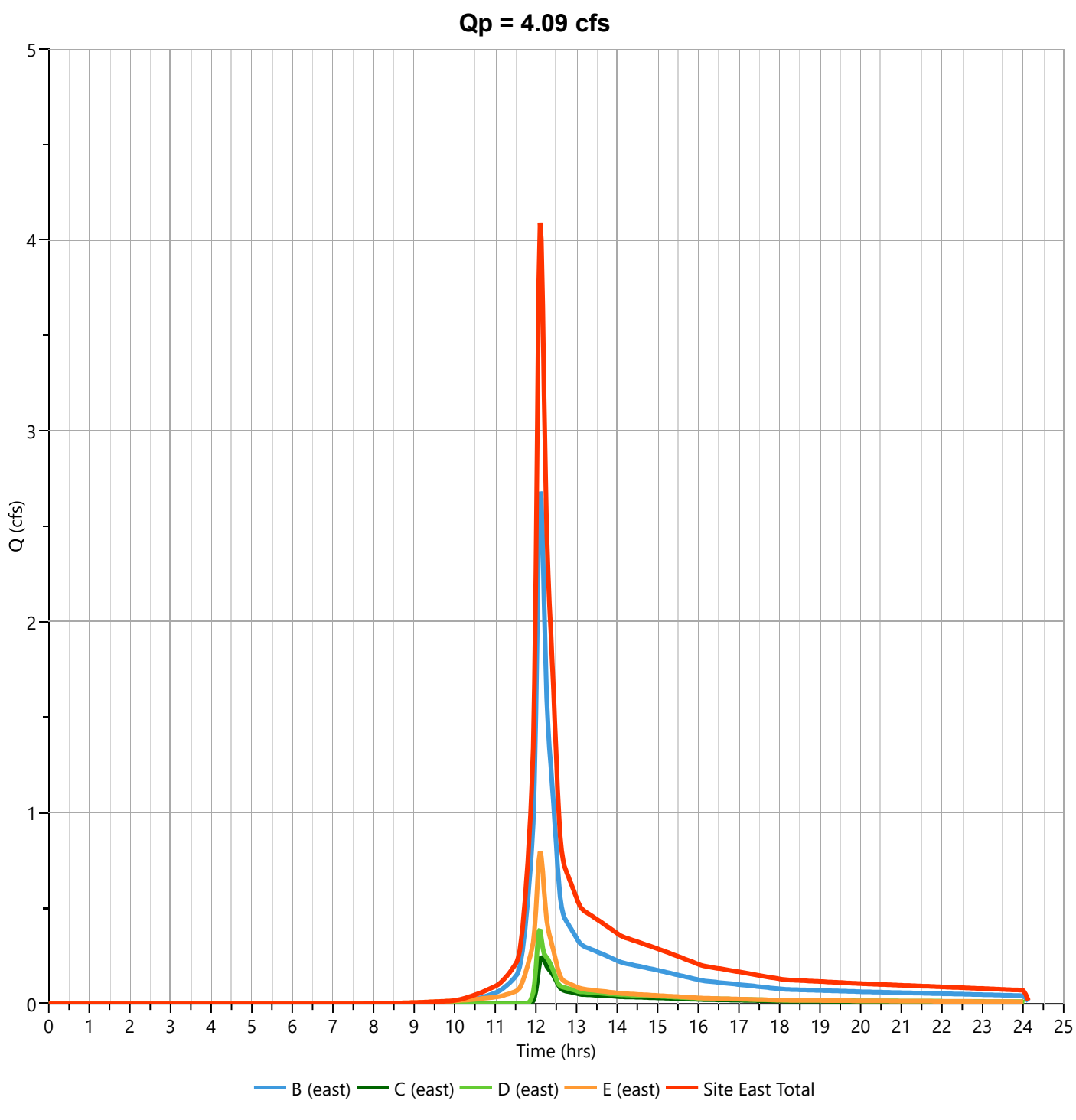
Hydrology Studio v 3.0.0.26

02-14-2023

Pre Site East Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 4.090 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 14,961 cuft
Inflow Hydrographs	= 2, 3, 4, 5	Total Contrib. Area	= 2.78 ac



Hydrograph Report

Project Name:

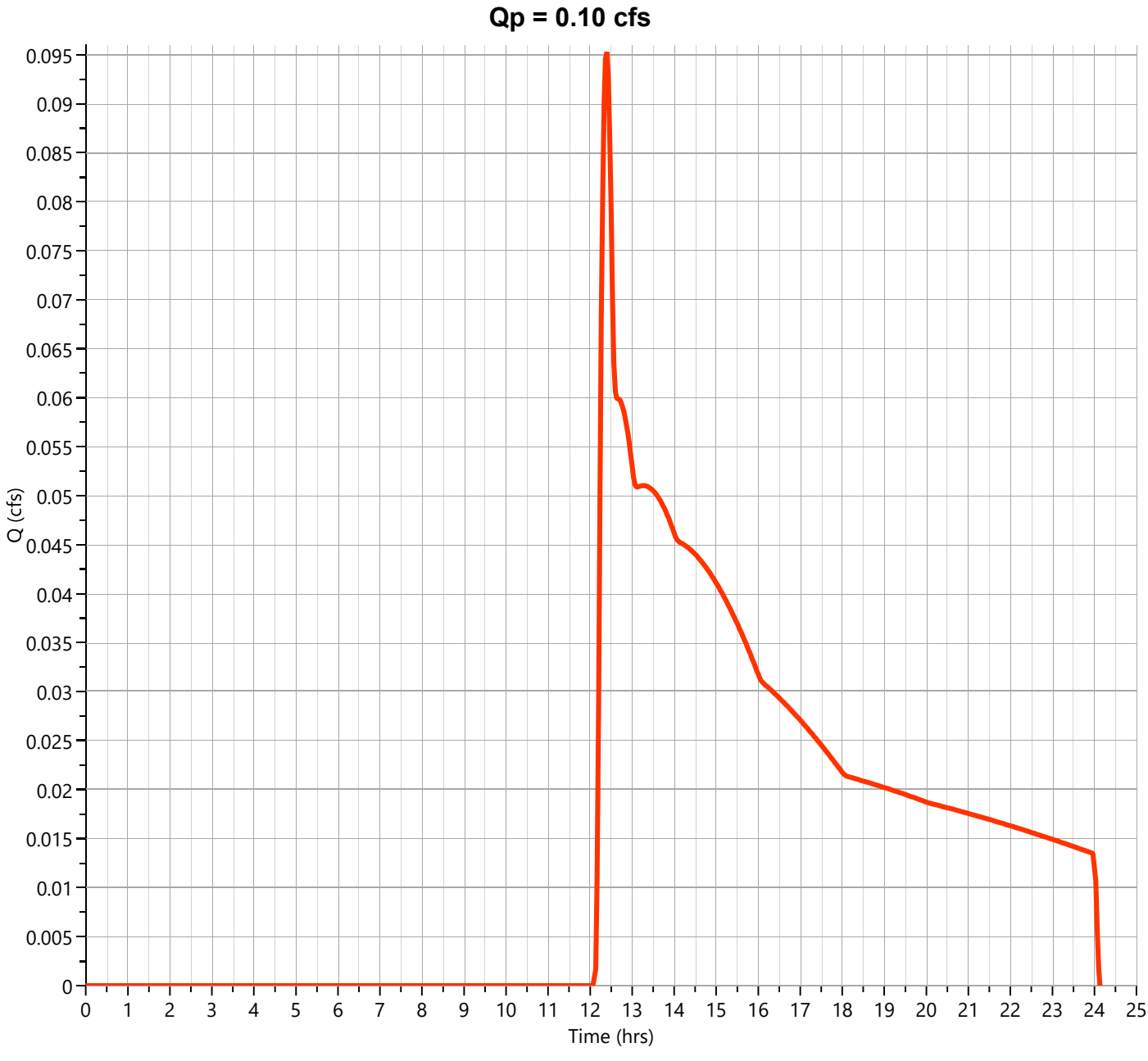
Hydrology Studio v 3.0.0.26

02-14-2023

Post Byp A (west)

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.095 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.40 hrs
Time Interval	= 2 min	Runoff Volume	= 1,242 cuft
Drainage Area	= 1.53 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

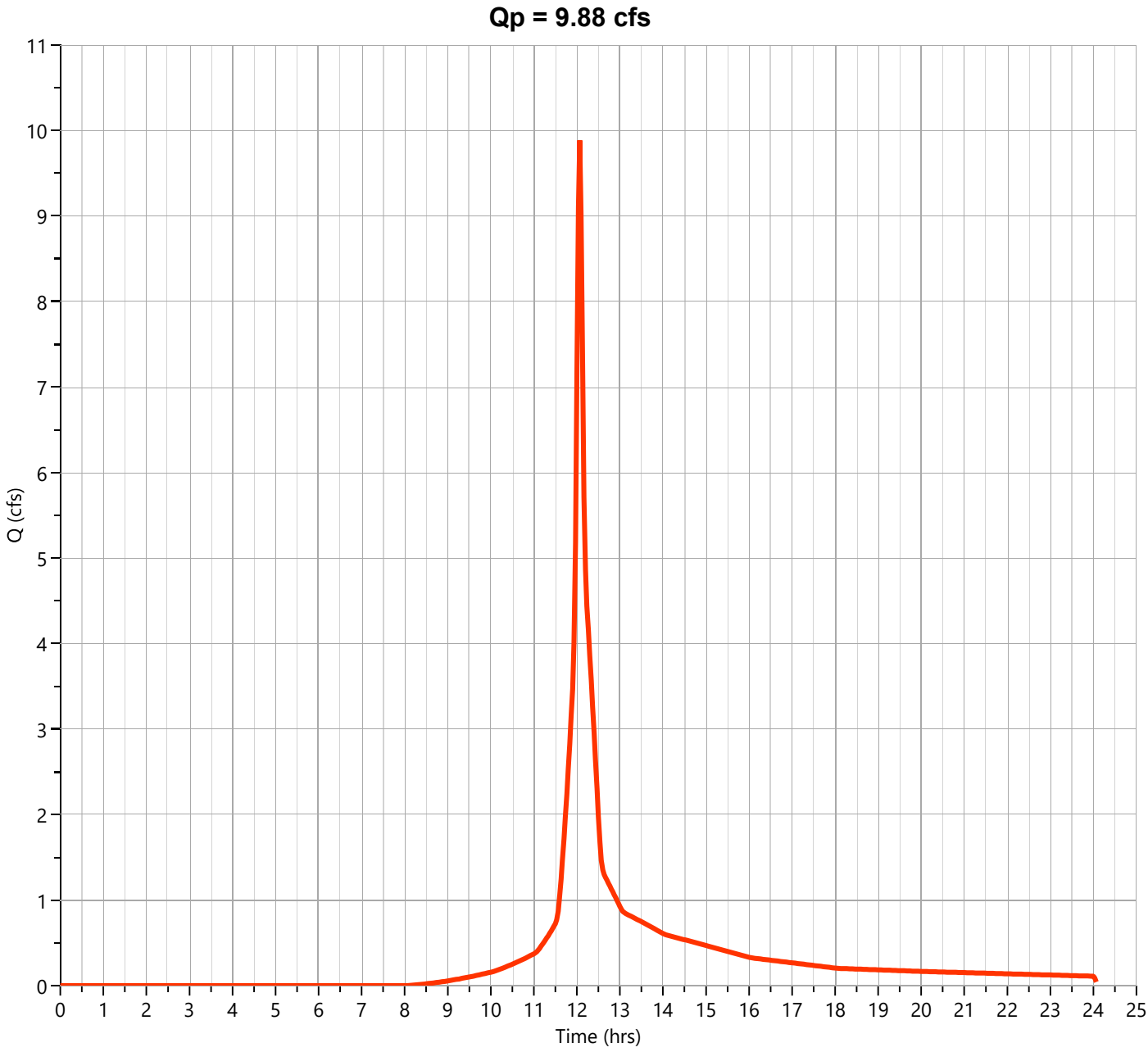
Hydrology Studio v 3.0.0.26

02-14-2023

Post Basin B (west)

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 9.885 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 29,536 cuft
Drainage Area	= 3.41 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

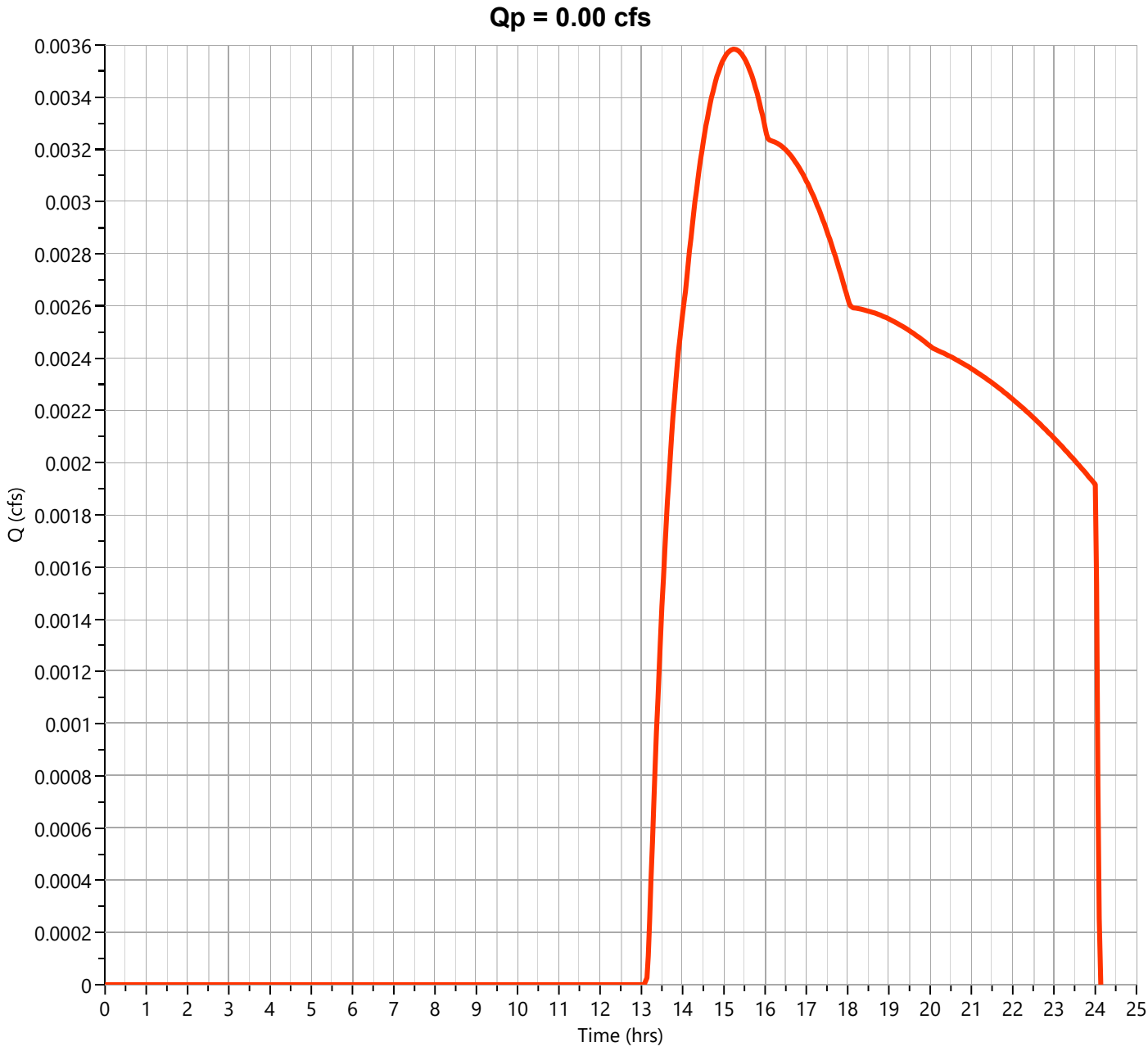
Hydrology Studio v 3.0.0.26

02-14-2023

Post B Bypass (east)

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.004 cfs
Storm Frequency	= 10-yr	Time to Peak	= 15.23 hrs
Time Interval	= 2 min	Runoff Volume	= 101 cuft
Drainage Area	= 0.43 ac	Curve Number	= 36
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

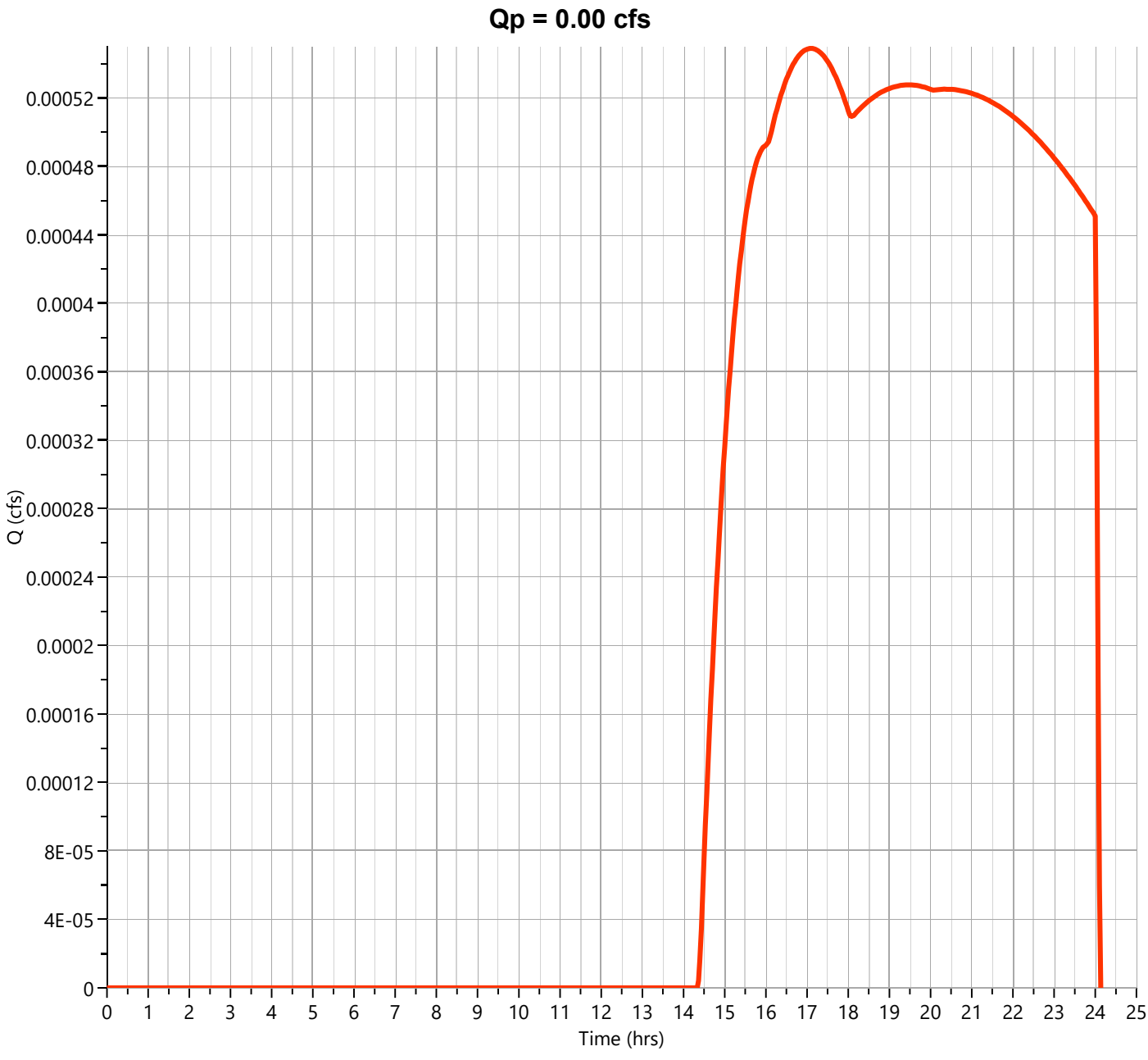
Hydrology Studio v 3.0.0.26

02-14-2023

Post C (east)

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.001 cfs
Storm Frequency	= 10-yr	Time to Peak	= 17.10 hrs
Time Interval	= 2 min	Runoff Volume	= 16.9 cuft
Drainage Area	= 0.15 ac	Curve Number	= 34
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

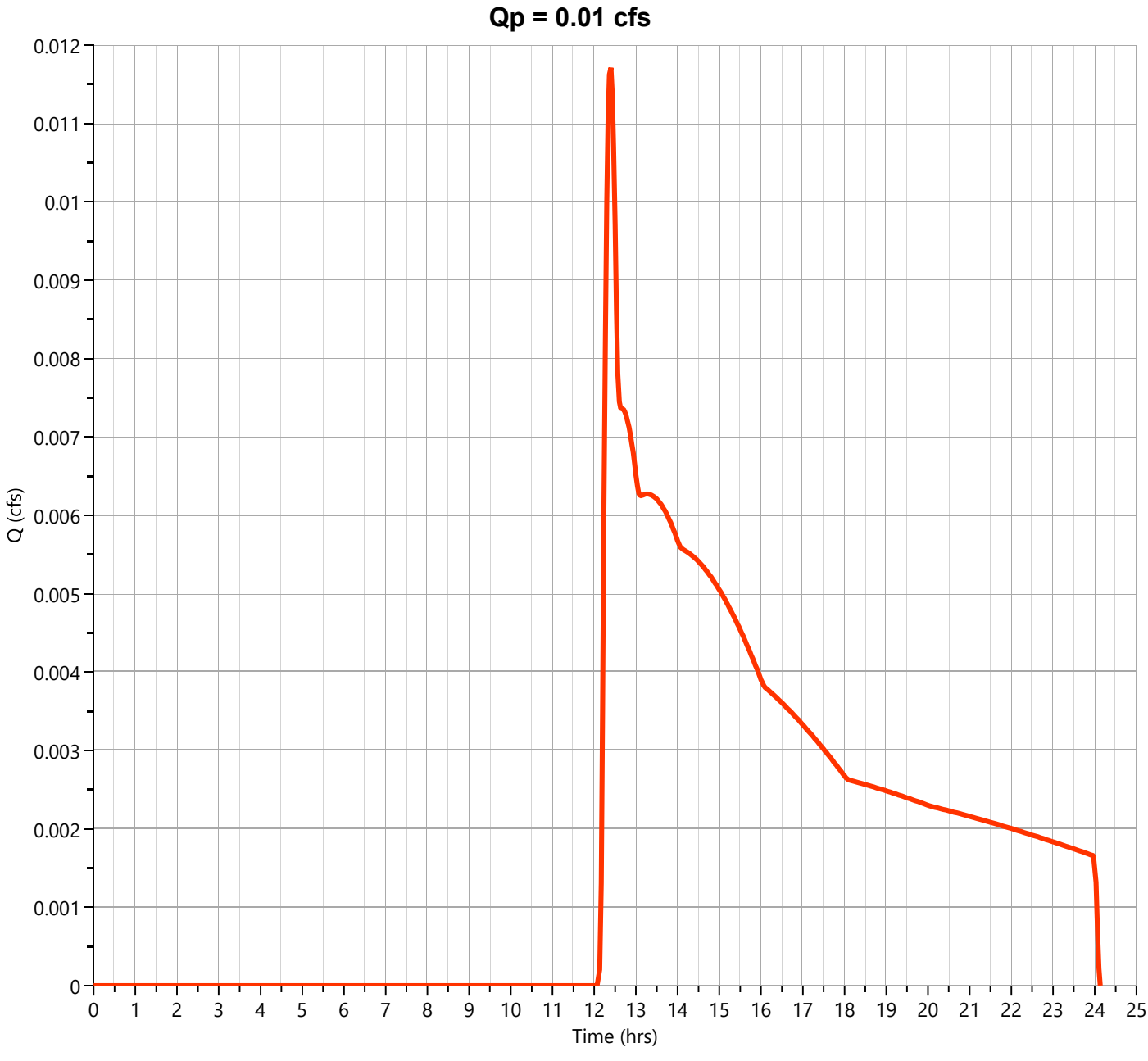
Hydrology Studio v 3.0.0.26

02-14-2023

Post D (east)

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.012 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.40 hrs
Time Interval	= 2 min	Runoff Volume	= 153 cuft
Drainage Area	= 0.188 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

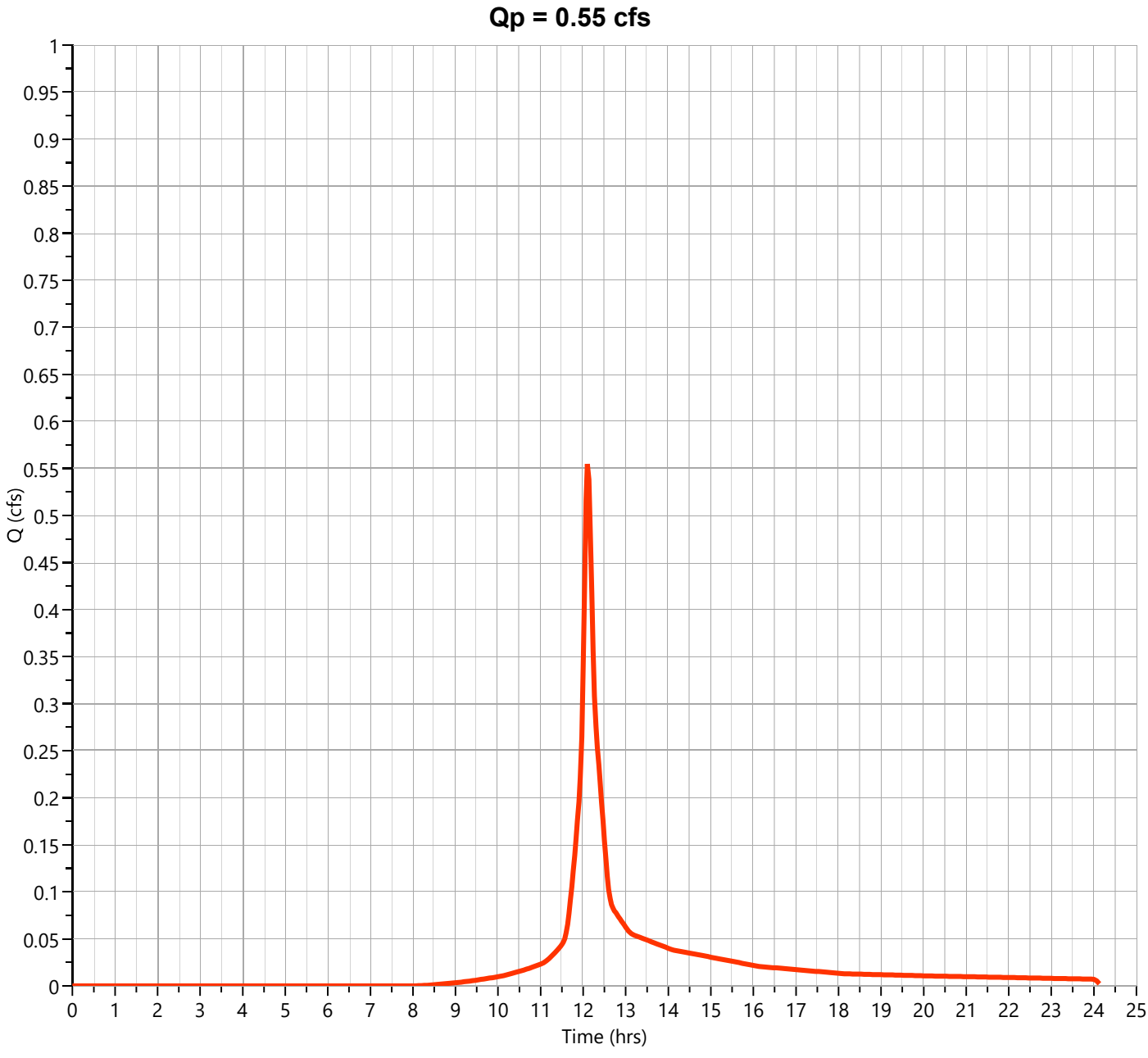
Hydrology Studio v 3.0.0.26

02-14-2023

Post E (east)

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.555 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,894 cuft
Drainage Area	= 0.205 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 4.70 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

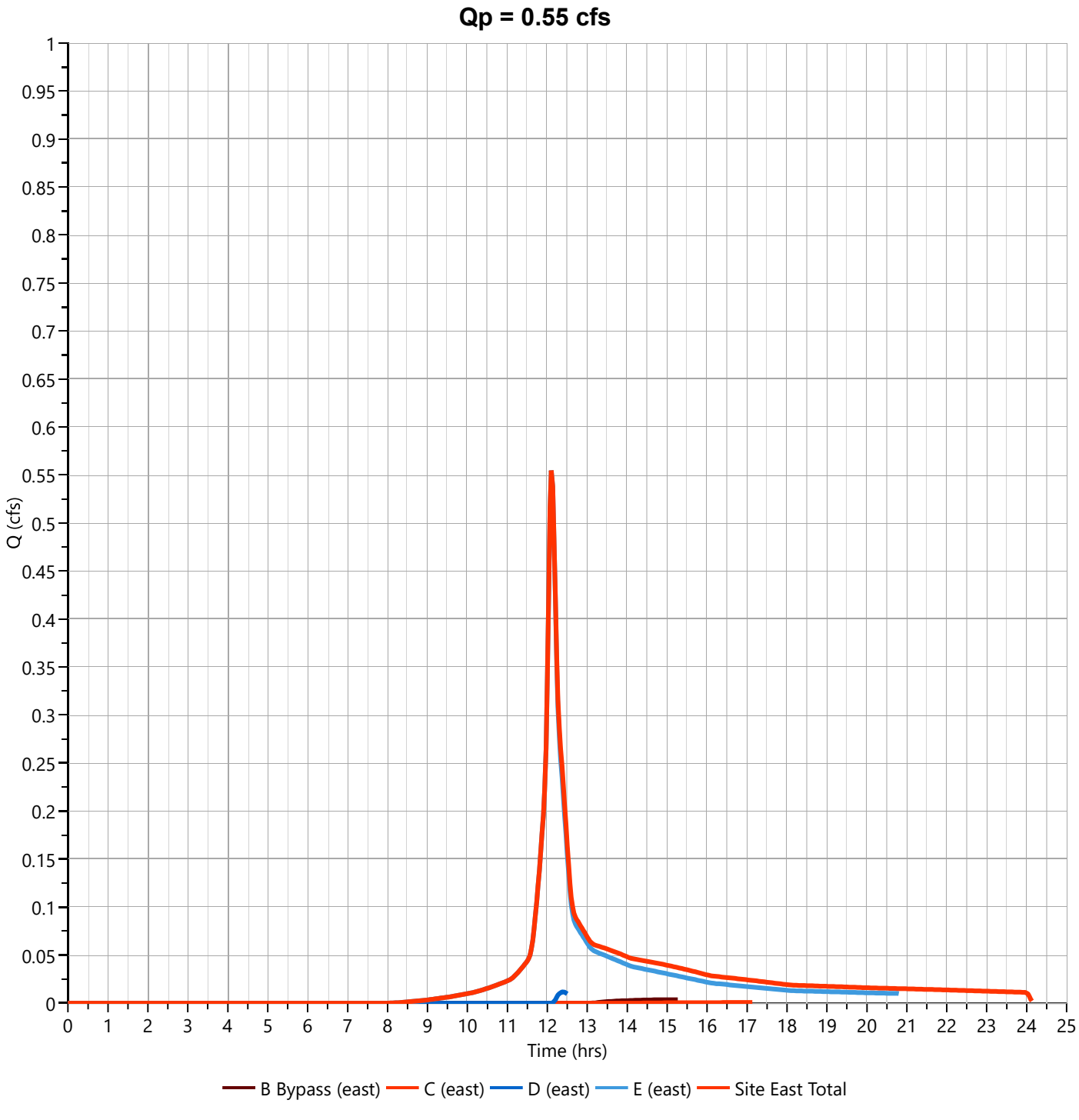
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site East Total

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 0.555 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,165 cuft
Inflow Hydrographs	= 9, 10, 11, 12	Total Contrib. Area	= 0.973 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

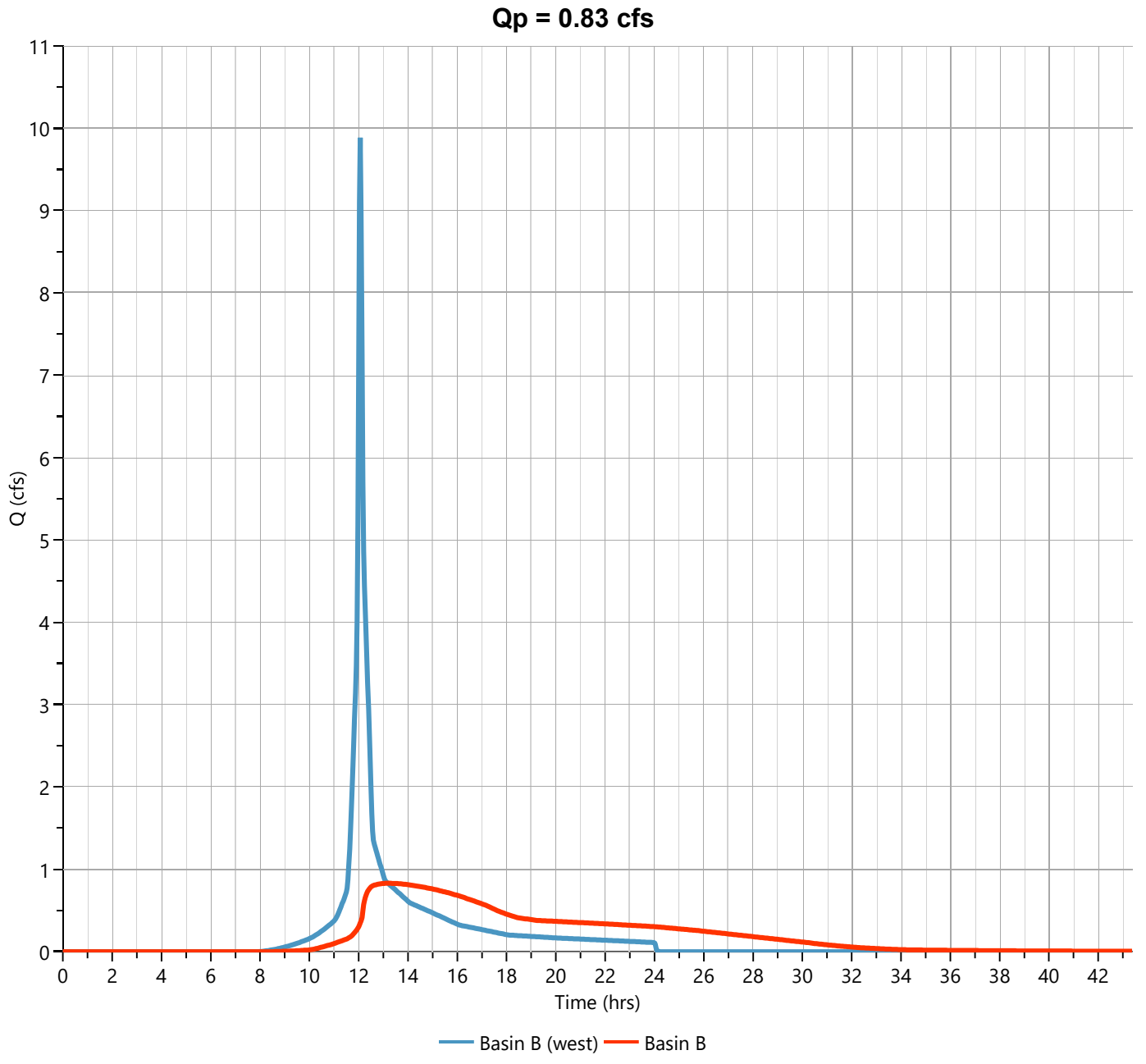
Post Basin B

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 0.829 cfs
Storm Frequency	= 10-yr	Time to Peak	= 13.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 29,517 cuft
Inflow Hydrograph	= 8 - Basin B (west)	Max. Elevation	= 483.93 ft
Pond Name	= Pond B	Max. Storage	= 20,609 cuft
Routing Option	= Wet Pond	Wet Pond Elevation	= 481.00 ft

Pond Routing by Storage Indication Method

Center of mass detention time = 5.09 hrs



Hydrograph Report

Project Name:

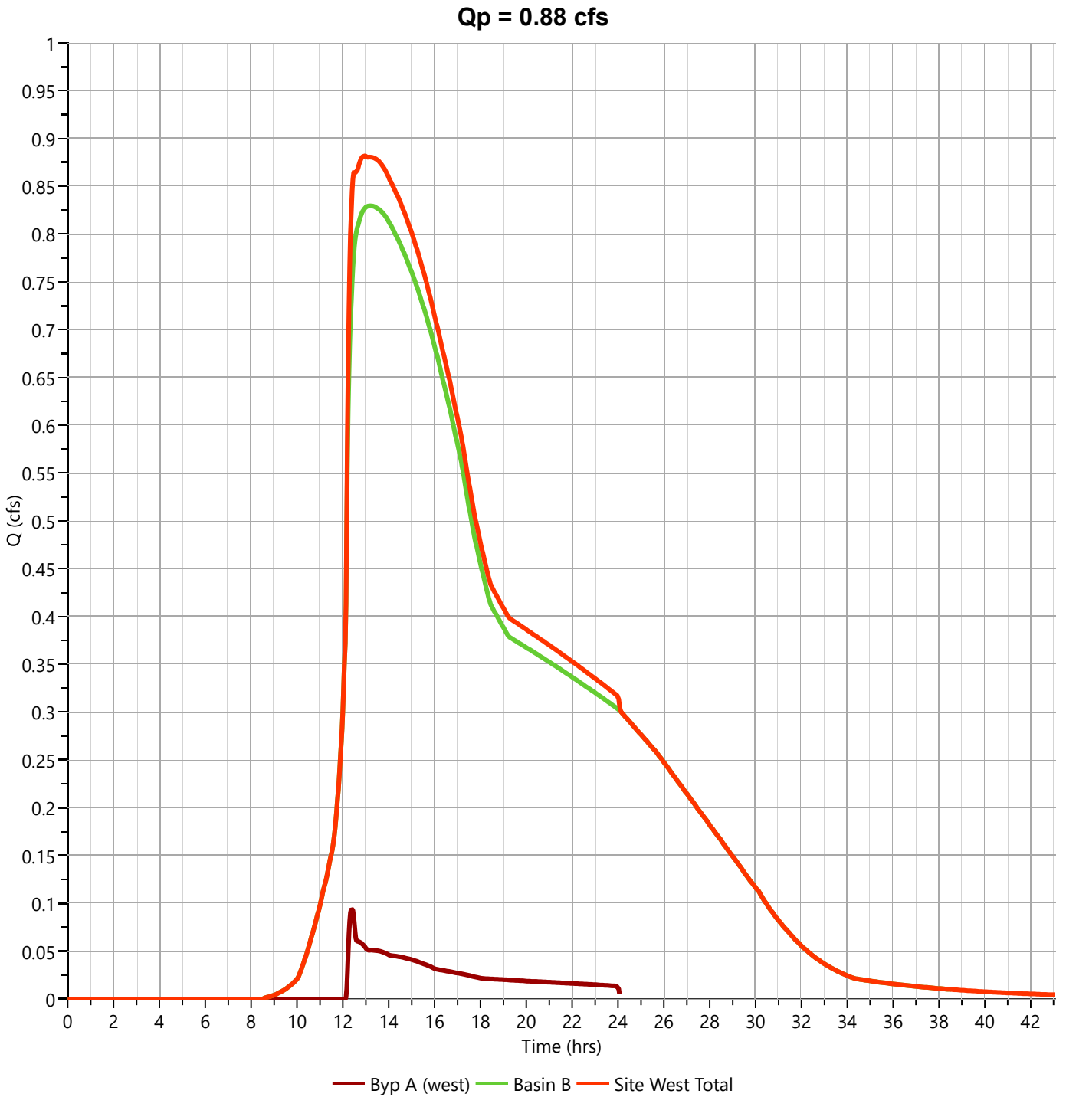
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site West Total

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 0.882 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.93 hrs
Time Interval	= 2 min	Hydrograph Volume	= 30,758 cuft
Inflow Hydrographs	= 7, 14	Total Contrib. Area	= 1.53 ac



Hydrograph Report

Project Name:

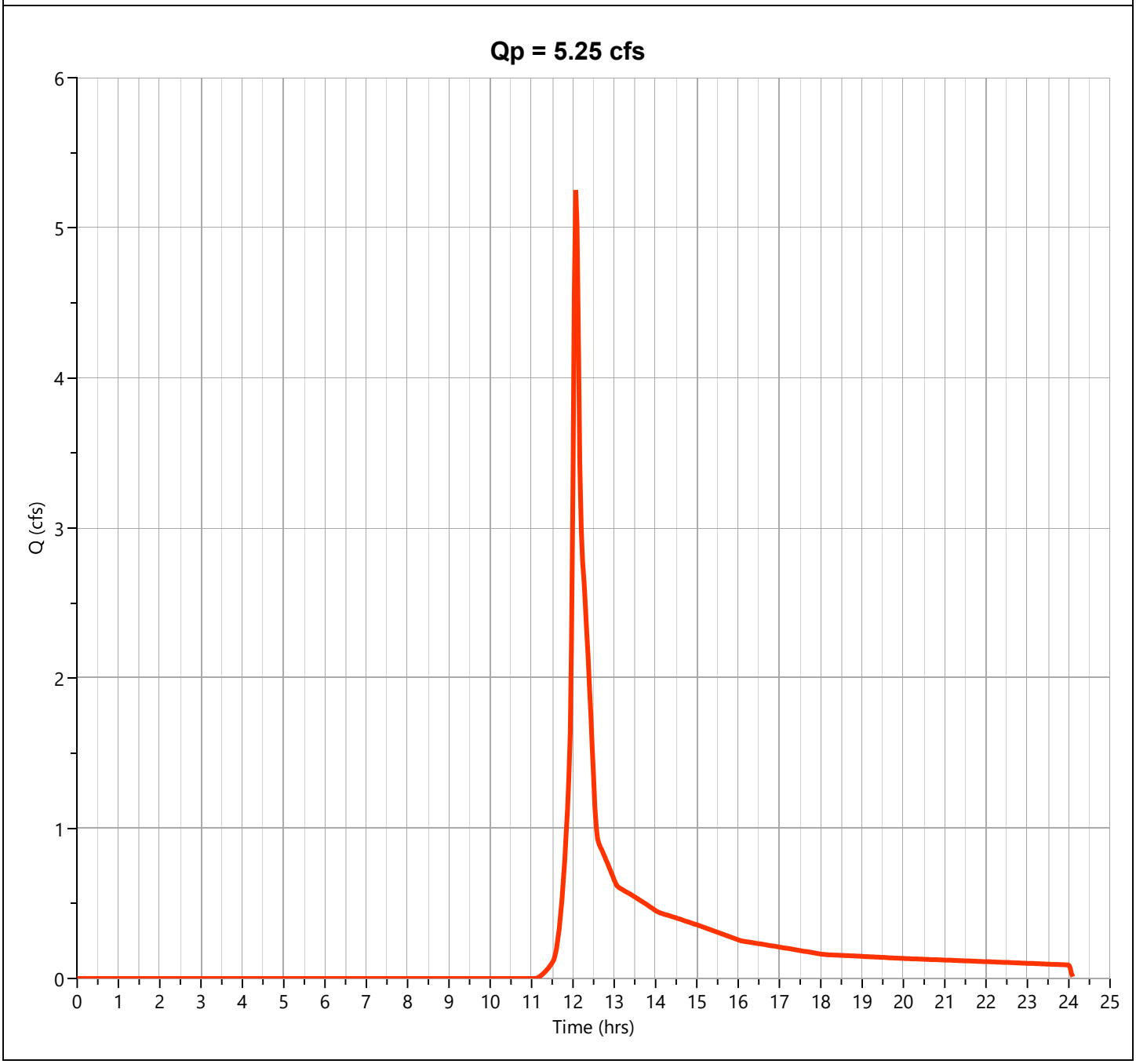
Hydrology Studio v 3.0.0.26

02-14-2023

Pre A (west)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.249 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 17,237 cuft
Drainage Area	= 3.135 ac	Curve Number	= 57
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

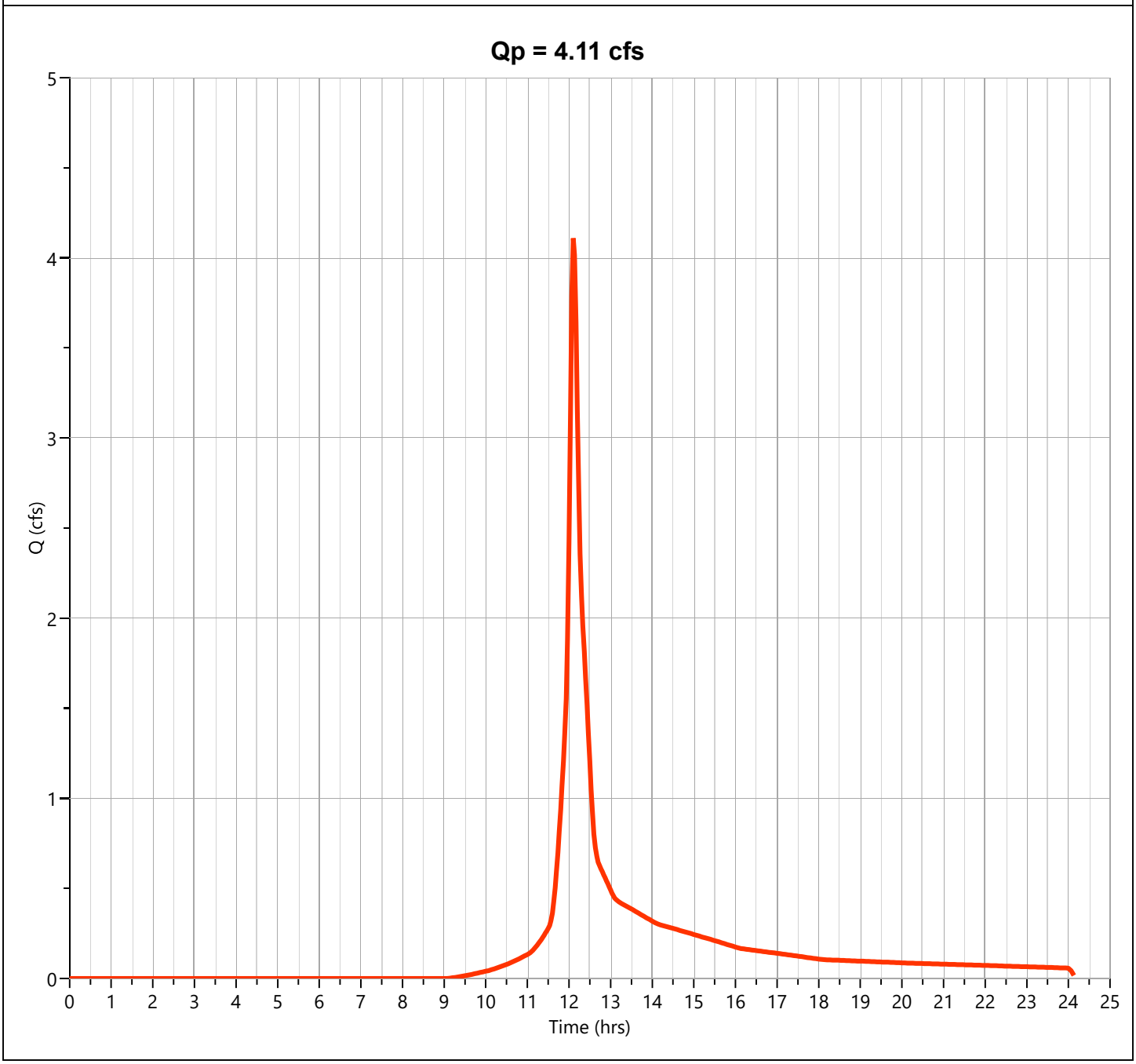
Hydrology Studio v 3.0.0.26

02-14-2023

Pre B (east)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.107 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 14,141 cuft
Drainage Area	= 1.429 ac	Curve Number	= 70
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

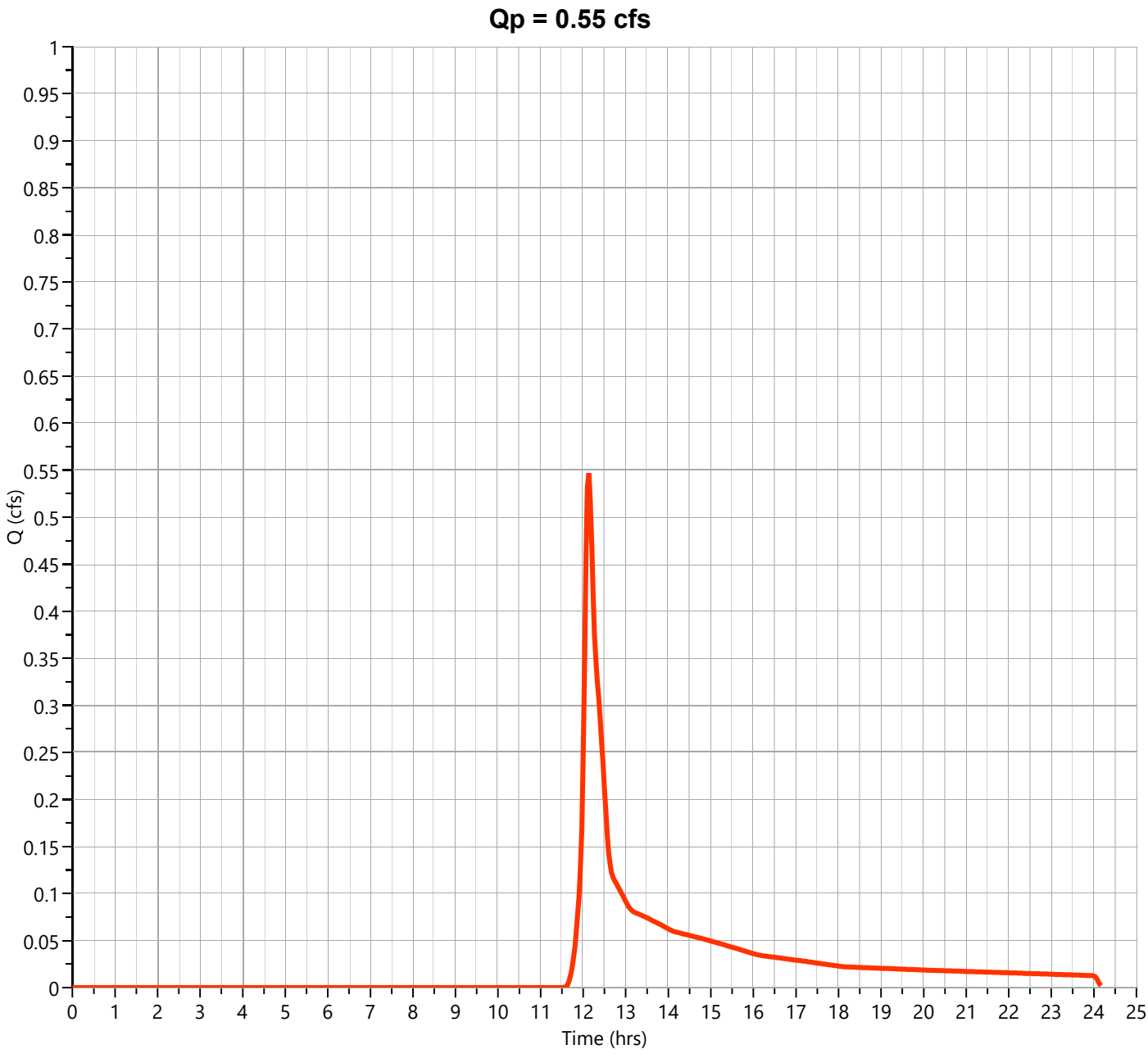
Hydrology Studio v 3.0.0.26

02-14-2023

Pre C (east)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.547 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 2,202 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

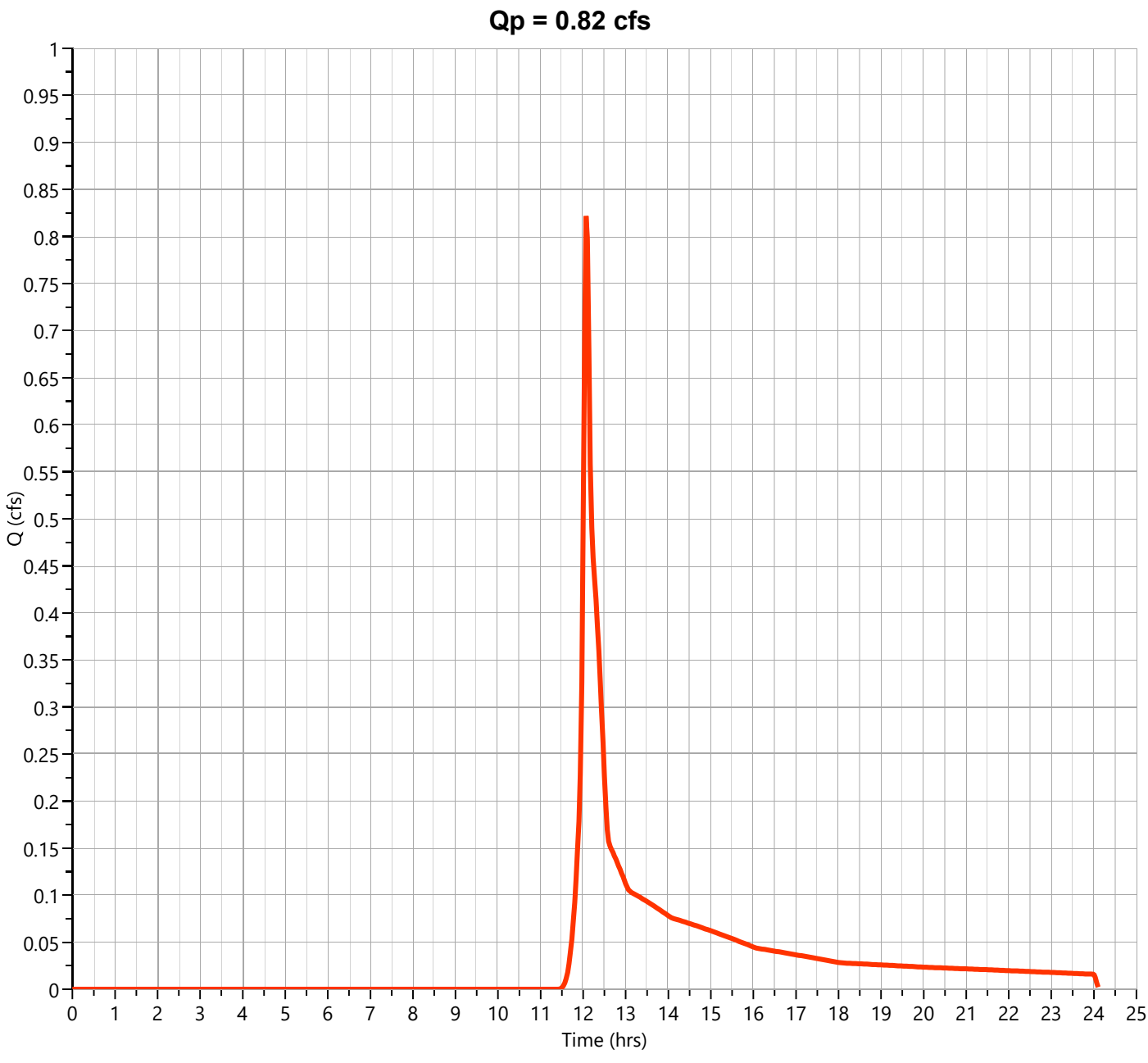
Hydrology Studio v 3.0.0.26

02-14-2023

Pre D (east)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.822 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 2,847 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

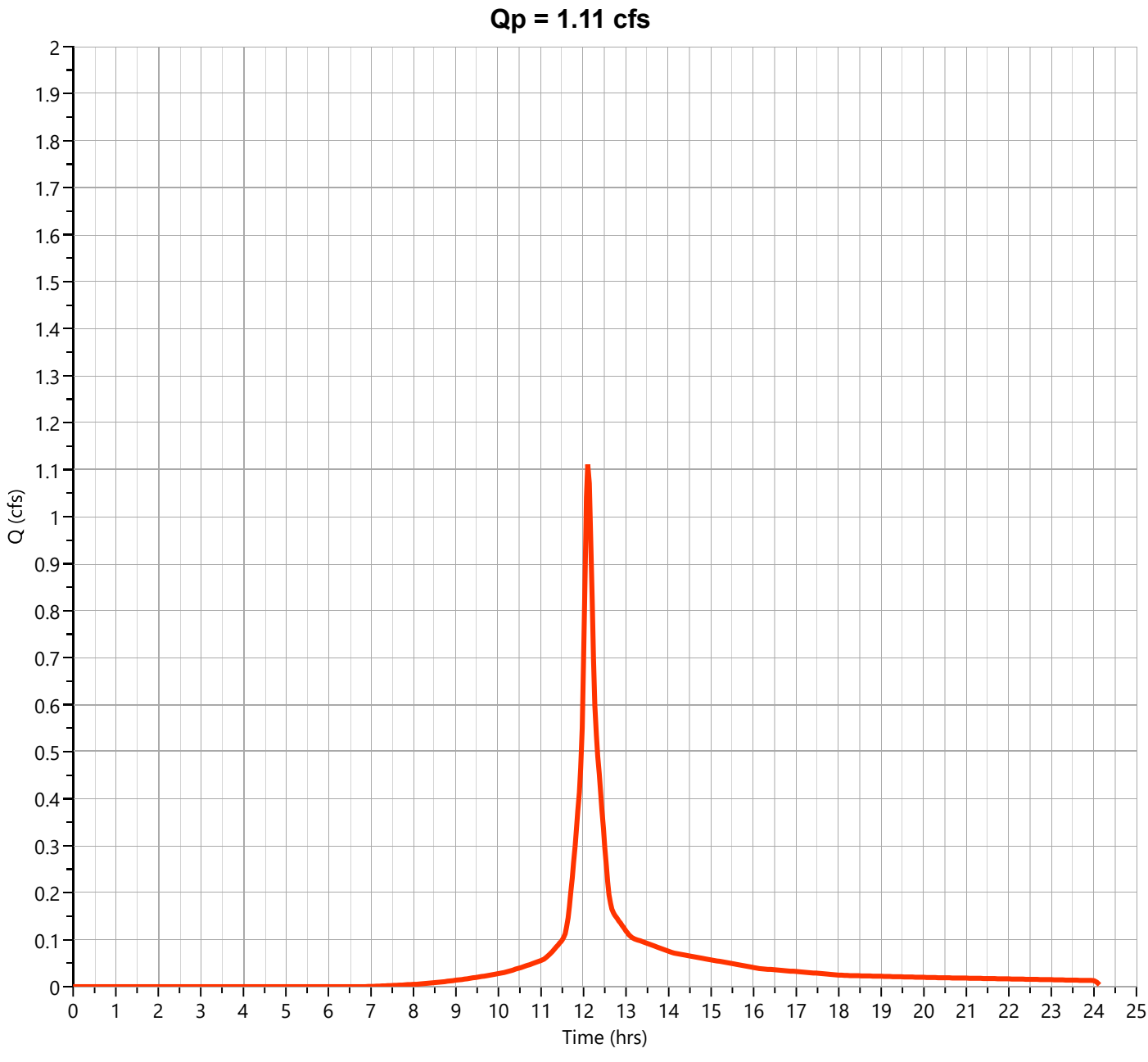
Hydrology Studio v 3.0.0.26

02-14-2023

Pre E (east)

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.111 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 3,805 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

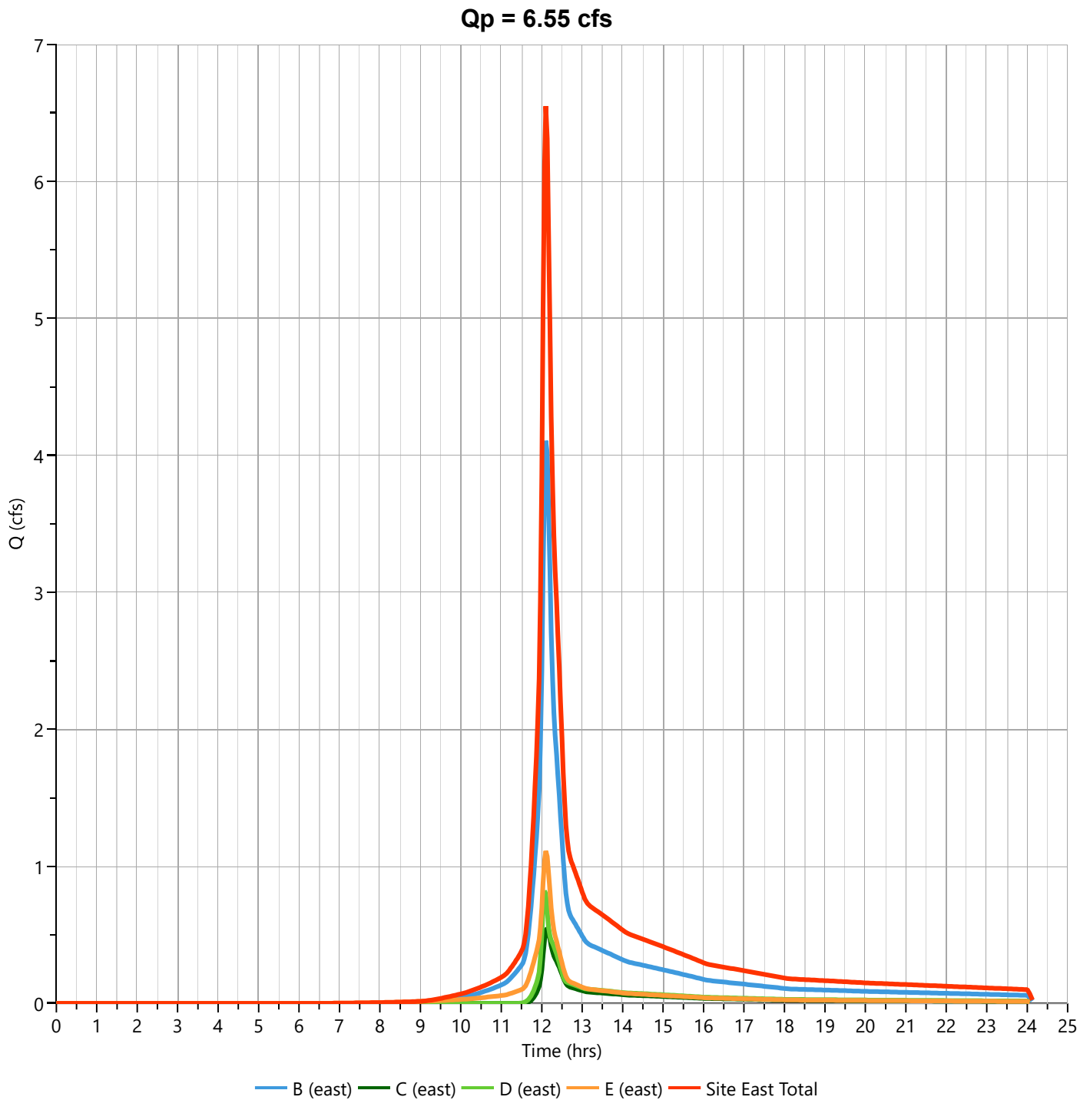
Hydrology Studio v 3.0.0.26

02-14-2023

Pre Site East Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 6.548 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 22,995 cuft
Inflow Hydrographs	= 2, 3, 4, 5	Total Contrib. Area	= 2.78 ac



Hydrograph Report

Project Name:

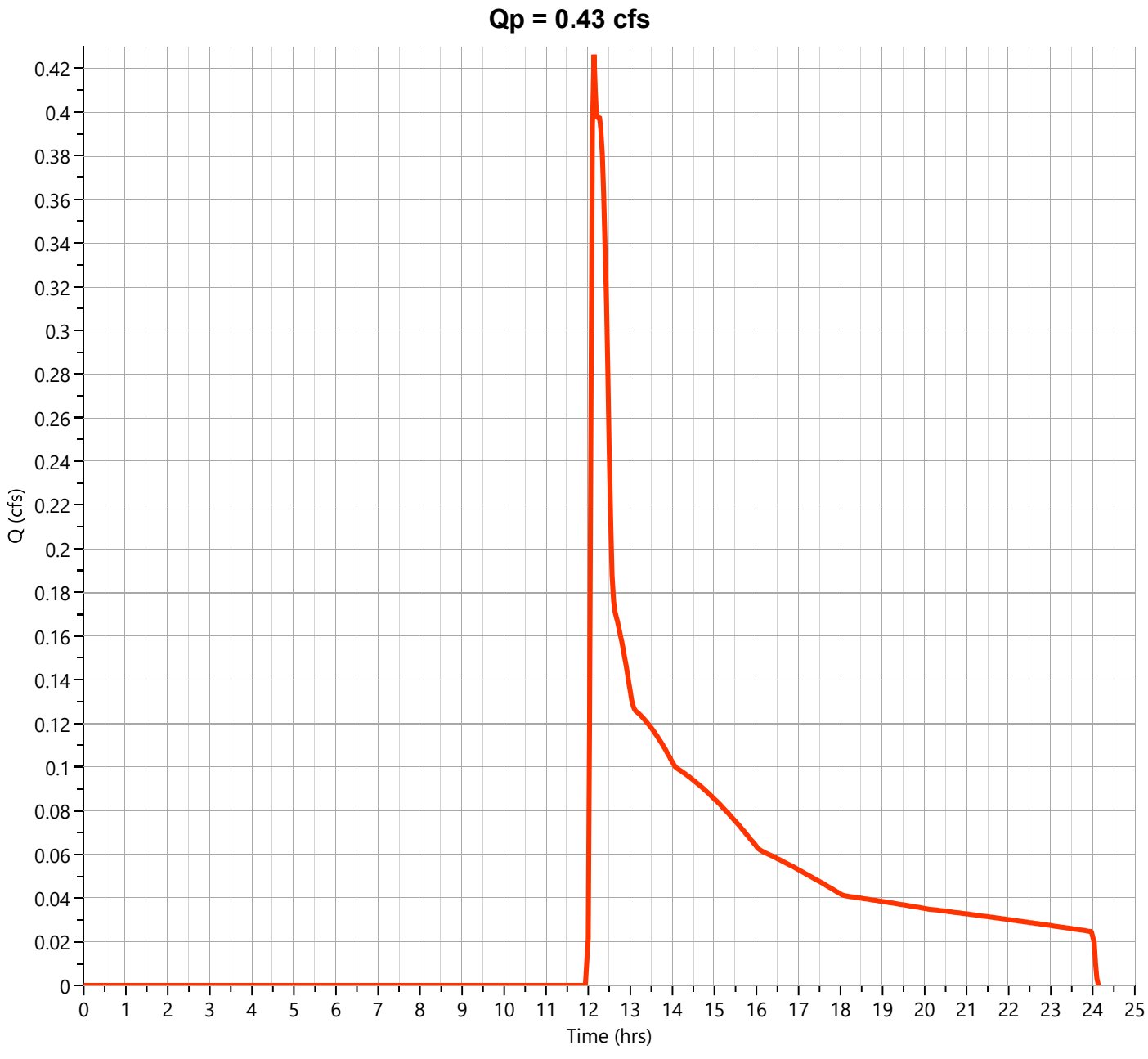
Hydrology Studio v 3.0.0.26

02-14-2023

Post Byp A (west)

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.426 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 3,025 cuft
Drainage Area	= 1.53 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

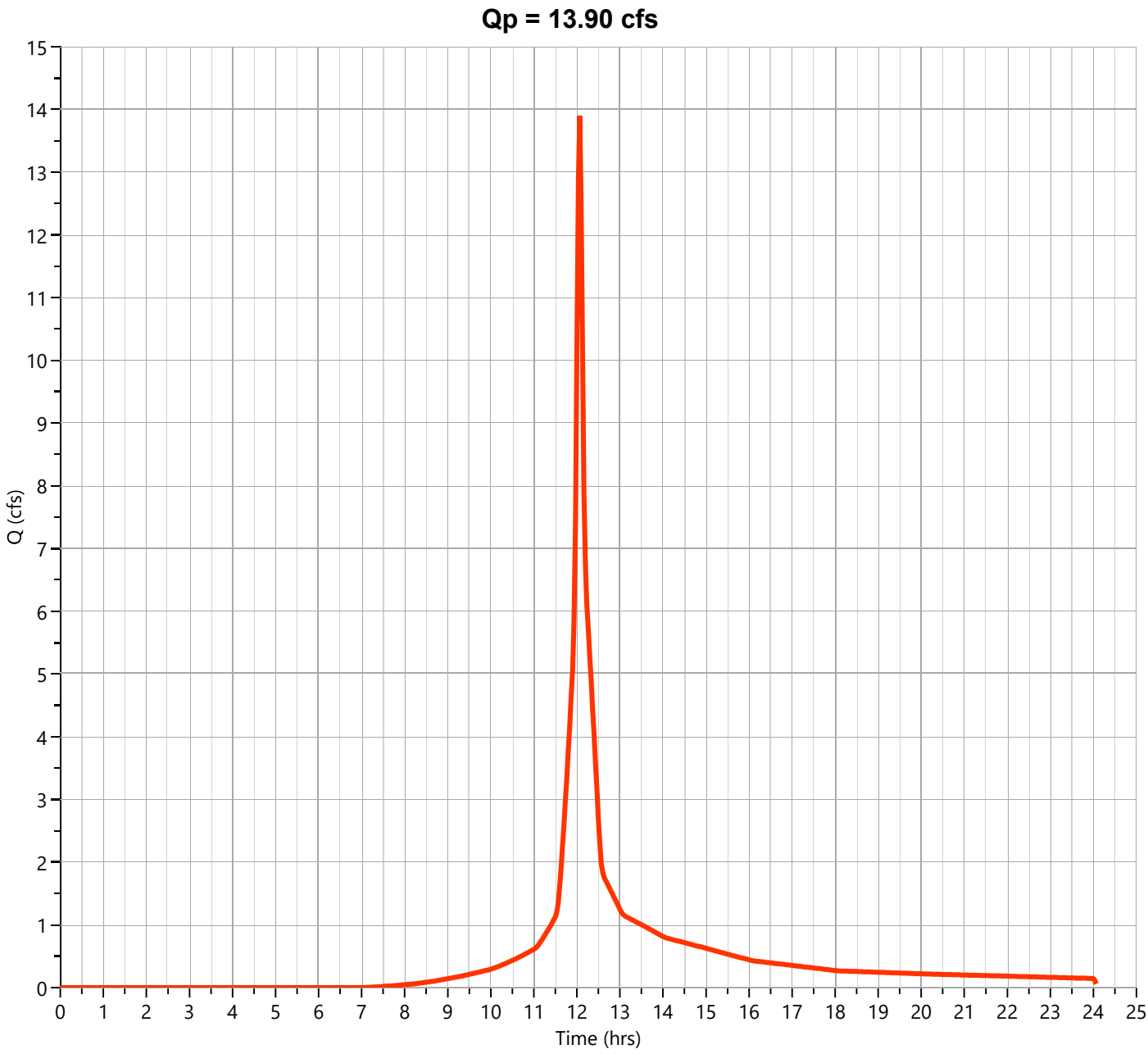
Hydrology Studio v 3.0.0.26

02-14-2023

Post Basin B (west)

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 13.90 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 41,666 cuft
Drainage Area	= 3.41 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

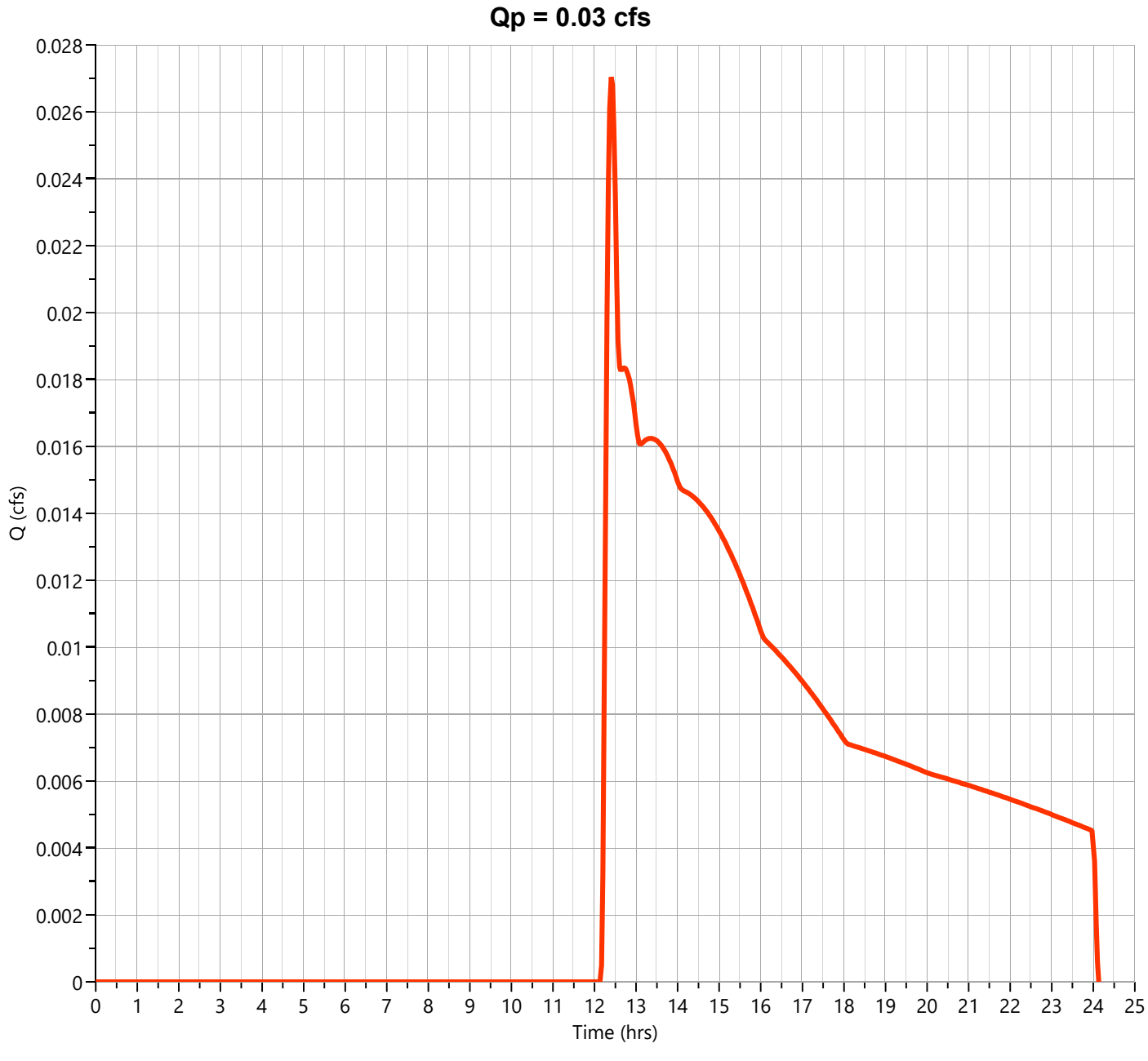
Hydrology Studio v 3.0.0.26

02-14-2023

Post B Bypass (east)

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.027 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.40 hrs
Time Interval	= 2 min	Runoff Volume	= 400 cuft
Drainage Area	= 0.43 ac	Curve Number	= 36
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

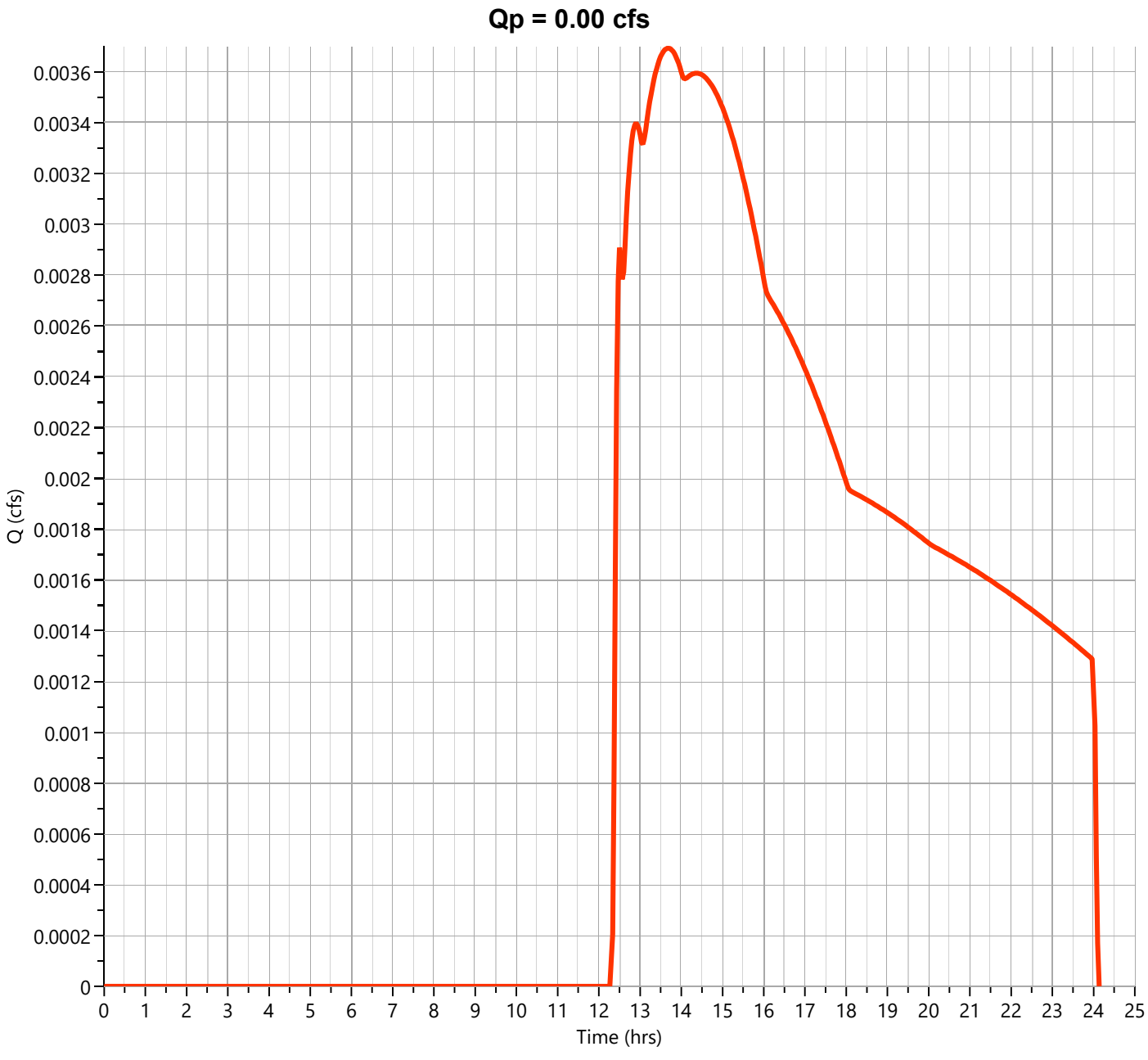
Hydrology Studio v 3.0.0.26

02-14-2023

Post C (east)

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.004 cfs
Storm Frequency	= 25-yr	Time to Peak	= 13.67 hrs
Time Interval	= 2 min	Runoff Volume	= 97.0 cuft
Drainage Area	= 0.15 ac	Curve Number	= 34
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

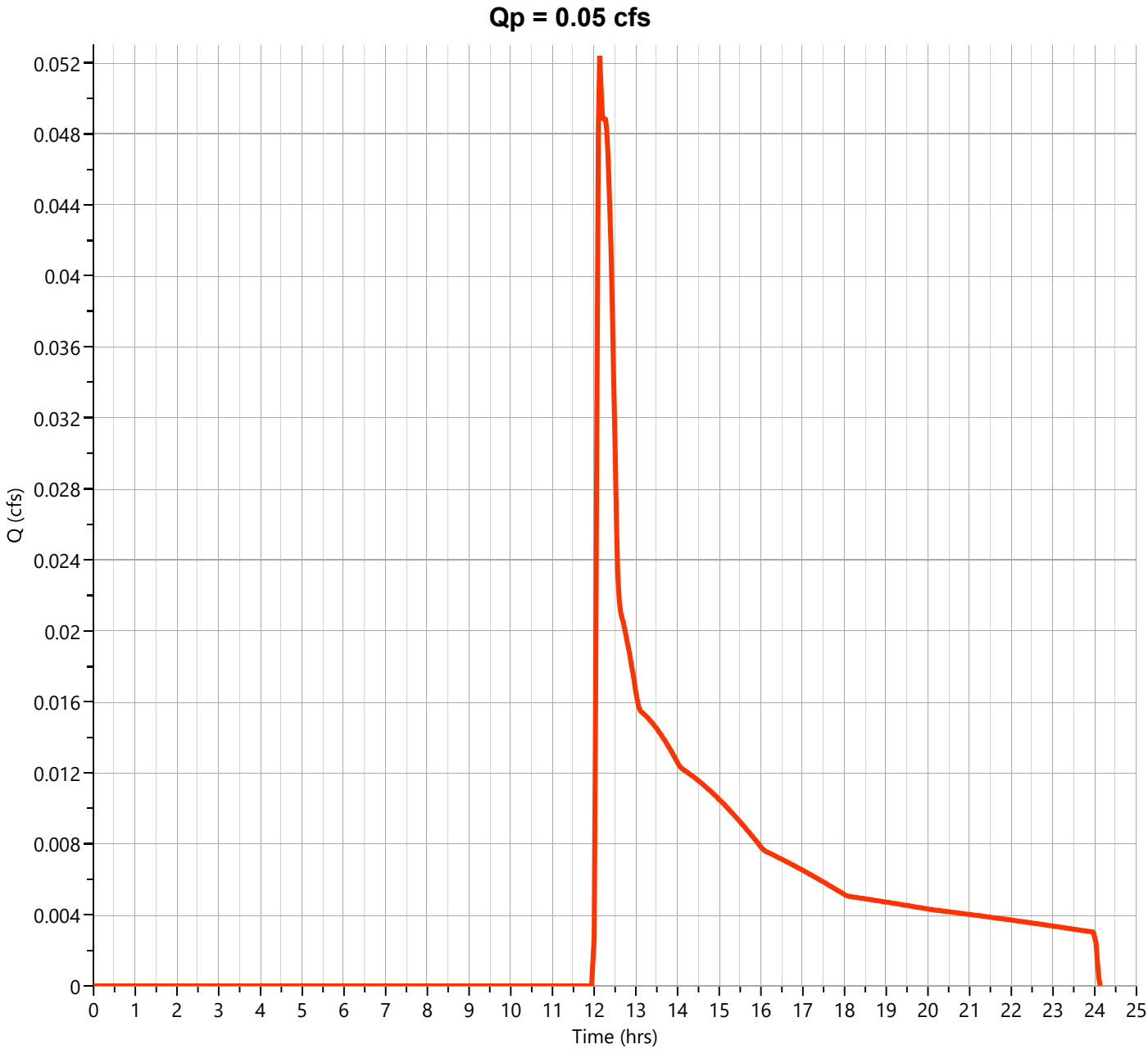
Hydrology Studio v 3.0.0.26

02-14-2023

Post D (east)

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.052 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 372 cuft
Drainage Area	= 0.188 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

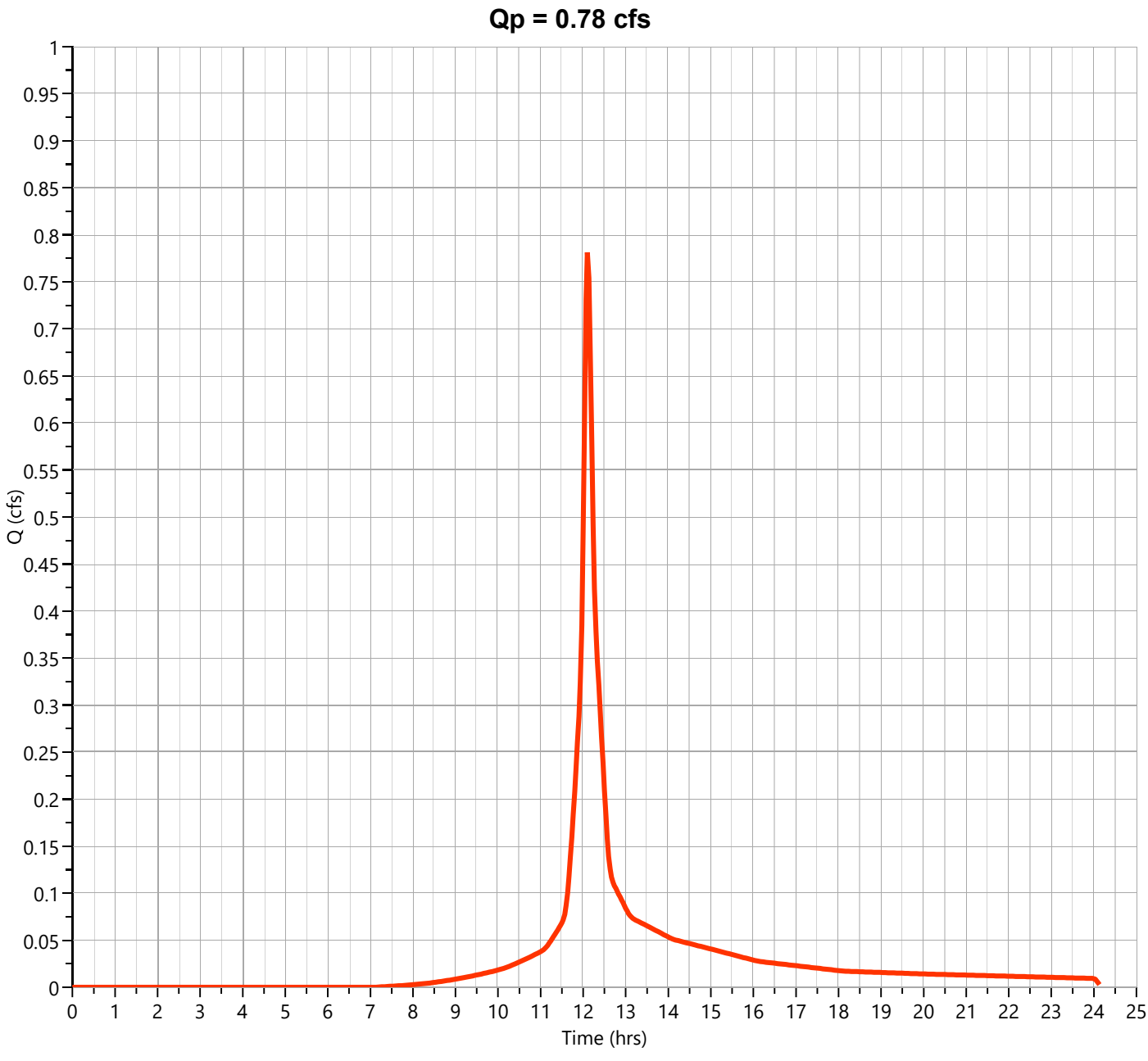
Hydrology Studio v 3.0.0.26

02-14-2023

Post E (east)

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.781 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 2,672 cuft
Drainage Area	= 0.205 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 5.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

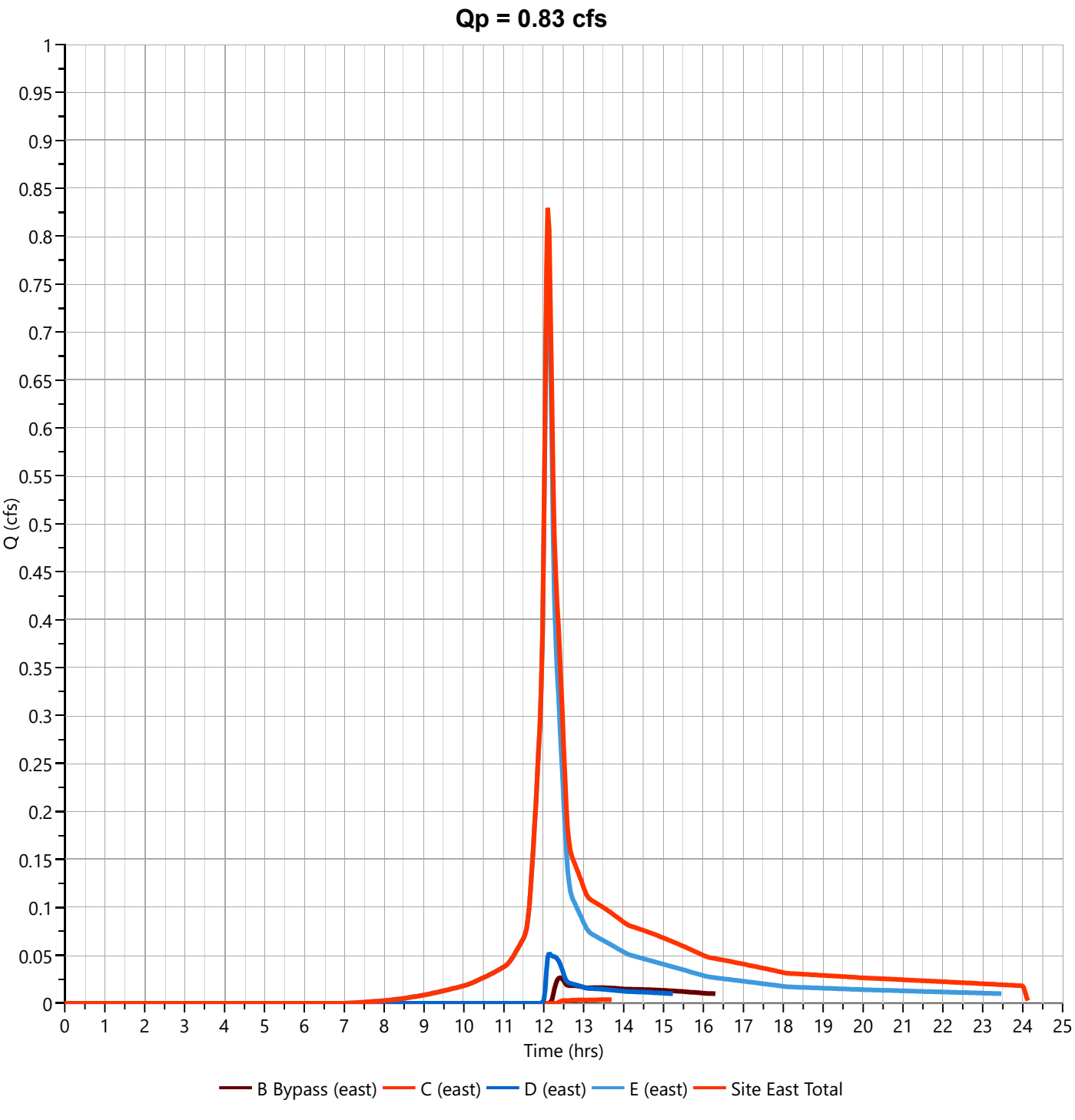
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site East Total

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 0.829 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,540 cuft
Inflow Hydrographs	= 9, 10, 11, 12	Total Contrib. Area	= 0.973 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

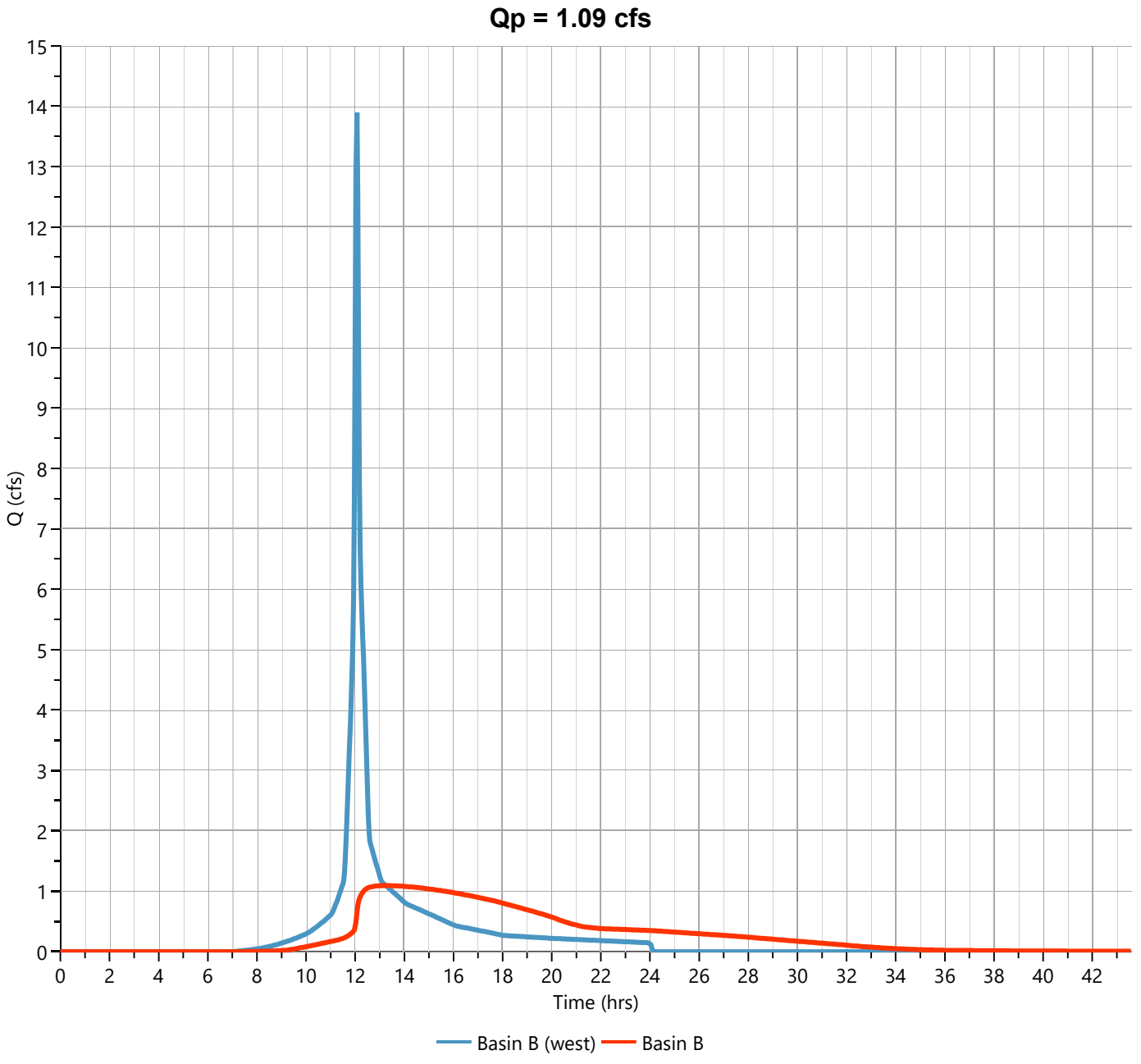
Post Basin B

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 1.093 cfs
Storm Frequency	= 25-yr	Time to Peak	= 13.27 hrs
Time Interval	= 2 min	Hydrograph Volume	= 41,646 cuft
Inflow Hydrograph	= 8 - Basin B (west)	Max. Elevation	= 484.91 ft
Pond Name	= Pond B	Max. Storage	= 27,363 cuft
Routing Option	= Wet Pond	Wet Pond Elevation	= 481.00 ft

Pond Routing by Storage Indication Method

Center of mass detention time = 5.14 hrs



Hydrograph Report

Project Name:

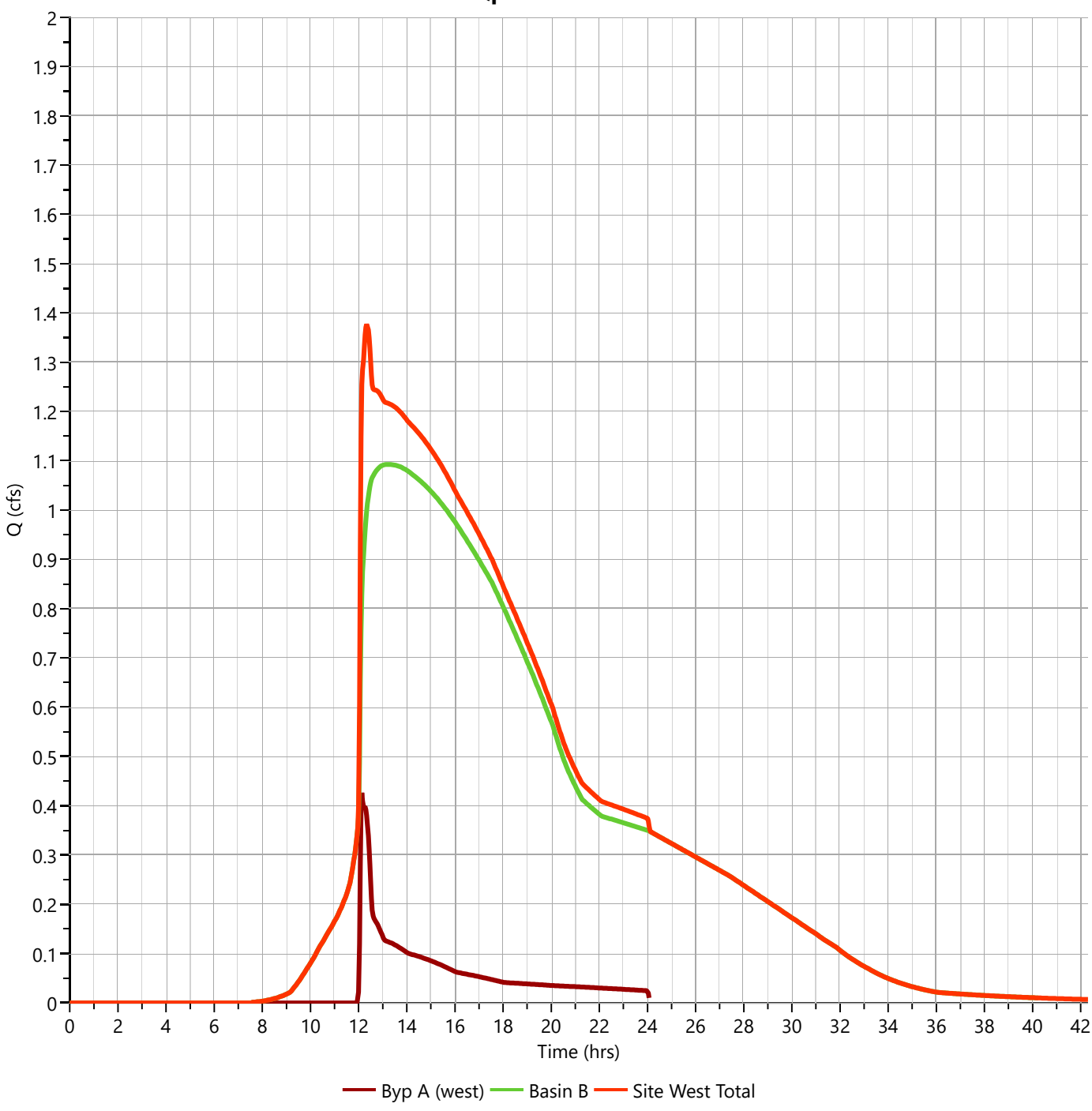
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site West Total

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 1.377 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.33 hrs
Time Interval	= 2 min	Hydrograph Volume	= 44,672 cuft
Inflow Hydrographs	= 7, 14	Total Contrib. Area	= 1.53 ac



Hydrograph Report

Project Name:

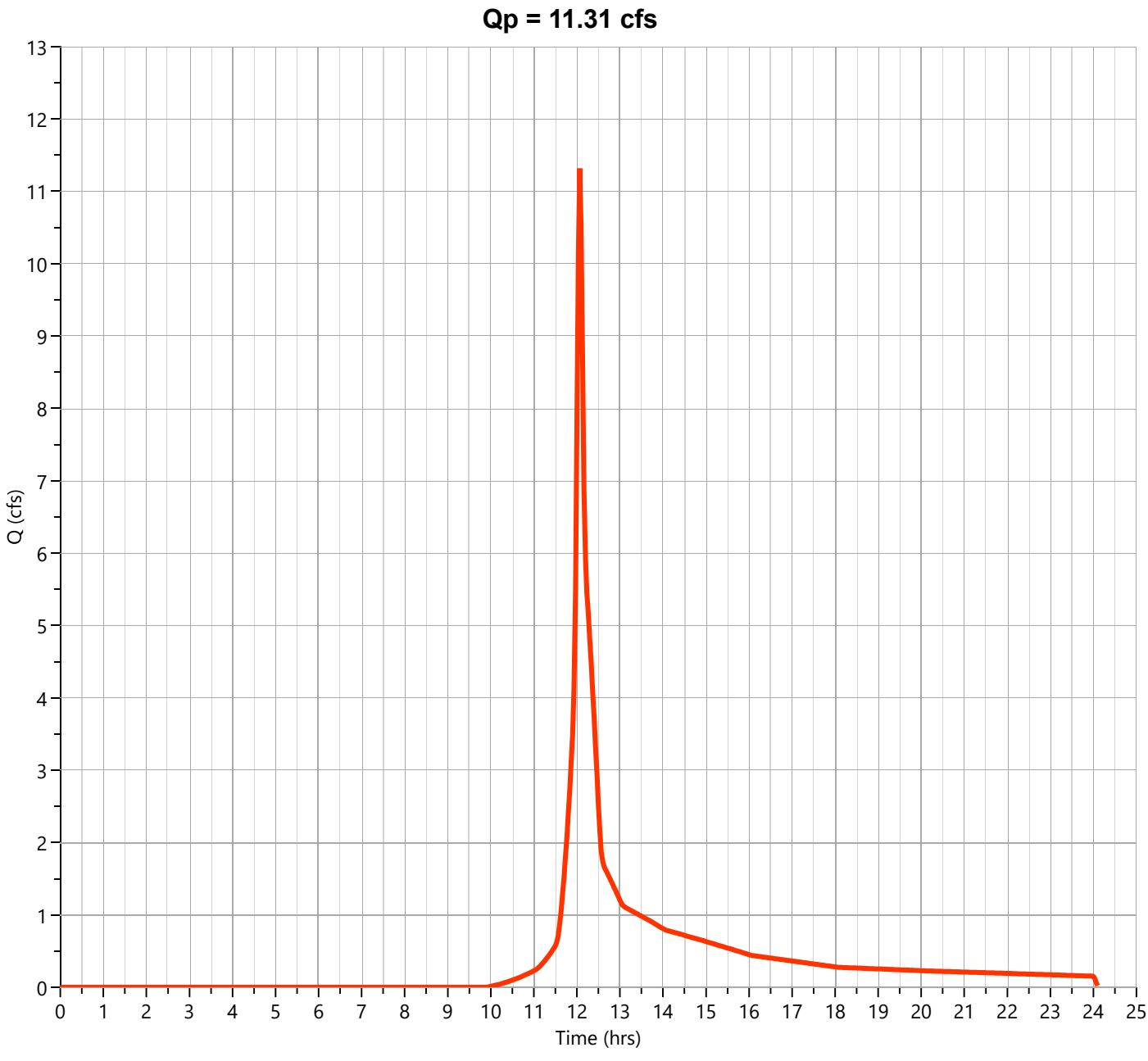
Hydrology Studio v 3.0.0.26

02-14-2023

Pre A (west)

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 11.31 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 34,557 cuft
Drainage Area	= 3.135 ac	Curve Number	= 57
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

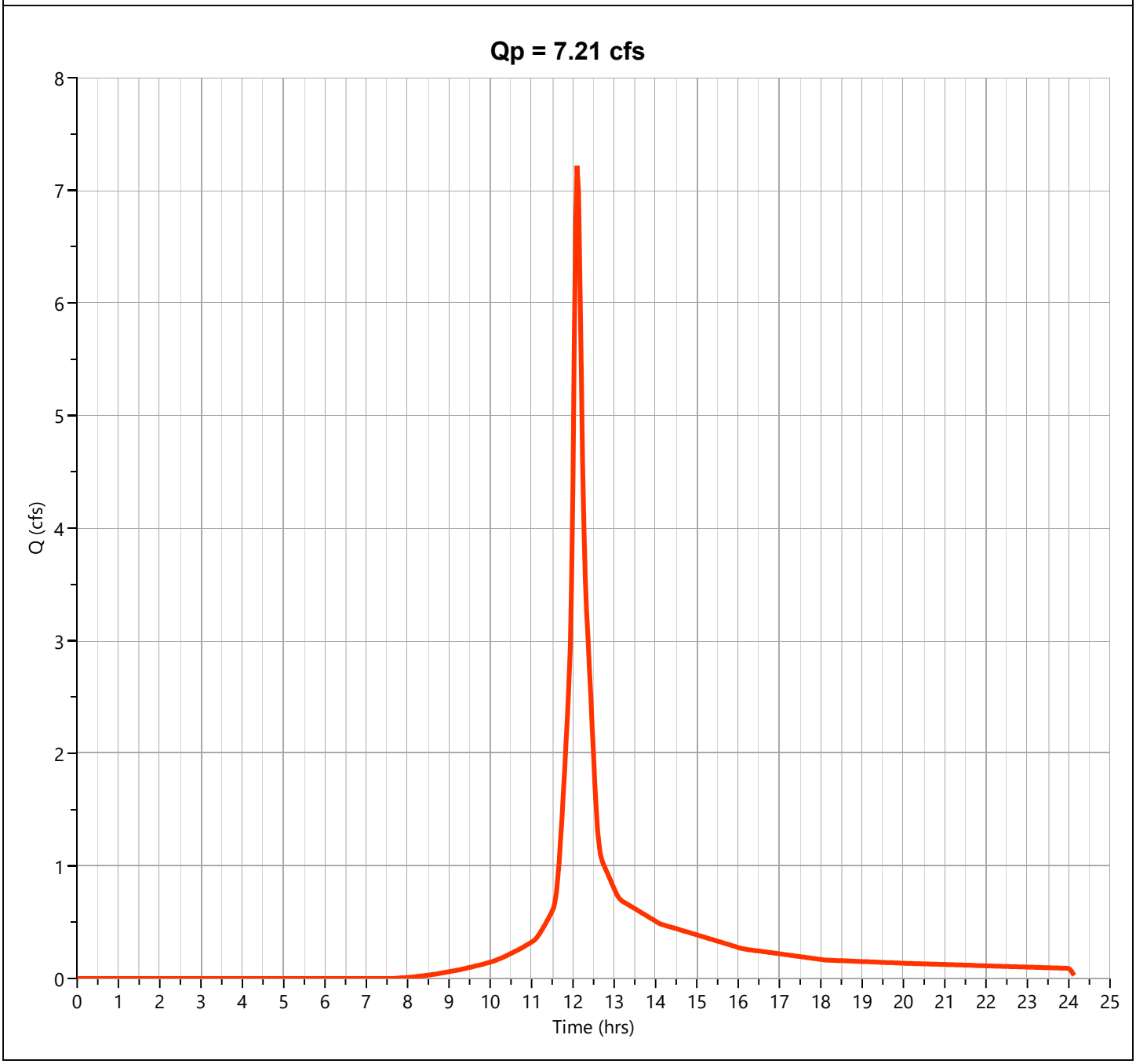
Hydrology Studio v 3.0.0.26

02-14-2023

Pre B (east)

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.215 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 24,635 cuft
Drainage Area	= 1.429 ac	Curve Number	= 70
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

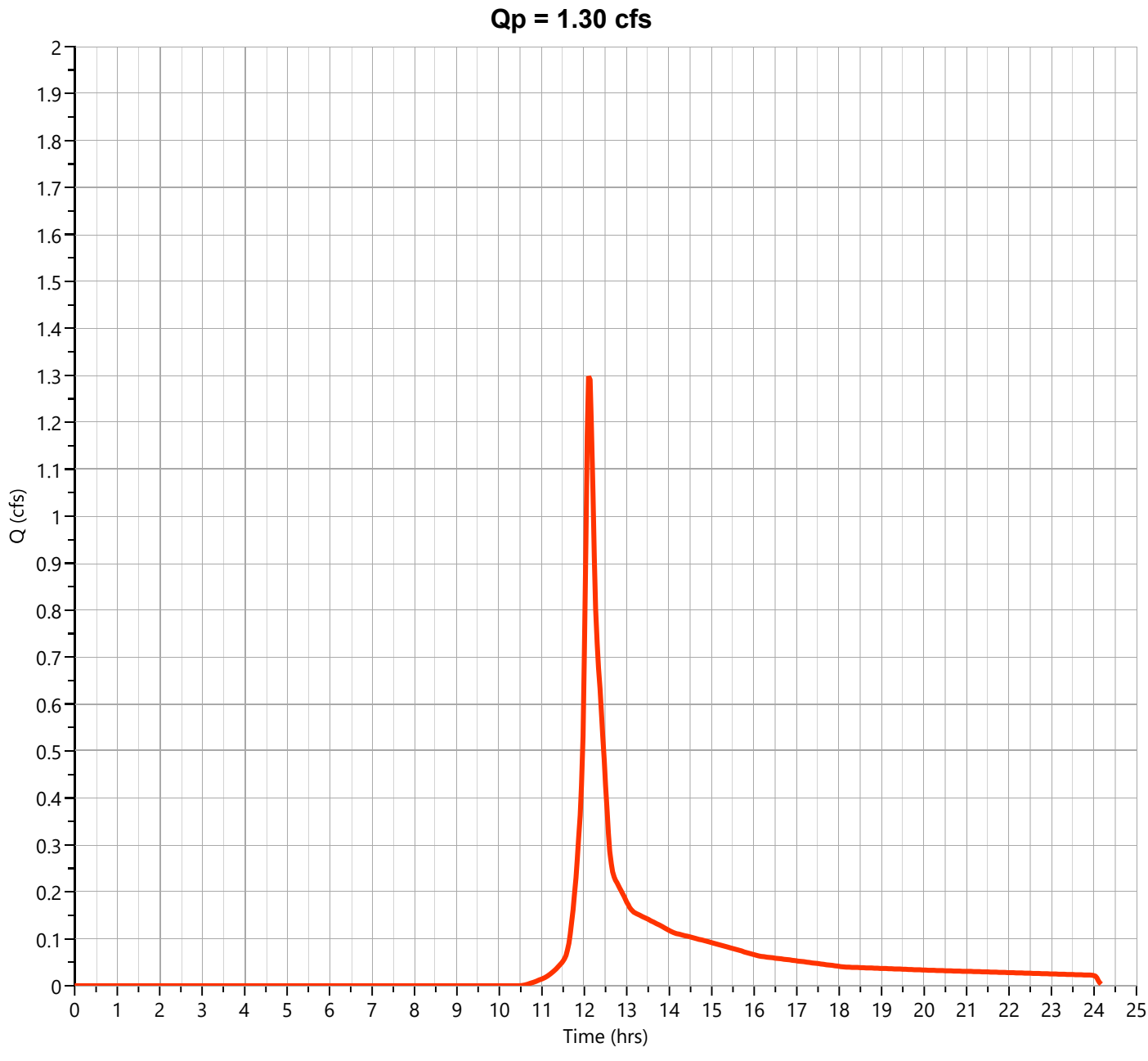
Hydrology Studio v 3.0.0.26

02-14-2023

Pre C (east)

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.298 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 4,684 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

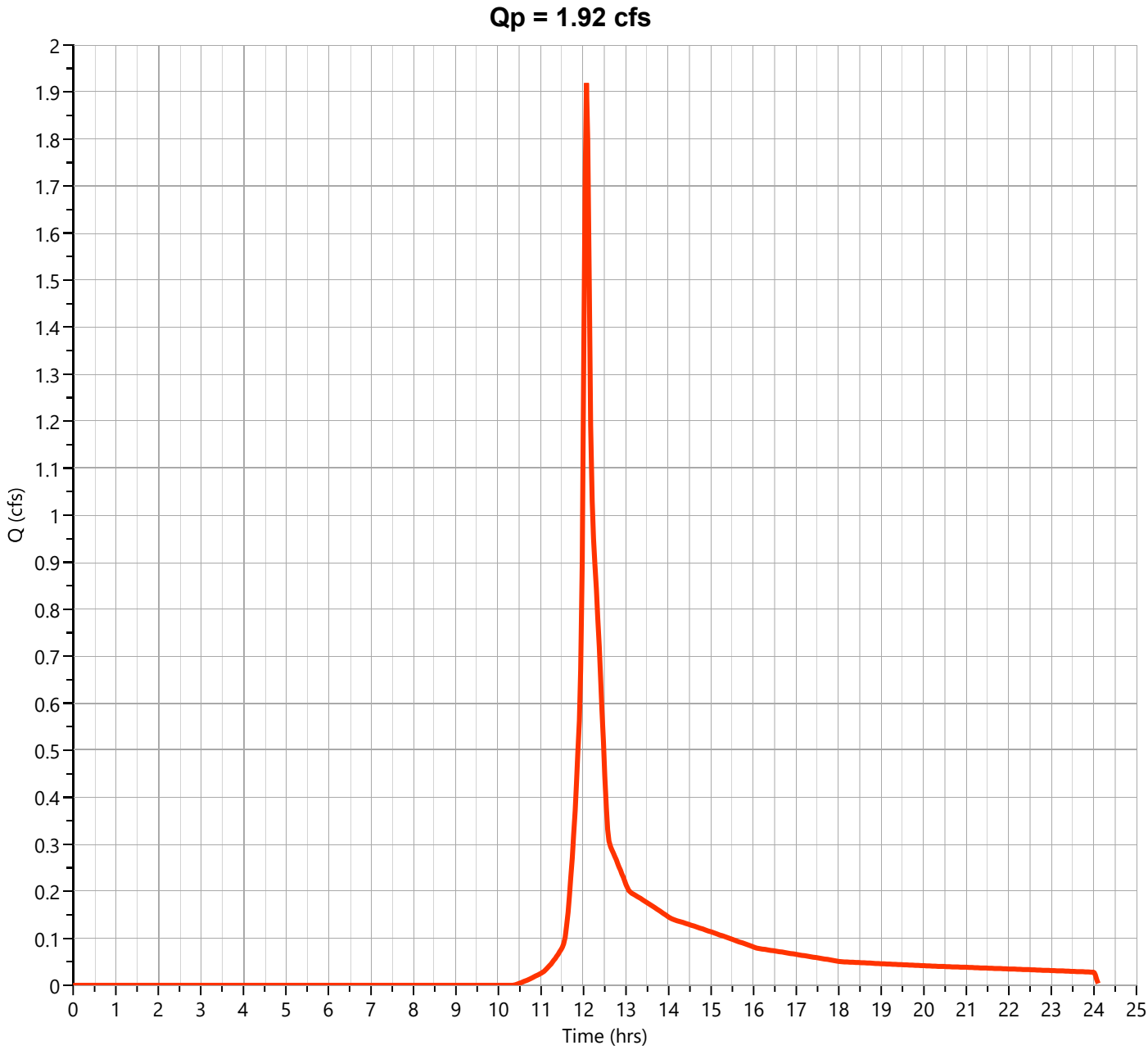
Hydrology Studio v 3.0.0.26

02-14-2023

Pre D (east)

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.918 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 5,959 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

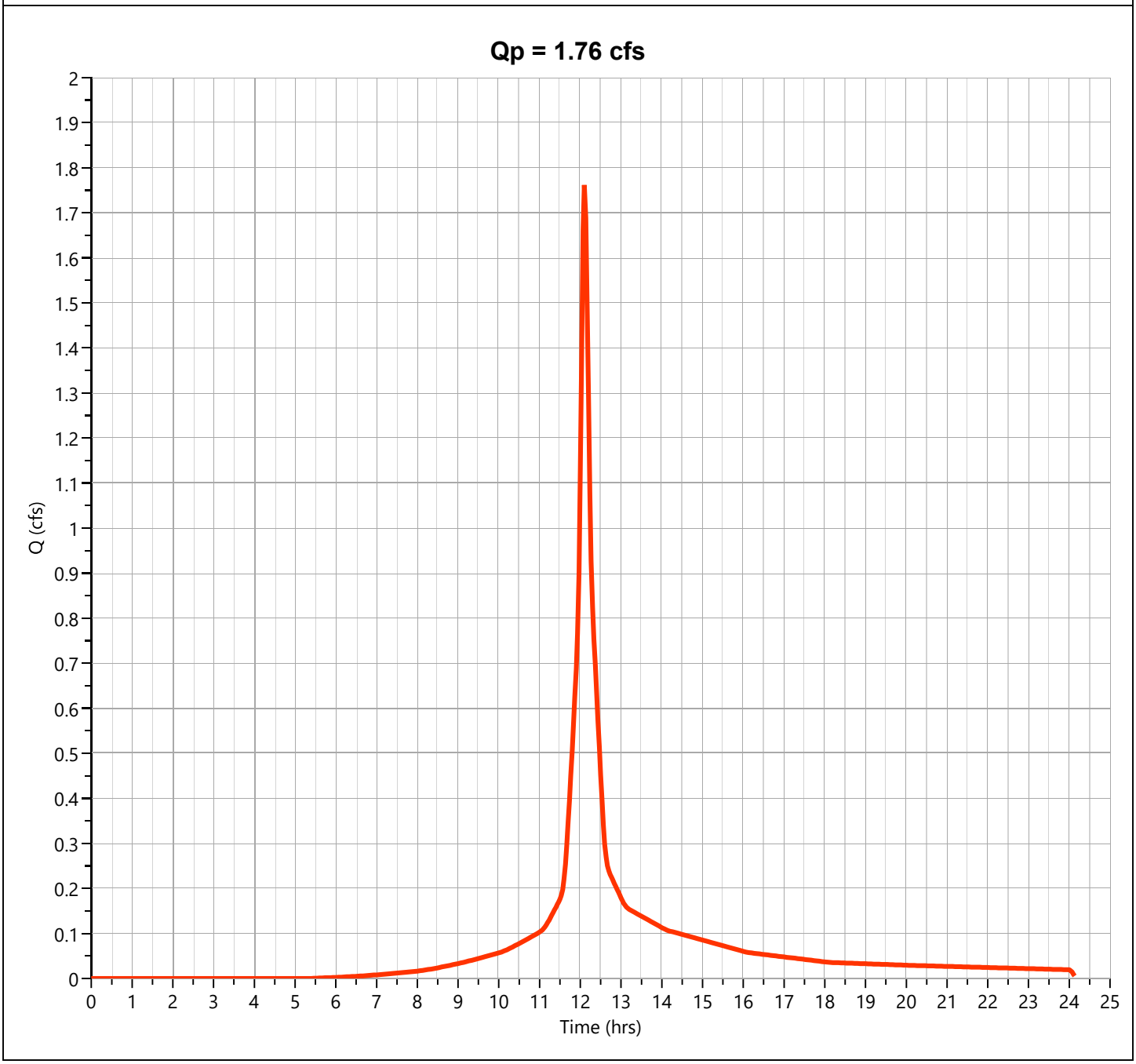
Hydrology Studio v 3.0.0.26

02-14-2023

Pre E (east)

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.761 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 6,119 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

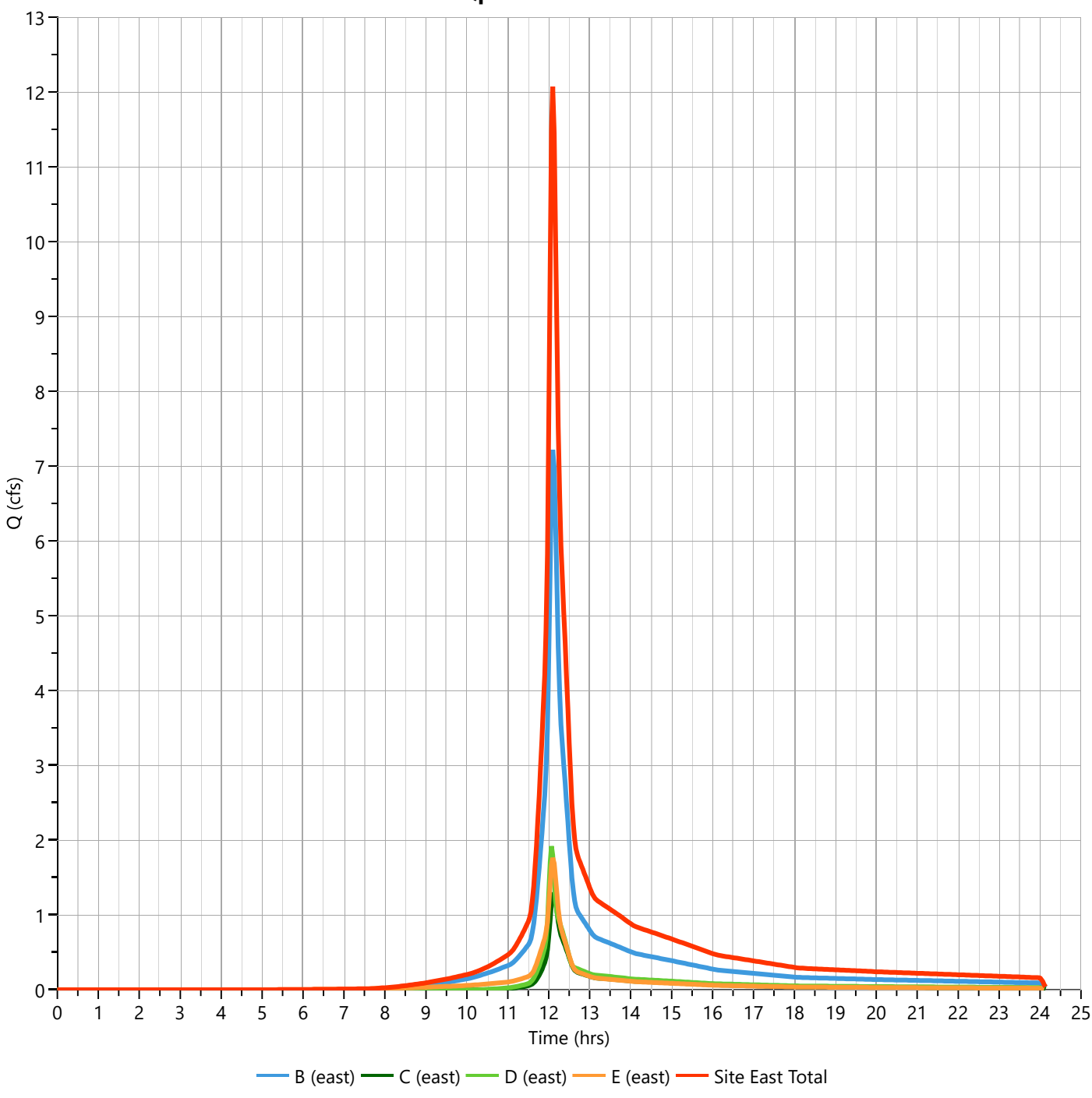
Hydrology Studio v 3.0.0.26

02-14-2023

Pre Site East Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 12.07 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 41,397 cuft
Inflow Hydrographs	= 2, 3, 4, 5	Total Contrib. Area	= 2.78 ac



Hydrograph Report

Project Name:

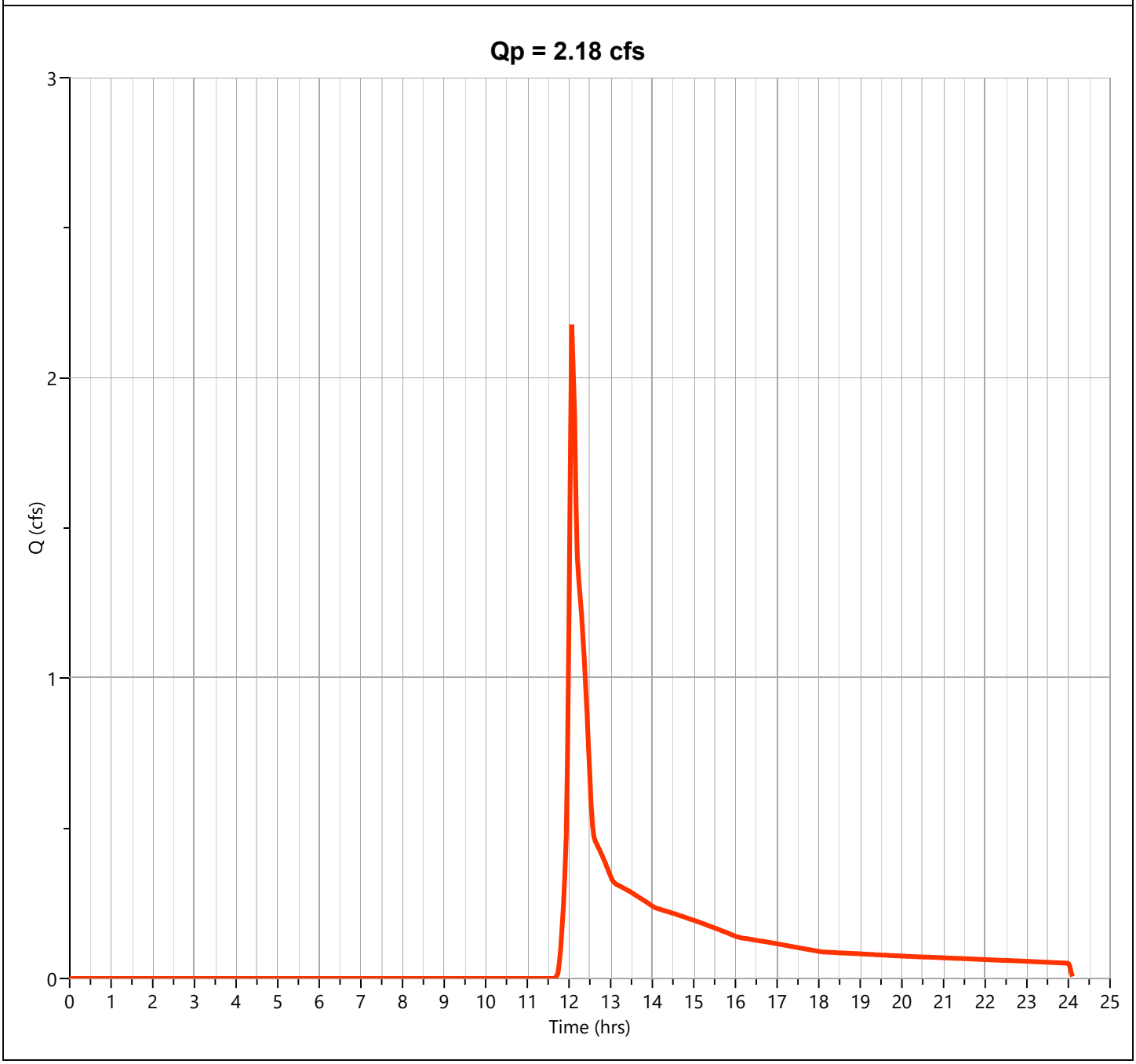
Hydrology Studio v 3.0.0.26

02-14-2023

Post Byp A (west)

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.177 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 8,331 cuft
Drainage Area	= 1.53 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

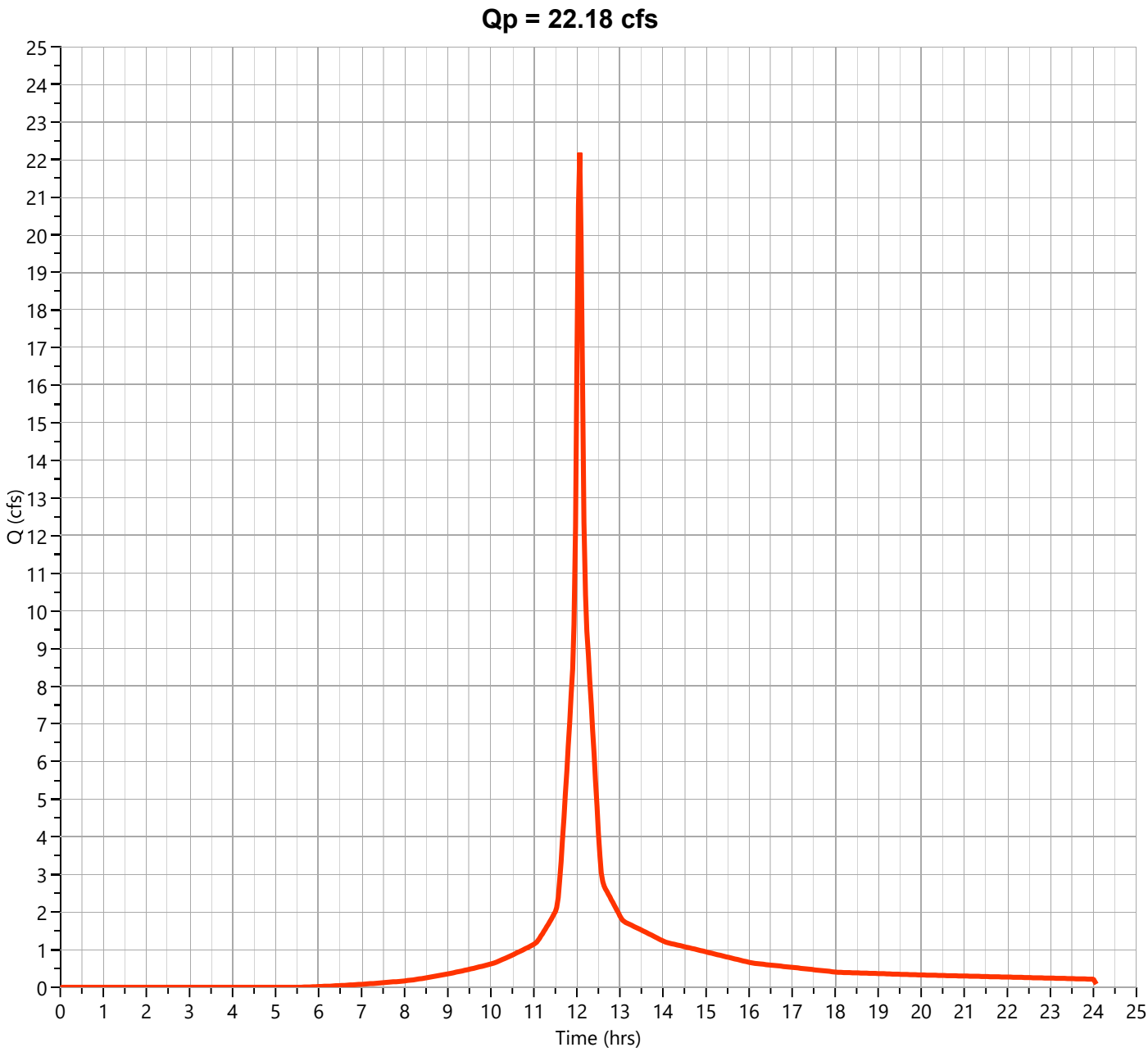
Hydrology Studio v 3.0.0.26

02-14-2023

Post Basin B (west)

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 22.18 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 67,491 cuft
Drainage Area	= 3.41 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

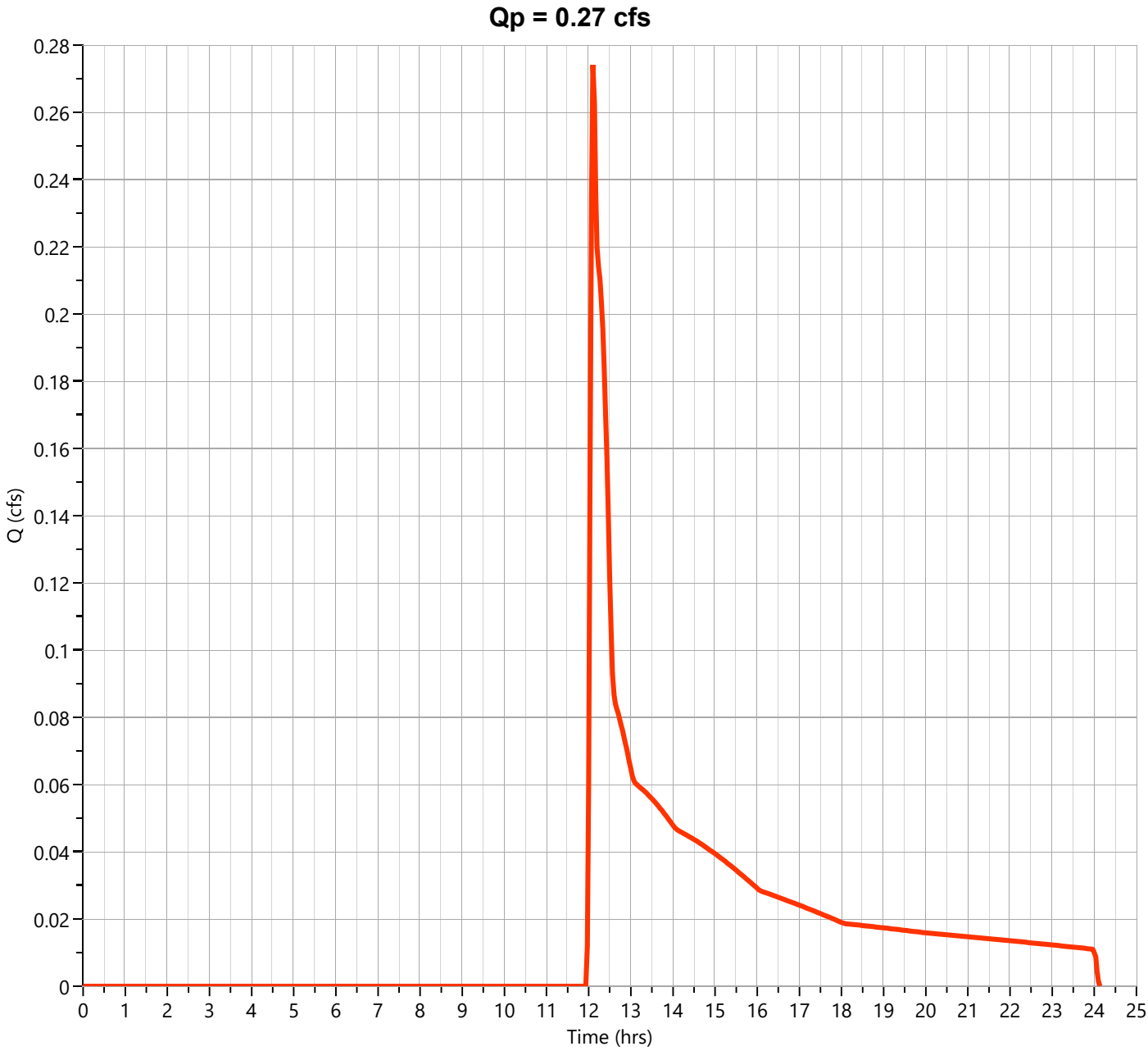
Hydrology Studio v 3.0.0.26

02-14-2023

Post B Bypass (east)

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.274 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,479 cuft
Drainage Area	= 0.43 ac	Curve Number	= 36
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

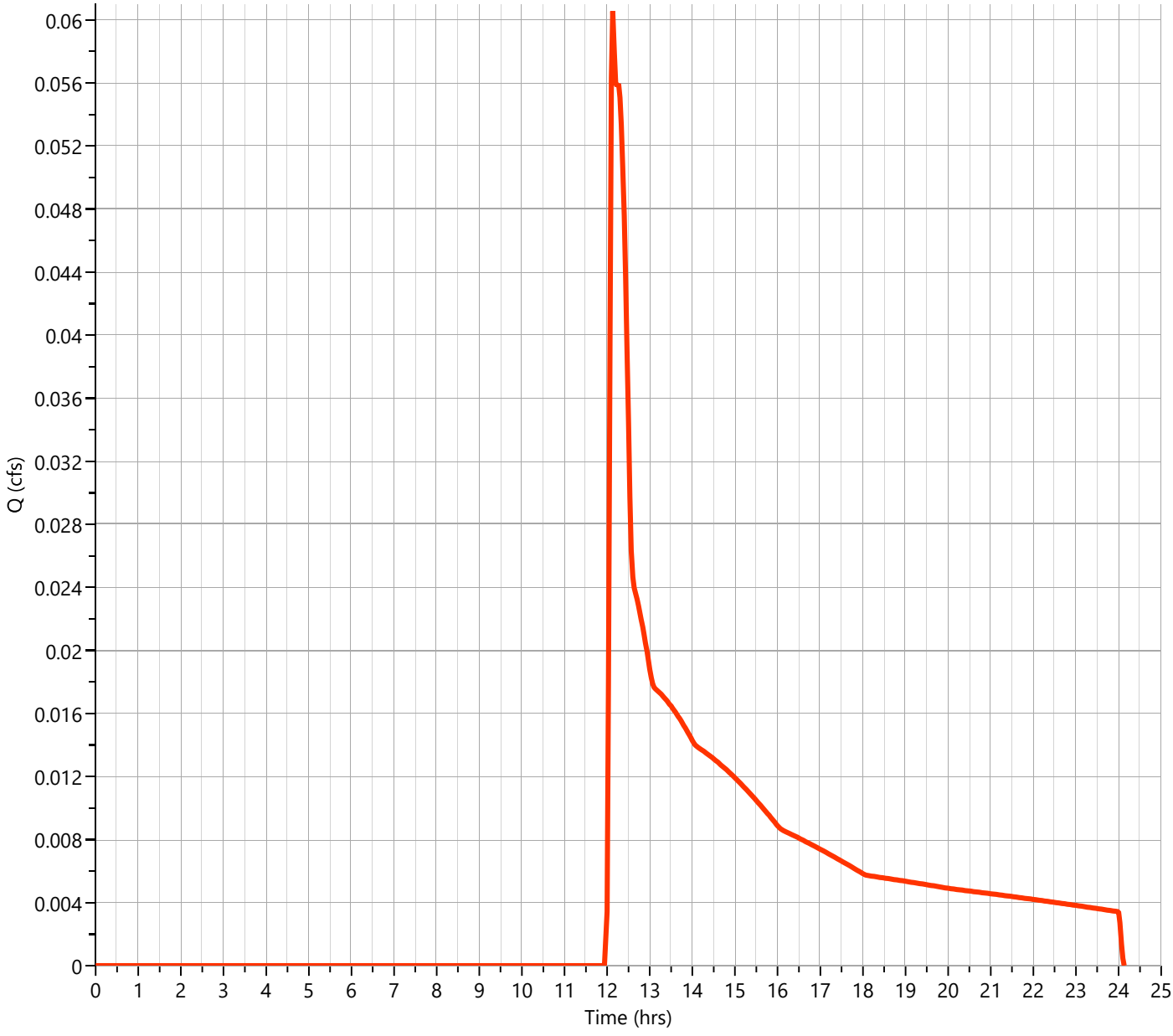
Hydrology Studio v 3.0.0.26

02-14-2023

Post C (east)

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.061 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 423 cuft
Drainage Area	= 0.15 ac	Curve Number	= 34
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

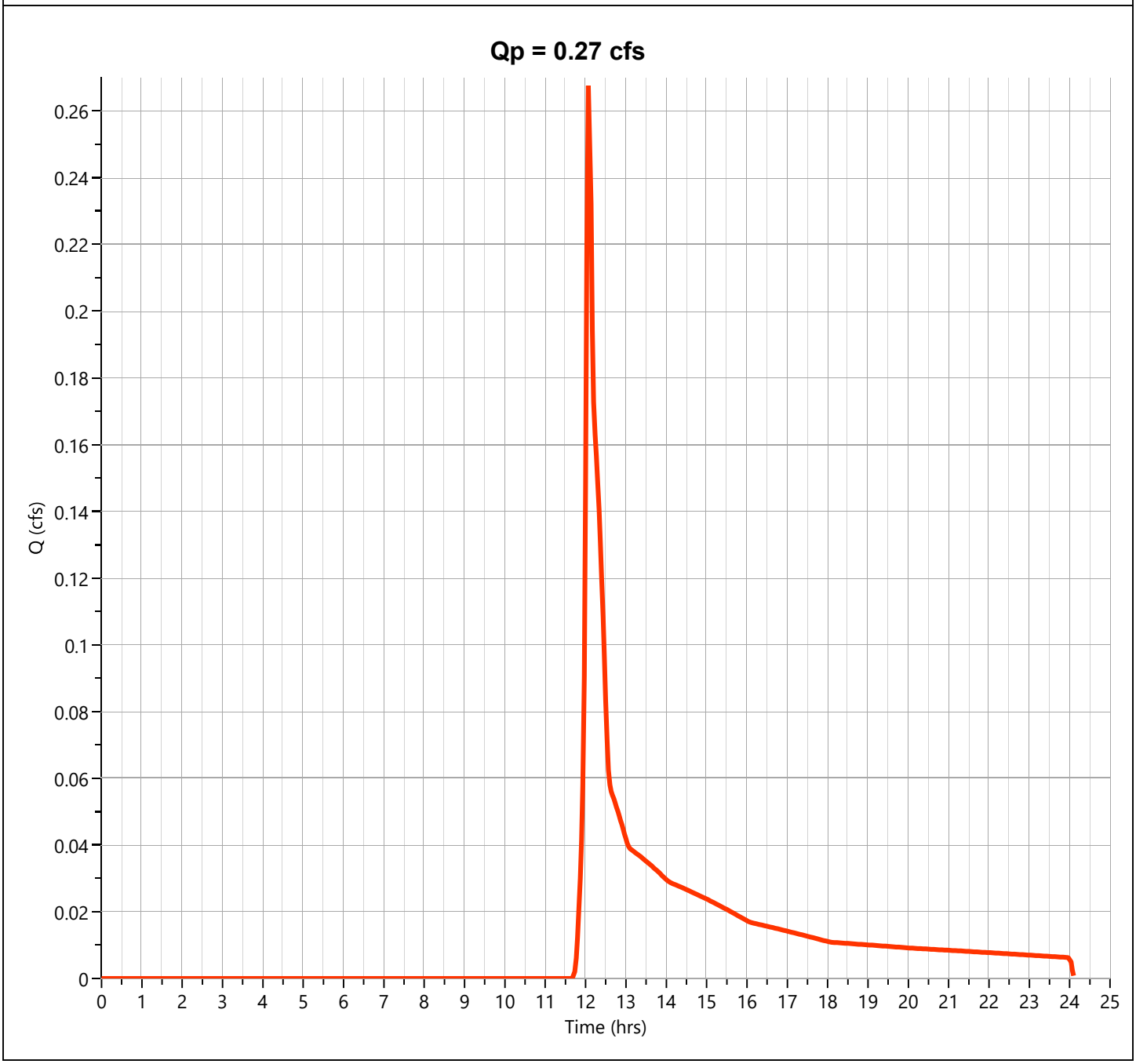
Hydrology Studio v 3.0.0.26

02-14-2023

Post D (east)

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.268 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 1,024 cuft
Drainage Area	= 0.188 ac	Curve Number	= 42
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

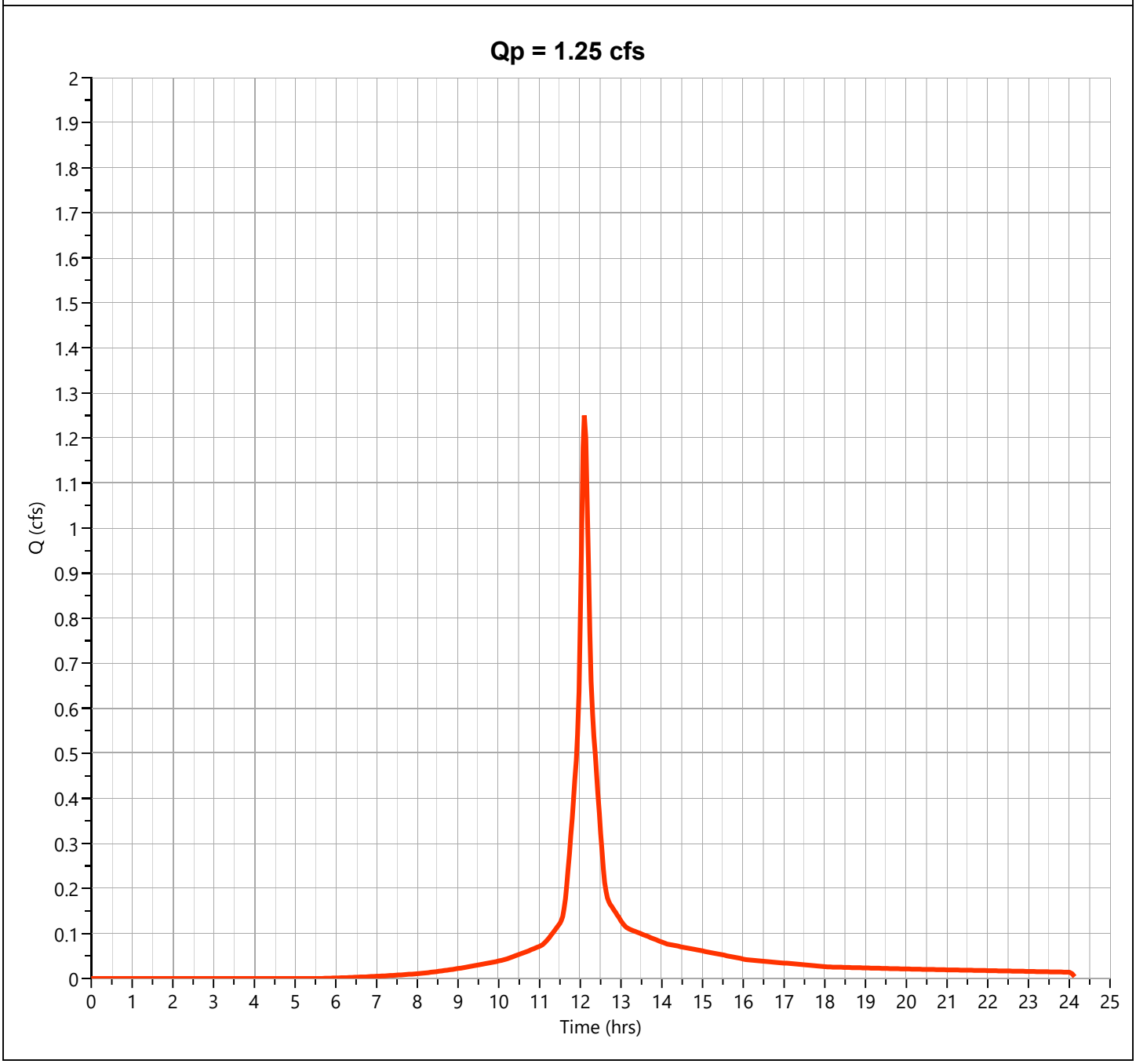
Hydrology Studio v 3.0.0.26

02-14-2023

Post E (east)

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.250 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 4,328 cuft
Drainage Area	= 0.205 ac	Curve Number	= 79
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 8.33 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

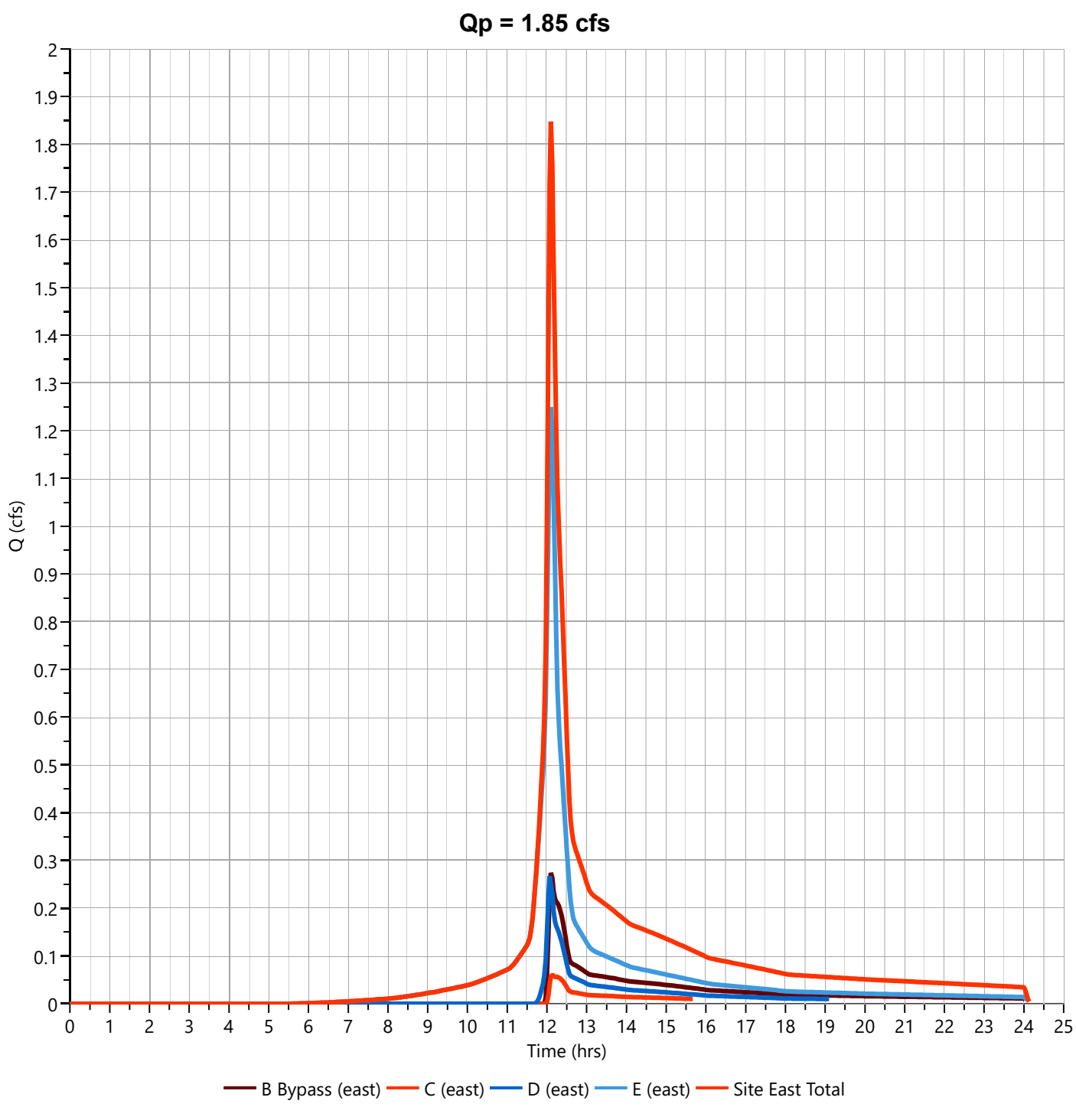
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site East Total

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 1.848 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 7,253 cuft
Inflow Hydrographs	= 9, 10, 11, 12	Total Contrib. Area	= 0.973 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

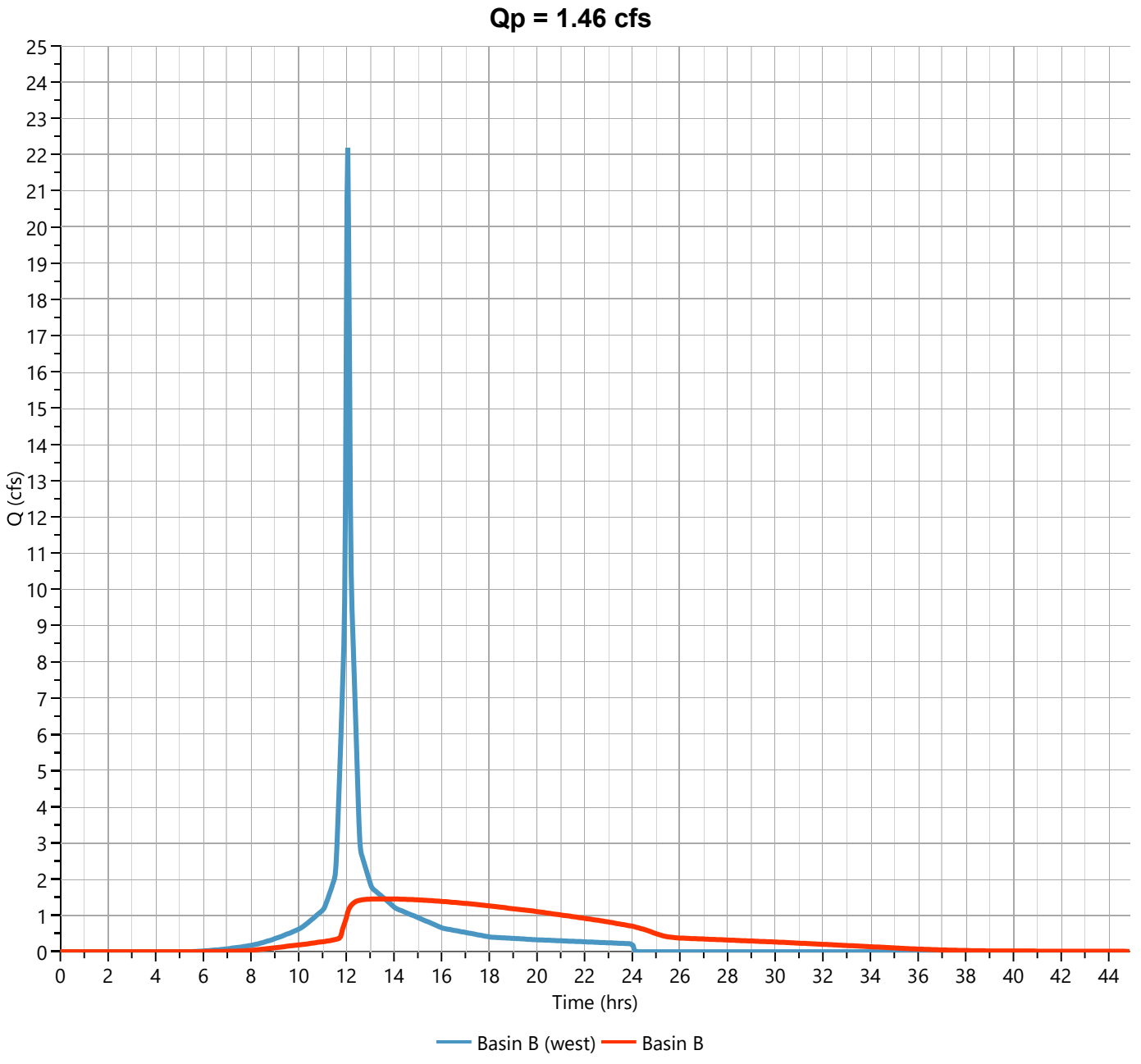
Post Basin B

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 1.455 cfs
Storm Frequency	= 100-yr	Time to Peak	= 13.60 hrs
Time Interval	= 2 min	Hydrograph Volume	= 67,472 cuft
Inflow Hydrograph	= 8 - Basin B (west)	Max. Elevation	= 486.77 ft
Pond Name	= Pond B	Max. Storage	= 43,036 cuft
Routing Option	= Wet Pond	Wet Pond Elevation	= 481.00 ft

Pond Routing by Storage Indication Method

Center of mass detention time = 5.86 hrs



Hydrograph Report

Project Name:

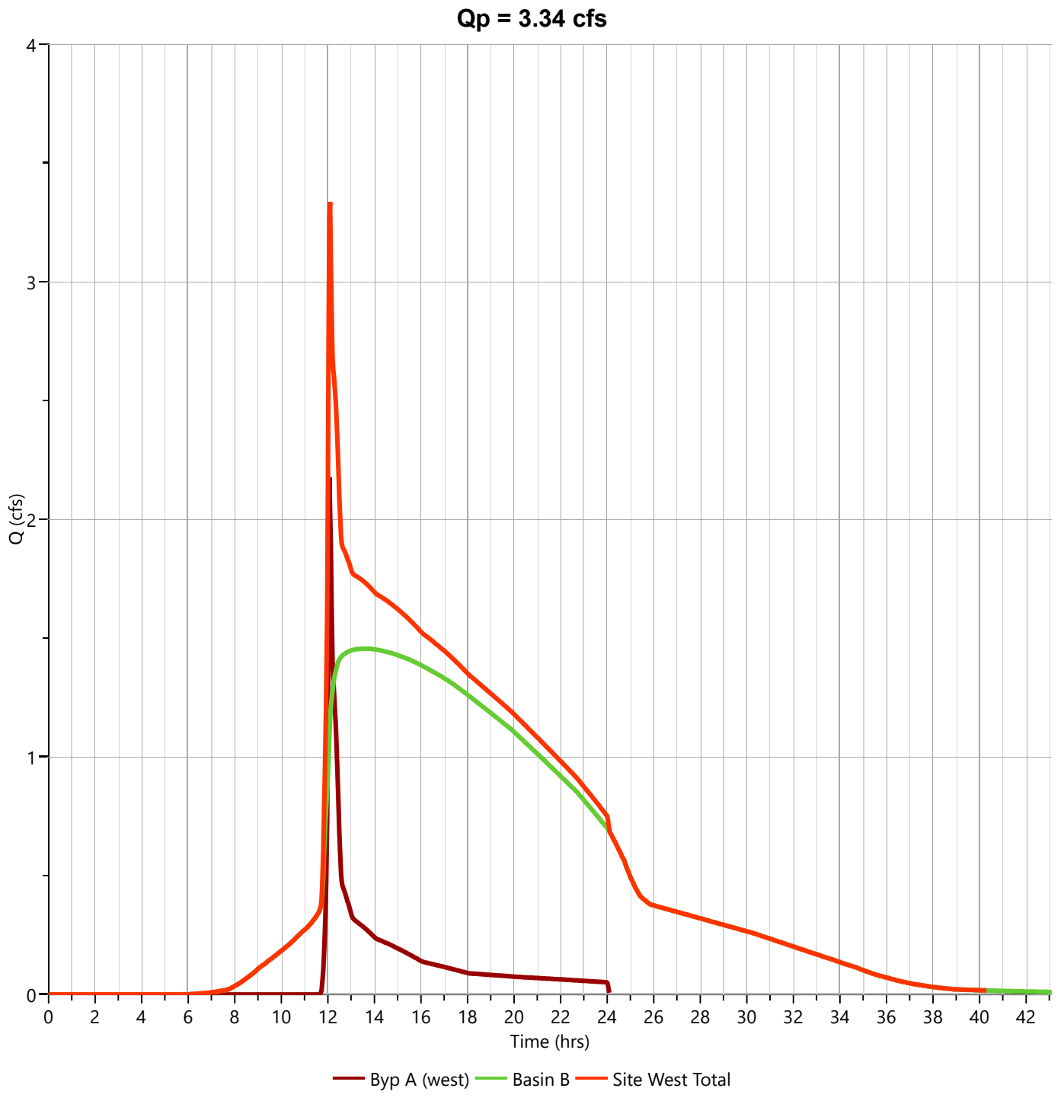
Hydrology Studio v 3.0.0.26

02-14-2023

Post Site West Total

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 3.335 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 75,802 cuft
Inflow Hydrographs	= 7, 14	Total Contrib. Area	= 1.53 ac



Storm Sewer Design Information

7

Inlet, Pipe, HGL Calculations

Storm Sewer Tabulation

Project Name: Enter Project Name...

Stormwater Studio 2022 v 3.0.0.29

02-14-2023

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
102-100	44.00	0.180	3.080	0.96	0.17	2.53	5.0	11.45	5.42	13.71	10.08	7.76	18	0.66	481.29	481.00	483.04	482.50	493.00	487.00	1
104-102	120.04	0.330	1.150	0.96	0.32	0.92	5.0	10.71	5.62	5.14	5.44	5.05	15	0.51	488.56	487.95	489.53	488.92	494.30	493.00	2
106-104	198.00	0.820	0.820	0.73	0.60	0.60	10.0	10.00	5.83	3.49	5.40	3.52	15	0.50	489.75	488.76	490.55	490.12	493.75	494.30	3
108-102	102.55	0.080	1.750	0.96	0.08	1.44	5.0	11.14	5.50	7.94	8.75	4.49	18	0.50	482.00	481.49	484.62	484.20	494.35	493.00	4
110-108	50.00	0.050	1.670	0.96	0.05	1.37	5.0	10.99	5.54	7.57	8.78	4.28	18	0.50	482.45	482.20	485.04	484.85	493.00	494.35	5
116-110	98.00	0.410	1.440	0.96	0.39	1.15	5.0	10.76	5.61	6.42	7.63	6.36	15	1.00	489.69	488.71	490.70	489.62	494.00	493.00	6
118-116	222.00	1.030	1.030	0.73	0.75	0.75	10.0	10.00	5.83	4.39	5.40	4.17	15	0.50	491.00	489.89	491.88	491.15	495.00	494.00	7
112-110	100.00	0.050	0.180	0.96	0.05	0.17	5.0	5.20	8.34	1.44	5.40	1.17	15	0.50	483.20	482.70	485.41	485.38	488.80	493.00	8
114-112	40.00	0.130	0.130	0.96	0.12	0.12	5.0	5.00	8.52	1.06	5.40	0.87	15	0.50	483.60	483.40	485.44	485.44	487.40	488.80	9

Notes: IDF File = PoughkeepsieNY.idf, Return Period = 25-yrs.

Hydraulic Calculations

8

Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

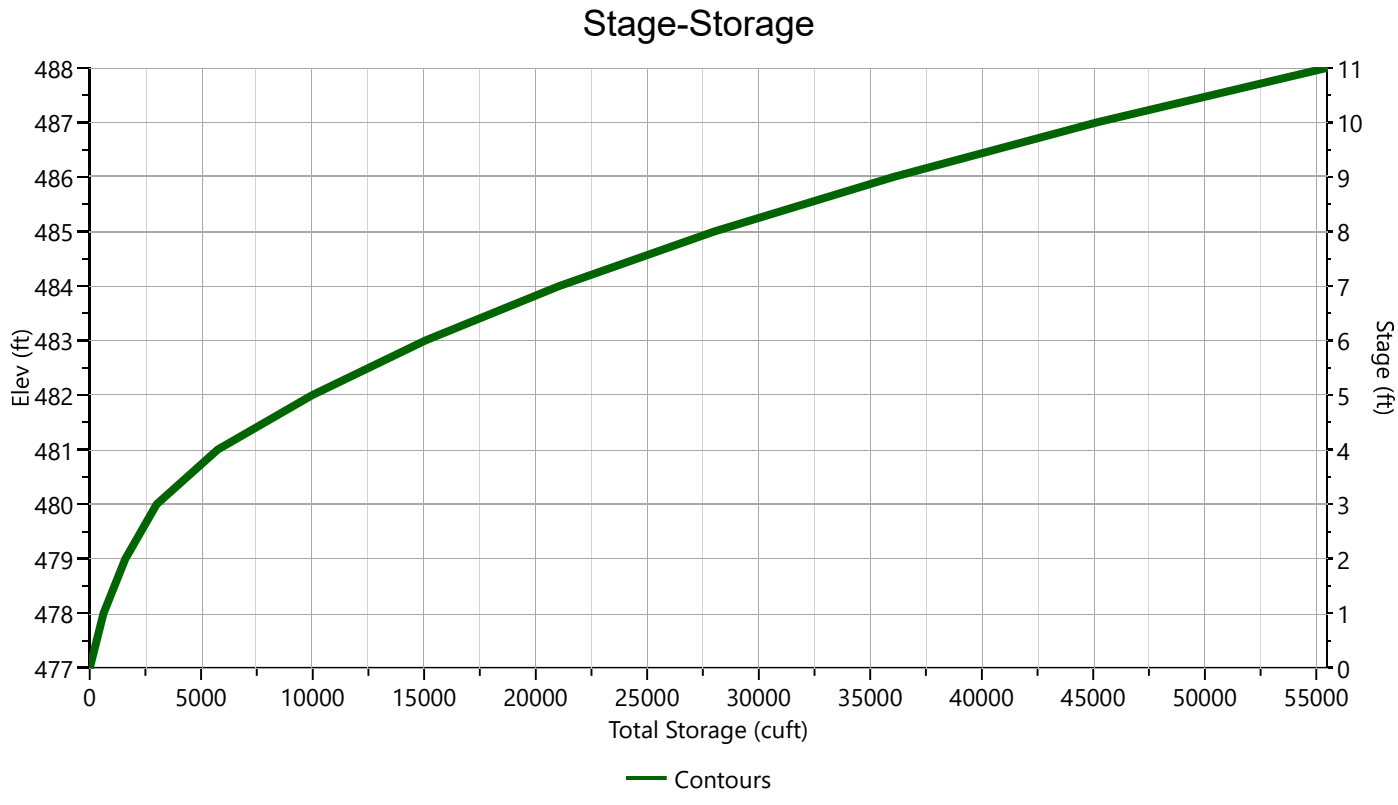
Pond B

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	477.00
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	477.00	476	0.000	0.000
1.00	478.00	772	624	624
2.00	479.00	1,173	973	1,597
3.00	480.00	1,653	1,413	3,010
4.00	481.00	3,826	2,740	5,749
5.00	482.00	4,638	4,232	9,981
6.00	483.00	5,516	5,077	15,058
7.00	484.00	6,465	5,991	21,049
8.00	485.00	7,483	6,974	28,023
9.00	486.00	8,563	8,023	36,046
10.00	487.00	9,700	9,132	45,177
11.00	488.00	10,905	10,303	55,480



Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

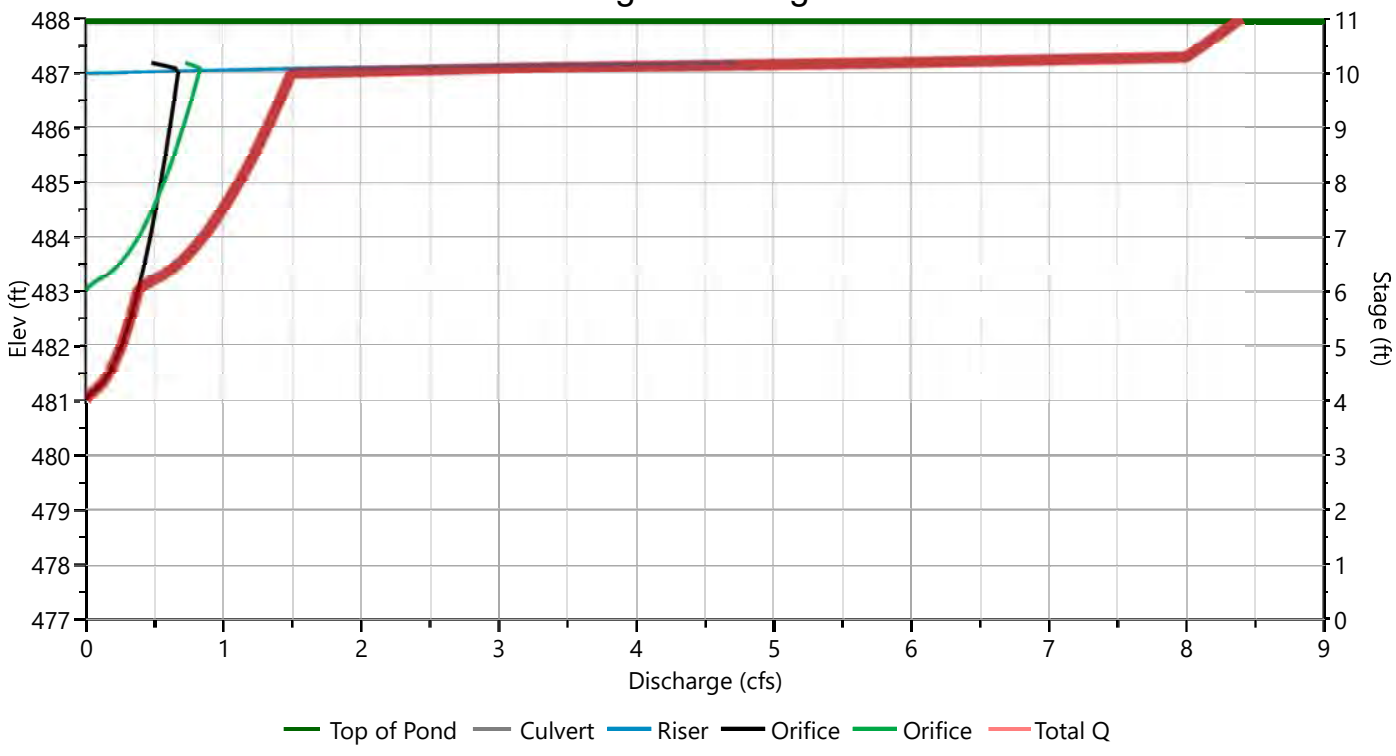
02-14-2023

Pond B

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Orifice Plate	
		1*	2*	3		
Rise, in	12	3.25	4		Orifice Dia, in	
Span, in	12	3.25	4		No. Orifices	
No. Barrels	1	1	1		Invert Elevation, ft	
Invert Elevation, ft	480.00	481.00	483.00		Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60		Orifice Coefficient, Co	
Length, ft	88					
Barrel Slope, %	.57					
N-Value, n	0.013					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1	2	3		
Shape / Type	Box				Exfiltration, in/hr	
Crest Elevation, ft	487					
Crest Length, ft	16					
Angle, deg						
Weir Coefficient, Cw	3.3					

**Routes through Culvert.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

Pond B

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	477.00	0.000	0.000	0.000	0.000		0.000							0.000
1.00	478.00	624	0.000	0.000	0.000		0.000							0.000
2.00	479.00	1,597	0.000	0.000	0.000		0.000							0.000
3.00	480.00	3,010	0.000	0.000	0.000		0.000							0.000
4.00	481.00	5,749	0.000	0.000	0.000		0.000							0.000
5.00	482.00	9,981	0.258 ic	0.258	0.000		0.000							0.258
6.00	483.00	15,058	0.379 ic	0.379	0.000		0.000							0.379
7.00	484.00	21,049	0.853 ic	0.469	0.384		0.000							0.853
8.00	485.00	28,023	1.114 ic	0.545	0.569		0.000							1.114
9.00	486.00	36,046	1.319 ic	0.612	0.707		0.000							1.319
10.00	487.00	45,177	1.494 ic	0.672	0.823		0.000							1.494
11.00	488.00	55,480	8.396 oc	0.000	0.000		0.000							8.396

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

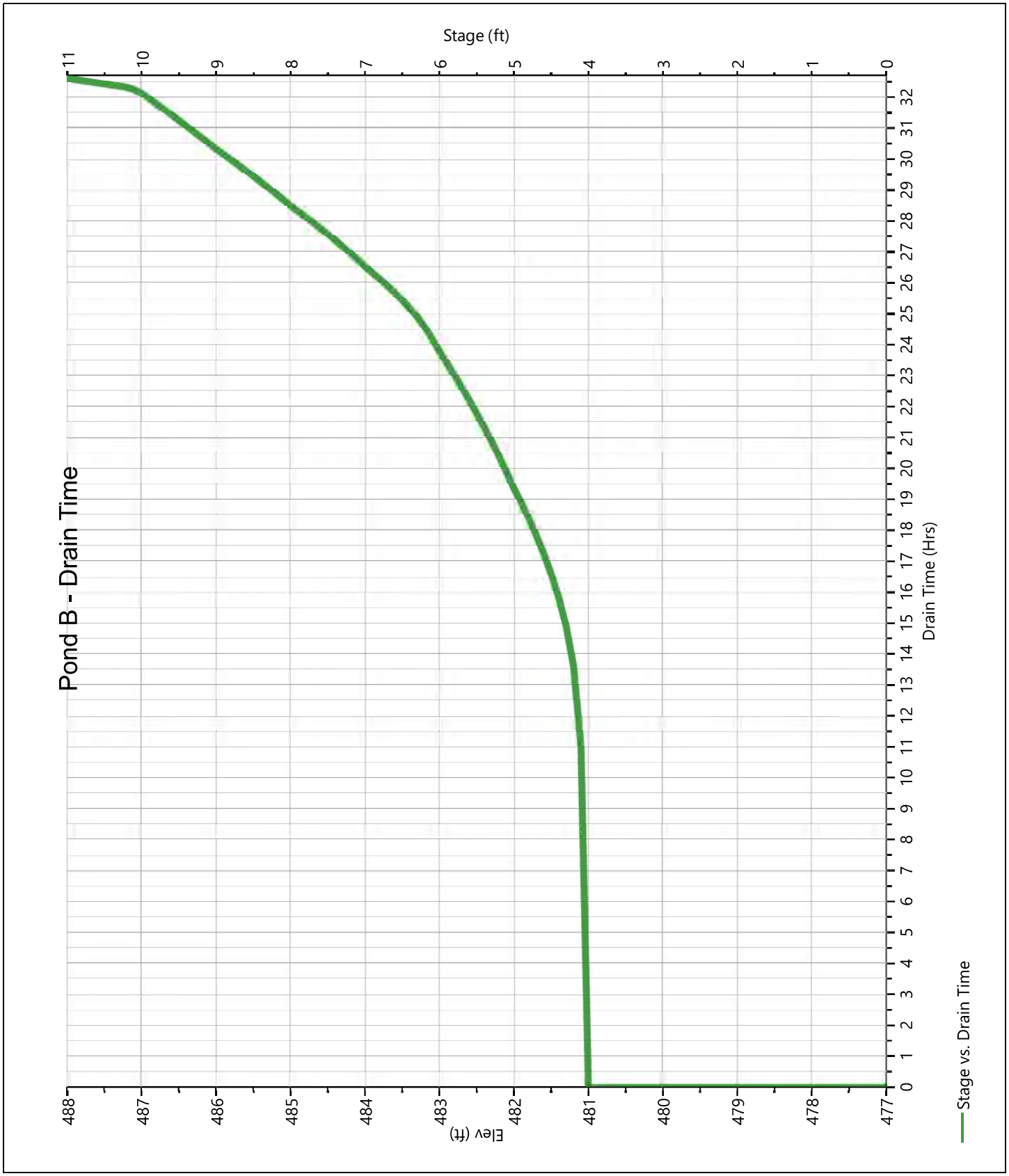
Project Name:

Hydrology Studio v 3.0.0.26

02-14-2023

Pond B

Pond Drawdown

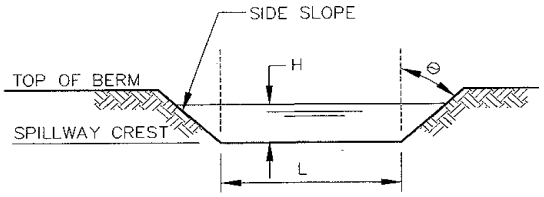


Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/15/2022
Chk'd: X.X.X.
Rev'd 2/14/2023

EMERGENCY SPILLWAY CALCULATION

Formula:
$Q = 2.7\ LH^{3/2}$



Basin Identification: Basin A

Water Surface Elevation (Ft.)	Discharge Q (CFS)
487.50	0.0
487.60	3.0
487.70	8.5
487.80	15.5
487.90	23.9
488.00	33.4

Q_{100} to the Basin: 22.18
Top of Berm Elevation: 488.00
Spillway Crest Elevation: 487.50
Spillway Bottom Width (L): 35.0
Spillway Side Slope Run: 5.00
Spillway Side Slope Rise: 0.50
Side Angle (q): 84.29

100 Year WSE:	**487.88**
Freeboard to Top of Berm (Ft.):	**0.12**

Natural Environ Constrain Analysis

9

Nautilus Environmental Group, LLC

HELPING YOU ACHIEVE YOUR GOALS

December 7, 2021

Neil E. Sander, PE
President
Independence Engineering, LLC
102 Farnsworth Avenue, Suite 310
Bordentown, NJ 08505

Re: Natural Environ Constraint Analysis
226 State Route 17K, Town of Newburgh, Orange County, NY

Dear Mr. Sander:

Thank you for your continued interest in the professional environmental services of Nautilus Environmental Group, LLC (Nautilus). Below is a summary of the Natural Environ Constraint Analysis (NECA) for 226 Route 17K (Parcel IDs 89-1-64 and 89-1-65), Town of Newburgh, Orange County, New York (Subject Property).

1.0 Introduction

The purpose of the NECA was to establish limitations for site redevelopment relating to potential natural constraints (e.g., wetlands, streams and 100-year floodplains, etc.) and to develop engineering plans in conformance with applicable federal, state and municipal regulations.

Nautilus completed the following services related to the NECA: 1) reviewed previous wetland-related approvals or wetland reports generated by other consultants if available to see how they may assist or impact the assessments; 2) reviewed the New York State and National Wetland Inventory wetland mapping; 3) reviewed the United States Fish & Wildlife Service iPAC online data portal for threatened and endangered species; 4) reviewed the New York State Environmental Mapper online data portal for threatened and endangered species 5) conducted an inspection of the property to approximate any wetlands or waters regulated by the United States Army Corps of Engineers (USACE) or New York State Department of Environmental Conservation (NYSDEC); 6) conducted a preliminary habitat evaluation for any rare species listed on iPAC and the NYSDEC Environmental Resource Mapper; 7) United States Department of Agriculture Natural Resources Conservation Services Web Soil mapping information pertaining to soils; and 8) a site reconnaissance.

2.0 Data Presentation

Site Location and Description

The Subject Property, located at 226 Route 17K, Town of Newburgh, Orange County, NY (Parcel IDs 89-1-64 and 89-1-65), is 5.91 acres in size and maintains the Landscape Home and Garden Center (Figures 1, 2 and 3, Attachment A and Photographs 1 through 12, Attachment B).

Topography and Slopes
The topography ranges from 476 ft. above mean sea level to 500 ft. (Figure 4, Attachment A). There are some apparent steep slopes located proximate to the stream corridor along the western boundary and the Subject Property's eastern boundary. The Town of Newburgh does not have steep slope limitations and their area can be used for bulk density calculations. In addition, grading within areas that have steep slopes are permitted in the Town of Newburgh. Thus, the steep slope areas on the Subject Property should not be a considered a constraint.

Soils
The United States Department of Agriculture has mapped soils throughout the state of New York and provided the results to each county specifically in Orange County (United States Department of Agriculture, 1912). This original soil data is presented on the Natural Resources Conservation Services Web Soil Survey (Figure 5, Attachment A), this property contains the following soils:

Erie extremely stony soils, gently sloping (ESB)
Hydrologic Soil Group: D
Hydric Soil Rating: No
Depth to Water Table: 6 to 18 inches

Udifluvents-Fluvaquents Complex, Frequently Flooded (UF)
Hydrologic Soil Group: A
Hydric Soil Rating: No
Depth to Water Table: 24 to 72 inches

The vast majority of the Subject Property are composed of UF soils including the level ground currently being utilized by the current landscaping operation and the areas proximate to the stream corridor. Based on the topography and observations collected during the reconnaissance, the frequently flooded portion of this soil type is anticipated to be restricted to the stream corridor and should be considered a constraint.

It is recommended that test pits be performed on the Subject Property as part of the on-going due diligence to determine potential impacts pertaining to site development such a foundations and stormwater basins.

Streams and Floodplains
According to the NYSDEC Environmental Resource Mapper and the Site Plan (Figure 3, Attachment A) provided by the Client, a stream is located along the Subject Property's western boundary (Figure 6, Attachment A), which is designated as a Class C stream according to NYSDEC. Stream classes are defined by the NYSDEC based on existing or best usage. The classification AA or A is assigned to waters used as a source of drinking water. Classification B indicates a best usage for swimming and other contact recreation, but not for drinking water. Classification C is for waters supporting fisheries and suitable for non - contact activities and does not have a regulated riparian buffer. The lowest classification and standard is Class D. The stream corridor should be considered a constraint.

Review of the FEMA Firm Panel 36071C0138E (dated August 3, 2009) shows that the western boundary of the Subject Property is located within a flood zone designated as A (100-year floodplain), (Figure 7, Attachment A). The portions of the Subject Property that are classified as being within the 100-year flood zone and the stream should be considered a constraint.

Wetlands
According to the NYSDEC Environmental Resource Mapper, a wetland corridor is located along the Subject Property's western boundary (Figure 8, Attachment A), which is designated as a Riverine National Wetlands Inventory (NWI) wetland. These wetland areas are congruent with the stream corridor. Based on

observations during the reconnaissance, this digital mapping of the NWI wetland is fairly accurate along the western boundary of the Subject Property. NWI wetlands in New York State do not require a wetland buffer. Also, additional wetlands were observed along the eastern and northern boundary of the Subject Property, which will not have a wetland buffer. Thus, the wetland areas should be considered a constraint.

More importantly, there are no New York State Designated wetlands on the Subject Property which would have required a 100 foot buffer. Figure 8 (Attachment A) shows that a portion of the Subject Property is located within an area designated as "regional areas proximate to NYSDEC wetlands." However, this designation should not be considered a constraint for site development purposes from a regulatory perspective.

All of the wetland areas will be regulated by the USACE. Section 404 of the Clean Water Act requires the USACE authorization for the discharge of dredged or fill material into waters of the United States. Waters of the United States include wetlands, intermittent and perennial streams, ponds, rivers, lakes and the territorial seas. Activities in waters of the United States for which permits may be required include, but are not limited to, placement of fill material, land clearing involving relocation of soil, road construction, shoreline erosion control, mining, utility line or pipeline construction and other activities which result in a discharge of fill material. Discharges of fill material are regulated under Section 404 for all waters of the United States regardless of size.

The Corps uses three characteristics to determine if an area is a wetland: vegetation, soil and hydrology. Unless an area has been altered or is a rare natural situation, indicators of all three characteristics must be present for an area to be a wetland. They are:

Vegetation
Wetland vegetation consists of plants that require saturated soils to survive as well as plants that gain a competitive advantage over others because they can tolerate prolonged wet soil conditions. Wetland vegetation may also exhibit physical adaptations that indicate the presence of water. These adaptations include shallow root systems, swollen trunks or roots growing from the plant stem or trunk above the soil surface.

Soils
Soils that occur in wetlands are called hydric soils. Hydric soils have characteristics that indicate they were developed in conditions where soil oxygen is/or was limited by the presence of water for long periods of the growing season.

Hydrology
Wetland hydrology refers to the presence of water, either above the soil surface or within the soil, but near the surface (12 to 18 inches below the soil surface, depending on the soil type) for a sufficient period of the year to deprive the soils of oxygen and significantly influence the plant types that occur in the area.

Therefore, a wetland delineation (including a boundary / topography survey and wetland flag locations) should be performed, and an application submitted to USACE to memorialize the location of these wetlands.

Wildlife Habitats of Potential Importance
A red maple swamp (designated by the NYSDEC as a "significant natural community") is located approximately 1,800 feet to the north of the Subject Property (Figure 9, Attachment A) and should not be considered a constraint.

The Subject Property is located within an area defined as being in the vicinity of bats (Indiana Bat and Northern Long-Eared Bat) listed as endangered or threatened (Figure 10, Attachment A). The mature trees on the Subject Property have the potential to provide habitat for these specific bats are are generally located along the western and eastern property boundaries and within steep slope areas. Mature trees can be removed from the Subject Property outside of the restricted dates (i.e., November 1 through March 31). Thus, mature trees should not be considered a constraint.

3.0 Constraints Map

Nautilus has prepared a site-specific constraints map showing areas that should be considered undevelopable (Figure 11, Attachment A). These constrained lands are composed of a stream corridor, 100-year floodplain and wetlands (to be regulated by the USACE).

4.0 Potential Anthropogenic Impacts

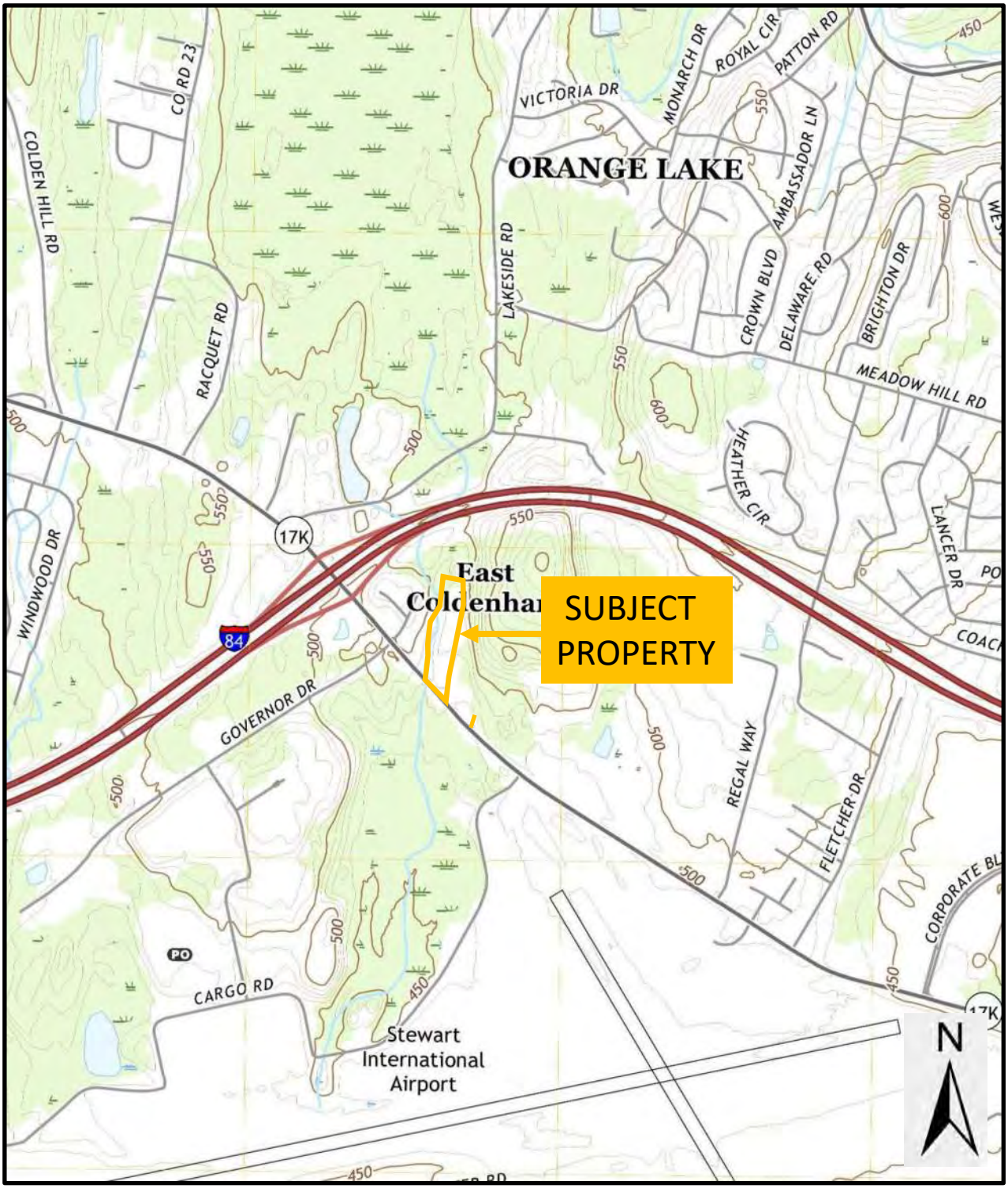
In addition to the natural environ constraints, several potential anthropogenic impacts may exist on the Subject Property including storage tanks and residual pesticides as a result of the commercial activities associated with the landscaping operations. Thus, a Phase I Environmental Site Assessment (Phase I ESA) should be performed in conformance with the scope of American Society for Testing and Materials (ASTM) E1527-13 Standard, which defines a Recognized Environmental Condition (REC) as: "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property". The completion of the Phase I ESA can assist the purchaser in identifying areas that could impact redevelopment and assist in purchase price negotiations.

Thank you again for your interest in Nautilus. If you have any questions regarding anything herein, please do not hesitate to contact me at 609.608.6081 or via e-mail at rkertes@nautilusenvgroup.com.

Sincerely,
NAUTILUS ENVIRONMENTAL GROUP, LLC

Randy S. Kertes, P.G., C.P.G.
PRINCIPAL

ATTACHMENT A



Approximate Scale: 1,000 FEET

Source: NJDEP 2019 USGS TOPOGRAPHIC MAP, NEWBURGH, NY

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FIGURE 1
USGS LOCATION
MAP

Approximate Scale: 500 feet

Source: NYSDEC ENVIRONMENTAL RESOURCE MAPPER, DECEMBER 2021

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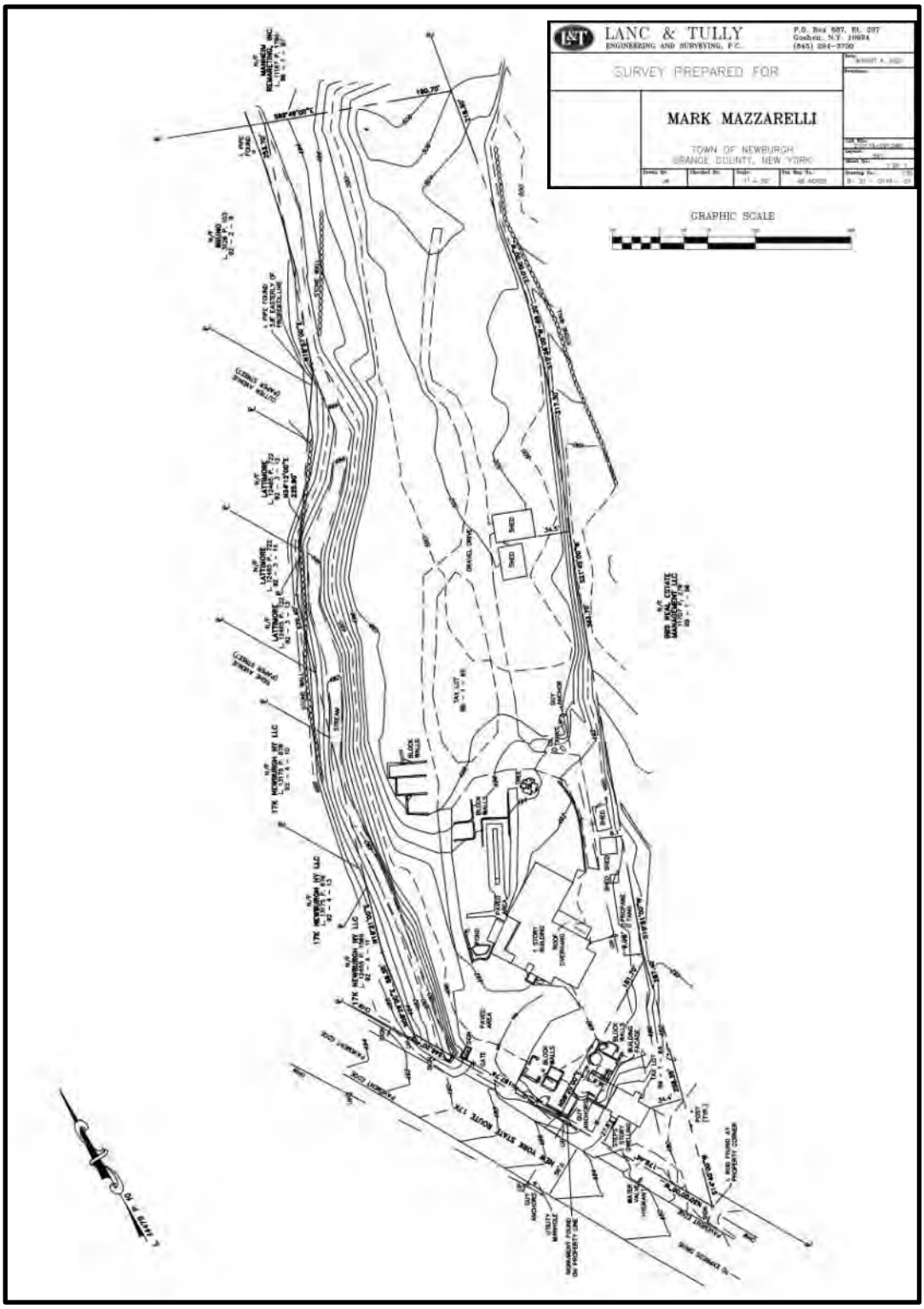
FIGURE 2
COMPOSITE
TAX / AERIAL MAP



Source: SITE SURVEY, LANC & TULLY, AUGUST 4, 2021

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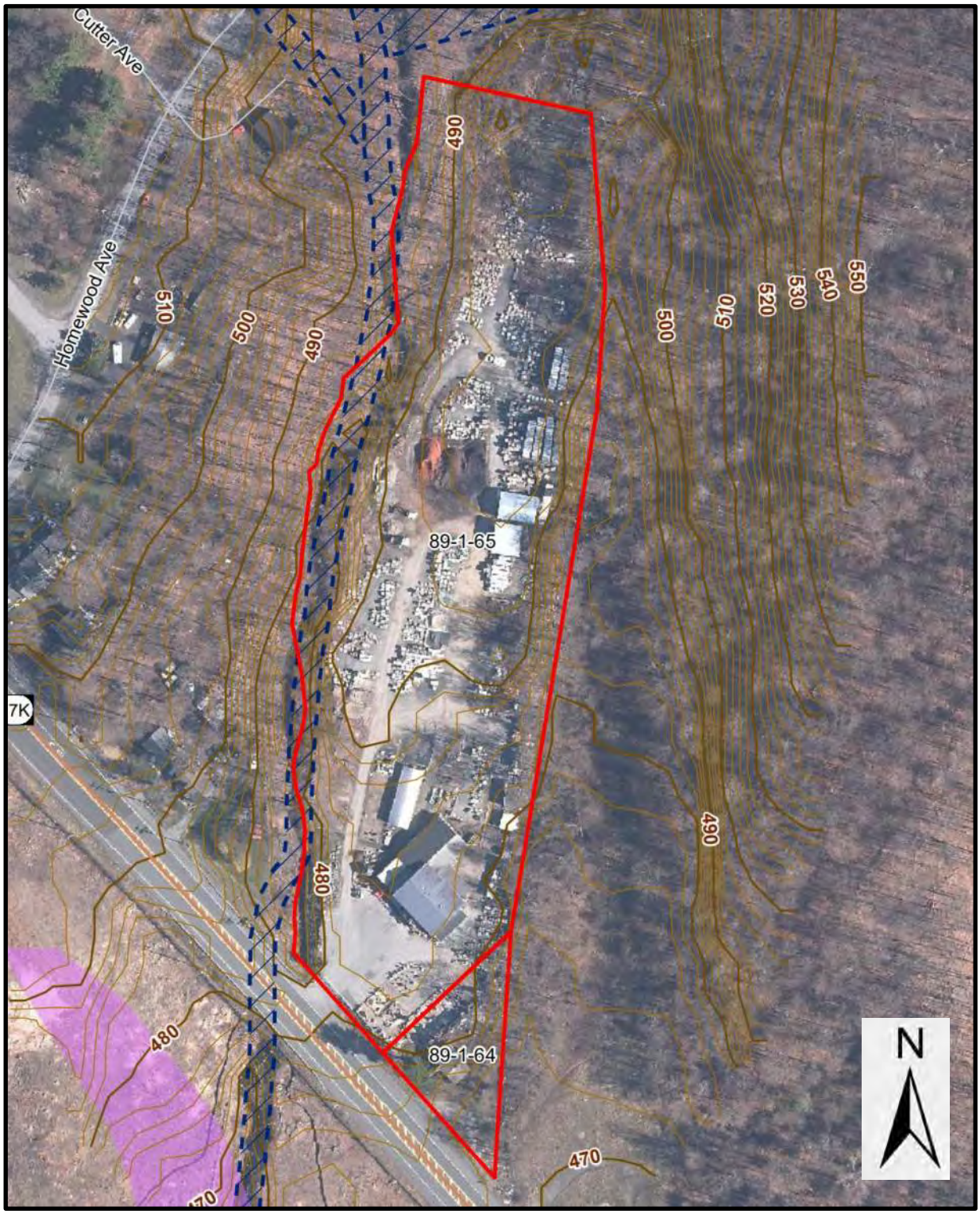
FIGURE 3
SITE SURVEY



Approximate Scale: 100 feet

Source: NY DHSES. NY STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM

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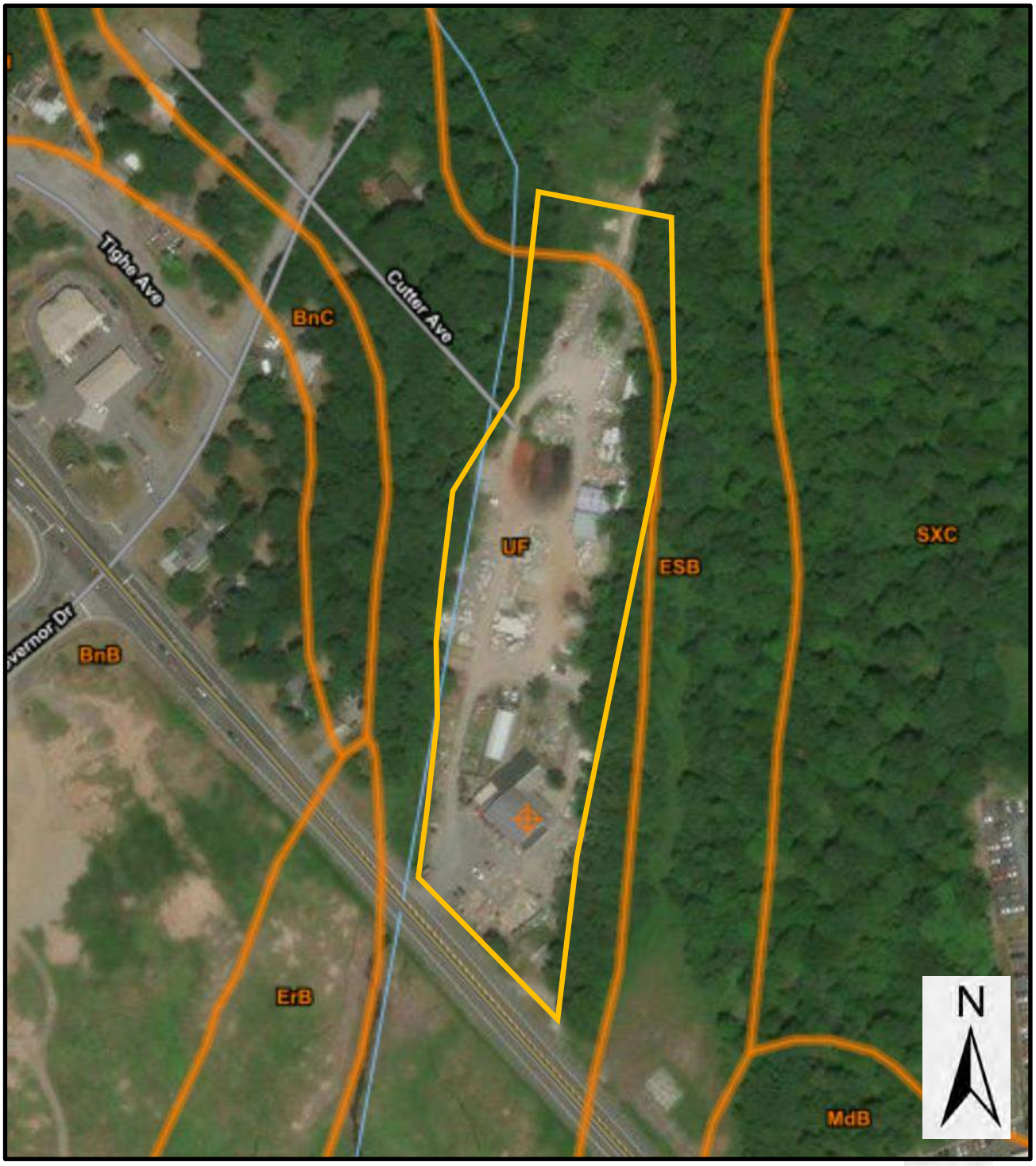
FIGURE 4
TOPOGRAPHY



Approximate Scale: 200 feet

Source: USDA WEB SOIL SURVEY, DECEMBER 2021

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FIGURE 5
SOILS

Approximate Scale: 200 feet

Source: NYSDEC ENVIRONMENTAL RESOURCE MAPPER, DECEMBER 2021

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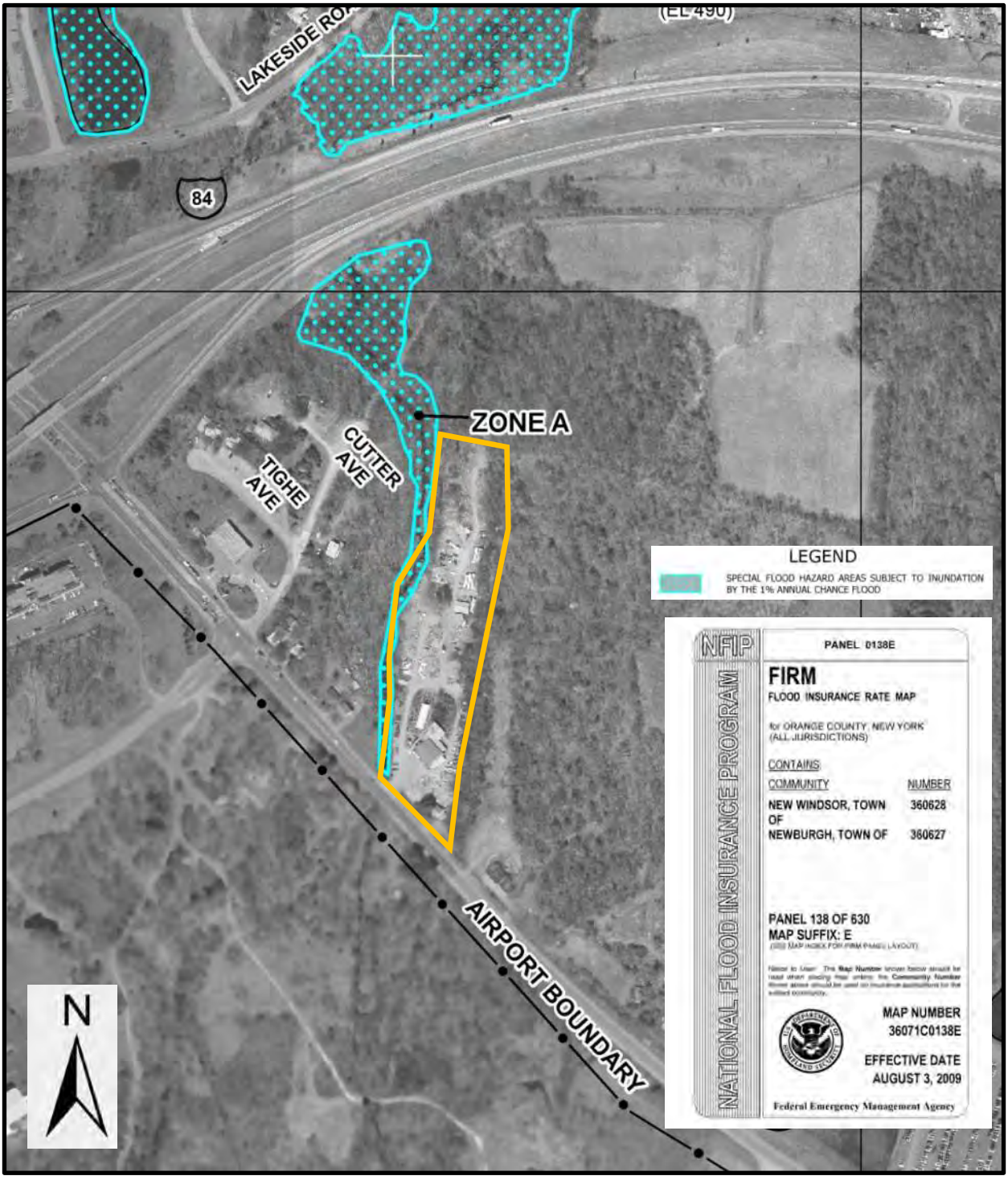
FIGURE 6
STREAMS



Approximate Scale: 500 feet

Source: FEMA FIRM PANEL 36071C0138E, AUGUST 3, 2009

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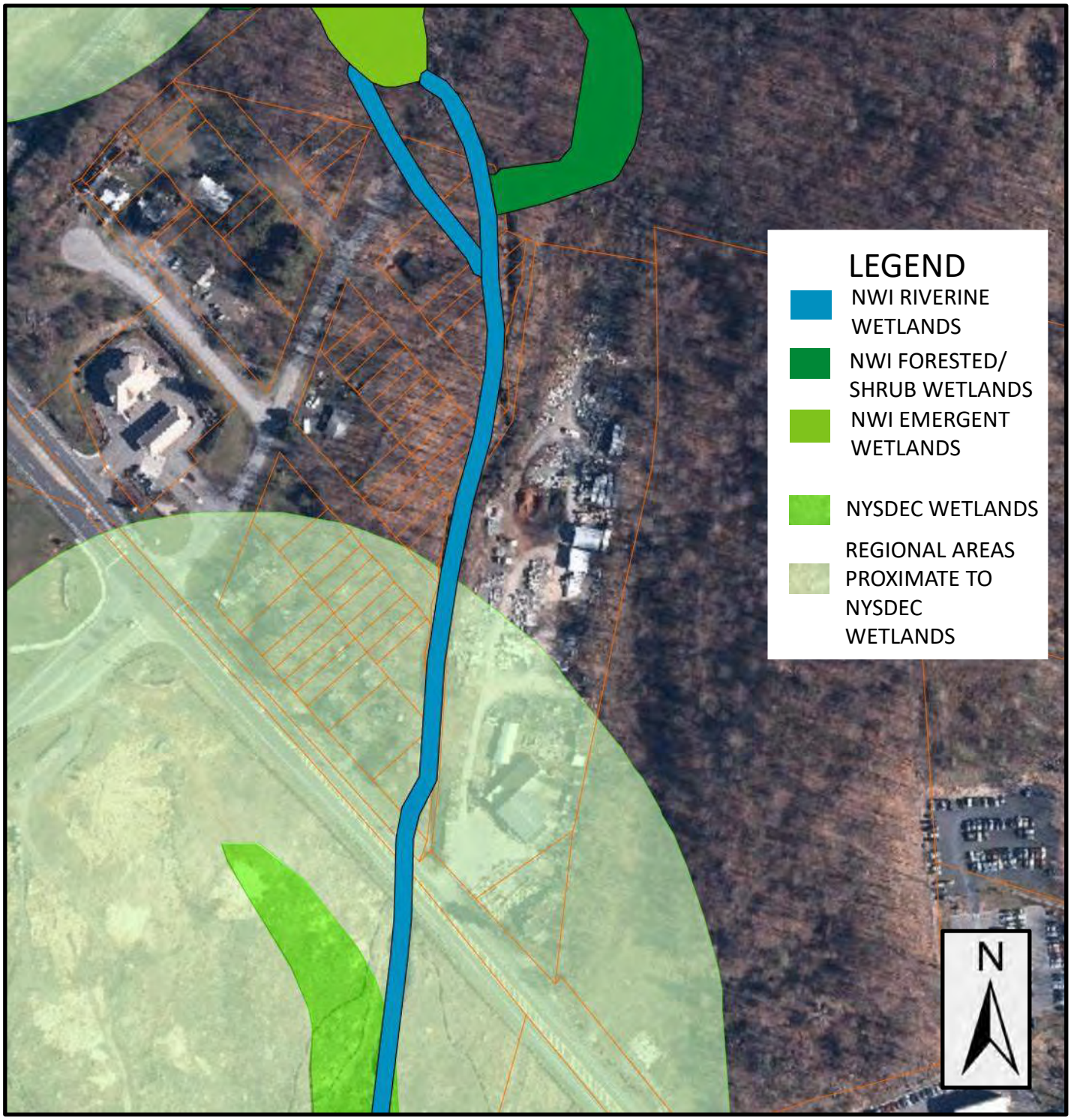
FIGURE 7
FEMA FIRM PANEL



Approximate Scale: 200 feet

Source: NYSDEC ENVIRONMENTAL RESOURCE MAPPER, DECEMBER 2021

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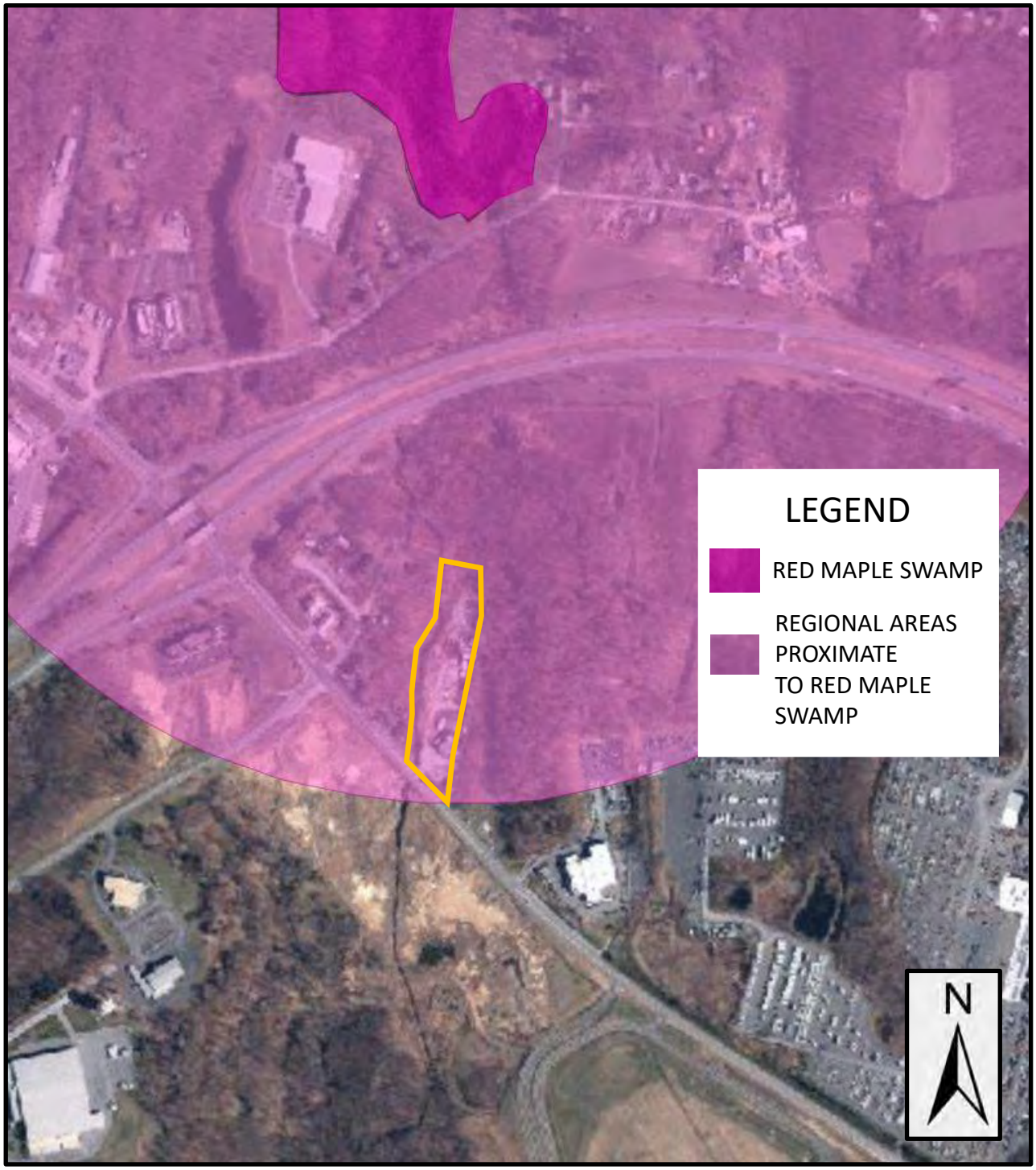
FIGURE 8
WETLANDS



Approximate Scale: 500 feet

Source: NYSDEC ENVIRONMENTAL RESOURCE MAPPER, DECEMBER 2021

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FIGURE 9
SIGNIFICANT NATURAL COMMUNITIES

Approximate Scale: 500 feet

Source: NYSDEC ENVIRONMENTAL RESOURCE MAPPER, DECEMBER 2021

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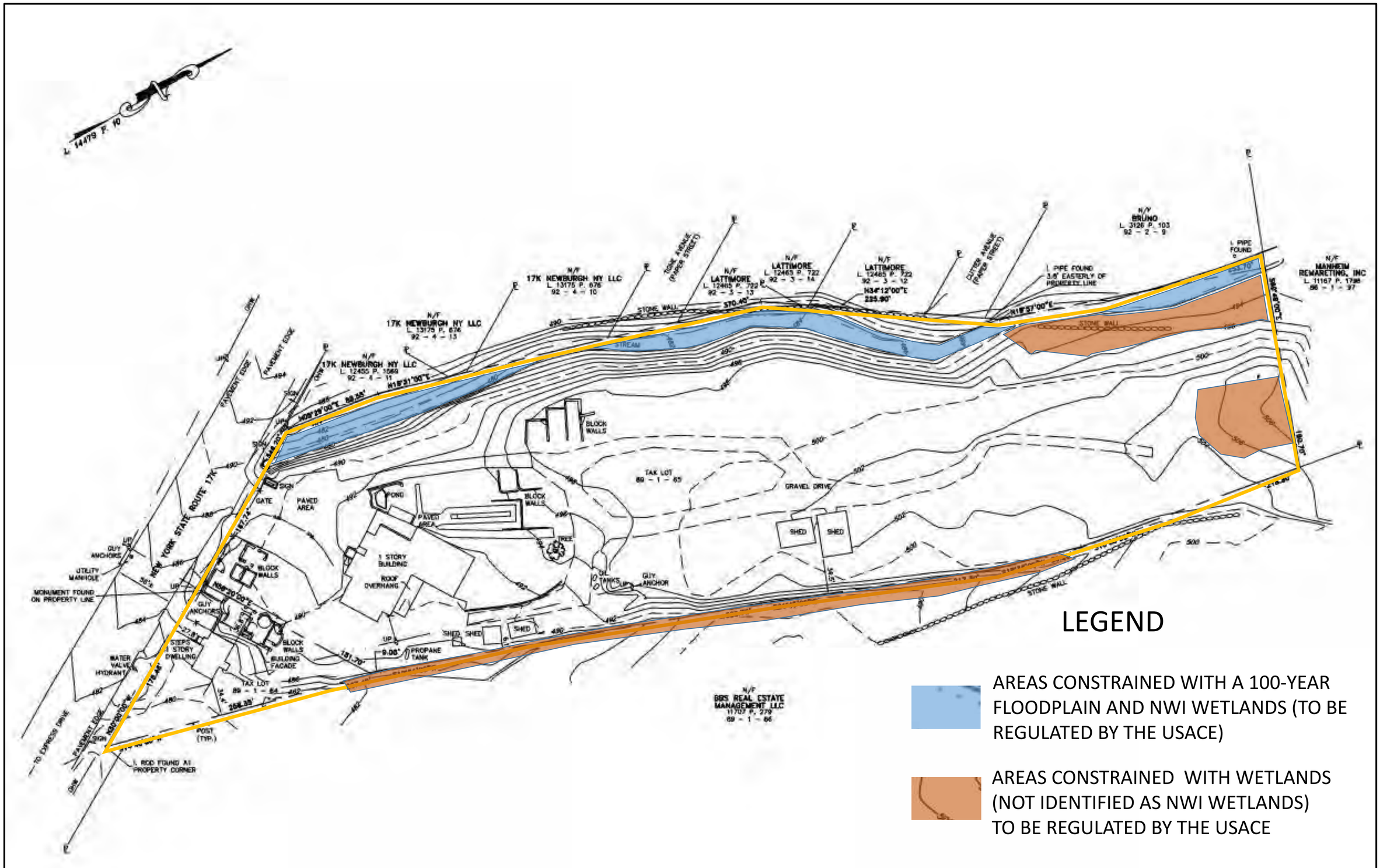
FIGURE 10
RARE PLANTS AND ANIMALS



LEGEND

AREAS CONSTRAINED WITH A 100-YEAR FLOODPLAIN AND NWI WETLANDS (TO BE REGULATED BY THE USACE)

AREAS CONSTRAINED WITH WETLANDS (NOT IDENTIFIED AS NWI WETLANDS) TO BE REGULATED BY THE USACE

NOTE: AREAS DESIGNATED ON THIS PLAN ARE NOT SURVEYED AND SHOULD BE USED FOR PRELIMINARY PLANNING PURPOSES.

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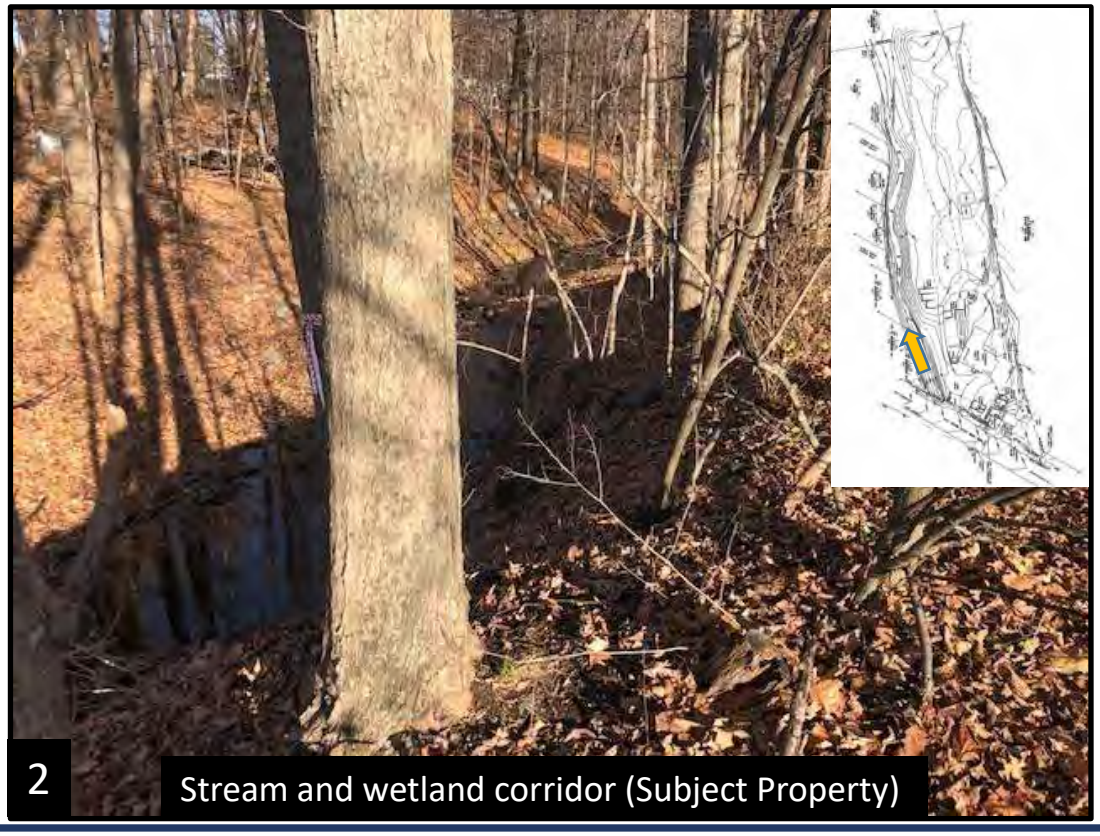
FIGURE 11
CONSTRAINT MAP

ATTACHMENT B

1 Stream and wetland corridor (Subject Property)



2 Stream and wetland corridor (Subject Property)

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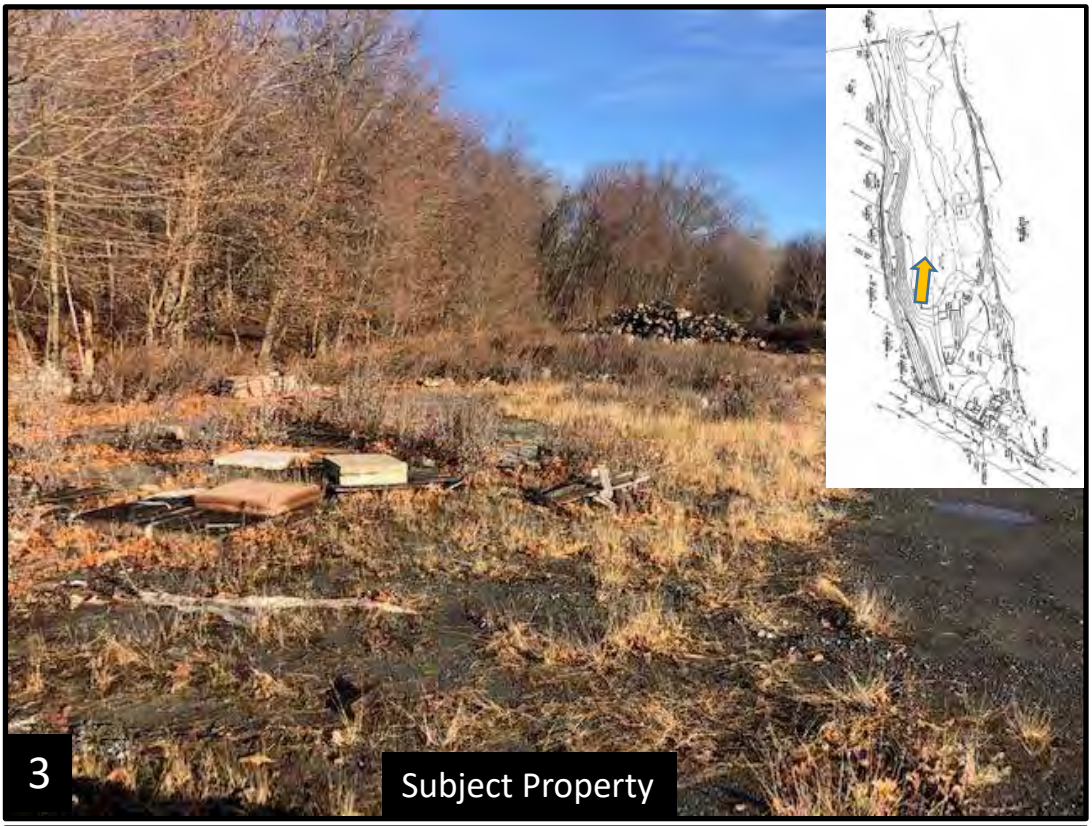

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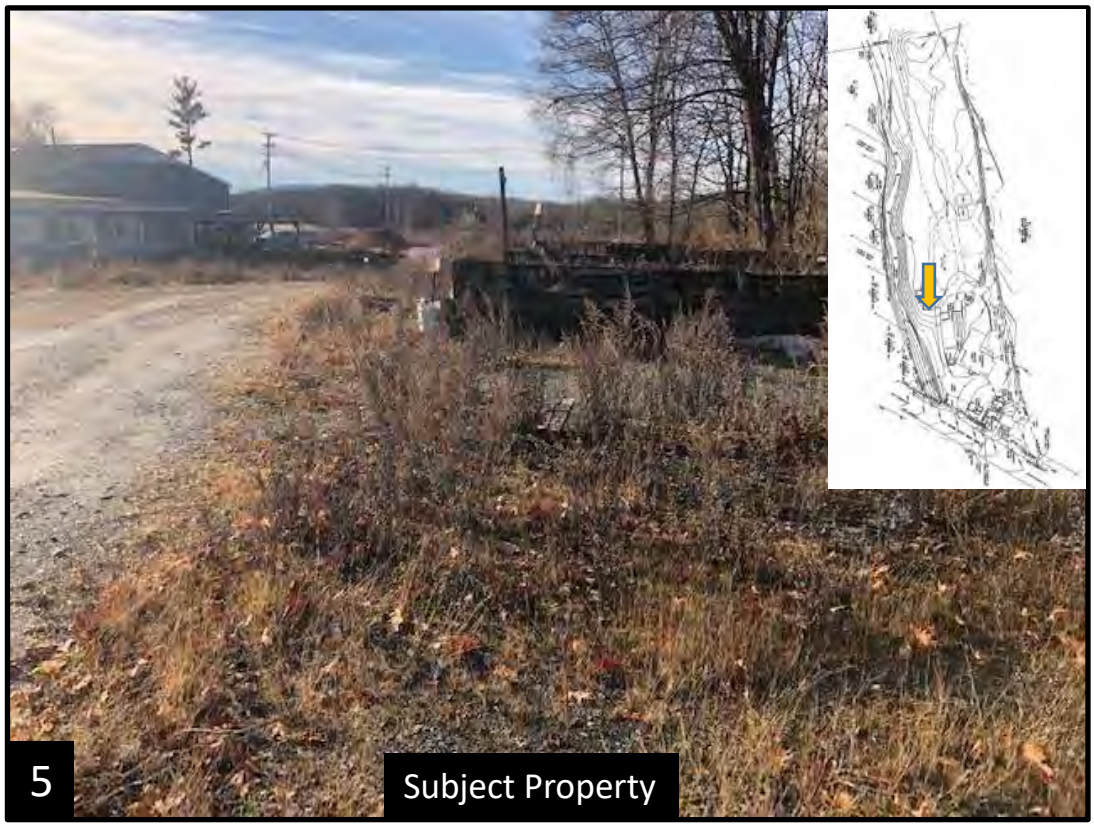

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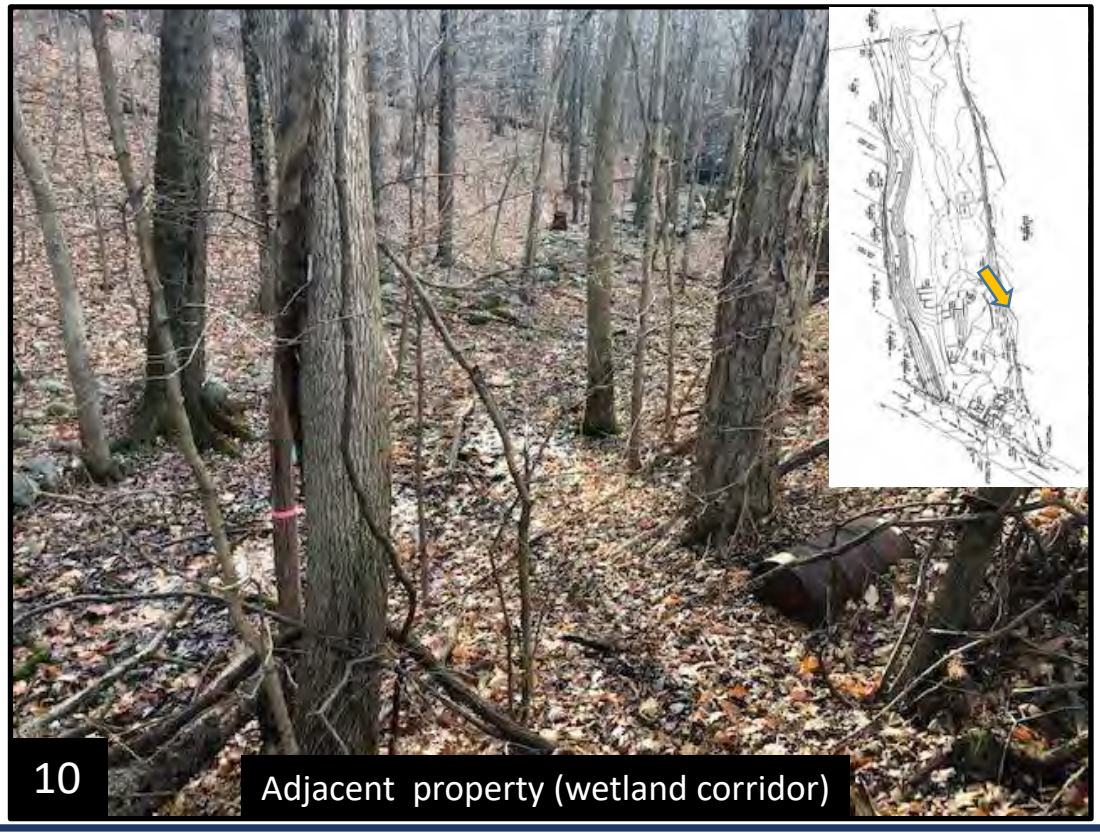
9 Subject Property



10 Adjacent property (wetland corridor)

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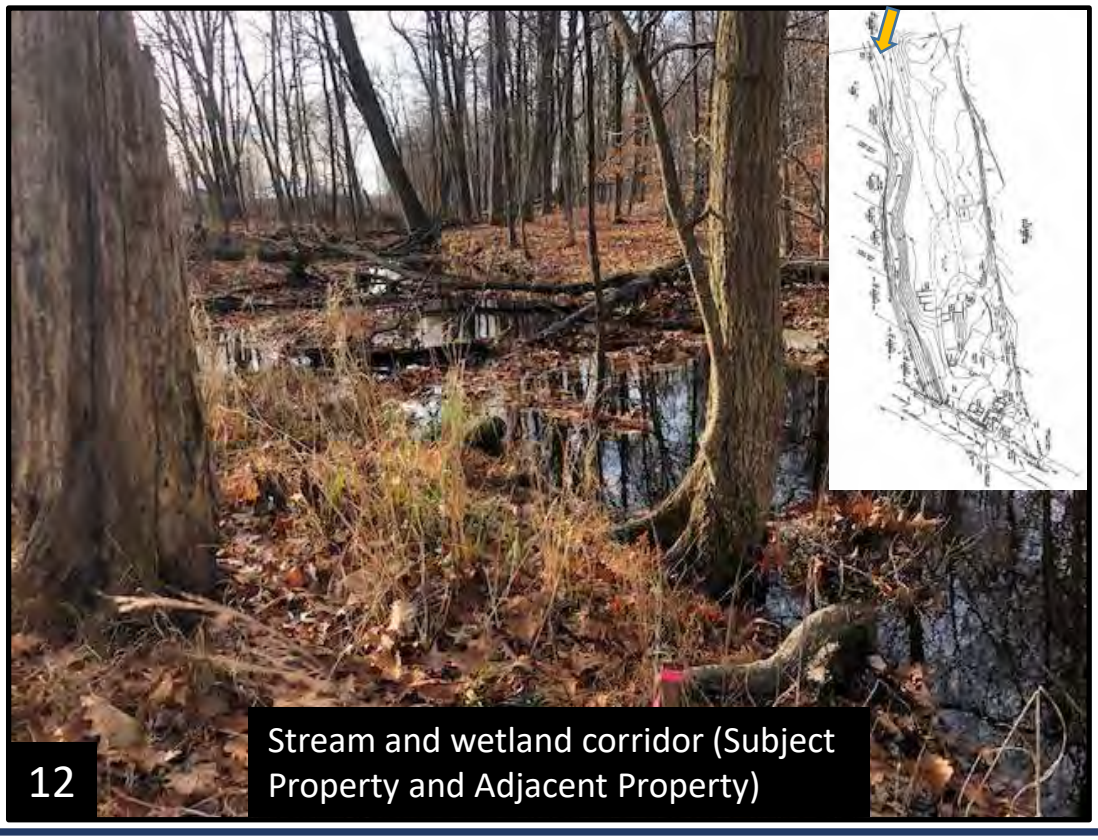
11 Adjacent property (wetland corridor)



12 Stream and wetland corridor (Subject Property and Adjacent Property)

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PHOTOGRAPHS

Construction Site Inspection

10

APPENDIX F
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

SAMPLE CONSTRUCTION SITE LOG BOOK

Table of Contents

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. **Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Inspector (print name)	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA

[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA

[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

Soil Map

11

74° 6' 28" W
74° 6' 10" W
41° 31' 17" N
41° 30' 56" N
574460
574520
574580
574640
574700
574760
574820
4596910
4596850
4596790
4596730
4596670
4596610
4596550
4596490
4596430

MdC
ESB
SXC
BnC
UF
BnB
ErB
Homewood Ave
Tighe Ave
Cutter Ave
17k
Route 17k

Soil Map may not be valid at this scale.

Map Scale: 1:826 if printed on D portrait (22" x 34") sheet.

Meters: 0 10 20 40 60

Feet: 0 40 80 160 240

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 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Orange County, New York
Survey Area Data: Version 22, Aug 29, 2021

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

Date(s) aerial images were photographed: Aug 13, 2021—Aug 15, 2021

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
BnB	Bath-Nassau channery silt loams, 3 to 8 percent slopes	0.1	0.4%
BnC	Bath-Nassau channery silt loams, 8 to 15 percent slopes	0.5	2.5%
ErB	Erie gravelly silt loam, 3 to 8 percent slopes	0.4	2.4%
ESB	Erie extremely stony soils, gently sloping	8.1	43.6%
MdC	Mardin gravelly silt loam, 8 to 15 percent slopes	0.0	0.0%
SXC	Swartswood and Mardin soils, sloping, very stony	0.9	4.8%
UF	Udifluvents-Fluvaquents complex, frequently flooded	8.6	46.3%
Totals for Area of Interest		**18.5**	**100.0%**

MS4 SWPPP Acceptance Form

12

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Moffat Properties
2. Contact Person:	Craig Moffat
3. Street Address:	701 Finger Lake Drive
4. City/State/Zip:	Wake Forest, NC 27587
II. Project Site Information	
5. Project/Site Name:	Sunbelt Rentals - Newburgh
6. Street Address:	224 & 226 New York Route 17K
7. City/State/Zip:	Newburgh, NY 12550
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Notice Of Termination Form

13

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:	4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

FINAL LAND DEVELOPMENT PLAN SET

FOR

SUNBELT RENTALS - NEWBURGH

224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

PROPERTY:

224 NY ROUTE 17K
TAX LOT 89-1-64
14479 P.10
0.372 ACRES

226 NY ROUTE 17K
TAX LOT 89-1-65
14479 P.10
5.543 ACRES

ZONING: IB INTERCHANGE BUSINESS

OWNER:

EUGENE A. MAZZARELLI LIVING TRUST
739 HEWIT LANE
NEW WINDSOR, NY 12553

APPLICANT:

MOFFAT PROPERTIES, INC.
701 FINGER LAKES DRIVE
WAKE FOREST, NC 27587

ENGINEER:

INDEPENDENCE ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505

SURVEYOR:

LANC & TULLY ENGINEERING & SURVEYING, P.C.
PO BOX 687
ROUTE 207
GOSHEN, NY 10924

GEOTECHNICAL CONSULTANT:

MULA DESIGN GROUP
325 COTTAGE HILL ROAD
YORK, PA 17401

ARCHITECT:

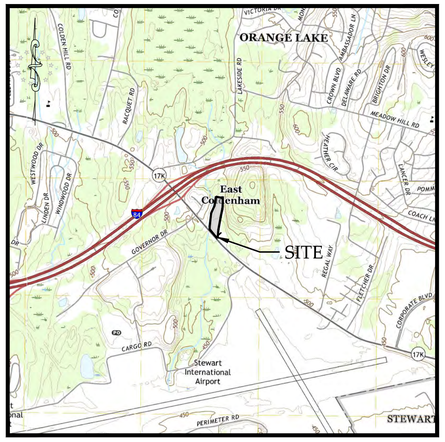
ALIGN DESIGN ASSOCIATES
145 CHURCH STREET NE, SUITE 240
MARIETTA, GA 30060

DEVELOPMENT DESCRIPTION:

THE DEVELOPMENT PROPOSES TO DEMOLISH AN EXISTING VACANT STRUCTURE AND CONSTRUCT A NEW INDUSTRIAL EQUIPMENT YARD, INCLUDING PARKING, UTILITIES, AND STORM WATER MANAGEMENT FACILITIES.

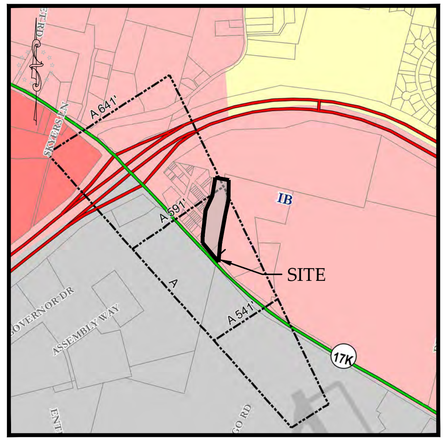
TABLE OF LOT REQUIREMENTS FOR IB DISTRICT FOR THE TOWN OF NEWBURGH:

BULK & AREA CRITERIA	REQUIRED	EXISTING	PROPOSED
MINIMUM TOTAL LOT AREA (SQUARE FEET)	40,000	257,660	257,660
MINIMUM WIDTH (FEET)	150	346.20	346.20
MINIMUM DEPTH (FEET)	150	1040.44	1040.44
MAXIMUM LOT BUILDING COVERAGE (%)	40 %	4.13%	5.00%
MAXIMUM BUILDING HEIGHT (FEET)	40	15	25
MAXIMUM LOT SURFACE COVERAGE (%)	80 %	16.90%	49.06%
FRONT YARD SETBACK (FEET)	50	103.00	134.38
SIDE YARD SETBACK (FEET)	30 (SINGLE)	46.65	64.50
SIDE YARD SETBACK (FEET)	80 (COMBINED)	162.54	129.31
REAR YARD SETBACK (FEET)	60	780	652.37



USGS QUAD MAP - NEWBURGH
SCALE: 1" = 2,000'

AERIAL MAP
SCALE: 1" = 1,000'



ZONING MAP
SCALE: 1" = 1,000'

SHEET INDEX

Sheet Description	Sheet Number	Sheet Title
1	C000	COVER SHEET
2	C300	DEMOLITION PLAN
3	C400	SITE PLAN
4	C500	GRADING PLAN
5	C600	UTILITY PLAN
6	C800	SITE DETAILS
7	C810	UTILITY DETAILS
8	C820	PUMP STATION NOTES & DETAILS
9	C830	DRIVEWAY NYSDOT PLAN, PROFILE, & DETAIL
10	C840	SWM AND SWPPP DETAILS
11	C2000	E&S CONTROL AND SWPPP PLAN
12	C2100	E&S DETAILS
13	--	SIGHT DISTANCE DIAGRAM
14	--	WORK ZONE TRAFFIC CONTROL
15	--	WORK ZONE TRAFFIC CONTROL GENERAL NOTES

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PER MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	MAS
2	10/24/22	REVISED PER TOWN COMMENTS	MAS
3	12/17/22	REVISED PER NYSDOT COMMENTS	ESC
4	01/31/23	REVISED PER NYSDOT COMMENTS	JWJ
5	02/15/23	REVISED PER TOWN AND NYSDOT COMMENTS	JWJ

Independence ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
(609) 496-9369 INDEPENDENCE@INDEPENDENCE.ENGINEERING

FINAL LAND DEVELOPMENT PLAN SET
COVER SHEET
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

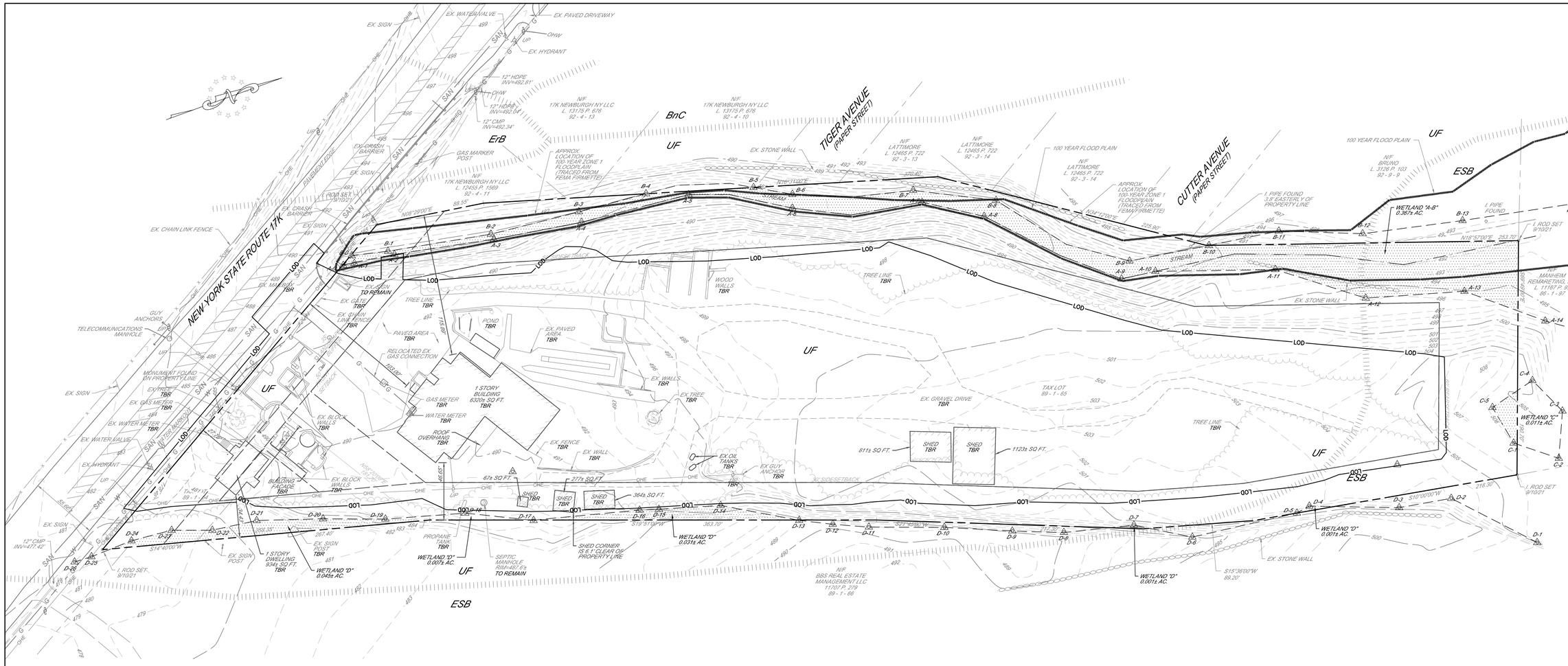
811 ID #

PROJECT 028-004
DATE 06/17/2022
SCALE AS NOTED | DRAWN ESC
DESIGNED JWJ | CHECKED NES/JWJ

STATE OF NEW YORK · NEIL E. SANDER · 87961 · REGISTERED PROFESSIONAL ENGINEER
02/15/23

C000
SHEET 1 OF 15

N:\028 ALIGN\DESIGN\04 SUN BELT NEWBURGH HYPRO\PROJECT ENGINEERING\DRAWINGS\028004-S-COVER-JWK JOCHEMS-2022-02-15



GENERAL DEMOLITION NOTES:

1. ALL CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO SUBMITTING A BID, AND SHALL BE ADJUSTED IF NECESSARY. BASE MAP AND BOUNDARY INFORMATION SHOWN HEREON TAKEN FROM A PLAN ENTITLED "ALTA/NSPS SURVEY PREPARED FOR MOFFAT PROPERTIES TOWN OF NEWBURGH ORANGE COUNTY, NEW YORK" DATED MAY 16, 2022 PREPARED BY LANC & TULLY ENGINEERING AND SURVEYING, P.C.*
2. CONTRACTOR IS RESPONSIBLE TO CALL DIG SAFE 811 FOR UTILITY MARK OUT PRIOR TO ANY EXCAVATION.
3. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ANY EXISTING SITE IMPROVEMENTS AND UTILITIES. ALL DISCREPANCIES SHALL BE IDENTIFIED TO THE ENGINEER IN WRITING PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. ALL DEMOLITION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
5. DEMOLITION SHALL PROCEED FROM THE TOP OF THE STRUCTURE TO THE GROUND.
6. ALL DEMOLITION WORK SHALL BE COMPLETED ON A GIVEN FLOOR OF A BUILDING BEFORE ANY STRUCTURAL ELEMENTS OF THE LOWER FLOORS ARE DISTURBED.
7. CONCRETE AND MASONRY SHALL BE DEMOLISHED IN SMALL SECTIONS.
8. STRUCTURAL MEMBERS SHALL BE REMOVED AND LOWERED TO THE GROUND USING HOISTS, DERRICKS, AND/OR OTHER INDUSTRY-ACCEPTED METHODS.
9. CONCRETE SLABS-ON-GRADE SHALL BE BROKEN UP UNLESS OTHERWISE DIRECTED.
10. DEMOLITION EQUIPMENT SHALL BE LOCATED SPARSELY THROUGHOUT THE STRUCTURE AND MATERIALS REMOVED IN A MANNER TO AVOID THE IMPOSITION OF EXCESSIVE LOADS ON REMAINING STRUCTURAL ELEMENTS.
11. INTERIOR AND EXTERIOR SHORING, BRACING, AND/OR SUPPORTS SHALL BE PROVIDED TO PREVENT MOVEMENT, SETTLEMENT, AND COLLAPSE OF STRUCTURES TO BE DEMOLISHED AND ADJACENT FACILITIES.
12. ALL FOUNDATION WALLS, FOOTINGS, AND OTHER MATERIALS WITHIN THE FOOTPRINT OF THE FUTURE STRUCTURE SHALL BE DEMOLISHED. ALL OTHER FOUNDATION SYSTEMS SHALL BE DEMOLISHED TO A DEPTH OF NO LESS THAN TWELVE (12) INCHES BELOW THE GRADE OF PROPOSED PAVEMENT. BASEMENT FLOOR SLABS SHALL BE BROKEN. ALL OPEN UTILITY LINES SHALL BE SEALED WITH CONCRETE.
13. COVERED PASSAGEWAYS SHALL BE ERECTED ADJACENT TO AREAS OF DEMOLITION TO PROVIDE SAFE PASSAGE TO PEDESTRIANS. ALL DEMOLITION OPERATIONS SHALL BE PERFORMED TO PREVENT DAMAGE TO STRUCTURES AND ADJACENT BUILDINGS, AND INJURY TO PERSONS.
14. EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF OWNER AND AUTHORITIES HAVING JURISDICTION.
15. DEMOLITION SHALL BE PERFORMED TO MINIMIZE INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER WAYS. ROADS, STREETS, WALKS, AND OTHER WAYS SHALL NOT BE CLOSED WITHOUT PRIOR WRITTEN CONSENT OF OWNER AND AUTHORITIES HAVING JURISDICTION. ALTERNATE TRAVEL ROUTES SHALL BE PROVIDED AROUND CLOSED OR OBSTRUCTED WAYS IF REQUIRED BY AUTHORITIES HAVING JURISDICTION.
16. WATERING, TEMPORARY ENCLOSURES, AND/OR OTHER APPROPRIATE METHODS SHALL BE EMPLOYED AS NECESSARY TO MINIMIZE THE AMOUNT OF DUST LEAVING THE DEMOLITION SITE. ADJACENT IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. ALL ADJACENT AREAS SHALL BE RETURNED TO THE CONDITIONS IN EXISTENCE AT THE COMMENCEMENT OF WORK.
17. DEMOLITION SHALL BE PERFORMED TO PREVENT UNAUTHORIZED ENTRY OF ANY PERSONS TO THE SITE AT ANY TIME.
18. BELOW GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION OF STRUCTURES AND FOUNDATIONS SHALL BE FILLED WITH SOIL MATERIALS CONSISTING OF STONE, GRAVEL, AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS, AND OTHER ORGANIC MATTER. STONES LARGER THAN SIX (6) INCHES IN DIMENSION SHALL NOT BE USED. DEMOLITION MATERIALS MAY NOT BE USED AS FILL. AREAS TO BE FILLED SHALL BE FREE STANDING WATER, FROST, FROZEN MATERIAL, TRASH, AND DEBRIS PRIOR TO FILLING. FILL MATERIALS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING SIX (6) INCHES IN LOOSE DEPTH, AND EACH COMPACTED TO 95% OPTIMUM DRY DENSITY. THE SURFACE SHALL BE GRADED TO MEET ADJACENT CONTOURS AND TO PROVIDE ADEQUATE SURFACE DRAINAGE AWAY FROM FILL AREA.
19. ALL DEBRIS, RUBBISH, SALVAGEABLE ITEMS, AND HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE REMOVED FROM THE SITE AT THE EARLIEST POSSIBLE TIME. MATERIALS TO BE REMOVED MAY NOT BE STORED, SOLD, OR BURNED ON SITE. HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE REMOVED IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, AND PROCEDURES ENFORCED BY THE FIRE DEPARTMENT AND OTHER AUTHORITIES HAVING JURISDICTION.
20. ALL UTILITIES SERVICING STRUCTURES TO BE DEMOLISHED SHALL BE DISCONNECTED, SHUT OFF, AND SEALED IN CONCRETE PRIOR TO THE COMMENCEMENT OF DEMOLITION. ALL UTILITY, DRAINAGE, AND SANITARY LINES SHALL BE MARKED FOR POSITION PRIOR TO DISCONNECTION, AND ALL ACTIVE LINES SHALL BE PROTECTED CONSISTENT WITH ACCEPTED INDUSTRY STANDARDS. ALL UTILITY SERVICES TO BE INTERRUPTED SHALL BE CLEARLY MARKED PRIOR TO DEMOLITION, AND ALL LOCAL UTILITY AGENCIES SHALL BE NOTIFIED TO ENSURE THE CONTINUATION OF SERVICE.
21. ALL EXISTING UTILITIES SHALL BE REMOVED, AS NECESSARY, IN ACCORDANCE WITH LOCAL UTILITY AGENCY REQUIREMENTS.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS NECESSARY.
23. TEMPORARY SEEDING TO BE IN ACCORDANCE WITH LOCAL AND STATE EROSION AND SEDIMENT CONTROL STANDARDS.
24. A DEMOLITION PERMIT FOR ANY MATERIALS PROPOSED TO BE REMOVED FROM THE SITE IS REQUIRED.
25. PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION OF X AND A ON FLOOD INSURANCE RATE MAP NO. 36071C0138E WITH A DATE OF AUGUST 3, 2009, FOR COMMUNITY NUMBER 360627 IN ORANGE COUNTY, NY.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING FLOODPLAIN
- DISSOLVED PROPERTY LINE
- EXISTING ADJOINING PROPERTY LINE
- EXISTING SETBACK
- EXISTING STONE WALL
- EXISTING FENCE
- EXISTING CONTOUR - MAJOR
- EXISTING CONTOUR - MINOR
- LIMIT OF DISTURBANCE
- EXISTING STORM PIPE
- EXISTING OVERHEAD WIRES
- EXISTING ELECTRIC
- EXISTING GAS
- EXISTING TELEPHONE
- EXISTING SANITARY
- EXISTING WATER
- EXISTING WETLANDS
- EXISTING SOILS LINE
- EXISTING WETLANDS FLAG
- EXISTING SOILS LABEL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING STORM MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING SPOT ELEVATION

REV	DATE	DESCRIPTION	BY
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FINAL LAND DEVELOPMENT PLAN SET
DEMOLITION PLAN
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

ID #

40 20 0
GRAPHIC SCALE: 1" = 40'

PROJECT 028-004
DATE 06/17/2022

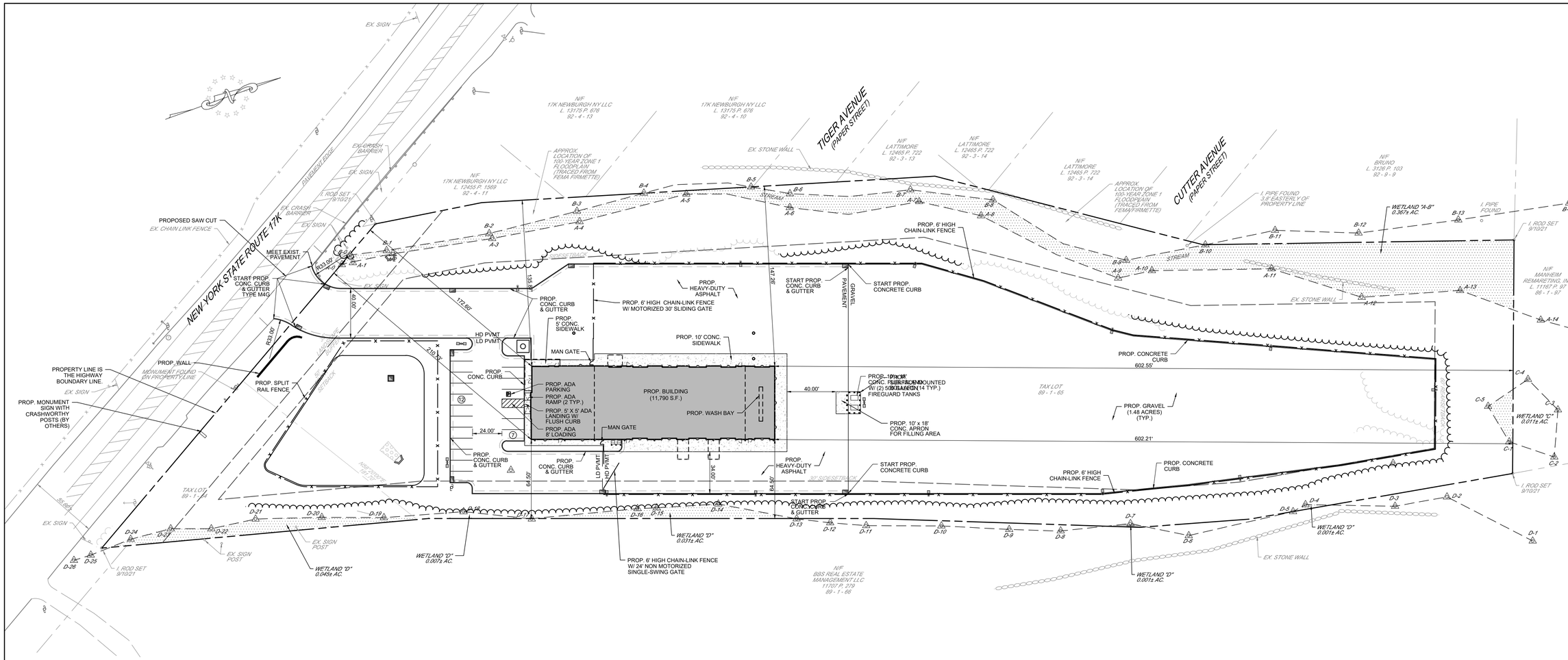
SCALE	DRAWN
1" = 40'	ESC
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK · NEIL E. SANDER · 87961 · LICENSED PROFESSIONAL ENGINEER

02/15/23

C300

SHEET	OF
2	15



SITE PLAN NOTES:

1. APPLICANT:
   MOFFAT PROPERTIES, INC.
   701 FINGER LAKES DRIVE
   WAKE FOREST, NC 27857

2. ENGINEER:
   INDEPENDENCE ENGINEERING LLC
   102 FARNSWORTH AVENUE, SUITE 310
   BORDENTOWN, NJ 08505

3. SURVEYOR:
   LANC & TULLY ENGINEERING & SURVEYING, P.C.
   PO BOX 687
   ROUTE 207
   GOSHEN, NY 10924

4. GEOTECHNICAL CONSULTANT:
   MULA DESIGN GROUP
   325 COTTAGE HILL ROAD
   YORK, PA 17401

5. ARCHITECT:
   ALIGN DESIGN ASSOCIATES
   145 CHURCH STREET NE, SUITE 240
   MARIETTA, GA 30060

6. BASE MAP AND BOUNDARY INFORMATION SHOWN HEREON TAKEN FROM A PLAN ENTITLED "ALTA/NSPS SURVEY PREPARED FOR MOFFAT PROPERTIES TOWN OF NEWBURGH ORANGE COUNTY, NEW YORK" DATED MAY 16, 2022, PREPARED BY LANC & TULLY ENGINEERING AND SURVEYING P.C."
7. A SOILS REPORT ENTITLED "REPORT OF GEOTECHNICAL ENGINEERING" HAS BEEN PREPARED BY JRS ENGINEERING SERVICES PLLC C/O MULA GROUP, DATED 04/18/2022.
8. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUESTED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS PROVIDED BY ALL APPLICABLE PERMITTING AUTHORITIES.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.
10. SITE CLEARING SHALL INCLUDE THE LOCATION AND REMOVAL OF ALL UNDERGROUND TANKS, PIPES, VALVES, ETC. CONTRACTOR SHALL REPAIR ANY DISTURBED AREAS TO EXISTING CONDITION, INCLUDING PAVED AREAS AND LANDSCAPED AREAS.
11. SOLID WASTE SHALL BE DISPOSED OF BY CONTRACTOR IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
12. ALL UNSUITABLE EXCAVATED MATERIAL SHALL BE TRANSPORTED TO AN APPROVED DISPOSAL LOCATION.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING REQUIRED DURING CONSTRUCTION. SHORING SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH CURRENT OSHA STANDARDS. CONTRACTOR SHALL MAKE SUFFICIENT ADDITIONAL PROVISIONS TO ENSURE STABILITY OF ALL CONTIGUOUS AND ADJACENT STRUCTURES, AS FIELD CONDITIONS MAY DICTATE.
14. CONTRACTOR AND ANY SUBCONTRACTORS SHALL CARRY STATUTORY WORKERS' COMPENSATION INSURANCE, EMPLOYERS' LIABILITY INSURANCE, AND COMMERCIAL GENERAL LIABILITY INSURANCE AT REQUIRED LIMITS OF COVERAGE. ALL CONTRACTORS SHALL HAVE CGL POLICIES ISSUED TO INCLUDE INDEPENDENCE ENGINEERING LLC, WITH ITS SUBCONSULTANTS LISTED AS ADDITIONAL INSURED. ALL CONTRACTORS MUST FURNISH INDEPENDENCE ENGINEERING LLC WITH CERTIFICATES OF INSURANCE PRIOR TO THE COMMENCEMENT OF WORK, AND UPON RENEWAL OF EACH POLICY DURING THE TERM OF CONSTRUCTION. CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS INDEPENDENCE ENGINEERING LLC AND ITS SUBCONSULTANTS AGAINST ANY DAMAGES, LIABILITIES, OR COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS CONNECTED WITH THE PROJECT, INCLUDING ALL CLAIMS BY CONTRACTOR'S EMPLOYEES, TO THE FULLEST EXTENT PERMITTED BY LAW.
15. NEITHER THE PROFESSIONAL ACTIVITIES OF INDEPENDENCE ENGINEERING LLC NOR THE PRESENCE OF ITS EMPLOYEES AT THE PROJECT SITE SHALL RELIEVE THE CONTRACTOR OF ITS DUTIES, OBLIGATIONS, AND/OR RESPONSIBILITIES, INCLUDING BUT NOT LIMITED TO CONSTRUCTION MEANS, METHODS, SEQUENCING AND/OR PROTOCOLS NECESSARY FOR PERFORMING, COORDINATING, AND/OR SUPERINTENDING THE WORK IN ACCORDANCE WITH THE PROJECT DOCUMENTS AND APPLICABLE HEALTH AND SAFETY REGULATIONS. THE CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR SITE SAFETY PLANNING, PROVISIONING, IMPLEMENTATION, AND MAINTENANCE. INDEPENDENCE ENGINEERING LLC BEARS NO AUTHORITY TO EXERCISE CONTROL OVER CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH CONSTRUCTION.
16. INDEPENDENCE ENGINEERING LLC SHALL REVIEW AND TAKE APPROPRIATE ACTION ON SUBMITTALS TO BE SUBMITTED BY CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PRODUCT, DATA, AND MATERIAL SAMPLES. INDEPENDENCE ENGINEERING LLC SHALL REVIEW SUBMITTALS ONLY FOR CONSISTENCY WITH THE DESIGN DRAWINGS. SUBMITTALS SHALL NOT BE REVIEWED FOR CONSTRUCTION MEANS AND METHODS, COORDINATION OF TRADES, OR SITE SAFETY, WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. INDEPENDENCE ENGINEERING LLC SHALL NOT BE LIABLE FOR DEVIATIONS OR THE RESULTS THEREFROM FROM THE APPROVED CONSTRUCTION DRAWINGS, UNLESS SAID DEVIATIONS ARE PROVIDED IN WRITING BY THE CONTRACTOR PRIOR TO IMPLEMENTATION, AND APPROVED IN WRITING BY INDEPENDENCE ENGINEERING LLC.
17. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS AND SPECIFICATIONS, INCLUDING THE NOTES THEREON, WITHOUT PRIOR WRITTEN AUTHORIZATION FROM INDEPENDENCE ENGINEERING LLC AND THE PROJECT OWNER. SHOULD THE CONTRACTOR DEVIATE FROM THE APPROVED PROJECT DOCUMENTS, HE SHALL BEAR SOLE RESPONSIBILITY FOR FINES, PENALTIES, AND ALL COMPENSATORY AND PUNITIVE DAMAGES RESULTING THEREFROM. IN SUCH CASE, THE CONTRACTOR SHALL INDEMNIFY AND HOLD INDEPENDENCE ENGINEERING LLC HARMLESS AGAINST ANY DAMAGES, LIABILITIES, OR COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS CONNECTED WITH THE PROJECT, INCLUDING ALL CLAIMS BY CONTRACTOR'S EMPLOYEES, TO THE FULLEST EXTENT PERMITTED BY LAW.
18. DISPUTES BETWEEN INDEPENDENCE ENGINEERING LLC AND THE CONTRACTOR SHALL BE SUBMITTED TO NONBINDING MEDIATION UNLESS THE PARTIES MUTUALLY AGREE OTHERWISE.
19. THE CONTRACTOR AND ITS SUBCONTRACTORS SHALL INCLUDE A PROVISION IN THEIR CONTRACTS WITH THEIR SUBCONTRACTORS, SUBCONSULTANTS, AND SUPPLIERS, PROVIDING FOR MEDIATION AS THE PRIMARY METHOD OF DISPUTE RESOLUTION BETWEEN THOSE PARTIES.
20. ALL TRAFFIC SIGNS AND STRIPING SHALL FOLLOW THE REQUIREMENTS SPECIFIED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION, INCLUDING LOCALLY ADOPTED REVISIONS THERETO.
21. BUILDING SETBACKS SHOWN HEREON ARE MEASURED FROM THE EXTERIOR FACE OF BUILDING WALLS. SETBACKS DO NOT ACCOUNT FOR ROOF OVERHANGS, ORNAMENTAL ARCHITECTURAL ELEMENTS, SIGNAGE, OR OTHER EXTERIOR EXTENSION UNLESS OTHERWISE NOTED.
22. LOCATION OF ALL EXISTING AND PROPOSED SERVICES AND CONNECTION POINTS ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY IN THE FIELD AND WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER.
23. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY "DIG SAFE 811" 72 HOURS PRIOR TO ANY EXCAVATION ON SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER AND SEWER AUTHORITIES TO MARK OUT THEIR SYSTEMS.
24. THE CONTRACTOR SHALL COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM THE DEMOLITION OF STRUCTURES AND FOUNDATIONS WITH SOIL MATERIALS CONSISTING OF STONE, GRAVEL, AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS, AND OTHER ORGANIC MATTER. STONES SHALL NOT BE LARGER THAN 6 INCHES IN ANY DIMENSION. DEMOLITION MATERIALS MAY NOT BE USED AS FILL. FILL MATERIALS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 6 INCHES IN LOOSE DEPTH CONTOURS AND TO PROVIDE SURFACE DRAINAGE.
25. ALL DEBRIS, RUBBISH, SALVAGE, HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE REMOVED AT THE EARLIEST POSSIBLE TIME. REMOVED MATERIALS MAY NOT BE STORED, SOLD, OR BURNED ON SITE. HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE REMOVED IN ACCORDANCE WITH PROCEDURES ADOPTED BY THE LOCAL FIRE DEPARTMENT AND OTHER JURISDICTIONAL AGENCIES.
26. THE GPS COORDINATES FOR THE PROPOSED DRIVEWAY ARE LATITUDE 41°31'2.04"N AND LONGITUDE 74° 6'22.02"W.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING FLOODPLAIN
- DISSOLVED PROPERTY LINE
- EXISTING ADJOINING PROPERTY LINE
- EXISTING SETBACK
- EXISTING STONE WALL
- EXISTING FENCE
- EXISTING TREELINE
- EXISTING WETLANDS
- EXISTING WETLANDS FLAG
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING STORM MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- PROPOSED OUTFALL CONTROL STRUCTURE
- PROPOSED HEADWALL
- PROPOSED STORM INLET
- PROPOSED SANITARY CLEANOUT
- PROPOSED UTILITY POLE
- PROPOSED TREELINE
- PROPOSED FENCE
- PROPOSED STONE WALL

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PER MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	MAS
2	10/24/22	REVISED PER TOWN COMMENTS	MAS
3	12/17/22	REVISED PER NYSDOT COMMENTS	ESC
4	01/31/23	REVISED PER NYSDOT COMMENTS	JWI
5	02/15/23	REVISED PER TOWN AND NYSDOT COMMENTS	JWI

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BORDENTOWN, NJ 08505
(609) 496-9369 INDEPENDENCE@INDEPENDENCE.ENGINEERING

FINAL LAND DEVELOPMENT PLAN SET
SITE PLAN
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

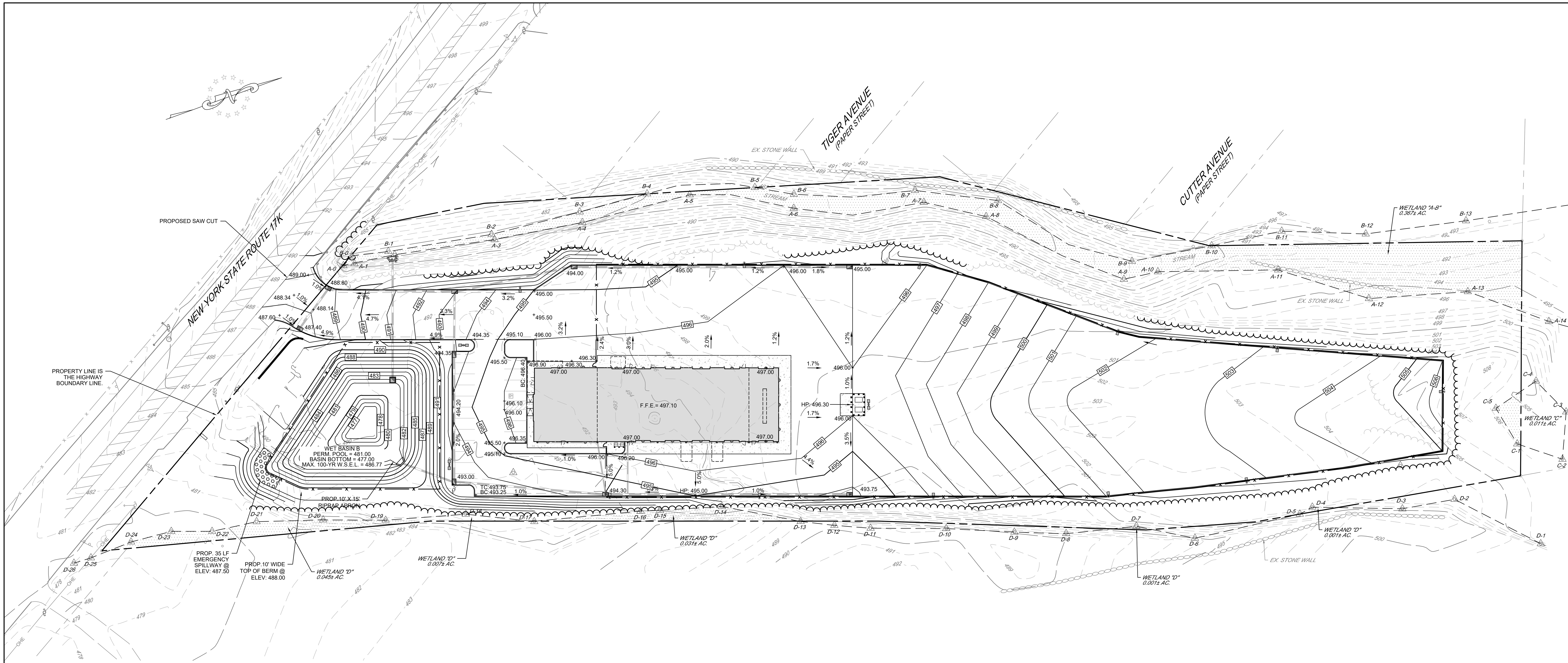
ID #

40 20 0
GRAPHIC SCALE: 1" = 40'

PROJECT 028-004
DATE 06/17/2022
SCALE 1" = 40'
DRAWN ESC
DESIGNED JWJ
CHECKED NES/JWJ

STATE OF NEW YORK NEIL E. SANDERS 87961 REGISTERED PROFESSIONAL ENGINEER
02/15/23

C400
SHEET 3 OF 15



GRADING NOTES:

1. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT REFERENCED IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ALL SOFT, YIELDING, OR UNSUITABLE MATERIALS AND REPLACING WITH SUITABLE MATERIALS AS SPECIFIED IN THE SOILS REPORT (IF ONE HAS BEEN PREPARED). ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM TEST D-1557. MOISTURE CONTENT AT THE TIME OF PLACEMENT SHALL NOT EXCEED 2% ABOVE NOR 3% BELOW OPTIMUM. CONTRACTOR SHALL SUBMIT A COMPACTION REPORT PREPARED BY A QUALIFIED SOILS ENGINEER, REGISTERED IN THE STATE IN WHICH THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS AND SPECS AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR TO ENSURE 0.75% MINIMUM SLOPE AGAINST ALL ISLANDS, GUTTERS, CURBS, AND MINIMUM 0.7% SLOPE ON ALL CONCRETE AND ASPHALT SURFACES TO PREVENT PONDING. ANY DISCREPANCIES THAT MAY AFFECT THE PUBLIC SAFETY OF PROJECT COST MUST BE IDENTIFIED TO THE ENGINEER IN WRITING IMMEDIATELY. PROCEEDING WITH CONSTRUCTION WITH KNOWN DESIGN TOLERANCE DISCREPANCIES SHALL BE AT THE CONTRACTOR'S RISK.
3. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT SHALL BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL COMPACTED TO 95% OPTIMUM DENSITY, AS DETERMINED BY MODIFIED PROCTOR METHOD.
4. IN CASE OF DISCREPANCIES BETWEEN THE PLANS, THE SITE PLAN SHALL SUPERSEDE. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICT IMMEDIATELY.
5. MAXIMUM CROSS-SLOPE OF 2.0% ON ALL SIDEWALKS, ACCESSIBLE PARKING SPACES, ACCESSIBLE ROUTES, AND ACCESSIBLE STRIPING AREAS.
6. OWNER SHALL RETAIN A QUALIFIED GEOTECHNICAL ENGINEER TO TEST PERMEABILITY AND PROVIDE CONSTRUCTION PHASE INSPECTIONS OF BASIN BOTTOM MATERIALS, INCLUDING INFILTRATION AND RETENTION BASINS. CONTRACTOR SHALL REMOVE UNSUITABLE OR OVERLY COMPACT SOIL OR ROCK MATERIAL AS NEEDED TO ACHIEVE REQUIRED PERMEABILITY AS DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER, AND PLACED FILL SHALL HAVE A PERMEABILITY GREATER THAN OR EQUAL TO DESIGN CRITERIA.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE OWNER'S GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION TO CONFIRM MEANS, METHODS, AND MATERIALS, AND TO SCHEDULE REQUIRED INSPECTIONS.
8. CONTRACTOR IS RESPONSIBLE FOR AS-BUILT PLANS AND GRADE CONTROL UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
22. PERMANENT SEEDING TO BE IN ACCORDANCE WITH LOCAL AND STATE EROSION AND SEDIMENT CONTROL STANDARDS.
23. REFER TO SITE PLAN NOTES FOR ADDITIONAL NOTES.

LEGEND

EXISTING FLOODPLAIN
DISSOLVED PROPERTY LINE
EXISTING ADJOINING PROPERTY LINE
EXISTING SETBACK
EXISTING STONE WALL
EXISTING FENCE
EXISTING CONTOUR - MAJOR
EXISTING CONTOUR - MINOR
EXISTING RCP PIPE
EXISTING OVERHEAD WIRES
EXISTING ELECTRIC
EXISTING GAS
EXISTING TELEPHONE
EXISTING SANITARY
EXISTING WATER
EXISTING WETLANDS
EXISTING SOILS LINE
EXISTING WETLANDS FLAG
EXISTING SOILS LABEL
EXISTING SIGN
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FINAL LAND DEVELOPMENT PLAN SET

GRADING PLAN

for

SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

811

ID #

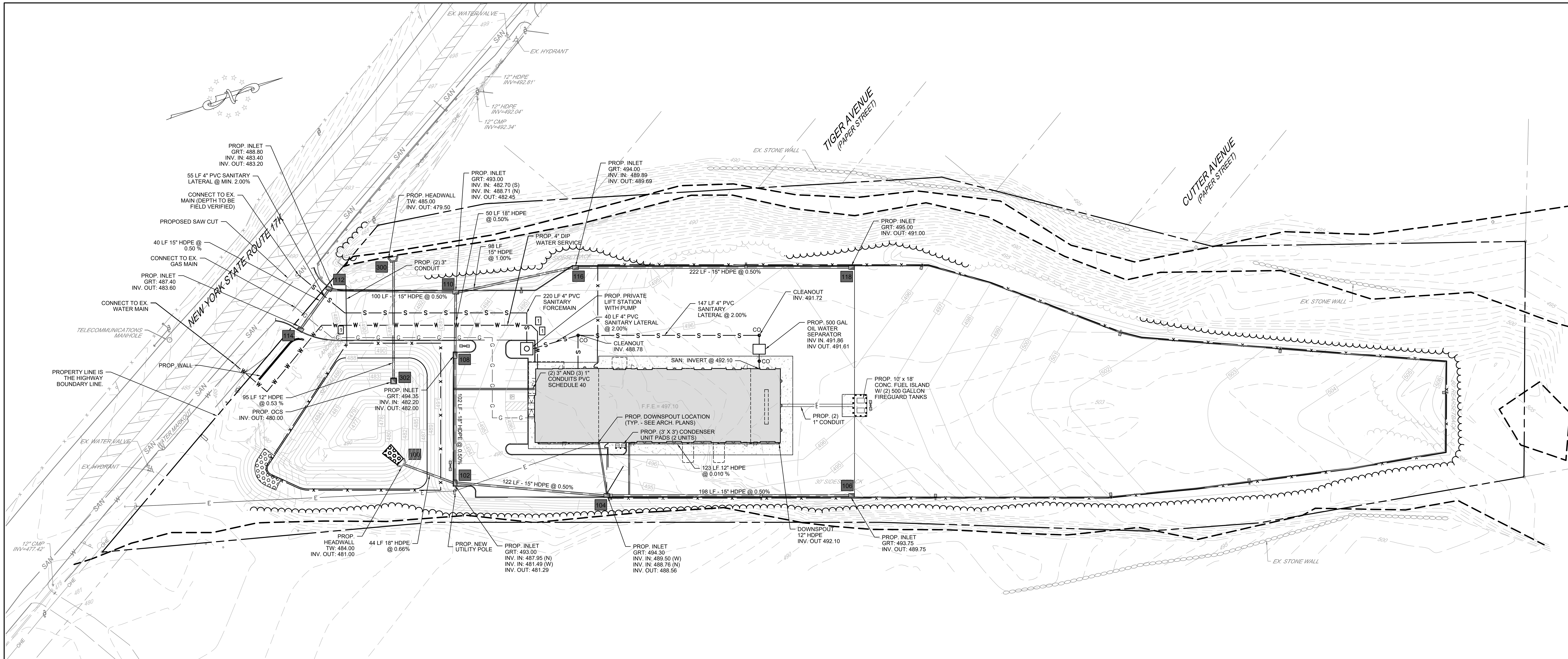
40 20 0
GRAPHIC SCALE: 1" = 40'

PROJECT	028-004
DATE	06/17/2022
SCALE	1" = 40'
DRAWN	ESC
DESIGNED	JWJ
CHECKED	NES/JWJ

STATE OF NEW YORK · NEIL E. SANDER · 87961 · LICENSED PROFESSIONAL ENGINEER
02/15/23

C500

SHEET 4 OF 15



EXISTING UTILITY NOTES:

1. CONTRACTOR TO LOCATE AND UTILIZE EXISTING WATER SERVICE CONNECTION IF FEASIBLE.
2. IF REUSE OF EXISTING WATER SERVICE IS INFEASIBLE, THEN IT SHALL BE REMOVED AND CAPPED AT THE PUBLIC MAIN, IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OF NEWBURGH SEWER DEPARTMENT. TERMINATION MUST BE APPROVED BY THE TOWN OF NEWBURGH SEWER DEPARTMENT PRIOR TO COMPLETION.
3. NEW WATER SERVICE LOCATIONS SHALL BE COORDINATED WITH THE TOWN OF NEWBURGH SEWER DEPARTMENT.
4. CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING WATER SERVICES AND/OR INSTALLATION OF NEW WATER SERVICES.
5. CONTRACTOR TO LOCATE AND UTILIZE EXISTING GAS SERVICE CONNECTION IF FEASIBLE.
6. IF REUSE OF EXISTING GAS SERVICE IS INFEASIBLE, THEN IT SHALL BE REMOVED AND CAPPED AT THE MAIN, IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE LOCAL GAS COMPANY. TERMINATION MUST BE APPROVED BY THE LOCAL GAS COMPANY PRIOR TO COMPLETION.
7. NEW GAS SERVICE LOCATIONS SHALL BE COORDINATED WITH THE LOCAL GAS COMPANY.
8. CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING GAS SERVICES AND/OR INSTALLATION OF NEW GAS SERVICES.
9. CONTRACTOR TO LOCATE AND UTILIZE EXISTING SANITARY SEWER SERVICE CONNECTION IF FEASIBLE AND ADEQUATELY SIZED.
10. IF REUSE OF EXISTING SANITARY SEWER SERVICE IS INFEASIBLE, THEN IT SHALL BE REMOVED AND CAPPED AT THE PUBLIC MAIN, IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OF NEWBURGH SEWER DEPARTMENT. TERMINATION MUST BE APPROVED BY THE TOWN OF NEWBURGH SEWER DEPARTMENT PRIOR TO COMPLETION.
11. NEW SANITARY SEWER SERVICE LOCATIONS SHALL BE COORDINATED WITH THE TOWN OF NEWBURGH SEWER DEPARTMENT.
12. CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING SANITARY SEWER SERVICES AND/OR INSTALLATION OF NEW SANITARY SEWER SERVICES.

UTILITY NOTES:

1. LOCATION OF ALL EXISTING AND PROPOSED SERVICES, INCLUDING BUT NOT LIMITED TO SANITARY, WATER, ELECTRIC, STORM, GAS, AND TELECOMMUNICATIONS, ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY AGENCIES AND AUTHORITIES PRIOR TO ANY CONSTRUCTION OR EXCAVATION. ANY DISCREPANCY SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER.
2. CONSTRUCTION OF SANITARY AND STORM FACILITIES SHALL BEGIN AT THE LOWEST ELEVATION (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED CROSSINGS WITH EXISTING UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE TO NOTIFY DIG SAFE 811 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION ON SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL UTILITY AGENCIES AND AUTHORITIES TO MARK OUT FACILITIES PRIOR TO EXCAVATION.
4. EXACT LOCATIONS AND SERVICE SIZES OF BUILDING UTILITY CONNECTIONS ARE SHOWN ON THE ARCHITECTURAL PLANS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
5. ALL PROPOSED UTILITIES TO BE INSTALLED UNDERGROUND UNLESS OTHERWISE SPECIFIED.
6. ALL PROPOSED UTILITIES LOCATED UNDER THE STATE ROADWAY WILL NEED TO BE INSTALLED TO A DEPTH OF 5' BELOW THE DRIVING SURFACE.
7. ALL SEWER AND WATER FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE TOWN OF NEWBURGH SEWER DEPARTMENT.
8. WATER SERVICE MATERIALS SHALL BE SPECIFIED BY THE LOCAL WATER UTILITY. ENGINEER IS NOT RESPONSIBLE FOR THE COSTS ASSOCIATED WITH FEES AND APPURTENANCES REQUIRED BY THE LOCAL WATER UTILITY.
9. SANITARY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY AT LEAST TEN (10) FEET HORIZONTALLY. WHERE SUCH SEPARATION IS NOT POSSIBLE, SEWER AND WATER MAINS SHALL BE IN SEPARATE TRENCHES, WITH THE SEWER MAIN AT LEAST EIGHTEEN (18) INCHES BELOW THE WATER MAIN.
10. ALL SEWER PIPE INSTALLED WITH LESS THAN THREE (3) FEET OF COVER, GREATER THAN TWENTY (20) FEET OF COVER, OR WITHIN EIGHTEEN (18) INCHES OF A WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE, UNLESS OTHERWISE SPECIFIED.
11. WHERE SANITARY SEWER LATERAL CONNECTIONS ARE GREATER THAN TEN (10) FEET DEEP AT THE POINT OF CONNECTION TO THE MAIN, A CONCRETE DROP MANHOLE SHALL BE USED.
12. GAS, ELECTRIC, AND TELECOMMUNICATIONS LINES LOCATED HEREON ARE APPROXIMATE. ACTUAL LOCATION AND LAYOUT FOR GAS, ELECTRIC, AND TELECOMMUNICATIONS SHALL BE AT THE DIRECTION OF THE APPROPRIATE PROVIDER.
13. MEANS, METHODS, AND MATERIALS SHALL BE DONE IN ACCORDANCE WITH THE OWNER'S SPECIFICATIONS. IF SAID SPECIFICATIONS DO NOT EXIST, ALL MEANS, METHODS, AND MATERIALS SHALL BE PROVIDED CONSISTENT WITH ACCEPTED INDUSTRY STANDARDS.
16. ALL GAS INSTALLATION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE CENTRAL HUDSON GAS & ELECTRIC CORP. SPECIFICATIONS AND REQUIREMENTS FOR GAS, AND FOLLOW ANY COMPANY STANDARDS AND DETAILS.
17. GAS LATERAL CONNECTION IS TO BE CONSTRUCTED BY THE CONTRACTOR ONLY AFTER ALL VENTED GAS APPLIANCES AND ALL OTHER APPLIANCES THAT ARE PRESENT AT THE TIME OF UNLOCK ARE INSTALLED AND OPERATIONAL .
18. SERVICE PIPE INSTALLATION. CENTRAL HUDSON GAS & ELECTRIC CORP. WILL SIZE AND PROVIDE GAS SERVICE TO EACH BUILDING OR PREMISE.

TOWN OF NEWBURGH
WATER SYSTEM NOTES FOR SITE PLANS

1. "Construction of potable water utilities and connection to the Town of Newburgh water system requires a permit from the Town of Newburgh Water Department. All work and materials shall conform to the requirements of the NYSDOH and the Town of Newburgh."
2. All water service lines four (4) inches and larger in diameter shall be cement lined class 52 ductile iron pipe conforming to ANSI\AWWA C151\A21.51 for Ductile Iron Pipe, latest revision. Joints shall be either push-on or mechanical joint as required.
3. Thrust restraint of the pipe shall be through the use of joint restraint. Thrust blocks are not acceptable. Joint restraint shall be through the use of mechanical joint pipe with retainer glands. All fittings and valves shall also be installed with retainer glands for joint restraint. Retainer glands shall be EBBA Iron Megalug Series 1100 or approved equal. The use of a manufactured restrained joint pipe is acceptable with prior approval of the Water Department.
4. All fittings shall be cast iron or ductile iron, mechanical joint, class 250 and conform to ANSI\AWWA C110\A21.10 for Ductile and Gray Iron Fittings or ANSI\AWWA C153\A21.53 for Ductile Iron Compact Fittings, latest revision.
5. All valves 4 to 12 inches shall be Resilient Wedge Gate Valves conforming to ANSI\AWWA C509 such as Mueller Model A-2360-23 or approved equal. All gate valves shall open left (counterclockwise).
6. Tapping sleeve shall be mechanical joint such as Mueller H-615 or equal. Tapping valves 4 to 12 inches shall be Resilient Wedge Gate Valves conforming to ANSI\AWWA C509 such as Mueller Model T-2360-19 or approved equal. All tapping sleeves and valves shall be tested to 150 psi minimum; testing of the tapping sleeve and valve must be witnessed and accepted by the Town of Newburgh Water Department prior to cutting into the pipe.
7. All hydrants shall be Clow-Eddy F-2640 conforming to AWWA Standard C-502, latest revision. All hydrants shall include a 5 ¼ inch main valve opening, two 2 ½ inch diameter NPT hose nozzles, one 4 inch NPT steamer nozzle, a 6 inch diameter inlet connection and a 1 ½ inch pentagon operating nut. All hydrants shall open left (counter-clockwise). Hydrants on mains to be dedicated to the Town shall be Equipment Yellow. Hydrants located on private property shall be Red.
8. All water service lines two (2) inches in diameter and smaller shall be type K copper tubing. Corporation stops shall be Mueller H-15020N for ¾ and 1 inch, Mueller H-15000N or B-25000N for 1 ½ and 2 inch sizes. Curb valves shall be Mueller H-1502-2N for ¾ and 1 inch and Mueller B-25204N for 1 ½ and 2 inch sizes. Curb boxes shall be Mueller H-10314N for ¾ and 1 inch and Mueller H-10310N for 1 ½ and 2 inch sizes.
9. All pipe installation shall be subject to inspection by the Town of Newburgh Water Department. The contractor shall be responsible for coordinating all inspections as required with the Town of Newburgh Water Department.
10. The water main shall be tested, disinfected and flushed in accordance with the Town of Newburgh requirements. All testing, disinfection and flushing shall be coordinated with the Town of Newburgh Water Department. Prior to putting the water main in service satisfactory sanitary results from a certified lab must be submitted to the Town of Newburgh Water Department. The test samples must be collected by a representative of the testing laboratory and witnessed by the Water Department.
11. The final layout of the proposed water and/or sewer connection, including all materials, size and location of service and all appurtenances, is subject to the review and approval of the Town of Newburgh Water and/or Sewer Department. No permits shall be issued for a water and/or sewer connection until a final layout is approved by the respective Department.

Original 12-06-96
Revised 04-24-02
Revised 01-2015

LEGEND

- EXISTING PROPERTY LINE
- EXISTING FLOODPLAIN
- DISSOLVED PROPERTY LINE
- EXISTING ADJOINING PROPERTY LINE
- EXISTING SETBACK
- EXISTING STONE WALL
- EXISTING FENCE
- EXISTING CONTOUR - MAJOR
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- EXISTING RCP PIPE
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- EXISTING ELECTRIC
- EXISTING GAS
- EXISTING TELEPHONE
- EXISTING SANITARY
- EXISTING WATER
- EXISTING WETLANDS
- EXISTING SOILS LINE
- EXISTING WETLANDS FLAG
- EXISTING SOILS LABEL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING STORM MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING SPOT ELEVATION
- PROPOSED OUTFALL CONTROL STRUCTURE
- PROPOSED HEADWALL
- PROPOSED STORM INLET
- PROPOSED UTILITY POLE
- PROPOSED TREELINE
- PROPOSED FENCE
- PROPOSED STONE WALL
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LATERAL
- PROPOSED WATER SERVICE
- PROPOSED ELECTRIC SERVICE
- PROPOSED GAS LATERAL
- PROPOSED CONTOUR - MAJOR
- PROPOSED CONTOUR - MINOR
- PROPOSED STORM PIPE

RESTRAINT JOINT PIPE SCHEDULE

#	TYPE	MATERIAL	QUANTITY
1	4"	DIP	3

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PRE MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	MAS
2	10/24/22	REVISED PER TOWN COMMENTS	MAS
3	12/17/22	REVISED PER NYSDOT COMMENTS	ESC
4	01/31/23	REVISED PER NYSDOT COMMENTS	JWJ
5	02/15/23	REVISED PER TOWN AND NYSDOT COMMENTS	JWJ

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FINAL LAND DEVELOPMENT PLAN SET
UTILITY PLAN
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

811

ID #

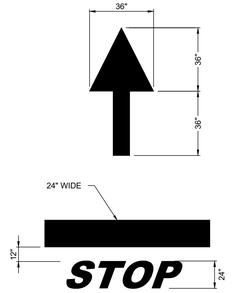
40 20 0
GRAPHIC SCALE: 1" = 40'

PROJECT	
028-004	
DATE	
06/17/2022	
SCALE	DRAWN
1" = 40'	ESC
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK · NEIL E. SANDER · 87961 · LICENSED PROFESSIONAL ENGINEER
02/15/23

C600

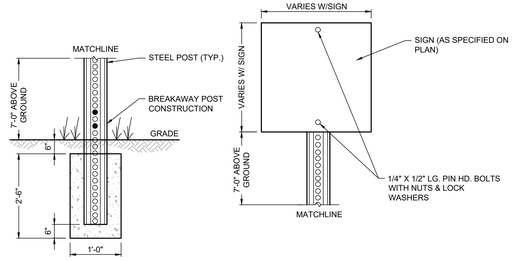
SHEET	OF
5	15



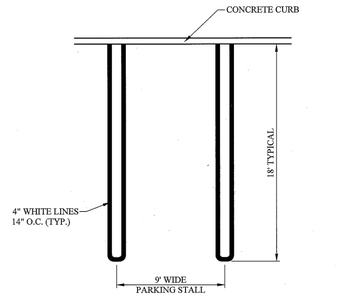
NOTE:

ARROWS AND WORDS CAN BE ARRANGED IN OTHER COMBINATIONS THAN THOSE ILLUSTRATED HERE TO ACHIEVE DESIRED RESULT.

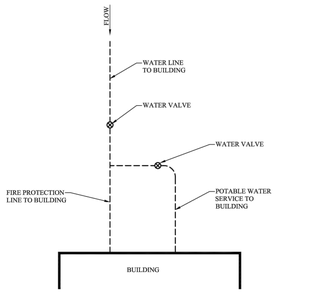
PAINTED PAVEMENT MARKING DETAIL
N.T.S.



SIGN POST AND FOOTING DETAIL
N.T.S.

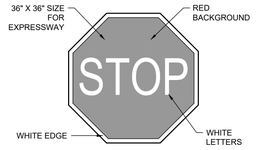


TYPICAL PARKING SPACE DETAIL
SCALE: N.T.S.

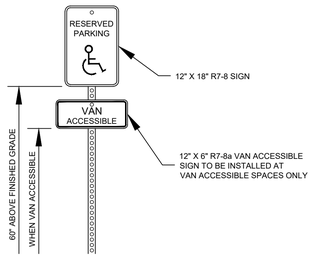


NOTE:
VALVING MUST BE ARRANGED SO THAT POTABLE WATER IS TERMINATED IF FIRE PROTECTION LINE IS TURNED OFF.

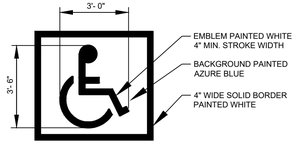
TOWN OF NEWBURGH FIRE PROTECTION FLOW TO BLDG. CONNECTION DETAIL
SCALE: N.T.S.



STOP SIGN (R1-1) DETAIL
N.T.S.

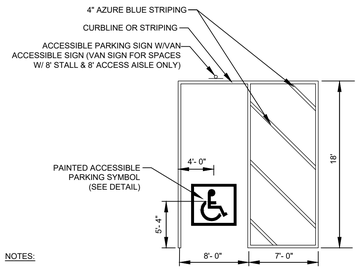


ACCESSIBLE PARKING SIGN W/VAN ACCESSIBLE SIGN
N.T.S.



NOTES:
ALL PAVEMENT STRIPING, MARKINGS & APPLICABLE SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST NEW YORK ACCESSIBILITY STANDARDS.

PAINTED ACCESSIBLE PARKING SYMBOL
N.T.S.

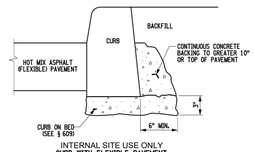


NOTES:

1. PAVEMENT STRIPING FOR ALL ACCESSIBLE PARKING SPACES SHALL BE PAINTED AZURE BLUE.
2. WHERE AN ACCESSIBLE PARKING STALL MEETS A STANDARD PARKING STALL, AN AZURE BLUE AND WHITE PAVEMENT STRIPE SHALL BE PAINTED.
3. ALL PAVEMENT STRIPING, MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST NEW YORK ACCESSIBILITY STANDARDS.
4. CONTRACTOR TO ENSURE THAT GRADES WITHIN ACCESSIBLE SPACES DO NOT EXCEED 1.8% AT ANY POINT.

ACCESSIBLE PARKING STALL STRIPING
N.T.S.

CAST-IN-PLACE CONCRETE CURB AND GUTTER
ALL HOT MIX ASPHALT (HMA) ON THESE PLANS SHALL BE REPLACED BY WARM MIX ASPHALT (WMA)



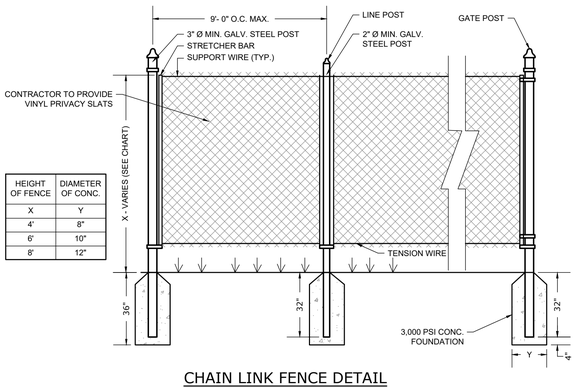
INTERNAL SITE USE ONLY
CURB WITH FLEXIBLE PAVEMENT BEDDING AND BACKFILL
ALL HOT MIX ASPHALT (HMA) ON THESE PLANS SHALL BE REPLACED BY WARM MIX ASPHALT (WMA)

NEW YORK STATE OF OPPORTUNITY. **Department of Transportation**

U.S. CUSTOMARY STANDARD SHEET

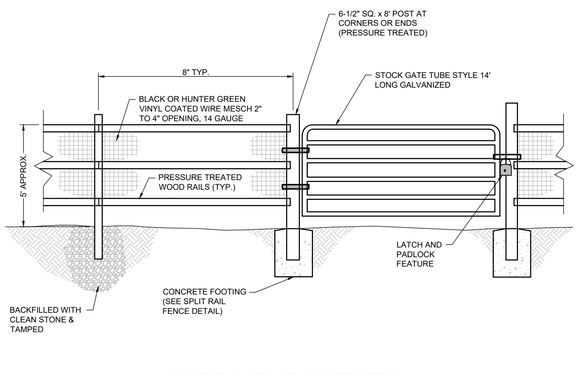
CONCRETE AND STONE CURB AND GUTTER (SHEET 3 OF 4)

APPROVED AUGUST 04, 2021 /S/ RICHARD D. WILDER, P.E. DEPUTY CHIEF ENGINEER DESIGN	ISSUED UNDER EI 21-016 609-01

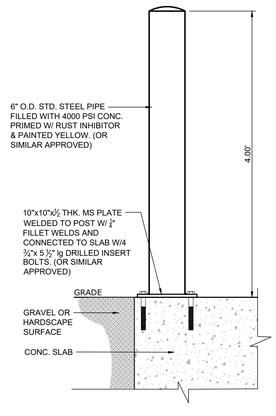


HEIGHT OF FENCE	DIAMETER OF CONC.
X	Y
4'	8"
6'	10"
8'	12"

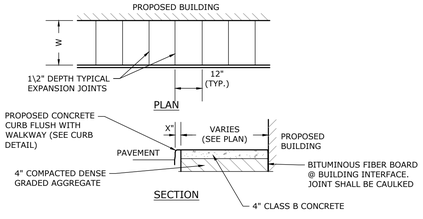
CHAIN LINK FENCE DETAIL
N.T.S.



SPLIT RAIL FENCE & GATE DETAIL
N.T.S.



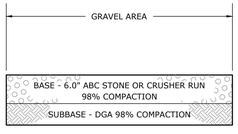
SURFACE MOUNTED BOLLARD DETAIL
N.T.S.



NOTES:

1. MAX. CROSS SLOPE 2% PITCHED AWAY FROM BUILDING.
2. PROVIDE 1/2" PREMOLDED BITUMINOUS EXPANSION JOINT AT 12' INTERVALS.
3. REFER TO SEE PLAN FOR SIDEWALK WIDTH (W)
4. PROVIDE A BROOM FINISH FOR A SLIP-RESISTANT WEARING SURFACE IN ACCORDANCE WITH A.D.A. REGULATIONS.

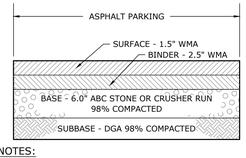
SIDEWALK AT BUILDING DETAIL
N.T.S.



NOTES:

1. ALL GRAVEL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

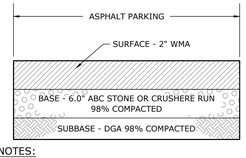
GRAVEL SURFACE DETAIL
N.T.S.



NOTES:

1. ALL PAVEMENT MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

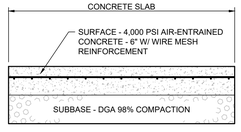
HEAVY DUTY PAVEMENT DETAIL
N.T.S.



NOTES:

1. ALL PAVEMENT MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

LIGHT DUTY PAVEMENT DETAIL
N.T.S.



NOTES:

1. ALL PAVEMENT MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

BUILDING SURROUND CONCRETE SLAB
N.T.S.

GENERAL DETAIL NOTE:

1. ALL DETAILS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY.
2. DETAILS TO BE "OR EQUIVALENT".
3. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF LOCAL REQUIRED DETAILS TO COMPLETE THE DESIGN.
4. IN CASE OF DISCREPANCIES BETWEEN THE PLAN DETAILS AND LOCAL REQUIRED DETAILS, THE LOCAL REQUIRED DETAILS SHALL SUPERSEDE. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICT IF NEEDED.
5. REFER TO PREVIOUS SHEETS FOR ADDITIONAL NOTES.
6. ANY DETAILS NEEDED FOR BIDDING AND/OR CONSTRUCTION OF THIS JOB, SHOWN OR NOT SHOWN ON THESE PLANS, ARE TO BE IN ACCORDANCE WITH LOCAL MUNICIPAL, COUNTY, STATE, AND FEDERAL REGULATIONS AND STANDARDS. IF ANY DETAIL SHOWN ON THESE PLANS DOES NOT MEET THESE STANDARDS, IT IS THE CONTRACTORS' RESPONSIBILITY TO BID AND/OR CONSTRUCT THE APPROPRIATE STANDARD DETAILS.

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PER MRE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	MAS
2	10/24/22	REVISED PER TOWN COMMENTS	MAS
3	12/17/22	REVISED PER NYSDOT COMMENTS	ESC
4	01/31/23	REVISED PER NYSDOT COMMENTS	JWI
5	02/15/23	REVISED PER TOWN AND NYSDOT COMMENTS	JWI

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(609) 496-9369 INDEPENDENCE@INDEPENDENCE.ENGINEERING

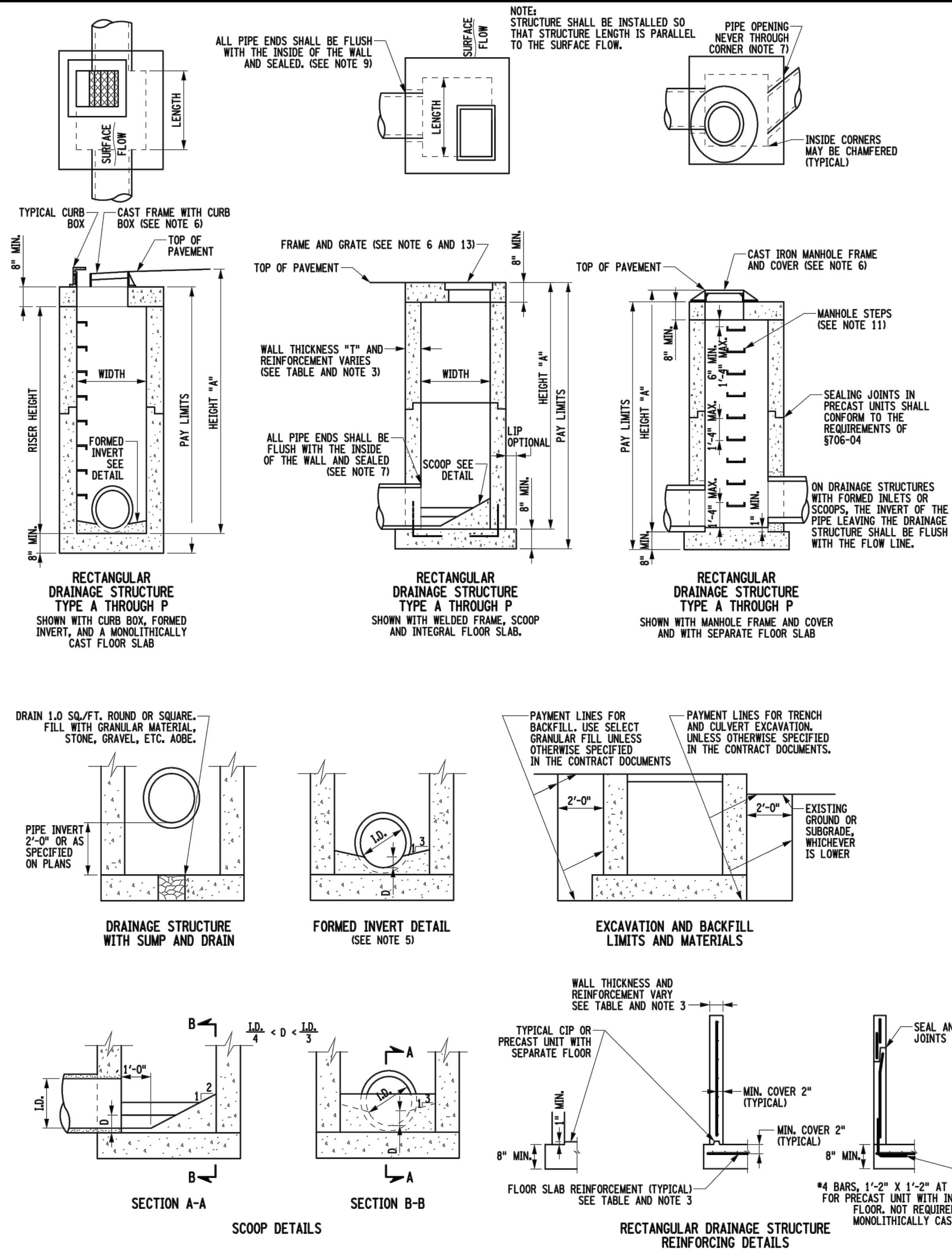
FINAL LAND DEVELOPMENT PLAN SET
SITE DETAILS
for
SUNBELT RENTALS - NEWBURGH
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH

ID #

PROJECT 028-004
DATE 06/17/2022
SCALE N.T.S. | DRAWN ESC
DESIGNED JWJ | CHECKED NES/JWJ

STATE OF NEW YORK NEIL E. SANDER #87961 REGISTERED PROFESSIONAL ENGINEER
02/15/23

C800
SHEET 6 OF 15



GENERAL NOTES:

1. DRAINAGE STRUCTURES SHALL BE CAST IN PLACE OR PRECAST UNITS. ROUND DRAINAGE STRUCTURES SHALL BE PRECAST ONLY. ALL CAST IN PLACE CONCRETE SHALL BE CLASS A. THE CONTRACTORS SHALL SUBMIT WORKING DRAWINGS FOR REVIEW AND APPROVAL OF ANY CHANGES TO THE STRUCTURES SHOWN ON THE STANDARD SHEETS OR CONTACT PLANS, OTHER THAN MINOR CHANGES APPROVED BY THE ENGINEER. USE OF FLAT SLAB TOPS ON ROUND PRECAST UNITS SHALL REQUIRE SUBMISSION OF WORKING DRAWINGS.
2. SEE PLANS FOR ELEVATIONS, DRAINAGE STRUCTURE LOCATIONS, TYPE OF GRATE UTILIZED, LOCATION OF SCOOPS, FORMED INVERTS, SUMPS AND DRAINS.
3. REINFORCEMENT FOR RECTANGULAR DRAINAGE UNITS (CAST IN PLACE OR PRECAST) BAR REINFORCEMENT INDICATED FOR RECTANGULAR TOP SLABS, RISERS AND BASES SHALL BE GRADE 60. WIRE FABRIC FOR CONCRETE REINFORCEMENT SHALL MEET THE REQUIREMENTS OF §709-02. RISER REINFORCEMENT SHALL BE PLACED SO IT WILL HAVE A MINIMUM COVER OF 2" BUT NO MORE THAN 4" FROM THE INSIDE FACE. THE REINFORCEMENT SHALL EXTEND COMPLETELY AROUND THE DRAINAGE STRUCTURE RISER AND SHALL BE LAPPED AND TIED. BASE REINFORCEMENT SHALL BE PLACED ABOVE THE MIDPOINT OF SLAB AND SHALL HAVE A MINIMUM CONCRETE COVER OF 2".
4. ROUND ALTERNATIVE:
WHEN SPECIFIED BY PAYMENT ITEM, THE CONTRACTOR MAY SUBSTITUTE ROUND, PRECAST DRAINAGE STRUCTURES IN PLACE OF RECTANGULAR STRUCTURES USING SIZES INDICATED IN THE "SELECTION TABLE FOR ALTERNATE ROUND DRAINAGE STRUCTURES" ON SHEET 4 OF 4. THE RISER, TOP SLAB, AND BOTTOM SLAB FOR THE ROUND ALTERNATE SHALL BE MANUFACTURED IN ACCORDANCE WITH THE PROVISIONS OF §706-04 OF THE STANDARD SPECIFICATIONS. WORKING DRAWINGS FOR THE ROUND ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL, UNLESS THE ROUND ALTERNATE PROPOSED HAS BEEN PREVIOUSLY APPROVED. FOR PREVIOUSLY APPROVED ROUND UNITS THE CONTRACTOR SHALL SUBMIT A COPY OF THE APPROVED DRAWINGS TO THE ENGINEER.
5. FORMED INVERTS:
FORMED INVERTS, SCOOP AND SUMPS SHALL BE PROVIDED AND INCLUDED IN THE PRICES BID FOR DRAINAGE STRUCTURES CALLED FOR IN THE CONTRACT DOCUMENTS. WHEN NON-CIRCULAR PIPES ARE USED, THE FORMED INVERT AND SUMP DETAILS SHALL BE MODIFIED TO FIT THE INVERTS.
6. GRATES:
CAST FRAMES MAY HAVE EITHER RETICULINE OR PARALLEL BAR GRATES, AND WELDED FRAMES MAY HAVE EITHER RETICULINE OR RECTANGULAR GRATES. IF NO GRATE IS SPECIFIED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR MAY FURNISH EITHER TYPE. GRATES SHALL BE INSTALLED SO THAT THE LENGTH OF THE GRATE IS PARALLEL TO THE SURFACE FLOW.
7. WALL OPENINGS:
RECTANGULAR DRAINAGE STRUCTURES SHOWN ON THESE STANDARD SHEETS SHOULD NEVER HAVE CORNER PIPE ENTRIES. IF PIPE ALIGNMENT WOULD REQUIRE A CORNER ENTRY, USE A ROUND DRAINAGE STRUCTURE OR USE A SPECIAL DRAINAGE STRUCTURE. ALL WALL OPENINGS SHALL BE FORMED COMPLETELY THROUGH THE WALL SECTION. CIRCULAR WALL OPENINGS SHALL BE FORMED FOR EACH CIRCULAR PIPE ENTERING PERPENDICULAR TO THE WALL. WHEN NON-CIRCULAR PIPES ARE SPECIFIED, OR ROUND PIPE ENTRIES ARE SKEWED, RECTANGULAR OPENINGS MAY BE USED. THE CLEARANCE BETWEEN THE OUTSIDE OF THE PIPE AND THE OPENING SHALL BE AT LEAST 2" BUT NO MORE THAN 3". THIS CLEARANCE SHALL BE MEASURED BETWEEN THE OUTSIDE OF THE PIPE AND NEAREST POINT ON THE RECTANGULAR OPENING. IF A CORNER HAS PIPE ENTRIES ON BOTH SIDES, AND THERE IS LESS THAN 2" BETWEEN EITHER OPENING AND THE CORNER. THEN THAT SECTION OF THE DRAINAGE STRUCTURE MUST HAVE 8" THICK WALLS.
8. MONOLITHIC AND INTEGRAL BASES MAY HAVE A MAXIMUM VERTICAL DRAFT OF ½" ON ALL INTERIOR DIMENSIONS, TO FACILITATE FORM REMOVAL. FOR WALL OPENINGS THAT EXTEND THE FULL WIDTH OR LENGTH OF THE STRUCTURE, THE MINIMUM CLEARANCE BETWEEN THE OUTSIDE OF THE PIPE AND THE WALL OPENING SHALL BE 1½".
9. FINISHING PIPE ENTRIES:
THE BELLS OF CONCRETE PIPE SHALL BE CUT OFF AT EVERY PIPE ENTRY WHERE THE BELL ENTERS A STRUCTURE. CONNECTIONS BETWEEN THE STRUCTURE AND PIPE SHALL BE MADE BY EITHER USING A RESILIENT CONNECTOR MEETING THE REQUIREMENTS OF ASTM C1478 OR BY COMPLETELY FILLING THE SPACE AROUND EACH PIPE WITH CONCRETE GROUTING MATERIAL OR CONCRETE REPAIR MATERIAL. IN CASE OF LARGE SPACES AROUND PIPES, CONCRETE PAVERS, COMPLETELY BEDDED IN GROUT OR CONCRETE REPAIR MATERIAL, MAY BE USED.
10. TOP SLAB AND OR FRAME AND GRATE ADJUSTMENT
A MINIMUM OF ½" OF BEDDING SHALL BE PLACED BETWEEN RISERS AND PRECAST TOP SLABS. GRADE ADJUSTMENT FOR TOP SLABS AND/OR FRAMES AND GRATES OF UP TO 2½" SHALL BE MADE WITH BEDDING MATERIAL MEETING THE REQUIREMENTS OF CONCRETE GROUTING MATERIALS OR CONCRETE REPAIR MATERIAL. GRADE ADJUSTMENT FOR TOP SLABS AND/OR FRAMES AND GRATES OF UP TO 6" SHALL BE MADE WITH A COMBINATION OF PRECAST CONCRETE PAVERS AND BEDDING MATERIALS. GRADE ADJUSTMENT FOR TOP SLABS AND/OR FRAMES AND GRATES OF UP TO 1'-0" SHALL BE MADE WITH CAST-IN-PLACE CONCRETE OR A COMBINATION OF PRECAST CONCRETE ADJUSTMENT ELEMENTS AND BEDDING MATERIALS. ALTERNATELY, GRADE ADJUSTMENTS FOR FRAMES AND GRATES OF UP TO 2" MAY BE MADE WITH RECYCLED RUBBER ELEMENTS OR UP TO 3" WITH HDPE ELEMENTS. RECYCLED RUBBER AND HDPE ELEMENTS SHALL BE PRODUCTS APPROVED BY THE MATERIALS BUREAU AND SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
11. STEPS:
MANHOLE STEPS SHALL BE REQUIRED IN ALL DRAINAGE STRUCTURES DEEPER THAN 4'-0".
12. CORBELED OR CONICAL RISER SECTIONS AND FLAT SLAB REDUCERS:
ROUND PRECAST DRAINAGE STRUCTURES OR MANHOLES (WHEN ALLOWED OR SPECIFIED) MAY BE FITTED WITH CONCENTRIC OR ECCENTRIC CONICAL SECTIONS TO REDUCE THEIR DIAMETERS, PROVIDED THE USE OF SUCH DEVICES IS COMPATIBLE WITH THE DRAINAGE SYSTEM DESIGN. THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS FOR REVIEW AND APPROVAL OF FLAT SLAB REDUCERS FOR ROUND OR RECTANGULAR STRUCTURES. A WALL SECTION WITH A HEIGHT LESS THAN 6" BETWEEN THE TOP OF THE HIGHEST PIPE ENTRY AND THE BOTTOM OF A CONICAL SECTION OR FLAT SLAB REDUCER SHALL NOT BE PERMITTED.
13. WHEN PIPE LOCATIONS PROVIDE FOR LESS THAN 8" BETWEEN THE TOP OF THE UPPERMOST PIPE AND THE TOP OF THE RISER AND THE STRUCTURE MAY BE SUBJECTED TO HIGHWAY LOADS, CONTACT STRUCTURES DIVISION FOR A SPECIAL DESIGN.
14. WHEN SITE CONDITIONS REQUIRE A DRAINAGE STRUCTURE TO BE INSTALLED TO A DEPTH GREATER THAN THAT SHOWN IN THE CONTRACT DOCUMENTS, AN INSTALLATION TOLERANCE OF 8" IS PERMITTED WITHOUT REQUIRING AN INCREASE IN WALL THICKNESS OR REINFORCING STEEL AS REQUIRED BY THE DRAINAGE STRUCTURE REINFORCEMENT TABLE.
15. THE PAY ITEMS FOR DRAINAGE STRUCTURES SPECIFY THE STRUCTURE AND FRAME. DRAINAGE STRUCTURE ITEM NUMBERS:
RECTANGULAR DRAINAGE STRUCTURE ITEM 604.30XXYY
RECTANGULAR DRAINAGE STRUCTURE WITH ROUND OPTION ITEM 604.31XXYY
RECTANGULAR DRAINAGE STRUCTURE WITH CONCRETE CAP ITEM 604.32XXYY
SEE TABLES BELOW FOR XX AND YY CODES.
EXAMPLE: 604.300706 - RECTANGULAR STRUCTURE TYPE G WITH TYPE 6 WELDED FRAME (SEE SHEET 4 OF 4 FOR ITEM NUMBERS FOR STRUCTURE TYPE Q, R, S, T, AND U)

DRAINAGE STRUCTURE REINFORCEMENT

HEIGHT "A"	WALL THICKNESS	RISER REINFORCEMENT (SEE NOTE 3 AND 15)
UP TO 7'-0"	6"	6"X6"- W6 X W6 OR #3 BARS AT 10" BOTH HORIZ. AND VERT.
	8"	UNREINFORCED
7'-0" TO 14'-0"	8"	6"X6"- W8.5 X W8.5 OR #3 BARS AT 8" BOTH HORIZ. AND VERT.
14'-0" TO 21'-0"	8"	4"X4"- W8.5 X W8.5 OR #3 BARS AT 5" BOTH HORIZ. AND VERT.
		FLOOR SLAB REINFORCEMENT (SEE NOTE 3)
UP TO 7'-0"		6"X6"- W11 X W11 OR #3 BARS AT 6" IN BOTH DIRECTIONS
7'-0" TO 14'-0"		4"X4"- W11 X W11 OR #3 BARS AT 4" IN BOTH DIRECTIONS
14'-0" TO 21'-0"		4"X4"- W14 X W14 OR #3 BARS AT 3" IN BOTH DIRECTIONS

•T MAY BE 6" OR 8" FOR THE FIRST 7'-0". EXCEPTIONS ARE SIZE S, T, AND U WITH CURB, RECTANGULAR STRUCTURES WITH ROUND MANHOLE OPENING, OR IF THERE IS LESS THAN 2" ON EITHER SIDE OF A CORNER. (NOTE 7) WHICH MUST HAVE 8" THICK WALLS.

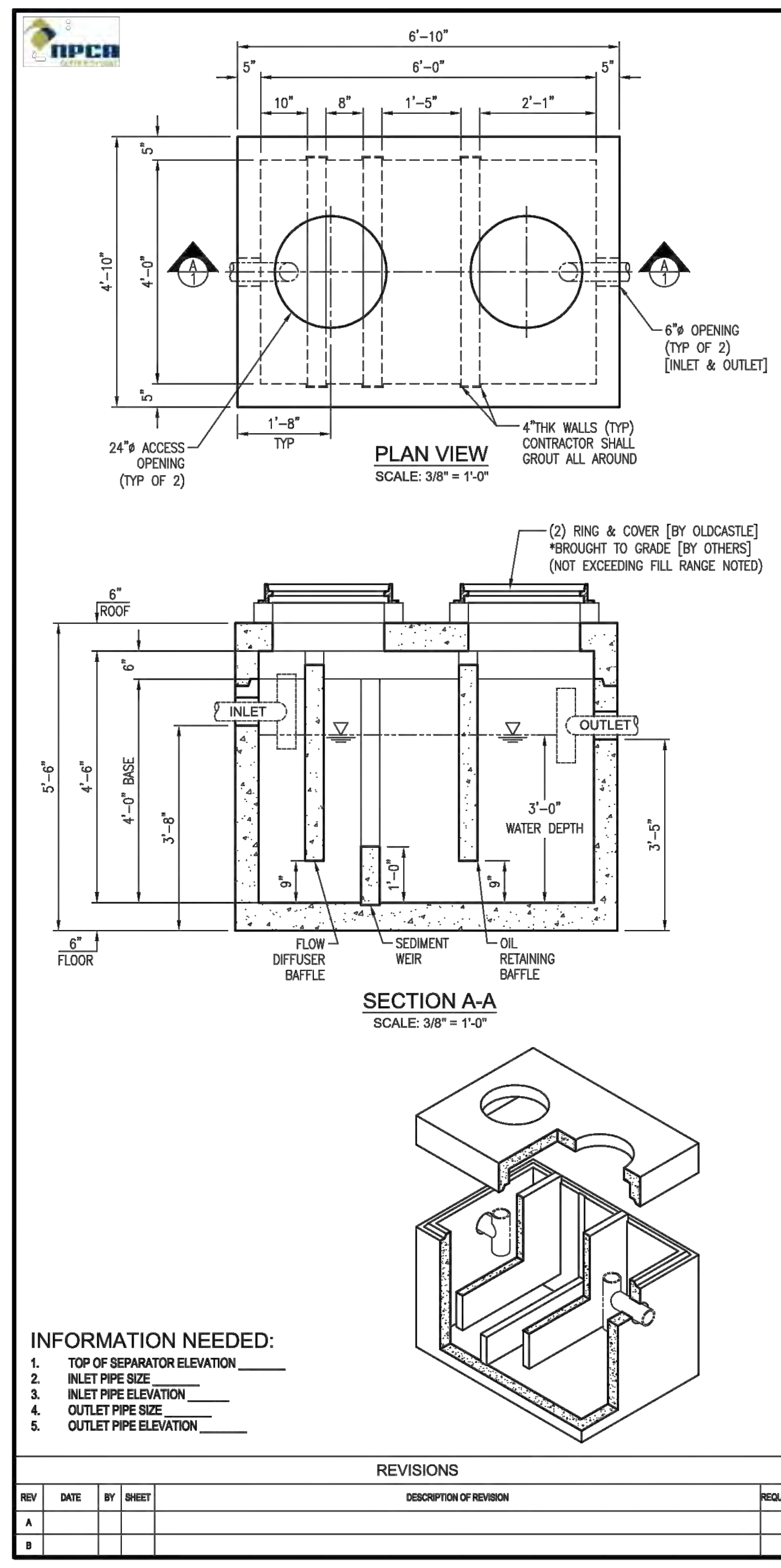
STRUCTURE SIZES AND PAY CODES

STRUCTURE TYPE	INSIDE DIMENSIONS WIDTH	LENGTH	PAY ITEM XX CODE
A	3'-0"	3'-0"	01
B	4'-0"	3'-0"	02
C	5'-0"	3'-0"	03
D	6'-8"	3'-0"	04
E	3'-0"	4'-0"	05
F	4'-0"	4'-0"	06
G	5'-0"	4'-0"	07
H	6'-8"	4'-0"	08
I	3'-0"	5'-0"	09
J	4'-0"	5'-0"	10
K	5'-0"	5'-0"	11
L	6'-8"	5'-0"	12
M	3'-0"	6'-8"	13
N	4'-0"	6'-8"	14
O	5'-0"	6'-8"	15
P	6'-8"	6'-8"	16

FRAMES AND PAY CODES

FRAME TYPE	PAY ITEM YY CODE
WELDED 3	03
WELDED 6	06
WELDED 11	11
WELDED 16	16
WELDED 22	22
MANHOLE 2'-8"	32
CAST F1	71
CAST F2	72
CAST F3	73
PARALLEL BAR 10PCB	90
PARALLEL BAR 11PCB	91
PARALLEL BAR 12PCB	92

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
U.S. CUSTOMARY STANDARD SHEET
DRAINAGE STRUCTURE DETAILS (SHEET 1 OF 4)
APPROVED: NOVEMBER 28, 2012 | ISSUED UNDER EB 12-044
/S/ RICHARD W. LEE, P.E.
DEPUTY CHIEF ENGINEER (DESIGN)
604-02
EFFECTIVE DATE: 05/02/13



GENERAL DESIGN NOTES:

1. STRENGTH DESIGN METHOD IN ACCORDANCE WITH (I.A.W.) ACI 318.
2. APPLICABLE DESIGN CODES:
   - ACI 318 (MAIN DESIGN SPECIFICATION)
   - ASTM C913 (PRODUCT SPECIFICATION)
3. PRECAST RATED FOR HS20 LIVE LOAD W/ IMPACT I.A.W. AASHTO SPECIFICATION
4. DESIGN FILL RANGE = 0'(MIN) TO 2'(MAX)
5. GROUND WATER TABLE ASSUMED AT 3'-6" BELOW GRADE. IF DESIGN (OR ACTUAL) WATER TABLE IS LESS THAN ASSUMED, REVIEWING ENGINEER TO NOTIFY OLDCASTLE PRECAST UPON REVIEW OF THIS SUBMITTAL.
6. LATERAL DESIGN PRESSURES:
   - EQUIV DRY SOIL FLUID PRESSURE = 47 PCF
   - EQUIV SATURATED SOIL FLUID PRESSURE = 80 PSF
   - LIVE LOAD SURCHARGE PRESSURE = 2'.
7. CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS :
   - f'c TOP & BAFFLES = 5,000 PSI (MIN)
   - f'c BASE = 6,000 PSI (MIN)
8. REINFORCEMENT:
   - CARBON-STEEL DEFORMED BARS: ASTM A615, FY = 60KSI (MIN).
9. JOINT SEALANT :
   - CS-102 CONSEAL BUTYL RUBBER SEALANT (OR EQUIV.) I.A.W. ASTM C990 FED. SPEC. SS-S-210,
10. PRECAST DESIGN DOES NOT INCLUDE ANY LATERAL OR SURCHARGE LOADS FROM OTHER BUILDINGS OR FOUNDATIONS ADJACENT TO THIS STRUCTURE. THIS STRUCTURE SHALL BE KEPT A MINIMUM OF 1:1 RATIO AWAY FROM OTHER FOOTINGS OR FOUNDATIONS.

NOTES TO CONTRACTOR:

1. PLEASE VERIFY ALL SIZES, LOCATIONS, AND ELEVATIONS OF OPENINGS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER COORDINATION TO ENSURE THAT AN ADEQUATE BEARING SURFACE IS PROVIDED (I.E. LEVEL AND COMPACTED) PER PROJECT SPECIFICATIONS AND DRAWINGS,.
3. AFTER PIPES ARE INSTALLED IN BLOCKOUTS, ALL ANNULAR SPACES SHALL BE FILLED WITH A MIN. OF 3,000 psi CONCRETE, TIGHT TO THE UNDERSIDE OF UPPER SECTION FOR FULL THICKNESS OF VAULT WALL.
4. CONTRACTOR TO RESPONSIBLE FOR THE FOLLOWING:
   - SUPPLY & INSTALL ALL PIPING & SAMPLING TEES
   - GROUT IN ALL BAFFLES ON BOTH SIDES
5. DESIGN, AS SHOWN HEREIN, IS APPLICABLE ONLY TO STRUCTURAL PERFORMANCE OF PRECAST. CAPACITY (GALLONS) SHALL BE DETERMINED BY OTHERS BASED ON SPECIFIC PROJECT REQUIREMENT

APPROX. WEIGHTS

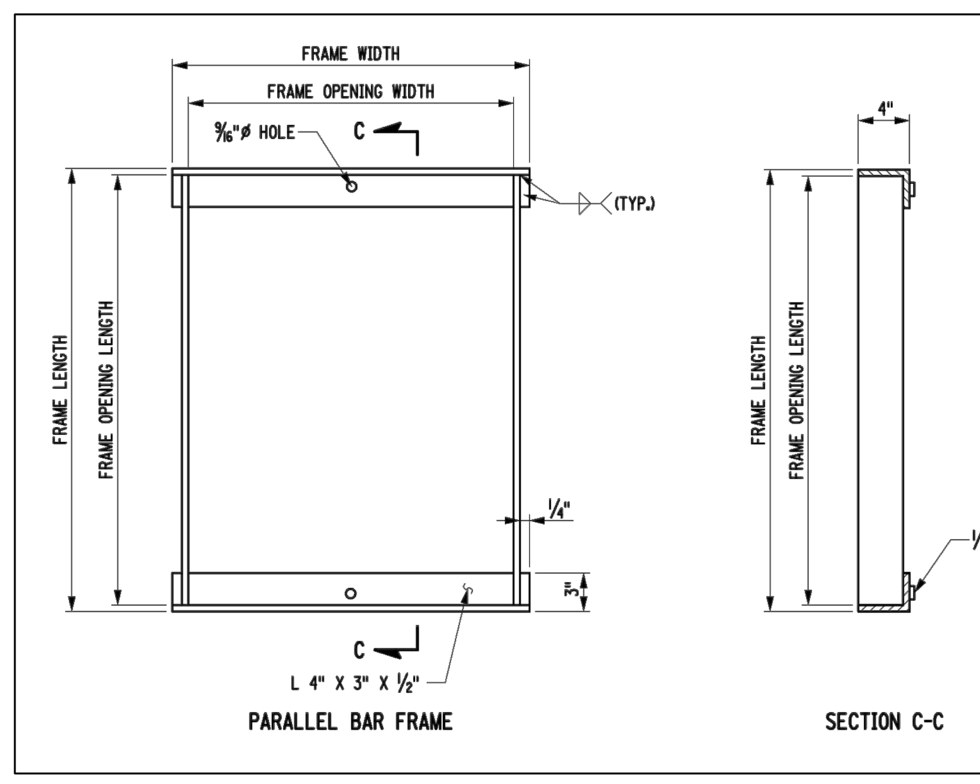
SECTION	WEIGHT (lbs)	Concrete(CY)
6" TOP	2,900	0.72
48" BASE	7,900	1.95
BAFFLES	750 EACH	0.18
WEIR	250	0.06

Oldcastle Precast®

500 GALLON OIL WATER SEPARATOR
SUBMITTAL LAYOUT

INFORMATION NEEDED:
1. TOP OF SEPARATOR ELEVATION
2. INLET PIPE SIZE
3. INLET PIPE ELEVATION
4. OUTLET PIPE SIZE
5. OUTLET PIPE ELEVATION

REVISIONS

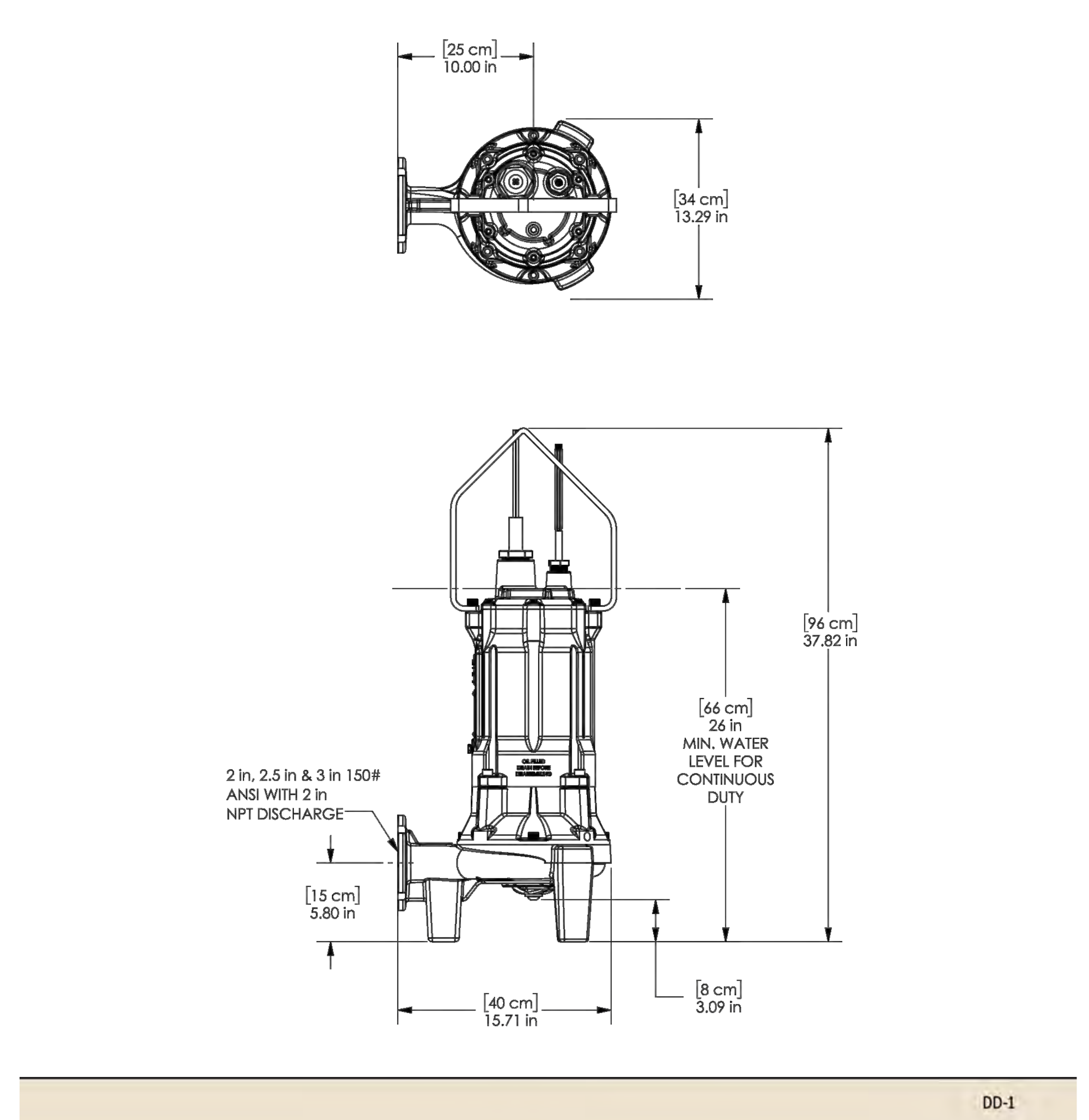


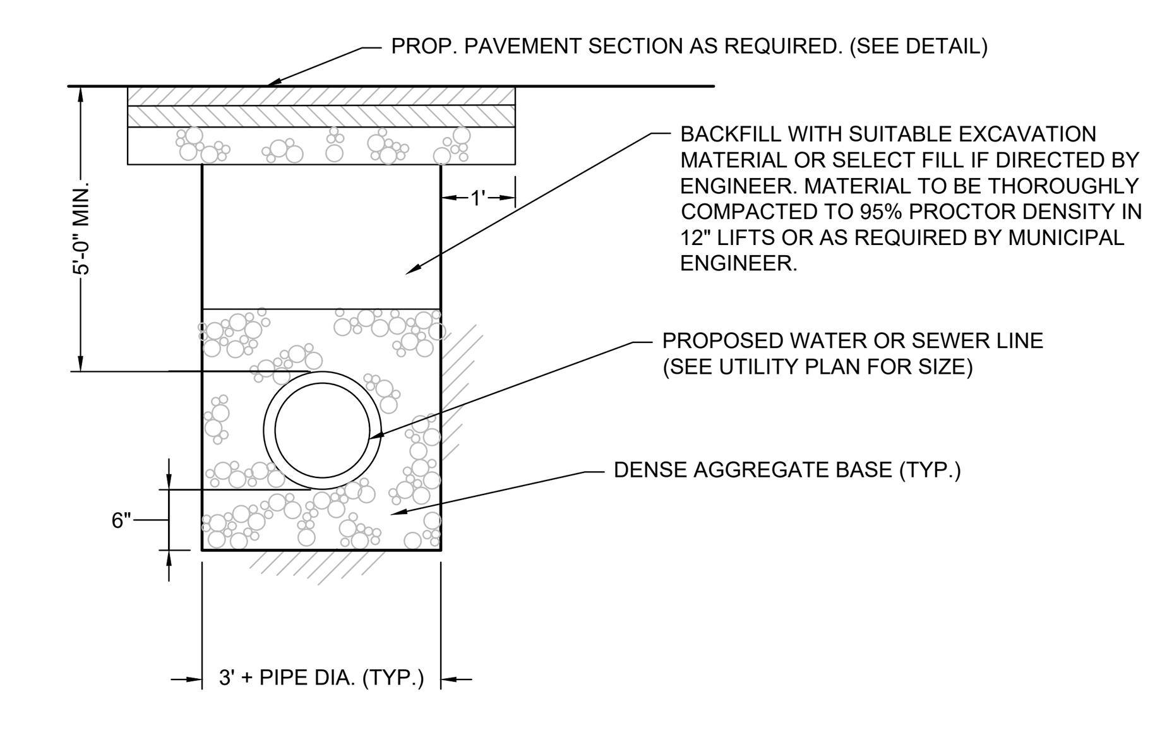
STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
U.S. CUSTOMARY STANDARD SHEET
PARALLEL BAR FRAMES AND GRATES
APPROVED JULY 28, 2014 | ISSUED UNDER EB 08-049
/S/ RICHARD W. LEE, P.E.
DEPUTY CHIEF ENGINEER DESIGN
655-02

Liberty Pumps
Engineered Products

Dimensional Data
LGV03/LGH03-Series - 60 Hz

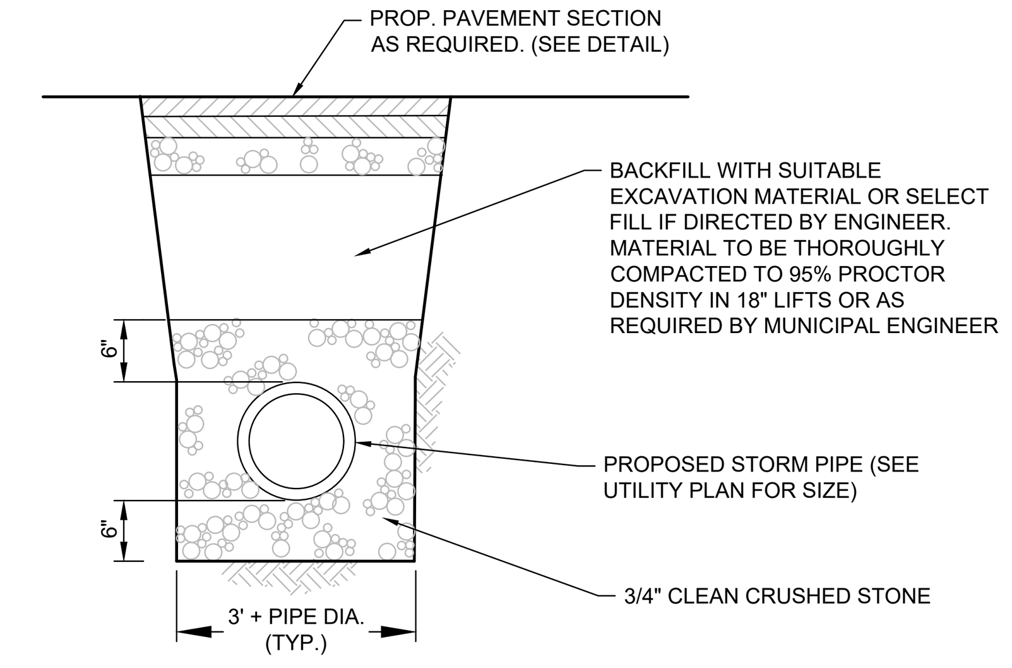
Horizontal Discharge





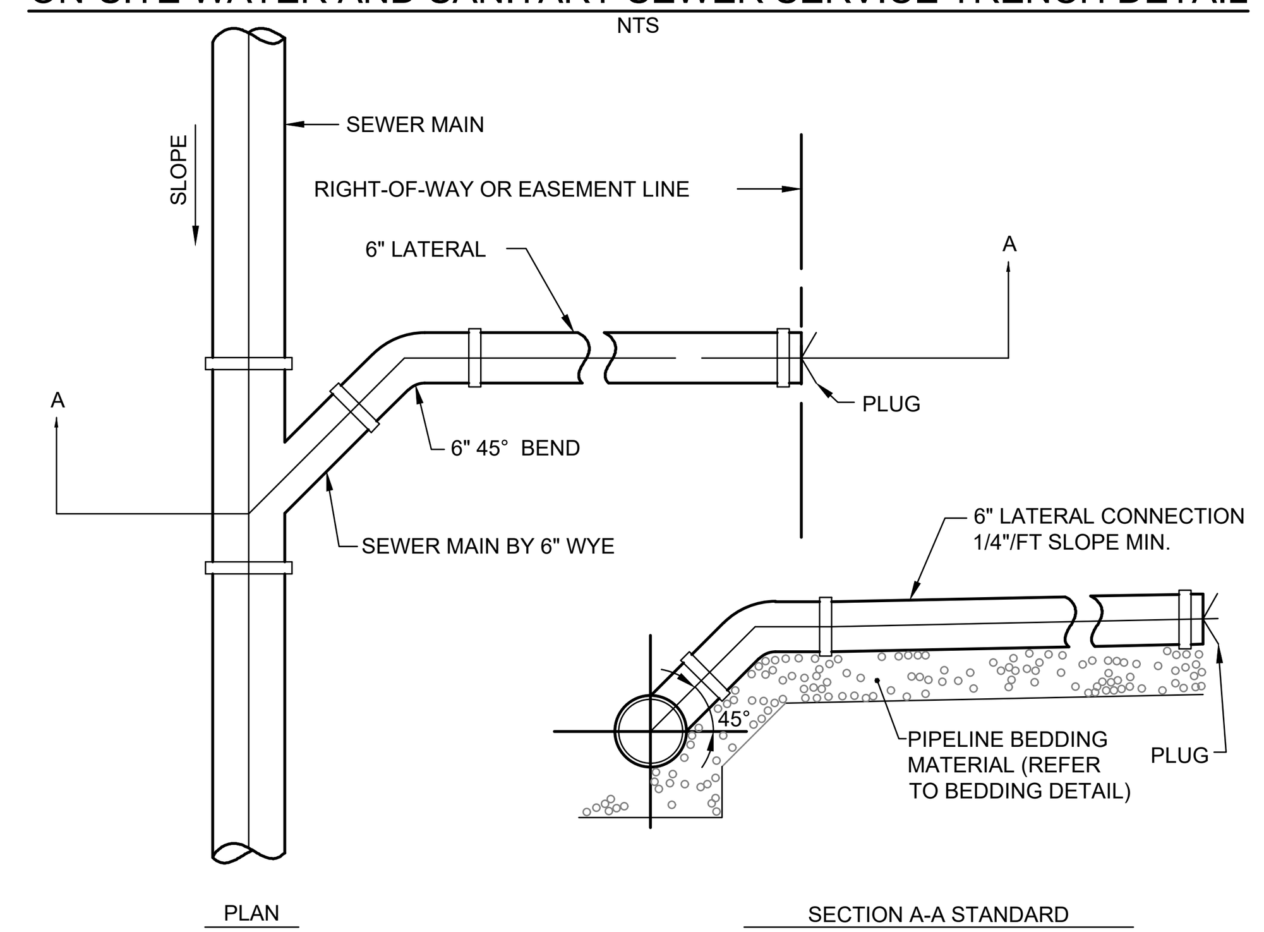
NOTE: PAVEMENT SECTION TO MATCH, AT MINIMUM, ADJOINING PAVEMENT.

ON-SITE WATER AND SANITARY SEWER SERVICE TRENCH DETAIL
NTS

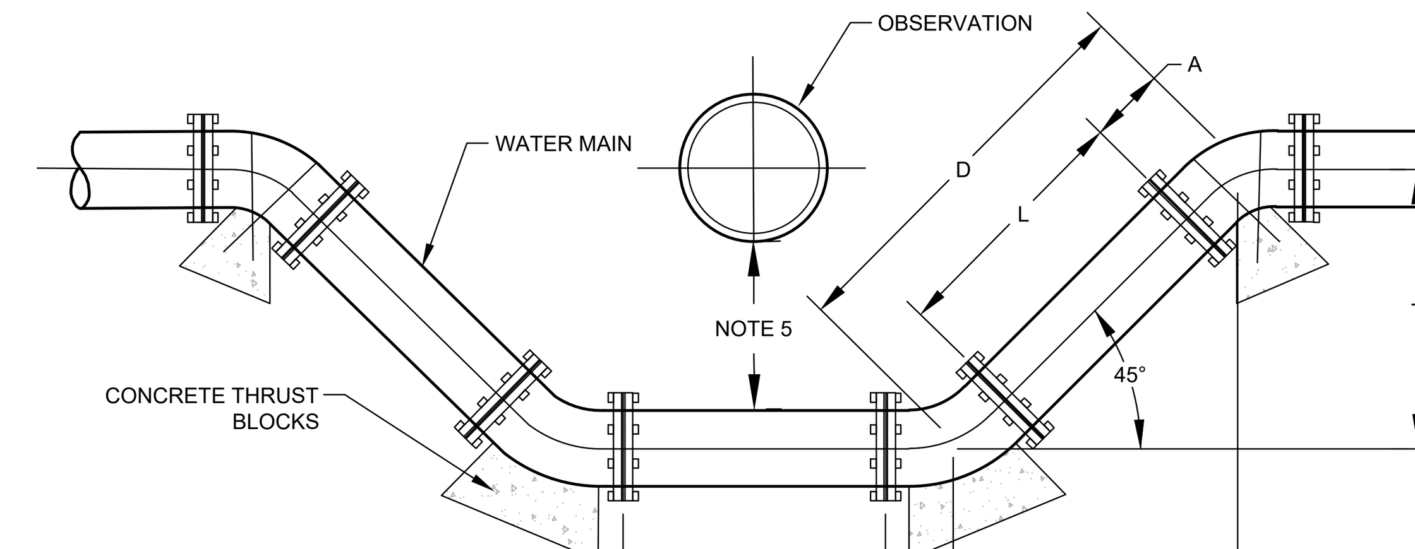


NOTE:
PAVEMENT SECTION TO MATCH, AT MINIMUM, ADJOINING PAVEMENT.

STORM SEWER TRENCH DETAIL
NTS



STANDARD LATERAL CONNECTION DETAIL
NTS



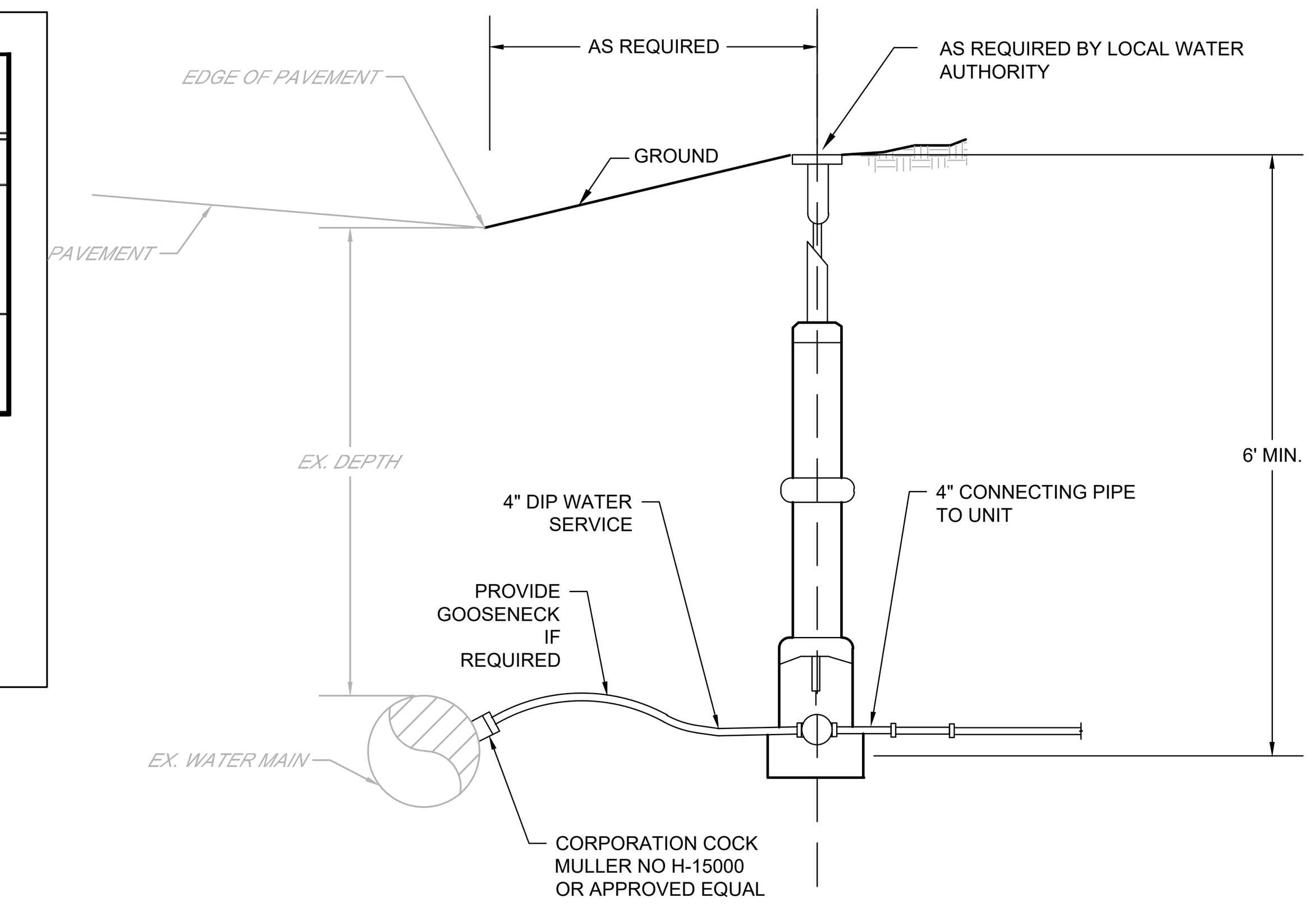
NOTES:

1. WATERMAIN MAY BE LOOPED ABOVE OBSTRUCTION, IF 4' MINIMUM COVER IS MAINTAINED ABOVE WATERMAN.
2. WATERMAIN SHALL BE DUCTILE IRON CEMENT LINED PIPE, ALL JOINTS SHALL BE MECHANICAL JOINT OR PUSH-ON AND ALL FITTINGS BE MECHANICALLY JOINT CAST IRON.
3. WATER SERVICE SHALL BE AS SHOWN ON UTILITY PLAN C600.
4. OFFSETS MAY BE SUBSTITUTED FOR A TEE OF UP TO 24' IF APPROVED BY THE ENGINEER.
5. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS AND DIRECTION CHANGES.
6. MINIMUM CLEARANCE BETWEEN SANITARY SEWER AND WATERMAIN SHALL BE 18". CLEARANCE BETWEEN WATERMAIN AND OTHER OBSTRUCTIONS SHALL BE 4'.
7. TIE RODS SHALL BE UTILIZED TO RESTRAIN PIPE JOINTS. DETAILS OF TIE ROD ASSEMBLY SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. TIE RODS SHALL BE SUFFICIENT TO RESTRAIN THRUST AT 100 PSI WORKING PRESSURE. MEGALUG RESTRAINT ALSO ACCEPTABLE IN PLACE OF TIE RODS.

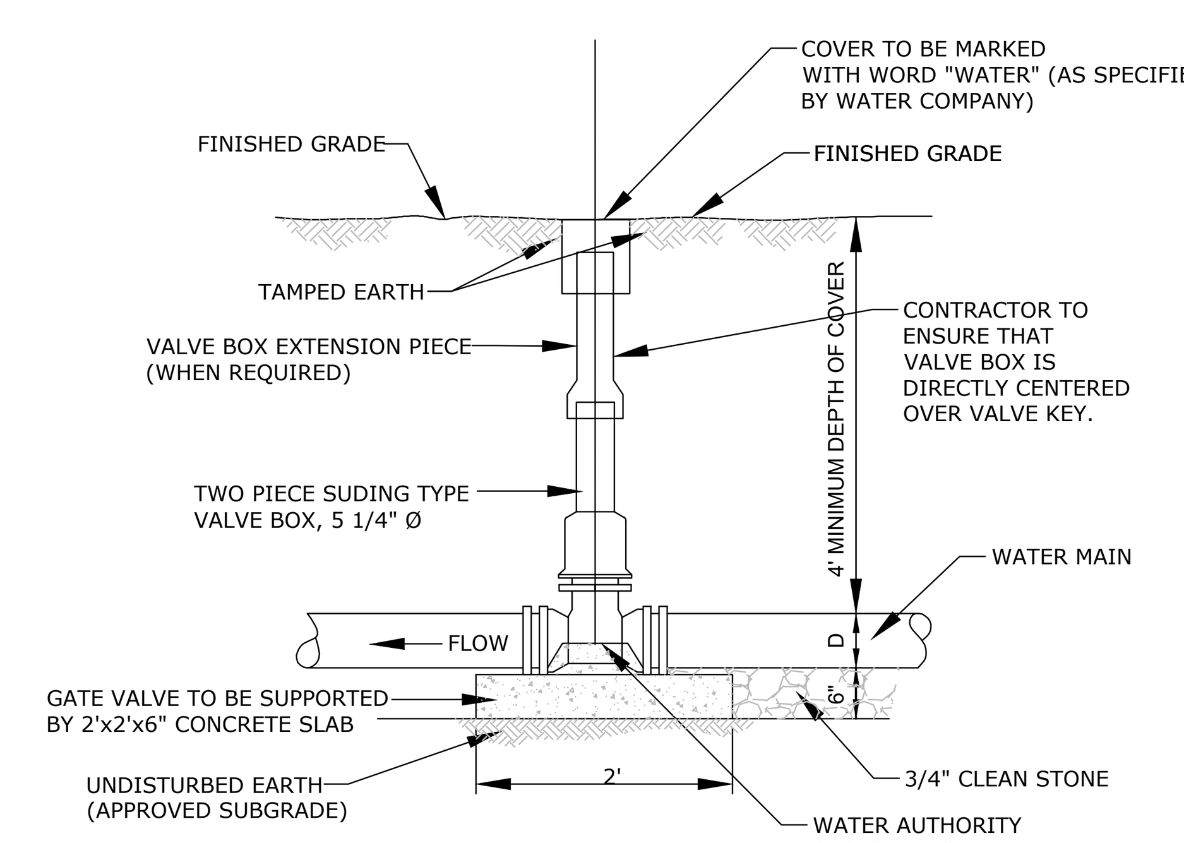
MECHANICAL JOINTS

ANG.	D	R	L
45°	T = 1.414	T = 1.000	D-2A
22.5°	T = 2.613	T = 2.414	D-2A
11.25°	T = 5.126	T =5.007	D-2A

UTILITY CROSSING DETAIL
NTS

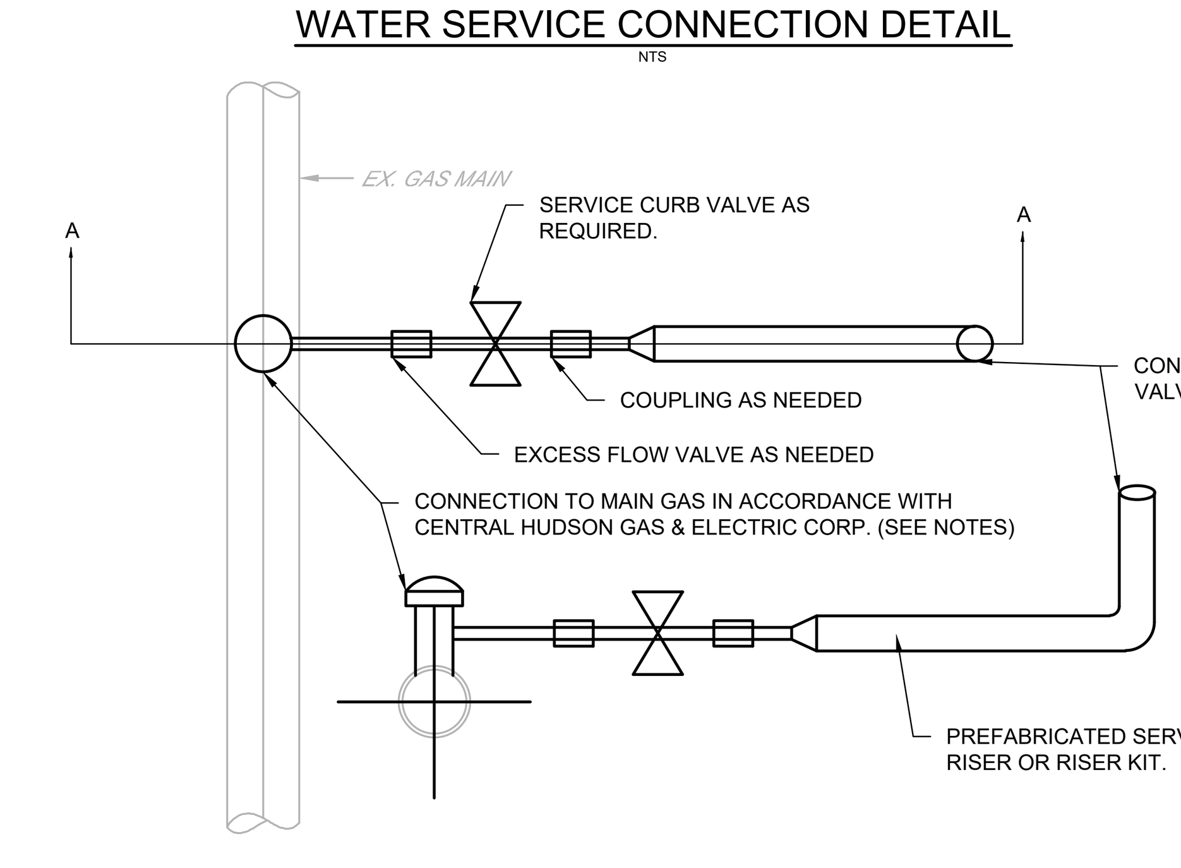


WATER SERVICE CONNECTION DETAIL
NTS



NOTE: REFER TO WATER COMPANY SPECIFICATION FOR VALVE MATERIAL TYPES.

GATE VALVE AND BOX DETAIL
NTS



NOTES:
1. ALL GAS INSTALLATION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE CENTRAL HUDSON GAS & ELECTRIC CORP. SPECIFICATIONS AND REQUIREMENTS FOR GAS, AND FOLLOW ANY COMPANY STANDARDS AND DETAILS.
2. GAS LATERAL CONNECTION IS TO BE CONSTRUCTED BY THE CONTRACTOR ONLY AFTER ALL VENTED GAS APPLIANCES AND ALL OTHER APPLIANCES THAT ARE PRESENT AT THE TIME OF UNLOCK ARE INSTALLED AND OPERATIONAL .
3. SERVICE PIPE INSTALLATION. CENTRAL HUDSON GAS & ELECTRIC CORP. WILL SIZE AND PROVIDE GAS SERVICE TO EACH BUILDING OR PREMISE.

GAS LATERAL CONNECTION DETAIL
NTS

GENERAL DETAIL NOTE:

1. ALL DETAILS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY.
2. DETAILS TO BE "OR EQUIVALENT".
3. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF LOCAL REQUIRED DETAILS TO COMPLETE THE DESIGN.
4. IN CASE OF DISCREPANCIES BETWEEN THE PLAN DETAILS AND LOCAL REQUIRED DETAILS, THE LOCAL REQUIRED DETAILS SHALL SUPERSEDE. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICT IF NEEDED.
5. REFER TO PREVIOUS SHEETS FOR ADDITIONAL NOTES.
6. ANY DETAILS NEEDED FOR BIDDING AND/OR CONSTRUCTION OF THIS JOB, SHOWN OR NOT SHOWN ON THESE PLANS, ARE TO BE IN ACCORDANCE WITH LOCAL MUNICIPAL, COUNTY, STATE, AND FEDERAL REGULATIONS AND STANDARDS. IF ANY DETAIL SHOWN ON THESE PLANS DOES NOT MEET THESE STANDARDS, IT IS THE CONTRACTORS' RESPONSIBILITY TO BID AND/OR CONSTRUCT THE APPROPRIATE STANDARD DETAILS.

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PER MIRE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/28/22	MAS
2	10/24/22	REVISED PER TOWN COMMENTS	MAS
3	12/17/22	REVISED PER NYSDOT COMMENTS	ESC
4	01/31/23	REVISED PER NYSDOT COMMENTS	JWJ
5	02/15/23	REVISED PER TOWN AND NYSDOT COMMENTS	JWJ

Independence ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
(609) 496-9369 INDEPENDENCE-ENGINEERING

FINAL LAND DEVELOPMENT PLAN SET
UTILITY DETAILS
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

811
ID #

PROJECT	
028-004	
DATE	
06/17/2022	
SCALE	DRAWN
AS NOTED	ESC
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK
NEIL E. SANDER
87961
LICENSED PROFESSIONAL ENGINEER
02/15/23

C810

SHEET	OF
7	15

STANDARD SHEETS, January 01, 2023

RILEY & Company, Inc. (H-20 GP)
w/ BATTERY BACK-UP FOR AUDIO AND VISUAL ALARMS

SCOPE: *Supply one complete H-20 GP Pre-Fab Lift Station, per design. Pumps shall be capable of grinding and pumping domestic & commercial sewage.*

Complete system shall be supplied by:
RILEY & Company, Inc.
Sanford, FL 32773 (Ph. 407-265-9963)

NO SUBSTITUTIONS - NO ALTERNATES

FIBERGLASS WETWELL MUST BE WARRANTED FOR A MINIMUM OF 20 YEARS.

The H-20 Load Rated Fiberglass Wetwell Must Be Manufactured By L.F. Manufacturing, Giddings, Texas, Which Includes A Written 20 Yr. Warranty

Certification of the wetwell H-20 load rating must be supplied with submittals. H-20 certification must be signed and sealed by an engineer registered in the State of Florida.

After the H-20 load rated wetwell has been installed, the ASTM Certification Number and Serial Tracking Number must be visible.

PUMPS:
Submersible grinder pumps shall be RILEY Model RC175. The pumps shall be installed in the H-20 GP FRP wetwell utilizing a dual slide rail system. The grinder unit shall be capable of macerating materials normally found in domestic and commercial sewage into a fine slurry which will pass through the pump and the Sch.80 PVC discharge piping.

Stator winding shall be open type with Class F insulation and shall be heat-shrink fitted into the stator housing. The use of pins, bolts, or other fastening devices is not acceptable.

A heat sensor thermostat shall be attached to the top end of the motor winding and shall be connected in series with the magnetic contactor coil in the control panel to stop motor if winding temperature exceeds 140 C., but shall automatically reset when the winding temperature returns to normal. Two heat sensor thermostats shall be used on three phase motors.

The pump motor grinder shaft shall be AISI 430F SS threaded to take the pump impeller and the grinder impeller. Upper & lower mechanical seals shall be Silicon Carbide vs Silicon Carbide.

DUPLEX CONTROL PANEL:
To insure complete unit and warranty responsibility the electrical control panel must be manufactured and built by the pump supplier. The pump supplier must be a TUV (UL508A CERTIFIED) manufacturing facility, with a minuimum of 5 years history in the manufacturing of electrical control panels.

The Enclosure shall be NEMA 4X, minimum 30" high x 30" wide x 10" deep fiberglass with pad lockable draw latches.

The enclosure shall have external mounting feet to allow for wall mounting.

The following components shall be mounted through the enclosure:
1- ea. Red Alarm Beacon (Light)
1- ea. Alarm Horn
1- ea. Generator Receptacle w/ weatherproof cover
1- ea. Alarm Silence Pushbutton

The back panel shall be fabricated from .125, 5052-H32 marine alloy aluminum. All components shall be mounted by machined stainless steel screws.

The following components shall be mounted to back panel:
2- ea. Motor Contactors
1- ea. Volt Monitor (Single Phase) Phase Monitor (Three Phase)
1- ea. Control Transformer (480 Volt Only)
1- ea. Lightning Arrestor
1- ea. Silence Relay
1- ea. Duplex Alternator
1- ea. Model RCBB5AH Battery Back-Up w/ Smart Charger
20- ea. Terminals For Field Connections
6- ea. Terminals For Motor Connections (Single Phase Only)
3- ea. Grounding Lugs

The inner door shall be fabricated from .080, 5052-H32 marine alloy aluminum. The inner door shall have a continuous aluminum piano hinge.

The following components shall be mounted through the inner door:
1- ea. Main Circuit Breaker
1- ea. Emergency Circuit Breaker
1- ea. Mechanical Interlock For Emergency And Main Breakers
2- ea. Short Circuit Protectors
1- ea. Control Circuit Breaker
2- ea. Seal Failure Indicator Lights
1- ea. Hand-Off-Auto Selector Switches
2- ea. Pump Run Pilot Lights
1- ea. Power On Pilot Light
2- ea. Elapse Time Meters (Non-Resetable)
1- ea. GFI Duplex Convenience Outlet

COMPONENT SPECIFICATIONS:
All circuit breakers shall be molded thermal magnetic. The mechanical interlock shall prevent the normal and emergency main breakers being energized at the same time.
An emergency generator receptacle shall be supplied in accordance with DEP standards. The generator receptacle shall be adequately sized to meet the equipment operating conditions.

NEUTRAL TO BE SUPPLIED FOR BOTH 230V 3PHASE OR 230V SINGLE PHASE POWER

All motor short circuit protection devices must provide for under voltage release and class 10 overload protection on all three phases. Visible trip indication, test, and reset capability must be provided without opening inner door.
Open frame, across the line, contactors shall be rated per IEC standards and properly sized per the motor requirements. Contactors shall provide for safe touch power and control terminals.
Lightning Arrestor shall meet or exceed the requirements of ANSI/IEEE Std. C62.21-1984 section 8.6.1. and 8.7.3 shall be supplied by electrician and mounted on the bottom side of the switch disconnect ahead of the pump control panel.
A voltage monitor shall be supplied for single phase service.
A phase monitor shall be supplied for (3) phase service.
A green pilot light shall be supplied for each motor. The pilot light shall illuminate each time the motor is called to run.
Each pump shall have an Elapse Time Meter to record the accumulated run time. The ETM shall be 2" diameter, non-resettable, six digit, totally encapsulated unit.
A Red pilot light shall be supplied for control power. The pilot light shall illuminate when the control power is available inside the control panel.
Relays shall be ice-cube plug in type. Relay contacts shall be rated 10 amp minimum, DPDT.
Twenty (20) terminals shall be supplied for field connections. The terminals shall be rated 25 amps minimum.
Each motors over-temperature contact shall be connected to the terminal strip and shall open a contact to de-energize the appropriate motor upon a high temperature within the motor.
A 15 Amp GFI duplex receptacle shall be supplied and mounted on the innerdoor.
Ground lugs shall be supplied and appropriately sized for each motor and for service entrance.
Nameplates for the inner door and back panel shall be of a graphic design, specifically depicting the intent for each device.

MISCELLANEOUS: *All wiring on the back panel shall be contained within the wiring duct. All wiring between the inner door and the back panel shall be contained with in a plastic spiral wrap.*
Each wire shall have a wire number at each end to correspond to the as built drawing for field troubleshooting.
The control panel must be manufactured in-house by lift station supplier and be a TUV (UL508A Certified) facility.

FASTENERS & APPURTANCES: *All fasteners, lifting cables, float cable bracket, hinges, and appurtenances shall be made of AISI 304SS.*
A 304SS slide/latch assembly shall be provided for holding the doors open on the wetwell and valve box.
Slide rails shall be made of SCH.40 AISI 304SS pipe.
Pump lifting cables shall be made of AISI 304 SS.
Pump lifting bales shall be made of AISI 304 SS.

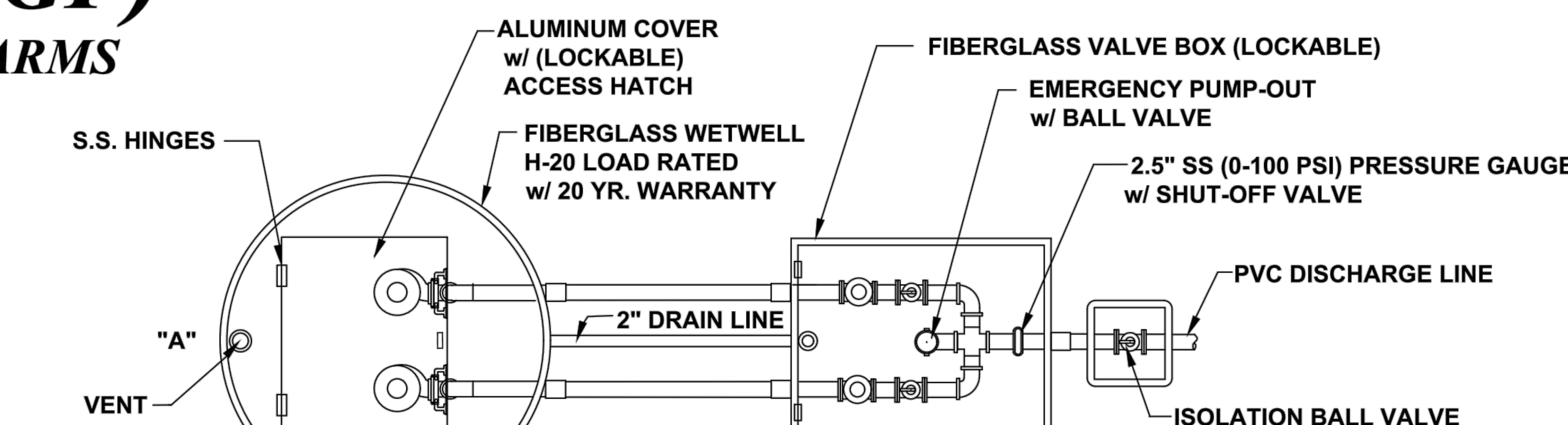
H-20 LOAD RATED WETWELL WITH LIFTING LUGS:
The fiberglass wetwell must be H-20 load rated with integral lifting lugs, fiberglass slope in bottom of wetwell and valve box. Certification of the H-20 load rating must be supplied at the time of submittals to Engineer.
The wetwell shall be manufactured of fiberglass reinforced polyester (FRP) of depth and diameter as shown on the lift station elevation detail. The wall thickness shall be adequate for the depth of the wetwell to maintain the H-20 LOAD RATING.

EXECUTION:
Installation shall be in strict accordance with the manufacturer's recommendations in the locations shown on the drawing.

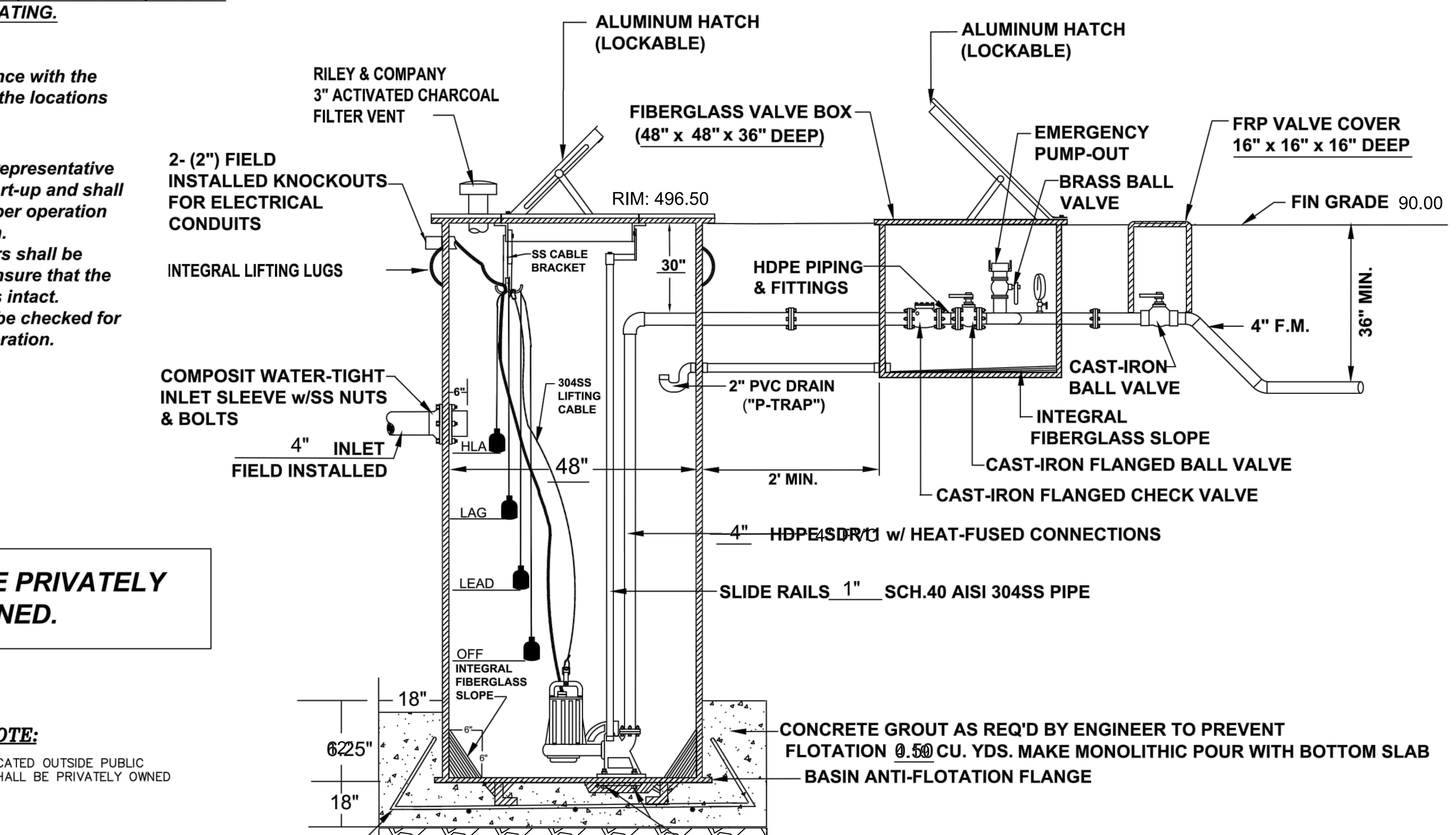
INSPECTION & TESTING: *A factory representative shall be provide for a one (1) time start-up and shall have complete knowledge of the proper operation and maintenance of complete system.*
Megger the motors. The pump motors shall be megged out prior to the start-up to ensure that the insulation of the pump motor/cable is intact.
The pump controls and pumps shall be checked for mechanical reliability and proper operation.

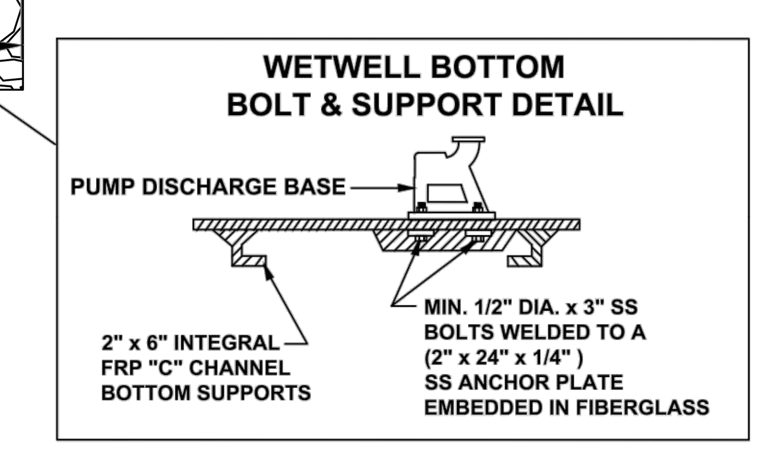
LIFT STATION WILL BE PRIVATELY OWNED AND MAINTAINED.

ORANGE COUNTY UTILITY NOTE:
ALL UTILITIES (INCLUDING PUMP STATION) LOCATED OUTSIDE PUBLIC ROGHT-OF-WAYS AND PUBLIC EASEMENTS SHALL BE PRIVATELY OWNED AND MAINTAINED.

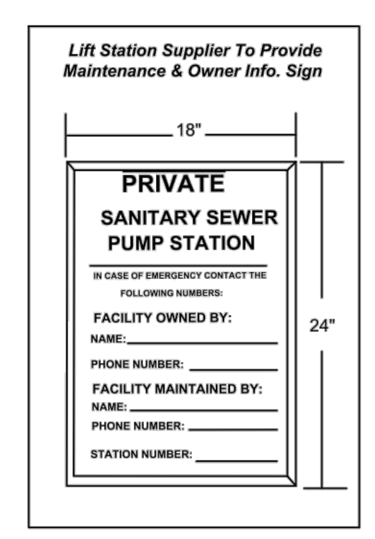


NOTE: PUMP CONTROL PANEL SHALL BE LOCATED 3 FEET FROM WETWELL PERIMETER AT POINT "A"





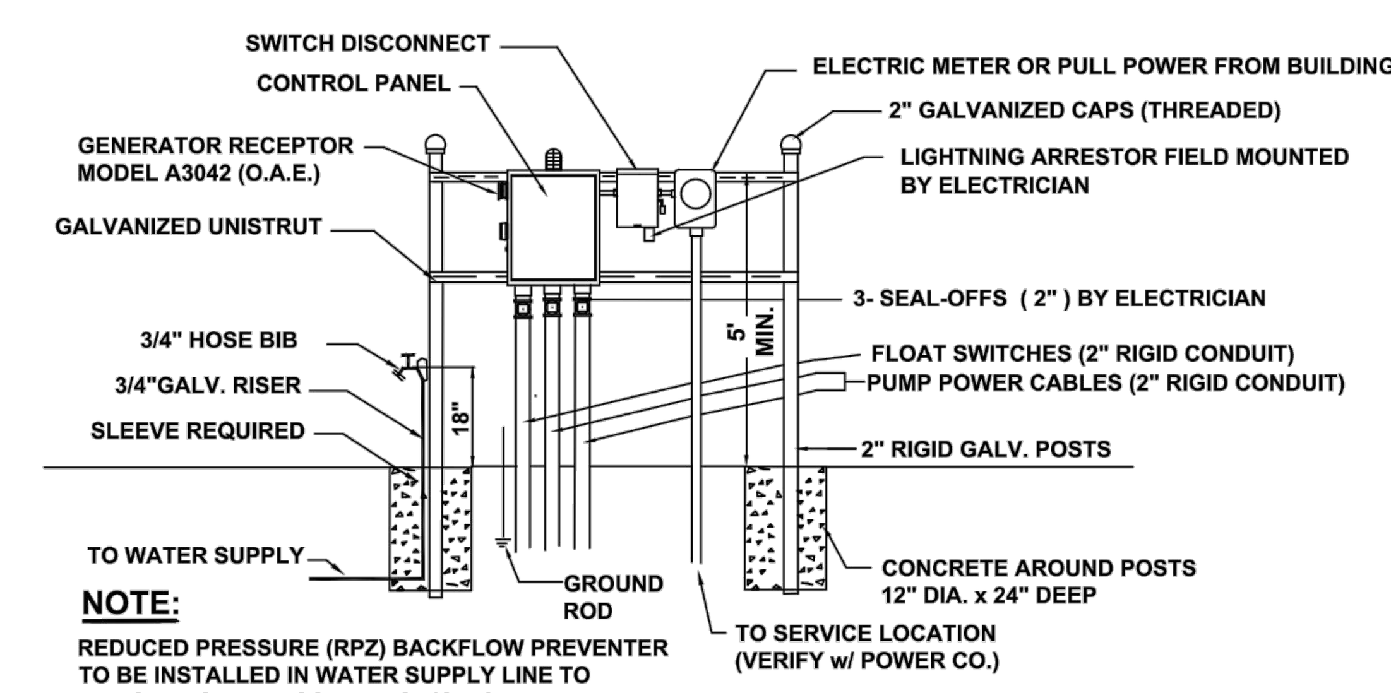
PUMP DATA		ELEVATIONS	
PRIMARY PUMP CAPACITY	98 GPM	TOP OF WETWELL	496.50
PRIMARY TDH	5'	INLET INVERT	491.00
PUMP MANUFACTURER	LIBERTY PUMPS	HIGH LEVEL ALARM (HLA)	487.50
PUMP MODEL #	LGV032A	2nd PUMP ON (LAG)	486.50
R.P.M.	3450	1st PUMP ON (LEAD)	486.25
HORSEPOWER	3	PUMPS OFF (OFF)	485.00
ELECTRICAL/ VOLTS / PHASE	230V/3PH	BOTTOM OF WETWELL	482.00
PUMP DISCHARGE SIZE	4"	WETWELL DIAMETER	48"
IMPELLER SIZE	4.5"		



* ELECTRICIAN NOTES:

1. DRAWING NOT TO SCALE
* 2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES
* 3. ELECTRICIAN SHALL SEAL OFF CONDUIT RUNS
* 4. ELECTRICIAN TO MOUNT LIGHTNING ARRESTOR AT SWITCH DISCONNECT
* 5. CONTRACTOR SHALL VERIFY POWER SOURCE PRIOR TO ORDERING EQUIPMENT
* 6. NEUTRAL TO BE SUPPLIED FOR 23OV-3 PHASE OR 230V-SINGLE PHASE POWER.

RILEY & CO. / H-20 GP 02-06-18



NOTE:
REDUCED PRESSURE (RPZ) BACKFLOW PREVENTER TO BE INSTALLED IN WATER SUPPLY LINE TO LIFT STATION "FEBCO WATTS" (OAE)

ELECTRICAL RISER FOR ILLUSTRATION PURPOSES ONLY

PUMP STATION NOTES & DETAILS
OR APPROVED EQUAL

N:\028 ALIGN\DESIGN\004 SUN BELT NEWBURGH NY\PROJECT ENGINEERING\DRAWINGS\028004-S-DET-UTIL-JAN JOCHEMS-2023-02-15

REV	DATE	DESCRIPTION	BY
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Independence ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
(609) 496-9369 INDEPENDENCE@INDEPENDENCE.ENGINEERING

FINAL LAND DEVELOPMENT PLAN SET
PUMP STATION NOTES & DETAILS
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

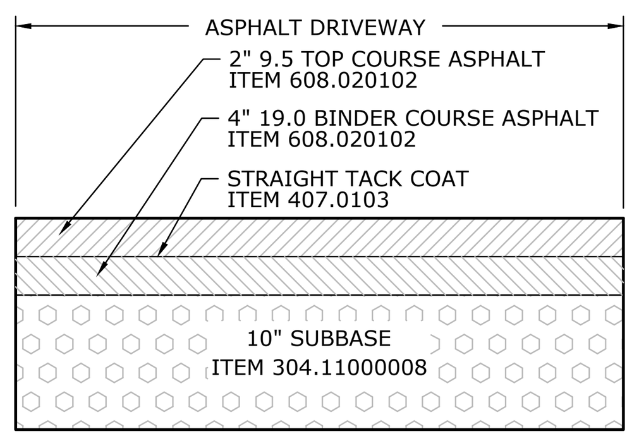
ID #

PROJECT	
028-004	
DATE	
06/17/2022	
SCALE	DRAWN
VALUE	###
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK — NEIL E. SANDER — 87961 — LICENSED PROFESSIONAL ENGINEER — 02/15/23

C820

SHEET	OF
8	##

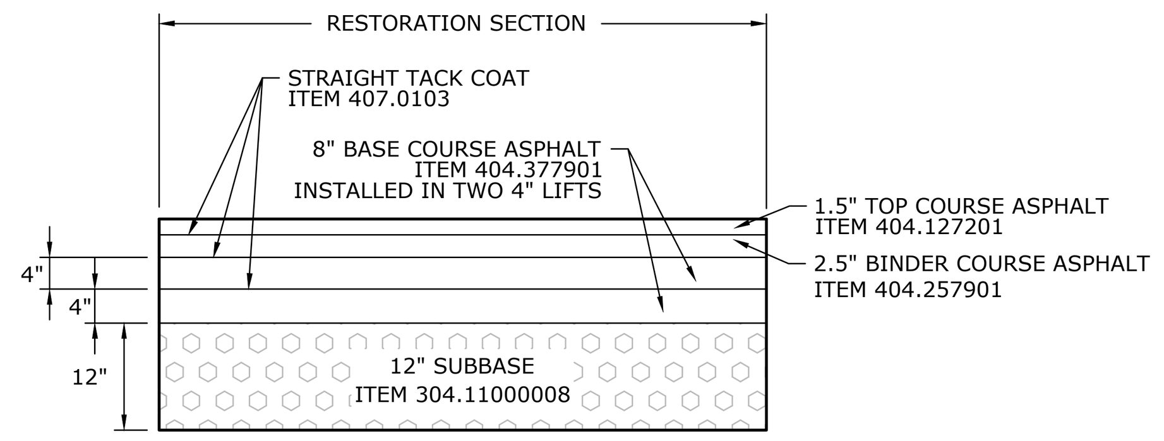


NOTES:

1. ALL PAVEMENT MATERIALS SHALL BE IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

DRIVEWAY PAVEMENT LENGTH (PL) PAVEMENT DETAIL

NTS



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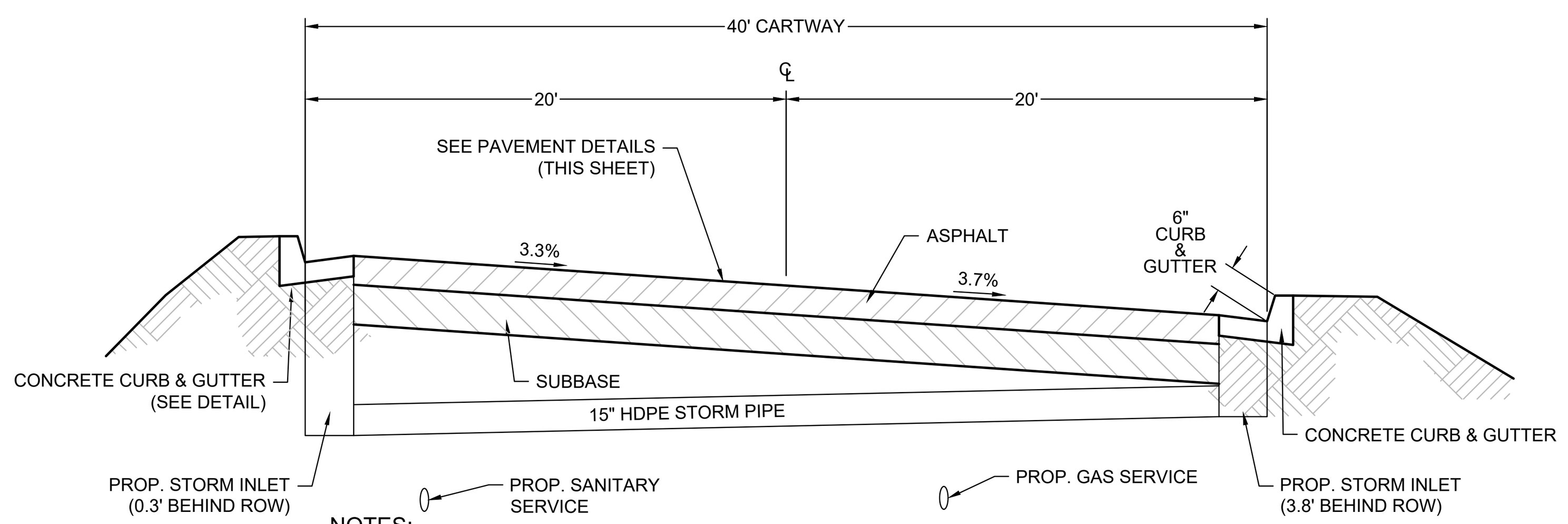
PAVEMENT RESTORATION DETAIL WITHIN ROW

NTS

DRIVEWAY NOTES:

1. A TYPE 2 DRIVEWAY IS PROPOSED.
2. WIDTH OF THE PROPOSED DRIVEWAY IS 40' AS REQUIRED BY THE PROPOSED USE OF THE PROPERTY.
3. SLOPE OF THE DRIVEWAY WITHIN THE STATE RIGHT-OF-WAY IS 4.30%.
4. DRIVEWAY MATERIAL FOR THE SECTION WITHIN THE PAVEMENT LENGTH LISTED ON THESE PLANS CAN BE FOUND IN THE PAVEMENT DETAIL ON THIS SHEET.
5. THE PAVEMENT LENGTH FOR THIS DRIVEWAY IS A MINIMUM OF 30' AS MEASURED FROM THE OUTSIDE EDGE OF THE TRAVEL LANE.
6. THIS DEVELOPMENT DOES NOT PROPOSE SIDEWALK.
7. THE PROPOSED RADII IS 33' FOR BOTH SIDES OF THE DRIVEWAY.
8. THE DRIVEWAY OPENING IS 52.76'.

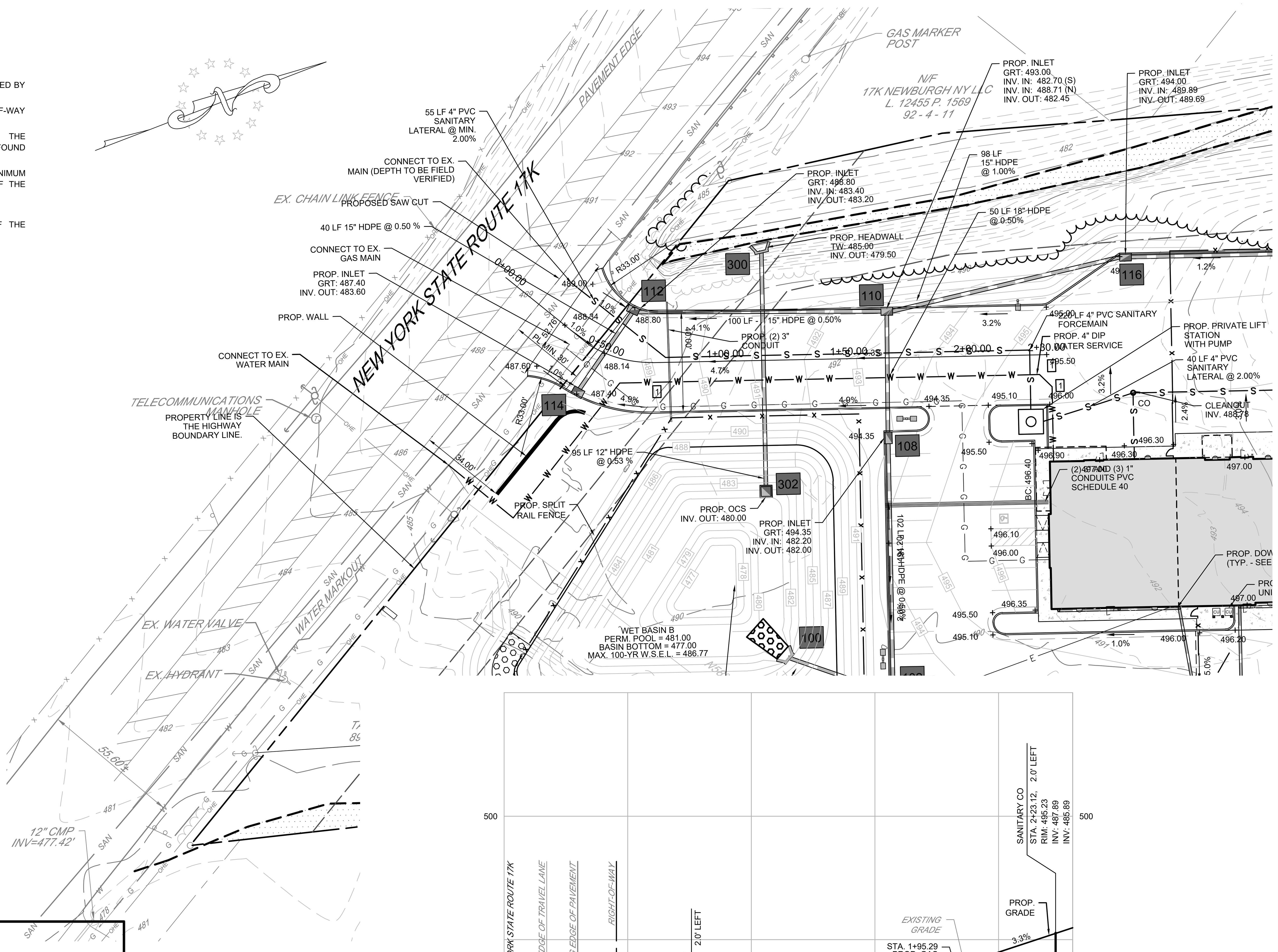


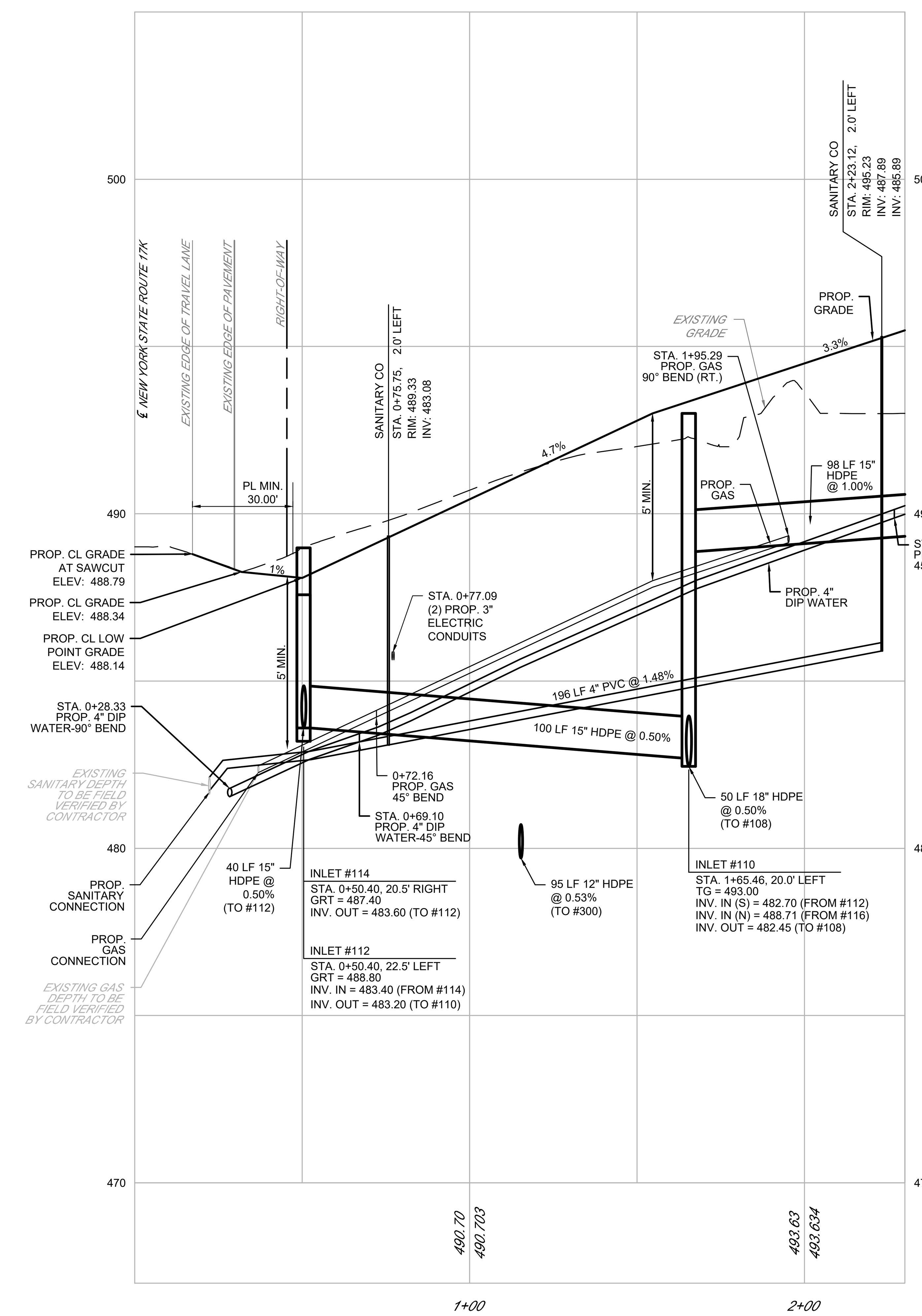
NOTES:

1. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.
3. USE NYSDOT PAVEMENT SPECS ON SHEET C830 FOR PAVEMENT WITHIN THE RIGHT OF WAY.
4. USE PAVEMENT SPECS ON SHEET C800 FOR PAVEMENT OUTSIDE THE RIGHT OF WAY.

SITE ENTRANCE CROSS SECTION

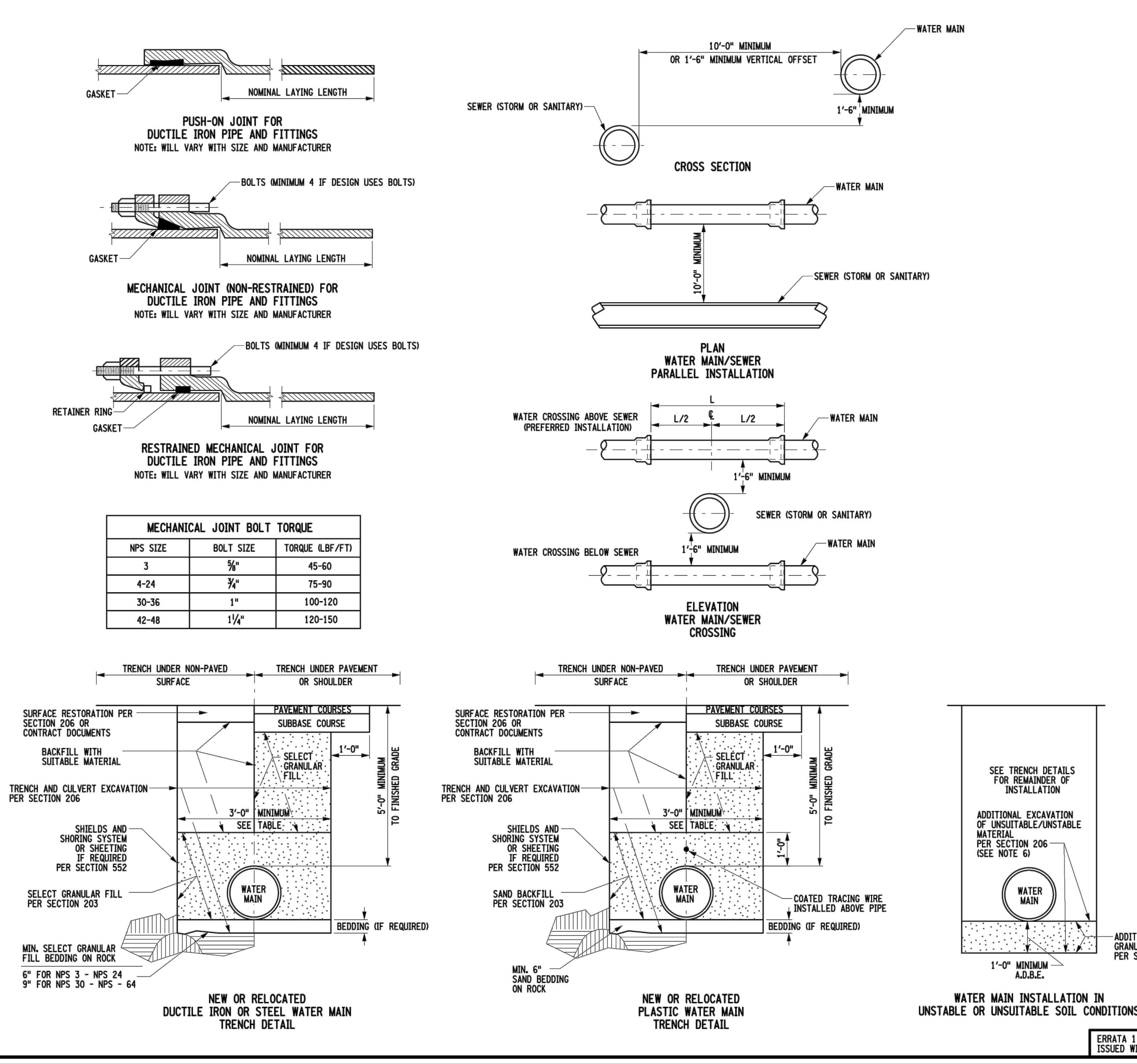
NTS





PROFILE: DRIVEWAY

1"=30' Horizontal
1"=3' Vertical



MECHANICAL JOINT BOLT TORQUE		
NPS SIZE	BOLT SIZE	TORQUE (LBF/FT)
3	5/8"	45-60
4-24	3/4"	75-90
30-36	1"	100-120
42-48	1 1/4"	120-150

NOTES:

1. SEE SPECIAL NOTES ENTITLED "OWNER REQUIREMENTS FOR WATER MAINS AND APPURTENANCES" FOR INFORMATION ON ADDITIONAL REQUIREMENTS.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ELEVATIONS OF EXISTING UTILITIES TO ENSURE ADEQUATE CLEARANCE FOR THE WATER LINE EXISTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER (IN WRITING) OF CONFLICTING ELEVATIONS, ALLOWING THE ENGINEER ADEQUATE TIME TO REVISE GRADES WITHOUT NECESSITATING REMOVAL AND RECONSTRUCTION OF WORK ALREADY COMPLETED BY THE CONTRACTOR.
3. DETAILS SHOWN ON THIS SHEET ARE BASED UPON TYPE 4 LAYING CONDITION DESCRIBED IN AWWA STANDARD C600. SELECT GRANULAR FILL AND SAND BACKFILL ARE ASSUMED TO HAVE A FRICTION ANGLE OF 30° AND A UNIT WEIGHT OF 90 LBS./CUBIC FEET.
4. THE TOP PAYMENT LINE FOR TRENCH EXCAVATION SHALL BE PER SECTION 206.
5. BEDDING BELOW THE PIPE INVERT SHALL BE REQUIRED ONLY WHEN NOTED IN THE OWNER REQUIREMENTS OR WHEN ROCK OR UNSTABLE OR UNSUITABLE CONDITIONS ARE ENCOUNTERED.
6. IF UNSTABLE OR UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED NEAR THE INVERT ELEVATION, A MINIMUM OF 1' AND A MAXIMUM OF 2' OF MATERIAL SHALL BE EXCAVATED A.D.B.E. AND REPLACED WITH SELECT GRANULAR FILL. ADDITIONAL PAYMENT WILL BE MADE FOR MATERIAL PLACED TO TREAT UNSTABLE OR UNSUITABLE CONDITIONS.
7. NEW WATER MAINS INSTALLED PARALLEL TO STORM AND/OR SANITARY SEWER CONDUITS SHALL HAVE A MINIMUM OF 10' HORIZONTAL SEPARATION (MEASURED EDGE OF PIPE TO EDGE OF PIPE) WHENEVER POSSIBLE. WHEN 10' HORIZONTAL SEPARATION CANNOT BE MAINTAINED A VERTICAL SEPARATION OF AT LEAST 1'-6" BETWEEN BOTTOM OF WATER MAIN AND TOP OF SEWER PIPE SHALL BE MAINTAINED. IF NEITHER SEPARATION CAN BE MAINTAINED, THE WATER AND SEWER SHALL BE CONSTRUCTED AS SHOWN ON THE CONTRACT PLANS AND APPROVED BY THE APPROPRIATE HEALTH AGENCY.
8. BACKFILL SHALL BE INSTALLED AND COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS OF §203-3.15.
9. UPON COMPLETION OF ALL WATER SUPPLY RELATED CONSTRUCTION, INCLUDING BACKFILL, HYDROSTATIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA STANDARD C600 WITH THE MAINS THOROUGHLY FLUSHED PRIOR TO TESTING. UNLESS OTHERWISE NOTED, THE SYSTEM SHALL BE SUBJECTED TO A PRESSURE/LEAKAGE TEST WITH WATER UNDER A MINIMUM HYDROSTATIC PRESSURE OF 150 PSI FOR A MINIMUM OF TWO (2) HOURS.
10. UPON COMPLETION OF ALL WATER SUPPLY RELATED CONSTRUCTION, ALL MAINS, VALVES, HYDRANTS, AND OTHER APPURTENANCES BUILT UNDER THIS CONTRACT SHALL BE DISINFECTED, FLUSHED, AND TESTED FOR BACTERIOLOGICAL QUALITY IN ACCORDANCE WITH AWWA STANDARD C651. THE TABLET METHOD SHALL NOT BE USED FOR CHLORINATION OF SOLVENT WELDED PLASTIC OR SCREWED-JOINT STEEL PIPE DUE TO THE DANGER OF FIRE OR EXPLOSION FROM THE REACTION OF JOINT COMPOUNDS WITH CALCIUM HYPOCHLORITE.

MAXIMUM JOINT DEFLECTION			
NPS SIZE	PUSH-ON JOINTS		MJ JOINTS
	18' DI	20' DI	18/20 FT.
3	5°	5°	8°
4	5°	5°	8°
6	5°	5°	7°
8	5°	5°	5°
10	5°	5°	5°
12	5°	5°	5°
14	3°	3°	3.5°
16	3°	3°	3.5°
18	3°	3°	3°
20	3°	3°	3°
24	3°	3°	2°
30	3°	3°	N/A
36	3°	3°	N/A
42	3°	3°	N/A
48	N/A	3°	N/A
54	N/A	3°	N/A
60	N/A	3°	N/A
64	N/A	3°	N/A

EXCAVATION PAYMENT WIDTHS	
NPS SIZE	TRENCH WIDTH
3	3'-0"
4	3'-0"
6	3'-0"
8	3'-6"
10	4'-0"
12	4'-0"
14	4'-0"
16	4'-0"
18	4'-0"
20	4'-0"
24	4'-0"
30	4'-6"
36	5'-0"
42	5'-6"
48	6'-0"
54	6'-6"
60	7'-0"
64	7'-6"

ERRATA 1
ISSUED WITH EB 18-003

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY STANDARD SHEET

WATER MAIN PIPE
INSTALLATION DETAILS

APPROVED AUGUST 30, 2013
/S/ RICHARD W. LEE, P.E.
FOR THE DEPUTY CHIEF ENGINEER (DESIGN)

ISSUED UNDER EB 13-038
663-01

GRAPHIC SCALE: 1" = 3'
GRAPHIC SCALE: 1" = 30'

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PRE MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	MAS
2	10/24/22	REVISED PER TOWN COMMENTS	MAS
3	12/17/22	REVISED PER NYSDOT COMMENTS	ESC
4	01/31/23	REVISED PER NYSDOT COMMENTS	JWJ
5	02/15/23	REVISED PER TOWN AND NYSDOT COMMENTS	JWJ

Independence ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
(609) 496-9369 INDEPENDENCE@INDEPENDENCE.ENGINEERING

FINAL LAND DEVELOPMENT PLAN SET
DRIVEWAY NYSDOT PLAN, PROFILE, & DETAIL

for

SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

811

ID #

PROJECT	
028-004	
DATE	
06/17/2022	
SCALE	DRAWN
AS NOTED	MAS
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK
NEIL E. SANDER
87961
LICENSED PROFESSIONAL ENGINEER
02/15/23

C830

SHEET	OF
9	15

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DATE/TIME = 29-JUN-2018 11:14
USER = rforte

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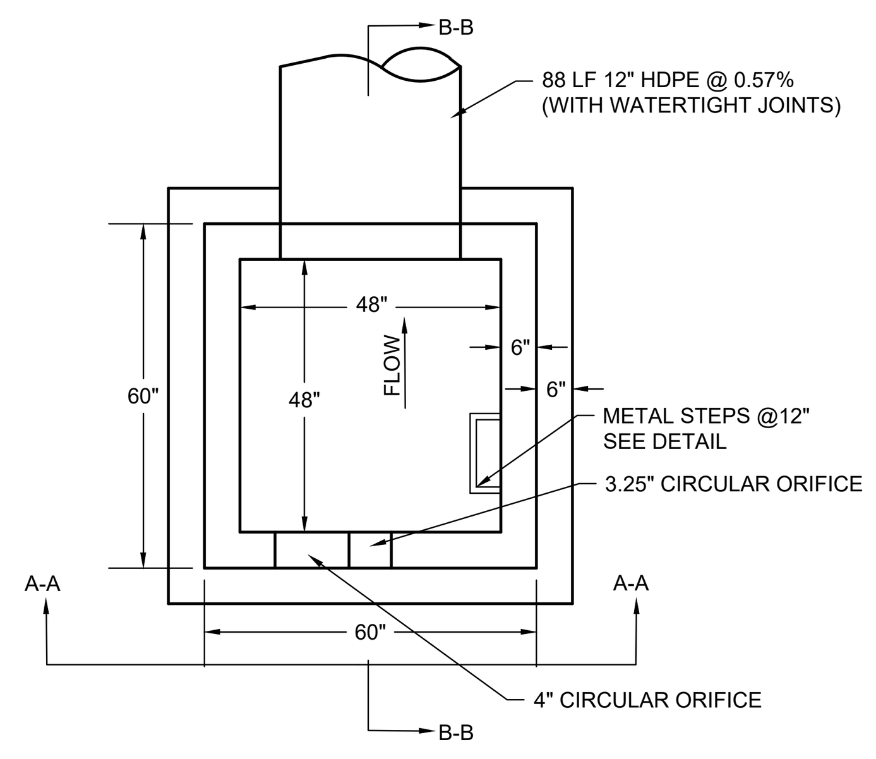
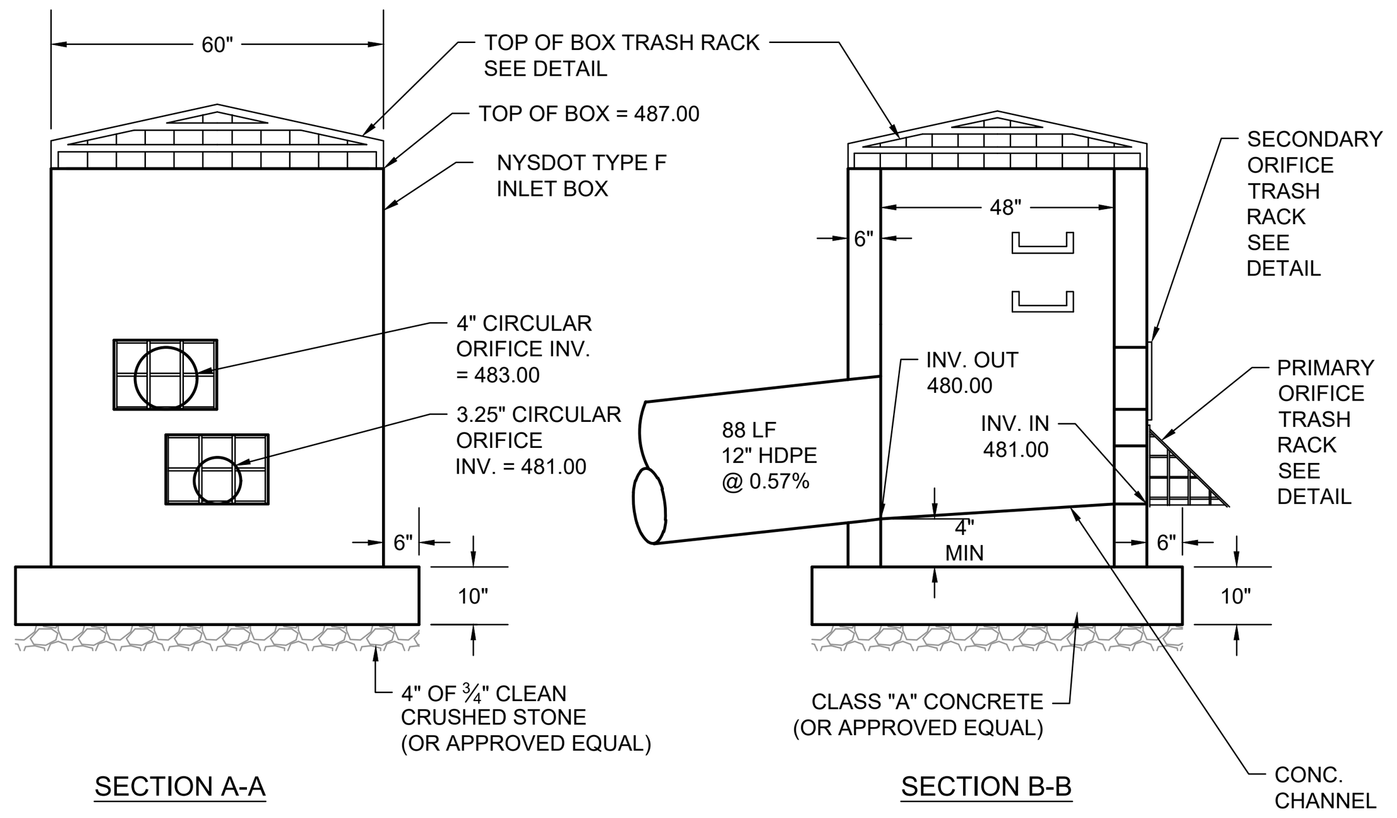


PLAN

DESIGN WATER SURFACE ELEVATION:

1-YR = 482.12
10-YR = 483.93
25-YR = 484.91
100-YR = 486.77



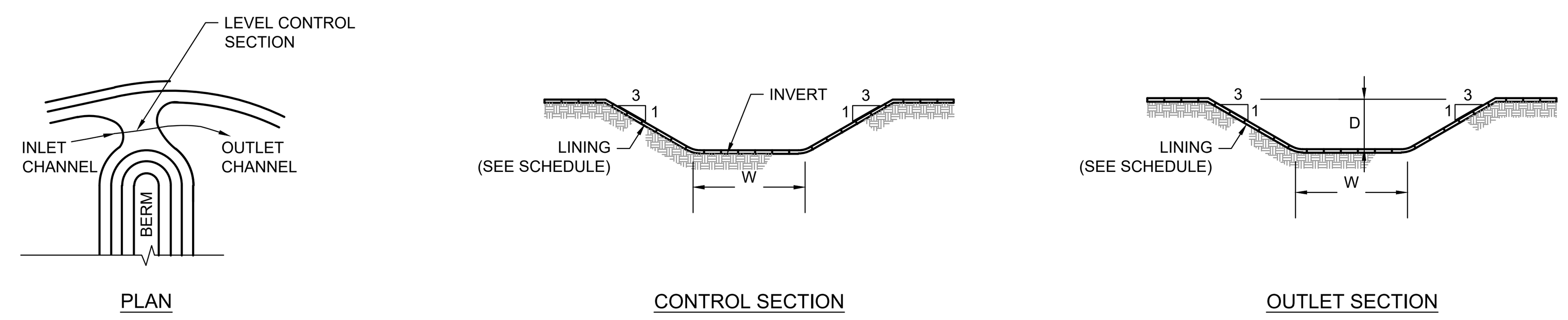
SECTION A-A

SECTION B-B

NOTES:
1. WATERTIGHT SEALS TO BE USED ON ALL JOINTS.

OUTLET STRUCTURE #300 DETAIL

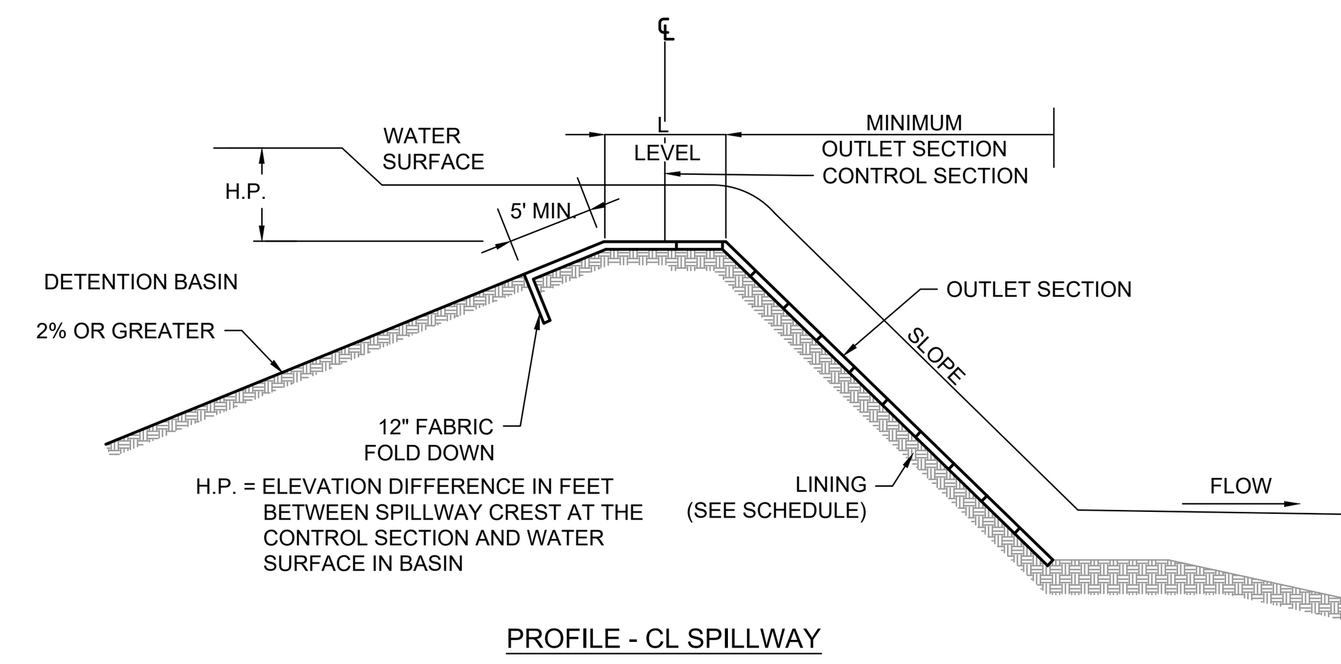
N.T.S.



PLAN

CONTROL SECTION

OUTLET SECTION

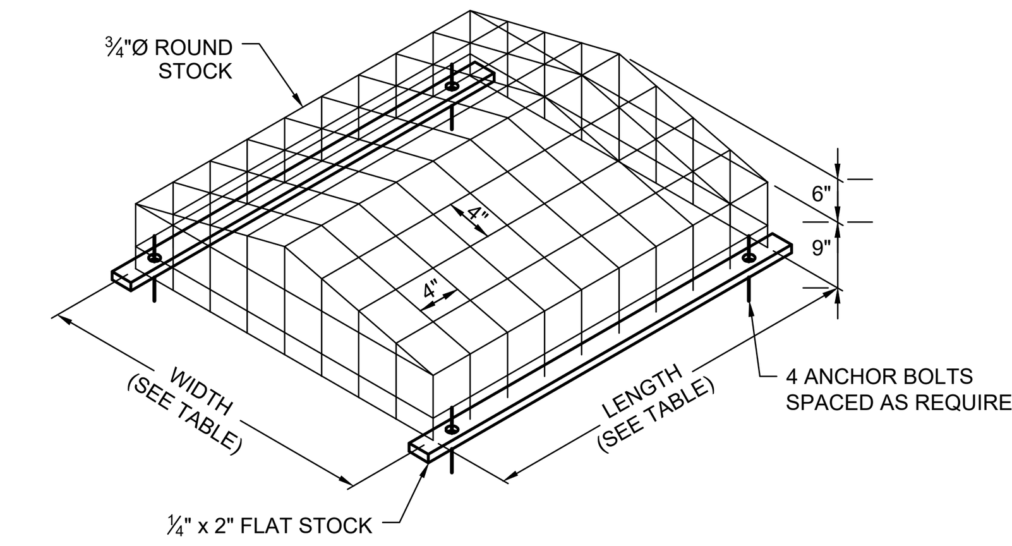


PROFILE - CL SPILLWAY

BASIN	TOP OF BERM ft.	PERMANENT CONTROL SECTION WIDTH ft.	INVERT ft.	LINING	TEMPORARY CONTROL SECTION WIDTH ft.	INVERT ft.	LINING	OUTLET SECTION MAX SLOPE ft.	W ft.	D ft.	LINING
B	488.00	35	487.00	C125	SAME			3.00	45	2.0	C125

EMERGENCY SPILLWAY SCHEDULE DETAIL

N.T.S.

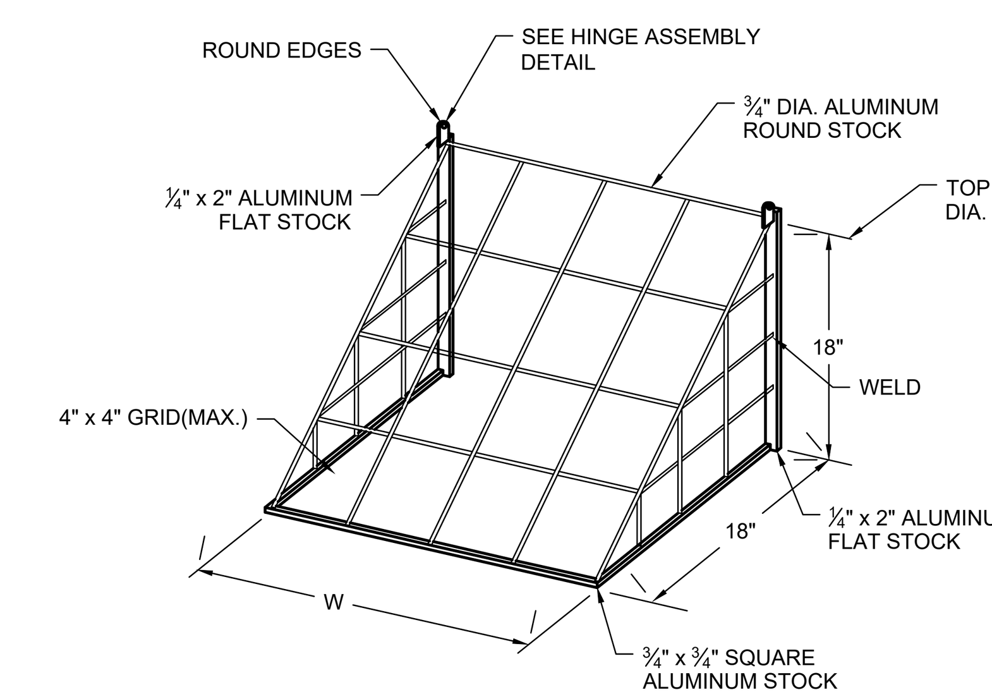


NOTE:
1. ALL JOINTS SHALL BE WELDED
2. ALL ROUND STOCK & FLAT STOCK TO BE PROTECTED WITH A BITUMINOUS COATING

BASIN	STRUCTURE #	LENGTH	WIDTH
A	O.S. #300	50"	50"

TOP OF OUTLET STRUCTURE TRASH RACK DETAIL

N.T.S.

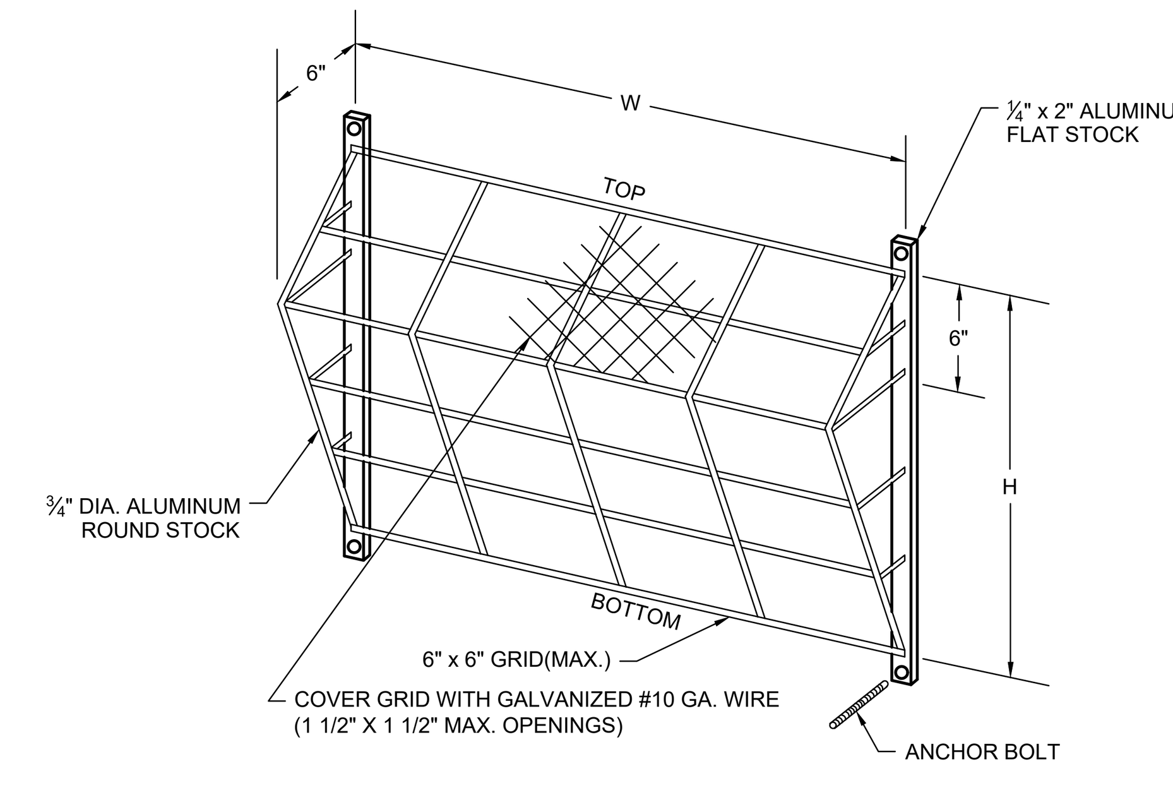


NOTE: ALL JOINTS TO BE WELDED

OUTLET	WIDTH	HEIGHT	DEPTH
300	12"	12"	12"

PRIMARY ORIFICE OUTLET STRUCTURE TRASH RACK DETAIL

N.T.S.

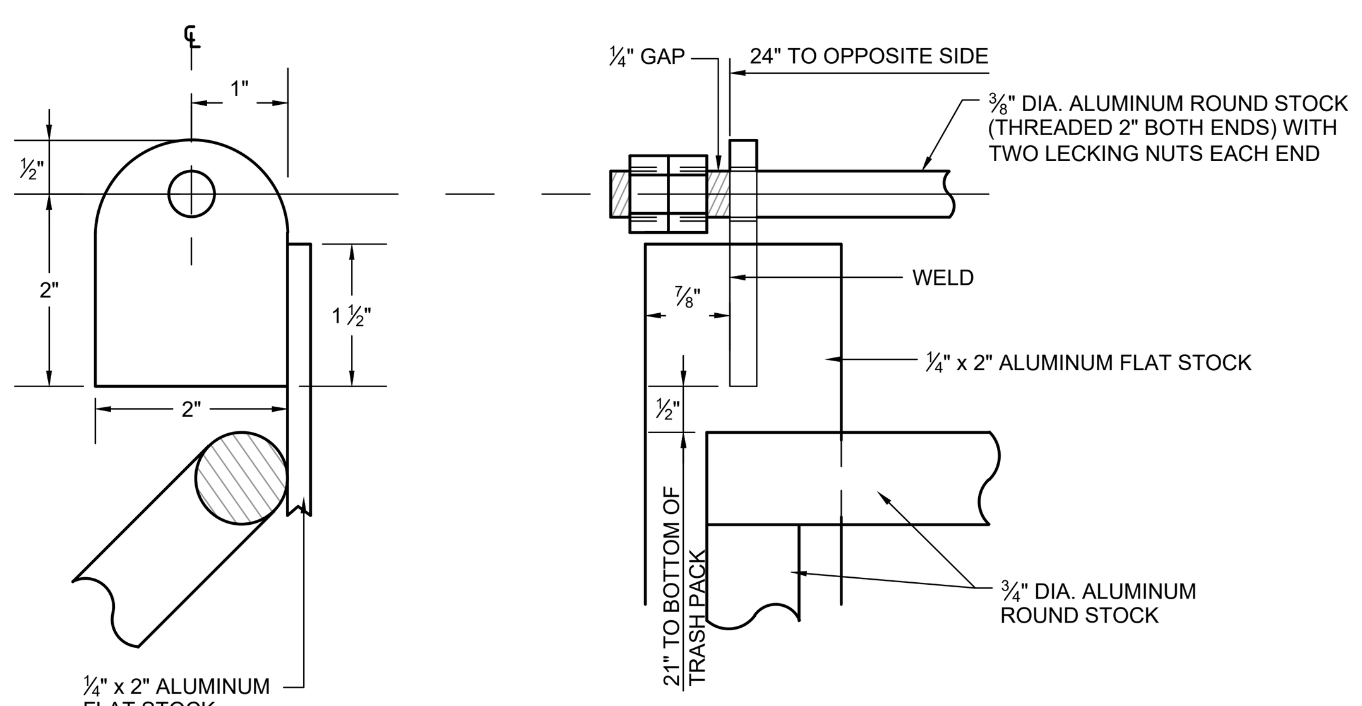


NOTE: ALL JOINTS TO BE WELDED

OUTLET	WIDTH	HEIGHT
300	12"	12"

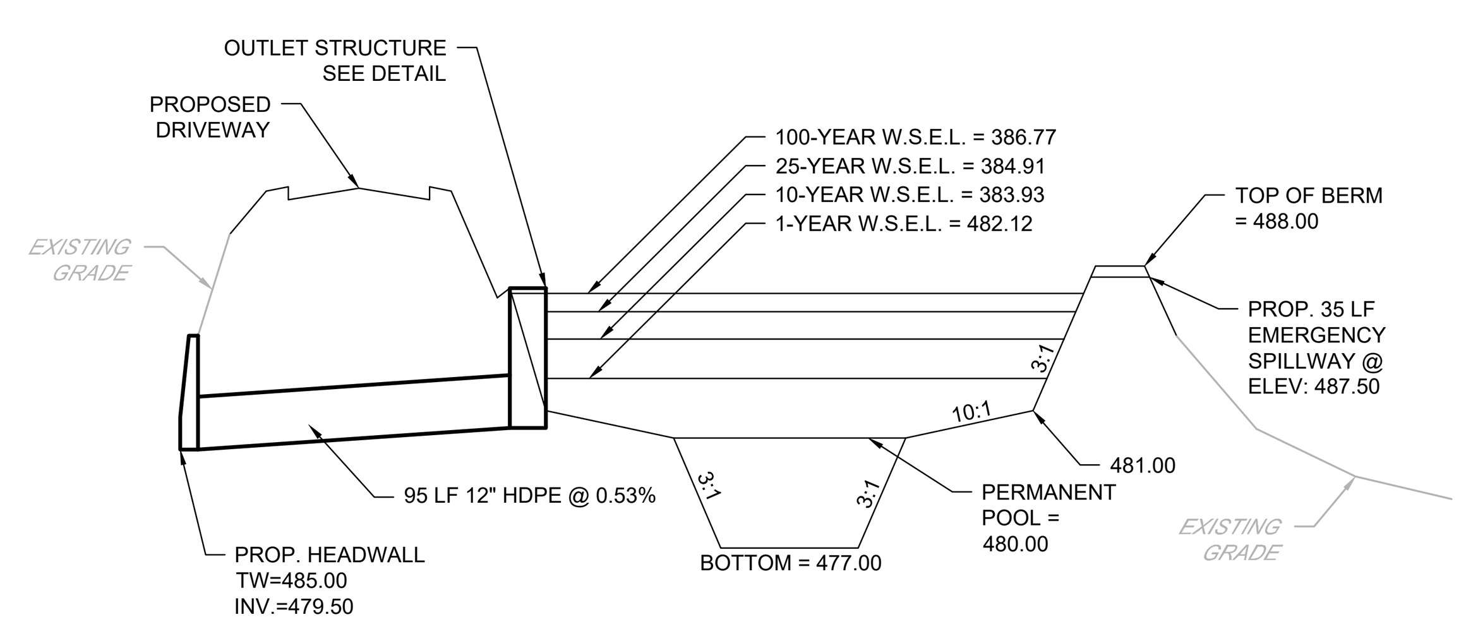
RECTANGULAR SECONDARY STAGE TRASH RACK DETAIL

N.T.S.



HINGE ASSEMBLY DETAIL

N.T.S.



DETENTION BASIN CROSS SECTION DETAIL

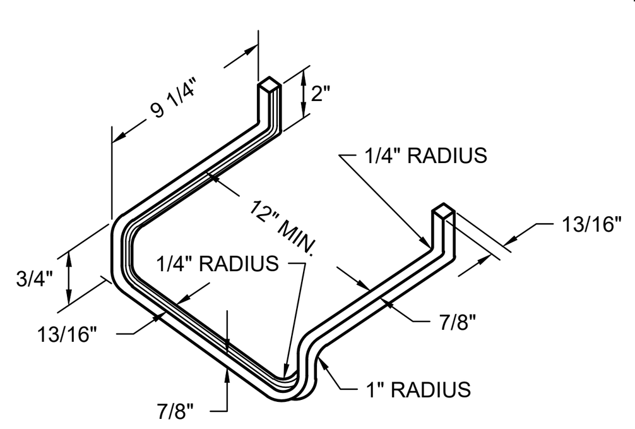
N.T.S.

POST CONSTRUCTION MAINTENANCE TASKS AND SCHEDULE

TASKS	COMPONENTS: CATCH BASIN / MANHOLE INLET CASINGS	SWALES / TURF REINFORCED AREAS / PERMANENTLY SEEDED AREAS	ROCK OUTLET PROTECTION	STORM WATER DETENTION POND	SCHEDULE
INSPECT FOR SEDIMENT ACCUMULATION		X	X	X	ANNUALLY
REMOVAL OF SEDIMENT ACCUMULATION		X	X	X	EVERY 2 YEARS AS NEEDED
INSPECT FOR DEBRIS	X	X	X	X	ANNUALLY
INSPECT FOR EROSION		X	X	X	ANNUALLY
RE-ESTABLISH PERMANENT VEGETATION ON ERODED SLOPES		X		X	AS NEEDED
REPLACEMENT OF STONE			X	X	AS NEEDED
MOWING		X		X	AS NEEDED TO MAINTAIN AESTHETIC REQUIREMENTS (TYPICALLY 1 ONCE PER WEEK DURING GROWING SEASON)
NUISANCE CONTROL - ADDRESS ODOR, INSECTS & OVERGROWTH ISSUES ASSOCIATED WITH STAGNANT WATER	X			X	AS NEEDED WHEN FOUND IN ANNUAL INSPECTIONS OR IN THE EVENT OF A COMPLAINT

GENERAL MAINTENANCE RESPONSIBILITY:

THE PROPERTY OWNER WILL BE THE RESPONSIBLE PARTY FOR THE ABOVE LISTED POST CONSTRUCTION MAINTENANCE TASK AND SCHEDULE.



NOTES
1. STEPS TO BE EXTRUDED OF 6061-T6 ALUMINUM.
2. STEPS SHALL BE PROVIDED AT 12" ON CENTER.

ALLUMINUM STEP DETAIL

N.T.S.

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PER MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	MAS
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(609) 496-9369 INDEPENDENCE@INDEPENDENCEENGINEERING

FINAL LAND DEVELOPMENT PLAN SET
SWM AND SWPPP DETAILS
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

811

ID #

PROJECT 028-004

DATE 06/17/2022

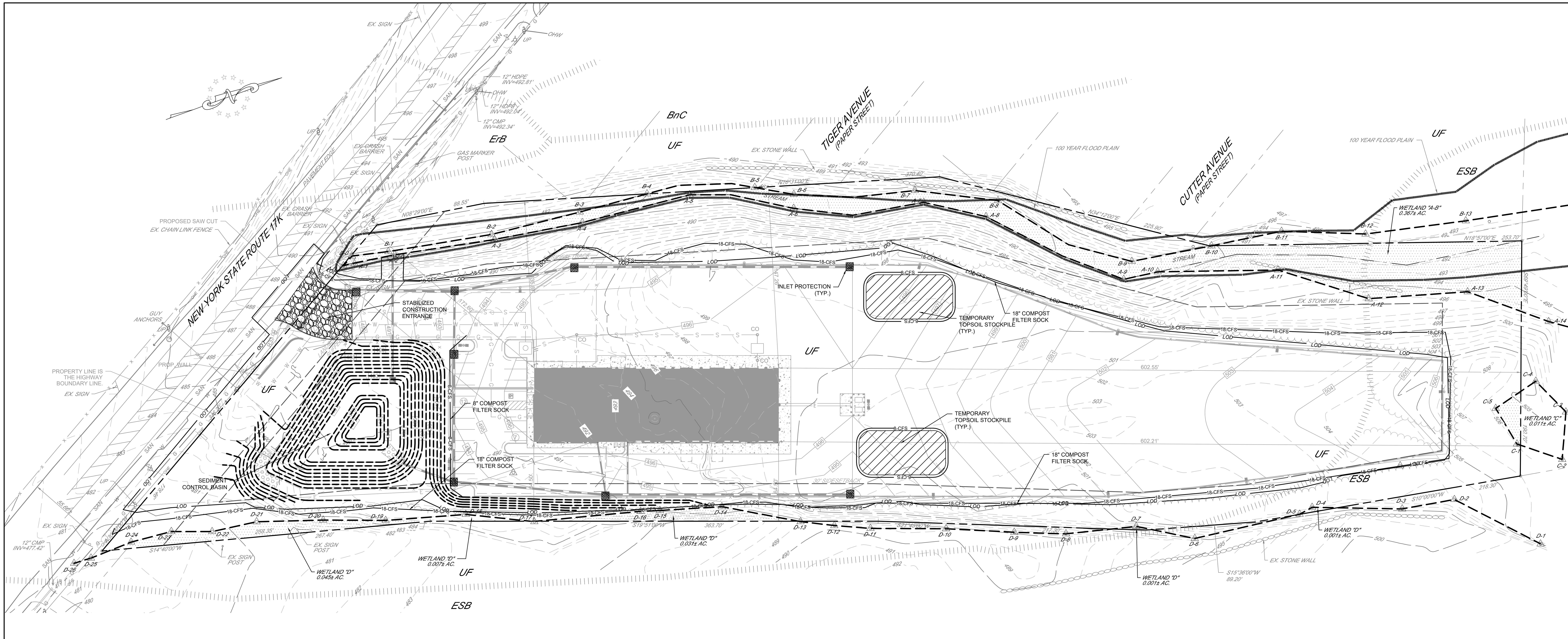
SCALE	DRAWN
N.T.S.	MAS
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK · NEIL E. SANDER · 87961 · LICENSED PROFESSIONAL ENGINEER

02/15/23

C840

SHEET 10 OF 15



EROSION/SEDIMENT CONTROL PLAN NOTES:

1. ALL EROSION AND SEDIMENT DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, NOVEMBER 2016 OR LATEST EDITION.
2. THE OPERATOR/RESPONSIBLE PERSON (O/RP) ON SITE SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
3. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE O/RP SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
4. THE O/RP SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED AND APPROVED BY THE CONSERVATION DISTRICT AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOILS AND/OR ROCK SPOIL AND BORROW AREAS REGARDLESS OF THEIR LOCATIONS.
5. ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER AN UNDISTURBED AREA.
6. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES.
7. EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.
8. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING THE REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.
9. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, THE O/RP SHALL INVITE ALL CONTRACTORS INVOLVED IN THAT ACTIVITY, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN DESIGNER AND THE CONSERVATION DISTRICT TO A PRE-CONSTRUCTION MEETING.
10. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITY CEASES, THE O/RP SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITY. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT SPECIFIED RATES. DISTURBED AREAS THAT ARE NOT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS.
11. DISTURBED AREAS THAT ARE AT A FINISHED GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
12. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% VEGETATIVE OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
13. UNTIL A SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEANOUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING AND RE0NETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED, WILL BE REQUIRED.
14. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED OR PLACED IN SOIL STOCKPILES AND STABILIZED.
15. ALL BUILDING MATERIAL AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED IN ACCORDANCE WITH DEP'S SOLID WASTE REGULATIONS (25 PA CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ.) AND/OR ANY ADDITIONAL LOCAL, STATE OR FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.

SOIL TYPES AND LIMITATIONS

THE SOILS INFORMATION FOR THE PROJECT IS FOUND ON THE 'NATURAL RESOURCES CONSERVATION SERVICE" ON THE "WEB SOIL SURVEY, HTTP://WEBSOILSURVEY.NRCS.USDA.GOV". THE SOIL SURVEY AREA IS ORANGE COUNTY, NY AND THE SURVEY AREA DATA IS VERSION 22, AUGUST 19, 2021.

THE FOLLOWING SOIL TYPES ARE FOUND ON THE SITE:

SOIL TYPE	SYMBOL
UDIFLUVENTS - FLUVAQUENTS COMPLEX (95%), FREQUENTLY FLOODED	UF
ERIE EXTREMELY STONY SOILS (5%), GENTLY SLOPING	ESB

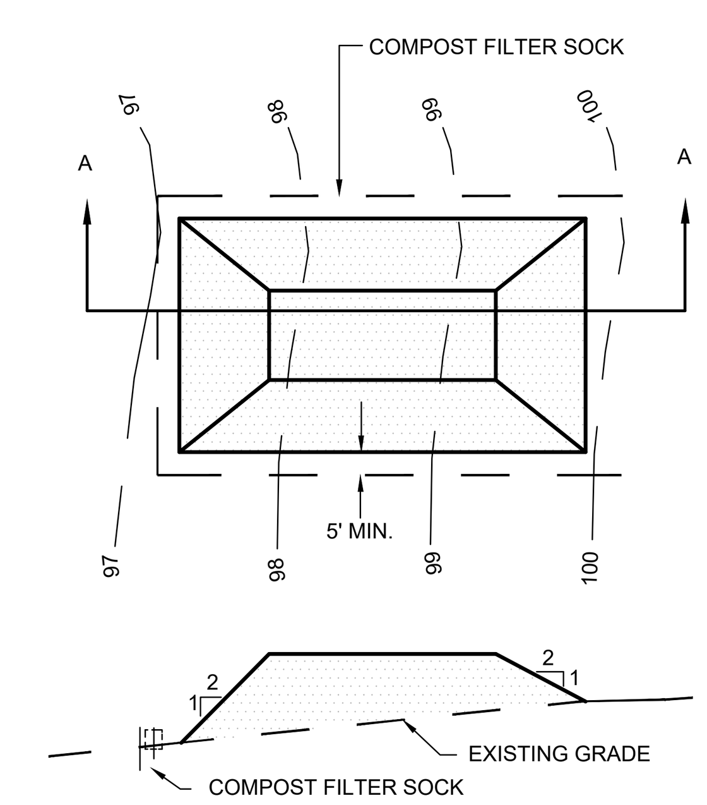
CONSTRUCTION SEQUENCE:

1. PRIOR TO START OF CONSTRUCTION A SITE MEETING WITH THE TOWN'S ENGINEER AND CONTRACTOR SHALL BE SCHEDULED TO REVIEW PLANS AND ADDRESS ANY COMMENTS PRIOR TO CONSTRUCTION.
2. INSTALL THE CONSTRUCTION ENTRANCE WHERE SHOWN ON THE PLAN.
3. INSTALL THE COMPOST FILTER SOCKS WHERE INDICATED ON THE PLAN.
4. REMOVE AND CLEAR ANY AND ALL STRUCTURES AND UTILITIES PER THE DEMOLITION PLAN AND IN ACCORDANCE WITH THE DEMOLITION NOTES ON THAT DEMOLITION PLAN.
5. CLEAR THE AREAS DESIGNATED FOR THE NEW PROPOSED BUILDING.
6. GRADE THE AREA DESIGNATED FOR, AND START THE CONSTRUCTION OF, THE NEW PROPOSED BUILDING. INSTALL THE NEW PAVEMENT IN FRONT AND ON THE SIDE OF THE BUILDING. INCLUDING THE ADA PARKING STALLS.
7. INSTALL SANITARY SEWER, INCLUDING THE PUMP STATION, LATERALS, OIL AND WATER TRAP
8. INSTALL WATER AND GAS CONNECTIONS.
9. PLACE ANY TOPSOIL FROM THE BUILDING SITE IN THE LOCATION SHOWN ON THE PLAN. TEMPORARILY SEED AND STRAW-MULCH THE STOCKPILE AS REQUIRED.
10. AFTER MAIN BUILDING CONSTRUCTION HAS COMMENCED, CLEAN THE ENTIRE REMAINING NEW AND EXISTING PAVED AREA.
11. INSPECT, MAINTAIN, AND REPAIR EROSION CONTROLS AROUND THE SITE ON A WEEKLY BASIS AND AFTER MEASURABLE (MIN. 0.25") RAINFALL UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
12. AFTER BUILDING CONSTRUCTION, PAVEMENT AND PARKING CONSTRUCTION, AND GENERAL AREA CONSTRUCTION HAS ENDED, DEMOLITION AND CONSTRUCTION OF THE NEW CONCRETE ENTRANCE CAN START.
13. ***CRITICAL STAGE*** ONCE ALL TRIBUTARY AREAS HAVE BEEN STABILIZED AND AUTHORIZATION FROM THE TOWNSHIP HAS BEEN RECEIVED, EROSION CONTROLS CAN BE REMOVED. DISPOSE OF/RECYCLE ANY SILT FENCE, CONSTRUCTION WASTES, AND/OR OTHER BMP'S. PERMANENTLY STABILIZE AREAS DISTURBED BY REMOVAL OF THE BMP'S. REMOVE ANY SEDIMENT OUT OF THE BASINS WITHOUT COMPACTING THE BOTTOMS (MANUALLY) AND REPLACE TOPSOIL WHERE NEEDED.
14. CLEAN ANY AREAS AFTER CONSTRUCTION OF ANY DEBRIS.

TOTAL DISTURBED AREA

4.00 ACRES

SOIL LIMITATION	RESOLUTION
CUTBANKS CAVE	THE CONTRACTOR SHALL TAKE EXTRA CARE WHILE CONSTRUCTING CUTBANKS. ADDITIONAL EROSION CONTROL MEASURE, SUCH AS TRENCH BOXES, SHALL BE USED AS NEEDED.
CORROSIVE TO CONCRETE/STEEL	THE CONTRACTOR SHALL REMAIN COGNIZANT OF THE CORROSION POTENTIAL OF THESE SOILS AND CONSIDER WHAT MATERIALS SHOULD BE USED FOR BACKFILL.
DROUGHTY	SOILS SHALL BE AMENDED WITH COMPOST AS NEEDED TO INCREASE THE SOIL'S WATER HOLDING CAPACITY. IF THE DRY SOIL CREATES A DUST NUISANCE DURING CONSTRUCTION, THEN A WATER TRUCK SHALL BE AVAILABLE ON-SITE AS A MEANS OF CONTROL.
EASILY ERODIBLE	EROSION CONTROL MEASURES SHALL BE INSTALLED AS DEPICTED ON THE APPROVED PLAN. USE ADDITIONAL E&S MEASURES IF SITE CONDITIONS REQUIRE THEM.
DEPTH TO SATURATED ZONE / SEASONAL HIGH WATER TABLE	DEWATERING EQUIPMENT SHALL BE AVAILABLE ON-SITE AT ALL TIME DURING CONSTRUCTION.
HYDRIC / HYDRIC INCLUSION	THE CONTRACTOR SHALL AVOID DISTURBANCE TO HYDRIC SOIL AS MUCH AS POSSIBLE.
LOW STRENGHTH / LANDSLIDE PRONE	THE CONTRACTOR SHALL PROPERLY STABILIZE ALL SLOPES TO PREVENT LANDSLIDES. EROSION CONTROL BLANKET AND OTHER E&S MEASURES SHALL BE USED AS NEEDED.
SLOW PERCOLATION	DEWATERING EQUIPMENT SHALL BE AVAILABLE ON-SITE AT ALL TIMES DURING CONSTRUCTION.
POOR SOURCE OF TOPSOIL	THE CONTRACTOR SHALL VERIFY THAT ANY SOILS USED FOR TOPSOIL ARE APPROPRIATE FOR SUCH USE.
FROST ACTION	THE CONTRACTOR SHALL TAKE EXTRA CARE WHILE PERFORMING GRADING OPERATIONS IN THESE SOILS DURING THE WINTER MONTHS AND UTILIZE ADDITIONAL EROSION & SEDIMENT CONTROL MEASURES AS NEEDED.
SHRINK-SWELL	THE CONTRACTOR SHALL ENSURE THAT ALL SOILS ARE PROPERLY COMPACTED. IF UNANTICIPATED SHRINK-SWELL RESULTS IN A EARTHWORK MISBALANCE, THE CONTRACTOR SHALL VERIFY THAT ANY SOIL IMPORTED TO OR EXPORTED FROM THE SITE IS CLEAN FILL.
WETNESS	DEWATERING EQUIPMENT SHALL BE AVAILABLE ON-SITE AT ALL TIMES DURING CONSTRUCTION.



SECTION A-A

NOTES:

1. PLACE STOCKPILES AT LOCATIONS AS SHOWN ON THE SOIL EROSION ANS SEDIMENT CONTROL PLAN.

2. HEIGHT SHALL NOT EXCEED 35 FEET. ALL SIDE SLOPES SHALL BE 2 TO 1 OR FLATTER.

3. STOCKPILE SHALL RECEIVE A VEGETATIVE COVER IN ACCORDANCE WITH MINIMUM STABILIZATION REQUIREMENTS TO MINIMIZE EROSION.

4. COMPOST FILTER SOCK SHALL BE INSTALLED AS DETAILED HEREON.

5. LOCATION OF PROPOSED STOCKPILE WHICH AFFECT EROSION CONTROLS ARE SHOWN SCHEMATICALLY ONLY. ACTUALLY STOCKPILE LOCATION MAY CHANGE DURING CONSTRUCTION.

6. SEE SEQUENCE OF CONSTRUCTION NOTES ON THIS SHEET.

MAINTENANCE AND INSPECTION
7. INSPECT STOCKPILES REGULARLY, ESPECIALLY AFTER LARGE STORMS. STABILIZE ANY AREAS THAT HAVE ERODED. SITE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION.

STOCKPILE DETAIL

N.T.S.

LEGEND

Symbol	Description
	EXISTING FLOODPLAIN
	DISSOLVED PROPERTY LINE
	EXISTING ADJOINING PROPERTY LINE
	EXISTING SETBACK
	EXISTING STONE WALL
X	EXISTING FENCE
385	EXISTING CONTOUR - MAJOR
384	EXISTING CONTOUR - MINOR
	EXISTING RCP PIPE
OHE	EXISTING OVERHEAD WIRES
E	EXISTING ELECTRIC
G	EXISTING GAS
T	EXISTING TELEPHONE
SAN	EXISTING SANITARY
W	EXISTING WATER
	EXISTING WETLANDS
	EXISTING SOILS LINE
B-15	EXISTING WETLANDS FLAG
UF	EXISTING SOILS LABEL
	EXISTING SIGN
	EXISTING UTILITY POLE
	EXISTING STORM MANHOLE
	EXISTING SEWER MANHOLE
	EXISTING TELEPHONE MANHOLE
WV	EXISTING WATER VALVE
	EXISTING FIRE HYDRANT
+ 52.16	EXISTING SPOT ELEVATION
	PROPOSED OUTFALL CONTROL STRUCTURE
	PROPOSED HEADWALL
	PROPOSED STORM INLET
	PROPOSED UTILITY POLE
CO	PROPOSED SANITARY CLEANOUT
	PROPOSED TREELINE
X	PROPOSED FENCE
	PROPOSED STONE WALL
310	PROPOSED CONTOUR - MAJOR
327	PROPOSED CONTOUR - MINOR
	PROPOSED STORM PIPE
8-CFS	8" COMPOST FILTER SOCK
18-CFS	18" COMPOST FILTER SOCK
	TEMPORARY GRADING
	PROPOSED INLET PROTECTION

MAINTENANCE AND INSPECTION:

1. THE SITE CONTRACTOR IS RESPONSIBLE FOR REGULAR INSPECTIONS, MAINTENANCE, AND REPAIR AND STABILIZATION OF THE PROPOSED AND NEEDED EROSION AND SEDIMENT CONTROL BMPs DURING CONSTRUCTION.
2. INSPECT BMPs AT A MINIMUM AFTER ANY RAINFALL EVENT.
3. REPAIR AND STABILIZE ERODED AREAS.
4. REPAIR AND STABILIZE CONSTRUCTION ENTRANCE WHEN NEEDED.

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PRE MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	MAS
2	10/24/22	REVISED PER TOWN COMMENTS	MAS
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FINAL LAND DEVELOPMENT PLAN SET
E&S CONTROL AND SWPPP PLAN
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

ID #

GRAPHIC SCALE: 1" = 40'

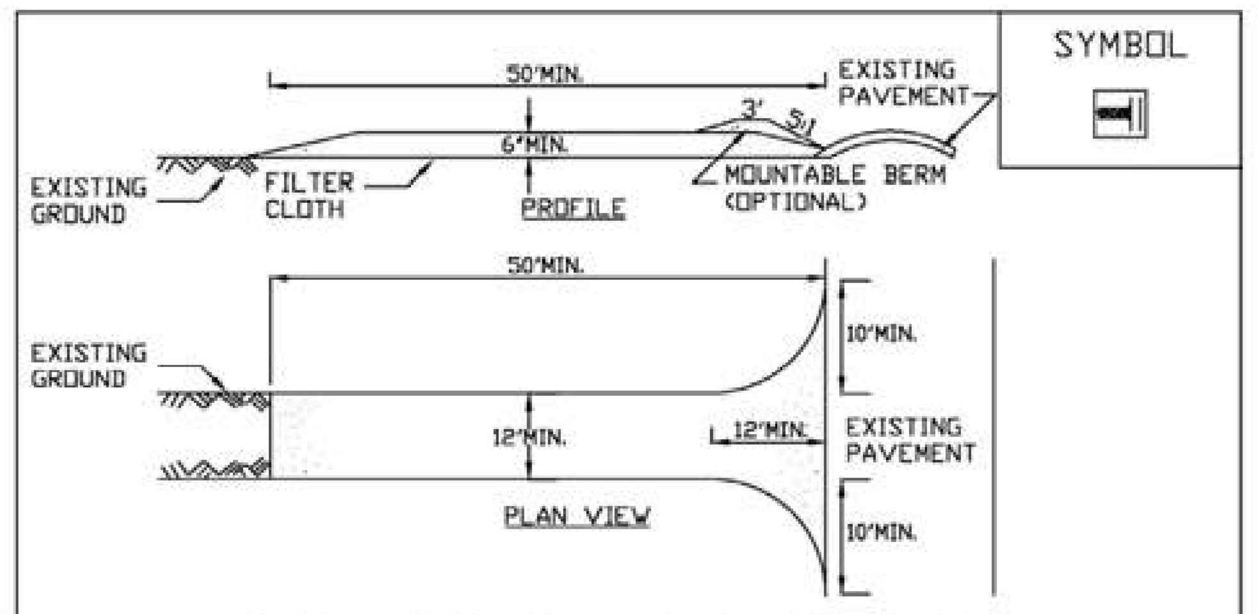
PROJECT	
028-004	
DATE	
06/17/2022	
SCALE	DRAWN
1" = 40'	ESC
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK · NEIL E. SANDER · LICENSED PROFESSIONAL ENGINEER · 87961
02/15/23

C2000

SHEET	OF
11	15

Figure 2.1
Stabilized Construction Access

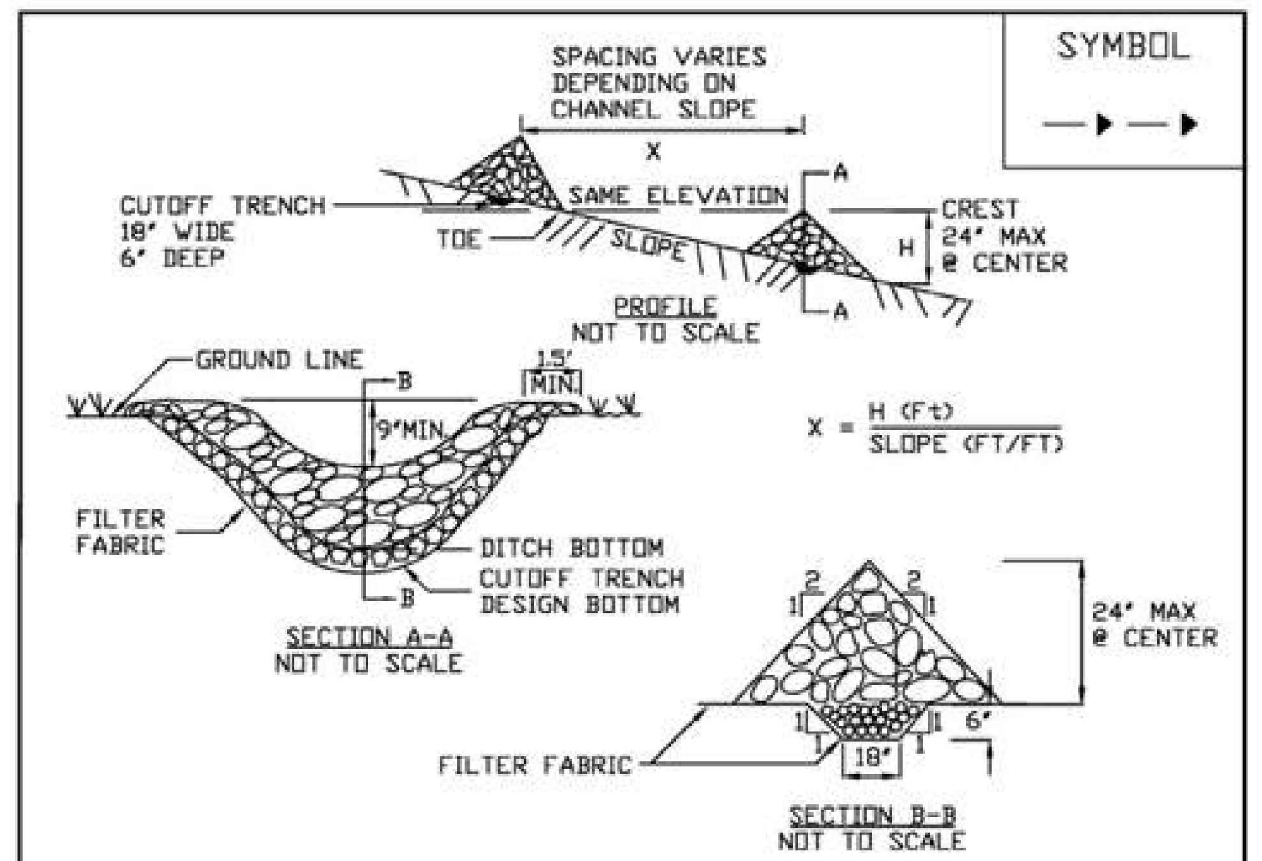


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STABILIZED CONSTRUCTION ACCESS

Figure 3.1
Stone Check Dam Detail



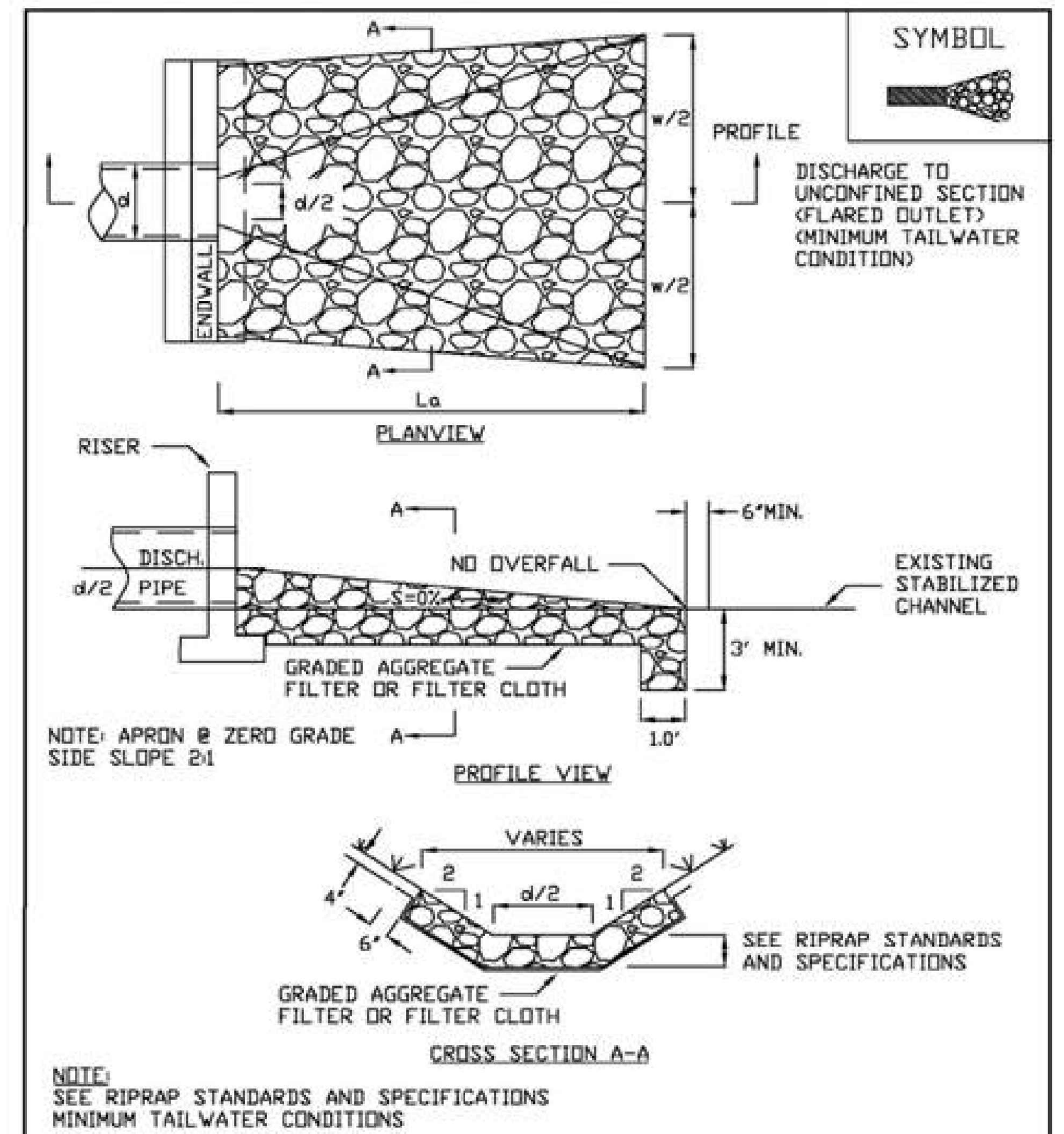
CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STONE CHECK DAM

Figure 3.18
Riprap Outlet Protection Detail (1)



ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	RIPRAP OUTLET PROTECTION EXAMPLE

Figure 4.1
Angles of Repose of Riprap Stones (FHWA)

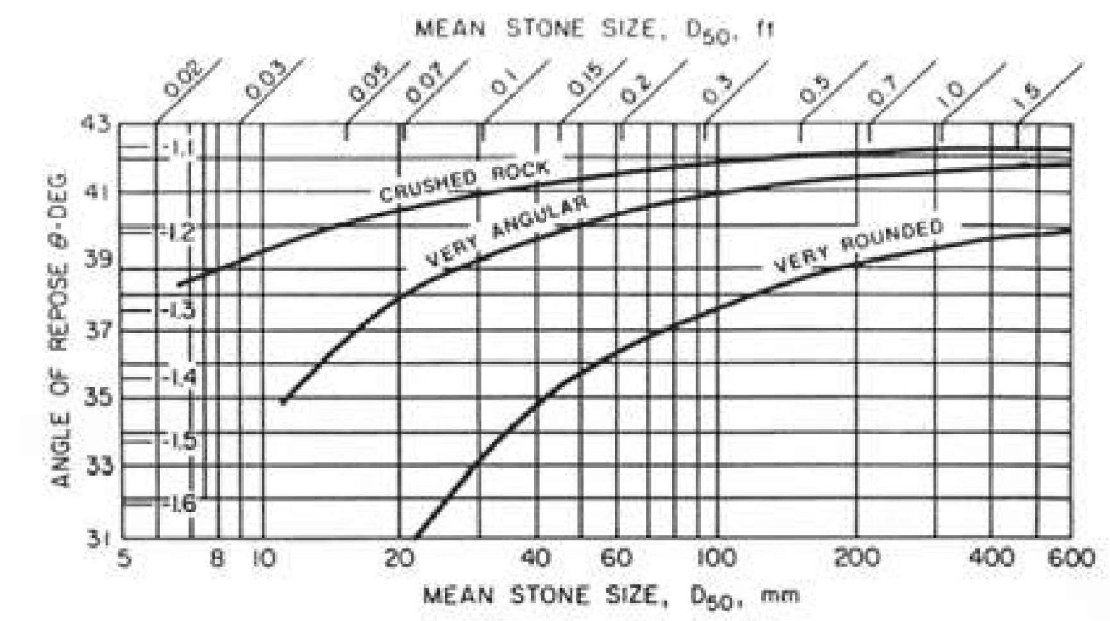


Figure 4.2
Typical Riprap Slope Protection Detail

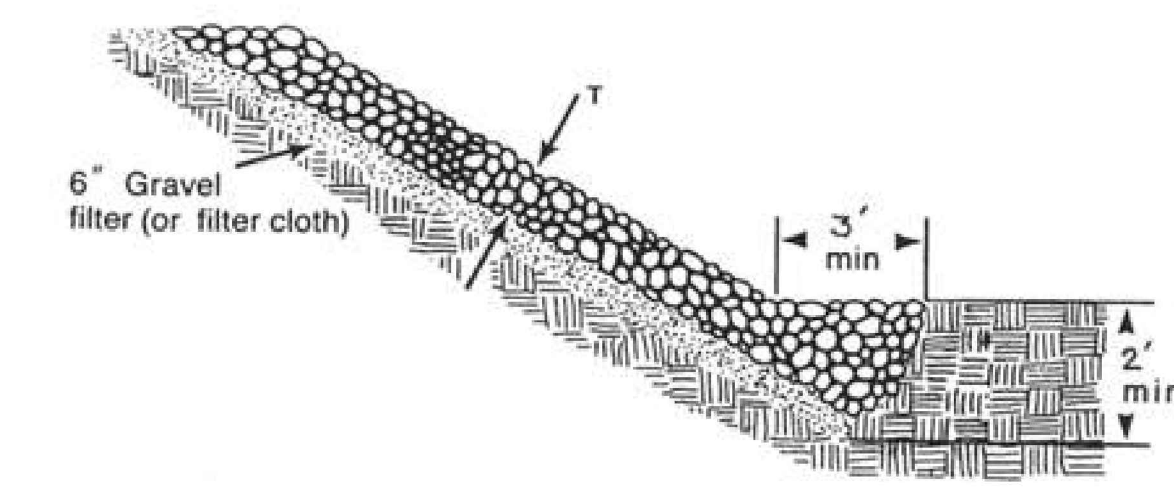


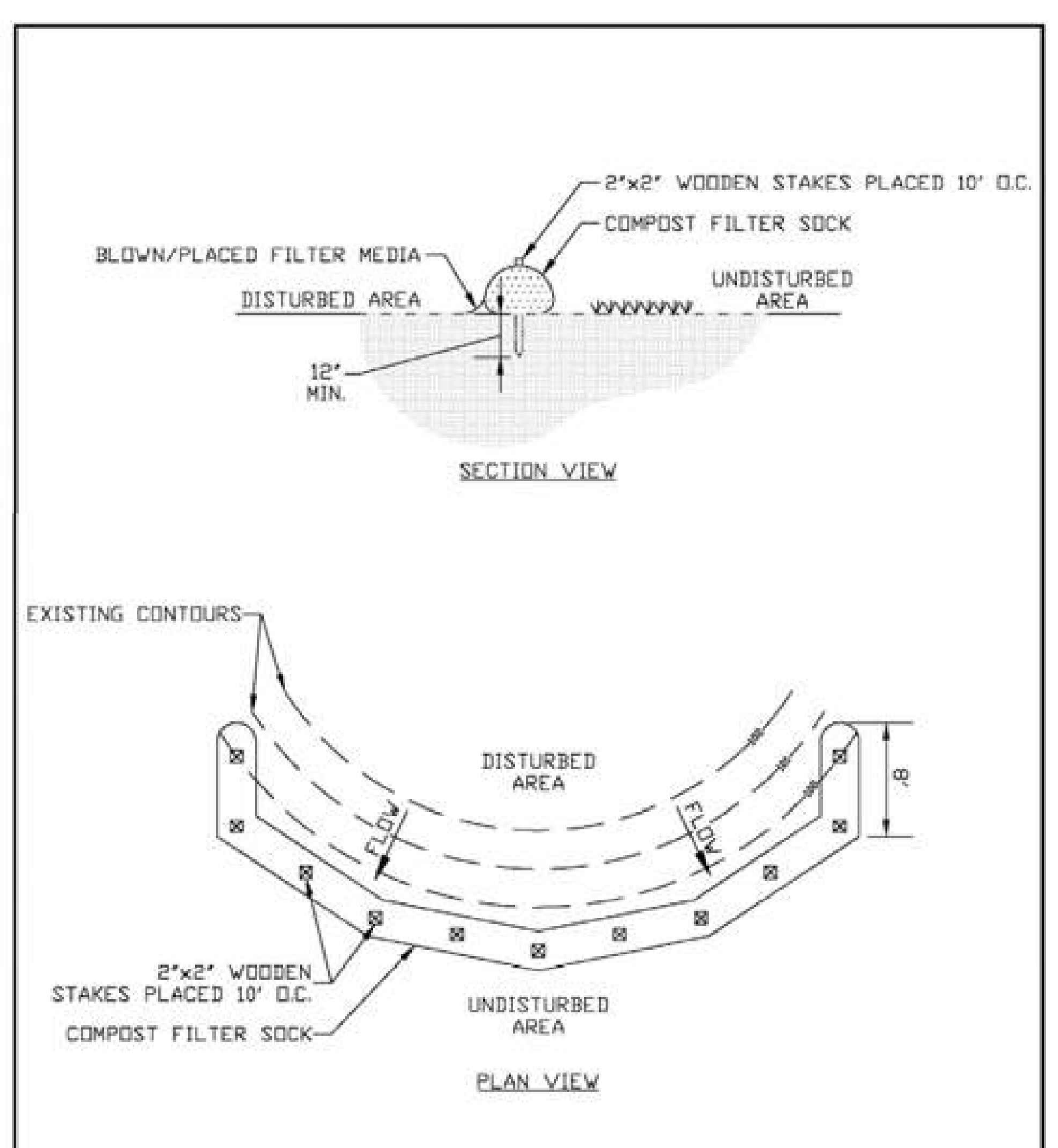
Figure 4.11
Landgrading - Construction Specifications

CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

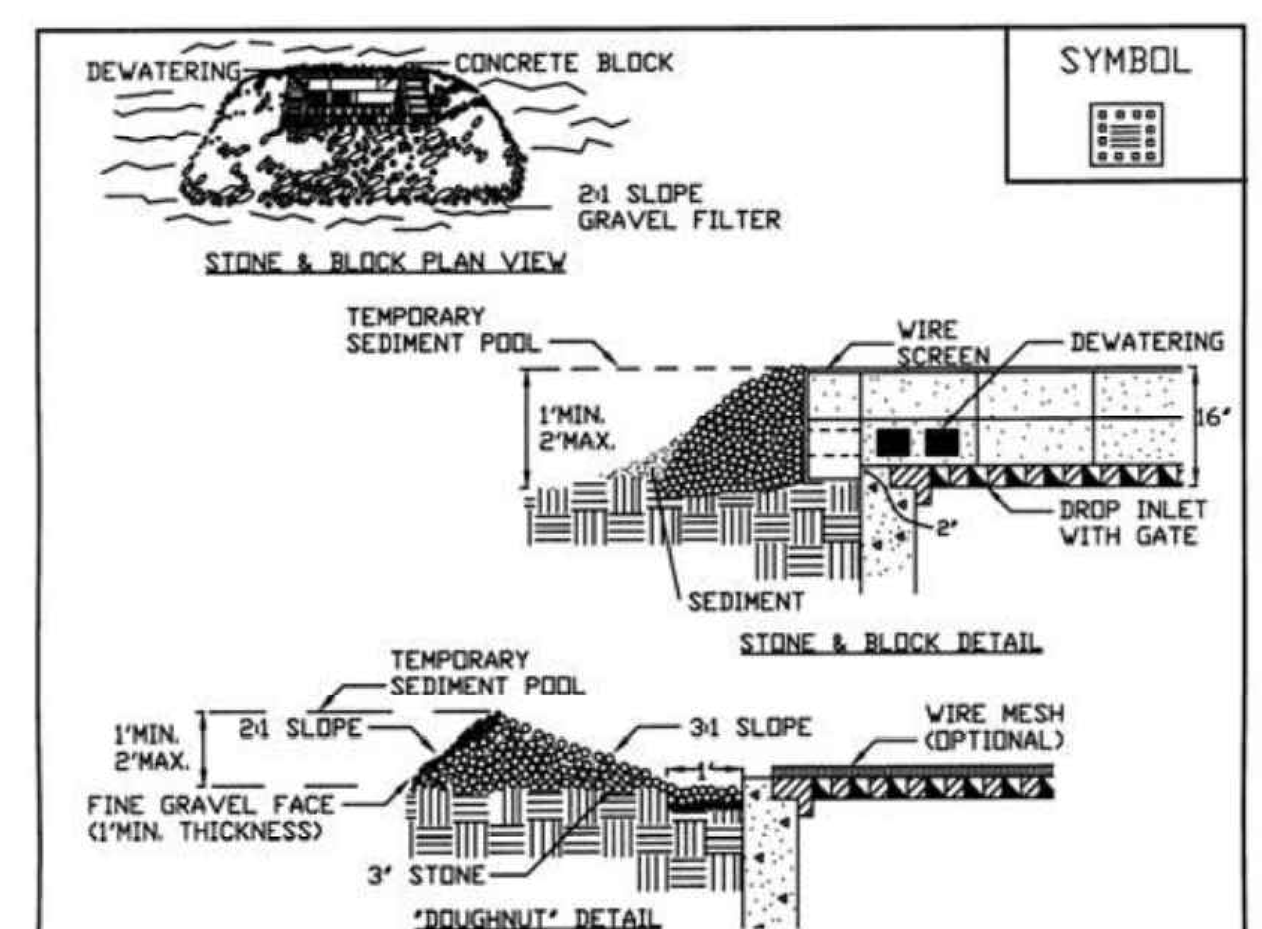
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	LANDGRADING SPECIFICATIONS

Figure 5.2
Compost Filter Sock



ADAPTED FROM DETAILS PROVIDED BY: FILTREXX	COMPOST FILTER SOCK

Figure 5.33
Stone & Block Drop Inlet Protection



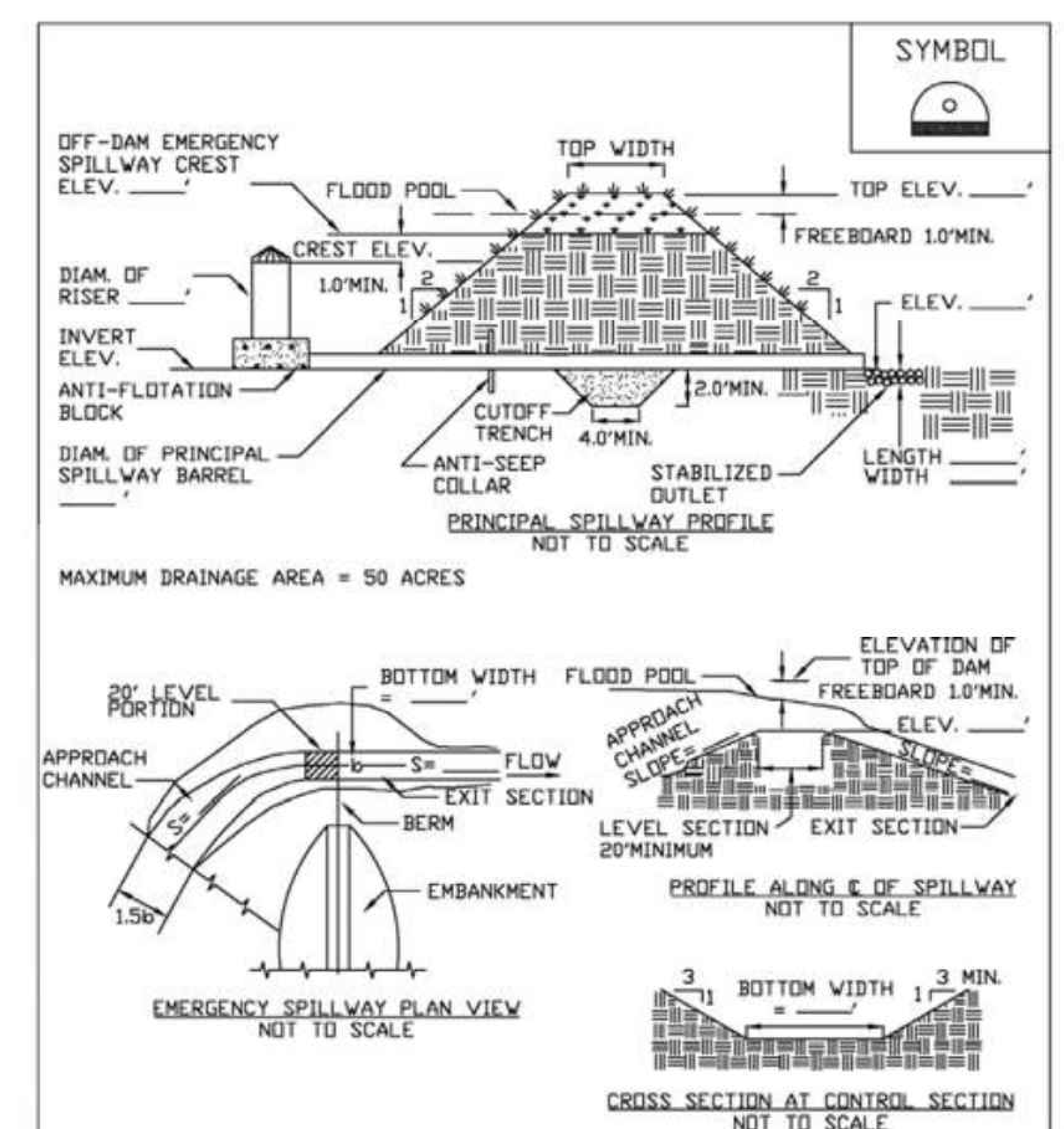
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STONE & BLOCK DROP INLET PROTECTION

Figure 5.9
Sediment Basin



ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	SEDIMENT BASIN DETAILS

MAINTENANCE AND INSPECTION:

1. THE SITE CONTRACTOR IS RESPONSIBLE FOR REGULAR INSPECTIONS, MAINTENANCE, AND REPAIR AND STABILIZATION OF THE PROPOSED AND NEEDED EROSION AND SEDIMENT CONTROL BMPs DURING CONSTRUCTION.
2. INSPECT BMPs AT A MINIMUM AFTER ANY RAINFALL EVENT.
3. REPAIR AND STABILIZE ERODED AREAS.
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Independence ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
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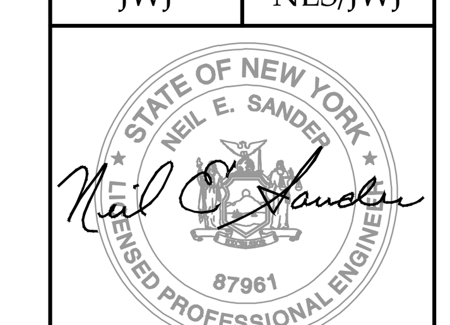
FINAL LAND DEVELOPMENT PLAN SET
E&S DETAILS
for
SUNBELT RENTALS - NEWBURGH
224 & 226 NEW YORK ROUTE 17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

811

ID #

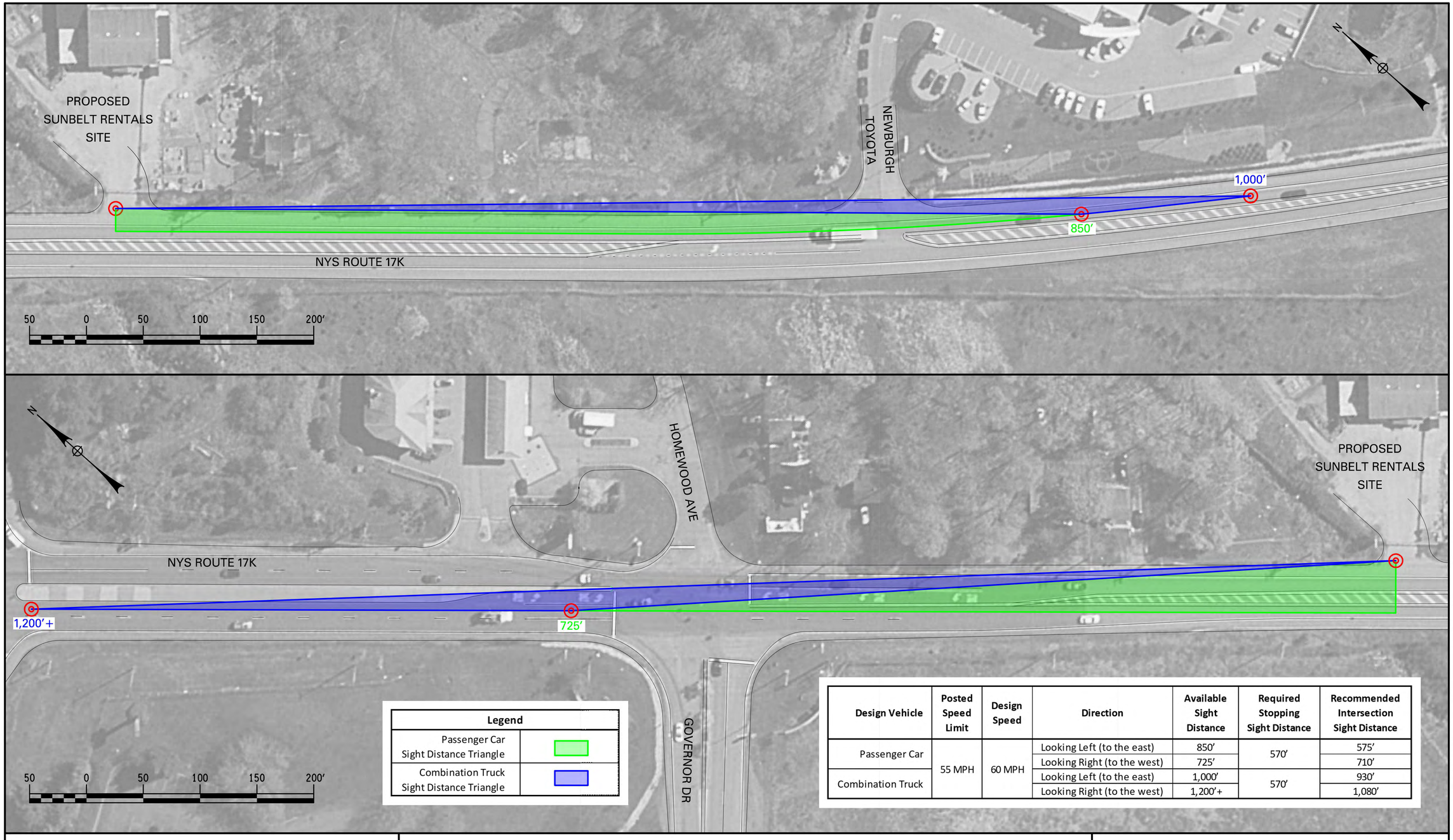
PROJECT	
028-004	
DATE	
06/17/2022	
SCALE	DRAWN
N.T.S.	ESC
DESIGNED	CHECKED
JWJ	NES/JWJ



02/15/23

C2100

SHEET	OF
12	15



Legend	
Passenger Car Sight Distance Triangle	
Combination Truck Sight Distance Triangle	

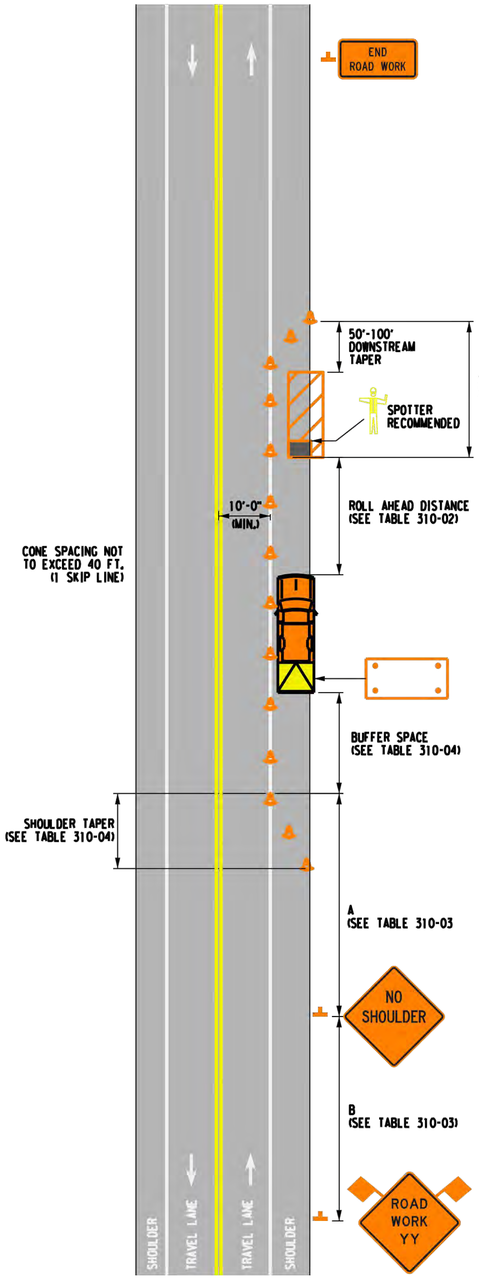
Design Vehicle	Posted Speed Limit	Design Speed	Direction	Available Sight Distance	Required Stopping Sight Distance	Recommended Intersection Sight Distance
Passenger Car	55 MPH	60 MPH	Looking Left (to the east)	850′	570′	575′
			Looking Right (to the west)	725′		710′
Combination Truck			Looking Left (to the east)	1,000′	570′	930′
			Looking Right (to the west)	1,200′+		1,080′

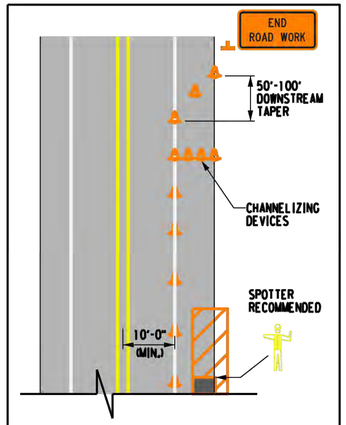
GPI Engineering Design Planning Construction Management

SUNBELT RENTALS
STAGE 2 PERMIT APPLICATION
TOWN OF NEWBURGH, NEW YORK

SIGHT DISTANCE DIAGRAM

SCALE:	DATE:	FIGURE NO.
AS SHOWN	DECEMBER 2022	1





NOT TO SCALE

DETAIL 310A: SEE NOTE 6

NOTES:

1. SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.

2. THE PROTECTIVE VEHICLE(S) SHALL MAINTAIN THE APPROPRIATE ROLL AHEAD DISTANCE, BE AN UNOCCUPIED TRUCK POSITIONED PARALLEL TO TRAFFIC, PARKING BRAKE SET, PLACED IN 2ND GEAR (MANUAL TRANSMISSIONS /ENGINE OFF) OR PARK / NEUTRAL (AUTOMATIC TRANSMISSIONS) AND HAVE THE FRONT WHEELS ALIGNED WITH THE LANE STRIPING.

3. THERE SHALL BE NO WORKERS, EQUIPMENT OR OTHER VEHICLES IN THE BUFFER SPACE OR THE ROLL AHEAD DISTANCE.

4. XX IS THE EXPECTED OVERALL LENGTH OF THE OPERATION TO BE COMPLETED WITHIN THE WORK DAY. A SUPPLEMENTAL DISTANCE PLAQUE W7-3a SHALL BE USED WITH SIGN W20-1 WHEN THE DISTANCE BETWEEN THE ADVANCE WARNING SIGNS AND WORK MAY BECOME GREATER THAN 2 MILES AS A RESULT OF THE FOLLOWING SITUATIONS:
•MULTIPLE WORK LOCATIONS ARE ANTICIPATED WITHIN XX MILES FROM THE W20-1 SIGN
•WORK AREA WILL BE RELOCATED DURING THE DURATION OF THE WORK WITHIN XX MILES FROM THE W20-1 SIGN.
THE SUPPLEMENT SIGN W7-3a SHALL INDICATE THE MAXIMUM ANTICIPATED DISTANCE BETWEEN THE W20-1 SIGN AND THE FARTHEST WORK LOCATION.

5. WHEN MULTIPLE WORK LOCATIONS EXIST WITHIN XX MILES FROM THE W20-1 SIGN, A G20-1 SIGN SHALL BE PLACED EVERY TWO MILES INDICATING THE DISTANCE FROM THE SIGN TO THE FARTHEST WORK LOCATION.

6. CHANNELIZING DEVICES SHALL BE PLACED TRANSVERSELY A MINIMUM OF EVERY 800' AS SHOWN WHEN A PAVED SHOULDER HAVING A WIDTH OF 8' OR GREATER IS CLOSED FOR A DISTANCE GREATER THAN 800'.

7. IN URBAN CONDITIONS, ADVANCE WARNING SIGN SPACINGS MAY BE ADJUSTED IN ORDER TO ACCOMMODATE SIDE STREETS AND DRIVEWAYS. IF THERE IS A CONFLICT, MOVE THE SIGN UPSTREAM.

G20-2

THIS SIGN SHALL BE LOCATED A MINIMUM DISTANCE OF 80 FT AND MAXIMUM OF 400 FT PAST THE END OF THE DOWNSTREAM TAPER.

W20-1

W8-23

WORK AREA

ARROW PANEL
(CAUTION MODE)

W7-3a (SEE NOTE 4)

SPOTTER

G20-1 (SEE NOTE 5)

CONE

24000 LB PROTECTIVE
VEHICLE WITH TMIA
SEE TABLE 310-01

TABLE 310-05: REQUIRED SIGN SIZES*

SIGN	NON-FREEWAY	FREEWAY
G20-1	36x18	48x24
G20-2	36x18	48x24
W7-3a	24x18	36x30
W8-23	36x36	48x48
W20-1	36x36	48x48
WARNING FLAG	18x18	18x18

*FREEWAY SIZES MAY BE USED ON NON-FREEWAY, IF SPACE CONSTRAINTS DO NOT EXIST.

TABLE 310-01: PROTECTIVE VEHICLE REQUIREMENTS

CLOSURE TYPE	ROAD TYPE & SPEED	NON-FREEWAY		
		≥ 45 MPH	35 - 40 MPH	≤ 30 MPH
	EXPOSURE CONDITIONS[1]			
LANE CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMIA	P, TMIA	P
	OTHER HAZARDS NO WORKERS EXPOSED	P, TMIA	P	SEE NOTE 2
SHOULDER CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMIA	P	P
	OTHER HAZARDS NO WORKERS EXPOSED	P, TMIA	P	SEE NOTE 2

LEGEND

P: PROTECTIVE VEHICLE REQUIRED FOR EACH CLOSED LANE & EACH CLOSED PAVED SHOULDER 8' OR WIDER. IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE PROTECTIVE VEHICLE SHALL BE REPOSITIONED ACCORDINGLY

TMIA: TMIA REQUIRED

NOTES:
1. THE EXPOSURE CONDITIONS ASSUME THERE IS NO POSITIVE PROTECTION PRESENT
2. EITHER A PROTECTIVE VEHICLE OR THE STANDARD BUFFER SPACE SHALL BE PROVIDED

TABLE 310-02: ROLL AHEAD DISTANCE

ROLL AHEAD DISTANCE (FT.)/# OF SKIP LINES FOR VEHICLES

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	STATIONARY OPERATION	
	MIN	MAX
≥ 55	120/3	200/5
45 - 50	80/2	160/4
≤ 40	40/1	120/3

TABLE 310-03: ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS		SIGN LEGEND	
	A (FT.)	B (FT.)	XX	YY
URBAN (≤ 30 MPH*)	100	100	AHEAD	AHEAD
URBAN (35-40 MPH*)	200	200	AHEAD	AHEAD
URBAN (≥ 45 MPH*)	350	350	1000 FT.	AHEAD
RURAL	500	500	1500 FT.	1000 FT.

* PRECONSTRUCTION POSTED SPEED LIMIT

TABLE 310-04: LONGITUDINAL BUFFER SPACE AND TAPER LENGTHS

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	LONGITUDINAL BUFFER SPACE DISTANCE (FT.)/ # OF SKIP LINES	TAPER LENGTH: L (FT.)/ # OF SKIP LINES/ # OF CHANNELIZING DEVICES			SHOULDER TAPER LENGTH: L/3 (FT.)/ # OF SKIP LINES/ # OF CHANNELIZING DEVICES		
		FOR LANE WIDTH IN FT. (LATERAL SHIFT OF TRAFFIC FLOW PATH)			FOR SHOULDER WIDTH		
		10	11	12	≤ 4 FT.	5 - 7 FT.	≥8 FT.
25	155/4	120/3/4	120/3/4	120/3/4	40/1/2	40/1/2	40/1/2
30	200/5	160/4/5	160/4/5	200/5/6	40/1/2	40/1/2	40/1/2
35	250/6	200/5/6	240/6/7	240/6/7	40/1/2	40/1/2	80/2/3
40	305/8	280/7/8	320/8/9	320/8/9	40/1/2	80/2/3	80/2/3
45	360/9	440/11/12	520/13/14	560/14/15	80/2/3	80/2/3	120/3/4
50	425/11	520/13/14	560/14/15	600/15/16	80/2/3	120/3/4	160/4/5
55	495/13	560/14/15	600/15/16	680/17/18	80/2/3	120/3/4	160/4/5

NEW YORK
STATE OF
OPPORTUNITY.
Department of
Transportation

U.S. CUSTOMARY STANDARD SHEET

WORK ZONE TRAFFIC CONTROL
NON-FREEWAY
SHOULDER CLOSURE
SHORT TERM OPERATION

APPROVED DECEMBER 2, 2021

Robert Limoges
ROBERT LIMOGES, P.E.
DIRECTOR, OTSM

ISSUED UNDER EI 21-028

619-310

ERRATA 1 EFF. 01/01/23
ISSUED WITH EB 22-050

FILE NAME = DGN$SPEC01234567890123456789012345678901234
DATE/TIME = DGN$SYTIME0123456
USER = DGN$USERNAME

GENERAL NOTES

1. THE TYPICAL DETAILS DEPICTED ON THE STANDARD SHEETS AND IN THE MUTCD, REFLECT THE MINIMUM REQUIREMENTS.

2. PROPOSED REVISIONS TO THE TRAFFIC CONTROL PLAN SHALL BE PROVIDED, IN WRITING, TO THE DOT ENGINEER FOR REVIEW AND APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE FIVE (5) WORK DAYS PRIOR TO THE PLANNED IMPLEMENTATION OF SUCH PROPOSED REVISIONS, EXCEPT FOR CHANGES THAT ALTER THE SCOPE OF THE TRAFFIC CONTROL PLAN. SUCH CHANGES IN SCOPE MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE THIRTY (30) WORK DAYS PRIOR TO IMPLEMENTATION OF SUCH REVISIONS.

3. THE NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF STAFF WHO ARE AUTHORIZED TO SECURE LABOR, MATERIALS, AND EQUIPMENT FOR EMERGENCY REPAIRS OUTSIDE NORMAL WORKING HOURS SHALL BE PROVIDED, IN WRITING, TO THE NYSDOT ENGINEER. THE ENGINEER WILL PROVIDE THE SUBMITTED INFORMATION TO REGIONAL MANAGEMENT, THE NEW YORK STATE POLICE, THE RESIDENT ENGINEER, AND THE LOCAL POLICE.

4. STANDARD SHEET 619-503 MAY BE USED FOR AN OFFSITE DETOUR SETUP FOR BOTH LONG TERM AND SHORT TERM WORK DURATIONS.

5. REGIONAL HIGH-VOLUME RESTRICTIONS SHALL BE FOLLOWED. CONSULT WITH DOT ENGINEER IF EXCEPTION NEEDED.

6. PLAN AHEAD TO AVOID CONFLICTING WORK ZONES. CHECK FOR CONSTRUCTION PROJECTS, CLOSURES, & RESTRICTIONS AT WWW.511NY.ORG, WWW.DOT.NY.GOV/PROJECTS, AND WITH NYSDOT ENGINEER.

7. WORK ZONE INCIDENTS SHALL BE DOCUMENTED AND REPORTED USING EITHER THE DEPARTMENT'S WORK ZONE INCIDENT FORM, OR THE CONSTRUCTION INCIDENT REPORTING SYSTEM, AS APPROPRIATE.

8. CONSIDER CLOSURE WIDTH AND THE ABILITY TO ACCOMMODATE WIDE LOAD VEHICLES BEFORE ESTABLISHING WORK ZONES.

9. IF THE WORK ZONE AFFECTS AN EXISTING ACCESSIBLE AND DETECTABLE PEDESTRIAN FACILITY, ACCESSIBILITY AND DETECTABILITY SHALL BE PROVIDED ALONG THE ALTERNATE ROUTE.

ACTIVITY AREA

1. A 500' MINIMUM LONGITUDINAL DISTANCE SHALL BE MAINTAINED BETWEEN CONSTRUCTION OPERATIONS ON ALTERNATE SIDES OF THE ROADWAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

2. WHEN TWO OR MORE AREAS ARE ADJACENT, OVERLAP, OR ARE IN CLOSE PROXIMITY, THE CONTRACTOR SHALL ENSURE THERE ARE NO CONFLICTING SIGNS AND THAT LANE CONTINUITY IS MAINTAINED THROUGHOUT ALL WORK AREAS.

SIGNS

1. THE LOCATIONS OF THE SIGNS SHOWN ON THE WORK ZONE TRAFFIC CONTROL PLANS AND DETAILS MAY BE ADJUSTED BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS. THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.

2. FOR LONG TERM WORK DURATIONS, ANY EXISTING SIGNS, INCLUDING OVERHEAD SIGNS, WHICH CONFLICT WITH THE TEMPORARY TRAFFIC CONTROL SIGN LAYOUT SHALL BE COVERED, REMOVED, STORED OR RESET, AS APPROVED BY THE ENGINEER. ALL APPROPRIATE EXISTING SIGNS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND/OR LOCATION UNLESS OTHERWISE REPLACED IN THIS CONTRACT.

3. SIGNS AT OR NEAR INTERSECTIONS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT A MOTORIST'S LINE OF SIGHT.

4. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET OR OMITTED WITH THE APPROVAL OF THE DOT ENGINEER. LAYING THE SIGN DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.

5. THE DIMENSIONS OF WORK ZONE TRAFFIC CONTROL SIGNS ARE DESCRIBED IN THE MUTCD. ANY CHANGES TO THE DIMENSIONS SHALL BE APPROVED BY THE REGIONAL DIRECTOR OR BY HIS/HER DESIGNEE.

6. NYR9-12 SHALL BE USED IN PLACE OF NYR9-11 WHEN A REDUCED REGULATORY SPEED LIMIT SIGN IS AUTHORIZED.

7. RIGID AND FLEXIBLE "ROLL-UP" SIGNS MAY BE USED FOR MOBILE, SHORT DURATION AND SHORT-TERM STATIONARY WORK. RIGID SIGNS MUST BE MOUNTED AT LEAST 5 FEET ABOVE GRADE (7 FEET WHERE THERE ARE PEDESTRIANS OR PARKED CARS). FLEXIBLE SIGNS SHALL BE MOUNTED AT LEAST ONE FOOT ABOVE GRADE. MESH SIGNS SHALL NOT BE USED. USE RETRO REFLECTORIZED RIGID SIGNS FOR NIGHTTIME WORK.

CHANNELIZING DEVICES

1. WHERE POSSIBLE ALL CHANNELIZING AND GUIDING DEVICES ARE TO BE PLACED SO AS TO PROVIDE A MINIMUM 2' LATERAL CLEARANCE TO THE TRAVELED WAY.

PUBLIC ACCESS

1. PROPERTY OWNERS WHOSE DRIVEWAYS WILL BE MADE INACCESSIBLE SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO RESTRICTING USE OF THE DRIVEWAY. FOR MULTIPLE ACCESS PROPERTIES, AT LEAST ONE DRIVEWAY SHALL BE OPEN AT ALL TIMES. ACCESS SHALL BE RESTORED TO ALL DRIVEWAYS AS SOON AS POSSIBLE.

2. SUITABLE RAMPS SHALL BE INSTALLED TO MAINTAIN SMOOTH TRANSITIONS FROM RESIDENTIAL AND COMMERCIAL DRIVEWAYS TO AND FROM THE WORK AREA.

LANE CLOSURES

1. LANE CLOSURES SHALL BE LOCATED TO PROVIDE OPTIMUM VISIBILITY, I.E. BEFORE CURVES AND CRESTS, TO THE EXTENT CONDITIONS PERMIT.

2. THE ENGINEER MAY REQUIRE THAT ALL LANES BE RE-OPENED AT ANY TIME IF THE ROUTE IS NEEDED FOR EMERGENCY PURPOSES. THIS COULD INCLUDE INCIDENTS AT LOCATIONS OUTSIDE THE CONTRACT LIMITS.

3. EACH ARROW PANEL SHALL BE VISIBLE 1500 FEET IN ADVANCE FROM ANY POINT WITHIN THE ROADWAY.

LANE WIDTHS

1. UNLESS AUTHORIZED BY THE ENGINEER, THE MINIMUM LANE WIDTHS FOR WORK ZONE TRAVEL LANES SHALL BE AS FOLLOWS: FREEWAYS AND/OR EXPRESSWAYS IS 11'. THE MINIMUM LANE WIDTH FOR ALL OTHER TYPES OF ROADWAYS IS 10'.

2. A WRITTEN NOTE SHALL BE PROVIDED TO THE ENGINEER, A MINIMUM OF 21 CALENDAR DAYS IN ADVANCE OF PERFORMING ANY WORK THAT RESULTS IN THE REDUCED WIDTH OF AN EXISTING ROADWAY, SO THAT THE ENGINEER MAY NOTIFY THE REGIONAL PERMIT ENGINEER IN A TIMELY MANNER.

3. IF THE WORK ZONE AFFECTS PEDESTRIANS, A MINIMUM PEDESTRIAN PATHWAY WIDTH OF 5 FEET SHALL BE MAINTAINED UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

4. TEMPORARY BICYCLE ACCOMMODATIONS SHALL NOT BE LESS THAN WHAT CURRENTLY EXISTS UNLESS AUTHORIZED BY THE ENGINEER.

PROTECTIVE VEHICLES

1. PROTECTIVE VEHICLES ARE DIVIDED INTO 2 CATEGORIES BASED ON THE GROSS VEHICLE WEIGHT (GVW):
   - PROTECTIVE VEHICLE LIGHT (PVL) SHALL HAVE A MINIMUM GVW OF 9,500 LBS. OR GREATER.
   - PROTECTIVE VEHICLE HEAVY (PVH) SHALL HAVE A MINIMUM GVW OF 22,000 LBS. OR GREATER.

2. IF THE PROTECTIVE VEHICLE ENCROACHES INTO THE TRAVEL LANE, OR IF IT REMAINS ENTIRELY ON THE SHOULDER OF ANY HIGH SPEED ROAD (≥ 45 MPH), IT SHALL BE EQUIPPED WITH A DEPLOYED TRUCK/TRAILER MOUNTED IMPACT ATTENUATOR (TMIA, SEE TABLE 011-01 ON SHEET 619-011). BALLAST MAY BE USED TO BRING A LIGHTER VEHICLE UP TO THE INDICATED WEIGHT PROVIDED THE BALLAST IS SECURELY CONTAINED WITHIN AN ENCLOSED BODY OR OTHERWISE SECURELY FASTENED TO THE VEHICLE PURSUANT TO FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION (FMCSA) CARGO SECUREMENT RULES, SUCH THAT:
   1) THE BALLAST WILL NOT SEPARATE FROM THE VEHICLE UPON IMPACT AND
   2) THE BALLAST WEIGHT WILL NOT EXCEED THE MANUFACTURER'S GROSS VEHICLE WEIGHT RATING (GVWR).
   TRUCK/TRAILER MOUNTED IMPACT ATTENUATORS SHALL NOT BE MOUNTED/INSTALLED ON VEHICLES WITH A GROSS WEIGHT (GVW) LESS THAN WHAT IS MINIMALLY REQUIRED BY THE MANUFACTURER OF THE TMIA.

3. WHEN A PROTECTIVE VEHICLE(S) IS USED BETWEEN THE WORK VEHICLE (CREW) OR HAZARD AND THE TRAFFIC IN A MOVING OPERATION IT IS REFERRED TO AS A SHADOW VEHICLE(S).

4. WHEN A PROTECTIVE VEHICLE(S) IS USED BETWEEN THE WORK VEHICLE (CREW) OR HAZARD AND THE TRAFFIC IN A STATIONARY OPERATION IT IS REFERRED TO AS A BARRIER VEHICLE(S).

5. WHEN A PROTECTIVE VEHICLE IS USED IN ADVANCE OF EITHER MOVING OR STATIONARY OPERATIONS TO DISPLAY SIGN MESSAGES IT IS REFERRED TO AS AN ADVANCE WARNING VEHICLE. WHEN SIGNS ARE MOUNTED ON AN ADVANCED WARNING VEHICLE, THEY SHALL NOT OBSTRUCT VISIBILITY OF ANY LIGHTS (TAILLIGHTS OR WARNING LIGHTS), OR SIDE-VIEW MIRRORS ON THE VEHICLE, OR TRUCK MOUNTED ARROW BOARDS.

6. IN A MOVING OPERATION OR A STATIONARY OPERATION THAT OCCUPIES A LOCATION FOR UP TO 1 HOUR, THE OPERATOR SHALL REMAIN IN THE PROTECTIVE VEHICLE WITH THE SAFETY BELT AND HEADREST PROPERLY ADJUSTED, MAINTAIN VEHICLE SPACING, AND KEEP THE WHEELS ALIGNED WITH THE LANE STRIPING AND LANE TO MAINTAIN LANE DISCIPLINE AND TO STAY IN LANE IF STRUCK. THE PARKING BRAKE SHALL BE SET WHENEVER POSSIBLE. TWO-WAY RADIOS SHOULD BE USED TO COMMUNICATE BETWEEN THE OPERATOR AND THE WORK CREW.

7. IN A STATIONARY OPERATION THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR, ONCE THE PROTECTIVE VEHICLE HAS BEEN APPROPRIATELY PLACED, IT SHOULD BE UNOCCUPIED. UNOCCUPIED VEHICLE SHALL BE POSITIONED PARALLEL TO TRAFFIC, PARKING BRAKE SET, PLACED IN 2ND GEAR (MANUAL TRANSMISSIONS /ENGINE OFF) OR PARK / NEUTRAL (AUTOMATIC TRANSMISSIONS). THE FRONT WHEELS SHALL BE ALIGNED WITH THE LANE STRIPING AND LANE TO MAINTAIN LANE DISCIPLINE AND TO STAY IN LANE IF STRUCK.

8. NO WORK ACTIVITY, EQUIPMENT, VEHICLES AND/OR MATERIALS SHALL BE LOCATED BETWEEN THE PROTECTIVE VEHICLE AND THE ACTIVE WORK AREA (ROLL AHEAD DISTANCE).

9. DIRECT VERBAL COMMUNICATION BETWEEN THE PROTECTIVE VEHICLES AND THE WORK VEHICLE(S) / EQUIPMENT SHALL BE UTILIZED WHERE AVAILABLE.

WORK DURATION DEFINITIONS

1. THERE ARE MAINLY FIVE WORK DURATIONS:

   A. LONG-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN 3 CONSECUTIVE DAYS.

   B. INTERMEDIATE-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.

   C. SHORT-TERM IS STATIONARY DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.

   D. SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR. IT CAN BE PERFORMED DURING THE DAYTIME OR AT NIGHT IN ACCORDANCE WITH NOTES N1 TO N11 NOTES ON NIGHTTIME WORK.

   E. MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY WHERE THE WORK AT ANY SPECIFIC LOCATION COMPLETES WITHIN 15 MINUTES. IT IS USED FOR VEHICLE BASED OPERATIONS AND DOES NOT INVOLVE WORKERS ON FOOT. IT CAN BE PERFORMED DURING THE DAYTIME OR AT NIGHT IN ACCORDANCE WITH NOTES N1 TO N10 NOTES ON NIGHTTIME WORK.

2. SPECIAL OPERATIONS ARE WORK OPERATIONS THAT DO NOT FIT INTO ONE OF THE ABOVE FIVE CATEGORIES. SPECIAL OPERATIONS INCLUDE:

   A. STOP AND GO OPERATIONS - WORK THAT COMPLETES WITHIN 5 MINUTES AND ALLOWS WORKERS ON FOOT.

   B. OTHER OPERATIONS INCLUDING MOWING, MULCHING/HERBICIDE OPERATIONS, TEMPORARY ROAD/INTERSECTION CLOSURES, ETC.

ROADWAY TYPE DEFINITIONS

1. FREEWAY:

   A. INTERSTATE: INTERREGIONAL HIGH-SPEED, HIGH-VOLUME, DIVIDED FACILITIES WITH COMPLETE CONTROL OF ACCESS.

   B. PARKWAY: DIVIDED HIGHWAYS FOR NON-COMMERCIAL TRAFFIC WITH FULL CONTROL OF ACCESS, GRADE PARKWAY SEPARATIONS, INTERCHANGES, AND OCCASIONAL AT-GRADE INTERSECTIONS. PARKWAYS ARE DESIGNATED BY LAW.

2. EXPRESSWAY: DIVIDED HIGHWAYS FOR THROUGH TRAFFIC WITH FULL OR PARTIAL CONTROL OF ACCESS AND GENERALLY WITH GRADE SEPARATIONS AT MAJOR CROSSROADS. ALL FREEWAY STANDARD SHEETS ARE APPLICABLE TO EXPRESSWAY.

3. NON-FREEWAY:

   A. MULTILANE DIVIDED HIGHWAY

   B. MULTILANE UNDIVIDED HIGHWAY

   C. TWO-LANE TWO-WAY ROADWAY

ALL NON-FREEWAYS CAN BE EITHER URBAN OR RURAL:

URBAN: (MEETS MORE THAN 1 OF THE FOLLOWING CRITERIA)
- •HIGH DENSITY DEVELOPMENT
- •ON-STREET PARKING
- •VARIED BUILDING SETBACKS
- •MULTI-STORY AND LOW-TO MEDIUM-RISE STRUCTURES FOR RESIDENTIAL
- •COMMERCIAL, AND EDUCATIONAL USES, STRUCTURES THAT ACCOMMODATE MIXED USES: COMMERCIAL, RESIDENTIAL, AND PARKING
- •LIGHT INDUSTRIAL, AND SOMETIMES HEAVY INDUSTRIAL, LAND USE
- •PROMINENT DESTINATIONS WITH SPECIALIZED STRUCTURES, E.G., LARGE THEATERS, SPORTS FACILITIES OR CONFERENCE CENTERS
- •HIGH LEVELS OF PEDESTRIAN AND BICYCLIST ACTIVITY, WITH NEARLY CONTINUOUS SIDEWALKS AND MARKED CROSSWALKS
- •HIGHER DENSITY OF TRANSIT STOPS AND ROUTES
- •DRIVEWAY DENSITIES GREATER THAN 25 DRIVEWAYS/MILE ON EACH SIDE OF THE ROAD
- •MINOR COMMERCIAL DRIVEWAY DENSITIES OF 10 DRIVEWAYS/MILE OR GREATER
- •MAJOR COMMERCIAL DRIVEWAYS
- •HIGH DENSITY OF CROSS STREETS

RURAL: DOES NOT MEET MORE THAN ONE OF THE ABOVE CRITERIA.

NOTES FOR NIGHTTIME OPERATIONS:

N1. WORK OCCURRING AFTER SUNSET AND BEFORE SUNRISE WILL BE CONSIDERED NIGHTTIME OPERATIONS.

N2. ALL SIGNS, STOP/SLOW PADDLES AND RED FLAGS USED TO WARN/ALERT/CONTROL TRAFFIC SHALL BE RETROREFLECTIVE.

N3. ALL WORKERS INVOLVED SHALL WEAR PROTECTIVE HELMETS AND NIGHTTIME APPAREL IN ACCORDANCE WITH §107-05A. HIGH VISIBILITY APPAREL AT ALL TIMES.

N4. VEHICLES OPERATING ON THE PAVEMENT OF A CLOSED ROADWAY OR TRAVEL LANE SHALL DISPLAY ROTATING AMBER BEACONS OR FLASHING LED BEACONS AT ALL TIMES.

N5. LEVEL I ILLUMINATION SHALL BE PROVIDED NEAR THE BEGINNING OF LANE CLOSURE TAPERS AND AT ROAD CLOSURES, INCLUDING THE SETUP AND REMOVAL OF THE CLOSURE TAPERS.

N6. LEVEL II ILLUMINATION SHALL BE PROVIDED FOR FLAGGING STATIONS, ASPHALT PAVING, MILLING, AND CONCRETE PLACEMENT AND/OR REMOVAL OPERATIONS, INCLUDING BRIDGE DECKS, 50 FEET AHEAD OF AND 100 FEET BEHIND A PAVING OR MILLING MACHINE.

N7. LEVEL III ILLUMINATION SHALL BE PROVIDED FOR PAVEMENT OR STRUCTURAL CRACK FILLING, JOINT REPAIR, PAVEMENT PATCHING AND REPAIRS, INSTALLATION OF SIGNAL EQUIPMENT OR OTHER ELECTRICAL/MECHANICAL EQUIPMENT, AND OTHER TASKS INVOLVING FINE DETAILS OR INTRICATE PARTS AND EQUIPMENT.

N8. ALL LIGHTING SHALL BE DESIGNED, INSTALLED, AND OPERATED TO AVOID GLARE THAT AFFECTS TRAFFIC ON THE ROADWAY OR THAT CAUSES ANNOYANCE OR DISCOMFORT FOR RESIDENCES ADJOINING THE ROADWAY.

N9. PRIOR TO THE START OF NIGHTTIME OPERATIONS, A WRITTEN NIGHTTIME OPERATIONS AND LIGHTING PLAN IS REQUIRED FOR APPROVAL FROM THE DOT ENGINEER.

N10. SEE STANDARD SPECIFICATIONS §619 FOR ADDITIONAL REQUIREMENTS AND CONSIDERATIONS. REFER TO SECTION 619-3.19B FOR BALLOON LIGHTING REQUIREMENTS.

N11. FLAGGERS SHALL USE A FLASHLIGHT WITH RED GLOW CONE/RED LED BATON FOR FLAGGING IN NON-ILLUMINATED FLAGGER STATIONS DURING NIGHTTIME OPERATIONS.

NEW YORK STATE OF OPPORTUNITY. | Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

WORK ZONE TRAFFIC CONTROL GENERAL NOTES

APPROVED DECEMBER 21, 2022
Robert Limoges
ROBERT LIMOGES, P.E.
DIRECTOR, OTSM

ISSUED UNDER EI 22-033

619-010

ERRATA 1 EFF. 05/01/2023
ISSUED WITH EB 22-033

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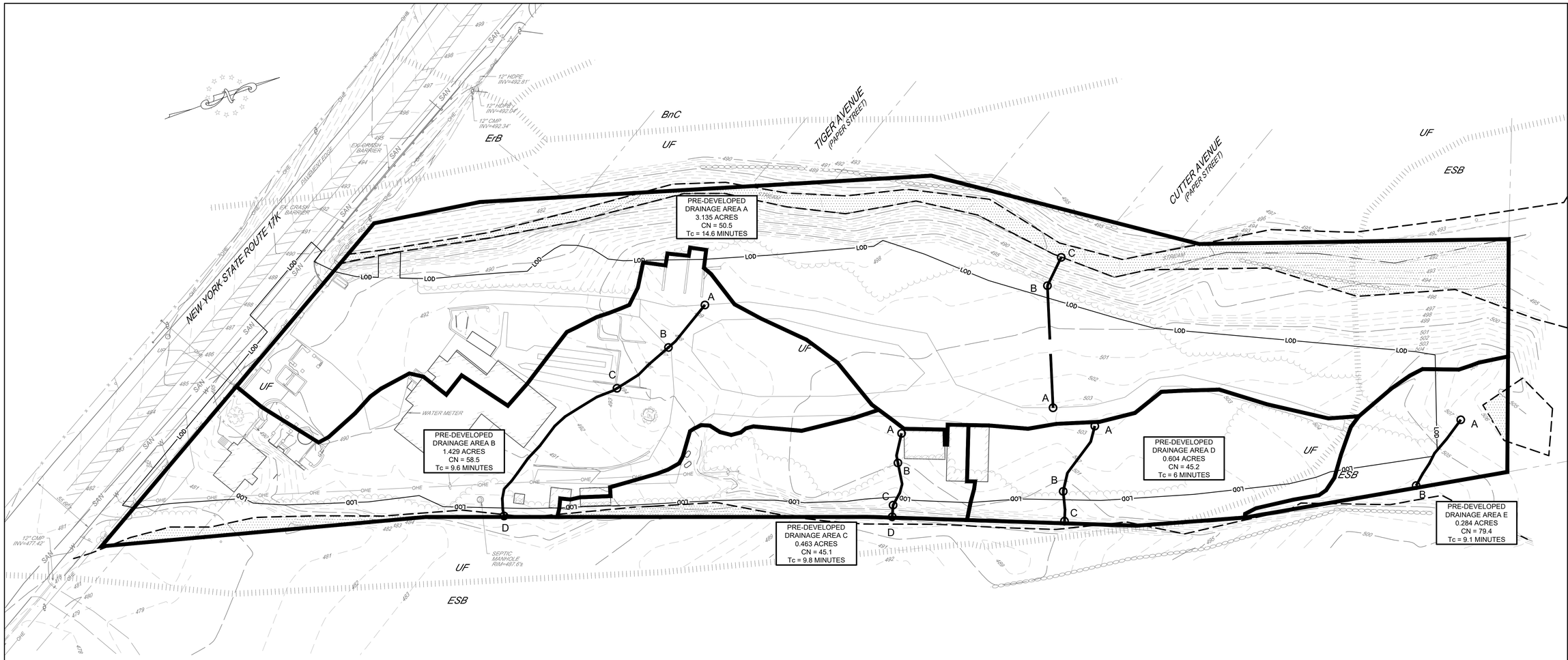

REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PRE-MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	JWJ
2	10/24/22	REVISED PER TOWN COMMENTS	JWJ
3	12/17/22	REVISED PER NYSDOT COMMENTS	JWJ
4	02/15/23	REVISED PER TOWN COMMENTS	JWJ

Independence
ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
(609) 496-9369 INDEPENDENCE@INDEPENG.COM

LAND DEVELOPMENT SET
PRE-DEVELOPED DRAINAGE AREAS

for

MOFFAT PROPERTIES
224 & 226 NEW YORK-17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

ID #

40 20 0
GRAPHIC SCALE: 1" = 40'

PROJECT
028-004

DATE
06/17/2022

SCALE	DRAWN
1" = 40'	JWJ
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK
NEIL E. SANDER
87961
LICENSED PROFESSIONAL ENGINEER
02/15/2023

C4000

SHEET	OF
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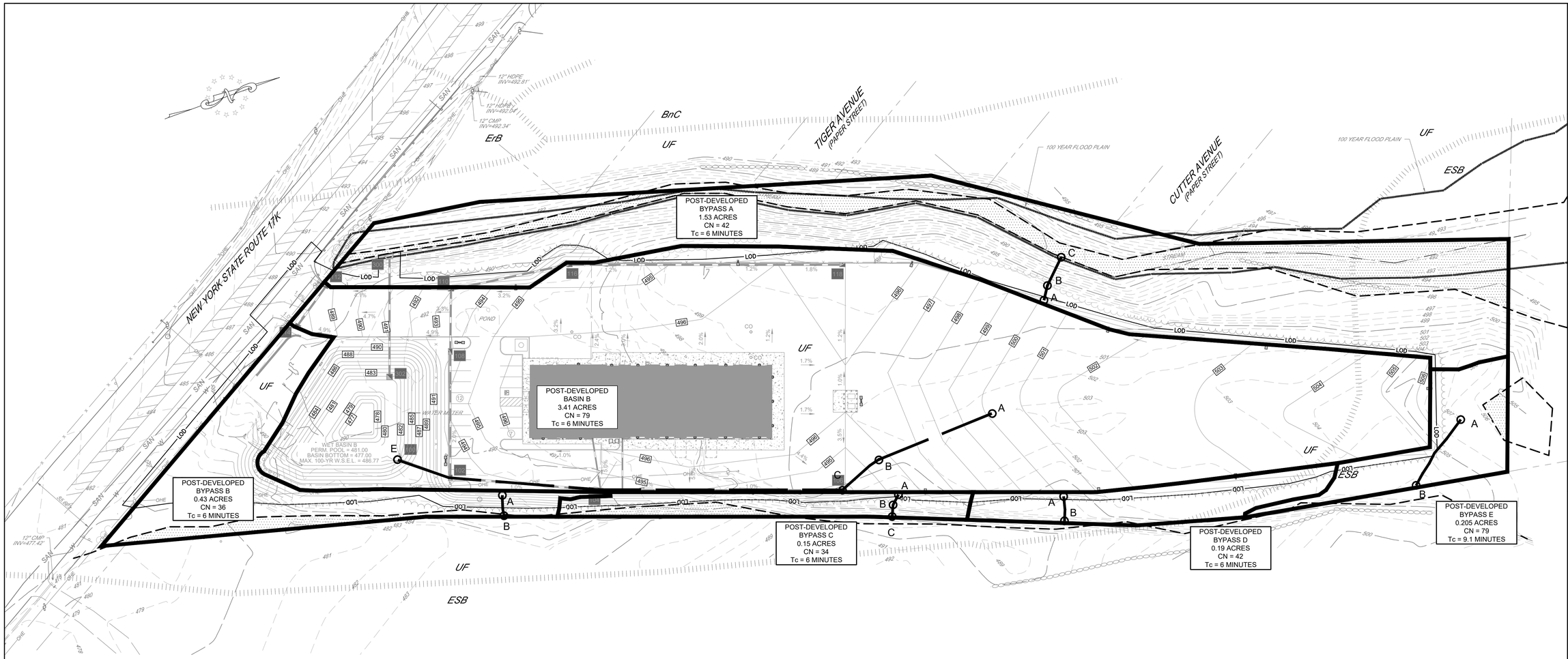

REV	DATE	DESCRIPTION	BY
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2	10/24/22	REVISED PER TOWN COMMENTS	JWJ
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LAND DEVELOPMENT SET
POST DEVELOPMENT DRAINAGE AREAS

for

MOFFAT PROPERTIES
224 & 226 NEW YORK-17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

ID #

GRAPHIC SCALE: 1" = 40'

PROJECT
028-004

DATE
06/17/2022

SCALE	DRAWN
1" = 40'	JWJ

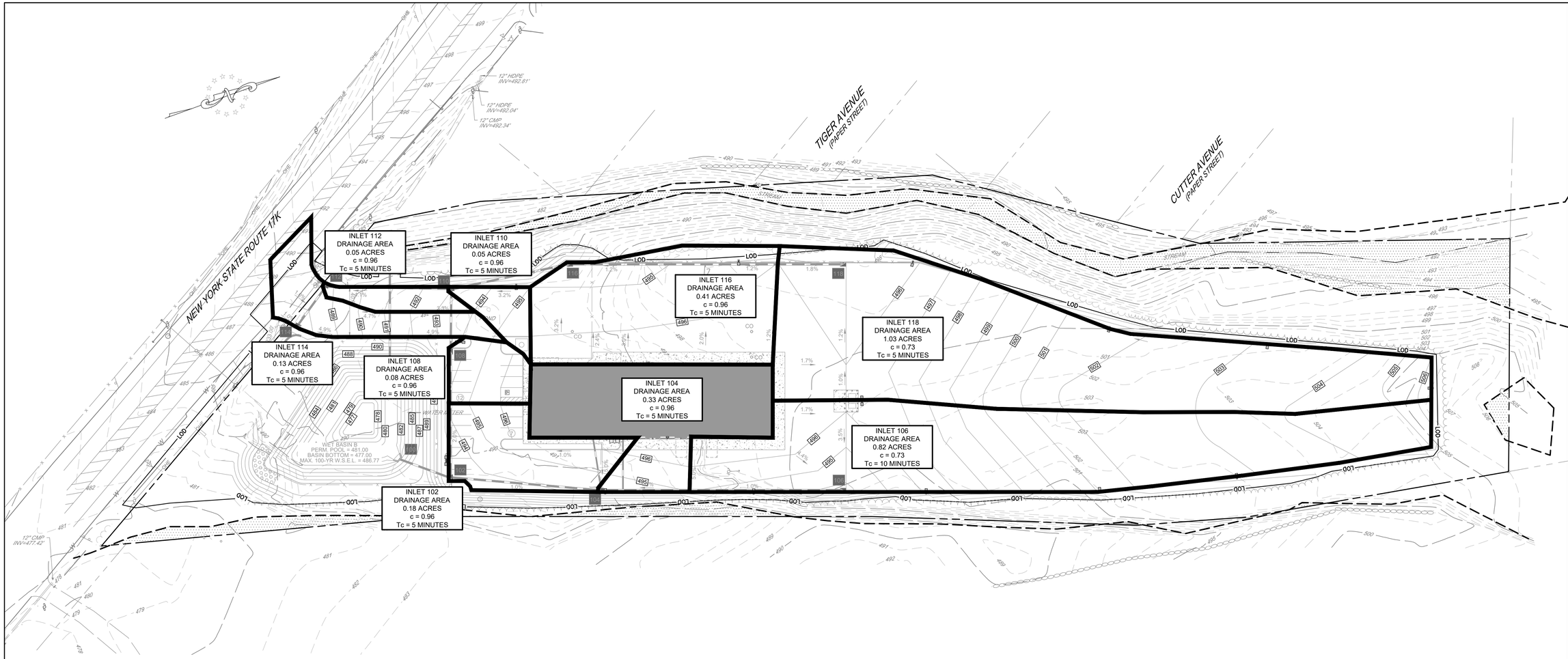
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK
NEIL E. SANDER
87961
LICENSED PROFESSIONAL ENGINEER

02/15/2023

C4100

SHEET	OF
2	3



REV	DATE	DESCRIPTION	BY
1	08/30/22	UPDATED PRE-MHE REVIEW LETTERS DATED 07/21/22 AND CREIGHTON MANNING REVIEW LETTER DATED 07/20/22	JWJ
2	10/24/22	REVISED PER TOWN COMMENTS	JWJ
3	12/17/22	REVISED PER NYSDOT COMMENTS	JWJ
4	02/15/23	REVISED PER TOWN COMMENTS	JWJ

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LAND DEVELOPMENT SET
INLET DRAINAGE AREAS

for

MOFFAT PROPERTIES
224 & 226 NEW YORK-17K, TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

ID #

GRAPHIC SCALE: 1" = 40'

PROJECT	
028-004	
DATE	
06/17/2022	
SCALE	DRAWN
1" = 40'	JWJ
DESIGNED	CHECKED
JWJ	NES/JWJ

STATE OF NEW YORK
NEIL E. SANDER
87961
LICENSED PROFESSIONAL ENGINEER

02/15/2023

C4200

SHEET	OF
3	3

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February 15, 2022

Town of Newburgh Planning Board
21 Hudson Valley Professional Plaza
Newburgh, NY 12550

Re: Site Plan for Moffat Properties
(aka Sunbelt Rentals), 226 Route 17k, Town of Newburgh, NY
Town Project #2022-14
IE# 028-004

Dear Town of Newburgh Planning Board,

On behalf of the applicant, Moffat Properties, Independence Engineering LLC is submitting responses to the review letter by Ms. Karen Arent of Karen Arent Landscape Architect, dated October 28, 2022. The responses by Independence Engineering LLC are listed under each comment in *Bold and Italics*

The responses by Independence Engineering LLC are listed under each comment in *Bold and Italics.*

General Comment:
The consultant may want to consider hiring a Landscape Architect to help develop the much more substantial planting needed on this site.
Response: The client has retained the services of Mr. Justin Dates, RLA of Colliers Engineering & Design. The revised landscaping plans have been prepared per local ordinances.

1. It is unclear what will be planted in disturbed areas on site where shrubs are not shown, particularly to avoid the site being taken over by invasive species. Specify seed mixtures and groundcovers to be planted and include installation and required maintenance for successful establishment of these mixes.

Response: General Seeding Notes and General Planting Notes have been added to the landscaping plan. Areas to be seeded are labeled on the plan.

2. Rather than sparsely planted Red Cedars along the road, show street trees, some evergreen trees, and large groupings of shrubs similar to existing buffer plantings along Route 17K in the 35-foot landscape buffer for the length of the property frontage and on both sides of the driveway. Trees can be arranged to allow views into the site. As the deciduous street trees mature, they can be limbed up and allow visibility into the site while softening the façade of the building. Red Cedars are more likely to block views from the road.

Response: Landscaping has been proposed within the 35-foot landscape buffer.

3. Per our previously issued comment, Town of Newburgh Design Guidelines, under Section D, Commercial Area Design, Subsection 1 says the following:
Provide natural landscape buffers, in addition to walls, and or fences, to soften the visual impact between parking areas, commercial buildings, street frontages, and adjacent properties. The

consultant has said they will include stone walls per the Design Guidelines on the plan, though they are shown on this draft of the plan.

Response: A stone wall, in accordance with the requirements, has been added to the 35-foot buffer area.

4. Show a thick screening planting of trees and shrubs around the southeast corner of the proposed retention basin to help screen the basin from views from cars driving north on Route 17K. Proposing shrubs and trees in this disturbed area will help keep invasive species from taking over and soften views of parking and the site.

Response: The existing vegetation, in combination with the proposed 35-foot buffer landscaping will screen the basin from traffic.

5. Show a thick planting of tall mixed evergreens such as White Pines and Green Giant Arborvitae at the north corner of the entrance to the site to help screen the site from cars driving south on Route 17K. Possibly American Holly and/or White Spruce depending on the soil composition, pH, etc.

Response: The existing vegetation, in combination with the proposed 35-foot buffer landscaping will screen the site from traffic.

6. Propose at least two more Red Maples on the parking lot side of the basin to shade the parking lot and to soften the building façade.

Response: A variety of appropriate planting is proposed on the landscaping plans.

7. The skinny single row of shrubs shown on the basin side of the parking lot will be destroyed by snowplows. Show double rows of shrubs minimum and move the shrubs five feet away from the edge of pavement.

Response: A double row of shrubs, a distance from the edge of the pavement, is proposed.

8. On the southwest side of the proposed building, add more Winterberry Hollies, showing them under the tree canopy and spacing them 4-5' on center. Include at least one male Winterberry Holly for each five female Hollies so the shrubs will bear berries.

Response: The landscaping has been revised to be more appropriate for the site.

9. On the east side of the proposed building consider filling the rest of the planting area between the parking lot and the building with shrubs. At a minimum, show a seed mixture in the bed. If this area is sparsely planted and full of mulch, it will become very weedy.

Response: Additional shrubs are proposed along the east side within the proposed planting area.

10. We would like to reiterate that the consultant mentioned that they were going to transplant the large Cutleaf Maple and Tri-Color Beech which is great. These trees have not been shown in the planting plan at this time. It's not necessary in accordance with code to try to save these trees but they are valuable and could provide interest in the new landscape.

Response: While the applicant has agreed to relocate these trees, a recent site visit by Mr. Justin Dates shows that these 2 trees are not present on the site currently. As the applicant does not own the property, it is assumed that the owner, a landscaping company, may have sold these trees. A phone conversation between Mr. Dates and Ms. Arent has take place to discuss these trees.

11. Section 172-5 of the new Tree Preservation and Protection Local Law requires a tree survey for the entire site showing location, diameter, and species of all Significant trees on the site, and an identification of all Specimen Trees and Protected Trees. It also requires identification of which Significant Trees and Specimen Trees are to be protected, preserved, or undisturbed, to be removed or disturbed, and exempt from the calculation. Trees which are dead, diseased, or have been damaged must also be identified. We are only asking for this survey to be completed in areas where trees are to be removed and for about 500' into the site along the eastern property line starting at the southeastern corner of the front property line, where we are concerned about screening.

Response: The landscaping plans show the tree survey.

12. Include the following note regarding soil specification, as plants need proper soil quality to thrive and should not be planted in leftover construction materials:

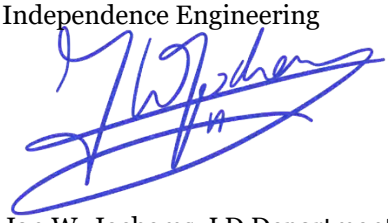
    "Install 6" topsoil compost mix. Scarify or dig all proposed planting areas to a depth of 12"-24"+ or as determined by Landscape Architect.
    Topsoil-compost mix shall consist of 85%-90% stockpiled topsoil (if available) and 10%-15% well-rotted compost. Topsoil shall be natural, friable, fertile soil, characteristic of productive soil in the vicinity, reasonably free from stones, clay lumps, roots and other foreign matter, with an acidity level between 5.5 and 7 pH. If stockpiled topsoil is not available, use purchased topsoil in sufficient quantity to complete the requirements as specified. Purchased soil shall meet the following particle size distributions: less than or equal to 15% of gravel (particle size greater than 2.00 mm), 40%-60% of sand (0.05-2 mm), 30%-40% of silt (0.002-0.05 mm), and 10%-20% clay (<0.002mm) and 10-15% well-rotted compost with an acidity level between 5.5 and 7.0 pH. Percentages are by weight. Topsoil and purchased soil shall be subject to approval by Landscape Architect."

Response: A note to this affect has been added to the landscaping plans.

We believe these revisions to adequately address your outstanding concerns about this project. As such, we are providing ten (10) copies of the revised plan for your review and further comments. We look forward to discussing with you at the next meeting.

If you need anything else, or have any questions, please don't hesitate to call me at (267) 664-2528 or via email jjochems@independence.engineering

Sincerely,
Independence Engineering



Jan W. Jochems, LD Department Manager

Independence ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
(609) 496-9369

February 15, 2022

Town of Newburgh Planning Board
21 Hudson Valley Professional Plaza
Newburgh, NY 12550

Re: Site Plan for Moffat Properties
(aka Sunbelt Rentals), 226 Route 17k, Town of Newburgh, NY
Town Project #2022-14
IE# 028-004

Dear Town of Newburgh Planning Board,

On behalf of the applicant, Moffat Properties, Independence Engineering LLC is submitting responses to the review letter by Mr. Pat Hines of MHE Engineering, dated October 28, 2022. The responses by Independence Engineering LLC are listed under each comment in *Bold and Italics*

1. Orange County Planning comments have been received identifying a Local Determination.

   RESPONSE: Comment only.

2. A City of Newburgh Flow Acceptance letter will be required. This office will forward a flow request to the city on behalf of the applicant. The applicant should provide a narrative of the proposed hydraulic loading from the site based on NYSDEC standards.

   RESPONSE: Sanitary sewer calculations for a pump station have been included with this submission. These calculations include expected flows from the property.

3. A revised SWPPP has been submitted to this office and is being reviewed. Separate comment letter will be provided.

   RESPONSE: Comment only.

4. The Stormwater Management Facilities have been located further into the site and the building located further in from NYS Route 17K to address the required 35 ft. buffer from NYS 17K. Karen Arent's office is reviewing the site landscaping.

   RESPONSE: Comment only.

5. A Stormwater Facilities Maintenance Agreement will be required. This should be a condition of any approvals issued by the Planning Board.

   RESPONSE: Acknowledged.

6. Status of NYSDOT's review of the project should be addressed. All correspondence should be copied to the Planning Board.

RESPONSE: Comment only.

7. The existing municipal sanitary sewer line in the Route 17K right-of-way functions as a low-pressure force main in the vicinity of the project. A sanitary sewer pump station will be required to convey effluent into the low-pressure force main. Copies of the As-Built plans have been submitted by the Sewer Department to the applicant's representative.

RESPONSE: The As-built plans have been received and have been utilized in the design of the proposed pump station.

8. Copy of the Town's water and sewer notes are attached to this memo.

RESPONSE: The notes have been added to the utility plan sheet C600.

9. The applicants are requested to reply to each of the County Planning comments on how they can be addressed on the plans.

RESPONSE: Will comply.

10. County Planning identifies that the project will require an FAA review as the project is located in close proximity to the Stewart International Airport.

RESPONSE: A FAA review waiver is being pursued.

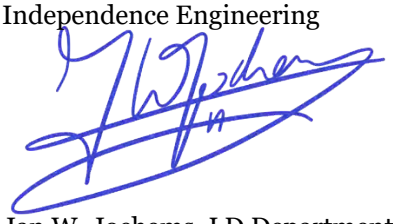
11. The project is subject to architectural review by the Planning Board. Future submissions should contain an ARB submission.

RESPONSE: Will comply.

We believe these revisions to adequately address your outstanding concerns about this project. As such, we are providing ten (10) copies of the revised plan for your review and further comments. We look forward to discussing with you at the next meeting.

If you need anything else, or have any questions, please don't hesitate to call me at (267) 664-2528 or via email jjochems@independence.engineering

Sincerely,
Independence Engineering



Jan W. Jochems, LD Department Manager

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102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
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February 15, 2022

Town of Newburgh Planning Board
21 Hudson Valley Professional Plaza
Newburgh, NY 12550

Re: Site Plan for Moffat Properties
(aka Sunbelt Rentals), 226 Route 17k, Town of Newburgh, NY
Town Project #2022-14
IE# 028-004

Dear Town of Newburgh Planning Board,

On behalf of the applicant, Moffat Properties, Independence Engineering LLC is submitting responses to the review letter by Mr. Pat Hines of MHE Engineering, dated November 2, 2022. The responses by Independence Engineering LLC are listed under each comment in *Bold and Italics*

The responses by Independence Engineering LLC are listed under each comment in *Bold and Italics.*

1. The SWPPP should be revised to include additional information about endangered animals, cultural resources, and should specify if the wetlands are under NYSDEC or USACOE jurisdiction.

Response: The SWPPP has been revised to include the Natural Environ Constraint Analysis as appendix 9. The above required information can be found in this analysis.

2. If the proposed vehicle wash bay area is not being collected as part of the sanitary sewer and is being discharged as stormwater, this portion of the project will be considered a hotspot by NYSDEC and should be treated as such.

Response: The wash bay is being collected by the sanitary sewer and guided through the oil and water separator device shown on the plans.

3. The SWPPP should be revised to include a description of the WQv and RRv calculations and how they are being met.

Response: Calculations for the WQv and RRv have been included in the SWPPP document.

4. If the site is being considered as a redevelopment project, that should be stated in the SWPPP document.

Response: The SWPPP document has been revised to state that this site is not considered a redevelopment site on page 2.

5. The SWPPP should be revised to include a description of the proposed temporary erosion and sediment controls to be used for the duration of construction as well as the permanent controls to

be implemented post-construction. The SWPPP should also include the total proposed disturbance at the site.

Response: The SWPPP has been revised to address the requirements of this comment by adding sections IV and V to the SWM narrative and SWPPP Document. The total disturbed area is listed on sheet C2000.

6. The SWPPP should include a construction sequence for the proposed work, including a pre-development meeting with the Town and the contractor to resolve any outstanding questions or concerns prior to ground disturbance.

Response: The SWPPP has been revised to include a construction sequence on sheet C2000.

7. A soil stabilization plan should be included in the SWPPP document or as an appendix to the report.

Response: The site soils and their limitations are shown on sheet C2000.

8. If a pond is to be used as the proposed stormwater practice, it should be specified which type of pond it is, so it can be evaluated against the design standards set forth in the 2015 SWMDM.

Response: The proposed pond is designed as a wet pond, and is labeled as such on the construction plans. The pond is designed to meet design standards listed in the 2015 SWMDM.

9. The proposed pre-treatment technique(s) for the proposed stormwater management practices should be specified in the SWPPP.

Response: Per the NYS Stormwater Management Design Manual a wet pond meets the criteria for Water Quality.

10. The SWPPP should be revised to include a description of the required maintenance for the stormwater management practices and erosion and sediment controls.

Response: The maintenance requirements have been added to the SWM Narrative and SWPPP Document. Maintenance and Inspection Requirements are listed on sheets C2000 and C2100.

11. The SWPPP should be revised to include a description of the proposed pollution prevention controls to be implemented at the site to prevent construction materials and other pollutants from entering the stormwater runoff.

Response: The SWPPP has been revised to include the above required information.

12. The SWPPP should include a description of the pre-development and post-development drainage areas, including area, whether they include proposed development, whether they include existing disturbed development, the typical path of runoff, the stormwater management practices treating them (in post-development conditions), and the design point which they are draining to.

Response: The SWPPP has been revised to include the above required information.

13. The post-development drainage areas include additional drainage area than the pre- development area, it should be specified in the SWPPP where this additional drainage area is coming from.

Response: The overall Pre-Development and Post Development drainage areas are the same at 5.915 acres.

14. The post-development drainage area times of concentration are severely decreasing from the pre-development, but it appears that no development or change is occurring in these drainage areas, so the time of concentration should remain relatively the same. Review and revise as necessary.

Response: The Stormwater Management Model has been reviewed and revised as needed. The majority of the proposed improvements, including gravel area, are proposed to drain to the proposed wet basin. This reduces the areas of the bypass areas significantly as compared to the original preconstruction drainage areas, and thus also the overall post development times of concentration.

15. The proposed Hydrographs show 3.21 acres entering the proposed pond. The only pond in the 2015 SWMDM that is suitable for a drainage area of under 10 acres to maintain a permanent pool is the Pocket Pond, which is not suitable for hotspot runoff. The practice choice should be reviewed and revised accordingly.

Response: The proposed development proposes a wet pond, as that is the only viable BMP for this particular site.

16. The proposed pond culvert should be placed below the bottom of the permanent pool in the event that the pond needs to be drained.

Response: Due to the discharge elevation to the west it is not possible to lower the outflow culvert. In the event that pond drainage is required a pump and hose will be utilized.

17. Forebay calculations should be included in the SWPPP.

Response: A forebay is not proposed for the wet pond.

18. The SWPPP Appendices should be revised to include Construction Inspection Reports, a filled-out NOI, an sample NOT, an NRCS Soil Report, an MS4 Acceptance Form, Sizing Calculations for the proposed Stormwater Management Practice, Calculations of WQv and RRv.

Response: Construction Inspection Reports, a sample NOT, a soil report, a MS4 acceptance form, and sizing calculations for the basin have all been included in the appendices. The calculations or WQv and RRV are in the narrative section of the report. A filled out NOI is not included as it appears to be an online submission.

19. It appears that there are no proposed practices to provide runoff reduction. This must be addressed for all proposed new impervious areas.

Response: The entire proposed impervious area is collected via a storm sewer system and is diverted into the proposed wet basin. Rate reduction is achieved within the basin.

20. Extraneous layers should be turned off in the pre-development and post-development drainage area plans.

Response: Layers have been turned off to increase plan legibility.

21. As the proposed pond is fenced in, a safety bench is not required, but an aquatic bench shall be implemented to ensure adequate aquatic growth.

Response: An aquatic bench has been included in the pond design.

22. The proposed pond should be revised to show a forebay or other acceptable pre-treatment practice on the plans.

Response: A riprap apron has been added to the basin inflow pipe.

23. The pond side slopes down to the aquatic bench should maintain a maximum slope of 3:1 (h:v).

Response: The pond size slopes to the aquatic bench are 3:1

24. The proposed contours appear to terminate at the proposed chain link fence on the east side of the property, this should be reviewed and revised accordingly.

Response: This has been reviewed and revised.

25. A profile detail of the proposed pond should be included in the plans with the outlet structure, and callouts of the elevations of the permanent pool as well as callouts of the water level in the 1-year, 10-year, and 100-year storm events

Response: A profile detail has been added to sheet C840.

26. Proposed rip-rap outlet protection should be shown on the erosion and sediment control plan.

Response: Proposed riprap has been added.

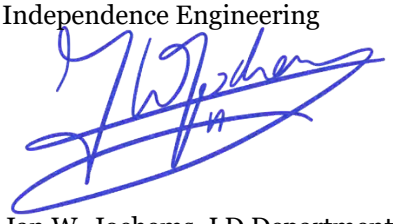
27. A detail should be added to the erosion and sediment control details for the proposed inlet protection.

Response: A detail is located on sheet C2100.

We believe these revisions to adequately address your outstanding concerns about this project. As such, we are providing ten (10) copies of the revised plan for your review and further comments. We look forward to discussing with you at the next meeting.

If you need anything else, or have any questions, please don't hesitate to call me at (267) 664-2528 or via email jjochems@independence.engineering

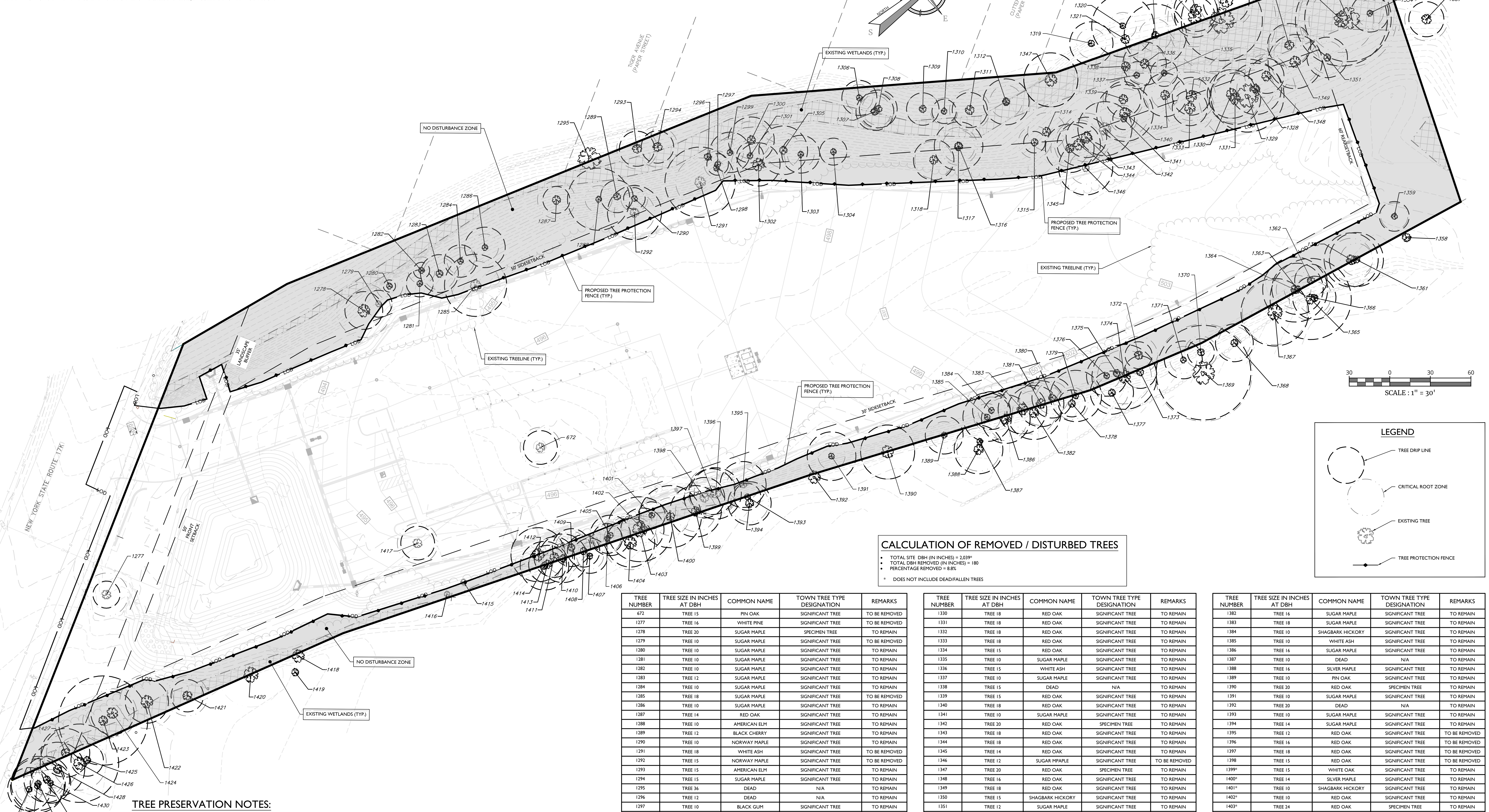
Sincerely,
Independence Engineering



Jan W. Jochems, LD Department Manager

REFERENCES:

1. EXISTING SITE INFORMATION TAKEN FROM A MAP ENTITLED "SURVEY PREPARED FOR MOFFAT PROPERTIES" PREPARED BY LANC & TULLY ENGINEERING AND SURVEYING, P.C. DATED 5/16/2022, LAST REVISED 12/21/2022.
2. PROPOSED SITE DEVELOPMENT INFORMATION TAKEN FROM "FINAL LAND DEVELOPMENT PLAN SET FOR SUNBELT RENTALS - NEWBURGH" PREPARED BY INDEPENDENCE ENGINEERING LLC. DATED 6/17/2022, LAST REVISED 12/17/2022.
3. TREE IDENTIFICATION & DRIP LINE MEASUREMENTS PERFORMED ON 1/16/2023 & 1/17/2023, BY COLLIERS ENGINEERING & DESIGN.



CALCULATION OF REMOVED / DISTURBED TREES

- TOTAL SITE DBH (IN INCHES) = 2,039*
- TOTAL DBH REMOVED (IN INCHES) = 180
- PERCENTAGE REMOVED = 8.8%

* DOES NOT INCLUDE DEAD/FALLEN TREES

TREE NUMBER	TREE SIZE IN INCHES AT DBH	COMMON NAME	TOWN TREE TYPE DESIGNATION	REMARKS
672	TREE 15	PIN OAK	SIGNIFICANT TREE	TO BE REMOVED
1277	TREE 16	WHITE PINE	SIGNIFICANT TREE	TO BE REMOVED
1278	TREE 20	SUGAR MAPLE	SPECIMEN TREE	TO REMAIN
1279	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO BE REMOVED
1280	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1281	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1282	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1283	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1284	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1285	TREE 18	SUGAR MAPLE	SIGNIFICANT TREE	TO BE REMOVED
1286	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1287	TREE 14	RED OAK	SIGNIFICANT TREE	TO REMAIN
1288	TREE 10	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1289	TREE 12	BLACK CHERRY	SIGNIFICANT TREE	TO REMAIN
1290	TREE 10	NORWAY MAPLE	SIGNIFICANT TREE	TO REMAIN
1291	TREE 18	WHITE ASH	SIGNIFICANT TREE	TO BE REMOVED
1292	TREE 15	NORWAY MAPLE	SIGNIFICANT TREE	TO BE REMOVED
1293	TREE 15	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1294	TREE 15	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1295	TREE 36	DEAD	N/A	TO REMAIN
1296	TREE 12	DEAD	N/A	TO REMAIN
1297	TREE 10	BLACK GUM	SIGNIFICANT TREE	TO REMAIN
1298	TREE 10	DEAD	N/A	TO REMAIN
1299	TREE 10	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1300	TREE 14	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1301	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1302	TREE 20	PIN OAK	SPECIMEN TREE	TO REMAIN
1303	TREE 10	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1304	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1305	TREE 13	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1306	TREE 10	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1307	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1308	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1309	TREE 12	RED OAK	SIGNIFICANT TREE	TO REMAIN
1310	TREE 10	RED OAK	SIGNIFICANT TREE	TO REMAIN
1311	TREE 15	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1312	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1314	TREE 14	FALLEN/DEAD	N/A	TO REMAIN
1315	TREE 12	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1317	TREE 14	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1318	TREE 14	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1319	TREE 11	RED OAK	SIGNIFICANT TREE	TO REMAIN
1320	TREE 10	RED OAK	SIGNIFICANT TREE	TO REMAIN
1321	TREE 15	DEAD	N/A	TO REMAIN
1323	TREE 12	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1324	TREE 18	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1325	TREE 22	RED OAK	SPECIMEN TREE	TO REMAIN
1326	TREE 20	PIN OAK	SPECIMEN TREE	TO REMAIN
1327	TREE 40	RED OAK	SPECIMEN TREE	TO REMAIN
1328	TREE 14	RED OAK	SIGNIFICANT TREE	TO REMAIN
1329	TREE 36	RED OAK	SPECIMEN TREE	TO REMAIN

TREE NUMBER	TREE SIZE IN INCHES AT DBH	COMMON NAME	TOWN TREE TYPE DESIGNATION	REMARKS
1330	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1331	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1332	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1333	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1334	TREE 15	RED OAK	SIGNIFICANT TREE	TO REMAIN
1335	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1336	TREE 15	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1337	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1338	TREE 15	DEAD	N/A	TO REMAIN
1339	TREE 15	RED OAK	SIGNIFICANT TREE	TO REMAIN
1340	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1341	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1342	TREE 20	RED OAK	SPECIMEN TREE	TO REMAIN
1343	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1344	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1345	TREE 14	RED OAK	SIGNIFICANT TREE	TO REMAIN
1346	TREE 12	SUGAR MPAPLE	SIGNIFICANT TREE	TO BE REMOVED
1347	TREE 20	RED OAK	SPECIMEN TREE	TO REMAIN
1348	TREE 16	RED OAK	SIGNIFICANT TREE	TO REMAIN
1349	TREE 18	RED OAK	SIGNIFICANT TREE	TO REMAIN
1350	TREE 15	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1351	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1352	TREE 24	RED OAK	SPECIMEN TREE	TO REMAIN
1353	TREE 36	RED OAK	SPECIMEN TREE	TO REMAIN
1354	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1355	TREE 10	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1356	TREE 10	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1357	TREE 16	PIN OAK		OFF-SITE
1358	TREE 14	DEAD	N/A	TO REMAIN
1359	TREE 10	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1360	TREE 16	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1361	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1362	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1363	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1364	TREE 14	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1365	TREE 16	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1366	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1367	TREE 24	SWAMP OAK	SPECIMEN TREE	TO REMAIN
1368	TREE 12	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1369	TREE 36	WHITE OAK	SPECIMEN TREE	TO REMAIN
1370	TREE 12	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1371	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1372	TREE 14	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1373	TREE 12	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1374	TREE 20	WHITE OAK	SPECIMEN TREE	TO REMAIN
1375	TREE 12	DEAD	N/A	TO REMAIN
1376	TREE 10	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1377	TREE 12	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1378	TREE 12	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1379	TREE 10 14 14	SILVER MAPLE	SIGNIFICANT TREE	TO REMAIN
1380	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1381	TREE 16	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN

TREE NUMBER	TREE SIZE IN INCHES AT DBH	COMMON NAME	TOWN TREE TYPE DESIGNATION	REMARKS
1382	TREE 16	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1383	TREE 18	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1384	TREE 10	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1385	TREE 10	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1386	TREE 16	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1387	TREE 10	DEAD	N/A	TO REMAIN
1388	TREE 16	SILVER MAPLE	SIGNIFICANT TREE	TO REMAIN
1389	TREE 10	PIN OAK	SIGNIFICANT TREE	TO REMAIN
1390	TREE 20	RED OAK	SPECIMEN TREE	TO REMAIN
1391	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1392	TREE 20	DEAD	N/A	TO REMAIN
1393	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1394	TREE 14	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1395	TREE 12	RED OAK	SIGNIFICANT TREE	TO BE REMOVED
1396	TREE 16	RED OAK	SIGNIFICANT TREE	TO BE REMOVED
1397	TREE 18	RED OAK	SIGNIFICANT TREE	TO BE REMOVED
1398	TREE 15	RED OAK	SIGNIFICANT TREE	TO BE REMOVED
1399*	TREE 15	WHITE OAK	SIGNIFICANT TREE	TO REMAIN
1400*	TREE 14	SILVER MAPLE	SIGNIFICANT TREE	TO REMAIN
1401*	TREE 10	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1402*	TREE 10	RED OAK	SIGNIFICANT TREE	TO REMAIN
1403*	TREE 24	RED OAK	SPECIMEN TREE	TO REMAIN
1404	TREE 20	RED OAK	SPECIMEN TREE	TO REMAIN
1405*	TREE 10	BLACK CHERRY	SIGNIFICANT TREE	TO REMAIN
1406*	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1407	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1408*	TREE 12	WHITE ASH	SIGNIFICANT TREE	TO REMAIN
1409*	TREE 12	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1410*	TREE 12	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1411*	TREE 15	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1412*	TREE 20	PIN OAK	SPECIMEN TREE	TO REMAIN
1413*	TREE 14	RED OAK	SIGNIFICANT TREE	TO REMAIN
1414*	TREE 12	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1415	TREE 10	DEAD	N/A	TO BE REMOVED
1416	TREE 10	DEAD	N/A	TO BE REMOVED
1417	TREE 15	LITTLELEAF LINDEN	SIGNIFICANT TREE	TO BE REMOVED
1418	TREE 20	DEAD	N/A	TO REMAIN
1419	TREE 12	DEAD/FALLEN	N/A	TO REMAIN
1420	TREE 24	DEAD/FALLEN	N/A	TO REMAIN
1421	TREE 15	SHAGBARK HICKORY	SIGNIFICANT TREE	TO REMAIN
1422	TREE 20	SUGAR MAPLE	SPECIMEN TREE	TO REMAIN
1423	TREE 15	SILVER MAPLE	SIGNIFICANT TREE	TO REMAIN
1424	TREE 18	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1425	TREE 12	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN
1426	TREE 20	SILVER MAPLE	SPECIMEN TREE	TO REMAIN
1427	TREE 14	RED OAK	SIGNIFICANT TREE	TO REMAIN
1428	TREE 14	SILVER MAPLE	SIGNIFICANT TREE	TO REMAIN
1429	TREE 12	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1430	TREE 10	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1431	TREE 10	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1432	TREE 10	AMERICAN ELM	SIGNIFICANT TREE	TO REMAIN
1433	TREE 10	SUGAR MAPLE	SIGNIFICANT TREE	TO REMAIN

* TREES WITHIN THE WETLAND AREA ARE PROPOSED TO REMAIN TO CAUSE NO DISTURBANCE TO THE WETLANDS

TREE PRESERVATION NOTES:

1. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF DEVELOPMENT ACTIVITIES AND SHALL REMAIN IN PLACE UNTIL AFTER THE CERTIFICATE OF OCCUPANCY IS ISSUED FOR THE BUILDING ON THE SITE. TREE PROTECTION FENCING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE "TEMPORARY TREE PROTECTION DETAIL". IN ADDITION TO THE TREE PROTECTION FENCING A PROTECTIVE SEDIMENTATION FENCE SHALL BE INSTALLED AT THE DRIP LINE OF ALL SIGNIFICANT TREES OR PROTECTED TREES WHICH ARE LOCATED DOWN GRADE OF ANY CLEARING, EXCAVATION AND/OR CONSTRUCTION ACTIVITY. THE PROTECTIVE SEDIMENTATION FENCING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE E WITH THE SILT FENCE DETAIL ON THE PROJECTS SOIL EROSION & SEDIMENT CONTROL PLANS. NO ATTACHMENTS, FENCES OR WIRES OTHER THAN THOSE APPROVED FOR BRACING, GUYING OR WRAPPING SHALL BE ATTACHED TO TREES WITHIN THE AREA FOR TREE PRESERVATION.
2. NO DEVELOPMENT ACTIVITY SHALL OCCUR WITHIN THE AREA ENCOMPASSED BY THE CRITICAL ROOT ZONE OF ANY TREE THAT IS TO BE PRESERVED. NO EXCESS SOIL, ADDITIONAL FILL, LIQUIDS, OR CONSTRUCTION DEBRIS SHALL BE PLACED WITHIN THE AREA ENCOMPASSED BY THE CRITICAL ROOT ZONE OF ANY TREE THAT IS TO BE PRESERVED.
3. PRIOR TO REMOVAL OF ANY TREES AND PRIOR TO ISSUANCE OF ANY PERMIT OR PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT ACTIVITIES IF NO PERMIT IS REQUIRED, ALL SITES SHALL BE STAKED AND FENCED FOR TREE PRESERVATION PURSUANT TO THE APPROVED TREE PRESERVATION PLAN. A COPY OF THE APPROVED TREE PRESERVATION PLAN AND REFORESTATION PLAN, IF ANY, SHALL BE SUBMITTED TO THE AUTHORIZED OFFICIAL PRIOR TO THE ISSUANCE OF A PERMIT OR COMMENCEMENT OF WORK. UPON STAKING OF THE SITE AND INSTALLATION OF THE TREE PROTECTION FENCING, BUT PRIOR TO ISSUANCE OF ANY PERMITS OR COMMENCEMENT OF ANY DEVELOPMENT ACTIVITIES, THE OWNER OR APPLICANT SHALL CONTACT THE AUTHORIZED OFFICIAL TO SCHEDULE AN INSPECTION OF THE STAKING AND FENCE INSTALLATION ON THE SITE BY THE AUTHORIZED OFFICIAL OR DESIGNEE OR BY A TOWN CONSULTANT. NO PERMITS SHALL BE ISSUED NOR SHALL ANY OPERATIONS COMMENCE, WITHOUT FIRST RECEIVING AUTHORIZATION BY THE AUTHORIZED OFFICIAL. IN LIEU OF PERFORMING SUCH INSPECTION, THE AUTHORIZED OFFICIAL MAY ACCEPT A CERTIFICATION BY A TREE PROFESSIONAL THAT REQUIREMENTS HAVE BEEN MET.
4. UPON COMPLETION OF THE PRELIMINARY SITE GRADING OPERATIONS, THE OWNER OR APPLICANT SHALL CONTACT AUTHORIZED OFFICIAL ON THE APPROVED TREE PRESERVATION PLAN FOR AN INSPECTION BY THE AUTHORIZED OFFICIAL, A DESIGNEE OR TOWN CONSULTANT. IN THE EVENT ONE OR MORE SIGNIFICANT TREES OR PROTECTED TREES WHICH WERE SHOWN AS PROTECTED ON THE TREE PRESERVATION PLAN HAVE NOT BEEN PROTECTED, NO ADDITIONAL PERMITS SHALL BE ISSUED UNTIL EITHER A REFORESTATION PLAN OR AMENDED REFORESTATION PLAN HAS BEEN SUBMITTED AND APPROVED OR RESTITUTION PAID TO THE TOWN IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 172-6. IN LIEU OF PERFORMING SUCH INSPECTION, THE AUTHORIZED OFFICIAL MAY ACCEPT A CERTIFICATION BY A TREE PROFESSIONAL THAT THE REQUIREMENTS HAVE BEEN MET.
5. PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY, THE OWNER OR APPLICANT (OR BUILDER IF DIFFERENT FROM THE OWNER OR DEVELOPER) SHALL CONTACT THE AUTHORIZED OFFICIAL TO SCHEDULE A FINAL TREE PRESERVATION INSPECTION TO VERIFY THE PRESERVATION OF TREES AND THE PLANTING OF ANY REFORESTATION TREES, AS SHOWN ON THE APPROVED TREE PRESERVATION PLAN BY THE AUTHORIZED OFFICIAL, A DESIGNEE OR TOWN CONSULTANT. THIS REQUIRED INSPECTION SHALL BE MADE AT LEAST FIVE (5) WORKING DAYS BEFORE THE CERTIFICATE OF OCCUPANCY IS REQUESTED. PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY, IN THE EVENT ONE OR MORE SIGNIFICANT TREES OR PROTECTED TREES WHICH WERE SHOWN AS PROTECTED ON THE TREE PRESERVATION PLAN HAVE NOT BEEN PROTECTED, RESTITUTION SHALL BE PAID TO THE TOWN IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 172-6. IN LIEU OF PERFORMING SUCH INSPECTION, THE AUTHORIZED OFFICIAL MAY ACCEPT A CERTIFICATION BY A TREE PROFESSIONAL THAT REQUIREMENTS HAVE BEEN MET.
6. IN ADDITION TO THE ABOVE SCHEDULED INSPECTIONS, THE AUTHORIZED OFFICIAL OR HIS DESIGNATED REPRESENTATIVE OR TOWN CONSULTANT SHALL PERIODICALLY VISIT DEVELOPMENT SITES PRIOR TO COMPLETION TO MONITOR COMPLIANCE WITH THE TREE PRESERVATION PLAN AND REFORESTATION PLAN APPROVED FOR A PROJECT.
7. PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY FOR A COMPLETED STRUCTURE BY THE CODE COMPLIANCE DEPARTMENT, THE OWNER OR APPLICANT SHALL SUBMIT A STATEMENT CERTIFIED BY A TREE PROFESSIONAL, THAT THE PROPERTY IS IN COMPLIANCE WITH THE APPROVED TREE PRESERVATION PLAN, AND IF APPLICABLE, THE REFORESTATION PLAN. NOTWITHSTANDING THE FOREGOING, IN THE EVENT A DELAYED PLANTING SCHEDULE HAS BEEN APPROVED AS PART OF THE REFORESTATION PLAN DUE TO WEATHER CONDITIONS WHICH WOULD IMPAIR THE HEALTH OF THE TREES, THE CERTIFICATE OF OCCUPANCY MAY BE ISSUED PROVIDED A PERFORMANCE SECURITY IN THE FORM OF A BOND OR LETTER OF CREDIT ACCEPTABLE TO THE TOWN AS TO FORM, OR CASH IN AN AMOUNT OF EQUAL TO ONE AND ONE-HALF TIMES THE PROJECTED COST OF THE PLANTING, INCLUDING MATERIALS, LABOR EQUIPMENT, HAS BEEN DELIVERED TO THE TOWN. ANY TREE DAMAGED DURING OR AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE AUTHORIZED OFFICIAL OR HIS DESIGNEE OR TOWN CONSULTANT AND IN ACCORDANCE WITH ACCEPTED ANSI A300 OR INTERNATIONAL SOCIETY OF ARBORICULTURE PRACTICES. OBSERVED TREE DAMAGE MUST BE REPAIRED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
8. WITHIN THREE YEARS OF THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY, THE AUTHORIZED OFFICIAL OR HIS DESIGNEE OR TOWN CONSULTANT SHALL PERFORM A SITE INSPECTION TO VERIFY THE HEALTH OF TREES WHICH WERE RETAINED TO MEET THE REQUIREMENTS OF THIS CHAPTER WHICH MAY HAVE SUFFERED DAMAGE DUE TO INSUFFICIENT PROTECTIVE MEASURES DURING DEVELOPMENT.
9. EACH REQUIRED TREE THAT IS DETERMINED BY THE AUTHORIZED OFFICIAL OR HIS DESIGNEE OR TOWN CONSULTANT TO BE DISEASED OR INJURY TO THE EXTENT IT IS IRREPARABLY DAMAGED SHALL BE APPROVED FOR REMOVAL. THE BURDEN OF PROOF OF THE EXTENT OF THE DISEASE OR INJURY SHALL REST WITH THE OWNER OR APPLICANT, WHO MUST PROVIDE DOCUMENTATION FROM A TREE PROFESSIONAL..

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Justin Eric Dates
NEW YORK REGISTERED LANDSCAPE ARCHITECT
LICENSE NUMBER: 001964-01
COLLIERS ENGINEERING & DESIGN CT, P.C.

SITE PLAN

FOR

MOFFAT PROPERTIES, INC.

TAX LOTS:
89-1-64 &
89-1-65

TOWN OF NEWBURGH
ORANGE COUNTY
NEW YORK STATE

Colliers Engineering & Design
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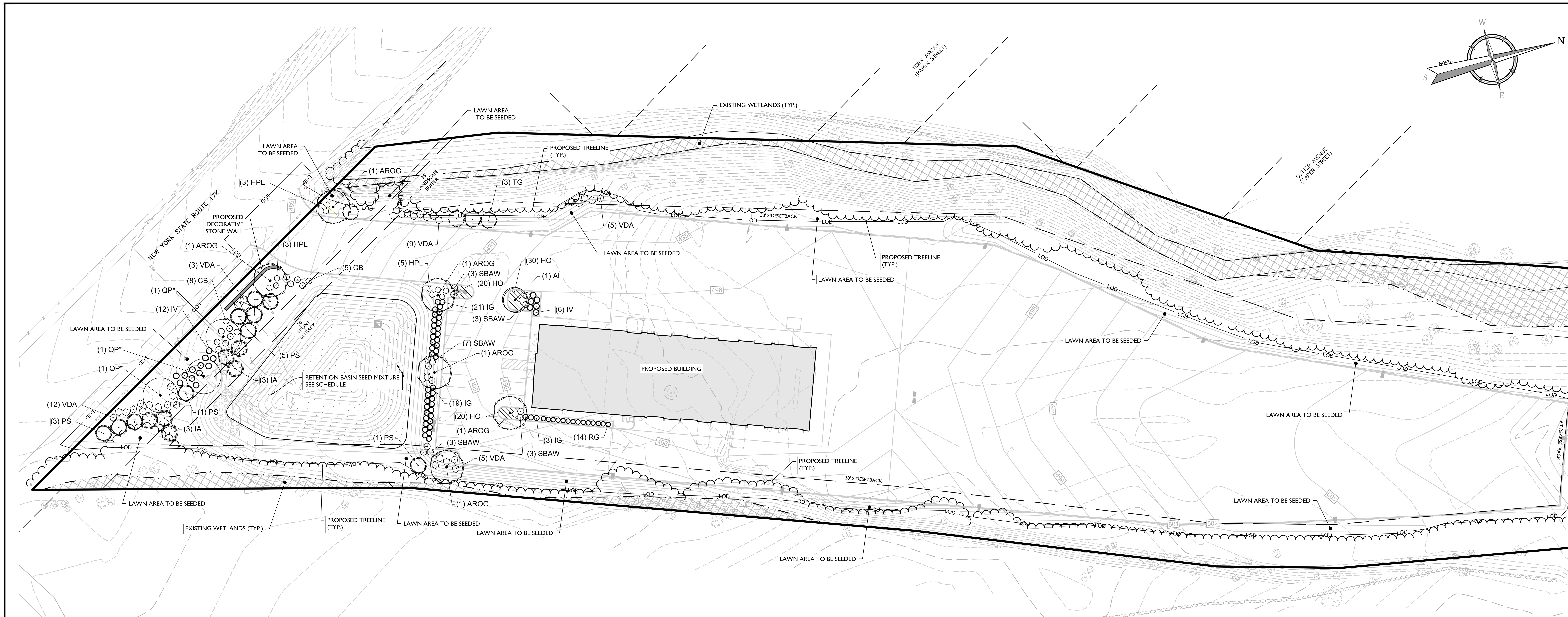
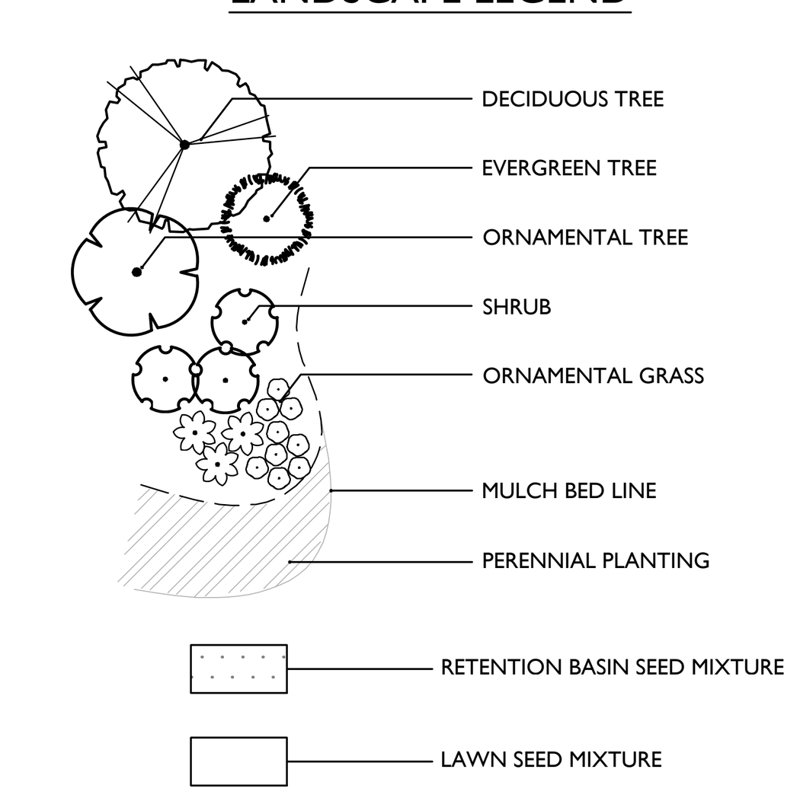
PROJECT NUMBER: 22012613A	DRAWING NAME: C-DEMO		

SHEET TITLE: TREE PRESERVATION PLAN

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



LANDSCAPE LEGEND



SITE PLANTNG SCHEDULE

DECIDUOUS TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE	SPACING	REMARKS
AROG	6	Acer rubrum 'October Glory'	October Glory Red Maple	B & B	2-2 1/2"		STRAIGHT LEADER/SYM. BRANCHING
QP*	3	Quercus palustris	Pin Oak	B & B	2-2 1/2"		STRAIGHT LEADER/SYM. BRANCHING
EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE		REMARKS
IA	6	Ilex opaca	American Holly	B & B	6-8` Ht.		DENSE / TYP. SPECIES HABIT
PS	10	Pinus strobus	White Pine	B & B	6-8` Ht.		DENSE / TYP. SPECIES HABIT
TG	4	Thuja occidentalis `Green Giant`	Green Giant Arborvitae	B & B	6-8` Ht.		DENSE / TYP. SPECIES HABIT
ORNAMENTAL TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE		REMARKS
AL	1	Amelanchier laevis	Allegheny Serviceberry	B & B	6-7` Ht.		MULTISTEM / TYP. SPECIES HABIT
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE		REMARKS
CB	13	Cornus sericea 'Baileyi'	Bayley's Red Twig Dogwood	CONT	24"-30"		TYPICAL SPECIES HABIT
HPL	11	Hydrangea paniculata 'Limelight'	Limelight Panicle Hydrangea	CONT	24"-30"		TYPICAL SPECIES HABIT
IG	43	Ilex glabra `Shamrock`	Inkberry	CONT	24"-30"		TYPICAL SPECIES HABIT
IV	18	Ilex verticillata	Winterberry	CONT	24"-30"		TYPICAL SPECIES HABIT
RG	14	Rhus aromatica `Gro-Low`	Gro-Low Fragrant Sumac	CONT	18" - 24"		TYPICAL SPECIES HABIT
SBAW	19	Spiraea x bumalda 'Anthony Waterer'	Anthony Waterer Bumald Spiraea	CONT	30" - 36"		TYPICAL SPECIES HABIT
VDA	34	Viburnum dentatum `Arrowwood`	Arrowwood Viburnum	CONT	30" - 36"		TYPICAL SPECIES HABIT
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT		SPACING	
HO	70	Hemerocallis x `Stella de Oro`	Stella de Oro Daylily	1 gal		24" o.c.	

* FALL DIGGING HAZARD

GENERAL NOTES

1. THIS SHEET IS TO BE USED FOR LANDSCAPE PURPOSES ONLY.
2. REFER TO SHEET 3 FOR GENERAL NOTES.

LANDSCAPE PLAN NOTES

1. REFER TO SHEET **3** FOR GENERAL PLANTING NOTES AND LANDSCAPE DETAILS.
2. REFER TO THIS SHEET FOR PLANT SCHEDULES.
3. PLANT LOCATIONS INDICATED ON THE LANDSCAPE PLAN ARE APPROXIMATE; ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO FINAL SITE CONDITIONS.
4. THE LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT MATERIAL DISCREPANCIES OCCUR.
5. LAWN AREAS SHALL BE STABILIZED WITH SEED UNLESS OTHERWISE INDICATED ON THE PLAN. REFER TO THE LAWN SEED MIX NOTES ON THE LANDSCAPE DETAILS SHEET.

30 0 30 60

SCALE : 1" = 30'

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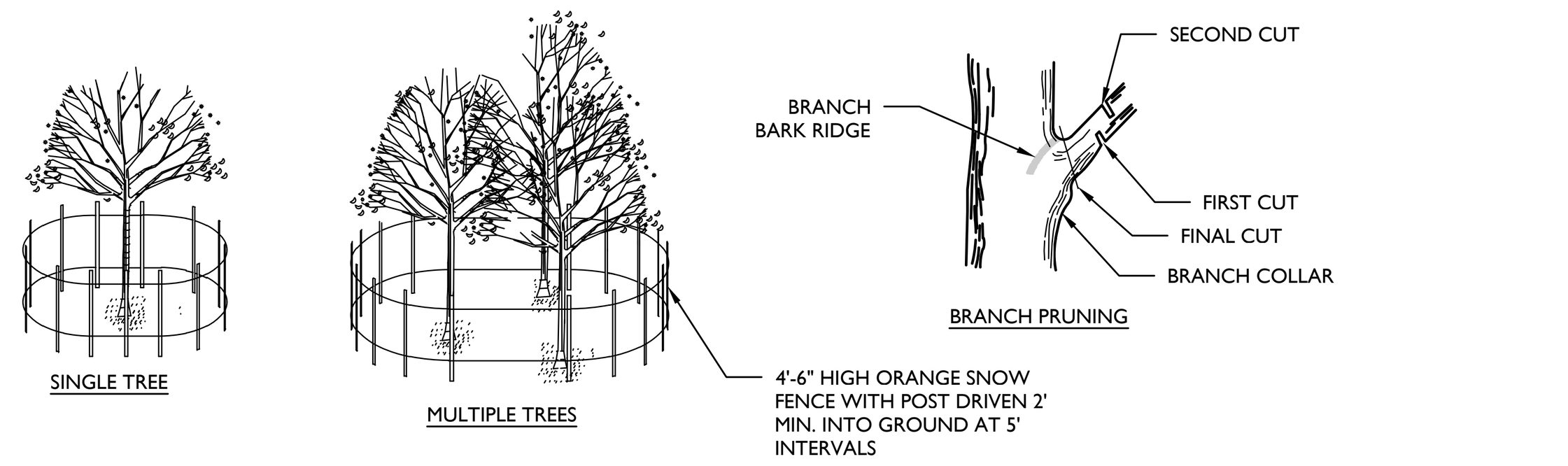
PROJECT NUMBER:		DRAWING NAME:	
22012613A		C-LAND	

SHEET TITLE:
LANDSCAPE PLAN

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

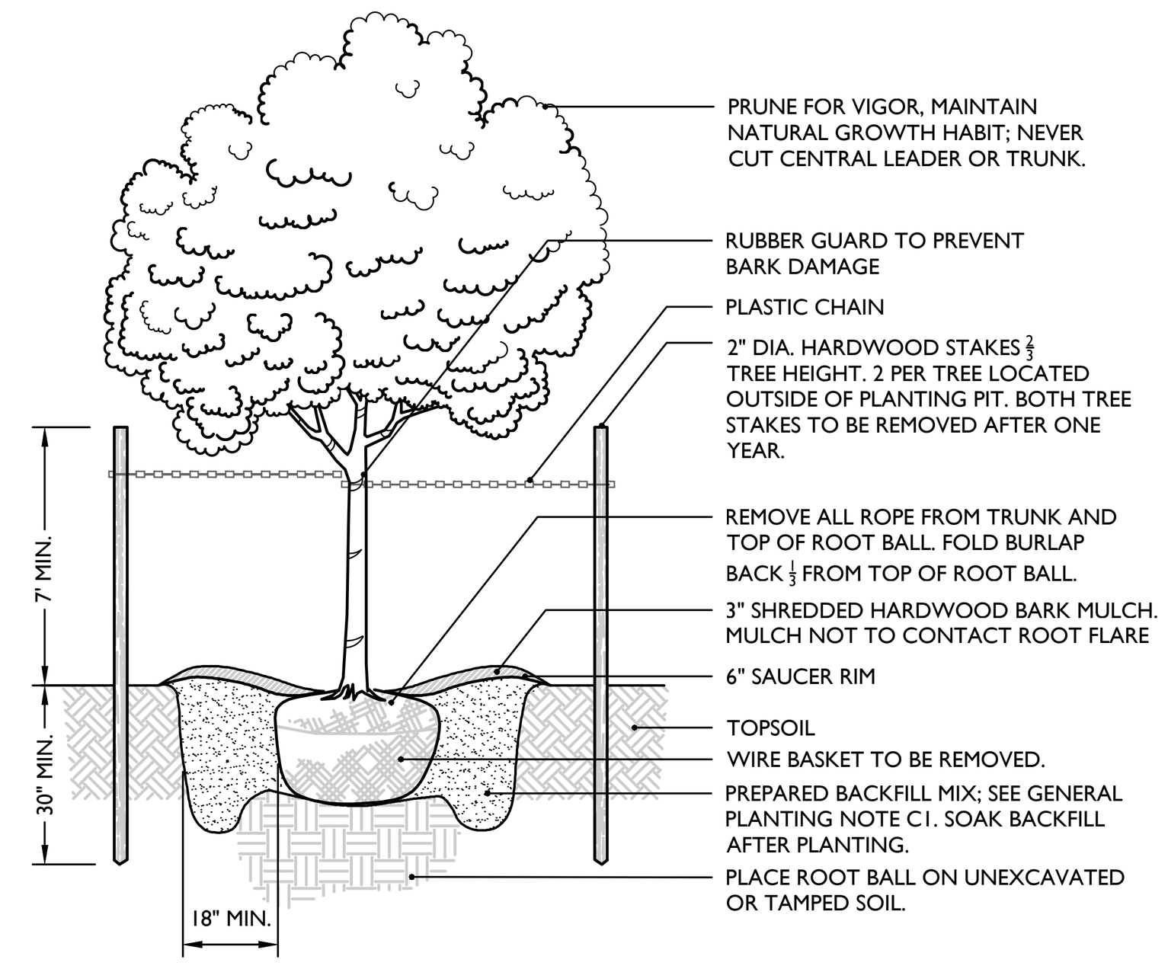


NOTES:

1. PROTECTIVE FENCING IS TO BE ERECTED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION AS DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT AND/OR MUNICIPALITY.
2. NO CONSTRUCTION ACTIVITY IS PERMITTED WITHIN THE PROTECTIVE FENCING.
3. THE FENCING WILL BE REMOVED AS DIRECTED BY THE MUNICIPALITY.
4. AT THE COMPLETION OF CONSTRUCTION, ALL TREES WILL BE PRUNED AS NECESSARY TO CORRECT ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITY.
5. SEE TREE PRESERVATION PLAN FOR PLACEMENT OF TREE PROTECTION.
6. BOARDS WILL NOT BE NAILED TO TREES DURING BUILDING OPERATIONS.
7. DAMAGED TRUNKS OR EXPOSED ROOTS SHOULD HAVE DAMAGED BARK REMOVED IMMEDIATELY AND NO PAINT SHALL BE APPLIED. EXPOSED ROOTS SHOULD BE COVERED WITH TOPSOIL IMMEDIATELY AFTER EXCAVATION IS COMPLETE. ROOTS SHALL BE PRUNED TO GIVE A CLEAN, SHARP SURFACE AMENABLE TO HEALING. ROOTS EXPOSED DURING HOT WEATHER SHOULD BE IRRIGATED TO PREVENT PERMANENT TREE INJURY. CARE FOR SERIOUS INJURY SHOULD BE PRESCRIBED BY A PROFESSIONAL FORESTER OR CERTIFIED TREE EXPERT.
8. TREE LIMB REMOVAL WHERE NECESSARY, WILL BE DONE AS NATURAL TARGET PRUNING TO REMOVE THE DESIRED BRANCH COLLAR. THERE SHOULD BE NO FLUSH CUTS. FLUSH CUTS DESTROY A MAJOR DEFENSE SYSTEM OF THE TREE. NO TREE PAINT SHALL BE APPLIED. ALL CUTS SHALL BE MADE AT THE OUTSIDE EDGE OF THE BRANCH COLLAR. CUTS MADE TOO FAR BEYOND THE BRANCH COLLAR MAY LEAD TO EXCESS SPROUTING, CRACKS AND ROT. REMOVAL OF A "V" CROTCH SHOULD BE CONSIDERED FOR FREE STANDING SPECIMEN TREES TO AVOID FUTURE SPLITTING DAMAGE.

TEMPORARY TREE PROTECTION DETAIL

NOT TO SCALE MCNY-SOIL-EROS-2100 07/01/19

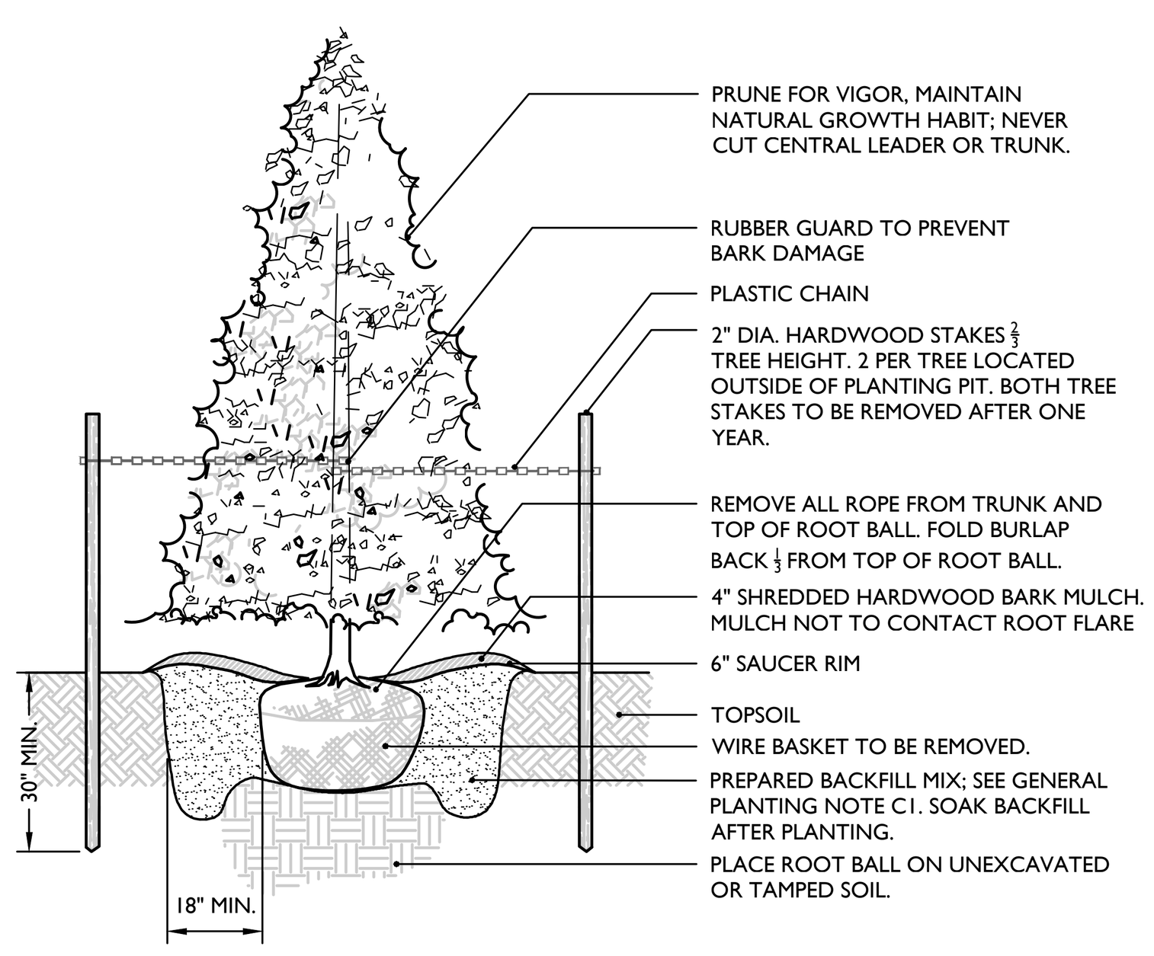


NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

TREE PLANTING DETAIL

NOT TO SCALE 07/01/19

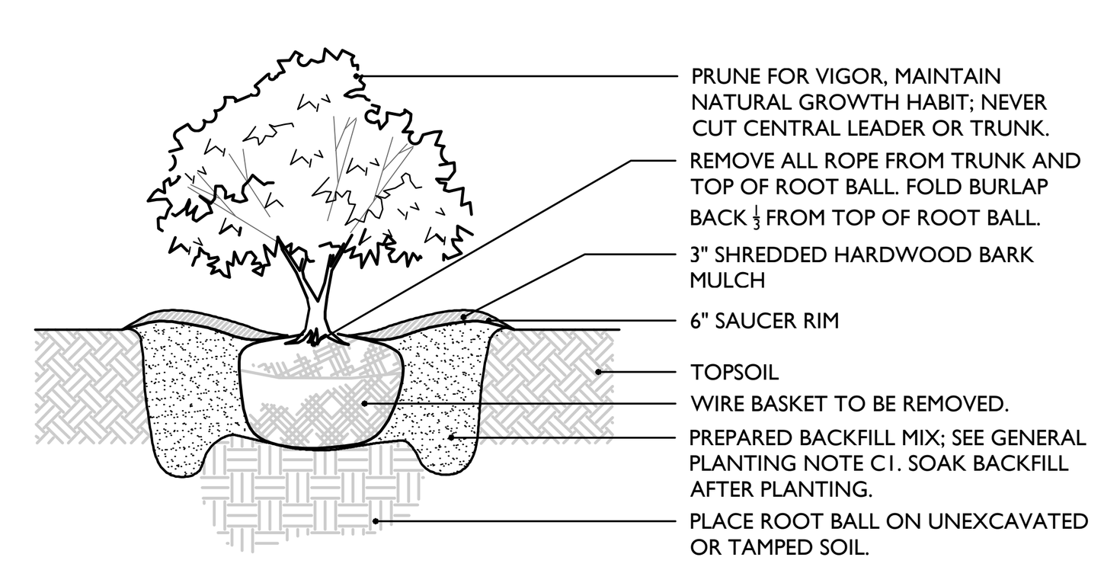


NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE 07/01/19

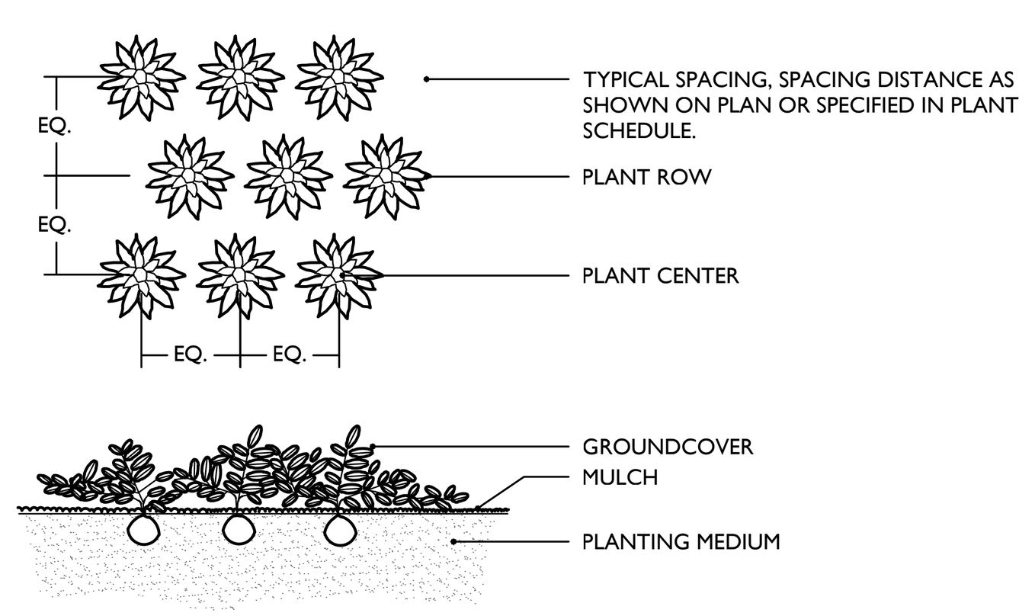


NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

SHRUB PLANTING DETAIL

NOT TO SCALE

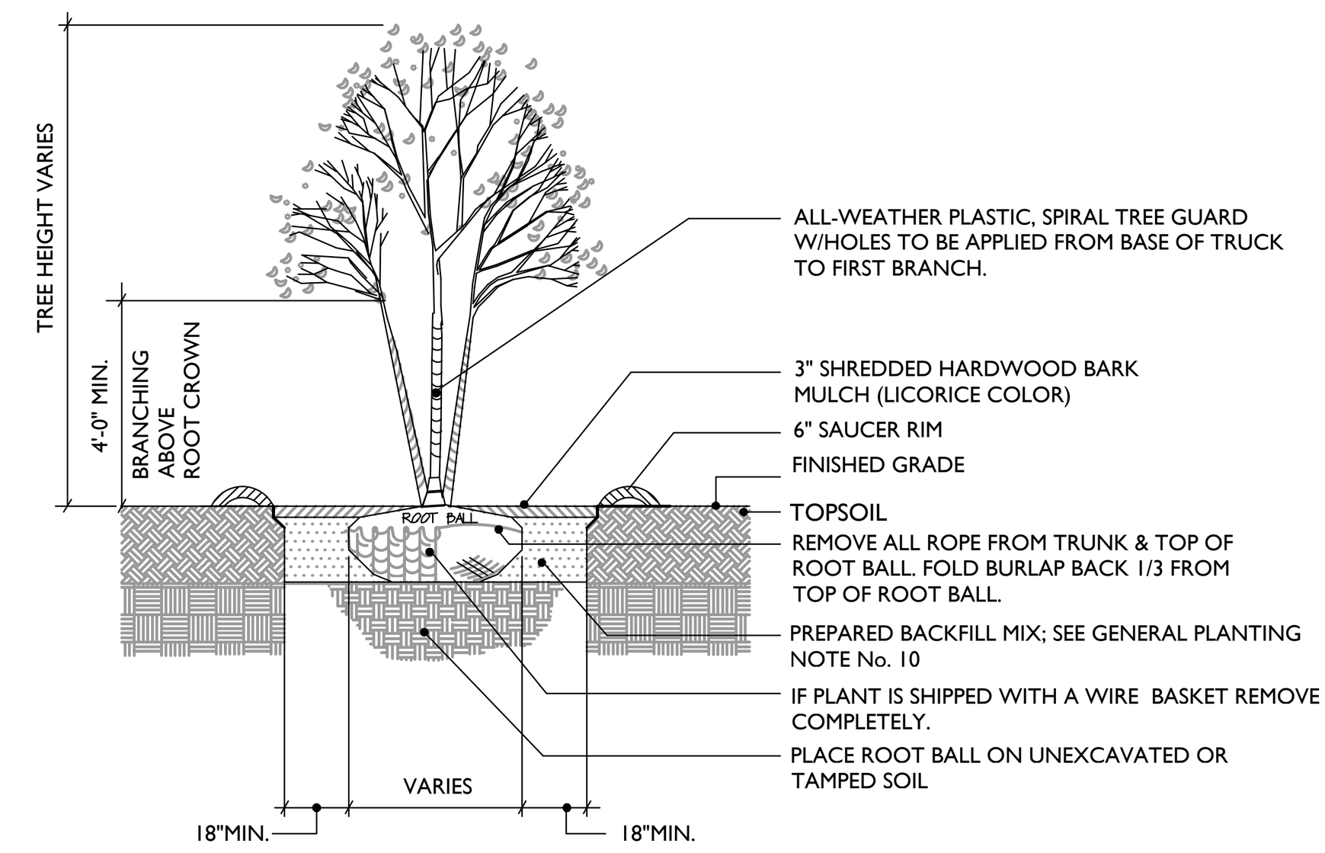


NOTES:

1. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

PERENNIAL PLANTING DETAIL

NOT TO SCALE



MULTI-STEM TREE PLANTING DETAIL

NOT TO SCALE 07/01/19

GENERAL SEEDING NOTES:

1. TEMPORARY SEEDING: REFER TO SOIL EROSION AND SEDIMENT CONTROL PLANS.
2. PERMANENT SEEDING SHALL CONSIST OF THE FOLLOWING MIXTURE OR APPROVED EQUAL:
   OPTIMUM SEEDING DATES ARE BETWEEN APRIL 1 AND MAY 31: AND AUGUST 16 AND OCTOBER 15.

   TURF MIX (7-10 LBS./1,000 S.F. MINIMUM)
   TALL FESCUE, 'STINGRAY' (34%)
   TALL FESCUE, RAPTOR III (33%)
   HARD FESCUE, 'RIDU' (33%)

   RETENTION BASIN SEED MIXTURE - LOW MAINTENANCE
   (ERNMX# ERNMX-126 BY ERNST SEEDS OR APPROVED EQUAL)

   SEEDING RATE: 20-40 LBS PER ACRE, OR 0.5 LB/1,000 SQ. FT. WITH A COVER CROP. FOR A COVER CROP USE ONE OF THE FOLLOWING :GRAIN RYE (1 SEP TO 30 APR; 30 LBS/ACRE), JAPANESE MILLET (1 MAY TO 31 AUG; 10 LBS/ACRE), OR BARNYARD GRASS (1 MAY TO 31 AUG; 10 LBS/ACRE).

   SEEDING OUTSIDE OF THE OPTIMUM DATES SHALL NOT BE CONDUCTED WITH OUT PRIOR APPROVAL.
   SPECIES LIST:

   - 20% DEERTONGUE (PANICUM CLANDESTINUM, TIOGA)
   - 20% ALKALIGRASS, FULTS (PUCCINELLIA DISTANS, FULTS)
   - 18% VIRGINIA WILDRYE, MADISON-NY ECOTYPE (ELYMUS VIRGINICUS)
   - 15% CREEPING BENTGRASS, 'PENNCROSS' (AGROSTIS STOLONIFERA)
   - 15% FOWL BLUEGRASS (POA PALUSTRIS)
   - 10% FOX SEDGE, PA ECOTYPE (CAREX VULPINOIDEA)
   - 1% BLUNT BROOM SEDGE, PA ECOTYPE (CAREX SCOPARIA)
   - 1% SOFT RUSH (JUNCUS EFFUSUS)

   TOTAL: 100%

   PERMANENT SEEDING TO BE APPLIED BY RAKING OR DRILLING INTO THE SOILS AT THE RATE GIVEN ABOVE.

3. FERTILIZER FOR THE ESTABLISHMENT OF TEMPORARY AND PERMANENT VEGETATIVE COVER SHALL BE IN COMPLIANCE WITH THE LATEST NYSDEC REGULATIONS. THIS INCLUDES, BUT LIMITED TO:
   1. NO FERTILIZER SHALL BE APPLIED BETWEEN DEC. 1 AND APRIL 1 IN ANY YEAR.
   2. SHALL NOT BE APPLIED WITHIN 20 FEET OF A WATER BODY.
   3. ONLY LAWN FERTILIZER WITH LESS THAN 0.67% BY WEIGHT PHOSPHATE CONTENT MAY BE APPLIED.
   (A SOIL TEST PRIOR TO FERTILIZER APPLICATION IS RECOMMENDED.)
4. IF SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY OR PERMANENT SEEDING, EXPOSED AREA TO BE STABILIZED WITH MULCH AS INDICATED IN NOTE 6.
5. MULCH TO CONSIST OF SMALL GRAIN STRAW OR SALT HAY ANCHORED WITH A WOOD AND FIBER MULCH BINDER OR AN APPROVED EQUAL. MULCH WILL BE SPREAD AT RATES PER NYSDEC STANDARDS AND ANCHORED WITH A MULCH ANCHORING TOOL OR LIQUID MULCH BINDER, AND SHALL BE PROVIDED ON ALL SEEDINGS. HYDROMULCH SHALL ONLY BE USED DURING OPTIMUM GROWING SEASONS.
6. AS NEEDED, WORK LIME AND FERTILIZER INTO SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
7. REMOVE FROM THE SURFACE ALL STONES TWO INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS, OR OTHER UNSUITABLE MATERIAL.
8. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED AS ABOVE.

GENERAL PLANTING NOTES:

1. THIS PLAN SHALL BE USED FOR LANDSCAPE PLANTING PURPOSES ONLY. EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR SPECIFIC LOCATIONS OF UTILITIES AND STRUCTURES AND NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR LOCATION CONFLICTS PRIOR TO PLANTING INSTALLATION.
2. THE CONTRACTOR IS RESPONSIBLE TO LOCATE AND VERIFY LOCATION OF ALL UTILITIES ON SITE PRIOR TO CONSTRUCTION.
3. ALL PLANT MATERIAL SHALL CONFORM TO GUIDELINES AS SET FORTH IN THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S STANDARD FOR NURSERY STOCK OR THE PLANT MATERIAL WILL BE UNACCEPTABLE. ALL PLANT MATERIAL SHALL BE TRUE TO SPECIES, VARIETY, SIZE AND BE CERTIFIED DISEASE AND INSECT FREE. THE OWNER AND/OR THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO APPROVE ALL PLANT MATERIAL ON SITE PRIOR TO INSTALLATION.
4. NO PLANT SUBSTITUTIONS SHALL BE PERMITTED WITH REGARD TO SIZE, SPECIES, OR VARIETY WITHOUT WRITTEN PERMISSION OF THE LANDSCAPE CONSULTANT. WRITTEN PROOF OF PLANT MATERIAL UNAVAILABILITY MUST BE DOCUMENTED.
5. THE LOCATION OF ALL PLANT MATERIAL INDICATED ON THE LANDSCAPE PLANS ARE APPROXIMATE. THE FINAL LOCATION OF ALL PLANT MATERIAL AND PLANTING BED LINES SHALL BE DETERMINED IN THE FIELD UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT.
6. ALL STREET TREES AND SHADE TREES PLANTED NEAR PEDESTRIAN OR VEHICULAR ACCESS SHOULD NOT BE BRANCHED LOWER THAN 7'-0" ABOVE GRADE. ALL PLANT MATERIAL LOCATED WITHIN SIGHT TRIANGLE EASEMENTS SHALL NOT EXCEED A MATURE HEIGHT OF 30" ABOVE THE ELEVATION OF THE ADJACENT CURB. ALL STREET TREES PLANTED IN SIGHT TRIANGLE EASEMENTS SHALL BE PRUNED TO NOT HAVE BRANCHES BELOW 10'-0".
7. THE PLANTING PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT QUANTITY DISCREPANCIES OCCUR.
8. ALL PLANT MATERIAL SHALL BE PROPERLY INSTALLED IN CONFORMANCE WITH THE TYPICAL PLANTING DETAILS. INSTALL ALL PLANT MATERIAL ON UNDISTURBED GRADE. CUT AND REMOVE JUTE BURLAP FROM TOP ONE-THIRD OF THE ROOT BALL. WIRE BASKETS AND NOT JUTE BURLAP SHALL BE COMPLETELY REMOVED PRIOR TO BACKFILLING THE PLANT PIT.
9. BRANCHES OF DECIDUOUS TREES SHALL BE PRUNED BACK BY NO MORE THAN ONE QUARTER (1/4) TO BALANCE THE TOP GROWTH WITH ROOTS AND TO PRESERVE THEIR CHARACTER AND SHAPE. THE CENTRAL LEADER OF TREE SHALL NOT BE PRUNED.
10. PROVIDE PLANTING PITS AS INDICATED ON PLANTING DETAILS. BACKFILL PLANTING PITS WITH ONE PART EACH OF TOPSOIL, PEAT MOSS AND PARENT MATERIAL. IF WET SOIL CONDITIONS EXIST THEN PLANTING PITS SHALL BE EXCAVATED AN ADDITIONAL 12" AND FILLED WITH CRUSHED STONE OR UNTIL FREE DRAINING.
11. ALL PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT BORE TO EXISTING GRADE AT NURSERY.
12. OPTIMUM PLANTING TIME:
    DECIDUOUS - APRIL 1 TO JUNE 1 & OCTOBER 15 TO NOVEMBER 30.
    CONIFEROUS - APRIL 1 TO JUNE 1 & SEPTEMBER 1 TO NOVEMBER 1.

    PLANTING OUTSIDE OF THE OPTIMUM DATES SHALL NOT BE CONDUCTED WITH OUT PRIOR APPROVAL FROM THE LANDSCAPE CONSULTANT.
13. NEWLY INSTALLED PLANT MATERIAL SHALL BE WATERED AT THE TIME OF INSTALLATION. REGULAR WATERING SHALL BE PROVIDED TO ENSURE THE ESTABLISHMENT, GROWTH AND SURVIVAL OF ALL PLANTS. WATERING AMOUNTS SHOULD BE ADJUSTED AS RAIN EVENTS OCCUR. WATERING AFTER THE INITIAL 4 WEEKS SHALL BE ADJUSTED BASED ON SEASONAL CONDITIONS. WATERING SHALL NOT TAKE PLACE DURING THE HOTTEST POINT OF THE DAY.
14. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR TWO YEARS AFTER THE DATE OF FINAL ACCEPTANCE. ANY PLANT MATERIAL THAT DIES WITHIN THAT TIME PERIOD SHALL BE REMOVED, INCLUDING THE STUMP, AND REPLACED BY A TREE OF SIMILAR SIZE AND SPECIES AT NO EXPENSE TO THE OWNER.
15. THE LANDSCAPE CONTRACTOR SHALL PROVIDE A MINIMUM 4" LAYER OF TOPSOIL IN ALL LAWN AREAS AND A MINIMUM OF 12" OF TOPSOIL IN ALL PLANTING AREAS. A FULL SOIL ANALYSIS SHALL BE CONDUCTED AFTER CONSTRUCTION AND PRIOR TO PLANTING TO DETERMINE THE EXTENT OF SOIL AMENDMENT REQUIRED.
16. ALL DISTURBED LAWN AREAS SHALL BE STABILIZED WITH SEED AS INDICATED ON THE LANDSCAPE PLANS. TEMPORARY SEEDING SHALL BE IN ACCORDANCE WITH THE PROJECT SOIL EROSION AND SEDIMENT CONTROL PLANS. ALL DISTURBED LAWN AREAS SHALL BE TOPSOILED, LIMED, FERTILIZED AND FINE GRADED PRIOR TO LAWN INSTALLATION.
17. ALL PLANTING BEDS SHALL RECEIVE 3" OF SHREDDED HARDWOOD BARK MULCH.
18. ALL SHRUB MASSES SHALL BE PLANTED IN CONTINUOUS MULCHED BEDS.
19. ALL PLANTING DEBRIS (WIRE, TWINE, RUBBER HOSE, BACKFILL ETC.) SHALL BE REMOVED FROM THE SITE AFTER PLANTING IS COMPLETE. PROPERTY IS TO BE LEFT IN A NEAT ORDERLY CONDITION IN ACCORDANCE WITH ACCEPTED PLANTING PRACTICES.

PLANT DETAIL NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT. MULCH SHALL NOT TOUCH THE TREE TRUNK.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.
3. WIRE BASKETS AND NON-JUTE BURLAP MUST BE ENTIRELY REMOVED FROM THE ROOT BALL. JUTE BURLAP MUST BE REMOVED FROM THE TOP 1/3 OF THE ROOT BALL.
4. DEPTH OF PLANT PIT SHALL BE INCREASED BY 12" WHEREVER POOR SOIL CONDITIONS OCCUR, WITH THE ADDITION OF LOOSE AGGREGATE.
5. CONTRACTOR SHALL PARTIALLY FILL WITH WATER A REPRESENTATIVE NUMBER OF PITS IN EACH AREA OF THE PROJECT PRIOR TO PLANTING TO DETERMINE IF THERE IS ADEQUATE PERCOLATION. IF PIT DOESN'T PERCOLATE, MEASURES MUST BE TAKEN TO ASSURE PROPER DRAINAGE BEFORE PLANTING.
6. PLANTING MUST BE GUARANTEED FOR TWO FULL GROWING SEASONS FROM THE TIME OF FINAL ACCEPTANCE BY THE LANDSCAPE CONSULTANT. CONTRACTOR SHALL REMOVE ALL WRAPPING AT THE END OF GUARANTEE PERIOD OR SOONER PER PROJECT LANDSCAPE ARCHITECT.
7. BACKFILL MIXTURE TO BE SPECIFIED BASED UPON SOIL TEST AND CULTURAL REQUIREMENTS OF PLANTINGS OR AT MINIMUM:
   - INSTALL 6" TOPSOIL COMPOST MIX. SCARIFY OR DIG ALL PROPOSED PLANTING AREAS TO A DEPTH OF 12"-24" OR AS DETERMINED BY PROJECT LANDSCAPE ARCHITECT.
   - TOPSOIL-COMPOST MIX SHALL CONSIST OF 85%-90% STOCKPILED TOPSOIL (IF AVAILABLE) AND 10%-15% WELL-ROTTED COMPOST. TOPSOIL SHALL BE NATURAL, FRIABLE, FERTILE SOIL, CHARACTERISTIC OF PRODUCTIVE SOIL IN THE VICINITY, REASONABLY FREE FROM STONES, CLAY LUMPS, ROOTS AND OTHER FOREIGN MATTER, WITH AN ACIDITY LEVEL BETWEEN 5.5 AND 7 pH. IF STOCKPILED TOPSOIL IS NOT AVAILABLE, USE PURCHASED TOPSOIL IN SUFFICIENT QUANTITY TO COMPLETE THE REQUIREMENTS AS SPECIFIED.
   - PURCHASED TOP SOIL SHALL MEET THE FOLLOWING PARTICLE SIZE DISTRIBUTIONS:

     - LESS THAN OR EQUAL TO 15% OF GRAVEL (PARTICLE SIZE GREATER THAN 2.00 MM)
     - 40%-60% OF SAND (0.05-2MM), 30%-40% OF SILT (0.002-0.05 MM)
     - 10%-20% CLAY (<0.002MM)
     - 10%-15% WELL-ROOTED COMPOST WITH AND ACIDITY LEVEL BETWEEN 5.5 AND 7.0 pH.

     PERCENTAGES ARE BY WEIGHT. TOPSOIL AND PURCHASED SOIL SHALL BE SUBJECT TO APPROVAL BY PROJECT LANDSCAPE ARCHITECT.
8. PRUNE DAMAGED AND CONFLICTING BRANCHES MAINTAINING NORMAL TREE SHAPE, NEVER CUT CENTRAL TRUNK OR LEADER.

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