TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

NORTHEAST SUPPLY ENHANCEMENT PROJECT

COMPLIANCE STATEMENT

APPENDIX E. STORMWATER MANAGEMENT REPORT (AECOM)

NOVEMBER 2026

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STORMWATER MANAGEMENT REPORT
EROSION AND SEDIMENT CONTROL PLAN

FOR

NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION 206
HIGGINS FARM ACCESS ROAD

FRANKLIN TOWNSHIP
SOMERSET COUNTY, NEW JERSEY

NOVEMBER 12, 2026

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TABLE OF CONTENTS

SECTION **PAGE**

I. INTRODUCTION 1

II. PROJECT DESCRIPTION 1
1. Existing Site Conditions 1
2. Proposed Site Conditions 1
3. Soils 2

III. STORMWATER MANAGEMENT 3
1. Methodology 3
2. Existing Site Hydrology 3
3. Proposed Site Hydrology 3
4. Non-Structural Stormwater Management Strategies 3
5. Groundwater Recharge 5
6. Stormwater Runoff Quantity 6
7. Stormwater Runoff Quality 7
8. Soil Testing 7

LIST OF FIGURES

Figure 1 – Site Location Map
Figure 2 – Field Delineated WOTUS Features
Figure 3 – Drainage Area Plans (Existing and Proposed)

LIST OF TABLES

Table 1 – Rainfall Values
Table 2 – Summary of Groundwater Recharge
Table 3.1 – Runoff Peak Flow Rate of POI #1
Table 3.2 – Runoff Peak Flow Rate of POI #2
Table 4 – Motor Vehicle Surface Area
Table 5.1 – Infiltration Basin Soil Testing Summary (April 2018)
Table 5.2 – Infiltration Basin Soil Testing Summary (July-August 2025)

LIST OF APPENDICES

Appendix A – Soil Reports

Appendix B – Soil Test Results
B.1 – Original Infiltration Testing (February 2017)
B.2 – Additional Infiltration Testing (April 2018)
B.3 – Additional Infiltration Testing (July-August 2025)

Appendix C – Low Impact Development Checklist

Appendix D – Supporting Calculations
D.1 – Time of Concentration
D.2 – Curve Numbers
D.3 – Peak Rate Analysis (Runoff Quantity)
D.4 – Groundwater Recharge Analysis
D.5 – Water Quality Design Storm
D.6 – Mounding Analysis
D.7 – Swale Design
D.8 – Culvert Design
D.9 – Conduit Outlet Protection
D.10 – RipRap Slope Protection

Appendix E – Stormwater Management Drawings (Attached Separately)

I. INTRODUCTION

Transcontinental Gas Pipe Line Company, LLC (Transco) is proposing to construct a Compressor Station (CS 206) in Franklin Township, Somerset County, New Jersey (Figure 1). The project will involve the construction of small buildings, gravel access road and parking areas, equipment pads, and the installation of two gas pipelines (a suction line and a gas discharge line) to connect the proposed compressor station to the existing natural gas transmission line.

This Report addresses site grading and the related stormwater management design planned in conjunction with CS 206, in accordance with N.J.A.C 7:8 (Stormwater Management) Subchapter 5.

II. PROJECT DESCRIPTION

The proposed compressor station will have elements located across three (3) parcels that Transco either already owns, has an existing lease, or is in the process of acquiring ownership or leasing. Transco is responsible for the permitting and construction of the project.

1. Existing Site Conditions

The site contains wooded and open areas and generally slopes to the east in ranges from 1% - 6%. Wetlands and watercourses have been identified in the project areas (Figure 2).

2. Proposed Site Conditions

Access to the compressor station will be from an existing access road serving the Environmental Protection Agency (EPA) from Georgetown Franklin Turnpike (County Road 518). A new gravel roadway is proposed from the existing EPA access road and leading to the compressor station site, which will have gravel parking areas, equipment pads, two natural gas-fired, turbine-driven compressors as well as the following facilities and other ancillary equipment:

- Proposed Buildings
  - Compressor Building to house the compressors
  - Power Control/Air Compressor Building
  - Office/Warehouse Building
  - Telecommunications Building
- Proposed Aboveground Equipment
  - Station scrubbers
  - Unit lube oil coolers
  - Gas coolers
  - Communications tower
  - Aboveground storage tanks
  - Blowdown silencers and deodorizers
  - Standby generator unit

  - Medium voltage transformer
  - Aboveground piping

- Underground Piping

  Underground piping (one suction line and one discharge line) will extend from the new compressor station to the existing transmission lines located on the eastern side of the site.

The station will be enclosed by a security fence and controlled access gates. The new compressor station will be monitored both by personnel at the station during business hours and remotely from Transco's pipeline control center located in Houston, Texas. Remote monitoring is conducted 24 hours a day, 7 days a week, with 24/7 on-call support provided by local operations personnel. Transco will install emergency shutdown systems at the new compressor station per 49 Code of Federal Regulations (CFR) Part 192. In addition, the compressor station will be equipped with industry-recognized safety features such as pressure relief valves, emergency shutdown systems, and gas/fire detection devices. The station will also have a security system consisting of video cameras, intrusion alarms, and coded and keyed access to the facility and its building doors. The security system will be monitored both by personnel at the station and remotely by Transco's pipeline control center.

3. Soils

For the workspace containing the proposed compressor station, field-based soil investigations in the vicinity of the proposed stormwater basin indicated soil group types which differ from those indicated with the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey. In consideration of clarifying the discrepancies observed, a field-based soil investigation was initiated throughout the workspace containing the proposed compressor station. Twenty-four (24) test pits and twenty-seven (27) auger borings were conducted, the soil morphology described by a Certified Professional Soil Scientist and Soil Classifier at each test location, and the soil was classified to the series level in accordance with the USDA/NRCS National Cooperative Soil Survey Standards. The results of this study indicated the following soil types (and their respective hydrologic soil group) are located within the workspace for the proposed compressor station:

- Neshaminy (HSG B)
- Mount Lucas (HSG C)
- Watchung (HSG D)

For the workspace containing offsite areas and within the vicinity of the access road, the USDA/NRCS web soil survey was utilized. The area of the proposed access road was mapped primarily as a Neshaminy soil series, which matches the results of adjacent area within the field-based soil investigation for the compressor station. The remaining area of access road workspace was mapped as a Keyport soil series, which contains the existing EPA access road which is not proposed to be altered.

Additional information regarding soil series can be found within Appendix A.

III. STORMWATER MANAGEMENT

Management of stormwater runoff for the proposed CS 206 was evaluated in accordance with the requirements found at N.J.A.C. 7:8., subchapter 5.

1. Methodology

HydroCAD (Version 10.20-6a) software was used to develop a hydrologic model of the overall site using the NRCS Curve Number method. A Type C rainfall distribution based on NOAA Atlas 14 precipitation-frequency data was used along with the current and projected precipitation adjustment factors tabulated at N.J.A.C. 7:8-5.7. Times of concentration were developed using the methods contained in the TR-55 Manual (Urban Hydrology for Small Watersheds). Rainfall amounts for Somerset County were used for the calculation of peak flow rates and runoff volumes and are presented in Table 1.

Hydrologic calculations for the composite hydrologic model are presented in Appendix D.

Table 1: Rainfall Depth Values

Event	Current	Projected
2-year	3.29 inches	3.92 inches
10-year	5.15 inches	6.20 inches
100-year	9.08 inches	12.33 inches

2. Existing Site Hydrology (See Drainage Area Plan – Existing Conditions)

All stormwater runoff leaving the site drains to the east draining to a large wetland complex and towards Carters Brook. The existing cover types are predominantly wooded and open meadow areas. Sub-drainage areas were developed and are designated as POI #1 (contains the proposed compressor station) and POI #2 (contains the proposed access road).

3. Proposed Site Hydrology (See Drainage Area Plan – Proposed Conditions)

The proposed development will maintain the pre-development drainage patterns. Installation of the compressor station will result in the conversion of some surface cover from woods and meadow areas to gravel. To mitigate and manage the stormwater runoff attributed to the change in land cover within POI #1, six (6) infiltration basins will be constructed on the site, each capturing less than 2.5 acres of project area drainage in accordance with the BMP guidelines. To manage the stormwater associated with the gravel access road within POI #2, two (2) infiltration basins will be constructed adjacent to the road. Runoff from the compressor station and gravel access road will be conveyed to the infiltration basins via collector channels. Off-site upstream runoff will be diverted around the proposed compressor station by diversion channels. The previously proposed access road to the main gas line collector valves has been removed.

4. Non-Structural Stormwater Management Strategies

In accordance with N.J.A.C 7:8-5.3, non-structural stormwater management practices have been incorporated in the overall layout and design of the site. The following measures are consistent with that objective.

a. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.

Nearby wetlands and waterbodies in close proximity of the site were identified and considered when establishing the limits of temporary disturbance and limits of grading for the Project site. The area of the compressor station itself was situated in upland areas such that impacts to wetlands and waterbodies were avoided.

b. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces.

Impervious surfaces were minimized and limited to the smallest area necessary for safe and prudent operation of the proposed site. Wherever possible, gravel areas were incorporated in the site design rather than impervious pavement. Areas outside the compressor station and inside the fence line will be vegetated.

c. Maximize the protection of natural drainage features and vegetation.

To the maximum extent practicable natural drainage patterns were protected; however, with the limited amount of space on the Project, some small wetlands will need to be crossed to access the existing gas pipe locations.

d. Minimize the decrease in the pre-construction "time of concentration."

The site predominantly contains shallow slopes, most less than 5%. These slopes will be maintained, and in many cases (particularly in the area of the compressor station), the slopes will be decreased. Proposed channels will also utilize shallow slopes, and when used in conjunction with an infiltration basin, will help to minimize the decrease in the time of concentration from the site.

e. Minimize land disturbance including clearing and grading.

Although much of the existing site is wooded, clearing and grading has been minimized to such that only areas of the property that were required for staging, stockpiles, or construction will be disturbed. A large portion of wooded areas within the property boundary, including but not limited to those around wetland and waterbody features, will be left un-impacted.

f. Minimize soil compaction.

Soil compaction will be limited to the areas required for roadways, permanent equipment and buildings. Areas to receive vegetation will be minimally compacted prior to seeding and stabilization, and the area for the proposed infiltration basin will be protected from compaction to maintain infiltration capacity.

g. Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides.

Disturbed areas of the site are to be vegetated / re-vegetated with native materials & wetland species.

h. Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas.

Vegetated open channel conveyance systems will be utilized for the project and upslope diversion channels will discharge to stable vegetated areas.

i. Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff.

The Project will have a site-specific Spill Prevention, Containment, and Control Plan as well as maintenance criteria for the stormwater BMPs onsite. Additionally, fertilizer will be applied in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

5. Groundwater Recharge

The standards for groundwater recharge found at N.J.A.C. 7:8-5.4 (b).1 state that the design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at N.J.A.C. 7:8-5.7, either:

(1) Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or

(2) Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the projected two- year storm, as defined and determined pursuant to N.J.A.C. 7:8-5.7(d), is infiltrated.

Eight (8) infiltration basins will be constructed, which will provide groundwater recharge and have been designed such that increase of stormwater runoff volume form pre-construction to post-construction will be infiltrated. The pre-construction and post-construction volumes for the projected 2-year storm event were calculated to quantify the volume of stormwater runoff volume generated by the proposed cover types associated with the project. The resulting difference between the pre- and post- volumes represents the increased volume that is to be infiltrated per N.J.A.C. 7:8-5.4 (b).1.ii. A hydrologic analysis was then performed to evaluate the volume being infiltrated by the proposed infiltration basin. To provide a conservative approach, this analysis used the lowest field-measured infiltration rate, applied a factor of safety of 2 per the NJ Stormwater Best Management Practices (BMP) Manual, and accounted for the highest observed seasonal high groundwater elevation. The infiltration modeled was used only to demonstrate the volume being recharged and is not being used for the quantity/peak rate reductions listed above which conservatively assume zero infiltration. The resulting infiltrated volume is greater that the required volume which is summarized below, and supporting calculations can be found in Appendix D.

Table 2
Summary of Groundwater Recharge

Pre-Construction Volume (ft^3)	Post-Construction Volume (ft^3)	Required Volume [1] (ft^3)	Infiltrated Volume [2] (ft^3)
53,448	130,419	76,971	82,895

1. Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the projected two-year storm is infiltrated, per N.J.A.C. 7:8-5.4 (b).1.ii.

2. From hydrologic analysis (HydroCAD) for projected 2-Year storm event utilizing the lowest field measured infiltration rate (1 in/hr) and applying a factor of safety of 2, resulting in a rate of 0.5 in/hr.

6. Stormwater Runoff Quantity

A hydrologic model of both existing and proposed conditions was developed for each POI. A tiered design approach was implemented in the hydraulic modeling of the outlet structure of the proposed infiltration basins, and the results of each iteration resulted in post-development peak runoff rates that are less than the pre-development peak runoff rates, as well as less than the allowable peak runoff rates per the % reductions per N.J.A.C. 7:8-5.6 (b).3, and are summarized below. Supporting calculations can be found within Appendix D.

Table 3.1
Runoff Peak Flow Rate of POI #1

Scenario	Frequency (year)	Pre-Development (cfs)	Post-Development (cfs)	Percentage of Pre-Development (%)	Allowable Percentage (%) [1]
Current	2	4.09	1.76	42.3	<50
	10	16.53	8.72	52.8	<75
	100	52.72	36.08	68.4	<80
Projected	2	7.73	3.45	44.6	<50
	10	25.29	16.18	64.0	<75
	100	86.59	66.03	76.3	<80

Table 3.2
Runoff Peak Flow Rate of POI #2

Scenario	Frequency (year)	Pre-Development	Post-Development	Percentage of Pre-Development (%)	Allowable Percentage (%) [1]
Current	2	0.48	0.18	37.5	<50
	10	2.14	0.60	28.0	<75
	100	7.43	5.26	70.8	<80
Projected	2	0.93	0.27	29.0	<50
	10	3.40	1.62	47.6	<75
	100	12.56	9.98	79.5	<80

1. Post-construction peak runoff rates for the 2-, 10-, and 100-year storm events are less than 50%, 75%, and 80% (respectively) of the pre-construction rates per 7:8-5.6 (b).3. All other storm events have an allowable post-construction peak runoff rate equivalent to their respective pre-construction rates.

7. Stormwater Runoff Quality

The standards for groundwater recharge found at N.J.A.C. 7:8-5.5 state that stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by 80 percent of the anticipated load from the developed site, expressed as an annual average.

All proposed impervious areas associated with the project in POI #1 and POI #2 are captured by infiltration basins. Note that the previously proposed southern access road in POI #1 was removed from the project, and this right-of-way in its entirety will be maintained as maintained herbaceous cover. Therefore, this area is not subject to the standards for stormwater runoff quality. Stormwater Information contained within the New Jersey Stormwater Best Management Practices Manual shows that an infiltration basin will remove 80 percent of the TSS from the stormwater runoff. Hydrologic modeling for the water quality design storm for each iteration can be found within Appendix D.

The total motor vehicle surface area proposed by the project and the total motor vehicle surface directed to each proposed BMP have been tabulated in Table 4. This satisfied the requirement to identify and account for all motor vehicle surface areas contributing to each stormwater management measure.

Table 4
Motor Vehicle Surface Area

Basin #	Area (sq-ft)
1	18,097
2	6,600
3	7,730
4	0
5	19,510
6	2,155
7	27,816
8	0

8. Soil Testing

Preliminary testing was performed in February 2017. Four (4) test locations (identified as TP-1A, TP-1B, TP-2A and TP-2B) were performed in the eastern portion of the project site. Test pit depths ranged from 2' – 8' below existing grade and infiltration tests were performed yielding rates from 1.0 – 15.0 inches per hour (in/hr). Additional information regarding these tests can be found in Appendix B.1.

Additional testing was then performed in April 2018. First, five (5) soil borings (identified as TP-3, TP-4, TP-5, TP-6 and TP-7) were performed, which were advanced to 15' below existing grade and monitoring wells were installed to determine the depth to bedrock and groundwater. The results of these borings indicated elevated water levels at locations TP-6 and TP-7 in the north-east corner of the site. The infiltration basin bottom footprint was thus designed to be

located outside of borings TP-6 and TP-7, and situated in the vicinity of borings TP-3, TP-4 and TP-5.

Following the April 2018 soil borings, five (5) additional test pits and infiltration tests (identified as TP-8, TP-9, TP-10, TP-11 and TP-12) were then performed to further explore the subsurface conditions and supplement the original infiltration results. TP-8, TP-9 and TP-10 were performed in the location of the infiltration basin and yielded infiltration rates between 2.3 – 13.3 in/hr. TP-11 and TP-12 were performed south-west of this location and yielded infiltration rates between 0.13 in/hr – 10.7 in/hr. Additional information regarding this data can be found in Appendix B.2 – Attachment C.

A soil scientist performed an evaluation of the soils in the test pits to provide soil descriptions and ascertain the presence to limiting features such as bedrock or seasonal high groundwater. The results of this evaluation indicated a bedrock depth ranging from approximately 6' – 9.5' below existing grade. In the vicinity of the infiltration basin (TP-8, TP-9, TP-10), this depth translates to an elevation range of 254.1' to 258'. Seepage was encountered due to surface runoff percolating through the soil and moving downslope over the bedrock. Based on the eight (8) soil tests located within the footprint of the infiltration basin (or just outside it), a maximum groundwater elevation of 258.5' was utilized as the limiting zone. A summary of the soil test results can be found in Table 5.1 below. Additional information regarding this data can be found in Appendix B.2 – Attachment D and E.

Table 5.1
Infiltration Basin Soil Testing Summary (April 2018)

Location I.D.	Test Type [1,2]	Existing Grade Elevation (ft)	Test Pit/Bore Bottom		Bedrock		Groundwater		Infiltration Rate (in/hr)
			Depth (ft)	Elevation (ft)	Depth (ft)	Elevation (ft)	Depth (ft)	Elevation (ft)	
TP-1A	TP w/IT	261.7	6.0	255.7	N/E [3]		N/E [3]		6.75
TP-1B	TP w/IT	263.3	8.0	255.3	N/E [3]		N/E [3]		1.0
TP-3	B w/MW	263.0	15.0	248.0	N/E [3]		5.8	257.2	N/A [4]
TP-4	B w/MW	263.6	15.0	248.6	N/E [3]		5.3	258.3	N/A [4]
TP-5	B w/MW	261.0	15.0	246.0	N/E [3]		2.5	258.5	N/A [4]
TP-8	TP w/IT	264.5	6.5	258.0	6.5	258.0	6.3	258.2	13.3
TP-9	TP w/IT	264.5	7.0	257.5	7.0	257.5	N/E [3]		2.9
TP-10	TP w/IT	263.6	9.5	254.1	9.5	254.1	9.5	254.1	2.3

1. TP w/IT = Test Pit with Infiltration Testing
2. B w/MW = Boring with Monitoring Well
3. N/E = Not encountered
4. N/A = Not Applicable for Borings with Monitoring Wells

In July 2025, supplemental soil testing was performed in response to NJDEP's July 21, 2025 deficiency letter requiring additional site-specific testing in accordance with Chapter 12 of the BMP Manual for proposed infiltration basins. Twenty-eight (28) test pits were excavated across the site to support the layout of small-scale BMPs with drainage areas ≤2.5 acres (see Appendix

E). At each location, soil profiles were logged to the proposed basin bottom elevation, with percolation tests conducted where conditions permitted.

Several locations, particularly in the northeast quadrant, encountered refusal between 4.0 and 8.0 feet below grade, confirmed by the site geologist as fractured bedrock. In these areas, refusal occurred at or above the proposed basin bottom elevation, preventing standard percolation testing. Where tests were feasible, the clayey silt soils produced slow infiltration rates consistent with Hydrologic Soil Group B/C conditions. A total of eight (8) percolation tests were completed, and hydraulic conductivities were calculated for design purposes.

Where refusal limited percolation testing, basin flooding tests were initiated in accordance with BMP Manual §12.3(b) to evaluate infiltration feasibility in fractured bedrock settings. Six (6) basin flooding tests were performed near test pit locations #5, #7, #8, #16, #27, and #28 using 50-sq-ft test basins filled in two stages with 375 gallons of water each.

Seasonal High Water Table (SHWT) determination followed Table 12-5 of the BMP Manual, as testing was conducted outside the January–April observation window. No mottling or groundwater was observed in excavations advanced to 8 feet below basin invert, indicating the SHWT lies substantially deeper than the NRCS Web Soil Survey mapping of approximately 2 feet below grade. Furthermore, NRCS soil series differ from the 2019 AECOM reclassification, limiting the reliability of mapped SHWT. While technically “undetermined” per Table 12-6, field evidence demonstrates groundwater lies well below the proposed basin depths, and the required 2-foot separation from SHWT is satisfied.

A 2’ separation was provided between the highest observed groundwater elevation and the bottom of the infiltration basin sand media, which complies with the 2’ minimum requirement. Mounding analyses were conducted to demonstrate that the maximum groundwater mound height will not be above the infiltration layer (i.e., bottom of sand layer).

A summary of the soil test results can be found in Table 5.2 below. Additional information regarding this data can be found in Appendix B.3 – Attachment D, E, and F.

Table 5.2
Infiltration Basin Soil Testing Summary (July-August 2025)

Basin #	Test Pit #	Test Type [1,2]	Grade Elevation (ft)	Basin Invert Elevation (ft)	Test Pit Bottom Elevation (ft)	Test Pit Bottom Depth (ft)	Groundwater Elevation (ft)	Groundwater Depth (ft)	Infiltration Rate (in/hr)
1	1	TP w/IT	277.0	274.0	272.5	4.5	N/E [3]		4.03
	2	TP w/IT	275.0		271.0	4.0	N/E [3]		12.22
2	3	TP w/IT	275.0	274.0	270.2	4.8	N/E [3]		11.52
	4	TP w/IT	276.0		268.8	7.2	N/E [3]		7.93
3	9	TP w/IT	277.0	273.0	269.3	7.7	N/E [3]		12.37
	10	TP w/IT	277.0		270.0	7.0	N/E [3]		3.91
4	5A	TP w/FT	268.5	265.0	262.5	6.0	N/E [3]		N/A [4]
	16A	TP w/FT	268.5		262.5	6.0	N/E [3]		N/A [4]
5	7A	TP w/FT	268.5	265.0	260.5	8.0	N/E [3]		N/A [4]
	8A	TP w/FT	267.5		259.5	8.0	N/E [3]		N/A [4]
6	TP-8 [5]	TP w/IT	264.5	261.5	258.0	6.5	N/E [3]		13.30
	13	TP w/IT	265.5		258.2	7.3	N/E [3]		6.44
7	TP-9 [5]	TP w/IT	264.5	261.5	257.5	7.0	N/E [3]		2.90
	14	TP w/IT	264.5		257.1	7.4	N/E [3]		7.94
8	27A	TP w/FT	275.5	273.0	270.5	5.0	N/E [3]		N/A [4]
	28A	TP w/FT	275.5		270.5	5.0	N/E [3]		N/A [4]

1 TP w/IT = Test Pit with Infiltration Testing

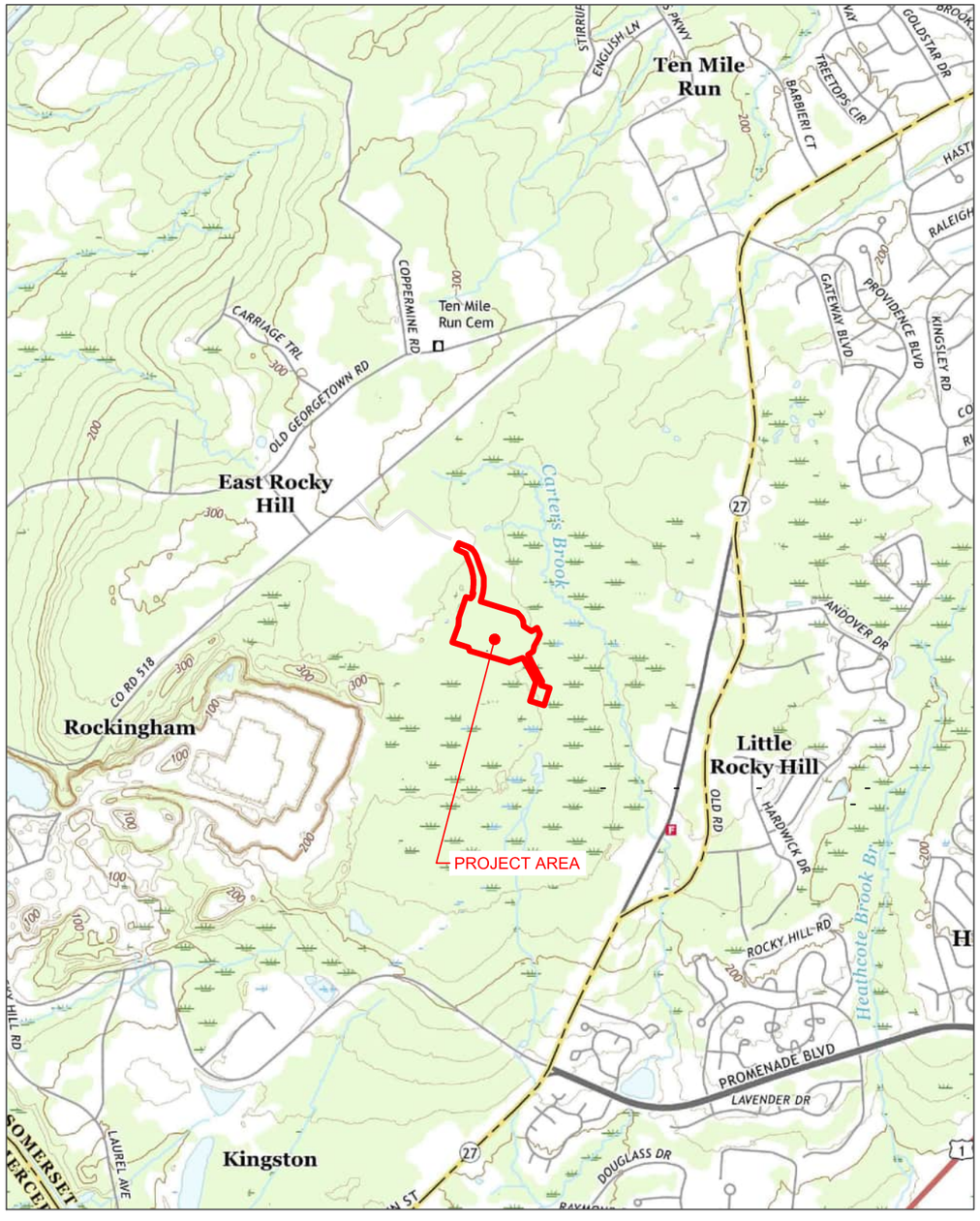
2 TP w/FT = Test Pit with Basin Flooding Test

3 N/E = Not encountered

4 N/A = Not Applicable for Test Pits with Basin Flooding Test

5 Test pit excavated in April 2018

FIGURE 1
SITE LOCATION MAP

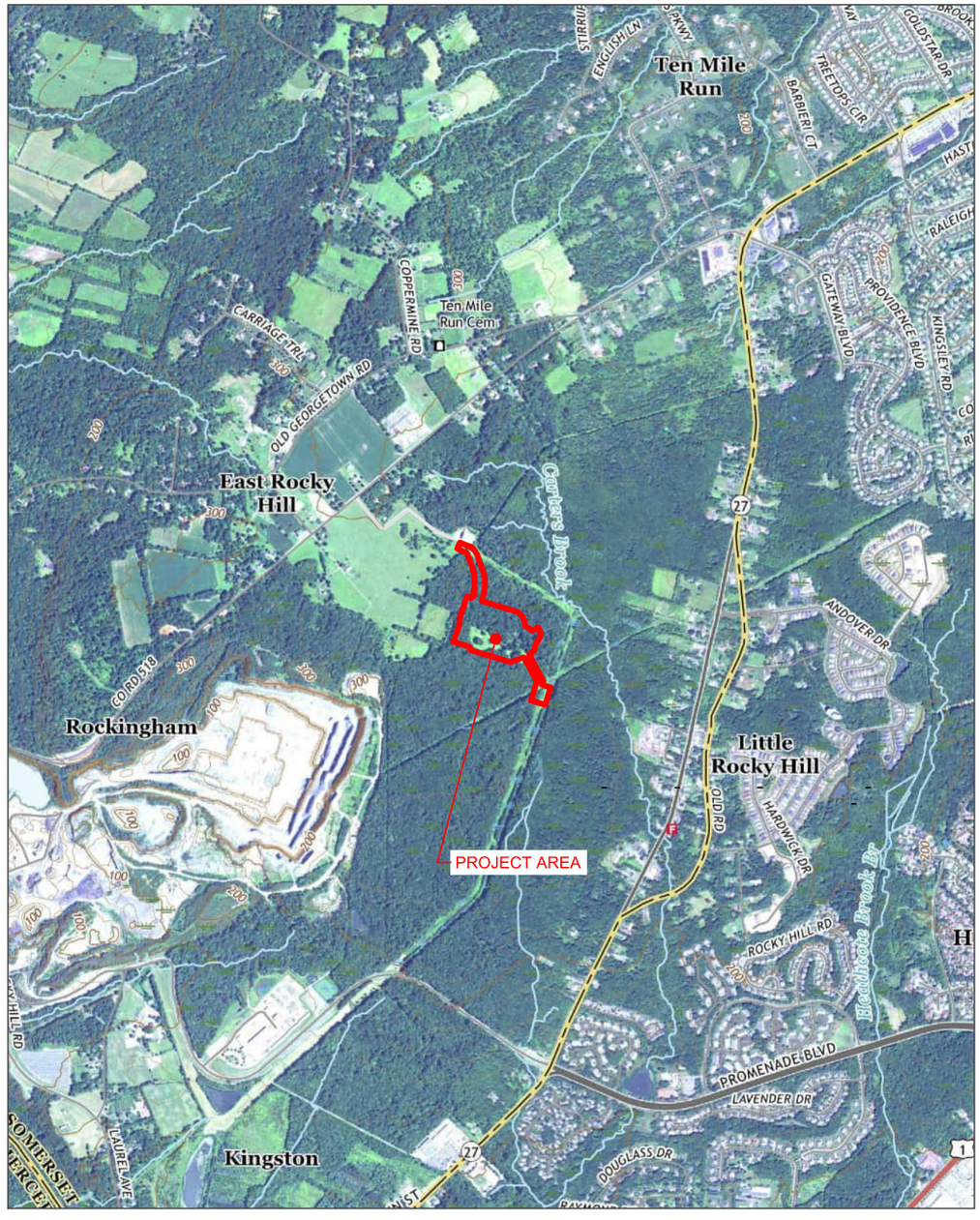


USGS TOPOGRAPHIC MAP

SCALE: 1 INCH=2000 FEET

0 2000 4000

MAP SOURCE
MONMOUTH JUNCTION, NJ QUADRANGLE
U.S. GEOLOGICAL SURVEY, 2016



USGS AERIAL MAP

SCALE: 1 INCH=2000 FEET

0 2000 4000

MAP SOURCE
MONMOUTH JUNCTION, NJ QUADRANGLE
U.S. GEOLOGICAL SURVEY, 2016

AECOM

FIGURE 1

SITE LOCATION MAP

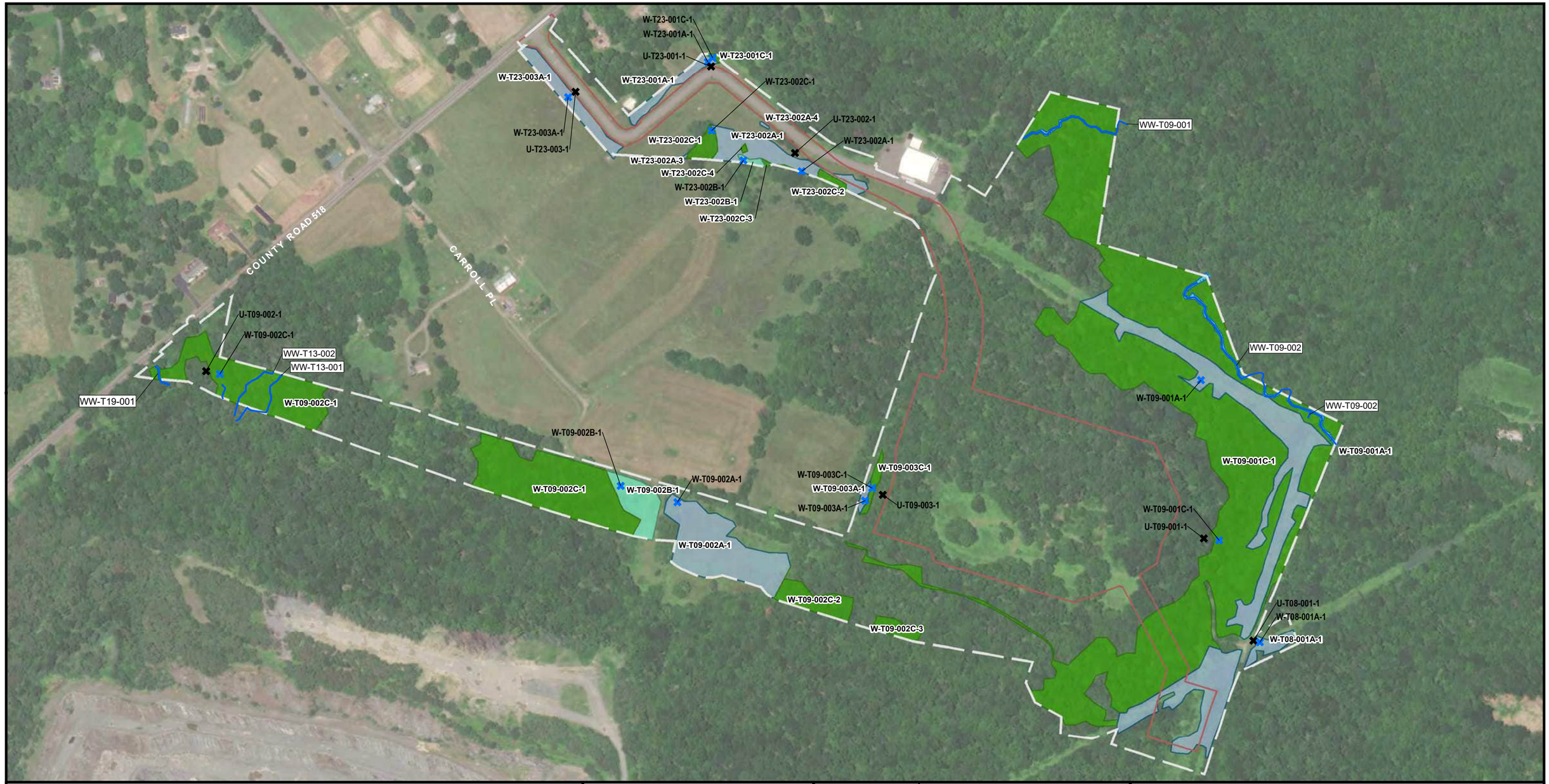
NORTHEAST SUPPLY EXAPANSION - CS 206
FRANKLIN TOWNSHIP
SOMERSET COUNTY, NJ
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
2017-06-01

Project Management Initials: Designer: TPF Checked:JAC ApprovedPPH ANSI B 11" x 17"

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FIGURE 2
FIELD DELINEATED WOTUS FEATURES

FIGURE 2
FIELD DELINEATED WOTUS FEATURES



Legend

- LOD
- Upland Data Point
- Wetland Data Point
- Waterway Line
- Surveyed Areas
- PEM Wetland
- PFO Wetland
- PSS Wetland
- Top of Bank
- Ordinary High Water Mark

0 200 400 600

Feet

N

SITE LOCATION



DRAWING NO.

REFERENCE TITLE

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.
A	8/8/2019	MK	ISSUED FOR NJ WETLAND DELINEATION REPORT	1000891	CE	

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
FIELD DELINEATED WOTUS FEATURES
RARITAN BAY LOOP, MADISON LOOP AND COMPRESSOR STATION 206
NORTHEAST SUPPLY ENHANCEMENT PROJECT (NESE)
NEW JERSEY

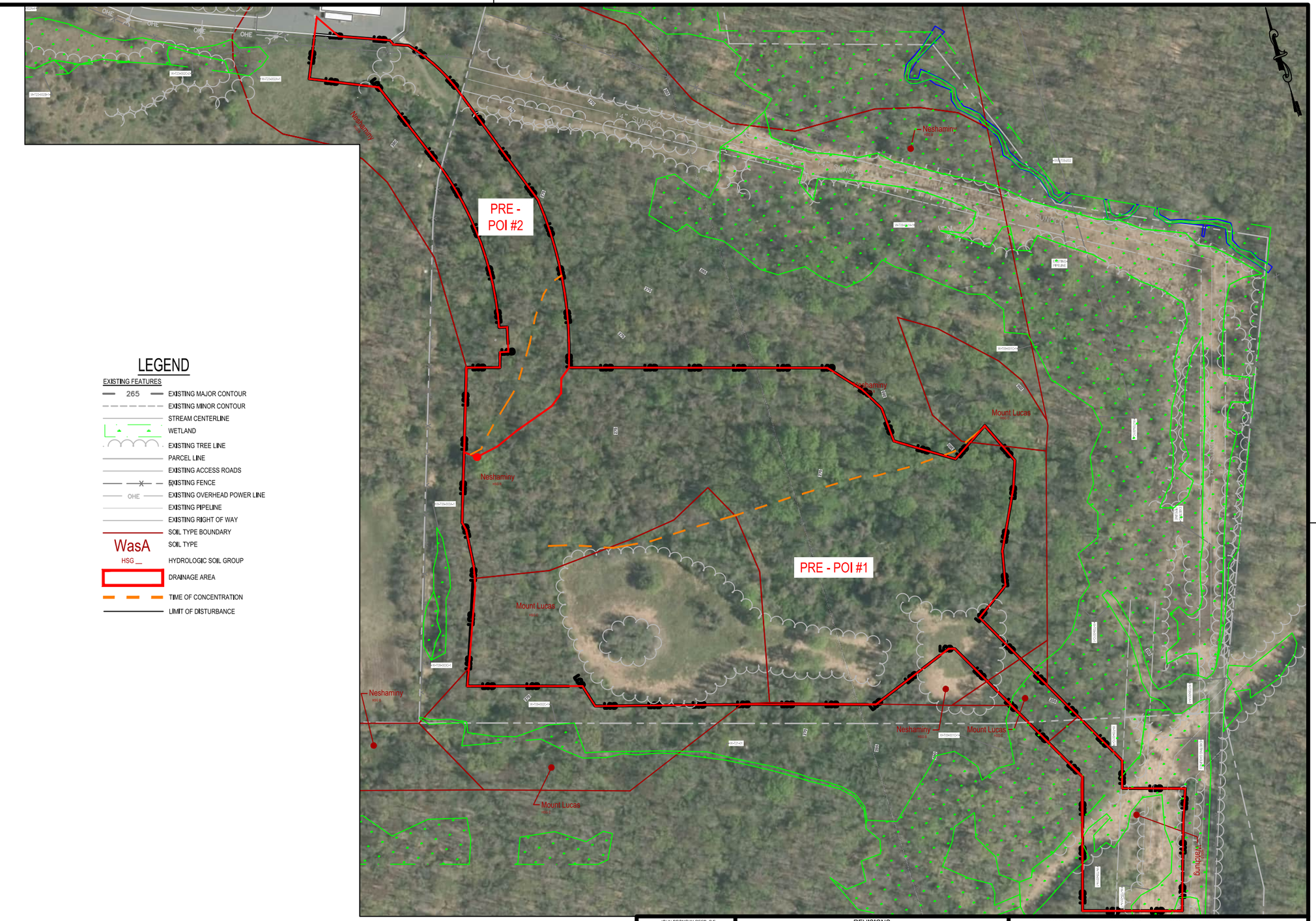
Williams

DRAWN BY: MK	DATE: 8/8/2019	ISSUE FOR BID: N/A	SCALE:
CHECKED BY: CE	DATE: 8/8/2019	ISSUE FOR CONSTRUCTION: N/A	Project features ver23
APPROVED BY:	DATE:	DRAWING NUMBER:	FIGURE 2
WO: 1000891	FIELD DATA: 8/8/2019 2:36 PM 8/8/2019		SHEET 14 of 14

Data Sources: Williams 2017; E&E 2017; ESRI 2012; SSURGO 2016; U.S. Fish and Wildlife Service, 2012.

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FIGURE 3
DRAINAGE AREA PLANS



LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE
- HSG __ — HYDROLOGIC SOIL GROUP
- DRAINAGE AREA
- TIME OF CONCENTRATION
- LIMIT OF DISTURBANCE

NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
WATCHUNG

50' 25' 0' 50'
SCALE: 1"= 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

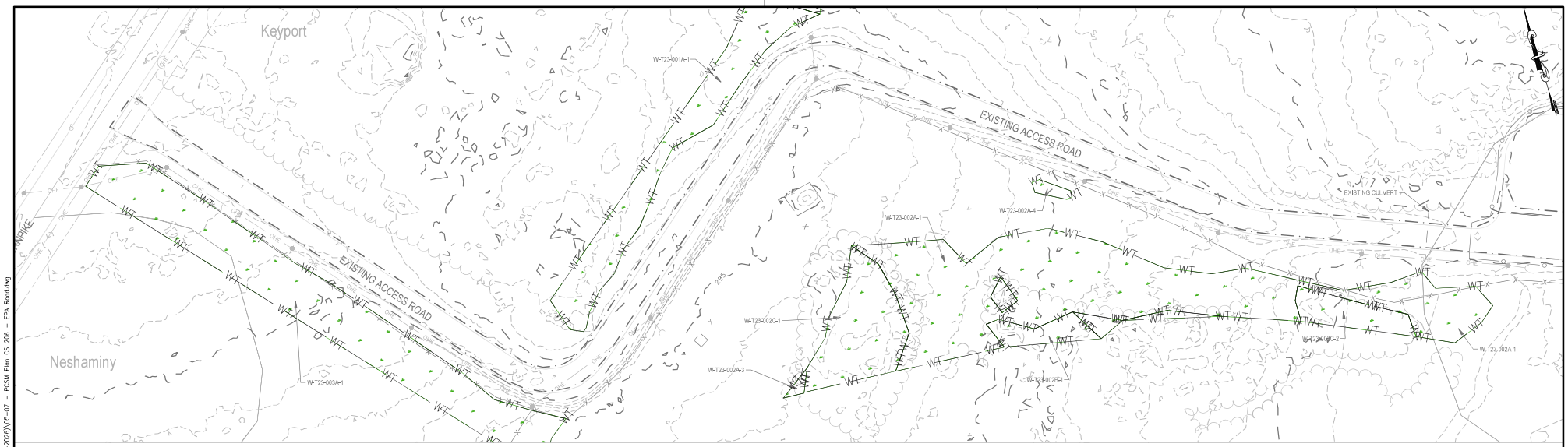
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1	02/28/2020	PPH	NJDEP SUBMISSION	1185732	TPF	KDM
2	06/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60757472	AV	JDR

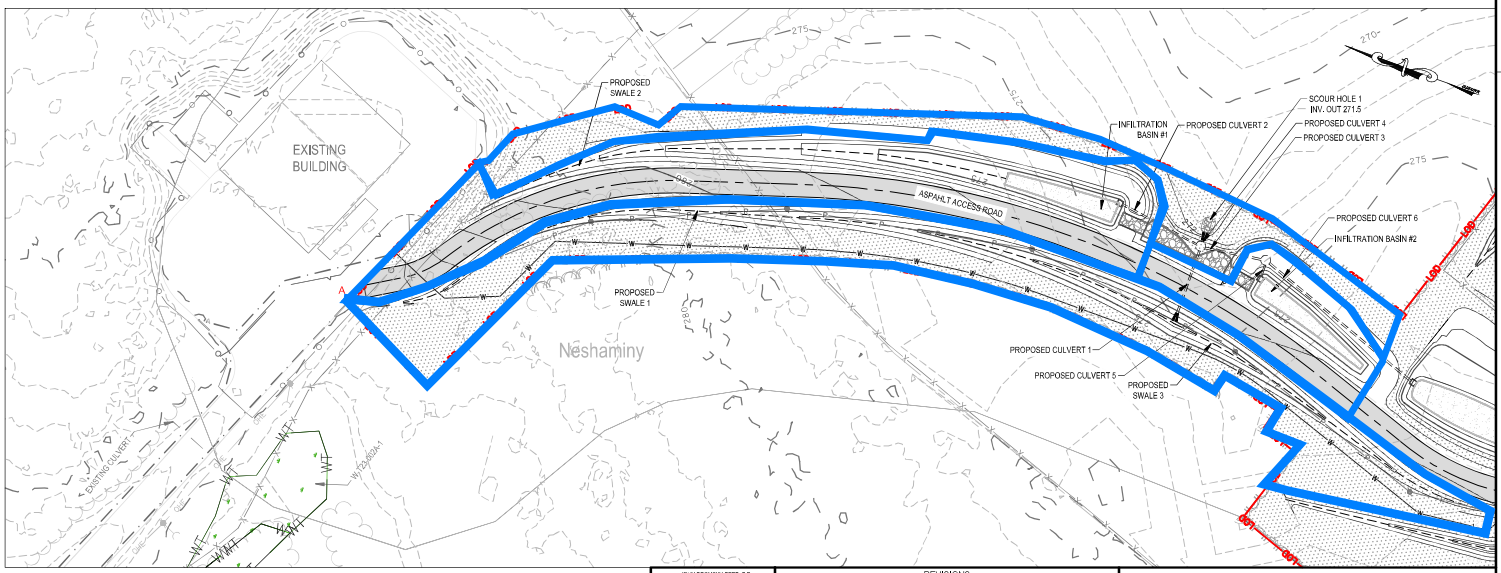
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
DRAINAGE AREA MAP (EXISTING CONDITIONS)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=100'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 1
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 1 OF 12
WO: 1185732			

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Drawing Location & Name: C:\Users\vleroa\OneDrive - AECOM\Desktop\CS206\CAD\01-DA Plans-Existing_CS 206 - EPA Road.dwg





LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- 265 — EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- WasA — SOIL TYPE BOUNDARY
- SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- GAS — PROPOSED PIPELINE
- CULVERT
- RIP RAP APRON
- PROPOSED FENCE
- PROPOSED TREE LINE
- PROPOSED GRAVEL
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- RIPRAP SLOPE PROTECTION
- PROPOSED BRUSH SEED MIX
- GRASS SEED MIX
- TP-8 — SOIL TEST LOCATION
- EROSION CONTROL BLANKET

NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
WATCHUNG

50' 25' 0' 50'
SCALE: 1" = 50'

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CONSHOHOCKEN, PA 19428
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JOHN DROMSKY-REED, P.E.
NEW JERSEY
PROFESSIONAL ENGINEER NO.24GE04512400

REVISIONS

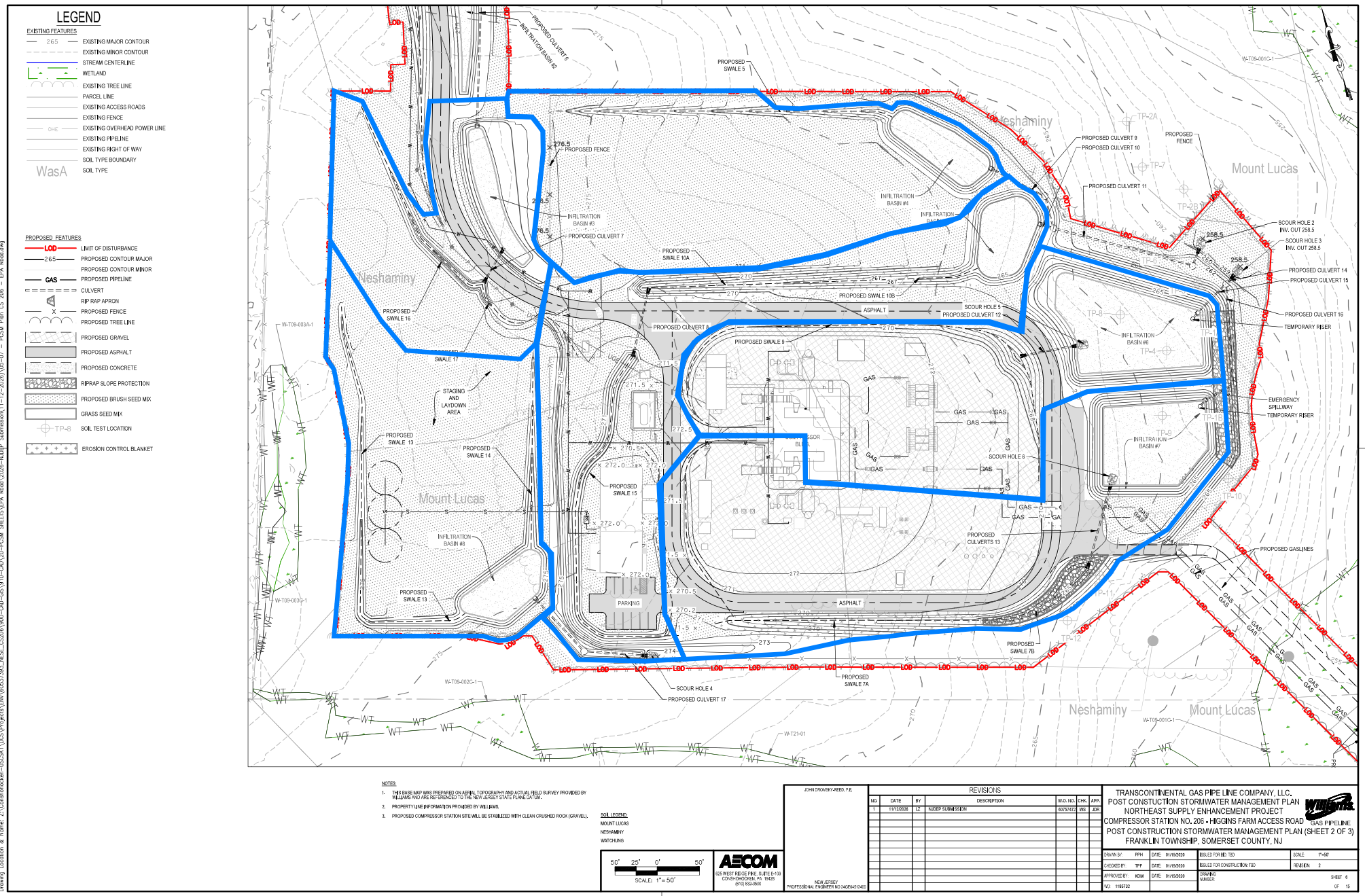
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

WILLIAMS GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 5 OF 15
WO: 11857732			

Drawn By & Date/Time: eve.tuckwicz Nov 10, 2026 - 11:19am
Drawing Location & Name: Z:\Construction-ESCM\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission\(11-12-2026)\05-07 - PCSM Plan CS 206 - EPA Road.dwg



NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
WATCHUNG

50' 25' 0' 50'
SCALE: 1" = 50'

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JOHN DROMSKY-REED, P.E.
NEW JERSEY
PROFESSIONAL ENGINEER NO.24GE04512400

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 2 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

WILLIAMS GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 6 OF 15
WD 1185732			

Drawn By & Date/Time: eve.lucevicz Nov 10, 2026 - 11:21am
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APPENDIX A
SOIL REPORTS

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Somerset County, New Jersey

CS 206 - EPA Road



June 18, 2025

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface..... 2
How Soil Surveys Are Made.....5
Soil Map..... 8
Soil Map.....9
Legend.....10
Map Unit Legend..... 11
Map Unit Descriptions.....11
Somerset County, New Jersey.....13
EkbA—Elkton silt loam, 0 to 2 percent slopes.....13
KepA—Keyport silt loam, 0 to 2 percent slopes.....14
KepB—Keyport silt loam, 2 to 5 percent slopes.....16
NehB—Neshaminy silt loam, 2 to 6 percent slopes..... 18
NemCb—Neshaminy-Mount Lucas silt loams, 6 to 12 percent slopes, very stony.....19
References.....22

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

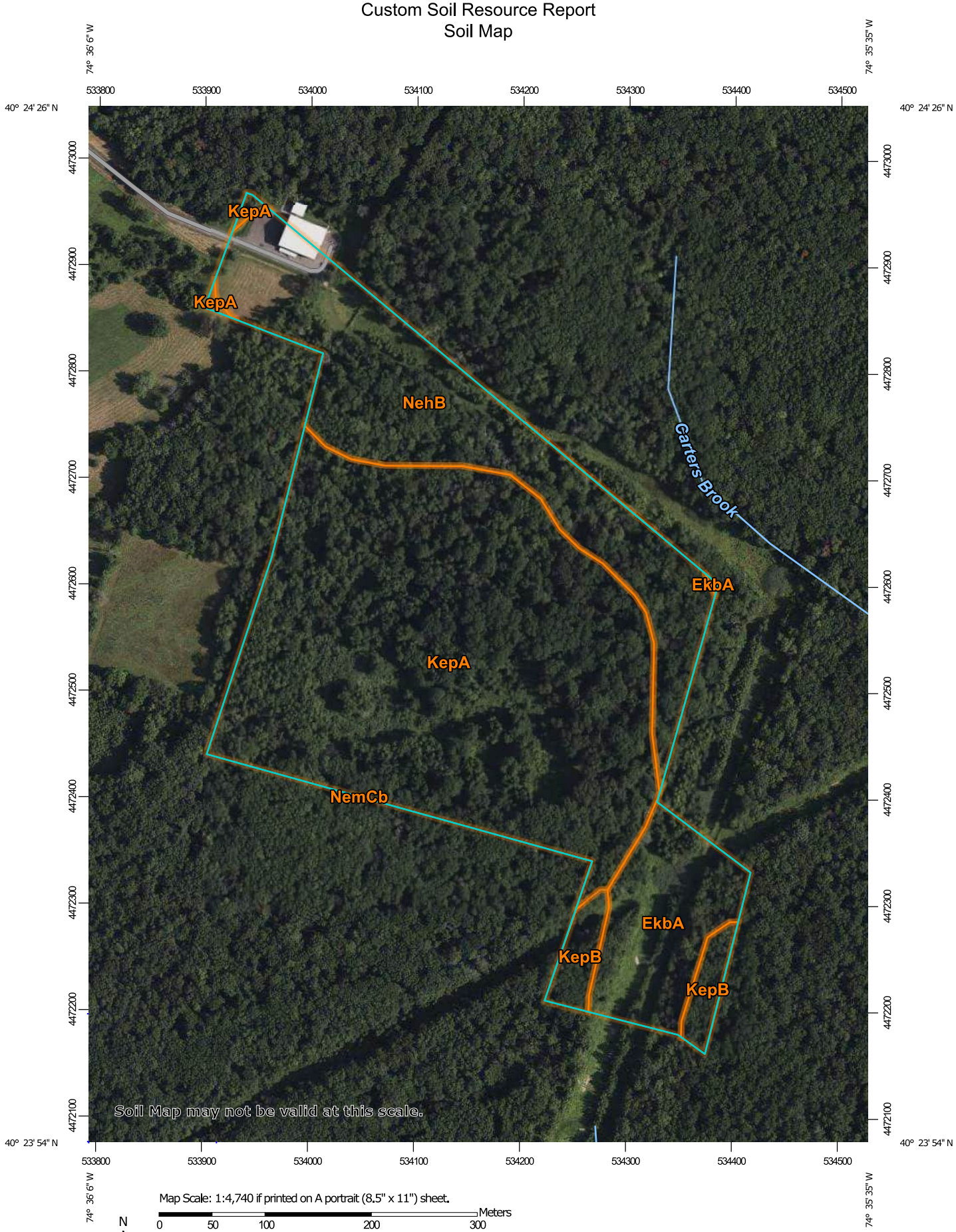
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:4,740 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

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 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Somerset County, New Jersey
Survey Area Data: Version 22, Sep 4, 2024

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

Date(s) aerial images were photographed: Mar 13, 2021—Sep 14, 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
EkbA	Elkton silt loam, 0 to 2 percent slopes	4.8	10.0%
KepA	Keyport silt loam, 0 to 2 percent slopes	29.3	60.9%
KepB	Keyport silt loam, 2 to 5 percent slopes	1.7	3.4%
NehB	Neshaminy silt loam, 2 to 6 percent slopes	12.4	25.7%
NemCb	Neshaminy-Mount Lucas silt loams, 6 to 12 percent slopes, very stony	0.0	0.0%
Totals for Area of Interest		**48.2**	**100.0%**

Map Unit Descriptions

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

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

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

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Somerset County, New Jersey

EkbA—Elkton silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: ldqq
Elevation: 0 to 200 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Farmland of statewide importance, if drained

Map Unit Composition

Elkton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkton

Setting

Landform: Marine terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over loamy alluvium and/or loamy marine deposits

Typical profile

Ap - 0 to 6 inches: silt loam
BAg - 6 to 10 inches: silty clay
Btg - 10 to 25 inches: clay
Cg - 25 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Minor Components

Woodstown

Percent of map unit: 5 percent
Landform: Drainageways, flats

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Fallsington

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Keyport

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F149AY120MD - Moist Clayey Upland
Hydric soil rating: No

KepA—Keyport silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: ldqs
Elevation: 0 to 1,100 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Keyport and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keyport

Setting

Landform: Knolls
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear

Parent material: Silty and clayey eolian deposits and/or silty and clayey fluviomarine deposits

Typical profile

A1 - 0 to 2 inches: silt loam
A2 - 2 to 8 inches: silt loam
BA - 8 to 14 inches: silt loam
Bt1 - 14 to 20 inches: clay loam
Bt2 - 20 to 46 inches: clay loam
C - 46 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Ecological site: F149AY120MD - Moist Clayey Upland
Hydric soil rating: No

Minor Components

Neshaminy

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak - Hickory - Conifer Forest
Hydric soil rating: No

Mount lucas

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak - Hickory - Conifer Forest
Hydric soil rating: No

Penn

Percent of map unit: 5 percent
Landform: Hills

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F148XY022PA - Dry, Triassic, Upland, Mixed Oak Heath / Oak-Pine Woodland
Hydric soil rating: No

Elkton

Percent of map unit: 5 percent
Landform: Marine terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

KepB—Keyport silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: ldqt
Elevation: 0 to 1,100 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Keyport and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keyport

Setting

Landform: Knolls
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty and clayey eolian deposits and/or silty and clayey fluviomarine deposits

Typical profile

A1 - 0 to 2 inches: silt loam
A2 - 2 to 8 inches: silt loam
BA - 8 to 14 inches: silt loam
Bt1 - 14 to 20 inches: clay loam
Bt2 - 20 to 46 inches: clay loam
C - 46 to 60 inches: clay loam

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Neshaminy

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Mount lucas

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

Penn

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Elkton

Percent of map unit: 5 percent
Landform: Flood plains, marine terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

NehB—Neshaminy silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 1j525
Elevation: 80 to 2,000 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Neshaminy and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Neshaminy

Setting

Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Dark colored basic rocks or loamy residuum weathered from diabase

Typical profile

A1 - 0 to 4 inches: silt loam
A2 - 4 to 10 inches: silt loam
BA - 10 to 14 inches: gravelly silt loam
Bt1 - 14 to 22 inches: gravelly silt loam
Bt2 - 22 to 46 inches: gravelly clay loam
C - 46 to 80 inches: cobbly loam
R - 80 to 90 inches: weathered bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 48 to 80 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak - Hickory - Conifer Forest
Hydric soil rating: No

Minor Components

Legore
Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mount lucas
Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Lawrenceville
Percent of map unit: 5 percent
Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

NemCb—Neshaminy-Mount Lucas silt loams, 6 to 12 percent slopes, very stony

Map Unit Setting
National map unit symbol: 1j52b
Elevation: 80 to 2,000 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition
Neshaminy, very stony, and similar soils: 55 percent
Mount lucas, very stony, and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Neshaminy, Very Stony

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Dark colored basic rocks or loamy residuum weathered from diabase

Typical profile

A1 - 0 to 4 inches: silt loam
A2 - 4 to 10 inches: silt loam
BA - 10 to 14 inches: gravelly silt loam
Bt1 - 14 to 22 inches: gravelly silt loam
Bt2 - 22 to 46 inches: gravelly clay loam
C - 46 to 80 inches: cobbly loam
R - 80 to 90 inches: weathered bedrock

Properties and qualities

Slope: 6 to 12 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 48 to 80 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak - Hickory - Conifer Forest
Hydric soil rating: No

Description of Mount Lucas, Very Stony

Setting

Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Dark colored basic rocks or loamy residuum weathered from diabase

Typical profile

A - 0 to 8 inches: silt loam
BA - 8 to 14 inches: silt loam
Bt - 14 to 35 inches: silt loam

C - 35 to 56 inches: cobbly loam
R - 56 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 6 to 12 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 48 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 6 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak - Hickory - Conifer Forest
Hydric soil rating: No

Minor Components

Legore

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Lawrenceville

Percent of map unit: 5 percent
Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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Soil Re-Classification Report for Compressor Station No. 206

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SOMERSET COUNTY, NEW JERSEY

June, 2019

Prepared for:

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Contents

INTRODUCTION 3
PROJECT AND SITE DESCRIPTION 3
NATURAL FEATURES INVENTORY 3
Topography : 3
Geology: 3
Watersheds: 3
Soils: 4
Historic Land Use: 4
INVESTIGATION 4
TEST RESULTS 4
Table 1. Soil Testing Results Table 5
HYDROLOGIC SOIL GROUP 6
Table 2. Soil Classification compared to Web Soil Survey Mapping 7
SUMMARY 8

Appendices

SOIL TEST LOCATION MAP

SOIL PROFILE DESCRIPTIONS

REPRESENTATIVE SOIL PROFILE PHOTOGRAPHS

INTRODUCTION

A Soil Investigation was completed at the location of proposed Compressor Station 206 (CS 206) to reclassify the soils at this site. Value Engineering, Inc. was retained by AECOM to complete this Soil Investigation.

The scope of the investigation included the following tasks:

- Soil morphological evaluations
- Soil re-classification and adjustment of map
- Soil profile photographs of representative soil profiles

PROJECT AND SITE DESCRIPTION

CS 206 is an approximately 25-acre tract of land in Franklin Township, Somerset County, NJ. As part of the land development process for this station, stormwater design plans were submitted to the New Jersey Department of Environmental Project (NJDEP) for their review. NJDEP provided the following comment:

.....Appendix E of the NJ BMP Manual provides two different solutions for situations where the HSG is unknown or inaccurate if the discrepancy cannot be resolved. One option is to perform additional soil testing. Appendix E requires at least one soil profile pit and four soil borings for the first two acres and one additional soil profile pit and two additional soil borings for each additional 2 acres. The area-in-question is approximately 25 acres; therefore, the applicant would be required to conduct 13 soil profile pits and 28 soil borings. It is my understanding that some of this soil data collection has already been accomplished. The explorations should be located generally equidistant from each other and the boundaries of the mapping unit to maximize the ability to interpolate between test locations so as to provide adequate characterization of the mapping unit's soil. In areas where a soil profile pit would substantially disturb the existing area and create an undesirable condition or where significant environmental disturbance will occur in an area that is not intended for future development, two soil borings may be conducted in the place of a required soil profile pit with a soil profile pit located at the closest available location representative of the soil boring locations....

The purpose of this investigation is to complete a re-classification of the soils in accordance with the policies and procedures set forth by the NJDEP.

NATURAL FEATURES INVENTORY

Topography :

According to Google Earth, the elevations at this project site range from 372 to 278 ft asl, sloping to both the East and West.

Geology:

The site is underlain primarily by the Jurassic Diabase Formation (Jd), which consists of this medium to coarse grained igneous rock.

Watersheds:

The project site lies within the Millstone River watershed. According to NJDEP, Millstone River is classified as FW2-NT (Fresh Water non-trout streams).

Soils:

According to the USDA-NRCS Web Soil Survey, the soils in this area are mapped primarily as Elkton (EkbA); Keyport (KepA, KepB); Mount Lucas (MopCb); Neshaminy (NemCb), and Watchung (WasA) series. A brief description of each series is given below:

Elkton – Very deep, poorly drained soils that formed in wind-blown silt (loess) overlying Coastal Plain sediments.

Keyport – Very deep, moderately well drained soils that formed in Coastal Plain sediments that had a high clay content.

Mount Lucas – Very deep, moderately well and somewhat poorly drained soils that formed in material weathered from diabase.

Neshaminy – Very deep, well drained soils that formed in material weathered from diabase.

Watchung – Very deep, poorly drained soils that formed in material weathered from diabase.

So, in consideration of the USDA-NRCS Web Soil Survey, there are bands of Coastal Plain sediments overlying the soils that formed from the residual diabase bedrock.

Historic Land Use:

The site primarily consists of woodlands; however, there is evidence of past agricultural practices, prior to the opening of the adjacent quarry.

INVESTIGATION

A soil investigation was advanced from April 9 -11, 2019 utilizing a Case 580N Backhoe.

Twenty-four (24) test pits and twenty-seven (27) auger borings were excavated across the property. Test pits and auger borings were excavated to of 60 inches, or refusal. The soil morphology was then described by a Certified Professional Soil Scientist and Soil Classifier at each test location and the soil was classified to the series level in accordance with USDA-NRCS National Cooperative Soil Survey Standards.

TEST RESULTS

The test results are included in Table 1 below. The soils are generally well drained and would be classified as the Neshaminy series. In lower-lying areas, the soils were limited by a shallow depth to redoximorphic features (drainage mottling).

Table 1. Soil Testing Results Table

Test Pit #	Depth (in)	Depth to Redox (in)	Depth to Seepage (in)	Depth to Rock Limiting Layer (in)
3	72	--	--	--
4	72	--	--	--
5	72	--	--	--
6	60	--	--	--
7	66	--	--	--
8	71	--	--	--
9	44	--	--	44
10	49	--	--	49
11	50	--	--	50
12	60	--	--	--
13	68	--	--	--
14	72	--	--	--
15	48	--	--	48
16	72	39	--	--
17	68	--	--	--
18	48	29	--	48
19	28	24	--	28
20	70	38	--	--
21	39	24	--	39
22	72	24	--	--
23	60	22	--	--
24	60	34	--	--
25	60	--	--	--
26	60	--	--	--

Boring #	Depth (in)	Depth to Redox (in)	Depth to Seepage (in)	Depth to Rock Limiting Layer (in)
1	12	4	12	--
2	12	6	12	--
3	24	14	--	--
4	24	16	--	--
5	36	--	--	--
6	36	--	--	--
7	36	--	--	--
8	36	36	--	--
9	36	--	--	--
10	36	--	--	--
11	36	32	--	--
12	36	--	--	--
13	36	--	--	--
14	24	20	--	--
15	12	4	12	--

Boring #	Depth (in)	Depth to Redox (in)	Depth to Seepage (in)	Depth to Rock Limiting Layer (in)
16	12	0	12	--
17	24	6	--	--
18	24	8	--	--
19	12	4	--	--
20	36	24	--	--
21	36	--	--	--
22	36	--	--	--
23	36	--	--	--
24	12	4	12	--
25	36	--	--	--
26	36	6	48	--
27	36	--	--	--

It should be noted at for 51 test locations, the soils that were classified in the field only matched the Web Soil Survey at five (5) of these locations. It is not uncommon for the results of a soil investigation to be in disagreement with the soil mapping; the level of scale of the investigation of the Web Soil Survey is 1:24000, or 1 inch = 2,000 feet. The level of scale of this site-specific investigation is at a much more detailed level.

HYDROLOGIC SOIL GROUP

The Hydrologic Soil Group (HSG) is a classification of soil physical properties used to determine the potential for runoff to be generated during storm events. Most of the groupings are based on the premise that soils found within a climatic region that are similar in depth to a restrictive layer or water table, transmission rate of water, texture, structure, and degree of swelling when saturated, will have similar runoff responses. According to the USDA-NRCS, the HSG characterizes the permeability of the soils under the following conditions:

- intake and transmission of water under the conditions of maximum yearly wetness (thoroughly wet)
- soil not frozen
- bare soil surface
- maximum swelling of expansive clays

Essentially, HSG is determined by three factors:

1.) The least permeable soil layer present within the soil profile to a depth of 40 inches. If there is a hydraulically restrictive soil layer present (e.g. bedrock, fragipan), that restrictive layer will ultimately limit the amount of water that can infiltrate, contributing to stormwater runoff.
2.) The presence of a seasonal high water table (redoximorphic features or drainage mottling) also represents low permeability; these soil layers also contribute to stormwater runoff.

3.) Saturated hydraulic conductivity (Ksat) are the third factor in the classification of HSG. Interestingly, the USDA-NRCS does not measure permeability, but infers a permeability rate based on the soil morphology.

HSG of all soils are classified into four categories: A, B, C, and D. These categories represent the full range of permeability, with A soils being the most permeable and D soils being the least permeable.

At stated in the previous section, for the 51 test locations, the soils that were classified in the field only matched the Web Soil Survey at five (5) of these locations. This is due to the fact that no Coastal Plain sediments were encountered during this investigation; the soils all formed from the residual diabase bedrock. This re-classification of the soils also impacts the Hydrologic Soil Group as different soil series are assigned different HSGs. For the purposes of stormwater management and design, the soils described during this field investigation more accurately depict the soil properties for this location.

Table 2. Soil Classification compared to Web Soil Survey Mapping

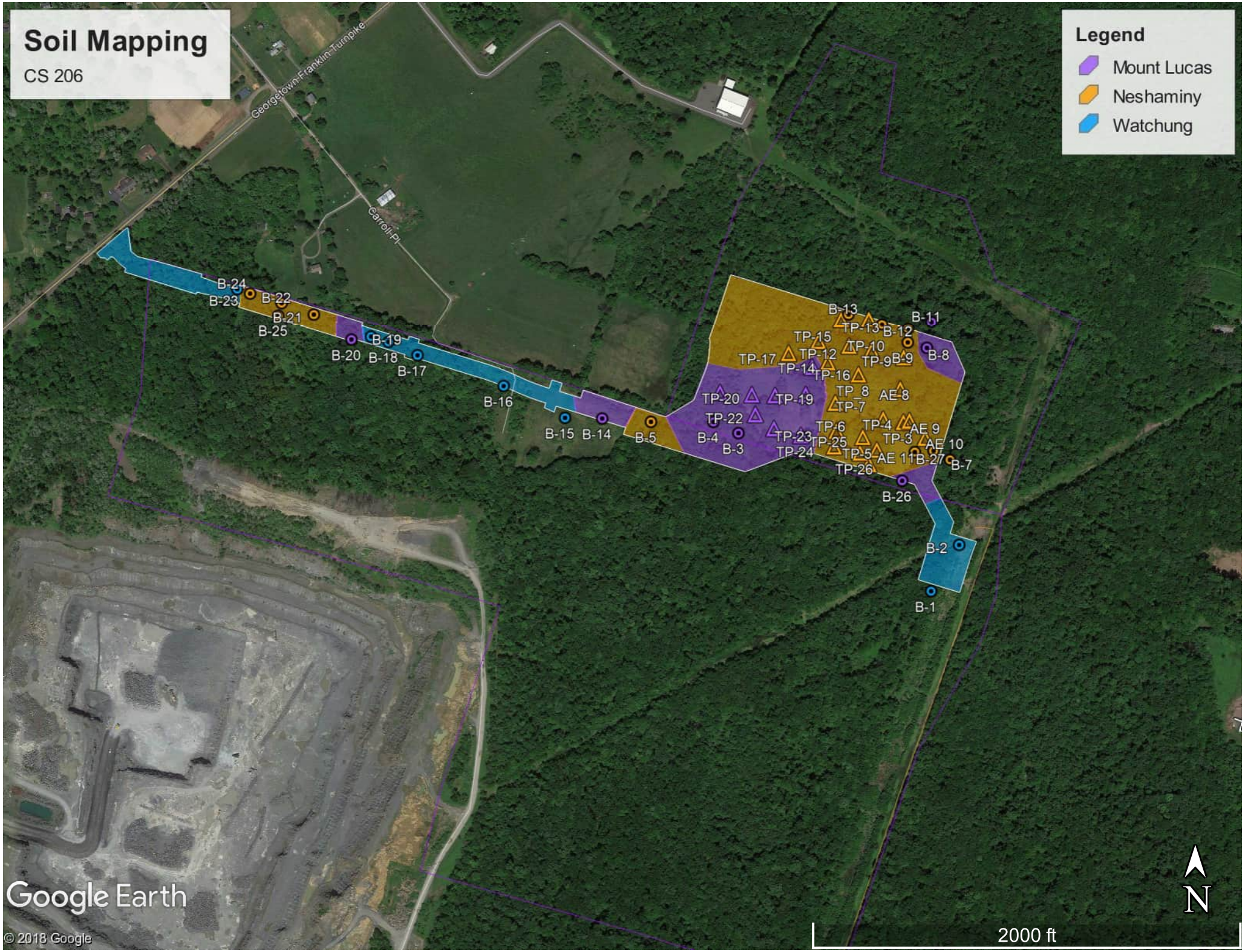
Test Pit #	Soil mapped as	Hydrologic Soil Group	Soil classified as	Hydrologic Soil Group
3	Keyport	D	Neshaminy	B
4	Keyport	D	Neshaminy	B
5	Keyport	D	Neshaminy	B
6	Keyport	D	Neshaminy	B
7	Keyport	D	Neshaminy	B
8	Keyport	D	Neshaminy	B
9	Keyport	D	Neshaminy	B
10	Keyport	D	Neshaminy	B
11	Keyport	D	Neshaminy	B
12	Keyport	D	Neshaminy	B
13	Keyport	D	Neshaminy	B
14	Keyport	D	Neshaminy	B
15	Keyport	D	Neshaminy	B
16	Keyport	D	Mount Lucas	C
17	Keyport	D	Neshaminy	B
18	Keyport	D	Mount Lucas	C
19	Keyport	D	Mount Lucas	C
20	Keyport	D	Mount Lucas	C
21	Keyport	D	Mount Lucas	C
22	Keyport	D	Mount Lucas	C
23	Keyport	D	Mount Lucas	C
24	Keyport	D	Mount Lucas	C
25	Keyport	D	Neshaminy	B
26	Keyport	D	Neshaminy	B

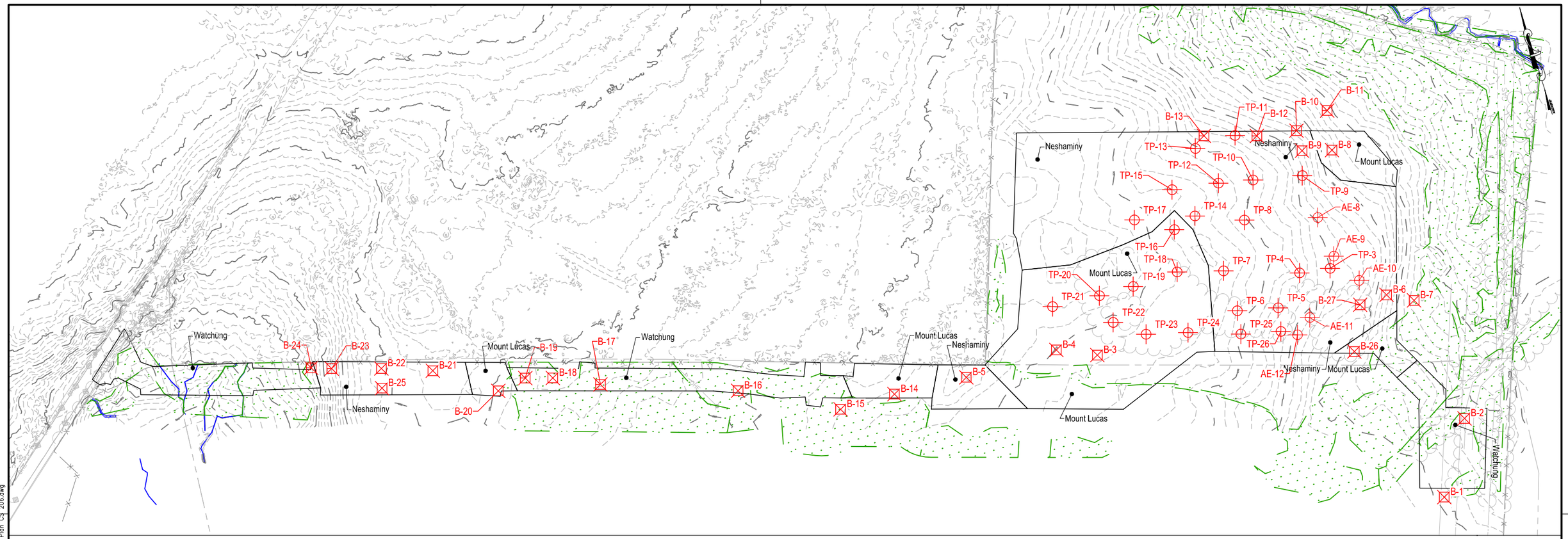
Boring #	Soil mapped as	Hydrologic Soil Group	Soil classified as	Hydrologic Soil Group
1	Elkton	D	Watchung	D
2	Elkton	D	Watchung	D
3	Keyport	D	Mount Lucas	C
4	Keyport	D	Mount Lucas	C
5	Keyport	D	Neshaminy	B
6	Keyport	D	Neshaminy	B
7	Keyport	D	Neshaminy	B
8	Keyport	D	Mount Lucas	C
9	Keyport	D	Neshaminy	B
10	Keyport	D	Neshaminy	B
11	Keyport	D	Mount Lucas	C
12	Keyport	D	Neshaminy	C
13	Keyport	D	Neshaminy	C
14	Mount Lucas	C	Mount Lucas	C
15	Keyport	D	Watchung	D
16	Keyport	D	Watchung	D
17	Mount Lucas	C	Mount Lucas	C
18	Mount Lucas	C	Mount Lucas	C
19	Mount Lucas	C	Watchung	D
20	Mount Lucas	C	Mount Lucas	C
21	Mount Lucas	C	Neshaminy	B
22	Mount Lucas	C	Neshaminy	B
23	Mount Lucas	C	Neshaminy	B
24	Watchung	D	Watchung	D
25	Mount Lucas	C	Neshaminy	B
26	Keyport	D	Mount Lucas	C
27	Keyport	D	Neshaminy	B

SUMMARY

A Soil Investigation was advanced to re-classify the soils on the property. Twenty-four test pits and twenty-seven auger borings were advanced where the soils were described and classified. The soils are generally very deep and well drained and would be classified as the Neshaminy series. In lower lying areas, the soils are limited by the depths to a seasonal high water table, redoximorphic features (drainage mottling. In re-classifying the soils, in only five of the fifty-one test locations did the soil classification match was shown in the Web Soil Survey.

SOIL TEST LOCATION MAP


Soil Mapping
CS 206
Legend
Mount Lucas
Neshaminy
Watchung
Georgetown-Franklin Turnpike
Carroll Pl
B-24
B-23
B-22
B-21
B-25
B-20
B-19
B-18
B-17
B-16
B-15
B-14
B-5
B-4
B-3
B-13
B-11
TP-13
B-12
TP-15
TP-10
TP-17
TP-12
TP-9
B-9
B-8
TP-14
TP-16
TP-8
AE-8
TP-20
TP-19
TP-7
TP-22
TP-6
TP-4
AE 9
TP-23
TP-25
TP-3
AE 10
TP-24
TP-5
AE 11
B-27
B-7
TP-26
B-26
B-2
B-1
Google Earth
© 2018 Google
N
2000 ft



LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE
- TP-12 — TEST PIT LOCATION
- B-8 — BORING LOCATION

TEST PIT #	SOIL CLASSIFIED AS	HYDROLOGIC SOIL GROUP
TP- 3	NESHAMINY	B
TP- 4	NESHAMINY	B
TP- 5	NESHAMINY	B
TP- 6	NESHAMINY	B
TP- 7	NESHAMINY	B
TP- 8	NESHAMINY	B
TP- 9	NESHAMINY	B
TP- 10	NESHAMINY	B
TP- 11	NESHAMINY	B
TP- 12	NESHAMINY	B
TP- 13	NESHAMINY	B
TP- 14	NESHAMINY	B
TP- 15	NESHAMINY	B
TP- 16	MOUNT LUCAS	C
TP- 17	NESHAMINY	B
TP- 18	MOUNT LUCAS	C
TP- 19	MOUNT LUCAS	C
TP- 20	MOUNT LUCAS	C
TP- 21	MOUNT LUCAS	C
TP- 22	MOUNT LUCAS	C
TP- 23	MOUNT LUCAS	C
TP- 24	MOUNT LUCAS	C
TP- 25	NESHAMINY	B
TP- 26	NESHAMINY	B

BORING #	SOIL CLASSIFIED AS	HYDROLOGIC SOIL GROUP
B- 1	WATCHUNG	D
B- 2	WATCHUNG	D
B- 3	MOUNT LUCAS	C
B- 4	MOUNT LUCAS	C
B- 5	NESHAMINY	B
B- 6	NESHAMINY	B
B- 7	NESHAMINY	B
B- 8	MOUNT LUCAS	C
B- 9	NESHAMINY	B
B- 10	NESHAMINY	B
B- 11	MOUNT LUCAS	C
B- 12	NESHAMINY	B
B- 13	NESHAMINY	B
B- 14	MOUNT LUCAS	C
B- 15	WATCHUNG	D
B- 16	WATCHUNG	D
B- 17	MOUNT LUCAS	C
B- 18	MOUNT LUCAS	C
B- 19	WATCHUNG	D
B- 20	MOUNT LUCAS	C
B- 21	NESHAMINY	B
B- 22	NESHAMINY	B
B- 23	NESHAMINY	B
B- 24	WATCHUNG	D
B- 25	NESHAMINY	B
B- 26	MOUNT LUCAS	C
B- 27	NESHAMINY	B

NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. HYDROLOGIC SOIL GROUP TEST PIT AND BORING LOCATIONS PERFORMED AND PROVIDED BY VALUE ENGINEERING PER THE REPORT ENTITLED "SOIL RE-CLASSIFICATION REPORT FOR COMPRESSOR STATION NO. 206" DATED JUNE 2019.

150' 75' 0' 150'
SCALE: 1"= 150'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	07/30/2019	PPH	ISSUED PER NJDEP COMMENT	0000000		

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
NORTHEAST SUPLPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206
SOIL RE-CLASSIFICATION TEST PIT AND BORING PLAN
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 07/30/2019	ISSUED FOR BID: TBD	SCALE: 1"=150'
CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION: TBD	REVISION: 0
APPROVED BY:	DATE:	DRAWING NUMBER:	SHEET 2 OF 1
WO: 0000000			

Drawn By & Date/Time: haasp Jul 30, 2019 - 1:10pm
Drawing Location & Name: S:\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\10-REFERENCE\Soil Testing\04-2019\HSG Test Pit Location Plan CS 206.dwg

SOIL PROFILE DESCRIPTIONS

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 3

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	10-20	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	20-36	7.5YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
Bt3	36-48	5YR 5/8	silt loam			2	m	sbk	friable				abrupt/wavy
C	48-72	10YR 4/4	sandy loam	gravels	20	0		m	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 4

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-12	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	12-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	24-46	7.5YR 5/6	silt loam	gravels	10	2	m	sbk	friable				abrupt/wavy
C	46-72	10YR 4/4	silt loam	gravels	20	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 5

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap1	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Ap2	4-13	10YR 4/3	silt loam			2	m	pl	friable				abrupt/smooth
Bt1	13-28	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	28-42	7.5YR 5/6	loam	gravels	10	2	m	sbk	friable				clear/wavy
C	42-72	7.5YR 3/4	sandy loam	gravels	20	0		m	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 6

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	10-29	10YR 4/3	silt loam			2	m	sbk	friable				abrupt/wavy
C	29-60	10YR 4/4	sandy loam	gravels	25	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 7

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-13	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	13-32	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	32-47	7.5YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
C	47-66	10YR 4/4	silt loam	gravels	30	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 8

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-12	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	12-26	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	26-43	7.5YR 5/6	loam	gravels	10	2	m	sbk	friable				abrupt/wavy
C	43-71	10YR 4/4	silt loam	gravels	30	0		rcf	friable				

Legend

Structure

Grade	*Size*	
0-Structureless	vf-very fine	abk-angular blocky rcf-rock controlled fabric
1-Weak	f-fine	gr-granular
2-Moderate	m-medium	m-massiv sbk-subangular blocky
3-Strong	co-coarse	pl-platy sg-single-grained
	vc-very coarse	pr-prismatic

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 9

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB) - deep variant

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: 44"

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-7	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	7-25	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	25-32	7.5YR 5/6	loam	gravels	20	2	m	sbk	friable				abrupt/wavy
C	32-44	10YR 4/4	silt loam	gravels	15	0		rcf	friable				abrupt/wavy
R	44+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 10

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB) deep variant

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: 49"

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-13	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	13-27	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
C1	27-40	10YR 4/4	sandy loam	gravels	20	0		rcf	friable				abrupt/wavy
C2	40-49	7.5YR 5/8	sandy loam	gravels	5	0		rcf	friable				
R	49+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 11

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB) deep variant

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: 50"

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	00-6-13	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	6-20	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
C1	20-25	7.5YR 5/6	loam	gravels	10	1	m	sbk	friable				abrupt/wavy
C2	25-50	10YR 3/3	sandy loam	gravels	30	0		rcf	friable				
R	50+												

Legend

Structure

Grade	*Size*	
0-Structureless	vf-very fine	abk-angular blocky rcf-rock controlled fabric
1-Weak	f-fine	gr-granular
2-Moderate	m-medium	m-massiv sbk-subangular blocky
3-Strong	co-coarse	pl-platy sg-single-grained
	vc-very coarse	pr-prismatic

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 12

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1/A	8-22	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	22-34	7.5YR 5/6	loam			2	m	sbk	friable				abrupt/wavy
C	34-60	10YR 4/3	sandy loam	gravels	20	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 13

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	10-29	7.5YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
BC	29-38	10YR 4/4	sandy loam	gravels	15	1	m	sbk	friable				clear/wavy
C	38-68	10YR 4/6	sandy loam			0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 14

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	10-32	7.5YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
C1	32-48	10YR 6/4	sandy loam	gravels	5	0		rcf	friable				clear/wavy
C2	48-72	10YR 4/6	sandy loam			0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 15

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB) deep variant

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: 48"

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	10-32	7.5YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
C	32-48	2.5Y 4/4	sandy loam	gravels	20	0		rcf	friable				abrupt/wavy
R	48+												

Legend

Structure

15

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 16

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: 39"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-12	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1/A	12-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	24-39	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt3	39-72	10YR 5/6	silt loam			2	m	sbk	friable-firm	common	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 17

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: –

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-12	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1/A	12-18	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	18-34	7.5YR 5/6	loam			2	m	sbk	friable				clear/wavy
C1	34-44	10YR 4/4	loam			0		rcf	friable				clear/wavy
C2	44-68	10YR 4/4	sandy loam	gravels	10	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 18

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: 48"

Depth to Redoximorphic Features: 29"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	8-29	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	29-34	7.5YR 5/6	clay loam			2	m	sbk	friable	common	medium	distinct	abrupt/wavy
C	34-48	2.5Y 3/2	sandy loam	gravels	20	0		rcf	friable				abrupt/wavy
R	48+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 19

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: 28"

Depth to Redoximorphic Features: 24"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	8-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
C	24-28	10YR 4/4	loam			0		rcf	friable	common	medium	distinct	abrupt/wavy
R	28+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 20

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 38"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-12	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	12-30	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	30-38	7.5YR 5/6	loam			2	m	sbk	friable				clear/wavy
BC	38-70	7.5YR 4/6	loam			1	m	sbk	friable	common	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 21

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: 39"

Depth to Redoximorphic Features: 24"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	10-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BC	24-39	7.5YR 5/4	loam	gravels	20	1	m	sbk	friable	common	medium	faint	abrupt/wavy
R	39+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 22

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 24"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-9	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1/A	9-15	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	15-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt3	24-40	7.5YR 5/6	silty clay loam			2	m	sbk	firm	common	medium	prominent	clear/wavy
BC	40-72	7.5YR 5/4	loam			1	m	sbk	friable	common	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 23

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 22"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-9	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	9-22	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	22-34	7.5YR 5/4	silty clay loam			2	m	sbk	firm	common	medium	prominent	clear/wavy
BC	34-60	10YR 5/4	silt loam			1	m	sbk	friable	common	medium	prominent	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 24

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 34"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-12	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	12-34	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	34-42	7.5YR 5/4	silt loam			2	m	sbk	firm	common	medium	distinct	clear/wavy
BC	42-60	7.5YR 5/4	loam			1	m	sbk	friable	common	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 25

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-12	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	12-24	10YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	24-36	7.5YR 5/4	loam			2	m	sbk	friable				clear/wavy
BC	36-60	7.5YR 5/4	sandy loam	gravels	2	1	m	sbk	friable-firm				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 26

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt	10-20	10YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
BC	20-60	7.5YR 4/4	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/10/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 1

Soil mapped: Elkton (EkbA)

Soil classified: Watchung (WasA)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 4"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Btg	4-12	10YR 6/2	silt loam			2	m	sbk	friable	common	medium	prominent	
Water	12+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/10/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 2

Soil mapped: Elkton (EkbA)

Soil classified: Watchung (WasA)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 6"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Btg	6-12	10YR 6/2	silt loam			2	m	sbk	friable	common	medium	prominent	
Water	12+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/10/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 3

Soil mapped: Keyport (KepA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 14"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	8-14	7.5YR 5/4	silt loam			2	m	sbk	friable				clear/wavy
Bt2	14-24	7.5YR 5/3	silt loam			2	m	sbk	friable	many	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/10/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 4

Soil mapped: Keyport (KepA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 16"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	8-16	7.5YR 5/4	silt loam			2	m	sbk	friable				clear/wavy
Bt2	16-24	7.5YR 5/3	silt loam			2	m	sbk	friable	many	medium	distinct	

Legend

Structure

Grade	*Size*	
0-Structureless	vf-very fine	abk-angular blocky rcf-rock controlled fabric
1-Weak	f-fine	gr-granular
2-Moderate	m-medium	m-massiv sbk-subangular blocky
3-Strong	co-coarse	pl-platy sg-single-grained
	vc-very coarse	pr-prismatic

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 5

Soil mapped: Keyport (KepA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	4-28	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BCt	28-36	7.5YR 5/6	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade

0-Structureless
1-Weak
2-Moderate
3-Strong

Size

vf-very fine
f-fine
m-medium
co-coarse
vc-very coarse

abk-angular blocky
gr-granular
m-massiv
sbk-subangular blocky
pl-platy
sg-single-grained
pr-prismatic
rcf-rock controlled fabric

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 6

Soil mapped: Keyport (KepA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	4-20	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BCt	20-36	7.5YR 5/6	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 7

Soil mapped: Keyport (KepA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	4-20	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BCt	20-36	7.5YR 5/6	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade

0-Structureless
1-Weak
2-Moderate
3-Strong

Size

vf-very fine
f-fine
m-medium
co-coarse
vc-very coarse

abk-angular blocky
gr-granular
m-massiv
sbk-subangular blocky
pl-platy
sg-single-grained
pr-prismatic
rcf-rock controlled fabric

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/10/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 8

Soil mapped: Keyport (KepA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 36"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	8-16	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	16-36	7.5YR 5/6	silt loam			2	m	sbk	friable				
	36+									common	medium	faint	

Redox depletions at 36"

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 9

Soil mapped: Keyport (KepA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	4-20	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BCt	20-36	7.5YR 5/6	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 10

Soil mapped: Keyport (KepA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	4-16	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BCt	16-30	7.5YR 5/6	sandy loam	gravels	30	1	m	sbk	friable				clear/wavy
C	30-36	7.5YR 5/8	sandy loam			0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/10/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 11

Soil mapped: Keyport (KepA)

Soil classified: Mount Lucas (MopCb) variant

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Fragiudalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 32"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	6-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	24-32	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt3	32-36	7.5YR 5/4	loam			1	m	sbk	friable	common	medium	distinct	

Evidence of a fragipan forming at 36 inches.

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 12

Soil mapped: Keyport (KepA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	4-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BCt	24-30	7.5YR 5/6	sandy loam	gravels	30	1	m	sbk	friable				clear/wavy
C	30-36	7.5YR 5/8	sandy loam	gravels	20	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 13

Soil mapped: Keyport (KepA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	4-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
BCt	24-30	7.5YR 5/6	sandy loam	gravels	30	1	m	sbk	friable				clear/wavy
C	30-36	7.5YR 5/8	sandy loam	gravels	20	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 14

Soil mapped: Mount Lucas (MopCb)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 20"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	6-20	7.5YR 5/4	silt loam			2	m	sbk	friable				clear/wavy
Bt2	20-24	7.5YR 5/3	silt loam			2	m	sbk	friable	common	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 15

Soil mapped: Keyport (KepA)

Soil classified: Watchung (WasA)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 4"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Btg	4-12	10YR 6/2	silt loam			2	m	sbk	friable	common	medium	prominent	
Water	12+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 16

Soil mapped: Keyport (KepA)

Soil classified: Watchung (WasA)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 0"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable	common	medium	distinct	abrupt/wavy
Btg	4-12	10YR 6/2	silt loam			2	m	sbk	friable	common	medium	prominent	
Water	12+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 17

Soil mapped: Mount Lucas (MopCb)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: 6"

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	6-15	7.5YR 5/4	silt loam			2	m	sbk	friable	common	medium	distinct	clear/wavy
Bt2	15-24	7.5YR 5/3	silt loam			2	m	sbk	friable	many	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 18

Soil mapped: Mount Lucas (MopCb)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: 8"

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	8-14	7.5YR 5/4	silt loam			2	m	sbk	friable	common	medium	distinct	clear/wavy
Bt2	14-24	7.5YR 5/3	silt loam			2	m	sbk	friable	many	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 19

Soil mapped: Mount Lucas (MopCb)

Soil classified: Watchung (WasA)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 4"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Btg	4-12	10YR 6/2	silt loam			2	m	sbk	friable	common	medium	prominent	
Water	12+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 20

Soil mapped: Mount Lucas (MopCb)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 24"

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt1	6-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	24-36	7.5YR 5/6	loam			2	m	sbk	friable	common	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 21

Soil mapped: Mount Lucas (MopCb)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	6-28	10YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
BC	28-36	7.5YR 4/4	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 22

Soil mapped: Mount Lucas (MopCb)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-8	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	8-30	10YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
BC	30-36	7.5YR 4/4	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 23

Soil mapped: Mount Lucas (MopCb)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	6-24	10YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
BC	24-36	7.5YR 4/4	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 24

Soil mapped: Watchung (WasA)

Soil classified: Watchung (WasA)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 4"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-4	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Btg	4-12	10YR 6/2	silt loam			2	m	sbk	friable	common	medium	prominent	
Water	12+												

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 25

Soil mapped: Mount Lucas (MopCb)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: --

Depth to Seepage: --

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
A	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/wavy
Bt	6-20	10YR 5/6	silt loam			2	m	sbk	friable				abrupt/wavy
BC	20-36	7.5YR 4/4	sandy loam	gravels	30	1	m	sbk	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 26

Soil mapped: Keyport (KeA)

Soil classified: Mount Lucas (MopCb)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: —

Depth to Redoximorphic Features: 6"

Depth to Seepage: —

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap1	0-6	10YR 4/3	silt loam			2	m	gr	friable				clear/smooth
Ap2	6-12	10YR 4/2	silt loam			1	m	sbk	friable	common	medium	distinct	abrupt/smooth
Bt1	12-30	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	30-36	7.5YR 5/6	silt loam			2	m	sbk	friable	common	medium	distinct	

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: CS 206 Date: 4/11/2019

Project Location: Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Boring #: 27

Soil mapped: Keyport (KeA)

Soil classified: Neshaminy (NehB)

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock Limiting Layer: ---

Depth to Redoximorphic Features: ---

Depth to Seepage: ---

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-6	10YR 4/3	silt loam			2	m	gr	friable				abrupt/smooth
Bt1	6-24	7.5YR 5/6	silt loam			2	m	sbk	friable				clear/wavy
Bt2	24-34	7.5YR 5/6	loam	gravels	10	2	m	sbk	friable				clear/wavy
C	34-36	10YR 4/4	sandy loam	gravels	20	0		rcf	friable				

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	rcf-rock controlled fabric
1-Weak	f-fine	gr-granular	
2-Moderate	m-medium	m-massiv sbk-subangular blocky	
3-Strong	co-coarse	pl-platy sg-single-grained	
	vc-very coarse	pr-prismatic	

REPRESENTATIVE SOIL PROFILE PHOTOGRAPHS



Typical Profile of the Neshaminy Series (TP-4)



Typical Profile of the Mount Lucas series (TP-22)

APPENDIX B
SOIL TEST RESULTS

APPENDIX B.1
ORIGINAL INFILTRATION TESTING (FEBRUARY 2017)

INFILTRATION TEST RESULTS

FOR
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION 206

FRANKLIN TOWNSHIP
SOMERSET COUNTY, NEW JERSEY

APRIL 2017
Prepared for:

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
2800 POST OAK BOULEVARD
HOUSTON, TEXAS 77251-1396

Prepared By:

625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PENNSYLVANIA 19428

AECOM Project No. 60537393

TABLE OF CONTENTS

1. APPENDIX A – TEST LOCATION MAP
2. APPENDIX B – TEST PIT LOGS
3. APPENDIX C – TEST PIT PHOTOS
4. APPENDIX D – INFILTRATION TEST READINGS
5. APPENDIX E – INFILTRATION RATE RESULTS

APPENDIX A

TEST LOCATION MAP


Station 206
infiltration testing locations
Legend
40°24'10.0"N 74°35'50.0"W
Feature 1
United States
TP2 A - 40.403199°/-74.596222°
TP2B - 40.402934°/-74.596074°
4°35'50.0"W
TP1A 40.402520°/-74.596138°
TP-1B 40.402254°/-74.596236°
Google earth
© 2016 Google
N
200 ft

APPENDIX B

TEST PIT LOGS

PIT NUMBER: TP-1A

AECOM PROJECT NUMBER: _____

AECOM

MECHANICSBURG, PA OFFICE

SOIL EVALUATION FORM

DATE: 2/23/2017 STATE: NJ COUNTY: Somerset MUNICIPALITY: Franklin Twp

CLIENT: Williams SUBDIVISION: _____ SITE LOCATION: Station 206 proposed

MORPHOLOGIC DETERMINATION: SEWAGE STORMWATER SHWT Soils INVESTIGATOR: Randy Crispino

Horizon	Depth Upper	Depth Lower	Boundary A/C/D/G	10YR Color 3/6	Texture	% CFs	REDOX A/C	Structure	Consistence	Roots	NOTES (% clay, macro pores)
A_p	0	6"	G	~~Dk~~ Yellowish Brown	~~Silty~~ Loam	5	—	granular	vf	f/m	
B_{t1}	6"	48"	G	10yr 5/6 Yellowish Brown	Silty clayey	10	—	granular	f	f/f	
B_{t2}	48	72	Bottom of pit	10 5/6 yr Yellowish Brown	~~Sandy~~ Silty Sand	0	—	Blocky	f	—	

COMMENTS:

SOIL TYPE: Keppart Series

Limiting Zone:
Type: None
Depth:

USDA Soil Drainage Class:

___ Excessively Drained	___ Somewhat Poorly Drained
X Well Drained	___ Poorly Drained
___ Moderately Well Drained	___ Very Poorly Drained

SIGNATURES:

SOIL DESCRIPTION PREPARER:

COVER: Forest
SLOPE: Flat 0-2%
WEATHER: Cloudy

METHOD: Excavator
EXCAVATION DEPTH: 6'
LANDSCAPE POSITION: Flat

REDOX - Redoxymorphic features (Drainage Mottling) A/C - Abundance/Contrast Boundary: A-abrupt, C-clear, G-gradual, D-diffuse

Roots/Pores - f - few, c - common, m - many; f - fine, m - medium, c - coarse

100 Sterling Parkway; Suite 205
Mechanicsburg, PA 17055

www.AECOM.com

717-795-8001

BEF
PIT NUMBER: TP-13

AECOM PROJECT NUMBER: _____

AECOM

MECHANICSBURG, PA OFFICE

SOIL EVALUATION FORM

DATE: 2/23/2017 STATE: NJ COUNTY: Somerset MUNICIPALITY: Franklin Twp
CLIENT: Williams SUBDIVISION: SITE LOCATION: Station 205 proposed
MORPHOLOGIC DETERMINATION: SEWAGE STORMWATER SHWT Soils INVESTIGATOR: Randy Crispino

Horizon	Depth Upper	Depth Lower	Boundary A/C/D/G	Color	Texture	% CFs	REDOX A/C	Structure	Consistence	Roots	NOTES (% clay, macro pores)
Ap	0	8"	G	grayish Dk. Brown 10YR4/2	Loam	15%	N/A	granular	vvf	M/C	
	8"	80"	G	10YR5/6 Brownish Yell	Silty Clay Loam	10%	N/A	granular	vf	F/F	
	80"	96"	Bottom of pit	DK Yellowish lt. Brown	Sandy Silty Loam	5%	N/A	granular	vf	/	

COMMENTS:

SOIL TYPE: Keyport Series
Limiting Zone:
Type: N/A
Depth:

USDA Soil Drainage Class:

___ Excessively Drained	___ Somewhat Poorly Drained
X Well Drained	___ Poorly Drained
___ Moderately Well Drained	___ Very Poorly Drained

SIGNATURES:
SOIL DESCRIPTION PREPARER: Randy C

COVER: Leaves
SLOPE: Flat
WEATHER: Cloudy 38F

METHOD: Excavator
EXCAVATION DEPTH: 81
LANDSCAPE POSITION: ridge top

REDOX - Redoxymorphic features (Drainage Mottling) A/C - Abundance/Contrast Boundary: A-abrupt, C-clear, G-gradual, D-diffuse
Roots/Pores - f - few, c - common, m - many; f - fine, m - medium, c - coarse

100 Sterling Parkway; Suite 205
Mechanicsburg, PA 17055
www.AECOM.com
717-795-8001

PIT NUMBER: TP-2A

AECOM PROJECT NUMBER:

AECOM

MECHANICSBURG, PA OFFICE

SOIL EVALUATION FORM

DATE: 2/23/17 STATE: NJ COUNTY: Somerset MUNICIPALITY: Franklin Twp

CLIENT: William 205 SUBDIVISION: N/A SITE LOCATION: Station 205 proposed

MORPHOLOGIC DETERMINATION: SEWAGE **STORMWATER** SHWT Soils INVESTIGATOR: R. Crispino

Horizon	Depth Upper	Depth Lower	Boundary A/C/D/G	Color	Texture	% CFs	REDOX A/C	Structure	Consistence	Roots	NOTES (% clay, macro pores)
Ap	0	6	G	10YR 4/3 Brown	silty loam	5	N/f	granular	fr	m/f	
Bt1	6	48	G Bottom of Pit	10YR 5/6 Yellowish Brown	silty clay loam	10%	N/f	granular	fr	f/f	

COMMENTS:

SOIL TYPE: Keyport Series

Limiting Zone:
Type: Bedrock
Depth: 48"

USDA Soil Drainage Class:

- ___ Excessively Drained
- X Well Drained
- ___ Moderately Well Drained
- ___ Somewhat Poorly Drained
- ___ Poorly Drained
- ___ Very Poorly Drained

SIGNATURES:

SOIL DESCRIPTION PREPARER: RL

COVER: Forest
SLOPE: Flat
WEATHER: Cloudy 60

METHOD: Excavation
EXCAVATION DEPTH: 4'
LANDSCAPE POSITION: 0%

REDOX - Redoxymorphic features (Drainage Mottling) A/C - Abundance/Contrast Boundary: A-abrupt, C-clear, G-gradual, D-diffuse

Roots/Pores - f - few, c - common, m - many; f - fine, m - medium, c - coarse

PIT NUMBER: TP-2B

AECOM PROJECT NUMBER:

AECOM

MECHANICSBURG, PA OFFICE

SOIL EVALUATION FORM

DATE: 2/23/2017 STATE: NJ COUNTY: Somerset MUNICIPALITY: Franklin Twp

CLIENT: Williams SUBDIVISION: SITE LOCATION: Station 205 proposed

MORPHOLOGIC DETERMINATION: SEWAGE (STORMWATER) SHWT Soils INVESTIGATOR: R. Crispino

Horizon	Depth Upper	Depth Lower	Boundary A/C/D/G	Color	Texture	% CFs	REDOX A/C	Structure	Consistence	Roots	NOTES (% clay, macro pores)
Ap	0	8"	G	10YR 3/4 pk redness	Silty Loam	0	N/A	granular	f	m/f	
Bt1	8"	20"	Bottom	10YR 5/6 yellowish brown	Silty clay	10%	N/A	granular	vf	f/f	

COMMENTS:

SOIL TYPE: Keyport Series

Limiting Zone:
Type: Water in Excavation
Depth: 20"

USDA Soil Drainage Class:

___ Excessively Drained	___ Somewhat Poorly Drained
X Well Drained	___ Poorly Drained
___ Moderately Well Drained	___ Very Poorly Drained

SIGNATURES:

SOIL DESCRIPTION PREPARER:

COVER: Forest
SLOPE: 0%
WEATHER: Sunny @ 72°F

METHOD: Excavator
EXCAVATION DEPTH: 20"
LANDSCAPE POSITION: Flat

REDOX - Redoxymorphic features (Drainage Mottling) A/C - Abundance/Contrast Boundary: A-abrupt, C-clear, G-gradual, D-diffuse

Roots/Pores - f - few, c - common, m - many; f - fine, m - medium, c - coarse

717.795.9000

APPENDIX C

TEST PIT PHOTOS

AECOM

PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60537393

Photo No.	Date:	Description:
1	2/23/2017	TP-1A



Photo No.	Date:	Description:
2	2/23/2017	TP-1B



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60537393

Photo No.	Date:	Description:
3	2/23/2017	TP-1B



Photo No.	Date:	Description:
4	2/23/2017	TP-1B



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PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60537393

Photo No.	Date:	Description:
5	2/23/2017	TP-1B

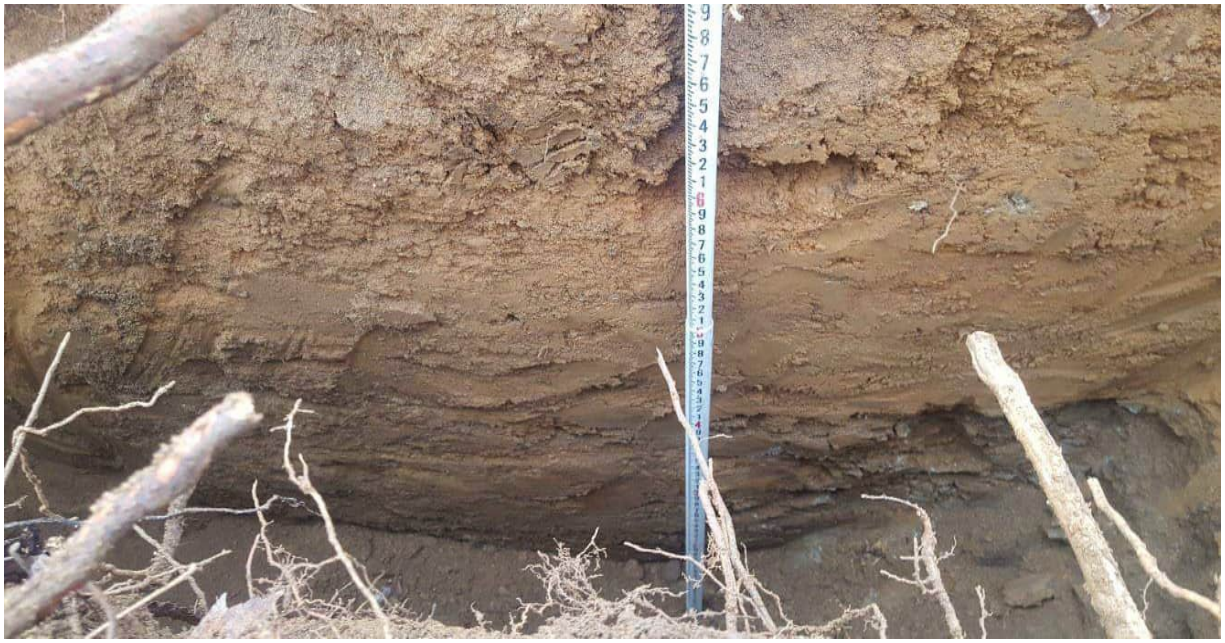


Photo No.	Date:	Description:
6	2/23/2017	TP-1B



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60537393

Photo No.	Date:	Description:
7	2/23/2017	TP-1B



Photo No.	Date:	Description:
8	2/23/2017	TP-2A



AECOM

PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60537393

Photo No.	Date:	Description:
9	2/23/2017	TP-2A



Photo No.	Date:	Description:
10	2/23/2017	TP-2A



AECOM

PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60537393

Photo No.	Date:	Description:
11	2/23/2017	TP-2B



Photo No.	Date:	Description:
12	2/23/2017	TP-2B



APPENDIX D

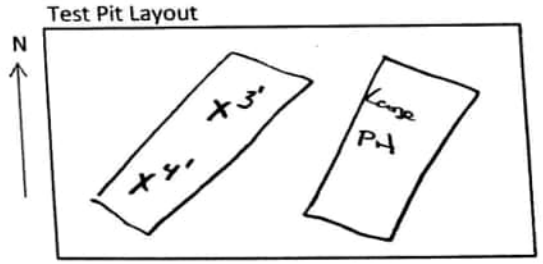
INFILTRATION TEST READINGS

APPLICANT Williams	PROJECT NO. Station 206	DATE 2-23-17
LOCATION TP-1A	PROBE NO. N/A	PREPARER R. Cuspilna

Hole Number	Time Interval (min)	Test Depth	Hydration Start Time & Date	Initial Water Depth	Presoak Start Time & Date	Presoak		Readings							
						1	2	1	2	3	4	5	6	7	8
						Time		Time							
TP-1A(3')	10	36"	10:15 2/23/17	8"	10:45 2/23/17	11:15	11:45	Start 11:57	12:07	12:17	12:27	12:37	12:47	12:57	
						8"	8"	/	3"	3"	2 3/4"	2 1/2"	2 3/4"	2 1/4"	/
TP-1A(4')	30	48"	10:15 2/23/17	8"	10:45 2/23/17	11:15	11:45	12:15	12:45	13:15	13:45				
						0"	0"	0"	0"	0"	0"	/			

Coordinates: 40.402520 / -74.596138

Test Pit Layout



* If presoak drop is< 6" take readings every 30 minutes. If it is >6" take readings every 10 minutes

* 30 minute intervals: Minimum 2 hours of readings. Maximum of 4 hours

*10 minute intervals: Minimum of 40 minutes of readings, maximum of 80 mins

The test shall continue at the interval determined until a minimum of eight readings are completed or until stabilized rate drop is obtained. Test is considered stable when 4 consecutive readings are with into 1/4".

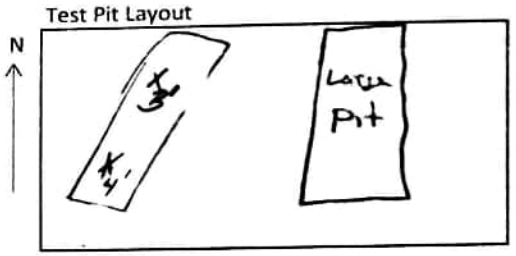
APPLICANT Williams | PROJECT NO. | DATE 2/23/2017

LOCATION Station 206 TP-1B | PROBE NO. N/A TP-1B | PREPARER B. Crisfield

Hole Number	Time Interval (min)	Test Depth	Hydration Start Time & Date	Initial Water Depth	Presoak Start Time & Date	Presoak		Readings							
						1	2	1	2	3	4	5	6	7	8
						Time		Time							
						10:50	11:20	11:50	12:20	12:50	13:20				
TP-1B(3')	30	36"	9:50 2/23/17	8"	10:20 2/23/17	0"	0"	1/2"	1/2"	1/4"	1/4"				
TP-1B(4')	30	48"	9:50 2/23/17	8"	10:20 2/23/17	10:50 1/2"	11:20 1/2"	11:50 1"	12:20 1"	12:50 3/4"	13:20 3/4"				

Coordinates: 40.402254 / -74.596236

Test Pit Layout



* If presoak drop is< 6" take readings every 30 minutes. If it is >6" take readings every 10 minutes

* 30 minute intervals: Minimum 2 hours of readings. Maximum of 4 hours

*10 minute intervals: Minimum of 40 minutes of readings, maximum of 80 mins

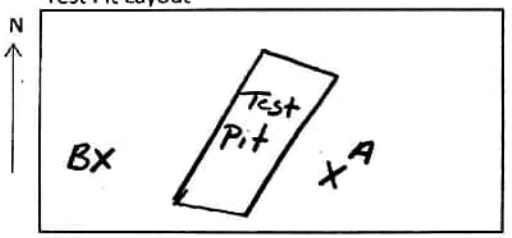
The test shall continue at the interval determined until a minimum of eight readings are completed or until stabilized rate drop is obtained. Test is considered stable when 4 consecutive readings are with into 1/4".

APPLICANT Williams
LOCATION Station 206
PROJECT NO.
PROBE NO. TP-2A
DATE 2/23/2017
PREPARER B. Crispino

Hole Number	Time Interval (min)	Test Depth	Hydration Start Time & Date	Initial Water Depth	Presoak Start Time & Date	Presoak		Readings							
						1	2	1	2	3	4	5	6	7	8
						Time		Time							
TP-2A(20')A	10	20"	10:50 2/23/17	8"	11:20 2/23/17	11:50	12:20	12:30	12:40	12:50	13:00				
						6"	8"	4"	4"	4"	4"				
TP-2A(20')B	10	20"	10:50 2/23/17	8"	11:20 2/23/17	11:50	12:20	12:30	12:40	12:50	13:00	13:10	13:20	13:30	
						6"	8"	2"	1"	2"	1"	1"	1"	1"	

Coordinates: 40.403199 / -74.596222

Test Pit Layout



* If presoak drop is< 6" take readings every 30 minutes. If it is >6" take readings every 10 minutes

* 30 minute intervals: Minimum 2 hours of readings. Maximum of 4 hours

*10 minute intervals: Minimum of 40 minutes of readings, maximum of 80 mins

The test shall continue at the interval determined until a minimum of eight readings are completed or until stabilized rate drop is obtained. Test is considered stable when 4 consecutive readings are with into 1/4".

APPENDIX E

INFILTRATION RATE RESULTS

INFILTRATION TEST SITE: Station 206

STORMWATER INFILTRATION TEST RESULTS

DATE: 2/23/2017 COUNTY: Somerset Co.; NJ

CLIENT: Williams MUNICIPALITY:

TEST LOCATION: 40.402520/-74.596138 TEST PIT NUMBER TP-1A

NAD83 Lat/Long

APPROX. SURFACE ELEVATION (ft AMSL):

INVESTIGATOR(S): Randy Crispino Method: Falling Head

Hole Number	Time Interval (min)	Test Depth	Initial Water Depth	READING NUMBER							
				1	2	3	4	5	6	7	8
		ft	in.	11:57	12:07	12:17	12:27	12:37	12:47	12:57	
TP-1A(3')	10	3	8	8.00	3.00	3.00	2.75	2.50	2.75	2.25	
				12:15	12:45	13:15	13:45				
TP-1A(4')	30	4	8	0.00	0.00	0.00	0.00				

Test number	TP-1A(3')	TP-1A(4')			
FINAL DROP (in)	2.25				
FINAL INFILTRATION RATE (in/hr)	13.50	0.00			
AVERAGE INFILTRATION RATE (in/hr)	6.75				

SITE DRAWING:

1 hour pre soak prior to starting test.

INFILTRATION TEST SITE: Station 206

STORMWATER INFILTRATION TEST RESULTS

DATE: 2/23/2017 COUNTY: Somerset Co.; NJ

CLIENT: Williams MUNICIPALITY:

TEST LOCATION: 40.402254/-74.596236 TEST PIT NUMBER TP-1B

NAD83 Lat/Long

APPROX. SURFACE ELEVATION (ft AMSL):

INVESTIGATOR(S): Randy Crispino Method: Falling Head

Hole Number	Time Interval (min)	Test Depth	Initial Water Depth	READING NUMBER							
				1	2	3	4	5	6	7	8
		ft	in.	11:50	12:20	12:50	13:20				
TP-1B(3')	30	3	8	0.50	0.50	0.25	0.25				
				11:50	12:20	12:50	13:20				
TP-1B(4')	30	4	8	1.00	1.00	0.75	0.75				

Test number	TP-1B(3')	TP-1B(4')			
FINAL DROP (in)	0.25	0.75			
FINAL INFILTRATION RATE (in/hr)	0.50	1.50			
AVERAGE INFILTRATION RATE (in/hr)	1.00				

SITE DRAWING:

1 hour pre soak prior to starting test.

INFILTRATION TEST SITE: Station 206

STORMWATER INFILTRATION TEST RESULTS

DATE: 2/23/2017 COUNTY: Somerset Co.; NJ

CLIENT: Williams MUNICIPALITY:

TEST LOCATION: 40.403199/-74.596222 TEST PIT NUMBER TP-2A

NAD83 Lat/Long

APPROX. SURFACE ELEVATION (ft AMSL):

INVESTIGATOR(S): Randy Crispino Method: Falling Head

Hole Number	Time Interval (min)	Test Depth	Initial Water Depth	READING NUMBER							
				1	2	3	4	5	6	7	8
		ft	in.	12:30	12:40	12:50	13:00				
TP-2A(3')	10	3	8	4.00	4.00	4.00	4.00				
				12:30	12:40	12:50	13:00	13:10	13:20	13:30	
TP-2B(4')	10	4	8	2.00	1.00	2.00	1.00	1.00	1.00	1.00	

Test number	TP-2A(3')	TP-2B(4')			
FINAL DROP (in)	4.00	1.00			
FINAL INFILTRATION RATE (in/hr)	24.00	6.00			
AVERAGE INFILTRATION RATE (in/hr)	15.00				

SITE DRAWING:

1 hour pre soak prior to starting test.

APPENDIX B.2
ADDITIONAL INFILTRATION TESTING (APRIL 2018)

AECOM

May 23, 2018
60537393

Mr. Brian Ham
Project Manager
Transcontinental Gas Pipeline Company
2800 Post Oak Boulevard
Houston, Texas 77251-1396

Subject: Report on Infiltration Testing
Proposed Compressor Station 206
Transcontinental Gas Pipeline Company
Princeton, New Jersey

Dear Mr. Ham,

We are pleased to present herein our report of an infiltration testing program which was performed in connection with the proposed New Williams Compressor Station 206, part of the Northeast Supply Enhancement Project, in Princeton, New Jersey. This work was performed in accordance with our proposal dated April 11, 2018 and Williams RFS No. 650378 dated December 20, 2016, C.O. No.2, dated April 12, 2018.

1.0 PROJECT DESCRIPTION

The purpose of this project was to aid in design of a new retention basin for the proposed Compressor Pump Station 206 to be located in Princeton, New Jersey. The project initially consisted of five test borings (Borings TP-3 to TP-7). A groundwater monitoring well was installed in each boring. Well permits were obtained by Craig Test Boring, prior to commencement of field work. Based on the data obtained from the monitoring wells, additional test pits, TP-8 through TP-12, were excavated to investigate soil conditions and to perform double-ring infiltration tests (DRI).

The locations of the borings and test pits are shown on Plate 1, Location Plan. The wells were installed on March 5 and March 6, 2018, by Craig Test Boring, of Mays Landing, New Jersey. The test pits were conducted on April 19 to April 24, 2018 by React Environmental Professional Services Group, Inc. of Philadelphia, Pennsylvania. The monitoring well installation and test pits were conducted under full-time technical supervision of AECOM. The monitoring wells and test pits were located in the field by AECOM. At each test boring location, the top 5 ft of the boring was performed using hand tools for utility clearing. AECOM performed the DRI tests from April 19 to 23, 2018.

In addition to the wells and DRI Testing, a soil investigation was conducted by Cedarville Engineering Group, LLC to morphologically describe and taxonomically classify the soils at this location. The report is shown in Attachment E, Soil Investigation.

AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, PA 19428
Tel: 610-832-3500
Fax: 610-832-3501

2.0 SUBSURFACE CONDITIONS

Subsurface conditions at the site were explored through five borings, TP-3 through TP-7, and test pits. Each boring was hand cleared 3 to 5 ft depth and then drilled to approximately 15 ft below existing grade. The five test pits, TP-8 through TP-12, were conducted with an excavator until refusal was encountered. Logs of the borings and test pits are presented in Attachment A, Boring and Test Pit Logs, together with a description of drilling and sampling methods. Laboratory results are shown in Attachment B, Laboratory Testing. The subsurface conditions encountered are described below.

Stratum 1, Residual Soil – This stratum was encountered from ground surface in all five test borings. The stratum material consists of a brown course to fine sandy silt/lean clay, trace gravel. Standard Penetration Test (SPT) values were 14 to 36 blows-per-foot (bpf), averaging 21 bpf, indicative of a dense condition.

Results of four moisture content tests indicate that the moisture contents vary between 19 and 35 percent, averaging 26 percent. Grain size distribution curves are shown in Attachment B. Results of ten Atterberg limit tests indicate liquid limits varying between 30 to 37 percent, averaging 33 percent, and plastic limits varying between 21 and 25 percent, averaging 23 percent, and plasticity index from 8 to 12 percent.

Stratum 2, Decomposed Rock– This stratum was encountered below Stratum 1 in all five test borings. TP-3 and TP-4 terminated in this stratum. The stratum material consists of a brown silty/clayey course to fine sand, with gravel. SPT values were over 50 bpf, indicative of a generally very dense condition.

Stratum 3, Bedrock– This stratum was encountered below Stratum 2 in Test Borings TP-5 to TP-7. The bedrock consisted of slightly weathered to fresh light gray diabase. The rock recovery ranges from 86 to 100 percent, averaging 92 percent, and the Rock Quality Designation (RQD) ranges from 47 to 83 percent, averaging 64 percent.

Groundwater – Groundwater was observed through the monitoring wells and during test pit excavations. Based on the monitoring wells, groundwater table varied from 0.0 to 9.0 feet below ground surface (El. 261.2 ft to El. 257.0 ft). It should be noted that these levels are subject to seasonal, tidal, and long-term variations due to climatic and man-made influences.

Groundwater readings are summarized in Attachment Table 1, Summary of Well Readings and shown in notes section of the logs.

3.0 DOUBLE RING INFILTROMETER TESTS

Each DRI test setup consists of two concentric metal rings (24-inches and 12-inches in diameter). The rings were set approximately 3 to 6 inches into soil. A constant hydraulic head

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was maintained using a pair of calibrated Mariotte tubes. The DRI tests were performed in general conformance with ASTM D3385-09.

Each DRI test location was excavated to the proposed system bottom (approximately 2.5 to 4 feet below existing grade) using a backhoe. The tests were performed at the bottom of each test pit. At the completion of the tests, a soil sample was obtained at each test location. The test pits were further excavated until refusal was encountered at depths ranging from 4.4 to 9.5 ft depth.

A total of five tests were performed. The infiltration rates ranged from 0.13 in/hr in TP-12 to 13.3 in/hr in TP-8. The test results are presented in Attachment C, Double Ring Infiltration Results.

Tet pit logs are shown in Attachment A, Boring Logs and Test Pits. A photo log is also presented in Attachment D.

4.0 LIMITATIONS

The services described in this report were provided in accordance with the standard of care. No warranty or guarantee, expressed or implied, is intended. The report is solely for the use of our client for the design of this particular project. Any re-use of this document, particularly by third parties, without the express written permission of AECOM is solely at their own risk.

We sincerely appreciate the opportunity to be of service to you on this project. If you have any questions on the contents of this report, or if we may be of additional service, please give us a call.

Very truly yours,

Neil Scafonas, P.E.
Project Engineer

Yongli Min, P.E.
Senior Project Consultant

cc: Peter P. Haas, P.E., AECOM
John C. Volk, P.E., AECOM

Plates
Plate 1 Location Plan

Tables
Table 1 Summary of Well Readings

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Attachments:

Attachment A	Boring Logs and Test Pits
Attachment B	Laboratory Testing
Attachment C	Double Ring Infiltration Results
Attachment D	Photo Log
Attachment E	Soil Investigation

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Plates

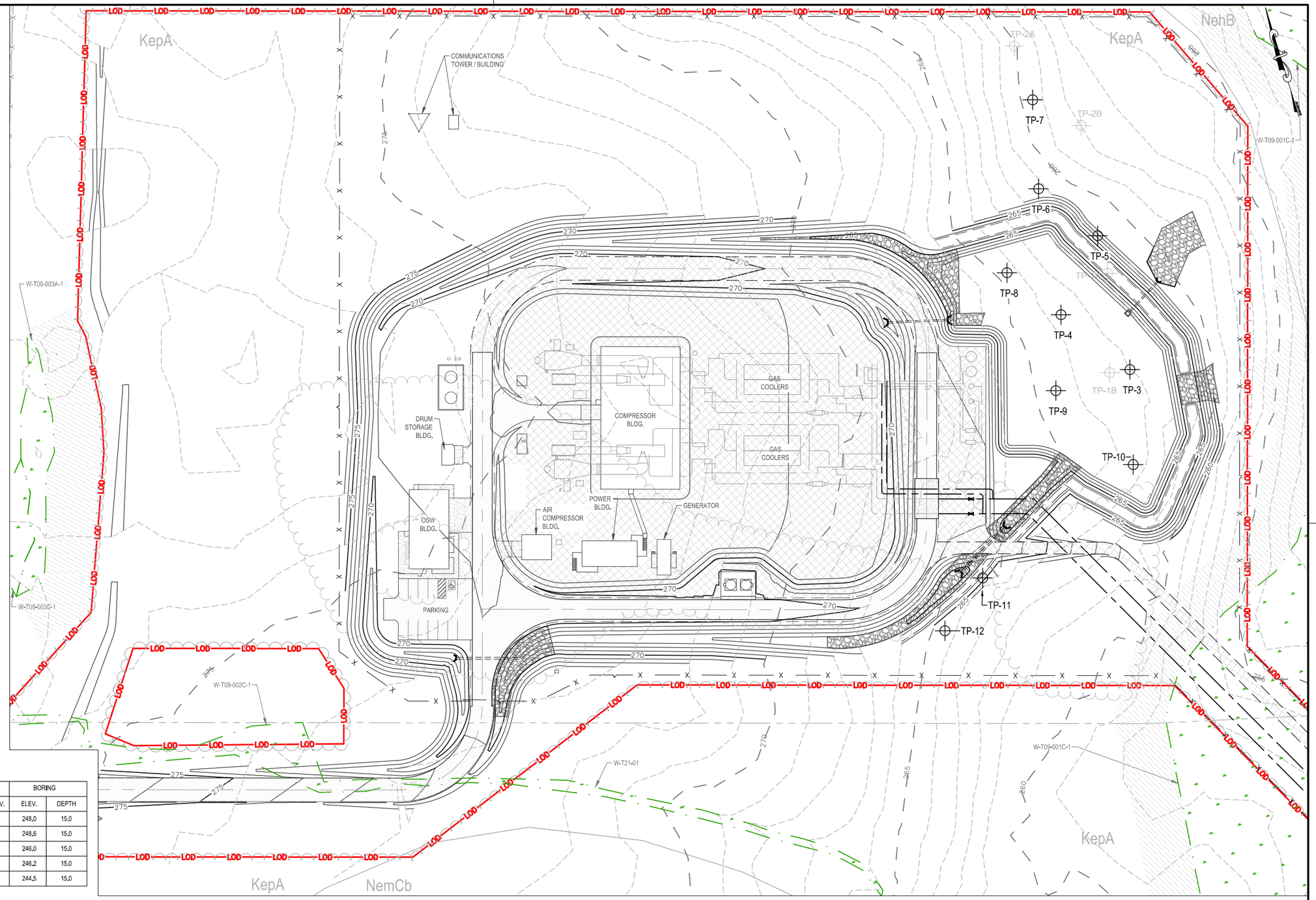
LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- MopCb — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED PIPELINE
- CULVERT
- RIP RAP APRON
- PROPOSED FENCE
- PROPOSED TREE LINE
- PROPOSED STONE AREA
- PROPOSED ASPHALT AREA
- PROPOSED CONCRETE AREA
- RIPRAP SLOPE PROTECTION
- TP-1X — PREVIOUS TEST LOCATION
- TP-8 — ADDITIONAL TEST LOCATION



SOIL BORING LOCATIONS						BORING	
TEST PIT I.D.	LATITUDE	LONGITUDE	NORTHING	EASTING	EXISTING ELEV.	ELEV.	DEPTH
TP-3	N40° 24' 08.08"	W74° 35' 46.18"	571452.714	465345.335	263.0	248.0	15.0
TP-4	N40° 24' 08.81"	W74° 35' 46.84"	571526.267	465294.728	263.6	248.6	15.0
TP-5	N40° 24' 09.46"	W74° 35' 46.08"	571591.901	465353.658	261.0	246.0	15.0
TP-6	N40° 24' 10.08"	W74° 35' 46.64"	571654.811	465310.383	261.2	246.2	15.0
TP-7	N40° 24' 10.95"	W74° 35' 46.37"	571742.743	465330.921	259.5	244.5	15.0

SOIL TESTING LOCATIONS						TEST PIT		INFILTRATION TEST	
TEST PIT I.D.	LATITUDE	LONGITUDE	NORTHING	EASTING	EXISTING ELEV.	ELEV.	DEPTH	ELEV.	DEPTH
TP-8	N40° 24' 09.37"	W74° 35' 47.35"	571582.952	465254.892	264.5	254.5	10.0	260.5	4.0
TP-9	N40° 24' 08.10"	W74° 35' 47.19"	571454.254	465267.262	264.5	254.5	10.0	260.5	4.0
TP-10	N40° 24' 07.17"	W74° 35' 46.50"	571359.743	465320.395	263.6	254.5	9.1	260.5	3.1
TP-11	N40° 24' 06.52"	W74° 35' 48.82"	571294.613	465141.004	264.5	255.0	9.5	261.0	3.5
TP-12	N40° 24' 06.12"	W74° 35' 49.50"	571254.547	465088.809	264.5	255.0	9.5	261.0	3.5

NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.

SOIL LEGEND:

- EkbA ELKTON SILT LOAMS, 0 TO 2 PERCENT SLOPES
- KepA KEYPORT SILT LOAM, 0 TO 2 PERCENT SLOPES
- KepB KEYPORT SILT LOAMS, 2 TO 5 PERCENT SLOPES
- MopCb MOUNT LUCAS-WATCHUNG SILT LOAMS, 6 TO 12 PERCENT SLOPES, VERY STONY
- NehB NESHAMINY SILT LOAMS, 2 TO 6 PERCENT SLOPES
- NehEb NESHAMINY SILT LOAMS, 18 TO 35 PERCENT SLOPES, VERY STONY
- NemCb NESHAMINY-MOUNT LUCAS SILT LOAMS, 6 TO 12 PERCENT SLOPES, VERY STONY
- WasA WATCHUNG SILT LOAM, 0 TO 2 PERCENT SLOPES

50' 25' 0' 50'
SCALE: 1"= 50'

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REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/11/2017	GMS	ISSUED FOR NJDEP REVIEW	0000000	RC	PPH
1	04/17/2018	PPH	REVISED CONCEPTUAL BASIN LAYOUT AND ADDITIONAL BORINGS	0000000	JAC	PPH
2	05/22/2018	PPH	ISSUED FOR REPORT	0000000	JAC	PPH

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
NORTHEAST SUPLPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206
TEST PIT LOCATION PLAN
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 08/11/17	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: JAC	DATE: 08/11/17	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: PPH	DATE: 08/11/17	DRAWING NUMBER:	SHEET 1 OF 1
WO: 0000000			

Drawn By & Date/Time: haasp May 23, 2018 - 3:34pm
Drawing Location & Name: S:\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\10-REFERENCE\Soil Testing\Test Pit Location Plan CS 206.dwg

Attachment A
Boring Logs and Test Pits

The program consisted of five wells TP-3 to TP-5, and five test pits, TP-8 through TP-12, located as shown on Plate 1, Location Plan. The wells were drilled on March 5 and March 6, 2018, by Craig Test Boring, of Mays Landing, New Jersey. The test pits for the DRI tests were conducted on April 19 to April 24, 2018 by React Environmental Professional Services Group, Inc. of Philadelphia, Pennsylvania. The test borings and test pits were conducted under full-time technical supervision of AECOM. The test borings and test pits were located in the field by AECOM. Utility clearance was conducted by Craig Test Boring, using hand clearing techniques for the top 3 to 5 ft of the borings.

The test borings were performed using an ATV-mounted CME HT-55 drilling rig and were advanced by hollow stem auger. Samples of the subsoils were recovered from the borings for identification and classification purposes by means of a 3-inch O.D. split-barrel sampler driven 24 inches by a 140-pound hammer freely falling 30 inches (the Standard Penetration Test, ASTM D 1586). The number of hammer blows required driving the sampler during the interval from 6 to 18 inches, or fraction thereof, is reported on the test boring logs as the sampling resistance. Relatively undisturbed samples of fine-grained soils were recovered with a 3-inch O.D. thin-walled Shelby tube sampler in general accordance with ASTM D 1587.

At the completion of each test boring, wells were drilled to approximately 15 ft depth. Slotted PVC at 2 inches in diameter was placed at the bottom ten feet with solid PVC placed at from 10 ft below ground surface to approximately 3 feet above ground surface. The bottom 12 feet was backfilled with sand. Bentonite was used to back fill from ground surface to approximately 3 ft depth.

A "Key to Soil Symbols and Terms" used in this report is included on page A-2. The logs of the test borings are presented on Pages A-3 through A-7. The logs of the test pits are presented on Pages A-8 through A-12.

Following completion of the DRI's and Soil Investigation test pit, all locations were back filled with excavated soils and compacted with the excavator bucket in approximately 2 ft lifts.

KEY TO SOIL SYMBOLS AND TERMS

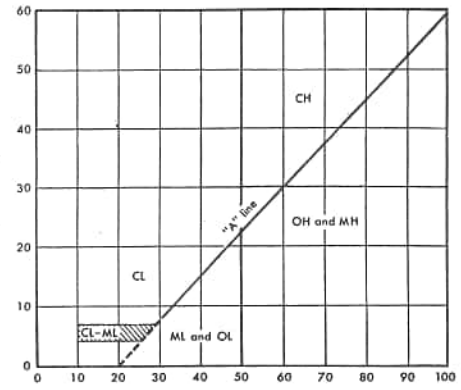
Terms used in this report for describing soils according to their texture or grain size distribution are in accordance with the Unified Soil Classification System, as described in Technical Memorandum No. 3-357, Waterways Experiment Station, March 1953.

Major Divisions			Group symbols	Typical names	Laboratory classification criteria
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixture, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW
		Gravels with fines (Appreciable amount of fines)	GM* d / u	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM* d / u	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. > than 7
Fine-grained soils (More than half of material is smaller than No. 200 sieve)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
			OL	Organic silts and organic silty clays of low plasticity	
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
			CH	Inorganic clays of high plasticity, fat clays	
			OH	Organic clays of medium to high plasticity, organic silts	
	Highly organic soils		Pt	Peat and other highly organic soils	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:
- Less than 5 per cent ..... GW, GP, SW, SP
- More than 12 per cent ..... GM, GC, SM, SC
- 5 to 12 per cent ..... *Borderline* cases requiring dual symbols**

Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols

Limits plotting in hatched zone with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols.



Plasticity Chart

Particle Size	Sieve Size	Material
mm	<#200	Silt or Clay
<0.074	#200 To #40	Sand
0.074 To 0.42	# 40 To #10	Fine
0.42 To 2.00	# 10 To # 4	Med.
2.00 To 4.76		Coarse

Particle Size	Sieve	Material
mm	#4 To 3/4 In.	Gravel
4.76 To 19.1	3/4 In To 3 In.	Fine
19.1 To 76.2	3 In. To 12 In.	Coarse
76.2 To 304.8	12 In. To 36 In.	Cobbles
304.8 To 914.4		Boulders

TERMS DESCRIBING CONSISTENCY OR CONDITION

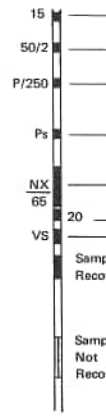
COARSE GRAINED SOILS (major portion retained on No. 200 sieve): Includes (1) clean gravels and (2) silty or clayey gravels and sands. Condition is rated according to relative density(1) as determined by laboratory tests or standard penetration resistance tests.

Descriptive Term	Relative Density
Very loose	0 to 15%
Loose	15 to 35%
Medium dense	35 to 65%
Dense	65 to 85%
Very dense	85 to 100%

FINE GRAINED SOILS (major portion passing No. 200 sieve): Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests.

Descriptive Term	Unconfined Compression Strength, tons/sq. ft.
Very soft	less than 0.25
Soft	0.25 to 0.50
Firm	0.50 to 1.00
Stiff	1.00 to 2.00
Very stiff	2.00 to 4.00
Hard	4.00 and higher

TEST AND SAMPLE IDENTIFICATION



15 — The number of blows (15) of a 140-pound hammer falling 30 inches used to drive a 2" O. D. split-barrel sampler for the last 12 inches of penetration.
50/2 — Number of blows (50) used to drive the split-barrel a certain number of inches (2).
P — Thin-wall tube sample.
P/250 — P250 — Thin-wall tube pushed hydraulically, using a certain pressure (250 psi) to push the last 6 inches.
C_1 — Denison or Pitcher-Type — core-barrel sample.
Ps — Piston sample.
A — Augar sample.
BX — Rock cored with BX core barrel, which obtains a 1-5/8" diameter core.
NX — Rock cored with NX core barrel, which obtains a 2-1/8" diameter core.
65% — Percentage (65) of rock core recovered.
20% — Rock Quality Designation (RQD)(2)
VS — Vane Shear Test.

Laboratory Test Performed:
C — Consolidation and specific gravity tests.
D — Maximum & minimum density.
DS — Direct Shear test.
G — Specific gravity test.
K — Permeability test.
M — Mechanical (sieve or hydrometer) analysis.
T — Triaxial compression test
U — Unconfined compression test.
W — Unit weight & natural moisture content.
X — Special tests performed — see Laboratory test results.

*Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

**Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.

(2)RQD = $\frac{\sum \text{Core Segments} \geq 4 \text{ Inches}}{\text{Core Interval}} \times 100$ Where Segmentation Is Not Caused By Drilling Effects

(1)ASTM 2049-69

LOG of BORING No. TP- 3

Sheet 1 of 1

DATE 3/5/18 SURFACE ELEVATION 263.0 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	SAMPLING RESISTANCE	SAMPLE TYPE	DESCRIPTION	STRATUM ELEVATION	POCKET PENETROMETER (TSF)	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			AU	Very stiff brown coarse to fine sandy SILT, trace gravel						
			AU							
5		57	SS	(Residual Soil)	257.1					
		50/4"	SS	Very dense brown silty coarse to fine SAND, with gravel-sized rock fragments						
		50/4"	SS							
10		32	SS							
		50/2"	SS							
15				(Decomposed Rock)	248.0					
20										
25										
30										
35										
40										

Notes:
1. The boring was advanced to 5 ft depth using a hand auger. Samples were obtained using the hand auger at various depths. The soil resistance was evaluated using a hand probe.
2. A 2-inch diameter PVC monitoring well was installed to a depth of approximately 15 feet below existing ground surface with bottom 10 ft screened.

Date	Depth (ft)	Elev (ft)
3/15/2018	5.8	257.2
3/23/2018	6.0	257.0
4/18/2018	6.0	257.0

Completion Depth: 15.0 ft.
Project No.: 6053733
Project Name: Williams Station 206
Drilling Method: Mud Rotary

Water Depth: See Notes ft., After ____ hrs.
____ ft., After ____ hrs.
____ ft., After ____ hrs.
____ ft., After ____ hrs.

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LOG of BORING No. TP- 4

Sheet 1 of 1

DATE 3/5/18 SURFACE ELEVATION 263.6 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	SAMPLING RESISTANCE	SAMPLE TYPE	DESCRIPTION	STRATUM ELEVATION	POCKET PENETROMETER (TSF)	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			AU	Stiff to very stiff brown coarse to fine sandy SILT, trace gravel						
			AU							
			AU							
5		14	SS							
		36	SS	(Residual Soil)	255.1					
		50/5"	SS	Very dense brown silty coarse to fine SAND, with gravel-sized rock fragments						
10		50/3"	SS							
		33	SS	(Decomposed Rock)	248.6					
15										
20										
25										
30										
35										
40										

Notes:
1. The boring was advanced to 5 ft depth using a hand auger. Samples were obtained using the hand auger at various depths. The soil resistance was evaluated using a hand probe.
2. A 2-inch diameter PVC monitoring well was installed to a depth of approximately 15 feet below existing ground surface with bottom 10 ft screened.

Date	Depth (ft)	Elev (ft)
3/15/2018	5.3	258.3
3/23/2018	5.7	257.9
4/18/2018	5.5	258.1

Completion Depth: 15.0 ft. Water Depth: See Notes ft., After ____ hrs.
Project No.: 60537393 ____ ft., After ____ hrs.
Project Name: Williams Station 206 ____ ft., After ____ hrs.
Drilling Method: Mud Rotary ____ ft., After ____ hrs.

5/23/18 BORLOGR WILLIAMS.GPJ

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LOG of BORING No. TP- 5

Sheet 1 of 1

DATE 3/6/18 SURFACE ELEVATION 261.0 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	SAMPLING RESISTANCE	SAMPLE TYPE	DESCRIPTION	STRATUM ELEVATION	POCKET PENETROMETER (TSF)	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			AU	Stiff to very stiff brown coarse to fine sandy SILT, trace gravel						
			AU							
			AU							
5		19	SS	(Residual Soil)	254.0					
		50/5"	SS	Very dense brown silty coarse to fine SAND, with gravel-sized rock fragments						
		50/5"	SS	(Decomposed Rock)	251.0					
10		NQ 86	NQ	DIABASE, gray, hard to very hard, moderately weathered to fresh, medium fractured						RQD 47
				(Bedrock)	246.0					
15										
20										
25										
30										
35										
40										

Notes:
1. The boring was advanced to 5 ft depth using a hand auger. Samples were obtained using the hand auger at various depths. The soil resistance was evaluated using a hand probe.
2. A 2-inch diameter PVC monitoring well was installed to a depth of approximately 15 feet below existing ground surface with bottom 10 ft screened.

Date	Depth (ft)	Elev (ft)
3/15/2018	2.7	258.3
3/23/2018	2.9	258.1
4/18/2018	2.5	258.5

Completion Depth: 15.0 ft. Water Depth: See Notes ft., After ____ hrs.
Project No.: 60537393 ____ ft., After ____ hrs.
Project Name: Williams Station 206 ____ ft., After ____ hrs.
Drilling Method: Mud Rotary ____ ft., After ____ hrs.

5/23/18 BORLOGR WILLIAMS.GPJ

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LOG of BORING No. TP- 6

Sheet 1 of 1

DATE 3/6/18 SURFACE ELEVATION 261.2 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	SAMPLING RESISTANCE	SAMPLE TYPE	DESCRIPTION	STRATUM ELEVATION	POCKET PENETROMETER (TSF)	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			AU	Very stiff brown coarse to fine sandy SILT, trace gravel						
			AU							
		50/3"	SS							
5		17	SS	(Residual Soil)	254.2					
		41	SS	Very dense brown silty coarse to fine SAND, with gravel-sized rock fragments						
		50/0"	SS							
10				(Decomposed Rock)	250.5					
		NQ 100	NQ	DIABASE, gray, hard to very hard, moderately weathered to fresh, medium fractured						RQD 76
15				(Bedrock)	246.2					
20										
25										
30										
35										
40										

Notes:
1. The boring was advanced to 3 ft depth using a hand auger. Samples were obtained using the hand auger at various depths. The soil resistance was evaluated using a hand probe.
2. A 2-inch diameter PVC monitoring well was installed to a depth of approximately 15 feet below existing ground surface with bottom 10 ft screened.

Date	Depth (ft)	Elev (ft)
3/15/2018	0.0	261.2
3/23/2018	0.0	261.2
4/18/2018	0.0	261.2

Completion Depth: 15.0 ft. Water Depth: See ft., After ____ hrs.
Project No.: 60537393 Notes ft., After ____ hrs.
Project Name: Williams Station 206 ____ ft., After ____ hrs.
Drilling Method: Mud Rotary ____ ft., After ____ hrs.

5/23/18 BORLOGR WILLIAMS.GPJ

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LOG of BORING No. TP- 7

Sheet 1 of 1

DATE 3/6/18 SURFACE ELEVATION 259.5 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	SAMPLING RESISTANCE	SAMPLE TYPE	DESCRIPTION	STRATUM ELEVATION	POCKET PENETROMETER (TSF)	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			AU	Stiff to very stiff brown coarse to fine sandy SILT, trace gravel						
			AU							
5		14-50/3"	SS	(Residual Soil)	253.5					
				Very dense brown silty coarse to fine SAND, with gravel-sized rock fragments (Decomposed Rock)	252.5					
10		NQ 91	NQ	DIABASE, gray, hard to very hard, moderately weathered to fresh, medium fractured						RQD 49
15		NQ 92	NQ	(Bedrock)	243.5					RQD 83
20				Notes: 1. The boring was advanced to 5 ft depth using a hand auger. Samples were obtained using the hand auger at various depths. The soil resistance was evaluated using a hand probe. 2. A 2-inch diameter PVC monitoring well was installed to a depth of approximately 15 feet below existing ground surface with bottom 10 ft screened.						
25										
30										
35										
40										

Date	Depth (ft)	Elev (ft)
3/15/2018	0.0	259.5
3/23/2018	0.0	259.5
4/18/2018	0.0	259.5

Completion Depth: 16.0 ft. Water Depth: See Notes ft., After ____ hrs.

Project No.: 60537393 ____ ft., After ____ hrs.

Project Name: Williams Station 206 ____ ft., After ____ hrs.

Drilling Method: Mud Rotary ____ ft., After ____ hrs.

5/23/18 BORLOGR WILLIAMS.GPJ

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LOG of TEST PIT No. TP- 8

Sheet 1 of 1

DATE 4/20/2018 SURFACE ELEVATION 264.5 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	DESCRIPTION	STRATUM ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0		Stiff to very stiff brown coarse to fine sandy SILT, trace gravel		25.3	33	25	M
5		Dense brown silty coarse to fine SAND, with gravel and cobbles		19.1	NP	NP	M
		(Residual Soil)	258.0				
10		Notes: 1. A double ring infiltration test was performed at a depth of 4 ft below ground surface. 2. Refusal to excavator was encountered at 6.5 ft below ground surface. 3. Seeage was observed at approximately 6.3 ft below ground surface.					
15							

Completion Depth: 6.5 ft.
Project No.: 60537393
Project Name: Williams Station 206

Water Depth: See Notes ft., After ____ hrs.
ft., After ____ hrs.
ft., After ____ hrs.

5/23/18 TP0095 WILLIAMS.GPJ

AECOM

LOG of TEST PIT No. TP- 9

Sheet 1 of 1

DATE 4/23/2018 SURFACE ELEVATION 264.5 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	DESCRIPTION	STRATUM ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0		Stiff to very stiff brown coarse to fine sandy SILT, trace gravel					
				23.4	34	22	M
		Dense brown silty coarse to fine SAND, with gravel and cobbles		28.5	NP	NP	M
5		(Residual Soil)	257.5				
10		Notes: 1. A double ring infiltration test was performed at a depth of 4 ft below ground surface. 2. Refusal to excavator was encountered at 7 ft below ground surface. 3. Seepage was not observed during the test pit investigation.					
15							

Completion Depth: 7.0 ft. Water Depth: See Notes ft., After ____ hrs.

Project No.: 60537393 ft., After ____ hrs.

Project Name: Williams Station 206 ft., After ____ hrs.

5/23/18 TP0095 WILLIAMS.GPJ

AECOM

LOG of TEST PIT No. TP-10

Sheet 1 of 1

DATE 4/23/2018 SURFACE ELEVATION 263.6 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	DESCRIPTION	STRATUM ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0		Stiff to very stiff brown coarse to fine sandy SILT, trace gravel					
				25.1	33	23	M
				27.1	NP	NP	M
		Dense brown silty coarse to fine SAND, with gravel and cobbles		23.8	NP	NP	M
5							
		(Residual Soil)	254.1				
10		Notes: 1. A double ring infiltration test was performed at a depth of 3.0 ft below ground surface. 2. Refusal to excavator was encountered at 9.5 ft below ground surface. 3. Seepage was observed at approximately 9.5 ft below ground surface.					
15							

Completion Depth: 9.5 ft.
Project No.: 60537393
Project Name: Williams Station 206

Water Depth: See Notes ft., After ____ hrs.
ft., After ____ hrs.
ft., After ____ hrs.

5/23/18 TP0095 WILLIAMS.GPJ

AECOM

LOG of TEST PIT No. TP-11

Sheet 1 of 1

DATE 4/19/2018 SURFACE ELEVATION 264.5 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	DESCRIPTION	STRATUM ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0		Stiff to very stiff brown coarse to fine sandy SILT, trace gravel					
		Dense brown silty coarse to fine SAND, with gravel and cobbles		27.5	NP	NP	M
5		(Residual Soil)	258.0				
10		Notes: 1. A double ring infiltration test was performed at a depth of 3 ft below ground surface. 2. Refusal to excavator was encountered at 6.5 ft below ground surface. 3. Seepage was observed at approximately 6.0 ft below ground surface.					
15							

Completion Depth: 6.5 ft.
Project No.: 60537393
Project Name: Williams Station 206

Water Depth: See Notes ft., After ____ hrs.
ft., After ____ hrs.
ft., After ____ hrs.

5/23/18 TP0095 WILLIAMS.GPJ

AECOM

LOG of TEST PIT No. TP-12

Sheet 1 of 1

DATE 4/19/2018 SURFACE ELEVATION 264.5 LOCATION See Plate 2

DEPTH, FT.	SAMPLES	DESCRIPTION	STRATUM ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0		Stiff to very stiff brown coarse to fine sandy SILT, trace gravel					
				24.4	30	21	M
		Dense brown silty coarse to fine SAND, with gravel and cobbles					
				34.7	37	25	M
5		(Residual Soil)	258.5				
10		Notes: 1. A double ring infiltration test was performed at a depth of 2.5 ft below ground surface. 2. Refusal to excavator was encountered at 6 ft below ground surface. 3. Seepage was observed at approximately 4.5 ft below ground surface.					
15							

Completion Depth: 6.0 ft.
Project No.: 60537393
Project Name: Williams Station 206

Water Depth: See Notes ft., After ____ hrs.
ft., After ____ hrs.
ft., After ____ hrs.

5/23/18 TP0095 WILLIAMS.GPJ

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Attachment B
Laboratory Testing

Physical property tests were conducted in the laboratory on selected representative soil samples to aid in classification and for correlation with engineering behavior of the soils. These tests included natural water content (ASTM D2216), liquid and plastic limits (ASTM D4318), and grain-size distribution (ASTM D422).

The numerical results are summarized on Page B-2, and are also shown on the appropriate boring logs. USDA classification is shown on Page B-3 and grain-size distribution curves are presented on Pages B-4 through B-7.

Project: Williams Sta 206 Infiltration
Project No.: 60537393

AECOM

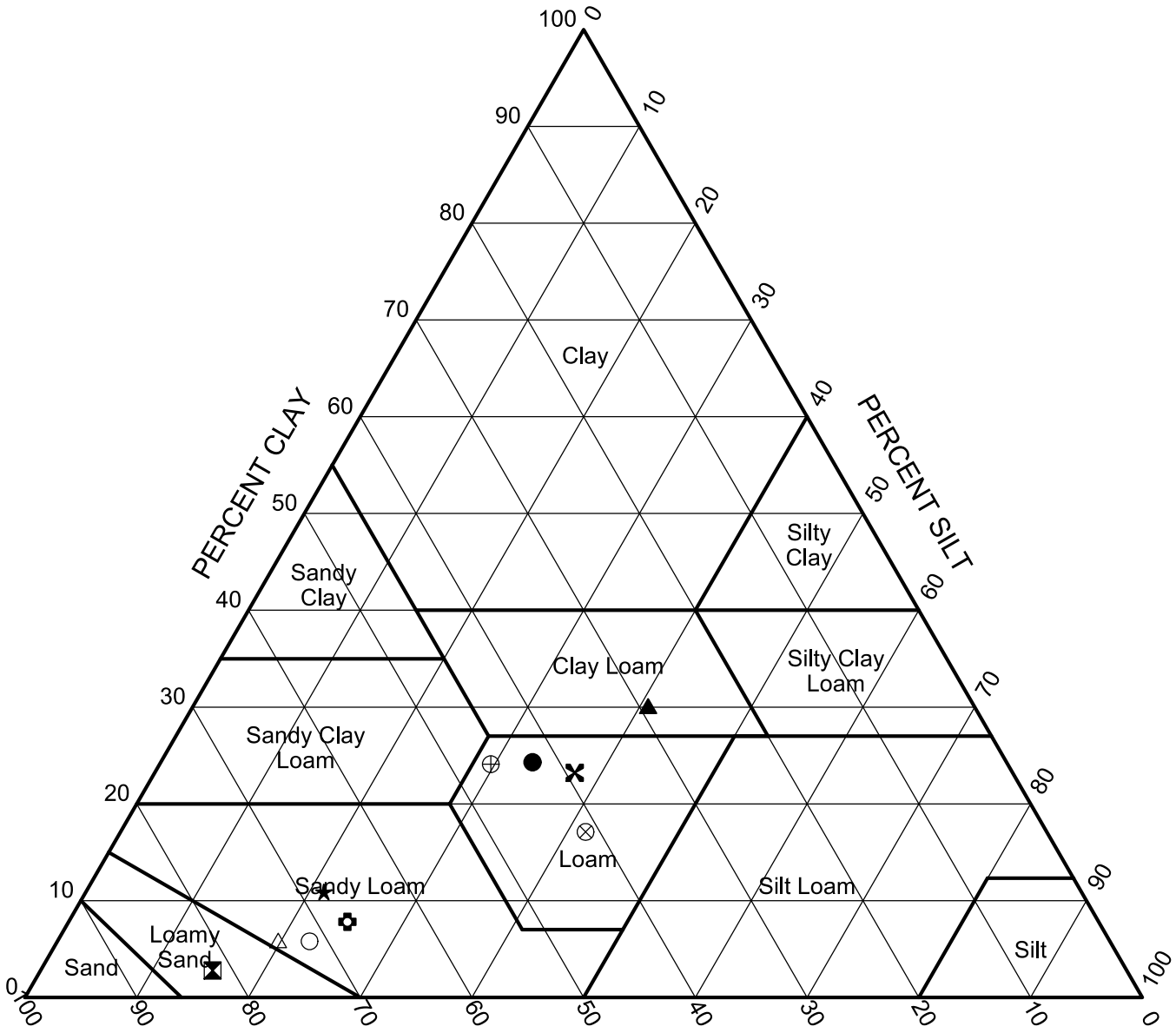
SUMMARY OF LABORATORY TEST RESULTS

Boring and Sample Number	Depth (feet)	Classification	USCS Symbol	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits		Specific Gravity	Organic Content (%)	Grain Size		Compaction	Consolidation	Unconfined Compression		Triaxial Compression		Permeability (cm/sec)	Special Tests
						Liquid Limit	Plastic Limit			<#200 (%)	<2μ (%)			Stress (psi)	Strain (%)	UU	CIU		
TP- 8 S-1	2.0	Brown SANDY SILT	ML	25.3		33	25			56	22								
TP- 8 S-2	4.0	Brown SILTY SAND	SM	19.1		NP	NP			19	2								
TP- 9 S-1	2.5	Brown LEAN CLAY with SAND	CL	23.4		34	22			74	29								
TP- 9 S-2	4.0	Brown SILTY SAND	SM	28.5		NP	NP			31	9								
TP-10 S-1	1.5	Brown SANDY LEAN CLAY	CL	25.1		33	23			64	23								
TP-10 S-2	2.5	Brown SILTY SAND	SM	27.1		NP	NP			34	7								
TP-10 S-3	3.1	Brown SILTY SAND with GRAVEL	SM	23.8		NP	NP			24	4								
TP-11 S-1	3.0	Brown SILTY SAND with GRAVEL	SM	27.5		NP	NP			18	4								
TP-12 S-1	1.5	Brown SANDY LEAN CLAY	CL	24.4		30	21			63	16								
TP-12 S-2	3.0	Brown SANDY SILT	ML	34.7		37	25			54	23								

* Refer to Laboratory Test Curves

Sheet 1 of 1

Project File Path:



	Boring	Sample Number	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	USDA
●	TP- 8	S-1	2.0	43.6	32.1	24.3	LOAM
⧓	TP- 8	S-2	4.0	82.1	15.1	2.8	LOAMY SAND
▲	TP- 9	S-1	2.5	29.6	40.3	30.1	CLAY LOAM
★	TP- 9	S-2	4.0	68.6	20.5	10.9	SANDY LOAM
✕	TP-10	S-1	1.5	39.5	37.3	23.2	LOAM
✿	TP-10	S-2	2.5	67.6	24.5	7.8	SANDY LOAM
○	TP-10	S-3	3.1	72.4	21.8	5.8	SANDY LOAM
△	TP-11	S-1	3.0	75.5	18.5	5.9	SANDY LOAM
⊗	TP-12	S-1	1.5	41.6	41.3	17.1	LOAM
⊕	TP-12	S-2	3.0	47.0	28.9	24.1	LOAM

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625 W. Ridge Pike, Suite E-100
Conshohocken, PA 19428
Telephone: (610)-832-3500
Fax: (610)-832-3501

USDA Classification

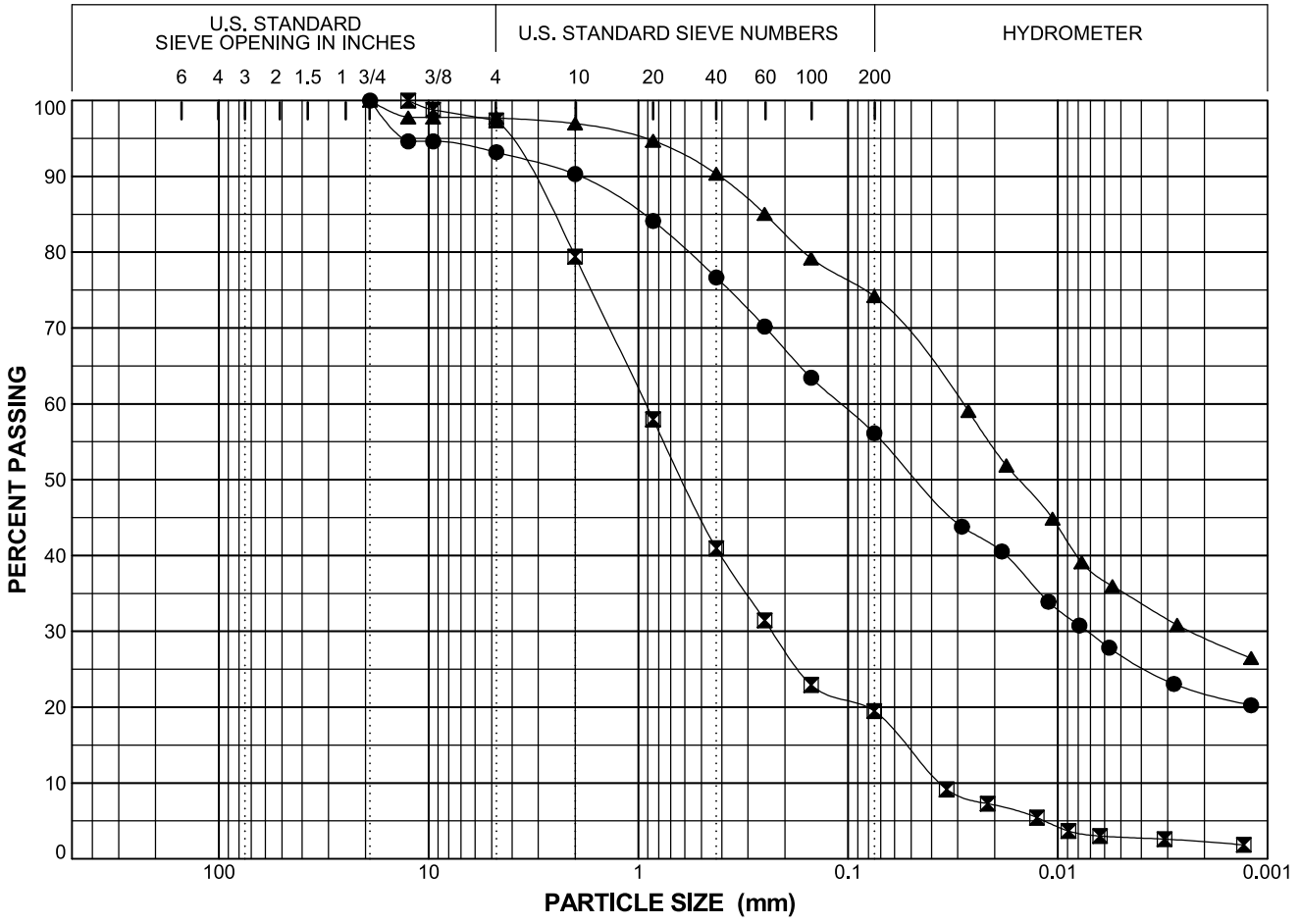
Project: Williams Sta 206 Infiltration

Location:

Project Number: 60537393 Figure 1

TRIANGLE PLOT USDA 11-2006 60537393 2018-05-04 WILLIAMS STA 206 INFILTRATION.GPJ 5/9/18

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	



SYMBOL	●	⊠	▲
Boring	TP- 8	TP- 8	TP- 9
Sample	S-1	S-2	S-1
Spec			
Depth (ft)	2.0	4.0	2.5
% +3"	0.0	0.0	0.0
% Gravel	6.8	2.6	2.3
% Sand	37.1	77.9	23.5
% Fines	56.1	19.5	74.2
% -2μ	21.9	2.2	29.2
Cc		1.58	
Cu		25.50	
LL	33	NP	34
PL	25	NP	22
PI	8	NP	12
USCS	ML	SM	CL
w (%)	25.3	19.1	23.4

Particle Size (Sieve #)	PERCENT FINER ●	⊠	▲
2"			
1 1/2"			
1"			
3/4"	100.0		100.0
1/2"	94.6	100.0	97.8
3/8"	94.6	98.8	97.8
4	93.2	97.4	97.7
10	90.3	79.4	97.0
20	84.1	58.0	94.7
40	76.7	40.9	90.3
60	70.2	31.4	85.1
100	63.4	22.9	79.2
200	56.1	19.5	74.2

SYMBOL	DESCRIPTION AND REMARKS
●	Brown SANDY SILT (ML)
⊠	Brown SILTY SAND (SM)
▲	Brown LEAN CLAY with SAND (CL)

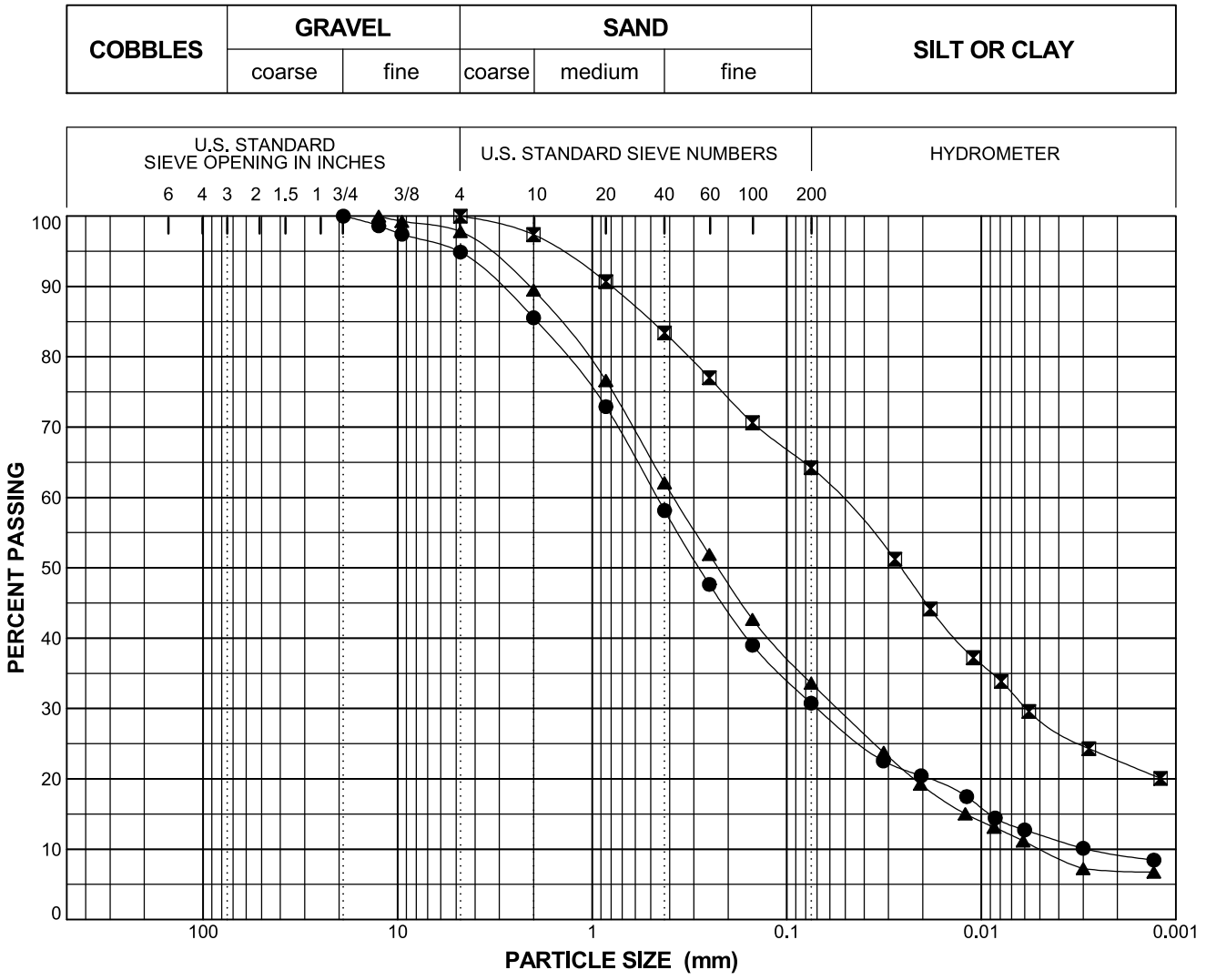
PARTICLE SIZE DISTRIBUTION

Williams Sta 206 Infiltration

Project Number 60537393	May 2018	Figure 1

AECOM

SIEVE_BLUEBELL_NEW 60537393_2018-05-04_WILLIAMS STA 206 INFILTRATION.GPJ URS_BLUE.GDT 5/9/18



SYMBOL	●	⊠	▲
Boring	TP- 9	TP-10	TP-10
Sample	S-2	S-1	S-2
Spec			
Depth (ft)	4.0	1.5	2.5
% +3"	0.0	0.0	0.0
% Gravel	5.1	0.0	2.2
% Sand	64.1	35.8	64.2
% Fines	30.8	64.2	33.6
% -2μ	9.3	22.6	7.0
Cc	3.67		1.60
Cu	164.28		77.16
LL	NP	33	NP
PL	NP	23	NP
PI	NP	10	NP
USCS	SM	CL	SM
w (%)	28.5	25.1	27.1

Particle Size (Sieve #)	PERCENT FINER ●	⊠	▲
2"			
1 1/2"			
1"			
3/4"	100.0		
1/2"	98.6		100.0
3/8"	97.4		99.3
4	94.9	100.0	97.8
10	85.5	97.4	89.5
20	72.9	90.7	76.6
40	58.1	83.4	62.1
60	47.6	77.0	51.9
100	39.0	70.6	42.7
200	30.8	64.2	33.6

SYMBOL	DESCRIPTION AND REMARKS
●	Brown SILTY SAND (SM)
⊠	Brown SANDY LEAN CLAY (CL)
▲	Brown SILTY SAND (SM)

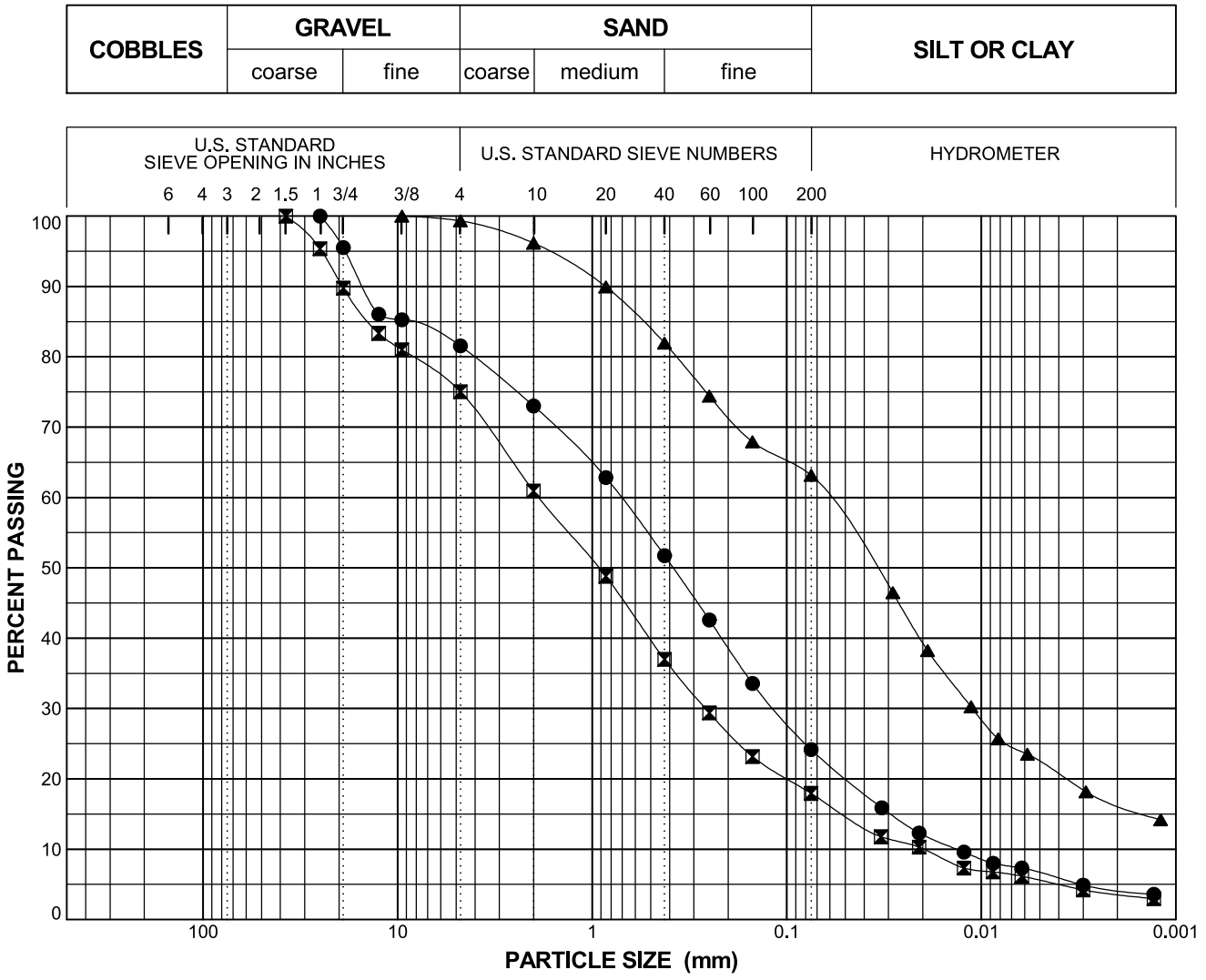
PARTICLE SIZE DISTRIBUTION

Williams Sta 206 Infiltration

Project Number 60537393	May 2018	Figure 2

AECOM

SIEVE_BLUEBELL_NEW 60537393_2018-05-04_WILLIAMS STA 206 INFILTRATION.GPJ URS_BLUE.GDT 5/9/18



SYMBOL	●	⊠	▲
Boring	TP-10	TP-11	TP-12
Sample	S-3	S-1	S-1
Spec			
Depth (ft)	3.1	3.0	1.5
% +3"	0.0	0.0	0.0
% Gravel	18.5	25.0	0.7
% Sand	57.4	57.1	36.2
% Fines	24.2	17.9	63.2
% -2μ	4.3	3.6	16.5
Cc	1.40	1.84	
Cu	53.37	94.68	
LL	NP	NP	30
PL	NP	NP	21
PI	NP	NP	9
USCS	SM	SM	CL
w (%)	23.8	27.5	24.4

Particle Size (Sieve #)	PERCENT FINER ●	⊠	▲
2"			
1 1/2"		100.0	
1"	100.0	95.4	
3/4"	95.5	89.8	
1/2"	86.0	83.3	
3/8"	85.3	81.0	100.0
4	81.5	75.0	99.3
10	73.0	60.9	96.2
20	62.8	48.8	89.9
40	51.7	37.0	82.0
60	42.6	29.4	74.4
100	33.5	23.2	67.9
200	24.2	17.9	63.2

SYMBOL	DESCRIPTION AND REMARKS
●	Brown SILTY SAND with GRAVEL (SM)
⊠	Brown SILTY SAND with GRAVEL (SM)
▲	Brown SANDY LEAN CLAY (CL)

PARTICLE SIZE DISTRIBUTION

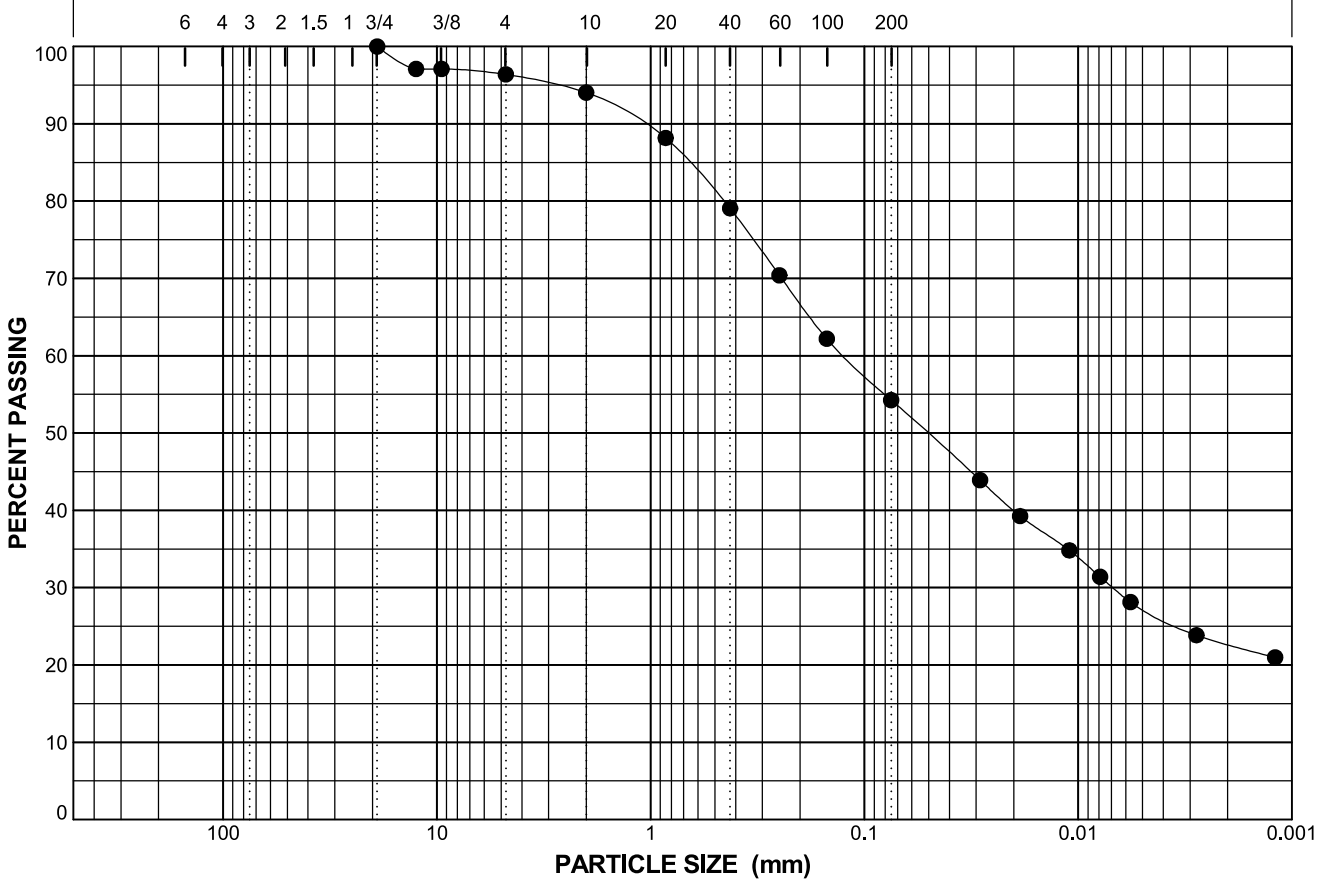
Williams Sta 206 Infiltration

Project Number		
60537393	May 2018	Figure 3

AECOM

SIEVE_BLUEBELL_NEW 60537393_2018-05-04_WILLIAMS STA 206 INFILTRATION.GPJ URS_BLUE.GDT 5/9/18

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	



SYMBOL	●		
Boring	TP-12		
Sample	S-2		
Spec			
Depth (ft)	3.0		
% +3"	0.0		
% Gravel	3.6		
% Sand	42.1		
% Fines	54.3		
% -2μ	22.7		
Cc			
Cu			
LL	37		
PL	25		
PI	12		
USCS	ML		
w (%)	34.7		

Particle Size (Sieve #)	PERCENT FINER ●
2"	
1 1/2"	
1"	
3/4"	100.0
1/2"	97.1
3/8"	97.1
4	96.4
10	94.0
20	88.2
40	79.1
60	70.4
100	62.2
200	54.3

SYMBOL	DESCRIPTION AND REMARKS
●	Brown SANDY SILT (ML)

PARTICLE SIZE DISTRIBUTION

Williams Sta 206 Infiltration

Project Number 60537393	May 2018	Figure 4

AECOM

SIEVE_BLUEBELL_NEW 60537393_2018-05-04_WILLIAMS STA 206 INFILTRATION.GPJ URS_BLUE.GDT 5/9/18

Attachment C
Double Ring Infiltration Results

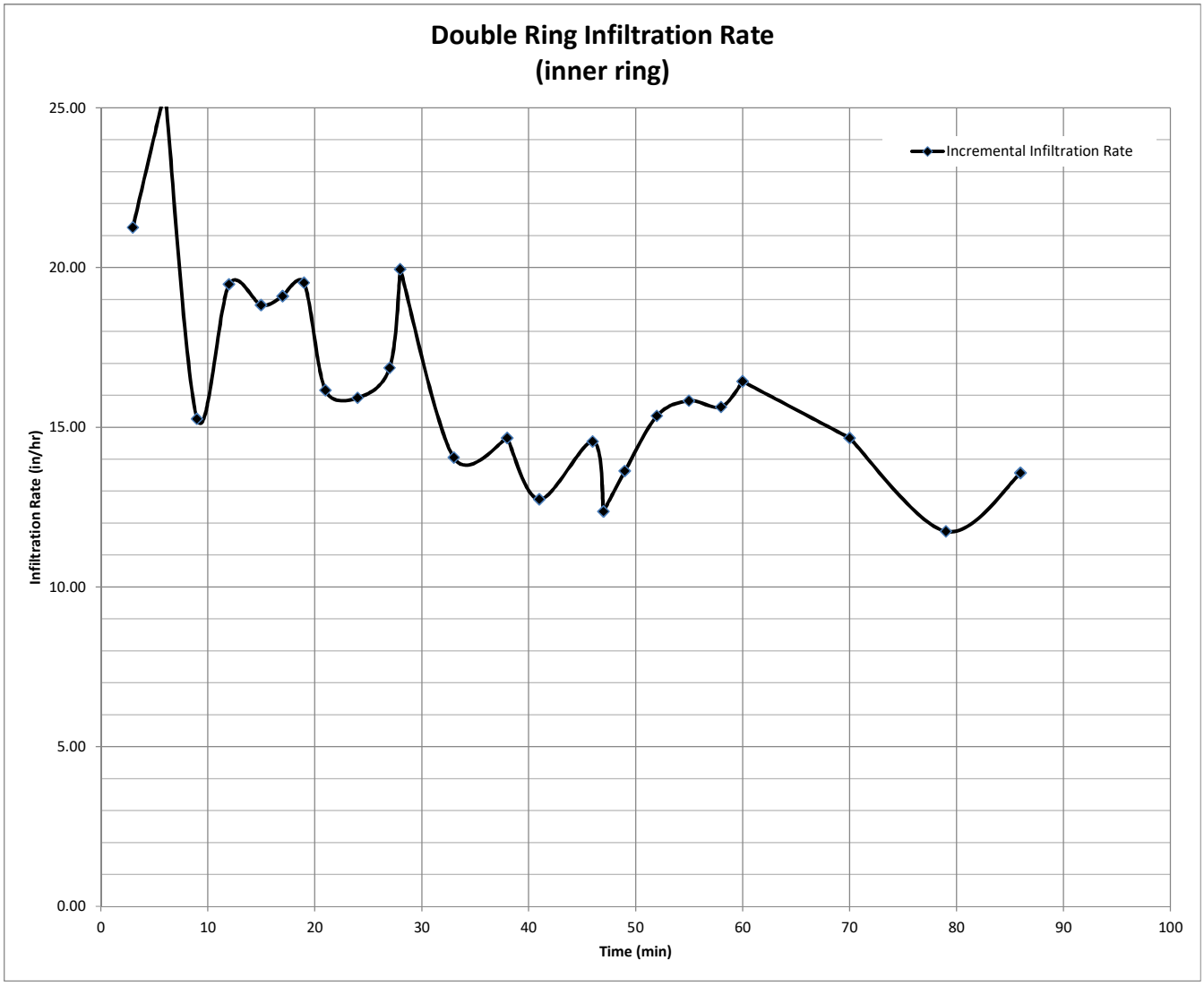
SUMMARY OF DOUBLE RING INFILTRATION TESTS (ASTM D3385-09)

Project Name: Williams Station 206
Project Number: 60537393

DRI Boring No.	Test Elevation (ft)	Field Infiltration Rate (in/hr)	Soil Classification (USDA)	Comments
TP-8	260.5	13.3	Loamy Sand	
TP-9	260.5	2.9	Sandy Loam	
TP-10	260.6	2.3	Sandy Loam	
TP-11	261.5	10.7	Sandy Loam	
TP-12	262	0.13	Loam	

DOUBLE RING INFILTRATION (DRI) TEST (ASTM D3385-09)

Project Number:	60537393	**Logged By:**	CM
Project Name:	Williams Station 206 Infiltration	**Checked By:**	NGS
DRI Number:	TP-8	**Test Date:**	4/20/2018
		Ground Elev. (ft):	264.5
Presoak Date_Time:	04/20/18,9:40 AM	**Test Depth (ft):**	4.0
Weather:	Clear, 38-65 F	**Station/Latitude:**	-
		Rd. Offset/Long.:	-
USDA Soil Classficiation:	Loamy Sand	**Offset from Prop.:**	-

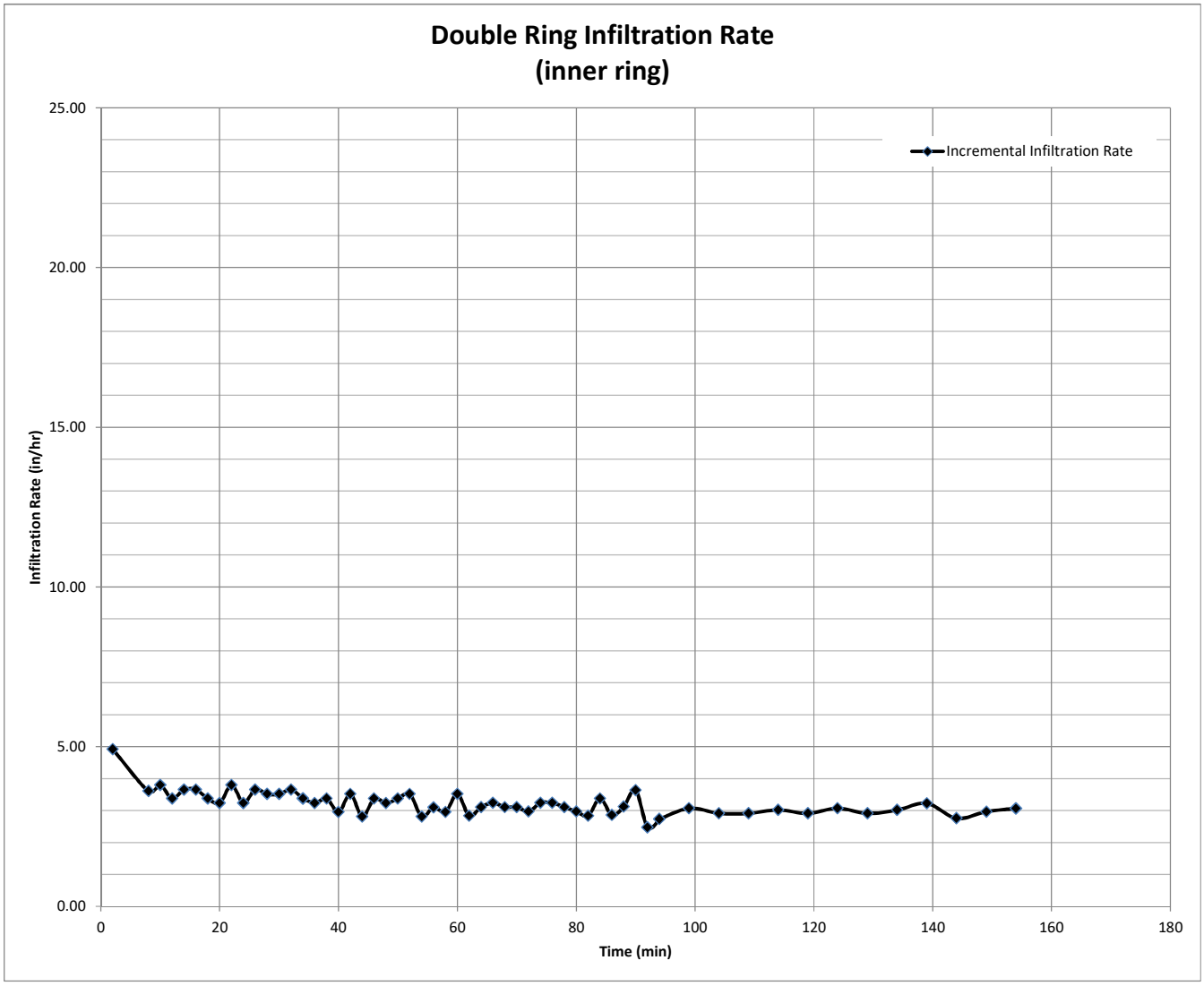


INFILTRATION RATE: **13.3 in/hr**

REMARKS: -

DOUBLE RING INFILTRATION (DRI) TEST (ASTM D3385-09)

Project Number:	60537393	**Logged By:**	NGS
Project Name:	Williams Station 206 Infiltration	**Checked By:**	NGS
DRI Number:	TP-9	**Test Date:**	4/20/2018
		Ground Elev. (ft):	264.5
Presoak Date_Time:	04/20/18, 9:30 AM	**Test Depth (ft):**	4.0
Weather:	Clear, 38-65 F	**Station/Latitude:**	-
		Rd. Offset/Long.:	-
USDA Soil Classficiation:	Sandy Loam	**Offset from Prop.:**	-

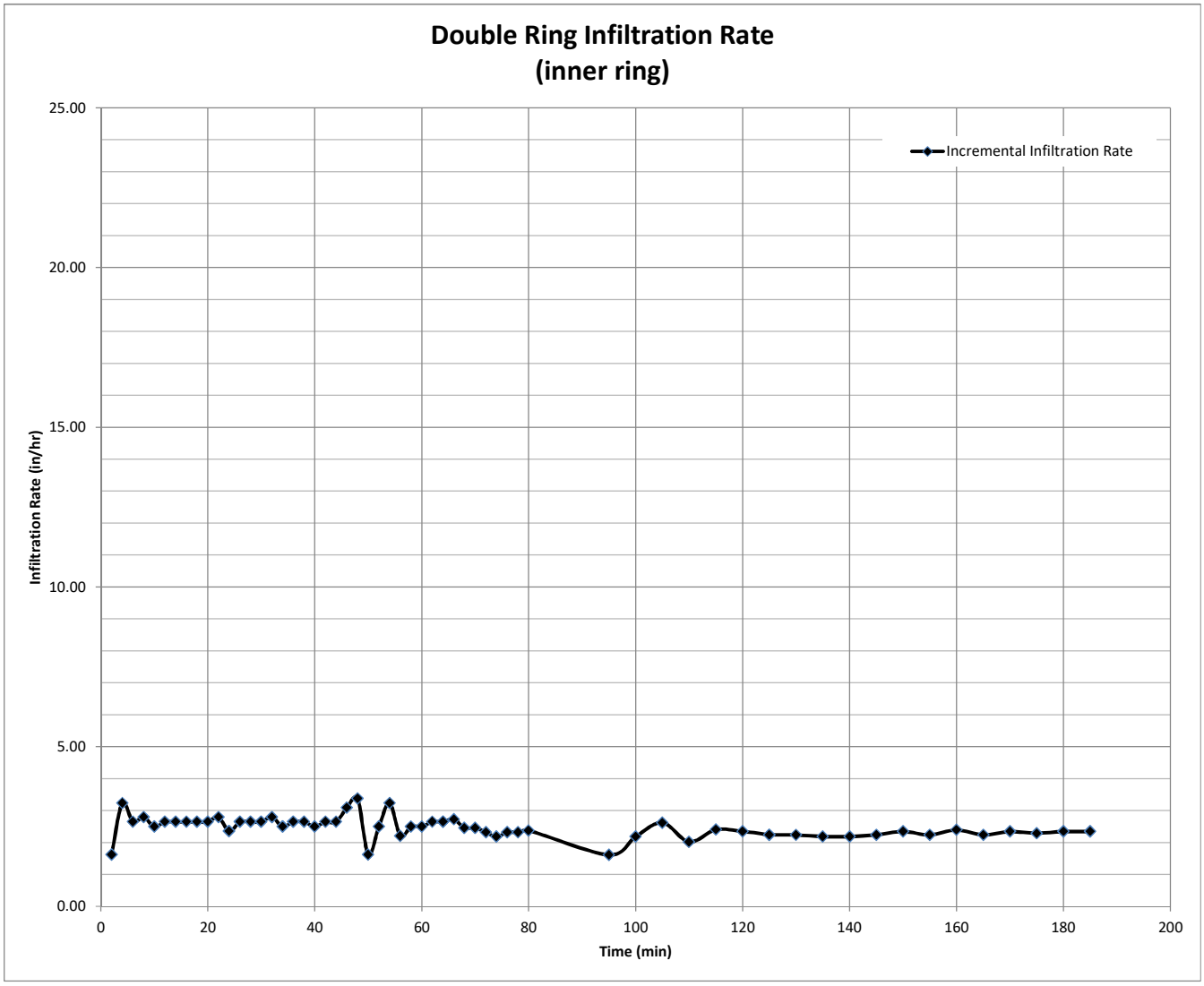


INFILTRATION RATE: **2.9 in/hr**

REMARKS: -

DOUBLE RING INFILTRATION (DRI) TEST (ASTM D3385-09)

Project Number:	60537393	**Logged By:**	CM
Project Name:	Williams Stataion 206 Infiltration	**Checked By:**	NGS
DRI Number:	TP-10	**Test Date:**	4/23/2018
		Ground Elev. (ft):	263.6
Presoak Date_Time:	04/23/18, 8:30 AM	**Test Depth (ft):**	3.0
Weather:	Clear, 44-66 F	**Station/Latitude:**	-
		Rd. Offset/Long.:	-
USDA Soil Classficiation:	Sandy Loam	**Offset from Prop.:**	-

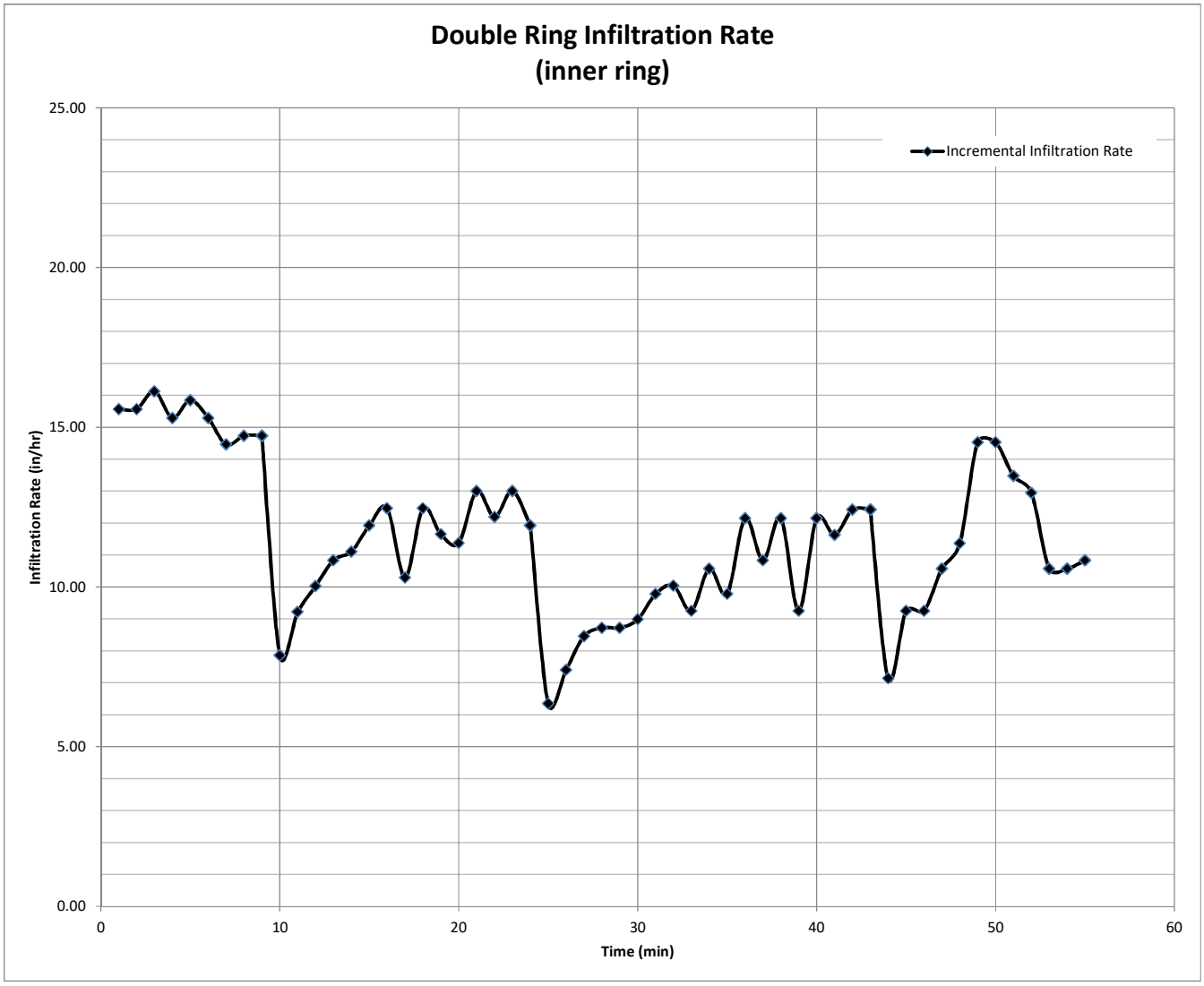


INFILTRATION RATE: **2.3 in/hr**

REMARKS: -

DOUBLE RING INFILTRATION (DRI) TEST (ASTM D3385-09)

Project Number:	60537393	**Logged By:**	NGS
Project Name:	Williams Station 206 Infiltration	**Checked By:**	NGS
DRI Number:	TP-11	**Test Date:**	4/19/2018
		Ground Elev. (ft):	264.5
Presoak Date_Time:	04/19/18, 1:05 PM	**Test Depth (ft):**	3.0
Weather:	Cloudy, 44-56 F	**Station/Latitude:**	-
		Rd. Offset/Long.:	-
USDA Soil Classficiation:	Sandy Loam	**Offset from Prop.:**	-

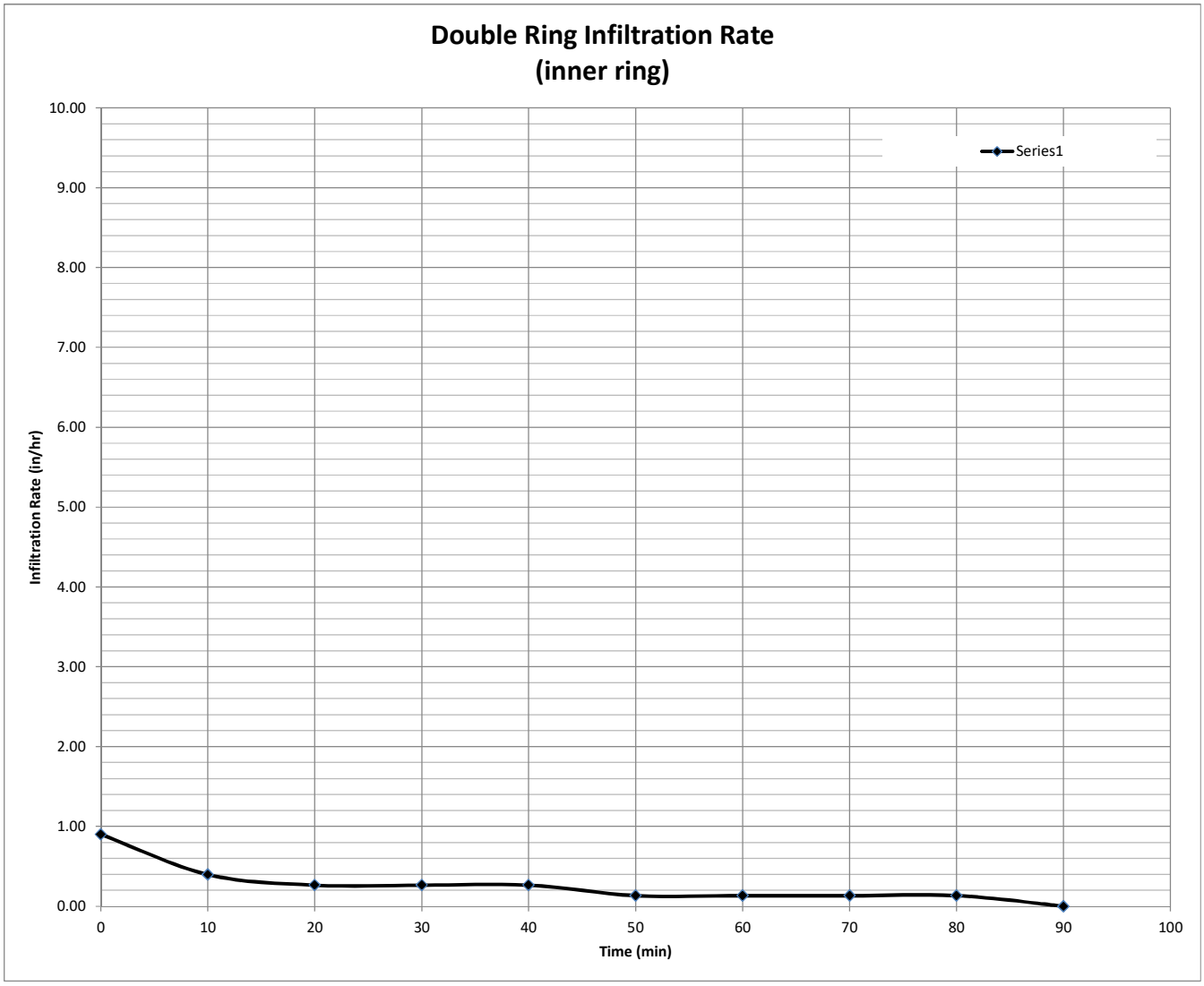


INFILTRATION RATE: **10.7 in/hr**

REMARKS: Test depth altered from 3.5 ft to 3 ft due to ground water at 5 ft depth with cobbles and boulders encountered at 3.5 ft depth.

DOUBLE RING INFILTRATION (DRI) TEST (ASTM D3385-09)

Project Number:	60537393	**Logged By:**	NL
Project Name:	Williams Station 206 Infiltration	**Checked By:**	NGS
DRI Number:	TP-12	**Test Date:**	4/19/2018
		Ground Elev. (ft):	264.5
Presoak Date_Time:	04/19/18, 12:30 PM	**Test Depth (ft):**	2.5
Weather:	Cloudy, 44-54 F	**Station/Latitude:**	-
		Rd. Offset/Long.:	-
USDA Soil Classficiation:	Loam	**Offset from Prop.:**	-



INFILTRATION RATE: **0.13 in/hr**

REMARKS: Test depth altered from 3.5 ft to 2.5 ft depth due to ground water at 3.2 ft depth with cobbles and boulders encountered at 3.5 ft depth.

Attachment D
Photo Log

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Williams	Williams Station 206	60537393

Photo No.	Date:
1	4/20/2018

Direction Photo Taken:
TP-8

Description:
Sidewall TP-8



Photo No.	Date:
2	4/20/2018

Direction Photo Taken:
TP-8

Description:
DRI from TP-8



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Williams	Williams Station 206	60537393

Photo No.	Date:
3	4/20/2018

Direction Photo Taken:
TP-9

Description:
Sidewall of Test Pit TP-9



Photo No.	Date:
4	4/20/2018

Direction Photo Taken:

Description:
DRI for TP-09



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Williams	Williams Station 206	60537393

Photo No.	Date:
5	4/24/2018

Direction Photo Taken:
Test pit TP-10

Description:
TP-10



Photo No.	Date:
6	4/23/2018

Direction Photo Taken:
TP-10

Description:
DRI from TP-10



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Williams	Williams Station 206	60537393

Photo No.	Date:
7	4/24/2018

Direction Photo Taken:
TP-11

Description:
Test Pit TP-11



Photo No.	Date:
8	4/20/2018

Direction Photo Taken:
Test Pit TP-12

Description:
Test Pit TP-12



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Williams	Williams Station 206	60537393

Photo No.	Date:
9	4/19/2018

Direction Photo Taken:
Test pit TP-12

Description:
DRI for Test Pit TP-12



Photo No.	Date:
10	4/19/2018

Direction Photo Taken:
North direction of sidewall of TP-12

Description:
DRI Test pIt from TP-12



Attachment E
Soil Investigation

CEDARVILLE Engineering Group, LLC
Sustaining Communities by Design

May 1, 2018

Compressor Station No. 206 Soil Classification Report

Prepared For:

AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, PA 19428

Prepared By:

1033 South Hanover Street, Suite 300
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P: 610.705.4500 F: 610.705.4900
www.cedarvilleeng.com



Completed by: _____

Stephen Dadio, Environmental Manager

TABLE OF CONTENTS

INTRODUCTION 2
PROJECT AND SITE DESCRIPTION 2
NATURAL FEATURES INVENTORY 2
METHODOLOGY 3
TEST RESULTS 4
SUMMARY 5

APPENDICES

A. Site Profile Descriptions 6

INTRODUCTION

A Soil Investigation was completed at Compressor Station No. 206 in Franklin Township, Somerset County to morphologically describe and taxonomically classify the soils at this location. CEDARVILLE Engineering Group, LLC (CEDARVILLE) was retained by AECOM to complete this Soil Investigation.

The scope of the investigation included the following tasks:

- Field soil investigation
- Soil Classification Report

PROJECT AND SITE DESCRIPTION

The proposed location for Compressor Station No. 206 is a wooded area just north of an active quarry. While the project area formerly was farmed (according to the 1930 Black and White photo layer from the NJDEP Geoweb), the area consists of mature woodlands; no signs of deleterious materials were observed during this investigation.

NATURAL FEATURES INVENTORY

USGS 7.5-minute Topographic Quadrangle

The site appears on the Monmouth Junction U.S. Geological Survey (USGS) 7.5 minute quadrangle map (40° 24' 08.10" N, 74° 35' 47.19" W). The areas proposed for stormwater management lie between 263 and 265 feet above mean sea elevation. The site lies in an elevated hillslope position (summit).

Digital Aerial Imagery

Digital aerial imagery base mapping was obtained through ArcMap 10.4.1 and reviewed. According to the aerial imagery, the area of investigation consists wooded areas.

Soil Survey

USDA-Natural Resources Conservation Service (NRCS) soil survey mapping displays three (3) map units within the site boundary: Keyport silt loam, 0 to 2 percent slopes (KepA), and Neshaminy silt loam, 2 to 6 percent slopes (NehB) and Neshaminy-Mount Lucas complex, 6 to 12 percent slopes (NemCb). The areas where stormwater management is being proposed are mapped as the Keyport series.

The soil units are described below in Table 1.

Table 1: Soil Unit Descriptions

Soil Unit	Soil Type	Drainage Class	Depth to Restrictive Feature	Depth to Water Table	Landform Setting	Parent Material	Hydrologic Soil Group
KepA	Keyport (80%)	Moderately well	>80 inches	18-30 inches	Knolls	Silty and clayey eolian deposits	D
NehB	Neshaminy (85%)	Well	48-80 inches to lithic bedrock	>80 inches	Hills	Loamy residuum from diabase	B
NemCb	Neshaminy (55%) Mount Lucas (35%)	Well Moderately Well	48-80 inches to lithic bedrock 48-60 inches to lithic bedrock	>80 inches 6-30 inches	Hills	Loamy residuum from diabase	B C

National Wetland Inventory (NWI)

According to the U.S. Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI), there are no wetlands present in the project area.

Geology

The site is underlain by Diabase (Jd), which consists of Jurassic-Age diabase. This is a non-carbonate formation and the risk of sinkholes forming is minimal.

Watersheds

The project site lies within the Millstone Creek watershed. The nearest stream is an unnamed tributary to Carters Brook.

METHODOLOGY

On April 24, 2018, the soils were evaluated by a Certified Professional Soil Scientist and Soil Classifier. Five (5) test pits were advanced, utilizing an ACERA 140 SR Excavator, across the property to the depth of refusal. At each location, the soil morphology was described in accordance with USDA-NRCS National Cooperative Soil Survey Standards. The soils were then classified in accordance with the standards set forth in Soil Taxonomy and in comparison with Official Series Descriptions (OSDs).

The soil profile descriptions are included in the Appendices of this Report.

TEST RESULTS

Soil Classification

The soils encountered during this site investigation would be classified as the Neshaminy series. These soils formed from the residual diabase bedrock and were deep to very deep to bedrock and well-drained. These soils would be classified as Hydrologic Soil Group B.

Depth to Bedrock

The depth to bedrock was determined by the depth in which the excavator encountered refusal; this is called a lithic contact and is designated in the soil profile description as "R". The lithic contact would be considered limiting for stormwater infiltration. In diabase soils, there can be a zone of weathered bedrock; this is described as a paralithic contact and is not limiting for stormwater infiltration.

Test Pit	Depth to Paralithic Contact (in)	Depth to Lithic Contact (in)
8	44	78
9	60	84
10	---	114
11	---	78
12	---	72

Depth to Seasonal High Water Table

The depth to a seasonal high water table is determined by the presence of redoximorphic features (drainage mottling). No evidence of redoximorphic features were observed at any of the test locations during this site investigation. These soils are well drained. However, seepage was observed at four of the test locations; this seepage was associated with perching above the lithic contact at each test location.

Test Pit	Depth to Redoximorphic Features (in)	Depth to Seepage (in)	Depth to Lithic Contact (in)
8	---	76	78
9	---	---	84
10	---	114	114
11	---	72	78
12	---	54	72

Water naturally percolates through the soil and eventually reaches groundwater. It has been a wet April and water has been percolating through the soil and moving downslope over the lithic bedrock; this is a natural process. In order

for redoximorphic features to form, there must be a continual period of saturation (studies vary, but generally 7 consecutive days of saturating conditions). As there are no redoximorphic features observed at any test location, this seepage in and of itself does not reflect a seasonal high water table. The lithic bedrock would be considered the limiting zone, and it will be critical for the designer to maintain a 2-ft separation above the lithic bedrock for the stormwater design in order to account for observed seepage and to prevent future mounding issues.

SUMMARY

A Soil Investigation was completed at Compressor Station No. 206 in Franklin Township, Somerset County to morphologically describe and taxonomically classify the soils at this location. The soils encountered during this site investigation would be classified as the Neshaminy series. These soils formed from the residual diabase bedrock and were deep to very deep to bedrock and well-drained. The depth to lithic bedrock ranged from 72 to 114 inches below grade. Just above, this bedrock, seepage was observed; however this does not reflect a water table condition.

SOIL PROFILE DESCRIPTIONS

Soil Profile Description Sheet

Project Name: Compressor Station No. 206 Date: 4/24/2018

Project Number: AEC-18-163 Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 8

Soil mapped: Keyport silt loam

Soil classified: Neshaminy silt loam

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock: 78"

Depth to Redoximorphic Features: Not Encountered

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-8	7.5YR 4/3	silt loam	gravels	2	2	m	gr	friable	-	-	-	abrupt/smooth
Bt1	8-28	5YR 5/6	silt loam	gravels	5	2	m	sbk	friable	-	-	-	clear/wavy
Bt2	28-34	5YR 5/6	silt loam	gravels	10	2	m	sbk	friable	-	-	-	abrupt/wavy
BC	34-44	10YR 4/4	sandy loam	gravels	20	1	m	sbk	very friable	-	-	-	abrupt/wavy
Cr	44-78												
R	78+												

Seepage observed at 76"

Black manganese stains (10YR 2/1) observed between 34 and 44 inches.

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	sbk-subangular blocky
1-Weak	f-fine	gr-granular	sg-single-grained
2-Moderate	m-medium	m-massive	
3-Strong	co-coarse	pl-platy	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: Compressor Station No. 206

Date: 4/24/2018

Project Number: AEC-18-163

Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 9

Soil mapped: Keyport silt loam

Soil classified: Neshaminy silt loam

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock: 84"

Depth to Redoximorphic Features: Not Encountered

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam	gravels	2	2	m	gr	friable	-	-	-	abrupt/smooth
Bt1	10	7.5YR 5/6	silt loam	gravels	5	2	m	sbk	friable	-	-	-	clear/wavy
Bt2	10-20	5YR 5/6	silt loam	gravels	10	2	m	sbk	friable	-	-	-	abrupt/wavy
BC	20-46	10YR 3/4	sandy loam	gravels	40	1	m	sbk	very friable	-	-	-	clear/wavy
Cr	46-60												
R	84+												

No seepage observed

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	sbk-subangular blocky
1-Weak	f-fine	gr-granular	sg-single-grained
2-Moderate	m-medium	m-massive	
3-Strong	co-coarse	pl-platy	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: Compressor Station No. 206

Date: 4/24/2018

Project Number: AEC-18-163

Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 10

Soil mapped: Keyport silt loam

Soil classified: Neshaminy silt loam

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock: 114"

Depth to Redoximorphic Features: Not Encountered

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-6	10YR 4/3	silt loam	gravels	2	2	m	gr	friable	-	-	-	abrupt/smooth
Bt1	6-24	7.5YR 4/6	silt loam	gravels	2	2	m	sbk	friable	-	-	-	clear/wavy
Bt2	24-40	7.5YR 4/6	silt loam	gravels	5	2	m	sbk	friable	-	-	-	abrupt/wavy
BC	40-60	7.5YR 3/4	sandy loam	gravels	40	1	m	sbk	very friable	-	-	-	gradual/wavy
C	60-114	7.5YR 3/4	sandy loam	cobbles	60	0		m	very friable	-	-	-	
R	114+												

Seepage observed at 114"

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	sbk-subangular blocky
1-Weak	f-fine	gr-granular	sg-single-grained
2-Moderate	m-medium	m-massive	
3-Strong	co-coarse	pl-platy	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: Compressor Station No. 206

Date: 4/24/2018

Project Number: AEC-18-163

Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 11

Soil mapped: Keyport silt loam

Soil classified: Neshaminy silt loam

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock: 78"

Depth to Redoximorphic Features: Not Encountered

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-8	10YR 4/3	silt loam	gravels	5	2	m	gr	friable	-	-	-	abrupt/smooth
Bt	8-20	7.5YR 5/6	silt loam	gravels	10	2	m	sbk	friable	-	-	-	clear/wavy
BC	20-36	10YR 4/6	sandy loam	gravels	30	1	m	sbk	firm	-	-	-	abrupt/wavy
C	36-78	7.5YR 3/4	loamy sand	boulders	60	0		m	very friable	-	-	-	
R	78+												

Seepage observed at 72"

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	sbk-subangular blocky
1-Weak	f-fine	gr-granular	sg-single-grained
2-Moderate	m-medium	m-massive	
3-Strong	co-coarse	pl-platy	
	vc-very coarse	pr-prismatic	

Soil Profile Description Sheet

Project Name: Compressor Station No. 206

Date: 4/24/2018

Project Number: AEC-18-163

Tested by: Stephen Dadio, CPSS/CPSC

Test Location:

Test Pit #: 12

Soil mapped: Keyport silt loam

Soil classified: Neshaminy silt loam

Taxonomic class: Fine-loamy, mixed, superactive, mesic Ultic Hapludalfs

LIMITING ZONES

Depth of Rock: 72"

Depth to Redoximorphic Features: Not Encountered

Horizon	Depth (inches)	Color	Texture	Rock Fragments		Structure			Moist Consistence	Redoximorphic Features			Boundary
				Size	Quantity (%)	Grade	Size	Type		Abundance	Size	Contrast	
Ap	0-10	10YR 4/3	silt loam	gravels	5	2	m	gr	friable	-	-	-	abrupt/smooth
Bt	10-24	10YR 5/6	silt loam	gravels	10	2	m	sbk	friable	-	-	-	clear/wavy
BC	24-40	10YR 4/6	loamy sand	gravels	30	1	m	sbk	friable-firm	-	-	-	clear/wavy
C	40-72	10YR 3/4	sandy loam	cobbles	50	0		m	very friable	-	-	-	
R	78+												

Seepage observed at 54"

Legend

Structure

Grade	*Size*		
0-Structureless	vf-very fine	abk-angular blocky	sbk-subangular blocky
1-Weak	f-fine	gr-granular	sg-single-grained
2-Moderate	m-medium	m-massive	
3-Strong	co-coarse	pl-platy	
	vc-very coarse	pr-prismatic	

APPENDIX B.3
ADDITIONAL INFILTRATION TESTING (JULY-AUGUST 2025)

INFILTRATION TEST RESULTS

FOR

NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION 206
HIGGINS FARM ACCESS ROAD

FRANKLIN TOWNSHIP
SOMERSET COUNTY, NEW JERSEY

AUGUST 18, 2025

Prepared for:

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
2800 POST OAK BOULEVARD
HOUSTON, TEXAS 77251-1396

Prepared By:

300 BROADACRES DR
BLOOMFIELD, NEW JERSEY 07003
973-883-8677

TABLE OF CONTENTS

1. BACKGROUND AND INTRODUCTION
2. TEST LOCATION MAP
3. TEST PIT LOGS
4. TEST PIT PHOTOS
5. INFILTRATION TEST LOGS
6. INFILTRATION RATE RESULTS
7. BASIN FLOOD TEST RESULTS
8. RESULTS AND CONCLUSIONS

BACKGROUND AND INTRODUCTION

Background and Introduction

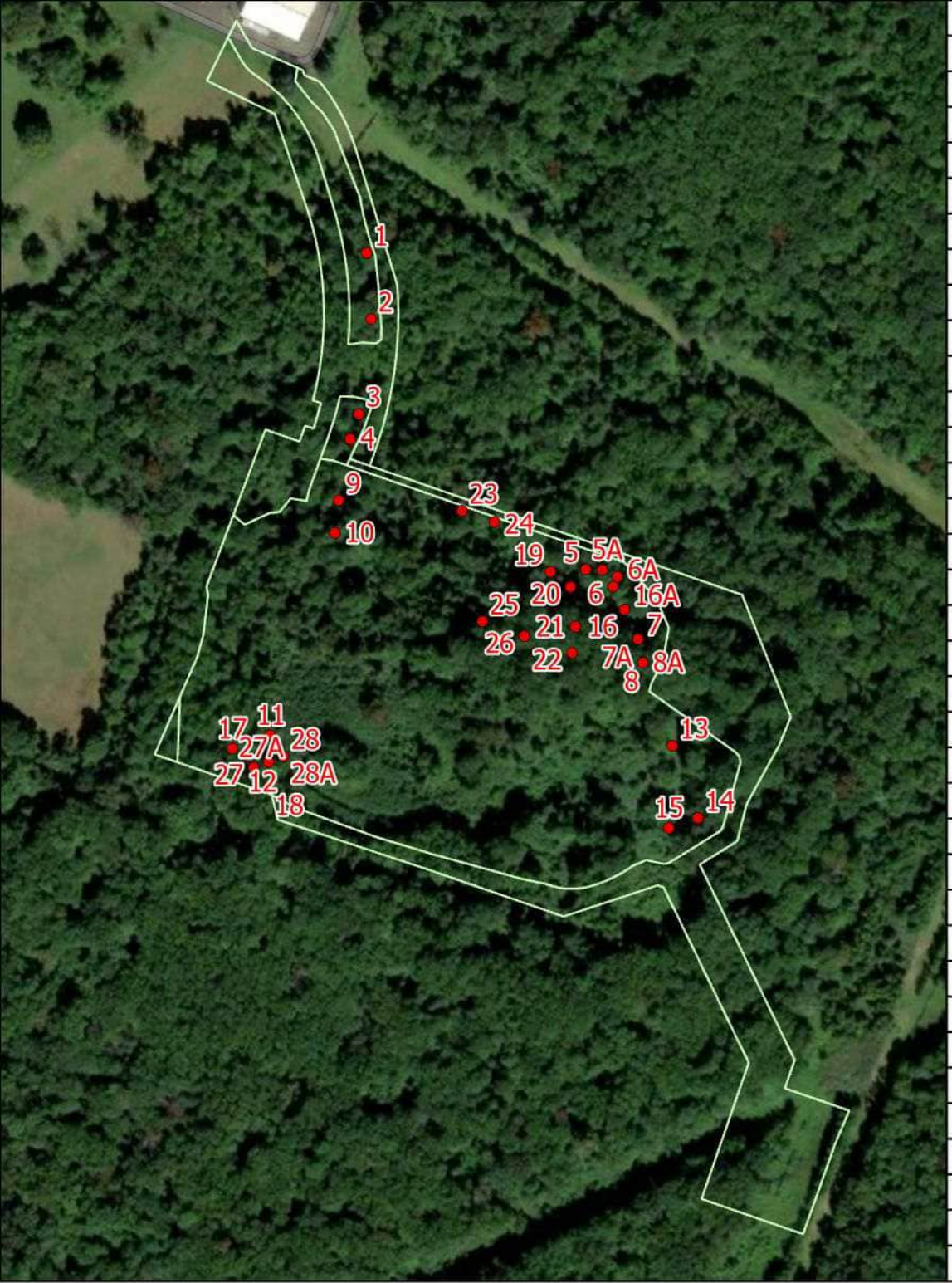
In response to the New Jersey Department of Environmental Protection's (NJDEP) deficiency letter dated July 21, 2025, additional soil testing was performed to supplement prior investigations and support the design of stormwater Best Management Practices (BMPs) at the project site. NJDEP requested that site-specific soil testing be conducted in accordance with Chapter 12 of the New Jersey Stormwater Best Management Practices Manual, with particular emphasis on demonstrating appropriate Hydrologic Soil Groups, seasonal high water table (SHWT) depths, and soil permeability for each proposed infiltration basin.

Earlier phases of investigation were conducted in 2017 and 2018, consisting of test pits, soil borings, and infiltration testing. These results established preliminary subsurface conditions and informed the initial basin designs. However, subsequent revisions to the site layout, including the reconfiguration of the access road and redistribution of drainage areas, necessitated the addition of new infiltration basins. Because several of these basins were not covered by the prior testing program, NJDEP determined that supplemental field investigations were required to demonstrate compliance with Chapter 9 and Chapter 12 requirements.

The July–August 2025 field testing was therefore developed to address these requirements and provide updated data for the revised stormwater management plan. The program included the excavation of 28 test pits and 6 basin flooding test basins across the site, completion of soil profile descriptions, percolation testing where feasible, and basin flooding tests at locations with shallow fractured bedrock. In addition, a SHWT evaluation was performed in accordance with BMP Manual procedures to confirm the required two-foot separation from the basin infiltration layer.

The purpose of this report is to summarize the methodology, findings, and conclusions of the 2025 soil testing program and to document compliance with NJDEP's soil testing and separation standards for infiltration BMPs. The results presented herein provide the technical basis for the updated stormwater basin design and are incorporated into the revised Stormwater Management Plan resubmitted to NJDEP.

TEST LOCATION MAP



TP	LONGITUDE	LATITUDE	RD	EBG
1	W74° 35' 55.58495715"	N40° 24' 17.91664901"	3	10
2	W74° 35' 55.41873728"	N40° 24' 16.68927585"	2	9
3	W74° 35' 55.62775245"	N40° 24' 14.91593417"	2	9
4	W74° 35' 55.81898016"	N40° 24' 14.44523376"	3	10
5	W74° 35' 49.97421223"	N40° 24' 12.18448956"	6.5	13.5
5A	W74° 35' 49.5708"	N40° 24′ 12.18566″	6.5′ (at refusal)	
6	W74° 35' 49.29367755"	N40° 24' 11.88483356"	5.5	12.5
6A	W74° 35' 49.1958"	N40° 24′ 12.06767″	4	11
7	W74° 35' 48.64236079"	N40° 24' 10.92435040"	7.5	14.5
7A	W74° 35' 48.64236079"	N40° 24' 10.92435040"	7.5′ (at refusal)	
8	W74° 35' 48.50576556"	N40° 24' 10.49080179"	6.5	13.5
8A	W74° 35' 48.50576556"	N40° 24' 10.49080179"	6.5′ (at refusal)	
9	W74° 35' 56.04682262"	N40° 24' 13.29870750"	5	12
10	W74° 35' 56.10818134"	N40° 24' 12.69032142"	5	12
11	W74° 35' 57.51043732"	N40° 24' 08.88787656"	3.5	10.5
12	W74° 35' 57.51749939"	N40° 24' 08.38995253"	2.5	9.5
13	W74° 35' 47.70960417"	N40° 24' 08.96612783"	5	12
14	W74° 35' 47.02535237"	N40° 24' 07.63824188"	4	11
15	W74° 35' 47.72203890"	N40° 24' 07.43493694"	5	12
16	W74° 35' 48.99786917"	N40° 24' 11.46244198"	7.5	14.5
16A	W74° 35' 48.99786917"	N40° 24' 11.46244198"	7.5′ (at refusal)	
17	W74° 35' 58.41186836"	N40° 24' 08.61426455"	3	10
18	W74° 35' 57.5196"	N40° 24′ 07.89966″	1.5	8.5
19	W74° 35' 50.8338"	N40° 24′ 12.11492″	6.5	13.5
20	W74° 35' 50.3334"	N40° 24′ 11.84795″	6.5	13.5
21	W74° 35' 50.1792"	N40° 24′ 11.11086″	7	14
22	W74° 35' 50.2368"	N40° 24′ 10.62347″	7	14
23	W74° 35' 53.0376"	N40° 24′ 13.18919″	6	13
24	W74° 35' 52.2378"	N40° 24′ 13.00542″	4	11
25	W74° 35' 52.443"	N40° 24′ 11.14582″	6	13
26	W74° 35' 51.4098"	N40° 24′ 10.90167″	5	12
27	W74° 35' 57.876"	N40° 24′ 08.27570″	5	12
27A	W74° 35' 57.876"	N40° 24′ 08.27570″	5′ (at refusal)	
28	W74° 35' 57.159"	N40° 24′ 08.50421″	5	12
28A	W74° 35' 57.159"	N40° 24′ 08.50421″	5′ (at refusal)	

Aerial Map Test Pit Locations

NORTHEAST SUPPLY ENHANCEMENT PROJECT COMPRESSOR STATION 206 AT HIGGINS FARM ACCESS ROAD FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY

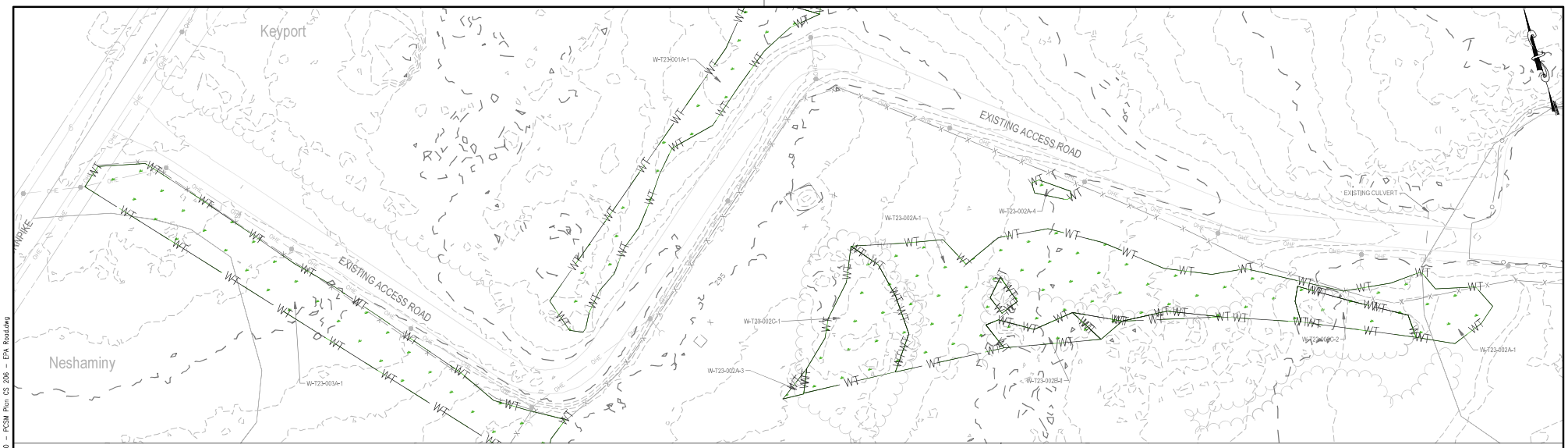
Test Pits

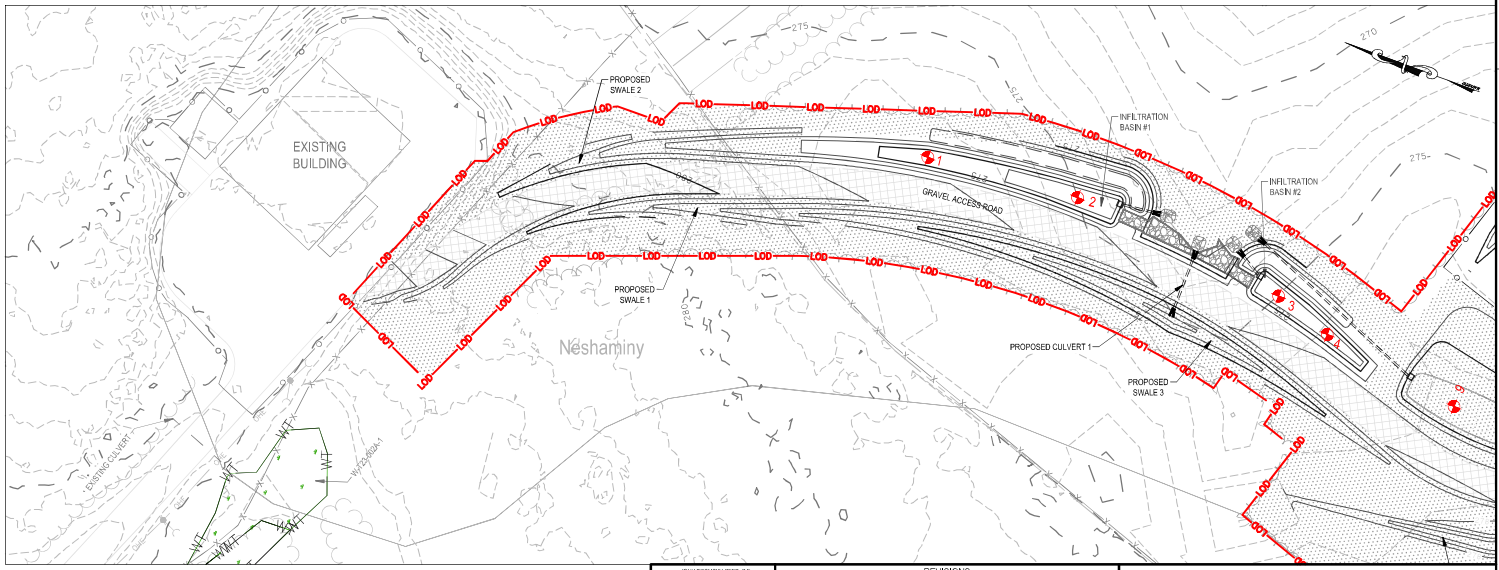
N

0 1.5 3 6 Miles

07.29.2025

AECOM





Soil Profile Pit Location

	Longitude	Latitude	Reference Depth (ft)	Depth (ft) for Soil Profile
1	W74° 35' 55.58493715"	N40° 24' 17.31664993"	3,0	10,0
2	W74° 35' 55.41873728"	N40° 24' 16.88927989"	2,0	9,0
3	W74° 35' 55.82775245"	N40° 24' 14.91569417"	2,0	9,0
4	W74° 35' 55.81698516"	N40° 24' 14.44523376"	3,0	10,0
5	W74° 35' 49.87421223"	N40° 24' 12.18446559"	6,5	13,5
6	W74° 35' 49.29397755"	N40° 24' 11.88483358"	5,5	12,5
6A	W74° 35' 49,1958"	N40° 24' 12,06757"	4,0	11,0
7	W74° 35' 48.84239978"	N40° 24' 10.92435998"	7,5	14,5
8	W74° 35' 48.50579356"	N40° 24' 10.46866173"	6,5	13,5
9	W74° 35' 56.04662262"	N40° 24' 13.29870759"	5,0	12,0
10	W74° 35' 56.10818134"	N40° 24' 12.89932142"	5,0	12,0
11	W74° 35' 57.51043732"	N40° 24' 09.88787656"	3,5	10,5
12	W74° 35' 51.51749459"	N40° 24' 08.35995253"	2,5	9,5
13	W74° 35' 47.70969417"	N40° 24' 08.38812783"	5,0	12,0
14	W74° 35' 47.02535233"	N40° 24' 07.83824188"	4,0	11,0
15	W74° 35' 47.72203866"	N40° 24' 07.43463094"	5,0	12,0
16	W74° 35' 48.99789913"	N40° 24' 11.49244199"	7,5	14,5
17	W74° 35' 56.41188836"	N40° 24' 09.81450455"	3,0	10,0
18	W74° 35' 57.5198"	N40° 24' 07.89956"	1,5	8,5
19	W74° 35' 50.8338"	N40° 24' 12.1482"	6,5	13,5
20	W74° 35' 50.3334"	N40° 24' 11.94755"	6,5	13,5
21	W74° 35' 50.1737"	N40° 24' 11.11686"	7,0	14,0
22	W74° 35' 50.2398"	N40° 24' 10.83347"	7,0	14,0
23	W74° 35' 53.0378"	N40° 24' 13.18919"	6,0	13,0
24	W74° 35' 53.2378"	N40° 24' 13.00542"	4,0	11,0
25	W74° 35' 52.443"	N40° 24' 11.14592"	6,0	13,0
26	W74° 35' 51.4098"	N40° 24' 10.80157"	5,0	12,0
27	W74° 35' 51.876"	N40° 24' 08.27576"	5,0	12,0
28	W74° 35' 51.159"	N40° 24' 09.50421"	5,0	12,0

LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- GAS — PROPOSED PIPELINE
- CULVERT
- RIP RAP APRON
- X — PROPOSED FENCE
- PROPOSED TREE LINE
- PROPOSED GRAVEL
- PROPOSED CONCRETE
- RIPRAP SLOPE PROTECTION
- PROPOSED BRUSH SEED MIX
- TP-8 — SOIL TEST LOCATION
- 5A — BASIN FLOODING TEST LOCATION
- 20 (6') — TEST PIT LOCATION
- 20 (6') — TEST PIT FAILED/ABANDONED

NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
WATCHUNG

50' 25' 0' 50'
SCALE: 1" = 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
NEW JERSEY
PROFESSIONAL ENGINEER NO.24GE04012400

REVISIONS

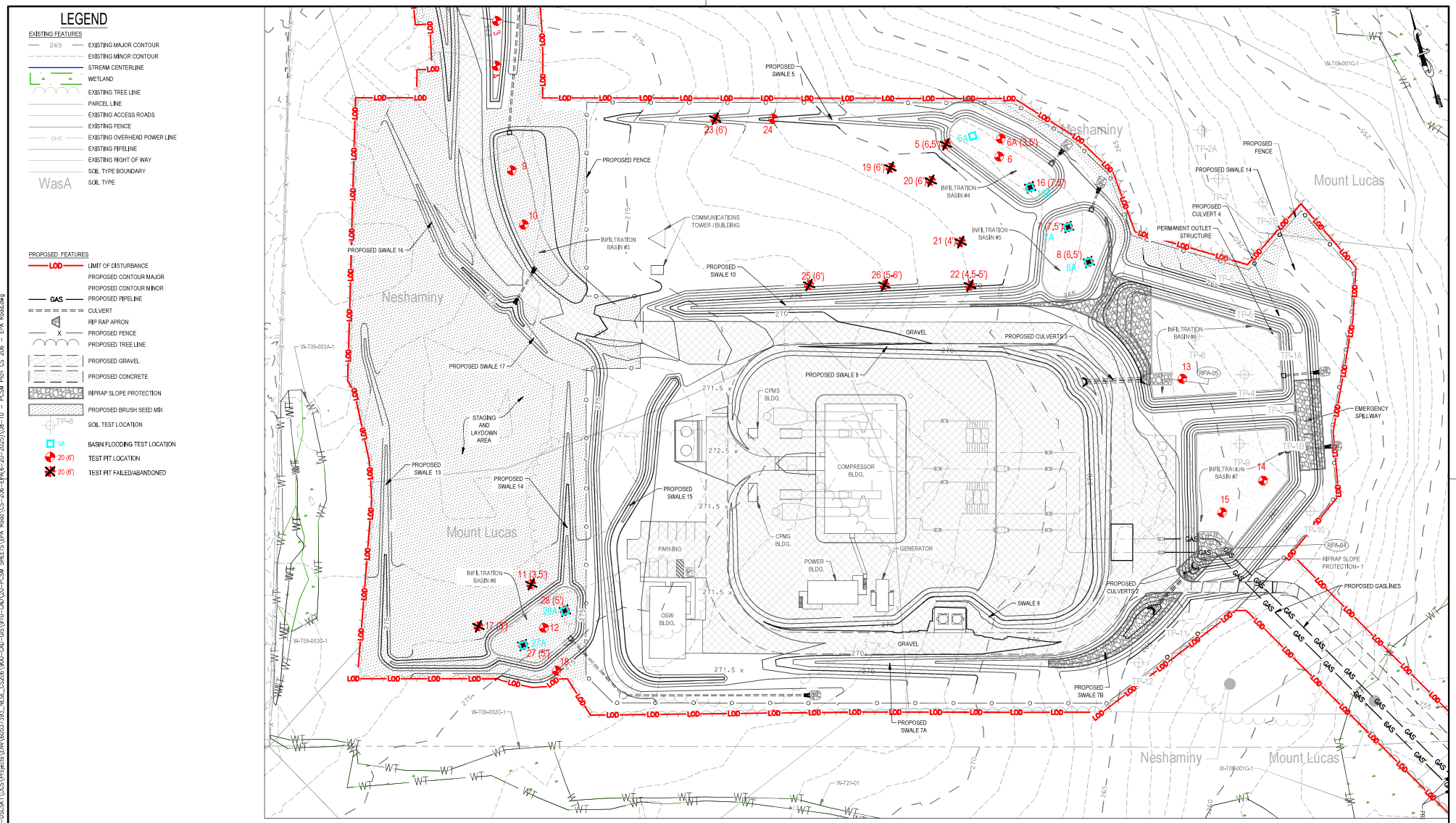
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	01/15/2026	PPH	NJDEP SUBMISSION	1185732	TPF	KDM
1	02/26/2026	PPH	NJDEP SUBMISSION	1185732	TPF	KDM
2	06/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60753472	AV	JDR
3	08/21/2025	OGM	AGENCY REVIEW	60753472	AV	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
SOIL TESTING PLAN (SHEET 1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

WILLIAMS GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2026	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2026	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2026	DRAWING NUMBER:	SHEET 8 OF 15
WO: 1185732			

Drawn By & Date/Time: cmeyrosewa Aug 21, 2025 - 4:21pm
Drawing Location & Name: Z:\Construction-PSCM\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-PCSM SHEETS\EPA Road\CS-206-EPK(6-20-2025)\08-10 - PCSM Plan CS_206 - EPA Road.dwg



NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
WATCHUNG

50' 25' 0' 50'
SCALE: 1" = 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
NEW JERSEY
PROFESSIONAL ENGINEER NO.24GE04012400

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	01/15/2026	PPH	NJDEP SUBMISSION	1185732	TPF	KDM
1	02/26/2026	PPH	NJDEP SUBMISSION	1185732	TPF	KDM
2	06/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60753472	AV	JDR
3	08/21/2025	OGM	AGENCY REVIEW	60753472	AV	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
SOIL TESTING PLAN (SHEET 2 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

WILLIAMS GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2026	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2026	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2026	DRAWING NUMBER:	SHEET 9 OF 15
WO: 1185732			

Drawn By & Date/Time: cmeyrosewod Aug 21, 2025 - 4:21pm
Drawing Location & Name: Z:\Conshocken-ESCSW\Projects\ENV.60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-PCSM SHEETS\EPA Road\CS-206-EPK(6-20-2025)\38-10 - PCSM Plan CS_206 - EPA Road.dwg

TEST PIT LOGS

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		2
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		10
Test Pit No.:	1				
Observation Reported:		**Elevation (ft)**			
Ground Level:		277			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	277 / 272.5	N/A	Tan Brown, moist	

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		1
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		9
Test Pit No.:	2				
Observation Reported:		**Elevation (ft)**			
Ground Level:		275			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	275 / 271	N/A	Tan Brown, moist	

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:	N/A		**Lowest point in BMP (ft) =**		1
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		9
Test Pit No.:	3				
Observation Reported:	**Elevation (ft)**				
Ground Level:	275				
Seasonal High Water Table:					
Pit Bottom:					
USDA Soil Texture	**Check box if most hydraulically restrictive**	**Top Elevation / Bottom Elevation (ft)**	**Direct Observation of Water Table (ft), if any**	**Soil Morphological Observation**	**Notes**
Silty Clay Loam	☑	275 / 270.17	N/A	Brown, moist	With Cobbles
	☐				

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		2
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		10
Test Pit No.:	4				
Observation Reported:		**Elevation (ft)**			
Ground Level:		276			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	**Check box if most hydraulically restrictive**	**Top Elevation / Bottom Elevation (ft)**	**Direct Observation of Water Table (ft), if any**	**Soil Morphological Observation**	**Notes**
Silty Clay Loam	☑	276 / 268.83	N/A	Tan Brown, moist	
	☐				

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		4
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		12
Test Pit No.:	9				
Observation Reported:		**Elevation (ft)**			
Ground Level:		277			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silt	☐	277 / 276.5	N/A	Gray	
Silty Clay Loam	☑	276.5 / 269.33	N/A	Brown	

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		4
Prepared By:		AC	**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		12
Test Pit No.:	10				
Observation Reported:		**Elevation (ft)**			
Ground Level:		277			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silt	☐	277 / 275	N/A	Gray	
Silty Clay Loam	☑	275 / 270	N/A	Brown	Boulders at 6'

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		5.5
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		13.5
Test Pit No.:	5a				
Observation Reported:		**Elevation (ft)**			
Ground Level:		269.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	269.5 / 263.5	N/A	Brown	
Silty Loam	☐	263.5 / 262.5	N/A	Dark Gray	Cobbles
	☐				

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		6.5
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		14.5
Test Pit No.:	16a				
Observation Reported:		**Elevation (ft)**			
Ground Level:		268.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	268.5 / 264.5	N/A	Brown/ Lt. Brown	
Silt Loam	☐	264.5 / 262.5	N/A	Dark Brown	

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		6.5
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		14.5
Test Pit No.:	7a				
Observation Reported:		**Elevation (ft)**			
Ground Level:		268.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	268.5 / 260.5	N/A	Brown/ Lt. Brown	
	☐		N/A		

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		5.5
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		13.5
Test Pit No.:	8a				
Observation Reported:		**Elevation (ft)**			
Ground Level:		267.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	267.5 / 260.5	N/A	Brown/ Lt. Brown	
Silt Loam	☐	260.5 / 259.5	N/A	Gray-brown	Cobbles

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		4
Prepared By:		AC	**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		12
Test Pit No.:	13				
Observation Reported:		**Elevation (ft)**			
Ground Level:		265.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	265.5 / 260.17	N/A	Tan Brown	moist
Silt Loam	☐	260.17 / 258.17	N/A	Brown	moist

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		3
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		11
Test Pit No.:	14				
Observation Reported:		**Elevation (ft)**			
Ground Level:		264.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	264.5 / 259.5	N/A	Tan Brown	moist
Silt Loam	☐	259.5 / 257.08	N/A	Brown	moist
	☐				

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		3
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		11
Test Pit No.:	27a				
Observation Reported:		**Elevation (ft)**			
Ground Level:		275.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	275.5 / 270.5	N/A	Brown/ Lt. Brown	
	☐				

Soil Profile Report					
Project Name:	Williams CS 206		**Municipality:**	Franklin, NJ	
Project Location:	Franklin, NJ		**Block/Lot Info:**		
Date of Observation of SHWT:		N/A	**Lowest point in BMP (ft) =**		3
Prepared By:	AC		**Max Water Depth (ft) =**		
			Required Soil Profile Pit Depth (ft)=		11
Test Pit No.:	28a				
Observation Reported:		**Elevation (ft)**			
Ground Level:		275.5			
Seasonal High Water Table:					
Pit Bottom:					

USDA Soil Texture	Check box if most hydraulically restrictive	Top Elevation / Bottom Elevation (ft)	Direct Observation of Water Table (ft), if any	Soil Morphological Observation	Notes
Silty Clay Loam	☑	275.5 / 270.5	N/A	Brown/ Lt. Brown	
	☐				

TEST PIT PHOTOS

PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
1	8/8/2025	TP-1



Photo No.	Date:	Description:
2	8/8/2025	TP-1



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
3	8/8/2025	TP-2



Photo No.	Date:	Description:
4	8/8/2025	TP-2



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
5	8/8/2025	TP-3



Photo No.	Date:	Description:
6	8/8/2025	TP-3



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
7	8/8/2025	TP-4



Photo No.	Date:	Description:
8	8/8/2025	TP-4



AECOM

PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
9	8/8/2025	TP-6



Photo No.	Date:	Description:
10	8/8/2025	TP-6



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
11	8/8/2025	TP-9



Photo No.	Date:	Description:
12	8/8/2025	TP-9



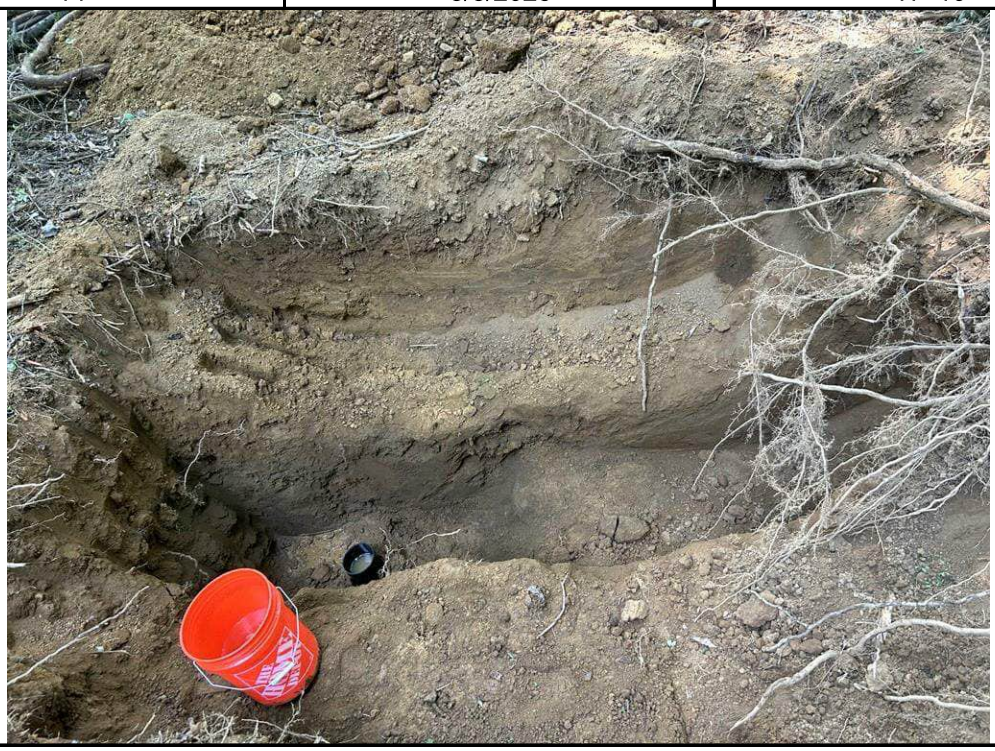
PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
13	8/8/2025	TP-10



Photo No.	Date:	Description:
14	8/8/2025	TP-10



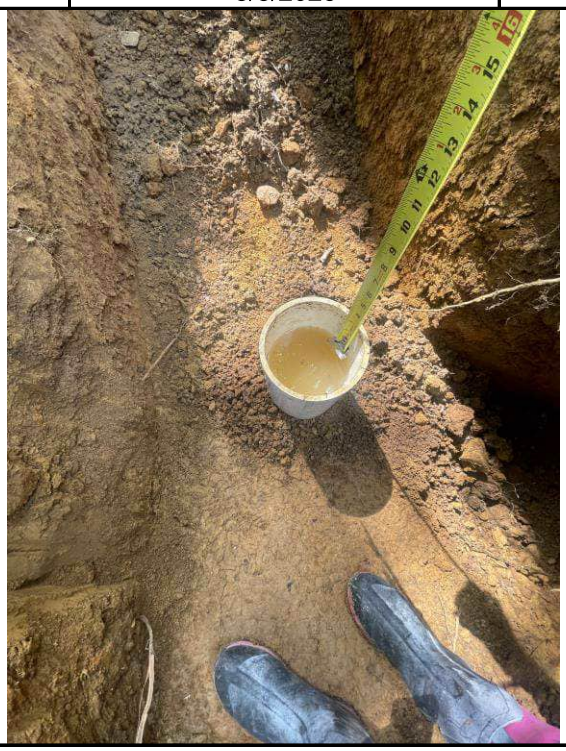
PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
15	8/8/2025	TP-12



Photo No.	Date:	Description:
16	8/8/2025	TP-12



AECOM

PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
17	8/8/2025	TP-13



Photo No.	Date:	Description:
18	8/8/2025	TP-13



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
19	8/8/2025	TP-14



Photo No.	Date:	Description:
20	8/8/2025	TP-14



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
21	8/8/2025	TP-15



Photo No.	Date:	Description:
22	8/8/2025	TP-15



PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472
Photo No.	**Date:**	**Description:**
23	8/8/2025	TP-18



AECOM

PHOTOGRAPHIC LOG

Client:	Project Name:	Project No.
Williams/Transco	CS 206	60757472

Photo No.	Date:	Description:
24	8/8/2025	TP-24



Photo No.	Date:	Description:
25	8/8/2025	TP-24



INFILTRATION TEST LOGS

Percolation Test Data Sheet

Project: Williams CS206 Date: 8/7/25

Municipality:

Test Hole Dimensions

Test Pit # 1

Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

Test Hole Dimensions

Test Pit # 1

Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	~~10~~ 14"
					Width	~~10~~

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	16	16	6	0	6	2.667	10.227
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		10.227

Locked_NJDEP_Chapter_12_workbook_March_2024

2 min = 1"
2 min = 0.75"
2 min = 0.75
2 min = 0.75

test #1

29:47
time from
6" to 0 inch

test #2

Ken Ficarra

Percolation Test Data Sheet

Project: Williams C5206
Municipality:
Date: 8/7/25

Test Hole Dimensions

Test Pit # 2

Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

Test Hole Dimensions

Test Pit # 2

Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	8"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14' ~~10~~
					Width	~~10~~

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	16	16	6	0	6	2.667	10.227
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		10.227

Locked_NJDEP_Chapter_12_workbook_March_2024

2 min = 3.0"
2 min = 2.0"
2 min = 1.5"
2 min = 1.5"
2 min = 1.5"

test #1

time from 6" to 0"

11:47

test #2

Ken Ficarra

Percolation Test Data Sheet

Project: Williams CS206 Date: 8/7/25

Municipality:

Test Hole Dimensions

Test Pit #	3					
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14" ~~10~~
					Width	~~10~~

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	16	16	6	0	6	2.667	10.227
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		10.227

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2min = 1.25
2min = 1.25
2min = 1.20

test #1

10.25
time from
6" to 0"

test #2

Ken Ficarra

Percolation Test Data Sheet

Project: William CS206 Date: 8/8/25

Municipality:

Test Hole Dimensions

Test Pit # 4

Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

Test Hole Dimensions

Test Pit # 4

Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	~~10~~ 14"
					Width	10

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	16	16	6	0	6	2.667	10.227
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		10.227

2 min = 1.75
2 min = 1.0
2 min = 1.0
2 min = 1.0

test #1

15:08 min
time from 6" to 0"

test #2

Ken Ficarra

Percolation Test Data Sheet

Project: William CS206 Date: 8/8/25

Municipality:

Test Hole Dimensions

Test Pit #	6					
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

Test Hole Dimensions

Test Pit #	6					
Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14 inch 10
					Width	10

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	16	16	6	0	6	2.667	10.227
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		10.227

2 min = 2.25
2 min = 2.25
2 min = 2.25

test #1

10:30

test #2

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Ken Ficarra

Percolation Test Data Sheet

Project: Williams CS 206 Date: 08/08/25

Municipality:

Test Hole Dimensions

Test Pit # TP-9

Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	10'
					Width	

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		Dimension
2	0		0	6	0	6		Dimension
3			0	6	0	6		Dimension
4			0	6	0	6		Dimension
5			0	6	0	6		Dimension
						Average		0.000

Test Hole Dimensions

Test Pit #

Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6 in	Enter Dimensions (in) if Square or Rectangular was selected	Length	14 1/2
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

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Stage 1:

~~2 min~~ Trial 1: 2.20 in

Trial 2: 2.10 in

Trial 3: 2.10 in

Trial 4: 2.10 in

9.42

Stage 2: 6 in movement: ~~2.75~~ min

Md Azizur

Percolation Test Data Sheet

Project: Williams CS206 Date: 8/8/25

Municipality:

Test Hole Dimensions

Test Pit # 10

Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	
					Width	

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	30:40	0	6	0	6		Dimension
2	0		0	6	0	6		Dimension
3			0	6	0	6		Dimension
4			0	6	0	6		Dimension
5			0	6	0	6		Dimension
						Average		0.000

Test Hole Dimensions

Test Pit #

Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	~~12~~

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

Time / Depth
2 min / 1 inch
2 min / 1 inch
2 min / 1 inch

test #1

30:40 min.
From 6" to zero

test #2

Drina Mosteck
Tal Hefetz

7:30 to 11:00a

Percolation Test Data Sheet — Test Pit #12

Project: Williams C5206
Municipality:
Date: 8/15/25

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14"
					Width	

Test Results

Trial No.	7inch Start Time at 6 inches	11inch. Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	8:50	0	6	0	6		Dimension
2	0	16:01	0	6	0	6		Dimension
3	0	29:19	0	6	0	6		Dimension
4	0	35:54	0	6	0	6		Dimension
5	0	36:08	0	6	0	6		Dimension
	0	36:00		6			Average	0.000

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	

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—only took one test Drina Mosteckí

Percolation Test Data Sheet

Test pit #13

Project: Williams C5206

Date: 8/5/25

Municipality:

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	19"
					Width	

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	17:20	0	6	0	6		Dimension
2	0	19:00	0	6	0	6		Dimension
3	0	19:45	0	6	0	6		Dimension
4			0	6	0	6		Dimension
5			0	6	0	6		Dimension
						Average		0.000

test #2

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

2 min 2"
2 min 2"
2 min 2"

test #1

Drive Mostecki

Pit

Percolation Test Data Sheet — Test #14

Project:

Municipality:

Date: 8/5/25

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	
					Width	

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	14:56	0	6	0	6		Dimension
2	0	15:30	0	6	0	6		Dimension
3		14.55	0	6	0	6		Dimension
4			0	6	0	6		Dimension
5			0	6	0	6		Dimension
						Average		0.000

test #2

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

1 Time 5 min. 7 inches ~ 11:15 am

2 5 min. 4.5 inches
5 min 3 inches
5 min 3 inches.
5 min 3 inches.

test #1

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Drina Mostecki

Percolation Test Data Sheet

Project: William C5206 Date: 8/7/23

Municipality:

Test Hole Dimensions

Test Pit # 15

Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	
					Width	

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		Dimension
2	0		0	6	0	6		Dimension
3			0	6	0	6		Dimension
4			0	6	0	6		Dimension
5			0	6	0	6		Dimension
						Average		0.000

Test Hole Dimensions

Test Pit # 15

Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

1 min = 7.0
1 min = 6.0
1 min = 6.0
1 min = 6.0

test #1

time: 1:51 m
from 6" to 0"

test #2

ken Ficarra

Percolation Test Data Sheet

Project: Williams CS206 Date: 8/8/25

Municipality:

Test Hole Dimensions

Test Pit #	18					
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	
					Width	

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		Dimension
2	0		0	6	0	6		Dimension
3			0	6	0	6		Dimension
4			0	6	0	6		Dimension
5			0	6	0	6		Dimension
						Average		0.000

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

2 min 0"

test #1

1 hr .2"
no movement end of test

test #2

Percolation Test Data Sheet

Project: Williams CS206 Date: 8/8/25

Municipality:

Test Hole Dimensions

Test Pit # 24

Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected		Enter Dimensions (in) if Square or Rectangular was selected	Length	
					Width	

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		Dimension
2	0		0	6	0	6		Dimension
3			0	6	0	6		Dimension
4			0	6	0	6		Dimension
5			0	6	0	6		Dimension
						Average		0.000

Test Hole Dimensions

Test Pit # 24

Test Hole Shape (select one)	Sq/Rect	Enter the Diameter (in) if Round was selected	6"	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	~~12~~

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0		0	6	0	6		
2			0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		

2 min 0"

test #1

1" → 1 hour
no movement
end of test

test #2

Ken Ficarra

INFILTRATION RATE RESULTS

Percolation Test Data Sheet

Project:	Test Pit #1	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	**Round**	Enter the Diameter (in) if Round was selected	**6**	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	**12**

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	29.783	29.783	6	0	6	4.964	4.029
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	4.029

Percolation Test Data Sheet

Project:	Test Pit #2	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	8	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	11.783	11.783	6	0	6	1.964	12.221
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	12.221

Percolation Test Data Sheet

Project:	Test Pit #3	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	10.417	10.417	6	0	6	1.736	11.520
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	11.520

Percolation Test Data Sheet

Project:	Test Pit #4	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	**Round**	Enter the Diameter (in) if Round was selected	**6**	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	**12**

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	15.133	15.133	6	0	6	2.522	7.930
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	7.930

Percolation Test Data Sheet

Project:	Test Pit #6	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	**Round**	Enter the Diameter (in) if Round was selected	**6**	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	**12**

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	10.5	10.5	6	0	6	1.750	11.429
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	11.429

Percolation Test Data Sheet

Project:	Test Pit #9	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6	Enter Dimensions (in) if Square or Rectangular was selected	Length	16
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	9.7	9.7	6	0	6	1.617	12.371
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	12.371

Percolation Test Data Sheet

Project:	Test Pit #10	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	**Round**	Enter the Diameter (in) if Round was selected	**6**	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	**12**

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	30.667	30.667	6	0	6	5.111	3.913
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
							Average	3.913

Percolation Test Data Sheet

Project:	Test Pit #12		Date:	8/5/2025	
Municipality:					

Test Hole Dimensions

Test Pit #					
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6	Enter Dimensions (in) if Square or Rectangular was selected	Length: 14
					Width: 12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	8.833	8.833	6	0	6	1.472	13.585
2	0	16.017	16.017	6	0	6	2.670	7.492
3	0	29.317	29.317	6	0	6	4.886	4.093
4	0	35.567	35.567	6	0	6	5.928	3.374
5	0	36.133	36.133	6	0	6	6.022	3.321
							Average	6.373

Percolation Test Data Sheet

Project:	Test Pit #13	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	**Round**	Enter the Diameter (in) if Round was selected	**6**	Enter Dimensions (in) if Square or Rectangular was selected	Length	19
					Width	**12**

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	17.33	17.33	6	0	6	2.888	6.924
2	0	19	19	6	0	6	3.167	6.316
3	0	19.75	19.75	6	0	6	3.292	6.076
4			0	6	0	6		
5			0	6	0	6		
							Average	6.439

Percolation Test Data Sheet

Project:	Test Pit #14	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	**Round**	Enter the Diameter (in) if Round was selected	**6**	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	**12**

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	14.933	14.933	6	0	6	2.489	8.036
2	0	15.5	15.5	6	0	6	2.583	7.742
3	0	14.917	14.917	6	0	6	2.486	8.045
4			0	6	0	6		
5			0	6	0	6		
							Average	7.941

Percolation Test Data Sheet

Project:	Test Pit #15	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	**Sq/Rect**	Enter the Diameter (in) if Round was selected	**6**	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	**12**

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	**0**	**1.51**	**1.51**	**6**	**0**	**6**	**0.252**	**123.620**
2	**0**		**0**	**6**	**0**	**6**		
3			**0**	**6**	**0**	**6**		
4			**0**	**6**	**0**	**6**		
5			**0**	**6**	**0**	**6**		
							Average	123.620

BASIN FLOOD TEST RESULTS

Basin Flooding Test Field Sheet

Project Information

Project Name:	Williams CS 206
Test Location ID:	TP-5A
Date:	8/11/2025
Weather Conditions:	Sunny, 84F AM, 68F PM

Test Basin Information

Bottom Area (≥ 50 sq ft):	50 SF
Depth (≥ 12 inches):	12”
Initial Water Volume Added (≥ 375 gallons):	375 gal

Flood Test Observations

Step	Start Time	End Time
Step 1	8 AM	9 AM
Step 2	12 PM	2 PM

Results

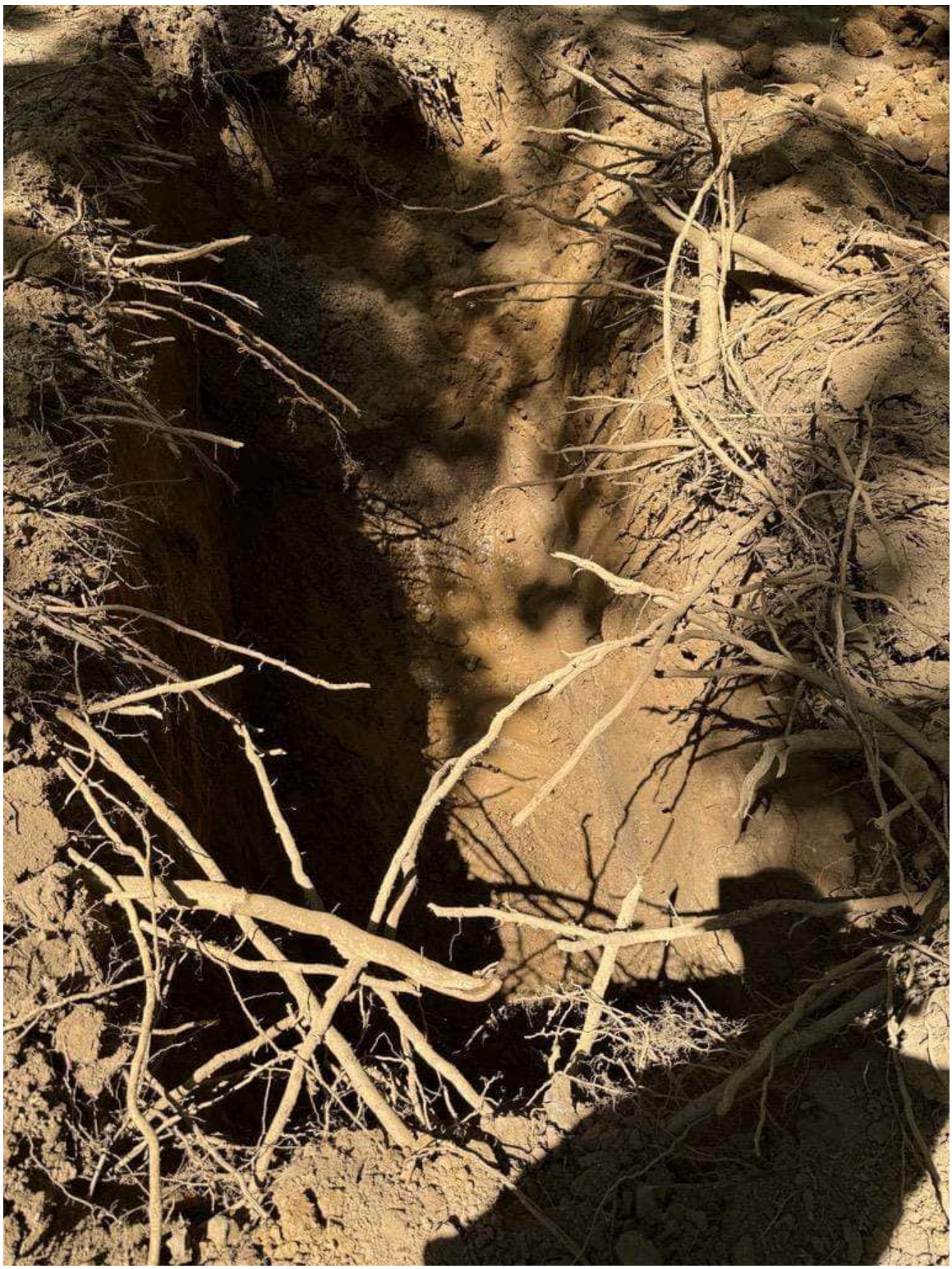
Pass/Fail:	PASS
Notes/Comments:	

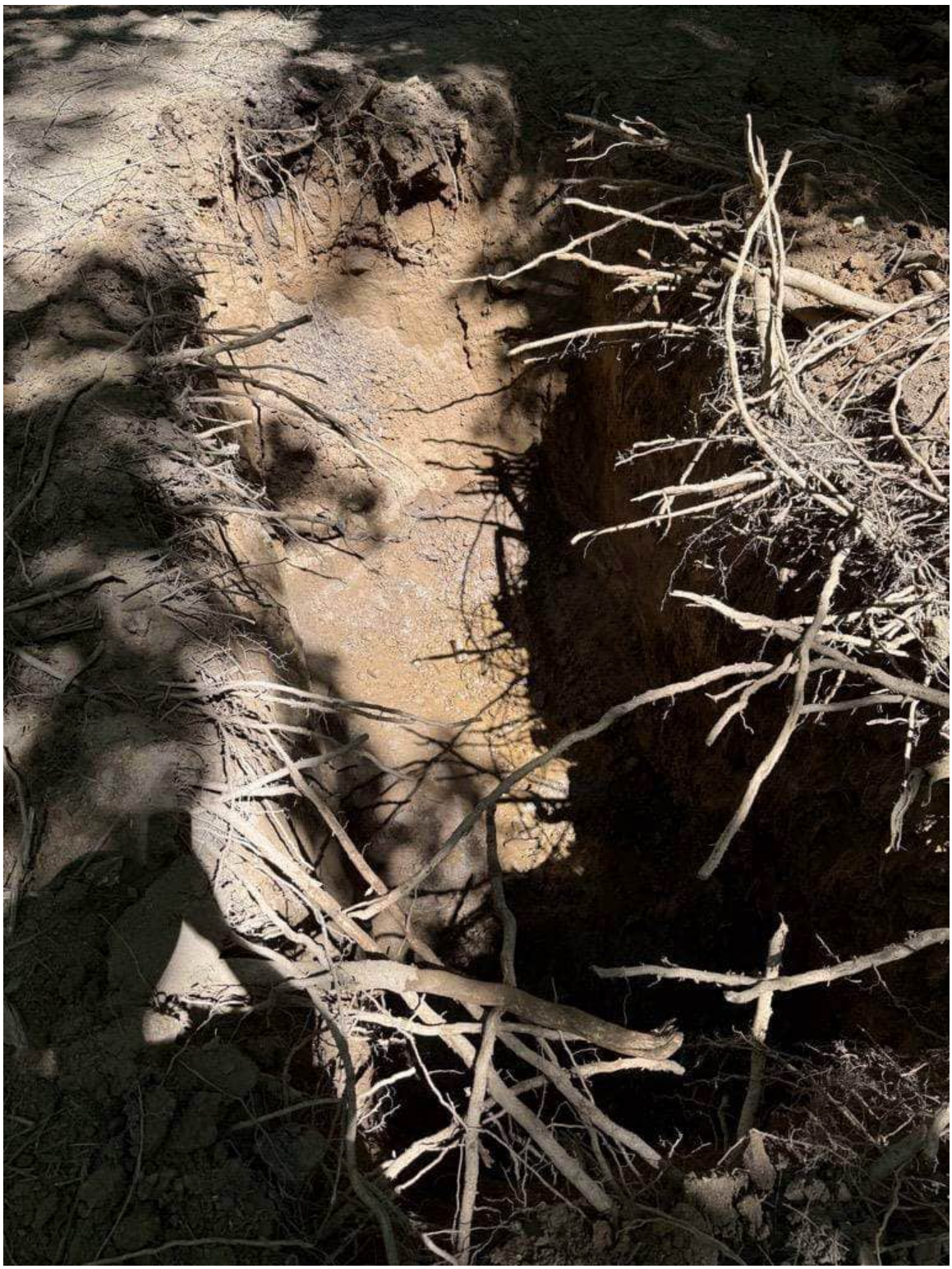
Field Engineer: _____AC_____ Date: _____8/18/25_____

Photos:









Basin Flooding Test Field Sheet

Project Information

Project Name:	Williams CS 206
Test Location ID:	TP-7A
Date:	8/12-13/2025
Weather Conditions:	Sunny, 86F AM, 70F PM

Test Basin Information

Bottom Area (≥ 50 sq ft):	50 SF
Depth (≥ 12 inches):	12”
Initial Water Volume Added (≥ 375 gallons):	375 gal

Flood Test Observations

Step	Start Time	End Time
Step 1	8 AM	1 PM
Step 2	2 PM 8/12/25	Overnight

Results

Pass/Fail:	PASS
Notes/Comments:	

Field Engineer: _____AC_____ Date: _____8/18/25_____

Photos





Basin Flooding Test Field Sheet

Project Information

Project Name:	Williams CS 206
Test Location ID:	TP-8A
Date:	8/12/2025
Weather Conditions:	Sunny, 86F AM, 70F PM

Test Basin Information

Bottom Area (≥ 50 sq ft):	50 SF
Depth (≥ 12 inches):	12”
Initial Water Volume Added (≥ 375 gallons):	375 gal

Flood Test Observations

Step	Start Time	End Time
Step 1	9 AM	11 AM
Step 2	12 PM	2 PM

Results

Pass/Fail:	PASS
Notes/Comments:	

Field Engineer: _____AC_____ Date: _____8/18/25_____

Photos



Basin Flooding Test Field Sheet

Project Information

Project Name:	Williams CS 206
Test Location ID:	TP-16A
Date:	8/11-13/2025
Weather Conditions:	Sunny, 84F AM, 68F PM

Test Basin Information

Bottom Area (≥ 50 sq ft):	50 SF
Depth (≥ 12 inches):	12”
Initial Water Volume Added (≥ 375 gallons):	375 gal

Flood Test Observations

Step	Start Time	End Time
Step 1	9AM 8/11/25	Overnight
Step 2	7AM 8/12/25	Overnight

Results

Pass/Fail:	PASS
Notes/Comments:	

Field Engineer: _____AC_____ Date: _____8/18/25_____

Photos:





Basin Flooding Test Field Sheet

Project Information

Project Name:	Williams CS 206
Test Location ID:	TP-27
Date:	8/13-15/2025
Weather Conditions:	Cloudy/Rainy, 86F AM, 70F PM

Test Basin Information

Bottom Area (≥ 50 sq ft):	60 SF
Depth (≥ 12 inches):	>12”
Initial Water Volume Added (≥ 375 gallons):	500 gal

Flood Test Observations

Step	Start Time	End Time
Step 1	12PM 8/13/25	Overnight
Step 2	8AM 8/14/25	Overnight

Results

Pass/Fail:	PASS
Notes/Comments:	

Field Engineer: _____AC_____ Date: _____8/18/25_____

Photos



Basin Flooding Test Field Sheet

Project Information

Project Name:	Williams CS 206
Test Location ID:	TP-28
Date:	8/13-15/2025
Weather Conditions:	Cloudy/Rainy, 86F AM, 70F PM

Test Basin Information

Bottom Area (≥ 50 sq ft):	50 SF
Depth (≥ 12 inches):	>12”
Initial Water Volume Added (≥ 375 gallons):	400 gal

Flood Test Observations

Step	Start Time	End Time
Step 1	1PM 8/13/25	Overnight
Step 2	8AM 8/14/25	Overnight

Results

Pass/Fail:	PASS
Notes/Comments:	

Field Engineer: _____AC_____ Date: _____8/18/25_____

RESULTS AND CONCLUSIONS

Summary Table of Basins and Test Pits

Basin #	Test Pit #	Longitude	Latitude	Percolation or Basin Flood Test Depth (ft)	Soil Profile Pit Depth (ft)	Hydraulic Conductivity (in/hr)	Grade	Proposed Basin Invert (ft)
1	1	W74° 35' 55.58495715"	N40° 24' 17.91664901"	3	10	4.029	275	
	2	W74° 35' 55.41873728"	N40° 24' 16.68927585"	2	9	12.221	274	274
2	3	W74° 35' 55.62775245"	N40° 24' 14.91593417"	2	9	11.52	274	
	4	W74° 35' 55.81898016"	N40° 24' 14.44523376"	3	10	7.93	274	274
3	9	W74° 35' 56.04682262"	N40° 24' 13.29870750"	5	12	12.371	273	
	10	W74° 35' 56.10818134"	N40° 24' 12.69032142"	5	12	3.913	273	273
4	5A	W74° 35' 49.5708"	N40° 24' 12.18566"	6.5' (at refusal)				
	16A	W74° 35' 48.99786917"	N40° 24' 11.46244198"	7.5' (at refusal)				265
5	7A	W74° 35' 48.64236079"	N40° 24' 10.92435040"	7.5' (at refusal)				
	8A	W74° 35' 48.50576556"	N40° 24' 10.49080179"	6.5' (at refusal)				265
6	TP-8	W74° 35' 47.35"	N40° 24' 09.37"	4	6.5	13.3	264.5	
	13	W74° 35' 47.70960417"	N40° 24' 08.96612783"	5	12	6.439	261.5	261.5
7	TP-9	W74° 35' 47.19	N40° 24' 08.10	4	7	2.9	264.5	
	14	W74° 35' 47.02535237"	N40° 24' 07.63824188"	4	11	7.941	261.5	261.5
8	27A	W74° 35' 57.876"	N40° 24' 08.27570"	5' (at refusal)				
	28A	W74° 35' 57.159"	N40° 24' 08.50421"	5' (at refusal)				273

In 2019, a soil reclassification study was performed in accordance with NJDEP policies and procedures due to discrepancies between on-site soil conditions and the NRCS Web Soil Survey data. The northern access road, where Test Pits 1–4 (refer to Test Pit Locations in this section) are located, was not included in the original study area. As a result, the soils in this area require additional classification based on field observations. Criteria for Assignment of Hydrologic Soil Group (HSG) from the National Engineering Handbook (Table 1) was used to determine the HSGs with soil profile pit data. Field investigation confirmed that the seasonal high-water table is deeper than 2 feet below grade and that bedrock is deeper than 4 feet. Table 2 presents the hydraulic conductivity values obtained from percolation testing. Considering the most hydraulically restrictive conditions across the four test pits, the soil falls within Hydrologic Soil Group B, with a representative hydraulic conductivity range of 1.42 to 5.67 in/hr. The soils observed in Test Pits #1-4 were well-drained, consisting predominantly of silty clay loam materials. Based on their texture, structure, and overall field characteristics, these soils are classified within the Neshaminy series.

Table 1: Criteria for Assignment of Hydrologic Soil Group from the National Engineering Handbook

Table 7–1 Criteria for assignment of hydrologic soil group (HSG)

Depth to water impermeable layer 1/	Depth to high water table 2/	K_{sat} of least transmissive layer in depth range	K_{sat} depth range	HSG 3/
<50 cm [<20 in]	—	—	—	D
50 to 100 cm [20 to 40 in]	<60 cm [<24 in]	>40.0 µm/s (>5.67 in/h)	0 to 60 cm [0 to 24 in]	A/D
		>10.0 to ≤40.0 µm/s (>1.42 to ≤5.67 in/h)	0 to 60 cm [0 to 24 in]	B/D
		>1.0 to ≤10.0 µm/s (>0.14 to ≤1.42 in/h)	0 to 60 cm [0 to 24 in]	C/D
		≤1.0 µm/s (≤0.14 in/h)	0 to 60 cm [0 to 24 in]	D
	≥60 cm [≥24 in]	>40.0 µm/s (>5.67 in/h)	0 to 50 cm [0 to 20 in]	A
		>10.0 to ≤40.0 µm/s (>1.42 to ≤5.67 in/h)	0 to 50 cm [0 to 20 in]	B
		>1.0 to ≤10.0 µm/s (>0.14 to ≤1.42 in/h)	0 to 50 cm [0 to 20 in]	C
		≤1.0 µm/s (≤0.14 in/h)	0 to 50 cm [0 to 20 in]	D
>100 cm [>40 in]	<60 cm [<24 in]	>10.0 µm/s (>1.42 in/h)	0 to 100 cm [0 to 40 in]	A/D
		>4.0 to ≤10.0 µm/s (>0.57 to ≤1.42 in/h)	0 to 100 cm [0 to 40 in]	B/D
		>0.40 to ≤4.0 µm/s (>0.06 to ≤0.57 in/h)	0 to 100 cm [0 to 40 in]	C/D
		≤0.40 µm/s (≤0.06 in/h)	0 to 100 cm [0 to 40 in]	D
	60 to 100 cm [24 to 40 in]	>40.0 µm/s (>5.67 in/h)	0 to 50 cm [0 to 20 in]	A
		>10.0 to ≤40.0 µm/s (>1.42 to ≤5.67 in/h)	0 to 50 cm [0 to 20 in]	B
		>1.0 to ≤10.0 µm/s (>0.14 to ≤1.42 in/h)	0 to 50 cm [0 to 20 in]	C
		≤1.0 µm/s (≤0.14 in/h)	0 to 50 cm [0 to 20 in]	D
	>100 cm [>40 in]	>10.0 µm/s (>1.42 in/h)	0 to 100 cm [0 to 40 in]	A
		>4.0 to ≤ 10.0 µm/s (>0.57 to ≤1.42 in/h)	0 to 100 cm [0 to 40 in]	B
		>0.40 to ≤4.0 µm/s (>0.06 to ≤0.57 in/h)	0 to 100 cm [0 to 40 in]	C
		≤0.40 µm/s (≤0.06 in/h)	0 to 100 cm [0 to 40 in]	D

1/ An impermeable layer has a K_{sat} less than 0.01 µm/s [0.0014 in/h] or a component restriction of fragipan; duripan; petrocalcic; orstein; petrogypsic; cemented horizon; densic material; placic; bedrock, paralithic; bedrock, lithic; bedrock, densic; or permafrost.

2/ High water table during any month during the year.

3/ Dual HSG classes are applied only for wet soils (water table less than 60 cm [24 in]). If these soils can be drained, a less restrictive HSG can be assigned, depending on the K_{sat}.

Table 2: Ksat Values for Test Pits 1-4 from subsection "Infiltration Rate Results"

Test Pit #	Ksat (in/hr)
1	4.029
2	12.221
3	11.52
4	7.93

In response to the deficiency letter, additional evaluation was done regarding the determination of the seasonal high-water table (SHWT) for the proposed infiltration basins. The relevant standards in Chapter 12 of the New Jersey Stormwater BMP Manual, Subsection 1D, specify that SHWT determination must be based on either:

- Direct field observations between January and April, or
- NRCS Web Soil Survey information during other months, with soil profile morphology verified against the mapped soil series.

Because the current evaluation falls outside of the January–April observation window, SHWT determination was conducted in accordance with Table 12-5 of the Manual, as soil exploration did not reveal mottling or other redoximorphic features. In accordance with this procedure, the NRCS Web Soil Survey was consulted. The Survey indicates SHWT depths of approximately 2 feet in the vicinity of the proposed basins (Figure 3). However, several issues limit the reliability of this source:

1. **Field Test Pit Observations:** Excavations to depths of up to 8 feet did not encounter groundwater in any of the profile pits. This direct field evidence indicates that the SHWT is substantially deeper than the depths reported in the Web Soil Survey.
2. **Soil Classification Discrepancies:** The NRCS soil series descriptions for the site do not align with the reclassified soil survey performed in 2019 by AECOM (Figure 1), which provides a more accurate reflection of on-site soil conditions. The mismatch between the NRCS mapping (Figure 2) and the reclassification further limits the applicability of the Web Soil Survey for this location.

Table 12-6 of the BMP Manual notes that where soil profile descriptions cannot be verified against the NRCS Web Soil Survey, the SHWT is considered undetermined and additional soil testing is required (either within the January–April window or at alternative locations between May and December). While technically applicable, this requirement is impractical given the current project timeline and the already completed field investigations.

Although it is not feasible to perform additional testing within the prescribed seasonal window at this time, the field evidence gathered demonstrates that groundwater is substantially deeper than the basin depths. As the proposed basins will extend approximately 4–5 feet below grade, the required 2-foot separation from the SHWT corresponds to a minimum SHWT depth of 6–7 feet below grade. Based on direct pit excavations to 8 feet without encountering groundwater, the SHWT at this location satisfies this criteria.

While still acknowledging the Manual's procedural requirements, the combination of field observations and 2019 soil reclassification provide a strong technical basis to conclude that the SHWT depth is sufficient for the proposed infiltration basins.



Figure 1: Soil classifications made in 2019 soil re-classification report by AECOM

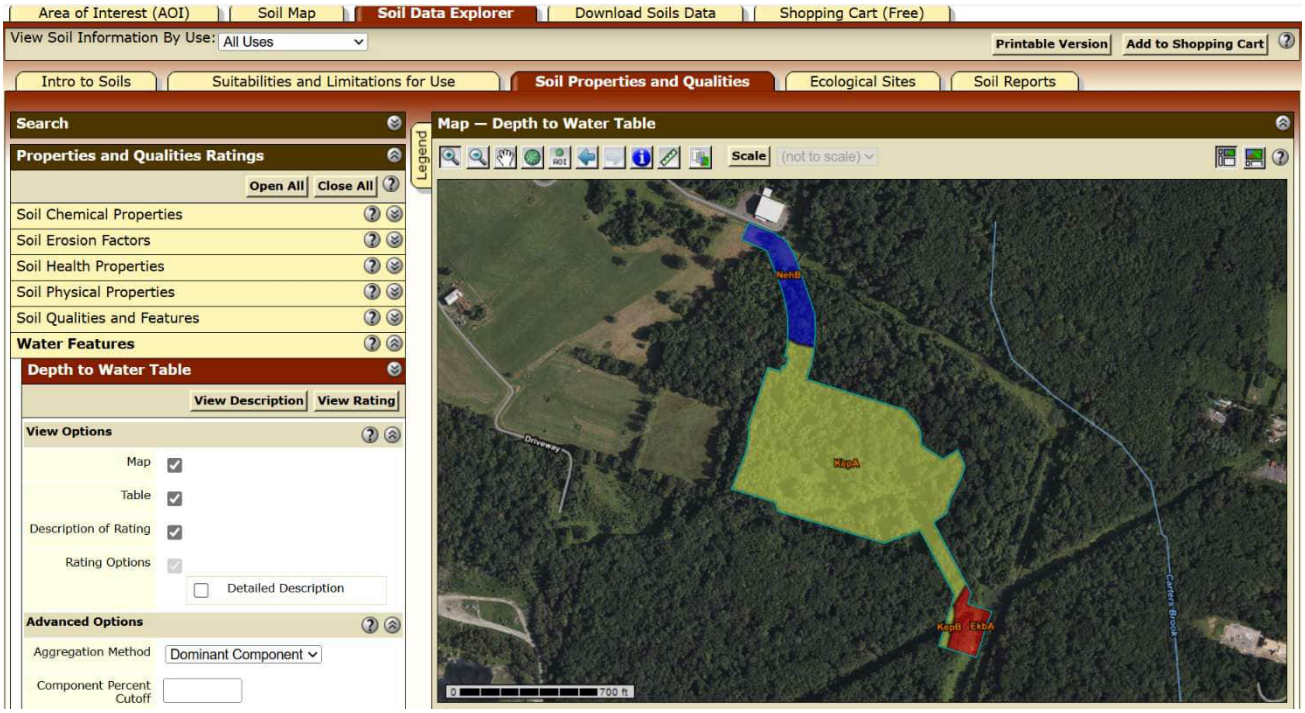


Figure 2: NRCS Web Soil Survey Map

Tables — Depth to Water Table — Summary By Map Unit

Summary by Map Unit — Somerset County, New Jersey (NJ035)

Summary by Map Unit — Somerset County, New Jersey (NJ035)

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
EkbA	Elkton silt loam, 0 to 2 percent slopes	15	1.1	5.4%
KepA	Keyport silt loam, 0 to 2 percent slopes	61	16.5	84.0%
KepB	Keyport silt loam, 2 to 5 percent slopes	61	0.2	0.9%
NehB	Neshaminy silt loam, 2 to 6 percent	>200	1.9	9.7%

Figure 3: Depth to Water Table from NRCS Web Soil Survey

APPENDIX C
LOW IMPACT DEVELOPMENT CHECKLIST

Low Impact Development Checklist

A checklist for identifying nonstructural stormwater management strategies incorporated into proposed land development

Municipality: Franklin Township

County: Somerset Date: June 19, 2025

Review board or agency: New Jersey Department of Environmental Protection

Proposed land development name: Northeast Supply Expansion Project (Compressor Station 206)

Lot(s): 9, 10, 11.02, 12, 16, 17, 25 Block(s): 5.02

Project or application number:

Applicant's name: Transcontinental Gas Pipe Line Company, LLC

Applicant's address: 2800 Post Oak Boulevard, Houston, Texas 77056

Telephone: (713) 215-4232 Fax: (713) 215-2222

Email address: Karen.Olson@williams.com

Designer's name: AECOM

Designer's address: 300 Broadacres Dr

Bloomfield, NJ 07003

Telephone: (973) 883-8677 Fax:

Email address: john.dromsky-reed@aecom.com

Part 1: Description of Nonstructural Approach to Site Design

In narrative form, provide an overall description of the nonstructural stormwater management approach and strategies incorporated into the proposed site's design. Attach additional pages as necessary. Details of each nonstructural strategy are provided in Part 3 below.

Nearby wetlands and waterbodies in close proximity of the site were identified and considered when establishing the limits of temporary disturbance and limits of grading for the Project site. The area of the compressor station itself was situated in upland areas such that impacts to wetlands and waterbodies were avoided. Access to the compressor station will require crossing some smaller wetland features, and impacts to these features were minimized to the extent practicable. Impervious surfaces were minimized and limited to the smallest area necessary for safe and prudent operation of the proposed site. Wherever possible, gravel areas were incorporated in the site design rather than impervious pavement. Areas outside between the compressor station and inside the fence line will be vegetated. To the maximum extent practicable natural drainage patterns were protected. The site predominantly contains shallow slopes, most less than 5%. These slopes will be maintained and in many cases (particularly in the area of the compressor station), the slopes will be decreased. Clearing and grading has been minimized to such that only areas of the property that were required for staging, stockpiles, or construction will be disturbed. A large portion of wooded areas within the property boundary, including but not limited to those around wetland and waterbody features, will be left unimpacted. Soil compaction will be limited to the areas required for roadways, permanent equipment and buildings. Areas to receive vegetation will be minimally compacted prior to seeding and stabilization. Disturbed areas of the site are to be vegetated / re-vegetated with native materials, trees & wetland species. Open channel conveyance systems will be utilized for the project, and upslope diversion channels will discharge to stable vegetated areas.The Project will have a site-specific Spill Prevention, Containment, and Control Plan as well as maintenance criteria for the stormwater BMPs onsite. Additionally fertilizer will be applied in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

Part 2: Review of Local Stormwater Management Regulations

Title and date of stormwater management regulations used in development design:

N.J.A.C 7:8

Do regulations include nonstructural requirements? Yes: X No: _____

If yes, briefly describe: Nine (9) non-structural stormwater management strategies are listed to be evaluated for all major developments. Refer to N.J.A.C 7:8-2.4 (g).

List LID-BMPs prohibited by local regulations: N/A

Pre-design meeting held? Yes: X Date: June 6, 2017 No: _____

Meeting held with: Somerset-Union Soil Conservation District

Pre-design site walk held? Yes: _____ Date: _____ No: X

Site walk held with: _____

Other agencies with stormwater review jurisdiction:

Name: New Jersey Deparment of Environmental Protection

Required approval: Freshwater Wetlands Permit/Flood Hazard Area Control Act Permit

Name: _____

Required approval: _____

Name: _____

Required approval: _____

Part 3: Nonstructural Strategies and LID-BMPs in Design

3.1 Vegetation and Landscaping

Effective management of both existing and proposed site vegetation can reduce a development's adverse impacts on groundwater recharges and runoff quality and quantity. This section of the checklist helps identify the vegetation and landscaping strategies and nonstructural LID-BMPs that have been incorporated into the proposed development's design to help maintain existing recharge rates and/or minimize or prevent increases in runoff quantity and pollutant loading.

A. Has an inventory of existing site vegetation been performed? Yes: X No: _____

If yes, was this inventory a factor in the site's layout and design? Yes: X No: _____

B. Does the site design utilize any of the following nonstructural LID-BMPs?

Preservation of natural areas? Yes: X No: _____ If yes, specify % of site: 30%
The area of the compressor station itself was situated in upland areas such that impacts to wetlands and waterbodies were avoided to the maximum extent practicable

Native ground cover? Yes: X No: _____ If yes, specify % of site: 20%
Disturbed areas of the site not proposed for impervious cover will be vegetated / re-vegetated with native materials.

Vegetated buffers? Yes: X No: _____ If yes, specify % of site: 30%
Clearing anda grading has been minimized to such that only areas of the property that were required for staging, stockpiles, or construction will be disturbed. A large portion of wooded areas within the property boundary, including but not limited to those around wetland and waterbody features, will be left unimpacted.

C. Do the land development regulations require these nonstructural LID-BMPs?

Preservation of natural areas? Yes: _____ No: N/A If yes, specify % of site: _____

Native ground cover? Yes: _____ No: N/A If yes, specify % of site: _____

Vegetated buffers? Yes: _____ No: N/A If yes, specify % of site: _____

D. If vegetated filter strips or buffers are utilized, specify their functions: N/A

Reduce runoff volume increases through lower runoff coefficient: Yes: _____ No: _____

Reduce runoff pollutant loads through runoff treatment: Yes: _____ No: _____

Maintain groundwater recharge by preserving natural areas: Yes: _____ No: _____

3.2 Minimize Land Disturbance

Minimizing land disturbance is a nonstructural LID-BMP that can be applied during both the development's construction and post-construction phases. This section of the checklist helps identify those land disturbance strategies and nonstructural LID-BMPs that have been incorporated into the proposed development's design to minimize land disturbance and the resultant change in the site's hydrologic character.

A. Have inventories of existing site soils and slopes been performed? Yes: X No: _____

If yes, were these inventories factors in the site's layout and design? Yes: X No: _____

B. Does the development's design utilize any of the following nonstructural LID-BMPs?

Restrict permanent site disturbance by land owners? Yes: _____ No: X

If yes, how: _____

Restrict temporary site disturbance during construction? Yes: X No: _____

If yes, how: **Clearing and grading has been minimized to such that only areas of the property that were required for staging, stockpiles, or construction will be disturbed. A large portion of wooded areas within the property boundary, including but not limited to those around wetland and waterbody features, will be left unimpacted**

Consider soils and slopes in selecting disturbance limits? Yes: X No: _____

If yes, how: **The site predominantly contains shallow slopes, most less than 5%. These slopes will be maintained and in many cases (particularly in the area of the compressor station), the slopes will be decreased. Development was also kept in the more shallow slopes to avoid the steeper soils to the east.**

C. Specify percentage of site to be cleared: 40% Regraded: 20%

D. Specify percentage of cleared areas done so for buildings: < 1%

For driveways and parking: 15% For roadways: _____

E. What design criteria and/or site changes would be required to reduce the percentages in C and D above?

Clearing and grading has been minimized to such that only areas of the property that were required for staging, stockpiles, or construction will be disturbed. A large portion of wooded areas within the property boundary, including but not limited to those around wetland and waterbody features, will be left unimpacted.

F. Specify site's hydrologic soil group (HSG) percentages:

HSG A: _____ HSG B: **54%** HSG C: **28%** HSG D: **18%**

G. Specify percentage of each HSG that will be permanently disturbed:

HSG A: _____ HSG B: **100%** HSG C: **100%** HSG D: **100%**

H. Locating site disturbance within areas with less permeable soils (HSG C and D) and minimizing disturbance within areas with greater permeable soils (HSG A and B) can help maintain groundwater recharge rates and reduce runoff volume increases. In light of the HSG percentages in F and G above, what other practical measures if any can be taken to achieve this?

Field based, site specific infiltration testing was performed t olocate stormwater BMPs in the most suitable soils, verify recharge rates and reduce volume increases.

I. Does the site include Karst topography? Yes: _____ No: **X**

If yes, discuss measures taken to limit Karst impacts:

3.3 Impervious Area Management

New impervious surfaces at a development site can have the greatest adverse effect on groundwater recharge and stormwater quality and quantity. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into a proposed development's design to comprehensively manage the extent and impacts of new impervious surfaces.

A. Specify impervious cover at site: Existing: **0 Acres** Proposed: **0.5 Acres Impervious 5.5 Acres Gravel**

B. Specify maximum site impervious coverage allowed by regulations: **N/A**

C. Compare proposed street cartway widths with those required by regulations:

Type of Street	Proposed Cartway Width (feet)	Required Cartway Width (feet)
Residential access – low intensity	**N/A**	**N/A**
Residential access – medium intensity	**N/A**	**N/A**
Residential access – high intensity with parking	**N/A**	**N/A**
Residential access – high intensity without parking	**N/A**	**N/A**
Neighborhood	**N/A**	**N/A**
Minor collector – low intensity without parking	**N/A**	**N/A**
Minor collector – with one parking lane	**N/A**	**N/A**
Minor collector – with two parking lanes	**N/A**	**N/A**
Minor collector – without parking	**N/A**	**N/A**
Major collector	**N/A**	**N/A**

D. Compare proposed parking space dimensions with those required by regulations:

Proposed: **N/A** Regulations: **N/A**

E. Compare proposed number of parking spaces with those required by regulations:

Proposed: **N/A** Regulations: **N/A**

F. Specify percentage of total site impervious cover created by buildings:

By driveways and parking: **5%** By roadways: _____

G. What design criteria and/or site changes would be required to reduce the percentages in F above?

Impervious surfaces were minimized and limited to the smallest area necessary for safe and prudent operation of the proposed site. Wherever possible, gravel areas were incorporated in the site design rather than impervious pavement. Areas outside between the compressor station and inside the fence line will be vegetated.

H. Specify percentage of total impervious area that will be unconnected:

Total site: **0%** Buildings: _____ Driveways and parking: _____ Roads: _____

I. Specify percentage of total impervious area that will be porous:

***Semi-impervious gravel rather than pavement/roofs**

Total site: **25%*** Buildings: _____ Driveways and parking: **100%*** Roads: _____

J. Specify percentage of total building roof area that will be vegetated: **0%**

K. Specify percentage of total parking area located beneath buildings: **0%**

L. Specify percentage of total parking located within multi-level parking deck: **0%**

3.4 Time of Concentration Modifications

Decreasing a site's time of concentration (Tc) can lead directly to increased site runoff rates which, in turn, can create new and/or aggravate existing erosion and flooding problems downstream. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into the proposed development's design to effectively minimize such Tc decreases.

When reviewing Tc modification strategies, it is important to remember that a drainage area's Tc should reflect the general conditions throughout the area. As a result, Tc modifications must generally be applied throughout a drainage area, not just along a specific Tc route.

A. Specify percentage of site's total stormwater conveyance system length that will be:

Storm sewer: **0%** Vegetated swale: **0%** Natural channel: **0%**

Stormwater management facility: **3%** Other: **60% (Channel)**

Note: the total length of the stormwater conveyance system should be measured from the site's downstream property line to the downstream limit of sheet flow at the system's headwaters.

B. What design criteria and/or site changes would be required to reduce the storm sewer percentages and increase the vegetated swale and natural channel percentages in A above?

Vegetated open channel conveyance systems will be utilized for the project, and upslope diversion channels will discharge to stable vegetated areas.

C. In conveyance system subareas that have overland or sheet flow over impervious surfaces or turf grass, what practical and effective site changes can be made to:

Decrease overland flow slope:

The site predominantly contains shallow slopes, most less than 5%. These slopes will be maintained and in many cases (particularly in the area of the compressor station), the slopes will be decreased. Proposed channels will also utilize shallow slopes, and used in conjunction with an infiltration basin, will help to minimize the decrease in the time of concentration from the site.

Increase overland flow roughness:

Impervious surfaces were minimized and limited to the smallest area necessary for safe and prudent operation of the proposed site. Wherever possible, gravel areas were incorporated in the site design rather than impervious pavement. Areas outside between the compressor station and inside the fence line will be vegetated.

3.5 Preventative Source Controls

The most effective way to address water quality concerns is by pollution prevention. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into the proposed development's design to reduce the exposure of pollutants to prevent their release into the stormwater runoff.

A. Trash Receptacles

Specify the number of trash receptacles provided: **As Needed During Construction**

Specify the spacing between the trash receptacles: _____

Compare trash receptacles proposed with those required by regulations:

Proposed: _____ Regulations: _____

B. Pet Waste Stations

Specify the number of pet waste stations provided: **N/A**

Specify the spacing between the pet waste stations: **N/A**

Compare pet waste stations proposed with those required by regulations:

Proposed: **N/A** Regulations: **N/A**

C. Inlets, Trash Racks, and Other Devices that Prevent Discharge of Large Trash and Debris

Specify percentage of total inlets that comply with the NJPDES storm drain inlet criteria: **100%**

D. Maintenance

Specify the frequency of the following maintenance activities:

Street sweeping: Proposed: **N/A** Regulations: **N/A**

Litter collection: Proposed: **N/A** Regulations: **N/A**

Identify other stormwater management measures on the site that prevent discharge of large trash and debris:

_____

_____

E. Prevention and Containment of Spills

Identify locations where pollutants are located on the site, and the features that prevent these pollutants from being exposed to stormwater runoff:

Pollutant: **Lubricating Oil and Grease** Location: **Storage Area**

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Part 4: Compliance with Nonstructural Requirements of NJDEP Stormwater Management Rules

1. Based upon the checklist responses above, indicate which nonstructural strategies have been incorporated into the proposed development's design in accordance with N.J.A.C. 7:8-5.3(b):

No.	Nonstructural Strategy	Yes	No
1.	Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.	X	
2.	Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces.	X	
3.	Maximize the protection of natural drainage features and vegetation.	X	
4.	Minimize the decrease in the pre-construction time of concentration.	X	
5.	Minimize land disturbance including clearing and grading.	X	
6.	Minimize soil compaction.	X	
7.	Provide low maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers, and pesticides.	X	
8.	Provide vegetated open-channel conveyance systems discharge into and through stable vegetated areas.	X	
9.	Provide preventative source controls.	X	

2. For those strategies that have not been incorporated into the proposed development's design, provide engineering, environmental, and/or safety reasons. Attached additional pages as necessary.

The strategies and criteria for the Low Impact Design checklist were incorporated to the maximum extent practicable, based on and the required size of the facility and the impervious area associated with it for proper function. Efforts have been made to limit clearing compaction, use gravel in lieu of asphalt, and avoid stream and wetland areas (except for access to the site).

APPENDIX D
SUPPORTING CALCULATIONS

APPENDIX D.1
TIME OF CONCENTRATION CALCULATIONS

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: **Present** | Developed
Circle One: **Tc** | Tt

PRE-POI #1

Sheet Flow (Applicable to T_c only)	Segment ID	A-B					
1. Surface Description (Table 3-1)……		WOODED					
2. Manning's Roughness Coeff., n (Table 3-1)……		0.40					
3. Flow Length, L (total L ≤ 150 ft)……	ft	100					
4. Two-yr 24-hr Rainfall, P_2……	in	3.29					
5. Land Slope, s……	ft/ft	0.020					
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.353				=	0.353

Shallow Concentrated Flow	Segment ID	B-C	C-D	D-E	E-F		
7. Surface Description (Paved or Unpaved)……		UNPAVED	UNPAVED	UNPAVED	UNPAVED		
8. Flow Length, L……	ft	50	239	507	35		
9. Watercourse Slope, s……	ft/ft	0.020	0.020	0.030	0.022		
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28	2.28	2.79	2.39		
11. $T_t = L / 3600V$ Compute T_t……	hr	0.006	0.029	0.050	0.004	=	0.090

Channel or Pipe Flow	Segment ID						
12. Cross Sectional Flow Area, A……	ft^2						
13. Wetted Perimeter, P_w……	ft						
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft						
15. Channel Slope, s……	ft/ft						
16. Manning's Roughness Coeff., n……..							
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec						
18. Flow Length, L……	ft						
19. $T_t = L / 3600V$ Compute T_t…….	hr					=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……					hr		0.443
					min		27

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST POI #1 - BYPASS PERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID	A-B				
1. Surface Description (Table 3-1)……		GRASS				
2. Manning's Roughness Coeff., n (Table 3-1)……		0.24				
3. Flow Length, L (total L ≤ 150 ft)……	ft	100				
4. Two-yr 24-hr Rainfall, P_2……	in	3.29				
5. Land Slope, s……	ft/ft	0.04				
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.188			=	0.188

Shallow Concentrated Flow	Segment ID	B-C	C-D			
7. Surface Description (Paved or Unpaved)……		UNPAVED	UNPAVED	UNPAVED		
8. Flow Length, L……	ft	50	45	35		
9. Watercourse Slope, s……	ft/ft	0.04	0.04	0.02		
10. Average Velocity, V (Figure 3-1)……	ft/sec	3.23	3.23	2.28		
11. $T_t = L / 3600V$ Compute T_t……	hr	0.004	0.004		=	0.008

Channel or Pipe Flow	Segment ID					
12. Cross Sectional Flow Area, A……	ft^2					
13. Wetted Perimeter, P_w……	ft					
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft					
15. Channel Slope, s……	ft/ft					
16. Manning's Roughness Coeff., n……..						
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec					
18. Flow Length, L……	ft					
19. $T_t = L / 3600V$ Compute T_t…….	hr				=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……				hr		0.196
				min		12

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST POI #1 - BYPASS PERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID	A-B					
1. Surface Description (Table 3-1)…….		GRAVEL					
2. Manning's Roughness Coeff., n (Table 3-1)……		0.01					
3. Flow Length, L (total L ≤ 150 ft)……	ft	100					
4. Two-yr 24-hr Rainfall, P_2……	in	3.29					
5. Land Slope, s……	ft/ft	0.04					
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.015			=	0.015	
Shallow Concentrated Flow	Segment ID	B-C					
7. Surface Description (Paved or Unpaved)…….		UNPAVED					
8. Flow Length, L…….	ft	50					
9. Watercourse Slope, s……	ft/ft	0.04					
10. Average Velocity, V (Figure 3-1)……	ft/sec	3.23					
11. $T_t = L / 3600V$ Compute T_t……	hr	0.004			=	0.004	
Channel or Pipe Flow	Segment ID						
12. Cross Sectional Flow Area, A…….	ft^2						
13. Wetted Perimeter, P_w…….	ft						
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft						
15. Channel Slope, s…….	ft/ft						
16. Manning's Roughness Coeff., n……..							
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec						
18. Flow Length, L……	ft						
19. $T_t = L / 3600V$ Compute T_t…….	hr				=	0.000	
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……				hr		0.019	
				min		6	

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present **Developed**
Circle One: **Tc** Tt

POST-POI #1 - INFILTRATION BASIN #3 PERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID								
1. Surface Description (Table 3-1)…….									
2. Manning's Roughness Coeff., n (Table 3-1)……									
3. Flow Length, L (total L ≤ 150 ft)……	ft								
4. Two-yr 24-hr Rainfall, P_2……	in								
5. Land Slope, s……	ft/ft								
6. $Tt = (0.007 (nL)^{0.8}) / (P_2^{0.5} s^{0.4})$ Compute T_t……	hr							=	0.000
Shallow Concentrated Flow	Segment ID								
7. Surface Description (Paved or Unpaved)…….									
8. Flow Length, L…….	ft								
9. Watercourse Slope, s……	ft/ft								
10. Average Velocity, V (Figure 3-1)……	ft/sec								
11. $T_t = L / 3600V$ Compute T_t……	hr							=	0.000
Channel or Pipe Flow	Segment ID								
12. Cross Sectional Flow Area, A…….	ft^2								
13. Wetted Perimeter, P_w…….	ft								
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft								
15. Channel Slope, s…….	ft/ft								
16. Manning's Roughness Coeff., n……..									
17. $V = (1.486 R^{0.67} s^{0.5}) / n$ Compute V……	ft/sec								
18. Flow Length, L……	ft								
19. $T_t = L / 3600V$ Compute T_t…….	hr							=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……								hr	0.000
								min	6

Note: For conservation, the minumum time of concentration of 6 minutes is used.

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present **Developed**
Circle One: **Tc** Tt

POST-POI #1 - INFILTRATION BASIN #4 PERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID	J-100'							
1. Surface Description (Table 3-1)…….		GRASS							
2. Manning's Roughness Coeff., n (Table 3-1)……		0.24							
3. Flow Length, L (total L ≤ 150 ft)……	ft	100							
4. Two-yr 24-hr Rainfall, P_2……	in	3.29							
5. Land Slope, s……	ft/ft	0.020							
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.235						=	0.235
Shallow Concentrated Flow	Segment ID	100'-K							
7. Surface Description (Paved or Unpaved)…….		UNPAVED							
8. Flow Length, L……..	ft	372							
9. Watercourse Slope, s……	ft/ft	0.020							
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28							
11. $T_t = L / 3600V$ Compute T_t……	hr	0.045						=	0.045
Channel or Pipe Flow	Segment ID								
12. Cross Sectional Flow Area, A……..	ft^2								
13. Wetted Perimeter, P_w……..	ft								
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft								
15. Channel Slope, s……..	ft/ft								
16. Manning's Roughness Coeff., n……..									
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec								
18. Flow Length, L……	ft								
19. $T_t = L / 3600V$ Compute T_t…….	hr							=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……							hr		0.280
							min		17

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST-POI #1 - INFILTRATION BASIN #5 PERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID								
1. Surface Description (Table 3-1)…….									
2. Manning's Roughness Coeff., n (Table 3-1)……									
3. Flow Length, L (total L ≤ 150 ft)……	ft								
4. Two-yr 24-hr Rainfall, P_2……	in								
5. Land Slope, s……	ft/ft								
6. $Tt = (0.007 (nL)^{0.8}) / (P_2^{0.5} s^{0.4})$ Compute T_t……	hr							=	0.000
Shallow Concentrated Flow	Segment ID								
7. Surface Description (Paved or Unpaved)…….									
8. Flow Length, L…….	ft								
9. Watercourse Slope, s……	ft/ft								
10. Average Velocity, V (Figure 3-1)……	ft/sec								
11. $T_t = L / 3600V$ Compute T_t……	hr							=	0.000
Channel or Pipe Flow	Segment ID	Z-N	N-P						
12. Cross Sectional Flow Area, A…….	ft^2	8.00	2.61						
13. Wetted Perimeter, P_w…….	ft	16.18	6.86						
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft	0.49	0.38						
15. Channel Slope, s…….	ft/ft	0.05	0.06						
16. Manning's Roughness Coeff., n……..		0.24	0.24						
17. $V = (1.486 R^{0.67} s^{0.5}) / n$ Compute V……	ft/sec	0.87	0.80						
18. Flow Length, L……	ft	344	395						
19. $T_t = L / 3600V$ Compute T_t…….	hr	0.110	0.138					=	0.248
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……							hr		0.248
							min		15

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present **Developed**
Circle One: **Tc** Tt

POST-POI #1 - INFILTRATION BASIN #5 IMPERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID	L-100'							
1. Surface Description (Table 3-1)…….		GRAVEL							
2. Manning's Roughness Coeff., n (Table 3-1)……		0.01							
3. Flow Length, L (total L ≤ 150 ft)……	ft	100							
4. Two-yr 24-hr Rainfall, P_2……	in	3.29							
5. Land Slope, s……	ft/ft	0.120							
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.009						=	0.009
Shallow Concentrated Flow	Segment ID	100'-Z							
7. Surface Description (Paved or Unpaved)…….		UNPAVED							
8. Flow Length, L…….	ft	7							
9. Watercourse Slope, s……	ft/ft	0.020							
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28							
11. $T_t = L / 3600V$ Compute T_t……	hr	0.001						=	0.001
Channel or Pipe Flow	Segment ID	Z-N	N-P						
12. Cross Sectional Flow Area, A…….	ft^2	8.00	2.61						
13. Wetted Perimeter, P_w…….	ft	16.18	6.86						
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft	0.49	0.38						
15. Channel Slope, s…….	ft/ft	0.05	0.06						
16. Manning's Roughness Coeff., n……..		0.24	0.24						
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec	0.87	0.80						
18. Flow Length, L……	ft	344	395						
19. $T_t = L / 3600V$ Compute T_t…….	hr	0.110	0.138					=	0.248
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……							hr		0.258
							min		15

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present **Developed**
Circle One: **Tc** Tt

POST-POI #1 - INFILTRATION BASIN #6 IMPERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID								
1. Surface Description (Table 3-1)…….									
2. Manning's Roughness Coeff., n (Table 3-1)……									
3. Flow Length, L (total L ≤ 150 ft)……	ft								
4. Two-yr 24-hr Rainfall, P_2……	in								
5. Land Slope, s……	ft/ft								
6. $Tt = (0.007 (nL)^{0.8}) / (P_2^{0.5} s^{0.4})$ Compute T_t……	hr							=	0.000
Shallow Concentrated Flow	Segment ID								
7. Surface Description (Paved or Unpaved)…….									
8. Flow Length, L…….	ft								
9. Watercourse Slope, s……	ft/ft								
10. Average Velocity, V (Figure 3-1)……	ft/sec								
11. $T_t = L / 3600V$ Compute T_t……	hr							=	0.000
Channel or Pipe Flow	Segment ID								
12. Cross Sectional Flow Area, A…….	ft^2								
13. Wetted Perimeter, P_w…….	ft								
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft								
15. Channel Slope, s…….	ft/ft								
16. Manning's Roughness Coeff., n……..									
17. $V = (1.486 R^{0.67} s^{0.5}) / n$ Compute V……	ft/sec								
18. Flow Length, L……	ft								
19. $T_t = L / 3600V$ Compute T_t…….	hr							=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……								hr	0.000
								min	6

Note: For conservation, the minumum time of concentration of 6 minutes is used.

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present **Developed**
Circle One: **Tc** Tt

POST-POI #1 - INFILTRATION BASIN #7 IMPERVIOUS

Sheet Flow (Applicable to T_c only)	Segment ID							
1. Surface Description (Table 3-1)…….								
2. Manning's Roughness Coeff., n (Table 3-1)……								
3. Flow Length, L (total L ≤ 150 ft)……	ft							
4. Two-yr 24-hr Rainfall, P_2……	in							
5. Land Slope, s……	ft/ft							
6. $Tt = (0.007 (nL)^{0.8}) / (P_2^{0.5} s^{0.4})$ Compute T_t……	hr						=	0.000

Shallow Concentrated Flow	Segment ID							
7. Surface Description (Paved or Unpaved)…….								
8. Flow Length, L…….	ft							
9. Watercourse Slope, s……	ft/ft							
10. Average Velocity, V (Figure 3-1)……	ft/sec							
11. $T_t = L / 3600V$ Compute T_t……	hr						=	0.000

Channel or Pipe Flow	Segment ID							
12. Cross Sectional Flow Area, A…….	ft^2							
13. Wetted Perimeter, P_w…….	ft							
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft							
15. Channel Slope, s…….	ft/ft							
16. Manning's Roughness Coeff., n……..								
17. $V = (1.486 R^{0.67} s^{0.5}) / n$ Compute V……	ft/sec							
18. Flow Length, L……	ft							
19. $T_t = L / 3600V$ Compute T_t…….	hr						=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……							hr	0.000
							min	0

Note: For conservation, the minumum time of concentration of 6 minutes is used.

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present **Developed**
Circle One: **Tc** Tt **-POI #1 - INFILTRATION BASIN #1 PERV**

Sheet Flow (Applicable to T_c only)	Segment ID	G-79'							
1. Surface Description (Table 3-1)…….		GRASS							
2. Manning's Roughness Coeff., n (Table 3-1)……		0.24							
3. Flow Length, L (total L ≤ 150 ft)……	ft	79							
4. Two-yr 24-hr Rainfall, P_2……	in	3.29							
5. Land Slope, s……	ft/ft	0.050							
6. $Tt = (0.007 (nL)^{0.8}) / (P_2^{0.5} s^{0.4})$ Compute T_t……	hr	0.135						=	0.135
Shallow Concentrated Flow	Segment ID								
7. Surface Description (Paved or Unpaved)…….									
8. Flow Length, L…….	ft								
9. Watercourse Slope, s……	ft/ft								
10. Average Velocity, V (Figure 3-1)……	ft/sec								
11. $T_t = L / 3600V$ Compute T_t……	hr							=	0.000
Channel or Pipe Flow	Segment ID	79'-X							
12. Cross Sectional Flow Area, A…….	ft^2	2.61							
13. Wetted Perimeter, P_w…….	ft	6.86							
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft	0.38							
15. Channel Slope, s…….	ft/ft	0.1							
16. Manning's Roughness Coeff., n……..		0.24							
17. $V = (1.486 R^{0.67} s^{0.5}) / n$ Compute V……	ft/sec	1.03							
18. Flow Length, L……	ft	423							
19. $T_t = L / 3600V$ Compute T_t…….	hr	0.114						=	0.114
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……							hr		0.249
							min		15

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: **Present** | Developed
Circle One: **Tc** | Tt

PRE-POI #2

Sheet Flow (Applicable to T_c only)	Segment ID	A-B				
1. Surface Description (Table 3-1)…….		WOODED				
2. Manning's Roughness Coeff., n (Table 3-1)……		0.40				
3. Flow Length, L (total L ≤ 150 ft)……	ft	100				
4. Two-yr 24-hr Rainfall, P_2……	in	3.29				
5. Land Slope, s……	ft/ft	0.02				
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.353			=	0.353

Shallow Concentrated Flow	Segment ID	B-C	C-D	D-E		
7. Surface Description (Paved or Unpaved)…….		UNPAVED	UNPAVED	UNPAVED		
8. Flow Length, L…….	ft	50	125	160		
9. Watercourse Slope, s……	ft/ft	0.02	0.02	0.035		
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28	2.28	3.02		
11. $T_t = L / 3600V$ Compute T_t……	hr	0.006	0.015	0.015	=	0.036

Channel or Pipe Flow	Segment ID					
12. Cross Sectional Flow Area, A…….	ft^2					
13. Wetted Perimeter, P_w…….	ft					
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft					
15. Channel Slope, s…….	ft/ft					
16. Manning's Roughness Coeff., n……..						
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec					
18. Flow Length, L……	ft					
19. $T_t = L / 3600V$ Compute T_t…….	hr				=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……					hr	0.389
					min	23

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST-POI #2 - INFILTRATION BASIN 1

Sheet Flow (Applicable to T_c only)	Segment ID	A-B				
1. Surface Description (Table 3-1)……		IMP.				
2. Manning's Roughness Coeff., n (Table 3-1)……		0.01				
3. Flow Length, L (total L ≤ 150 ft)……	ft	70				
4. Two-yr 24-hr Rainfall, P_2……	in	3.29				
5. Land Slope, s……	ft/ft	0.020				
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.015			=	0.015
Shallow Concentrated Flow	Segment ID	B-C				
7. Surface Description (Paved or Unpaved)…….		UNPAVED				
8. Flow Length, L…….	ft	50				
9. Watercourse Slope, s……	ft/ft	0.020				
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28	0.00	0.00		
11. $T_t = L / 3600V$ Compute T_t……	hr	0.006			=	0.006
Channel or Pipe Flow	Segment ID	C-D				
12. Cross Sectional Flow Area, A…….	ft^2	1.55				
13. Wetted Perimeter, P_w…….	ft	4.84				
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft	0.32				
15. Channel Slope, s…….	ft/ft	0.02				
16. Manning's Roughness Coeff., n……..		0.10				
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec	1.03				
18. Flow Length, L……	ft	550				
19. $T_t = L / 3600V$ Compute T_t…….	hr	0.148			=	0.148
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……				hr		0.169
				min		10

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST-POI #2 - INFILTRATION BASIN 1

Sheet Flow (Applicable to T_c only)	Segment ID	A-B				
1. Surface Description (Table 3-1)……		IMP.				
2. Manning's Roughness Coeff., n (Table 3-1)……		0.01				
3. Flow Length, L (total L ≤ 150 ft)……	ft	70				
4. Two-yr 24-hr Rainfall, P_2……	in	3.29				
5. Land Slope, s……	ft/ft	0.020				
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.015			=	0.015
Shallow Concentrated Flow	Segment ID	B-C				
7. Surface Description (Paved or Unpaved)…….		UNPAVED				
8. Flow Length, L…….	ft	50				
9. Watercourse Slope, s……	ft/ft	0.020				
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28	0.00	0.00		
11. $T_t = L / 3600V$ Compute T_t……	hr	0.006			=	0.006
Channel or Pipe Flow	Segment ID	C-D				
12. Cross Sectional Flow Area, A…….	ft^2	1.55				
13. Wetted Perimeter, P_w…….	ft	4.84				
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft	0.32				
15. Channel Slope, s…….	ft/ft	0.02				
16. Manning's Roughness Coeff., n……..		0.10				
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec	1.03				
18. Flow Length, L……	ft	550				
19. $T_t = L / 3600V$ Compute T_t…….	hr	0.148			=	0.148
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……				hr		0.169
				min		10

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST-POI #2 - INFILTRATION BASIN 2

Sheet Flow (Applicable to T_c only)	Segment ID	A-B				
1. Surface Description (Table 3-1)…….		GRAVEL				
2. Manning's Roughness Coeff., n (Table 3-1)……		0.01				
3. Flow Length, L (total L ≤ 150 ft)……	ft	45				
4. Two-yr 24-hr Rainfall, P_2……	in	3.29				
5. Land Slope, s……	ft/ft	0.030				
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.009			=	0.009
Shallow Concentrated Flow	Segment ID					
7. Surface Description (Paved or Unpaved)…….						
8. Flow Length, L…….	ft					
9. Watercourse Slope, s……	ft/ft					
10. Average Velocity, V (Figure 3-1)……	ft/sec	0.00	0.00	0.00		
11. $T_t = L / 3600V$ Compute T_t……	hr				=	0.000
Channel or Pipe Flow	Segment ID	B-C				
12. Cross Sectional Flow Area, A…….	ft^2	1.55				
13. Wetted Perimeter, P_w…….	ft	4.84				
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft	0.32				
15. Channel Slope, s…….	ft/ft	0.02				
16. Manning's Roughness Coeff., n……..		0.10				
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec	1.03				
18. Flow Length, L……	ft	100				
19. $T_t = L / 3600V$ Compute T_t…….	hr	0.027			=	0.027
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……				hr		0.036
				min		6

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST-POI #2 - INFILTRATION BASIN 2

Sheet Flow (Applicable to T_c only)	Segment ID	A-B				
1. Surface Description (Table 3-1)……		GRAVEL				
2. Manning's Roughness Coeff., n (Table 3-1)……		0.01				
3. Flow Length, L (total L ≤ 150 ft)……	ft	100				
4. Two-yr 24-hr Rainfall, P_2……	in	3.29				
5. Land Slope, s……	ft/ft	0.030				
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.017			=	0.017
Shallow Concentrated Flow	Segment ID	B-C				
7. Surface Description (Paved or Unpaved)……		UNPAVED				
8. Flow Length, L……	ft	50				
9. Watercourse Slope, s……	ft/ft	0.020				
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28	0.00	0.00		
11. $T_t = L / 3600V$ Compute T_t……	hr	0.006			=	0.006
Channel or Pipe Flow	Segment ID					
12. Cross Sectional Flow Area, A……	ft^2					
13. Wetted Perimeter, P_w……	ft					
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft					
15. Channel Slope, s……	ft/ft					
16. Manning's Roughness Coeff., n……..						
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec					
18. Flow Length, L……	ft					
19. $T_t = L / 3600V$ Compute T_t…….	hr				=	0.000
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……				hr		0.023
				min		6

Worksheet 3: Time of Concentration (T_c) or Travel Time (T_t)

Project **NESE CS 206**
Location **Somerset County, NJ**
Circle One: Present | **Developed**
Circle One: **Tc** | Tt

POST POI #2 - BYPASS

Sheet Flow (Applicable to T_c only)	Segment ID	A-B				
1. Surface Description (Table 3-1)……		BRUSH				
2. Manning's Roughness Coeff., n (Table 3-1)……		0.24				
3. Flow Length, L (total L ≤ 150 ft)……	ft	100				
4. Two-yr 24-hr Rainfall, P_2……	in	3.29				
5. Land Slope, s……	ft/ft	0.02				
6. $Tt = (0.007\ (nL)^{0.8}) / (P_2^{0.5}\ s^{0.4})$ Compute T_t……	hr	0.235			=	0.235

Shallow Concentrated Flow	Segment ID	B-C	C-D	F-G		
7. Surface Description (Paved or Unpaved)……		UNPAVED	UNPAVED	UNPAVED		
8. Flow Length, L……	ft	50	20	55		
9. Watercourse Slope, s……	ft/ft	0.02	0.02	0.035		
10. Average Velocity, V (Figure 3-1)……	ft/sec	2.28	2.28	3.02		
11. $T_t = L / 3600V$ Compute T_t……	hr	0.006	0.002	0.005	=	0.014

Channel or Pipe Flow	Segment ID	E-F				
12. Cross Sectional Flow Area, A……	ft^2	0.66				
13. Wetted Perimeter, P_w……	ft	3.88				
14. Hydraulic Radius, $R = A / P_w$ Compute R…….	ft	0.17				
15. Channel Slope, s……	ft/ft	0.01				
16. Manning's Roughness Coeff., n……..		0.20				
17. $V = (1.486\ R^{0.67}\ s^{0.5}) / n$ Compute V……	ft/sec	0.23				
18. Flow Length, L……	ft	185				
19. $T_t = L / 3600V$ Compute T_t…….	hr	0.225			=	0.225
20. Watershed or Subarea T_c or T_t (add T_t in steps 6, 11, and 19) ……				hr		0.474
				min		28

APPENDIX D.2
CURVE NUMBERS

Summary for Subcatchment Pre1: PRE - POI #1

Runoff = 7.73 cfs @ 12.45 hrs, Volume= 1.086 af, Depth= 0.77"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
9.127	55	Woods, Good, HSG B
1.498	61	Pasture/grassland/range, Good, HSG B
2.070	70	Woods, Good, HSG C
2.444	74	Pasture/grassland/range, Good, HSG C
0.452	77	Woods, Good, HSG D
0.326	80	Pasture/grassland/range, Good, HSG D
0.952	48	Brush, Good, HSG B
16.869	61	Weighted Average
16.869	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0					**Direct Entry, PRE - POI #1**

Summary for Subcatchment Off1P: POST - POI #1 - Bypass Pervious

Runoff = 1.28 cfs @ 12.23 hrs, Volume= 0.152 af, Depth= 0.54"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
2.061	48	Brush, Good, HSG B
0.543	65	Brush, Good, HSG C
0.779	73	Brush, Good, HSG D
3.383	56	Weighted Average
3.383	56	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, POST - POI #1 - Bypass**

Summary for Subcatchment Off1I: POST - POI #1 - Bypass Impervious

Runoff = 0.58 cfs @ 12.13 hrs, Volume= 0.043 af, Depth= 3.69"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.050	98	Gravel B
*	0.010	98	Gravel C
*	0.080	98	Gravel D
	0.140	98	Weighted Average
	0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #1 - Bypass**

Summary for Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious

Runoff = 0.07 cfs @ 12.34 hrs, Volume= 0.020 af, Depth= 0.24"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
0.976	48	Brush, Good, HSG B
0.976	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin #3**

Summary for Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint

Runoff = 0.89 cfs @ 12.13 hrs, Volume= 0.066 af, Depth= 3.69"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.214	98	Infiltration Basin #3
	0.214	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious

Runoff = 0.15 cfs @ 12.61 hrs, Volume= 0.045 af, Depth= 0.24"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
2.213	48	Brush, Good, HSG B
2.213	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint

Runoff = 0.79 cfs @ 12.13 hrs, Volume= 0.058 af, Depth= 3.69"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.189	98	Infiltration Basin #4
	0.189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious

Runoff = 5.79 cfs @ 12.22 hrs, Volume= 0.566 af, Depth= 3.69"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	1.842	98	Gravel surfaces
	1.842	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious

Runoff = 0.37 cfs @ 12.25 hrs, Volume= 0.036 af, Depth= 0.98"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
0.436	65	Brush, Good, HSG C
0.436	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint

Runoff = 0.77 cfs @ 12.13 hrs, Volume= 0.057 af, Depth= 3.69"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.185	98	Infiltration Basin #5
	0.185	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious

Runoff = 8.37 cfs @ 12.13 hrs, Volume= 0.617 af, Depth= 3.69"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	2.008	98	Gravel surfaces
	2.008	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint

Runoff = 1.99 cfs @ 12.13 hrs, Volume= 0.147 af, Depth= 3.69"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.478	98	Infiltration Basin #6
	0.478	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Summary for Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 0.047 af, Depth= 3.69"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.154	98	Infiltration Basin #1
	0.154	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Summary for Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious

Runoff = 0.01 cfs @ 12.34 hrs, Volume= 0.002 af, Depth= 0.24"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
0.083	48	Brush, Good, HSG B
0.083	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Summary for Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious

Runoff = 0.54 cfs @ 12.13 hrs, Volume= 0.040 af, Depth= 3.69"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.130	98	Gravel roads, HSG B
	0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Bypass**

Summary for Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

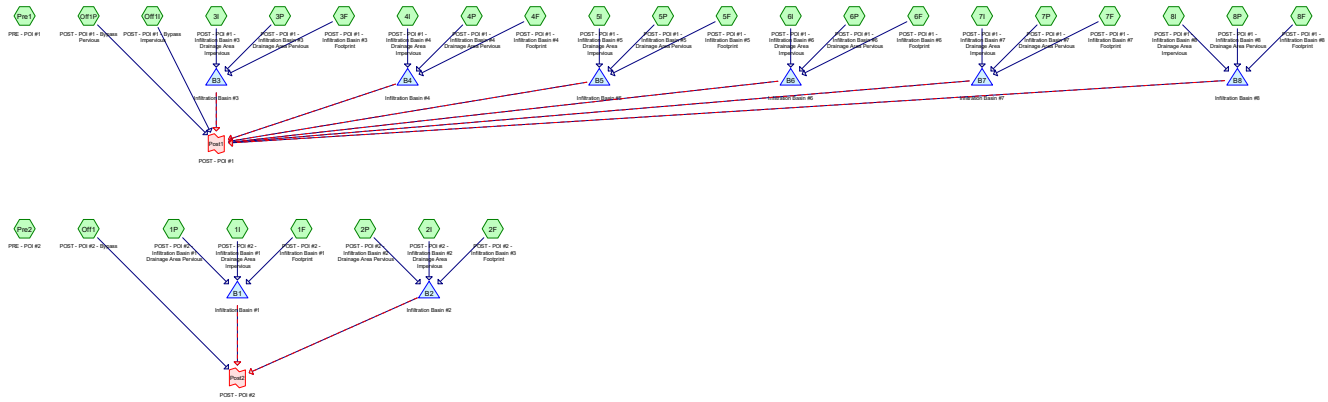
Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.028 af, Depth= 3.69"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.091	98	Infiltration Basin #2
	0.091	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

APPENDIX D.3
PEAK RATE ANALYSIS (RUNOFF QUANTITY)



Subcat Reach Pond Link

Routing Diagram for 10312025 - CS 206 Site - EPA Road

Prepared by AECOM, Printed 11/20/2025

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-YR Future	NOAA 24-hr	C	Default	24.00	1	3.92	2
2	2-YR Present	NOAA 24-hr	C	Default	24.00	1	3.29	2
3	10-YR Future	NOAA 24-hr	C	Default	24.00	1	6.20	2
4	10-YR Present	NOAA 24-hr	C	Default	24.00	1	5.15	2
5	100-YR Future	NOAA 24-hr	C	Default	24.00	1	12.33	2
6	100-YR Present	NOAA 24-hr	C	Default	24.00	1	9.08	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.942	48	Brush, Good, HSG B (1P, 2P, 3P, 4P, 8P, Off1, Off1P, Pre1)
2.113	65	Brush, Good, HSG C (5P, 8P, Off1P)
0.779	73	Brush, Good, HSG D (Off1P)
0.050	98	Gravel B (Off1I)
0.010	98	Gravel C (Off1I)
0.080	98	Gravel D (Off1I)
0.480	98	Gravel roads, HSG B (1I, 2I)
5.937	98	Gravel surfaces (5I, 6I, 7I)
0.134	98	Impervious, HSG B (1I, Pre2)
0.154	98	Infiltration Basin #1 (1F)
0.091	98	Infiltration Basin #2 (2F)
0.214	98	Infiltration Basin #3 (3F)
0.189	98	Infiltration Basin #4 (4F)
0.185	98	Infiltration Basin #5 (5F)
0.478	98	Infiltration Basin #6 (6F)
0.404	98	Infiltration Basin #7 (7F)
0.172	98	Infiltration Basin #8 (8F)
2.044	61	Pasture/grassland/range, Good, HSG B (Pre1, Pre2)
2.444	74	Pasture/grassland/range, Good, HSG C (Pre1)
0.326	80	Pasture/grassland/range, Good, HSG D (Pre1)
10.944	55	Woods, Good, HSG B (Pre1, Pre2)
2.070	70	Woods, Good, HSG C (Pre1)
0.452	77	Woods, Good, HSG D (Pre1)
38.692	**67**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1F: POST - POI #2 - Runoff Area=0.154 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.64 cfs 0.047 af

Subcatchment 1I: POST - POI #2 - Runoff Area=0.370 ac 100.00% Impervious Runoff Depth=3.69"
Tc=10.0 min CN=0/98 Runoff=1.34 cfs 0.114 af

Subcatchment 1P: POST - POI #2 - Runoff Area=0.370 ac 0.00% Impervious Runoff Depth=0.24"
Tc=10.0 min CN=48/0 Runoff=0.03 cfs 0.008 af

Subcatchment 2F: POST - POI #2 - Runoff Area=0.091 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.38 cfs 0.028 af

Subcatchment 2I: POST - POI #2 - Runoff Area=0.130 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.54 cfs 0.040 af

Subcatchment 2P: POST - POI #2 - Runoff Area=0.083 ac 0.00% Impervious Runoff Depth=0.24"
Tc=6.0 min CN=48/0 Runoff=0.01 cfs 0.002 af

Subcatchment 3F: POST - POI #1 - Runoff Area=0.214 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.89 cfs 0.066 af

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 3P: POST - POI #1 - Runoff Area=0.976 ac 0.00% Impervious Runoff Depth=0.24"
Tc=6.0 min CN=48/0 Runoff=0.07 cfs 0.020 af

Subcatchment 4F: POST - POI #1 - Runoff Area=0.189 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.79 cfs 0.058 af

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 4P: POST - POI #1 - Runoff Area=2.213 ac 0.00% Impervious Runoff Depth=0.24"
Tc=17.0 min CN=48/0 Runoff=0.15 cfs 0.045 af

Subcatchment 5F: POST - POI #1 - Runoff Area=0.185 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.77 cfs 0.057 af

Subcatchment 5I: POST - POI #1 - Runoff Area=1.842 ac 100.00% Impervious Runoff Depth=3.69"
Tc=15.0 min CN=0/98 Runoff=5.79 cfs 0.566 af

Subcatchment 5P: POST - POI #1 - Runoff Area=0.436 ac 0.00% Impervious Runoff Depth=0.98"
Tc=15.0 min CN=65/0 Runoff=0.37 cfs 0.036 af

Subcatchment 6F: POST - POI #1 - Runoff Area=0.478 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=1.99 cfs 0.147 af

Subcatchment 6I: POST - POI #1 - Runoff Area=2.008 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=8.37 cfs 0.617 af

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 7F: POST - POI #1 - Runoff Area=0.404 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=1.68 cfs 0.124 af

Subcatchment 7I: POST - POI #1 - Runoff Area=2.087 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=8.70 cfs 0.641 af

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8F: POST - POI #1 - Runoff Area=0.172 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.72 cfs 0.053 af

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8P: POST - POI #1 - Runoff Area=2.142 ac 0.00% Impervious Runoff Depth=0.58"
Tc=15.0 min CN=57/0 Runoff=0.84 cfs 0.104 af

Subcatchment Off1: POST - POI #2 - Bypass Runoff Area=1.279 ac 0.00% Impervious Runoff Depth=0.24"
Tc=28.0 min CN=48/0 Runoff=0.08 cfs 0.026 af

Subcatchment Off1I: POST - POI #1 - Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.58 cfs 0.043 af

Subcatchment Off1P: POST - POI #1 - Runoff Area=3.383 ac 0.00% Impervious Runoff Depth=0.54"
Tc=12.0 min CN=56/0 Runoff=1.28 cfs 0.152 af

Subcatchment Pre1: PRE - POI #1 Runoff Area=16.869 ac 0.00% Impervious Runoff Depth=0.77"
Tc=27.0 min CN=61/0 Runoff=7.73 cfs 1.086 af

Subcatchment Pre2: PRE - POI #2 Runoff Area=2.477 ac 4.60% Impervious Runoff Depth=0.69"
Tc=23.0 min CN=56/98 Runoff=0.93 cfs 0.141 af

Pond B1: Infiltration Basin #1 Peak Elev=275.72' Storage=5,032 cf Inflow=1.92 cfs 0.168 af
Primary=0.11 cfs 0.117 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.117 af

Pond B2: Infiltration Basin #2 Peak Elev=275.23' Storage=1,904 cf Inflow=0.92 cfs 0.070 af
Primary=0.09 cfs 0.048 af Secondary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.048 af

Pond B3: Infiltration Basin #3 Peak Elev=273.44' Storage=1,500 cf Inflow=0.91 cfs 0.086 af
Primary=0.40 cfs 0.063 af Secondary=0.00 cfs 0.000 af Outflow=0.40 cfs 0.063 af

Pond B4: Infiltration Basin #4 Peak Elev=265.35' Storage=1,888 cf Inflow=0.79 cfs 0.103 af
Primary=0.15 cfs 0.085 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.085 af

Pond B5: Infiltration Basin #5 Peak Elev=267.58' Storage=16,682 cf Inflow=6.56 cfs 0.658 af
Primary=1.77 cfs 0.482 af Secondary=0.00 cfs 0.000 af Outflow=1.77 cfs 0.482 af

Pond B6: Infiltration Basin #6 Peak Elev=263.59' Storage=26,122 cf Inflow=10.37 cfs 0.763 af
Primary=0.21 cfs 0.509 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.509 af

Pond B7: Infiltration Basin #7 Peak Elev=263.45' Storage=24,066 cf Inflow=10.39 cfs 0.765 af
Primary=0.41 cfs 0.530 af Secondary=0.00 cfs 0.000 af Outflow=0.41 cfs 0.530 af

Pond B8: Infiltration Basin #8 Peak Elev=273.92' Storage=4,688 cf Inflow=1.14 cfs 0.157 af
Primary=0.08 cfs 0.069 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.069 af

Link Post1: POST - POI #1 Inflow=3.45 cfs 1.934 af
Primary=3.45 cfs 1.934 af

Link Post2: POST - POI #2 Inflow=0.27 cfs 0.191 af
Primary=0.27 cfs 0.191 af

Total Runoff Area = 38.692 ac Runoff Volume = 4.219 af Average Runoff Depth = 1.31"
77.83% Pervious = 30.114 ac 22.17% Impervious = 8.578 ac

Summary for Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint

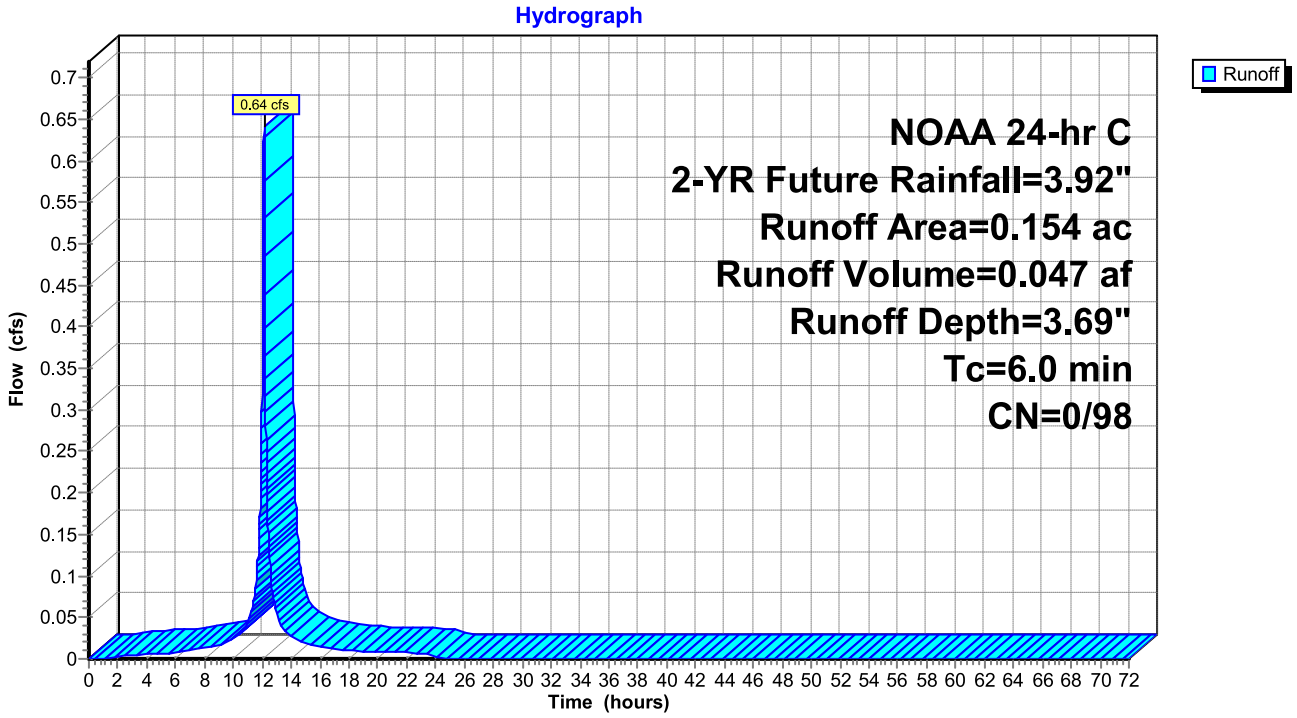
Runoff = 0.64 cfs @ 12.13 hrs, Volume= 0.047 af, Depth= 3.69"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.154	98	Infiltration Basin #1
	0.154	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint



Summary for Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious

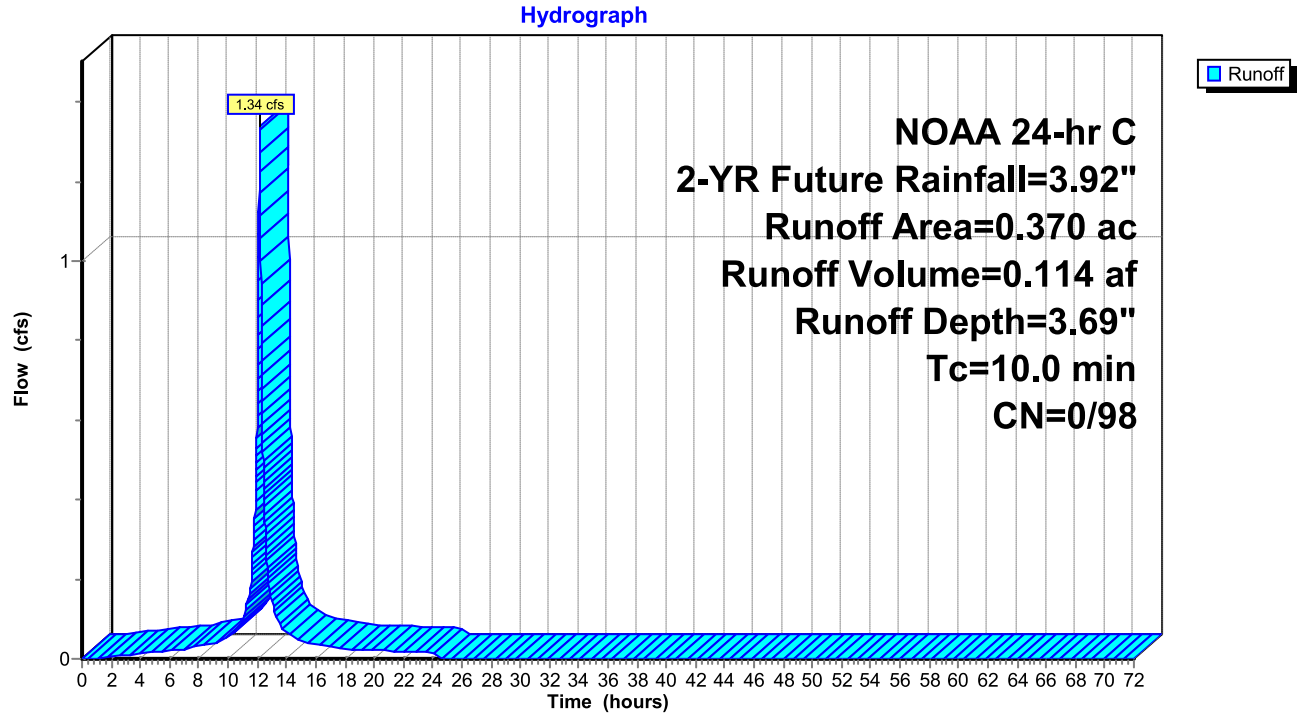
Runoff = 1.34 cfs @ 12.17 hrs, Volume= 0.114 af, Depth= 3.69"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.020	98	Impervious, HSG B
*	0.350	98	Gravel roads, HSG B
	0.370	98	Weighted Average
	0.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious



Summary for Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious

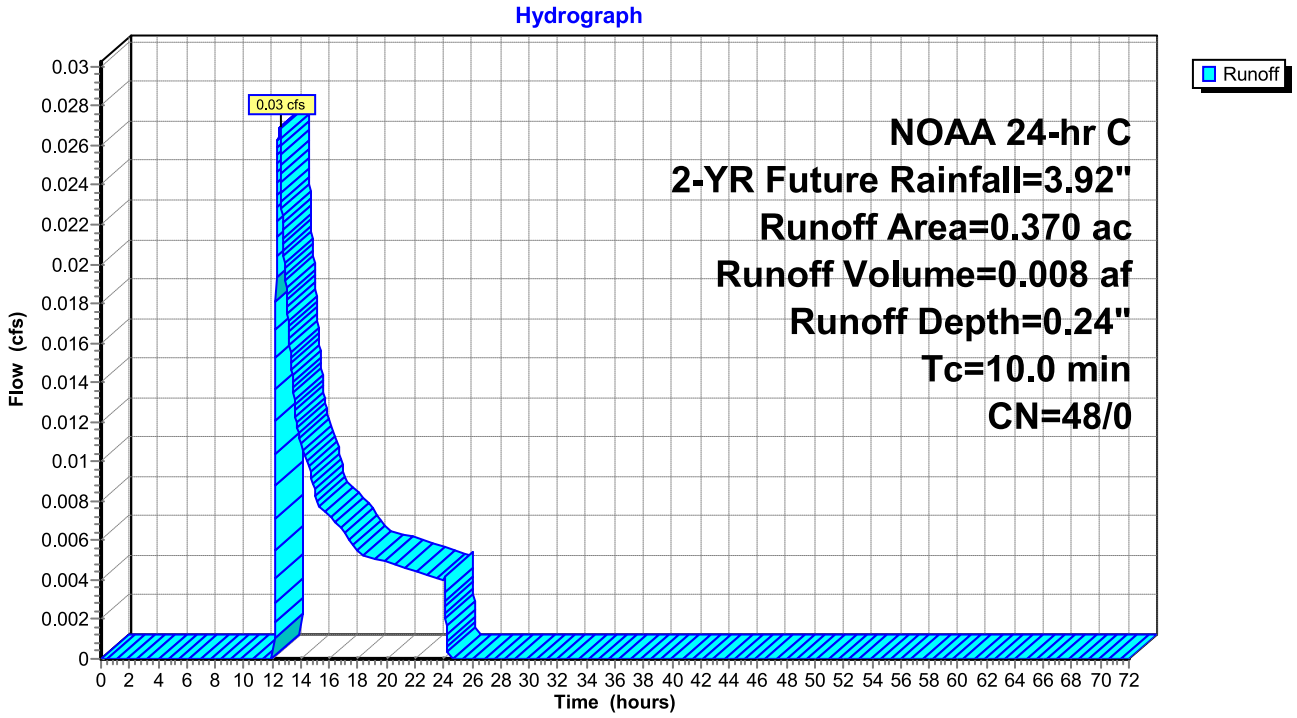
Runoff = 0.03 cfs @ 12.55 hrs, Volume= 0.008 af, Depth= 0.24"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
0.370	48	Brush, Good, HSG B
0.370	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious



Summary for Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint

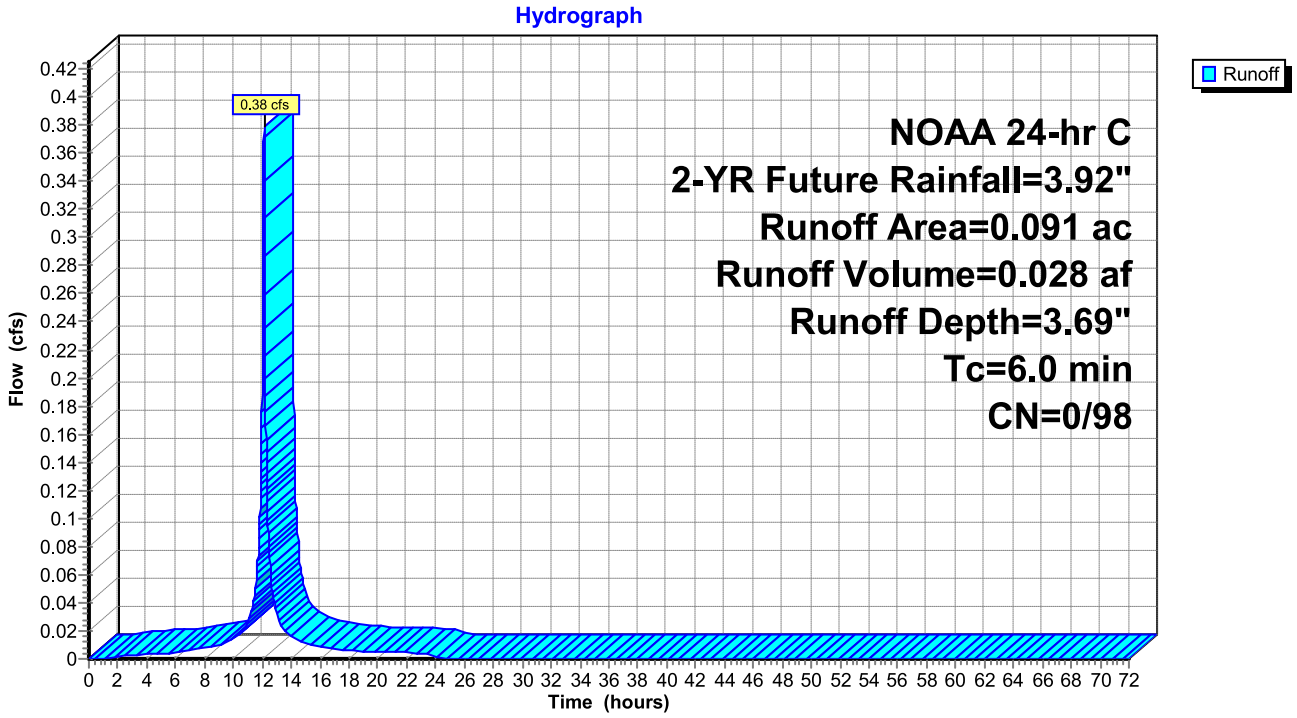
Runoff = 0.38 cfs @ 12.13 hrs, Volume= 0.028 af, Depth= 3.69"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.091	98	Infiltration Basin #2
	0.091	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint



Summary for Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious

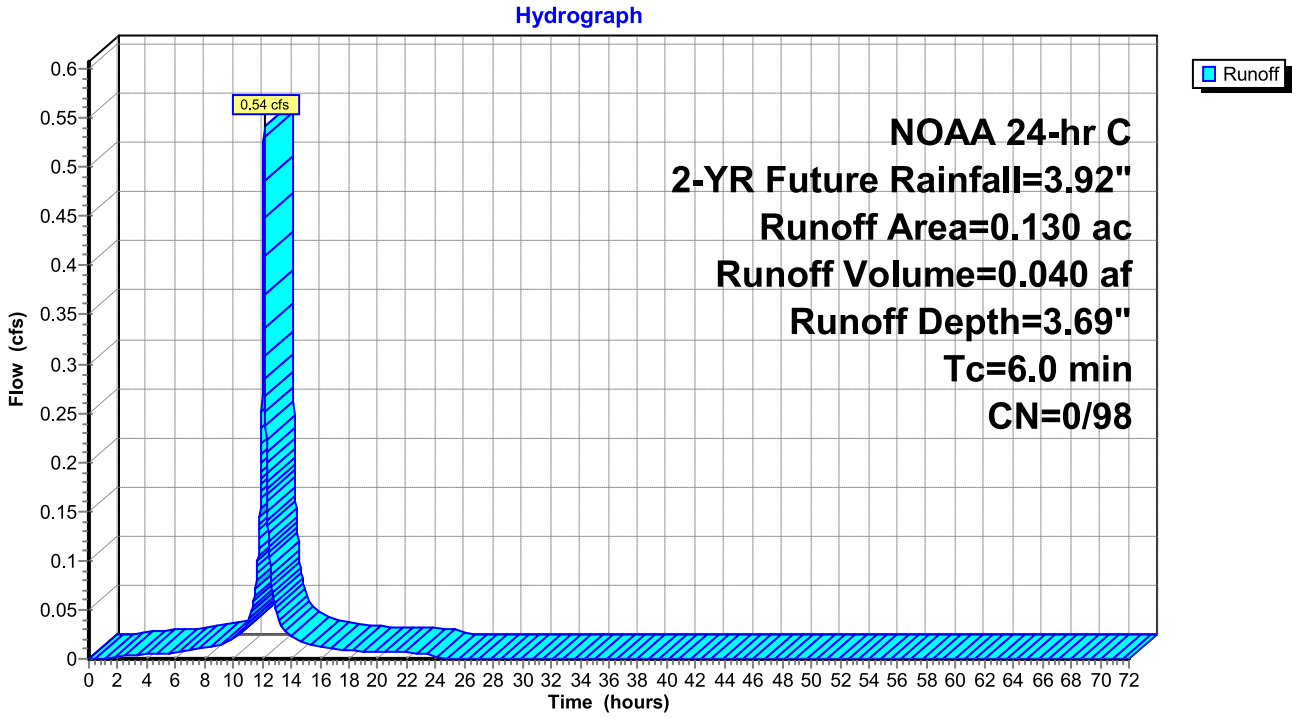
Runoff = 0.54 cfs @ 12.13 hrs, Volume= 0.040 af, Depth= 3.69"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.130	98	Gravel roads, HSG B
	0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious



Summary for Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious

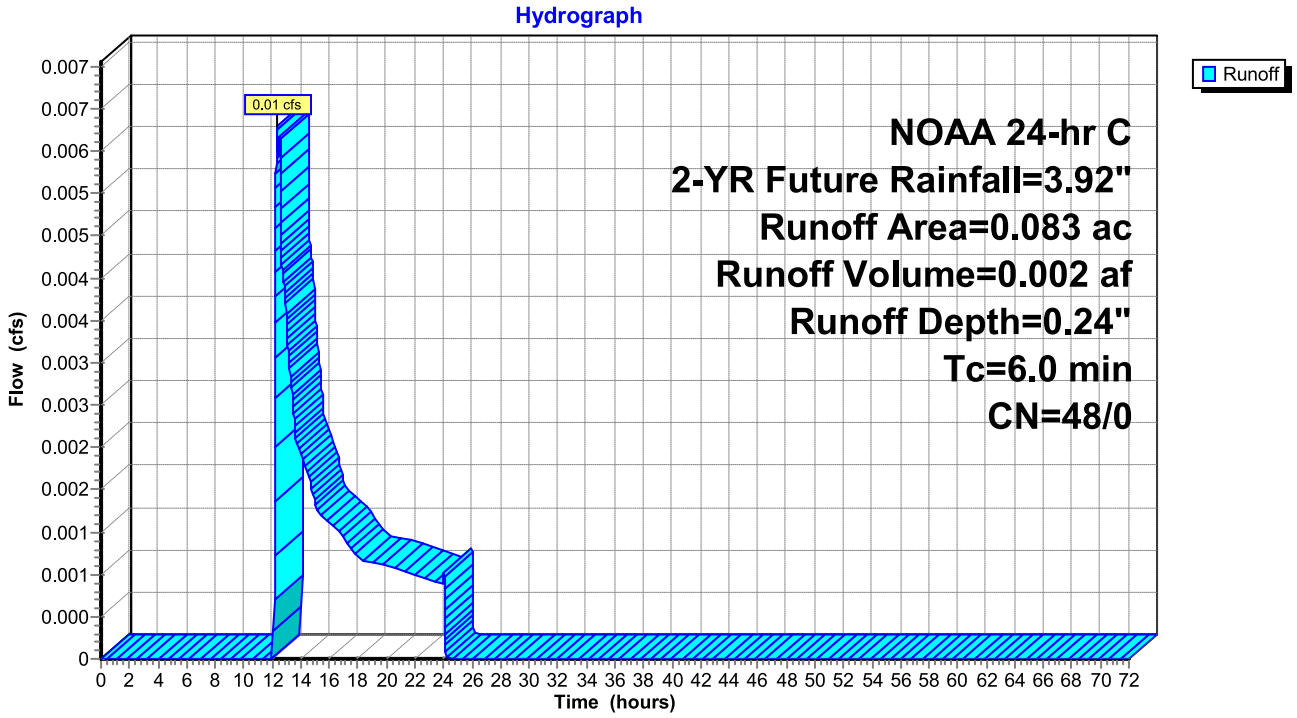
Runoff = 0.01 cfs @ 12.34 hrs, Volume= 0.002 af, Depth= 0.24"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
0.083	48	Brush, Good, HSG B
0.083	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious



Summary for Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint

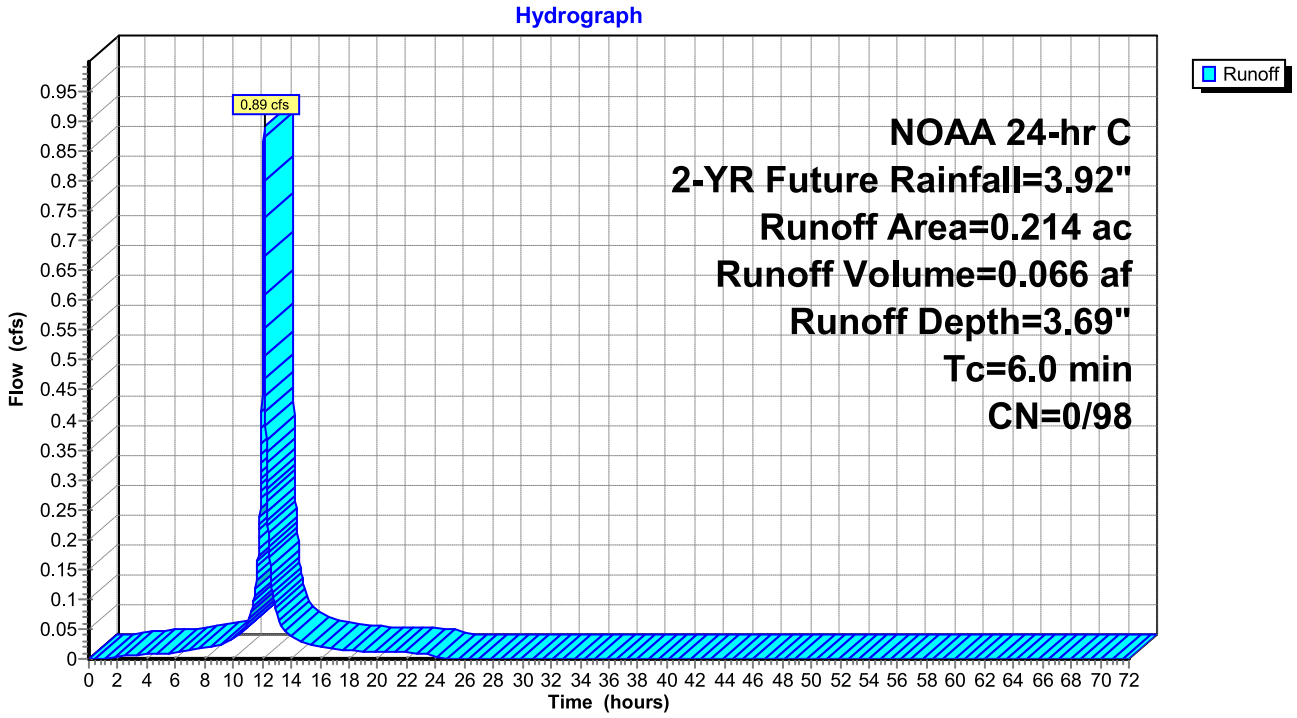
Runoff = 0.89 cfs @ 12.13 hrs, Volume= 0.066 af, Depth= 3.69"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.214	98	Infiltration Basin #3
	0.214	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint



Summary for Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious

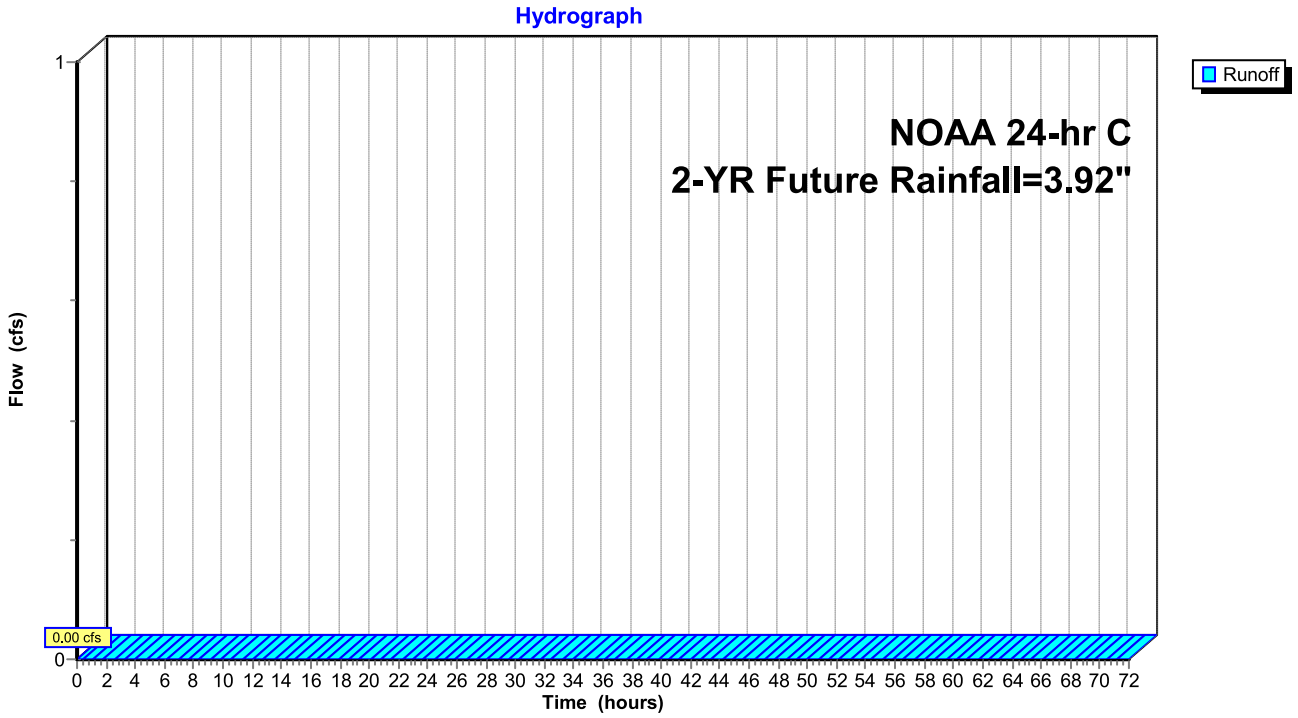
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious



Summary for Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious

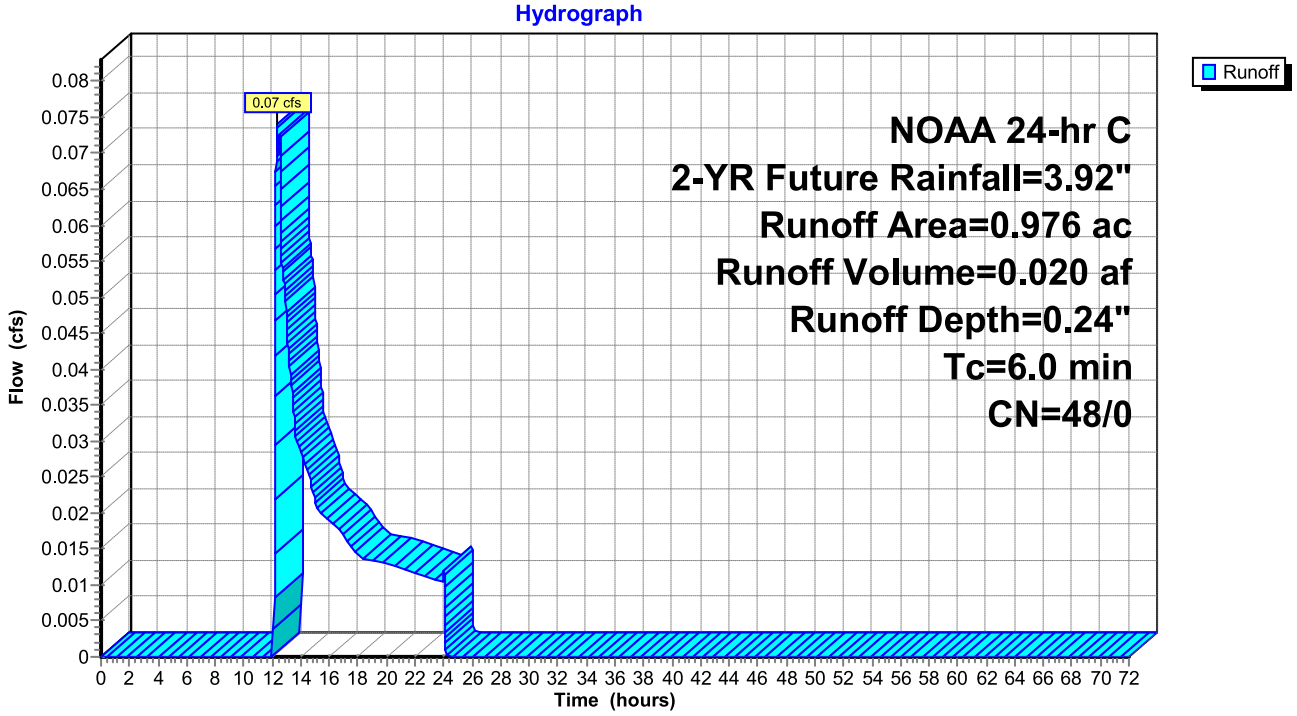
Runoff = 0.07 cfs @ 12.34 hrs, Volume= 0.020 af, Depth= 0.24"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
0.976	48	Brush, Good, HSG B
0.976	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin #3**

Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious



Summary for Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint

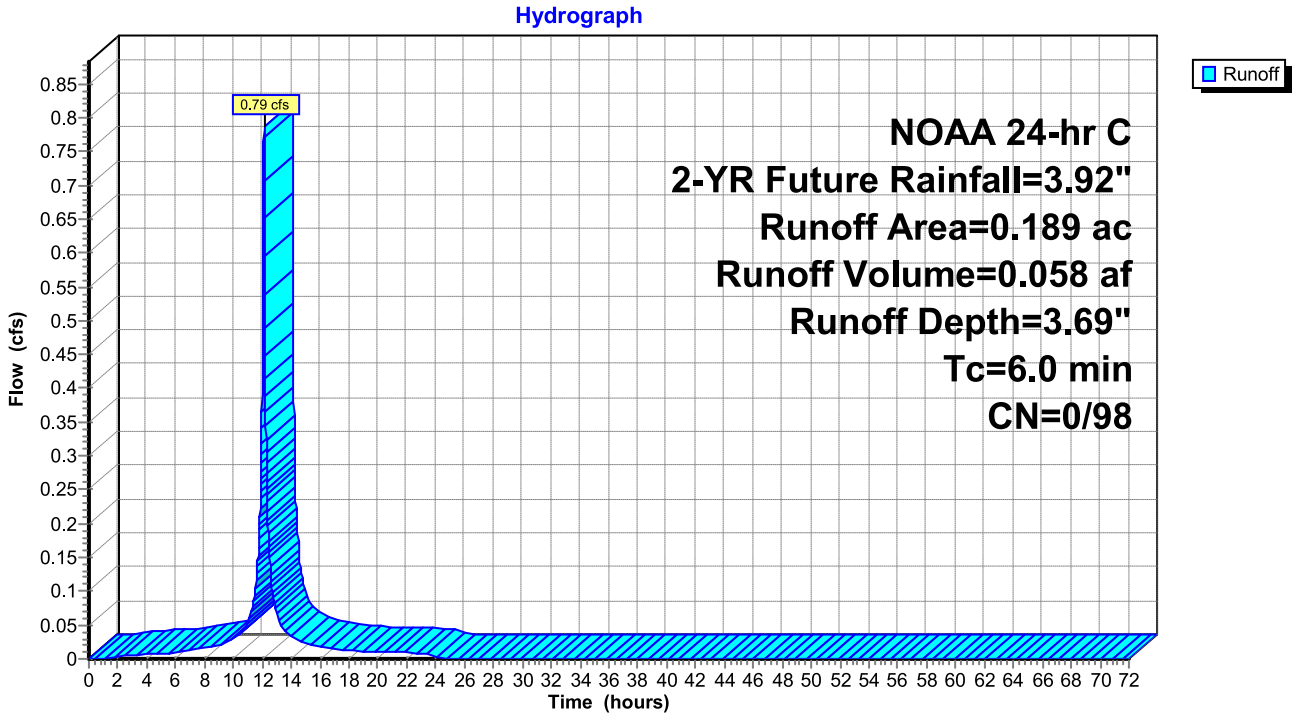
Runoff = 0.79 cfs @ 12.13 hrs, Volume= 0.058 af, Depth= 3.69"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.189	98	Infiltration Basin #4
	0.189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint



Summary for Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious

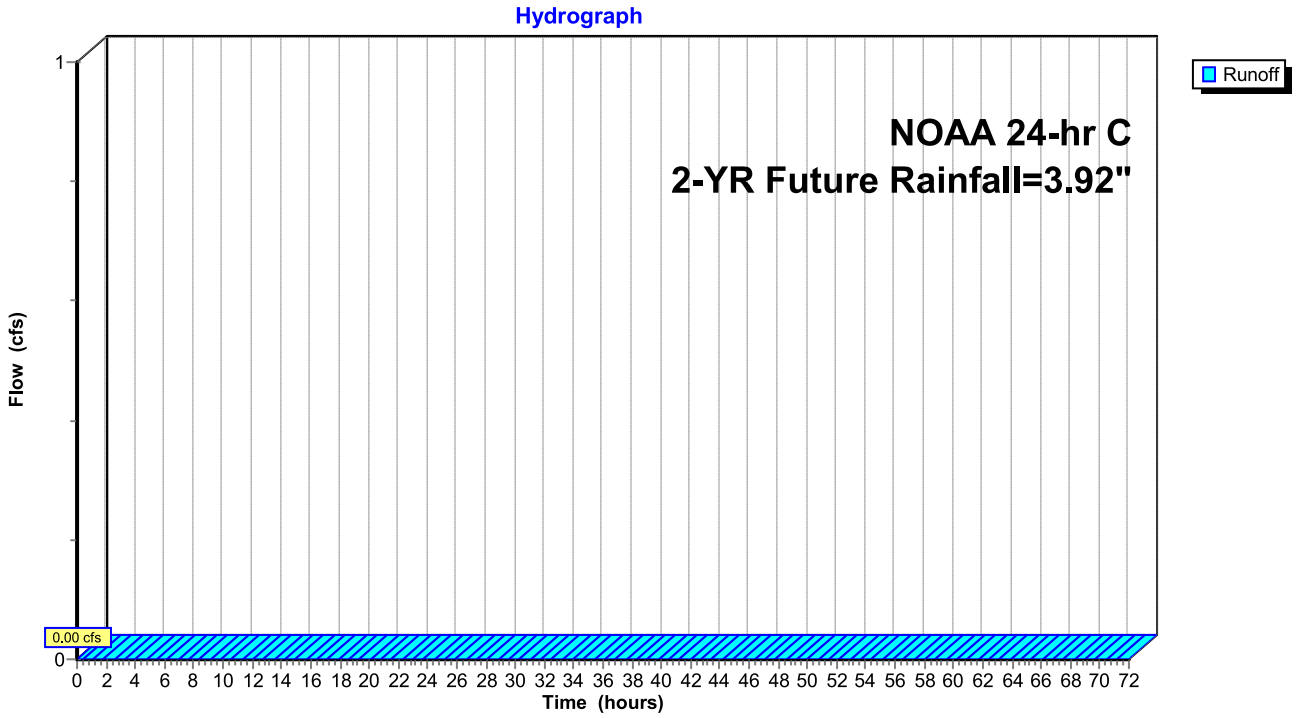
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious



Summary for Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious

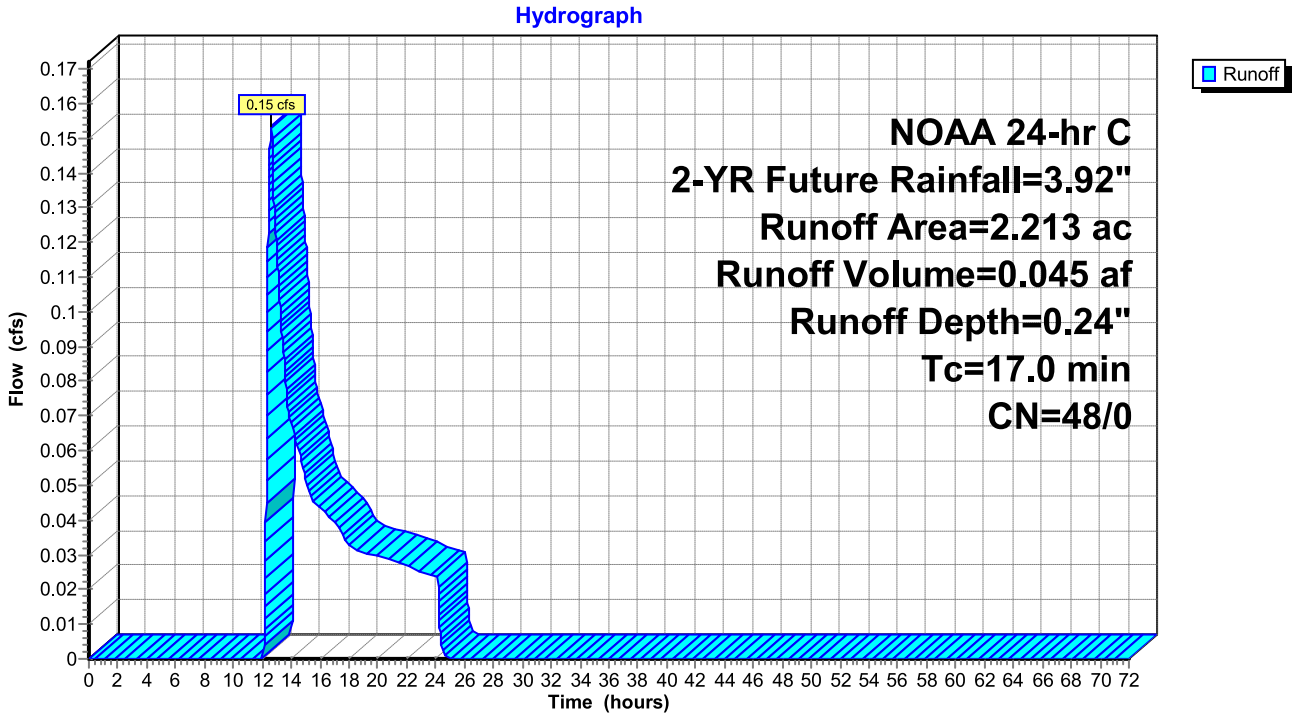
Runoff = 0.15 cfs @ 12.61 hrs, Volume= 0.045 af, Depth= 0.24"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
2.213	48	Brush, Good, HSG B
2.213	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious



Summary for Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint

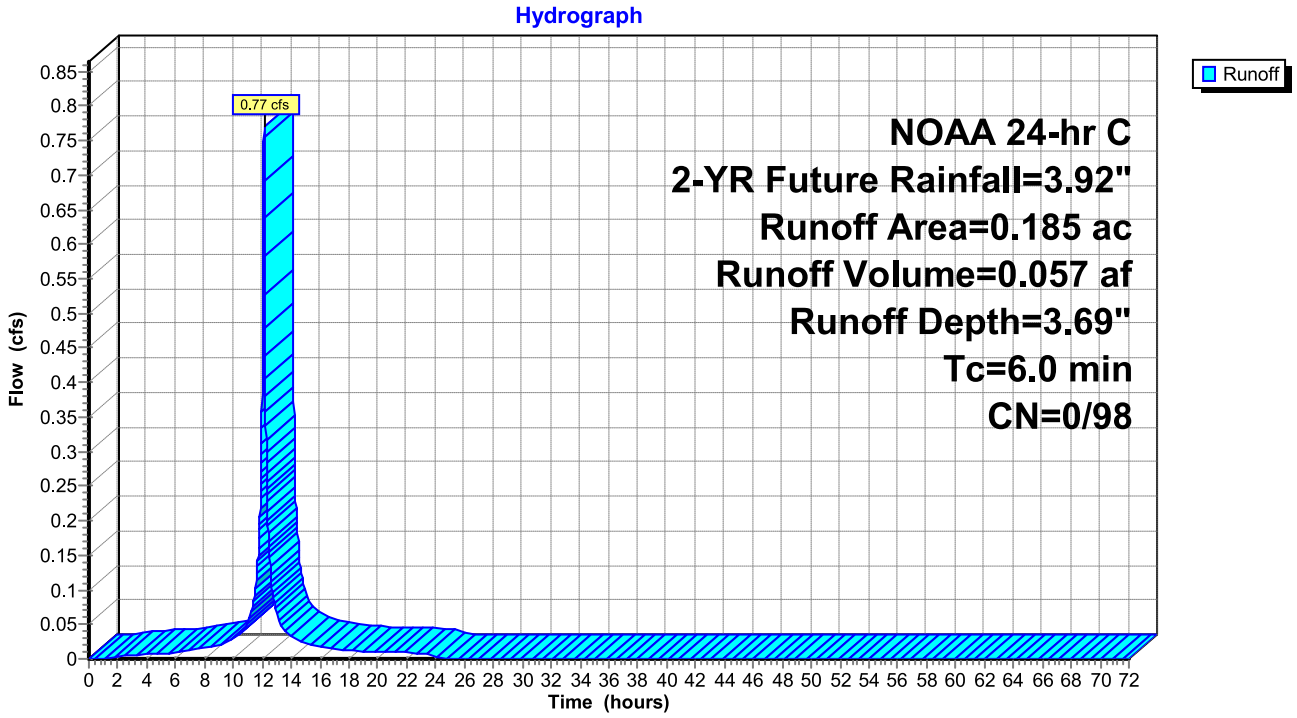
Runoff = 0.77 cfs @ 12.13 hrs, Volume= 0.057 af, Depth= 3.69"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.185	98	Infiltration Basin #5
	0.185	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint



Summary for Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious

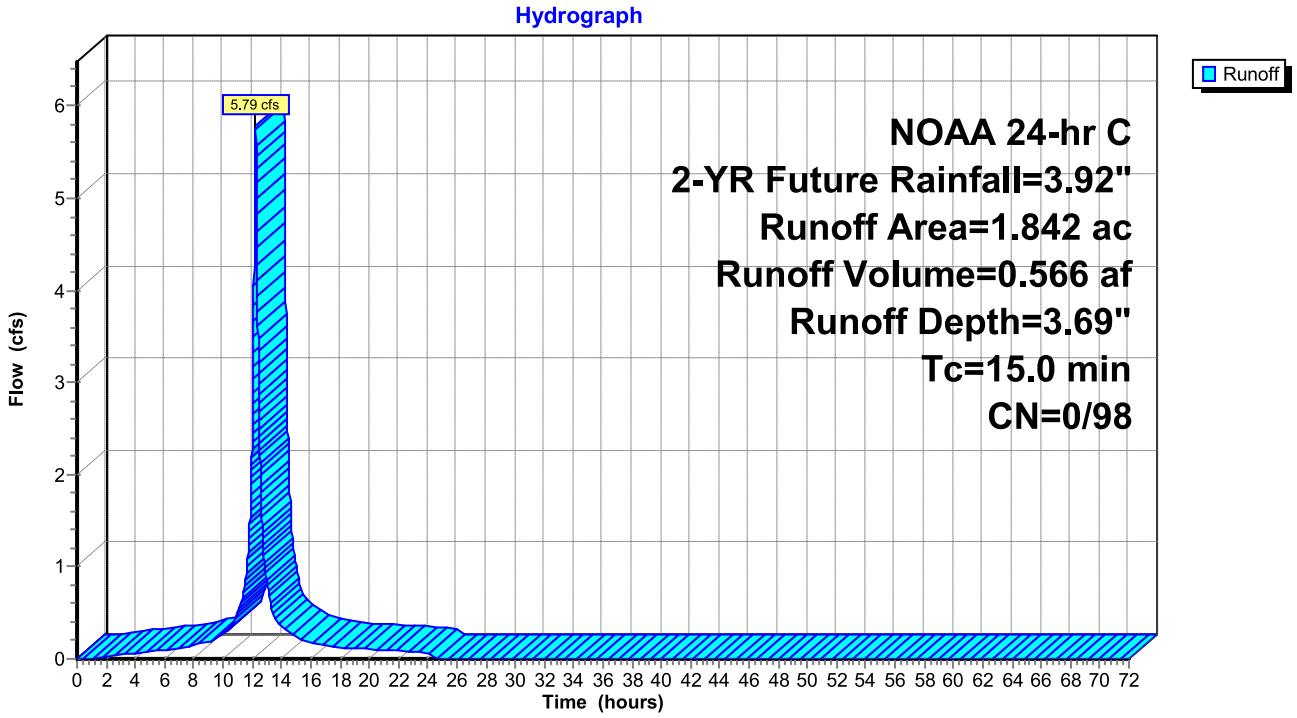
Runoff = 5.79 cfs @ 12.22 hrs, Volume= 0.566 af, Depth= 3.69"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	1.842	98	Gravel surfaces
	1.842	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious



Summary for Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious

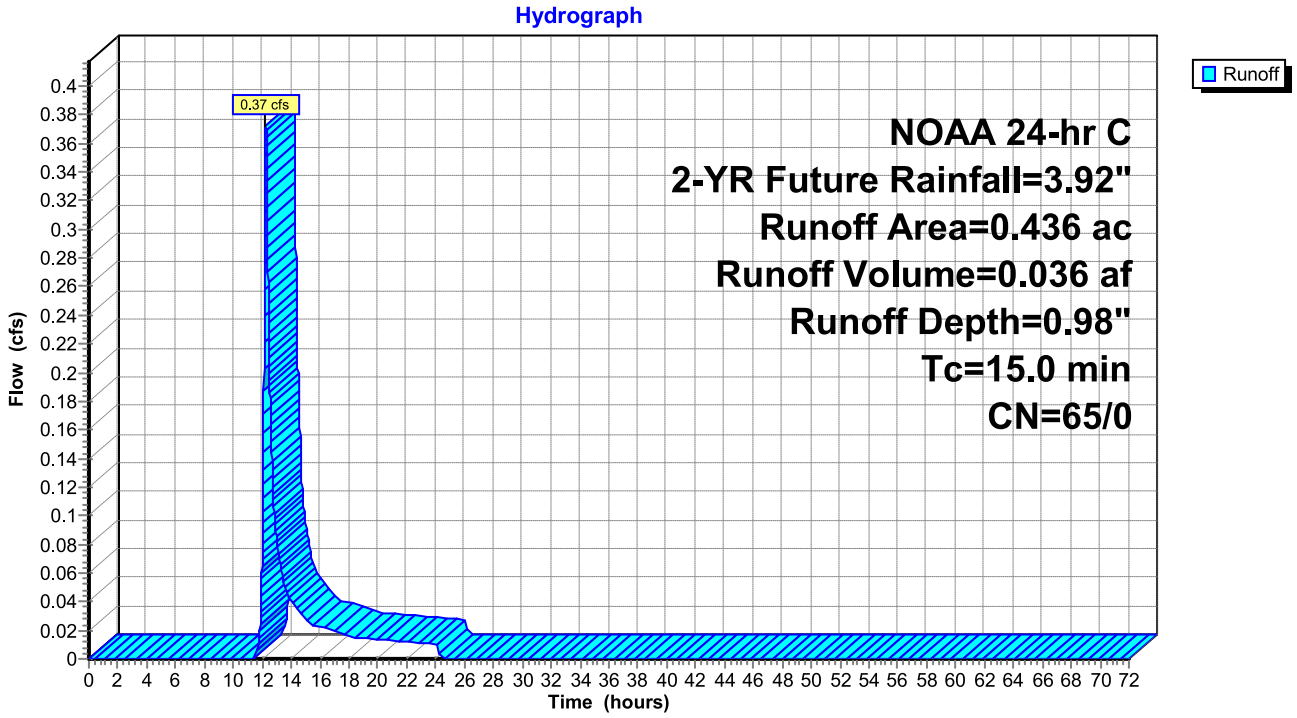
Runoff = 0.37 cfs @ 12.25 hrs, Volume= 0.036 af, Depth= 0.98"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
0.436	65	Brush, Good, HSG C
0.436	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious



Summary for Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint

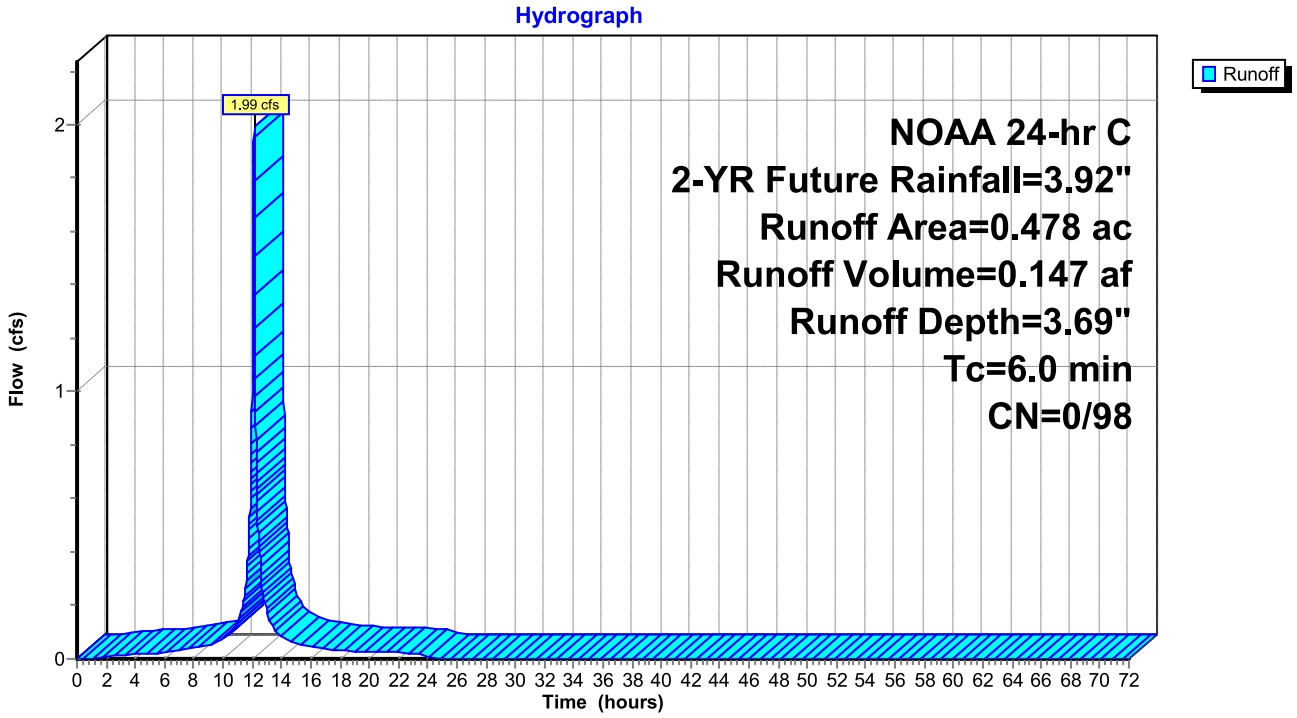
Runoff = 1.99 cfs @ 12.13 hrs, Volume= 0.147 af, Depth= 3.69"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.478	98	Infiltration Basin #6
	0.478	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint



Summary for Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious

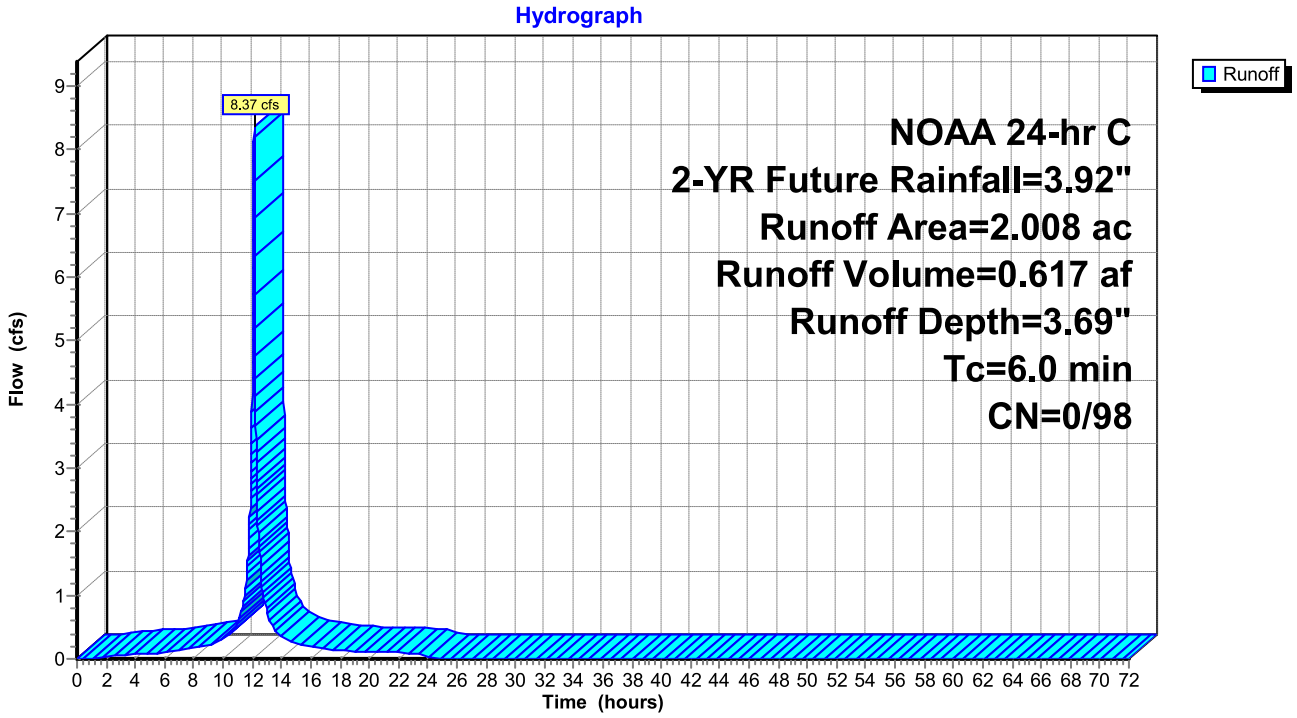
Runoff = 8.37 cfs @ 12.13 hrs, Volume= 0.617 af, Depth= 3.69"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	2.008	98	Gravel surfaces
	2.008	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious



Summary for Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious

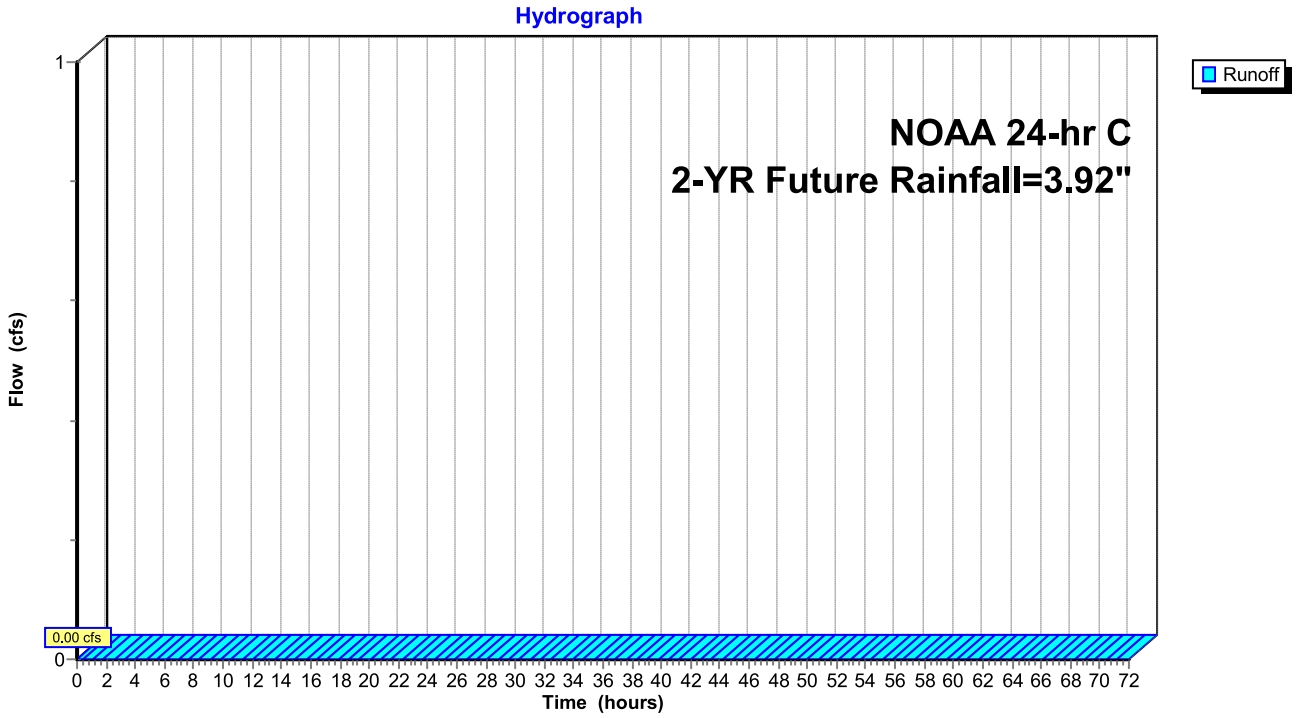
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious



Summary for Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint

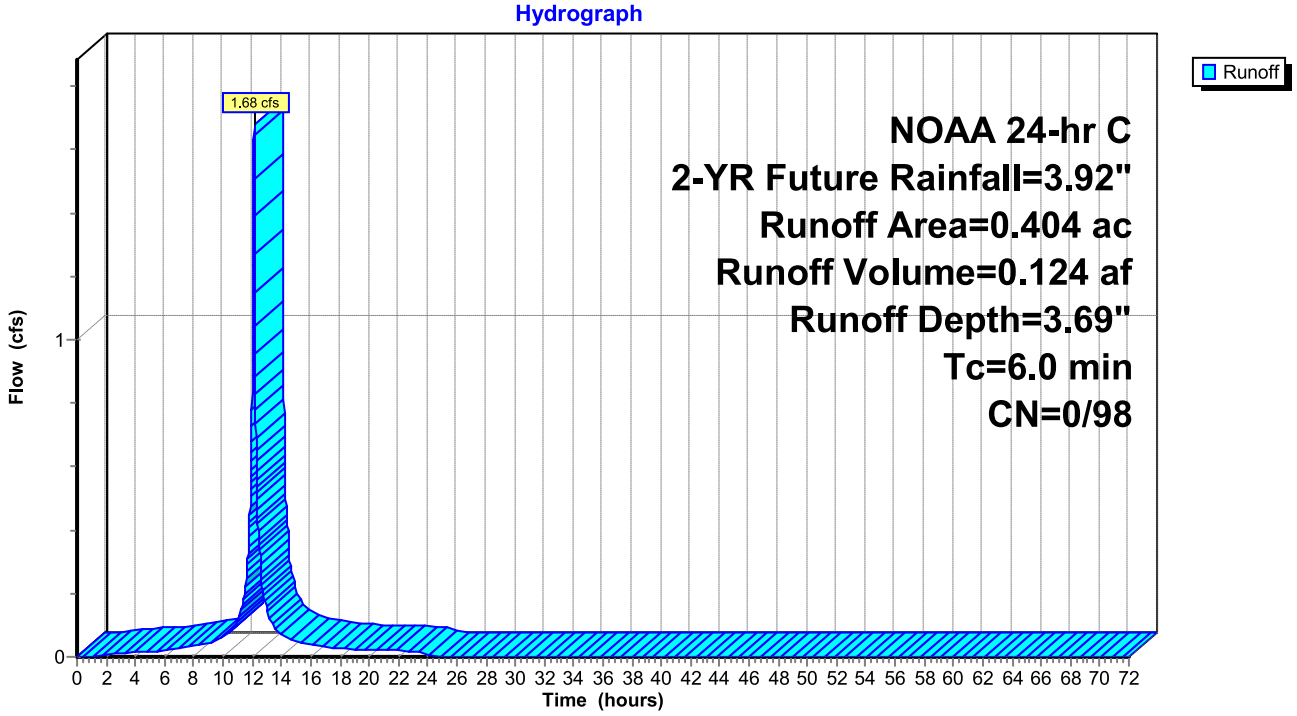
Runoff = 1.68 cfs @ 12.13 hrs, Volume= 0.124 af, Depth= 3.69"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.404	98	Infiltration Basin #7
	0.404	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint



Summary for Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious

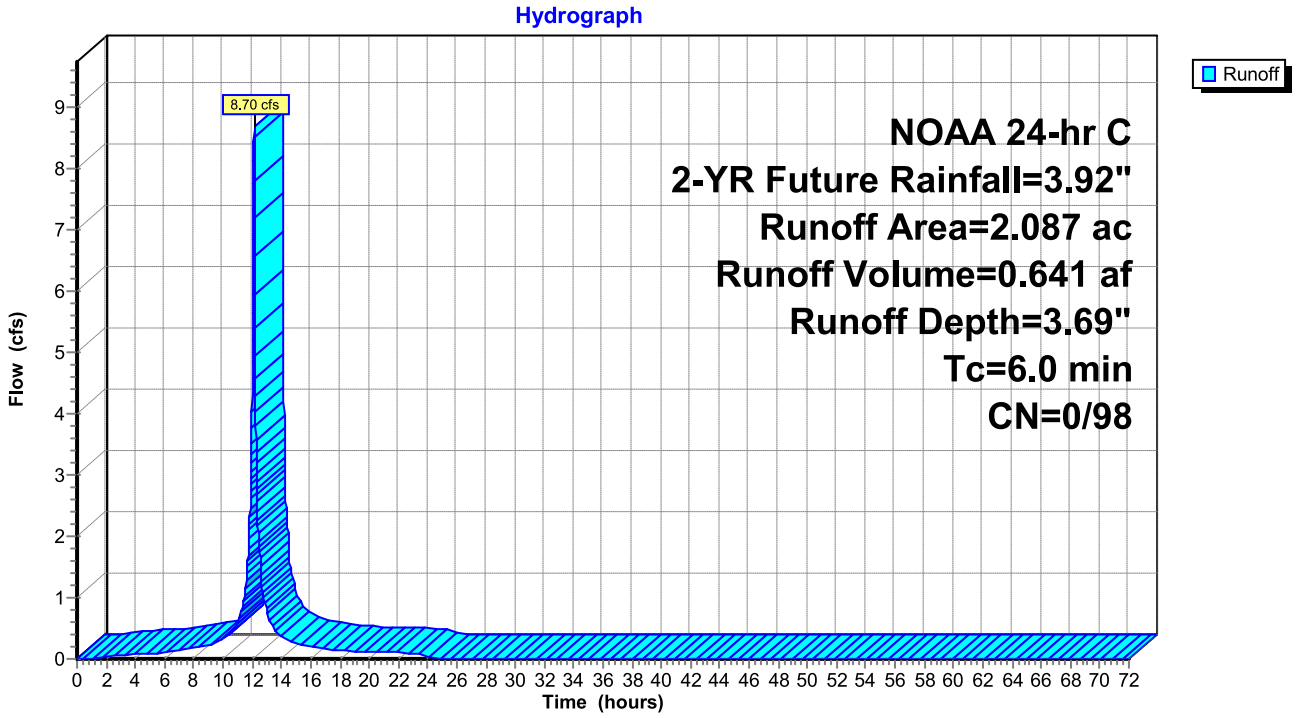
Runoff = 8.70 cfs @ 12.13 hrs, Volume= 0.641 af, Depth= 3.69"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	2.087	98	Gravel surfaces
	2.087	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious



Summary for Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious

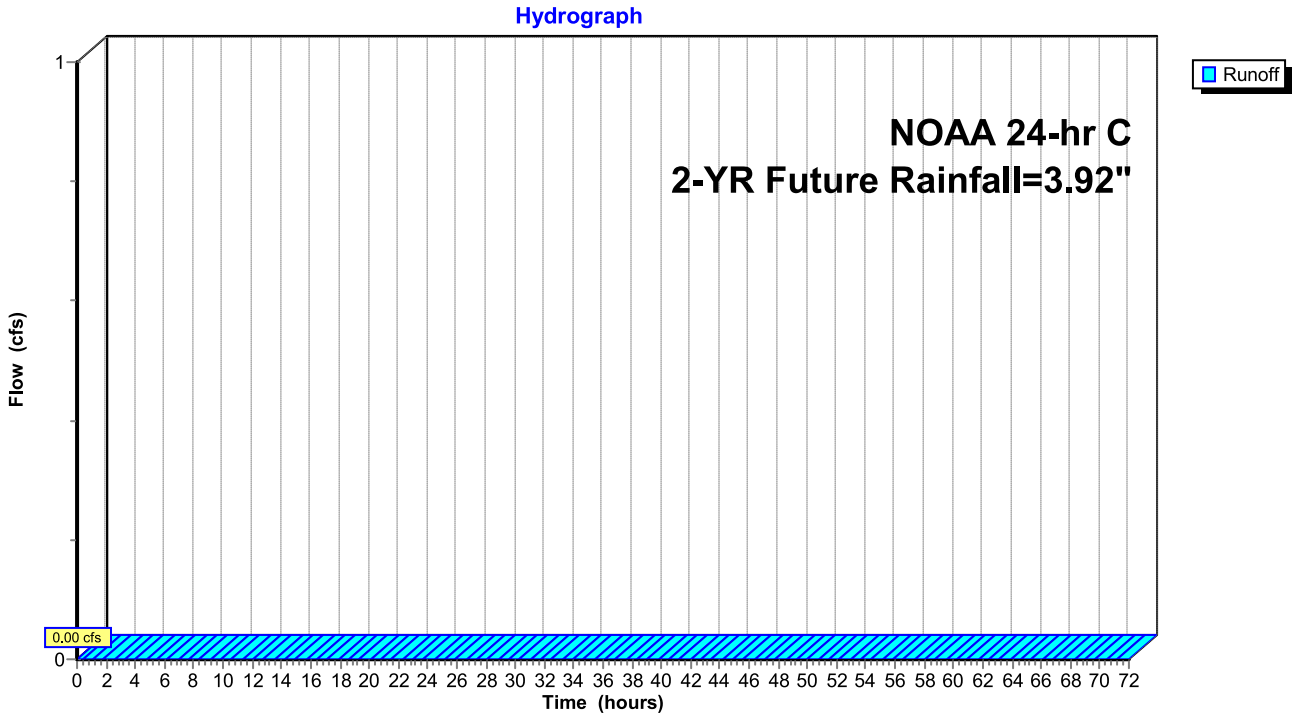
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious



Summary for Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint

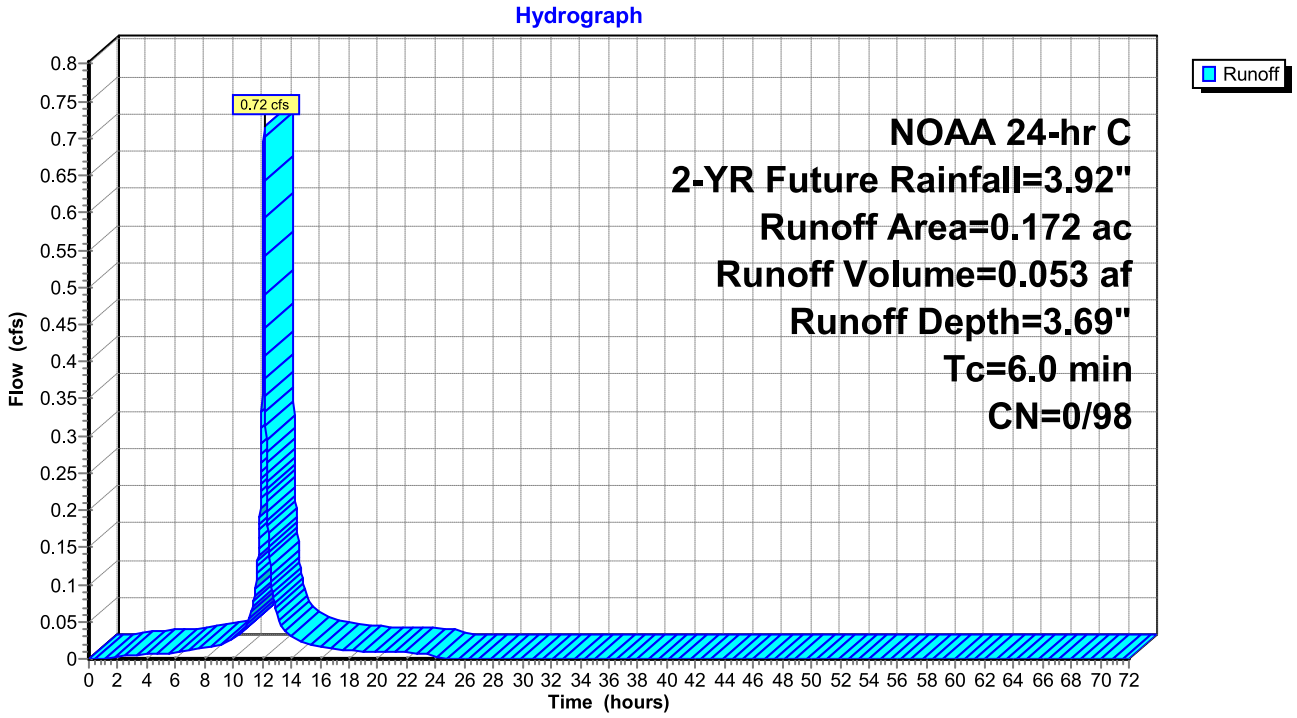
Runoff = 0.72 cfs @ 12.13 hrs, Volume= 0.053 af, Depth= 3.69"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.172	98	Infiltration Basin #8
	0.172	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint



Summary for Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious

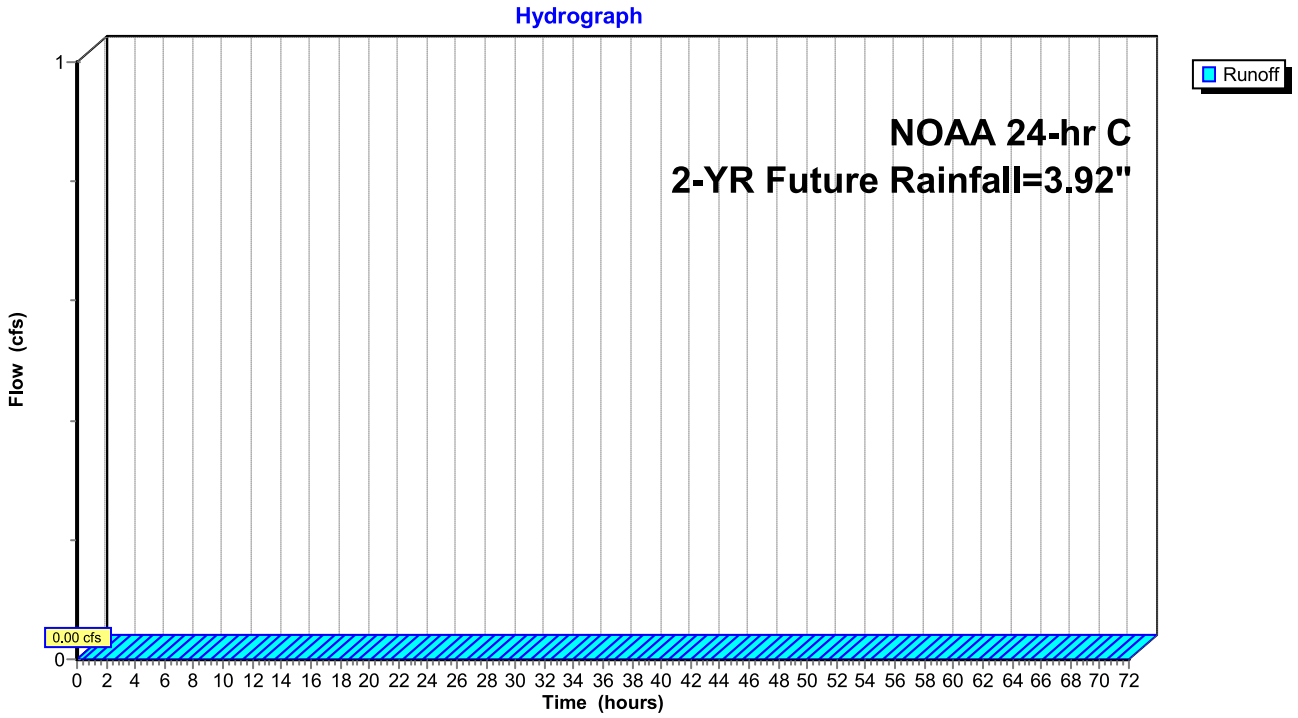
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious



Summary for Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious

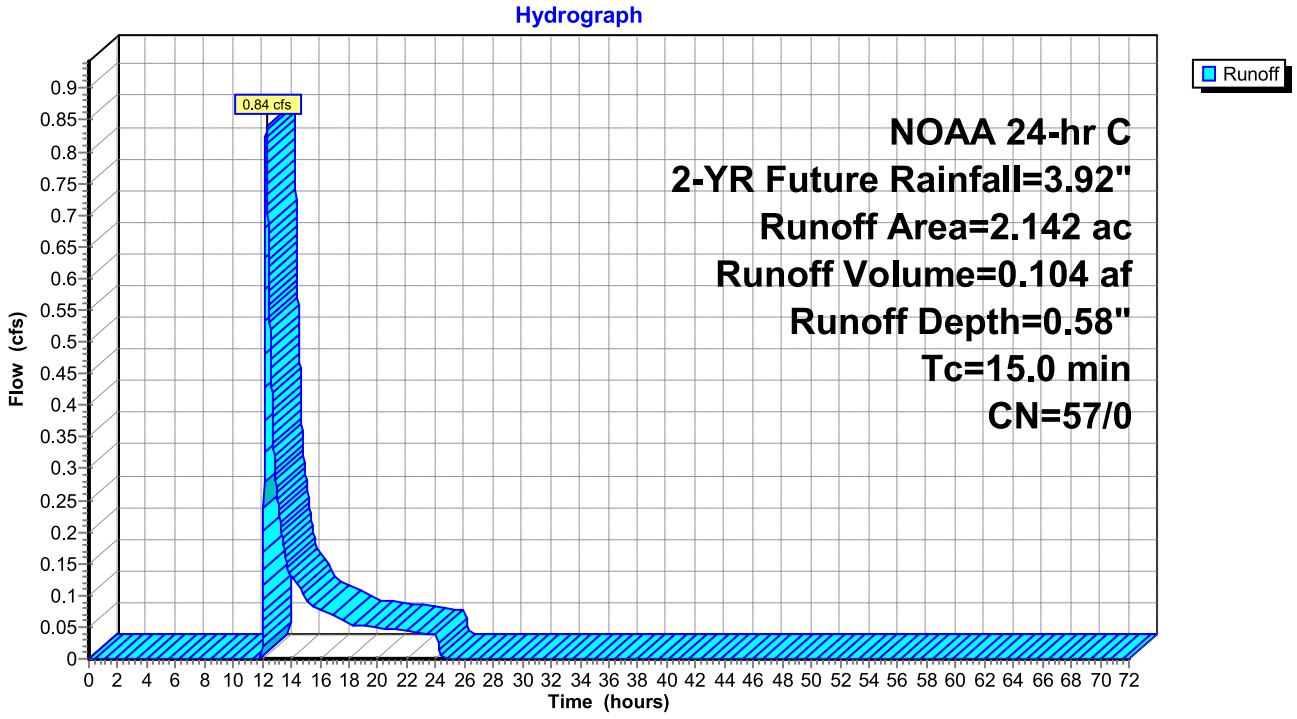
Runoff = 0.84 cfs @ 12.28 hrs, Volume= 0.104 af, Depth= 0.58"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
1.008	48	Brush, Good, HSG B
1.134	65	Brush, Good, HSG C
2.142	57	Weighted Average
2.142	57	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious



Summary for Subcatchment Off1: POST - POI #2 - Bypass

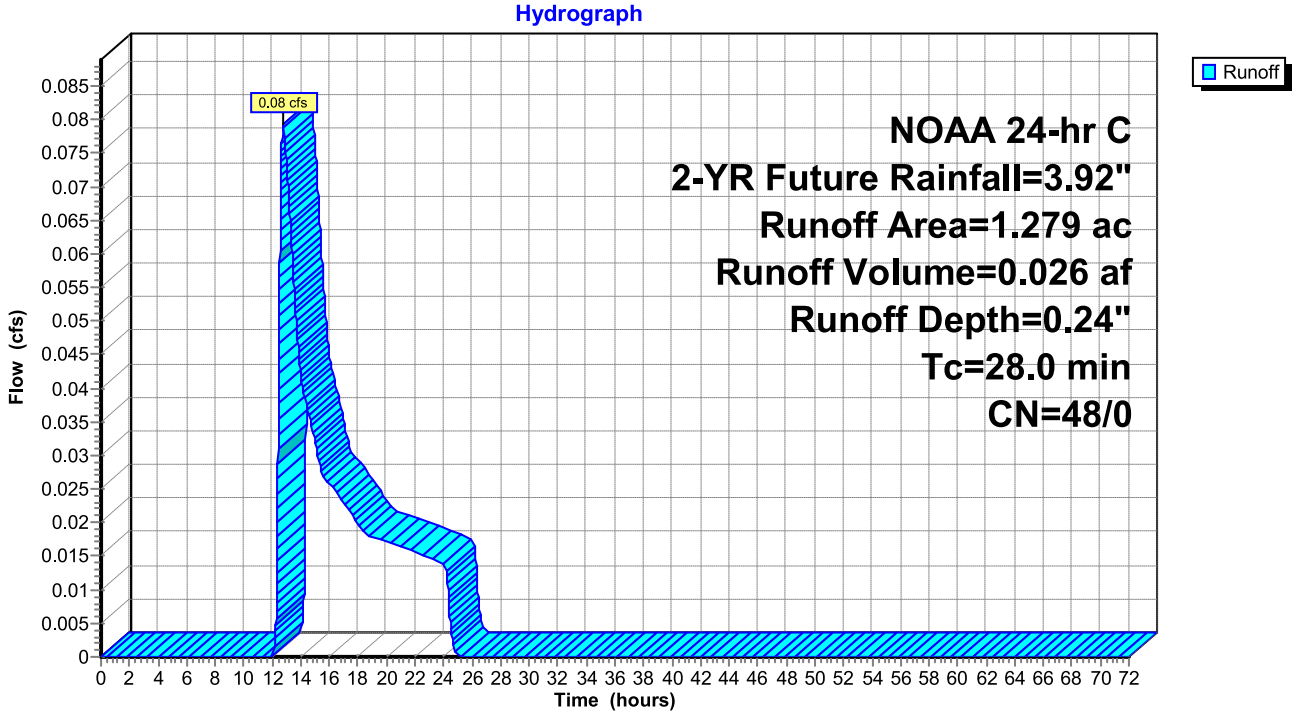
Runoff = 0.08 cfs @ 12.78 hrs, Volume= 0.026 af, Depth= 0.24"
Routed to Link Post2 : POST - POI #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
1.279	48	Brush, Good, HSG B
1.279	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment Off1: POST - POI #2 - Bypass



Summary for Subcatchment Off1I: POST - POI #1 - Bypass Impervious

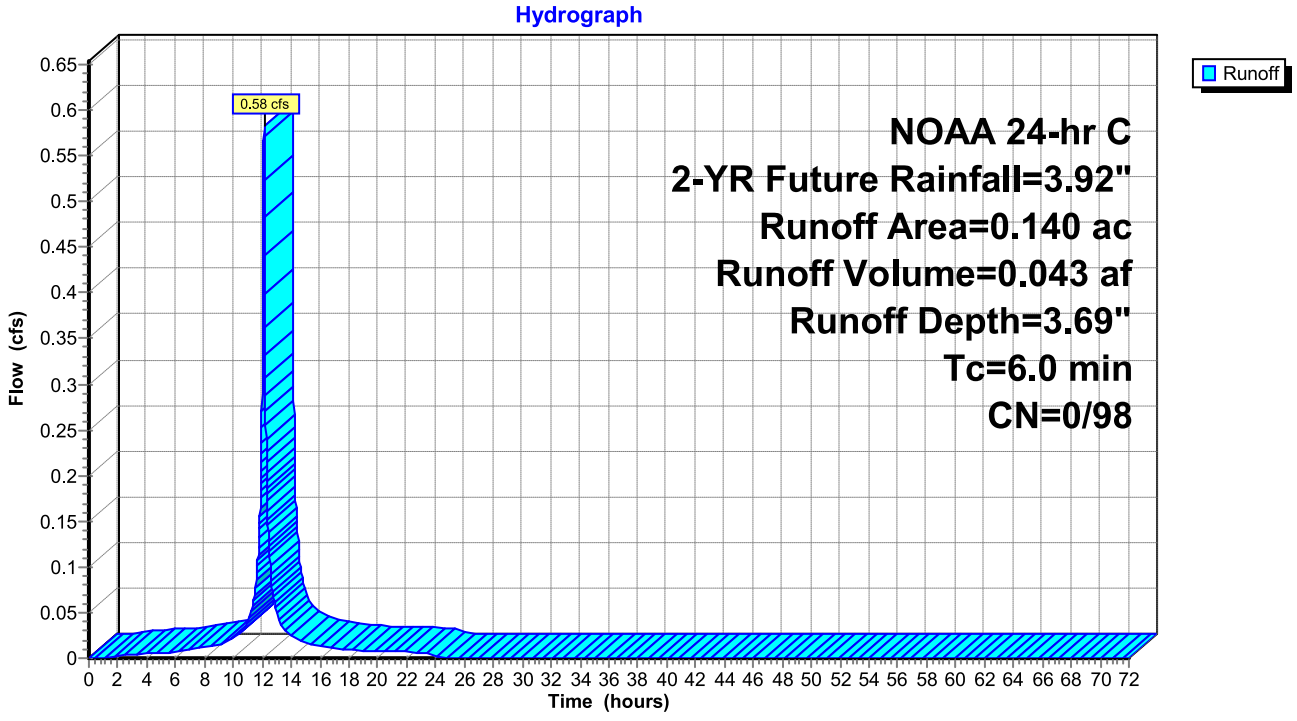
Runoff = 0.58 cfs @ 12.13 hrs, Volume= 0.043 af, Depth= 3.69"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
*	0.050	98	Gravel B
*	0.010	98	Gravel C
*	0.080	98	Gravel D
	0.140	98	Weighted Average
	0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1I: POST - POI #1 - Bypass Impervious



Summary for Subcatchment Off1P: POST - POI #1 - Bypass Pervious

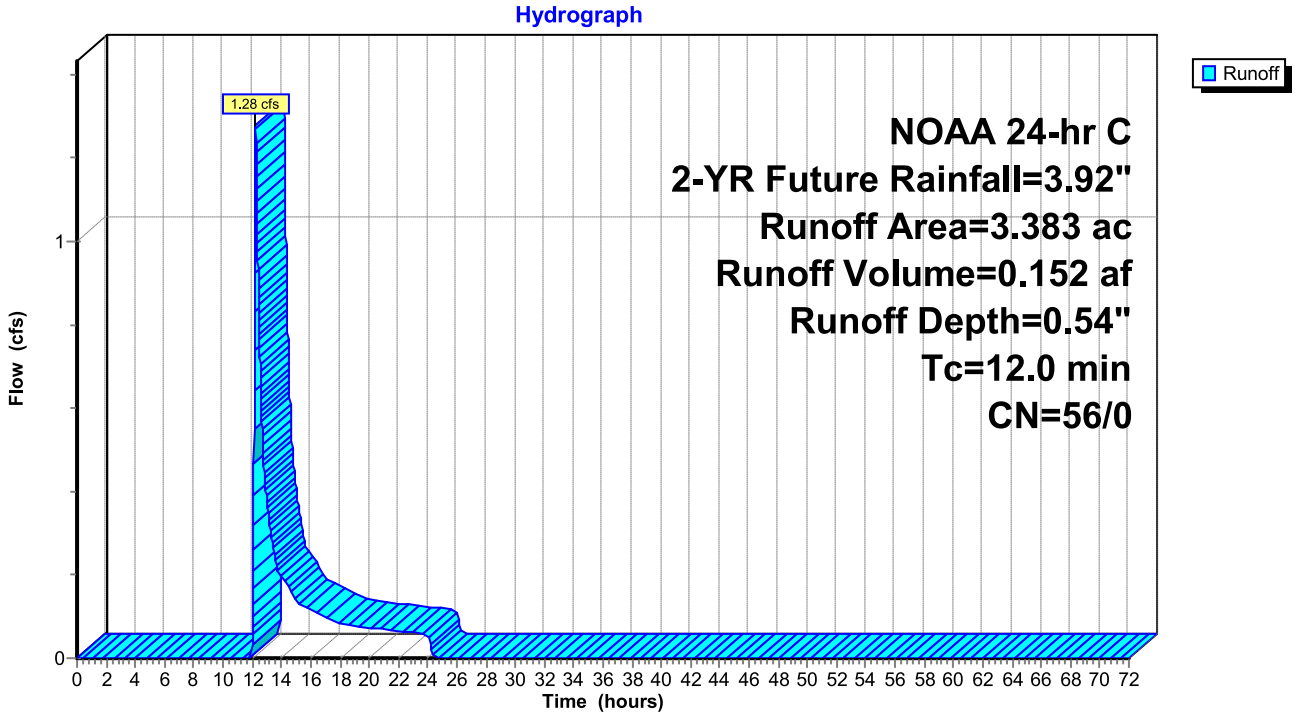
Runoff = 1.28 cfs @ 12.23 hrs, Volume= 0.152 af, Depth= 0.54"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
2.061	48	Brush, Good, HSG B
0.543	65	Brush, Good, HSG C
0.779	73	Brush, Good, HSG D
3.383	56	Weighted Average
3.383	56	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1P: POST - POI #1 - Bypass Pervious



Summary for Subcatchment Pre1: PRE - POI #1

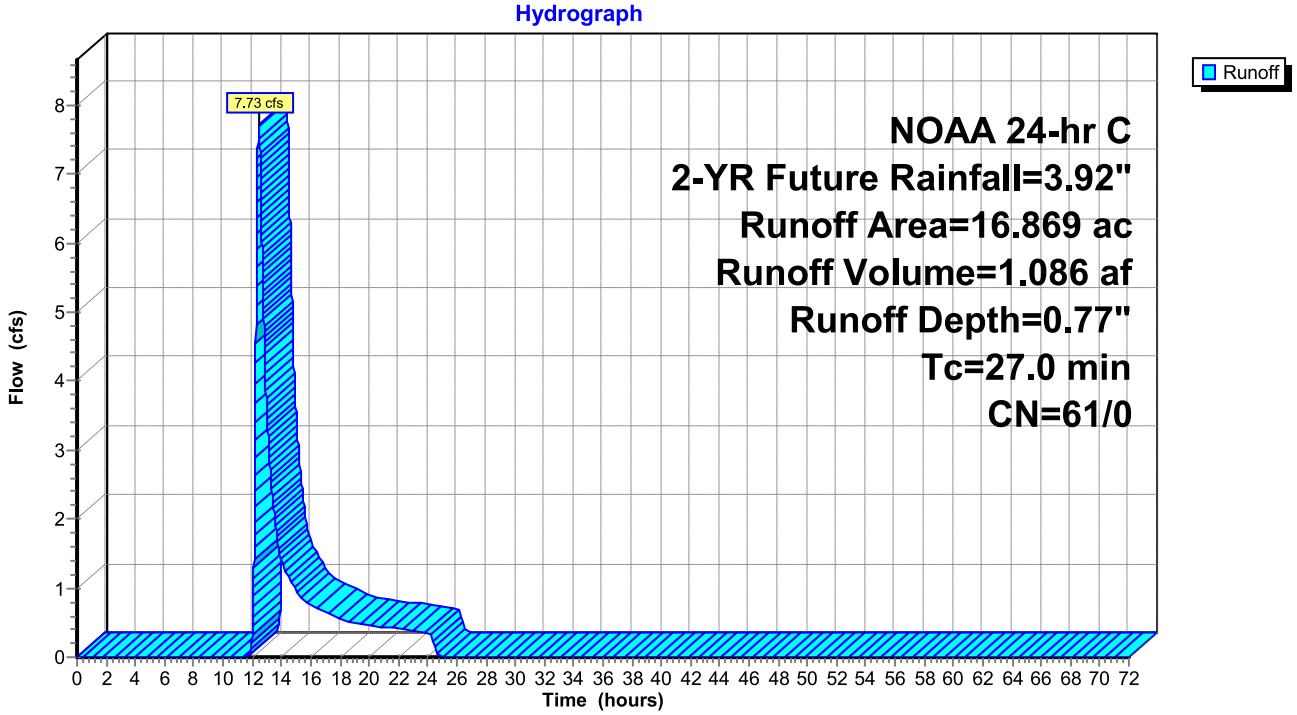
Runoff = 7.73 cfs @ 12.45 hrs, Volume= 1.086 af, Depth= 0.77"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

Area (ac)	CN	Description
9.127	55	Woods, Good, HSG B
1.498	61	Pasture/grassland/range, Good, HSG B
2.070	70	Woods, Good, HSG C
2.444	74	Pasture/grassland/range, Good, HSG C
0.452	77	Woods, Good, HSG D
0.326	80	Pasture/grassland/range, Good, HSG D
0.952	48	Brush, Good, HSG B
16.869	61	Weighted Average
16.869	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre1: PRE - POI #1



Summary for Subcatchment Pre2: PRE - POI #2

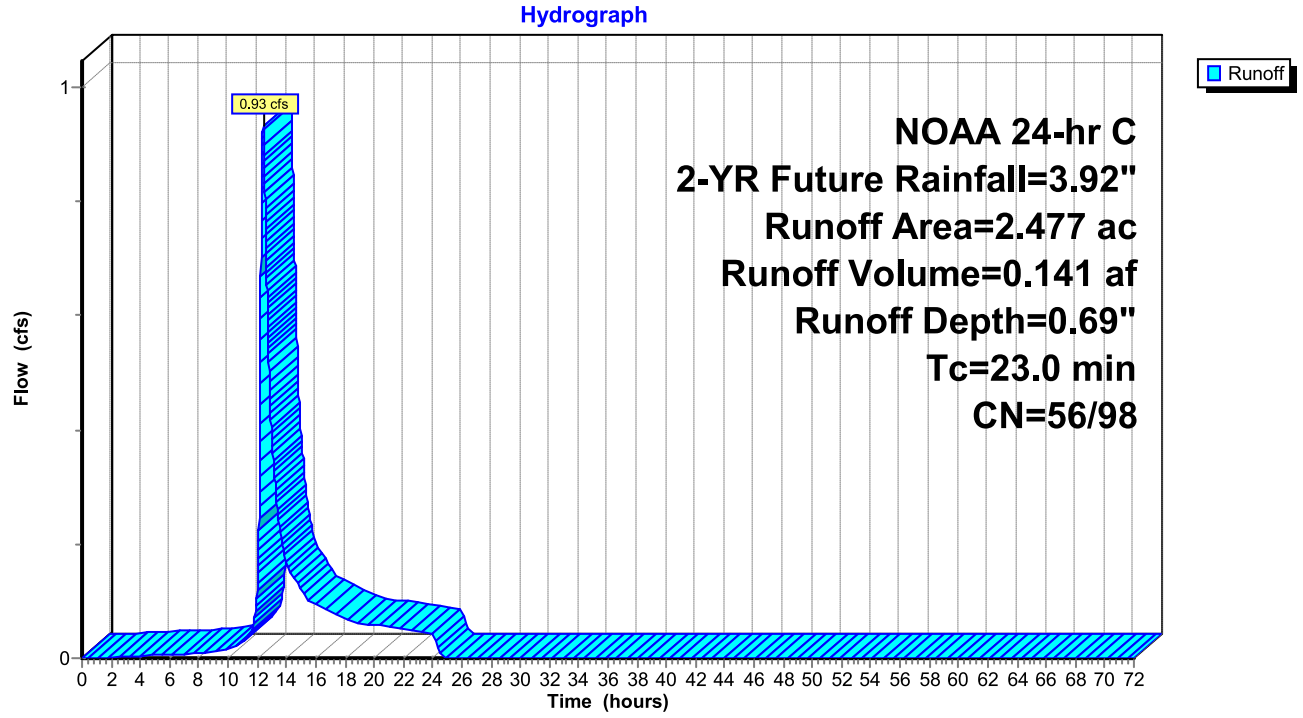
Runoff = 0.93 cfs @ 12.39 hrs, Volume= 0.141 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Future Rainfall=3.92"

	Area (ac)	CN	Description
	1.817	55	Woods, Good, HSG B
	0.546	61	Pasture/grassland/range, Good, HSG B
*	0.114	98	Impervious, HSG B
	2.477	58	Weighted Average
	2.363	56	95.40% Pervious Area
	0.114	98	4.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre2: PRE - POI #2



Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 2.26" for 2-YR Future event
Inflow = 1.92 cfs @ 12.15 hrs, Volume= 0.168 af
Outflow = 0.11 cfs @ 13.98 hrs, Volume= 0.117 af, Atten= 94%, Lag= 109.8 min
Primary = 0.11 cfs @ 13.98 hrs, Volume= 0.117 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.72' @ 13.98 hrs Surf.Area= 4,656 sf Storage= 5,032 cf

Plug-Flow detention time= 555.7 min calculated for 0.117 af (70% of inflow)
Center-of-Mass det. time= 453.0 min (1,219.1 - 766.2)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

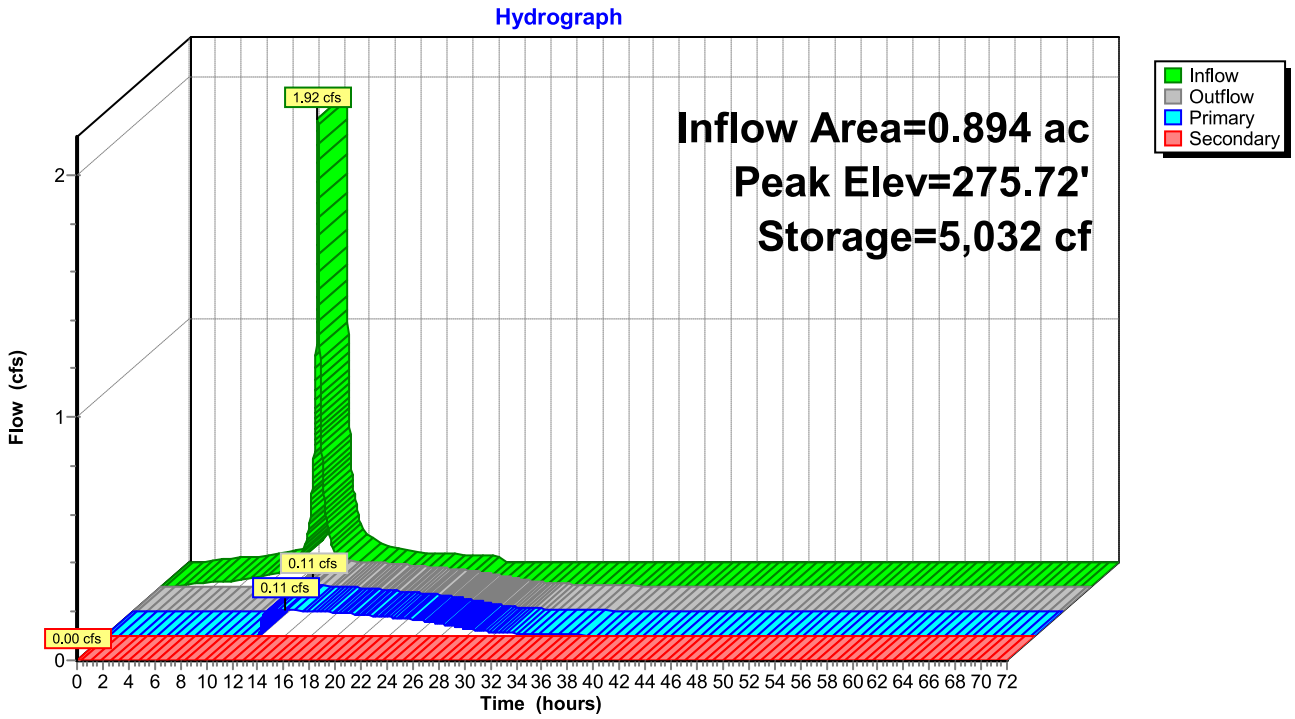
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.11 cfs @ 13.98 hrs HW=275.72' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.11 cfs of 9.04 cfs potential flow)
  ├**2=Orifice #1** (Orifice Controls 0.11 cfs @ 3.83 fps)
  ├**3=Rectangular Orifice** (Controls 0.00 cfs)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 2.75" for 2-YR Future event
Inflow = 0.92 cfs @ 12.13 hrs, Volume= 0.070 af
Outflow = 0.09 cfs @ 12.97 hrs, Volume= 0.048 af, Atten= 90%, Lag= 50.3 min
Primary = 0.09 cfs @ 12.97 hrs, Volume= 0.048 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.23' @ 12.97 hrs Surf.Area= 2,050 sf Storage= 1,904 cf

Plug-Flow detention time= 349.2 min calculated for 0.048 af (69% of inflow)
Center-of-Mass det. time= 248.5 min (1,007.3 - 758.9)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

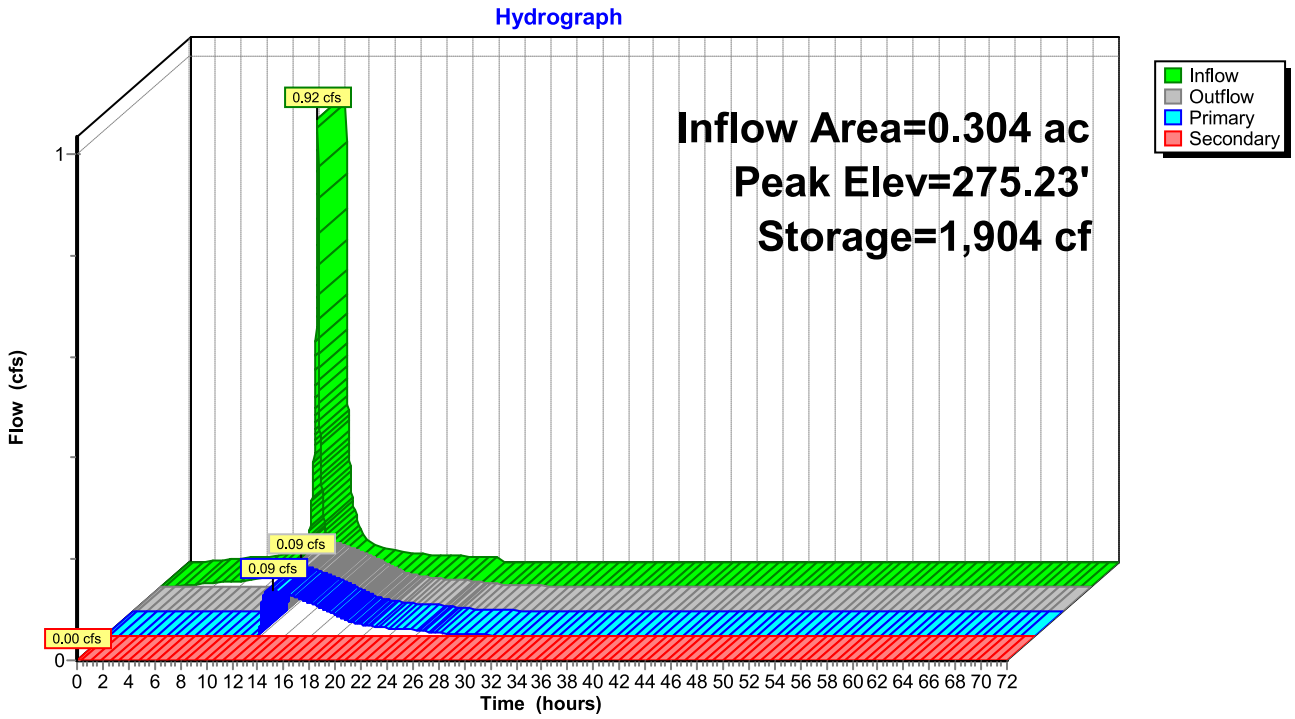
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.09 cfs @ 12.97 hrs HW=275.23' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.09 cfs of 8.06 cfs potential flow)
  - **2=Orice** (Orifice Controls 0.09 cfs @ 3.23 fps)
  - **3=Rectangular Orifice** (Controls 0.00 cfs)
  - **4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
- **5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 0.86" for 2-YR Future event
Inflow = 0.91 cfs @ 12.13 hrs, Volume= 0.086 af
Outflow = 0.40 cfs @ 12.28 hrs, Volume= 0.063 af, Atten= 56%, Lag= 8.7 min
Primary = 0.40 cfs @ 12.28 hrs, Volume= 0.063 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.44' @ 12.28 hrs Surf.Area= 3,785 sf Storage= 1,500 cf

Plug-Flow detention time= 229.7 min calculated for 0.063 af (74% of inflow)
Center-of-Mass det. time= 118.8 min (924.9 - 806.1)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

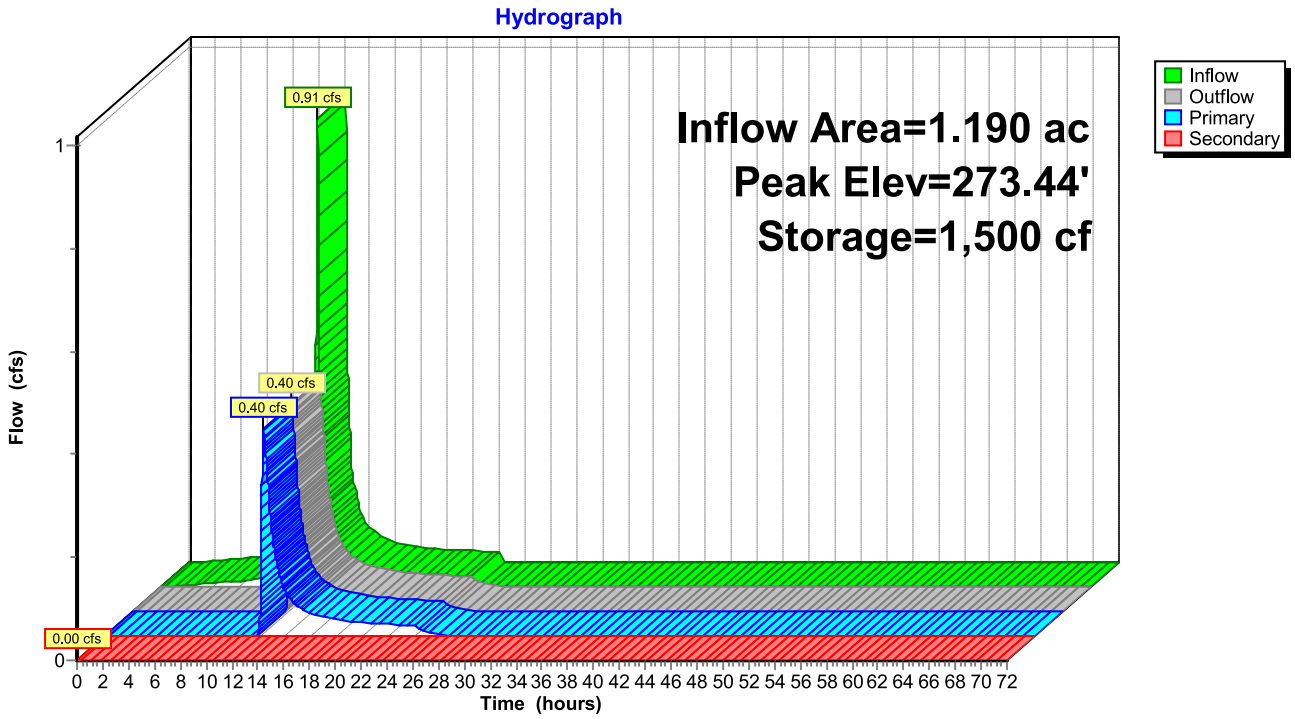
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.40 cfs @ 12.28 hrs HW=273.44' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.40 cfs of 2.84 cfs potential flow)
├**2=Orifice #1** (Orifice Controls 0.40 cfs @ 1.21 fps)
├**3=Orifice #2** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 0.51" for 2-YR Future event
Inflow = 0.79 cfs @ 12.13 hrs, Volume= 0.103 af
Outflow = 0.15 cfs @ 13.33 hrs, Volume= 0.085 af, Atten= 81%, Lag= 72.0 min
Primary = 0.15 cfs @ 13.33 hrs, Volume= 0.085 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.35' @ 13.33 hrs Surf.Area= 5,516 sf Storage= 1,888 cf

Plug-Flow detention time= 319.0 min calculated for 0.085 af (82% of inflow)
Center-of-Mass det. time= 231.3 min (1,088.4 - 857.1)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

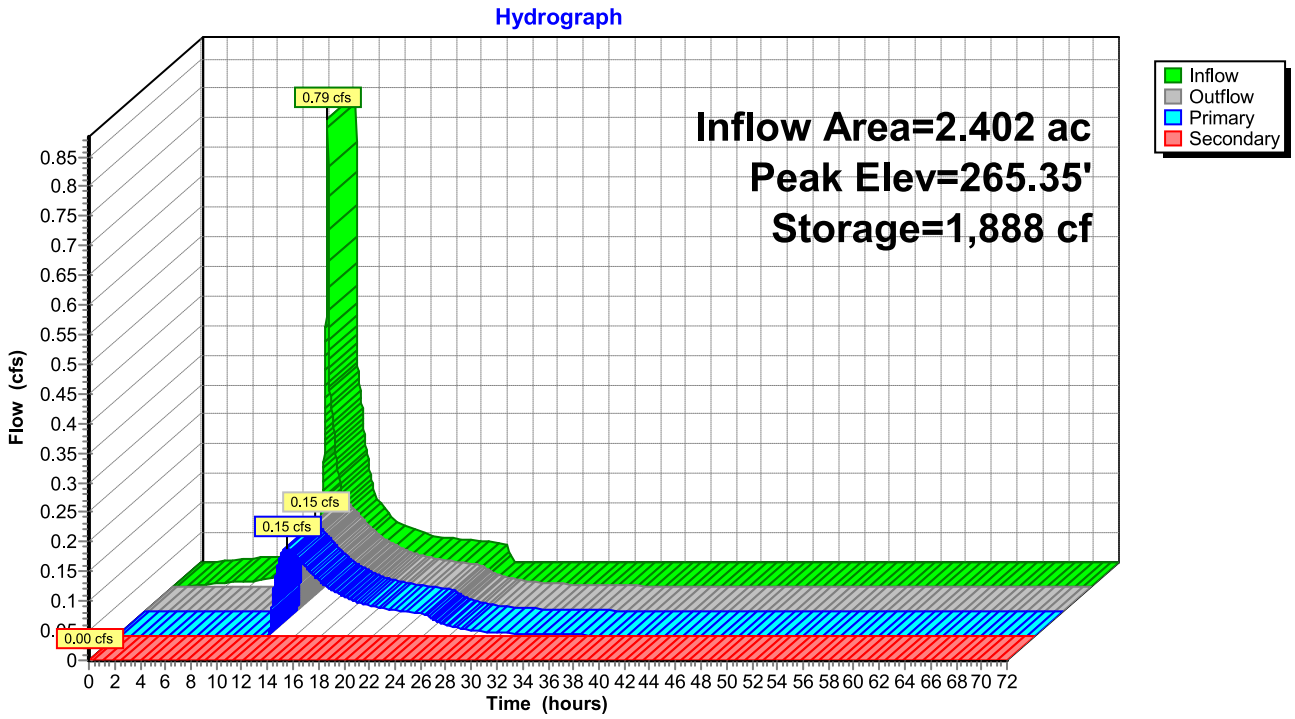
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.15 cfs @ 13.33 hrs HW=265.35' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.15 cfs of 5.39 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 0.15 cfs @ 1.45 fps)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 3.21" for 2-YR Future event
Inflow = 6.56 cfs @ 12.22 hrs, Volume= 0.658 af
Outflow = 1.77 cfs @ 12.66 hrs, Volume= 0.482 af, Atten= 73%, Lag= 26.4 min
Primary = 1.77 cfs @ 12.66 hrs, Volume= 0.482 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 267.58' @ 12.66 hrs Surf.Area= 7,644 sf Storage= 16,682 cf

Plug-Flow detention time= 328.0 min calculated for 0.482 af (73% of inflow)
Center-of-Mass det. time= 234.8 min (1,002.7 - 767.9)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

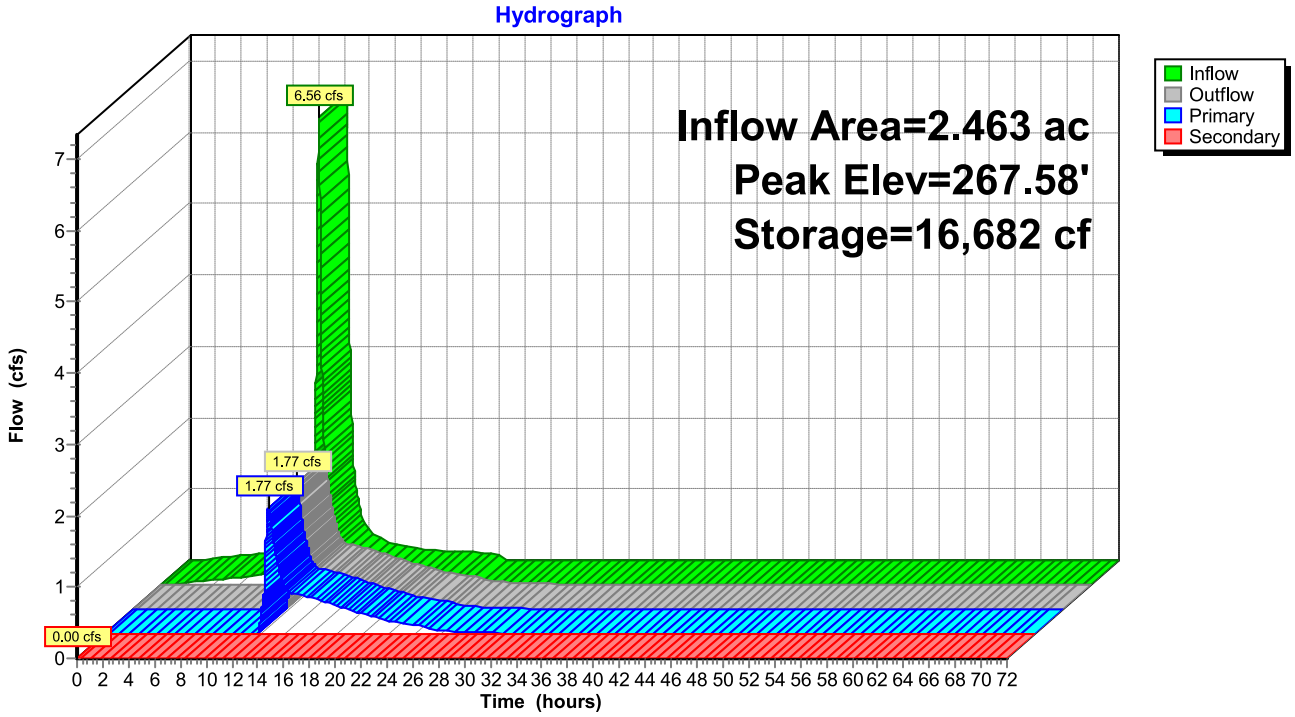
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.77 cfs @ 12.66 hrs HW=267.58' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 1.77 cfs of 15.54 cfs potential flow)
  ├─**2=Rectangular Orifice #1** (Orifice Controls 0.65 cfs @ 5.18 fps)
  ├─**3=Rectangular Orifice #2** (Weir Controls 1.12 cfs @ 1.63 fps)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 3.69" for 2-YR Future event
Inflow = 10.37 cfs @ 12.13 hrs, Volume= 0.763 af
Outflow = 0.21 cfs @ 16.71 hrs, Volume= 0.509 af, Atten= 98%, Lag= 274.8 min
Primary = 0.21 cfs @ 16.71 hrs, Volume= 0.509 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 263.59' @ 16.71 hrs Surf.Area= 18,006 sf Storage= 26,122 cf

Plug-Flow detention time= 1,121.0 min calculated for 0.509 af (67% of inflow)
Center-of-Mass det. time= 1,019.4 min (1,772.8 - 753.3)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

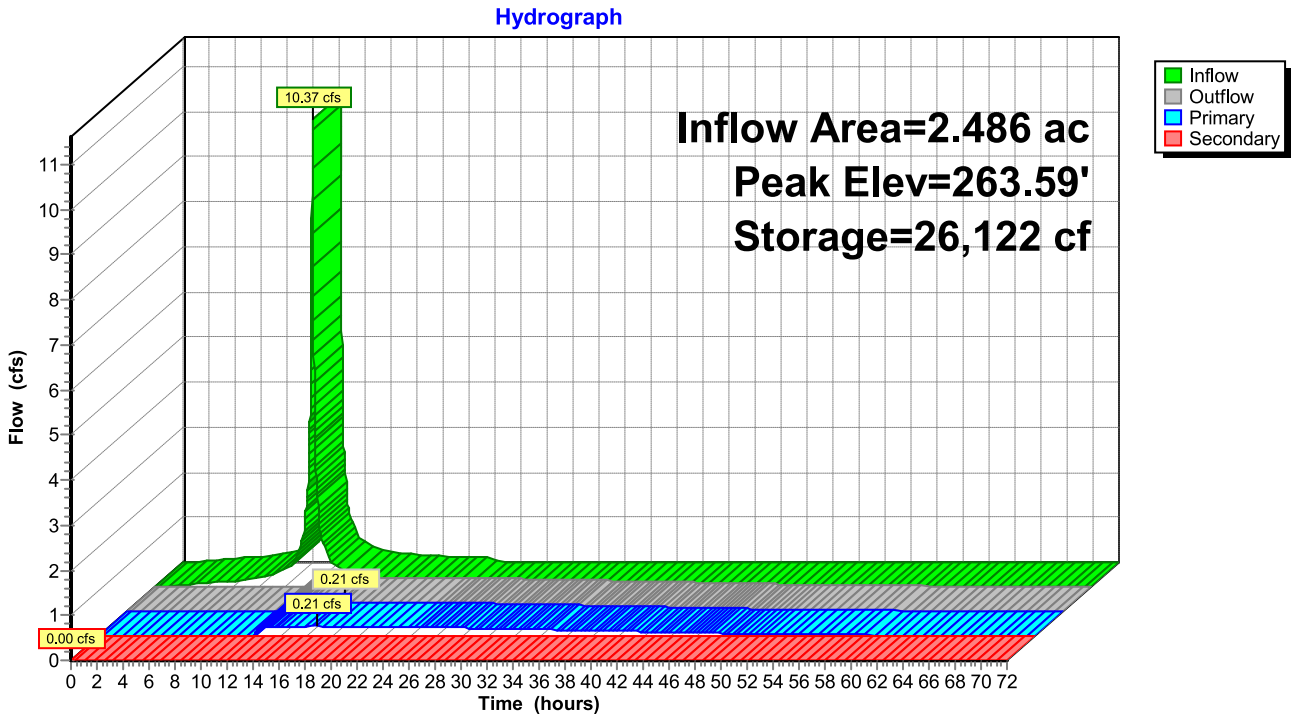
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.21 cfs @ 16.71 hrs HW=263.59' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 0.21 cfs of 7.81 cfs potential flow)
├─**2=Orifice** (Orifice Controls 0.21 cfs @ 4.35 fps)
├─**3=Rectangular Orifice** (Controls 0.00 cfs)
└─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 3.69" for 2-YR Future event
Inflow = 10.39 cfs @ 12.13 hrs, Volume= 0.765 af
Outflow = 0.41 cfs @ 14.26 hrs, Volume= 0.530 af, Atten= 96%, Lag= 127.8 min
Primary = 0.41 cfs @ 14.26 hrs, Volume= 0.530 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 263.45' @ 14.26 hrs Surf.Area= 13,681 sf Storage= 24,066 cf

Plug-Flow detention time= 674.6 min calculated for 0.530 af (69% of inflow)
Center-of-Mass det. time= 576.9 min (1,330.3 - 753.3)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

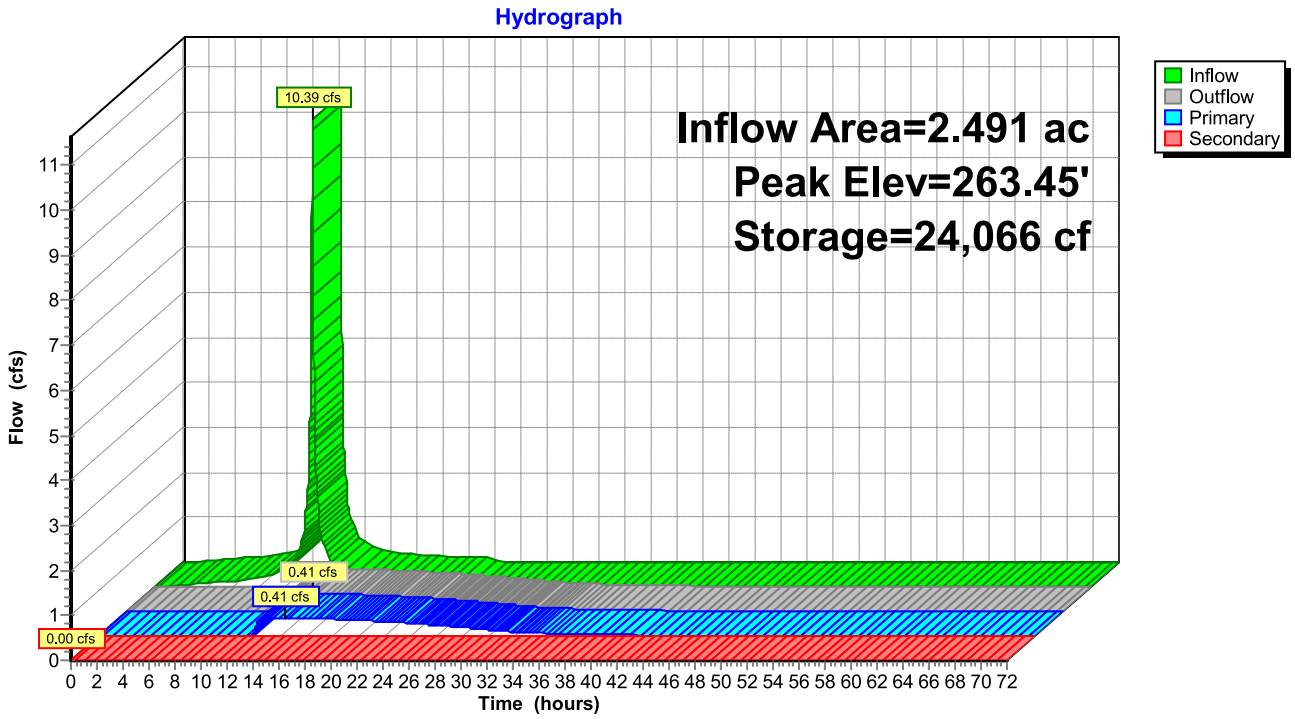
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.41 cfs @ 14.26 hrs HW=263.45' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.41 cfs of 9.32 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.41 cfs @ 4.65 fps)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 0.81" for 2-YR Future event
Inflow = 1.14 cfs @ 12.24 hrs, Volume= 0.157 af
Outflow = 0.08 cfs @ 17.02 hrs, Volume= 0.069 af, Atten= 93%, Lag= 286.5 min
Primary = 0.08 cfs @ 17.02 hrs, Volume= 0.069 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.92' @ 17.02 hrs Surf.Area= 5,513 sf Storage= 4,688 cf

Plug-Flow detention time= 607.0 min calculated for 0.069 af (44% of inflow)
Center-of-Mass det. time= 438.0 min (1,304.2 - 866.2)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

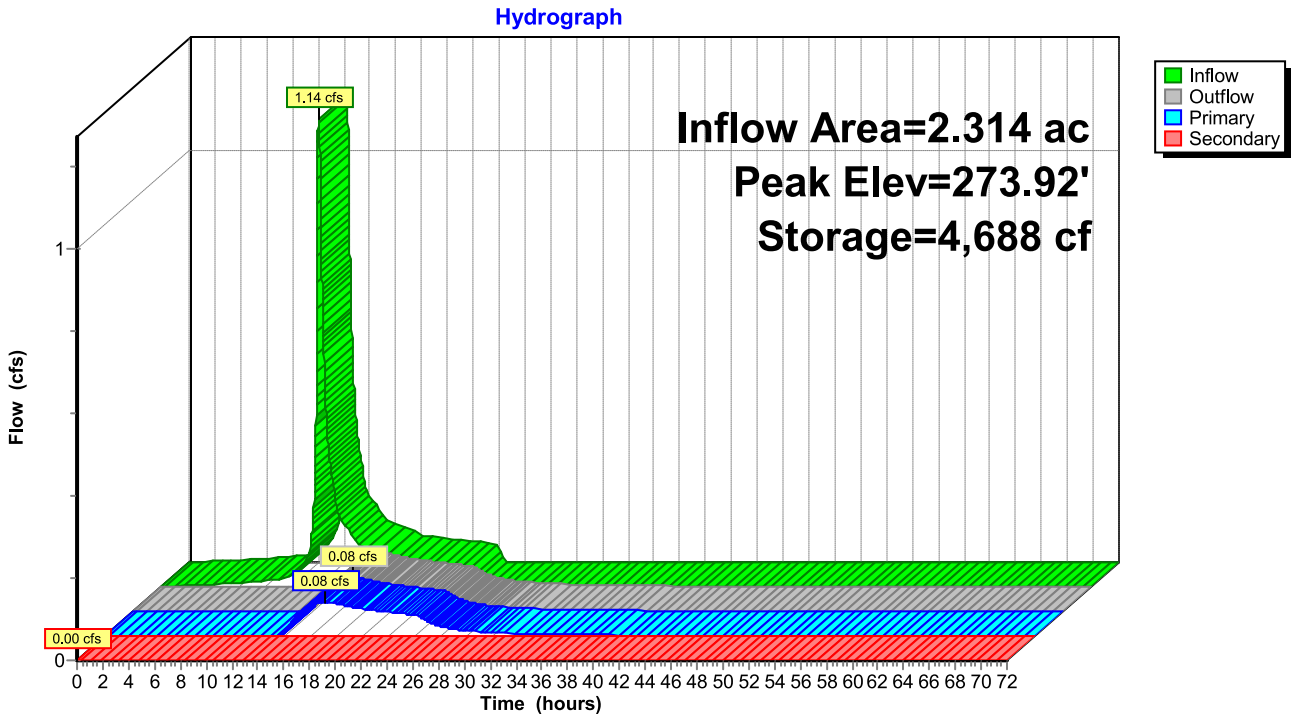
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.08 cfs @ 17.02 hrs HW=273.92' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Barrel Controls 0.08 cfs @ 1.16 fps)
├**2=Orifice** (Passes 0.08 cfs of 0.33 cfs potential flow)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8

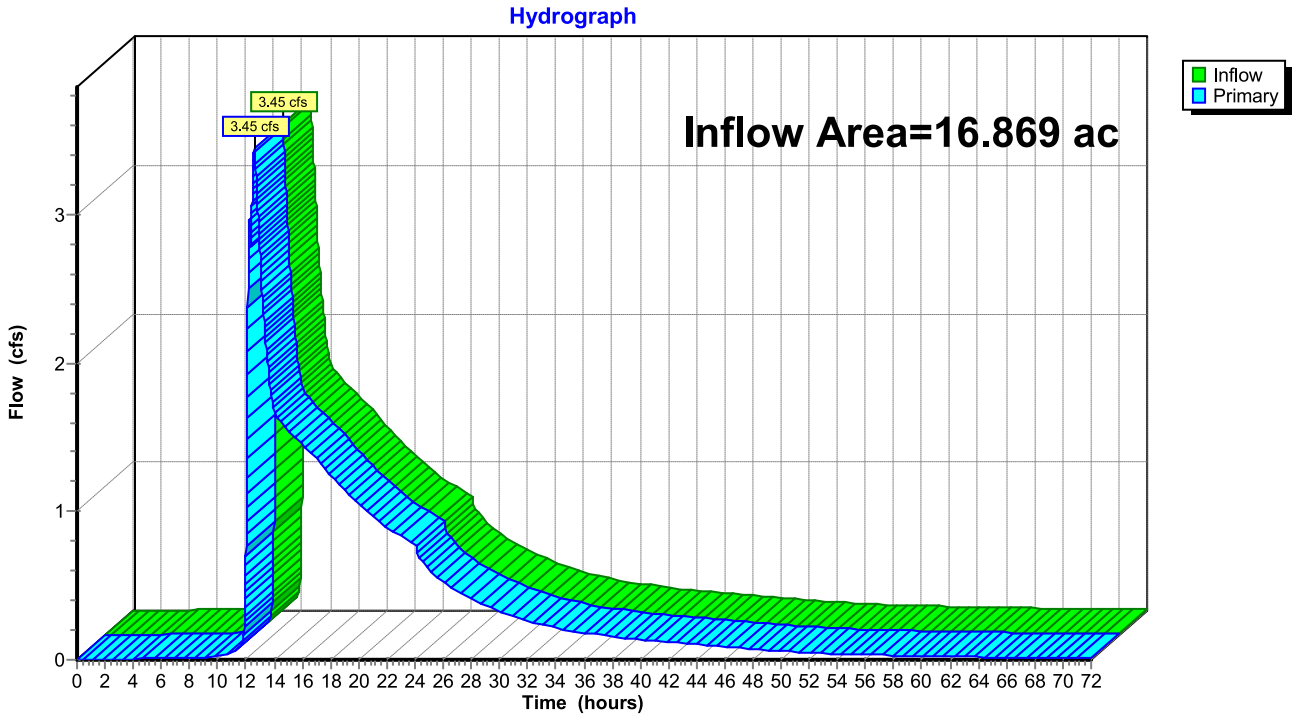


Summary for Link Post1: POST - POI #1

Inflow Area = 16.869 ac, 45.76% Impervious, Inflow Depth > 1.38" for 2-YR Future event
Inflow = 3.45 cfs @ 12.58 hrs, Volume= 1.934 af
Primary = 3.45 cfs @ 12.58 hrs, Volume= 1.934 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post1: POST - POI #1

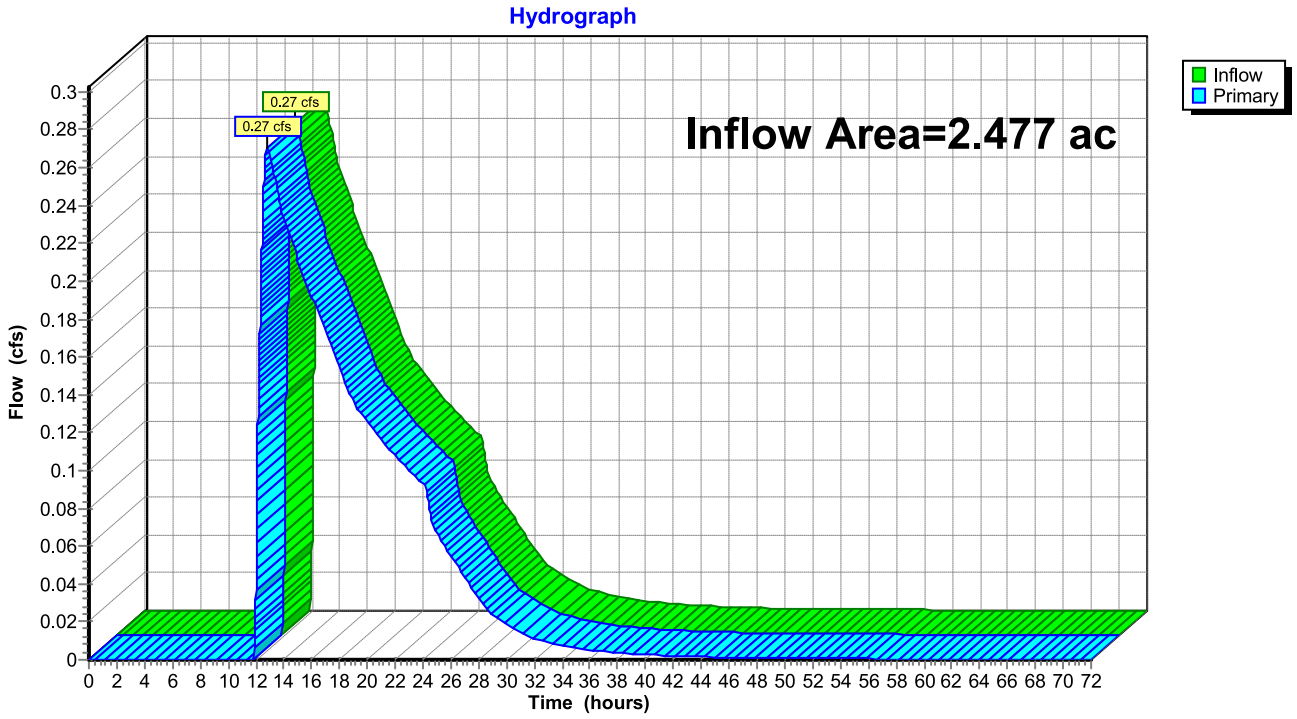


Summary for Link Post2: POST - POI #2

Inflow Area = 2.477 ac, 30.08% Impervious, Inflow Depth > 0.93" for 2-YR Future event
Inflow = 0.27 cfs @ 12.79 hrs, Volume= 0.191 af
Primary = 0.27 cfs @ 12.79 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post2: POST - POI #2



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1F: POST - POI #2 - Runoff Area=0.154 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.54 cfs 0.039 af

Subcatchment 1I: POST - POI #2 - Runoff Area=0.370 ac 100.00% Impervious Runoff Depth=3.06"
Tc=10.0 min CN=0/98 Runoff=1.12 cfs 0.094 af

Subcatchment 1P: POST - POI #2 - Runoff Area=0.370 ac 0.00% Impervious Runoff Depth=0.11"
Tc=10.0 min CN=48/0 Runoff=0.01 cfs 0.003 af

Subcatchment 2F: POST - POI #2 - Runoff Area=0.091 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.32 cfs 0.023 af

Subcatchment 2I: POST - POI #2 - Runoff Area=0.130 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.45 cfs 0.033 af

Subcatchment 2P: POST - POI #2 - Runoff Area=0.083 ac 0.00% Impervious Runoff Depth=0.11"
Tc=6.0 min CN=48/0 Runoff=0.00 cfs 0.001 af

Subcatchment 3F: POST - POI #1 - Runoff Area=0.214 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.75 cfs 0.055 af

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 3P: POST - POI #1 - Runoff Area=0.976 ac 0.00% Impervious Runoff Depth=0.11"
Tc=6.0 min CN=48/0 Runoff=0.02 cfs 0.009 af

Subcatchment 4F: POST - POI #1 - Runoff Area=0.189 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.66 cfs 0.048 af

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 4P: POST - POI #1 - Runoff Area=2.213 ac 0.00% Impervious Runoff Depth=0.11"
Tc=17.0 min CN=48/0 Runoff=0.04 cfs 0.019 af

Subcatchment 5F: POST - POI #1 - Runoff Area=0.185 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.65 cfs 0.047 af

Subcatchment 5I: POST - POI #1 - Runoff Area=1.842 ac 100.00% Impervious Runoff Depth=3.06"
Tc=15.0 min CN=0/98 Runoff=4.84 cfs 0.469 af

Subcatchment 5P: POST - POI #1 - Runoff Area=0.436 ac 0.00% Impervious Runoff Depth=0.64"
Tc=15.0 min CN=65/0 Runoff=0.22 cfs 0.023 af

Subcatchment 6F: POST - POI #1 - Runoff Area=0.478 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=1.67 cfs 0.122 af

Subcatchment 6I: POST - POI #1 - Runoff Area=2.008 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=7.01 cfs 0.512 af

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 7F: POST - POI #1 - Runoff Area=0.404 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=1.41 cfs 0.103 af

Subcatchment 7I: POST - POI #1 - Runoff Area=2.087 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=7.28 cfs 0.532 af

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8F: POST - POI #1 - Runoff Area=0.172 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.60 cfs 0.044 af

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8P: POST - POI #1 - Runoff Area=2.142 ac 0.00% Impervious Runoff Depth=0.34"
Tc=15.0 min CN=57/0 Runoff=0.35 cfs 0.061 af

Subcatchment Off1: POST - POI #2 - Bypass Runoff Area=1.279 ac 0.00% Impervious Runoff Depth=0.11"
Tc=28.0 min CN=48/0 Runoff=0.02 cfs 0.011 af

Subcatchment Off1I: POST - POI #1 - Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=0/98 Runoff=0.49 cfs 0.036 af

Subcatchment Off1P: POST - POI #1 - Runoff Area=3.383 ac 0.00% Impervious Runoff Depth=0.31"
Tc=12.0 min CN=56/0 Runoff=0.48 cfs 0.087 af

Subcatchment Pre1: PRE - POI #1 Runoff Area=16.869 ac 0.00% Impervious Runoff Depth=0.48"
Tc=27.0 min CN=61/0 Runoff=4.09 cfs 0.677 af

Subcatchment Pre2: PRE - POI #2 Runoff Area=2.477 ac 4.60% Impervious Runoff Depth=0.43"
Tc=23.0 min CN=56/98 Runoff=0.48 cfs 0.090 af

Pond B1: Infiltration Basin #1 Peak Elev=275.51' Storage=4,127 cf Inflow=1.61 cfs 0.137 af
Primary=0.09 cfs 0.086 af Secondary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.086 af

Pond B2: Infiltration Basin #2 Peak Elev=275.07' Storage=1,590 cf Inflow=0.77 cfs 0.057 af
Primary=0.07 cfs 0.035 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.035 af

Pond B3: Infiltration Basin #3 Peak Elev=273.40' Storage=1,327 cf Inflow=0.75 cfs 0.063 af
Primary=0.22 cfs 0.041 af Secondary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.041 af

Pond B4: Infiltration Basin #4 Peak Elev=265.27' Storage=1,448 cf Inflow=0.66 cfs 0.068 af
Primary=0.07 cfs 0.049 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.049 af

Pond B5: Infiltration Basin #5 Peak Elev=267.37' Storage=15,105 cf Inflow=5.39 cfs 0.540 af
Primary=0.62 cfs 0.364 af Secondary=0.00 cfs 0.000 af Outflow=0.62 cfs 0.364 af

Pond B6: Infiltration Basin #6 Peak Elev=263.34' Storage=21,692 cf Inflow=8.67 cfs 0.633 af
Primary=0.18 cfs 0.383 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.383 af

Pond B7: Infiltration Basin #7 Peak Elev=263.15' Storage=20,034 cf Inflow=8.69 cfs 0.635 af
Primary=0.33 cfs 0.400 af Secondary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.400 af

Pond B8: Infiltration Basin #8 Peak Elev=273.85' Storage=4,301 cf Inflow=0.67 cfs 0.105 af
Primary=0.03 cfs 0.016 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.016 af

Link Post1: POST - POI #1 Inflow=1.73 cfs 1.376 af
Primary=1.73 cfs 1.376 af

Link Post2: POST - POI #2 Inflow=0.18 cfs 0.132 af
Primary=0.18 cfs 0.132 af

Total Runoff Area = 38.692 ac Runoff Volume = 3.137 af Average Runoff Depth = 0.97"
77.83% Pervious = 30.114 ac 22.17% Impervious = 8.578 ac

Summary for Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint

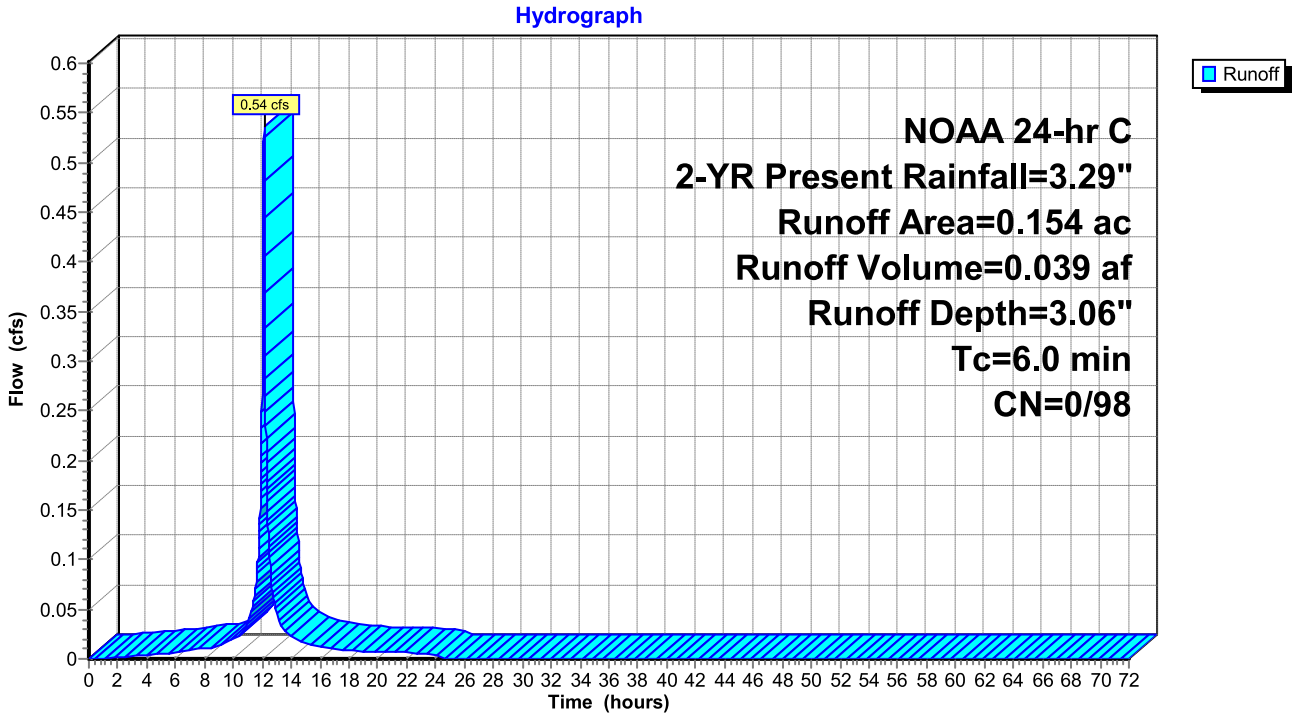
Runoff = 0.54 cfs @ 12.13 hrs, Volume= 0.039 af, Depth= 3.06"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.154	98	Infiltration Basin #1
	0.154	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint



Summary for Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious

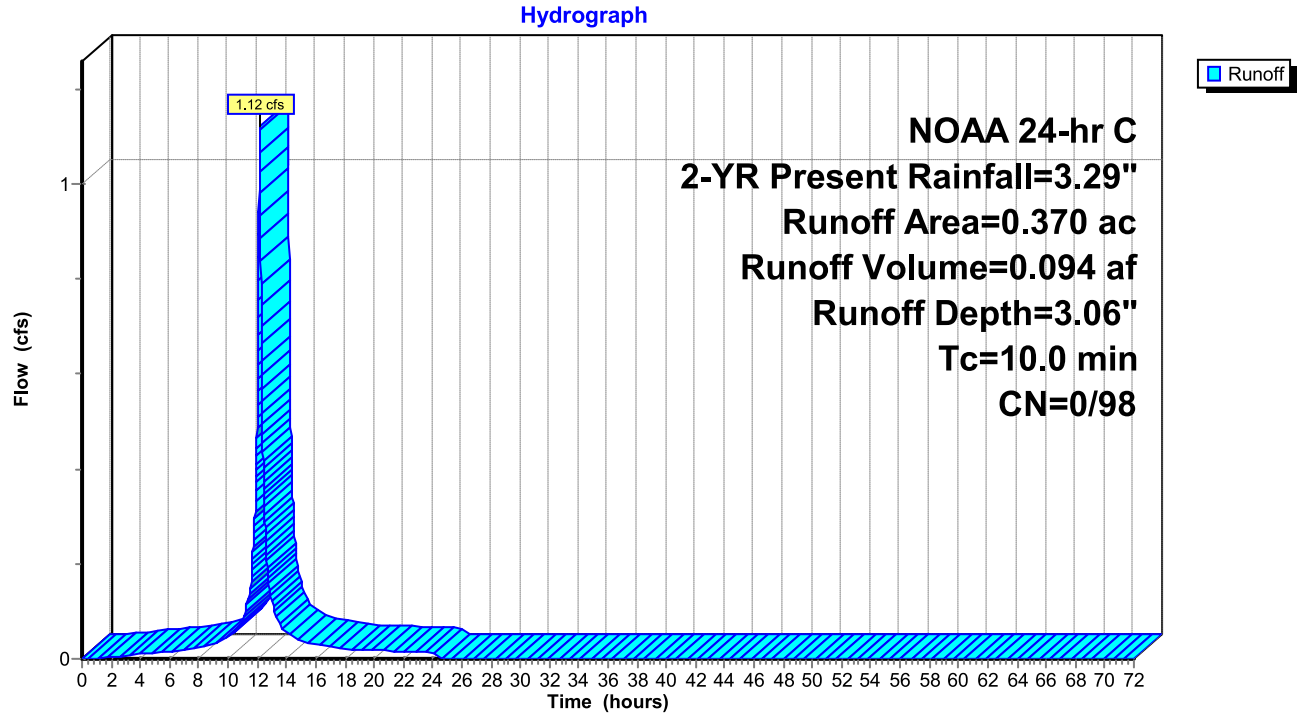
Runoff = 1.12 cfs @ 12.17 hrs, Volume= 0.094 af, Depth= 3.06"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.020	98	Impervious, HSG B
*	0.350	98	Gravel roads, HSG B
	0.370	98	Weighted Average
	0.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious



Summary for Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious

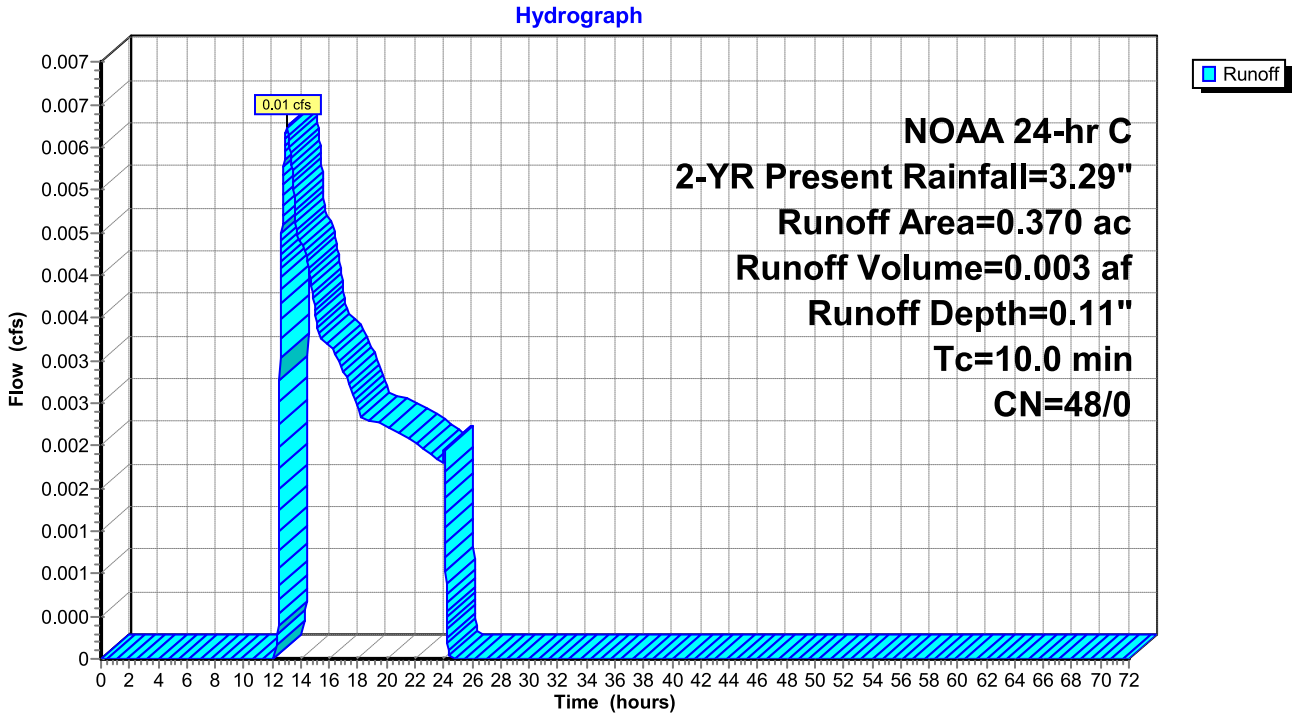
Runoff = 0.01 cfs @ 13.03 hrs, Volume= 0.003 af, Depth= 0.11"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
0.370	48	Brush, Good, HSG B
0.370	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious



Summary for Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint

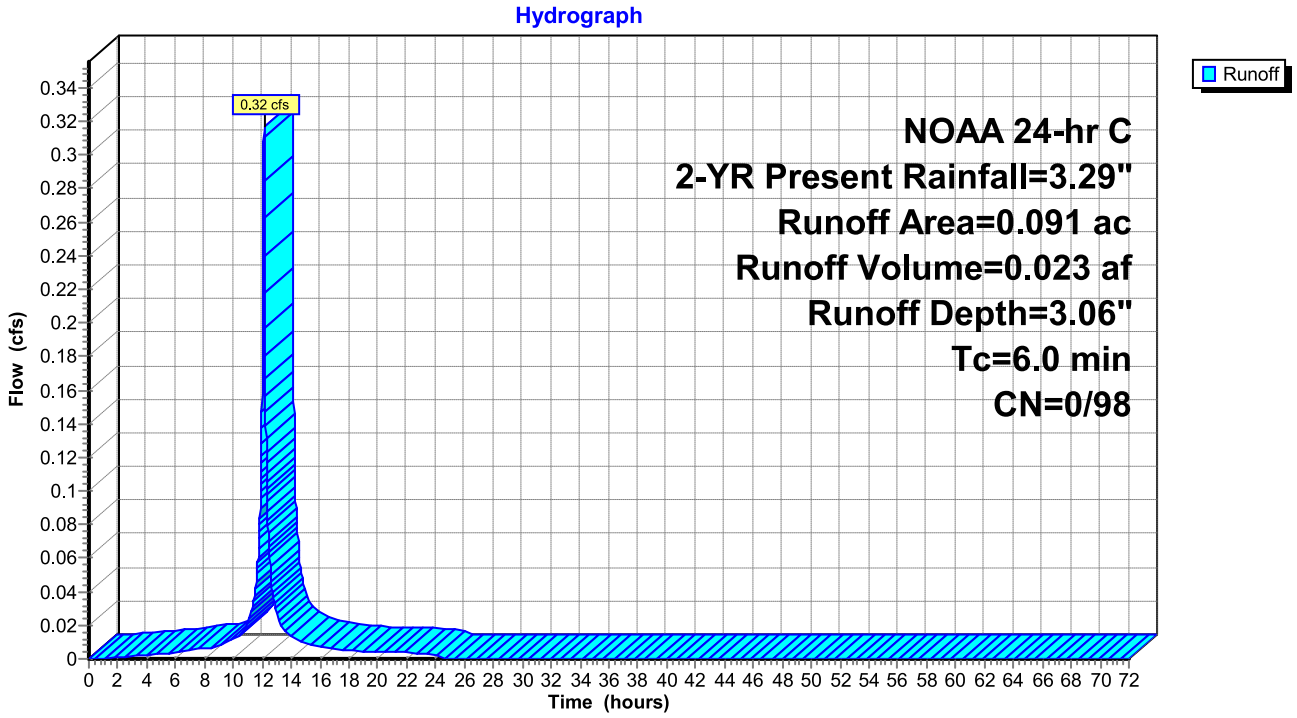
Runoff = 0.32 cfs @ 12.13 hrs, Volume= 0.023 af, Depth= 3.06"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.091	98	Infiltration Basin #2
	0.091	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint



Summary for Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious

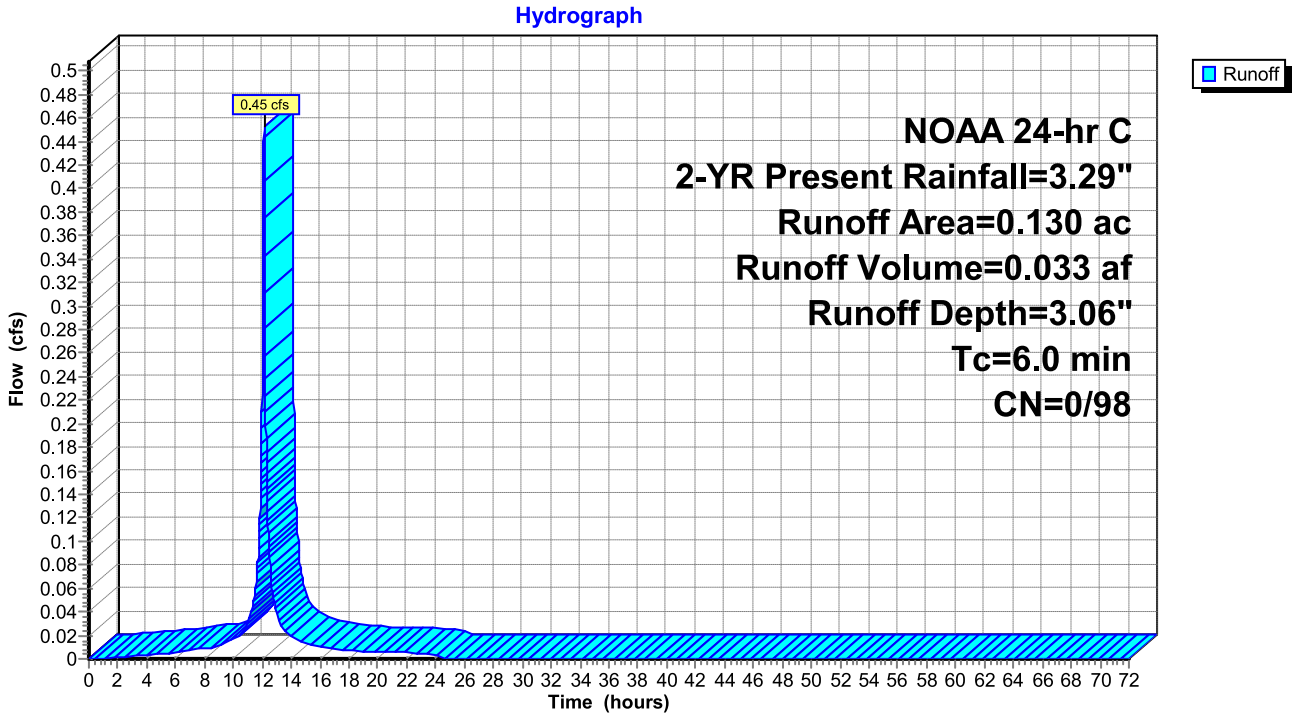
Runoff = 0.45 cfs @ 12.13 hrs, Volume= 0.033 af, Depth= 3.06"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.130	98	Gravel roads, HSG B
	0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious



Summary for Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious

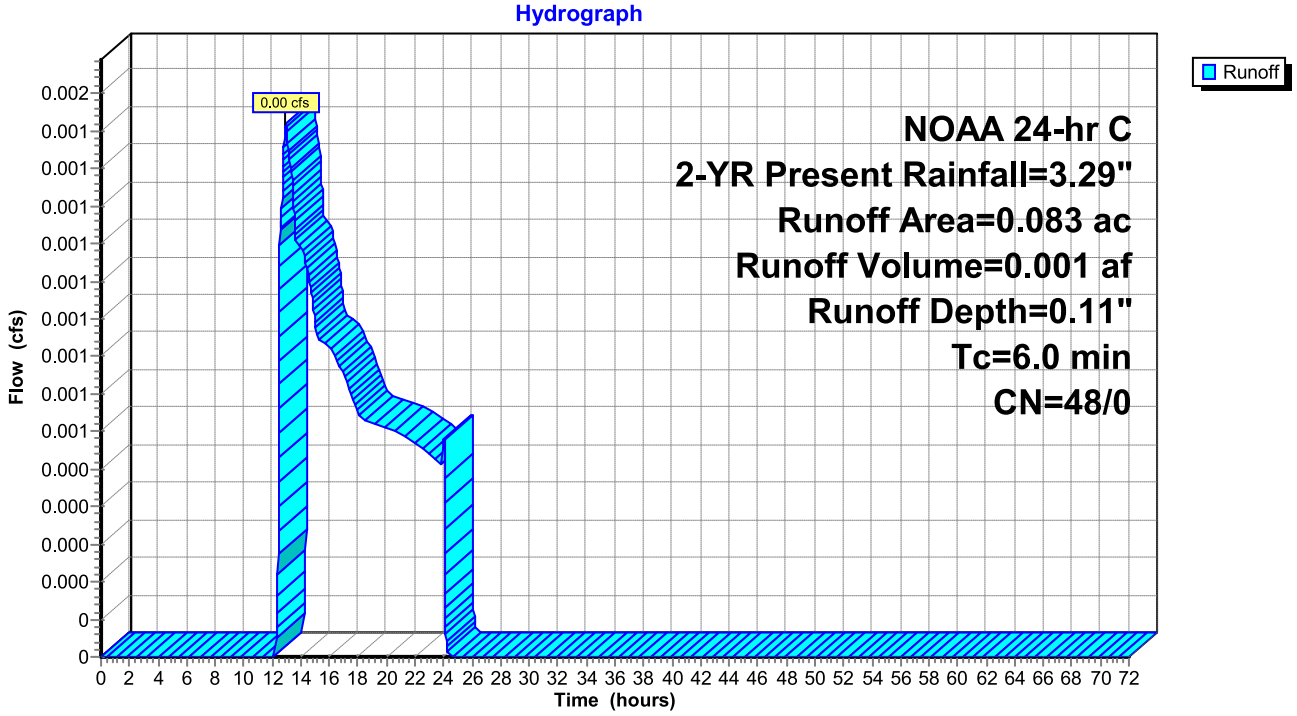
Runoff = 0.00 cfs @ 12.95 hrs, Volume= 0.001 af, Depth= 0.11"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
0.083	48	Brush, Good, HSG B
0.083	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious



Summary for Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint

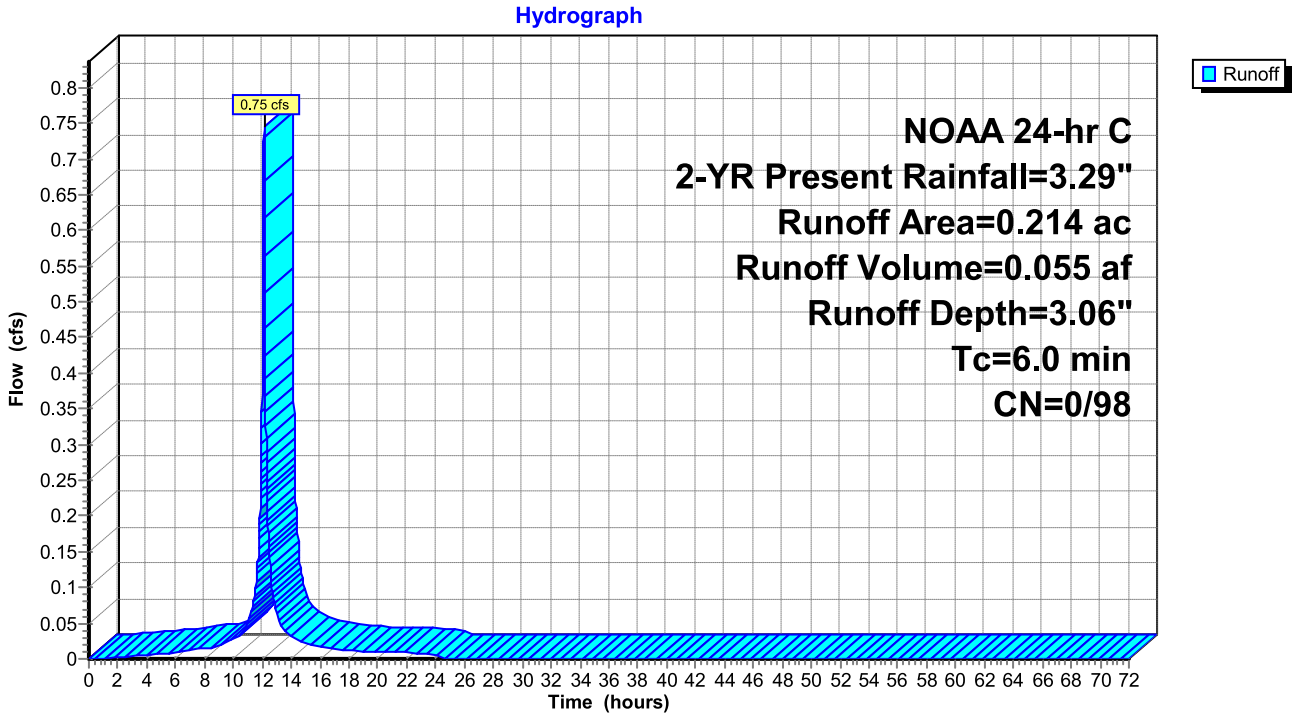
Runoff = 0.75 cfs @ 12.13 hrs, Volume= 0.055 af, Depth= 3.06"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.214	98	Infiltration Basin #3
	0.214	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint



Summary for Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious

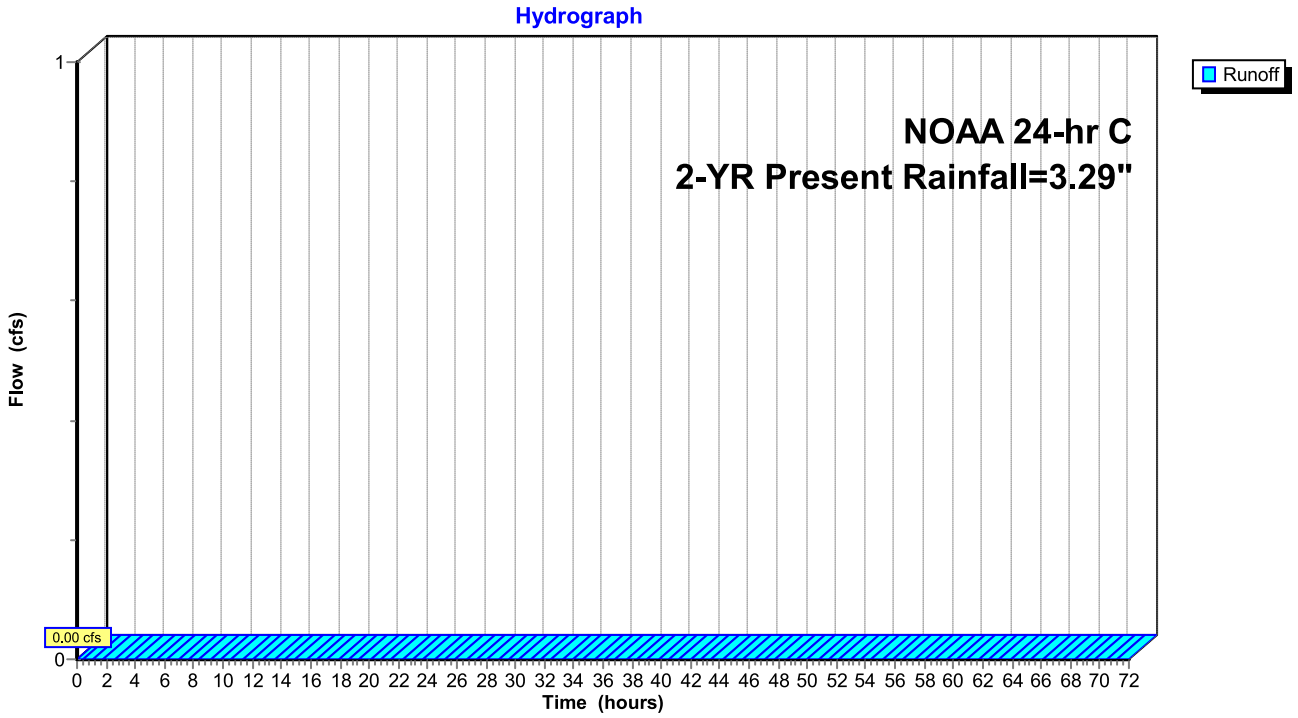
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious



Summary for Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious

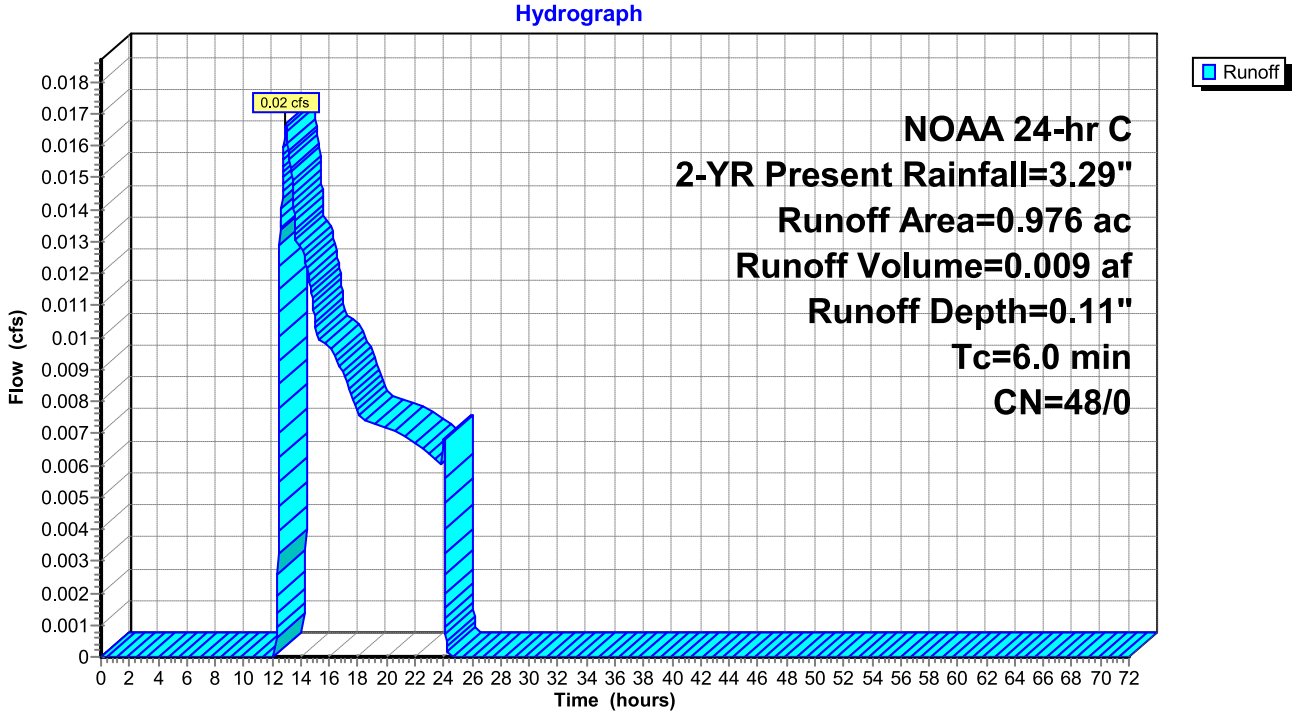
Runoff = 0.02 cfs @ 12.95 hrs, Volume= 0.009 af, Depth= 0.11"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
0.976	48	Brush, Good, HSG B
0.976	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin #3**

Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious



Summary for Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint

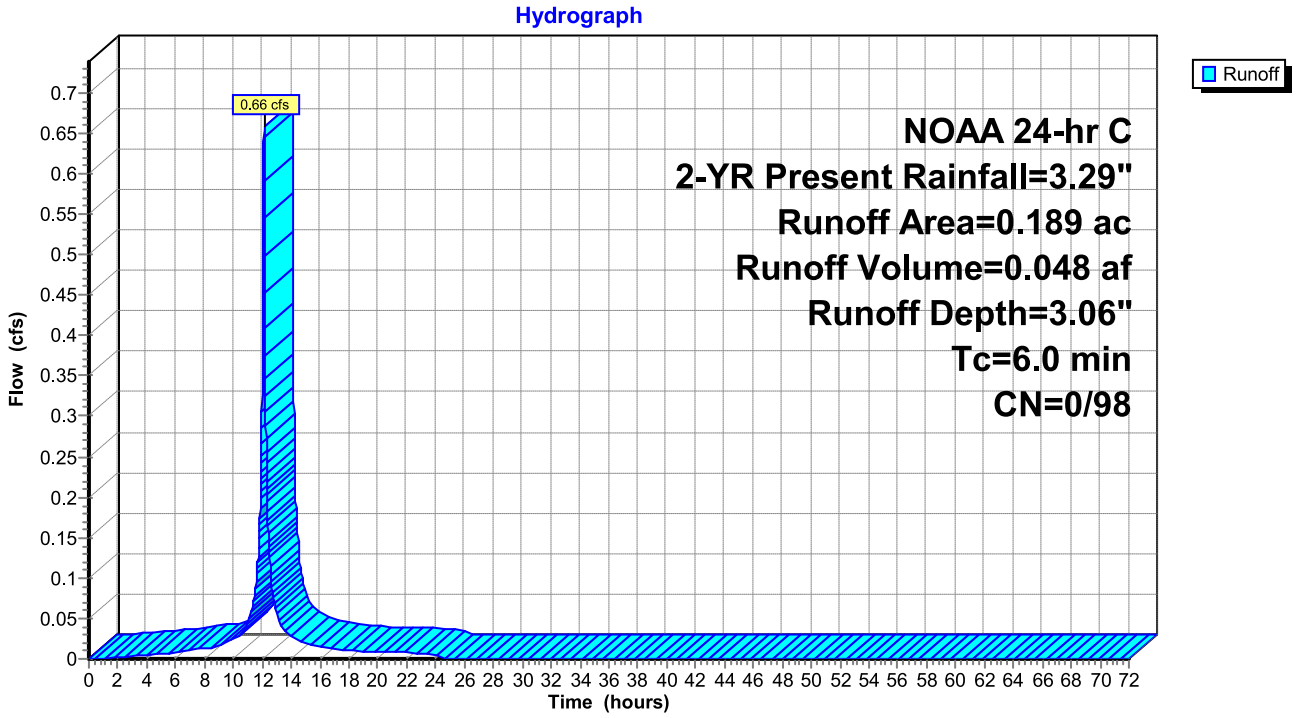
Runoff = 0.66 cfs @ 12.13 hrs, Volume= 0.048 af, Depth= 3.06"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.189	98	Infiltration Basin #4
	0.189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint



Summary for Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious

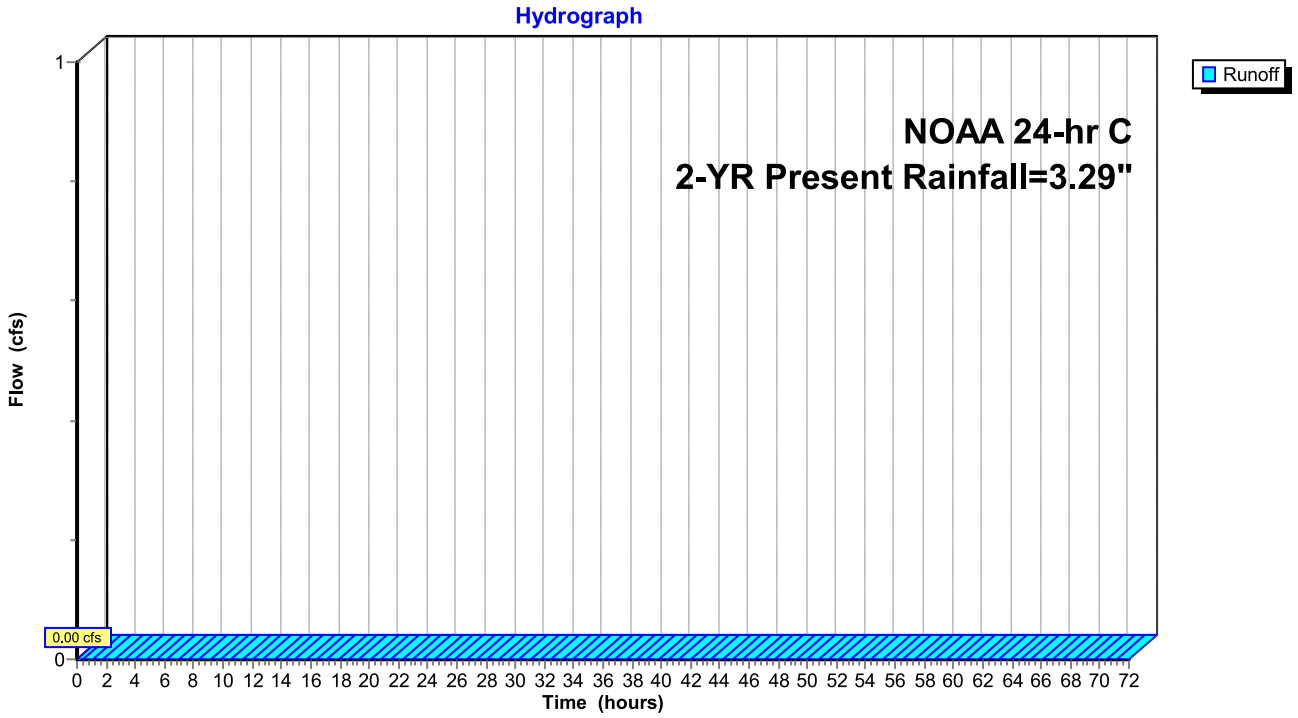
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious



Summary for Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious

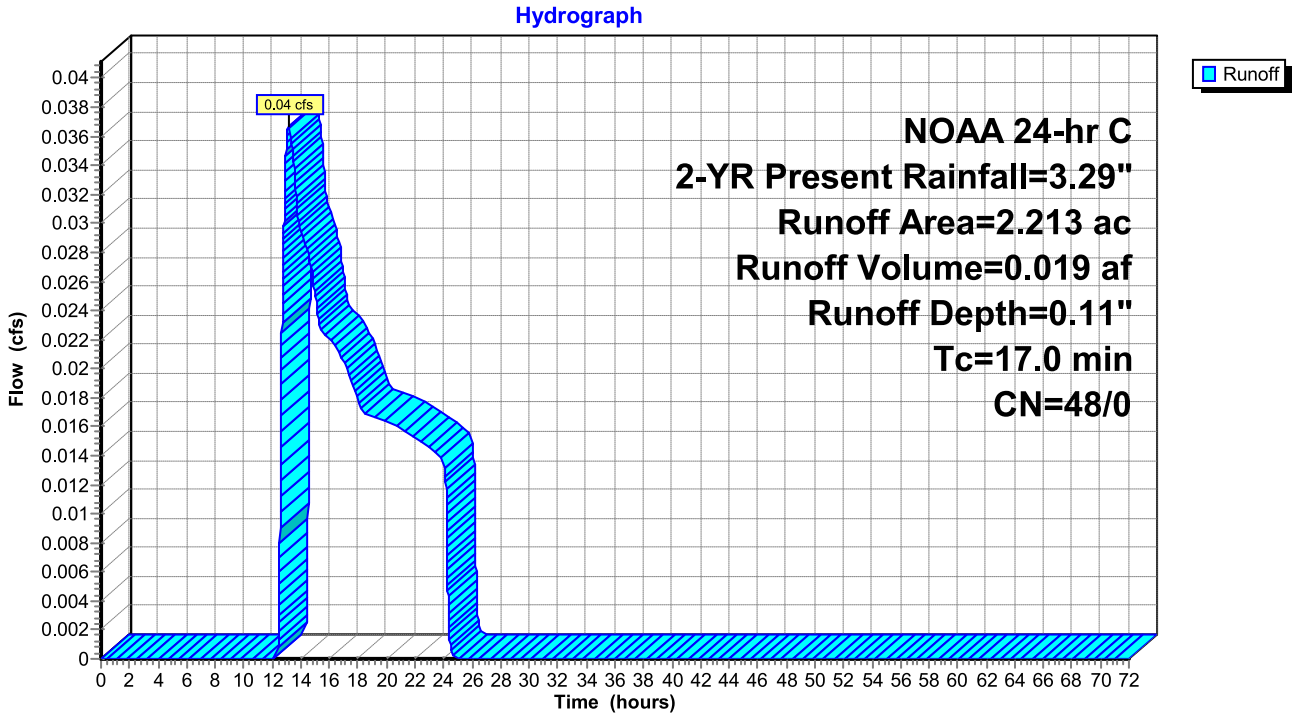
Runoff = 0.04 cfs @ 13.13 hrs, Volume= 0.019 af, Depth= 0.11"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
2.213	48	Brush, Good, HSG B
2.213	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious



Summary for Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint

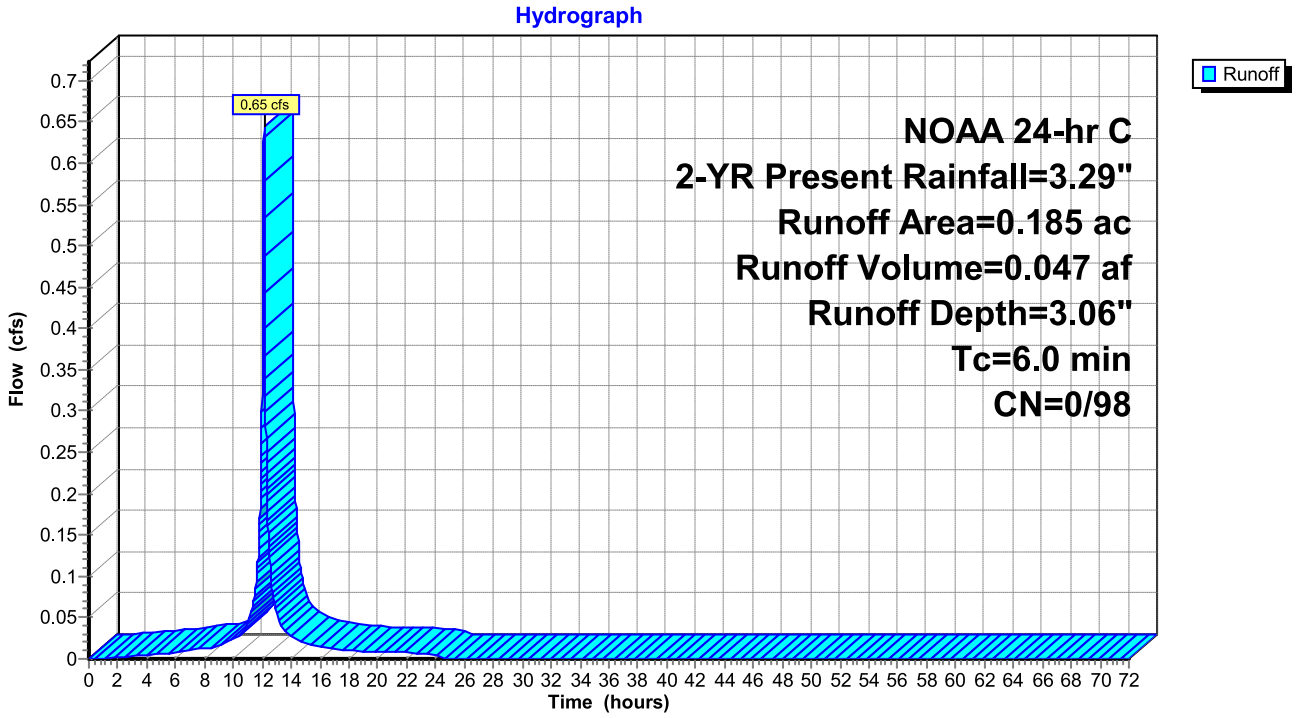
Runoff = 0.65 cfs @ 12.13 hrs, Volume= 0.047 af, Depth= 3.06"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.185	98	Infiltration Basin #5
	0.185	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint



Summary for Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious

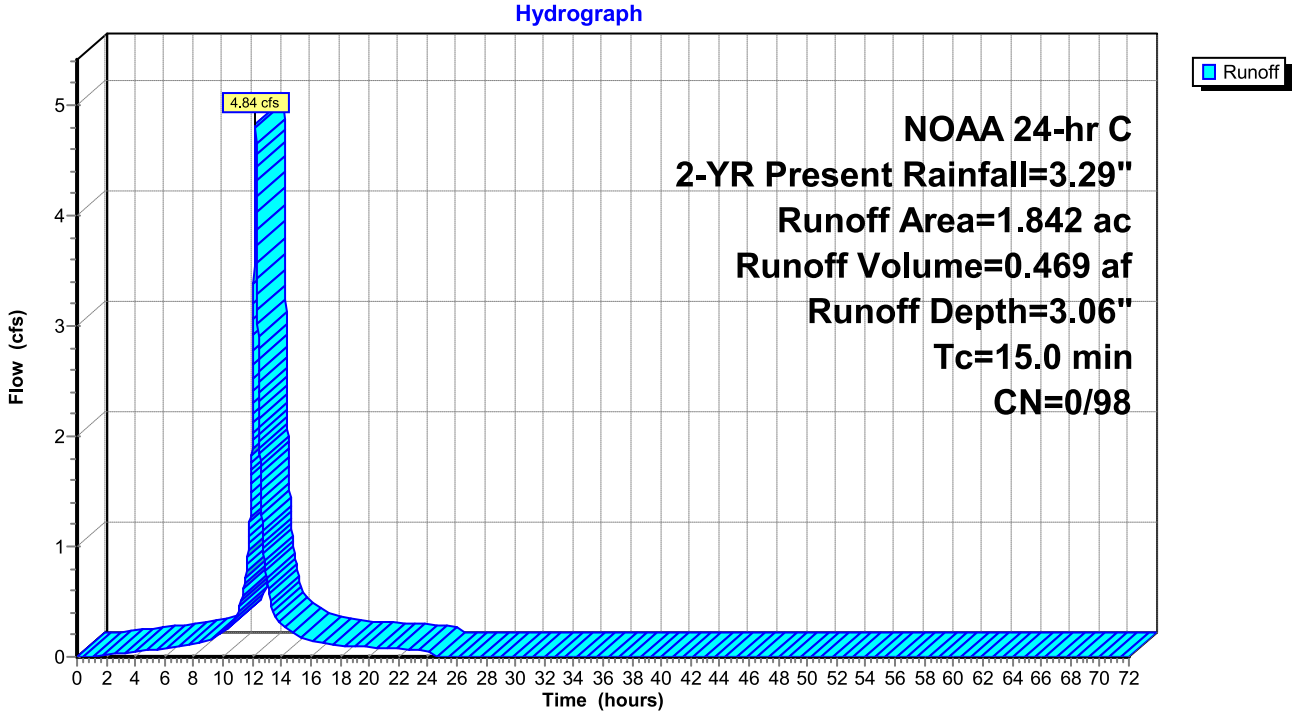
Runoff = 4.84 cfs @ 12.22 hrs, Volume= 0.469 af, Depth= 3.06"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	1.842	98	Gravel surfaces
	1.842	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious



Summary for Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious

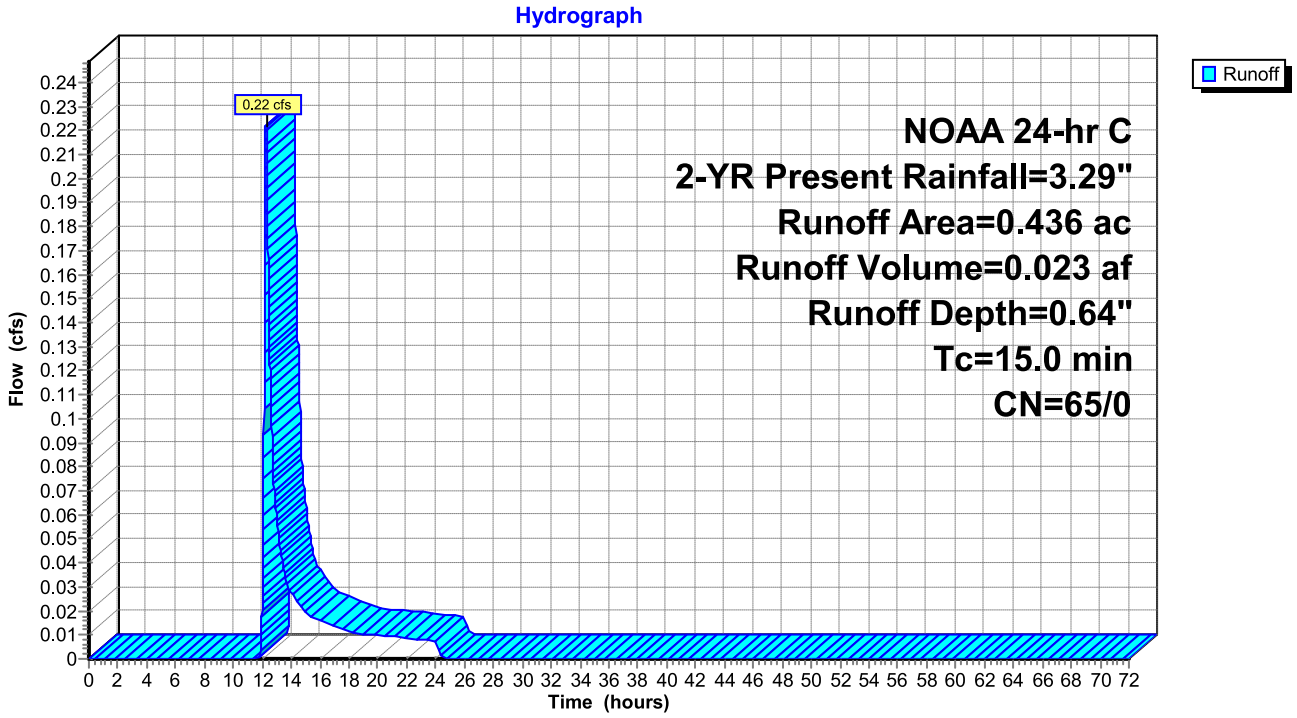
Runoff = 0.22 cfs @ 12.26 hrs, Volume= 0.023 af, Depth= 0.64"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
0.436	65	Brush, Good, HSG C
0.436	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious



Summary for Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint

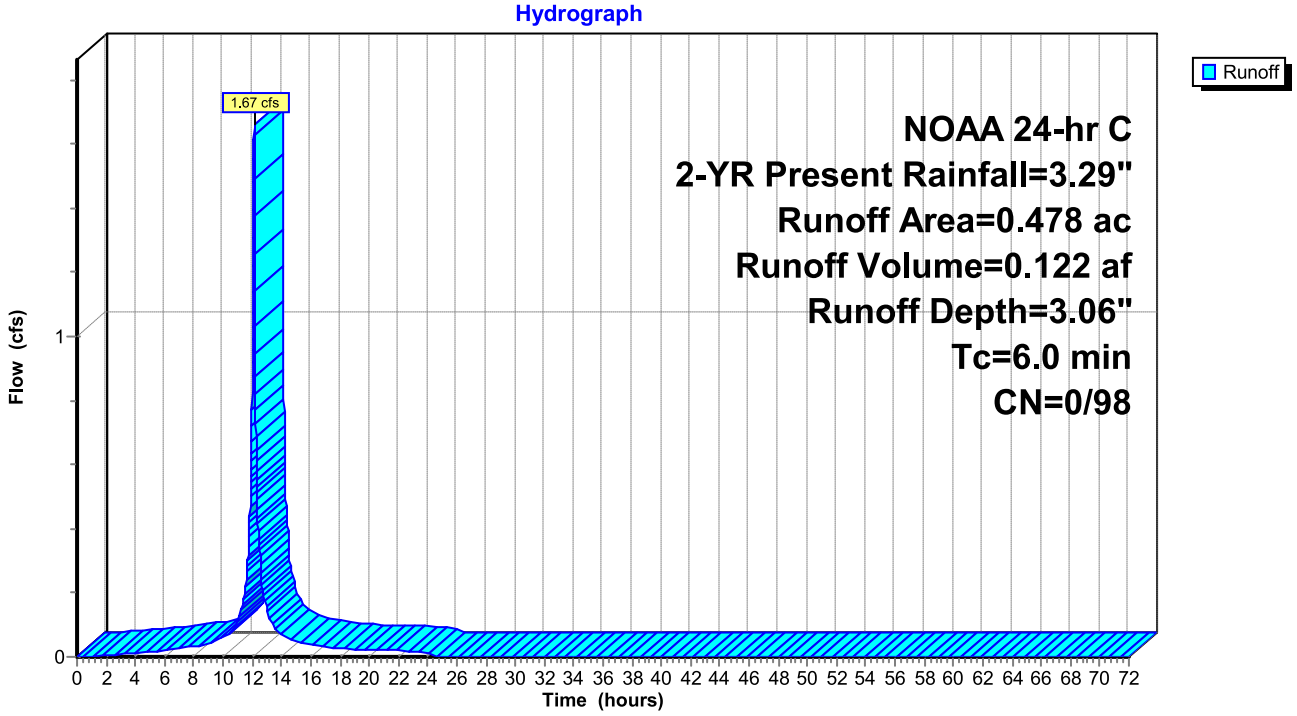
Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.122 af, Depth= 3.06"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.478	98	Infiltration Basin #6
	0.478	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint



Summary for Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious

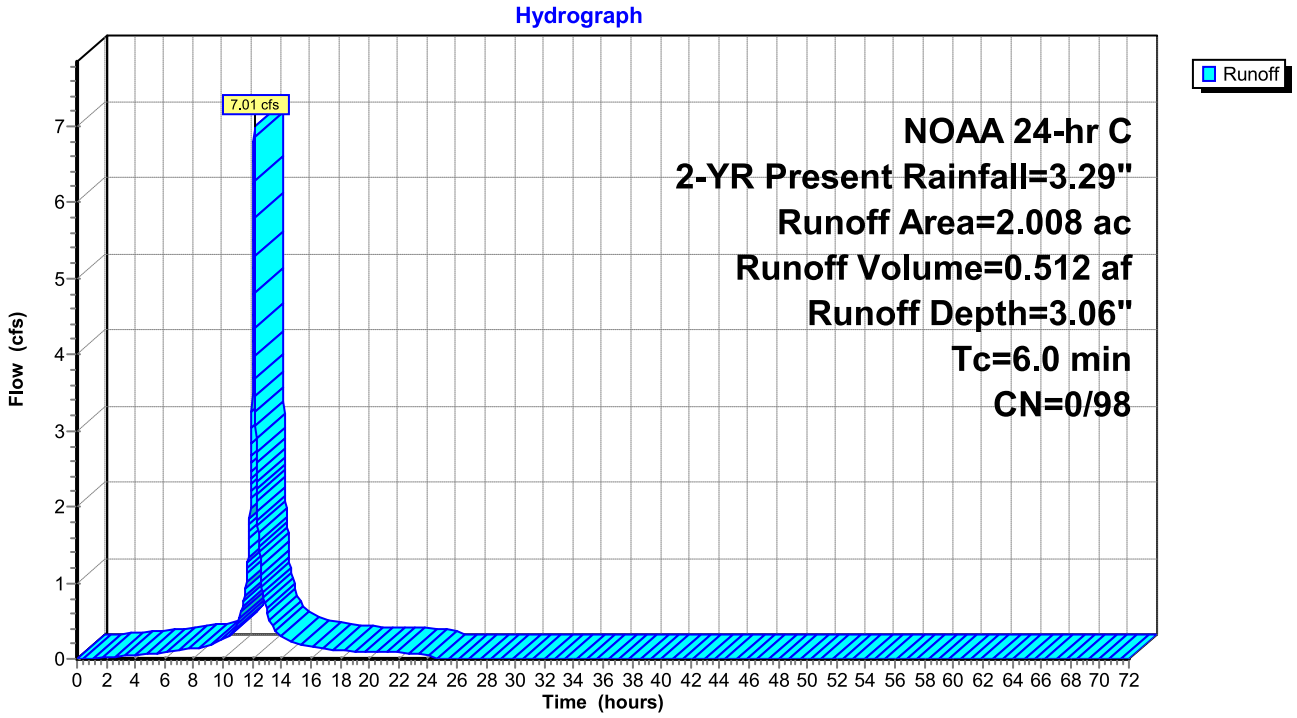
Runoff = 7.01 cfs @ 12.13 hrs, Volume= 0.512 af, Depth= 3.06"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	2.008	98	Gravel surfaces
	2.008	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious



Summary for Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious

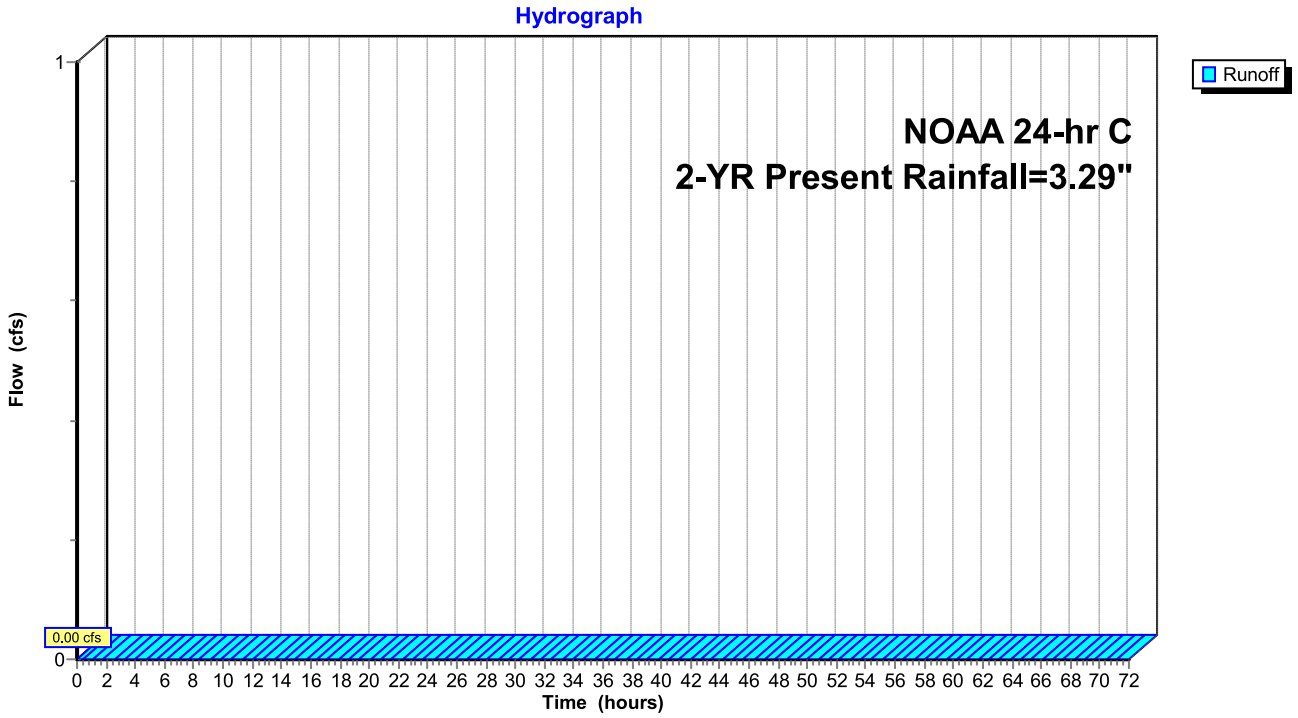
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious



Summary for Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint

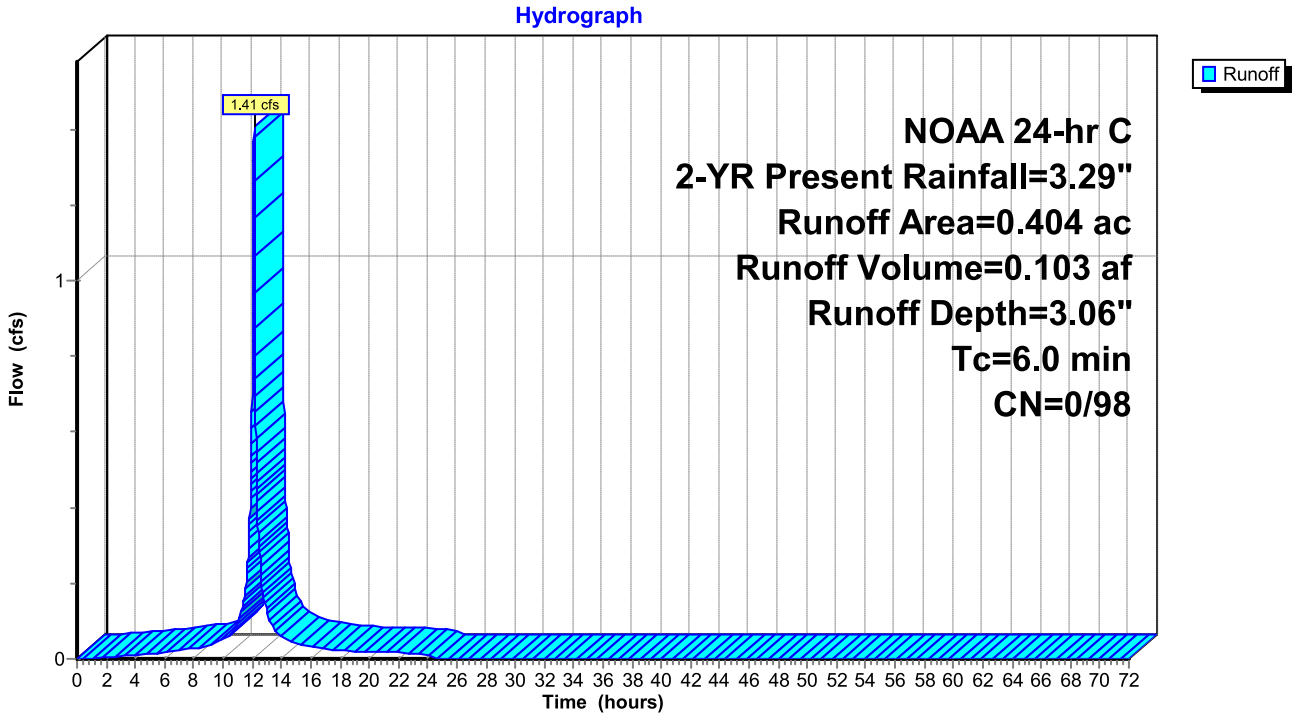
Runoff = 1.41 cfs @ 12.13 hrs, Volume= 0.103 af, Depth= 3.06"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.404	98	Infiltration Basin #7
	0.404	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint



Summary for Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious

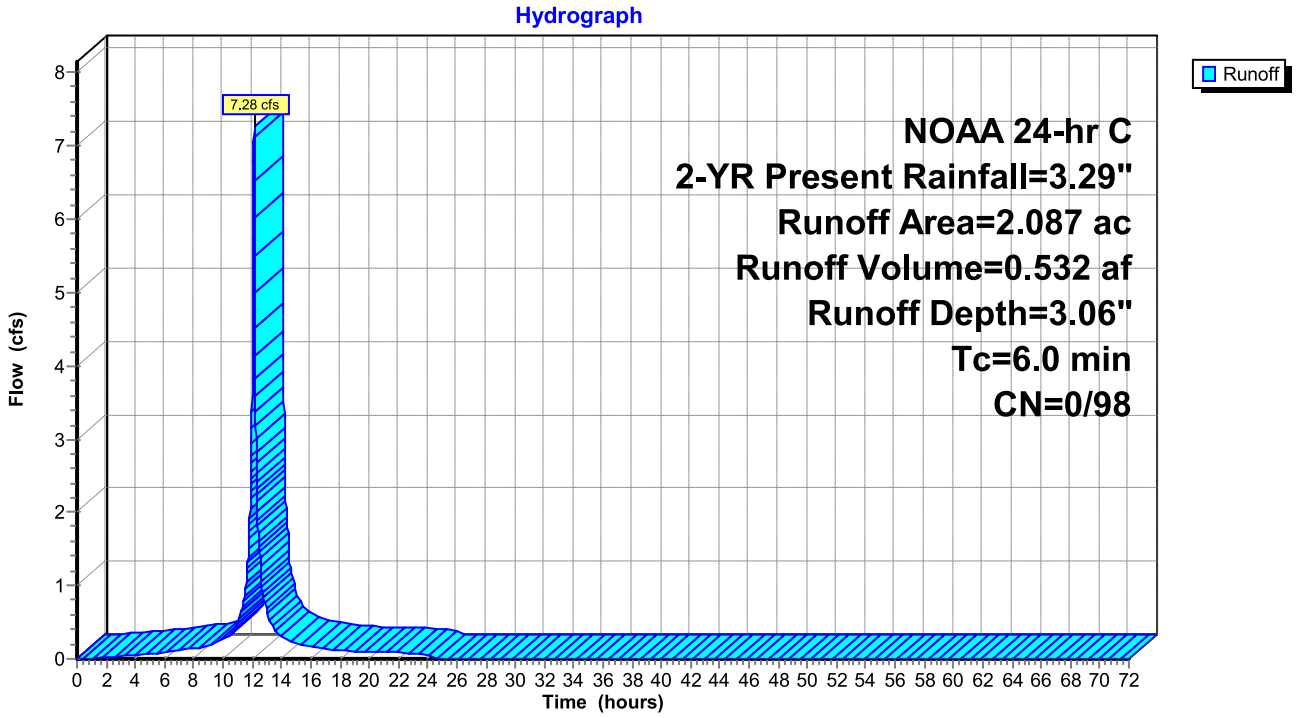
Runoff = 7.28 cfs @ 12.13 hrs, Volume= 0.532 af, Depth= 3.06"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	2.087	98	Gravel surfaces
	2.087	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious



Summary for Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious

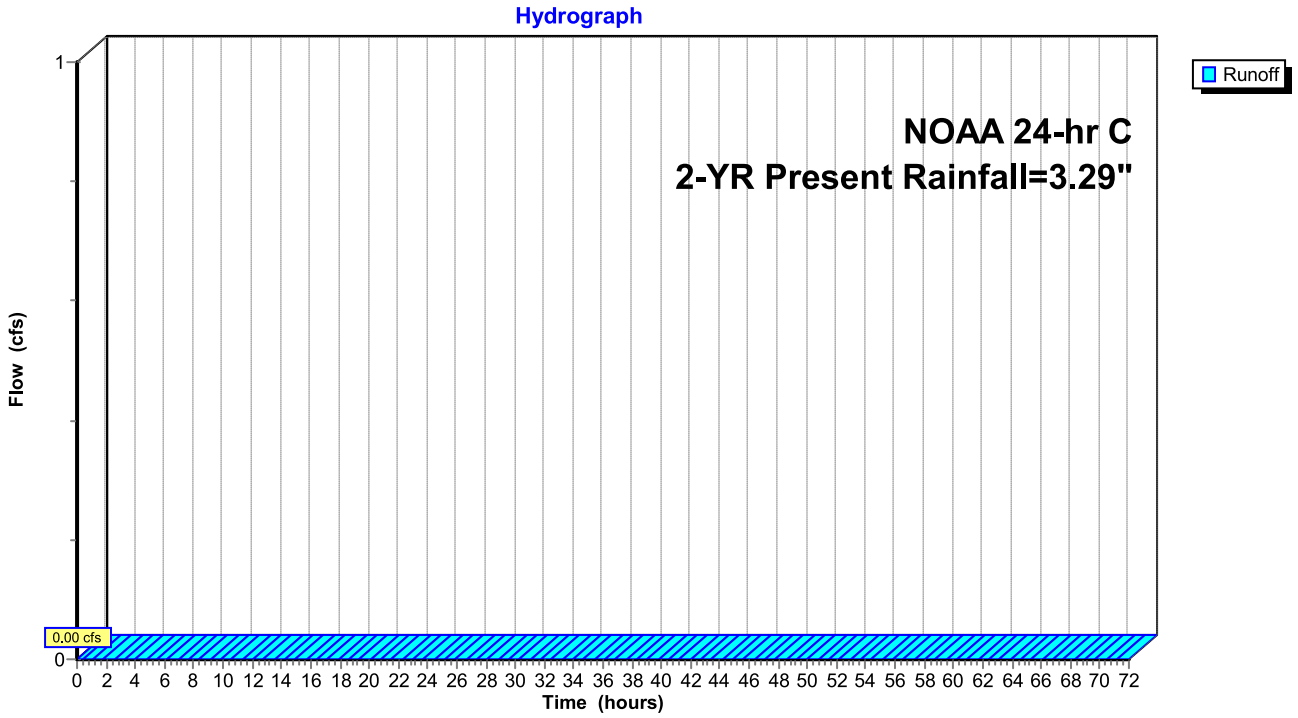
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious



Summary for Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint

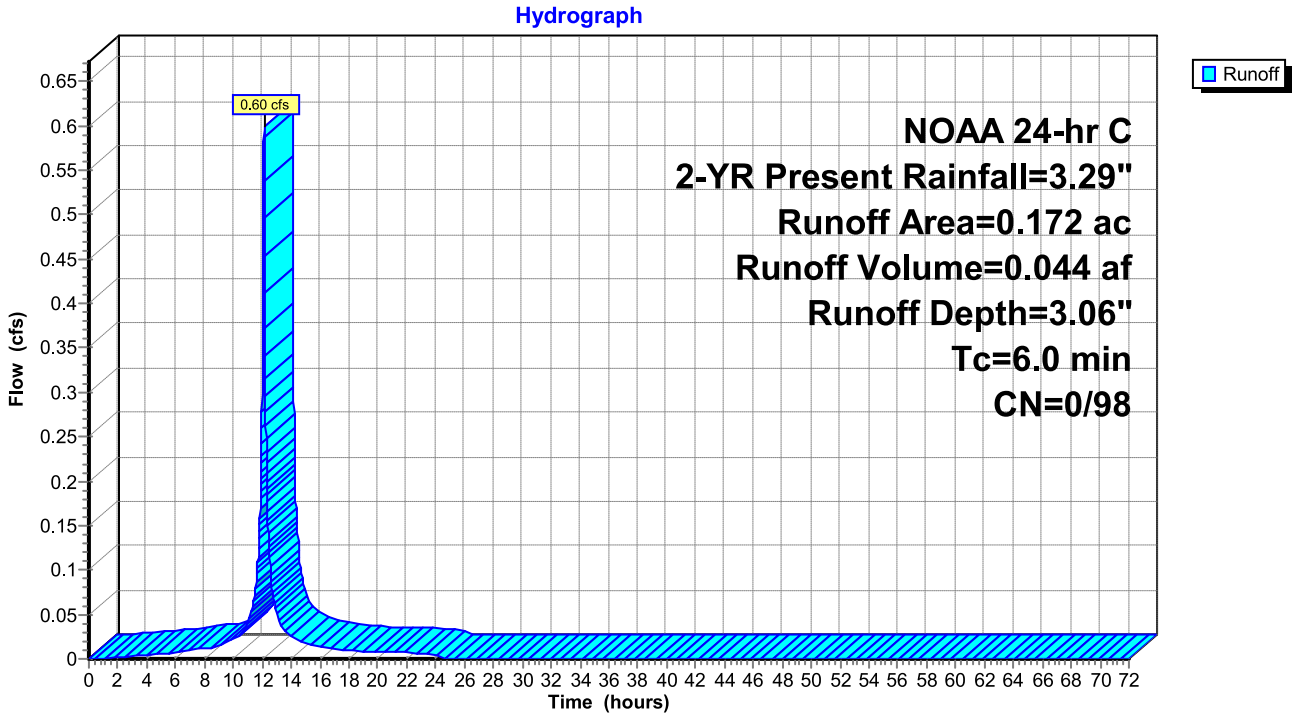
Runoff = 0.60 cfs @ 12.13 hrs, Volume= 0.044 af, Depth= 3.06"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.172	98	Infiltration Basin #8
	0.172	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint



Summary for Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious

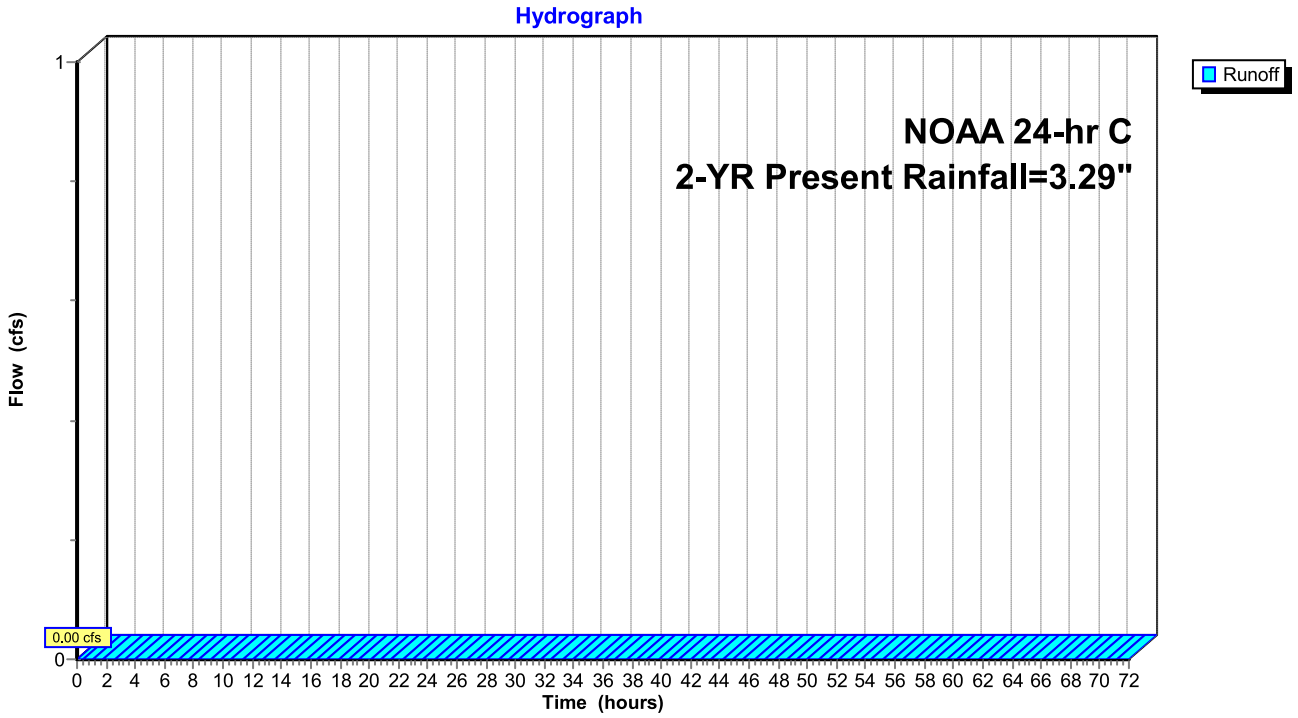
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious



Summary for Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious

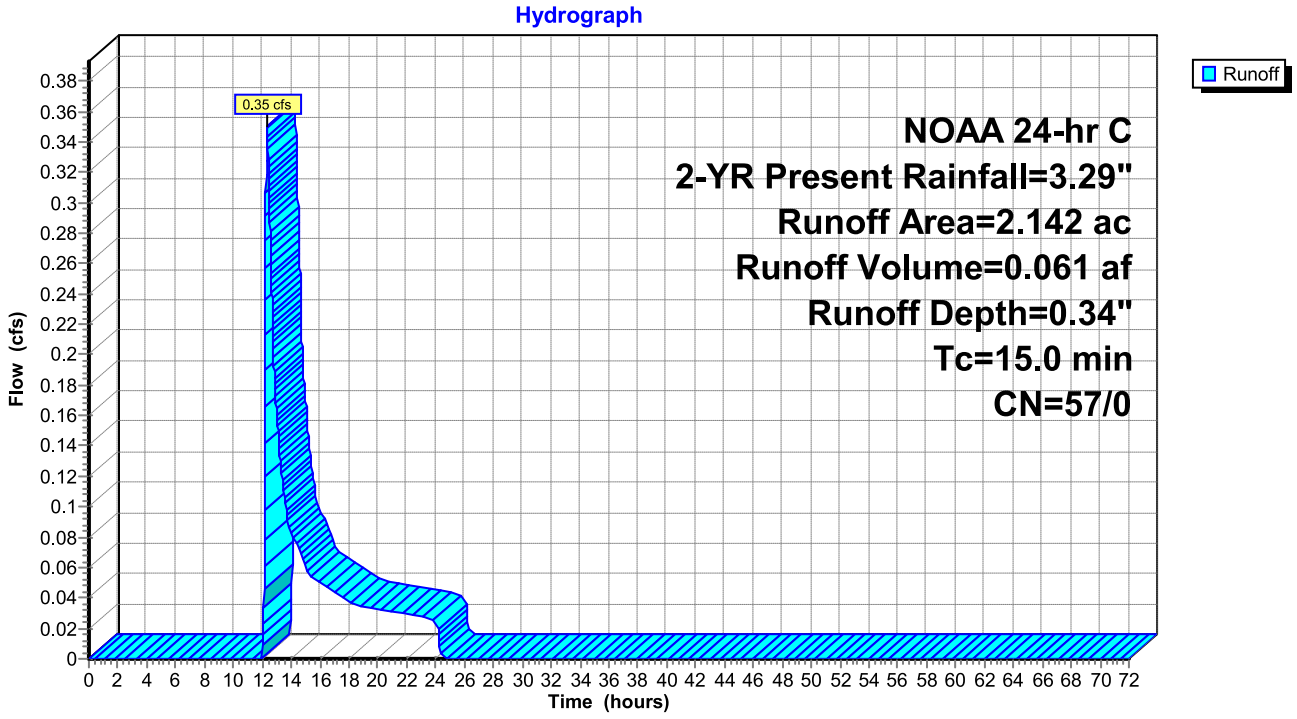
Runoff = 0.35 cfs @ 12.32 hrs, Volume= 0.061 af, Depth= 0.34"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
1.008	48	Brush, Good, HSG B
1.134	65	Brush, Good, HSG C
2.142	57	Weighted Average
2.142	57	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious



Summary for Subcatchment Off1: POST - POI #2 - Bypass

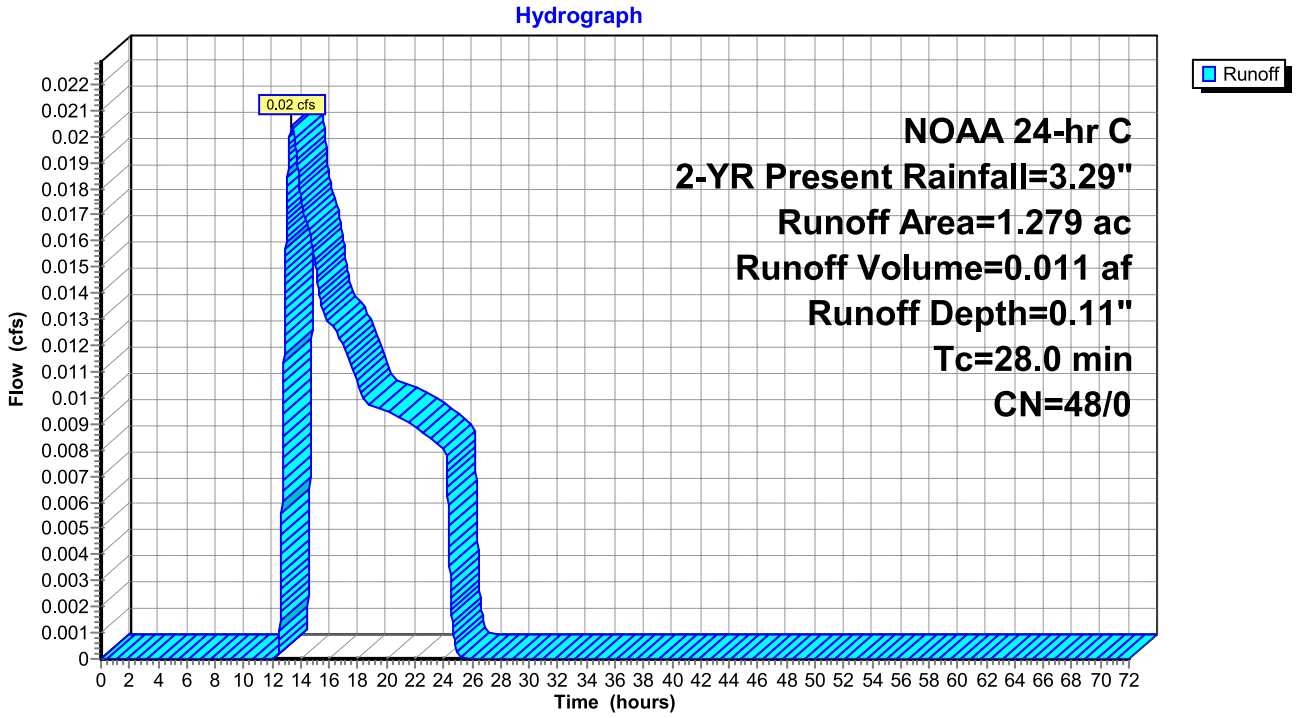
Runoff = 0.02 cfs @ 13.35 hrs, Volume= 0.011 af, Depth= 0.11"
Routed to Link Post2 : POST - POI #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
1.279	48	Brush, Good, HSG B
1.279	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment Off1: POST - POI #2 - Bypass



Summary for Subcatchment Off1I: POST - POI #1 - Bypass Impervious

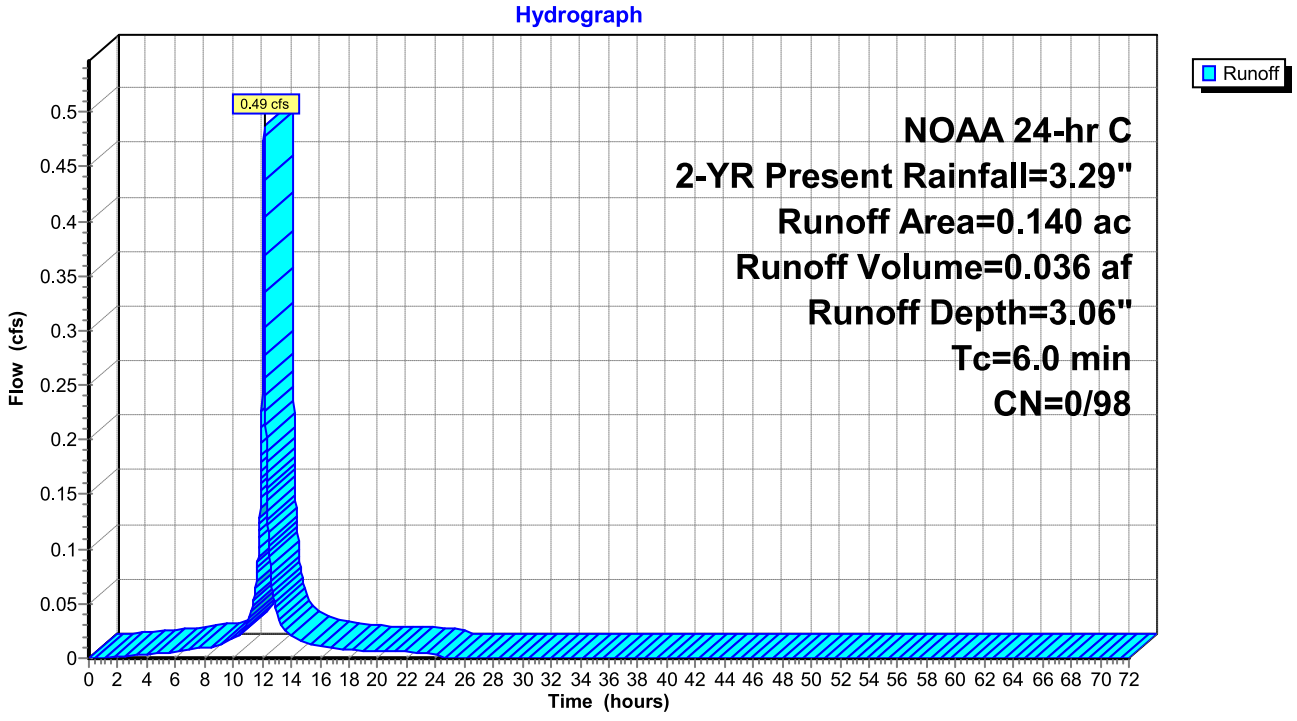
Runoff = 0.49 cfs @ 12.13 hrs, Volume= 0.036 af, Depth= 3.06"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
*	0.050	98	Gravel B
*	0.010	98	Gravel C
*	0.080	98	Gravel D
	0.140	98	Weighted Average
	0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1I: POST - POI #1 - Bypass Impervious



Summary for Subcatchment Off1P: POST - POI #1 - Bypass Pervious

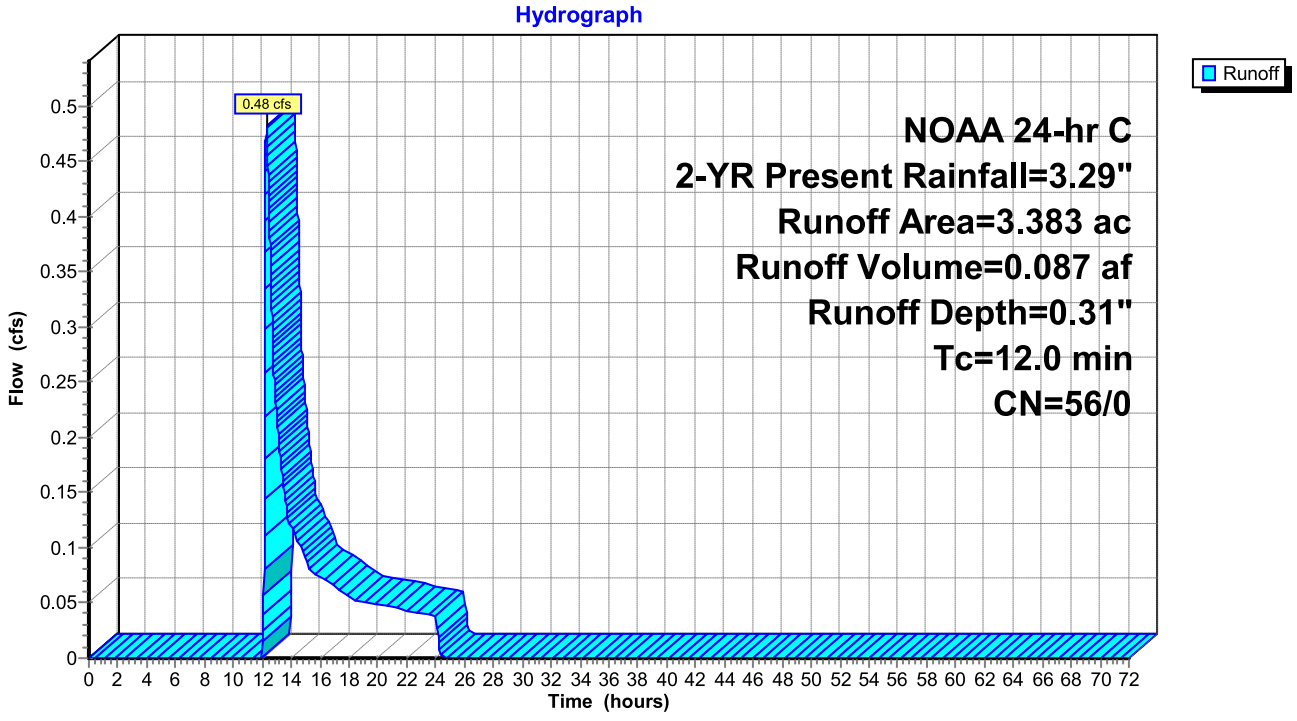
Runoff = 0.48 cfs @ 12.28 hrs, Volume= 0.087 af, Depth= 0.31"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
2.061	48	Brush, Good, HSG B
0.543	65	Brush, Good, HSG C
0.779	73	Brush, Good, HSG D
3.383	56	Weighted Average
3.383	56	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1P: POST - POI #1 - Bypass Pervious



Summary for Subcatchment Pre1: PRE - POI #1

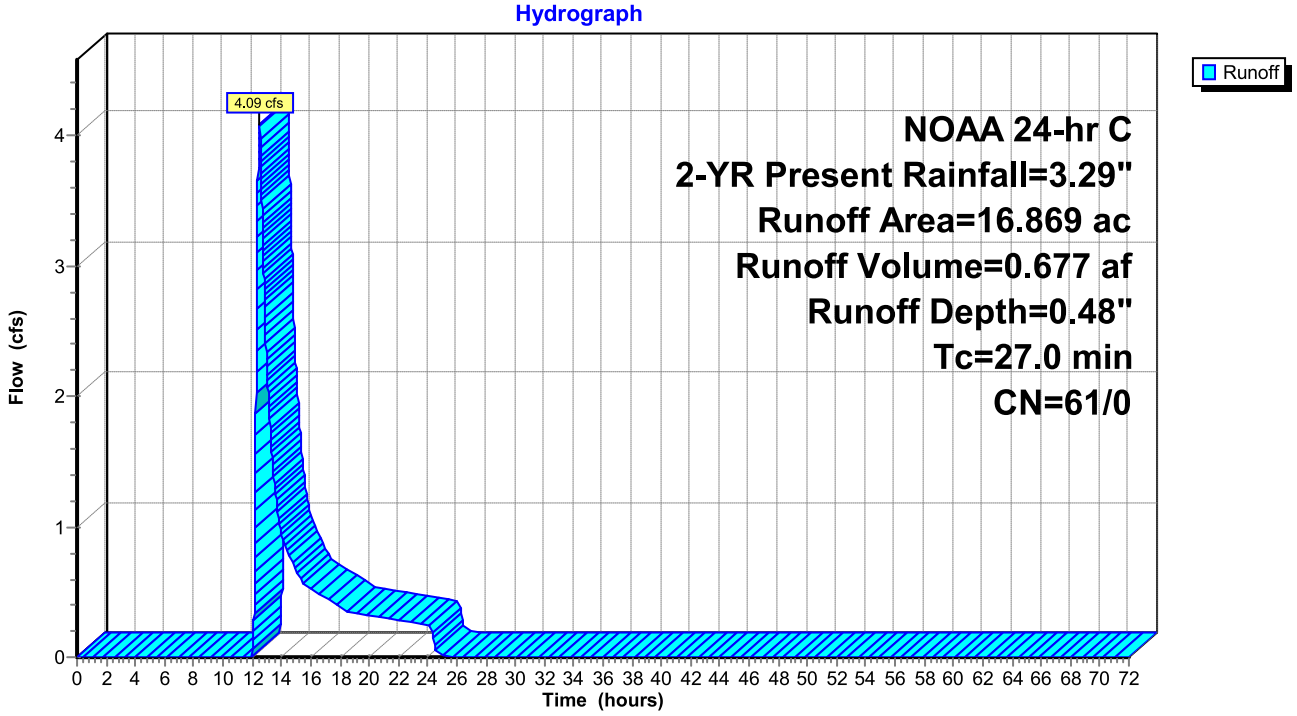
Runoff = 4.09 cfs @ 12.48 hrs, Volume= 0.677 af, Depth= 0.48"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

Area (ac)	CN	Description
9.127	55	Woods, Good, HSG B
1.498	61	Pasture/grassland/range, Good, HSG B
2.070	70	Woods, Good, HSG C
2.444	74	Pasture/grassland/range, Good, HSG C
0.452	77	Woods, Good, HSG D
0.326	80	Pasture/grassland/range, Good, HSG D
0.952	48	Brush, Good, HSG B
16.869	61	Weighted Average
16.869	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre1: PRE - POI #1



Summary for Subcatchment Pre2: PRE - POI #2

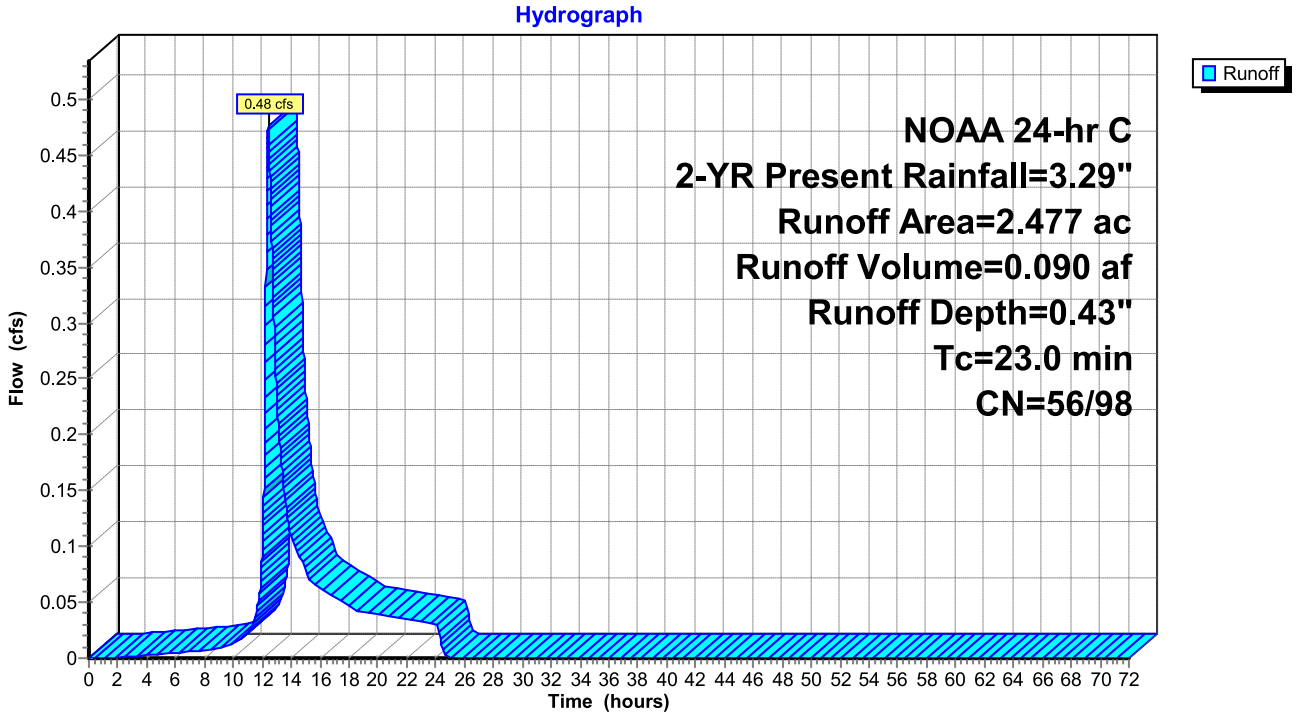
Runoff = 0.48 cfs @ 12.42 hrs, Volume= 0.090 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YR Present Rainfall=3.29"

	Area (ac)	CN	Description
	1.817	55	Woods, Good, HSG B
	0.546	61	Pasture/grassland/range, Good, HSG B
*	0.114	98	Impervious, HSG B
	2.477	58	Weighted Average
	2.363	56	95.40% Pervious Area
	0.114	98	4.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre2: PRE - POI #2



Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 1.84" for 2-YR Present event
Inflow = 1.61 cfs @ 12.15 hrs, Volume= 0.137 af
Outflow = 0.09 cfs @ 13.87 hrs, Volume= 0.086 af, Atten= 95%, Lag= 103.5 min
Primary = 0.09 cfs @ 13.87 hrs, Volume= 0.086 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.51' @ 13.87 hrs Surf.Area= 4,243 sf Storage= 4,127 cf

Plug-Flow detention time= 531.0 min calculated for 0.086 af (63% of inflow)
Center-of-Mass det. time= 420.1 min (1,186.4 - 766.3)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

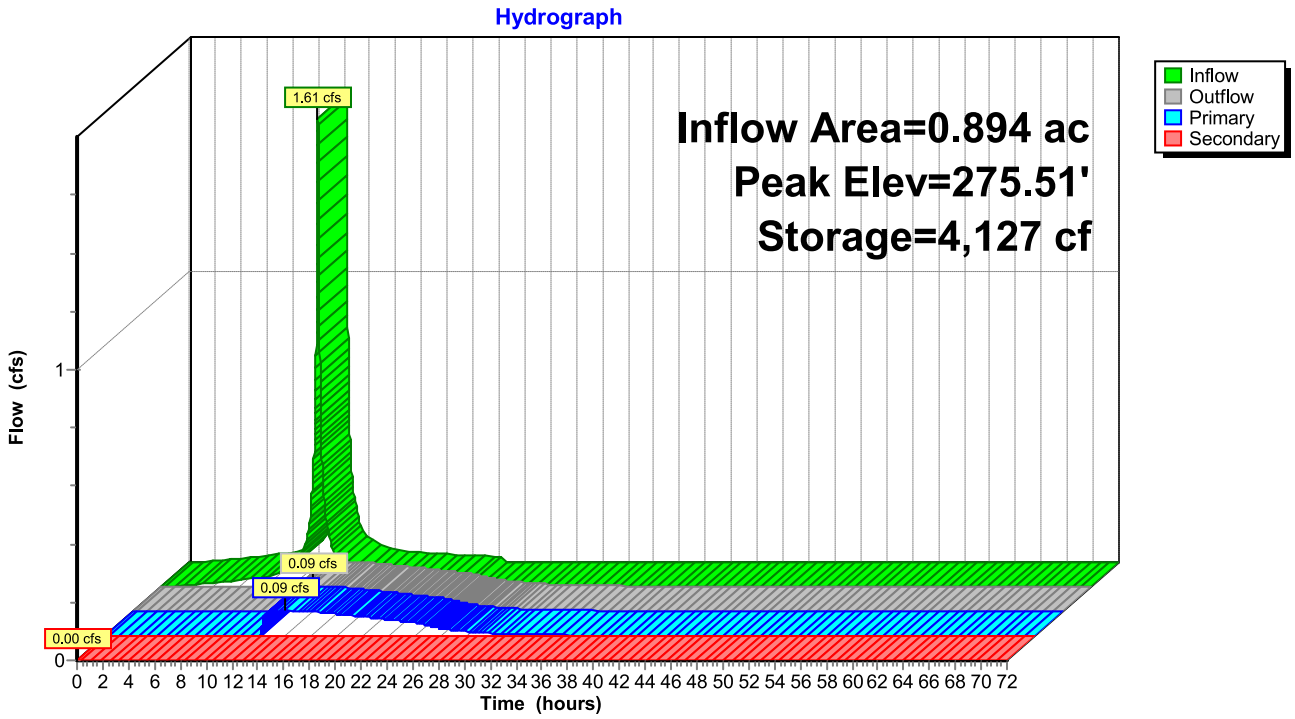
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.09 cfs @ 13.87 hrs HW=275.51' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.09 cfs of 8.64 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 0.09 cfs @ 3.15 fps)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 2.25" for 2-YR Present event
Inflow = 0.77 cfs @ 12.13 hrs, Volume= 0.057 af
Outflow = 0.07 cfs @ 12.98 hrs, Volume= 0.035 af, Atten= 91%, Lag= 51.0 min
Primary = 0.07 cfs @ 12.98 hrs, Volume= 0.035 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.07' @ 12.98 hrs Surf.Area= 1,894 sf Storage= 1,590 cf

Plug-Flow detention time= 363.0 min calculated for 0.035 af (62% of inflow)
Center-of-Mass det. time= 253.2 min (1,013.8 - 760.6)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

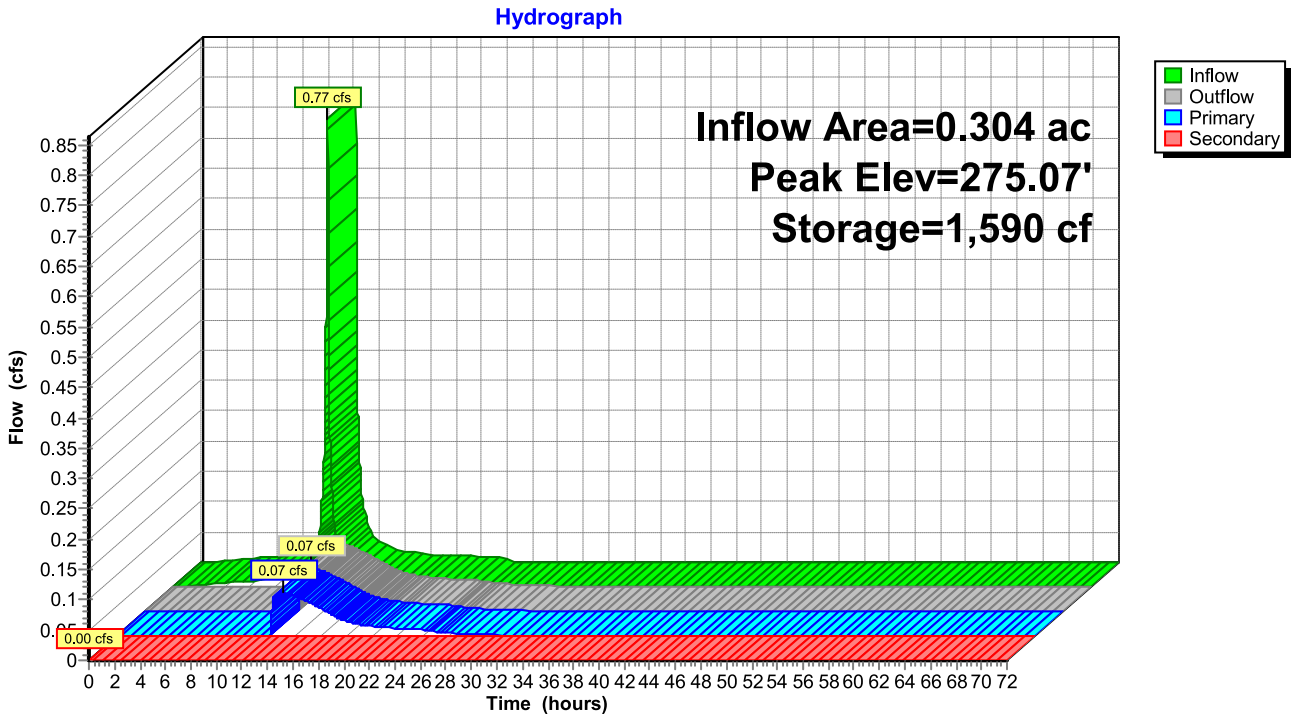
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.07 cfs @ 12.98 hrs HW=275.07' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.07 cfs of 7.70 cfs potential flow)
  ├─**2=Orice** (Orifice Controls 0.07 cfs @ 2.59 fps)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 0.64" for 2-YR Present event
Inflow = 0.75 cfs @ 12.13 hrs, Volume= 0.063 af
Outflow = 0.22 cfs @ 12.33 hrs, Volume= 0.041 af, Atten= 70%, Lag= 12.2 min
Primary = 0.22 cfs @ 12.33 hrs, Volume= 0.041 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.40' @ 12.33 hrs Surf.Area= 3,703 sf Storage= 1,327 cf

Plug-Flow detention time= 275.2 min calculated for 0.041 af (64% of inflow)
Center-of-Mass det. time= 147.4 min (942.9 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

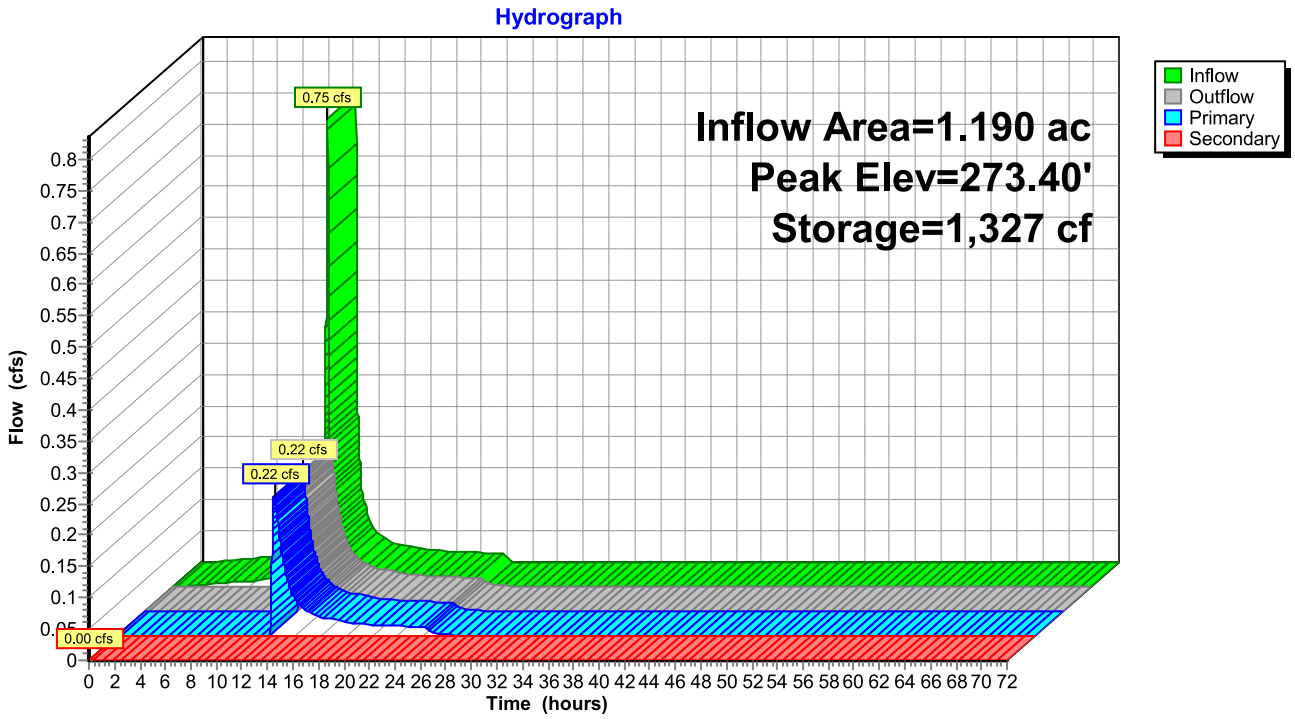
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.22 cfs @ 12.33 hrs HW=273.40' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.22 cfs of 2.60 cfs potential flow)
  ├**2=Orifice #1** (Orifice Controls 0.22 cfs @ 0.99 fps)
  ├**3=Orifice #2** (Controls 0.00 cfs)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 0.34" for 2-YR Present event
Inflow = 0.66 cfs @ 12.13 hrs, Volume= 0.068 af
Outflow = 0.07 cfs @ 13.54 hrs, Volume= 0.049 af, Atten= 90%, Lag= 84.9 min
Primary = 0.07 cfs @ 13.54 hrs, Volume= 0.049 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.27' @ 13.54 hrs Surf.Area= 5,439 sf Storage= 1,448 cf

Plug-Flow detention time= 419.4 min calculated for 0.049 af (73% of inflow)
Center-of-Mass det. time= 295.8 min (1,137.1 - 841.3)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

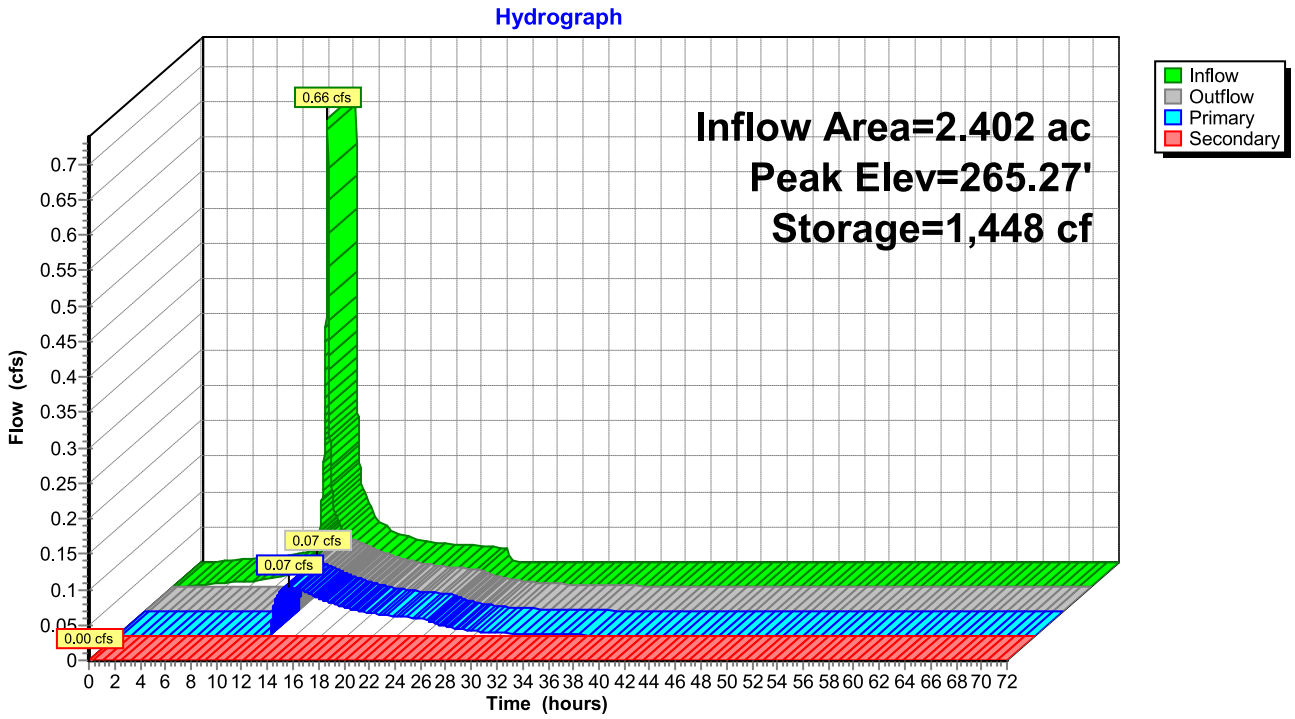
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.07 cfs @ 13.54 hrs HW=265.27' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.07 cfs of 5.25 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 0.07 cfs @ 1.12 fps)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 2.63" for 2-YR Present event
Inflow = 5.39 cfs @ 12.22 hrs, Volume= 0.540 af
Outflow = 0.62 cfs @ 13.21 hrs, Volume= 0.364 af, Atten= 88%, Lag= 59.7 min
Primary = 0.62 cfs @ 13.21 hrs, Volume= 0.364 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 267.37' @ 13.21 hrs Surf.Area= 7,443 sf Storage= 15,105 cf

Plug-Flow detention time= 368.4 min calculated for 0.364 af (67% of inflow)
Center-of-Mass det. time= 266.6 min (1,037.3 - 770.7)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

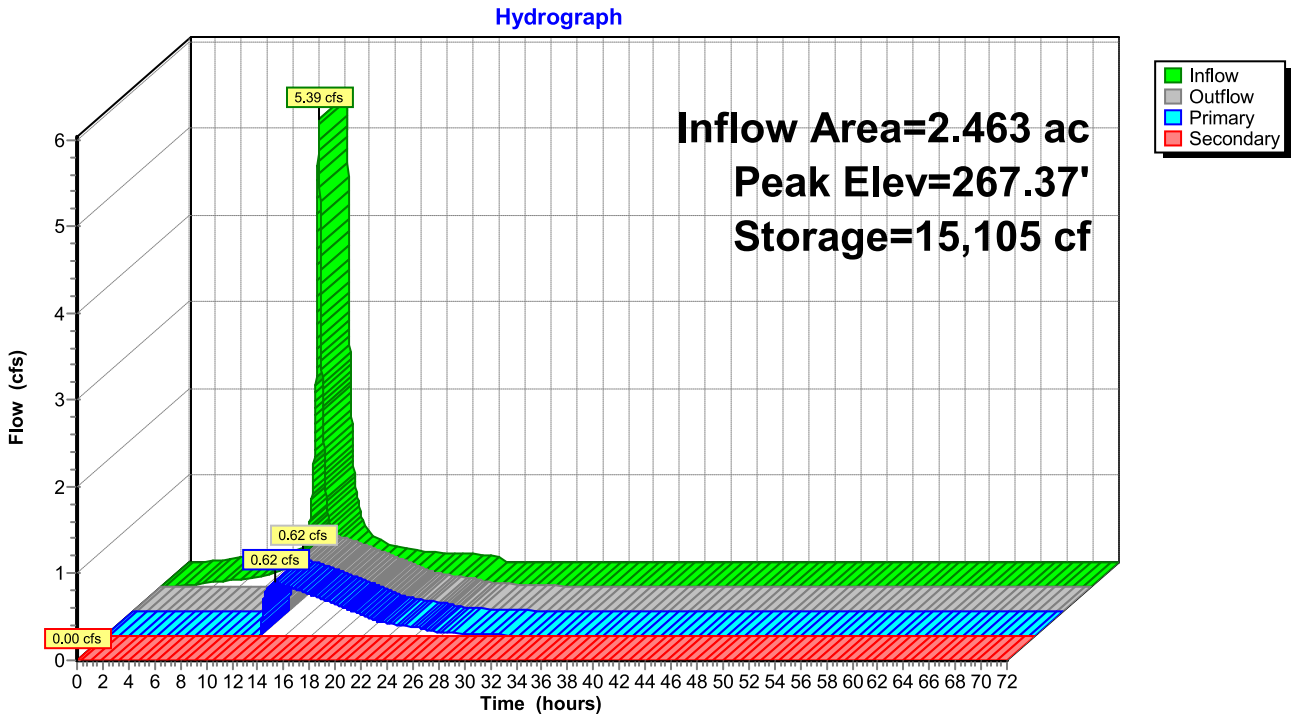
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.62 cfs @ 13.21 hrs HW=267.37' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 0.62 cfs of 15.04 cfs potential flow)
  ├─**2=Rectangular Orifice #1** (Orifice Controls 0.59 cfs @ 4.69 fps)
  ├─**3=Rectangular Orifice #2** (Weir Controls 0.04 cfs @ 0.51 fps)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 3.06" for 2-YR Present event
Inflow = 8.67 cfs @ 12.13 hrs, Volume= 0.633 af
Outflow = 0.18 cfs @ 16.74 hrs, Volume= 0.383 af, Atten= 98%, Lag= 277.0 min
Primary = 0.18 cfs @ 16.74 hrs, Volume= 0.383 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 263.34' @ 16.74 hrs Surf.Area= 17,490 sf Storage= 21,692 cf

Plug-Flow detention time= 1,045.8 min calculated for 0.383 af (60% of inflow)
Center-of-Mass det. time= 935.9 min (1,692.9 - 757.0)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

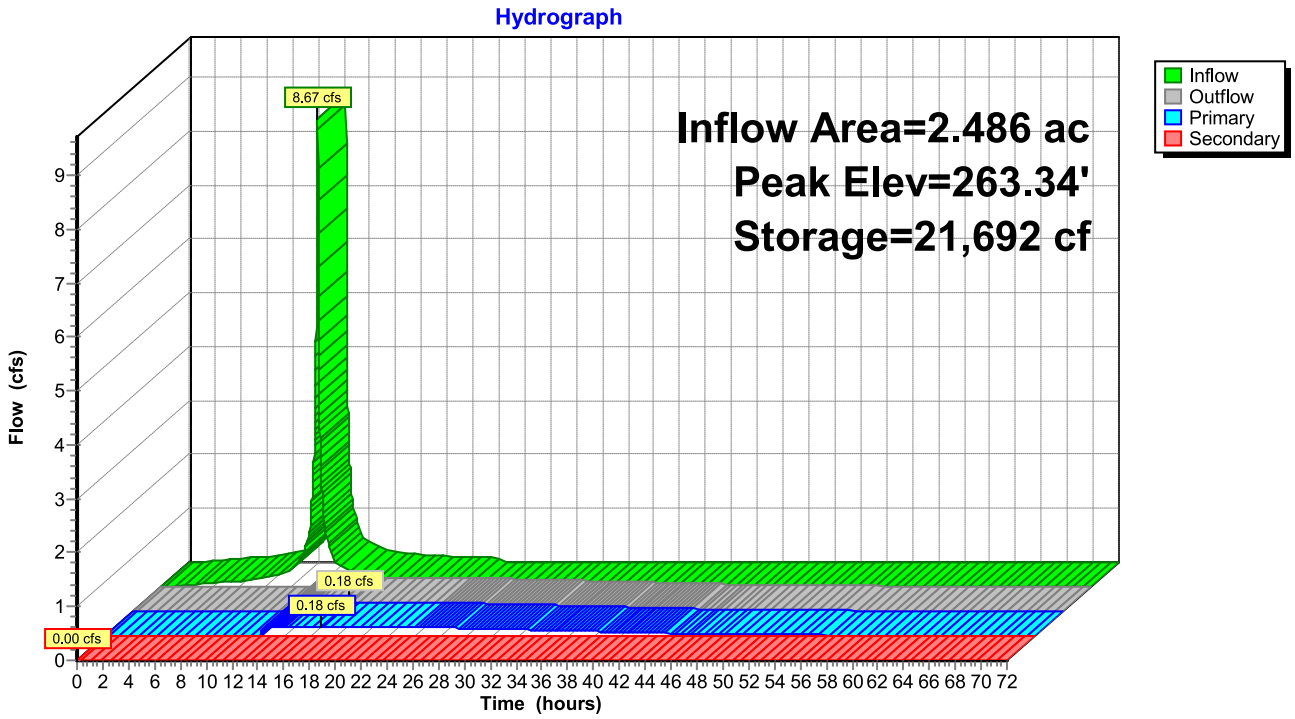
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.18 cfs @ 16.74 hrs HW=263.34' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.18 cfs of 6.59 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.18 cfs @ 3.63 fps)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 3.06" for 2-YR Present event
Inflow = 8.69 cfs @ 12.13 hrs, Volume= 0.635 af
Outflow = 0.33 cfs @ 14.30 hrs, Volume= 0.400 af, Atten= 96%, Lag= 130.0 min
Primary = 0.33 cfs @ 14.30 hrs, Volume= 0.400 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 263.15' @ 14.30 hrs Surf.Area= 13,259 sf Storage= 20,034 cf

Plug-Flow detention time= 652.7 min calculated for 0.400 af (63% of inflow)
Center-of-Mass det. time= 546.7 min (1,303.7 - 757.0)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

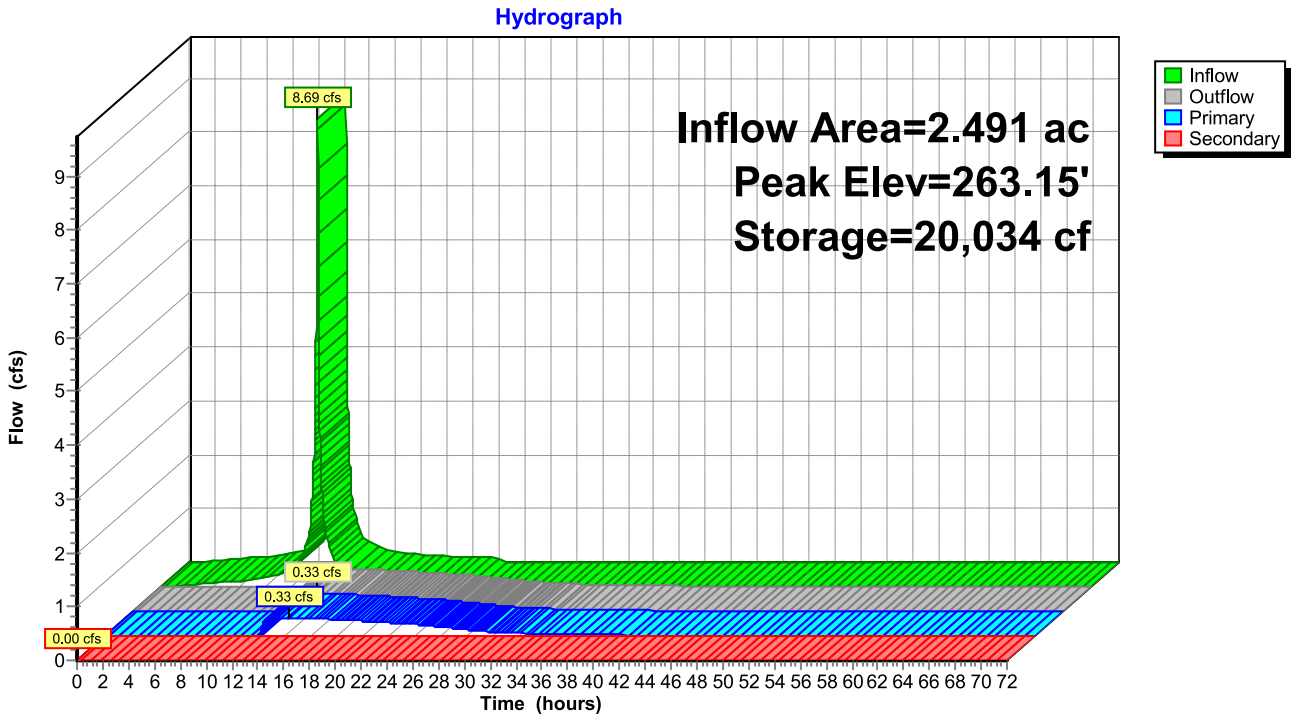
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.33 cfs @ 14.30 hrs HW=263.15' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.33 cfs of 8.07 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.33 cfs @ 3.83 fps)
  ├**3=Rectangular Orifice** (Controls 0.00 cfs)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 0.54" for 2-YR Present event
Inflow = 0.67 cfs @ 12.14 hrs, Volume= 0.105 af
Outflow = 0.03 cfs @ 24.13 hrs, Volume= 0.016 af, Atten= 96%, Lag= 719.3 min
Primary = 0.03 cfs @ 24.13 hrs, Volume= 0.016 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.85' @ 24.13 hrs Surf.Area= 5,453 sf Storage= 4,301 cf

Plug-Flow detention time= 1,158.1 min calculated for 0.016 af (15% of inflow)
Center-of-Mass det. time= 885.4 min (1,753.9 - 868.6)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

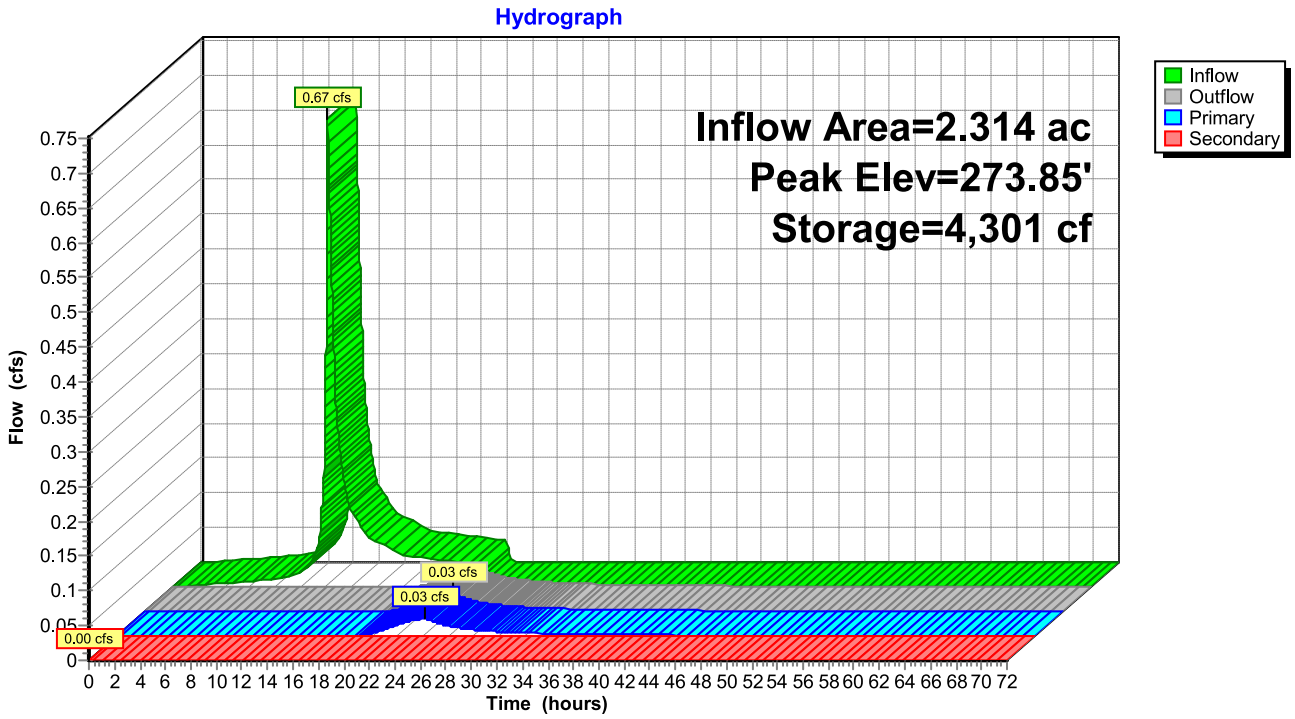
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.03 cfs @ 24.13 hrs HW=273.85' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Barrel Controls 0.03 cfs @ 0.81 fps)
├**2=Orifice** (Passes 0.03 cfs of 0.25 cfs potential flow)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8

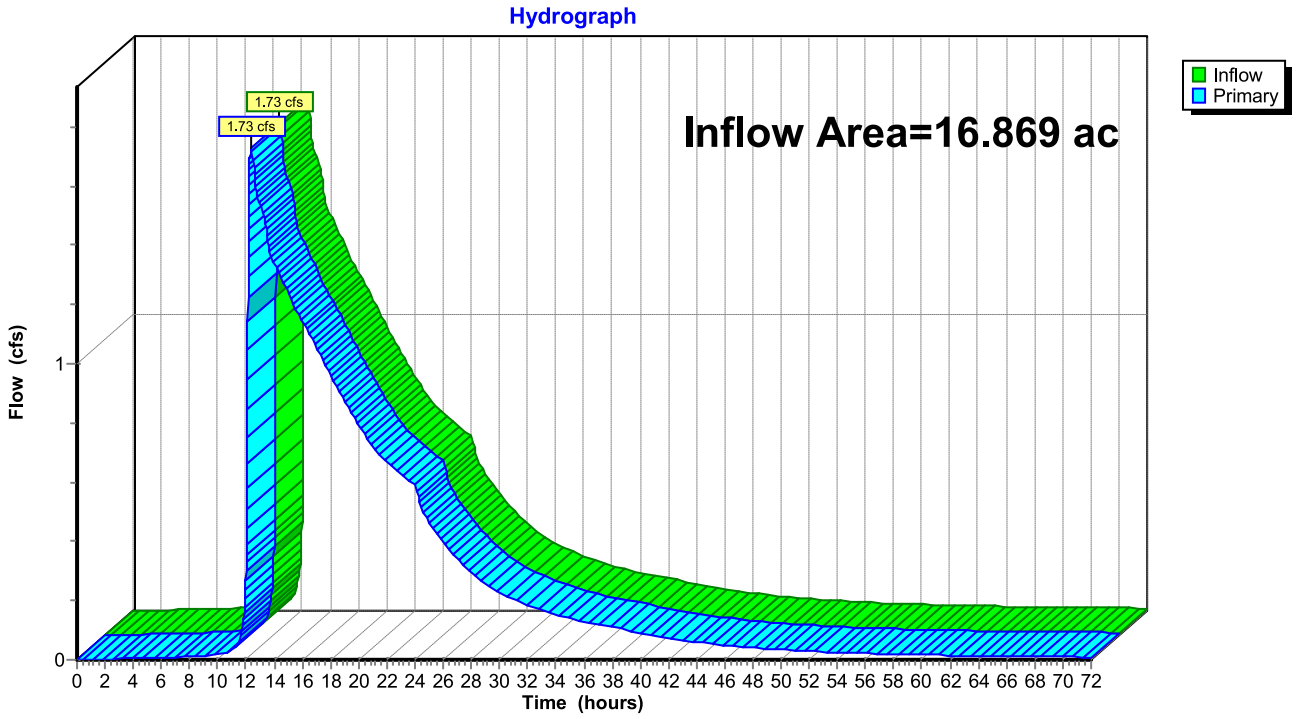


Summary for Link Post1: POST - POI #1

Inflow Area = 16.869 ac, 45.76% Impervious, Inflow Depth > 0.98" for 2-YR Present event
Inflow = 1.73 cfs @ 12.36 hrs, Volume= 1.376 af
Primary = 1.73 cfs @ 12.36 hrs, Volume= 1.376 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post1: POST - POI #1

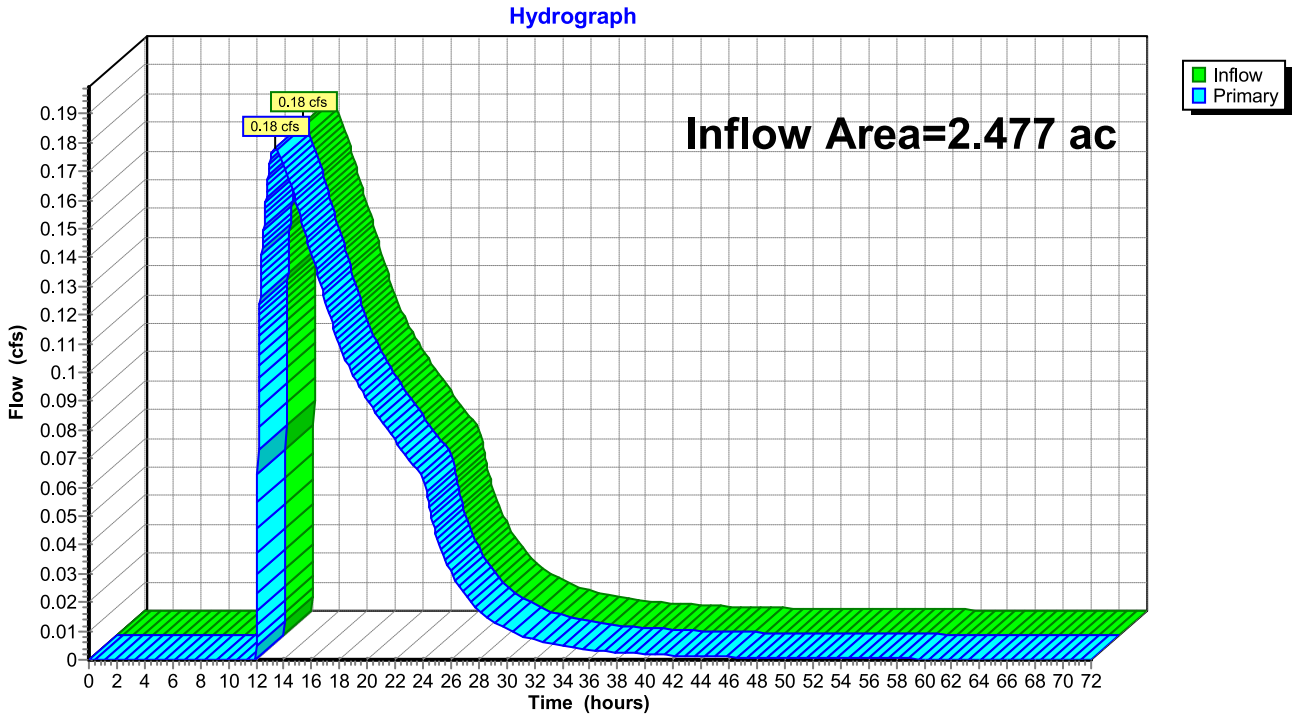


Summary for Link Post2: POST - POI #2

Inflow Area = 2.477 ac, 30.08% Impervious, Inflow Depth > 0.64" for 2-YR Present event
Inflow = 0.18 cfs @ 13.35 hrs, Volume= 0.132 af
Primary = 0.18 cfs @ 13.35 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post2: POST - POI #2



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1F: POST - POI #2 - Runoff Area=0.154 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=1.02 cfs 0.077 af

Subcatchment 1I: POST - POI #2 - Runoff Area=0.370 ac 100.00% Impervious Runoff Depth=5.96"
Tc=10.0 min CN=0/98 Runoff=2.13 cfs 0.184 af

Subcatchment 1P: POST - POI #2 - Runoff Area=0.370 ac 0.00% Impervious Runoff Depth=1.09"
Tc=10.0 min CN=48/0 Runoff=0.36 cfs 0.034 af

Subcatchment 2F: POST - POI #2 - Runoff Area=0.091 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=0.60 cfs 0.045 af

Subcatchment 2I: POST - POI #2 - Runoff Area=0.130 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=0.86 cfs 0.065 af

Subcatchment 2P: POST - POI #2 - Runoff Area=0.083 ac 0.00% Impervious Runoff Depth=1.09"
Tc=6.0 min CN=48/0 Runoff=0.10 cfs 0.008 af

Subcatchment 3F: POST - POI #1 - Runoff Area=0.214 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=1.42 cfs 0.106 af

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 3P: POST - POI #1 - Runoff Area=0.976 ac 0.00% Impervious Runoff Depth=1.09"
Tc=6.0 min CN=48/0 Runoff=1.17 cfs 0.089 af

Subcatchment 4F: POST - POI #1 - Runoff Area=0.189 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=1.25 cfs 0.094 af

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 4P: POST - POI #1 - Runoff Area=2.213 ac 0.00% Impervious Runoff Depth=1.09"
Tc=17.0 min CN=48/0 Runoff=1.70 cfs 0.202 af

Subcatchment 5F: POST - POI #1 - Runoff Area=0.185 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=1.23 cfs 0.092 af

Subcatchment 5I: POST - POI #1 - Runoff Area=1.842 ac 100.00% Impervious Runoff Depth=5.96"
Tc=15.0 min CN=0/98 Runoff=9.20 cfs 0.915 af

Subcatchment 5P: POST - POI #1 - Runoff Area=0.436 ac 0.00% Impervious Runoff Depth=2.50"
Tc=15.0 min CN=65/0 Runoff=1.04 cfs 0.091 af

Subcatchment 6F: POST - POI #1 - Runoff Area=0.478 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=3.17 cfs 0.237 af

Subcatchment 6I: POST - POI #1 - Runoff Area=2.008 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=13.31 cfs 0.998 af

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 7F: POST - POI #1 - Runoff Area=0.404 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=2.68 cfs 0.201 af

Subcatchment 7I: POST - POI #1 - Runoff Area=2.087 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=13.83 cfs 1.037 af

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8F: POST - POI #1 - Runoff Area=0.172 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=1.14 cfs 0.085 af

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8P: POST - POI #1 - Runoff Area=2.142 ac 0.00% Impervious Runoff Depth=1.80"
Tc=15.0 min CN=57/0 Runoff=3.48 cfs 0.321 af

Subcatchment Off1: POST - POI #2 - Bypass Runoff Area=1.279 ac 0.00% Impervious Runoff Depth=1.09"
Tc=28.0 min CN=48/0 Runoff=0.77 cfs 0.117 af

Subcatchment Off1I: POST - POI #1 - Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=0/98 Runoff=0.93 cfs 0.070 af

Subcatchment Off1P: POST - POI #1 - Runoff Area=3.383 ac 0.00% Impervious Runoff Depth=1.72"
Tc=12.0 min CN=56/0 Runoff=5.70 cfs 0.484 af

Subcatchment Pre1: PRE - POI #1 Runoff Area=16.869 ac 0.00% Impervious Runoff Depth=2.14"
Tc=27.0 min CN=61/0 Runoff=25.29 cfs 3.009 af

Subcatchment Pre2: PRE - POI #2 Runoff Area=2.477 ac 4.60% Impervious Runoff Depth=1.91"
Tc=23.0 min CN=56/98 Runoff=3.40 cfs 0.395 af

Pond B1: Infiltration Basin #1 Peak Elev=276.16' Storage=7,285 cf Inflow=3.38 cfs 0.294 af
Primary=0.76 cfs 0.243 af Secondary=0.00 cfs 0.000 af Outflow=0.76 cfs 0.243 af

Pond B2: Infiltration Basin #2 Peak Elev=275.76' Storage=3,120 cf Inflow=1.56 cfs 0.117 af
Primary=0.13 cfs 0.096 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.096 af

Pond B3: Infiltration Basin #3 Peak Elev=273.65' Storage=2,317 cf Inflow=2.57 cfs 0.195 af
Primary=1.31 cfs 0.173 af Secondary=0.00 cfs 0.000 af Outflow=1.31 cfs 0.173 af

Pond B4: Infiltration Basin #4 Peak Elev=265.86' Storage=4,787 cf Inflow=2.16 cfs 0.296 af
Primary=0.59 cfs 0.277 af Secondary=0.00 cfs 0.000 af Outflow=0.59 cfs 0.277 af

Pond B5: Infiltration Basin #5 Peak Elev=268.04' Storage=20,279 cf Inflow=10.88 cfs 1.098 af
Primary=6.59 cfs 0.903 af Secondary=2.22 cfs 0.019 af Outflow=8.81 cfs 0.922 af

Pond B6: Infiltration Basin #6 Peak Elev=264.30' Storage=39,298 cf Inflow=16.48 cfs 1.235 af
Primary=0.71 cfs 0.969 af Secondary=0.00 cfs 0.000 af Outflow=0.71 cfs 0.969 af

Pond B7: Infiltration Basin #7 Peak Elev=264.48' Storage=38,985 cf Inflow=16.51 cfs 1.238 af
Primary=0.59 cfs 1.001 af Secondary=0.00 cfs 0.000 af Outflow=0.59 cfs 1.001 af

Pond B8: Infiltration Basin #8 Peak Elev=274.50' Storage=8,070 cf Inflow=4.01 cfs 0.407 af
Primary=0.70 cfs 0.318 af Secondary=0.00 cfs 0.000 af Outflow=0.70 cfs 0.318 af

Link Post1: POST - POI #1 Inflow=16.18 cfs 4.213 af
Primary=16.18 cfs 4.213 af

Link Post2: POST - POI #2 Inflow=1.62 cfs 0.455 af
Primary=1.62 cfs 0.455 af

Total Runoff Area = 38.692 ac Runoff Volume = 8.953 af Average Runoff Depth = 2.78"
77.83% Pervious = 30.114 ac 22.17% Impervious = 8.578 ac

Summary for Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint

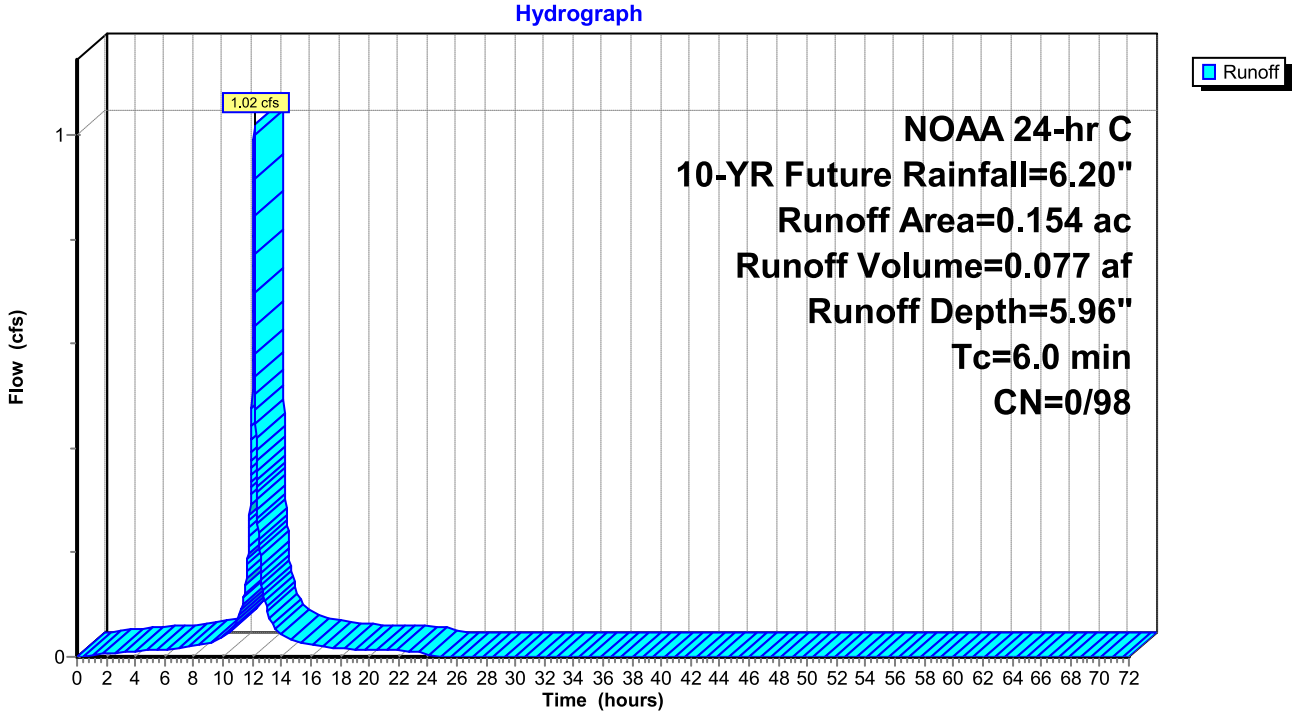
Runoff = 1.02 cfs @ 12.13 hrs, Volume= 0.077 af, Depth= 5.96"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.154	98	Infiltration Basin #1
	0.154	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint



Summary for Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious

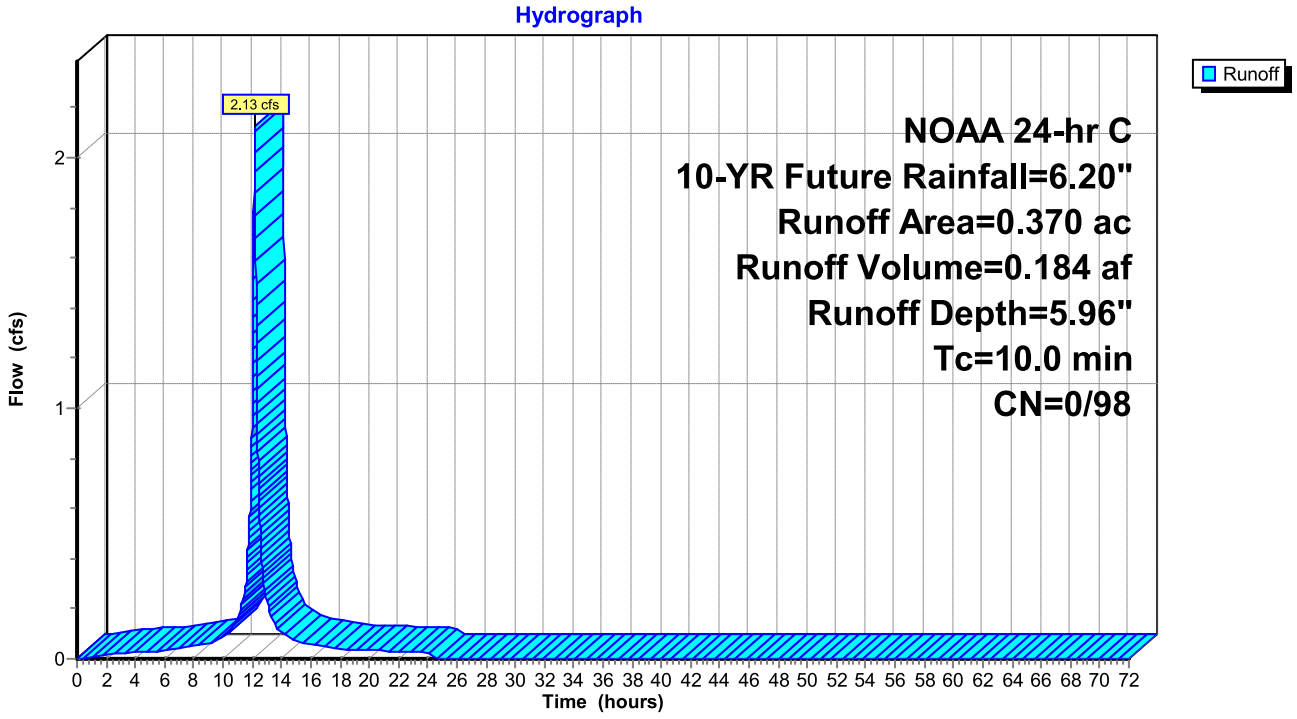
Runoff = 2.13 cfs @ 12.17 hrs, Volume= 0.184 af, Depth= 5.96"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.020	98	Impervious, HSG B
*	0.350	98	Gravel roads, HSG B
	0.370	98	Weighted Average
	0.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious



Summary for Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious

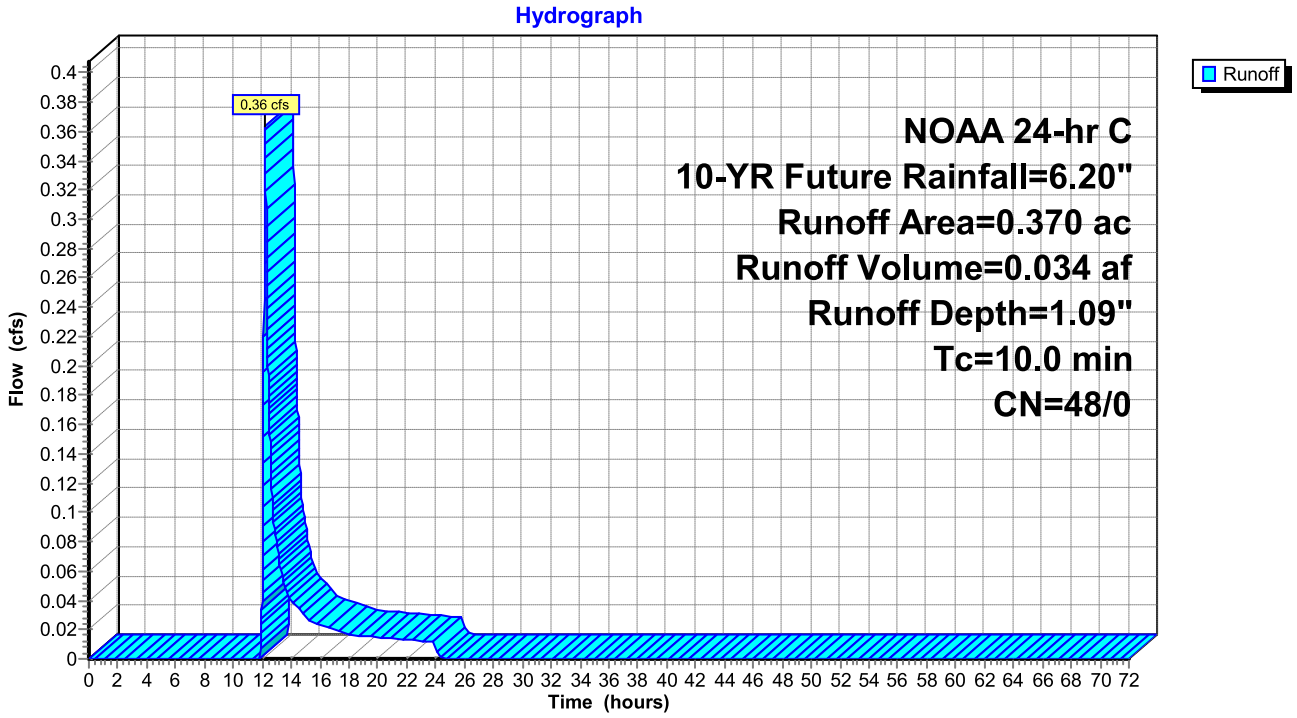
Runoff = 0.36 cfs @ 12.19 hrs, Volume= 0.034 af, Depth= 1.09"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
0.370	48	Brush, Good, HSG B
0.370	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious



Summary for Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint

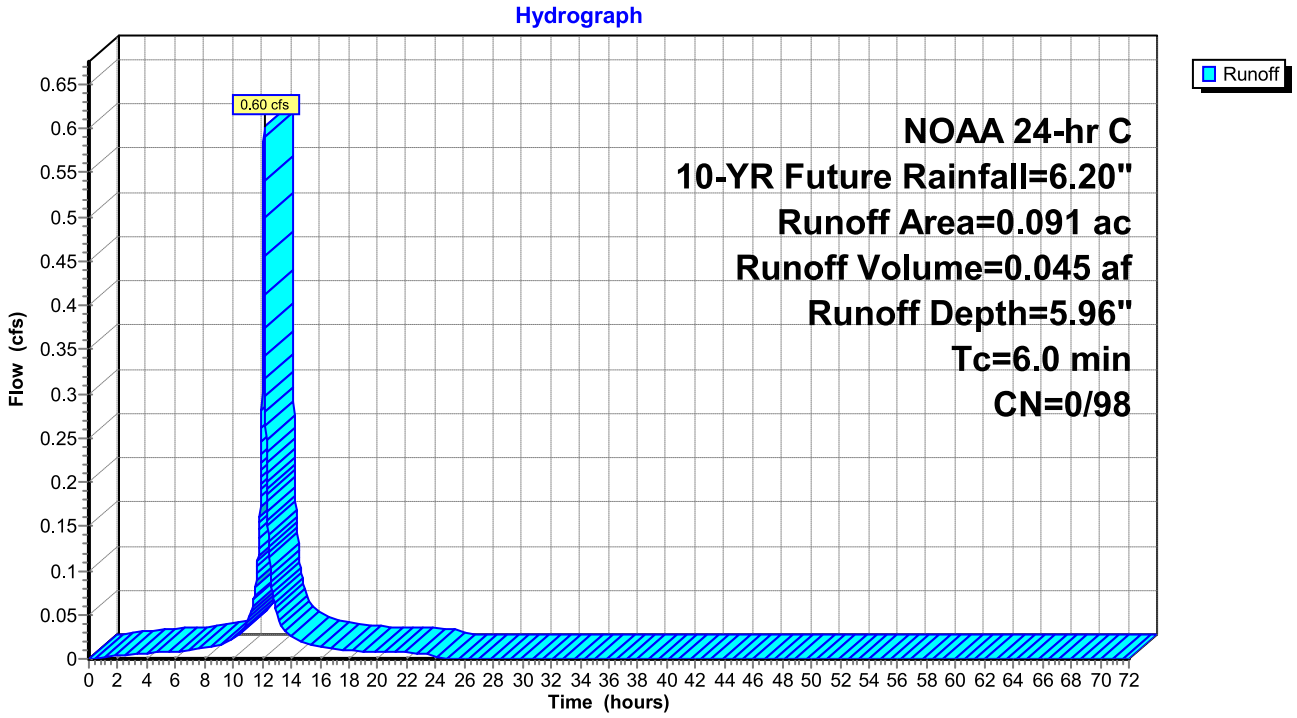
Runoff = 0.60 cfs @ 12.13 hrs, Volume= 0.045 af, Depth= 5.96"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.091	98	Infiltration Basin #2
	0.091	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint



Summary for Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious

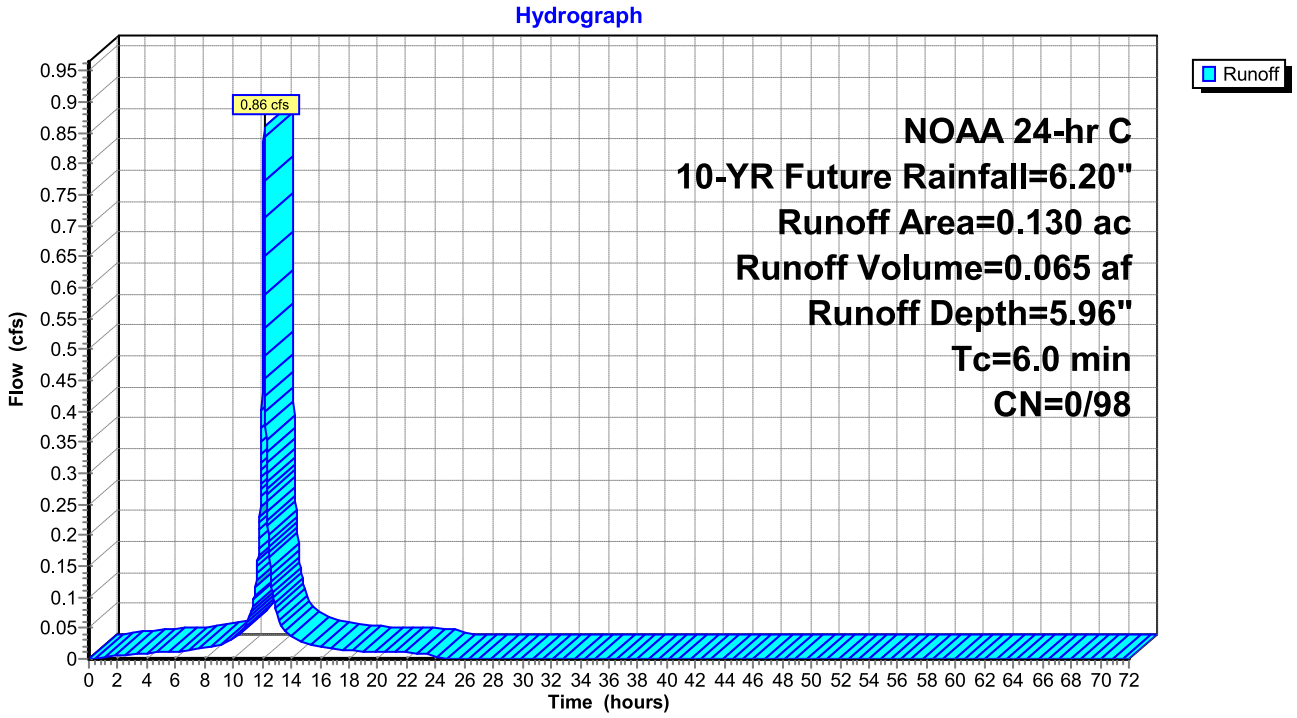
Runoff = 0.86 cfs @ 12.13 hrs, Volume= 0.065 af, Depth= 5.96"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.130	98	Gravel roads, HSG B
	0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious



Summary for Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious

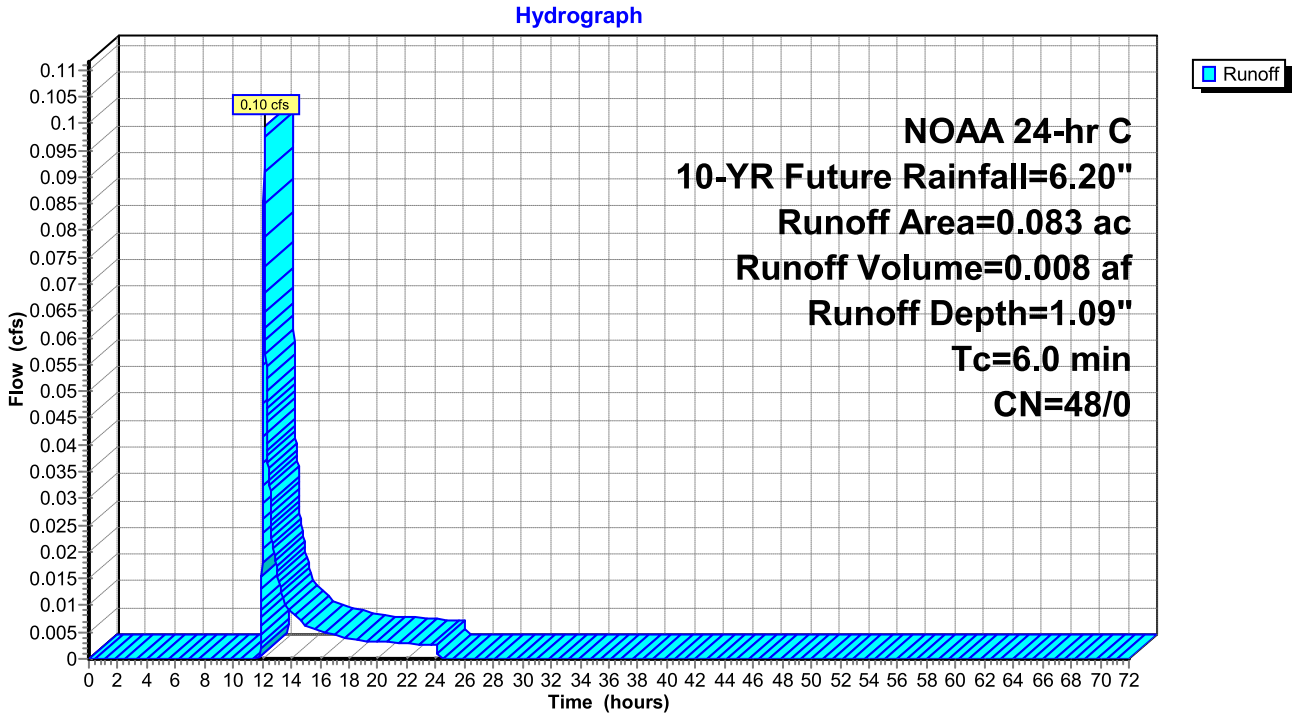
Runoff = 0.10 cfs @ 12.14 hrs, Volume= 0.008 af, Depth= 1.09"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
0.083	48	Brush, Good, HSG B
0.083	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious



Summary for Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint

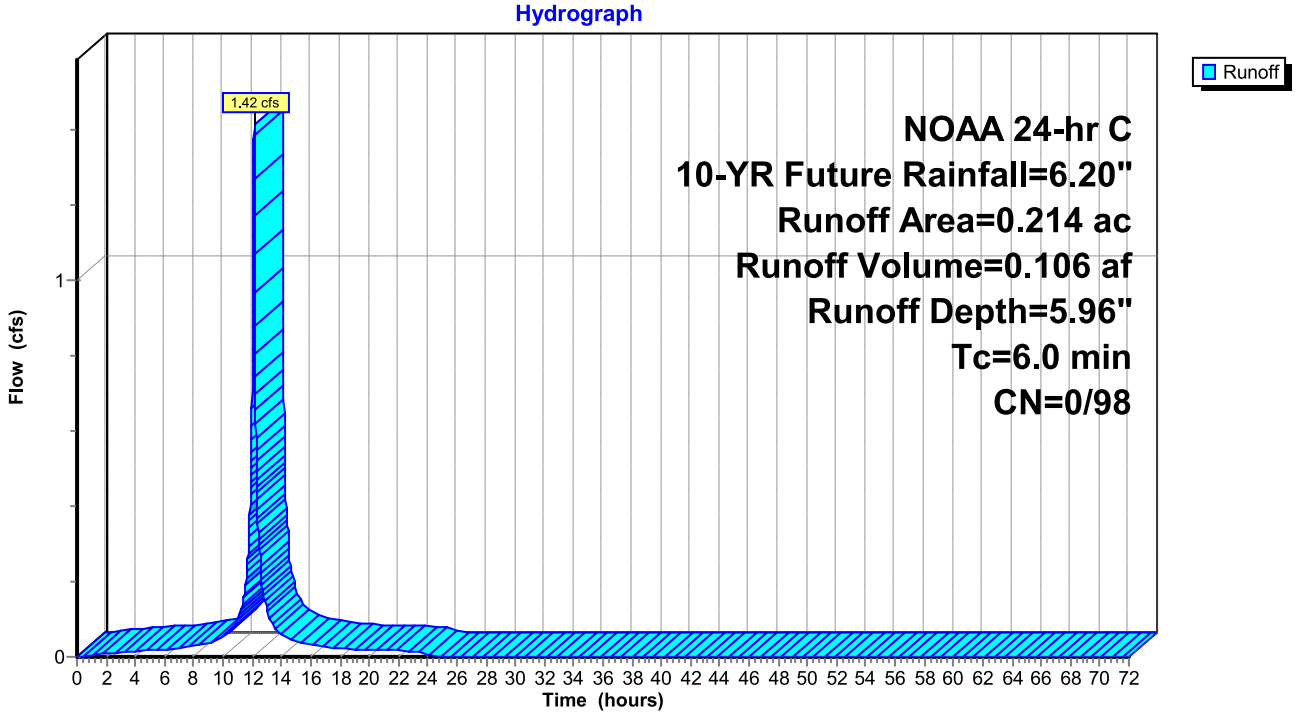
Runoff = 1.42 cfs @ 12.13 hrs, Volume= 0.106 af, Depth= 5.96"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.214	98	Infiltration Basin #3
	0.214	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint



Summary for Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious

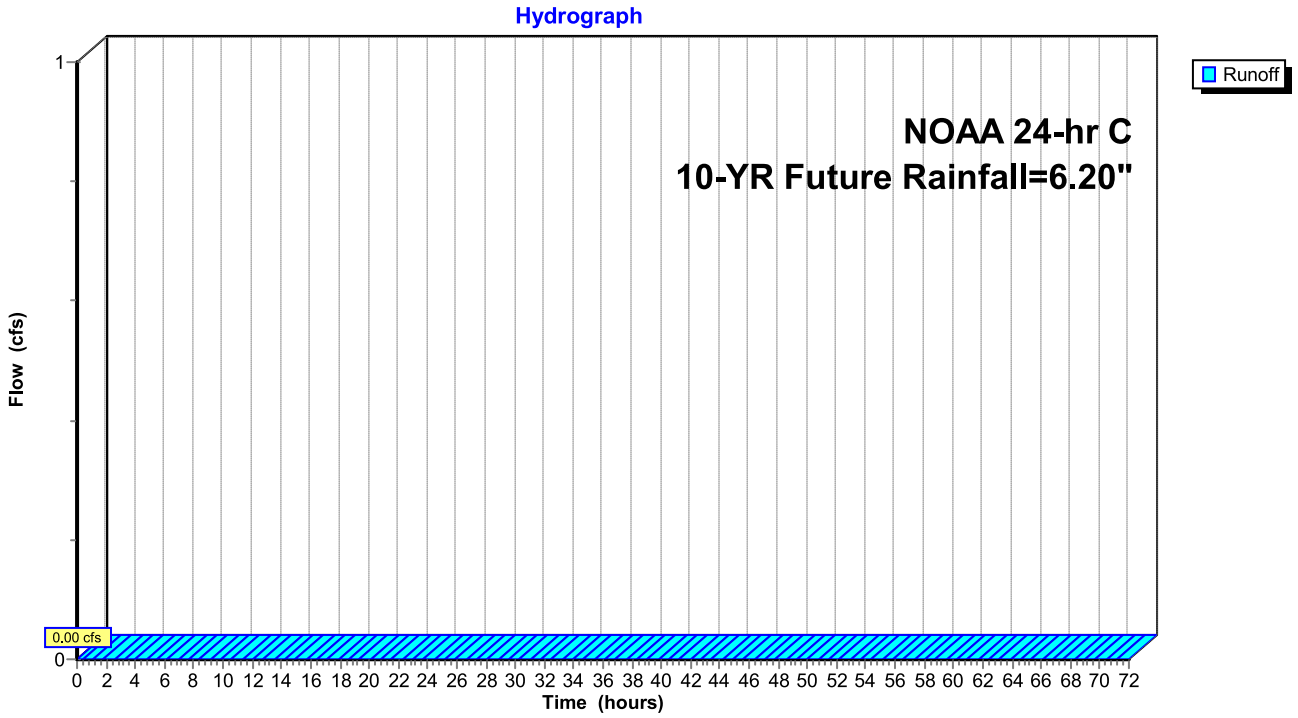
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious



Summary for Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious

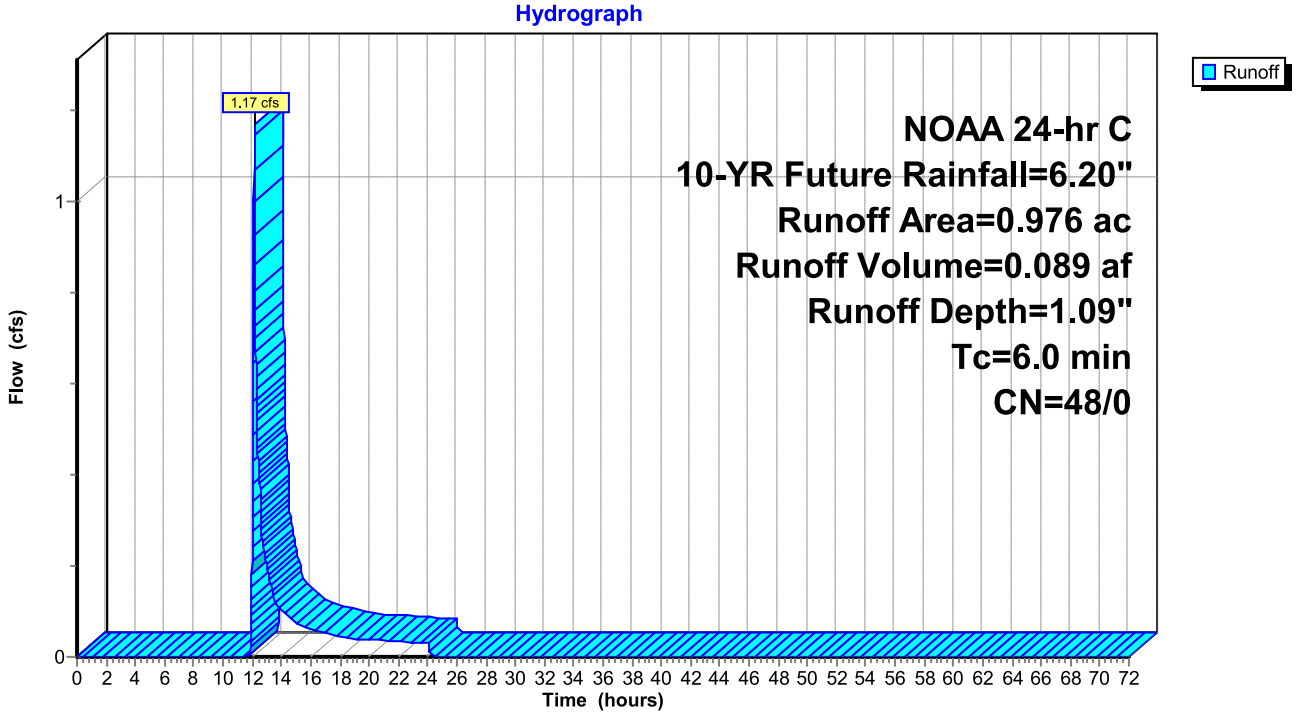
Runoff = 1.17 cfs @ 12.14 hrs, Volume= 0.089 af, Depth= 1.09"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
0.976	48	Brush, Good, HSG B
0.976	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin #3**

Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious



Summary for Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint

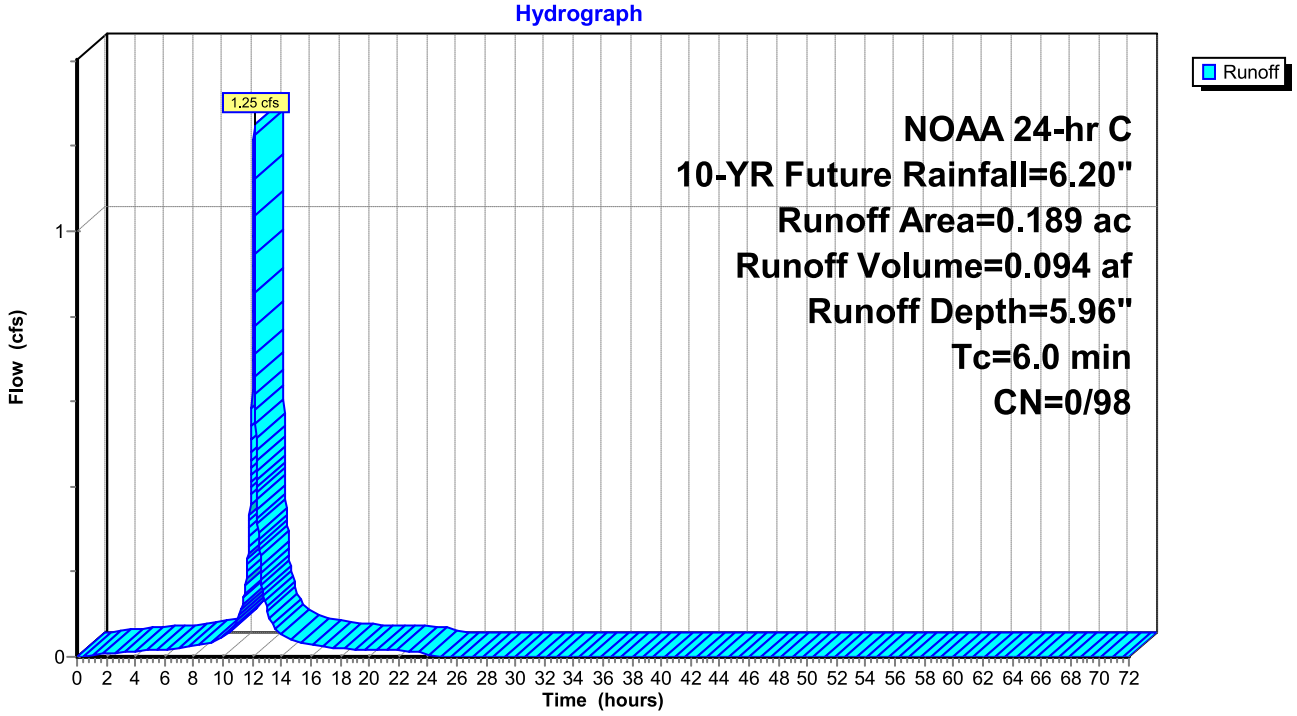
Runoff = 1.25 cfs @ 12.13 hrs, Volume= 0.094 af, Depth= 5.96"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.189	98	Infiltration Basin #4
	0.189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint



Summary for Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious

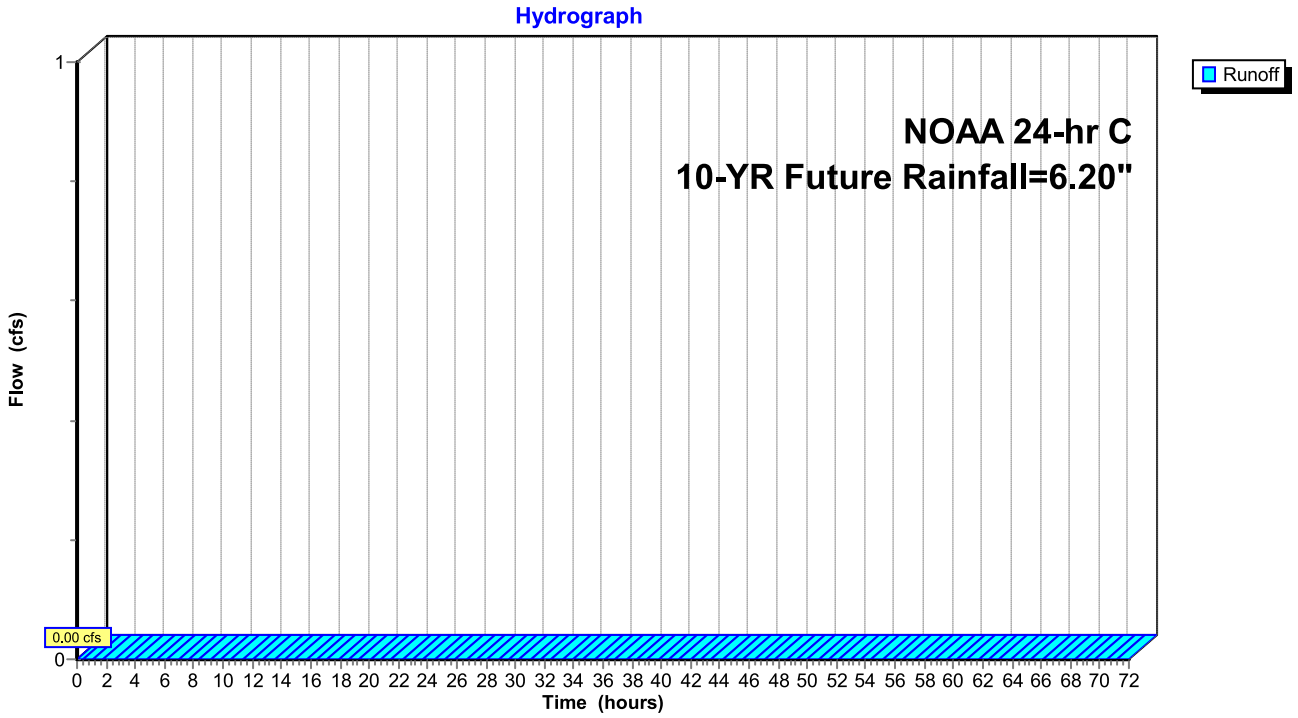
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious



Summary for Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious

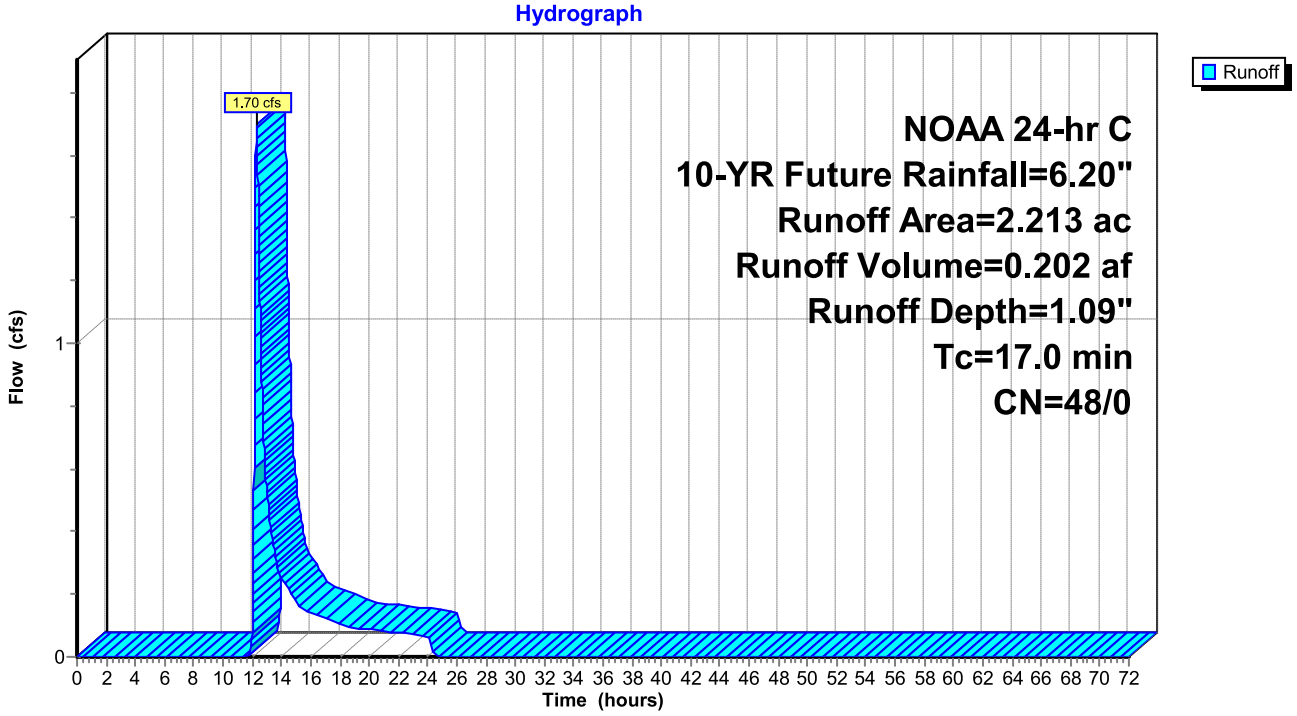
Runoff = 1.70 cfs @ 12.30 hrs, Volume= 0.202 af, Depth= 1.09"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
2.213	48	Brush, Good, HSG B
2.213	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious



Summary for Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint

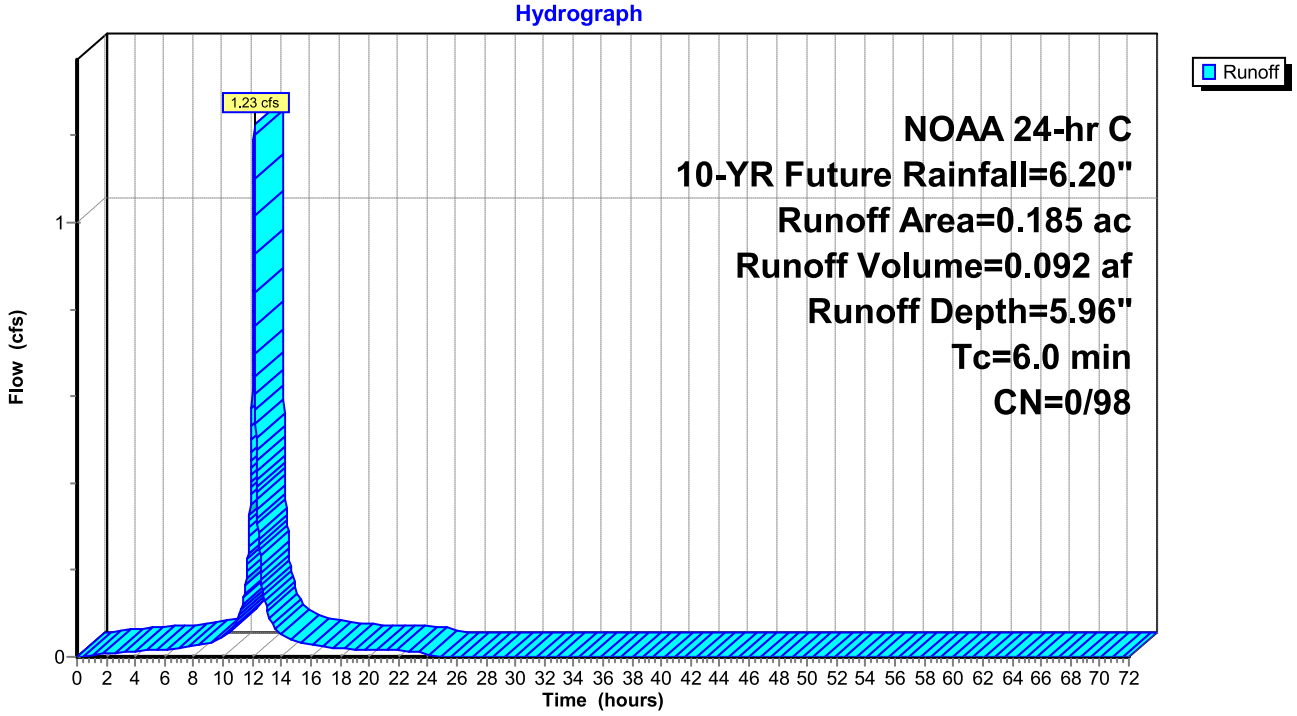
Runoff = 1.23 cfs @ 12.13 hrs, Volume= 0.092 af, Depth= 5.96"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.185	98	Infiltration Basin #5
	0.185	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint



Summary for Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious

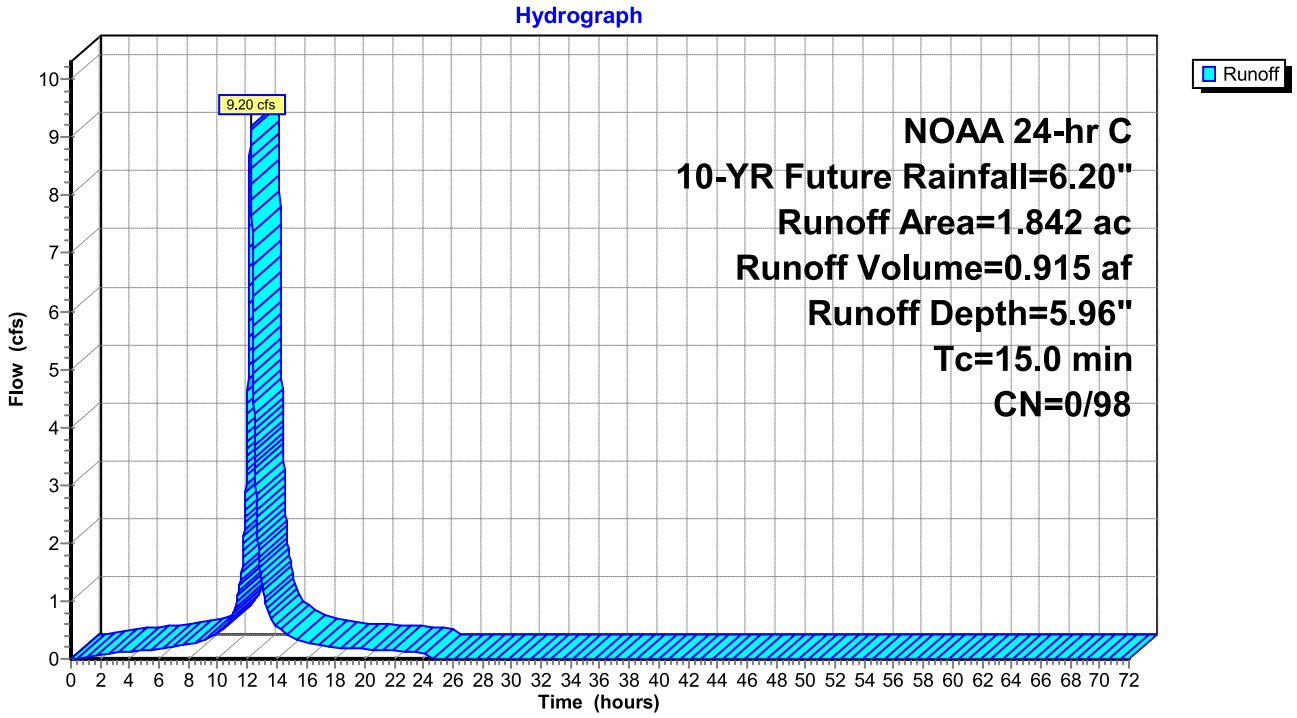
Runoff = 9.20 cfs @ 12.22 hrs, Volume= 0.915 af, Depth= 5.96"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	1.842	98	Gravel surfaces
	1.842	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious



Summary for Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious

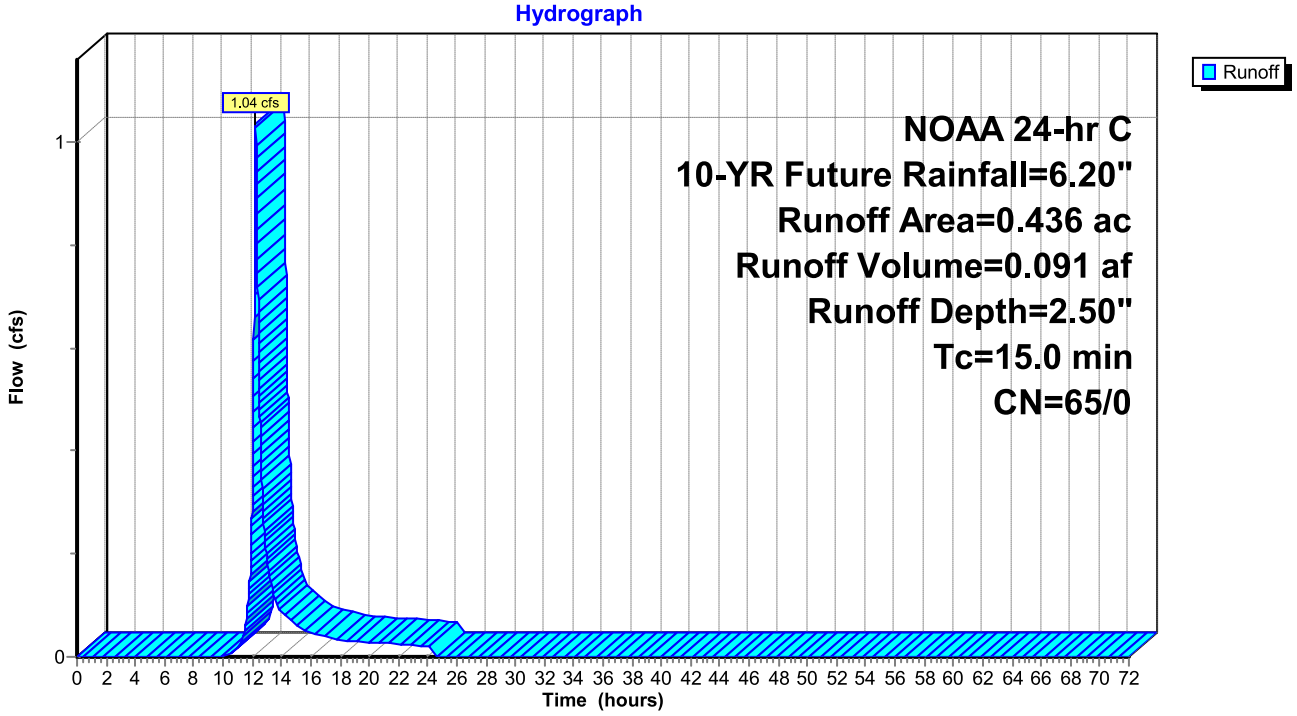
Runoff = 1.04 cfs @ 12.24 hrs, Volume= 0.091 af, Depth= 2.50"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
0.436	65	Brush, Good, HSG C
0.436	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious



Summary for Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint

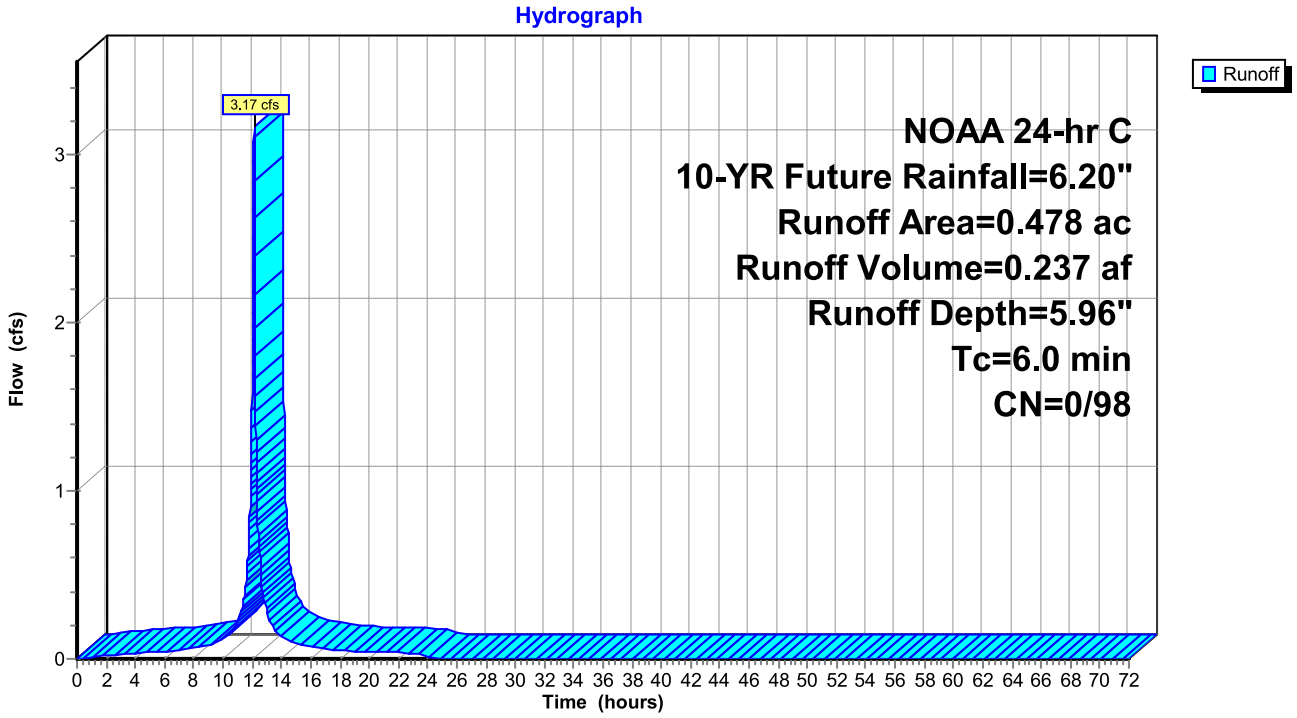
Runoff = 3.17 cfs @ 12.13 hrs, Volume= 0.237 af, Depth= 5.96"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.478	98	Infiltration Basin #6
	0.478	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint



Summary for Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious

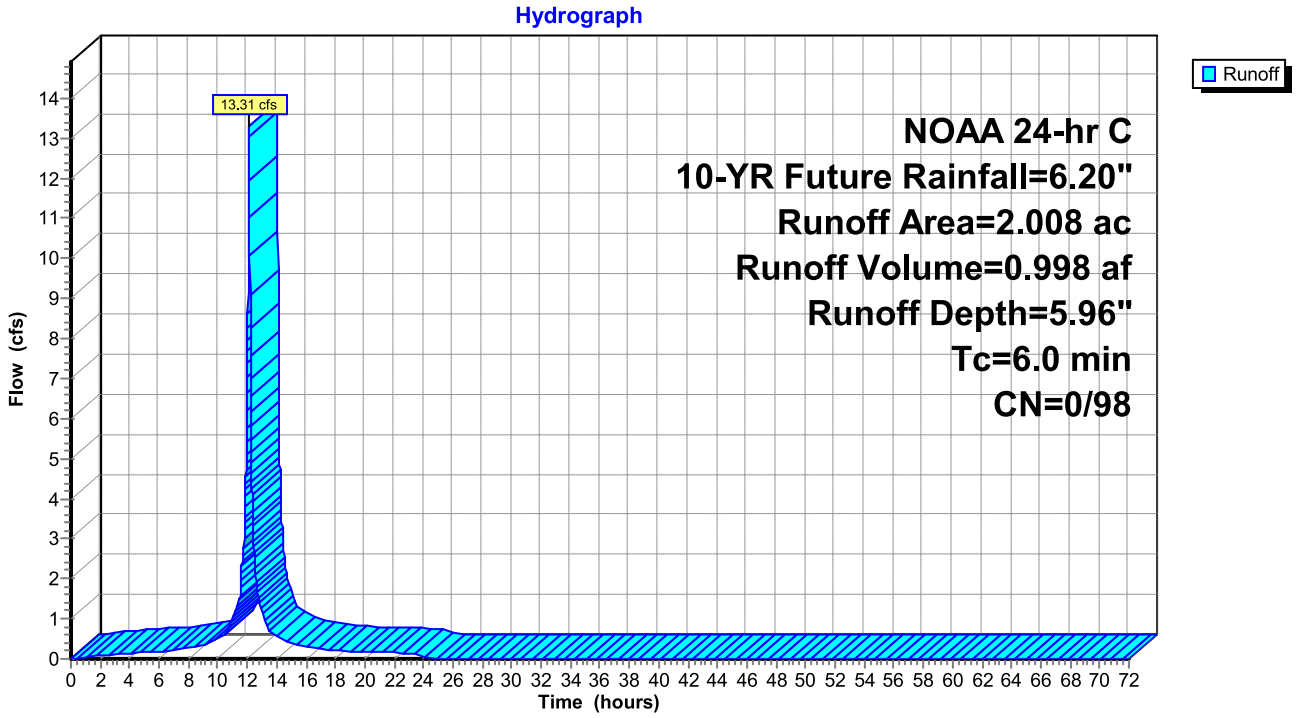
Runoff = 13.31 cfs @ 12.13 hrs, Volume= 0.998 af, Depth= 5.96"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	2.008	98	Gravel surfaces
	2.008	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious



Summary for Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious

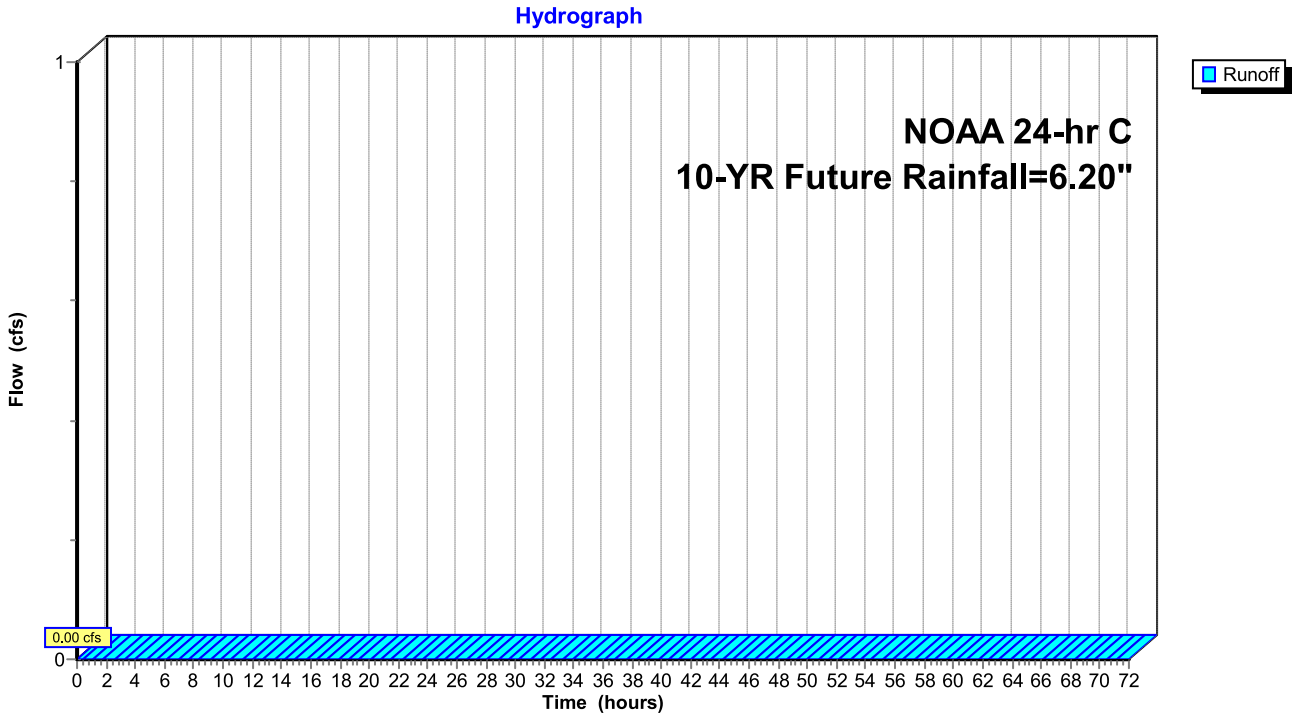
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious



Summary for Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint

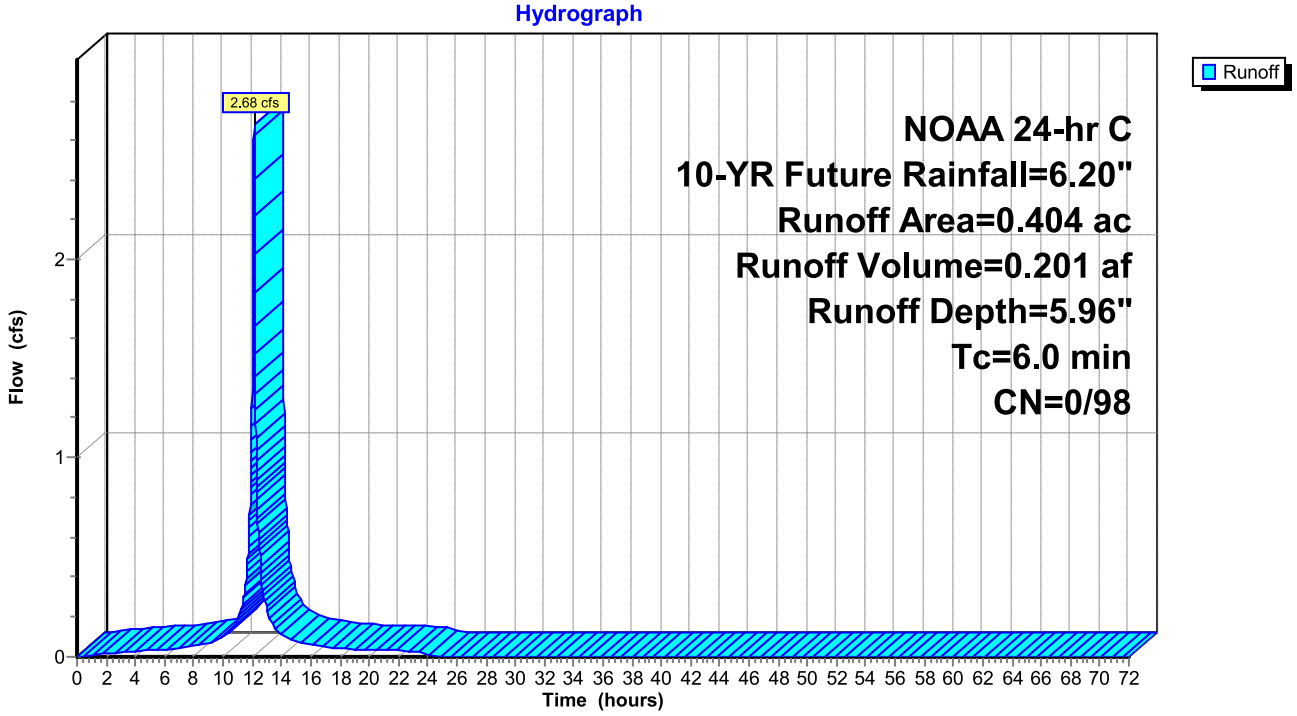
Runoff = 2.68 cfs @ 12.13 hrs, Volume= 0.201 af, Depth= 5.96"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.404	98	Infiltration Basin #7
	0.404	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint



Summary for Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious

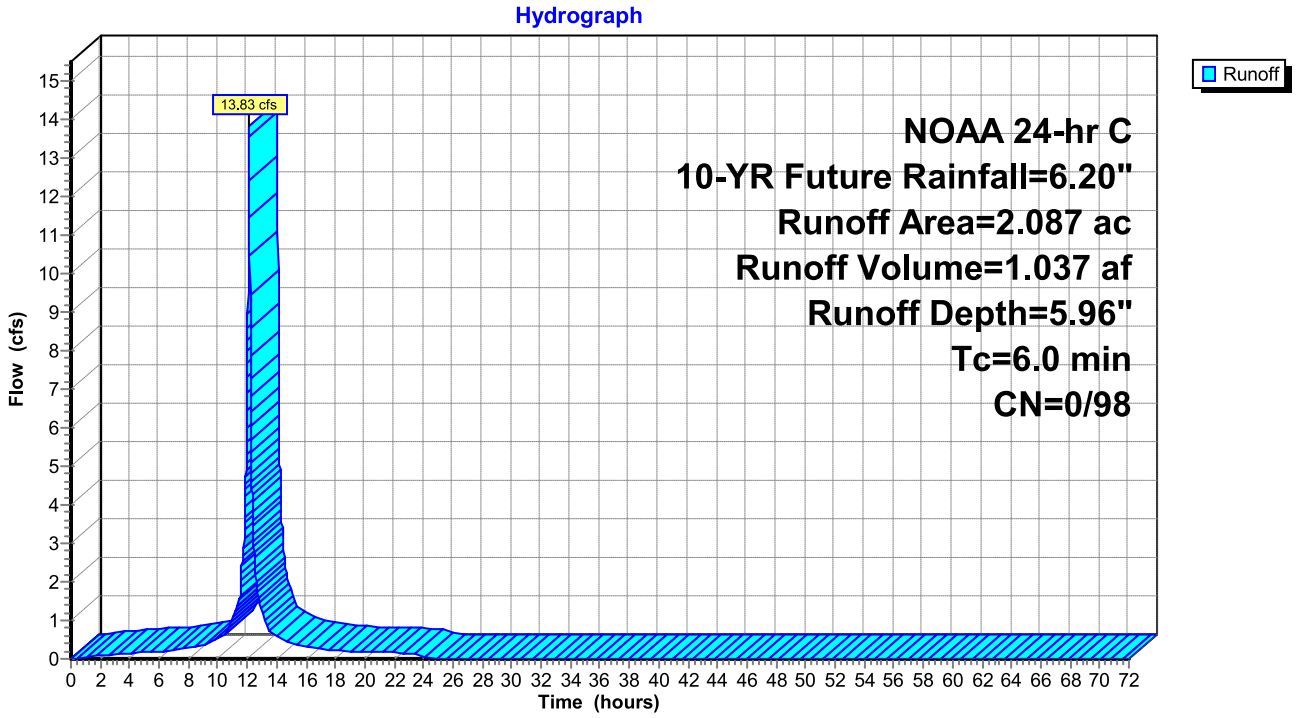
Runoff = 13.83 cfs @ 12.13 hrs, Volume= 1.037 af, Depth= 5.96"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	2.087	98	Gravel surfaces
	2.087	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious



Summary for Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious

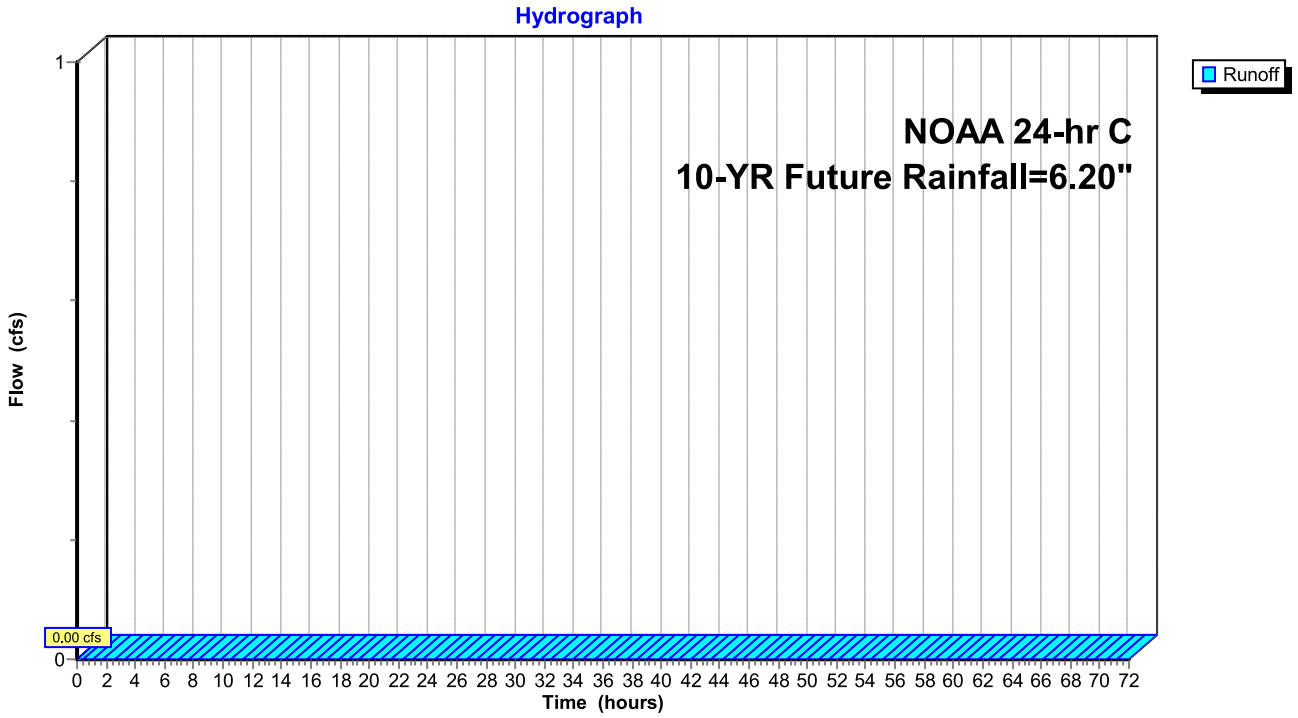
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious



Summary for Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint

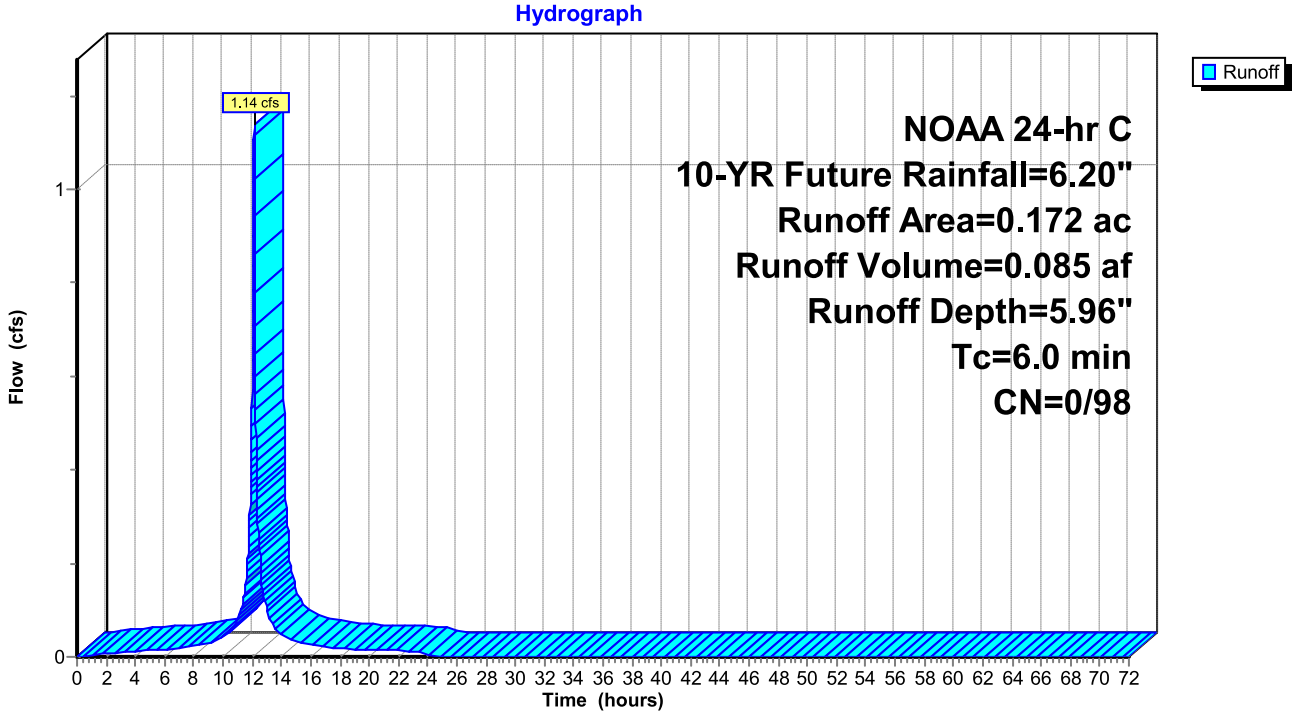
Runoff = 1.14 cfs @ 12.13 hrs, Volume= 0.085 af, Depth= 5.96"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.172	98	Infiltration Basin #8
	0.172	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint



Summary for Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious

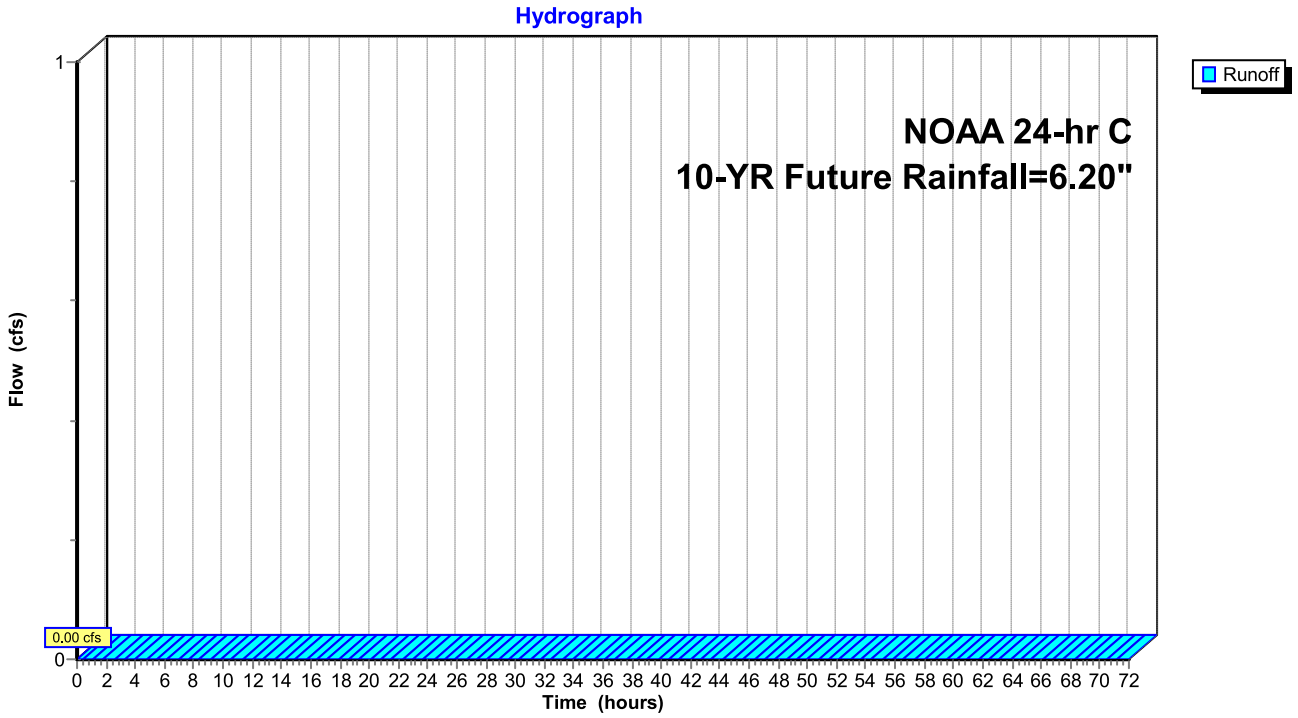
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious



Summary for Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious

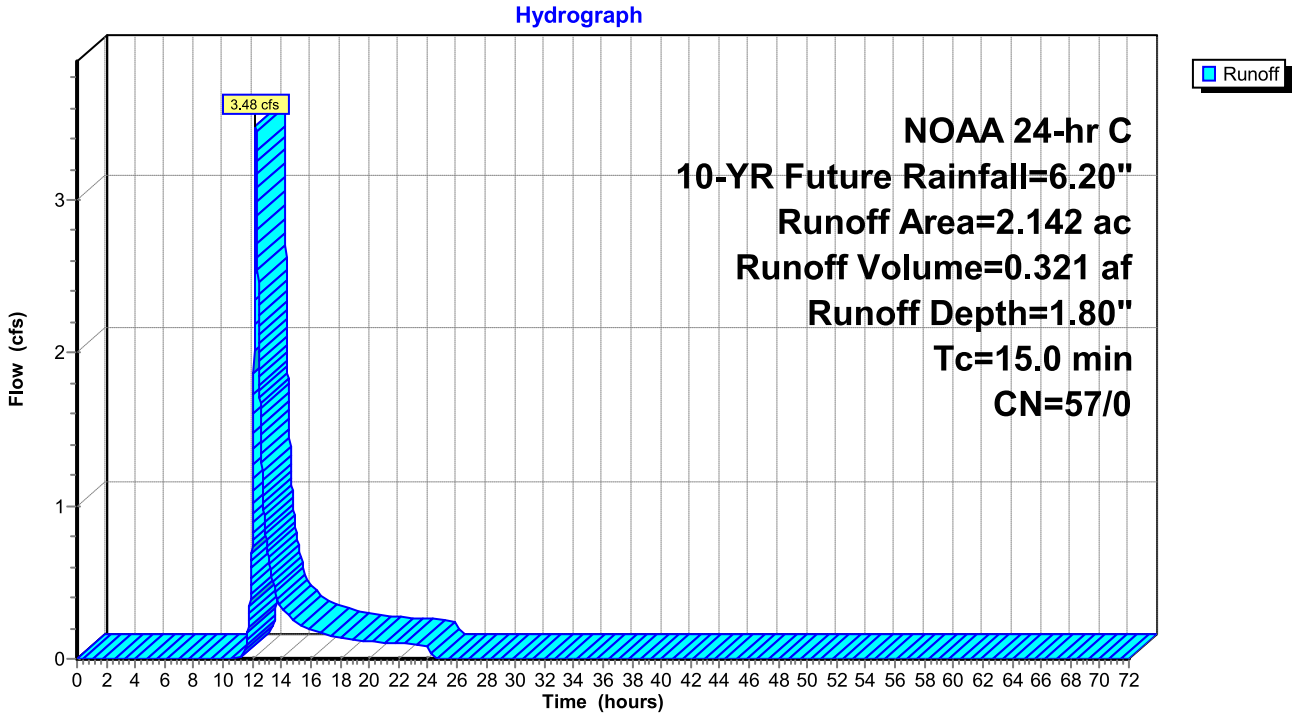
Runoff = 3.48 cfs @ 12.25 hrs, Volume= 0.321 af, Depth= 1.80"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
1.008	48	Brush, Good, HSG B
1.134	65	Brush, Good, HSG C
2.142	57	Weighted Average
2.142	57	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious



Summary for Subcatchment Off1: POST - POI #2 - Bypass

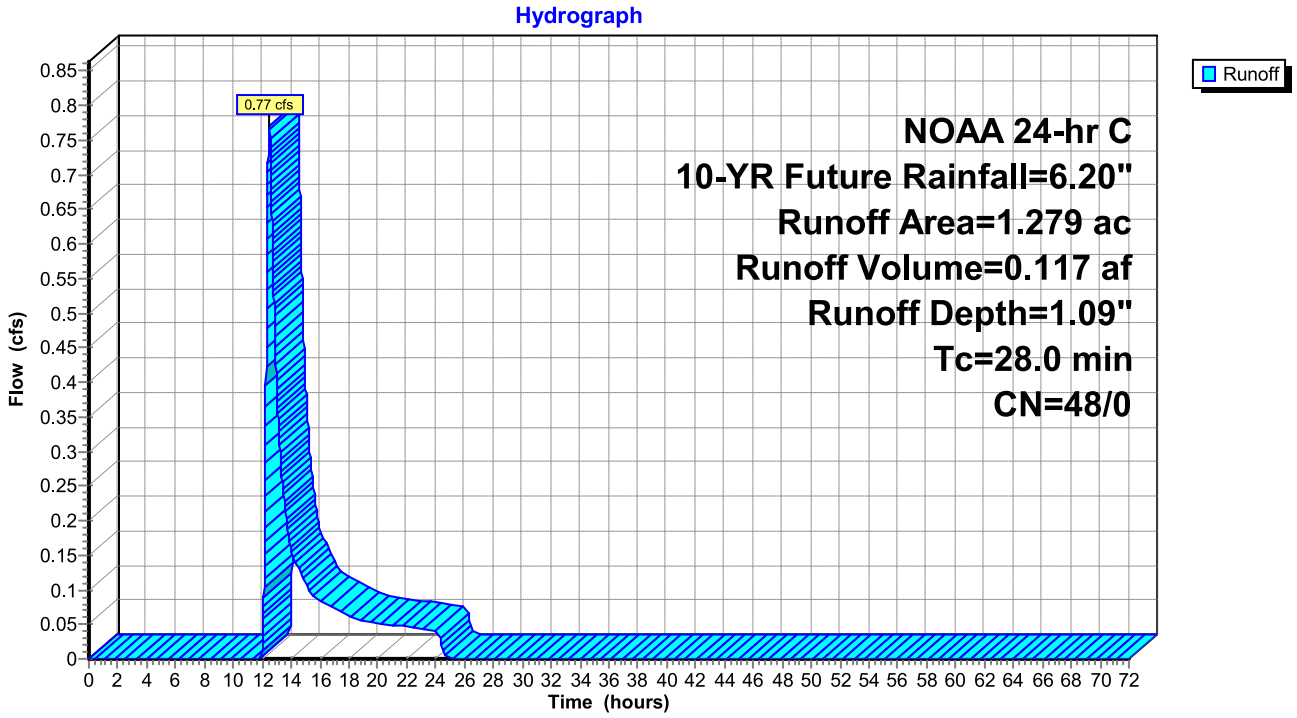
Runoff = 0.77 cfs @ 12.48 hrs, Volume= 0.117 af, Depth= 1.09"
Routed to Link Post2 : POST - POI #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
1.279	48	Brush, Good, HSG B
1.279	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment Off1: POST - POI #2 - Bypass



Summary for Subcatchment Off1I: POST - POI #1 - Bypass Impervious

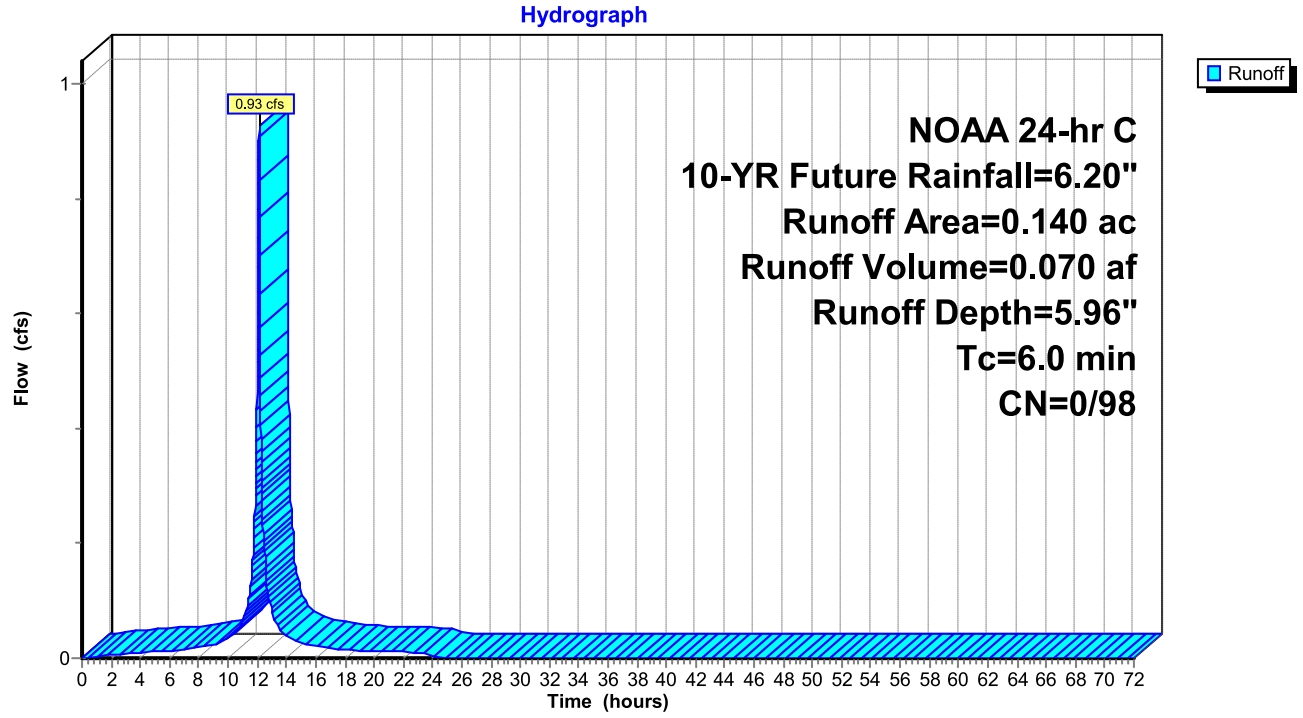
Runoff = 0.93 cfs @ 12.13 hrs, Volume= 0.070 af, Depth= 5.96"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
*	0.050	98	Gravel B
*	0.010	98	Gravel C
*	0.080	98	Gravel D
	0.140	98	Weighted Average
	0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1I: POST - POI #1 - Bypass Impervious



Summary for Subcatchment Off1P: POST - POI #1 - Bypass Pervious

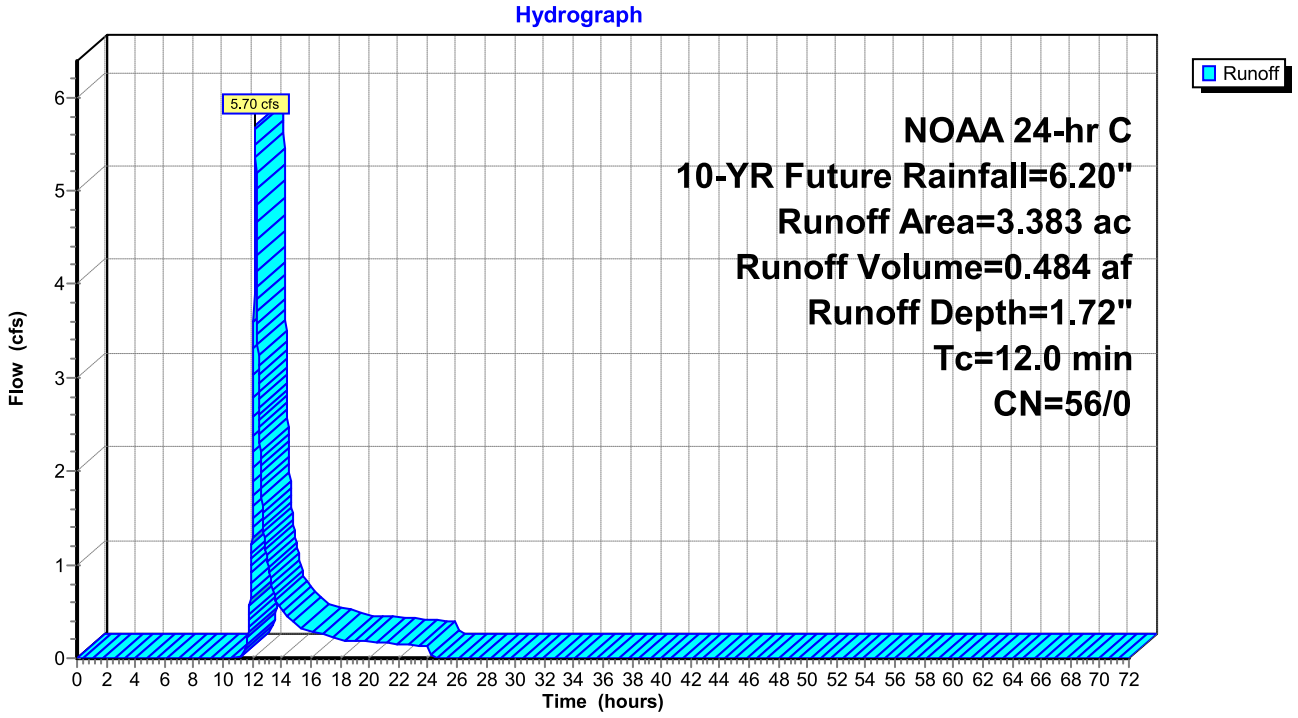
Runoff = 5.70 cfs @ 12.21 hrs, Volume= 0.484 af, Depth= 1.72"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
2.061	48	Brush, Good, HSG B
0.543	65	Brush, Good, HSG C
0.779	73	Brush, Good, HSG D
3.383	56	Weighted Average
3.383	56	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1P: POST - POI #1 - Bypass Pervious



Summary for Subcatchment Pre1: PRE - POI #1

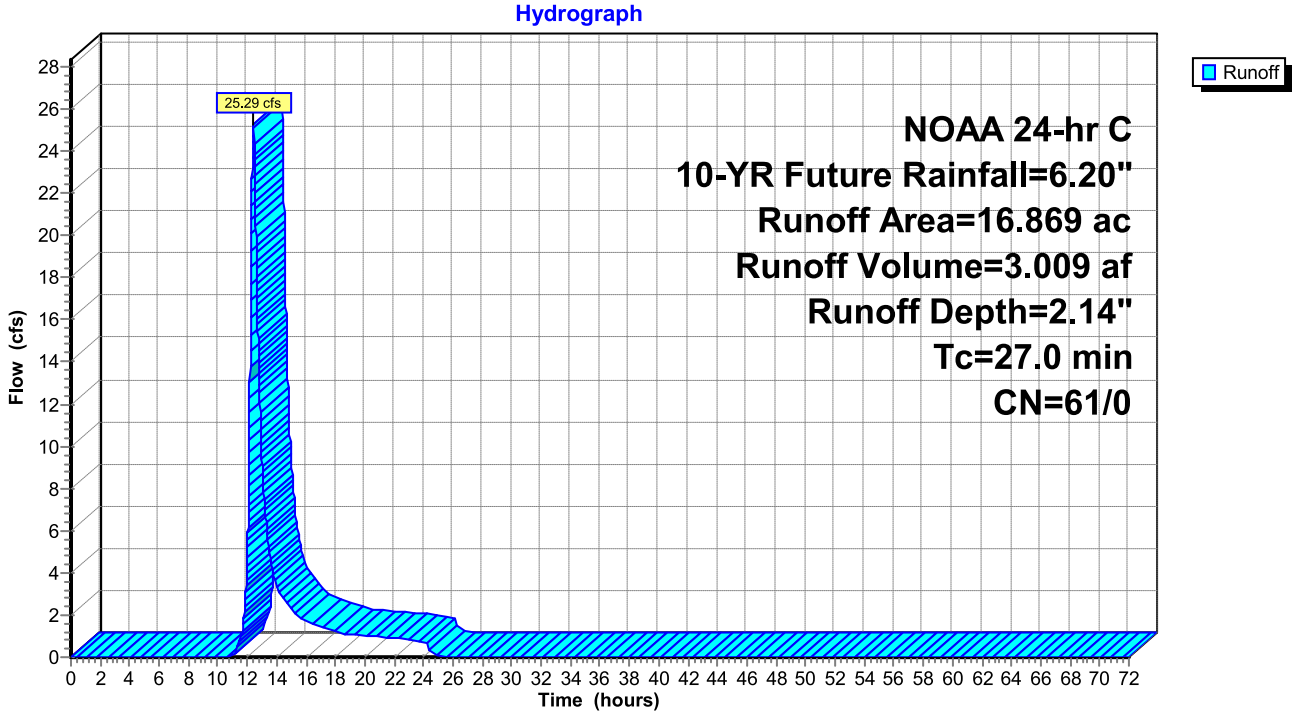
Runoff = 25.29 cfs @ 12.40 hrs, Volume= 3.009 af, Depth= 2.14"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

Area (ac)	CN	Description
9.127	55	Woods, Good, HSG B
1.498	61	Pasture/grassland/range, Good, HSG B
2.070	70	Woods, Good, HSG C
2.444	74	Pasture/grassland/range, Good, HSG C
0.452	77	Woods, Good, HSG D
0.326	80	Pasture/grassland/range, Good, HSG D
0.952	48	Brush, Good, HSG B
16.869	61	Weighted Average
16.869	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre1: PRE - POI #1



Summary for Subcatchment Pre2: PRE - POI #2

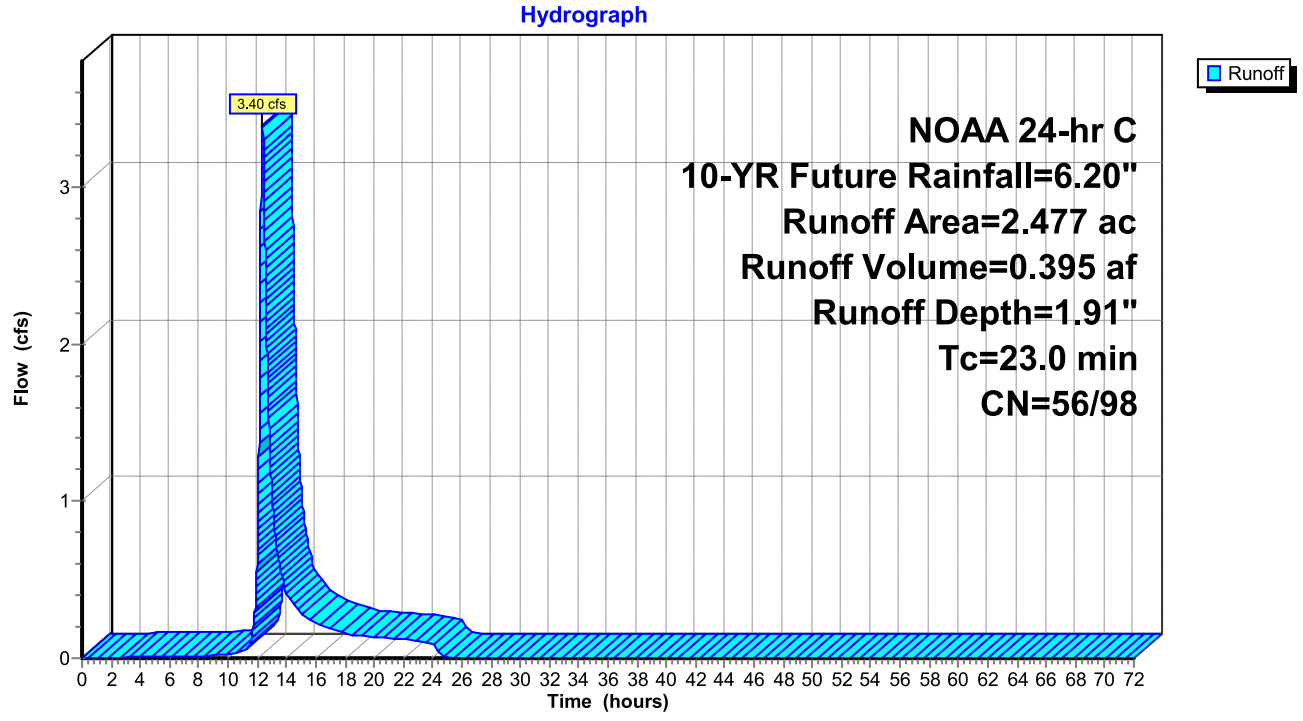
Runoff = 3.40 cfs @ 12.35 hrs, Volume= 0.395 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Future Rainfall=6.20"

	Area (ac)	CN	Description
	1.817	55	Woods, Good, HSG B
	0.546	61	Pasture/grassland/range, Good, HSG B
*	0.114	98	Impervious, HSG B
	2.477	58	Weighted Average
	2.363	56	95.40% Pervious Area
	0.114	98	4.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre2: PRE - POI #2



Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 3.95" for 10-YR Future event
Inflow = 3.38 cfs @ 12.15 hrs, Volume= 0.294 af
Outflow = 0.76 cfs @ 12.59 hrs, Volume= 0.243 af, Atten= 78%, Lag= 26.1 min
Primary = 0.76 cfs @ 12.59 hrs, Volume= 0.243 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 276.16' @ 12.59 hrs Surf.Area= 5,691 sf Storage= 7,285 cf

Plug-Flow detention time= 493.4 min calculated for 0.243 af (83% of inflow)
Center-of-Mass det. time= 415.0 min (1,181.3 - 766.3)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

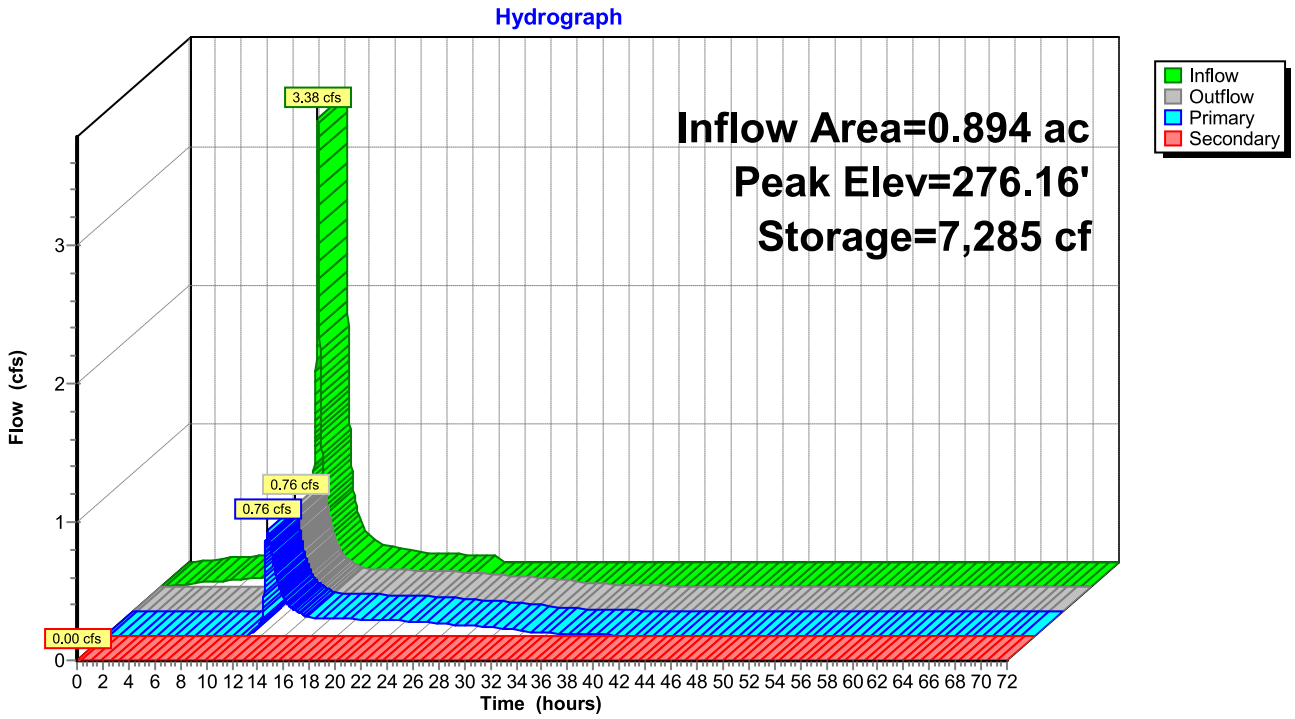
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.76 cfs @ 12.59 hrs HW=276.16' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.76 cfs of 9.85 cfs potential flow)
├**2=Orifice #1** (Orifice Controls 0.14 cfs @ 4.98 fps)
├**3=Rectangular Orifice** (Weir Controls 0.62 cfs @ 1.34 fps)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 4.63" for 10-YR Future event
Inflow = 1.56 cfs @ 12.13 hrs, Volume= 0.117 af
Outflow = 0.13 cfs @ 13.09 hrs, Volume= 0.096 af, Atten= 92%, Lag= 57.4 min
Primary = 0.13 cfs @ 13.09 hrs, Volume= 0.096 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.76' @ 13.09 hrs Surf.Area= 2,564 sf Storage= 3,120 cf

Plug-Flow detention time= 354.5 min calculated for 0.096 af (82% of inflow)
Center-of-Mass det. time= 275.3 min (1,030.9 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

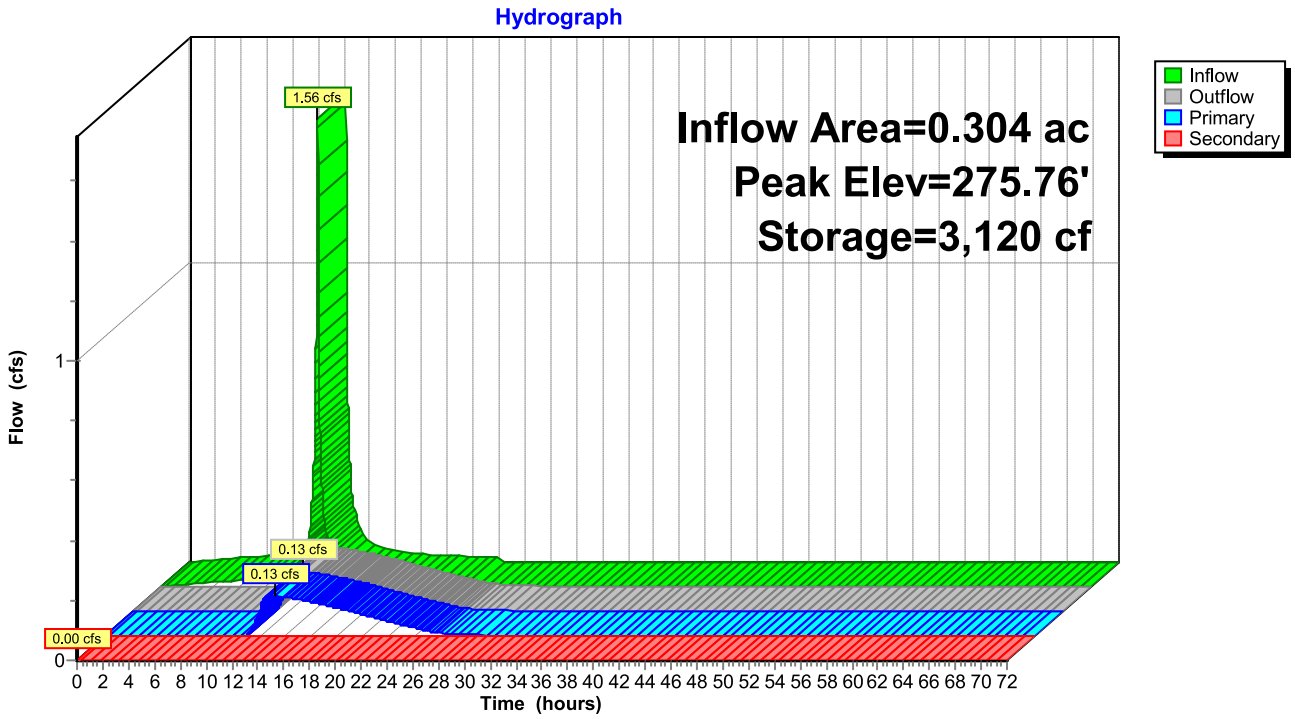
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.13 cfs @ 13.09 hrs HW=275.76' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.13 cfs of 9.13 cfs potential flow)
  ├─**2=Orice** (Orifice Controls 0.13 cfs @ 4.76 fps)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 1.97" for 10-YR Future event
Inflow = 2.57 cfs @ 12.14 hrs, Volume= 0.195 af
Outflow = 1.31 cfs @ 12.25 hrs, Volume= 0.173 af, Atten= 49%, Lag= 6.6 min
Primary = 1.31 cfs @ 12.25 hrs, Volume= 0.173 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.65' @ 12.25 hrs Surf.Area= 4,150 sf Storage= 2,317 cf

Plug-Flow detention time= 131.4 min calculated for 0.173 af (88% of inflow)
Center-of-Mass det. time= 71.2 min (888.8 - 817.6)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

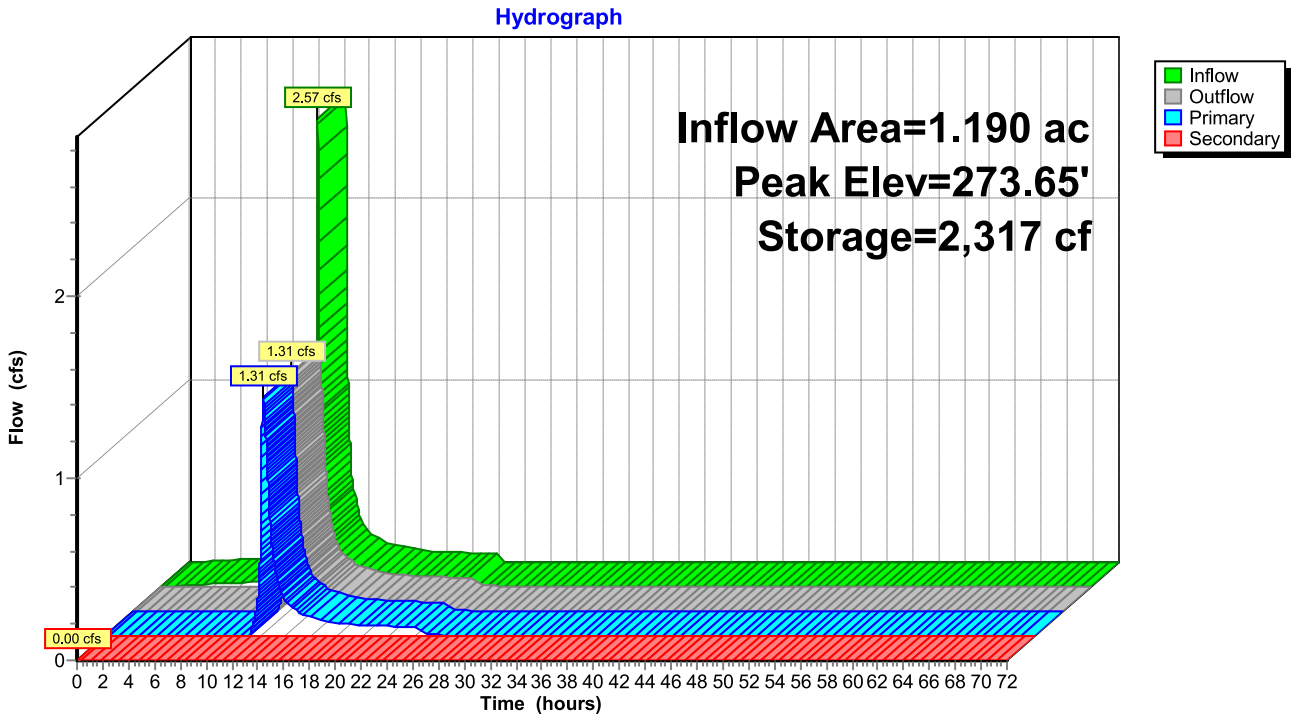
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.31 cfs @ 12.25 hrs HW=273.65' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 1.31 cfs of 3.95 cfs potential flow)
├**2=Orifice #1** (Orifice Controls 1.31 cfs @ 2.24 fps)
├**3=Orifice #2** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 1.48" for 10-YR Future event
Inflow = 2.16 cfs @ 12.26 hrs, Volume= 0.296 af
Outflow = 0.59 cfs @ 13.08 hrs, Volume= 0.277 af, Atten= 73%, Lag= 49.1 min
Primary = 0.59 cfs @ 13.08 hrs, Volume= 0.277 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.86' @ 13.08 hrs Surf.Area= 5,997 sf Storage= 4,787 cf

Plug-Flow detention time= 181.0 min calculated for 0.277 af (94% of inflow)
Center-of-Mass det. time= 147.5 min (1,007.9 - 860.5)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

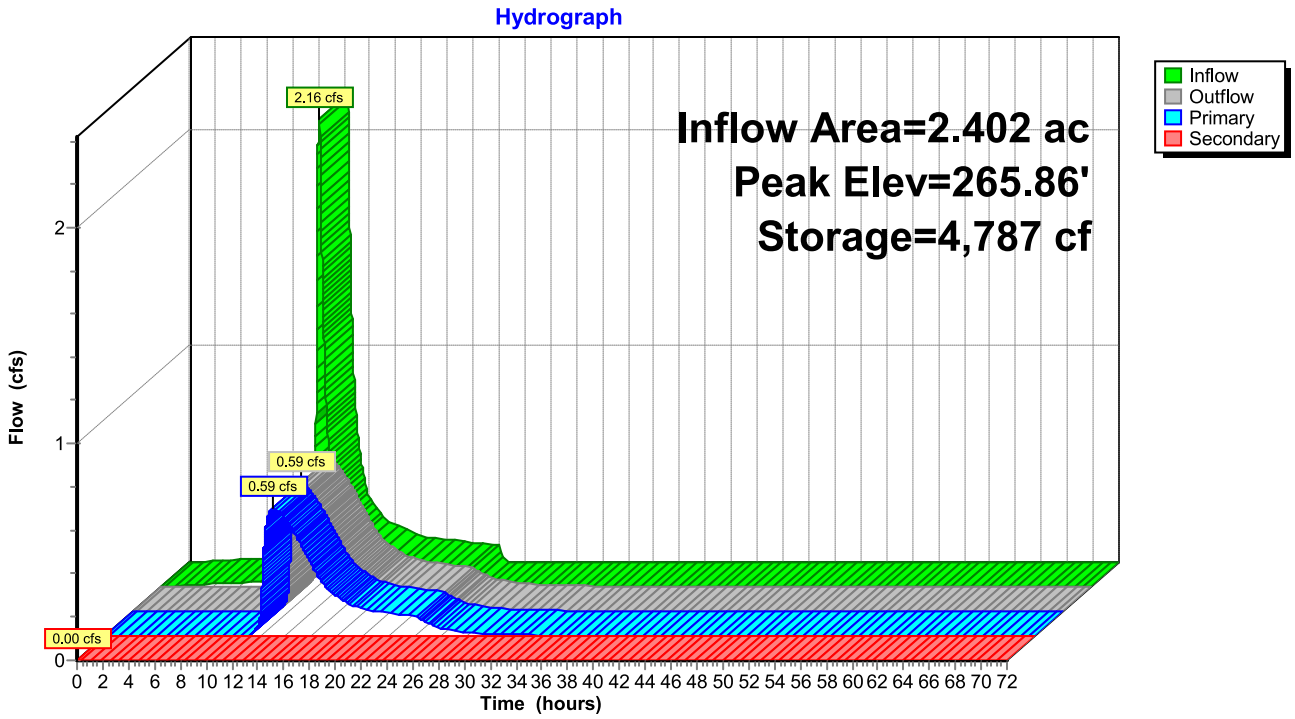
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.59 cfs @ 13.08 hrs HW=265.86' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.59 cfs of 6.43 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 0.59 cfs @ 3.52 fps)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 5.35" for 10-YR Future event
Inflow = 10.88 cfs @ 12.22 hrs, Volume= 1.098 af
Outflow = 8.81 cfs @ 12.32 hrs, Volume= 0.922 af, Atten= 19%, Lag= 5.9 min
Primary = 6.59 cfs @ 12.32 hrs, Volume= 0.903 af
Routed to Link Post1 : POST - POI #1
Secondary = 2.22 cfs @ 12.32 hrs, Volume= 0.019 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 268.04' @ 12.32 hrs Surf.Area= 8,124 sf Storage= 20,279 cf

Plug-Flow detention time= 245.5 min calculated for 0.922 af (84% of inflow)
Center-of-Mass det. time= 173.3 min (935.2 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

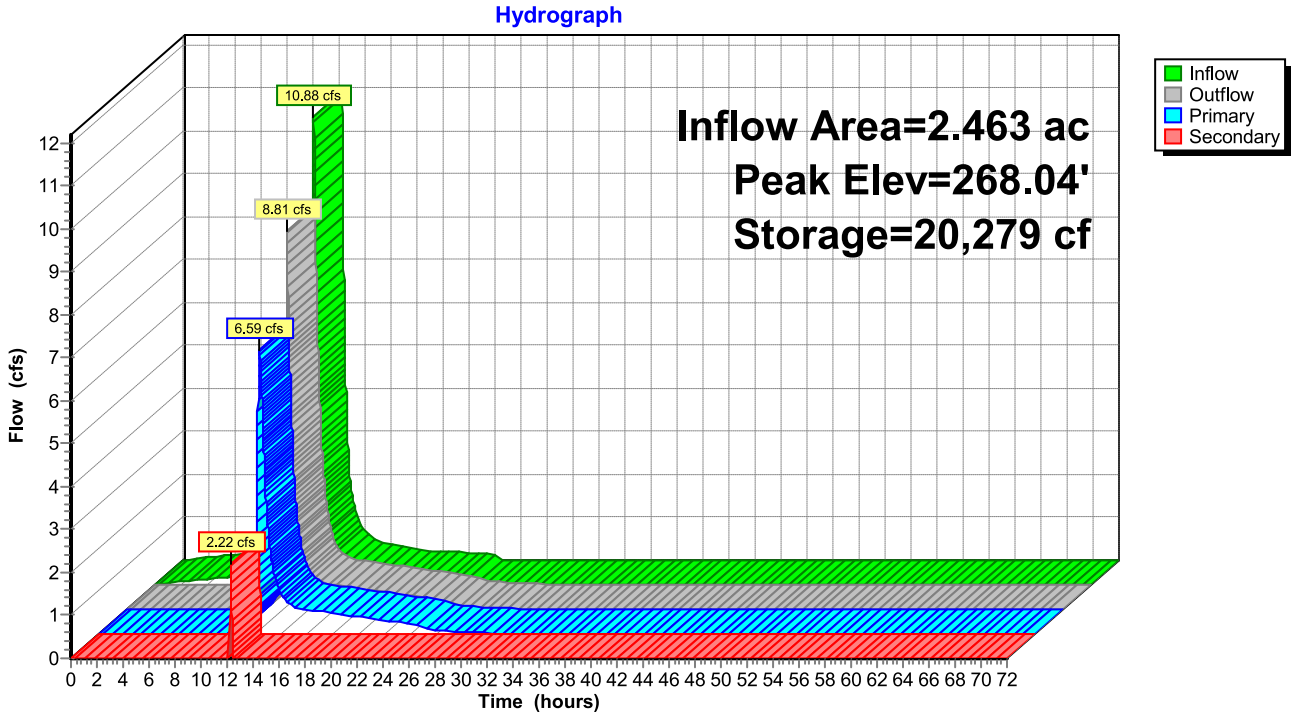
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=6.59 cfs @ 12.32 hrs HW=268.04' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 6.59 cfs of 16.57 cfs potential flow)
  ├─**2=Rectangular Orifice #1** (Orifice Controls 0.76 cfs @ 6.12 fps)
  ├─**3=Rectangular Orifice #2** (Weir Controls 5.83 cfs @ 2.95 fps)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=2.21 cfs @ 12.32 hrs HW=268.04' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Weir Controls 2.21 cfs @ 0.54 fps)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 5.96" for 10-YR Future event
Inflow = 16.48 cfs @ 12.13 hrs, Volume= 1.235 af
Outflow = 0.71 cfs @ 13.96 hrs, Volume= 0.969 af, Atten= 96%, Lag= 110.0 min
Primary = 0.71 cfs @ 13.96 hrs, Volume= 0.969 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 264.30' @ 13.96 hrs Surf.Area= 19,436 sf Storage= 39,298 cf

Plug-Flow detention time= 1,084.8 min calculated for 0.969 af (78% of inflow)
Center-of-Mass det. time= 1,001.5 min (1,746.9 - 745.4)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

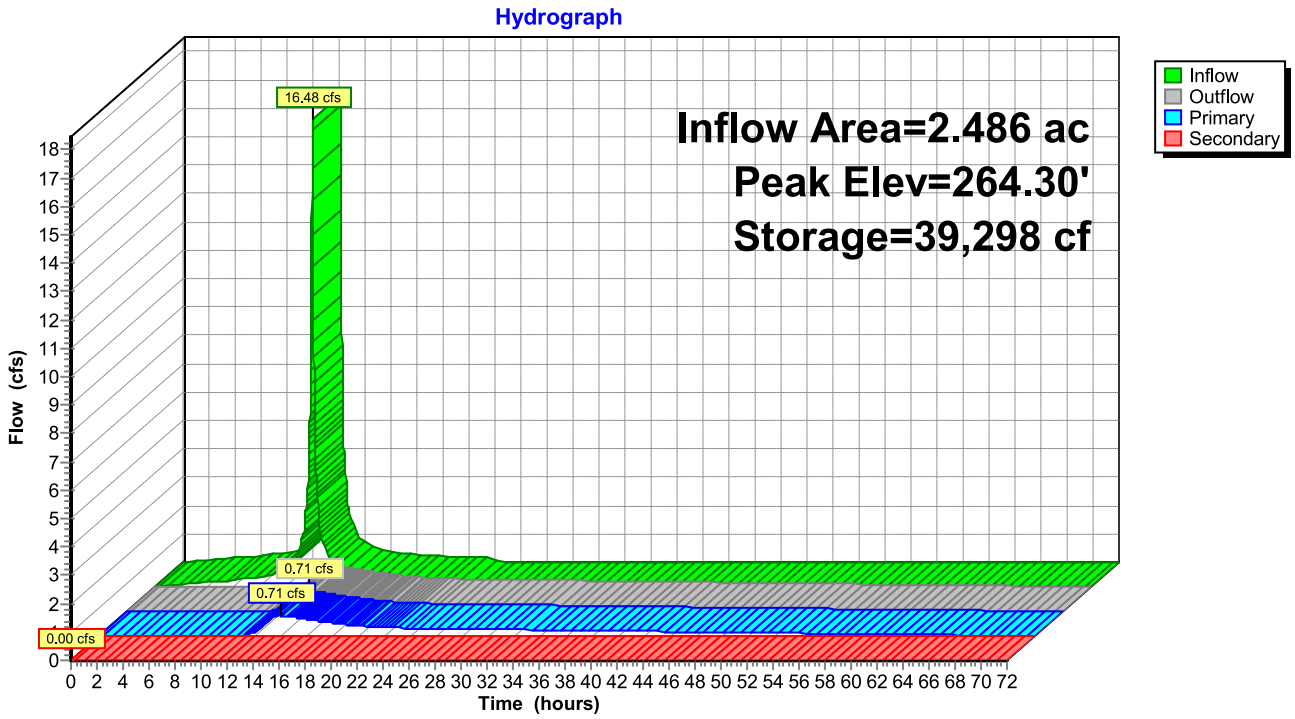
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.71 cfs @ 13.96 hrs HW=264.30' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.71 cfs of 10.58 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.29 cfs @ 5.94 fps)
├**3=Rectangular Orifice** (Weir Controls 0.42 cfs @ 1.91 fps)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 5.96" for 10-YR Future event
Inflow = 16.51 cfs @ 12.13 hrs, Volume= 1.238 af
Outflow = 0.59 cfs @ 14.48 hrs, Volume= 1.001 af, Atten= 96%, Lag= 141.3 min
Primary = 0.59 cfs @ 14.48 hrs, Volume= 1.001 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 264.48' @ 14.48 hrs Surf.Area= 15,211 sf Storage= 38,985 cf

Plug-Flow detention time= 783.4 min calculated for 1.001 af (81% of inflow)
Center-of-Mass det. time= 705.2 min (1,450.6 - 745.4)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

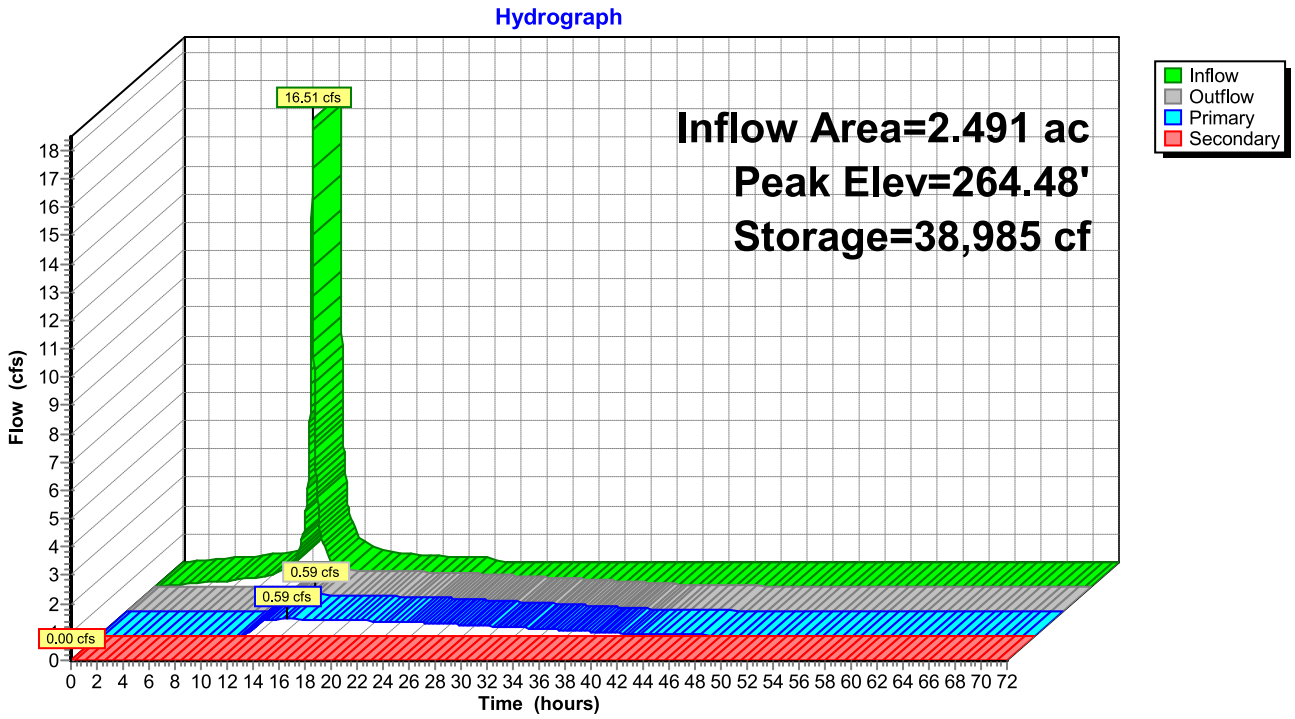
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.59 cfs @ 14.48 hrs HW=264.48' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.59 cfs of 12.72 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.59 cfs @ 6.75 fps)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 2.11" for 10-YR Future event
Inflow = 4.01 cfs @ 12.23 hrs, Volume= 0.407 af
Outflow = 0.70 cfs @ 13.18 hrs, Volume= 0.318 af, Atten= 83%, Lag= 57.0 min
Primary = 0.70 cfs @ 13.18 hrs, Volume= 0.318 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.50' @ 13.18 hrs Surf.Area= 6,048 sf Storage= 8,070 cf

Plug-Flow detention time= 262.0 min calculated for 0.318 af (78% of inflow)
Center-of-Mass det. time= 169.2 min (1,021.7 - 852.4)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

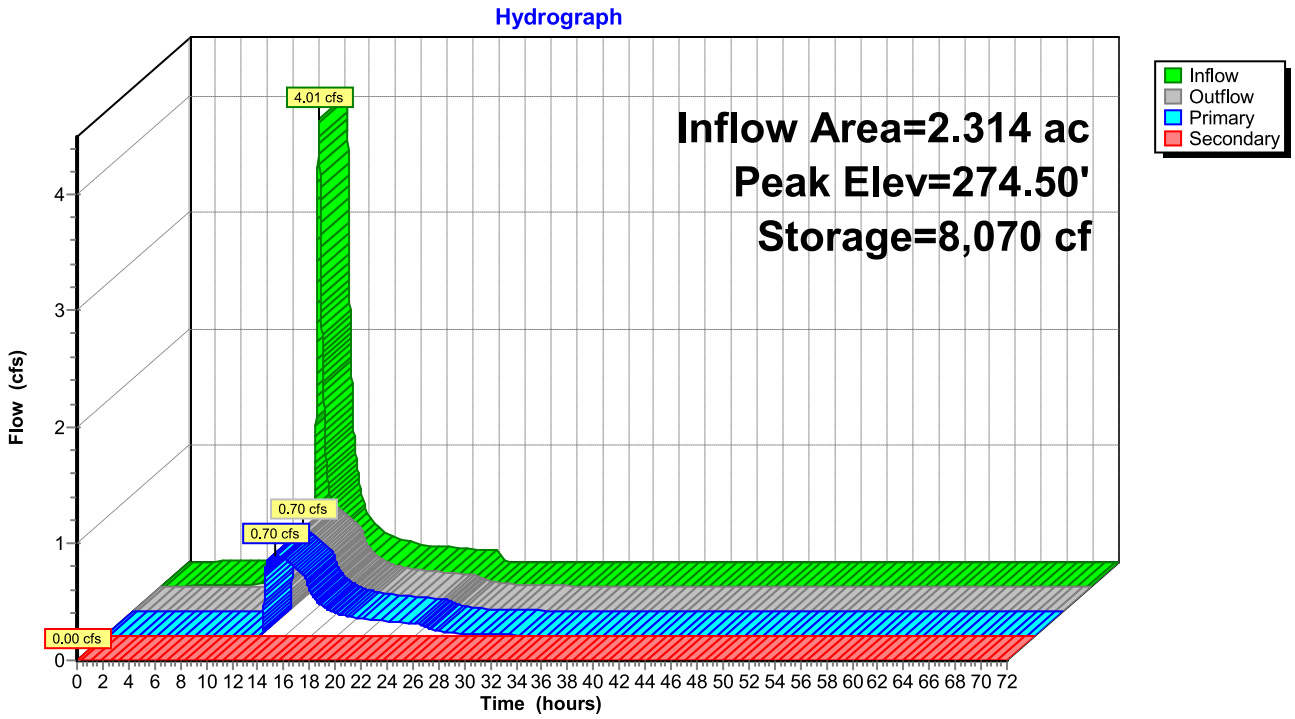
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.70 cfs @ 13.18 hrs HW=274.50' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.70 cfs of 1.71 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.70 cfs @ 4.17 fps)
  ├**3=Rectangular Orifice** (Weir Controls 0.00 cfs @ 0.12 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8

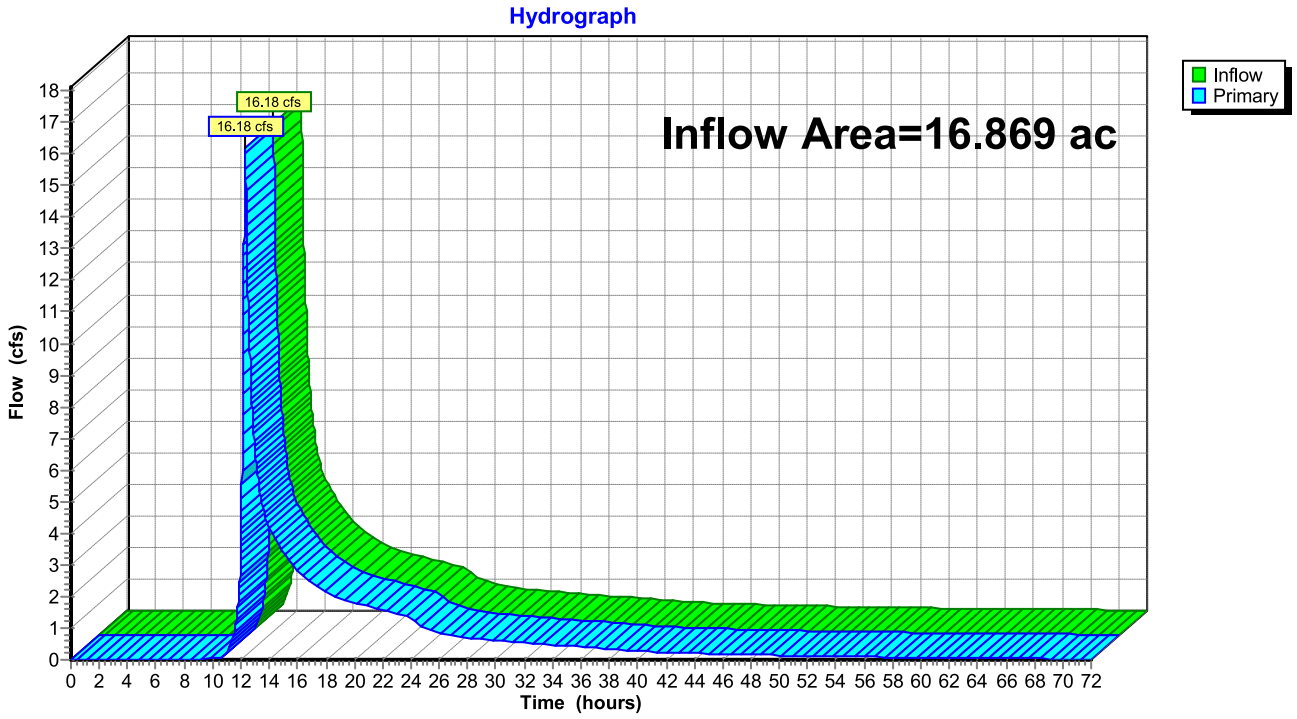


Summary for Link Post1: POST - POI #1

Inflow Area = 16.869 ac, 45.76% Impervious, Inflow Depth > 3.00" for 10-YR Future event
Inflow = 16.18 cfs @ 12.31 hrs, Volume= 4.213 af
Primary = 16.18 cfs @ 12.31 hrs, Volume= 4.213 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post1: POST - POI #1

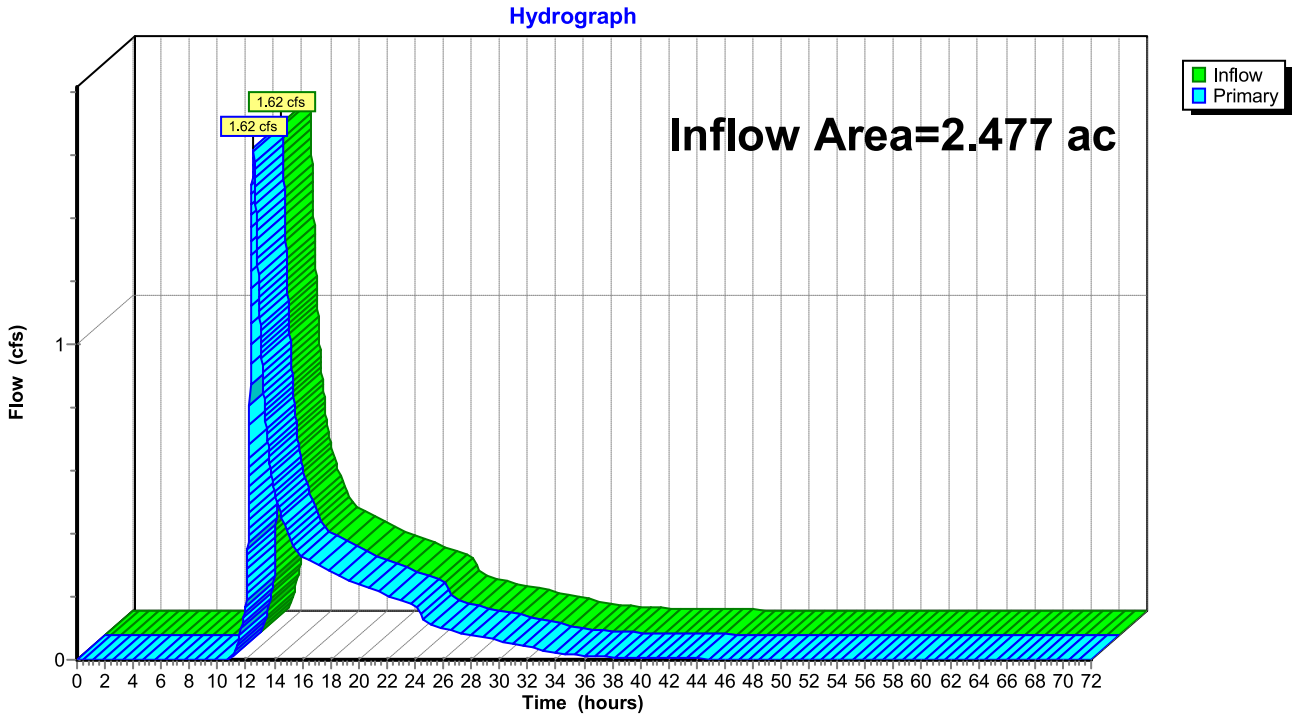


Summary for Link Post2: POST - POI #2

Inflow Area = 2.477 ac, 30.08% Impervious, Inflow Depth > 2.21" for 10-YR Future event
Inflow = 1.62 cfs @ 12.53 hrs, Volume= 0.455 af
Primary = 1.62 cfs @ 12.53 hrs, Volume= 0.455 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post2: POST - POI #2



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1F: POST - POI #2 - Runoff Area=0.154 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=0.85 cfs 0.063 af

Subcatchment 1I: POST - POI #2 - Runoff Area=0.370 ac 100.00% Impervious Runoff Depth=4.91"
Tc=10.0 min CN=0/98 Runoff=1.77 cfs 0.151 af

Subcatchment 1P: POST - POI #2 - Runoff Area=0.370 ac 0.00% Impervious Runoff Depth=0.64"
Tc=10.0 min CN=48/0 Runoff=0.17 cfs 0.020 af

Subcatchment 2F: POST - POI #2 - Runoff Area=0.091 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=0.50 cfs 0.037 af

Subcatchment 2I: POST - POI #2 - Runoff Area=0.130 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=0.71 cfs 0.053 af

Subcatchment 2P: POST - POI #2 - Runoff Area=0.083 ac 0.00% Impervious Runoff Depth=0.64"
Tc=6.0 min CN=48/0 Runoff=0.05 cfs 0.004 af

Subcatchment 3F: POST - POI #1 - Runoff Area=0.214 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=1.18 cfs 0.088 af

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 3P: POST - POI #1 - Runoff Area=0.976 ac 0.00% Impervious Runoff Depth=0.64"
Tc=6.0 min CN=48/0 Runoff=0.55 cfs 0.052 af

Subcatchment 4F: POST - POI #1 - Runoff Area=0.189 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=1.04 cfs 0.077 af

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 4P: POST - POI #1 - Runoff Area=2.213 ac 0.00% Impervious Runoff Depth=0.64"
Tc=17.0 min CN=48/0 Runoff=0.79 cfs 0.119 af

Subcatchment 5F: POST - POI #1 - Runoff Area=0.185 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=1.02 cfs 0.076 af

Subcatchment 5I: POST - POI #1 - Runoff Area=1.842 ac 100.00% Impervious Runoff Depth=4.91"
Tc=15.0 min CN=0/98 Runoff=7.63 cfs 0.754 af

Subcatchment 5P: POST - POI #1 - Runoff Area=0.436 ac 0.00% Impervious Runoff Depth=1.75"
Tc=15.0 min CN=65/0 Runoff=0.71 cfs 0.064 af

Subcatchment 6F: POST - POI #1 - Runoff Area=0.478 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=2.63 cfs 0.196 af

Subcatchment 6I: POST - POI #1 - Runoff Area=2.008 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=11.04 cfs 0.822 af

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 7F: POST - POI #1 - Runoff Area=0.404 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=2.22 cfs 0.165 af

Subcatchment 7I: POST - POI #1 - Runoff Area=2.087 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=11.47 cfs 0.854 af

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8F: POST - POI #1 - Runoff Area=0.172 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=0.95 cfs 0.070 af

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8P: POST - POI #1 - Runoff Area=2.142 ac 0.00% Impervious Runoff Depth=1.19"
Tc=15.0 min CN=57/0 Runoff=2.15 cfs 0.212 af

Subcatchment Off1: POST - POI #2 - Bypass Runoff Area=1.279 ac 0.00% Impervious Runoff Depth=0.64"
Tc=28.0 min CN=48/0 Runoff=0.37 cfs 0.069 af

Subcatchment Off1I: POST - POI #1 - Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=4.91"
Tc=6.0 min CN=0/98 Runoff=0.77 cfs 0.057 af

Subcatchment Off1P: POST - POI #1 - Runoff Area=3.383 ac 0.00% Impervious Runoff Depth=1.12"
Tc=12.0 min CN=56/0 Runoff=3.46 cfs 0.316 af

Subcatchment Pre1: PRE - POI #1 Runoff Area=16.869 ac 0.00% Impervious Runoff Depth=1.46"
Tc=27.0 min CN=61/0 Runoff=16.53 cfs 2.052 af

Subcatchment Pre2: PRE - POI #2 Runoff Area=2.477 ac 4.60% Impervious Runoff Depth=1.29"
Tc=23.0 min CN=56/98 Runoff=2.14 cfs 0.267 af

Pond B1: Infiltration Basin #1 Peak Elev=276.05' Storage=6,698 cf Inflow=2.66 cfs 0.234 af
Primary=0.24 cfs 0.183 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.183 af

Pond B2: Infiltration Basin #2 Peak Elev=275.53' Storage=2,550 cf Inflow=1.26 cfs 0.095 af
Primary=0.12 cfs 0.073 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.073 af

Pond B3: Infiltration Basin #3 Peak Elev=273.54' Storage=1,894 cf Inflow=1.70 cfs 0.140 af
Primary=0.90 cfs 0.118 af Secondary=0.00 cfs 0.000 af Outflow=0.90 cfs 0.118 af

Pond B4: Infiltration Basin #4 Peak Elev=265.57' Storage=3,114 cf Inflow=1.23 cfs 0.196 af
Primary=0.40 cfs 0.178 af Secondary=0.00 cfs 0.000 af Outflow=0.40 cfs 0.178 af

Pond B5: Infiltration Basin #5 Peak Elev=267.89' Storage=19,035 cf Inflow=8.87 cfs 0.894 af
Primary=4.68 cfs 0.718 af Secondary=0.00 cfs 0.000 af Outflow=4.68 cfs 0.718 af

Pond B6: Infiltration Basin #6 Peak Elev=264.06' Storage=34,725 cf Inflow=13.67 cfs 1.018 af
Primary=0.30 cfs 0.754 af Secondary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.754 af

Pond B7: Infiltration Basin #7 Peak Elev=264.02' Storage=32,087 cf Inflow=13.70 cfs 1.020 af
Primary=0.52 cfs 0.784 af Secondary=0.00 cfs 0.000 af Outflow=0.52 cfs 0.784 af

Pond B8: Infiltration Basin #8 Peak Elev=274.13' Storage=5,898 cf Inflow=2.57 cfs 0.282 af
Primary=0.46 cfs 0.194 af Secondary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.194 af

Link Post1: POST - POI #1 Inflow=8.72 cfs 3.118 af
Primary=8.72 cfs 3.118 af

Link Post2: POST - POI #2 Inflow=0.60 cfs 0.325 af
Primary=0.60 cfs 0.325 af

Total Runoff Area = 38.692 ac Runoff Volume = 6.640 af Average Runoff Depth = 2.06"
77.83% Pervious = 30.114 ac 22.17% Impervious = 8.578 ac

Summary for Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint

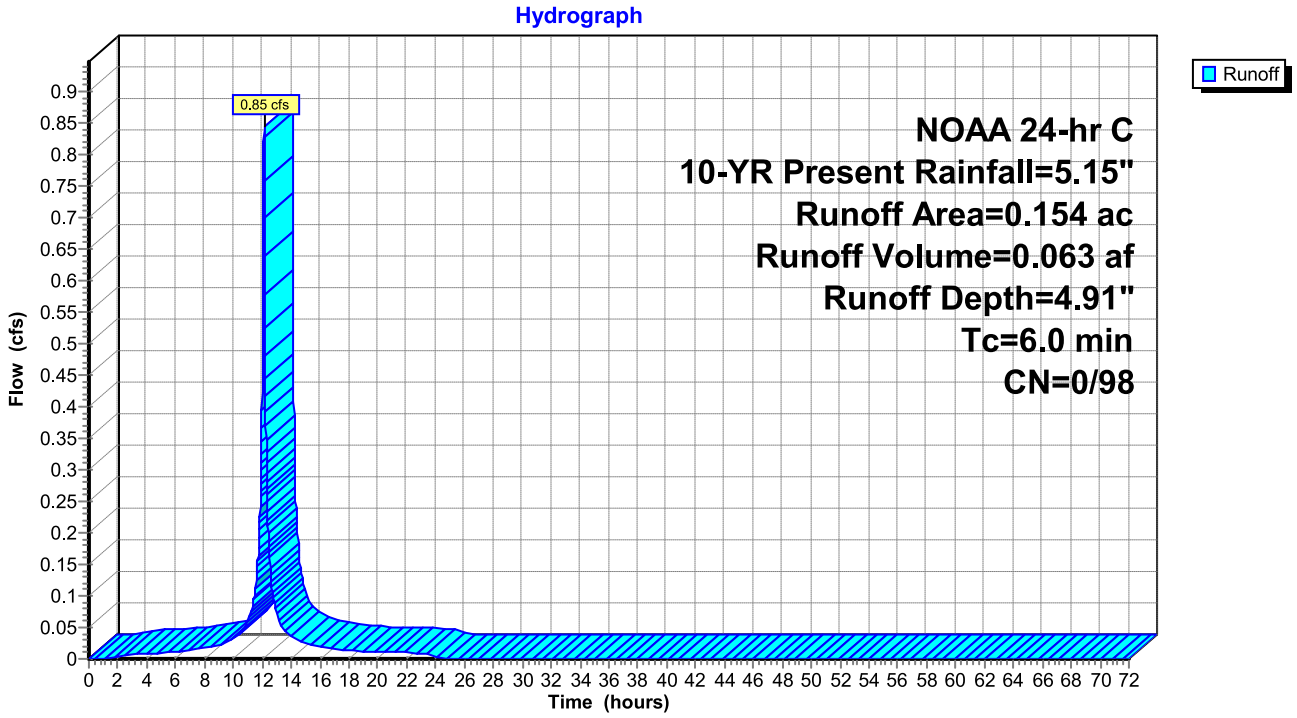
Runoff = 0.85 cfs @ 12.13 hrs, Volume= 0.063 af, Depth= 4.91"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.154	98	Infiltration Basin #1
	0.154	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint



Summary for Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious

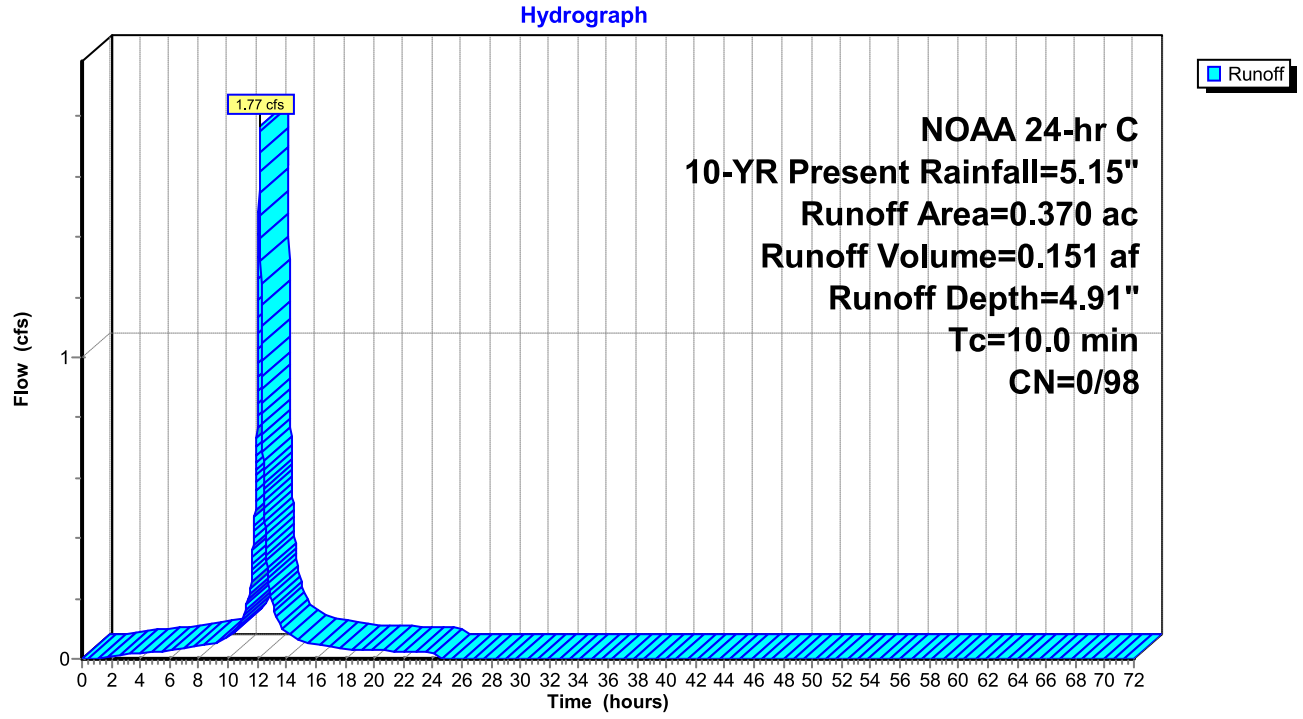
Runoff = 1.77 cfs @ 12.17 hrs, Volume= 0.151 af, Depth= 4.91"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.020	98	Impervious, HSG B
*	0.350	98	Gravel roads, HSG B
	0.370	98	Weighted Average
	0.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious



Summary for Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious

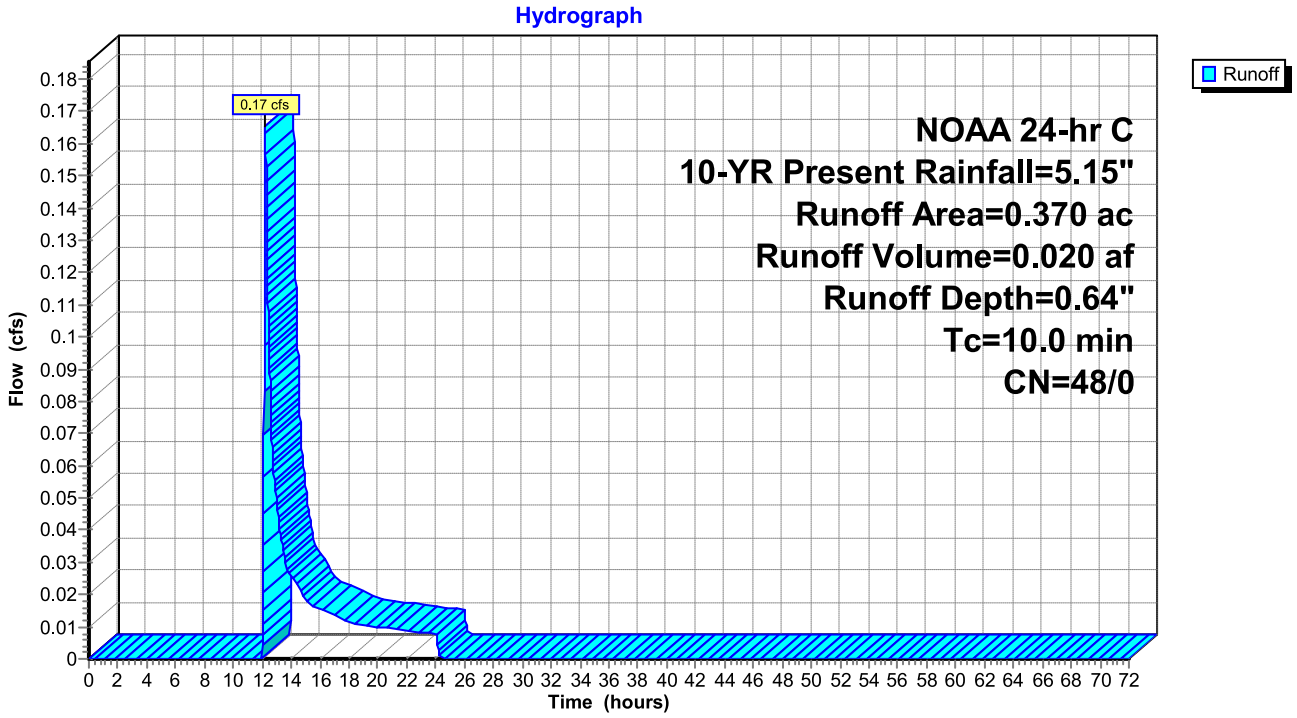
Runoff = 0.17 cfs @ 12.21 hrs, Volume= 0.020 af, Depth= 0.64"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
0.370	48	Brush, Good, HSG B
0.370	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious



Summary for Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint

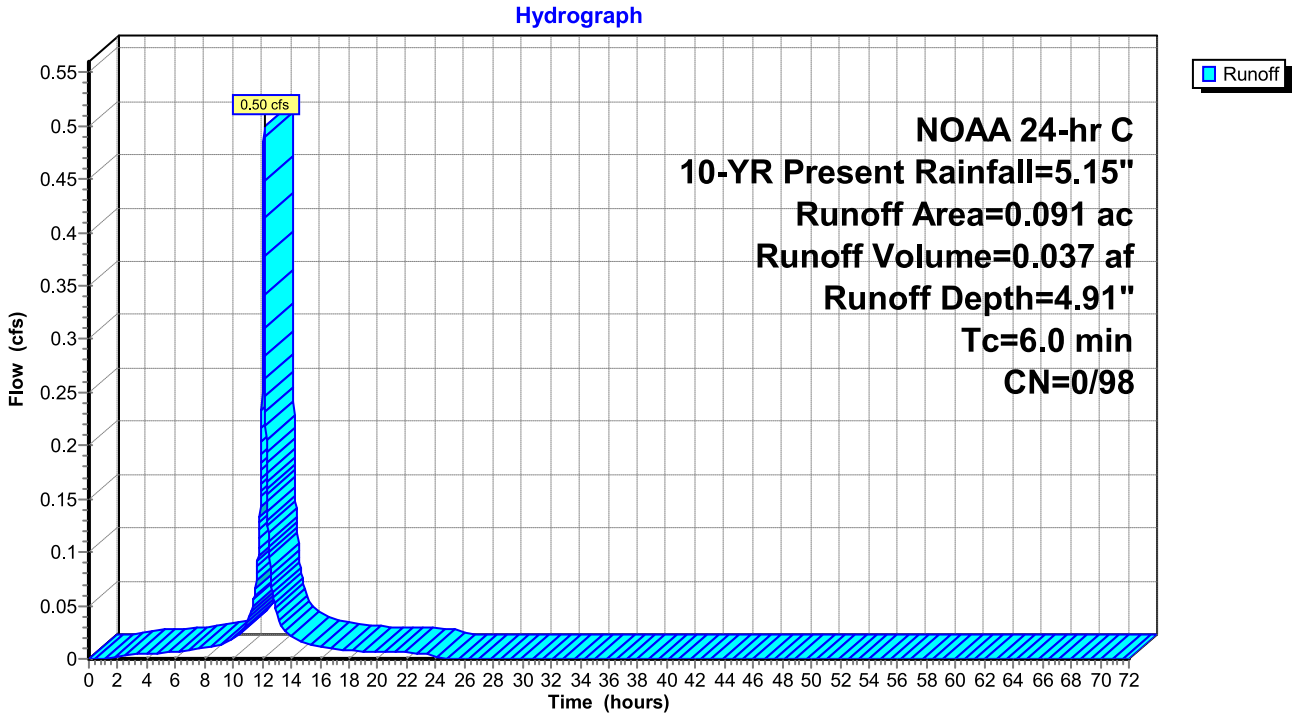
Runoff = 0.50 cfs @ 12.13 hrs, Volume= 0.037 af, Depth= 4.91"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.091	98	Infiltration Basin #2
	0.091	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint



Summary for Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious

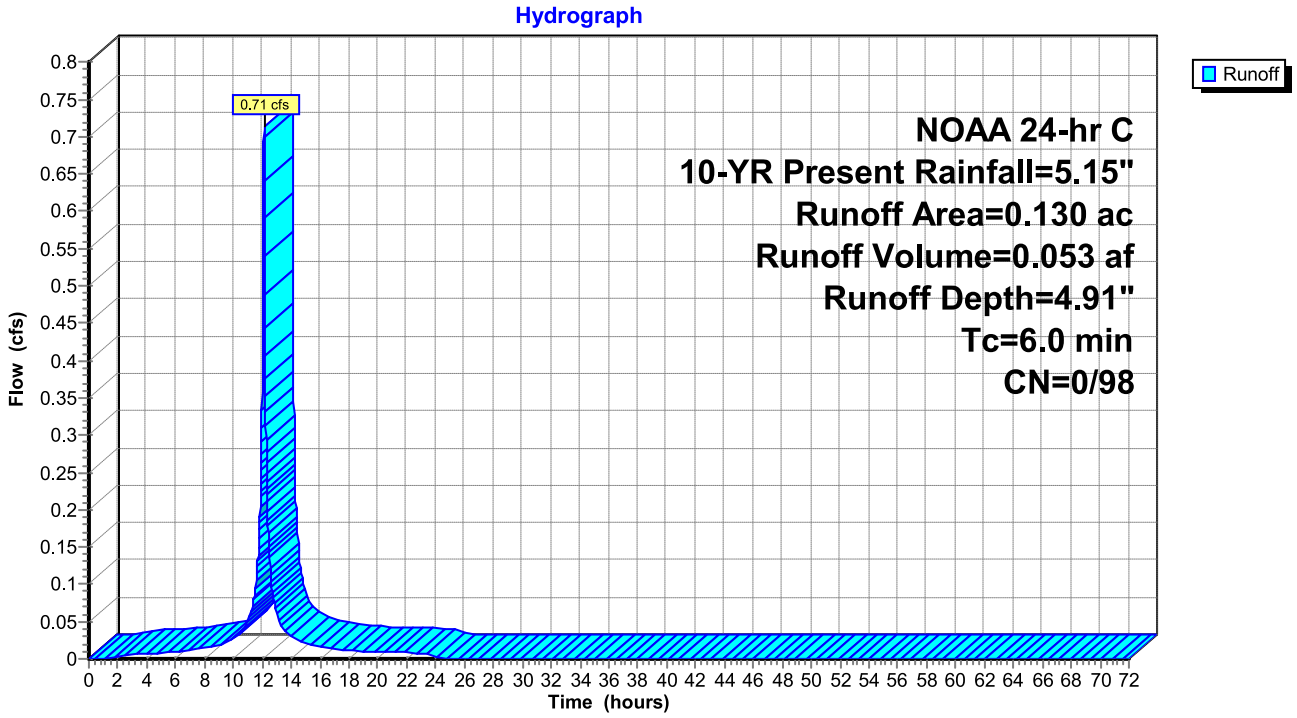
Runoff = 0.71 cfs @ 12.13 hrs, Volume= 0.053 af, Depth= 4.91"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.130	98	Gravel roads, HSG B
	0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious



Summary for Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious

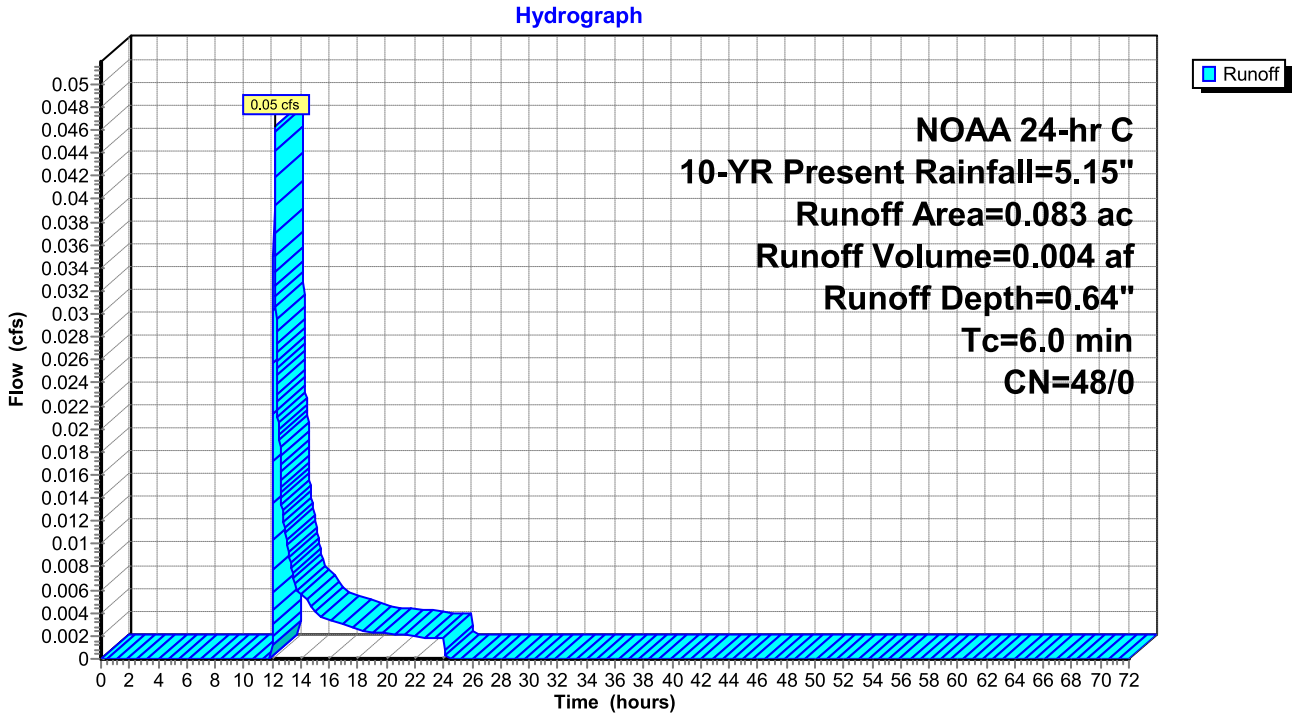
Runoff = 0.05 cfs @ 12.15 hrs, Volume= 0.004 af, Depth= 0.64"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
0.083	48	Brush, Good, HSG B
0.083	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious



Summary for Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint

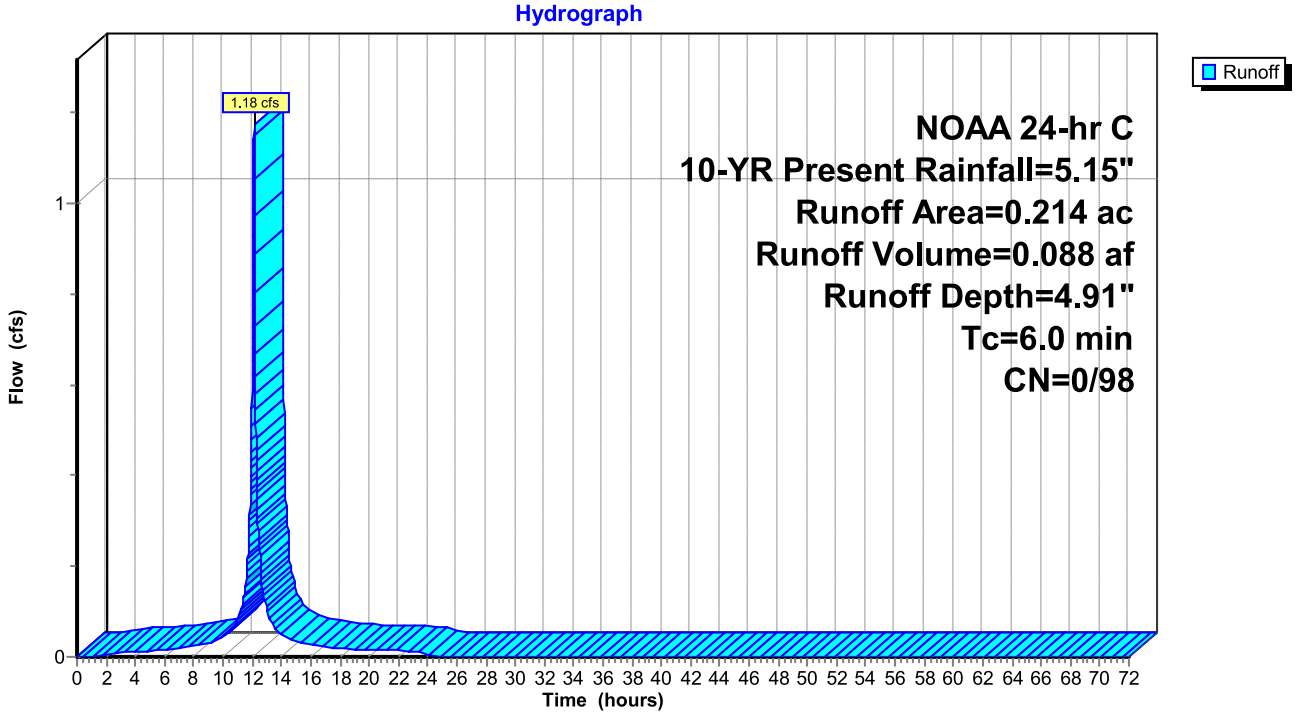
Runoff = 1.18 cfs @ 12.13 hrs, Volume= 0.088 af, Depth= 4.91"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.214	98	Infiltration Basin #3
	0.214	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint



Summary for Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious

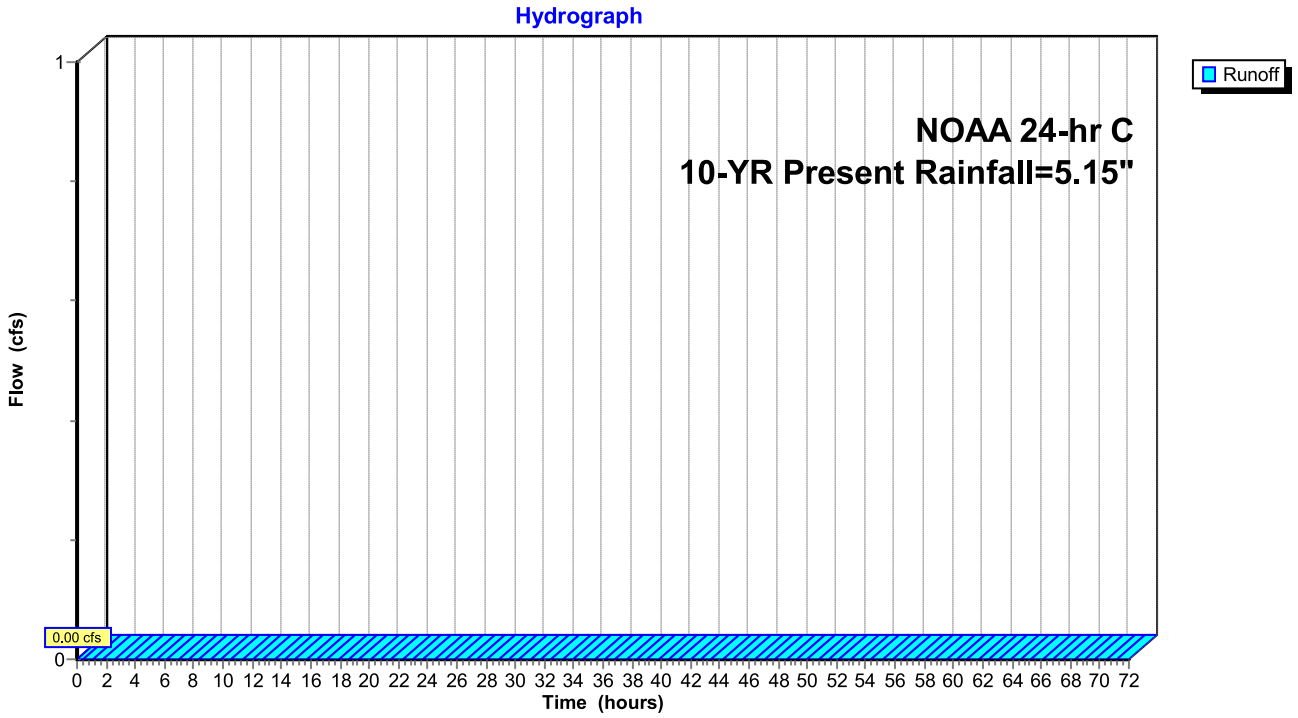
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious



Summary for Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious

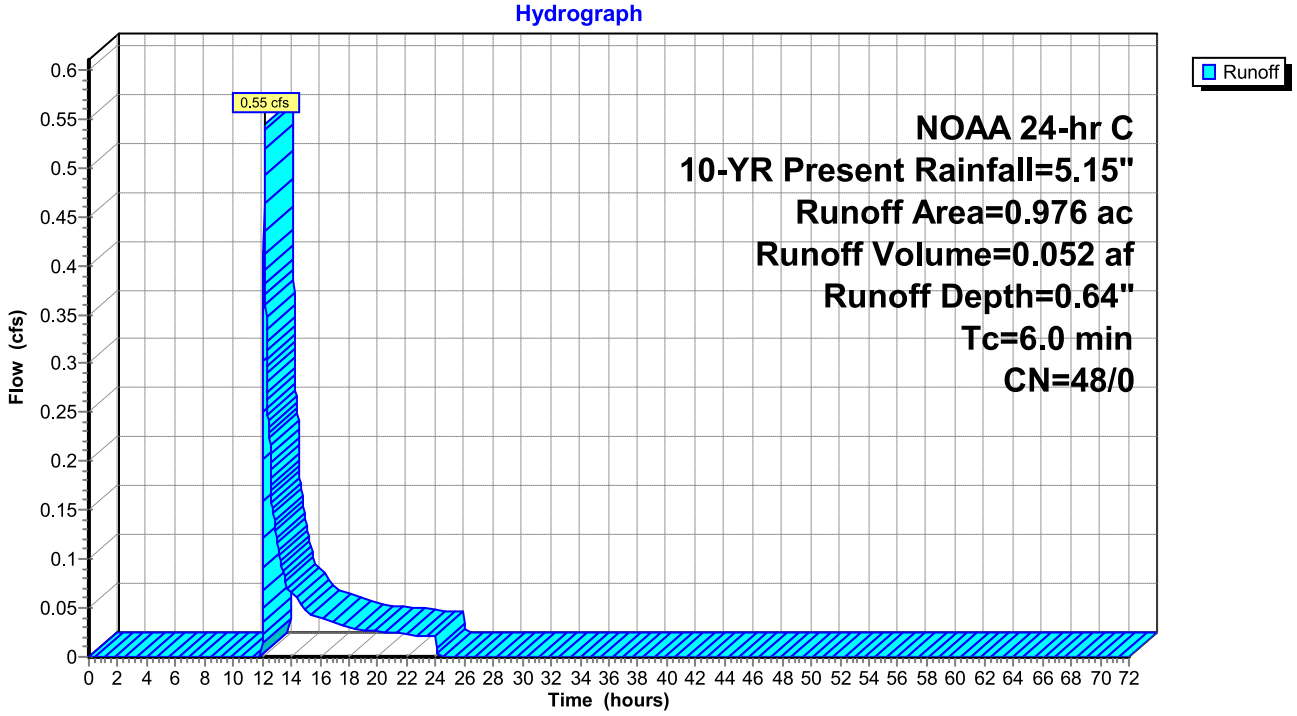
Runoff = 0.55 cfs @ 12.15 hrs, Volume= 0.052 af, Depth= 0.64"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
0.976	48	Brush, Good, HSG B
0.976	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin #3**

Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious



Summary for Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint

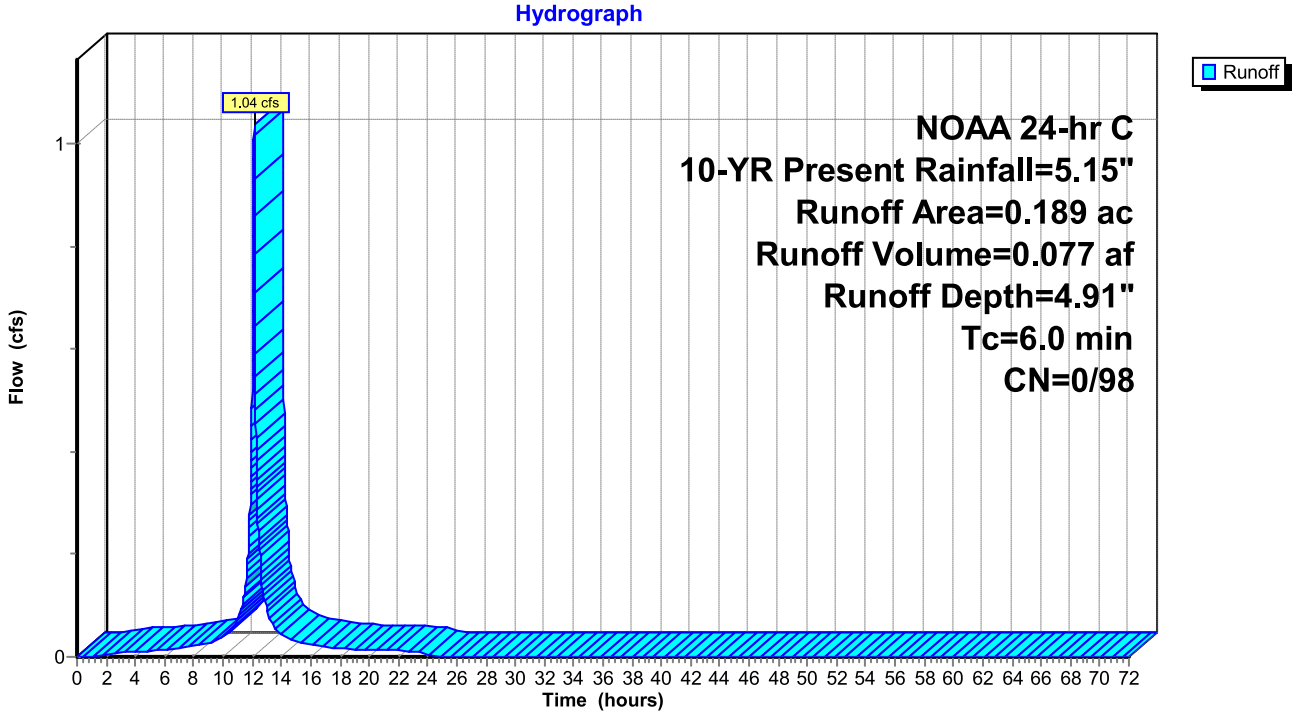
Runoff = 1.04 cfs @ 12.13 hrs, Volume= 0.077 af, Depth= 4.91"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.189	98	Infiltration Basin #4
	0.189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint



Summary for Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious

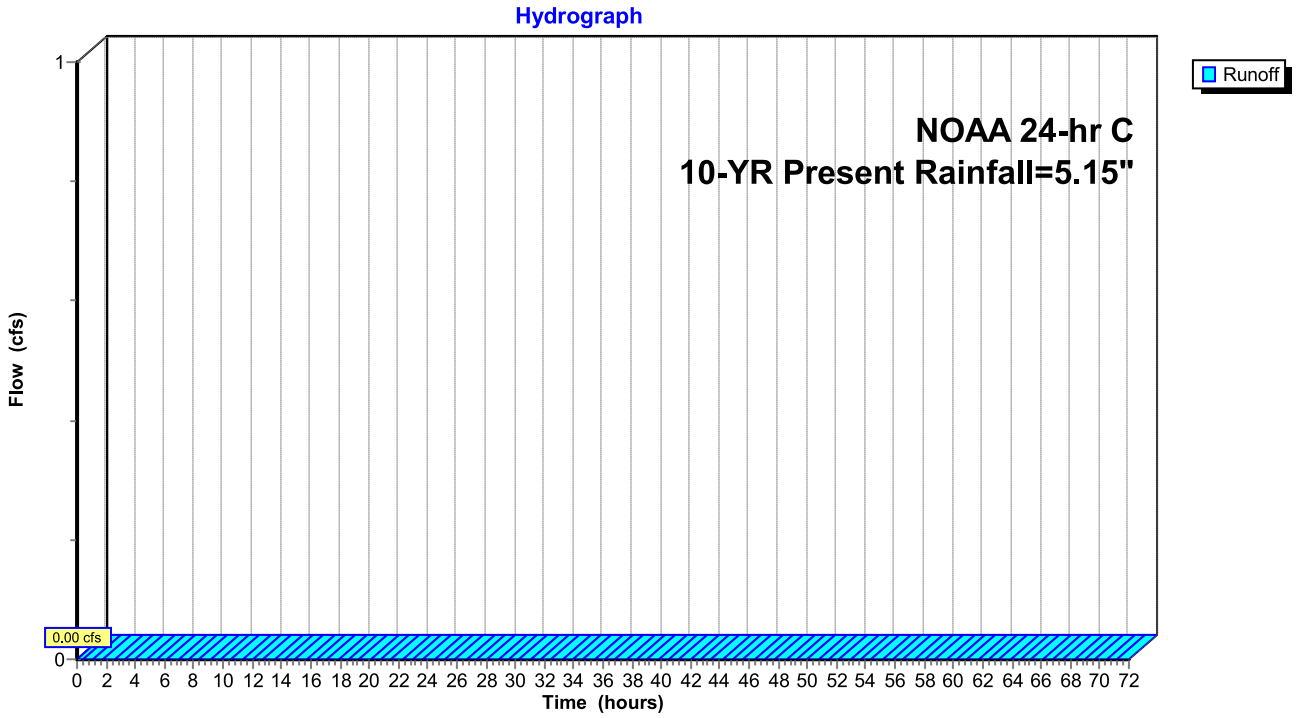
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious



Summary for Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious

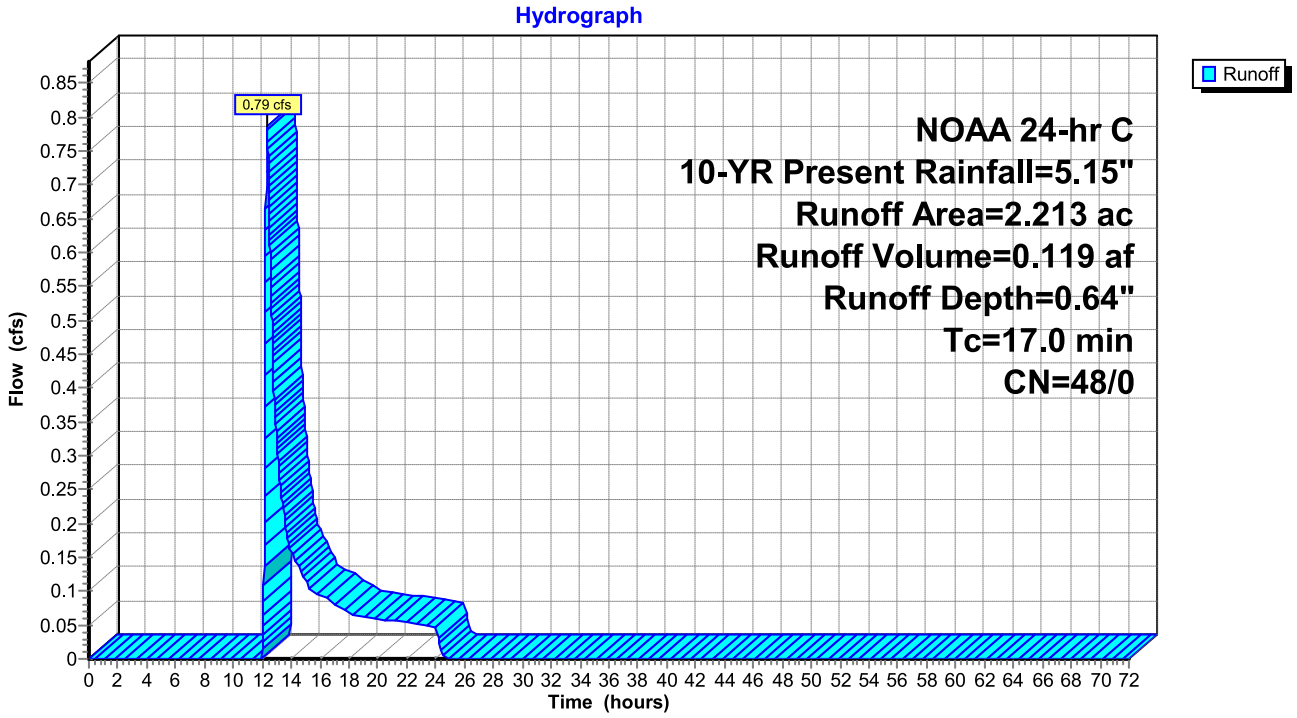
Runoff = 0.79 cfs @ 12.33 hrs, Volume= 0.119 af, Depth= 0.64"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
2.213	48	Brush, Good, HSG B
2.213	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious



Summary for Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint

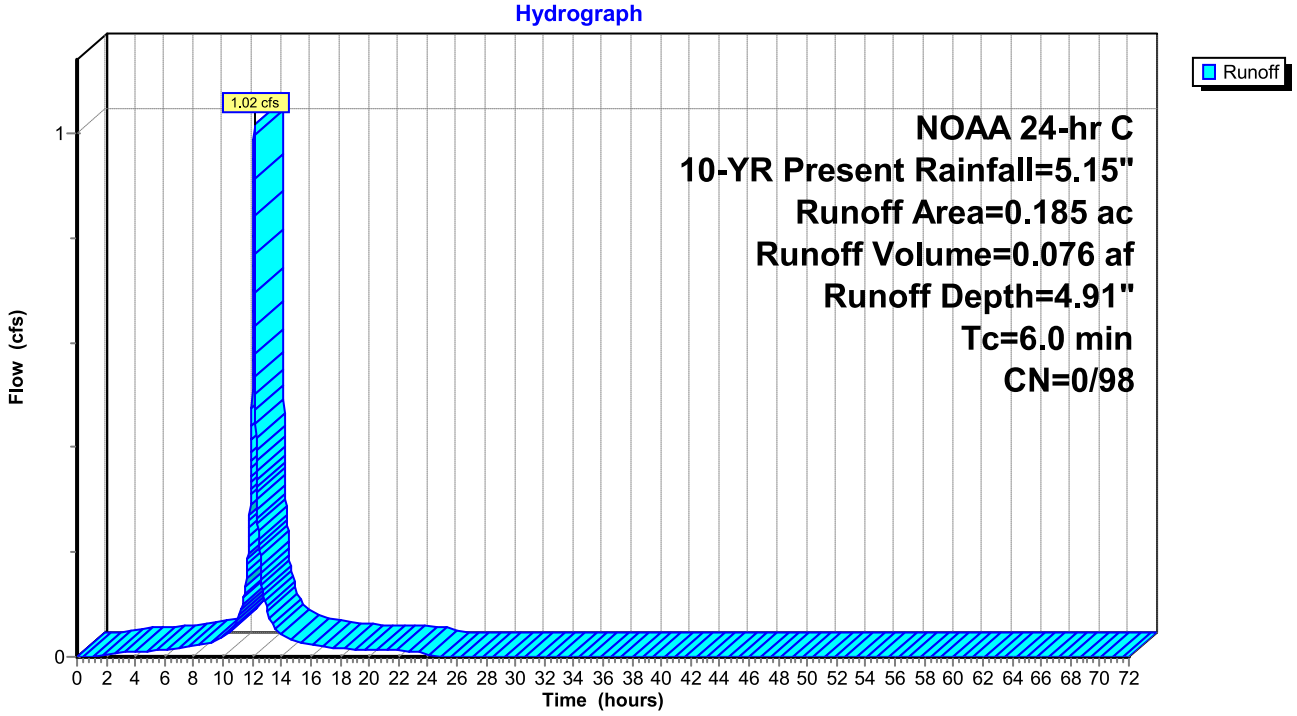
Runoff = 1.02 cfs @ 12.13 hrs, Volume= 0.076 af, Depth= 4.91"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.185	98	Infiltration Basin #5
	0.185	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint



Summary for Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious

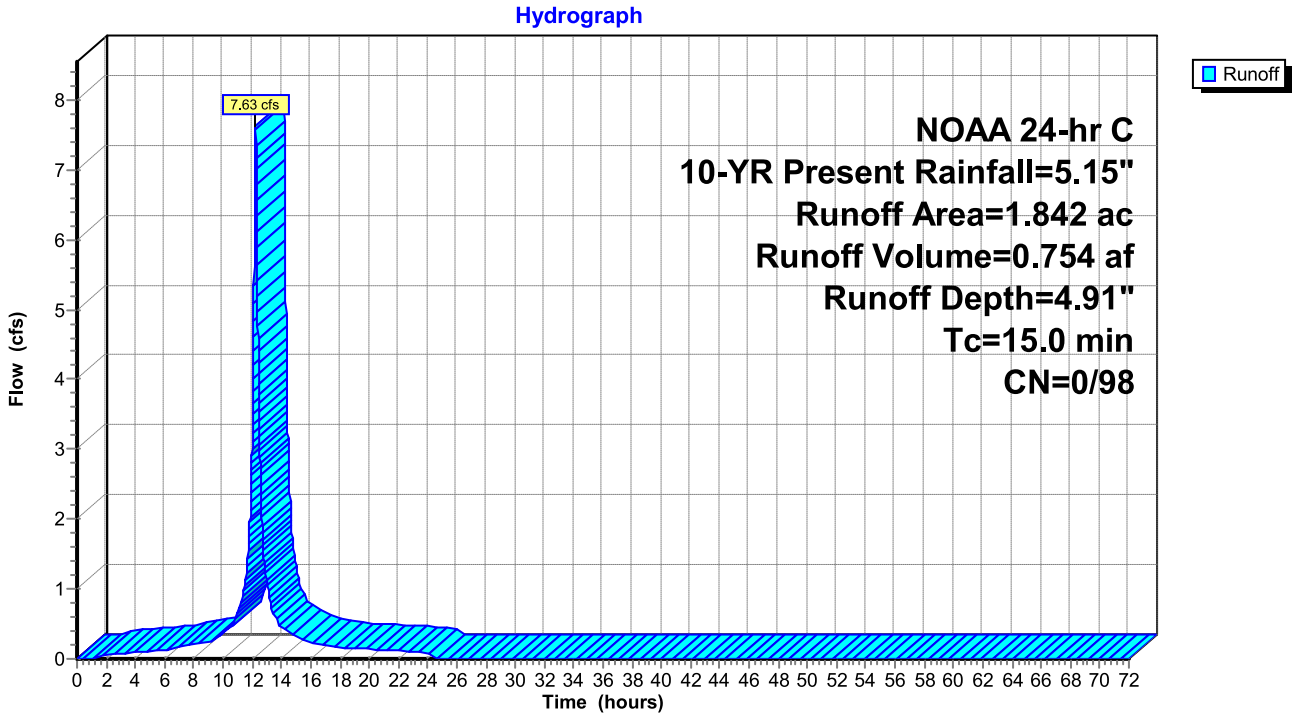
Runoff = 7.63 cfs @ 12.22 hrs, Volume= 0.754 af, Depth= 4.91"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	1.842	98	Gravel surfaces
	1.842	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious



Summary for Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious

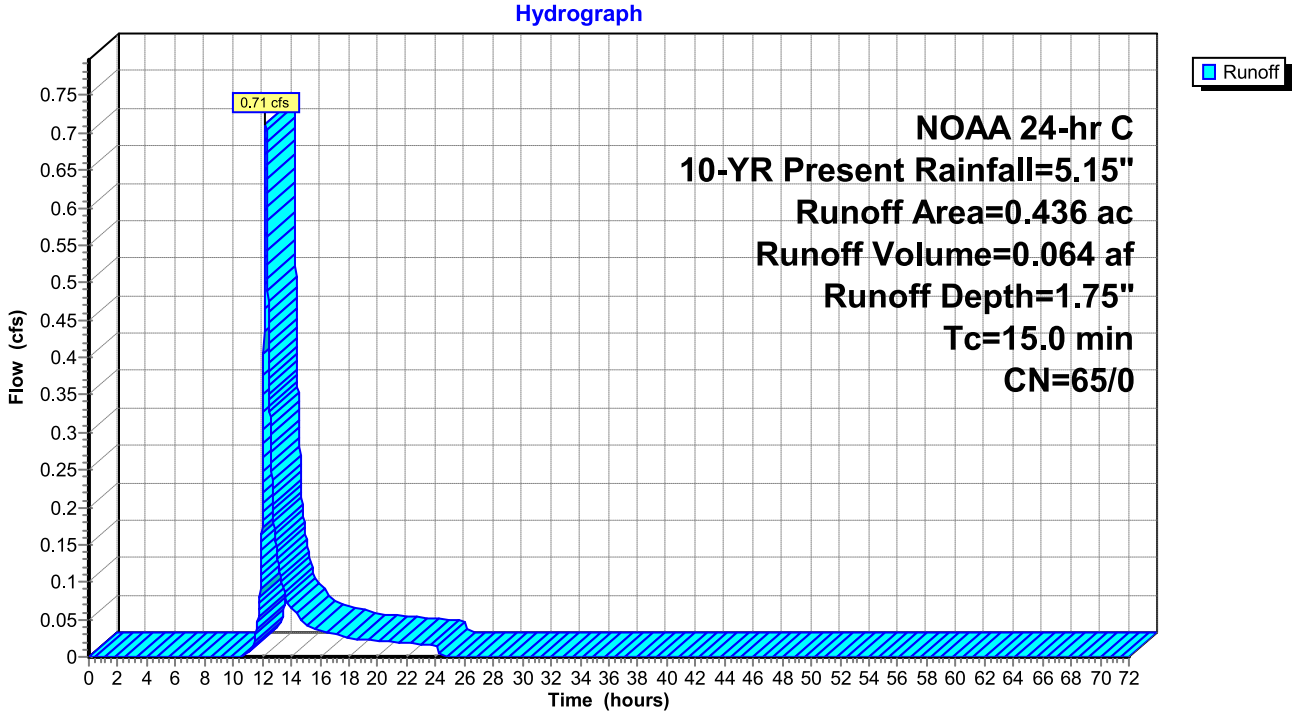
Runoff = 0.71 cfs @ 12.24 hrs, Volume= 0.064 af, Depth= 1.75"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
0.436	65	Brush, Good, HSG C
0.436	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious



Summary for Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint

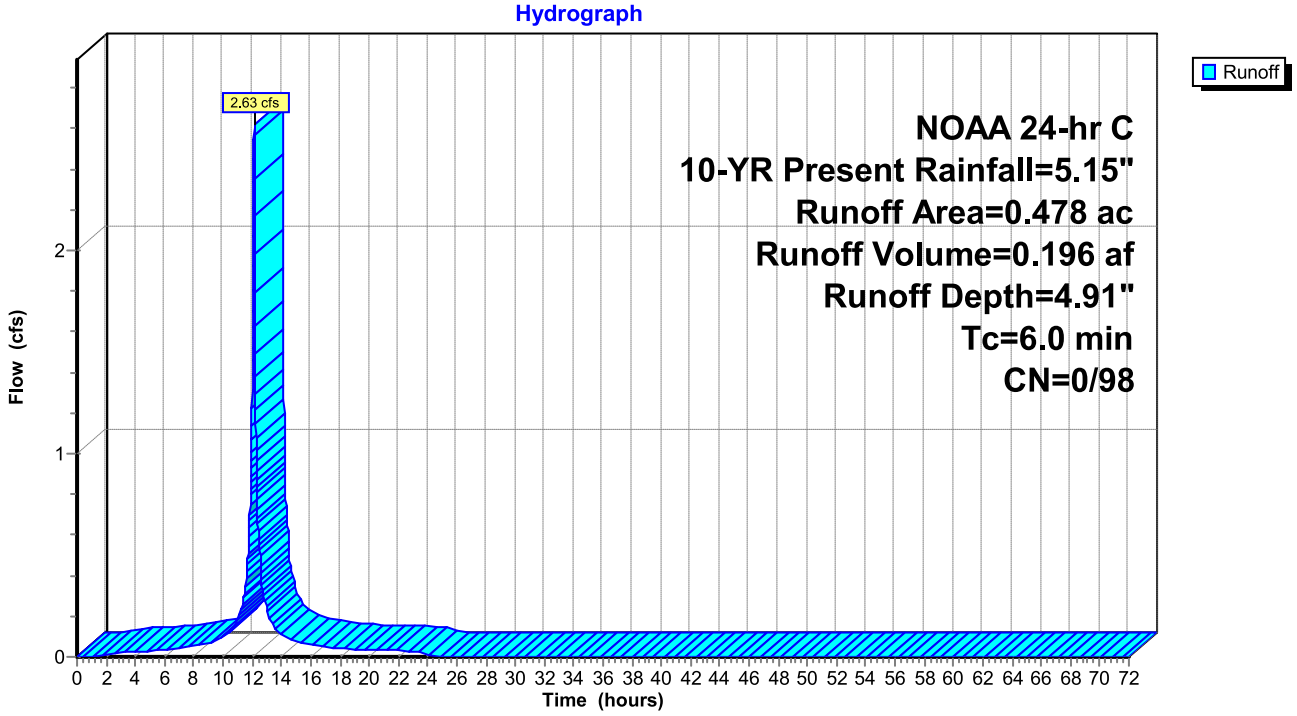
Runoff = 2.63 cfs @ 12.13 hrs, Volume= 0.196 af, Depth= 4.91"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.478	98	Infiltration Basin #6
	0.478	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint



Summary for Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious

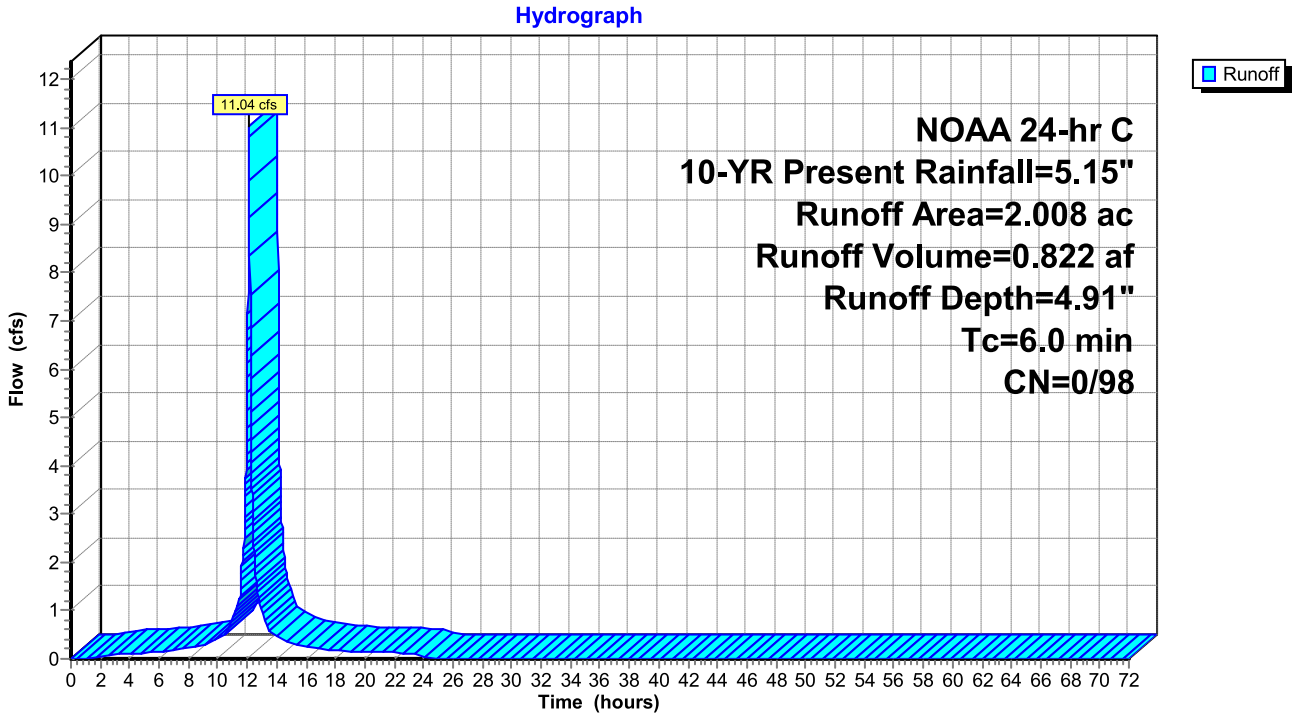
Runoff = 11.04 cfs @ 12.13 hrs, Volume= 0.822 af, Depth= 4.91"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	2.008	98	Gravel surfaces
	2.008	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious



Summary for Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious

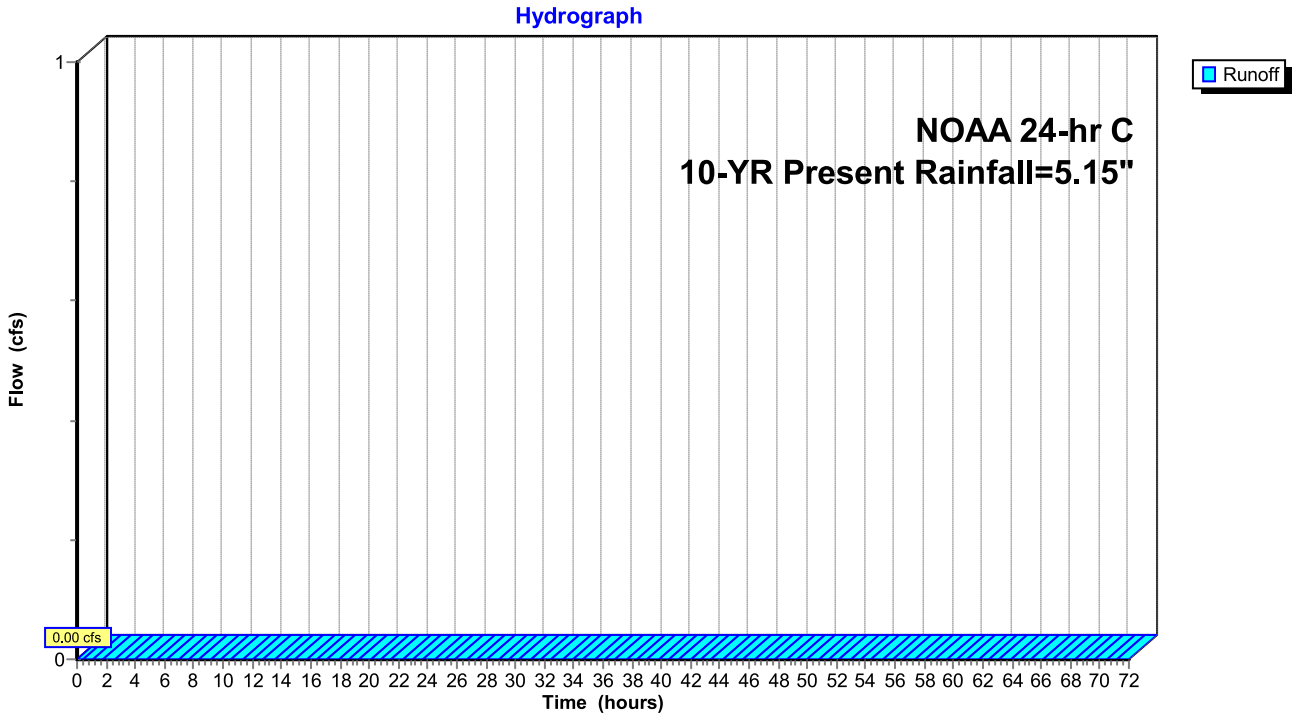
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious



Summary for Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint

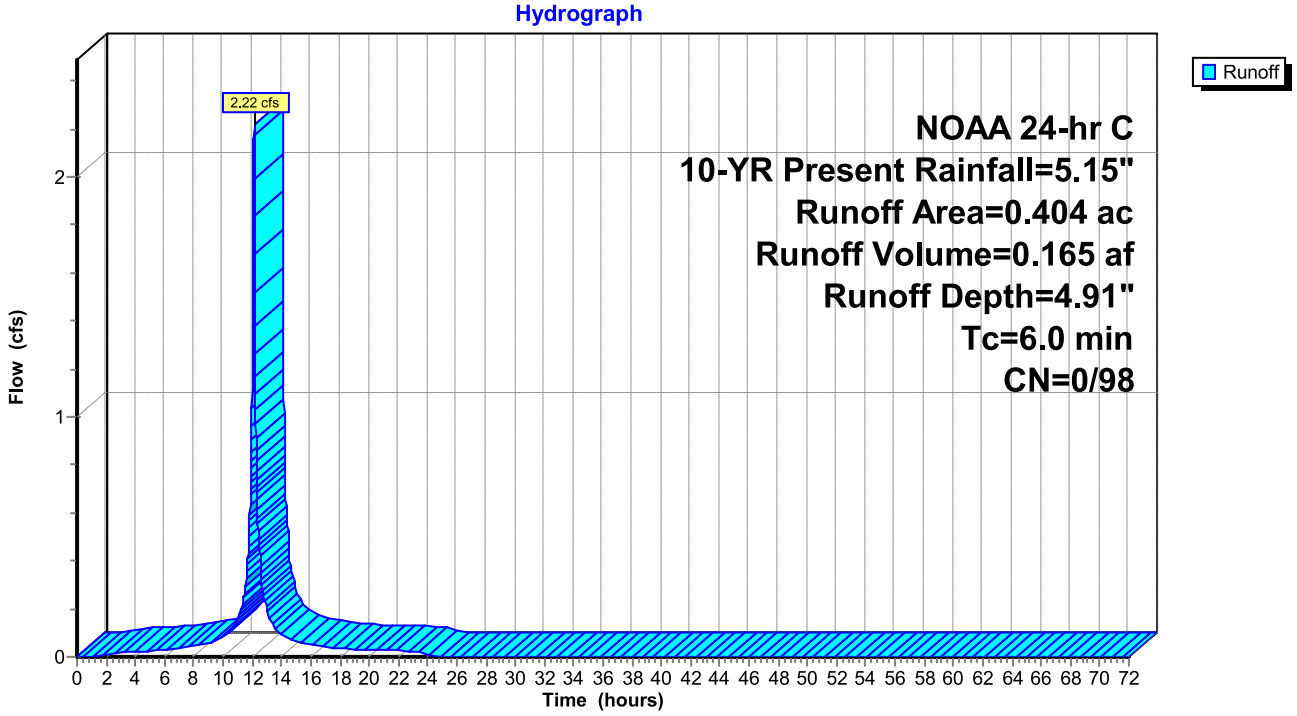
Runoff = 2.22 cfs @ 12.13 hrs, Volume= 0.165 af, Depth= 4.91"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.404	98	Infiltration Basin #7
	0.404	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint



Summary for Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious

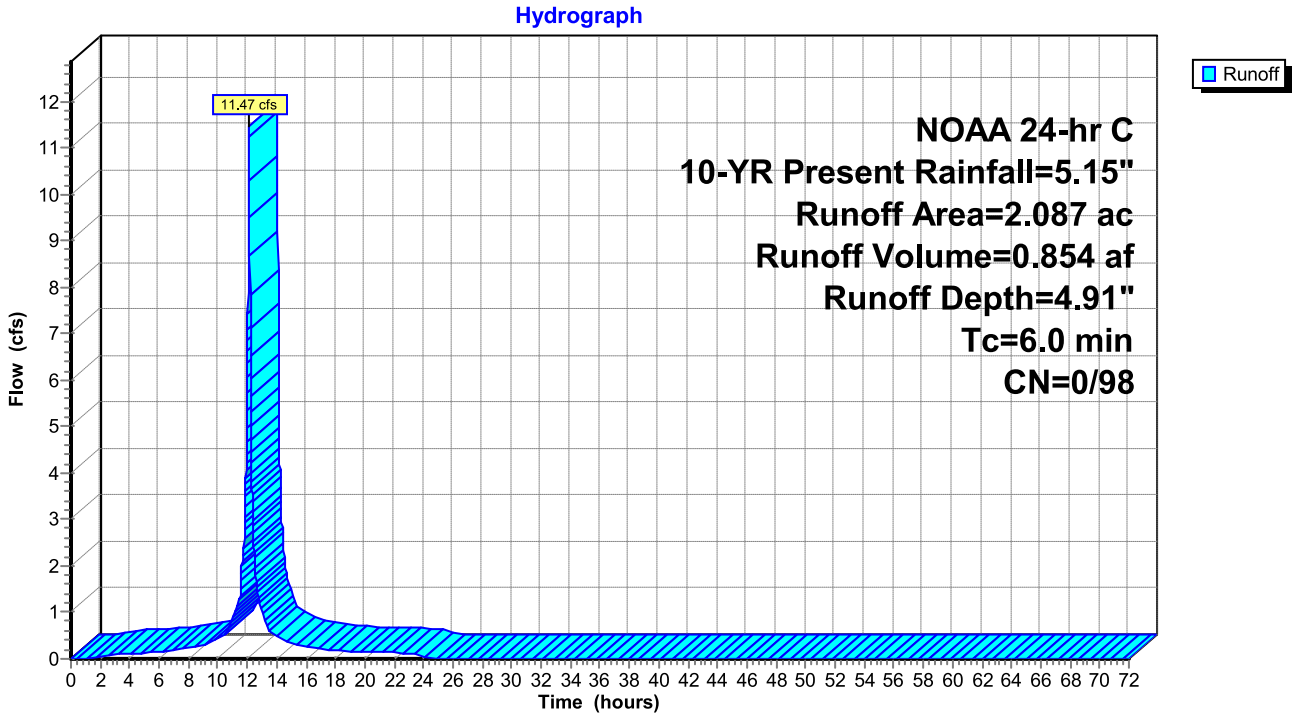
Runoff = 11.47 cfs @ 12.13 hrs, Volume= 0.854 af, Depth= 4.91"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	2.087	98	Gravel surfaces
	2.087	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious



Summary for Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious

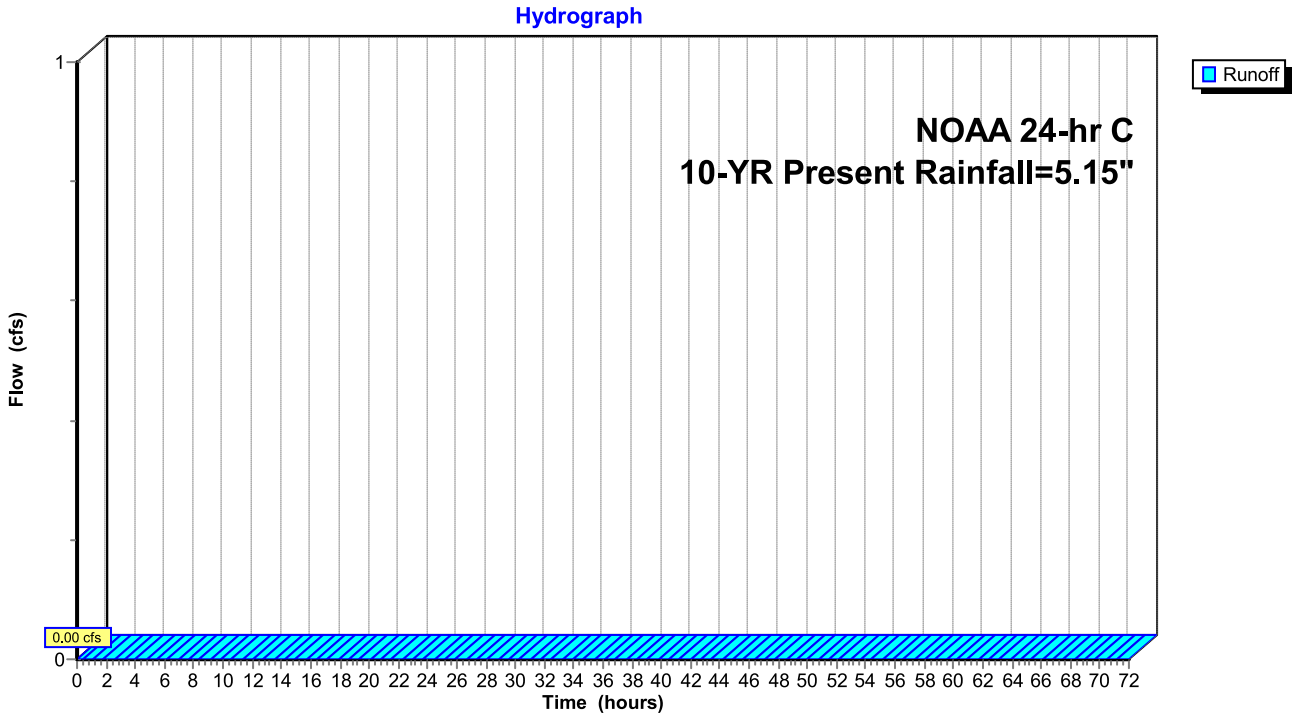
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious



Summary for Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint

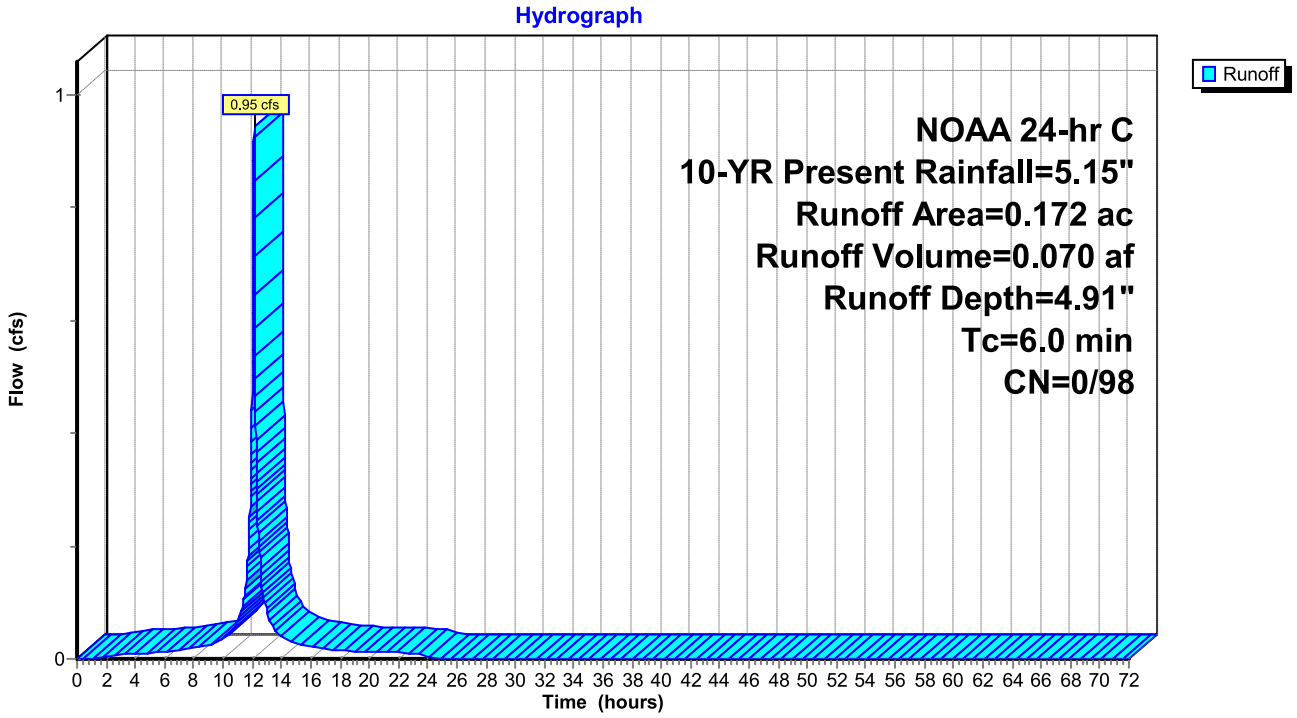
Runoff = 0.95 cfs @ 12.13 hrs, Volume= 0.070 af, Depth= 4.91"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.172	98	Infiltration Basin #8
	0.172	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint



Summary for Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious

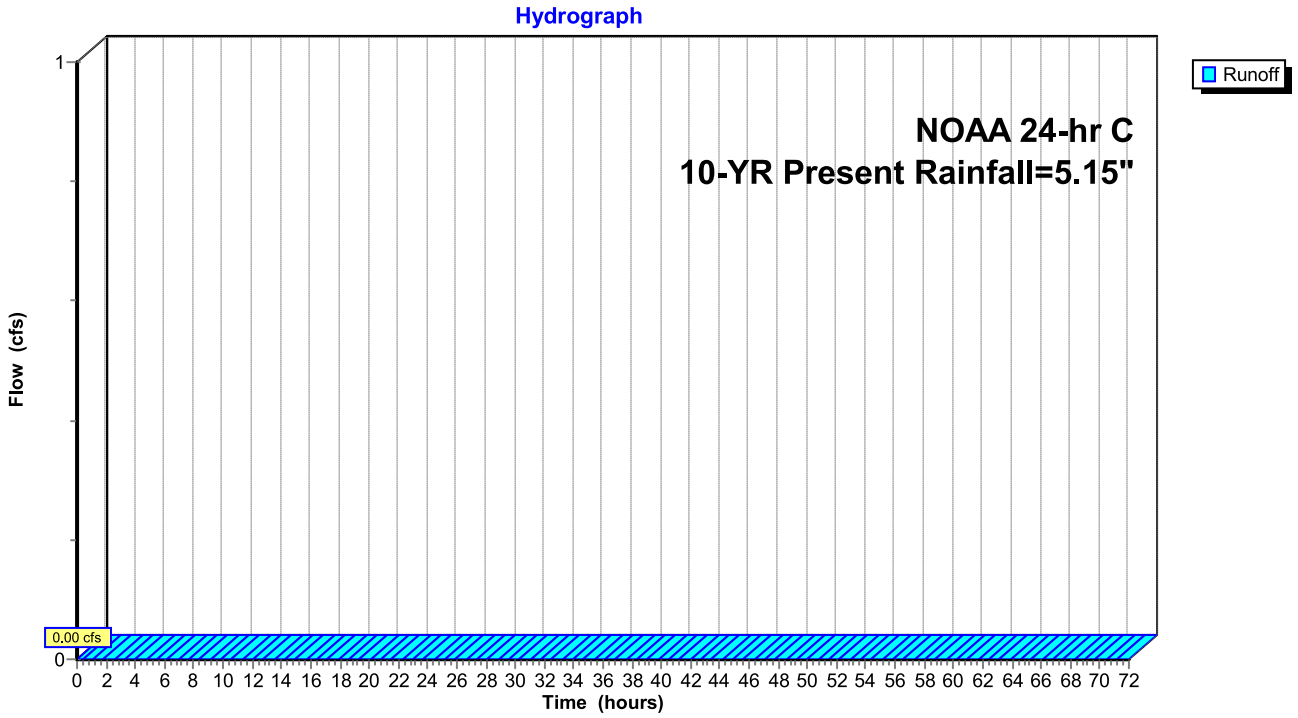
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious



Summary for Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious

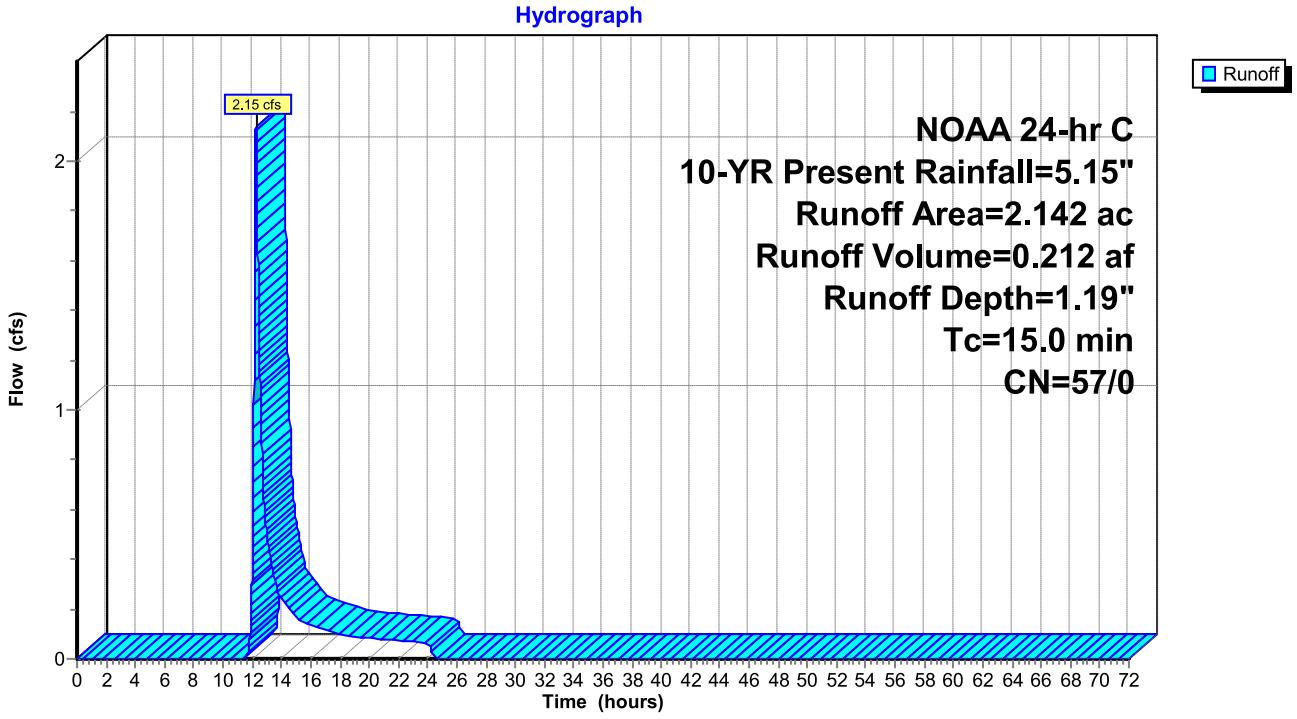
Runoff = 2.15 cfs @ 12.25 hrs, Volume= 0.212 af, Depth= 1.19"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
1.008	48	Brush, Good, HSG B
1.134	65	Brush, Good, HSG C
2.142	57	Weighted Average
2.142	57	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious



Summary for Subcatchment Off1: POST - POI #2 - Bypass

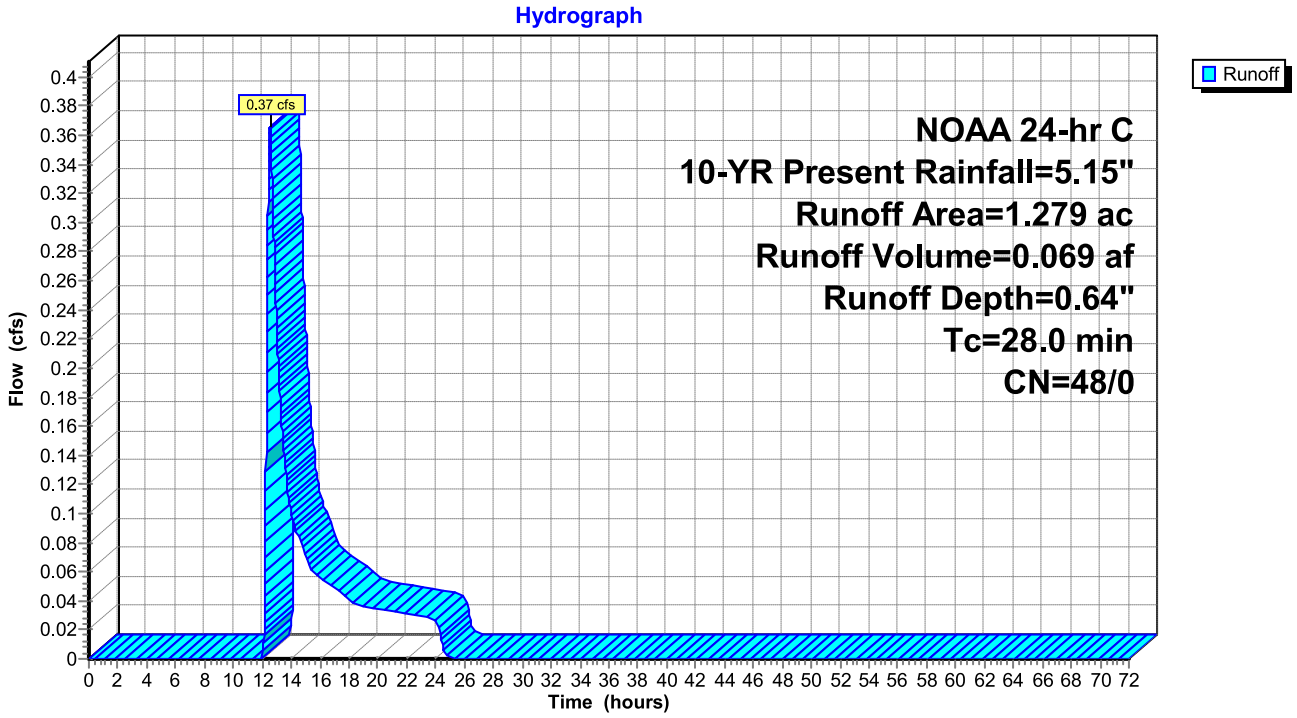
Runoff = 0.37 cfs @ 12.54 hrs, Volume= 0.069 af, Depth= 0.64"
Routed to Link Post2 : POST - POI #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
1.279	48	Brush, Good, HSG B
1.279	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment Off1: POST - POI #2 - Bypass



Summary for Subcatchment Off1I: POST - POI #1 - Bypass Impervious

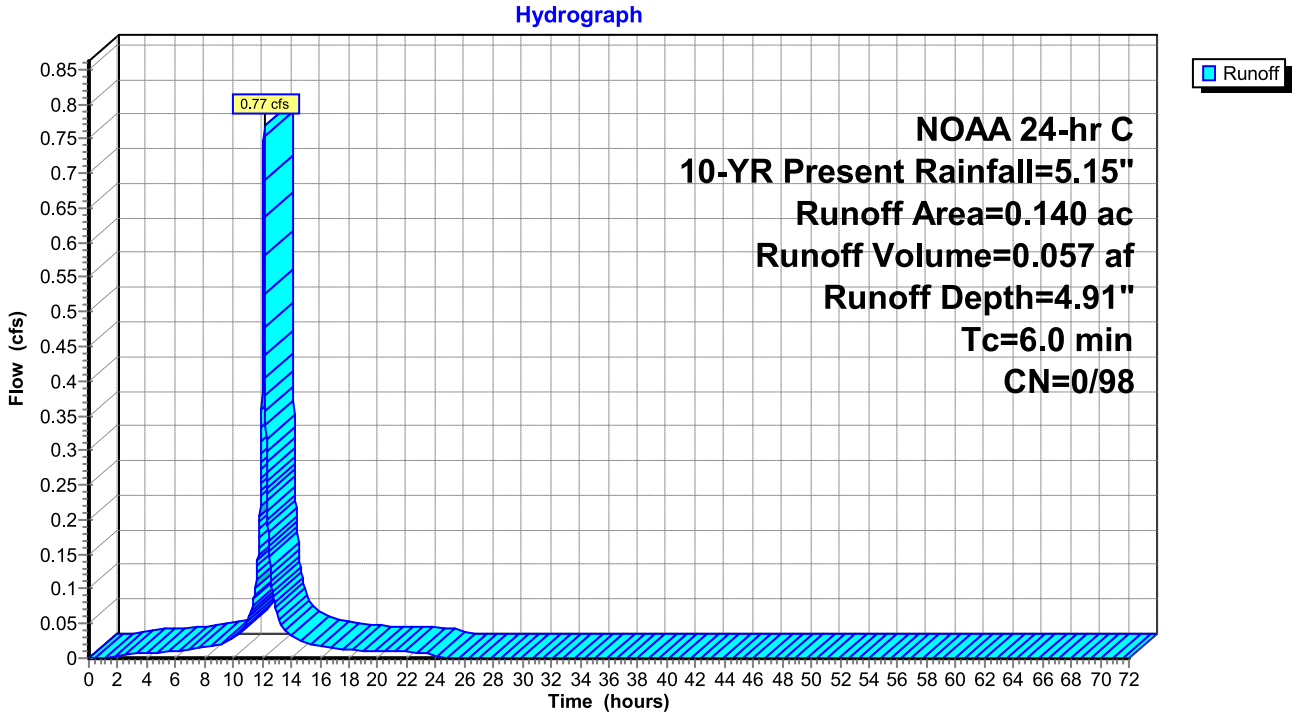
Runoff = 0.77 cfs @ 12.13 hrs, Volume= 0.057 af, Depth= 4.91"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
*	0.050	98	Gravel B
*	0.010	98	Gravel C
*	0.080	98	Gravel D
	0.140	98	Weighted Average
	0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1I: POST - POI #1 - Bypass Impervious



Summary for Subcatchment Off1P: POST - POI #1 - Bypass Pervious

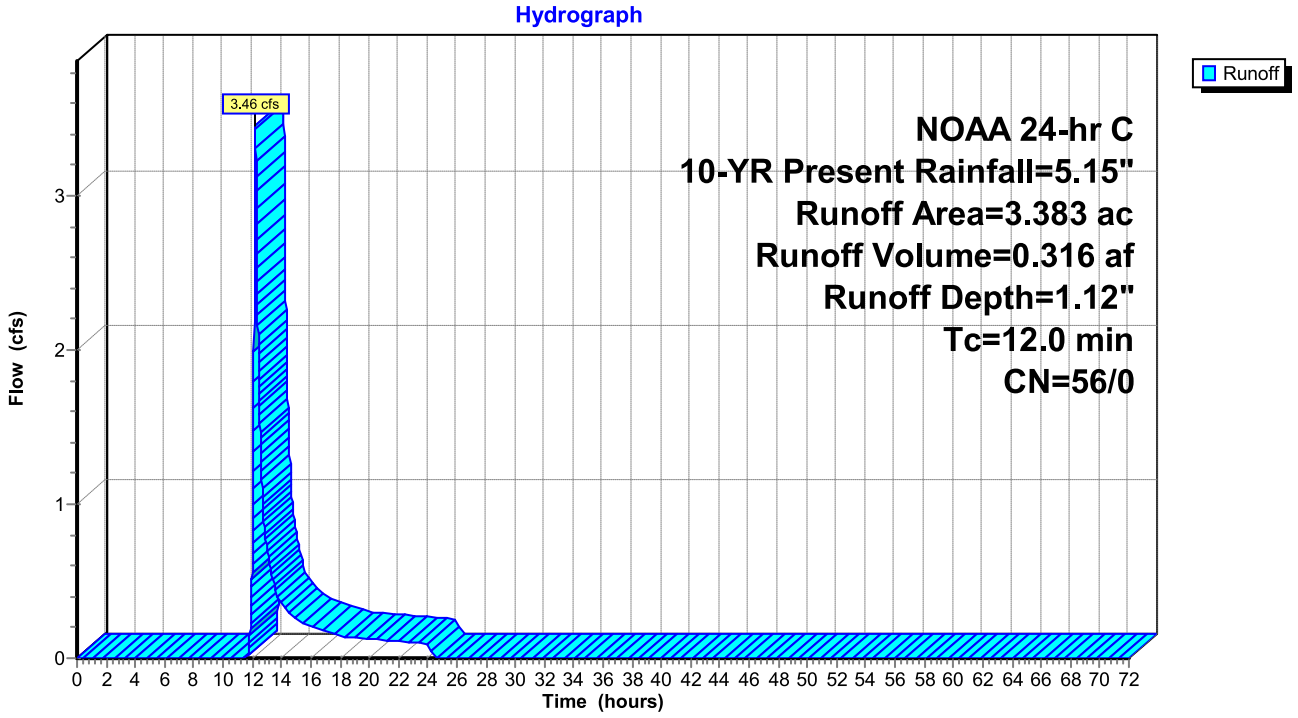
Runoff = 3.46 cfs @ 12.22 hrs, Volume= 0.316 af, Depth= 1.12"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
2.061	48	Brush, Good, HSG B
0.543	65	Brush, Good, HSG C
0.779	73	Brush, Good, HSG D
3.383	56	Weighted Average
3.383	56	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1P: POST - POI #1 - Bypass Pervious



Summary for Subcatchment Pre1: PRE - POI #1

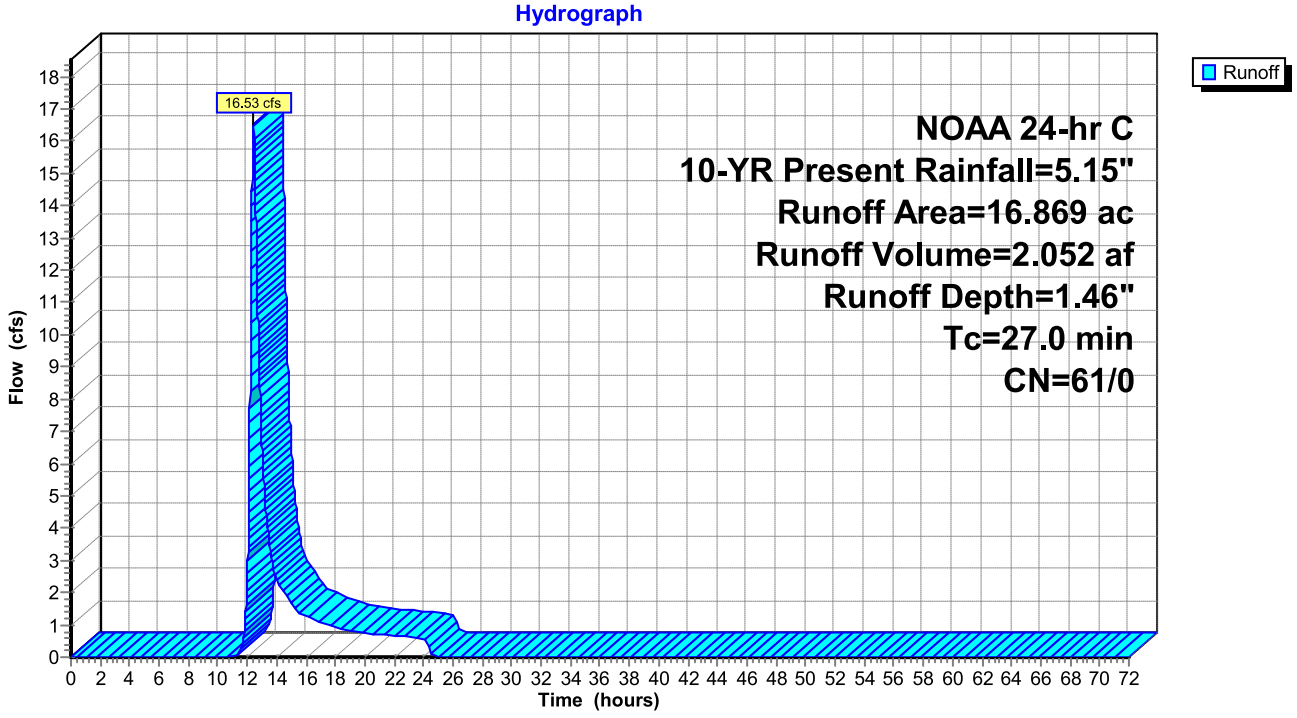
Runoff = 16.53 cfs @ 12.42 hrs, Volume= 2.052 af, Depth= 1.46"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

Area (ac)	CN	Description
9.127	55	Woods, Good, HSG B
1.498	61	Pasture/grassland/range, Good, HSG B
2.070	70	Woods, Good, HSG C
2.444	74	Pasture/grassland/range, Good, HSG C
0.452	77	Woods, Good, HSG D
0.326	80	Pasture/grassland/range, Good, HSG D
0.952	48	Brush, Good, HSG B
16.869	61	Weighted Average
16.869	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre1: PRE - POI #1



Summary for Subcatchment Pre2: PRE - POI #2

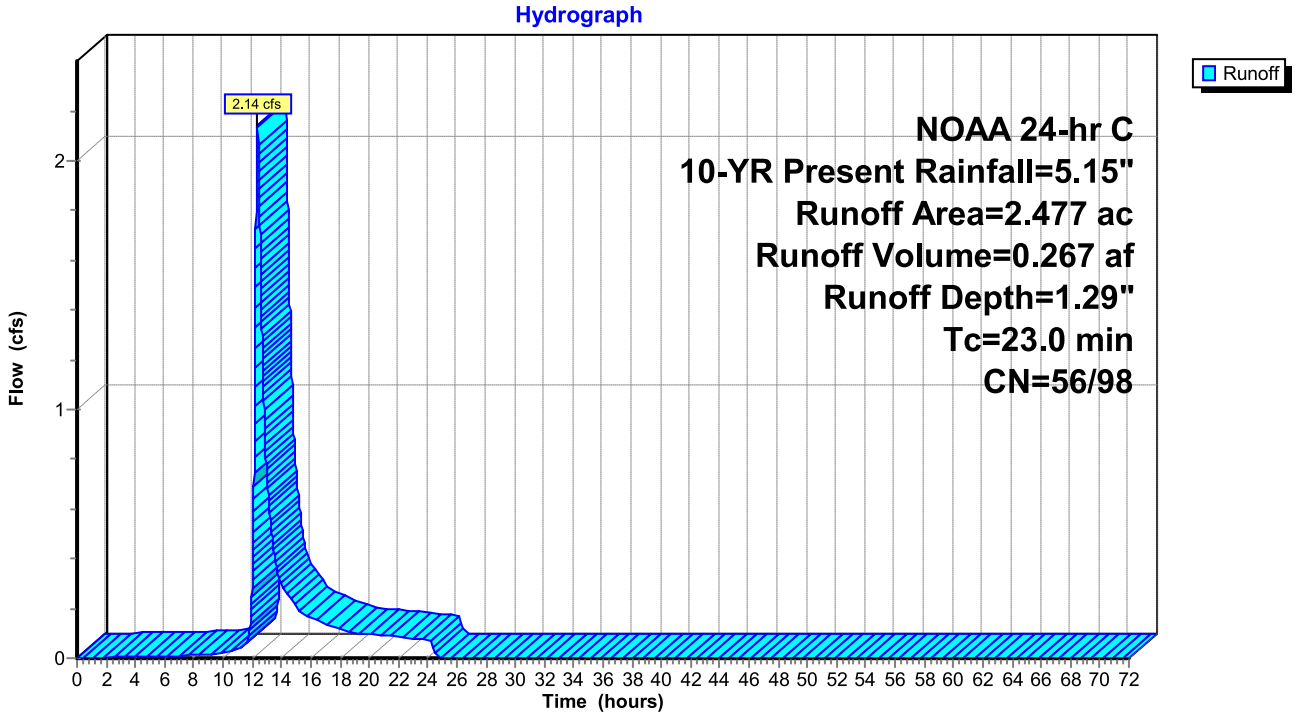
Runoff = 2.14 cfs @ 12.37 hrs, Volume= 0.267 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YR Present Rainfall=5.15"

	Area (ac)	CN	Description
	1.817	55	Woods, Good, HSG B
	0.546	61	Pasture/grassland/range, Good, HSG B
*	0.114	98	Impervious, HSG B
	2.477	58	Weighted Average
	2.363	56	95.40% Pervious Area
	0.114	98	4.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre2: PRE - POI #2



Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 3.15" for 10-YR Present event
Inflow = 2.66 cfs @ 12.15 hrs, Volume= 0.234 af
Outflow = 0.24 cfs @ 13.28 hrs, Volume= 0.183 af, Atten= 91%, Lag= 67.5 min
Primary = 0.24 cfs @ 13.28 hrs, Volume= 0.183 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 276.05' @ 13.28 hrs Surf.Area= 5,377 sf Storage= 6,698 cf

Plug-Flow detention time= 577.5 min calculated for 0.183 af (78% of inflow)
Center-of-Mass det. time= 488.7 min (1,254.9 - 766.2)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

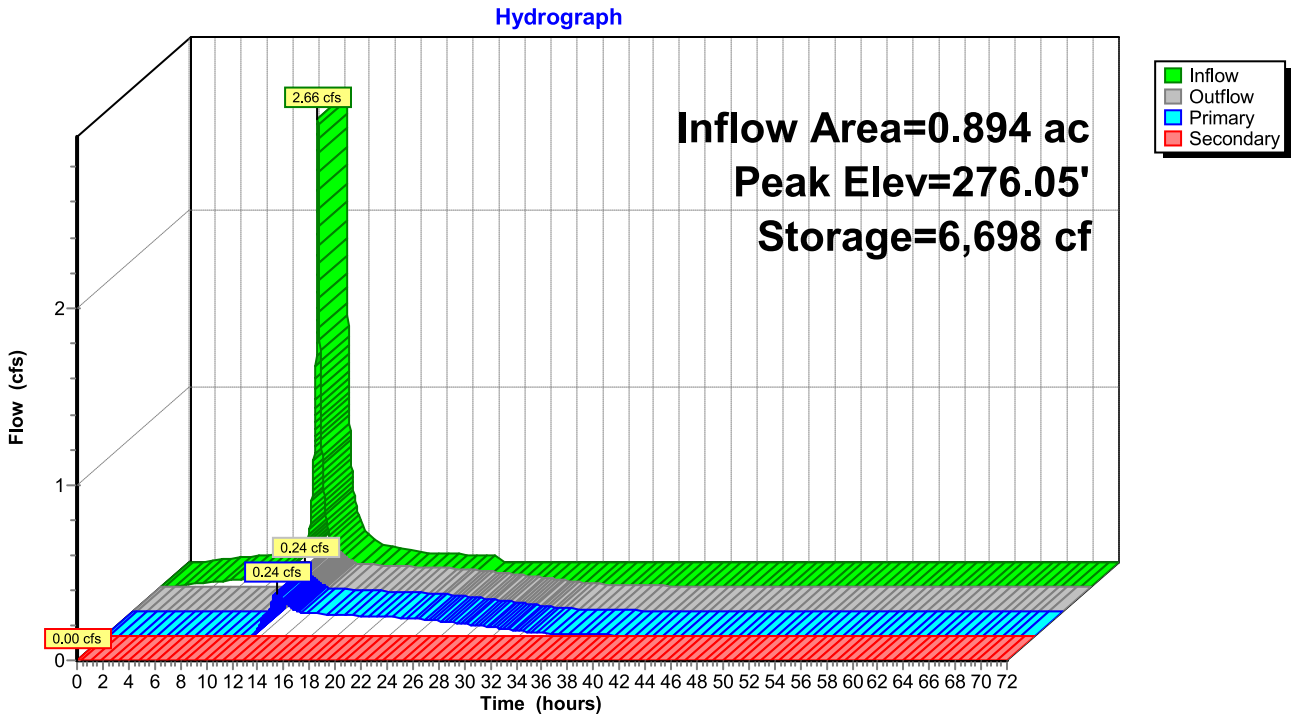
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.24 cfs @ 13.28 hrs HW=276.05' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.24 cfs of 9.66 cfs potential flow)
  ├**2=Orifice #1** (Orifice Controls 0.13 cfs @ 4.73 fps)
  ├**3=Rectangular Orifice** (Weir Controls 0.11 cfs @ 0.74 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 3.75" for 10-YR Present event
Inflow = 1.26 cfs @ 12.13 hrs, Volume= 0.095 af
Outflow = 0.12 cfs @ 13.03 hrs, Volume= 0.073 af, Atten= 91%, Lag= 53.8 min
Primary = 0.12 cfs @ 13.03 hrs, Volume= 0.073 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.53' @ 13.03 hrs Surf.Area= 2,337 sf Storage= 2,550 cf

Plug-Flow detention time= 347.1 min calculated for 0.073 af (77% of inflow)
Center-of-Mass det. time= 259.2 min (1,015.9 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

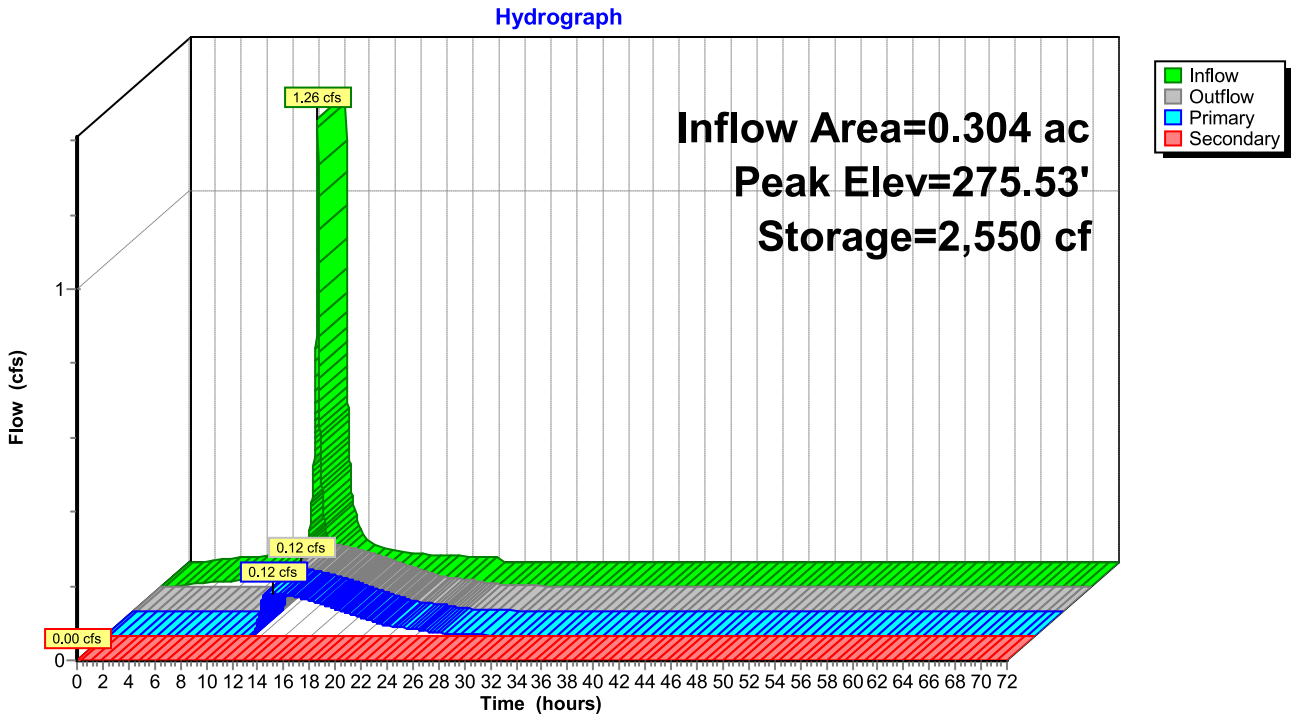
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.12 cfs @ 13.03 hrs HW=275.53' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.12 cfs of 8.67 cfs potential flow)
  ├**2=Orice** (Orifice Controls 0.12 cfs @ 4.15 fps)
  ├**3=Rectangular Orifice** (Controls 0.00 cfs)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 1.41" for 10-YR Present event
Inflow = 1.70 cfs @ 12.14 hrs, Volume= 0.140 af
Outflow = 0.90 cfs @ 12.24 hrs, Volume= 0.118 af, Atten= 47%, Lag= 6.3 min
Primary = 0.90 cfs @ 12.24 hrs, Volume= 0.118 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.54' @ 12.24 hrs Surf.Area= 3,965 sf Storage= 1,894 cf

Plug-Flow detention time= 165.6 min calculated for 0.118 af (84% of inflow)
Center-of-Mass det. time= 86.5 min (901.7 - 815.2)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

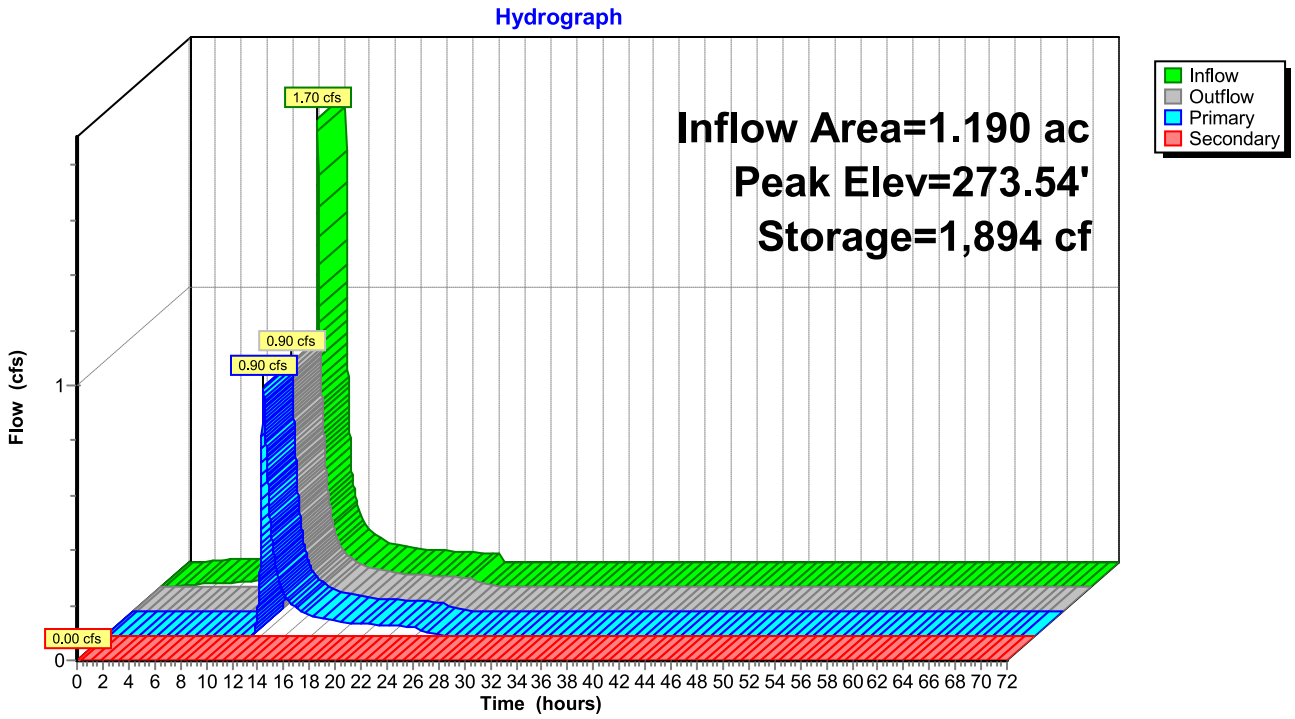
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.90 cfs @ 12.24 hrs HW=273.54' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.90 cfs of 3.38 cfs potential flow)
├**2=Orifice #1** (Orifice Controls 0.90 cfs @ 1.58 fps)
├**3=Orifice #2** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 0.98" for 10-YR Present event
Inflow = 1.23 cfs @ 12.15 hrs, Volume= 0.196 af
Outflow = 0.40 cfs @ 13.04 hrs, Volume= 0.178 af, Atten= 68%, Lag= 53.9 min
Primary = 0.40 cfs @ 13.04 hrs, Volume= 0.178 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.57' @ 13.04 hrs Surf.Area= 5,724 sf Storage= 3,114 cf

Plug-Flow detention time= 215.4 min calculated for 0.178 af (91% of inflow)
Center-of-Mass det. time= 166.0 min (1,028.7 - 862.7)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

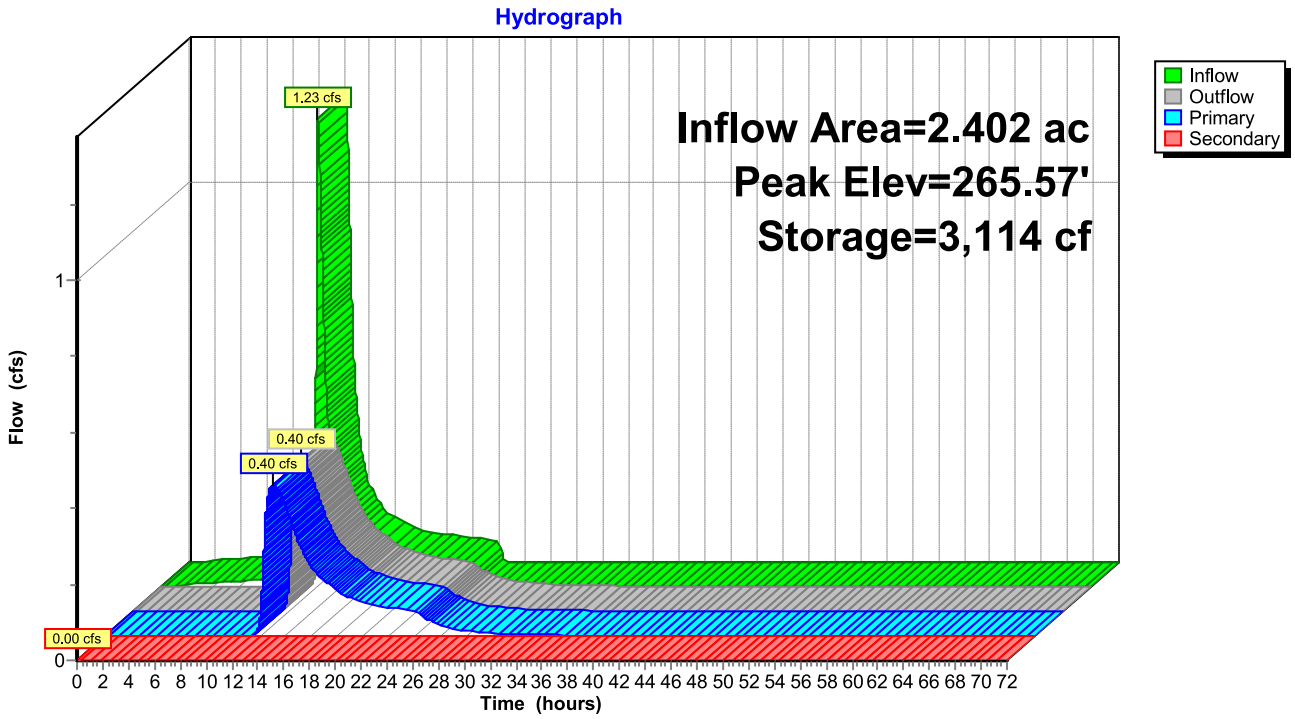
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.40 cfs @ 13.04 hrs HW=265.57' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.40 cfs of 5.72 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 0.40 cfs @ 2.38 fps)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 4.35" for 10-YR Present event
Inflow = 8.87 cfs @ 12.22 hrs, Volume= 0.894 af
Outflow = 4.68 cfs @ 12.42 hrs, Volume= 0.718 af, Atten= 47%, Lag= 12.4 min
Primary = 4.68 cfs @ 12.42 hrs, Volume= 0.718 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 267.89' @ 12.42 hrs Surf.Area= 7,934 sf Storage= 19,035 cf

Plug-Flow detention time= 274.2 min calculated for 0.718 af (80% of inflow)
Center-of-Mass det. time= 193.8 min (957.9 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

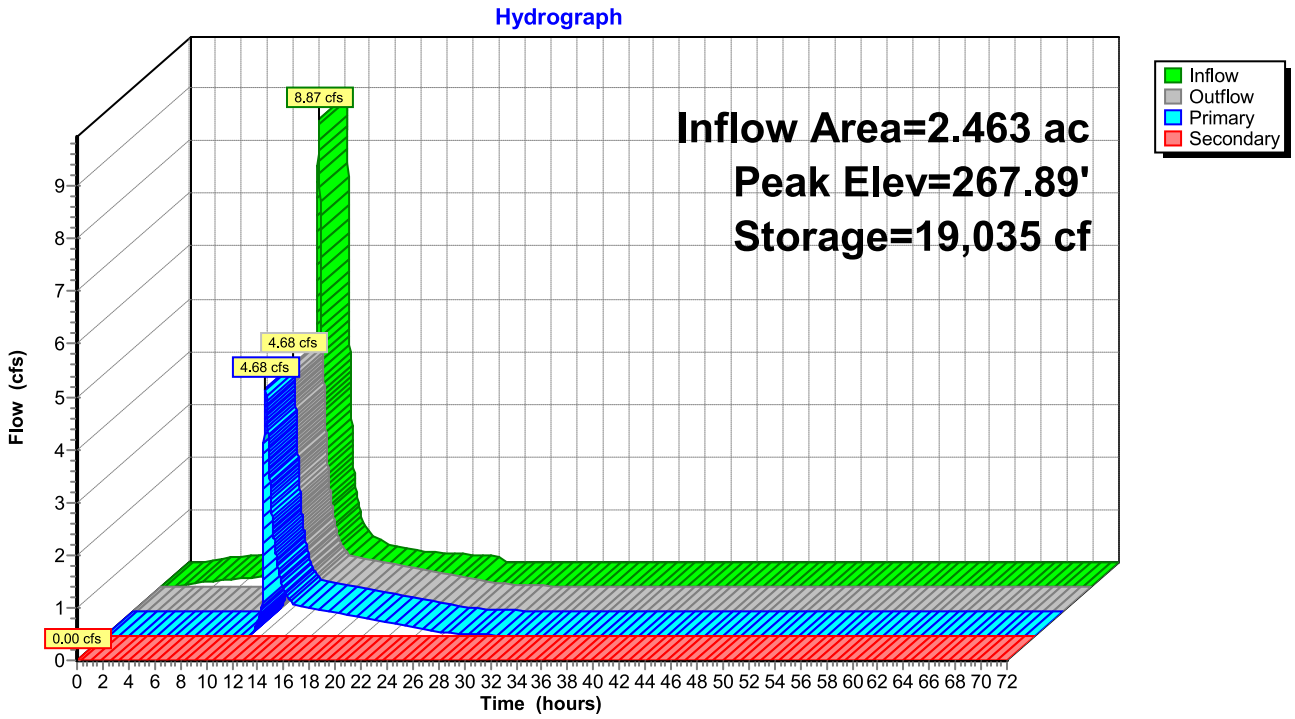
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=4.68 cfs @ 12.42 hrs HW=267.89' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 4.68 cfs of 16.22 cfs potential flow)
  ├─**2=Rectangular Orifice #1** (Orifice Controls 0.73 cfs @ 5.82 fps)
  ├─**3=Rectangular Orifice #2** (Weir Controls 3.95 cfs @ 2.55 fps)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 4.91" for 10-YR Present event
Inflow = 13.67 cfs @ 12.13 hrs, Volume= 1.018 af
Outflow = 0.30 cfs @ 16.26 hrs, Volume= 0.754 af, Atten= 98%, Lag= 247.7 min
Primary = 0.30 cfs @ 16.26 hrs, Volume= 0.754 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 264.06' @ 16.26 hrs Surf.Area= 18,963 sf Storage= 34,725 cf

Plug-Flow detention time= 1,242.1 min calculated for 0.754 af (74% of inflow)
Center-of-Mass det. time= 1,151.1 min (1,899.4 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

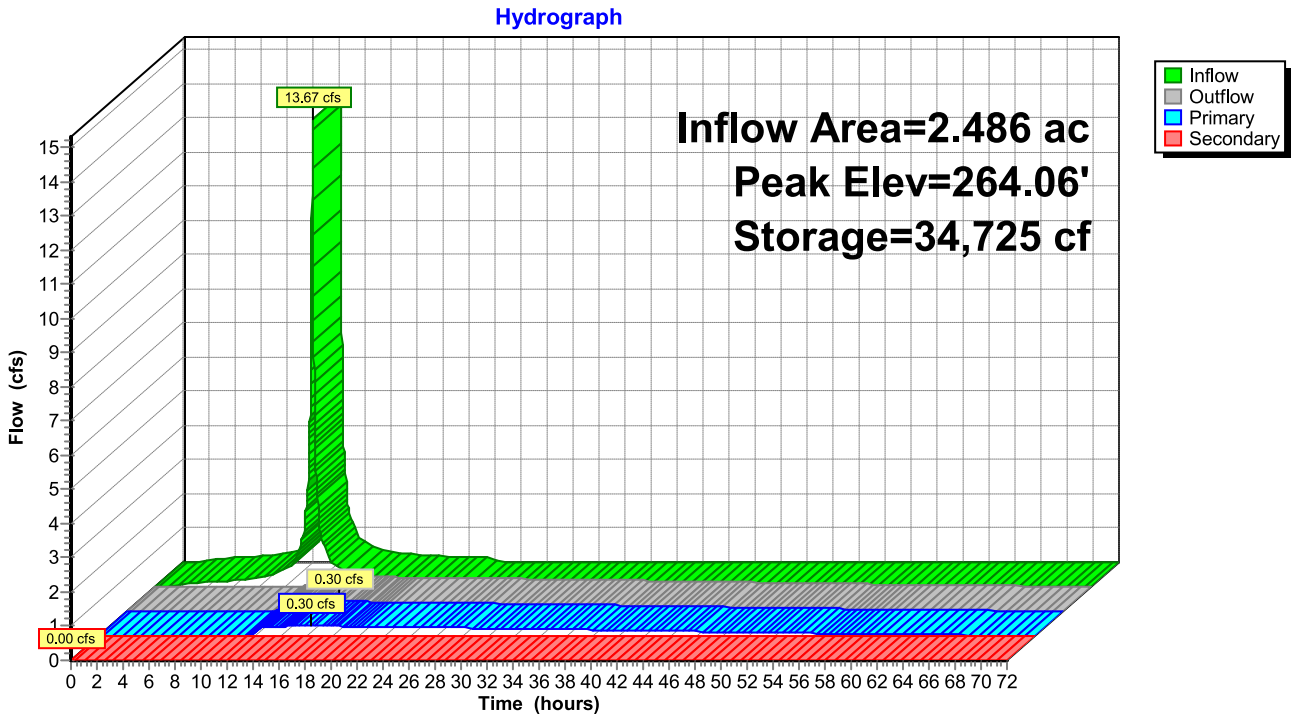
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.30 cfs @ 16.26 hrs HW=264.06' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.30 cfs of 9.73 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.27 cfs @ 5.45 fps)
├**3=Rectangular Orifice** (Weir Controls 0.04 cfs @ 0.80 fps)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 4.91" for 10-YR Present event
Inflow = 13.70 cfs @ 12.13 hrs, Volume= 1.020 af
Outflow = 0.52 cfs @ 14.35 hrs, Volume= 0.784 af, Atten= 96%, Lag= 133.5 min
Primary = 0.52 cfs @ 14.35 hrs, Volume= 0.784 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 264.02' @ 14.35 hrs Surf.Area= 14,486 sf Storage= 32,087 cf

Plug-Flow detention time= 732.8 min calculated for 0.784 af (77% of inflow)
Center-of-Mass det. time= 646.7 min (1,395.0 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

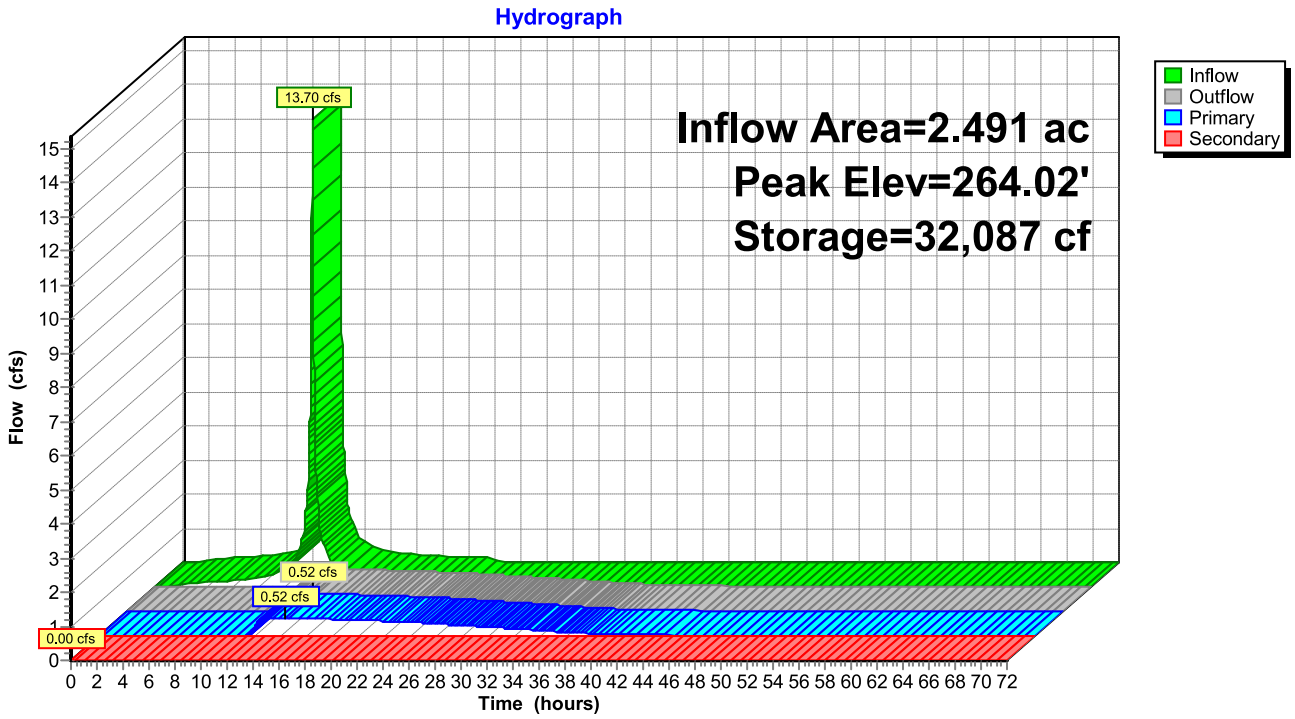
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.52 cfs @ 14.35 hrs HW=264.02' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.52 cfs of 11.32 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.52 cfs @ 5.90 fps)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 1.46" for 10-YR Present event
Inflow = 2.57 cfs @ 12.23 hrs, Volume= 0.282 af
Outflow = 0.46 cfs @ 13.26 hrs, Volume= 0.194 af, Atten= 82%, Lag= 61.9 min
Primary = 0.46 cfs @ 13.26 hrs, Volume= 0.194 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.13' @ 13.26 hrs Surf.Area= 5,707 sf Storage= 5,898 cf

Plug-Flow detention time= 336.3 min calculated for 0.194 af (69% of inflow)
Center-of-Mass det. time= 217.8 min (1,076.4 - 858.6)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

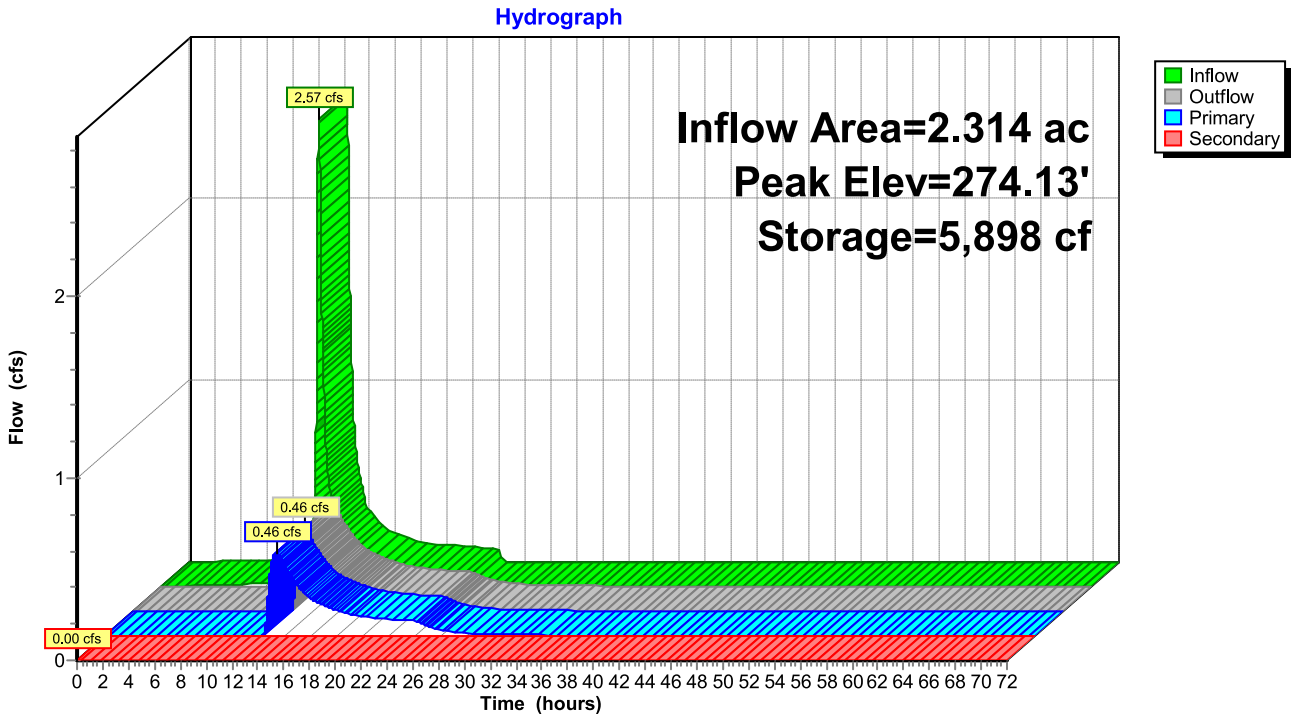
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.46 cfs @ 13.26 hrs HW=274.13' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Barrel Controls 0.46 cfs @ 1.94 fps)
  ├─**2=Orifice** (Passes 0.46 cfs of 0.50 cfs potential flow)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8

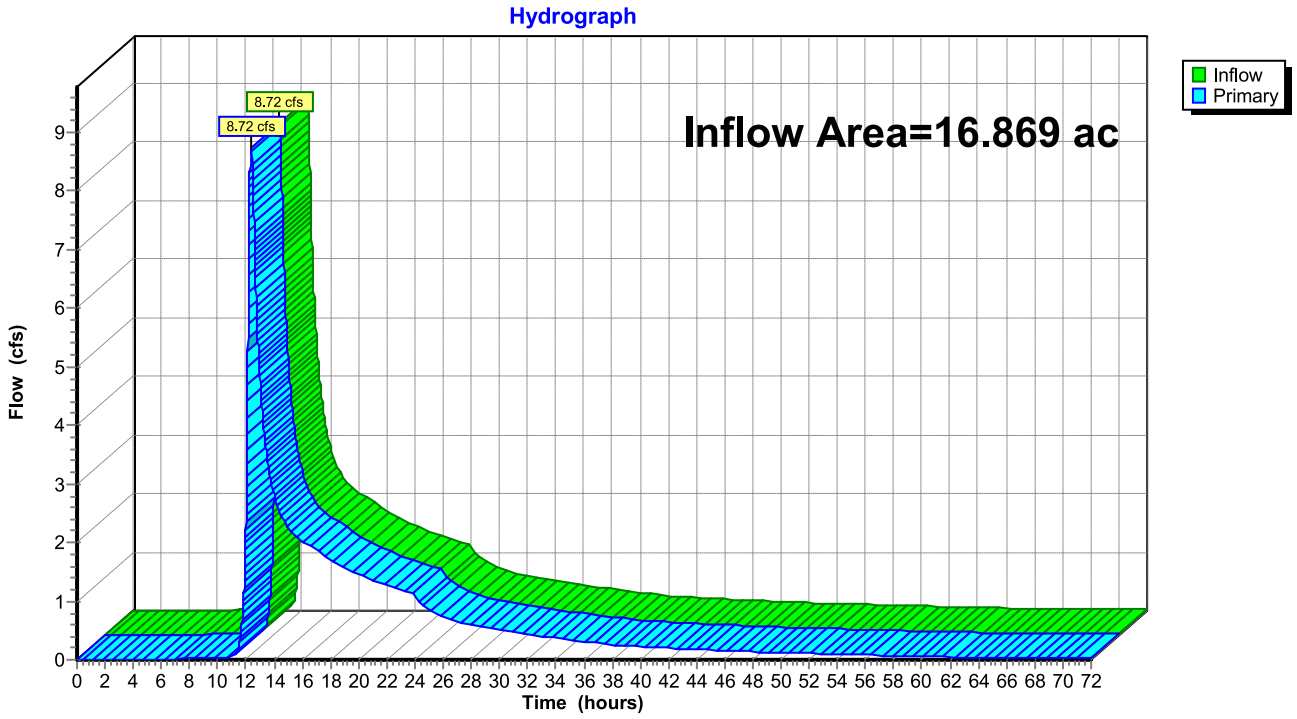


Summary for Link Post1: POST - POI #1

Inflow Area = 16.869 ac, 45.76% Impervious, Inflow Depth > 2.22" for 10-YR Present event
Inflow = 8.72 cfs @ 12.36 hrs, Volume= 3.118 af
Primary = 8.72 cfs @ 12.36 hrs, Volume= 3.118 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post1: POST - POI #1

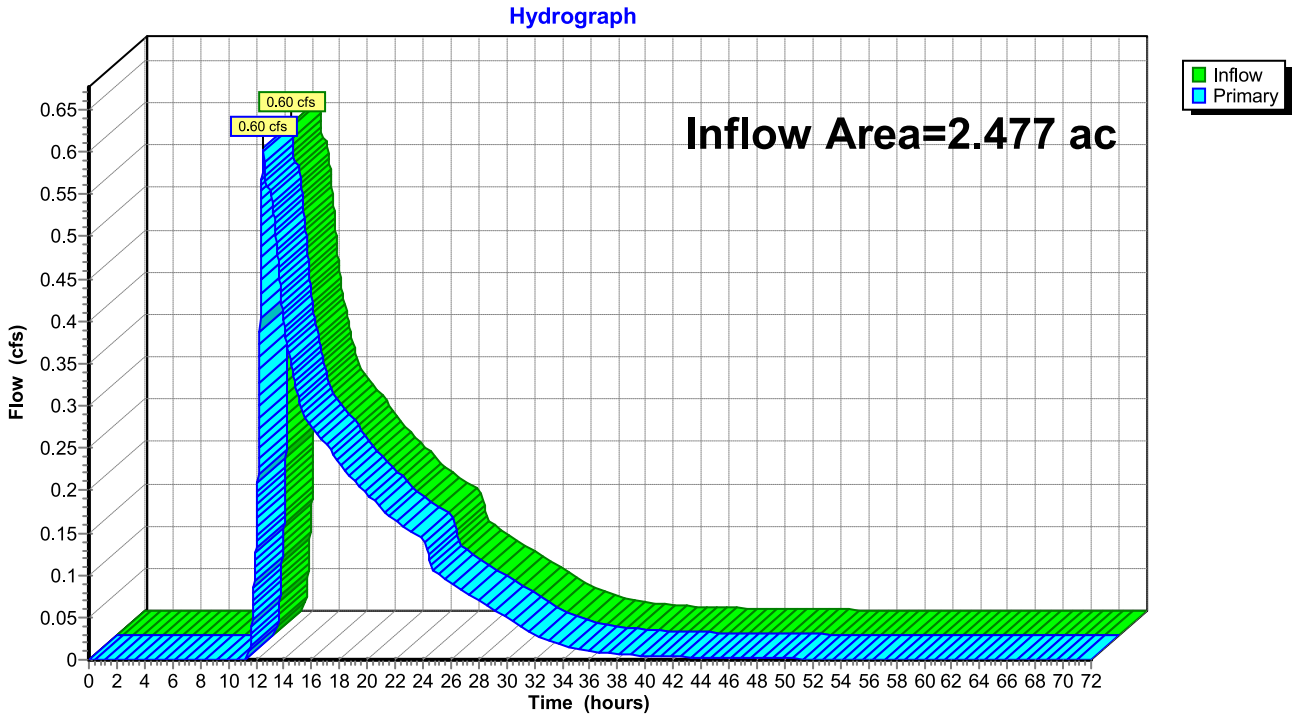


Summary for Link Post2: POST - POI #2

Inflow Area = 2.477 ac, 30.08% Impervious, Inflow Depth > 1.58" for 10-YR Present event
Inflow = 0.60 cfs @ 12.54 hrs, Volume= 0.325 af
Primary = 0.60 cfs @ 12.54 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post2: POST - POI #2



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1F: POST - POI #2 - Runoff Area=0.154 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=2.04 cfs 0.155 af

Subcatchment 1I: POST - POI #2 - Runoff Area=0.370 ac 100.00% Impervious Runoff Depth=12.09"
Tc=10.0 min CN=0/98 Runoff=4.25 cfs 0.373 af

Subcatchment 1P: POST - POI #2 - Runoff Area=0.370 ac 0.00% Impervious Runoff Depth=4.92"
Tc=10.0 min CN=48/0 Runoff=2.04 cfs 0.152 af

Subcatchment 2F: POST - POI #2 - Runoff Area=0.091 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=1.20 cfs 0.092 af

Subcatchment 2I: POST - POI #2 - Runoff Area=0.130 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=1.72 cfs 0.131 af

Subcatchment 2P: POST - POI #2 - Runoff Area=0.083 ac 0.00% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=48/0 Runoff=0.54 cfs 0.034 af

Subcatchment 3F: POST - POI #1 - Runoff Area=0.214 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=2.83 cfs 0.216 af

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 3P: POST - POI #1 - Runoff Area=0.976 ac 0.00% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=48/0 Runoff=6.33 cfs 0.400 af

Subcatchment 4F: POST - POI #1 - Runoff Area=0.189 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=2.50 cfs 0.190 af

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 4P: POST - POI #1 - Runoff Area=2.213 ac 0.00% Impervious Runoff Depth=4.92"
Tc=17.0 min CN=48/0 Runoff=9.75 cfs 0.907 af

Subcatchment 5F: POST - POI #1 - Runoff Area=0.185 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=2.45 cfs 0.186 af

Subcatchment 5I: POST - POI #1 - Runoff Area=1.842 ac 100.00% Impervious Runoff Depth=12.09"
Tc=15.0 min CN=0/98 Runoff=18.36 cfs 1.856 af

Subcatchment 5P: POST - POI #1 - Runoff Area=0.436 ac 0.00% Impervious Runoff Depth=7.61"
Tc=15.0 min CN=65/0 Runoff=3.19 cfs 0.277 af

Subcatchment 6F: POST - POI #1 - Runoff Area=0.478 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=6.32 cfs 0.482 af

Subcatchment 6I: POST - POI #1 - Runoff Area=2.008 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=26.54 cfs 2.023 af

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 7F: POST - POI #1 - Runoff Area=0.404 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=5.34 cfs 0.407 af

Subcatchment 7I: POST - POI #1 - Runoff Area=2.087 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=27.59 cfs 2.102 af

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8F: POST - POI #1 - Runoff Area=0.172 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=2.27 cfs 0.173 af

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8P: POST - POI #1 - Runoff Area=2.142 ac 0.00% Impervious Runoff Depth=6.38"
Tc=15.0 min CN=57/0 Runoff=13.20 cfs 1.138 af

Subcatchment Off1: POST - POI #2 - Bypass Runoff Area=1.279 ac 0.00% Impervious Runoff Depth=4.92"
Tc=28.0 min CN=48/0 Runoff=4.42 cfs 0.524 af

Subcatchment Off1I: POST - POI #1 - Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=12.09"
Tc=6.0 min CN=0/98 Runoff=1.85 cfs 0.141 af

Subcatchment Off1P: POST - POI #1 - Runoff Area=3.383 ac 0.00% Impervious Runoff Depth=6.22"
Tc=12.0 min CN=56/0 Runoff=22.24 cfs 1.753 af

Subcatchment Pre1: PRE - POI #1 Runoff Area=16.869 ac 0.00% Impervious Runoff Depth=7.00"
Tc=27.0 min CN=61/0 Runoff=86.59 cfs 9.842 af

Subcatchment Pre2: PRE - POI #2 Runoff Area=2.477 ac 4.60% Impervious Runoff Depth=6.49"
Tc=23.0 min CN=56/98 Runoff=12.56 cfs 1.339 af

Pond B1: Infiltration Basin #1 Peak Elev=276.61' Storage=10,184 cf Inflow=8.04 cfs 0.680 af
Primary=5.33 cfs 0.617 af Secondary=0.92 cfs 0.012 af Outflow=6.26 cfs 0.628 af

Pond B2: Infiltration Basin #2 Peak Elev=276.55' Storage=5,661 cf Inflow=3.46 cfs 0.257 af
Primary=0.50 cfs 0.226 af Secondary=0.30 cfs 0.009 af Outflow=0.79 cfs 0.235 af

Pond B3: Infiltration Basin #3 Peak Elev=274.41' Storage=6,256 cf Inflow=9.14 cfs 0.616 af
Primary=4.15 cfs 0.593 af Secondary=0.00 cfs 0.000 af Outflow=4.15 cfs 0.593 af

Pond B4: Infiltration Basin #4 Peak Elev=267.73' Storage=17,789 cf Inflow=10.78 cfs 1.098 af
Primary=3.64 cfs 1.079 af Secondary=0.00 cfs 0.000 af Outflow=3.64 cfs 1.079 af

Pond B5: Infiltration Basin #5 Peak Elev=268.14' Storage=21,130 cf Inflow=22.84 cfs 2.318 af
Primary=8.01 cfs 1.751 af Secondary=14.70 cfs 0.392 af Outflow=22.71 cfs 2.143 af

Pond B6: Infiltration Basin #6 Peak Elev=265.58' Storage=65,965 cf Inflow=32.86 cfs 2.504 af
Primary=4.76 cfs 2.234 af Secondary=0.00 cfs 0.000 af Outflow=4.76 cfs 2.234 af

Pond B7: Infiltration Basin #7 Peak Elev=265.91' Storage=62,259 cf Inflow=32.93 cfs 2.509 af
Primary=10.83 cfs 2.270 af Secondary=0.00 cfs 0.000 af Outflow=10.83 cfs 2.270 af

Pond B8: Infiltration Basin #8 Peak Elev=275.93' Storage=17,693 cf Inflow=14.35 cfs 1.311 af
Primary=7.81 cfs 1.223 af Secondary=0.00 cfs 0.000 af Outflow=7.81 cfs 1.223 af

Link Post1: POST - POI #1 Inflow=66.03 cfs 11.437 af
Primary=66.03 cfs 11.437 af

Link Post2: POST - POI #2 Inflow=9.98 cfs 1.388 af
Primary=9.98 cfs 1.388 af

Total Runoff Area = 38.692 ac Runoff Volume = 24.892 af Average Runoff Depth = 7.72"
77.83% Pervious = 30.114 ac 22.17% Impervious = 8.578 ac

Summary for Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint

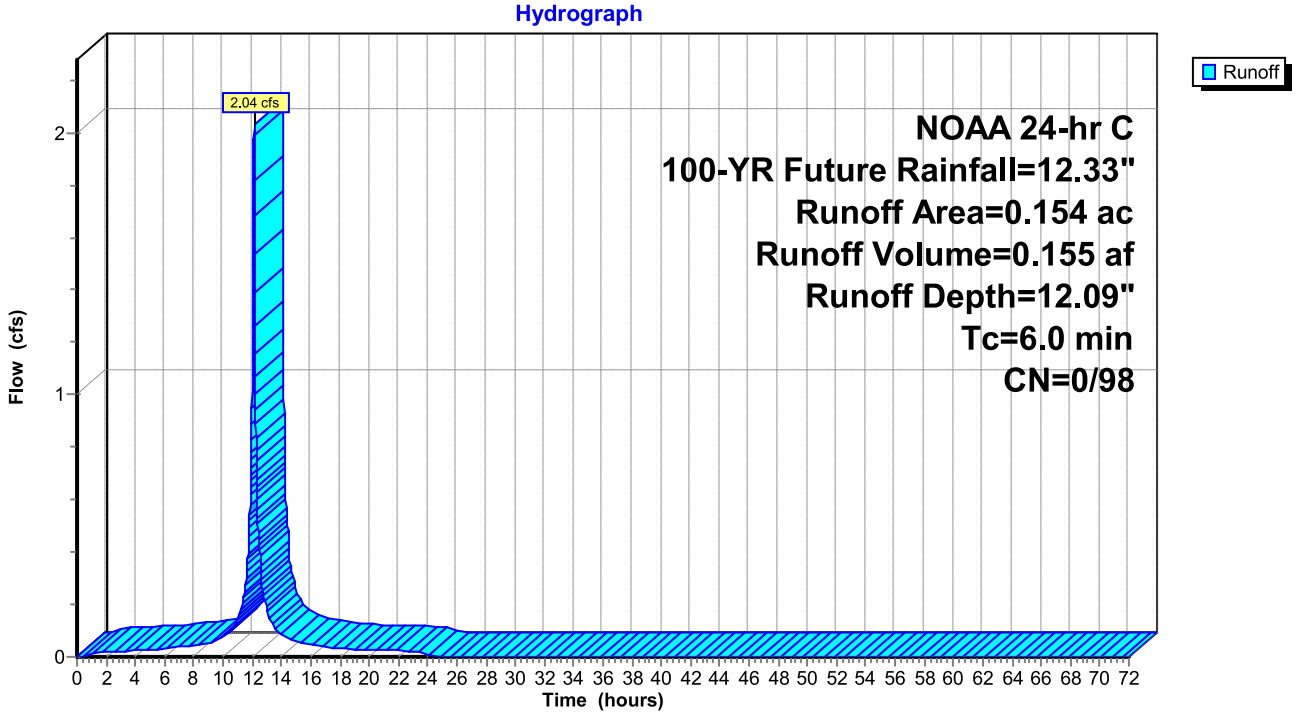
Runoff = 2.04 cfs @ 12.13 hrs, Volume= 0.155 af, Depth=12.09"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.154	98	Infiltration Basin #1
	0.154	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint



Summary for Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious

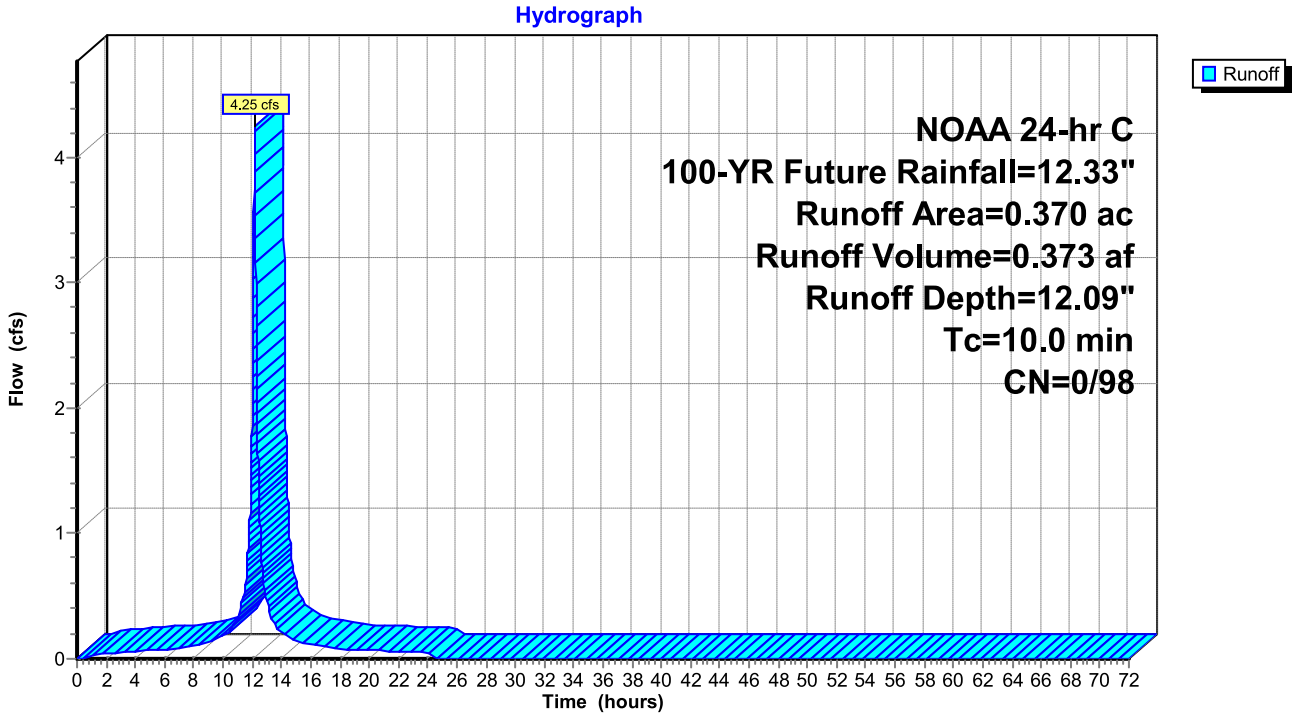
Runoff = 4.25 cfs @ 12.17 hrs, Volume= 0.373 af, Depth=12.09"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.020	98	Impervious, HSG B
*	0.350	98	Gravel roads, HSG B
	0.370	98	Weighted Average
	0.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious



Summary for Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious

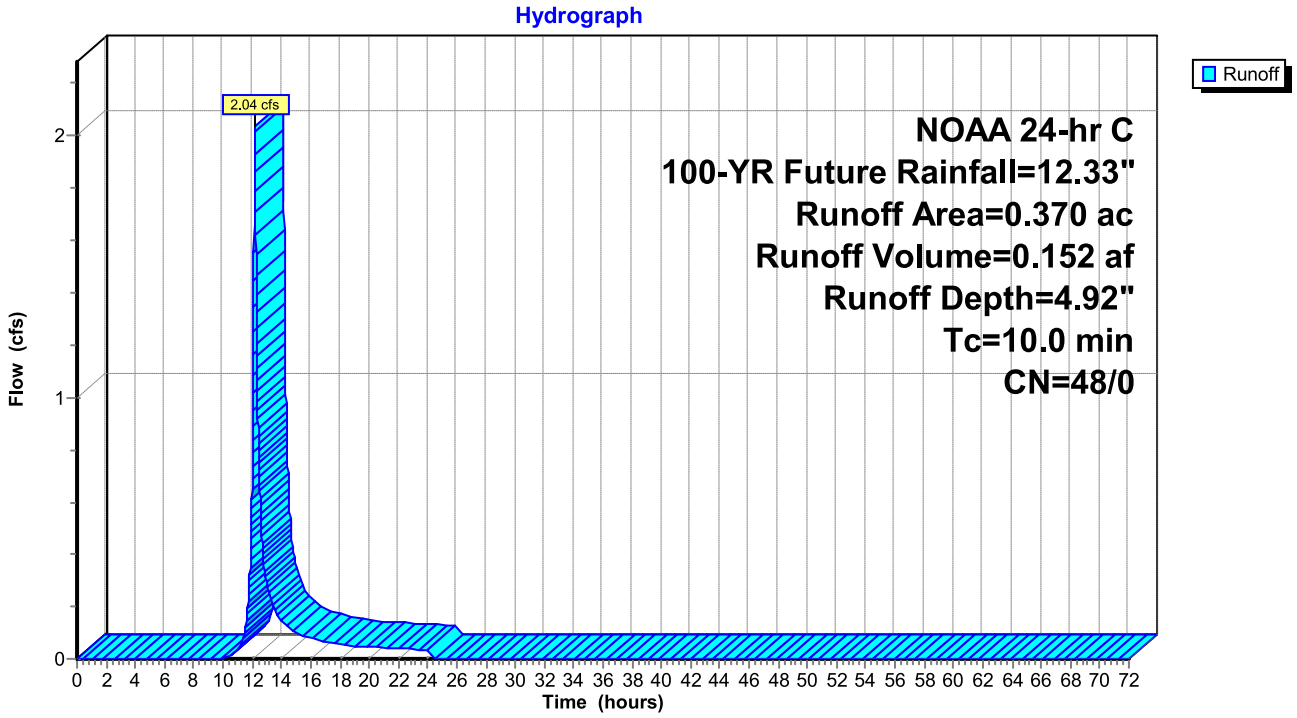
Runoff = 2.04 cfs @ 12.18 hrs, Volume= 0.152 af, Depth= 4.92"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
0.370	48	Brush, Good, HSG B
0.370	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious



Summary for Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint

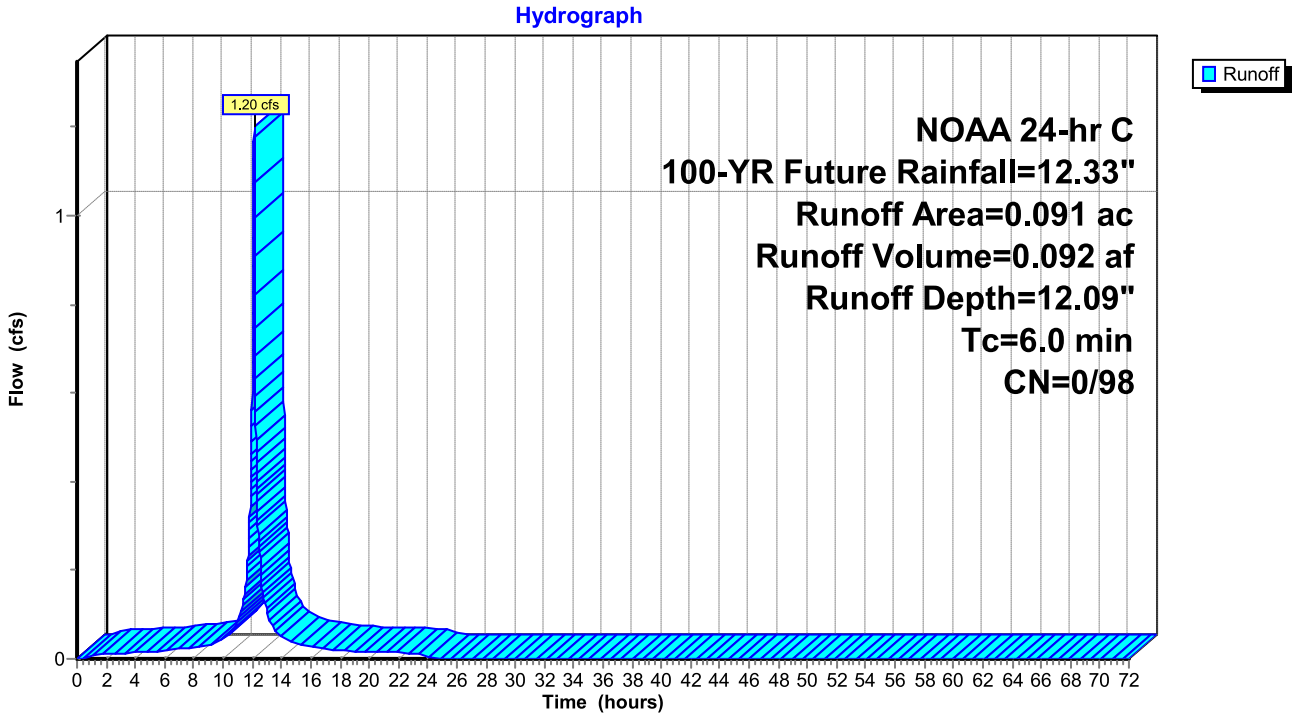
Runoff = 1.20 cfs @ 12.13 hrs, Volume= 0.092 af, Depth=12.09"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.091	98	Infiltration Basin #2
	0.091	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint



Summary for Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious

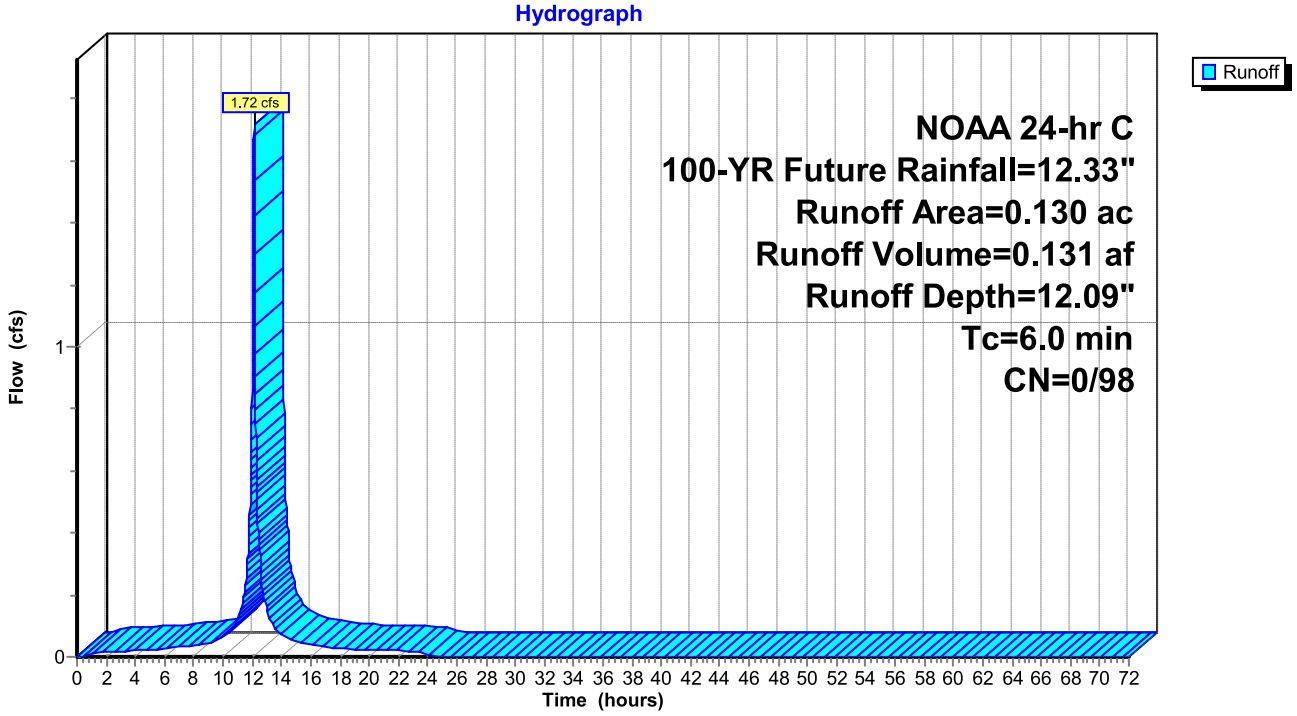
Runoff = 1.72 cfs @ 12.13 hrs, Volume= 0.131 af, Depth=12.09"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.130	98	Gravel roads, HSG B
	0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious



Summary for Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious

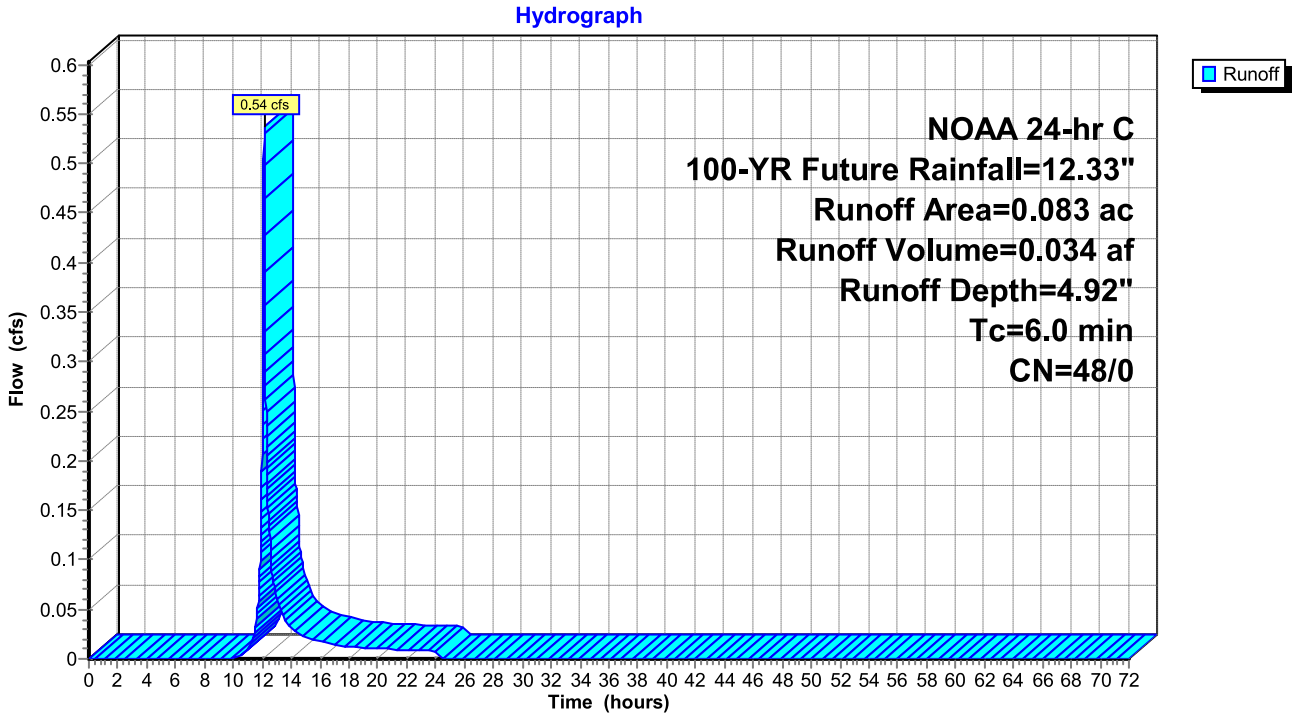
Runoff = 0.54 cfs @ 12.14 hrs, Volume= 0.034 af, Depth= 4.92"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
0.083	48	Brush, Good, HSG B
0.083	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious



Summary for Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint

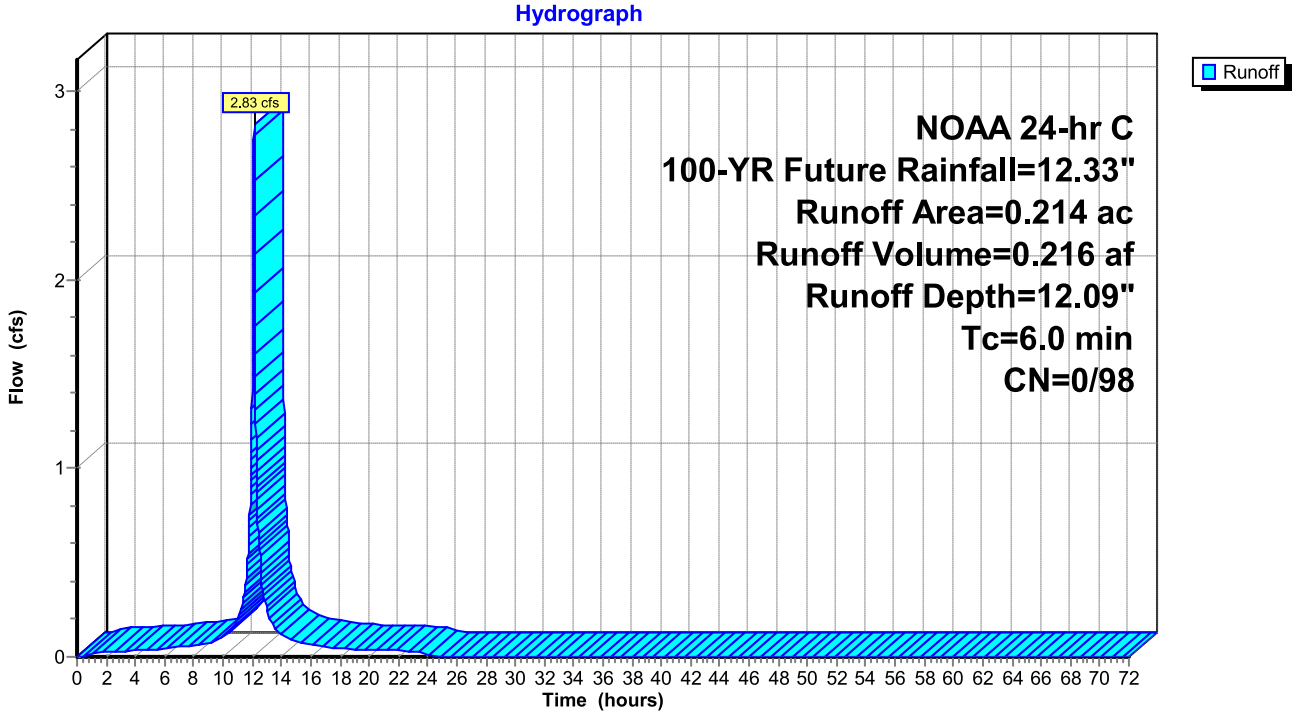
Runoff = 2.83 cfs @ 12.13 hrs, Volume= 0.216 af, Depth=12.09"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.214	98	Infiltration Basin #3
	0.214	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint



Summary for Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious

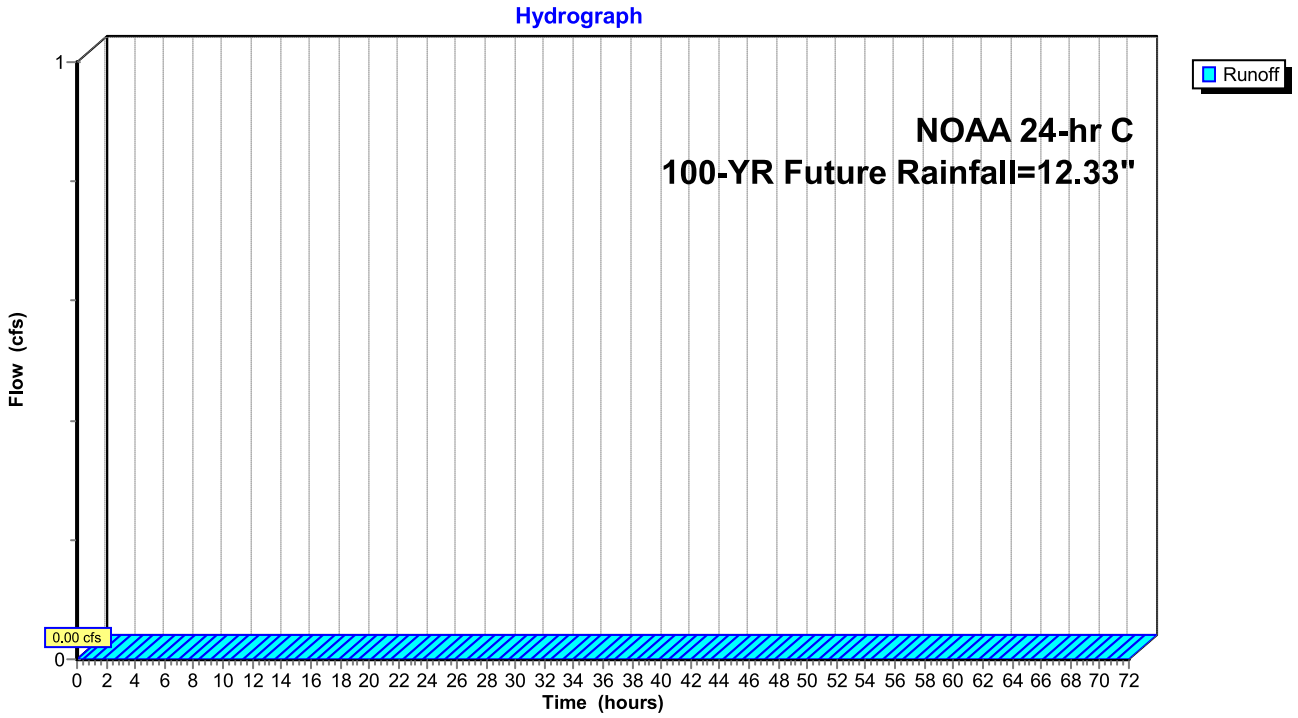
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious



Summary for Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious

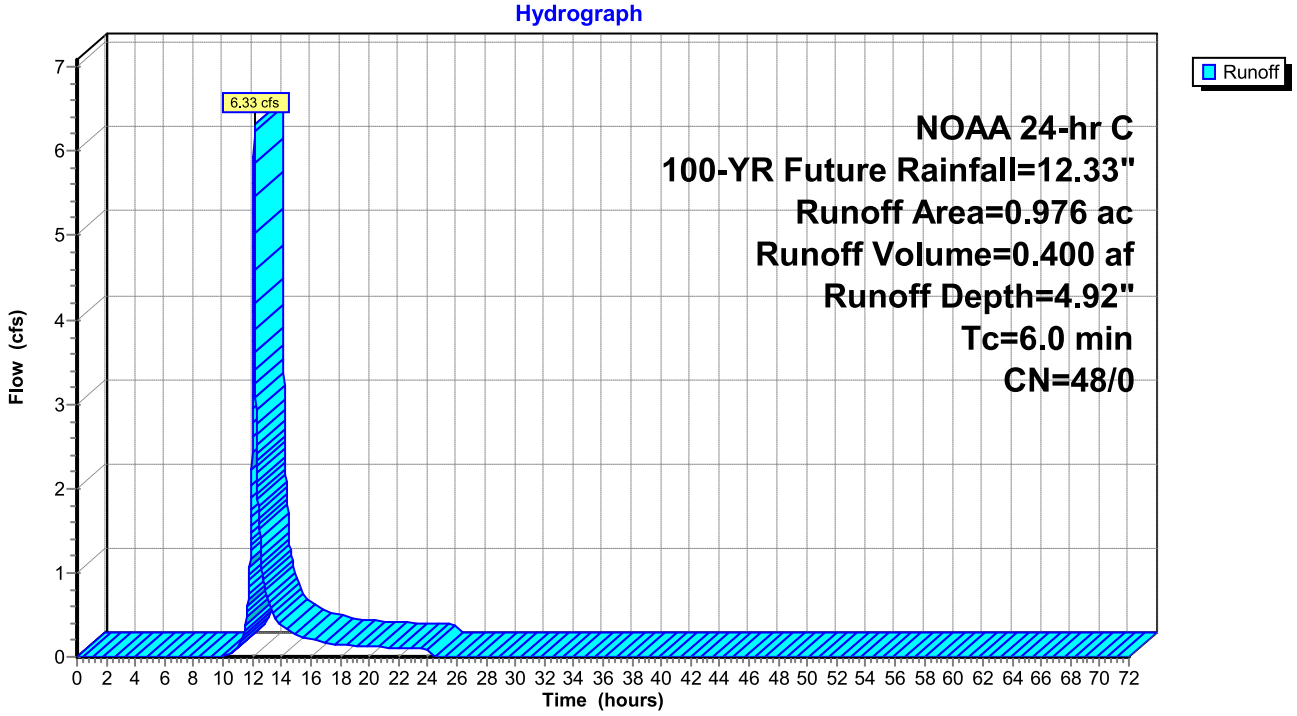
Runoff = 6.33 cfs @ 12.14 hrs, Volume= 0.400 af, Depth= 4.92"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
0.976	48	Brush, Good, HSG B
0.976	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin #3**

Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious



Summary for Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint

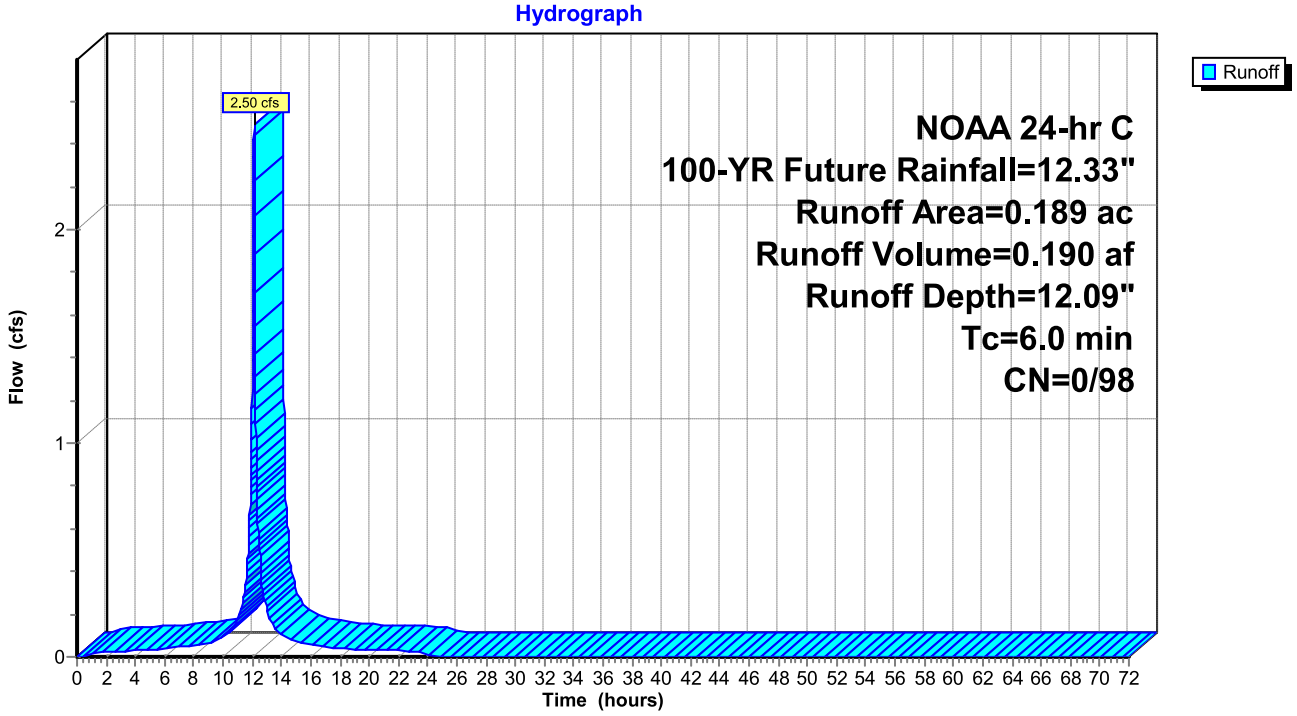
Runoff = 2.50 cfs @ 12.13 hrs, Volume= 0.190 af, Depth=12.09"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.189	98	Infiltration Basin #4
	0.189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint



Summary for Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious

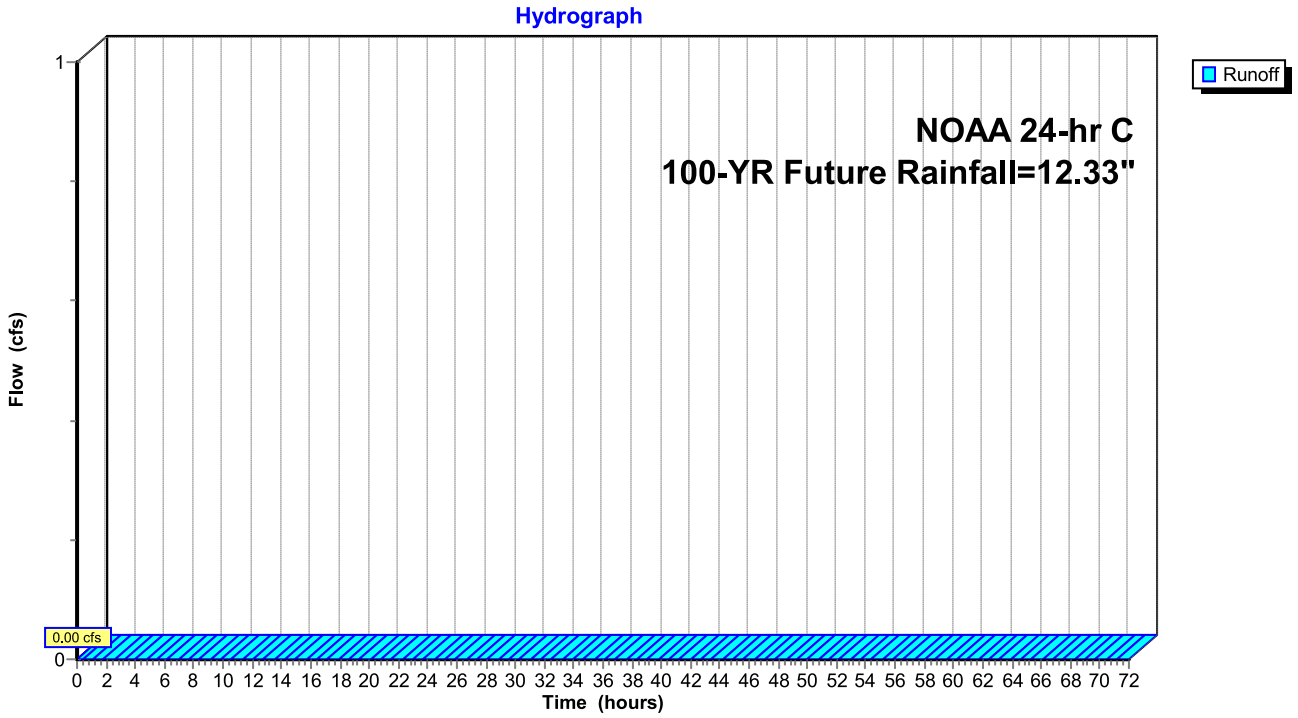
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious



Summary for Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious

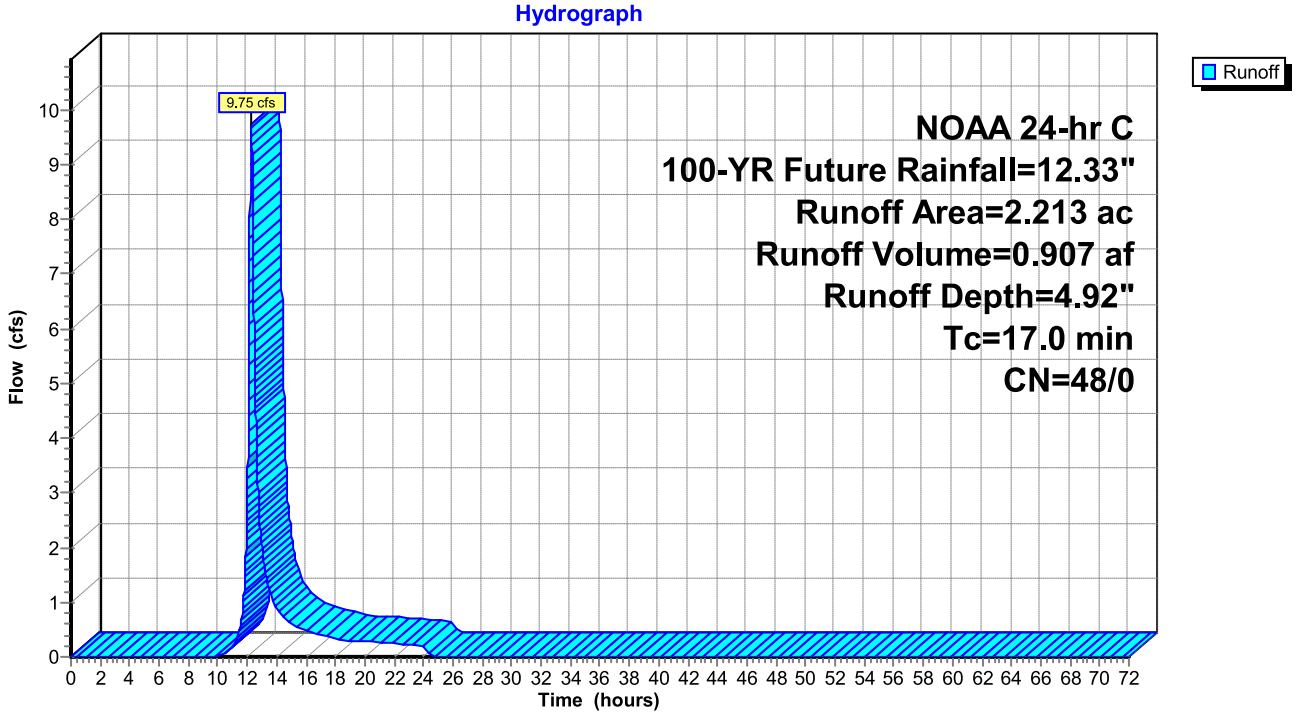
Runoff = 9.75 cfs @ 12.26 hrs, Volume= 0.907 af, Depth= 4.92"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
2.213	48	Brush, Good, HSG B
2.213	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious



Summary for Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint

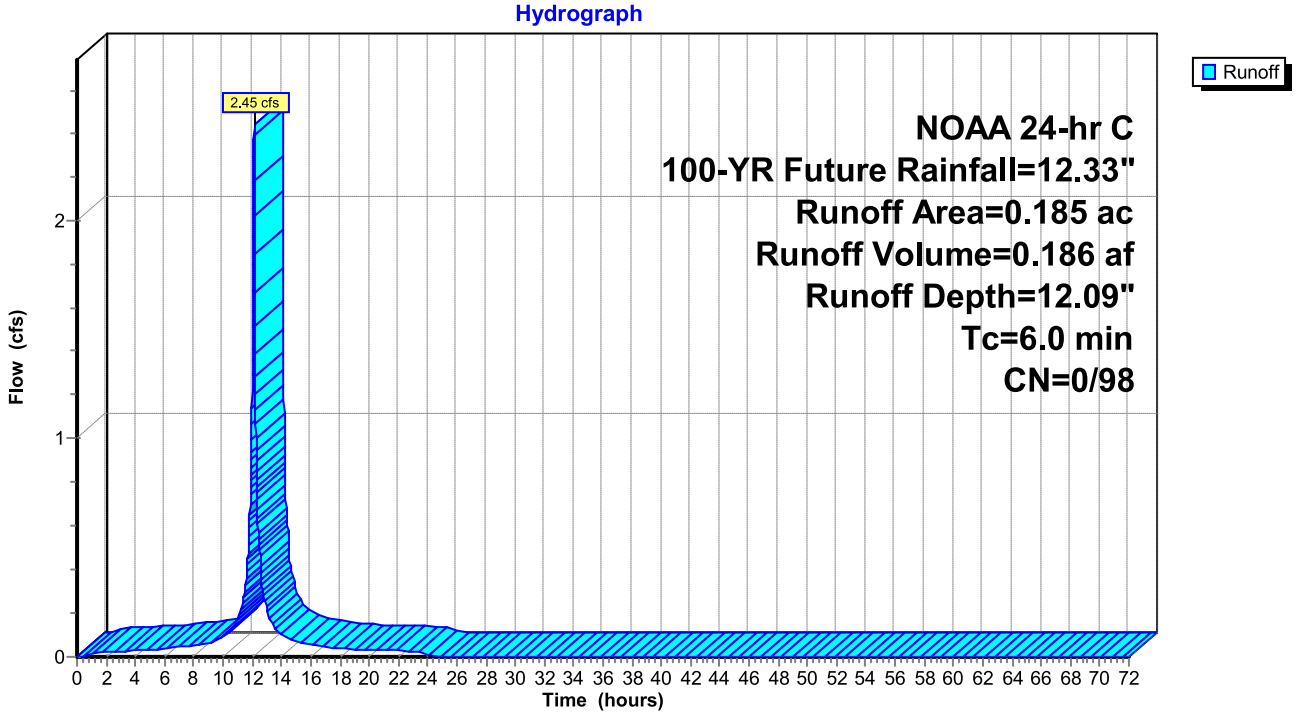
Runoff = 2.45 cfs @ 12.13 hrs, Volume= 0.186 af, Depth=12.09"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.185	98	Infiltration Basin #5
	0.185	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint



Summary for Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious

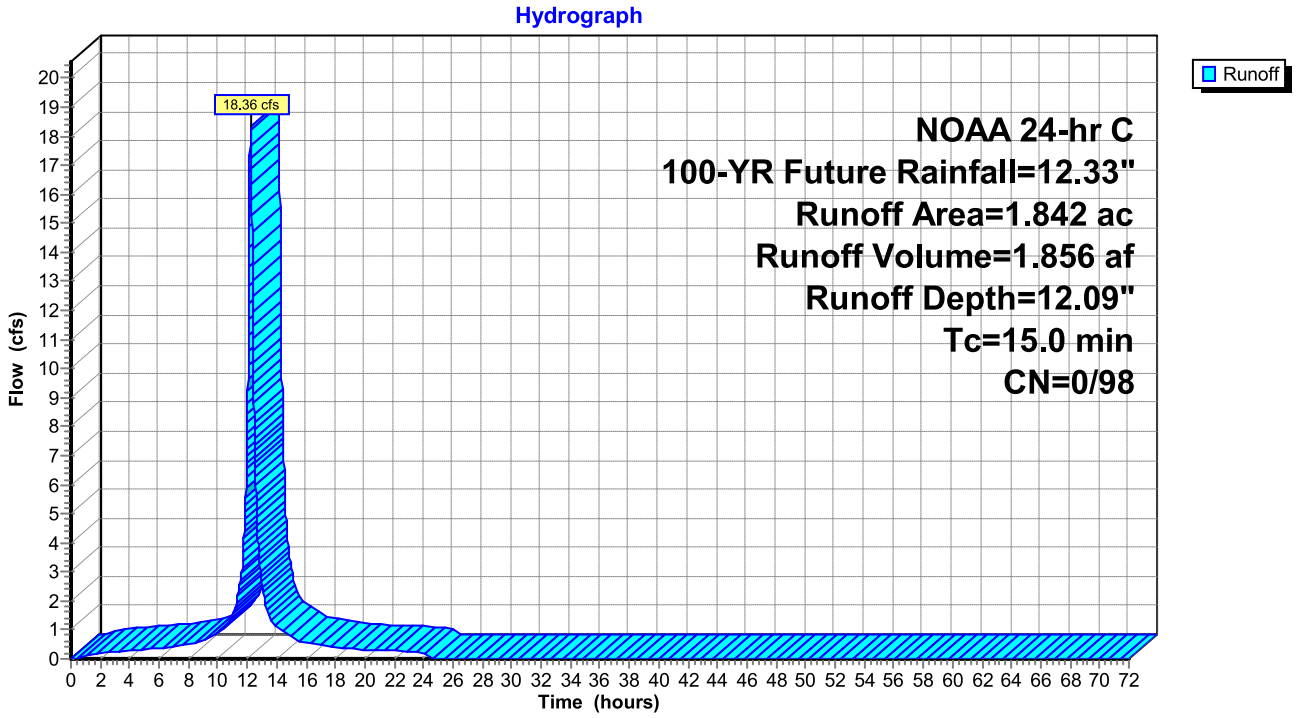
Runoff = 18.36 cfs @ 12.22 hrs, Volume= 1.856 af, Depth=12.09"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	1.842	98	Gravel surfaces
	1.842	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious



Summary for Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious

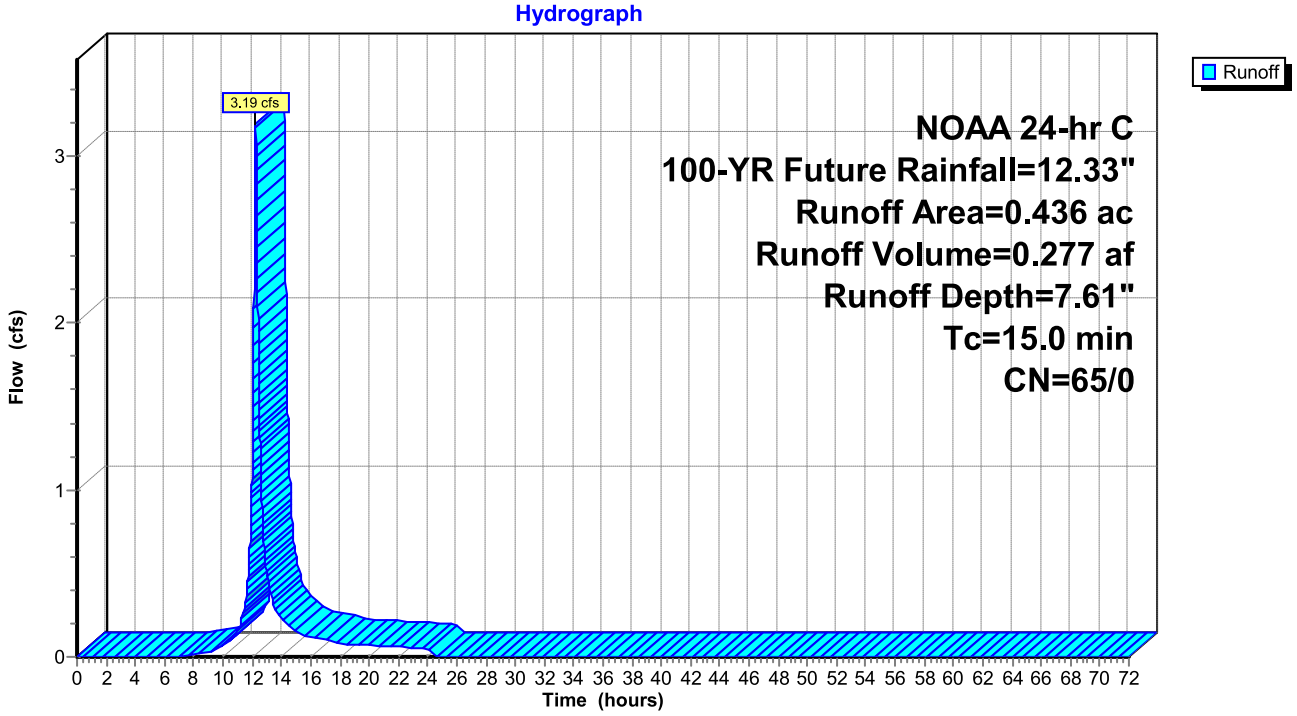
Runoff = 3.19 cfs @ 12.23 hrs, Volume= 0.277 af, Depth= 7.61"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
0.436	65	Brush, Good, HSG C
0.436	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious



Summary for Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint

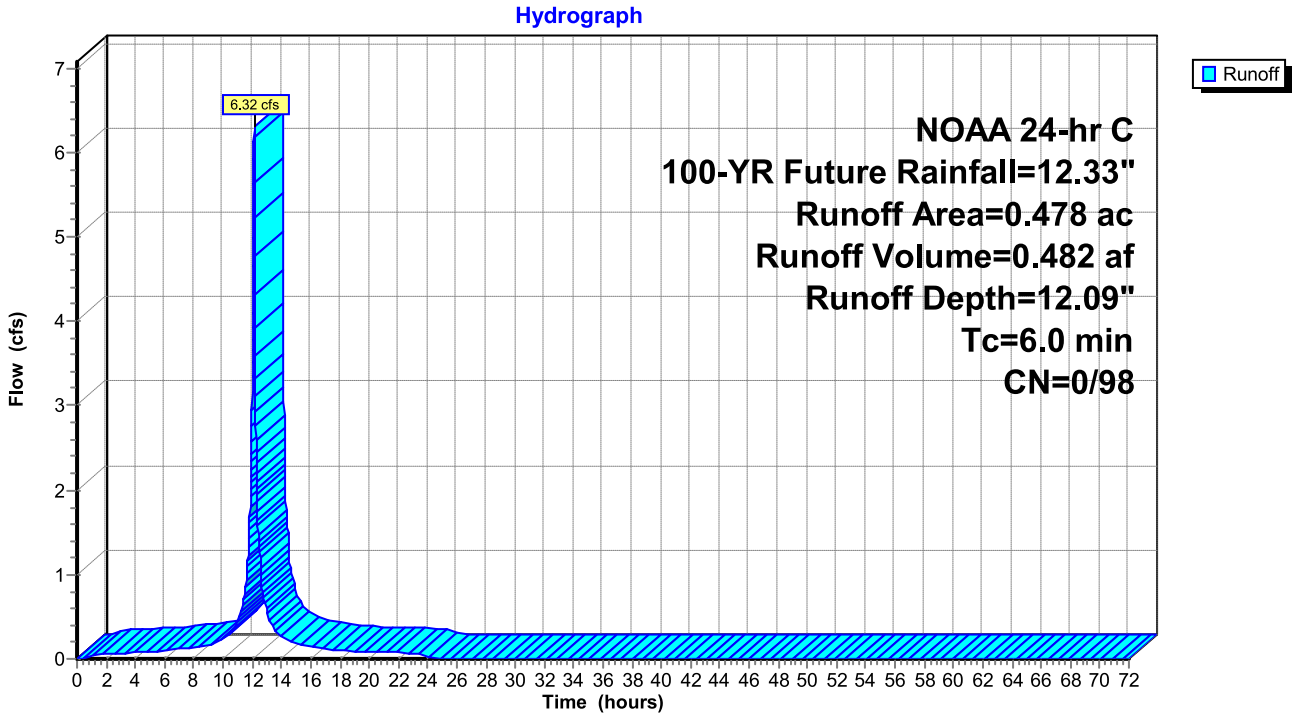
Runoff = 6.32 cfs @ 12.13 hrs, Volume= 0.482 af, Depth=12.09"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.478	98	Infiltration Basin #6
	0.478	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint



Summary for Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious

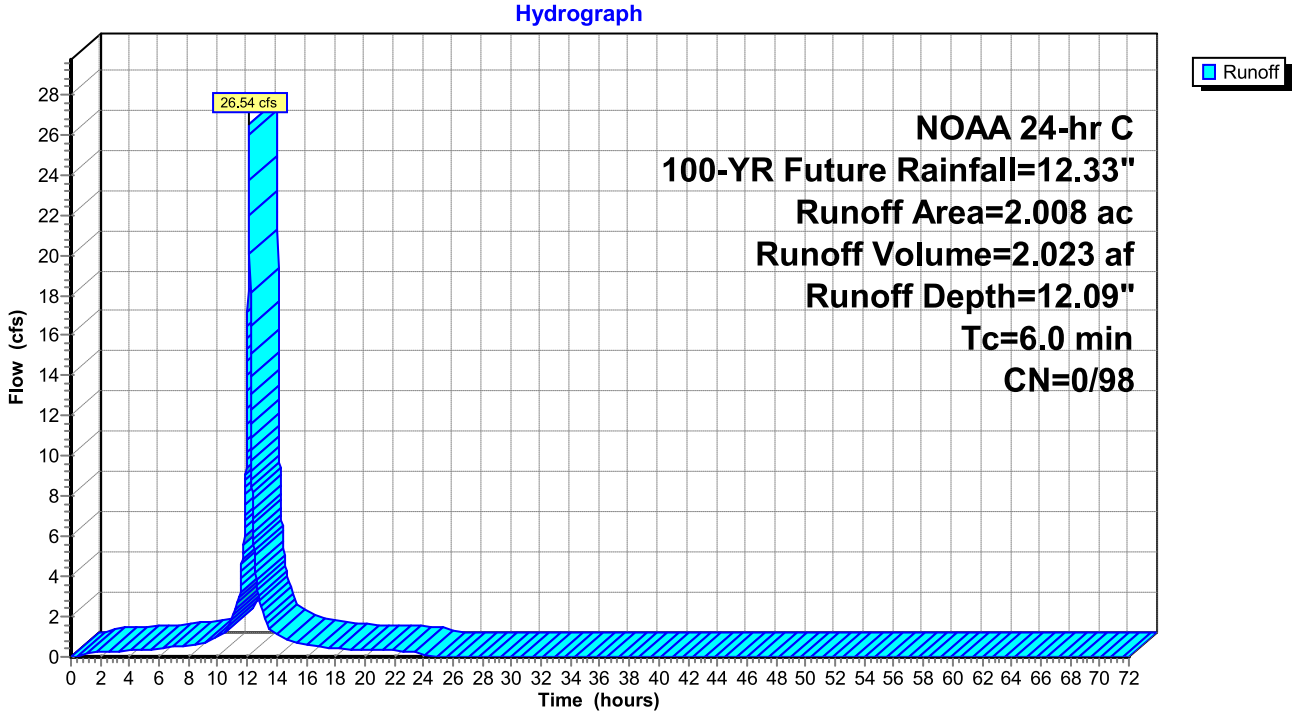
Runoff = 26.54 cfs @ 12.13 hrs, Volume= 2.023 af, Depth=12.09"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	2.008	98	Gravel surfaces
	2.008	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious



Summary for Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious

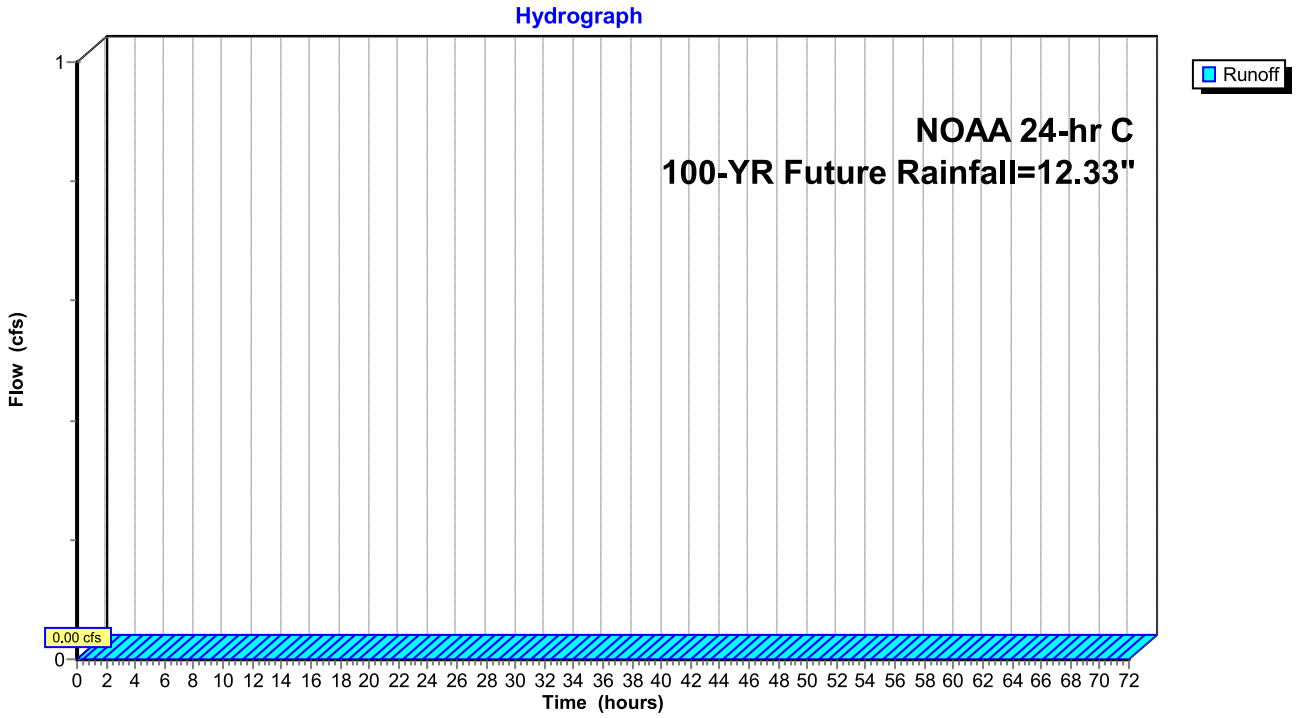
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious



Summary for Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint

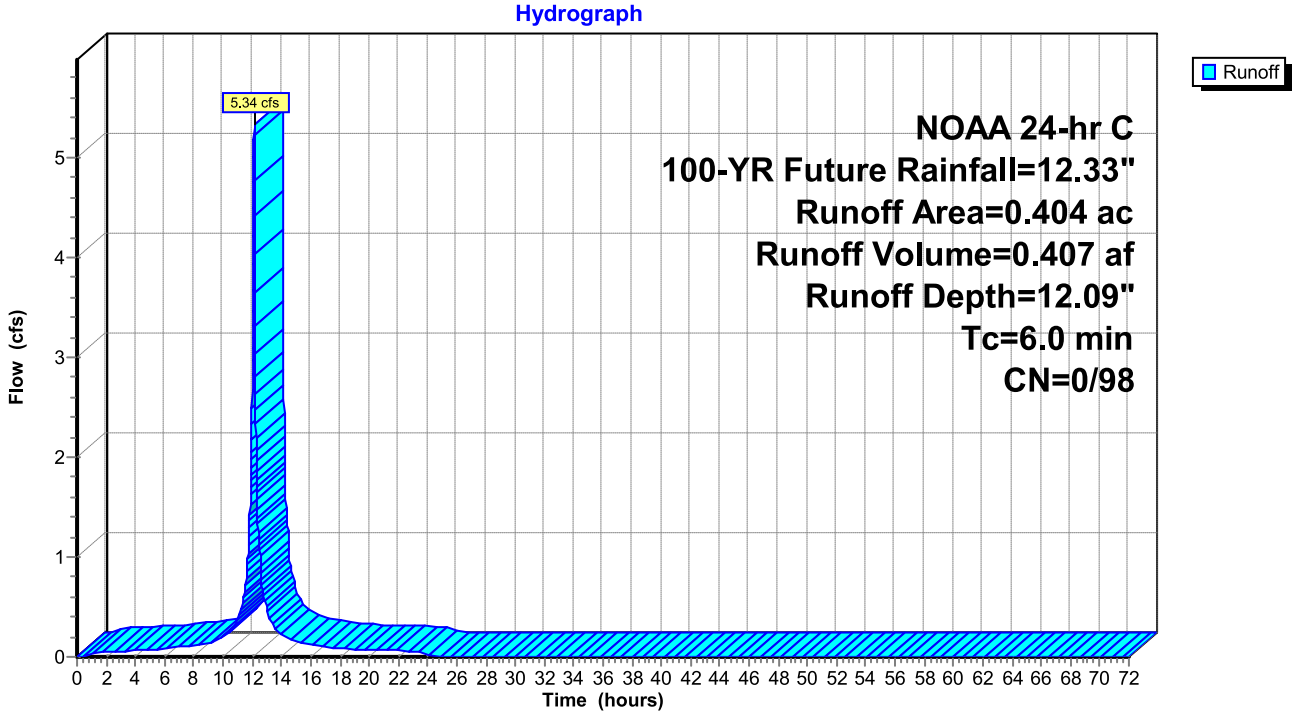
Runoff = 5.34 cfs @ 12.13 hrs, Volume= 0.407 af, Depth=12.09"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.404	98	Infiltration Basin #7
	0.404	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint



Summary for Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious

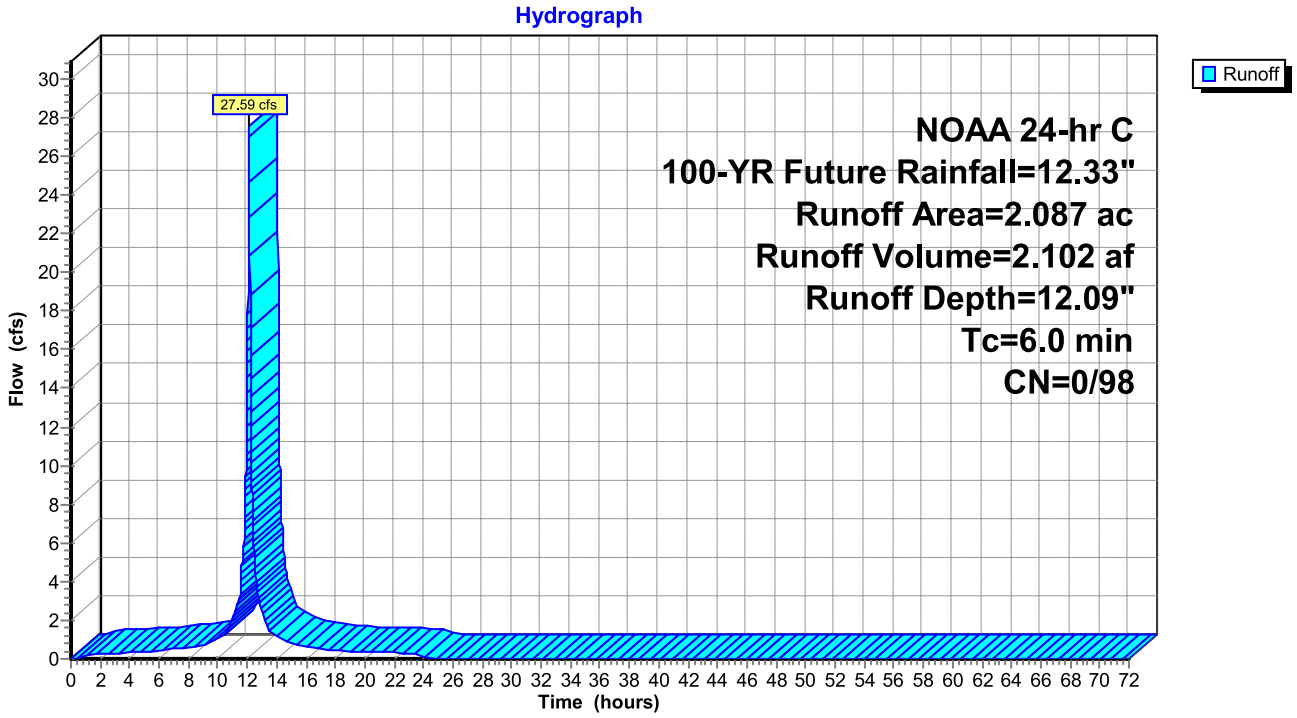
Runoff = 27.59 cfs @ 12.13 hrs, Volume= 2.102 af, Depth=12.09"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	2.087	98	Gravel surfaces
	2.087	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious



Summary for Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious

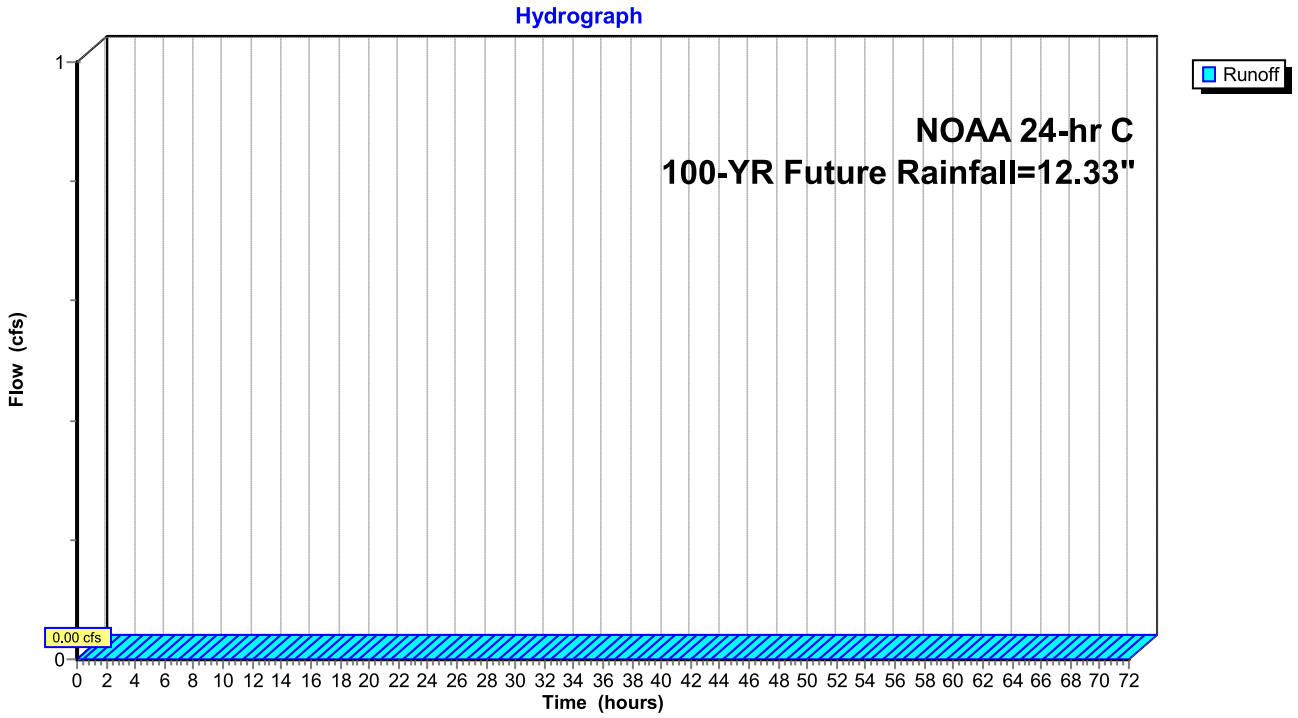
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious



Summary for Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint

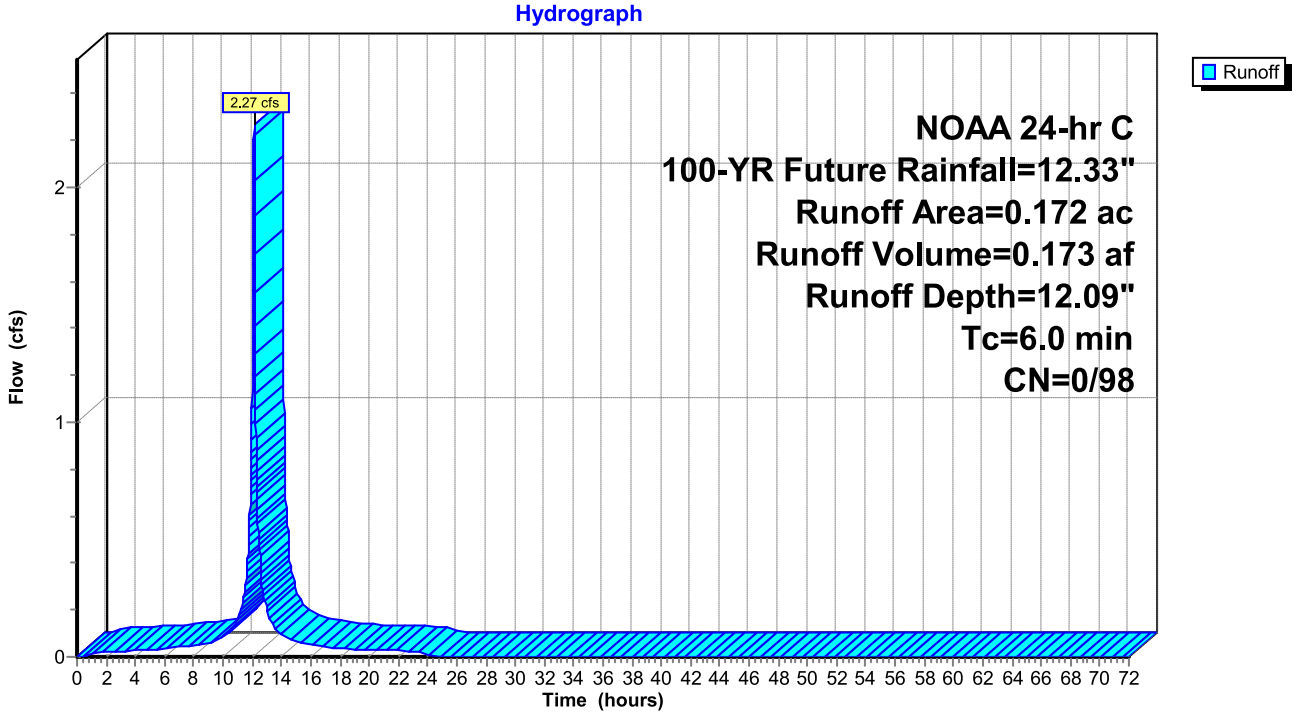
Runoff = 2.27 cfs @ 12.13 hrs, Volume= 0.173 af, Depth=12.09"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.172	98	Infiltration Basin #8
	0.172	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint



Summary for Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious

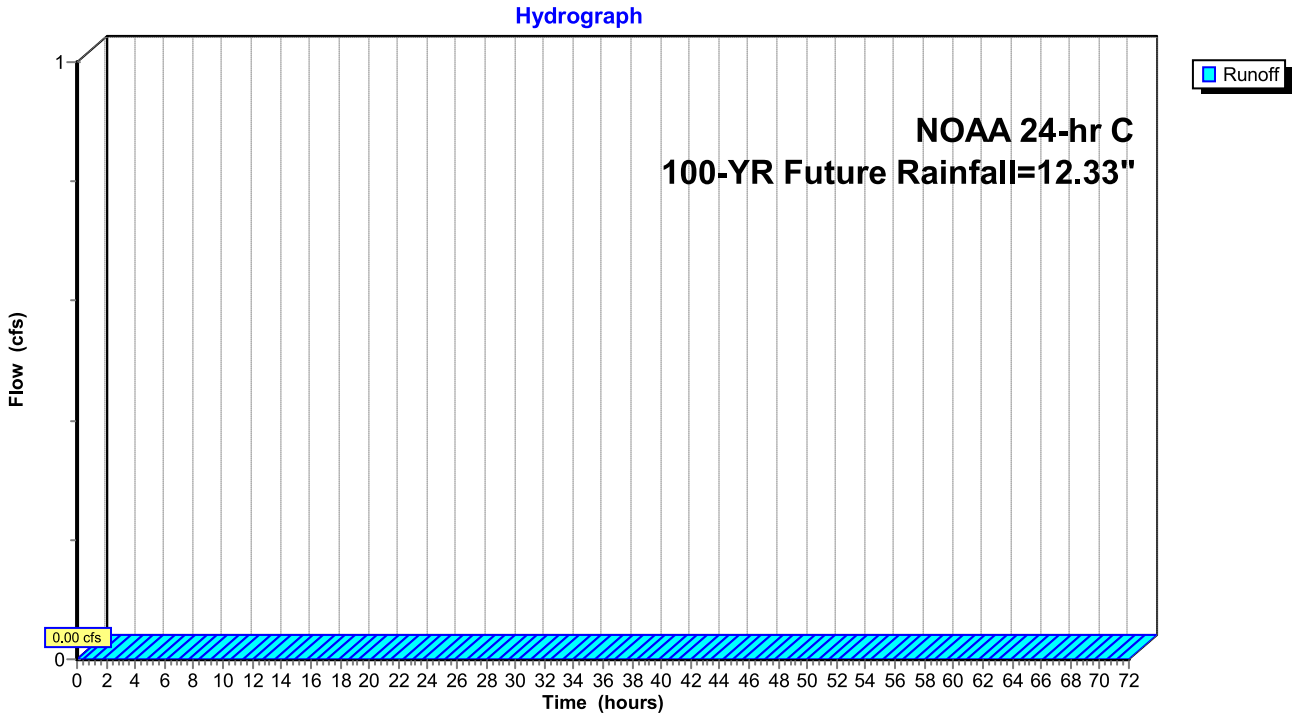
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious



Summary for Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious

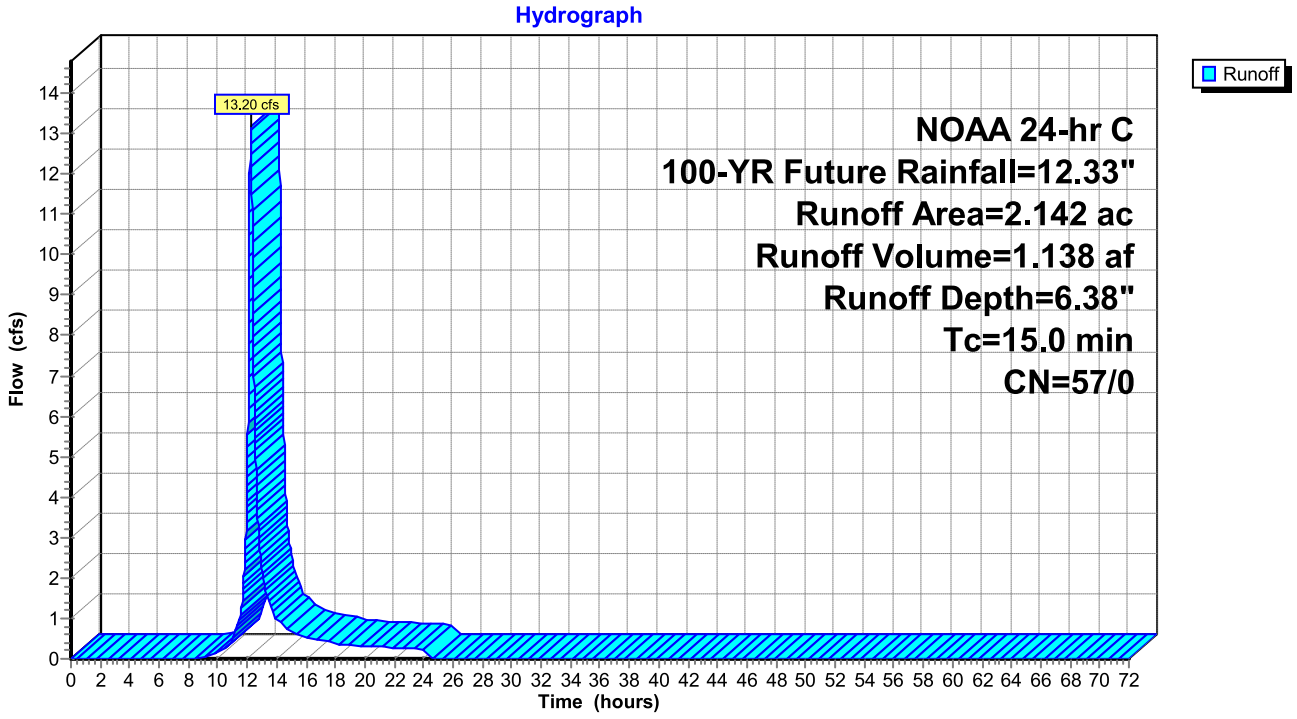
Runoff = 13.20 cfs @ 12.23 hrs, Volume= 1.138 af, Depth= 6.38"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
1.008	48	Brush, Good, HSG B
1.134	65	Brush, Good, HSG C
2.142	57	Weighted Average
2.142	57	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious



Summary for Subcatchment Off1: POST - POI #2 - Bypass

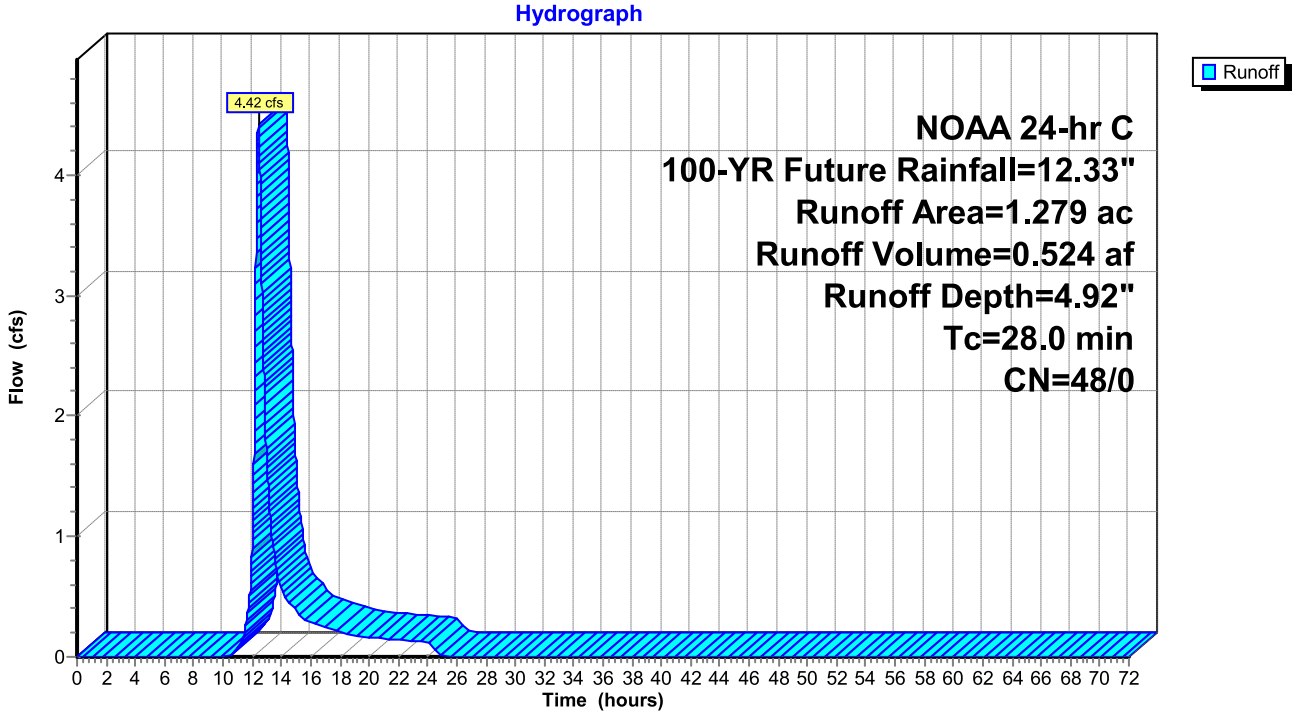
Runoff = 4.42 cfs @ 12.41 hrs, Volume= 0.524 af, Depth= 4.92"
Routed to Link Post2 : POST - POI #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
1.279	48	Brush, Good, HSG B
1.279	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment Off1: POST - POI #2 - Bypass



Summary for Subcatchment Off1I: POST - POI #1 - Bypass Impervious

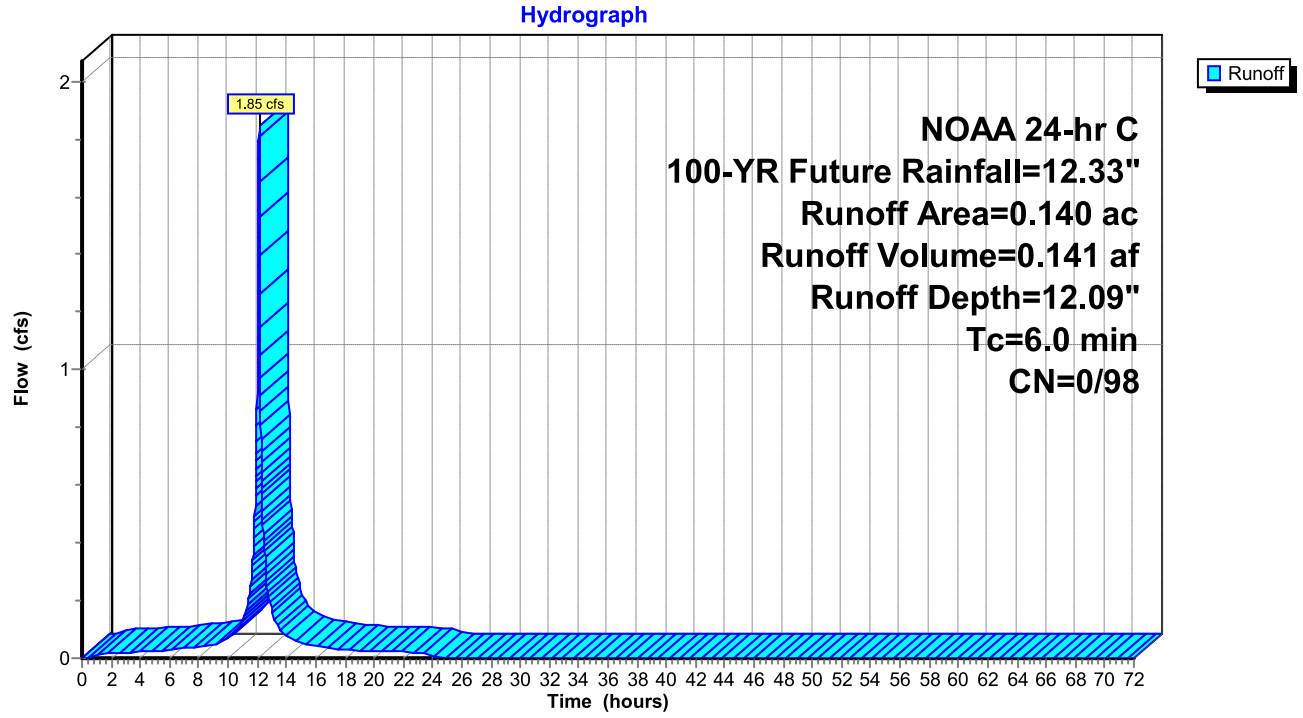
Runoff = 1.85 cfs @ 12.13 hrs, Volume= 0.141 af, Depth=12.09"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
*	0.050	98	Gravel B
*	0.010	98	Gravel C
*	0.080	98	Gravel D
	0.140	98	Weighted Average
	0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1I: POST - POI #1 - Bypass Impervious



Summary for Subcatchment Off1P: POST - POI #1 - Bypass Pervious

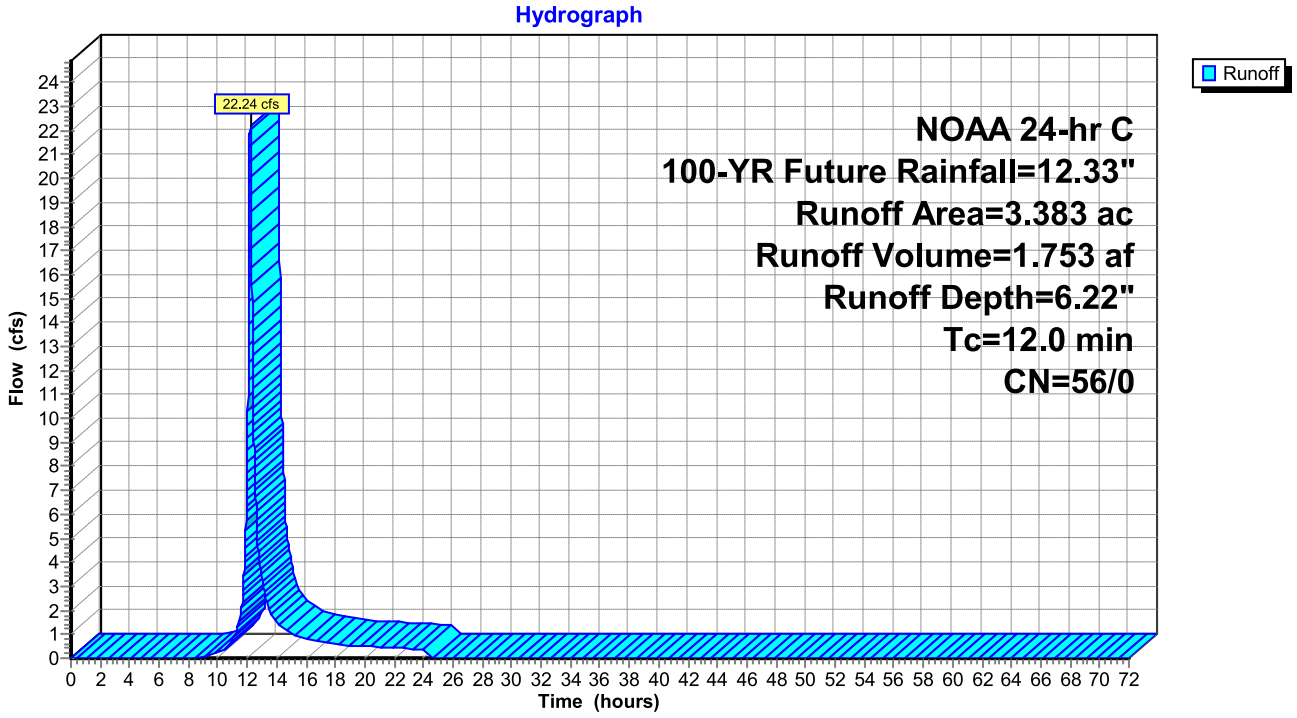
Runoff = 22.24 cfs @ 12.20 hrs, Volume= 1.753 af, Depth= 6.22"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
2.061	48	Brush, Good, HSG B
0.543	65	Brush, Good, HSG C
0.779	73	Brush, Good, HSG D
3.383	56	Weighted Average
3.383	56	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1P: POST - POI #1 - Bypass Pervious



Summary for Subcatchment Pre1: PRE - POI #1

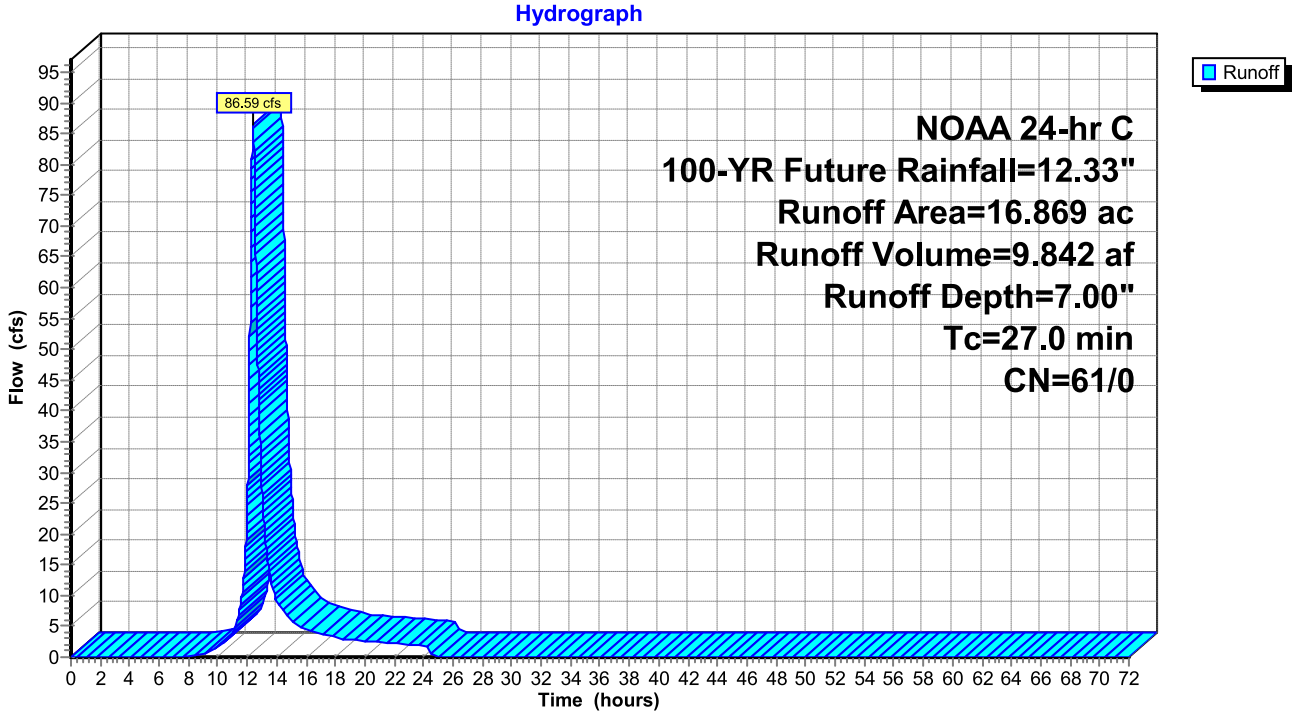
Runoff = 86.59 cfs @ 12.39 hrs, Volume= 9.842 af, Depth= 7.00"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

Area (ac)	CN	Description
9.127	55	Woods, Good, HSG B
1.498	61	Pasture/grassland/range, Good, HSG B
2.070	70	Woods, Good, HSG C
2.444	74	Pasture/grassland/range, Good, HSG C
0.452	77	Woods, Good, HSG D
0.326	80	Pasture/grassland/range, Good, HSG D
0.952	48	Brush, Good, HSG B
16.869	61	Weighted Average
16.869	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre1: PRE - POI #1



Summary for Subcatchment Pre2: PRE - POI #2

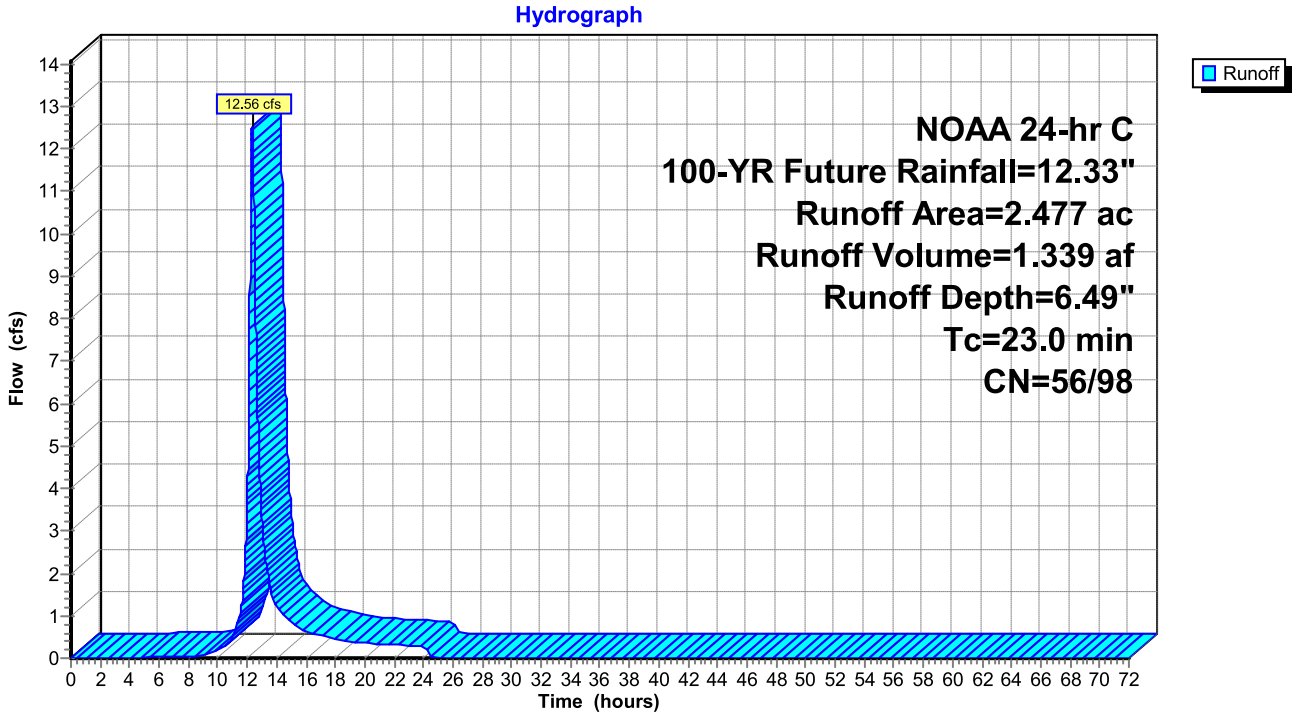
Runoff = 12.56 cfs @ 12.34 hrs, Volume= 1.339 af, Depth= 6.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Future Rainfall=12.33"

	Area (ac)	CN	Description
	1.817	55	Woods, Good, HSG B
	0.546	61	Pasture/grassland/range, Good, HSG B
*	0.114	98	Impervious, HSG B
	2.477	58	Weighted Average
	2.363	56	95.40% Pervious Area
	0.114	98	4.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre2: PRE - POI #2



Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 9.12" for 100-YR Future event
Inflow = 8.04 cfs @ 12.16 hrs, Volume= 0.680 af
Outflow = 6.26 cfs @ 12.23 hrs, Volume= 0.628 af, Atten= 22%, Lag= 4.5 min
Primary = 5.33 cfs @ 12.23 hrs, Volume= 0.617 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.92 cfs @ 12.23 hrs, Volume= 0.012 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 276.61' @ 12.23 hrs Surf.Area= 6,998 sf Storage= 10,184 cf

Plug-Flow detention time= 275.8 min calculated for 0.628 af (92% of inflow)
Center-of-Mass det. time= 232.9 min (998.5 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

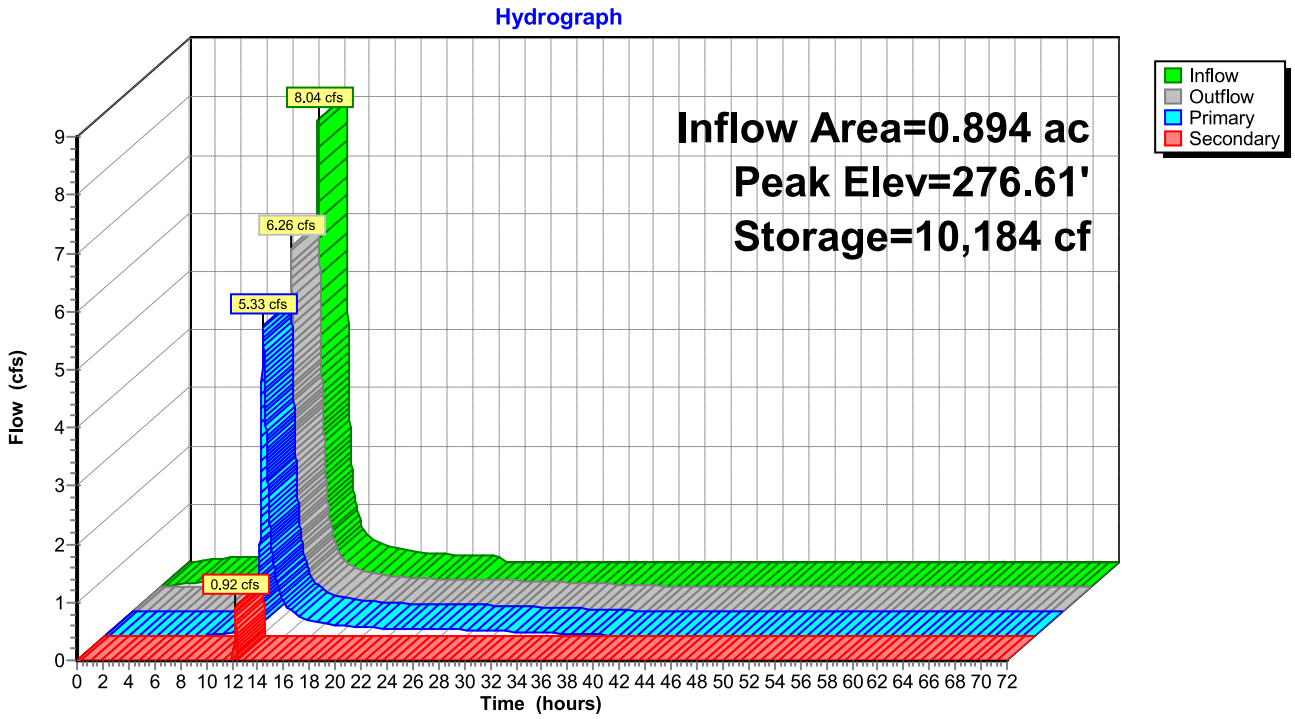
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.33 cfs @ 12.23 hrs HW=276.61' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 5.33 cfs of 10.63 cfs potential flow)
  ├**2=Orifice #1** (Orifice Controls 0.17 cfs @ 5.95 fps)
  ├**3=Rectangular Orifice** (Weir Controls 5.17 cfs @ 2.94 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.92 cfs @ 12.23 hrs HW=276.61' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Weir Controls 0.92 cfs @ 0.83 fps)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 10.13" for 100-YR Future event
Inflow = 3.46 cfs @ 12.13 hrs, Volume= 0.257 af
Outflow = 0.79 cfs @ 12.41 hrs, Volume= 0.235 af, Atten= 77%, Lag= 17.0 min
Primary = 0.50 cfs @ 12.41 hrs, Volume= 0.226 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.30 cfs @ 12.41 hrs, Volume= 0.009 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 276.55' @ 12.41 hrs Surf.Area= 4,071 sf Storage= 5,661 cf

Plug-Flow detention time= 317.6 min calculated for 0.235 af (92% of inflow)
Center-of-Mass det. time= 270.8 min (1,023.1 - 752.3)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

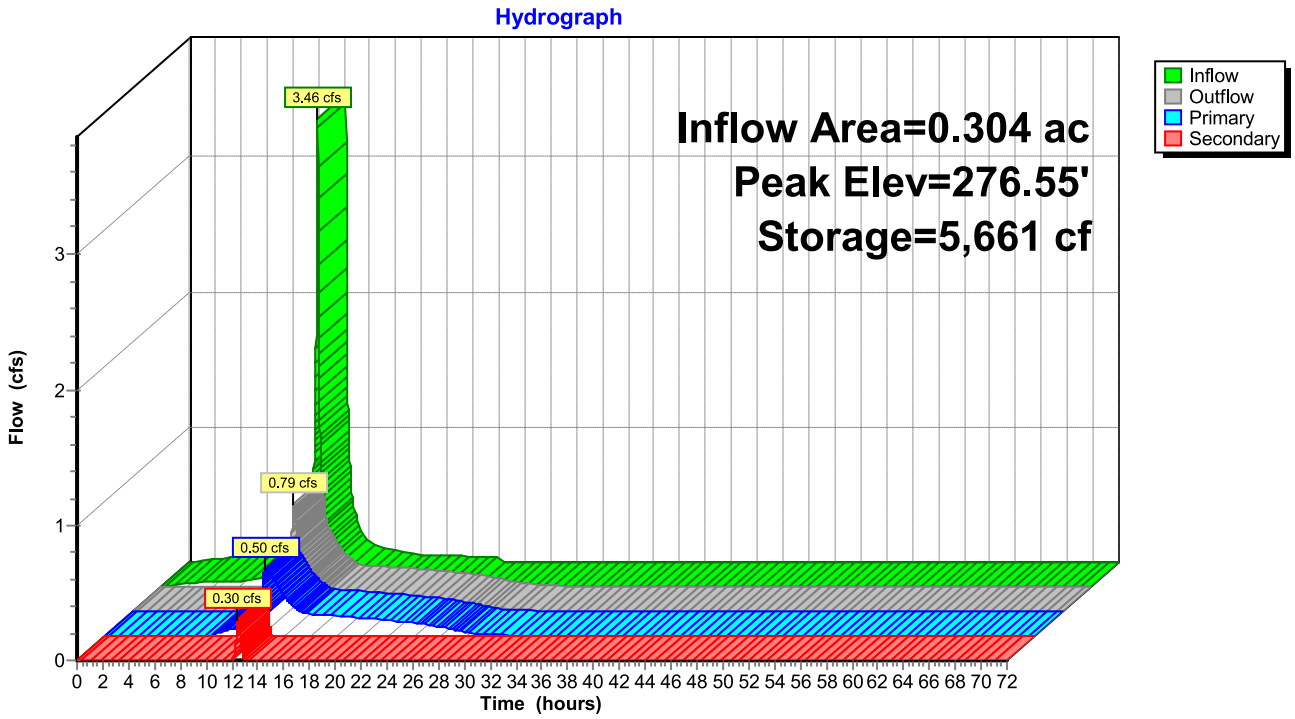
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.50 cfs @ 12.41 hrs HW=276.55' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.50 cfs of 10.53 cfs potential flow)
  ├**2=Orice** (Orifice Controls 0.18 cfs @ 6.40 fps)
  ├**3=Rectangular Orifice** (Weir Controls 0.32 cfs @ 2.11 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.30 cfs @ 12.41 hrs HW=276.55' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Sprillway** (Weir Controls 0.30 cfs @ 0.57 fps)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 6.21" for 100-YR Future event
Inflow = 9.14 cfs @ 12.13 hrs, Volume= 0.616 af
Outflow = 4.15 cfs @ 12.26 hrs, Volume= 0.593 af, Atten= 55%, Lag= 7.4 min
Primary = 4.15 cfs @ 12.26 hrs, Volume= 0.593 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.41' @ 12.26 hrs Surf.Area= 6,655 sf Storage= 6,256 cf

Plug-Flow detention time= 63.9 min calculated for 0.593 af (96% of inflow)
Center-of-Mass det. time= 42.2 min (854.2 - 812.0)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

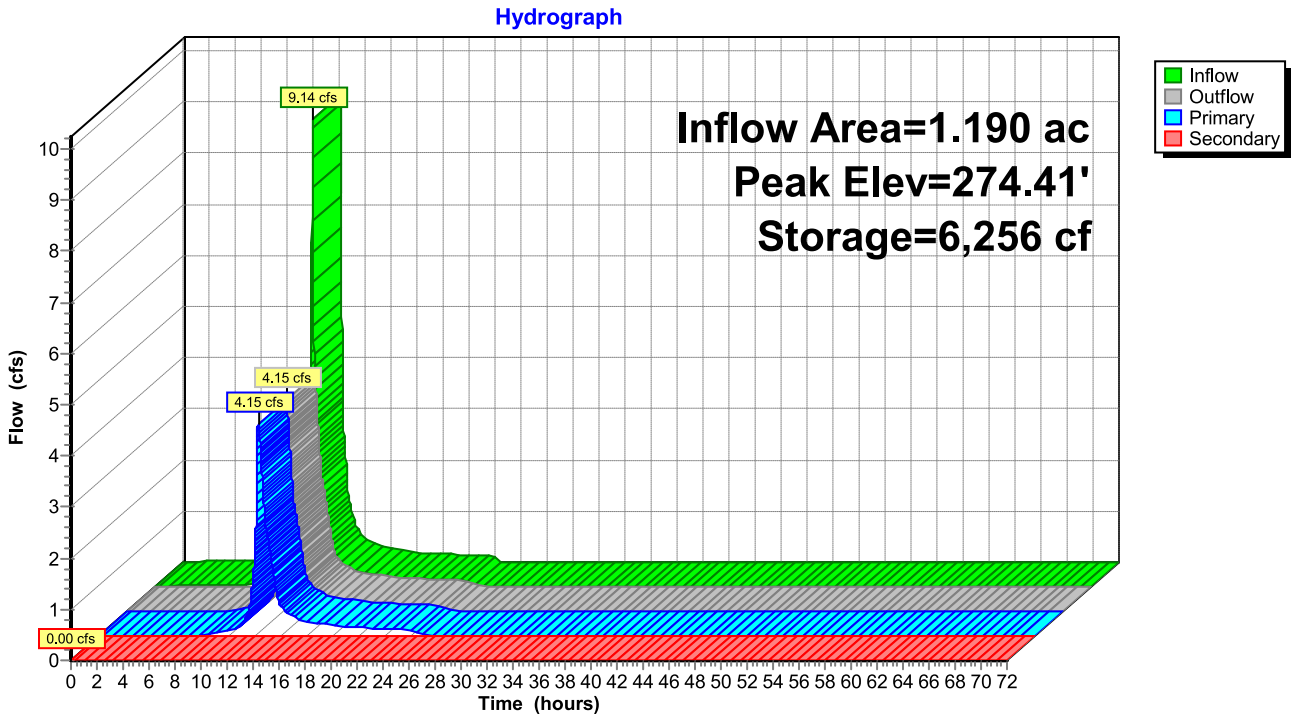
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=4.15 cfs @ 12.26 hrs HW=274.41' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 4.15 cfs of 7.37 cfs potential flow)
├**2=Orifice #1** (Orifice Controls 2.79 cfs @ 4.79 fps)
├**3=Orifice #2** (Weir Controls 1.36 cfs @ 2.32 fps)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 5.48" for 100-YR Future event
Inflow = 10.78 cfs @ 12.26 hrs, Volume= 1.098 af
Outflow = 3.64 cfs @ 12.70 hrs, Volume= 1.079 af, Atten= 66%, Lag= 26.8 min
Primary = 3.64 cfs @ 12.70 hrs, Volume= 1.079 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 267.73' @ 12.70 hrs Surf.Area= 7,924 sf Storage= 17,789 cf

Plug-Flow detention time= 142.9 min calculated for 1.079 af (98% of inflow)
Center-of-Mass det. time= 133.3 min (974.1 - 840.9)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

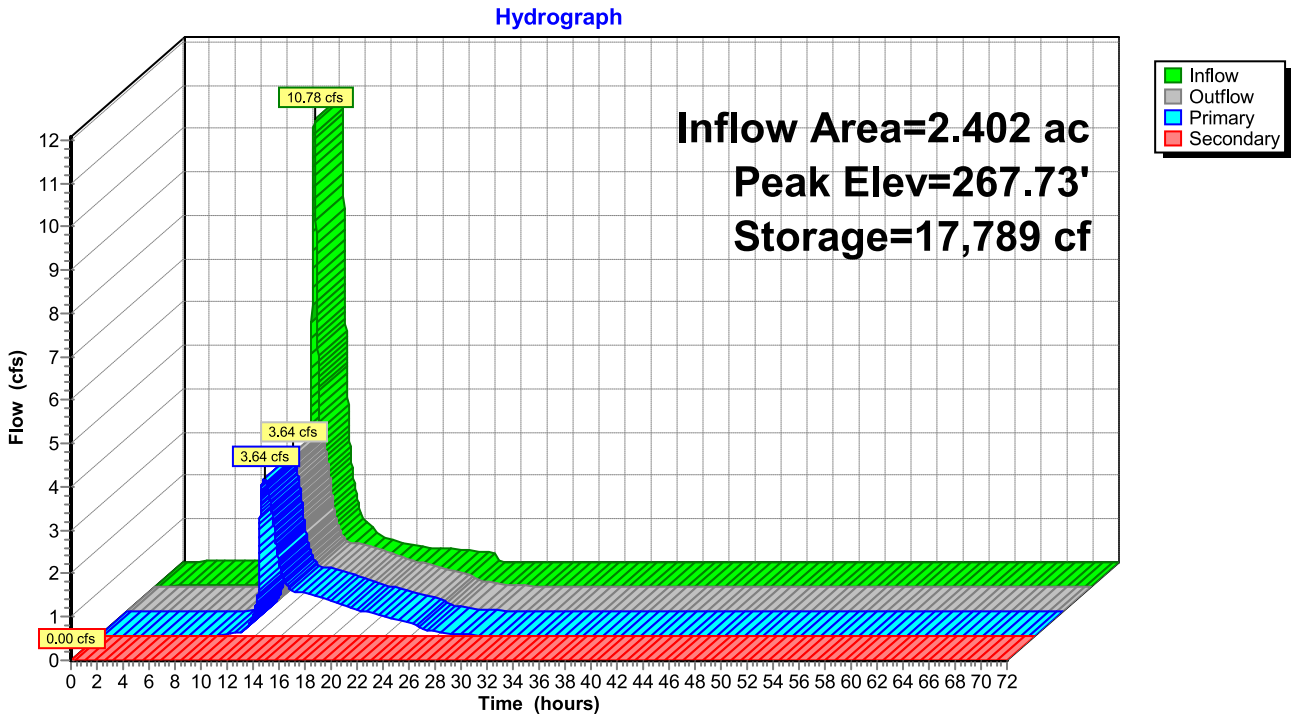
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.64 cfs @ 12.70 hrs HW=267.73' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.64 cfs of 9.93 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 1.25 cfs @ 7.48 fps)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Orifice Controls 2.40 cfs @ 3.60 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 11.30" for 100-YR Future event
Inflow = 22.84 cfs @ 12.22 hrs, Volume= 2.318 af
Outflow = 22.71 cfs @ 12.23 hrs, Volume= 2.143 af, Atten= 1%, Lag= 0.8 min
Primary = 8.01 cfs @ 12.23 hrs, Volume= 1.751 af
Routed to Link Post1 : POST - POI #1
Secondary = 14.70 cfs @ 12.23 hrs, Volume= 0.392 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 268.14' @ 12.23 hrs Surf.Area= 8,326 sf Storage= 21,130 cf

Plug-Flow detention time= 162.8 min calculated for 2.142 af (92% of inflow)
Center-of-Mass det. time= 120.2 min (874.7 - 754.5)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

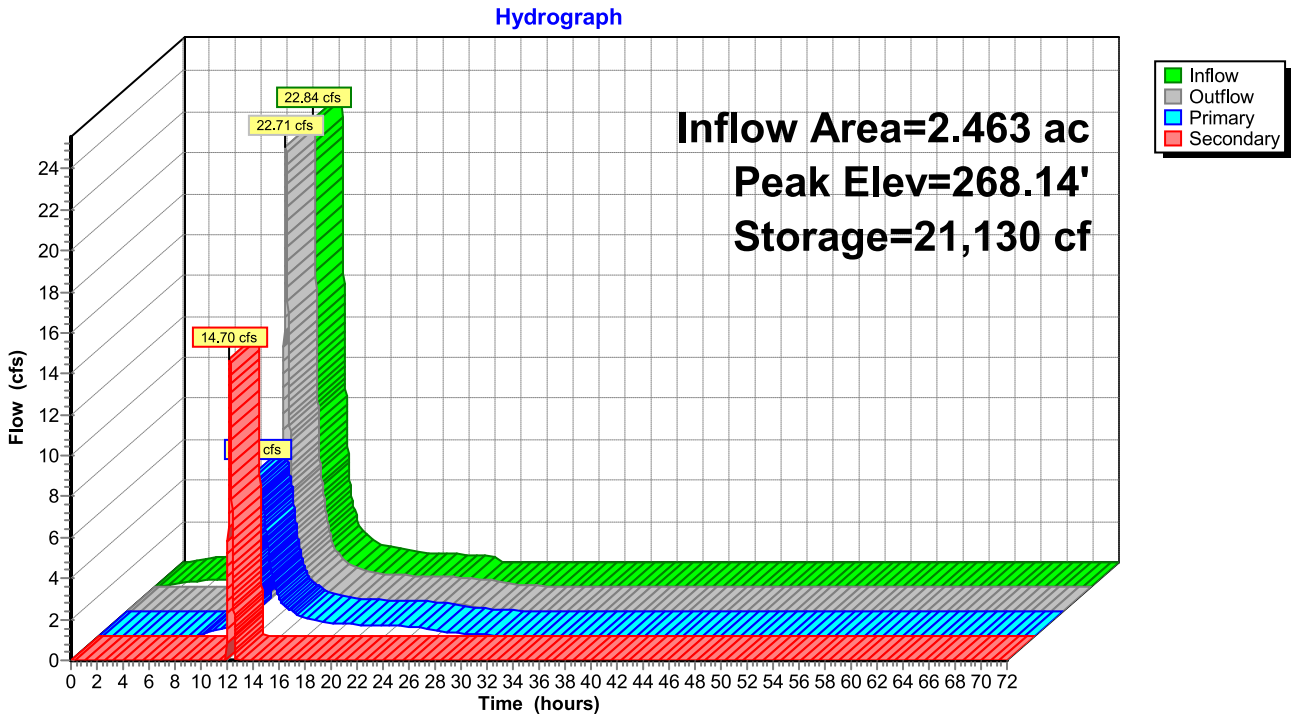
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=8.01 cfs @ 12.23 hrs HW=268.14' TW=0.00' (Dynamic Tailwater)
1=18" Culvert (Passes 8.01 cfs of 16.79 cfs potential flow)
2=Rectangular Orifice #1 (Orifice Controls 0.79 cfs @ 6.31 fps)
3=Rectangular Orifice #2 (Weir Controls 7.22 cfs @ 3.20 fps)
4=Inlet Grate (Controls 0.00 cfs)

Secondary OutFlow Max=14.70 cfs @ 12.23 hrs HW=268.14' TW=0.00' (Dynamic Tailwater)
5=Emergency Spillway (Weir Controls 14.70 cfs @ 1.02 fps)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 12.09" for 100-YR Future event
Inflow = 32.86 cfs @ 12.13 hrs, Volume= 2.504 af
Outflow = 4.76 cfs @ 12.60 hrs, Volume= 2.234 af, Atten= 86%, Lag= 28.5 min
Primary = 4.76 cfs @ 12.60 hrs, Volume= 2.234 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.58' @ 12.60 hrs Surf.Area= 22,095 sf Storage= 65,965 cf

Plug-Flow detention time= 620.9 min calculated for 2.234 af (89% of inflow)
Center-of-Mass det. time= 565.0 min (1,302.0 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

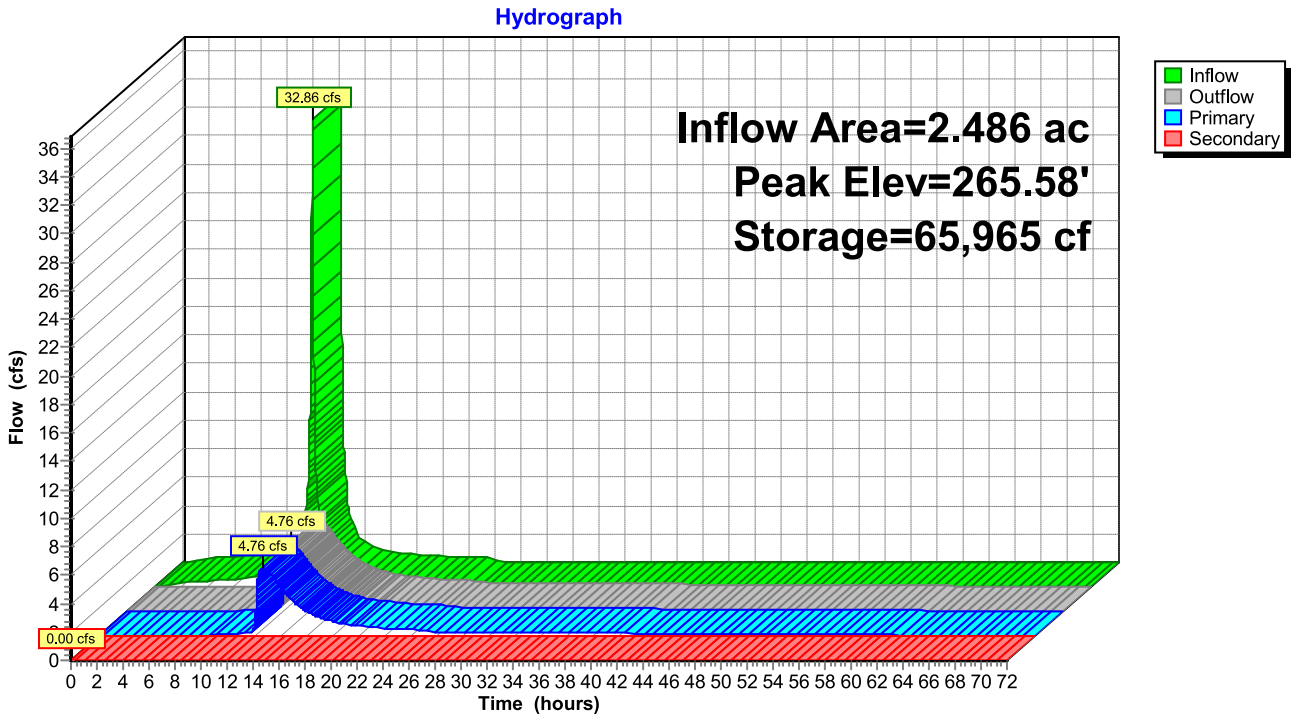
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=4.76 cfs @ 12.60 hrs HW=265.58' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 4.76 cfs of 14.32 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.40 cfs @ 8.07 fps)
├**3=Rectangular Orifice** (Weir Controls 4.37 cfs @ 5.71 fps)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 12.09" for 100-YR Future event
Inflow = 32.93 cfs @ 12.13 hrs, Volume= 2.509 af
Outflow = 10.83 cfs @ 12.30 hrs, Volume= 2.270 af, Atten= 67%, Lag= 10.3 min
Primary = 10.83 cfs @ 12.30 hrs, Volume= 2.270 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.91' @ 12.30 hrs Surf.Area= 17,471 sf Storage= 62,259 cf

Plug-Flow detention time= 614.5 min calculated for 2.270 af (90% of inflow)
Center-of-Mass det. time= 563.7 min (1,300.7 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

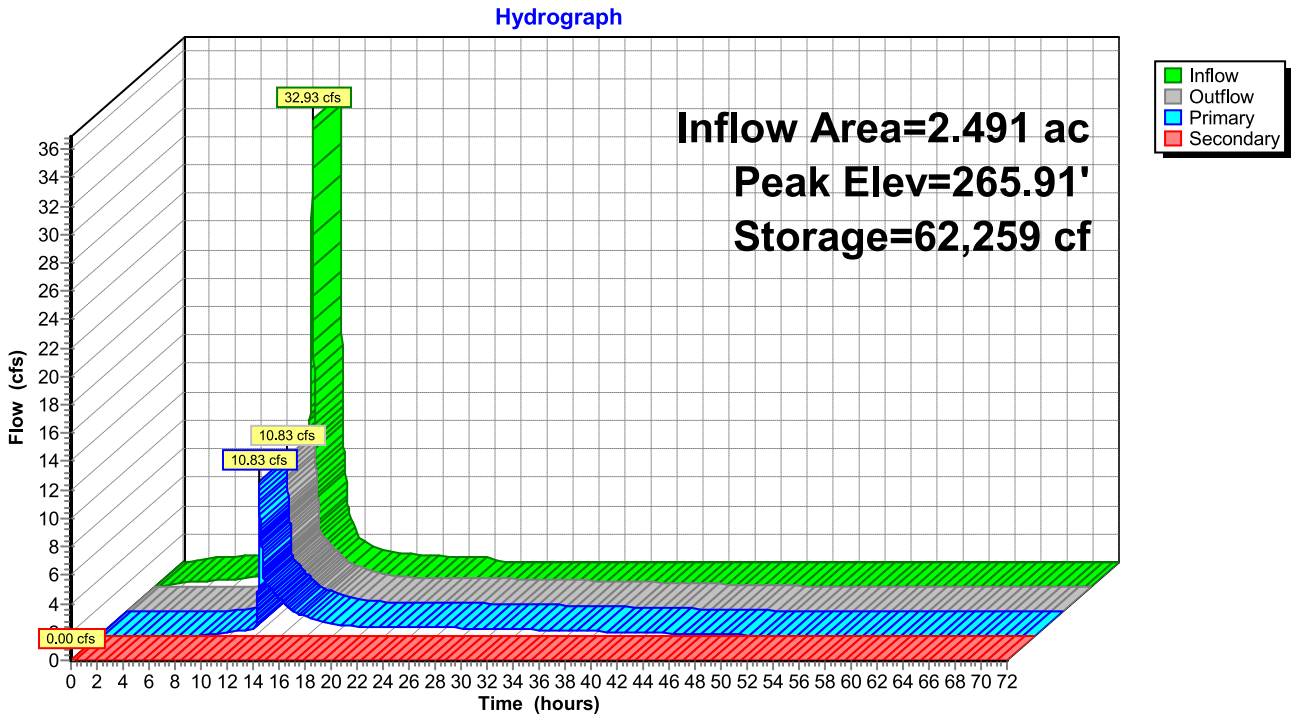
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.83 cfs @ 12.30 hrs HW=265.91' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 10.83 cfs of 16.28 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.77 cfs @ 8.87 fps)
├**3=Rectangular Orifice** (Weir Controls 2.83 cfs @ 3.81 fps)
└**4=Inlet Grate** (Orifice Controls 7.22 cfs @ 0.45 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 6.80" for 100-YR Future event
Inflow = 14.35 cfs @ 12.22 hrs, Volume= 1.311 af
Outflow = 7.81 cfs @ 12.43 hrs, Volume= 1.223 af, Atten= 46%, Lag= 12.8 min
Primary = 7.81 cfs @ 12.43 hrs, Volume= 1.223 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.93' @ 12.43 hrs Surf.Area= 7,418 sf Storage= 17,693 cf

Plug-Flow detention time= 118.5 min calculated for 1.223 af (93% of inflow)
Center-of-Mass det. time= 82.1 min (910.6 - 828.5)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

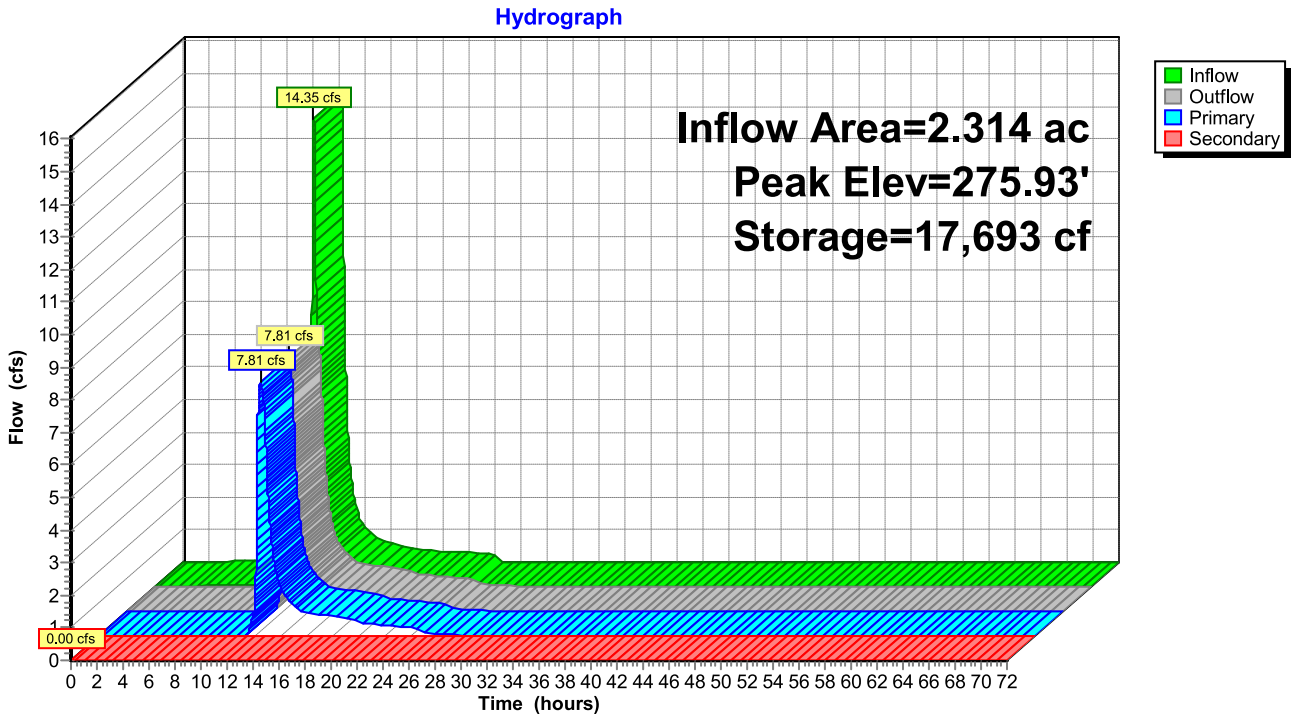
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=7.81 cfs @ 12.43 hrs HW=275.93' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Barrel Controls 7.81 cfs @ 4.42 fps)
├**2=Orifice** (Passes < 1.19 cfs potential flow)
├**3=Rectangular Orifice** (Passes < 9.19 cfs potential flow)
└**4=Inlet Grate** (Passes < 50.66 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8

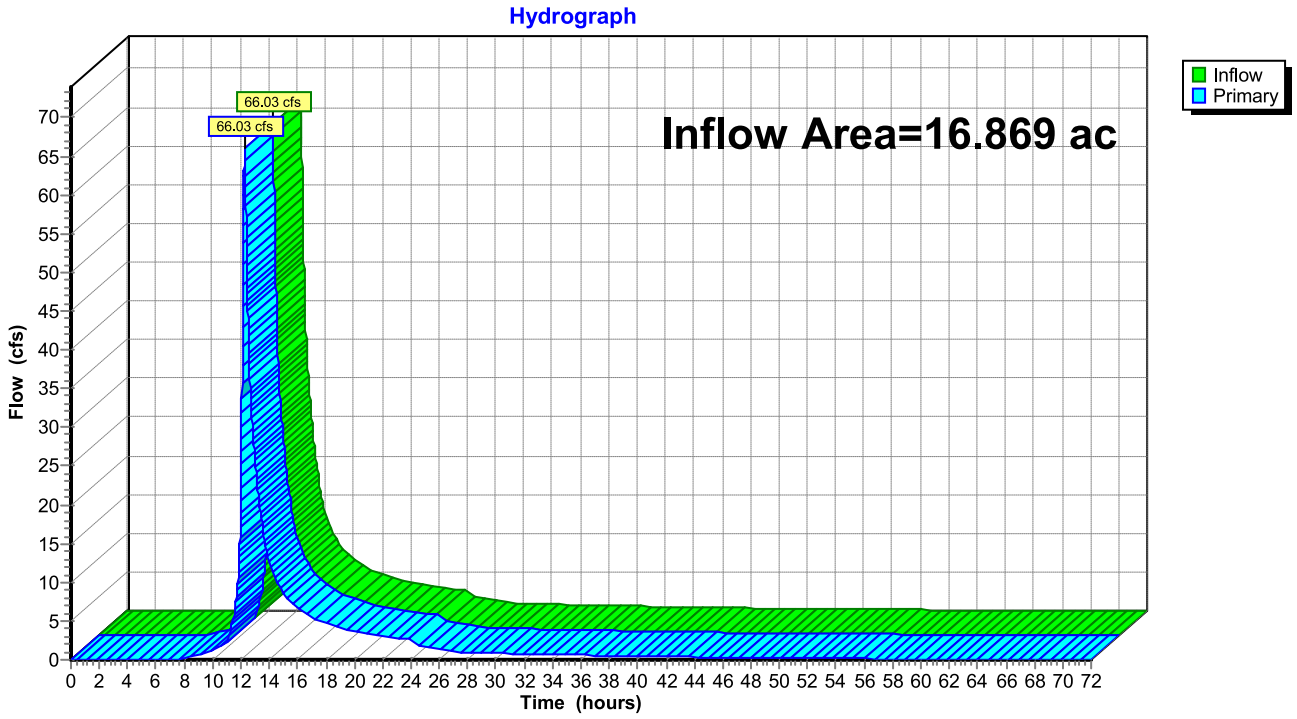


Summary for Link Post1: POST - POI #1

Inflow Area = 16.869 ac, 45.76% Impervious, Inflow Depth > 8.14" for 100-YR Future event
Inflow = 66.03 cfs @ 12.29 hrs, Volume= 11.437 af
Primary = 66.03 cfs @ 12.29 hrs, Volume= 11.437 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post1: POST - POI #1

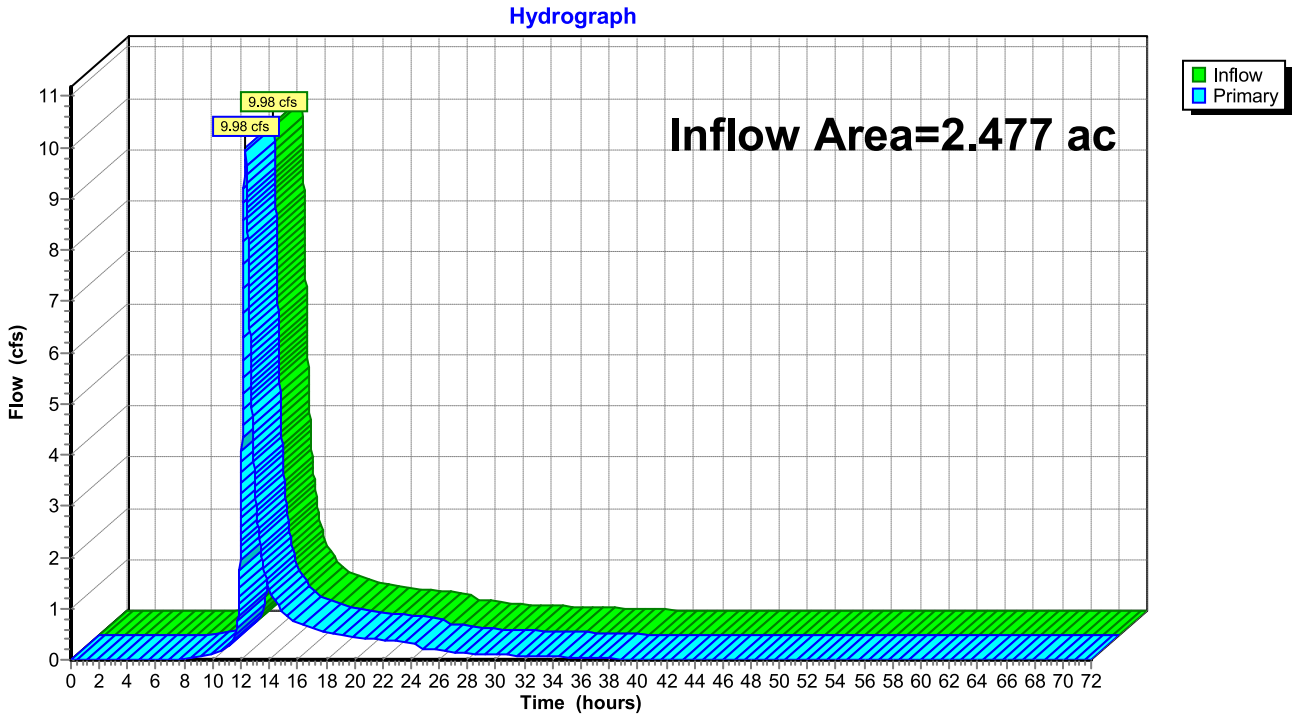


Summary for Link Post2: POST - POI #2

Inflow Area = 2.477 ac, 30.08% Impervious, Inflow Depth = 6.72" for 100-YR Future event
Inflow = 9.98 cfs @ 12.29 hrs, Volume= 1.388 af
Primary = 9.98 cfs @ 12.29 hrs, Volume= 1.388 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post2: POST - POI #2



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1F: POST - POI #2 - Runoff Area=0.154 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=1.50 cfs 0.113 af

Subcatchment 1I: POST - POI #2 - Runoff Area=0.370 ac 100.00% Impervious Runoff Depth=8.84"
Tc=10.0 min CN=0/98 Runoff=3.13 cfs 0.273 af

Subcatchment 1P: POST - POI #2 - Runoff Area=0.370 ac 0.00% Impervious Runoff Depth=2.69"
Tc=10.0 min CN=48/0 Runoff=1.07 cfs 0.083 af

Subcatchment 2F: POST - POI #2 - Runoff Area=0.091 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=0.89 cfs 0.067 af

Subcatchment 2I: POST - POI #2 - Runoff Area=0.130 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=1.26 cfs 0.096 af

Subcatchment 2P: POST - POI #2 - Runoff Area=0.083 ac 0.00% Impervious Runoff Depth=2.69"
Tc=6.0 min CN=48/0 Runoff=0.29 cfs 0.019 af

Subcatchment 3F: POST - POI #1 - Runoff Area=0.214 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=2.08 cfs 0.158 af

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 3P: POST - POI #1 - Runoff Area=0.976 ac 0.00% Impervious Runoff Depth=2.69"
Tc=6.0 min CN=48/0 Runoff=3.36 cfs 0.219 af

Subcatchment 4F: POST - POI #1 - Runoff Area=0.189 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=1.84 cfs 0.139 af

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 4P: POST - POI #1 - Runoff Area=2.213 ac 0.00% Impervious Runoff Depth=2.69"
Tc=17.0 min CN=48/0 Runoff=5.07 cfs 0.497 af

Subcatchment 5F: POST - POI #1 - Runoff Area=0.185 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=1.80 cfs 0.136 af

Subcatchment 5I: POST - POI #1 - Runoff Area=1.842 ac 100.00% Impervious Runoff Depth=8.84"
Tc=15.0 min CN=0/98 Runoff=13.51 cfs 1.357 af

Subcatchment 5P: POST - POI #1 - Runoff Area=0.436 ac 0.00% Impervious Runoff Depth=4.78"
Tc=15.0 min CN=65/0 Runoff=2.02 cfs 0.174 af

Subcatchment 6F: POST - POI #1 - Runoff Area=0.478 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=4.65 cfs 0.352 af

Subcatchment 6I: POST - POI #1 - Runoff Area=2.008 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=19.53 cfs 1.479 af

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 7F: POST - POI #1 - Runoff Area=0.404 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=3.93 cfs 0.298 af

Subcatchment 7I: POST - POI #1 - Runoff Area=2.087 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=20.30 cfs 1.537 af

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8F: POST - POI #1 - Runoff Area=0.172 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=1.67 cfs 0.127 af

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8P: POST - POI #1 - Runoff Area=2.142 ac 0.00% Impervious Runoff Depth=3.79"
Tc=15.0 min CN=57/0 Runoff=7.76 cfs 0.677 af

Subcatchment Off1: POST - POI #2 - Bypass Runoff Area=1.279 ac 0.00% Impervious Runoff Depth=2.69"
Tc=28.0 min CN=48/0 Runoff=2.29 cfs 0.287 af

Subcatchment Off1I: POST - POI #1 - Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=8.84"
Tc=6.0 min CN=0/98 Runoff=1.36 cfs 0.103 af

Subcatchment Off1P: POST - POI #1 - Runoff Area=3.383 ac 0.00% Impervious Runoff Depth=3.67"
Tc=12.0 min CN=56/0 Runoff=12.97 cfs 1.034 af

Subcatchment Pre1: PRE - POI #1 Runoff Area=16.869 ac 0.00% Impervious Runoff Depth=4.29"
Tc=27.0 min CN=61/0 Runoff=52.72 cfs 6.027 af

Subcatchment Pre2: PRE - POI #2 Runoff Area=2.477 ac 4.60% Impervious Runoff Depth=3.91"
Tc=23.0 min CN=56/98 Runoff=7.43 cfs 0.806 af

Pond B1: Infiltration Basin #1 Peak Elev=276.42' Storage=8,923 cf Inflow=5.49 cfs 0.469 af
Primary=3.06 cfs 0.418 af Secondary=0.00 cfs 0.000 af Outflow=3.06 cfs 0.418 af

Pond B2: Infiltration Basin #2 Peak Elev=276.29' Storage=4,671 cf Inflow=2.43 cfs 0.181 af
Primary=0.21 cfs 0.160 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.160 af

Pond B3: Infiltration Basin #3 Peak Elev=274.03' Storage=4,057 cf Inflow=5.43 cfs 0.377 af
Primary=2.22 cfs 0.354 af Secondary=0.00 cfs 0.000 af Outflow=2.22 cfs 0.354 af

Pond B4: Infiltration Basin #4 Peak Elev=266.93' Storage=11,791 cf Inflow=5.82 cfs 0.636 af
Primary=1.02 cfs 0.618 af Secondary=0.00 cfs 0.000 af Outflow=1.02 cfs 0.618 af

Pond B5: Infiltration Basin #5 Peak Elev=268.10' Storage=20,791 cf Inflow=16.47 cfs 1.667 af
Primary=7.43 cfs 1.309 af Secondary=8.91 cfs 0.182 af Outflow=16.34 cfs 1.491 af

Pond B6: Infiltration Basin #6 Peak Elev=264.91' Storage=51,542 cf Inflow=24.18 cfs 1.831 af
Primary=2.48 cfs 1.563 af Secondary=0.00 cfs 0.000 af Outflow=2.48 cfs 1.563 af

Pond B7: Infiltration Basin #7 Peak Elev=265.43' Storage=54,014 cf Inflow=24.23 cfs 1.835 af
Primary=1.64 cfs 1.596 af Secondary=0.00 cfs 0.000 af Outflow=1.64 cfs 1.596 af

Pond B8: Infiltration Basin #8 Peak Elev=275.20' Storage=12,532 cf Inflow=8.59 cfs 0.804 af
Primary=4.03 cfs 0.715 af Secondary=0.00 cfs 0.000 af Outflow=4.03 cfs 0.715 af

Link Post1: POST - POI #1 Inflow=36.08 cfs 7.475 af
Primary=36.08 cfs 7.475 af

Link Post2: POST - POI #2 Inflow=5.26 cfs 0.865 af
Primary=5.26 cfs 0.865 af

Total Runoff Area = 38.692 ac Runoff Volume = 16.058 af Average Runoff Depth = 4.98"
77.83% Pervious = 30.114 ac 22.17% Impervious = 8.578 ac

Summary for Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint

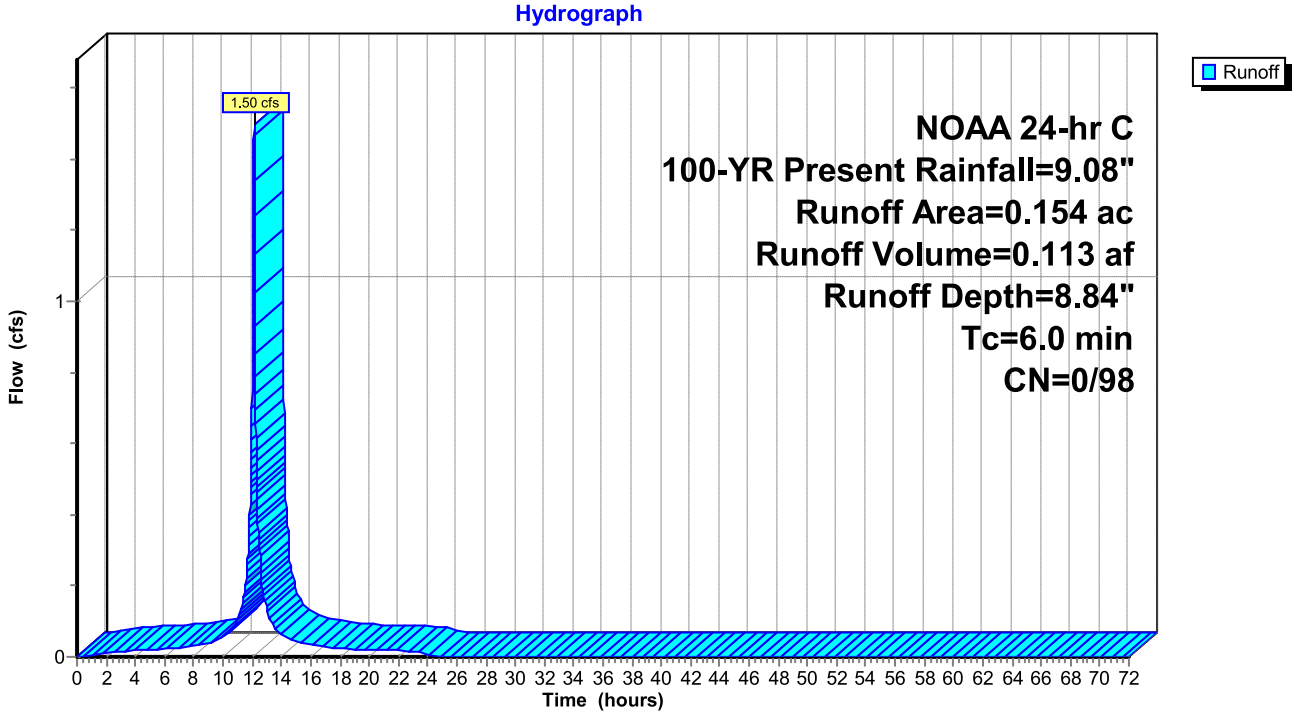
Runoff = 1.50 cfs @ 12.13 hrs, Volume= 0.113 af, Depth= 8.84"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.154	98	Infiltration Basin #1
	0.154	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1F: POST - POI #2 - Infiltration Basin #1 Footprint



Summary for Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious

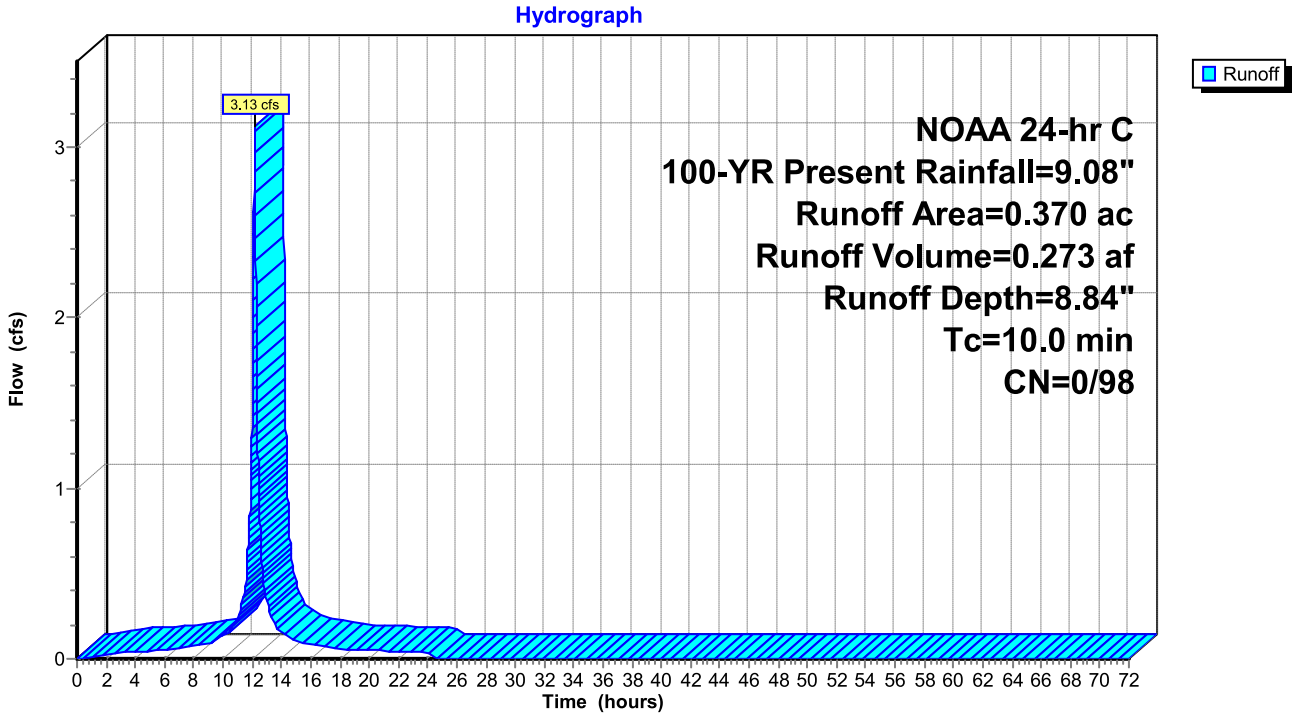
Runoff = 3.13 cfs @ 12.17 hrs, Volume= 0.273 af, Depth= 8.84"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.020	98	Impervious, HSG B
*	0.350	98	Gravel roads, HSG B
	0.370	98	Weighted Average
	0.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1I: POST - POI #2 - Infiltration Basin #1 Drainage Area Impervious



Summary for Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious

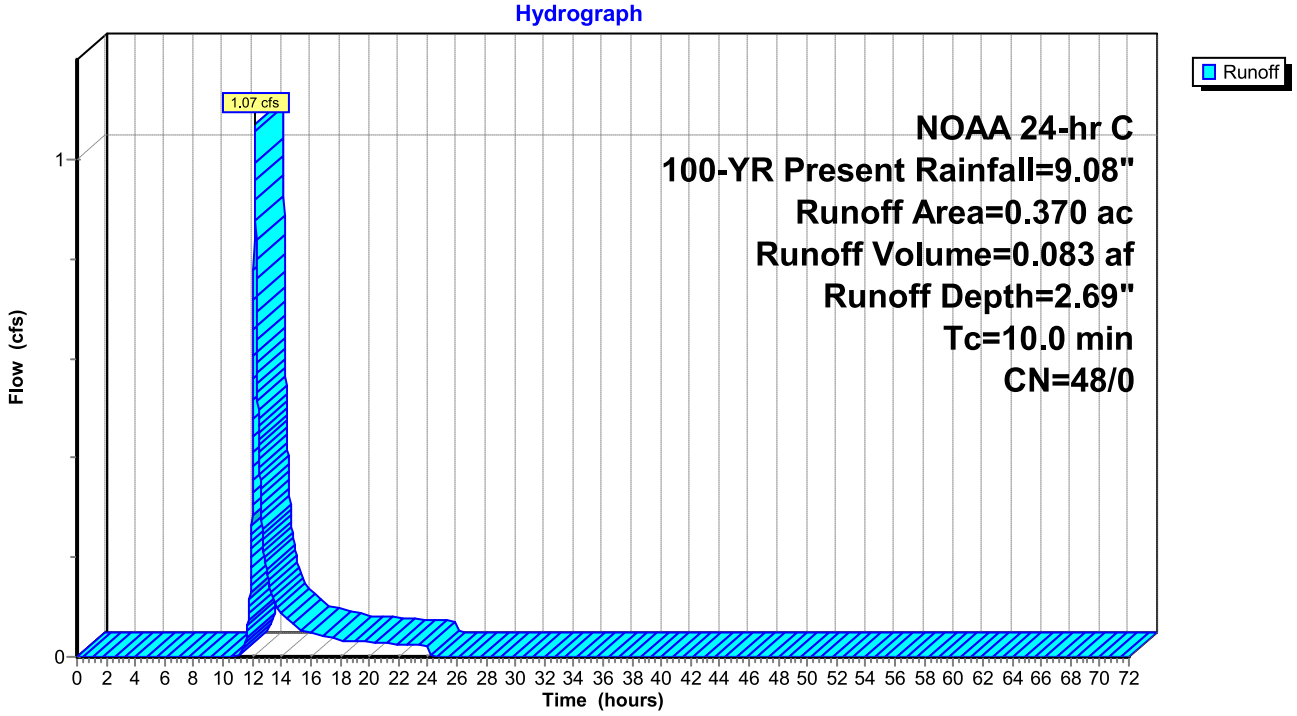
Runoff = 1.07 cfs @ 12.18 hrs, Volume= 0.083 af, Depth= 2.69"
Routed to Pond B1 : Infiltration Basin #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
0.370	48	Brush, Good, HSG B
0.370	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, POST - POI #2 - Detention Basin #1**

Subcatchment 1P: POST - POI #2 - Infiltration Basin #1 Drainage Area Pervious



Summary for Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint

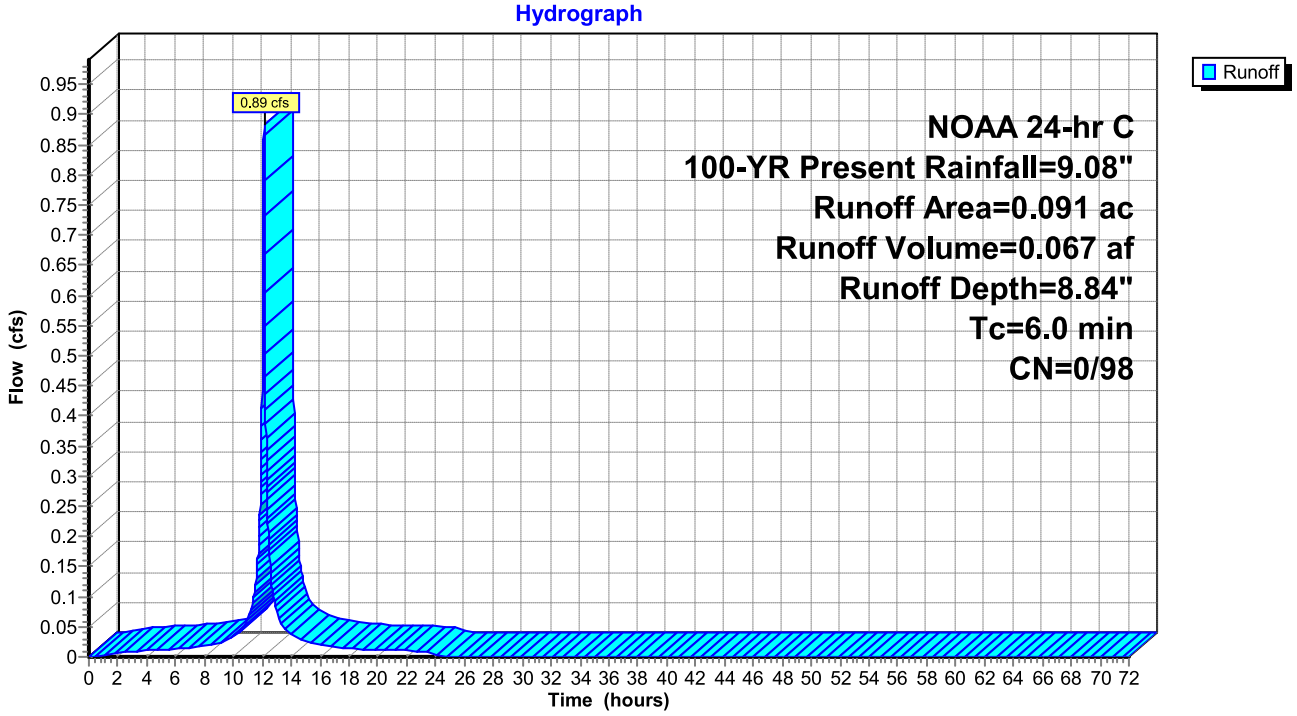
Runoff = 0.89 cfs @ 12.13 hrs, Volume= 0.067 af, Depth= 8.84"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.091	98	Infiltration Basin #2
	0.091	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2F: POST - POI #2 - Infiltration Basin #3 Footprint



Summary for Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious

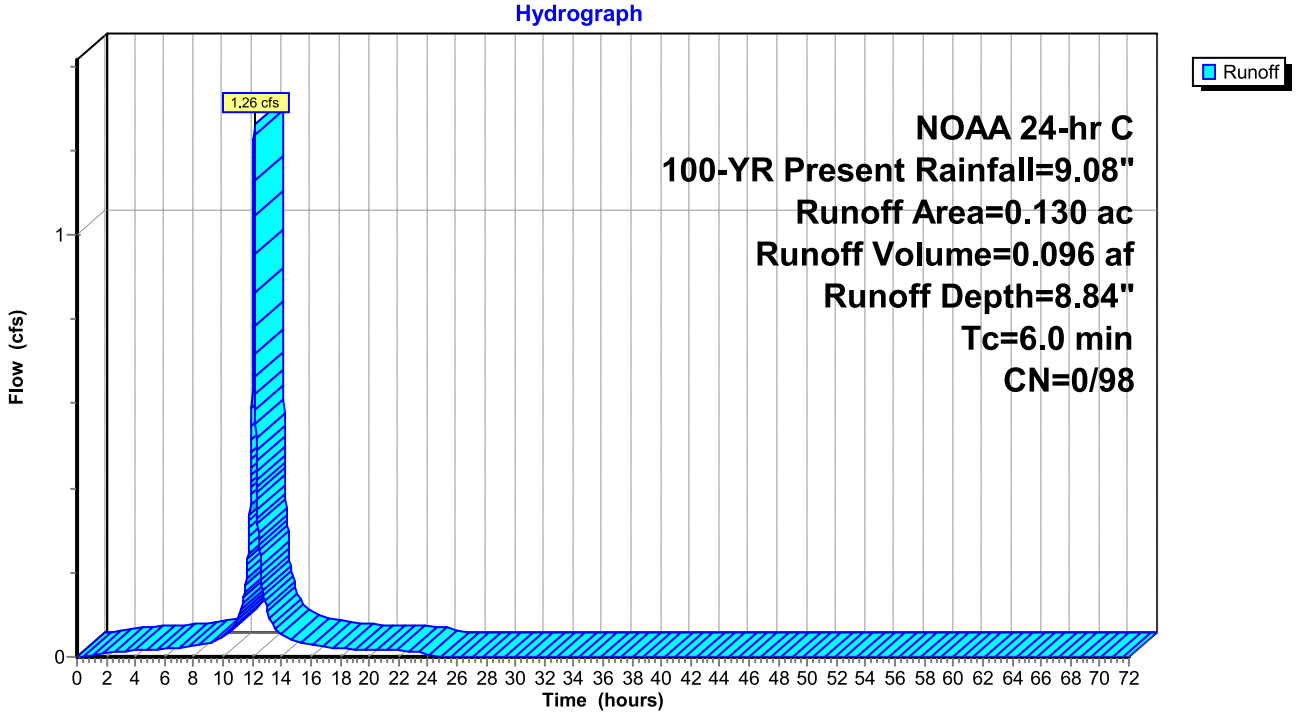
Runoff = 1.26 cfs @ 12.13 hrs, Volume= 0.096 af, Depth= 8.84"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.130	98	Gravel roads, HSG B
	0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment 2I: POST - POI #2 - Infiltration Basin #2 Drainage Area Impervious



Summary for Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious

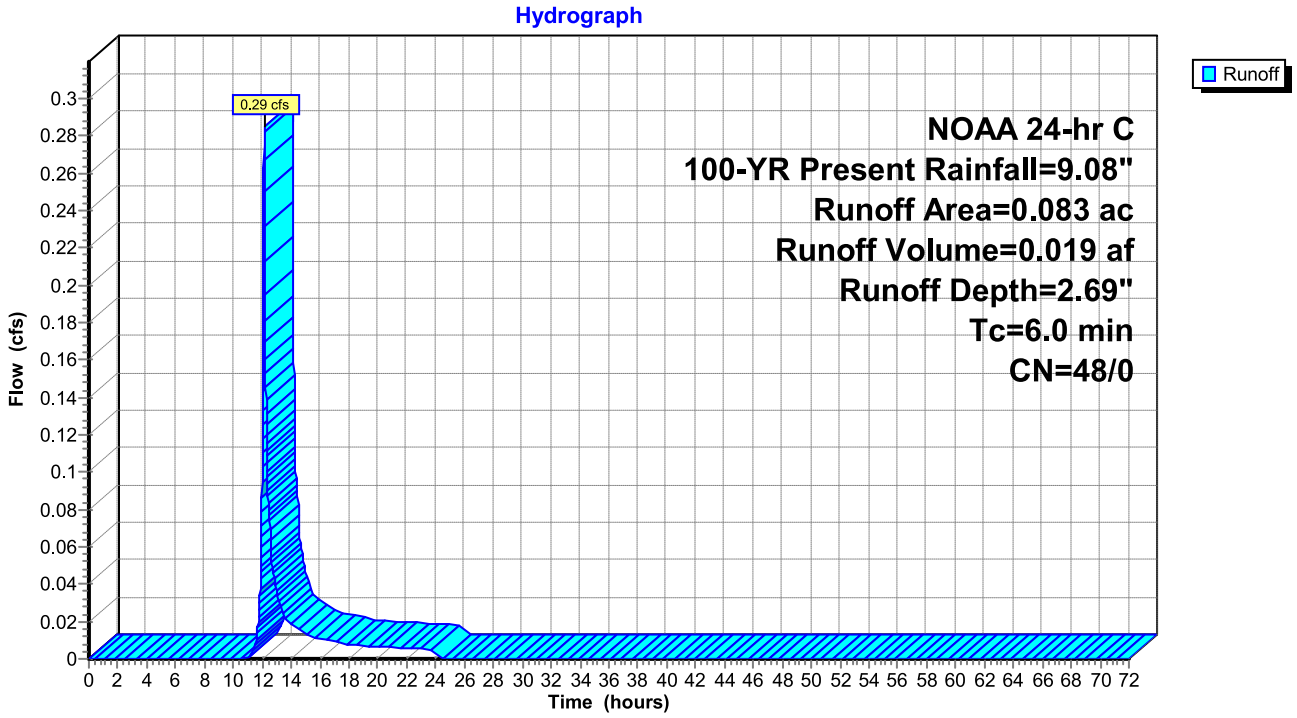
Runoff = 0.29 cfs @ 12.14 hrs, Volume= 0.019 af, Depth= 2.69"
Routed to Pond B2 : Infiltration Basin #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
0.083	48	Brush, Good, HSG B
0.083	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #2 - Detention Basin #2**

Subcatchment 2P: POST - POI #2 - Infiltration Basin #2 Drainage Area Pervious



Summary for Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint

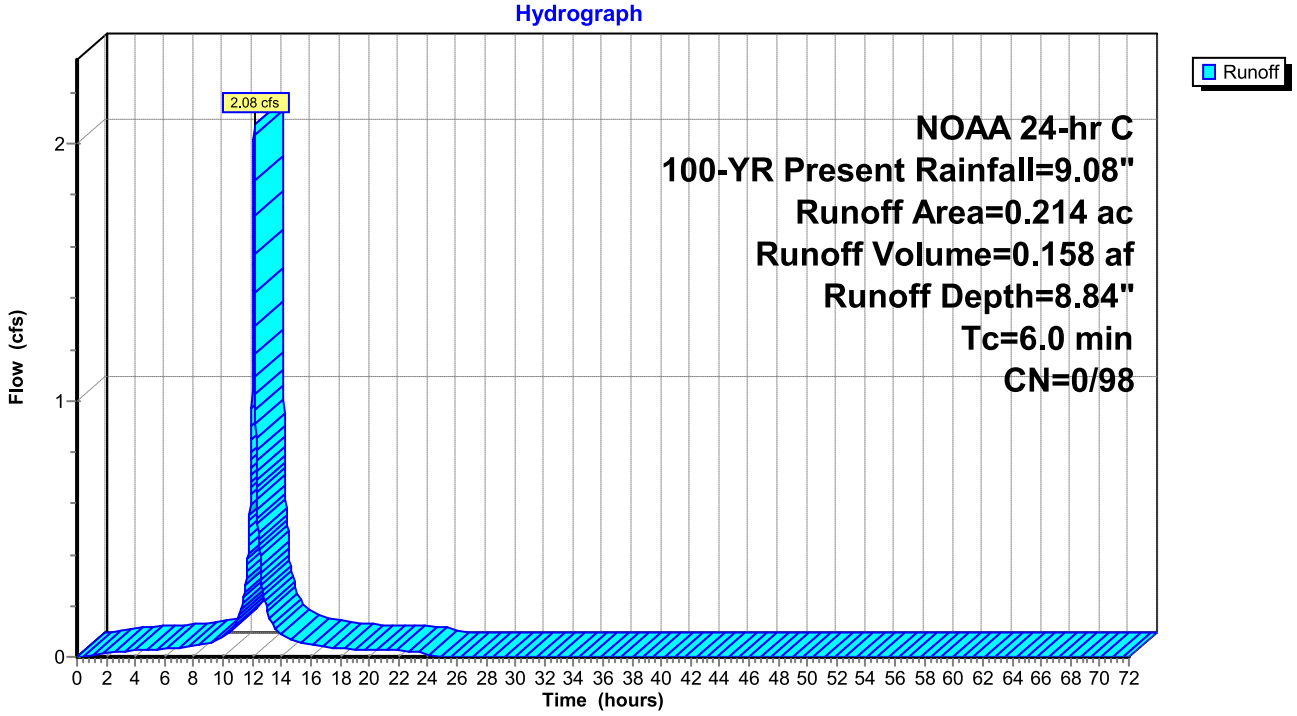
Runoff = 2.08 cfs @ 12.13 hrs, Volume= 0.158 af, Depth= 8.84"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.214	98	Infiltration Basin #3
	0.214	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3F: POST - POI #1 - Infiltration Basin #3 Footprint



Summary for Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious

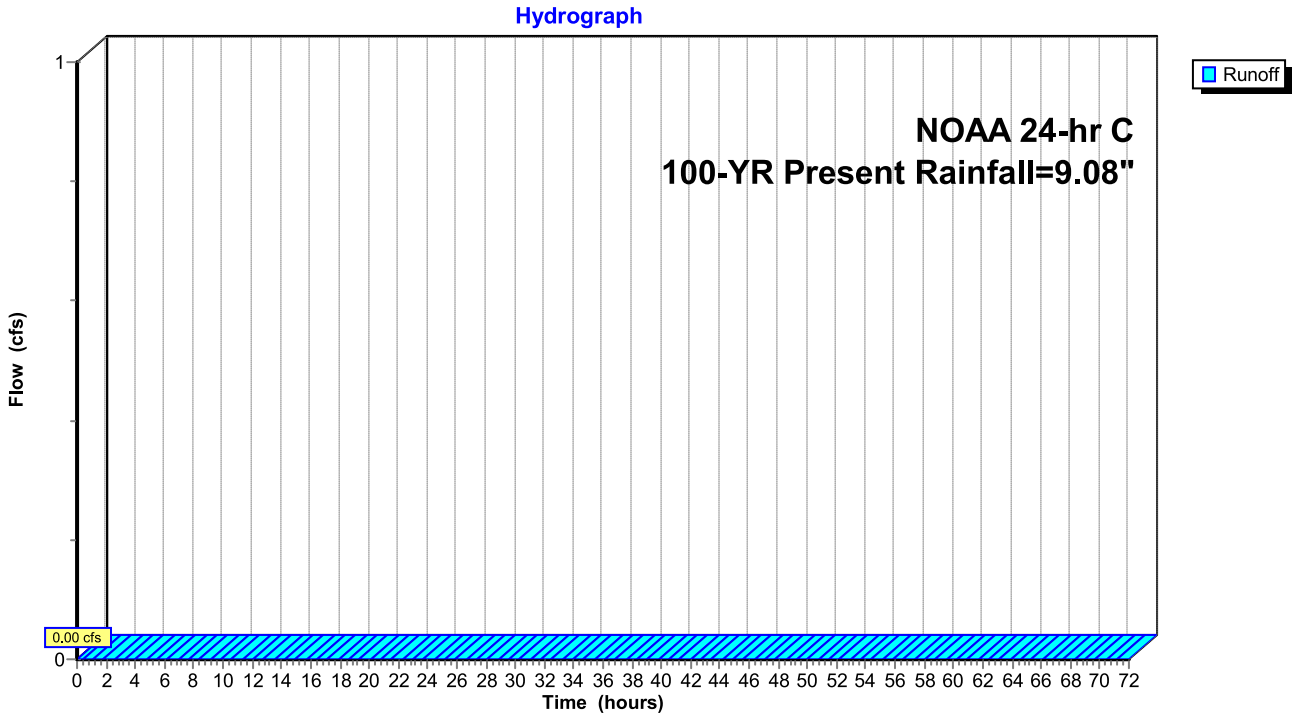
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious



Summary for Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious

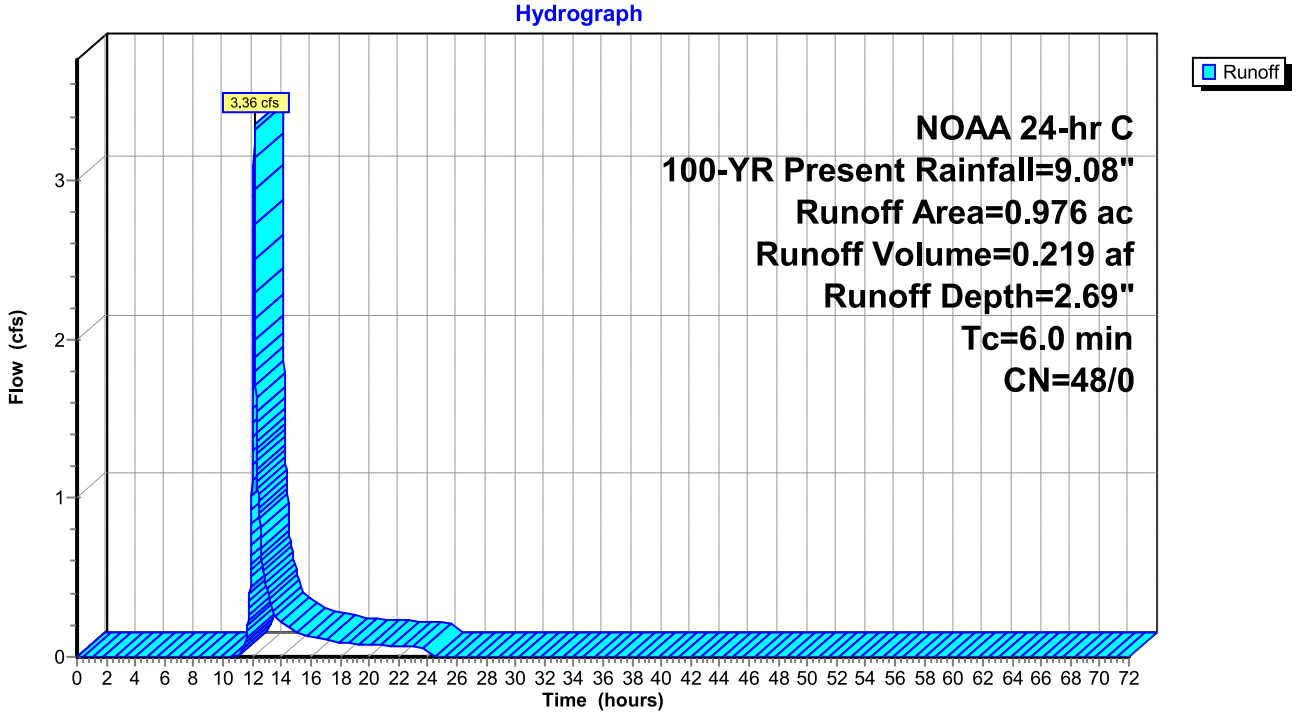
Runoff = 3.36 cfs @ 12.14 hrs, Volume= 0.219 af, Depth= 2.69"
Routed to Pond B3 : Infiltration Basin #3

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
0.976	48	Brush, Good, HSG B
0.976	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin #3**

Subcatchment 3P: POST - POI #1 - Infiltration Basin #3 Drainage Area Pervious



Summary for Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint

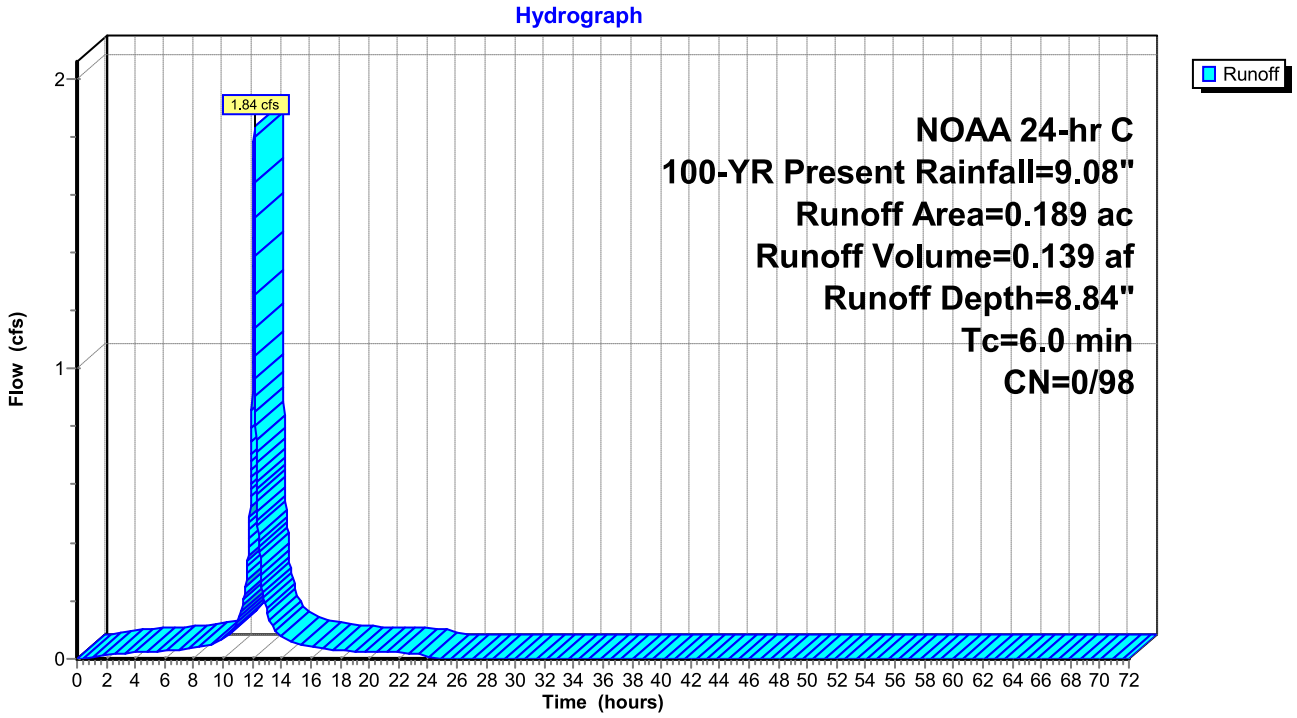
Runoff = 1.84 cfs @ 12.13 hrs, Volume= 0.139 af, Depth= 8.84"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.189	98	Infiltration Basin #4
	0.189	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4F: POST - POI #1 - Infiltration Basin #4 Footprint



Summary for Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious

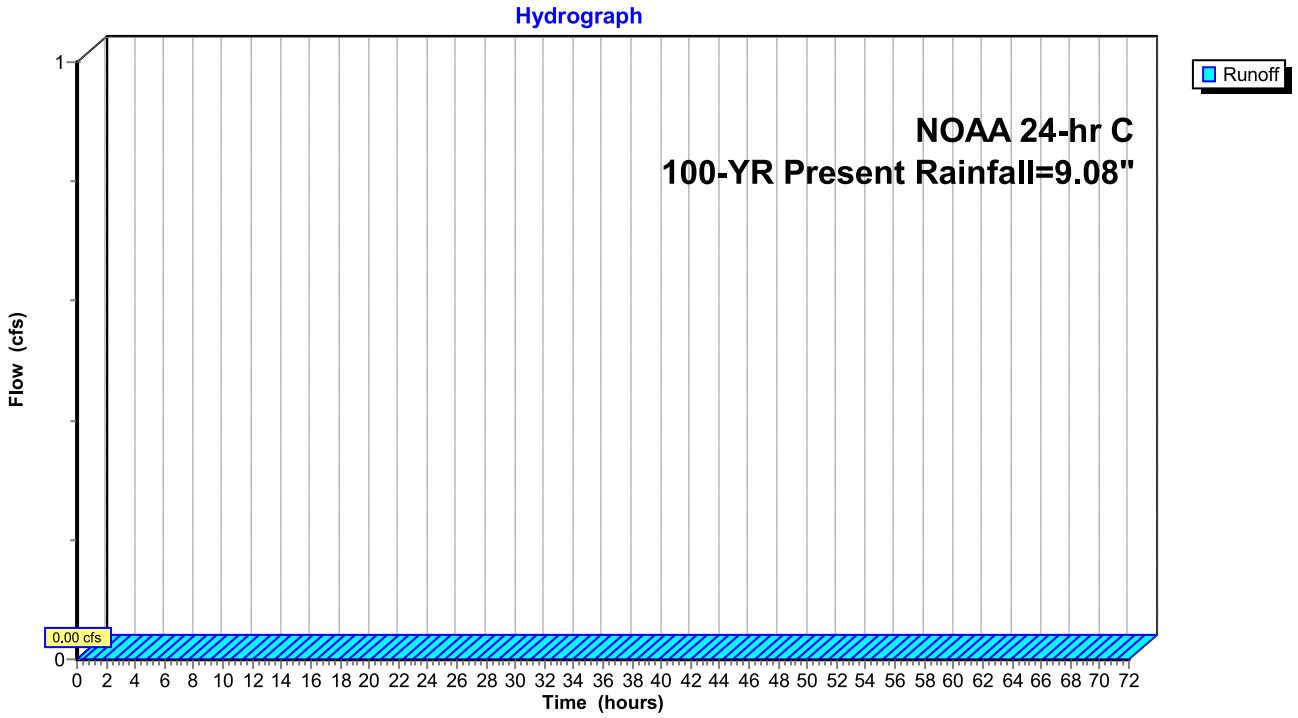
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious



Summary for Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious

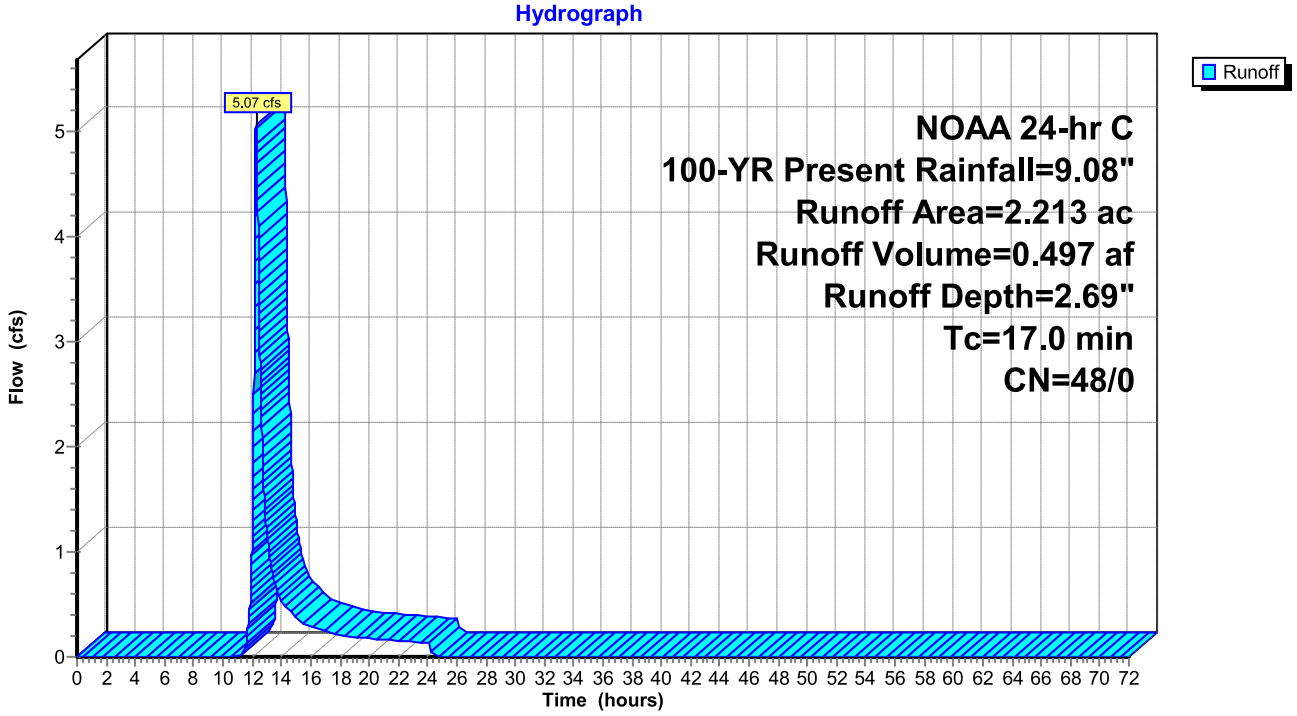
Runoff = 5.07 cfs @ 12.27 hrs, Volume= 0.497 af, Depth= 2.69"
Routed to Pond B4 : Infiltration Basin #4

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
2.213	48	Brush, Good, HSG B
2.213	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 4P: POST - POI #1 - Infiltration Basin #4 Drainage Area Pervious



Summary for Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint

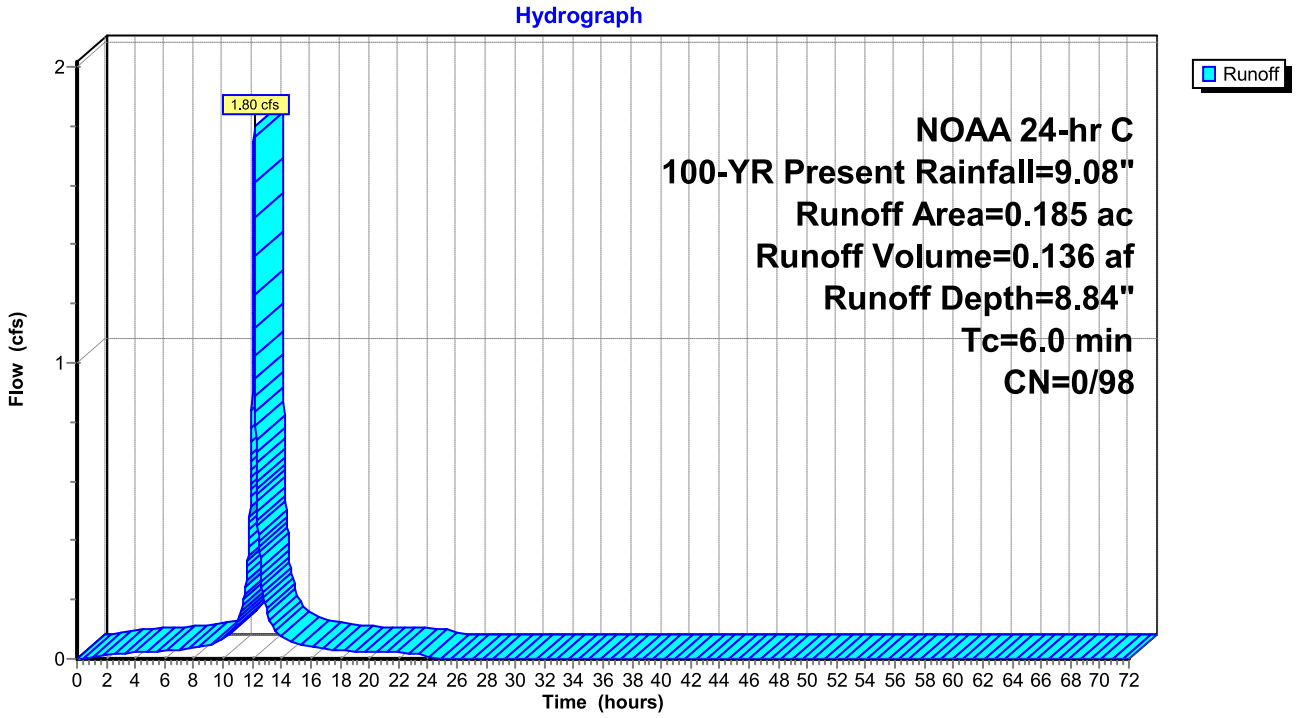
Runoff = 1.80 cfs @ 12.13 hrs, Volume= 0.136 af, Depth= 8.84"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.185	98	Infiltration Basin #5
	0.185	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5F: POST - POI #1 - Infiltration Basin #5 Footprint



Summary for Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious

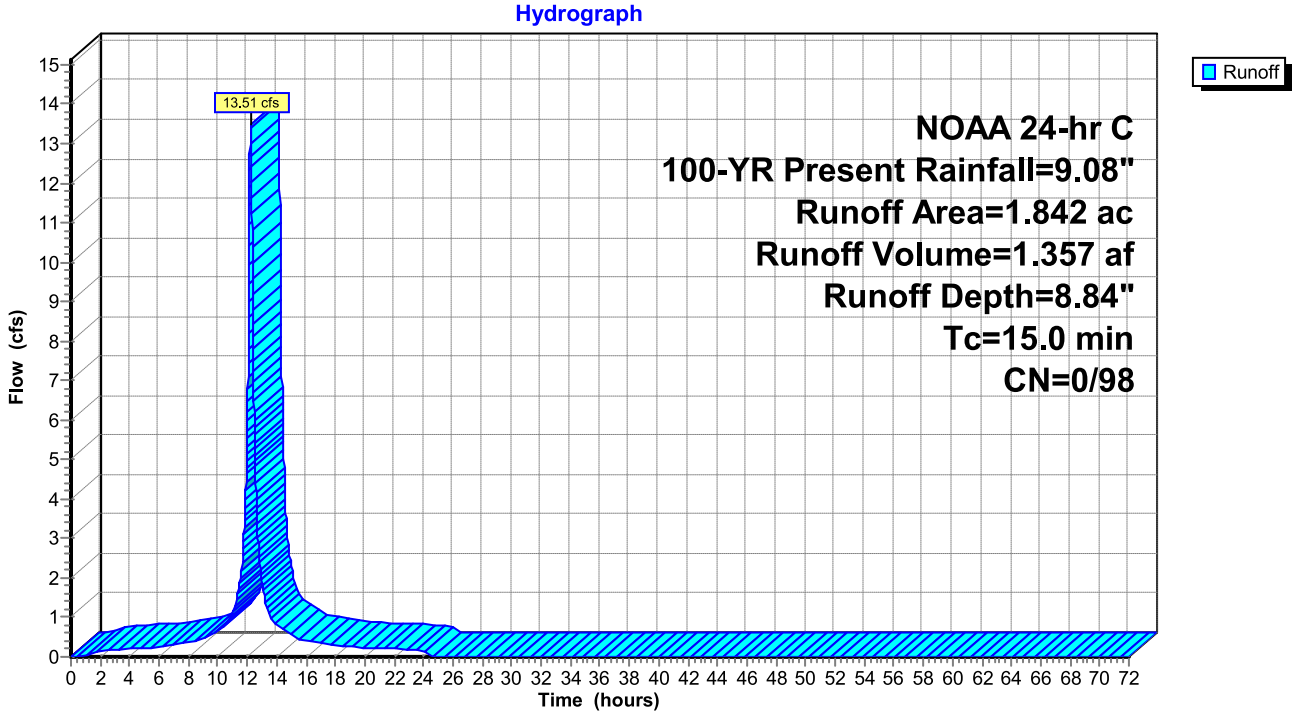
Runoff = 13.51 cfs @ 12.22 hrs, Volume= 1.357 af, Depth= 8.84"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	1.842	98	Gravel surfaces
	1.842	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5I: POST - POI #1 - Infiltration Basin #5 Drainage Area Impervious



Summary for Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious

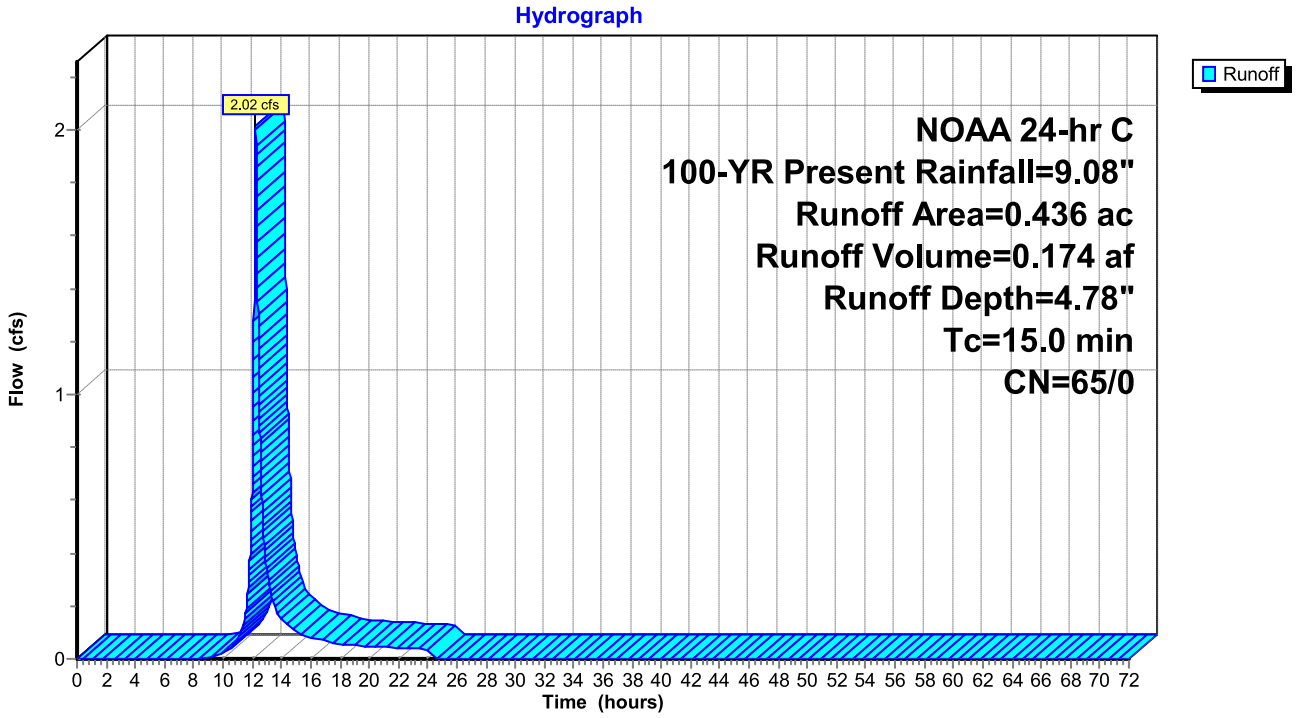
Runoff = 2.02 cfs @ 12.23 hrs, Volume= 0.174 af, Depth= 4.78"
Routed to Pond B5 : Infiltration Basin #5

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
0.436	65	Brush, Good, HSG C
0.436	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 5P: POST - POI #1 - Infiltration Basin #5 Drainage Area Pervious



Summary for Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint

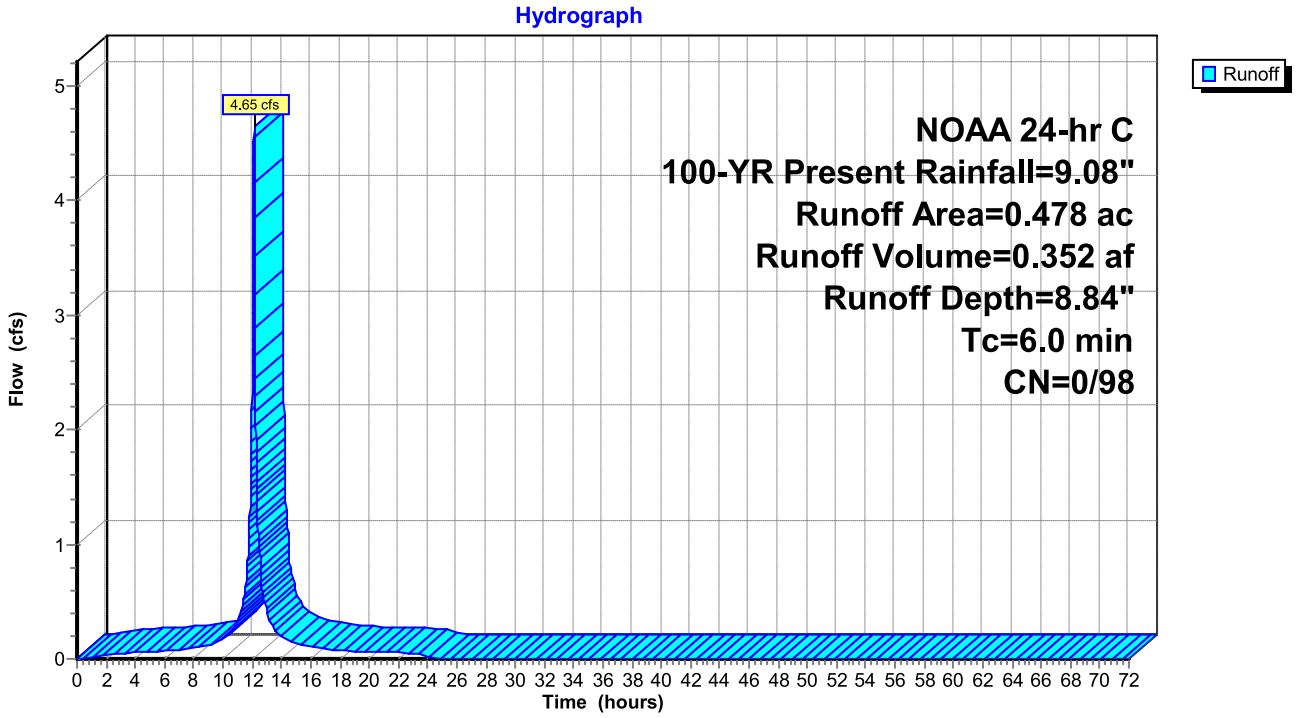
Runoff = 4.65 cfs @ 12.13 hrs, Volume= 0.352 af, Depth= 8.84"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.478	98	Infiltration Basin #6
	0.478	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6F: POST - POI #1 - Infiltration Basin #6 Footprint



Summary for Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious

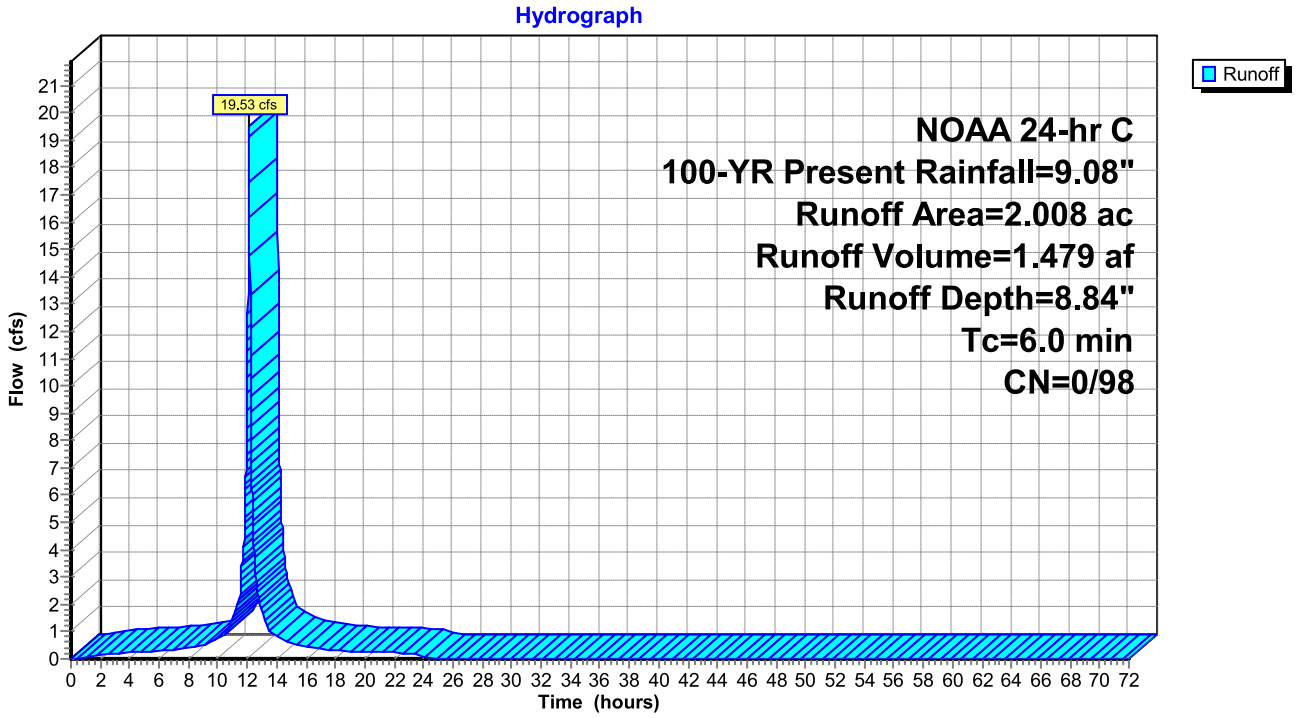
Runoff = 19.53 cfs @ 12.13 hrs, Volume= 1.479 af, Depth= 8.84"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	2.008	98	Gravel surfaces
	2.008	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6I: POST - POI #1 - Infiltration Basin #6 Drainage Area Impervious



Summary for Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious

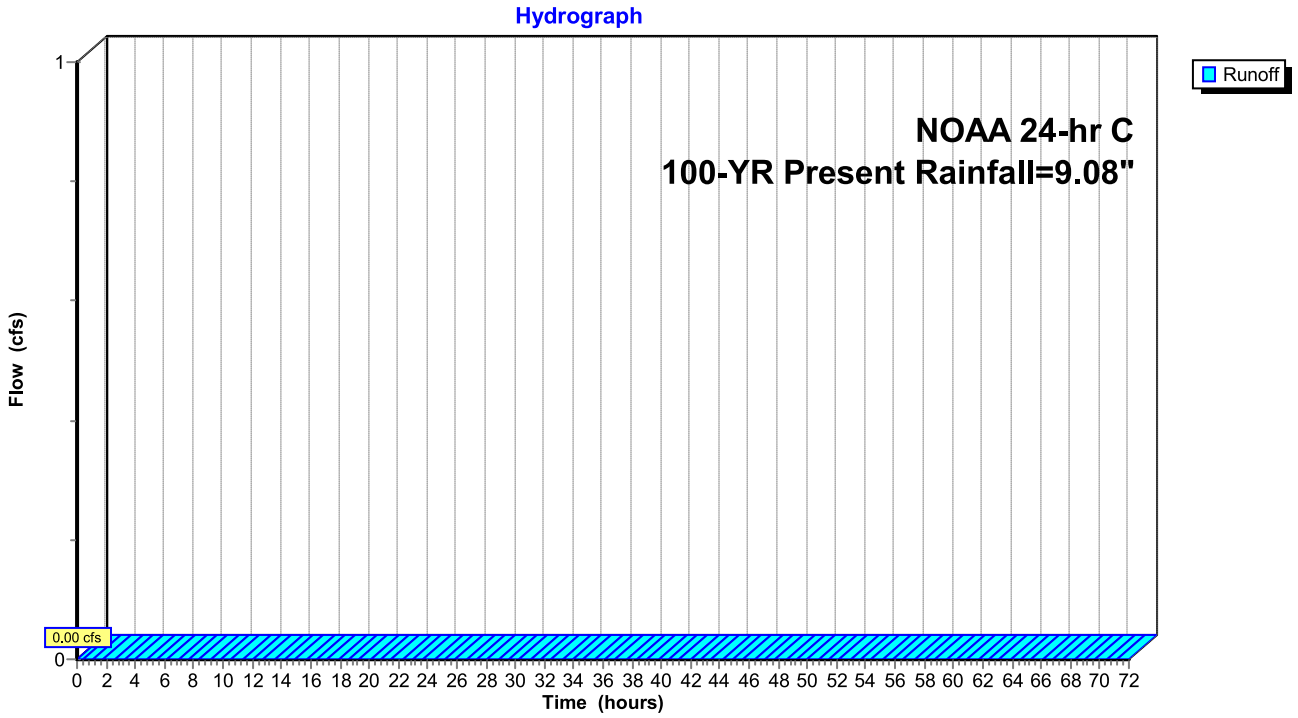
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B6 : Infiltration Basin #6

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious



Summary for Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint

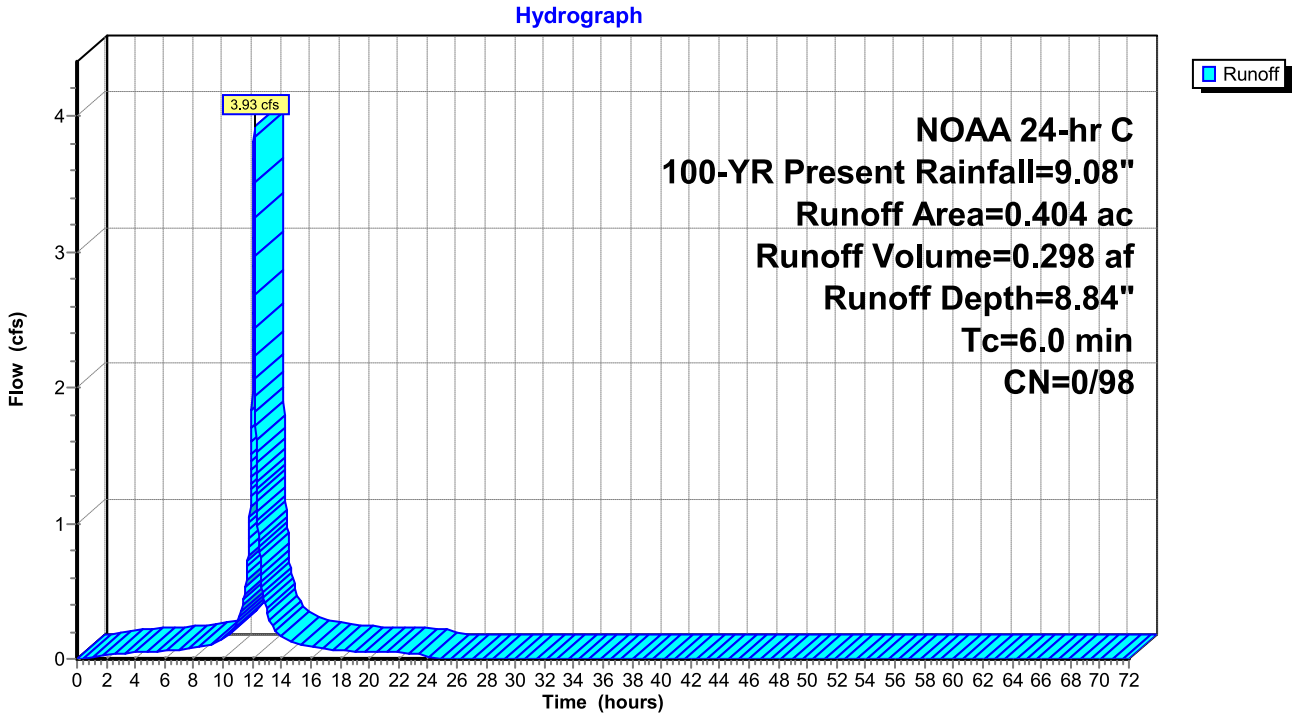
Runoff = 3.93 cfs @ 12.13 hrs, Volume= 0.298 af, Depth= 8.84"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.404	98	Infiltration Basin #7
	0.404	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7F: POST - POI #1 - Infiltration Basin #7 Footprint



Summary for Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious

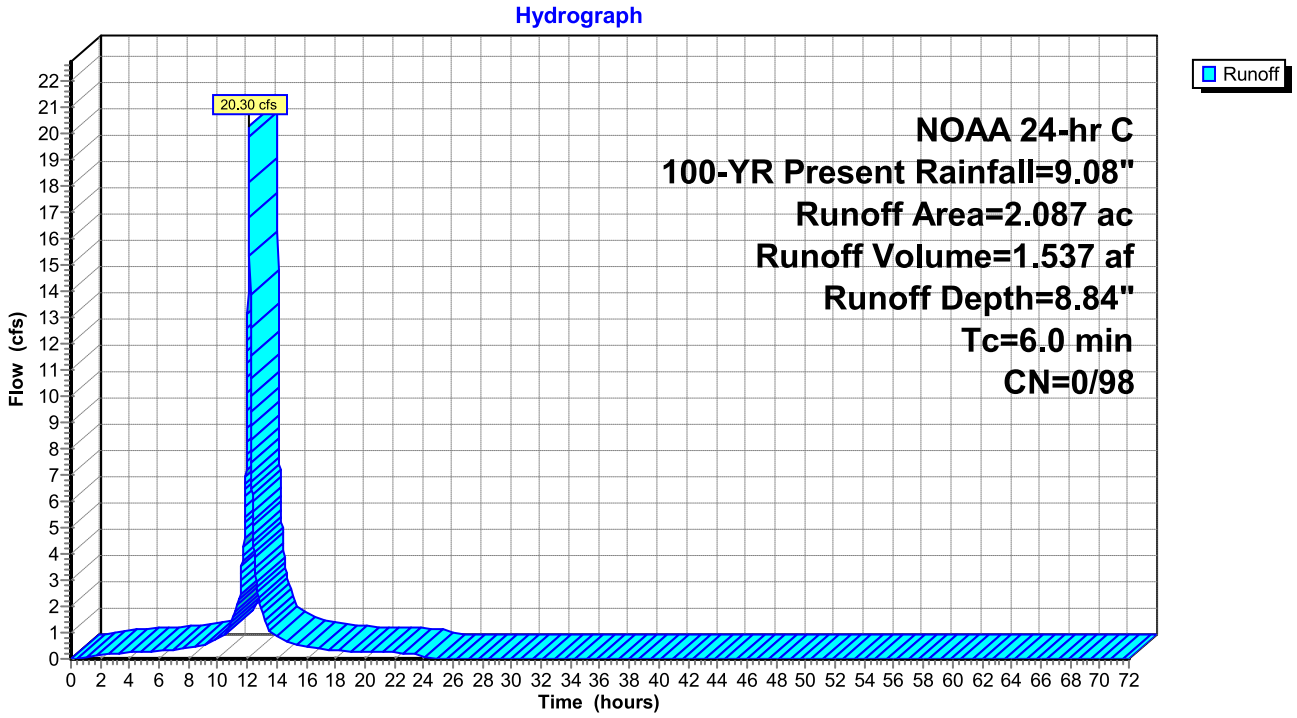
Runoff = 20.30 cfs @ 12.13 hrs, Volume= 1.537 af, Depth= 8.84"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	2.087	98	Gravel surfaces
	2.087	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7I: POST - POI #1 - Infiltration Basin #7 Drainage Area Impervious



Summary for Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious

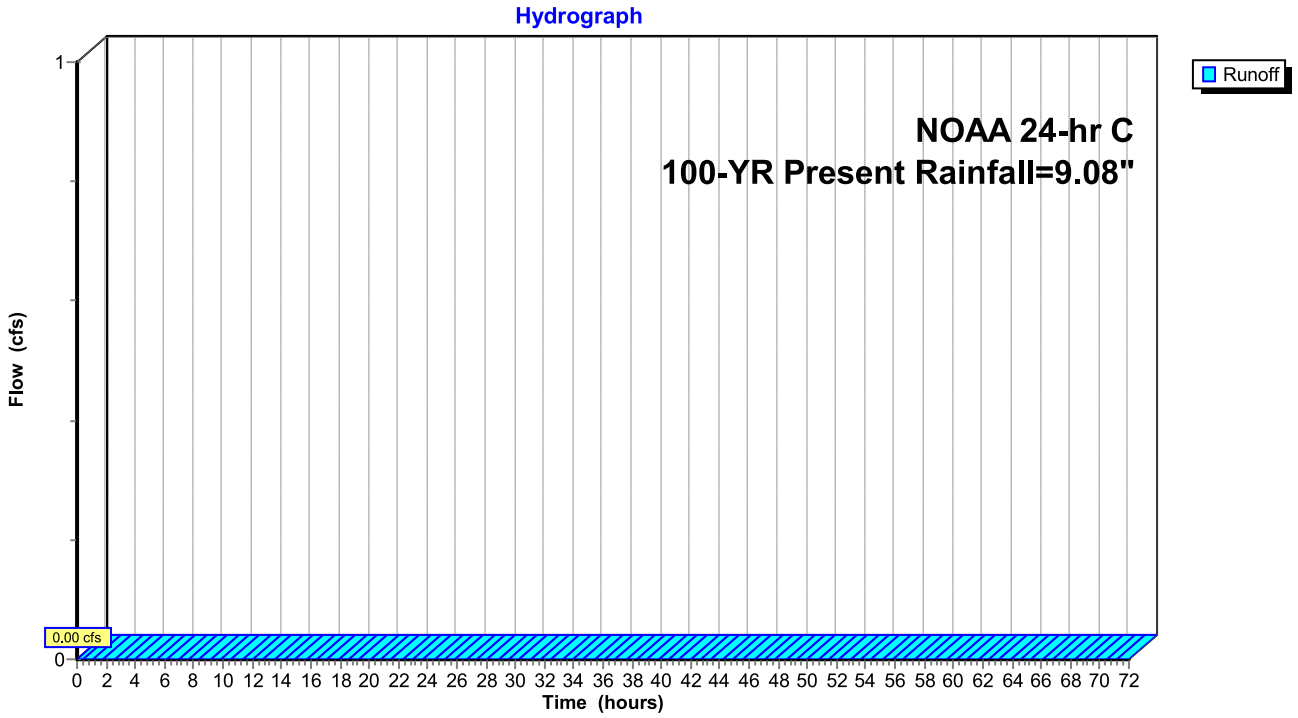
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B7 : Infiltration Basin #7

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious



Summary for Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint

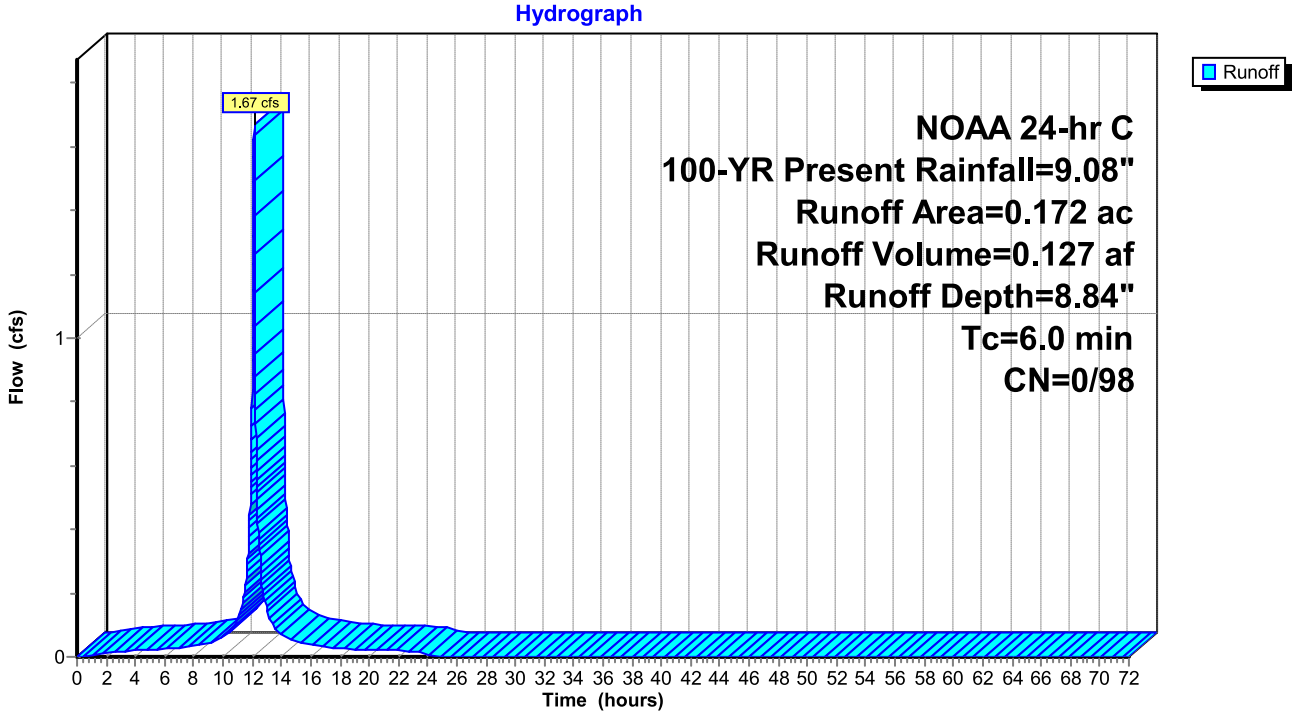
Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.127 af, Depth= 8.84"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.172	98	Infiltration Basin #8
	0.172	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8F: POST - POI #1 - Infiltration Basin #8 Footprint



Summary for Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious

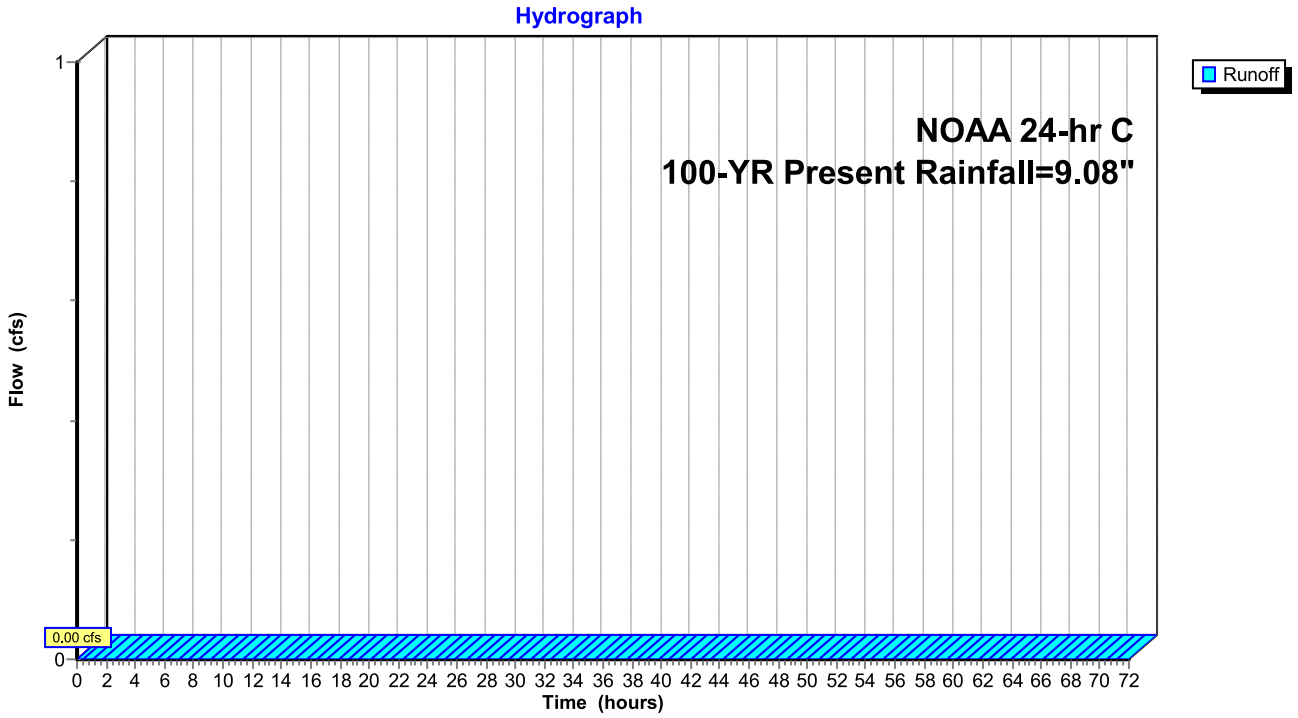
[40] Hint: Not Described (Area=0)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious



Summary for Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious

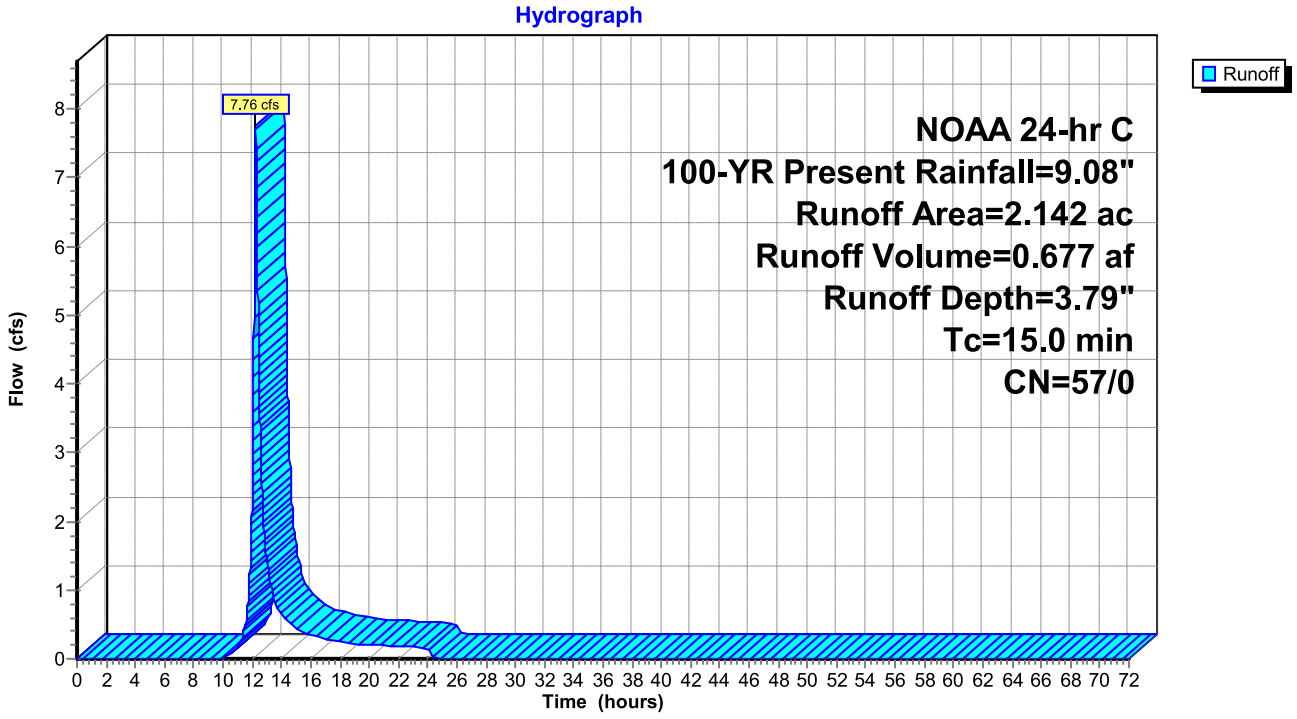
Runoff = 7.76 cfs @ 12.24 hrs, Volume= 0.677 af, Depth= 3.79"
Routed to Pond B8 : Infiltration Basin #8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
1.008	48	Brush, Good, HSG B
1.134	65	Brush, Good, HSG C
2.142	57	Weighted Average
2.142	57	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, POST- POI #1 Basin**

Subcatchment 8P: POST - POI #1 - Infiltration Basin #8 Drainage Area Pervious



Summary for Subcatchment Off1: POST - POI #2 - Bypass

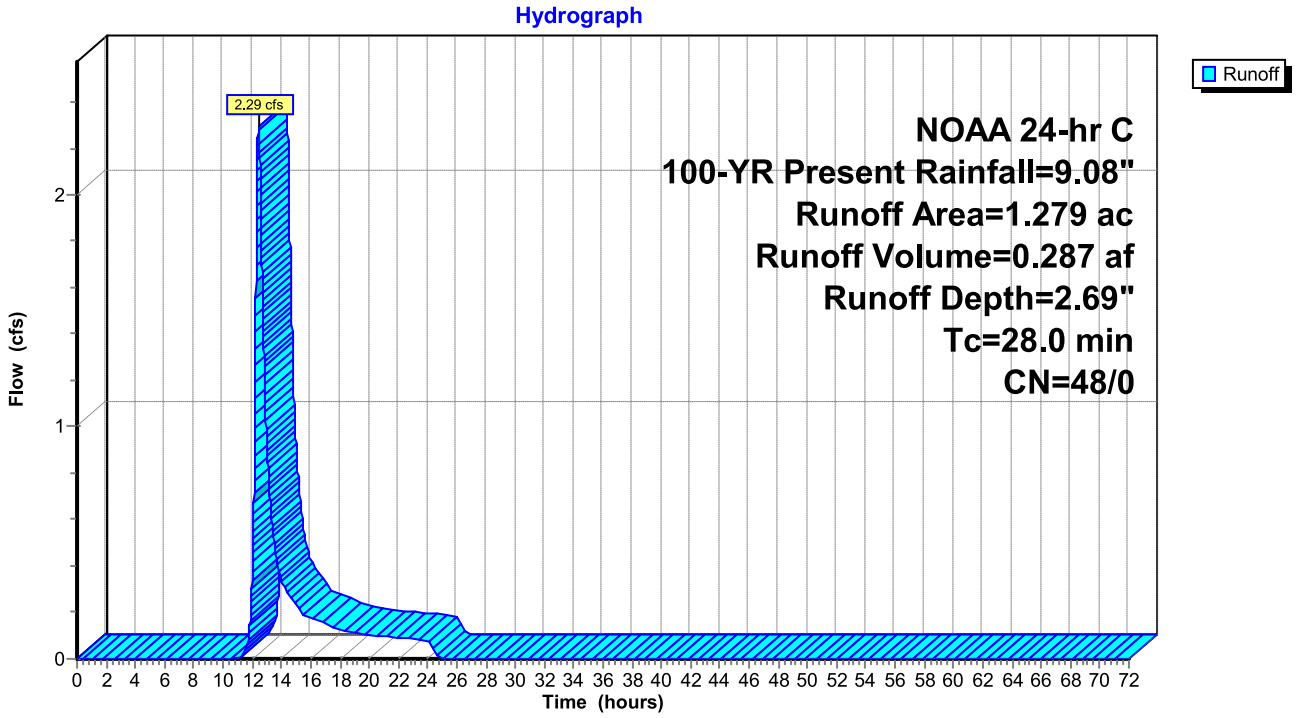
Runoff = 2.29 cfs @ 12.42 hrs, Volume= 0.287 af, Depth= 2.69"
Routed to Link Post2 : POST - POI #2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
1.279	48	Brush, Good, HSG B
1.279	48	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0					**Direct Entry, POST - POI #2 - Bypass**

Subcatchment Off1: POST - POI #2 - Bypass



Summary for Subcatchment Off1I: POST - POI #1 - Bypass Impervious

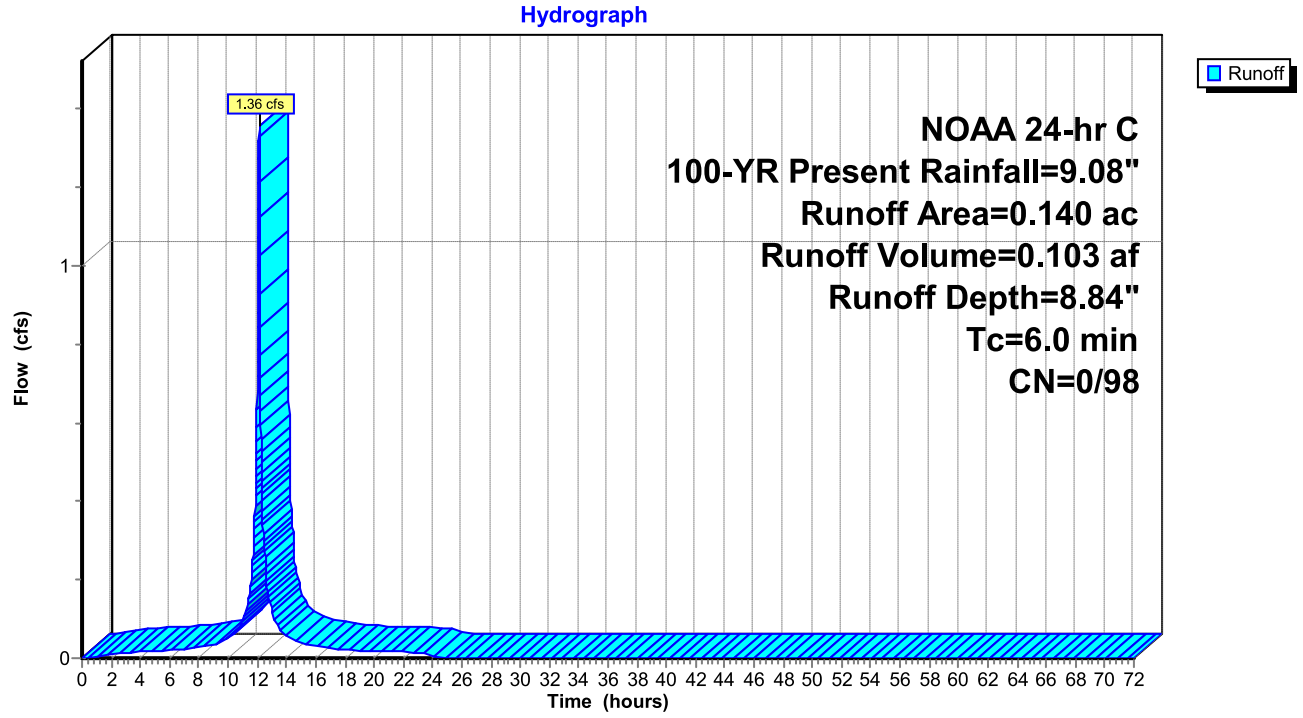
Runoff = 1.36 cfs @ 12.13 hrs, Volume= 0.103 af, Depth= 8.84"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
*	0.050	98	Gravel B
*	0.010	98	Gravel C
*	0.080	98	Gravel D
	0.140	98	Weighted Average
	0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1I: POST - POI #1 - Bypass Impervious



Summary for Subcatchment Off1P: POST - POI #1 - Bypass Pervious

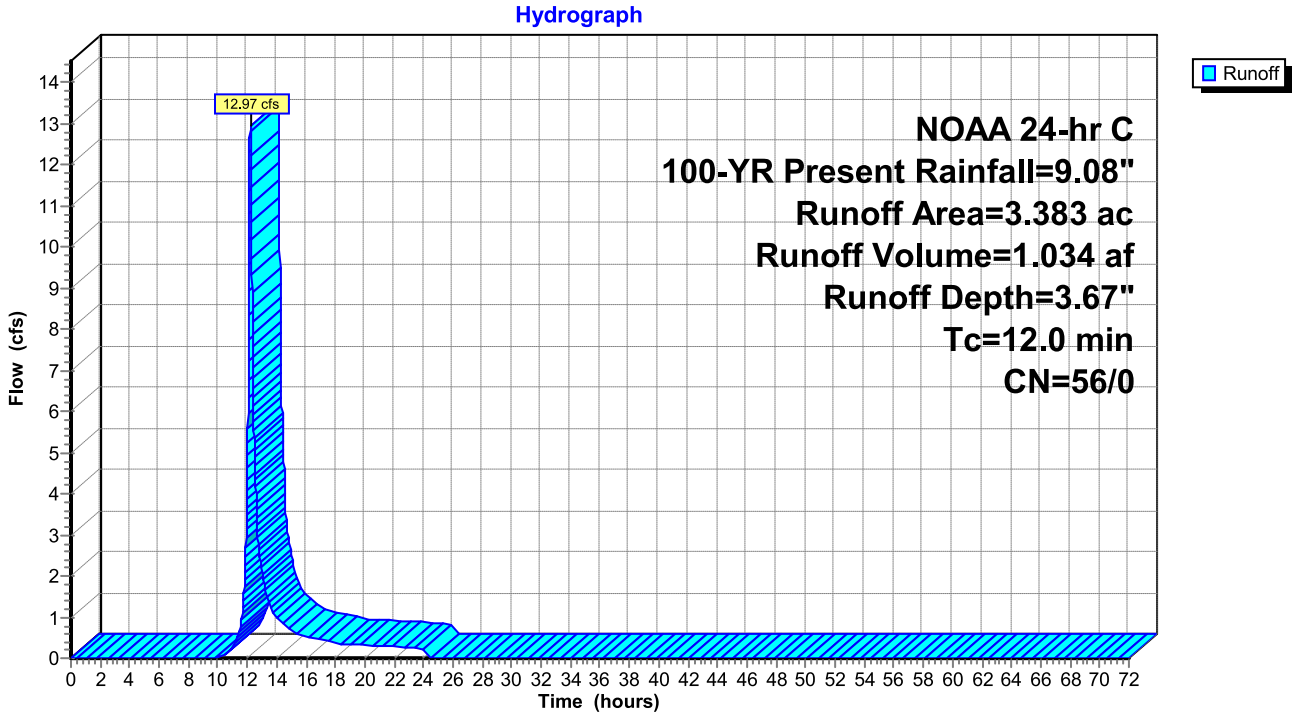
Runoff = 12.97 cfs @ 12.20 hrs, Volume= 1.034 af, Depth= 3.67"
Routed to Link Post1 : POST - POI #1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
2.061	48	Brush, Good, HSG B
0.543	65	Brush, Good, HSG C
0.779	73	Brush, Good, HSG D
3.383	56	Weighted Average
3.383	56	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, POST - POI #1 - Bypass**

Subcatchment Off1P: POST - POI #1 - Bypass Pervious



Summary for Subcatchment Pre1: PRE - POI #1

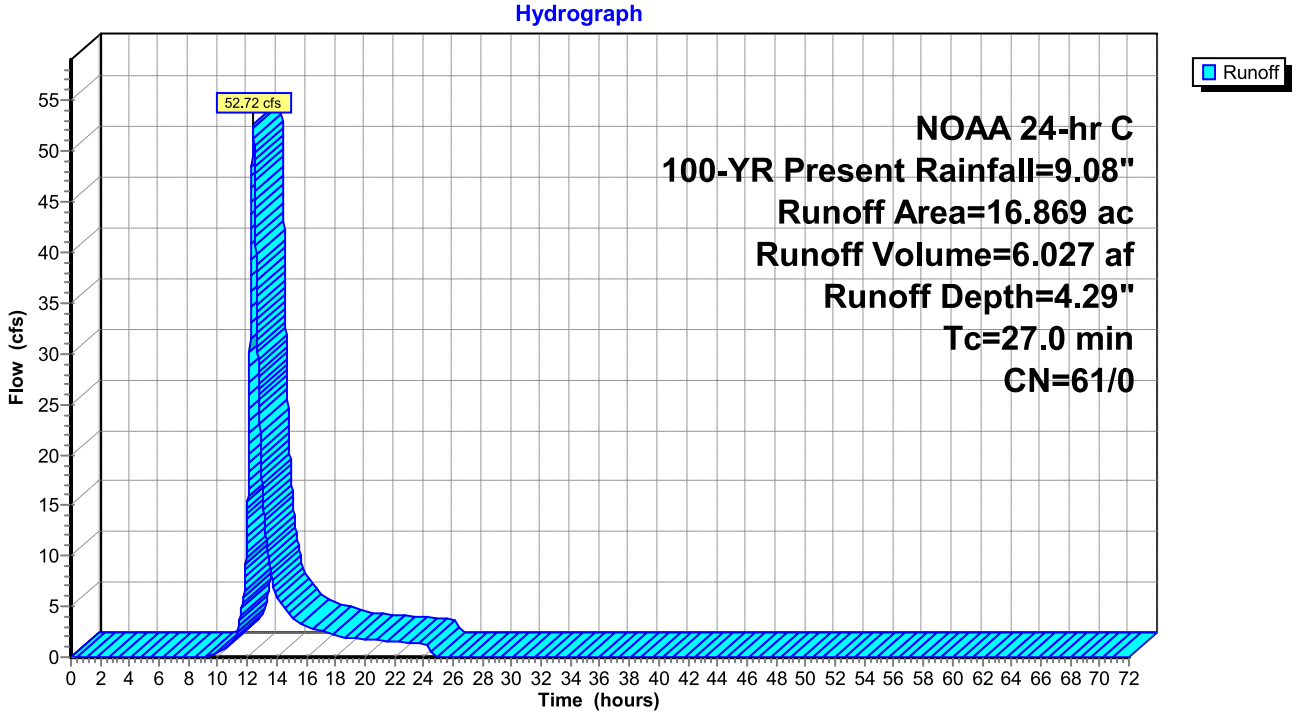
Runoff = 52.72 cfs @ 12.39 hrs, Volume= 6.027 af, Depth= 4.29"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

Area (ac)	CN	Description
9.127	55	Woods, Good, HSG B
1.498	61	Pasture/grassland/range, Good, HSG B
2.070	70	Woods, Good, HSG C
2.444	74	Pasture/grassland/range, Good, HSG C
0.452	77	Woods, Good, HSG D
0.326	80	Pasture/grassland/range, Good, HSG D
0.952	48	Brush, Good, HSG B
16.869	61	Weighted Average
16.869	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre1: PRE - POI #1



Summary for Subcatchment Pre2: PRE - POI #2

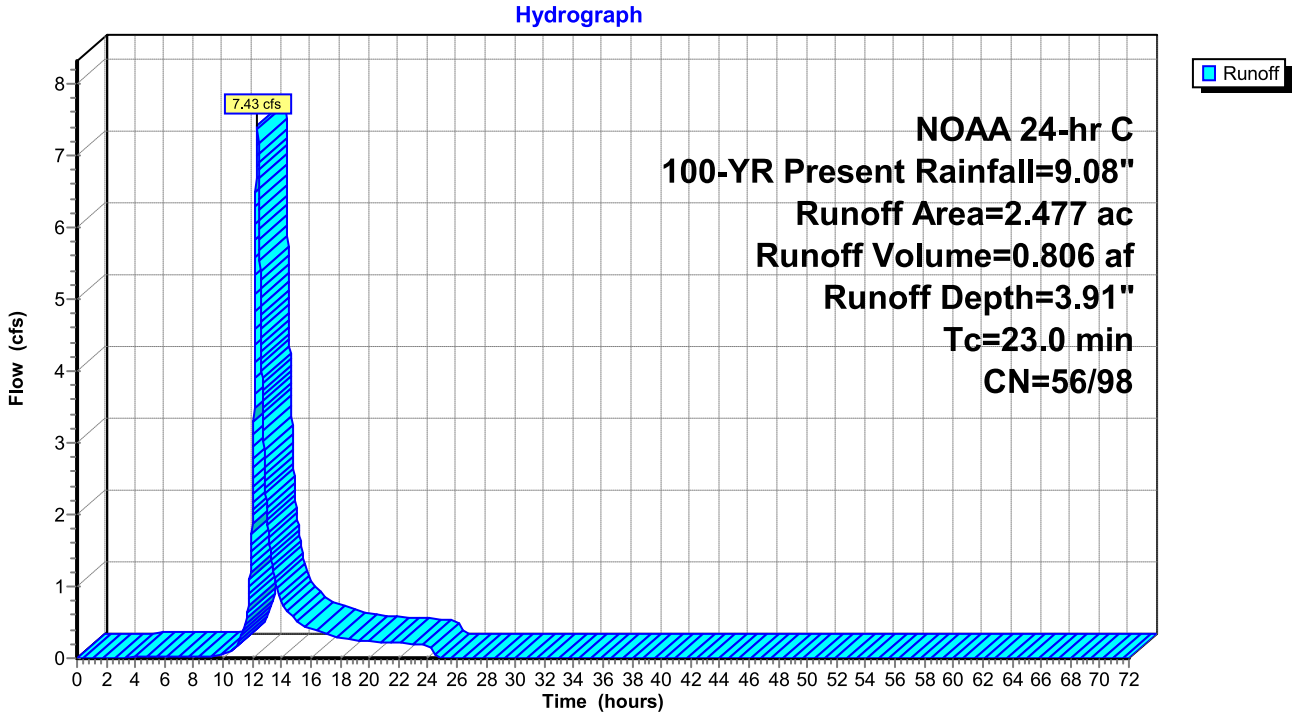
Runoff = 7.43 cfs @ 12.34 hrs, Volume= 0.806 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YR Present Rainfall=9.08"

	Area (ac)	CN	Description
	1.817	55	Woods, Good, HSG B
	0.546	61	Pasture/grassland/range, Good, HSG B
*	0.114	98	Impervious, HSG B
	2.477	58	Weighted Average
	2.363	56	95.40% Pervious Area
	0.114	98	4.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0					**Direct Entry, PRE - POI #1**

Subcatchment Pre2: PRE - POI #2



Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 6.30" for 100-YR Present event
Inflow = 5.49 cfs @ 12.16 hrs, Volume= 0.469 af
Outflow = 3.06 cfs @ 12.29 hrs, Volume= 0.418 af, Atten= 44%, Lag= 8.2 min
Primary = 3.06 cfs @ 12.29 hrs, Volume= 0.418 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 276.42' @ 12.29 hrs Surf.Area= 6,487 sf Storage= 8,923 cf

Plug-Flow detention time= 358.6 min calculated for 0.418 af (89% of inflow)
Center-of-Mass det. time= 301.3 min (1,067.6 - 766.2)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

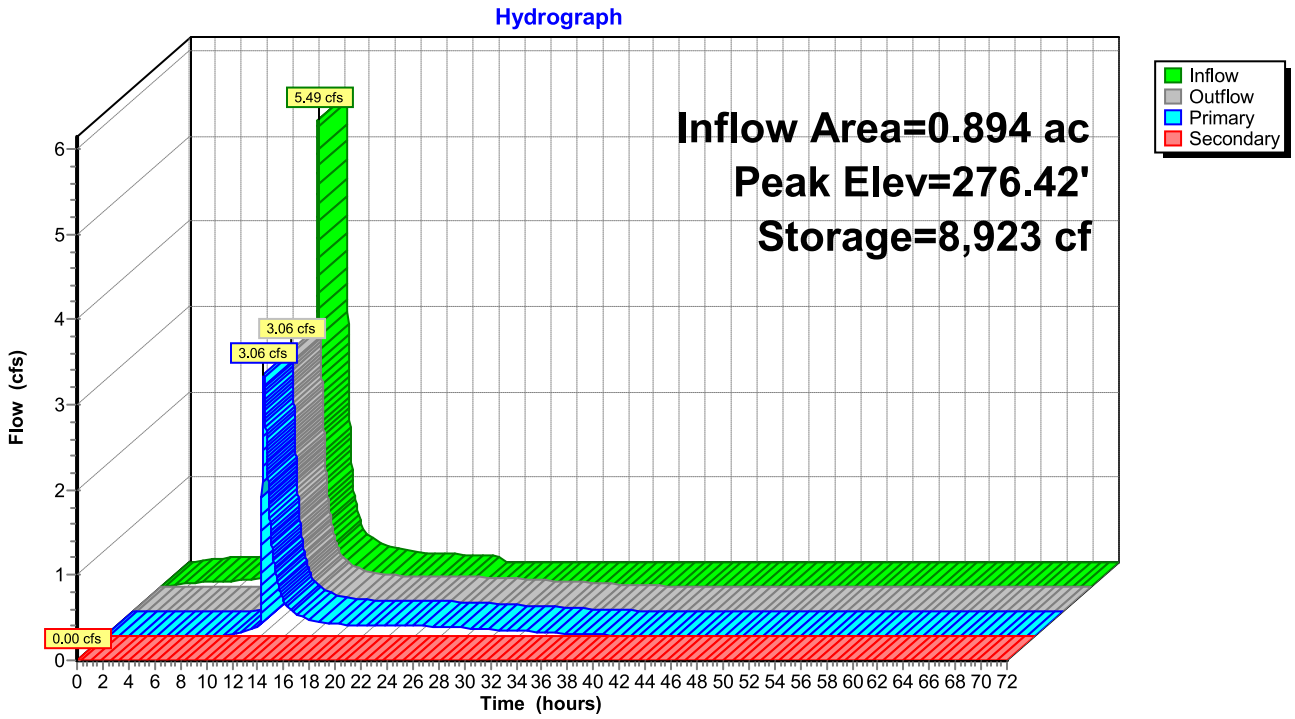
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.06 cfs @ 12.29 hrs HW=276.42' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 3.06 cfs of 10.32 cfs potential flow)
  ├**2=Orifice #1** (Orifice Controls 0.15 cfs @ 5.57 fps)
  ├**3=Rectangular Orifice** (Weir Controls 2.91 cfs @ 2.35 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 7.16" for 100-YR Present event
Inflow = 2.43 cfs @ 12.13 hrs, Volume= 0.181 af
Outflow = 0.21 cfs @ 13.08 hrs, Volume= 0.160 af, Atten= 91%, Lag= 56.9 min
Primary = 0.21 cfs @ 13.08 hrs, Volume= 0.160 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 276.29' @ 13.08 hrs Surf.Area= 3,474 sf Storage= 4,671 cf

Plug-Flow detention time= 376.1 min calculated for 0.160 af (88% of inflow)
Center-of-Mass det. time= 315.7 min (1,069.4 - 753.7)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

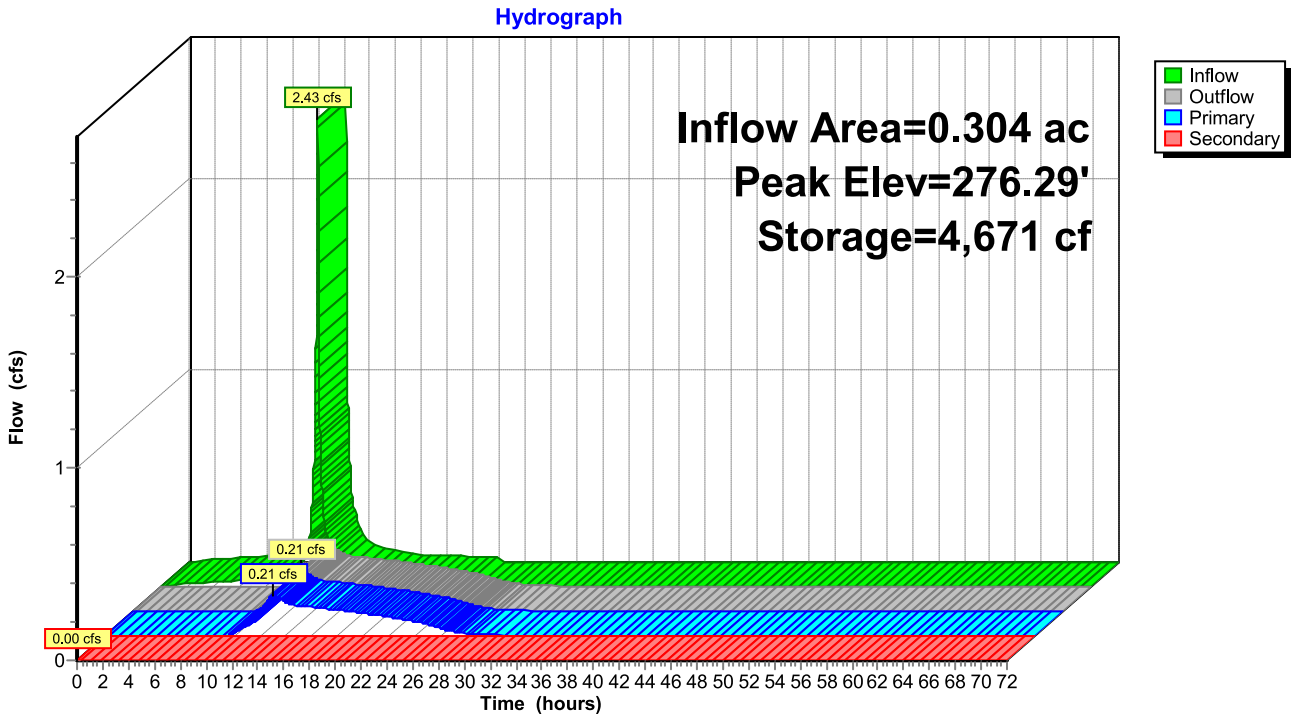
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 13.08 hrs HW=276.29' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.21 cfs of 10.09 cfs potential flow)
  ├**2=Orice** (Orifice Controls 0.16 cfs @ 5.91 fps)
  ├**3=Rectangular Orifice** (Weir Controls 0.04 cfs @ 1.00 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 3.80" for 100-YR Present event
Inflow = 5.43 cfs @ 12.13 hrs, Volume= 0.377 af
Outflow = 2.22 cfs @ 12.28 hrs, Volume= 0.354 af, Atten= 59%, Lag= 8.8 min
Primary = 2.22 cfs @ 12.28 hrs, Volume= 0.354 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.03' @ 12.28 hrs Surf.Area= 4,933 sf Storage= 4,057 cf

Plug-Flow detention time= 86.0 min calculated for 0.354 af (94% of inflow)
Center-of-Mass det. time= 52.0 min (868.4 - 816.4)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

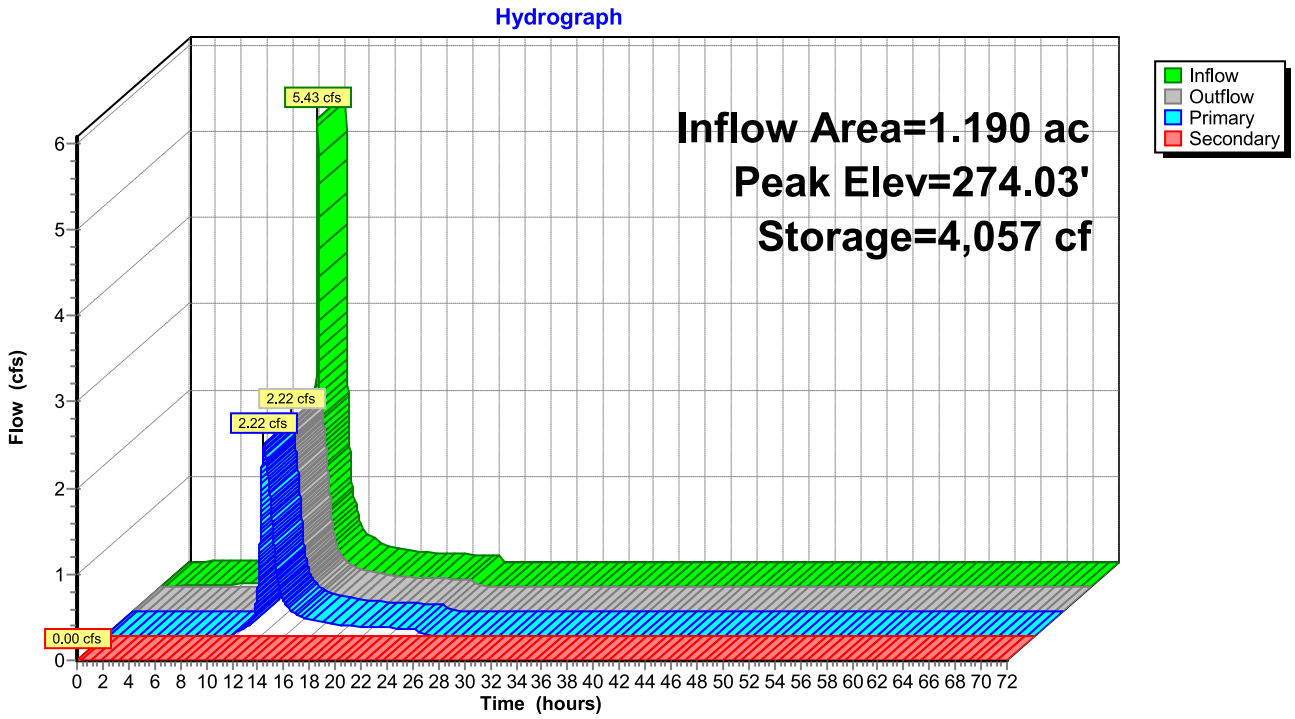
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.22 cfs @ 12.28 hrs HW=274.03' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 2.22 cfs of 6.04 cfs potential flow)
  ├**2=Orifice #1** (Orifice Controls 2.19 cfs @ 3.75 fps)
  ├**3=Orifice #2** (Weir Controls 0.03 cfs @ 0.62 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 3.18" for 100-YR Present event
Inflow = 5.82 cfs @ 12.26 hrs, Volume= 0.636 af
Outflow = 1.02 cfs @ 13.26 hrs, Volume= 0.618 af, Atten= 82%, Lag= 60.5 min
Primary = 1.02 cfs @ 13.26 hrs, Volume= 0.618 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 266.93' @ 13.26 hrs Surf.Area= 7,074 sf Storage= 11,791 cf

Plug-Flow detention time= 174.8 min calculated for 0.618 af (97% of inflow)
Center-of-Mass det. time= 158.2 min (1,008.8 - 850.5)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

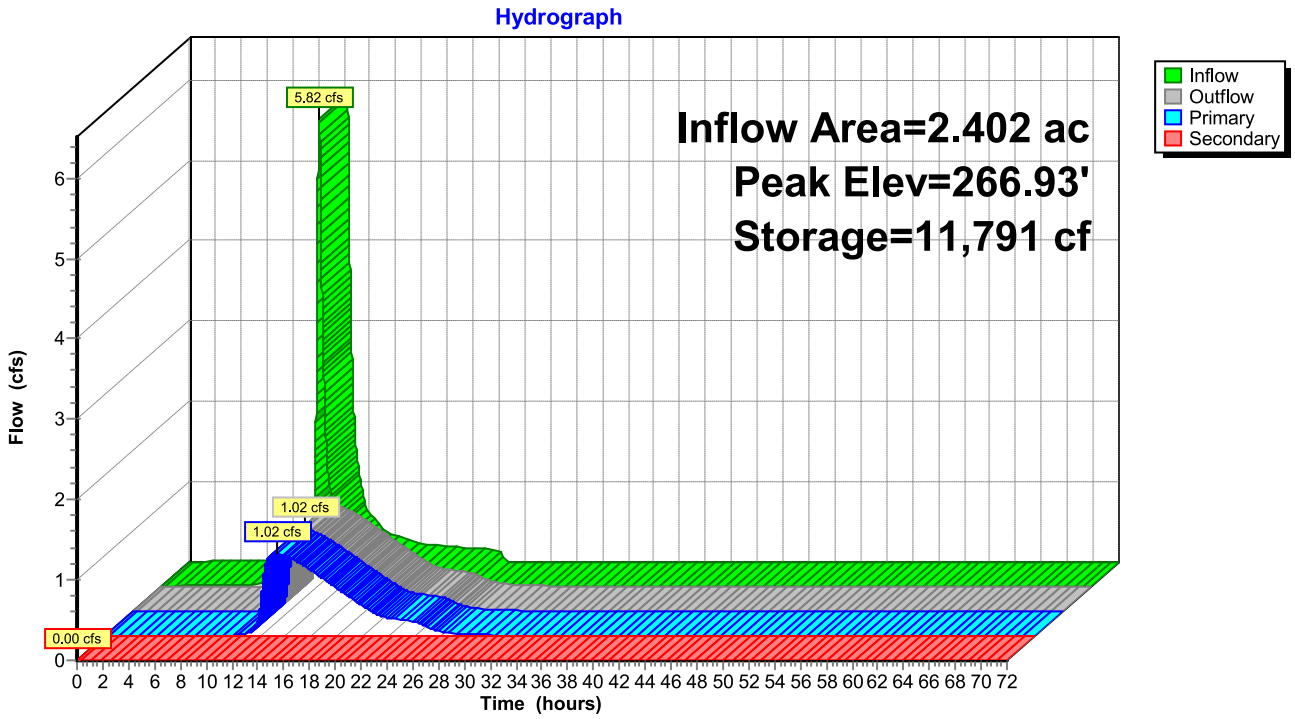
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.02 cfs @ 13.26 hrs HW=266.93' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.02 cfs of 8.61 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 1.02 cfs @ 6.11 fps)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 8.12" for 100-YR Present event
Inflow = 16.47 cfs @ 12.22 hrs, Volume= 1.667 af
Outflow = 16.34 cfs @ 12.23 hrs, Volume= 1.491 af, Atten= 1%, Lag= 0.9 min
Primary = 7.43 cfs @ 12.23 hrs, Volume= 1.309 af
Routed to Link Post1 : POST - POI #1
Secondary = 8.91 cfs @ 12.23 hrs, Volume= 0.182 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 268.10' @ 12.23 hrs Surf.Area= 8,246 sf Storage= 20,791 cf

Plug-Flow detention time= 195.8 min calculated for 1.491 af (89% of inflow)
Center-of-Mass det. time= 141.2 min (898.8 - 757.5)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

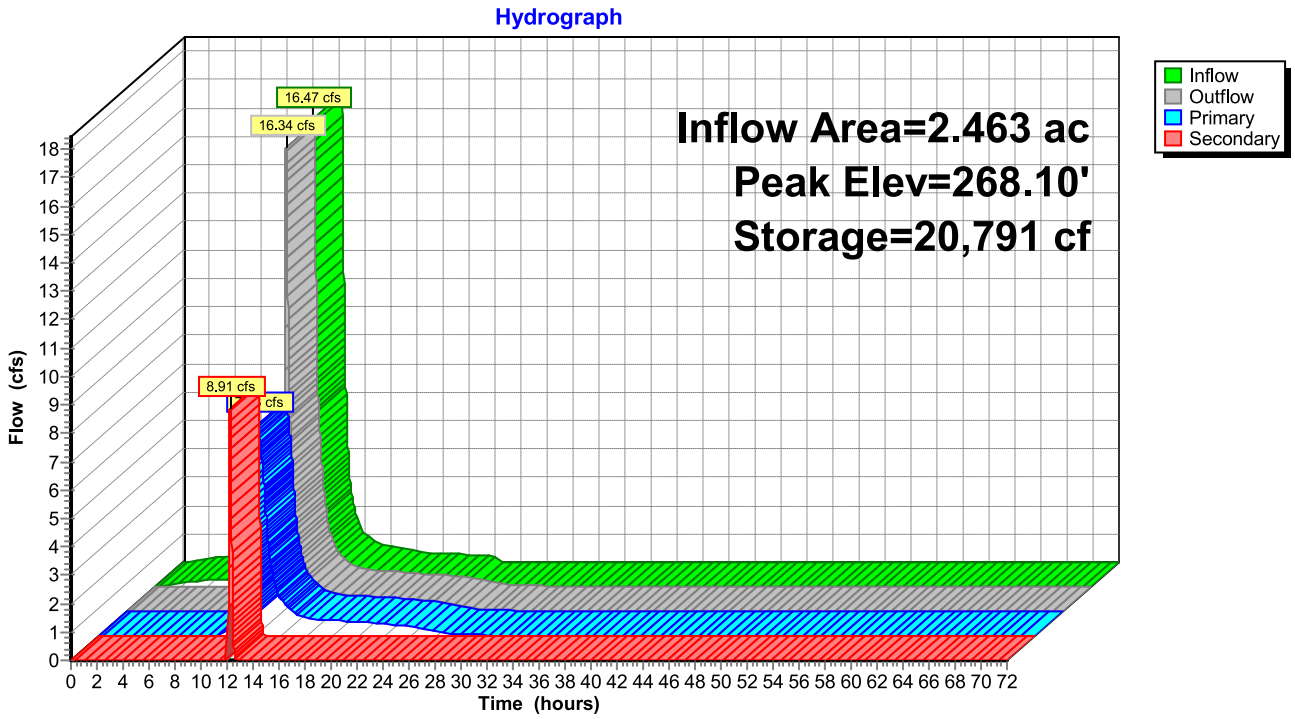
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=7.43 cfs @ 12.23 hrs HW=268.10' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 7.43 cfs of 16.70 cfs potential flow)
  ├─**2=Rectangular Orifice #1** (Orifice Controls 0.78 cfs @ 6.24 fps)
  ├─**3=Rectangular Orifice #2** (Weir Controls 6.65 cfs @ 3.10 fps)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=8.90 cfs @ 12.23 hrs HW=268.10' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Weir Controls 8.90 cfs @ 0.86 fps)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 8.84" for 100-YR Present event
Inflow = 24.18 cfs @ 12.13 hrs, Volume= 1.831 af
Outflow = 2.48 cfs @ 12.87 hrs, Volume= 1.563 af, Atten= 90%, Lag= 44.3 min
Primary = 2.48 cfs @ 12.87 hrs, Volume= 1.563 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 264.91' @ 12.87 hrs Surf.Area= 20,649 sf Storage= 51,542 cf

Plug-Flow detention time= 787.3 min calculated for 1.563 af (85% of inflow)
Center-of-Mass det. time= 719.3 min (1,459.5 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

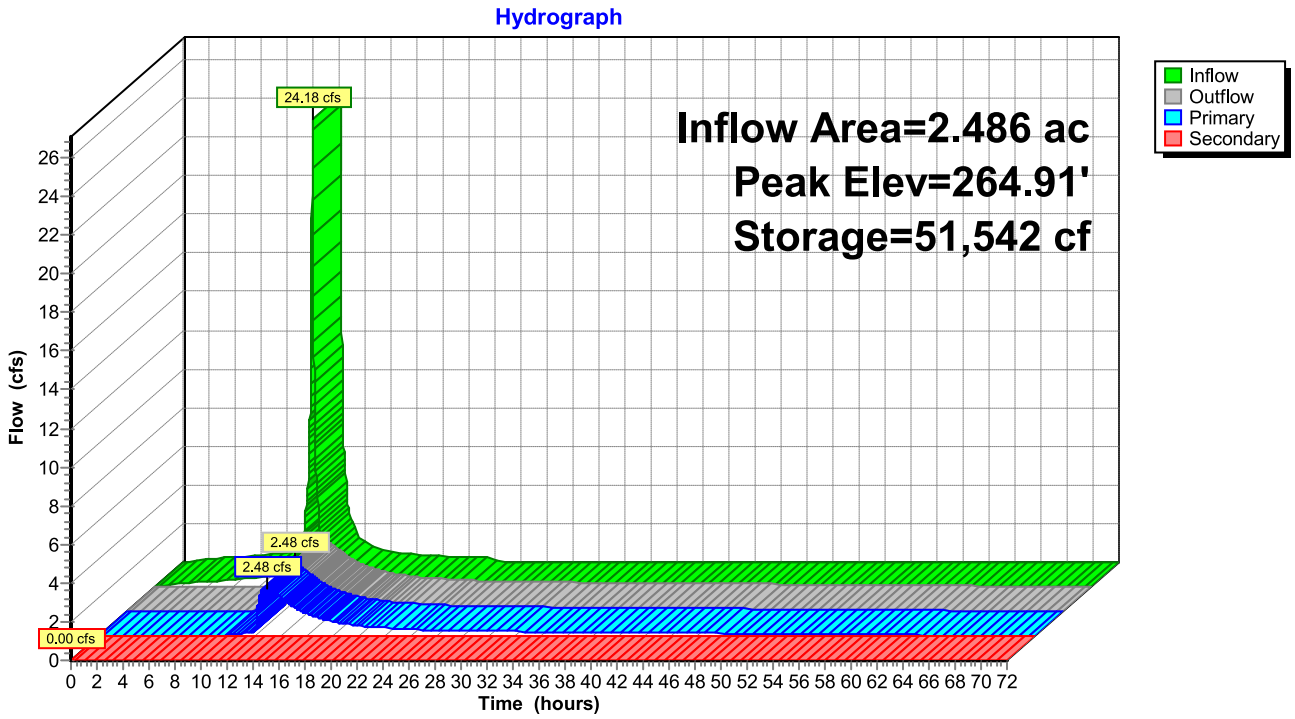
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.48 cfs @ 12.87 hrs HW=264.91' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 2.48 cfs of 12.50 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.35 cfs @ 7.03 fps)
├**3=Rectangular Orifice** (Weir Controls 2.14 cfs @ 3.81 fps)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 8.84" for 100-YR Present event
Inflow = 24.23 cfs @ 12.13 hrs, Volume= 1.835 af
Outflow = 1.64 cfs @ 13.27 hrs, Volume= 1.596 af, Atten= 93%, Lag= 68.6 min
Primary = 1.64 cfs @ 13.27 hrs, Volume= 1.596 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.43' @ 13.27 hrs Surf.Area= 16,698 sf Storage= 54,014 cf

Plug-Flow detention time= 766.4 min calculated for 1.596 af (87% of inflow)
Center-of-Mass det. time= 703.3 min (1,443.5 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

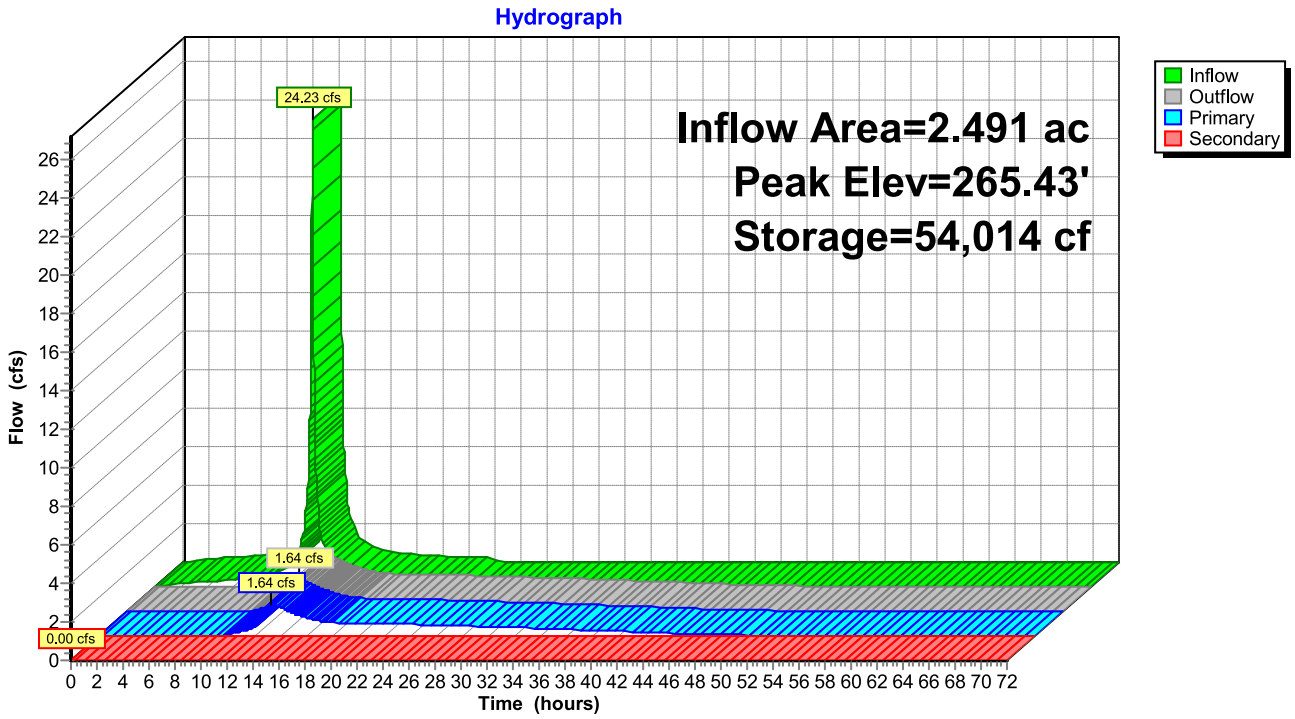
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.64 cfs @ 13.27 hrs HW=265.43' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.64 cfs of 15.16 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.72 cfs @ 8.21 fps)
├**3=Rectangular Orifice** (Weir Controls 0.92 cfs @ 2.36 fps)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 4.17" for 100-YR Present event
Inflow = 8.59 cfs @ 12.22 hrs, Volume= 0.804 af
Outflow = 4.03 cfs @ 12.50 hrs, Volume= 0.715 af, Atten= 53%, Lag= 16.4 min
Primary = 4.03 cfs @ 12.50 hrs, Volume= 0.715 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.20' @ 12.50 hrs Surf.Area= 6,704 sf Storage= 12,532 cf

Plug-Flow detention time= 162.4 min calculated for 0.715 af (89% of inflow)
Center-of-Mass det. time= 107.3 min (946.5 - 839.2)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

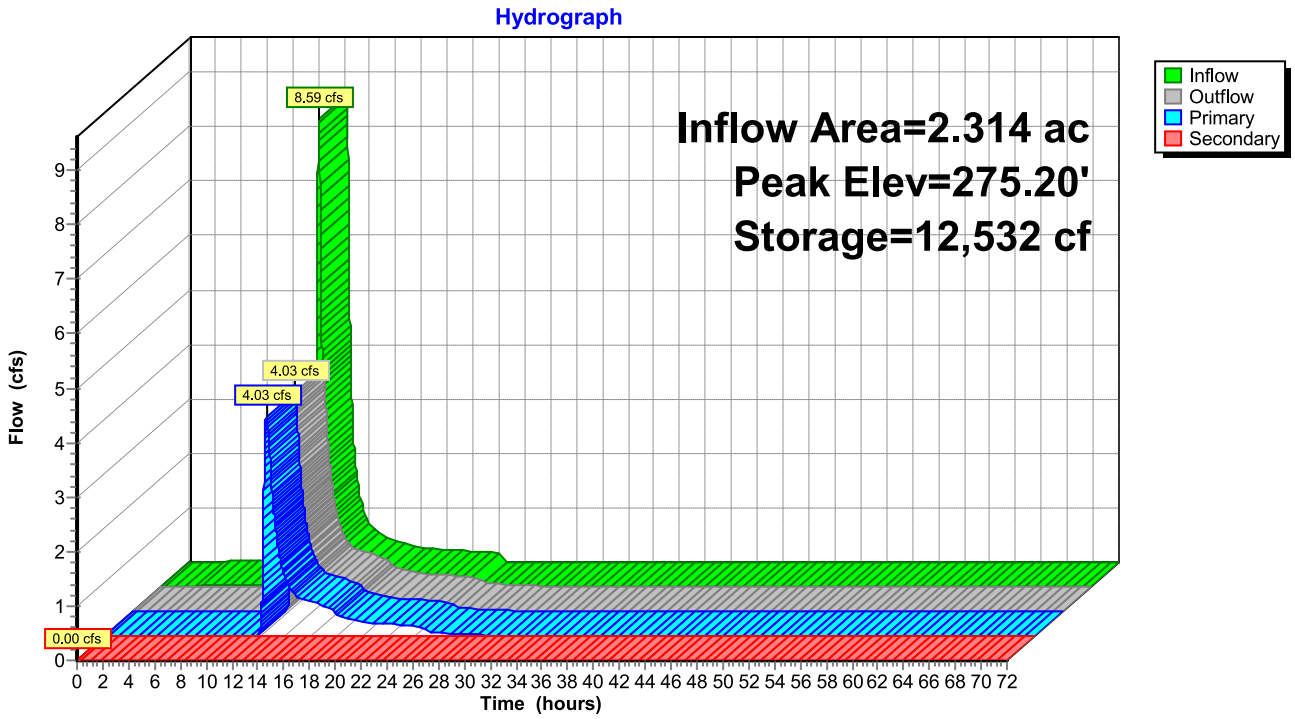
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=4.03 cfs @ 12.50 hrs HW=275.20' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 4.03 cfs of 5.22 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.97 cfs @ 5.80 fps)
  ├**3=Rectangular Orifice** (Weir Controls 3.06 cfs @ 3.21 fps)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8

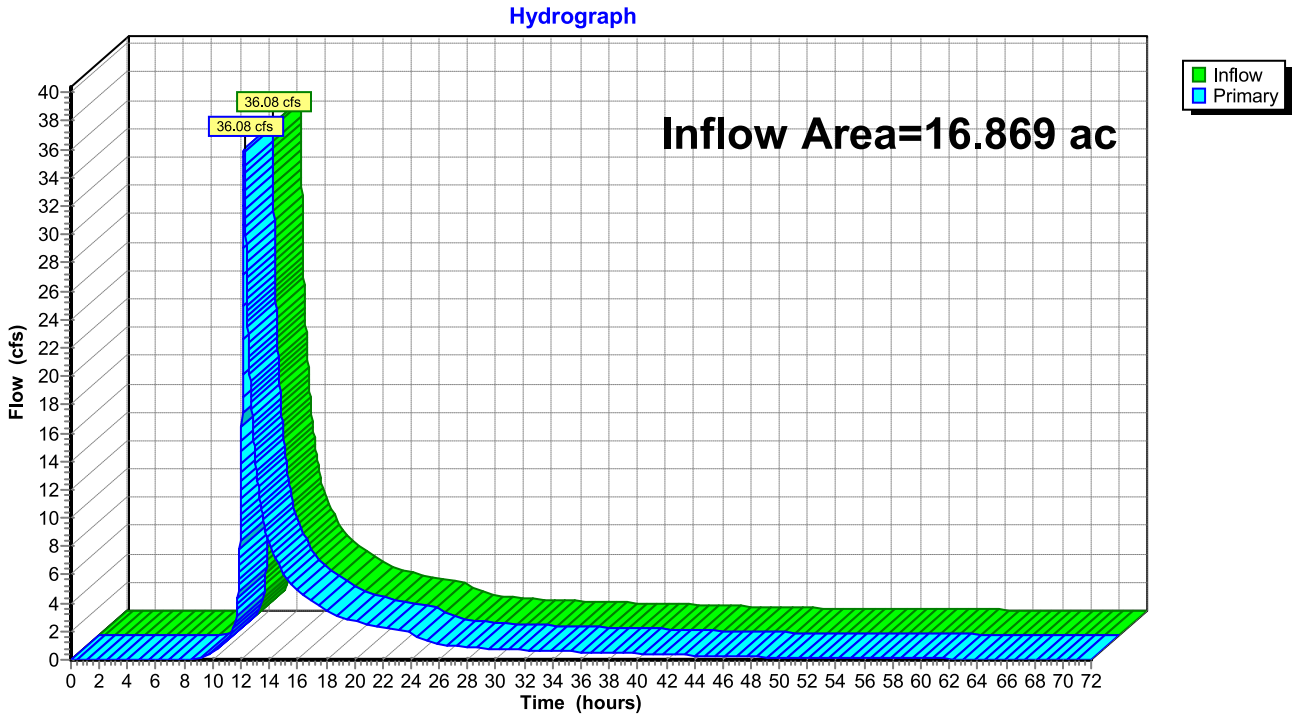


Summary for Link Post1: POST - POI #1

Inflow Area = 16.869 ac, 45.76% Impervious, Inflow Depth > 5.32" for 100-YR Present event
Inflow = 36.08 cfs @ 12.23 hrs, Volume= 7.475 af
Primary = 36.08 cfs @ 12.23 hrs, Volume= 7.475 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post1: POST - POI #1

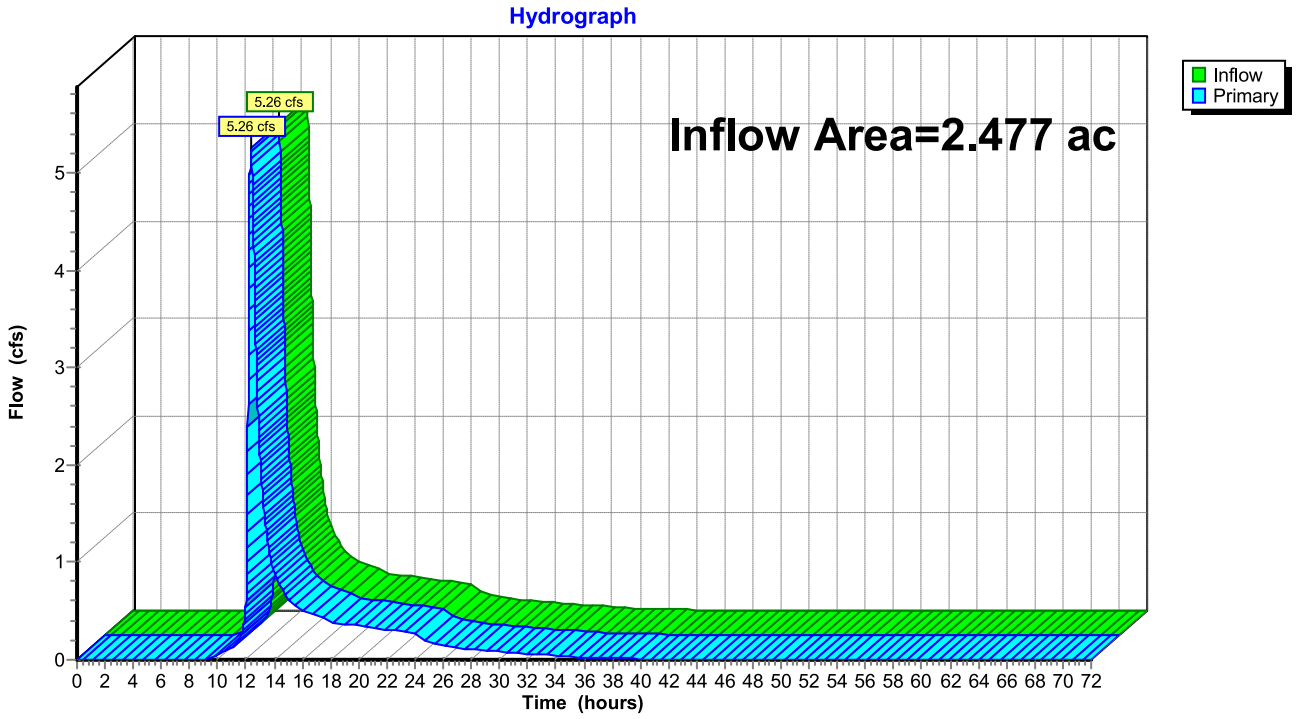


Summary for Link Post2: POST - POI #2

Inflow Area = 2.477 ac, 30.08% Impervious, Inflow Depth = 4.19" for 100-YR Present event
Inflow = 5.26 cfs @ 12.35 hrs, Volume= 0.865 af
Primary = 5.26 cfs @ 12.35 hrs, Volume= 0.865 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link Post2: POST - POI #2



APPENDIX D.4
GROUNDWATER RECHARGE ANALYSIS

Difference in Stormwater Runoff Volume for Projected 2-Year Storm Event

Project: NESE CS 206
Rainfall: 3.92 in

Runoff Volume (ac-ft)			
Area	Existing Condition	Developed Condition	Increase
POI#1	1.086	2.729	
POI#2	0.141	0.265	
Total	1.227	2.994	**1.767**

Infiltration Volume (ac-ft)	
Infiltration Basin	Infiltration
Basin#1	0.117
Basin#2	0.048
Basin#3	0.063
Basin#4	0.085
Basin#5	0.482
Basin#6	0.509
Basin#7	0.530
Basin#8	0.069
Total	**1.903**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1F: POST - POI #2 - Runoff Area=0.154 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.64 cfs 0.047 af

Subcatchment 1I: POST - POI #2 - Runoff Area=0.370 ac 100.00% Impervious Runoff Depth=3.69"
Tc=10.0 min CN=0/98 Runoff=1.34 cfs 0.114 af

Subcatchment 1P: POST - POI #2 - Runoff Area=0.370 ac 0.00% Impervious Runoff Depth=0.24"
Tc=10.0 min CN=48/0 Runoff=0.03 cfs 0.008 af

Subcatchment 2F: POST - POI #2 - Runoff Area=0.091 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.38 cfs 0.028 af

Subcatchment 2I: POST - POI #2 - Runoff Area=0.130 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.54 cfs 0.040 af

Subcatchment 2P: POST - POI #2 - Runoff Area=0.083 ac 0.00% Impervious Runoff Depth=0.24"
Tc=6.0 min CN=48/0 Runoff=0.01 cfs 0.002 af

Subcatchment 3F: POST - POI #1 - Runoff Area=0.214 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.89 cfs 0.066 af

Subcatchment 3I: POST - POI #1 - Infiltration Basin #3 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 3P: POST - POI #1 - Runoff Area=0.976 ac 0.00% Impervious Runoff Depth=0.24"
Tc=6.0 min CN=48/0 Runoff=0.07 cfs 0.020 af

Subcatchment 4F: POST - POI #1 - Runoff Area=0.189 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.79 cfs 0.058 af

Subcatchment 4I: POST - POI #1 - Infiltration Basin #4 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 4P: POST - POI #1 - Runoff Area=2.213 ac 0.00% Impervious Runoff Depth=0.24"
Tc=17.0 min CN=48/0 Runoff=0.15 cfs 0.045 af

Subcatchment 5F: POST - POI #1 - Runoff Area=0.185 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.77 cfs 0.057 af

Subcatchment 5I: POST - POI #1 - Runoff Area=1.842 ac 100.00% Impervious Runoff Depth=3.69"
Tc=15.0 min CN=0/98 Runoff=5.79 cfs 0.566 af

Subcatchment 5P: POST - POI #1 - Runoff Area=0.436 ac 0.00% Impervious Runoff Depth=0.98"
Tc=15.0 min CN=65/0 Runoff=0.37 cfs 0.036 af

Subcatchment 6F: POST - POI #1 - Runoff Area=0.478 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=1.99 cfs 0.147 af

Subcatchment 6I: POST - POI #1 - Runoff Area=2.008 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=8.37 cfs 0.617 af

Subcatchment 6P: POST - POI #1 - Infiltration Basin #6 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 7F: POST - POI #1 - Runoff Area=0.404 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=1.68 cfs 0.124 af

Subcatchment 7I: POST - POI #1 - Runoff Area=2.087 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=8.70 cfs 0.641 af

Subcatchment 7P: POST - POI #1 - Infiltration Basin #7 Drainage Area Pervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8F: POST - POI #1 - Runoff Area=0.172 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.72 cfs 0.053 af

Subcatchment 8I: POST - POI #1 - Infiltration Basin #8 Drainage Area Impervious
Runoff=0.00 cfs 0.000 af

Subcatchment 8P: POST - POI #1 - Runoff Area=2.142 ac 0.00% Impervious Runoff Depth=0.58"
Tc=15.0 min CN=57/0 Runoff=0.84 cfs 0.104 af

Subcatchment Off1: POST - POI #2 - Bypass Runoff Area=1.279 ac 0.00% Impervious Runoff Depth=0.24"
Tc=28.0 min CN=48/0 Runoff=0.08 cfs 0.026 af

Subcatchment Off1I: POST - POI #1 - Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=0/98 Runoff=0.58 cfs 0.043 af

Subcatchment Off1P: POST - POI #1 - Runoff Area=3.383 ac 0.00% Impervious Runoff Depth=0.54"
Tc=12.0 min CN=56/0 Runoff=1.28 cfs 0.152 af

Subcatchment Pre1: PRE - POI #1 Runoff Area=16.869 ac 0.00% Impervious Runoff Depth=0.77"
Tc=27.0 min CN=61/0 Runoff=7.73 cfs 1.086 af

Subcatchment Pre2: PRE - POI #2 Runoff Area=2.477 ac 4.60% Impervious Runoff Depth=0.69"
Tc=23.0 min CN=56/98 Runoff=0.93 cfs 0.141 af

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond B1: Infiltration Basin #1 Peak Elev=275.72' Storage=5,032 cf Inflow=1.92 cfs 0.168 af
Primary=0.11 cfs 0.117 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.117 af

Pond B2: Infiltration Basin #2 Peak Elev=275.23' Storage=1,904 cf Inflow=0.92 cfs 0.070 af
Primary=0.09 cfs 0.048 af Secondary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.048 af

Pond B3: Infiltration Basin #3 Peak Elev=273.44' Storage=1,500 cf Inflow=0.91 cfs 0.086 af
Primary=0.40 cfs 0.063 af Secondary=0.00 cfs 0.000 af Outflow=0.40 cfs 0.063 af

Pond B4: Infiltration Basin #4 Peak Elev=265.35' Storage=1,888 cf Inflow=0.79 cfs 0.103 af
Primary=0.15 cfs 0.085 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.085 af

Pond B5: Infiltration Basin #5 Peak Elev=267.58' Storage=16,682 cf Inflow=6.56 cfs 0.658 af
Primary=1.77 cfs 0.482 af Secondary=0.00 cfs 0.000 af Outflow=1.77 cfs 0.482 af

Pond B6: Infiltration Basin #6 Peak Elev=263.59' Storage=26,122 cf Inflow=10.37 cfs 0.763 af
Primary=0.21 cfs 0.509 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.509 af

Pond B7: Infiltration Basin #7 Peak Elev=263.45' Storage=24,066 cf Inflow=10.39 cfs 0.765 af
Primary=0.41 cfs 0.530 af Secondary=0.00 cfs 0.000 af Outflow=0.41 cfs 0.530 af

Pond B8: Infiltration Basin #8 Peak Elev=273.92' Storage=4,688 cf Inflow=1.14 cfs 0.157 af
Primary=0.08 cfs 0.069 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.069 af

Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 2.26" for 2-YR Future event
Inflow = 1.92 cfs @ 12.15 hrs, Volume= 0.168 af
Outflow = 0.11 cfs @ 13.98 hrs, Volume= 0.117 af, Atten= 94%, Lag= 109.8 min
Primary = 0.11 cfs @ 13.98 hrs, Volume= 0.117 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.72' @ 13.98 hrs Surf.Area= 4,656 sf Storage= 5,032 cf

Plug-Flow detention time= 555.7 min calculated for 0.117 af (70% of inflow)
Center-of-Mass det. time= 453.0 min (1,219.1 - 766.2)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

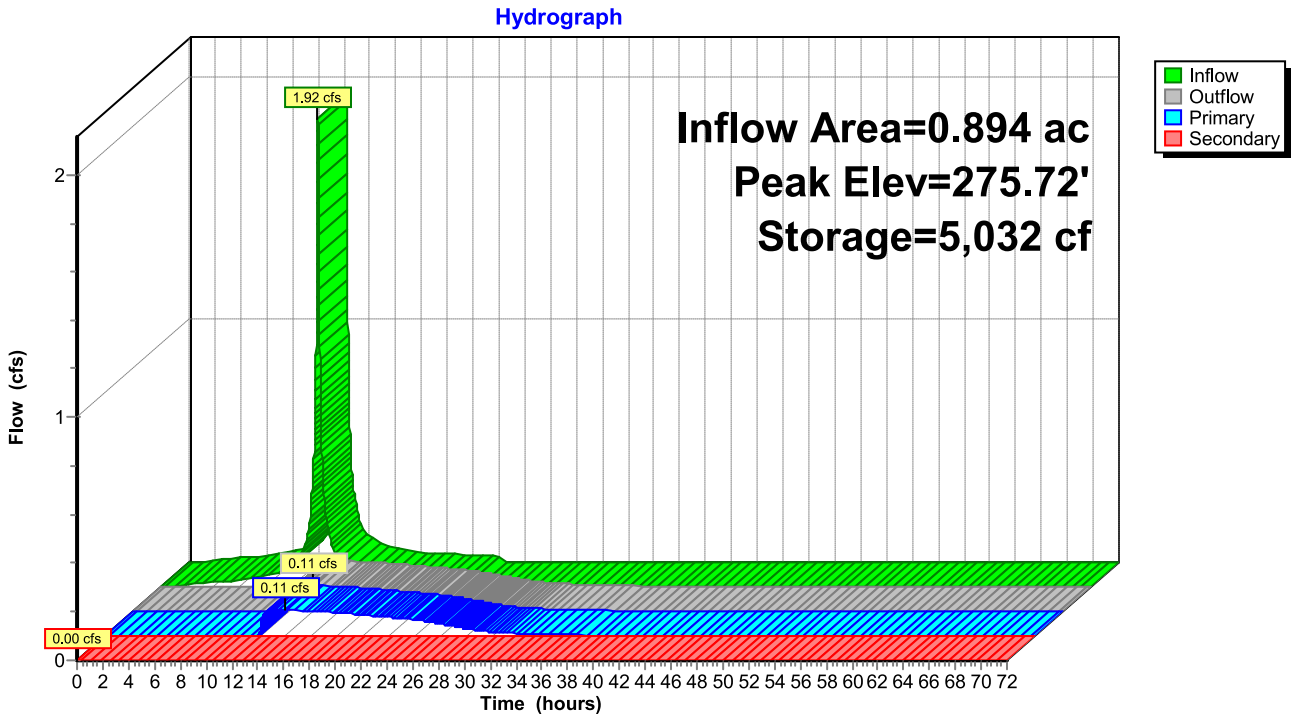
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.11 cfs @ 13.98 hrs HW=275.72' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.11 cfs of 9.04 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 0.11 cfs @ 3.83 fps)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 2.75" for 2-YR Future event
Inflow = 0.92 cfs @ 12.13 hrs, Volume= 0.070 af
Outflow = 0.09 cfs @ 12.97 hrs, Volume= 0.048 af, Atten= 90%, Lag= 50.3 min
Primary = 0.09 cfs @ 12.97 hrs, Volume= 0.048 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 275.23' @ 12.97 hrs Surf.Area= 2,050 sf Storage= 1,904 cf

Plug-Flow detention time= 349.2 min calculated for 0.048 af (69% of inflow)
Center-of-Mass det. time= 248.5 min (1,007.3 - 758.9)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

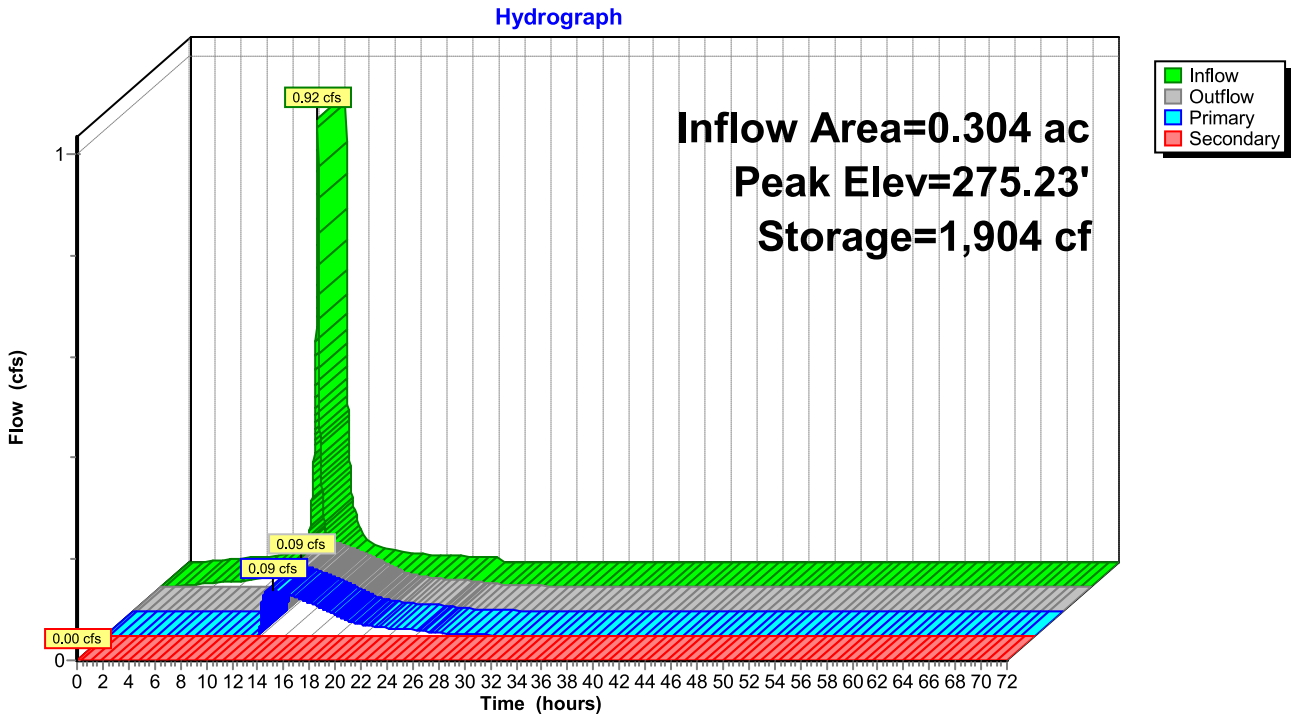
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.09 cfs @ 12.97 hrs HW=275.23' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.09 cfs of 8.06 cfs potential flow)
  ├─**2=Orice** (Orifice Controls 0.09 cfs @ 3.23 fps)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 0.86" for 2-YR Future event
Inflow = 0.91 cfs @ 12.13 hrs, Volume= 0.086 af
Outflow = 0.40 cfs @ 12.28 hrs, Volume= 0.063 af, Atten= 56%, Lag= 8.7 min
Primary = 0.40 cfs @ 12.28 hrs, Volume= 0.063 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.44' @ 12.28 hrs Surf.Area= 3,785 sf Storage= 1,500 cf

Plug-Flow detention time= 229.7 min calculated for 0.063 af (74% of inflow)
Center-of-Mass det. time= 118.8 min (924.9 - 806.1)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

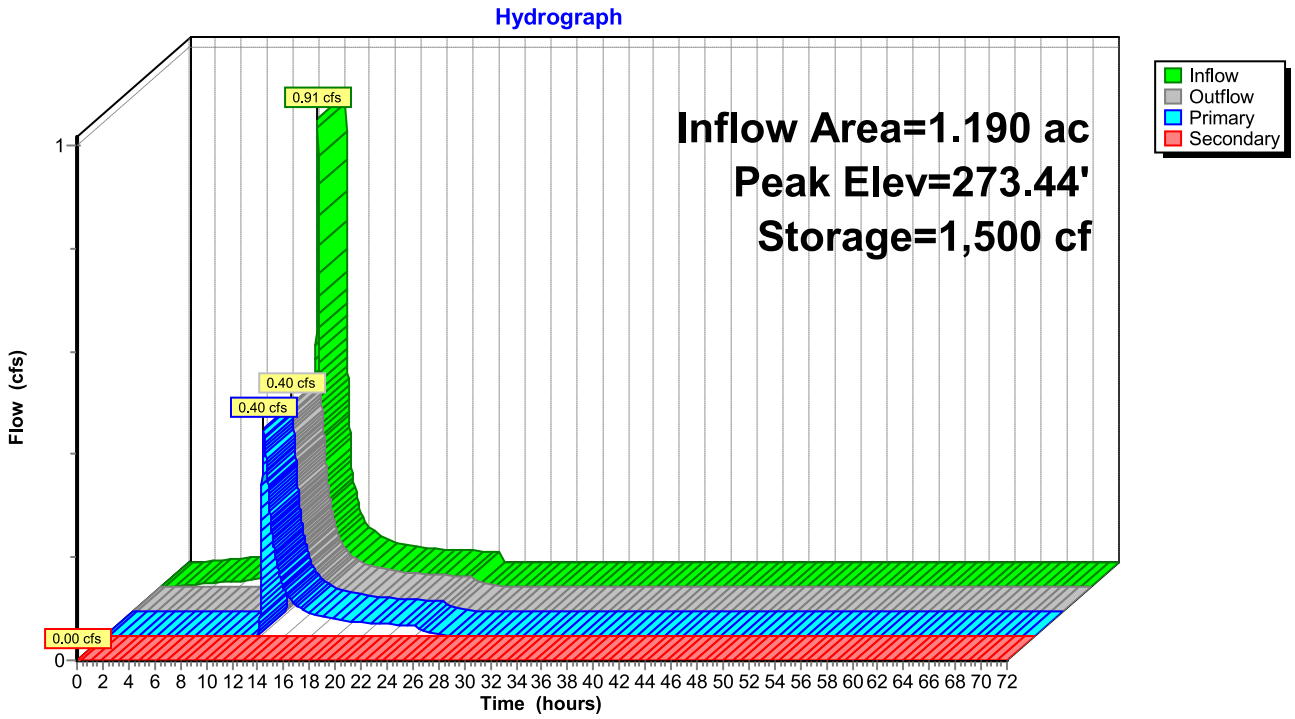
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.40 cfs @ 12.28 hrs HW=273.44' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.40 cfs of 2.84 cfs potential flow)
├**2=Orifice #1** (Orifice Controls 0.40 cfs @ 1.21 fps)
├**3=Orifice #2** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 0.51" for 2-YR Future event
Inflow = 0.79 cfs @ 12.13 hrs, Volume= 0.103 af
Outflow = 0.15 cfs @ 13.33 hrs, Volume= 0.085 af, Atten= 81%, Lag= 72.0 min
Primary = 0.15 cfs @ 13.33 hrs, Volume= 0.085 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.35' @ 13.33 hrs Surf.Area= 5,516 sf Storage= 1,888 cf

Plug-Flow detention time= 319.0 min calculated for 0.085 af (82% of inflow)
Center-of-Mass det. time= 231.3 min (1,088.4 - 857.1)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

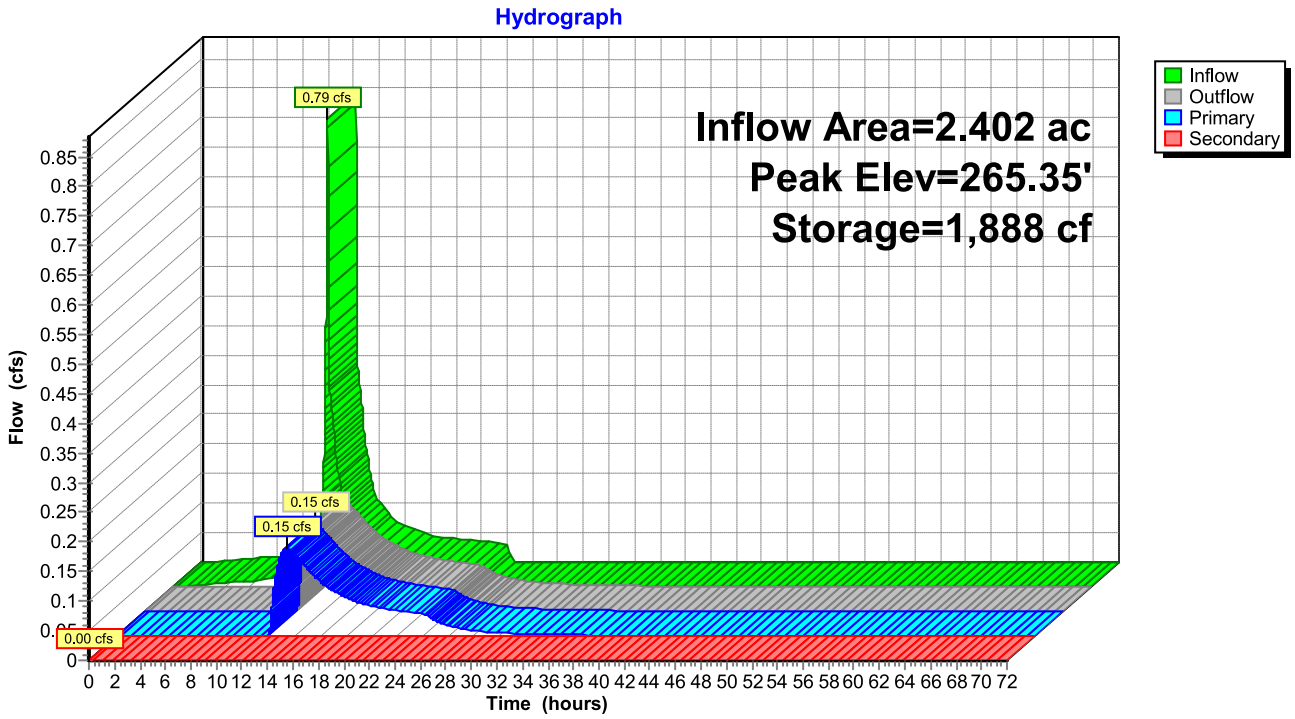
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.15 cfs @ 13.33 hrs HW=265.35' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.15 cfs of 5.39 cfs potential flow)
  ├─**2=Orifice #1** (Orifice Controls 0.15 cfs @ 1.45 fps)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 3.21" for 2-YR Future event
Inflow = 6.56 cfs @ 12.22 hrs, Volume= 0.658 af
Outflow = 1.77 cfs @ 12.66 hrs, Volume= 0.482 af, Atten= 73%, Lag= 26.4 min
Primary = 1.77 cfs @ 12.66 hrs, Volume= 0.482 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 267.58' @ 12.66 hrs Surf.Area= 7,644 sf Storage= 16,682 cf

Plug-Flow detention time= 328.0 min calculated for 0.482 af (73% of inflow)
Center-of-Mass det. time= 234.8 min (1,002.7 - 767.9)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

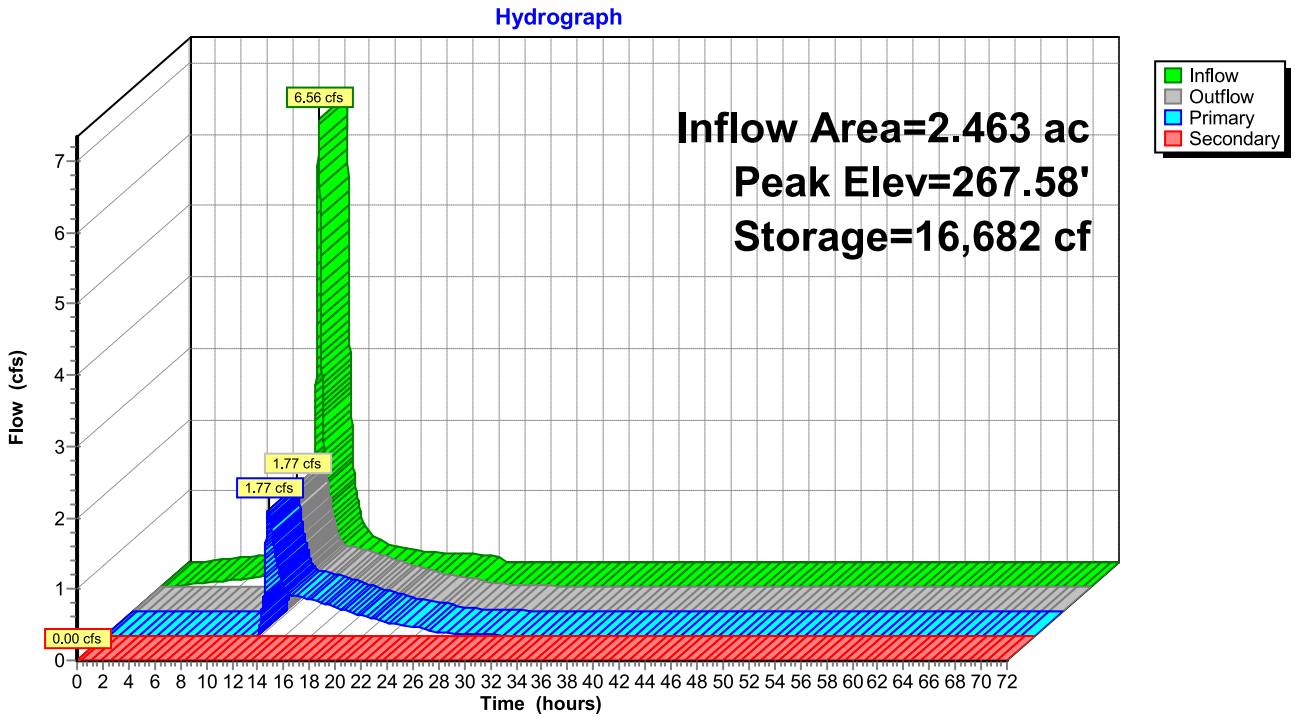
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.77 cfs @ 12.66 hrs HW=267.58' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 1.77 cfs of 15.54 cfs potential flow)
  ├─**2=Rectangular Orifice #1** (Orifice Controls 0.65 cfs @ 5.18 fps)
  ├─**3=Rectangular Orifice #2** (Weir Controls 1.12 cfs @ 1.63 fps)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 3.69" for 2-YR Future event
Inflow = 10.37 cfs @ 12.13 hrs, Volume= 0.763 af
Outflow = 0.21 cfs @ 16.71 hrs, Volume= 0.509 af, Atten= 98%, Lag= 274.8 min
Primary = 0.21 cfs @ 16.71 hrs, Volume= 0.509 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 263.59' @ 16.71 hrs Surf.Area= 18,006 sf Storage= 26,122 cf

Plug-Flow detention time= 1,121.0 min calculated for 0.509 af (67% of inflow)
Center-of-Mass det. time= 1,019.4 min (1,772.8 - 753.3)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

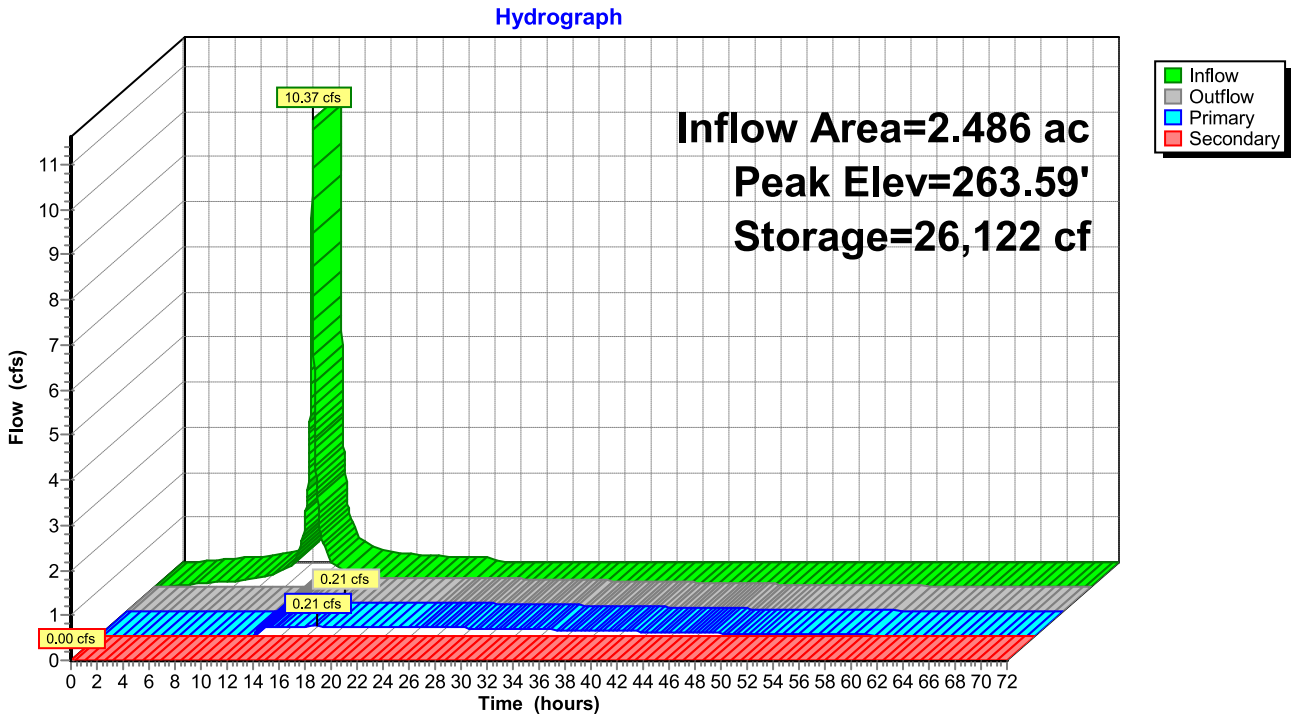
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.21 cfs @ 16.71 hrs HW=263.59' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.21 cfs of 7.81 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.21 cfs @ 4.35 fps)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 3.69" for 2-YR Future event
Inflow = 10.39 cfs @ 12.13 hrs, Volume= 0.765 af
Outflow = 0.41 cfs @ 14.26 hrs, Volume= 0.530 af, Atten= 96%, Lag= 127.8 min
Primary = 0.41 cfs @ 14.26 hrs, Volume= 0.530 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 263.45' @ 14.26 hrs Surf.Area= 13,681 sf Storage= 24,066 cf

Plug-Flow detention time= 674.6 min calculated for 0.530 af (69% of inflow)
Center-of-Mass det. time= 576.9 min (1,330.3 - 753.3)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

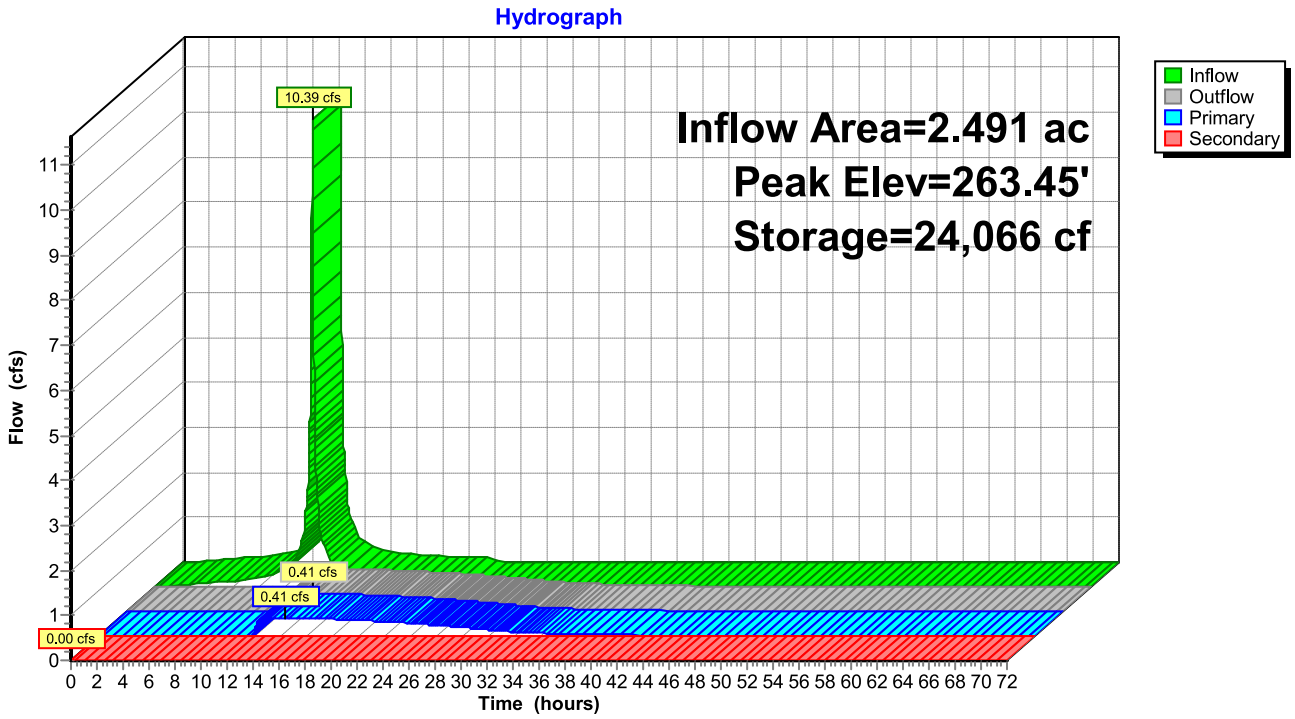
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.41 cfs @ 14.26 hrs HW=263.45' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.41 cfs of 9.32 cfs potential flow)
├**2=Orifice** (Orifice Controls 0.41 cfs @ 4.65 fps)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 0.81" for 2-YR Future event
Inflow = 1.14 cfs @ 12.24 hrs, Volume= 0.157 af
Outflow = 0.08 cfs @ 17.02 hrs, Volume= 0.069 af, Atten= 93%, Lag= 286.5 min
Primary = 0.08 cfs @ 17.02 hrs, Volume= 0.069 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.92' @ 17.02 hrs Surf.Area= 5,513 sf Storage= 4,688 cf

Plug-Flow detention time= 607.0 min calculated for 0.069 af (44% of inflow)
Center-of-Mass det. time= 438.0 min (1,304.2 - 866.2)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

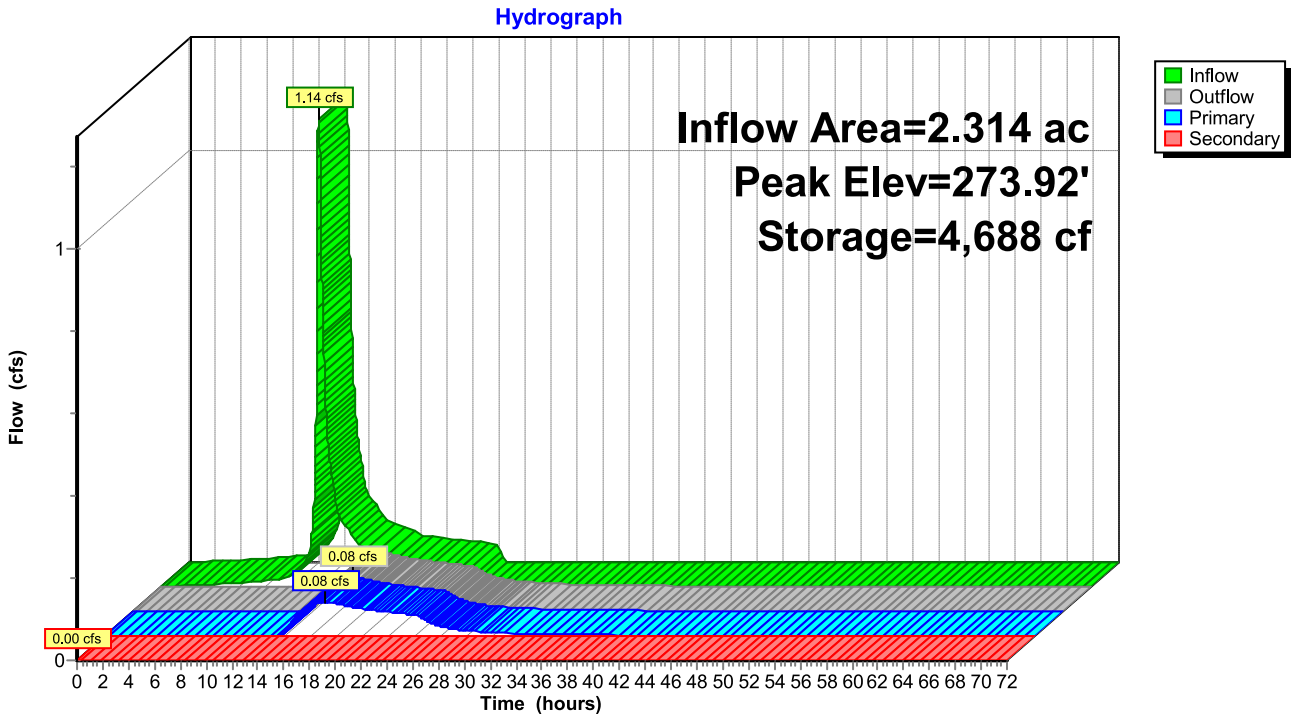
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.08 cfs @ 17.02 hrs HW=273.92' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Barrel Controls 0.08 cfs @ 1.16 fps)
  ├**2=Orifice** (Passes 0.08 cfs of 0.33 cfs potential flow)
  ├**3=Rectangular Orifice** (Controls 0.00 cfs)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8



APPENDIX D.5
WATER QUALITY DESIGN STORM

Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 0.61" for WQ-1.25" event
Inflow = 1.38 cfs @ 1.13 hrs, Volume= 0.045 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.92' @ 2.57 hrs Surf.Area= 3,047 sf Storage= 1,968 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

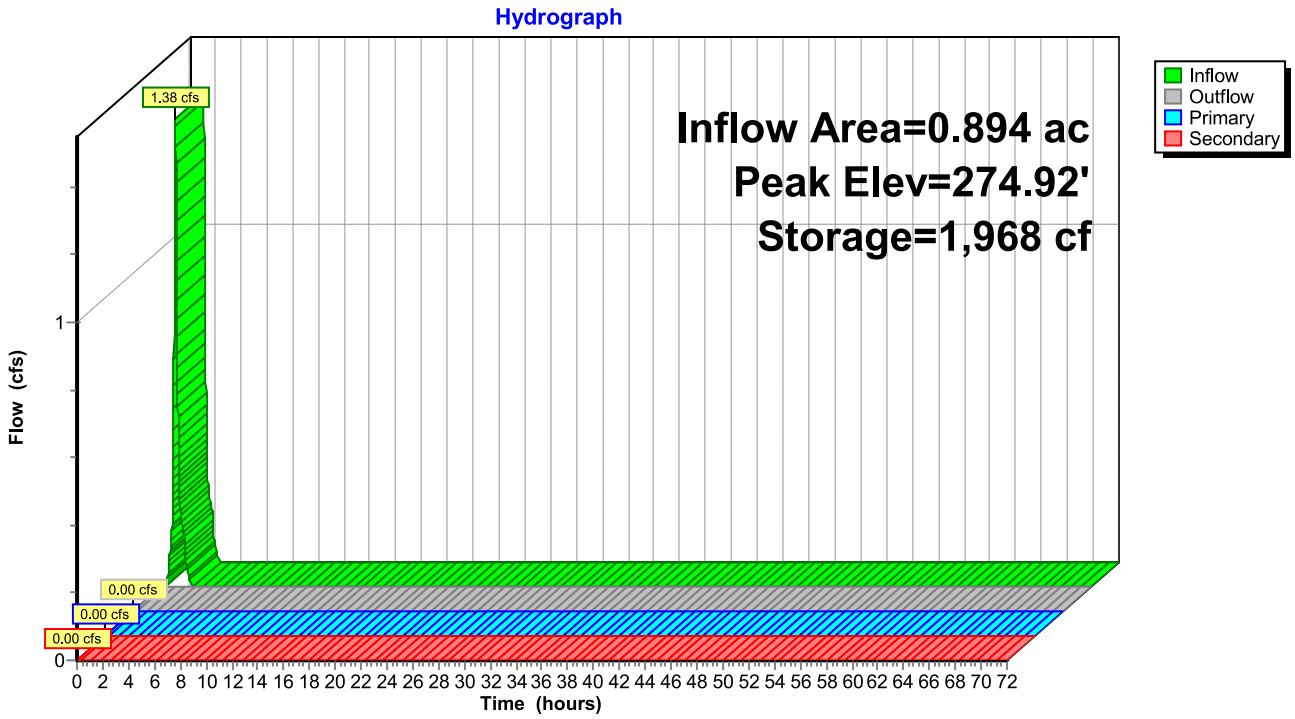
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 74.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.55' S= 0.0162 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**2.0" W x 2.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.00 cfs of 4.67 cfs potential flow)
  ├**2=Orifice #1** (Controls 0.00 cfs)
  ├**3=Rectangular Orifice** (Controls 0.00 cfs)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 0.75" for WQ-1.25" event
Inflow = 0.65 cfs @ 1.11 hrs, Volume= 0.019 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.63' @ 2.34 hrs Surf.Area= 1,549 sf Storage= 830 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

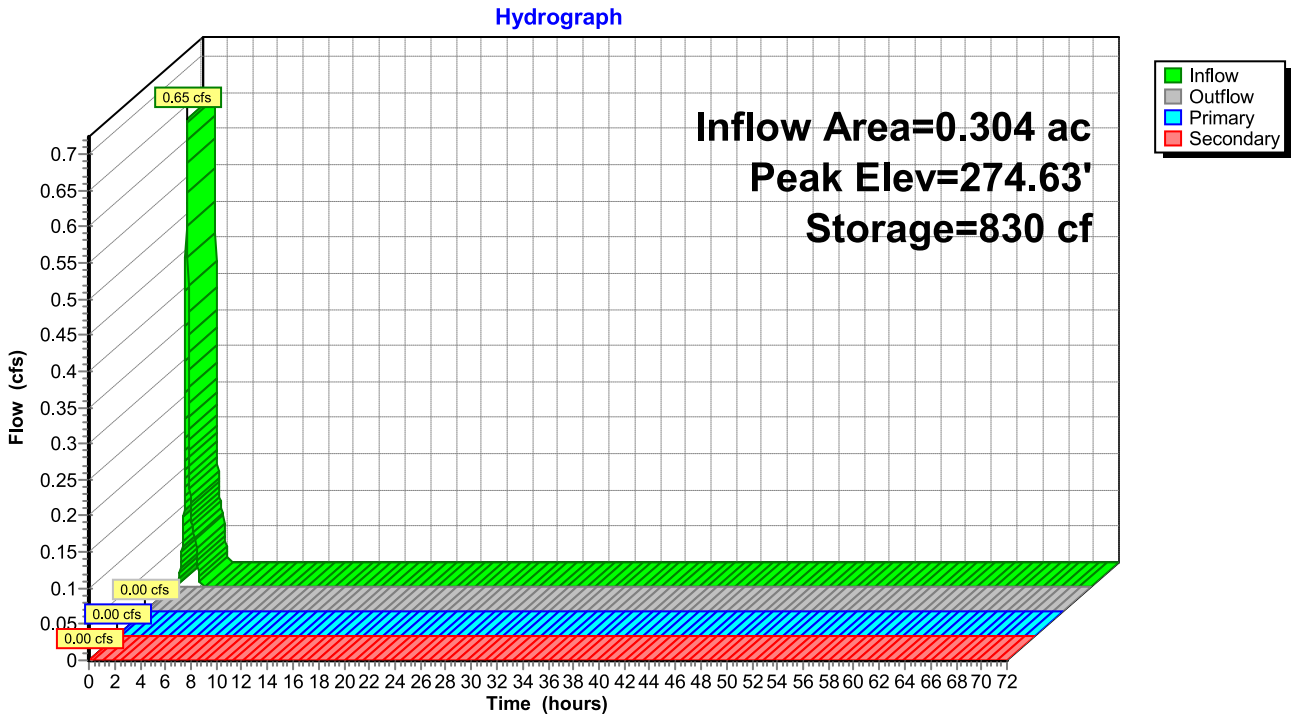
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 271.90' S= 0.0654 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.00 cfs of 4.67 cfs potential flow)
  - **2=Orice** (Controls 0.00 cfs)
  - **3=Rectangular Orifice** (Controls 0.00 cfs)
  - **4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
- **5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 0.19" for WQ-1.25" event
Inflow = 0.63 cfs @ 1.11 hrs, Volume= 0.018 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.25' @ 2.34 hrs Surf.Area= 3,443 sf Storage= 804 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

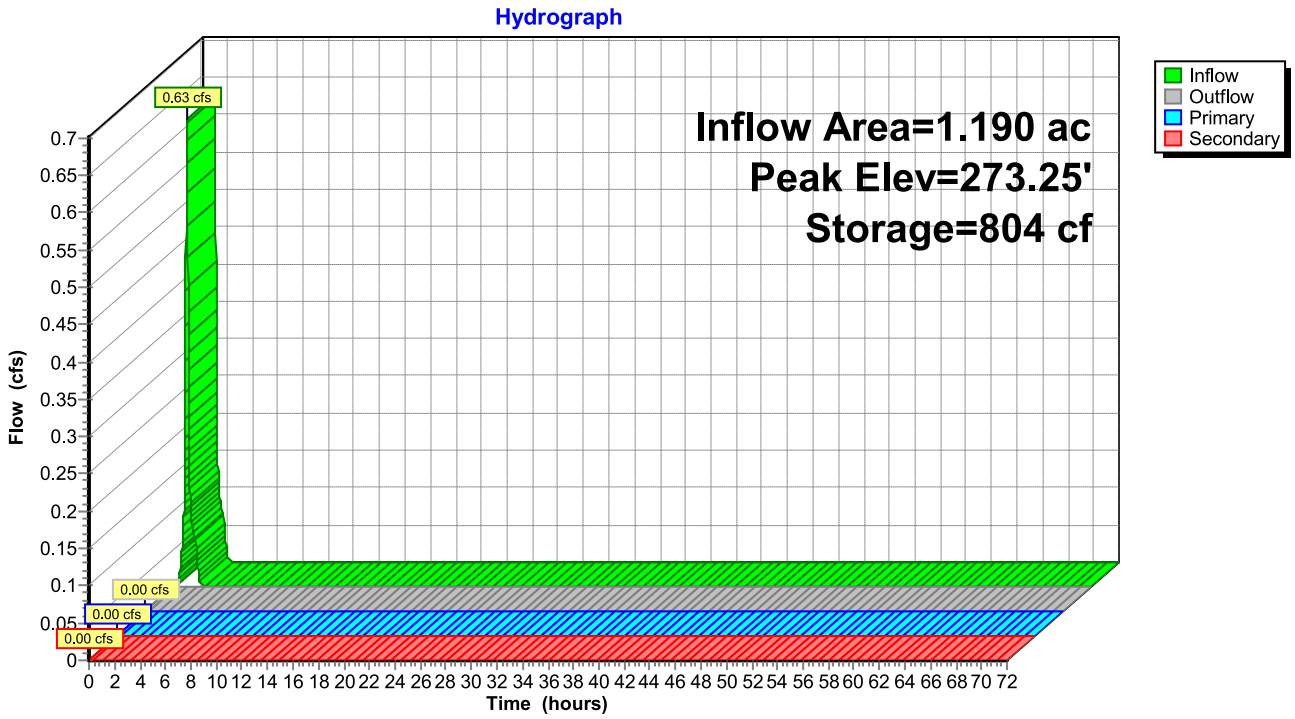
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**18.0" Round 18" Culvert** L= 154.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.90' S= 0.0039 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 0.00 cfs of 0.88 cfs potential flow)
  ├─**2=Orifice #1** (Controls 0.00 cfs)
  ├─**3=Orifice #2** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 0.08" for WQ-1.25" event
Inflow = 0.55 cfs @ 1.11 hrs, Volume= 0.016 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.14' @ 2.34 hrs Surf.Area= 5,307 sf Storage= 710 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

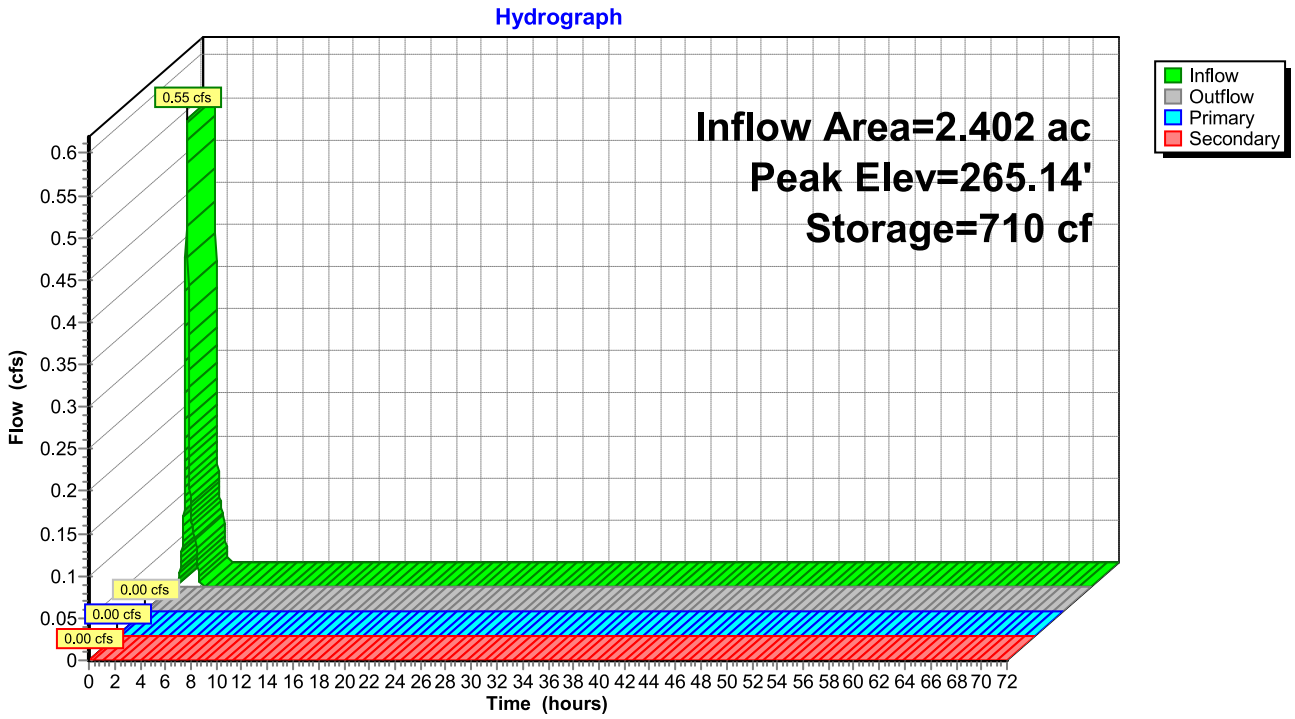
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 72.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 263.25' S= 0.0069 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 4.26 cfs potential flow)
  ├─**2=Orifice #1** (Controls 0.00 cfs)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 0.85" for WQ-1.25" event
Inflow = 4.38 cfs @ 1.20 hrs, Volume= 0.175 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 266.30' @ 2.84 hrs Surf.Area= 6,446 sf Storage= 7,621 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

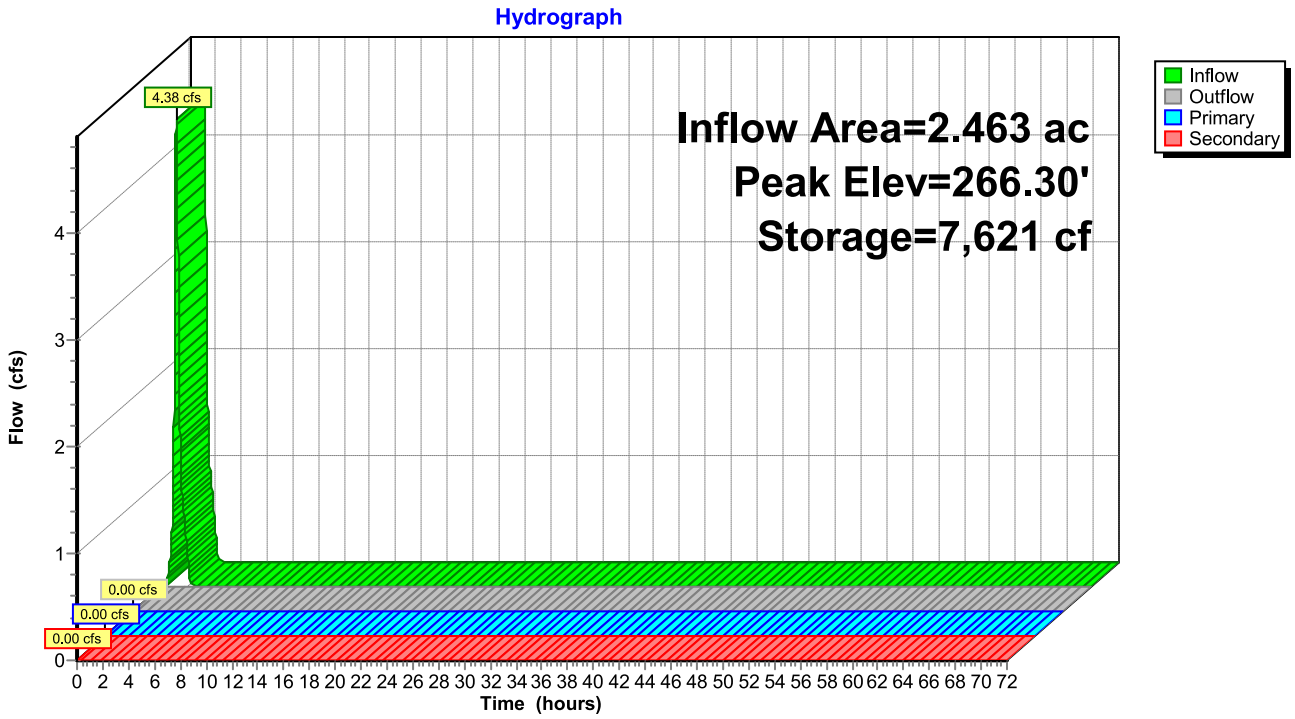
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 263.00' S= 0.0294 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Passes 0.00 cfs of 7.37 cfs potential flow)
  ├─**2=Rectangular Orifice #1** (Controls 0.00 cfs)
  ├─**3=Rectangular Orifice #2** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 1.03" for WQ-1.25" event
Inflow = 7.28 cfs @ 1.11 hrs, Volume= 0.214 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 262.61' @ 2.34 hrs Surf.Area= 16,013 sf Storage= 9,336 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

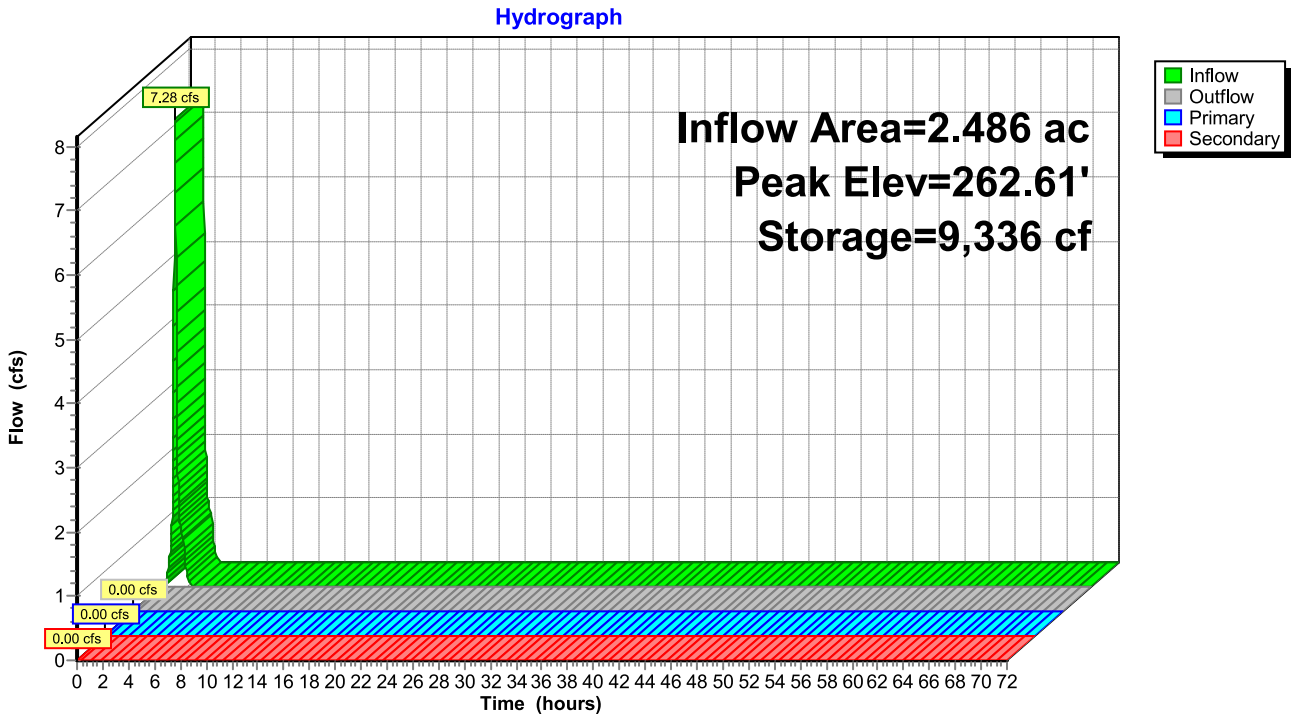
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 258.75' S= 0.0691 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Controls 0.00 cfs)
  ├─**2=Orifice** (Controls 0.00 cfs)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 1.03" for WQ-1.25" event
Inflow = 7.29 cfs @ 1.11 hrs, Volume= 0.215 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 262.31' @ 2.34 hrs Surf.Area= 12,113 sf Storage= 9,355 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

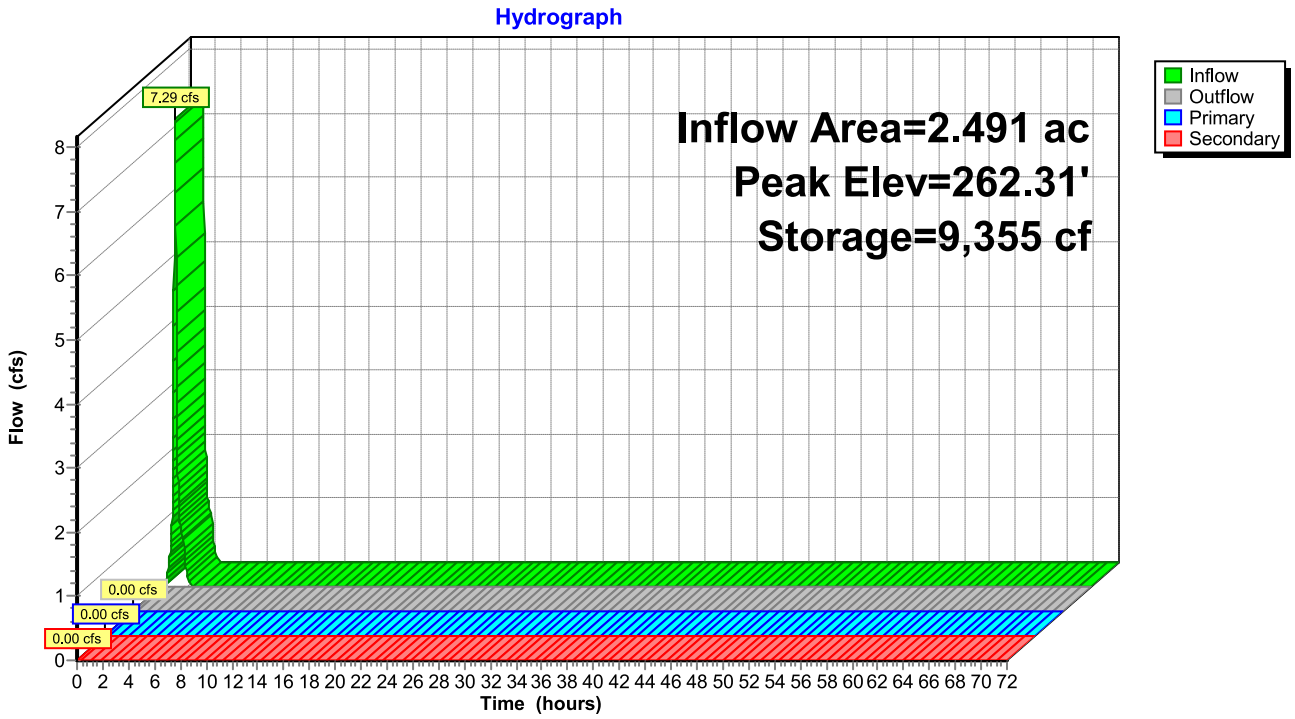
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  └─**2=Orifice** (Controls 0.00 cfs)
  └─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 0.08" for WQ-1.25" event
Inflow = 0.50 cfs @ 1.11 hrs, Volume= 0.015 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.14' @ 2.34 hrs Surf.Area= 4,839 sf Storage= 646 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

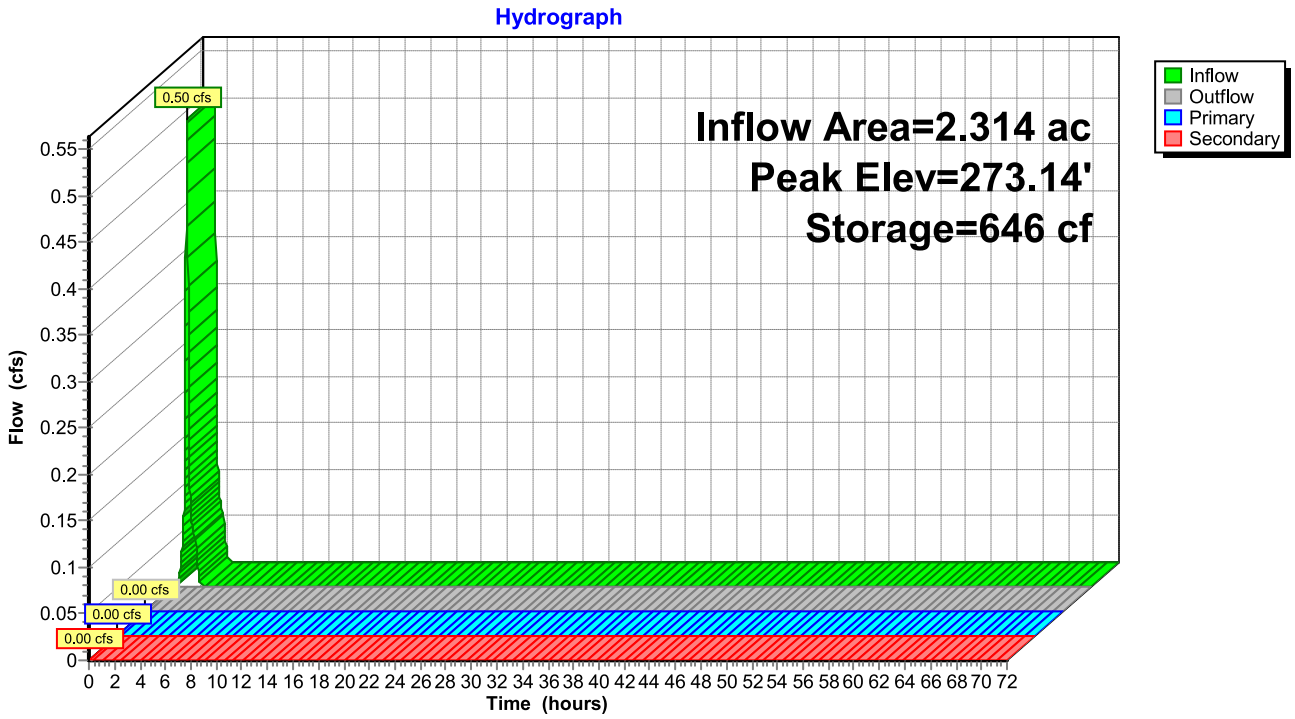
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	273.75'	**18.0" Round 18" Culvert** L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.75' / 273.50' S= 0.0029 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└─**1=18" Culvert** (Controls 0.00 cfs)
  ├─**2=Orifice** (Controls 0.00 cfs)
  ├─**3=Rectangular Orifice** (Controls 0.00 cfs)
  └─**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8



APPENDIX D.6
MOUNDING ANALYSIS

AECOM

PROJECT DESCRIPTION:

Transcontinental Gas Pipe Line Company, LLC (Transco) is proposing to construct a Compressor Station (CS 206) in Franklin Township, Somerset County, New Jersey. The project will involve the construction of small buildings, gravel access road and parking areas, gravel equipment pads, and the installation of two gas pipelines (a suction line and a gas discharge line) to connect the proposed compressor station to the existing natural gas transmission line.

ANALYSIS PURPOSE:

The standards for groundwater recharge found in the New Jersey Administrative Code (N.J.A.C.) 7:8-5.4 (b).1.ii state that the design engineer shall, demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the projected two-year storm is infiltrated. To meet this requirement, eight (8) surface infiltration basin has been proposed to capture, treat and infiltrate runoff. Pursuant to Section 9.8 of the New Jersey Stormwater Best Management Practice (NJ SW BMP) Manual, a minimum two foot (2') vertical separation is required between the bottom of the basin and the elevation of the season high water table (SHWT) or bedrock.

The purpose of this analysis is to assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts, which are defined according to N.J.A.C. 7:8-5.2 (h) as causing surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems in the vicinity of the groundwater recharge area. Since no structures, basements or sewage disposal systems are located within the vicinity of the infiltration basin, this analysis will focus on surficial ponding.

REFERENCES:

1. "Simulation of Groundwater Mounding Beneath Hypothetical Stormwater Infiltration Basins", U.S. Geological Survey Scientific Investigations Report 2010-5102, prepared in cooperation with the New Jersey Department of Environmental Protection, Carlton, G.B., 2010

2. Excel Spreadsheet "Hantush_USGS_SIR_2010-5102-1110.xlsm", Baehr, A. 2009

3. "New Jersey Stormwater Best Management Practices Manual", New Jersey Department of Environmental Protection Division of Watershed Management, 2023

4. New Jersey Administrative Code 7:8 – Stormwater Management

5. "HydroCAD", HydroCAD Software Solutions LLC, 2018

6. "Infiltration Basin Profile Plan – Compressor Station 206", AECOM, dated 10/31/2025

CALCULATIONS:

In order to determine the height and range of groundwater mounding, U.S. Geological Survey (USGS), in cooperation with the Department, developed a report (Reference 1) and a Microsoft Excel workbook of spreadsheets (Reference 2) to simulate groundwater mounding beneath stormwater infiltration basins. The model calculates the maximum height of the transient mounding formed and assumes all groundwater flow is horizontal above an infinite aquifer. The maximum height of the mounding occurs when the entire volume of runoff has been infiltrated into the subsoil through the bottom of a BMP. It is assumed that if the calculated steady-state mounding reaches the bottom of the BMP, then infiltration will not occur as expected. The hydraulic impacts from the mounded groundwater table to adjacent underground structures can be assessed to check whether adjacent underground structures will be within the mounded groundwater area, which may cause temporary flooding in basement or excessive groundwater seepage into the structure.

AECOM

This spreadsheet (Reference 2) calculates the maximum height of groundwater mounding and the mounding at user-specified distances from the center of the mound, and uses the following variables:

Input

R Recharge (Infiltration) Rate (ft/day)
S_y Specific Yield (dimensionless, between 0 and 1)
K Horizontal Hydraulic Conductivity (ft/day)
x ½ Length of Basin (ft)
y ½ Width of Basin (ft)
t Duration of Infiltration Period (days)
hi(0) Initial Thickness of Saturated Zone (ft)

Output

h(max) Maximum thickness of saturated zone (beneath center of basin) (ft)
Δh(max) Maximum groundwater mounding (beneath center of basin) (ft)

In the sections below, site specific parameters of the project are determined for each variable. Once each of the variables for the project have been determined, they are then entered into the spreadsheet and used to solve the groundwater mound height.

1. Recharge Rate (R)

Test pits with percolation tests performed at each basin are summarized in the table below. Infiltration rates ranged from 4.03-12.22 in/hr.

Infiltration Basin Soil Testing Summary (July to August 2025)

Basin #	Test Pit #	Test Type [1,2]	Grade	Basin Invert	Test Pit Bottom		Groundwater		Infiltration Rate
			Elevation (ft)	Elevation (ft)	Elevation (ft)	Depth (ft)	Elevation (ft)	Depth (ft)	(in/hr)
1	1	TP w/IT	277.0	274.0	272.5	4.5	N/E [3]		4.03
	2	TP w/IT	275.0		271.0	4.0	N/E [3]		12.22
2	3	TP w/IT	275.0	274.0	270.2	4.8	N/E [3]		11.52
	4	TP w/IT	276.0		268.8	7.2	N/E [3]		7.93
3	9	TP w/IT	277.0	273.0	269.3	7.7	N/E [3]		12.37
	10	TP w/IT	277.0		270.0	7.0	N/E [3]		3.91
4	5A	TP w/FT	268.5	265.0	262.5	6.0	N/E [3]		N/A [4]
	16A	TP w/FT	268.5		262.5	6.0	N/E [3]		N/A [4]
5	7A	TP w/FT	268.5	265.0	260.5	8.0	N/E [3]		N/A [4]
	8A	TP w/FT	267.5		259.5	8.0	N/E [3]		N/A [4]
6	TP-8 [5]	TP w/IT	264.5	261.5	258.0	6.5	N/E [3]		13.30
	13	TP w/IT	265.5		258.2	7.3	N/E [3]		6.44
7	TP-9 [5]	TP w/IT	264.5	261.5	257.5	7.0	N/E [3]		2.90[6]
	14	TP w/IT	264.5		257.1	7.4	N/E [3]		7.94
8	27A	TP w/FT	275.5	273.0	270.5	5.0	N/E [3]		N/A [4]
	28A	TP w/FT	275.5		270.5	5.0	N/E [3]		N/A [4]

1	TP w/IT = Test Pit with Infiltration Testing
2	TP w/FT = Test Pit with Basin Flooding Test
3	N/E = Not encountered
4	N/A = Not Applicable for Test Pits with Basin Flooding Test
5	Test pit excavated in April 2018
6	Infiltration rate is significantly lower than other test pits in the area (e.g., TP #13, 14, 6) and was not used in the analysis. Soil condition might have changed since the 2018 soil test.

For the project, up to four (4) iterations with different recharge rate were performed for each basin:

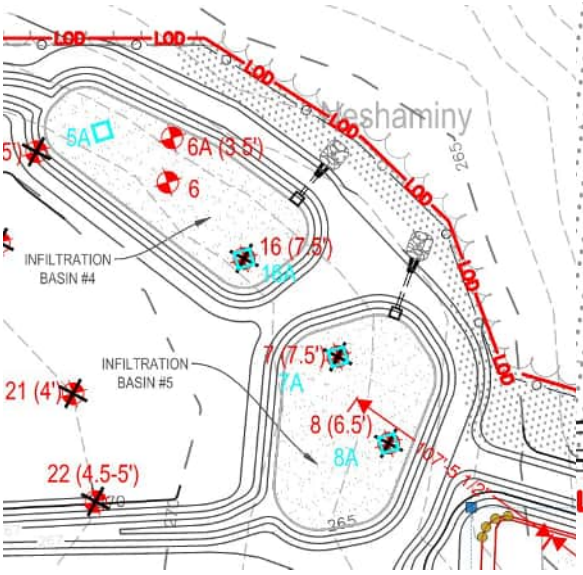
a) Initial (design) permeability rate. A factor of safety of 2 was applied to the lowest field measured recharge (infiltration) rate to determine the design permeability rate. The mounding height is assessed initially with the recharge rate set using the design permeability rate as the vertical hydraulic conductivity, which is the expected infiltration rate of the runoff.

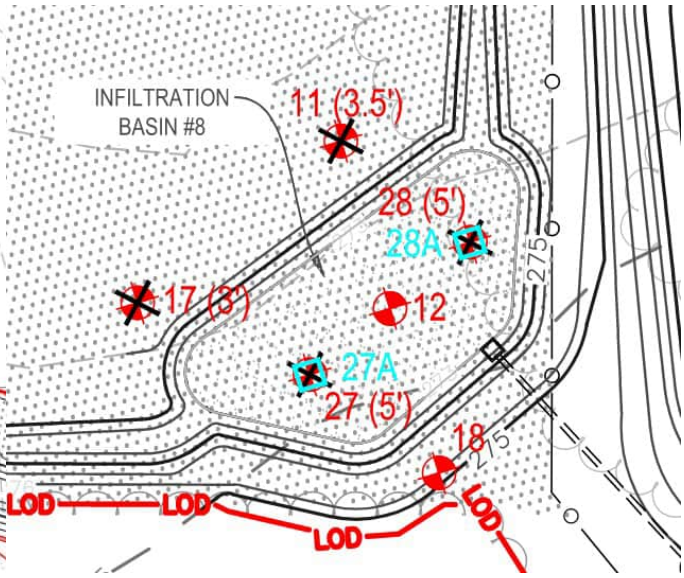
b) Adjusted permeability rate. If the results in Iteration (a) indicated adverse hydraulic impact to groundwater, adjustments of the spreadsheet inputs were made to reduce the height of groundwater mounding. The recharge rate would be reduced to a smaller value. The horizontal hydraulic conductivity was not adjusted since it is not significantly affected by the reduced hydraulic gradient in the vertical direction. The duration of infiltration period was also proportionally adjusted.

c) Highest permeability rate. As per the request from NJDEP, another separate iteration was run using the highest field measured infiltration rate (where available) with a factor of safety of 2 applied.

d) Adjusted permeability rate. If the results in Iteration (c) indicated adverse hydraulic impact to groundwater, adjustments of the spreadsheet inputs were made to reduce the height of groundwater mounding. The recharge rate was reduced to a smaller value. The horizontal hydraulic conductivity was not adjusted since it is not significantly affected by the reduced hydraulic gradient in the vertical direction. The duration of infiltration period was also proportionally adjusted.

Note that at Basins #4, 5, and 8, only basin flooding tests but no percolation tests were conducted. Therefore, the infiltration rate (11.43 in/hr) obtained from the percolation test at TP #6 was utilized for the groundwater mounding analysis for Basins #4 and 5, and the infiltration rate (6.37 in/hr) obtained from the percolation test at TP #12 was utilized for the groundwater mounding analysis for Basins #8. The locations and percolation test results of TP #6 and 12 are shown below (or refer to Sheet 9 of the Plan Set and the Stormwater Report).





Percolation Test Data Sheet

Project:	Test Pit #6	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	10.5	10.5	6	0	6	1.750	11.429
2	0		0	6	0	6		
3			0	6	0	6		
4			0	6	0	6		
5			0	6	0	6		
						Average		11.429

Percolation Test Data Sheet

Project:	Test Pit #12	Date:	8/5/2025
Municipality:			

Test Hole Dimensions

Test Pit #						
Test Hole Shape (select one)	Round	Enter the Diameter (in) if Round was selected	6	Enter Dimensions (in) if Square or Rectangular was selected	Length	14
					Width	12

Test Results

Trial No.	Start Time at 6 inches	Stop Time at 0 inch	Time Interval (min)	Initial Water Depth (in)	Final Water Depth (in)	Change in Water Level (in)	Percolation Rate (min/in)	Converted Hydraulic Conductivity (in/hr)
1	0	8.833	8.833	6	0	6	1.472	13.585
2	0	16.017	16.017	6	0	6	2.670	7.492
3	0	29.317	29.317	6	0	6	4.886	4.093
4	0	35.567	35.567	6	0	6	5.928	3.374
5	0	36.133	36.133	6	0	6	6.022	3.321
						Average		6.373

2. Specific Yield (S_y)

For the project, the default value for specific yield of 0.15 was used.

3. Horizontal Hydraulic Conductivity (K)

The project is located outside the coastal plain physiographic province of New Jersey. The default horizontal hydraulic conductivity was used: Kh = R, i.e., the horizontal hydraulic conductivity must be assumed to be equal to the vertical hydraulic conductivity, as described above.

Note that in Iterations (b) and (d), in the case that the (vertical) recharge rate was reduced to a smaller value, the horizontal hydraulic conductivity was not adjusted since it is not significantly affected by the reduced hydraulic gradient in the vertical direction.

4. ½ Length (x) and ½ Width (y) of Basin

The average length and width of each basin were measured and utilized in determining the ½ length and ½ width of the basins. The measurement of each basin is presented in Attachment A.

Note that the results from the Hantush Spreadsheet provide only the mounding height along the x-direction. Therefore, for a rectangular basin, the inputs for x and y must be re-entered, i.e., with the length and width switched, to check the groundwater mounding in the other direction.

5. Duration of Infiltration Period (t)

$$Duration\ of\ infiltration\ period, t = \frac{Volume\ of\ runoff\ to\ be\ infiltrated\ (cf) \times 12in/ft}{Infiltration\ area\ (sf) \times Recharge\ rate\ (in/hr)}$$

Note that the volume up to the lowest orifice within the basin was utilized in calculating the duration of the infiltration period. The volume to be infiltrated obtained from the HydroCAD model for each basin is presented in Attachment B.

6. Initial Thickness of Saturated Zone (hi(0))

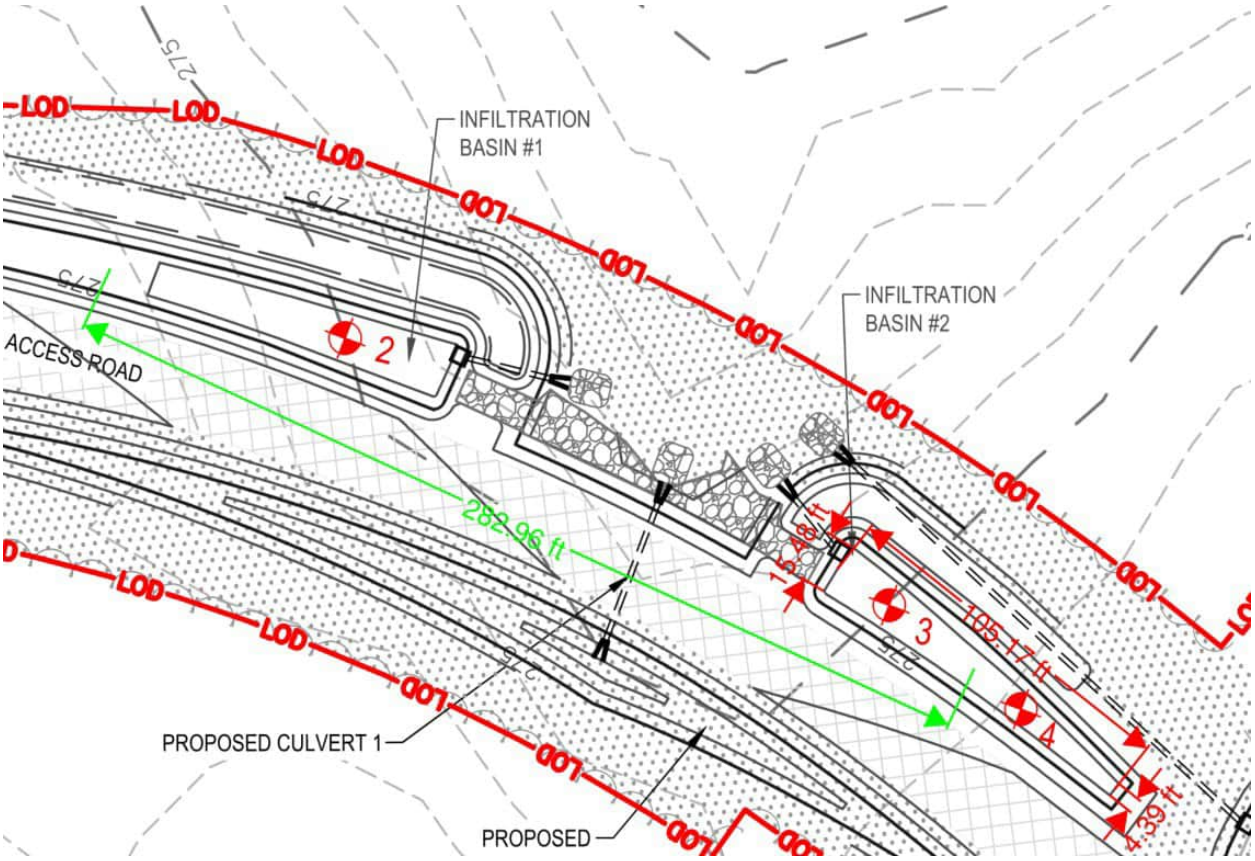
No field test showing the thickness of saturated zone beneath the proposed infiltration basin was conducted. Therefore, the default value of 10 ft was used.

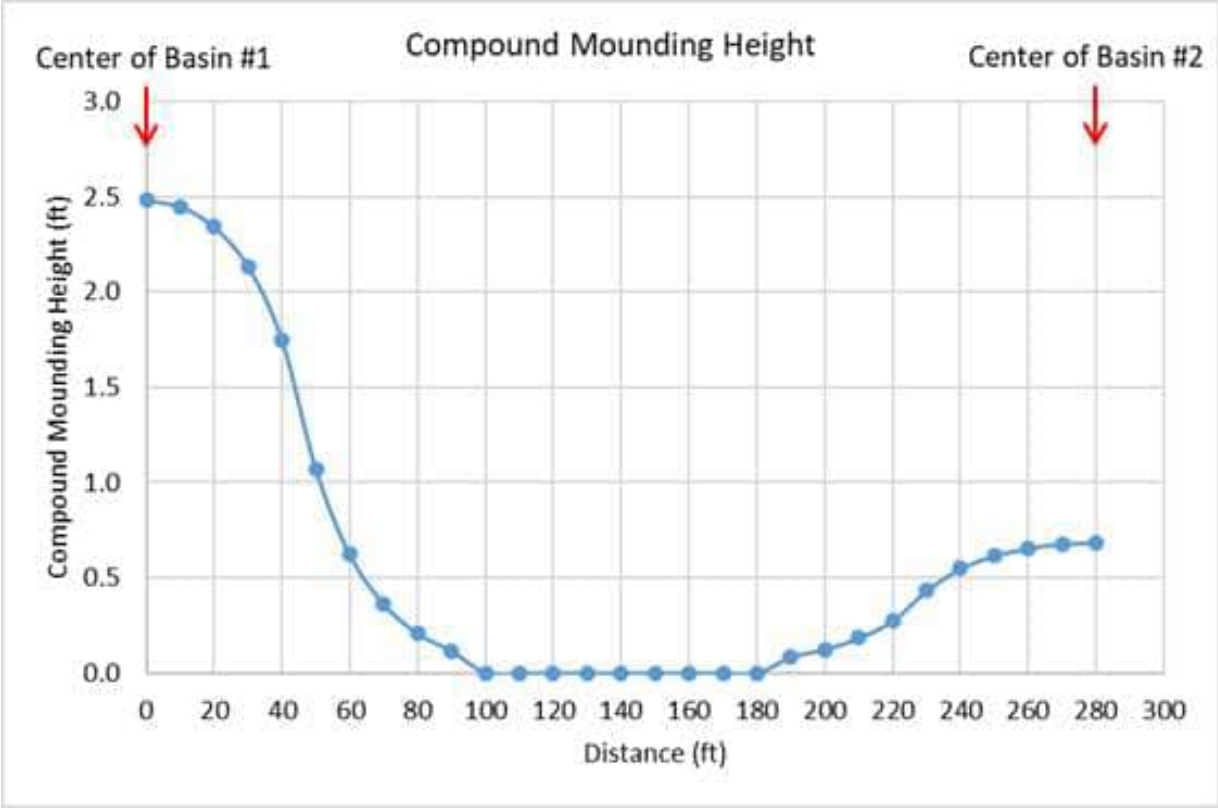
RESULTS:

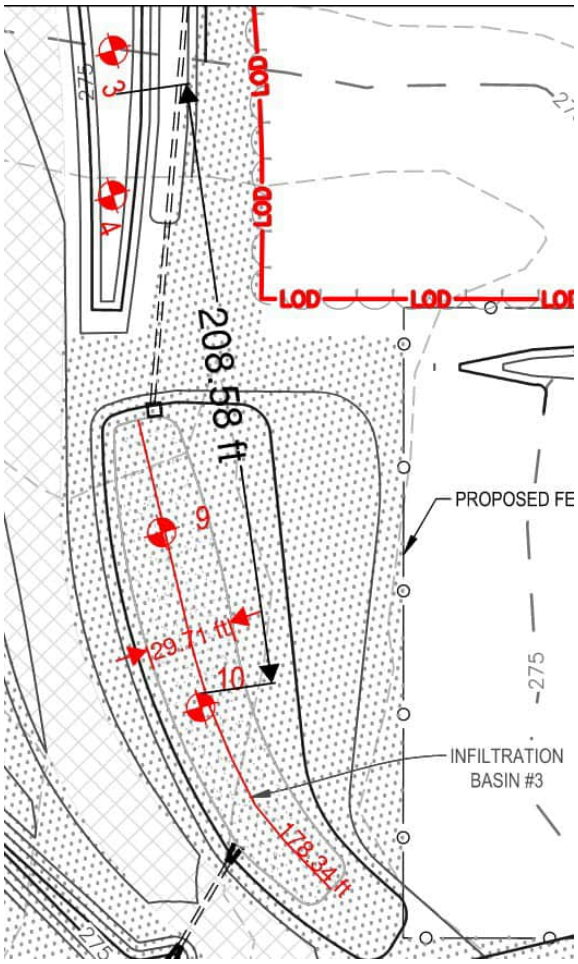
Basin Characteristics and Mounding Height					
Test Pit #	Test Type [1,2]	Sand Layer Invert Elevation (ft)	SHWT Elevation (ft)	Allowable Distance (ft)	Maximum Mounding Height (ft)
1	TP w/IT	273.5	271.0	2.5	2.5
2	TP w/IT	273.5	270.2	3.5	0.7
3	TP w/IT	272.5	270.0	2.5	2.2
4	TP w/IT	264.5	262.5	2.0	1.0
5	TP w/IT	264.5	260.5	4.0	1.8
6	TP w/IT	261.5	258.2	3.3	3.1
7	TP w/FT	261.0	257.5	3.5	3.2
8	TP w/FT	272.5	270.5	2.0	1.4

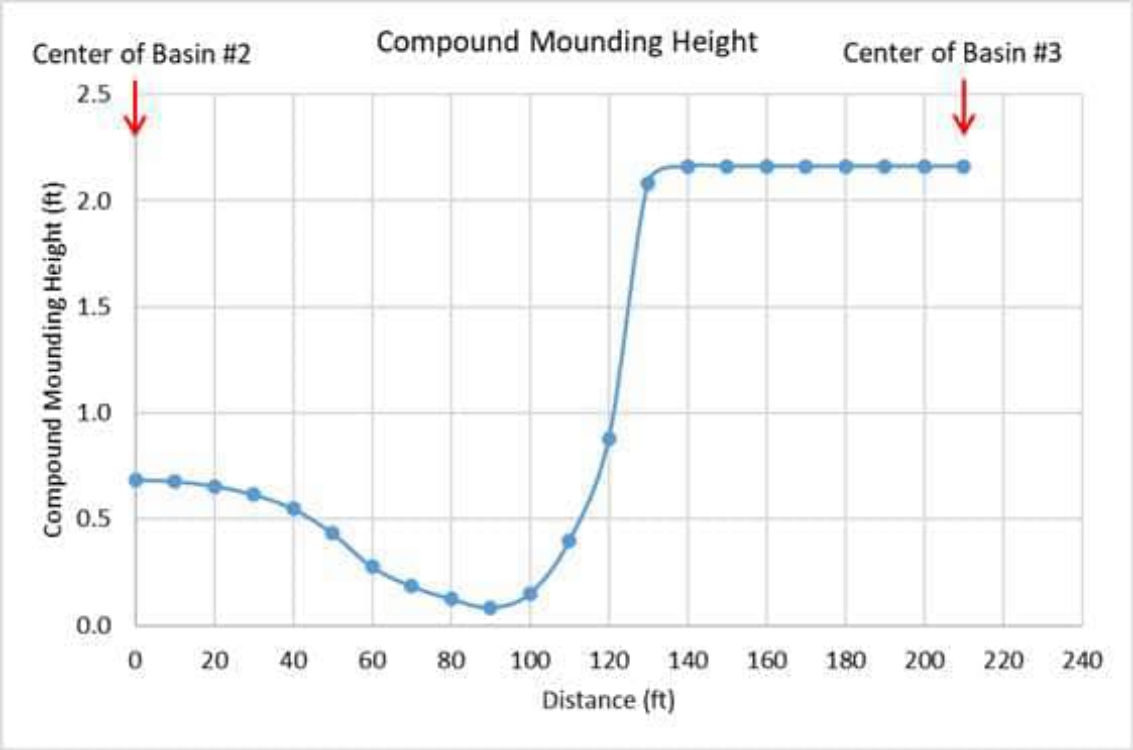
The compound mounding impacts for all basins that are situated near another are also evaluated. None of the compound mounding heights exceeded the individual maximum mounding heights. Therefore, no adverse mounding impacts were identified throughout the eight (8) basins.

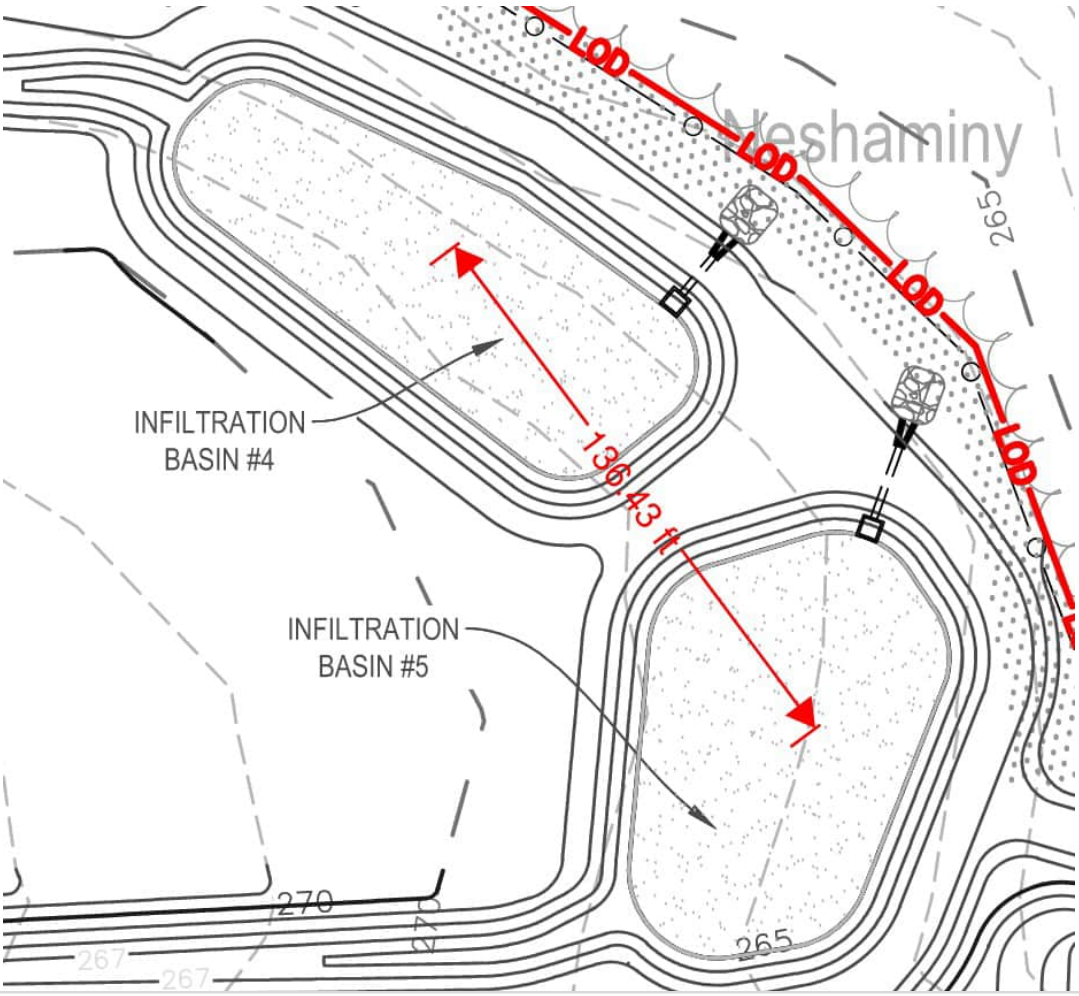
AECOM

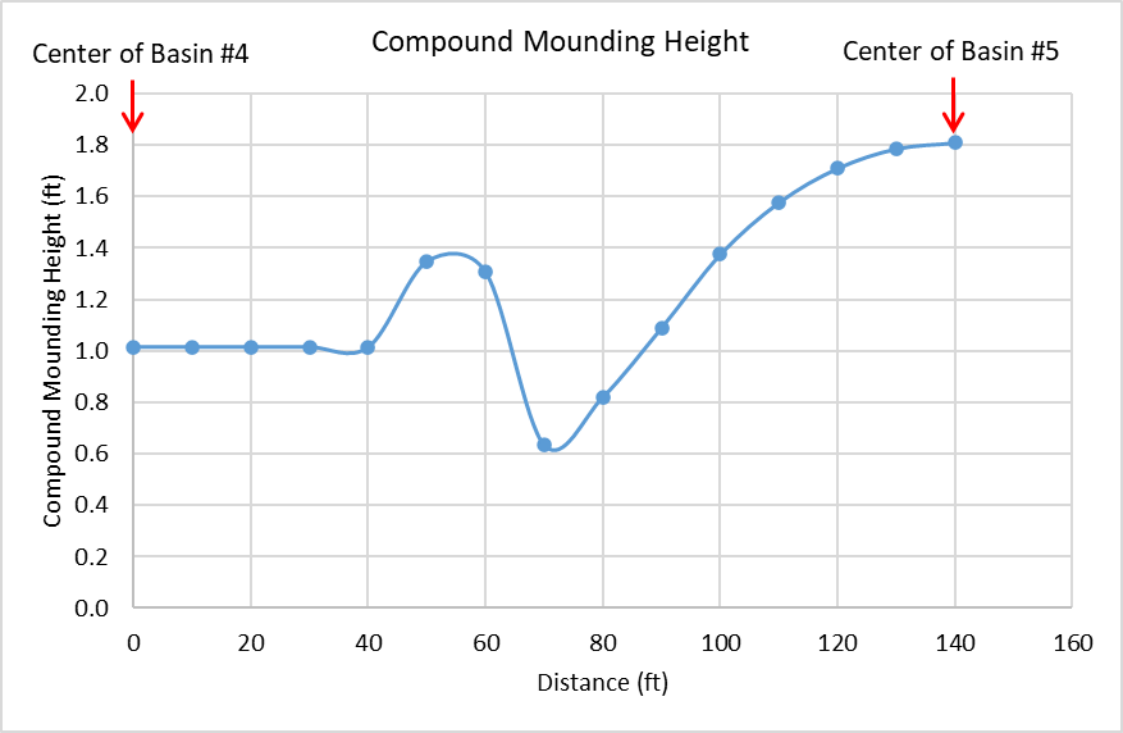

LOD
INFILTRATION BASIN #1
INFILTRATION BASIN #2
ACCESS ROAD
282.96 ft
105.17 ft
4.39 ft
PROPOSED CULVERT 1
PROPOSED
2
3
4

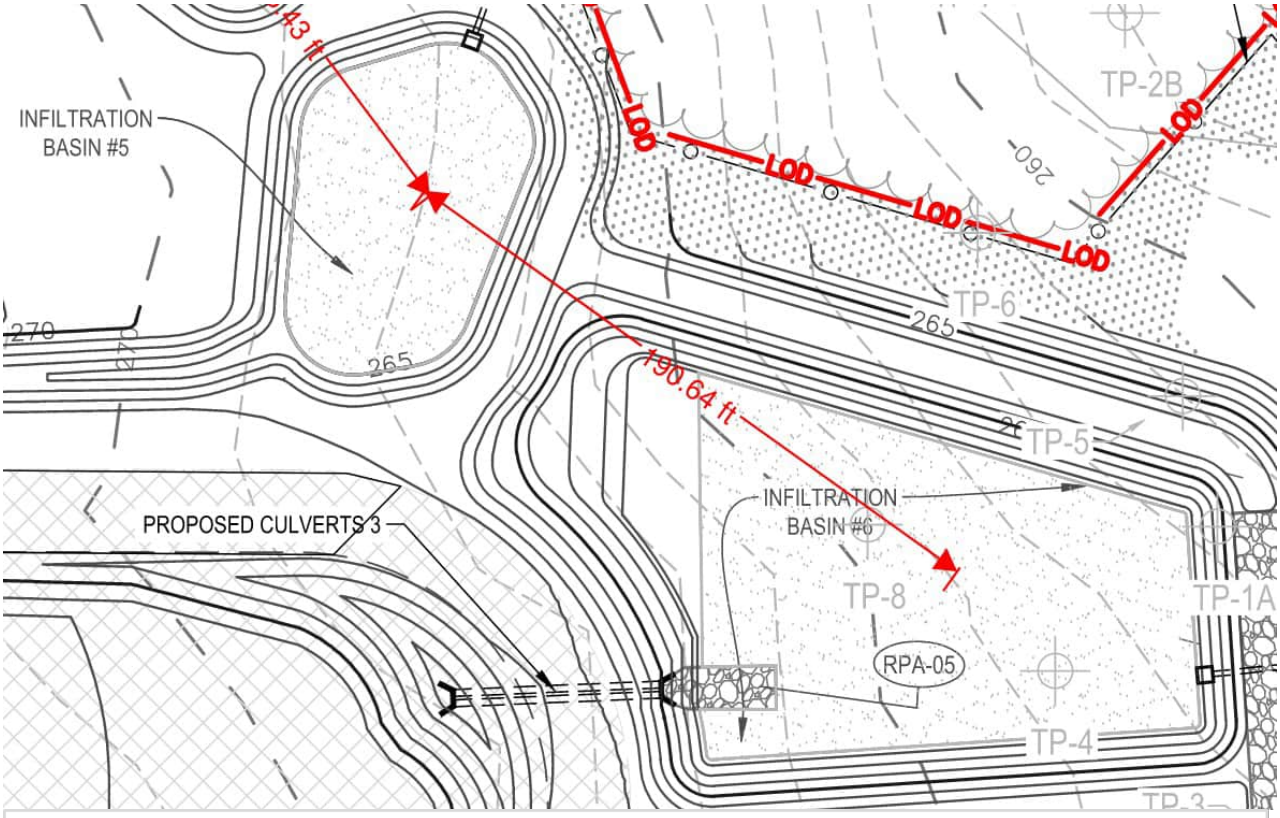

Compound Mounding Height
Center of Basin #1
Center of Basin #2
Compound Mounding Height (ft)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Distance (ft)

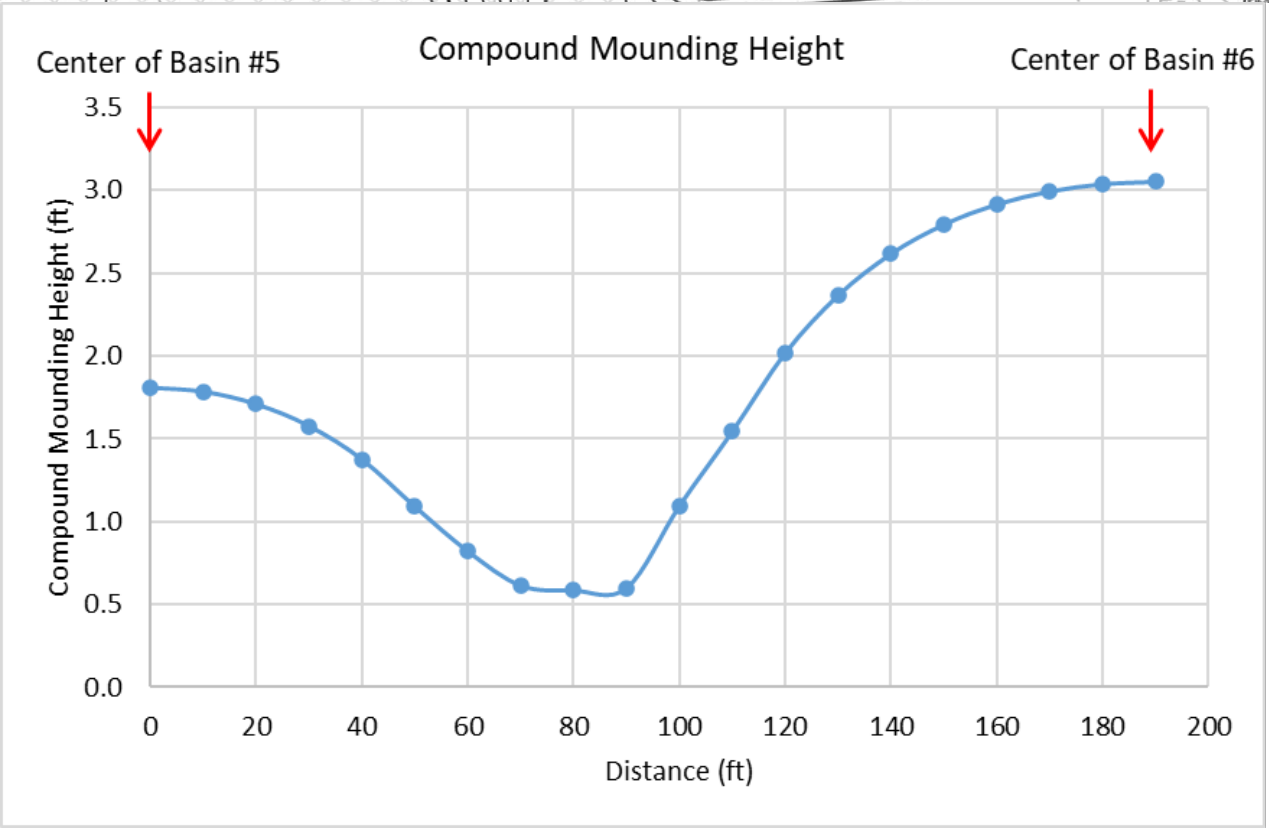

LOD
LOD
LOD
LOD
LOD
208.58 ft
PROPOSED FE
29.71 ft
INFILTRATION
BASIN #3
178.34 ft
275
275

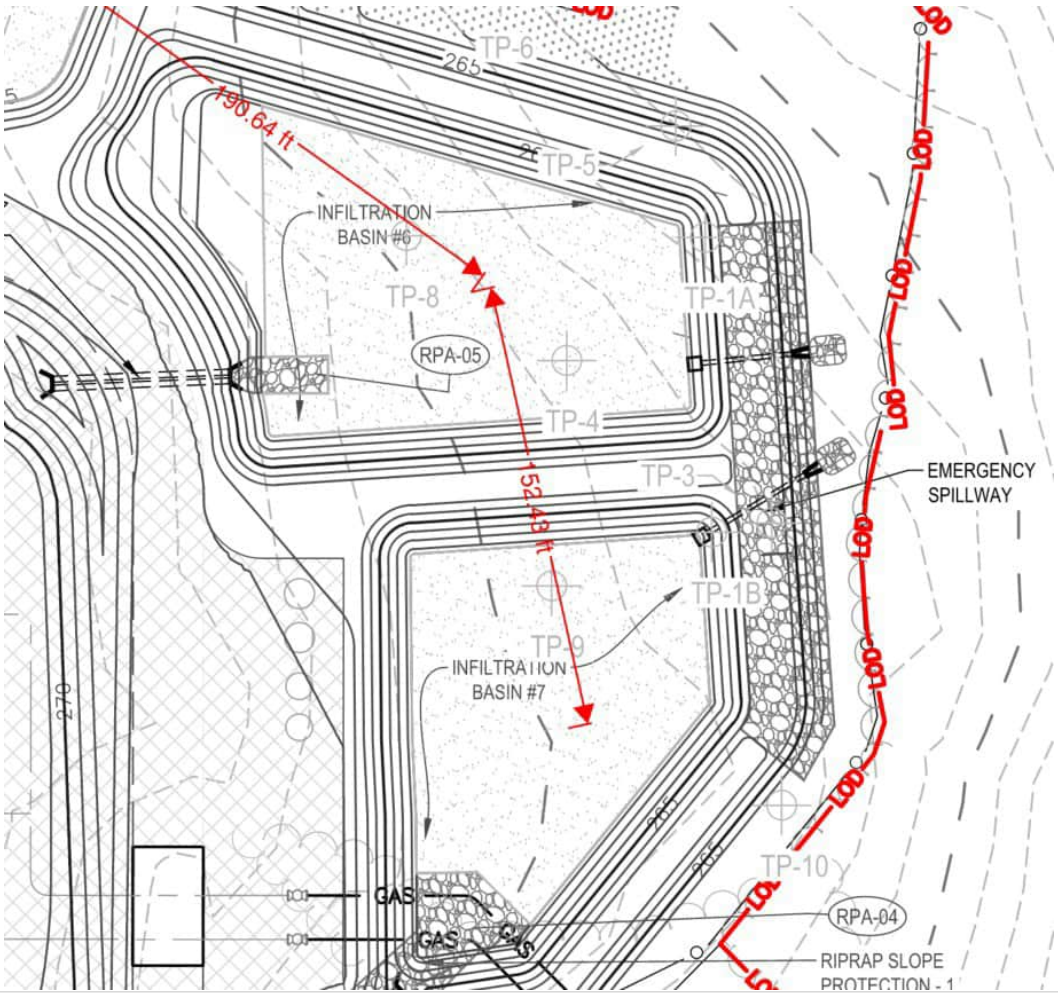

Center of Basin #2
Compound Mounding Height
Center of Basin #3
Compound Mounding Height (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0
20
40
60
80
100
120
140
160
180
200
220
240
Distance (ft)

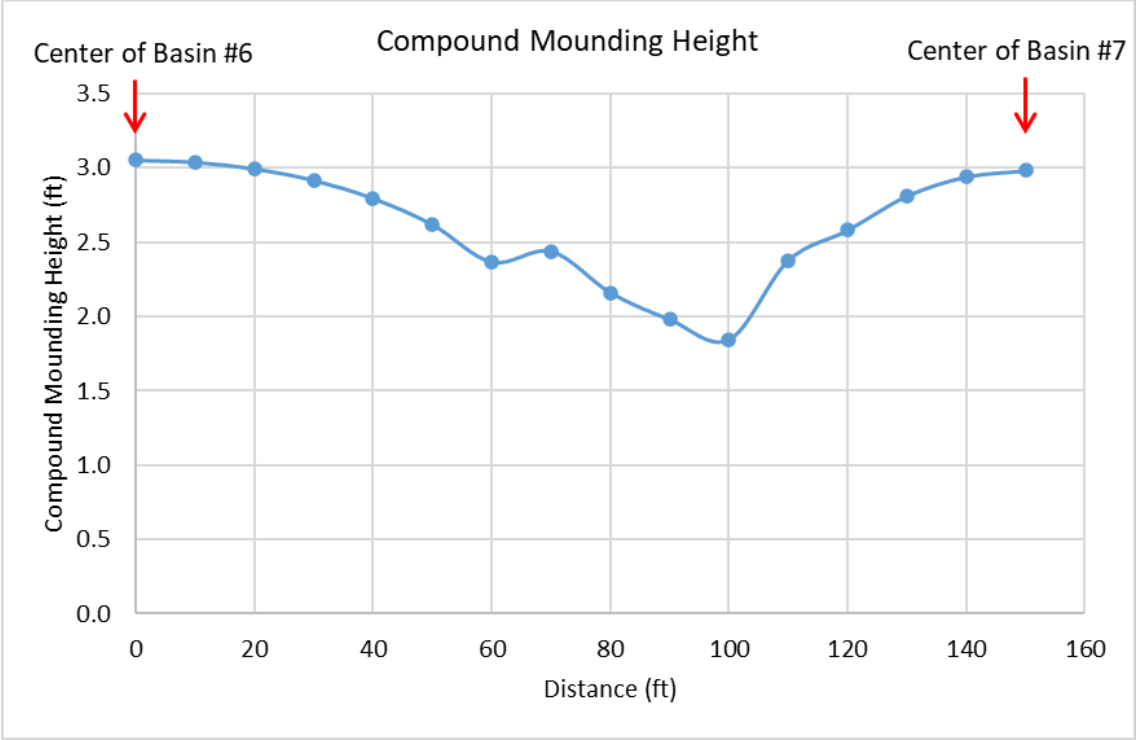

LOD
LOD
LOD
LOD
Neshaminy
265
INFILTRATION
BASIN #4
136.43 ft
INFILTRATION
BASIN #5
270
267
267
265


Center of Basin #4
Compound Mounding Height
Center of Basin #5
Compound Mounding Height (ft)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
20
40
60
80
100
120
140
160
Distance (ft)


INFILTRATION
BASIN #5
PROPOSED CULVERTS 3
INFILTRATION
BASIN #6
RPA-05
LOD
TP-2B
TP-6
TP-5
TP-8
TP-1A
TP-4
270
265
260


Center of Basin #5
Compound Mounding Height
Center of Basin #6
Compound Mounding Height (ft)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
20
40
60
80
100
120
140
160
180
200
Distance (ft)


TP-6
265
190.64 ft
TP-5
INFILTRATION
BASIN #6
TP-8
RPA-05
TP-1A
TP-4
TP-3
EMERGENCY
SPILLWAY
152.48 ft
TP-1B
TP-9
INFILTRATION
BASIN #7
270
TP-10
GAS
GAS
RPA-04
RIPRAP SLOPE
PROTECTION - 1


Compound Mounding Height
Center of Basin #6
Center of Basin #7
Compound Mounding Height (ft)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
20
40
60
80
100
120
140
160
Distance (ft)

Basin #1
Iteration (a) - Minimum permeability rate

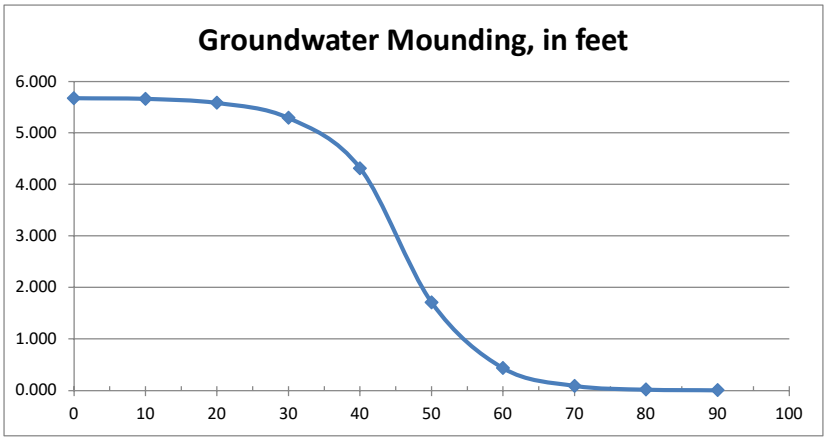
Input Values

2.02	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
2.02	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
45.500	x	1/2 length of basin (x direction, in feet)
6.600	y	1/2 width of basin (y direction, in feet)
10.70	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

15.674	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
5.674	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
5.674	0
5.661	10
5.584	20
5.291	30
4.313	40
1.710	50
0.432	60
0.088	70
0.017	80
0.005	90

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

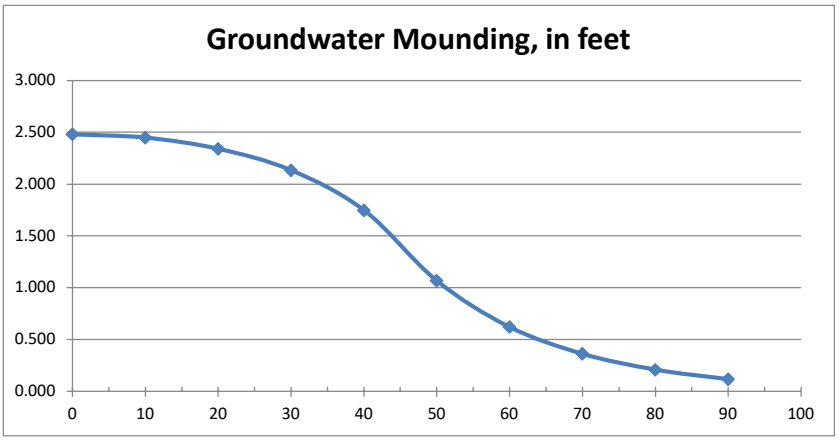
Input Values

0.31	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
2.02	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
45.500	x	1/2 length of basin (x direction, in feet)
6.600	y	1/2 width of basin (y direction, in feet)
70.89	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.482	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.482	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.482	0
2.449	10
2.342	20
2.134	30
1.748	40
1.068	50
0.620	60
0.362	70
0.207	80
0.116	90

Re-Calculate Now



Disclaimer

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Basin #1 Iteration (b2) - Adjusted minimum permeability rate (x and y switched)

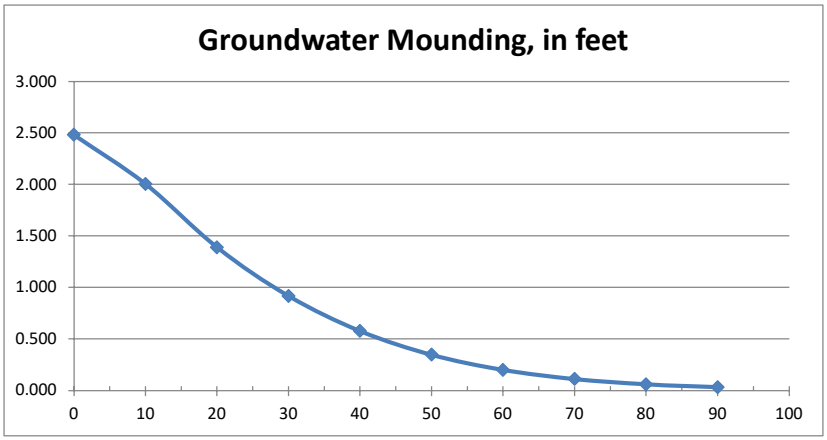
Input Values

0.31	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
2.02	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
6.600	x	1/2 length of basin (x direction, in feet)
45.500	y	1/2 width of basin (y direction, in feet)
70.89	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.482	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.482	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.482	0
2.004	10
1.389	20
0.917	30
0.577	40
0.347	50
0.200	60
0.110	70
0.059	80
0.031	90

Re-Calculate Now



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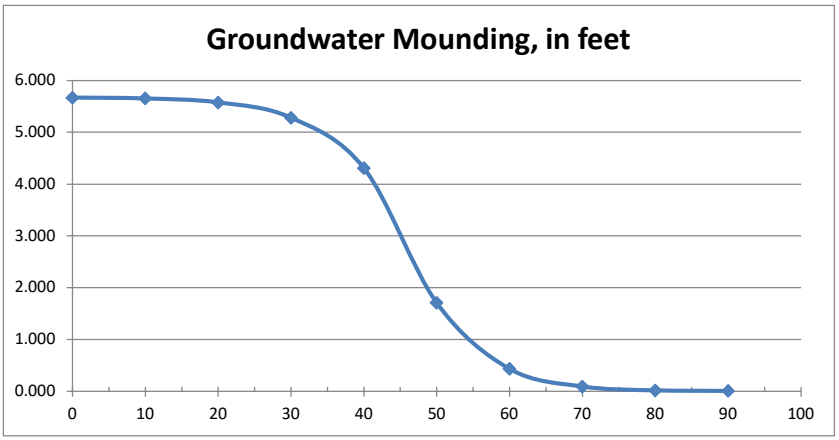
Input Values

6.11	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
6.11	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
45.500	x	1/2 length of basin (x direction, in feet)
6.600	y	1/2 width of basin (y direction, in feet)
3.54	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

15.669	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
5.669	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
5.669	0
5.656	10
5.579	20
5.285	30
4.308	40
1.710	50
0.433	60
0.089	70
0.017	80
0.005	90

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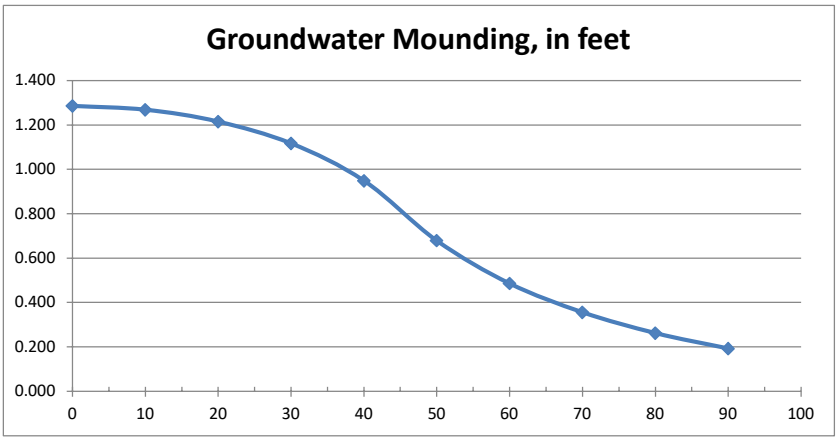
Input Values

0.31	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
6.11	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
45.500	x	1/2 length of basin (x direction, in feet)
6.600	y	1/2 width of basin (y direction, in feet)
70.89	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.286	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.286	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.286	0
1.269	10
1.215	20
1.117	30
0.949	40
0.679	50
0.486	60
0.355	70
0.261	80
0.192	90

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Basin #1 Iteration (d2) - Adjusted maximum permeability rate (x and y switched)

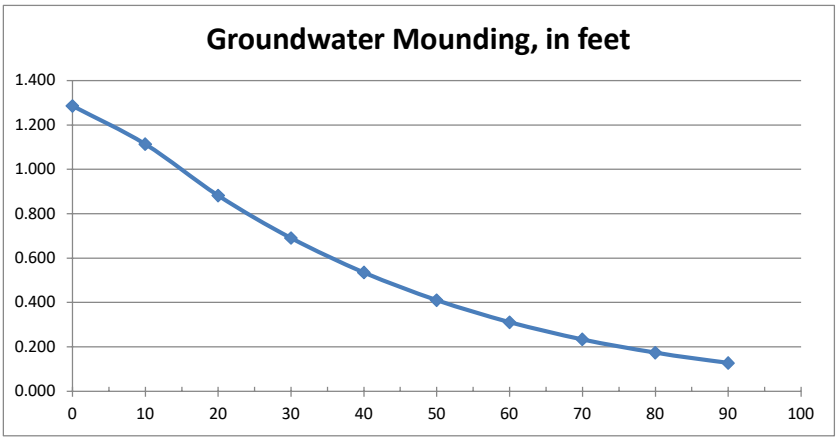
Input Values

0.31	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
6.11	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
6.600	x	1/2 length of basin (x direction, in feet)
45.500	y	1/2 width of basin (y direction, in feet)
70.89	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.286	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.286	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.286	0
1.114	10
0.882	20
0.691	30
0.535	40
0.410	50
0.311	60
0.234	70
0.173	80
0.127	90

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Basin #2
Iteration (a) - Minimum permeability rate

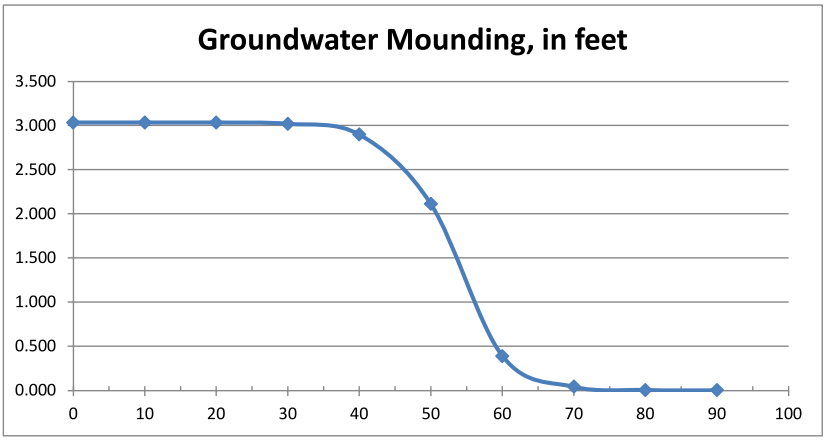
Input Values

3.97	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
3.97	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
52.600	x	1/2 length of basin (x direction, in feet)
4.975	y	1/2 width of basin (y direction, in feet)
2.64	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

13.034	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.034	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.034	0
3.034	10
3.033	20
3.021	30
2.898	40
2.112	50
0.389	60
0.042	70
0.004	80
0.002	90

Re-Calculate Now



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Basin #2
Iteration (b1) - Adjusted minimum permeability rate

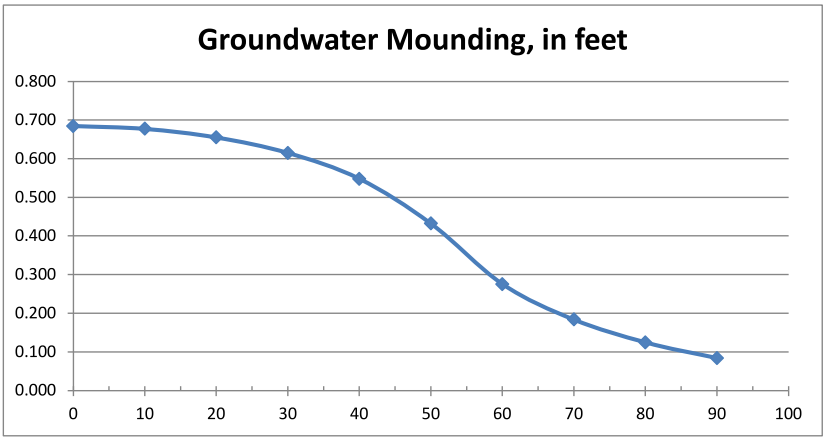
Input Values

0.15	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
3.97	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
52.600	x	1/2 length of basin (x direction, in feet)
4.975	y	1/2 width of basin (y direction, in feet)
69.71	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

10.684	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
0.684	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
0.684	0
0.677	10
0.655	20
0.615	30
0.548	40
0.432	50
0.275	60
0.184	70
0.124	80
0.084	90

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Basin #2 Iteration (b2) - Adjusted minimum permeability rate (x and y switched)

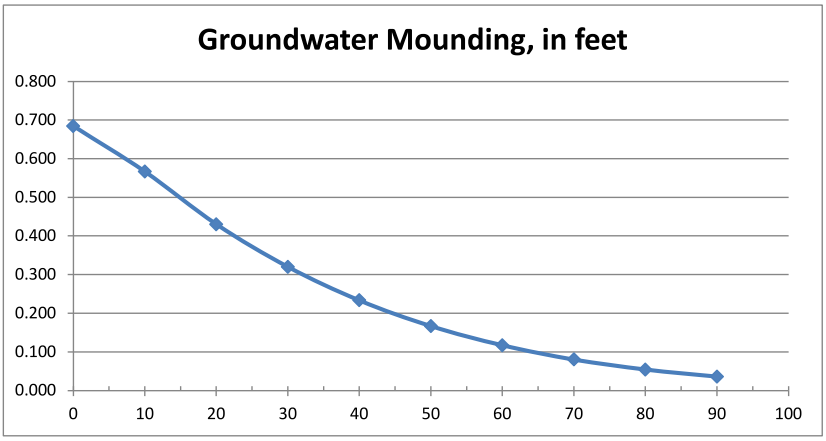
Input Values

0.15	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
3.97	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
4.975	x	1/2 length of basin (x direction, in feet)
52.600	y	1/2 width of basin (y direction, in feet)
69.71	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

10.684	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
0.684	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
0.684	0
0.567	10
0.430	20
0.320	30
0.233	40
0.167	50
0.117	60
0.080	70
0.054	80
0.036	90

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Basin #2
Iteration (c) - Maximum permeability rate

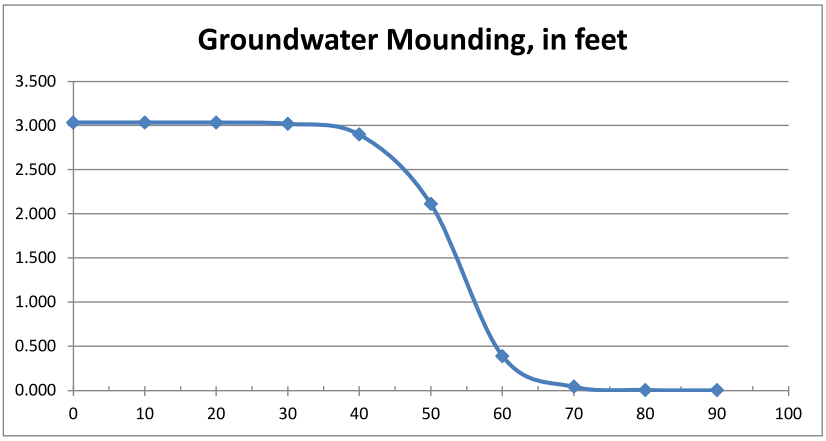
Input Values

5.76	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
5.76	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
52.600	x	1/2 length of basin (x direction, in feet)
4.975	y	1/2 width of basin (y direction, in feet)
1.82	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

13.034	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.034	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.034	0
3.034	10
3.033	20
3.021	30
2.898	40
2.112	50
0.389	60
0.042	70
0.004	80
0.002	90

Re-Calculate Now



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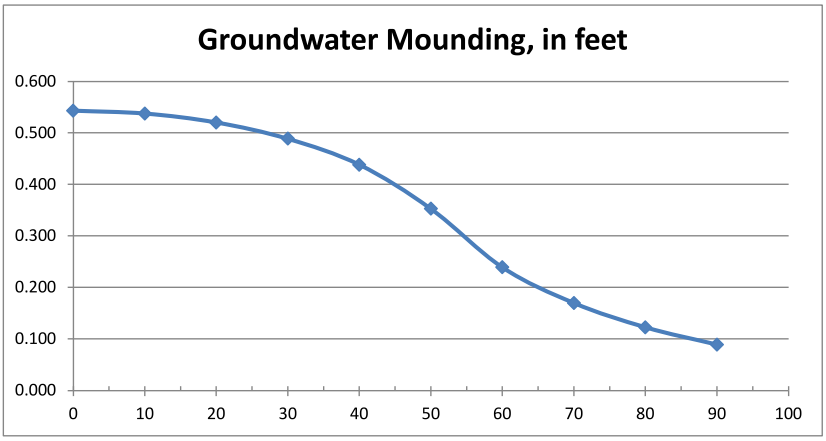
Input Values

0.15	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
5.76	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
52.600	x	1/2 length of basin (x direction, in feet)
4.975	y	1/2 width of basin (y direction, in feet)
69.71	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

10.543	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
0.543	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
0.543	0
0.538	10
0.520	20
0.489	30
0.438	40
0.353	50
0.239	60
0.170	70
0.123	80
0.089	90

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Basin #2 Iteration (d2) - Adjusted maximum permeability rate (x and y switched)

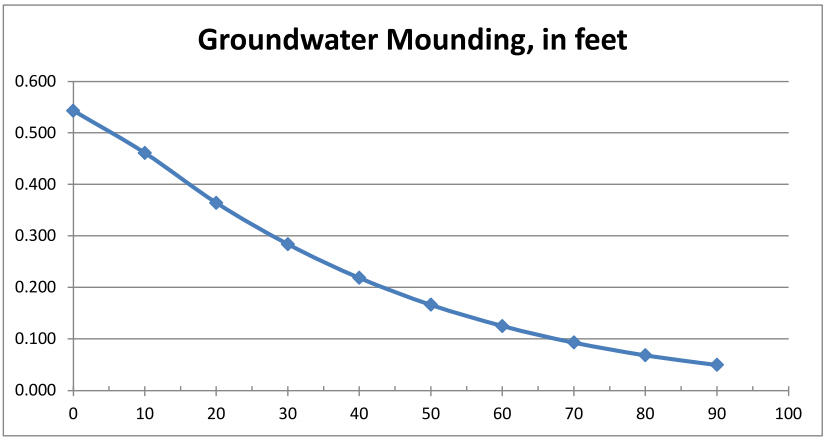
Input Values

0.15	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
5.76	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
4.975	x	1/2 length of basin (x direction, in feet)
52.600	y	1/2 width of basin (y direction, in feet)
69.71	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

10.543	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
0.543	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
0.543	0
0.461	10
0.364	20
0.284	30
0.219	40
0.166	50
0.125	60
0.093	70
0.068	80
0.050	90

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Basin #3
Iteration (a1) - Minimum permeability rate

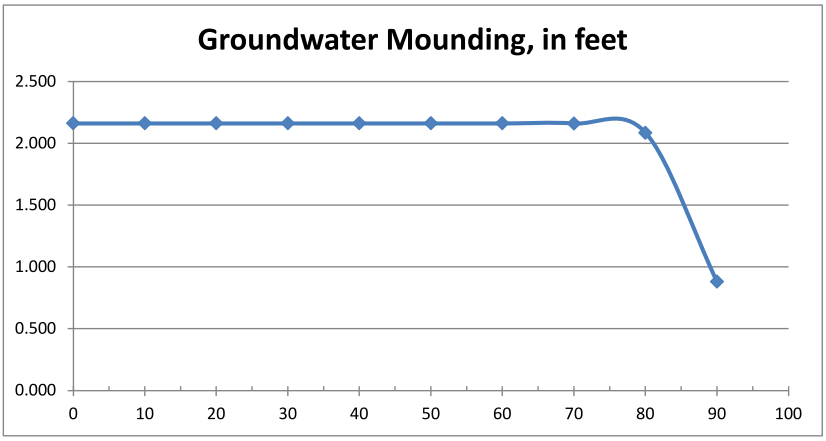
Input Values

1.96	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
1.96	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
89.150	x	1/2 length of basin (x direction, in feet)
14.850	y	1/2 width of basin (y direction, in feet)
2.01	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.161	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.161	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.161	0
2.161	10
2.161	20
2.161	30
2.161	40
2.161	50
2.161	60
2.160	70
2.084	80
0.881	90

Re-Calculate Now



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Basin #3
Iteration (a2) - Minimum permeability rate (x and y switched)

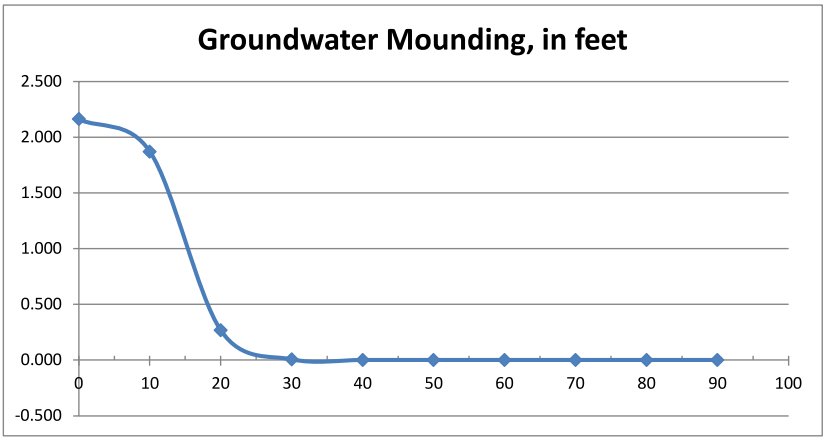
Input Values

1.96	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
1.96	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
14.850	x	1/2 length of basin (x direction, in feet)
89.150	y	1/2 width of basin (y direction, in feet)
2.01	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.161	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.161	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.161	0
1.870	10
0.266	20
0.006	30
0.001	40
0.001	50
0.001	60
0.001	70
0.001	80
0.001	90

Re-Calculate Now



Disclaimer

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Basin #3
Iteration (c1) - Maximum permeability rate

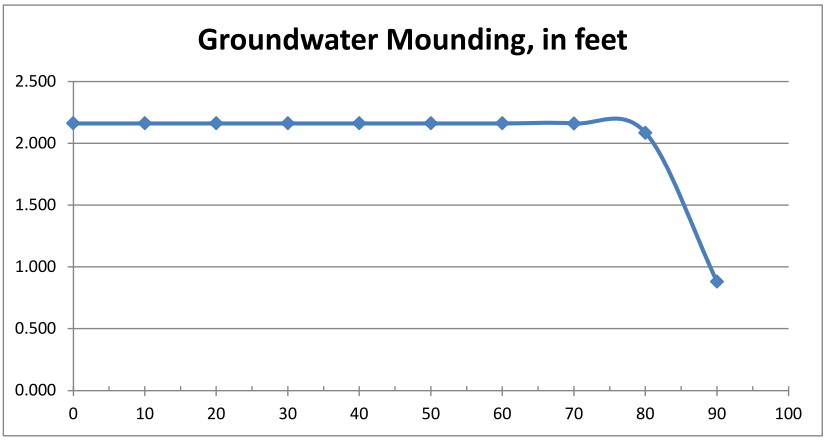
Input Values

6.19	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
6.19	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
89.150	x	1/2 length of basin (x direction, in feet)
14.850	y	1/2 width of basin (y direction, in feet)
0.63	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.161	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.161	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.161	0
2.161	10
2.161	20
2.161	30
2.161	40
2.161	50
2.161	60
2.160	70
2.084	80
0.881	90

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Basin #3
Iteration (c2) - Maximum permeability rate (x and y switched)

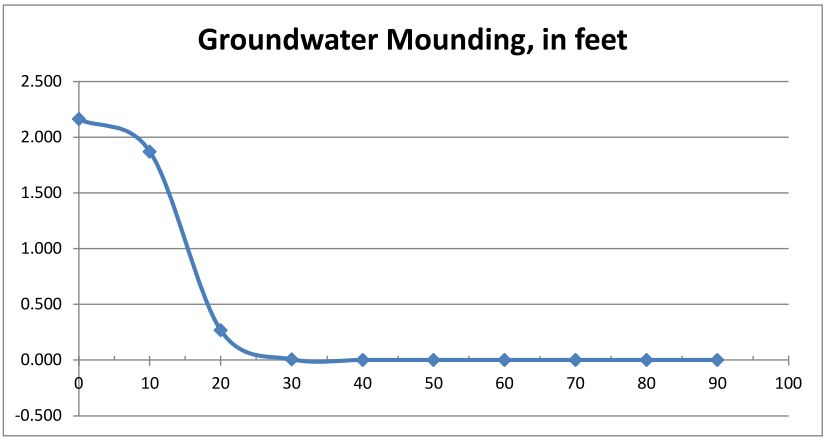
Input Values

6.19	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
6.19	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
14.850	x	1/2 length of basin (x direction, in feet)
89.150	y	1/2 width of basin (y direction, in feet)
0.63	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.161	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.161	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.161	0
1.870	10
0.266	20
0.006	30
0.001	40
0.001	50
0.001	60
0.001	70
0.001	80
0.001	90

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Basin #4
Iteration (a1) - Minimum permeability rate

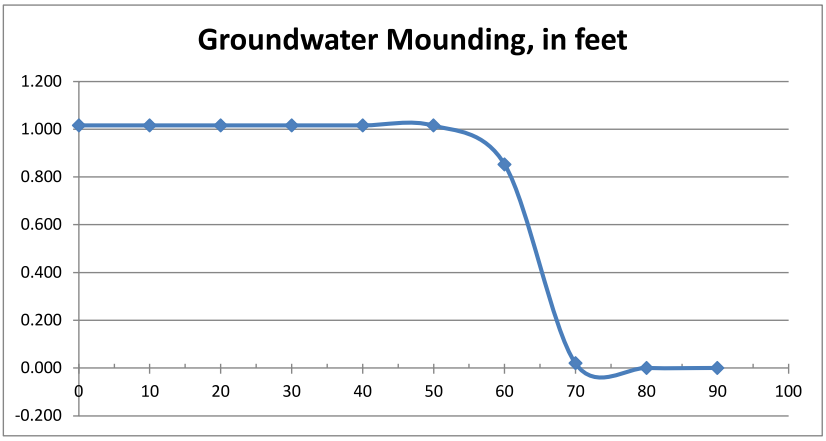
Input Values

5.72	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
5.72	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
62.950	x	1/2 length of basin (x direction, in feet)
22.620	y	1/2 width of basin (y direction, in feet)
0.32	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.016	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.016	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.016	0
1.016	10
1.016	20
1.016	30
1.016	40
1.015	50
0.852	60
0.020	70
0.000	80
0.000	90

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Basin #4
Iteration (a2) - Minimum permeability rate (x and y switched)

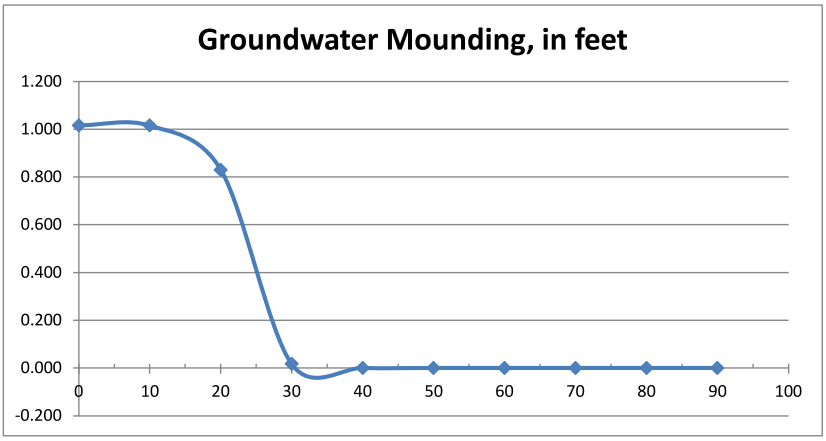
Input Values

5.72	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
5.72	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
22.620	x	1/2 length of basin (x direction, in feet)
62.950	y	1/2 width of basin (y direction, in feet)
0.32	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.016	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.016	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.016	0
1.015	10
0.829	20
0.017	30
0.000	40
0.000	50
0.000	60
0.000	70
0.000	80
0.000	90

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Basin #5
Iteration (a) - Minimum permeability rate

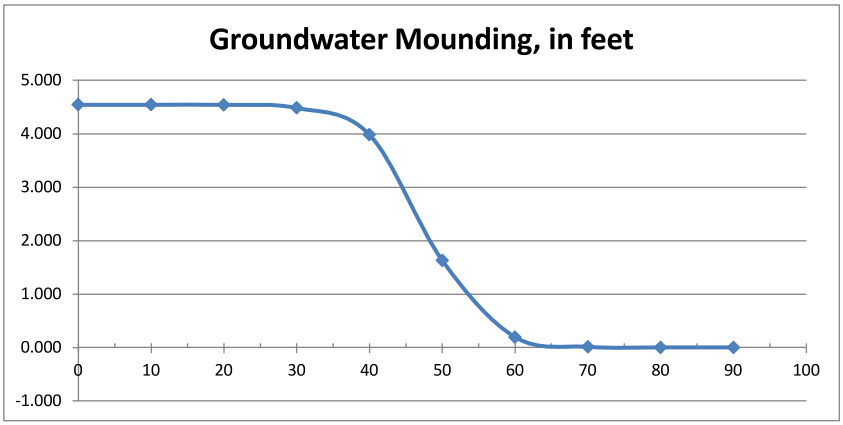
Input Values

5.72	R	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
5.72	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
48.000	x	1/2 length of basin (x direction, in feet)
30.500	y	1/2 width of basin (y direction, in feet)
1.43	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

14.541	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
4.541	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
4.541	0
4.541	10
4.538	20
4.481	30
3.979	40
1.629	50
0.193	60
0.012	70
0.002	80
0.002	90

Re-Calculate Now



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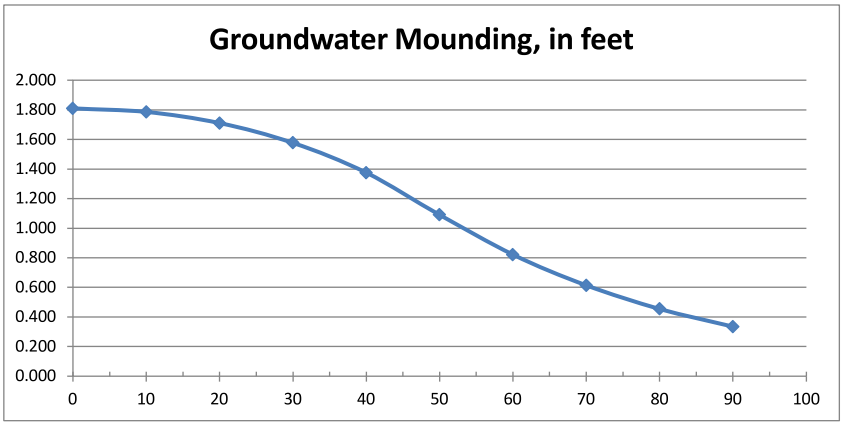
Input Values

0.11	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
5.72	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
48.000	x	1/2 length of basin (x direction, in feet)
30.500	y	1/2 width of basin (y direction, in feet)
71.50	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.810	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.810	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.810	0
1.786	10
1.710	20
1.577	30
1.375	40
1.090	50
0.821	60
0.614	70
0.455	80
0.334	90

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Basin #5
Iteration (b2) - Adjusted minimum permeability rate (x and y switched)

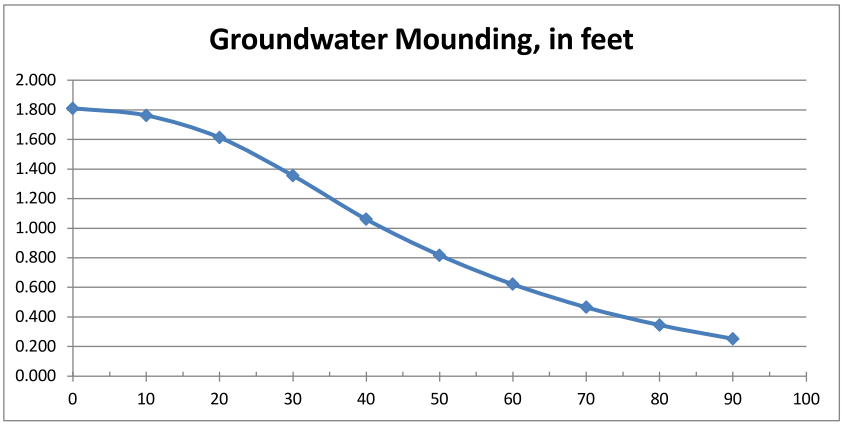
Input Values

0.11	R	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
5.72	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
30.500	x	1/2 length of basin (x direction, in feet)
48.000	y	1/2 width of basin (y direction, in feet)
71.50	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.810	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.810	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.810	0
1.761	10
1.613	20
1.355	30
1.060	40
0.816	50
0.620	60
0.465	70
0.344	80
0.252	90

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Basin #6
Iteration (a) - Minimum permeability rate

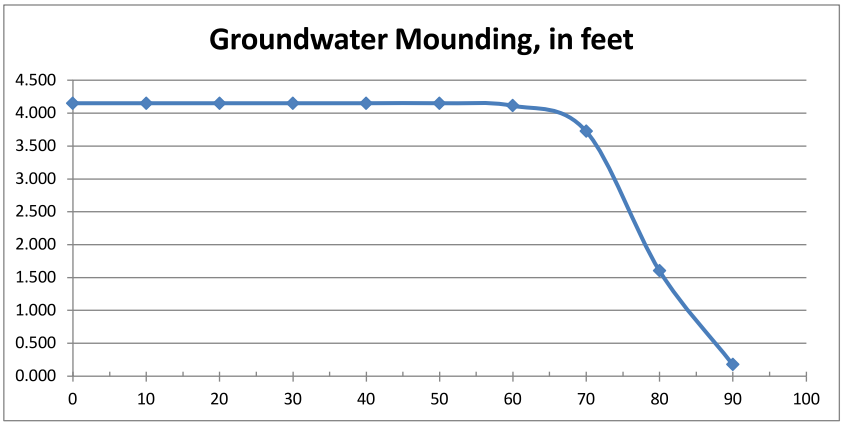
Input Values

3.22	R	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
3.22	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
78.500	x	1/2 length of basin (x direction, in feet)
43.750	y	1/2 width of basin (y direction, in feet)
2.32	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

14.150	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
4.150	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
4.150	0
4.150	10
4.150	20
4.150	30
4.150	40
4.149	50
4.113	60
3.724	70
1.602	80
0.175	90

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Basin #6
Iteration (b1) - Adjusted minimum permeability rate

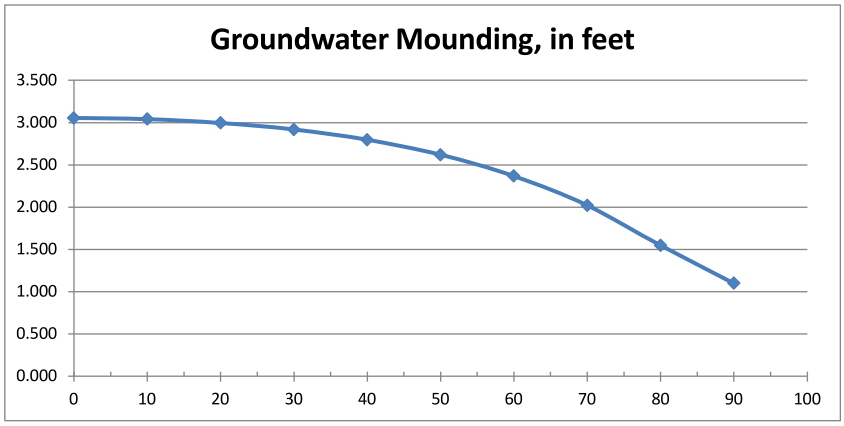
Input Values

0.10	R	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
3.22	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
78.500	x	1/2 length of basin (x direction, in feet)
43.750	y	1/2 width of basin (y direction, in feet)
71.92	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

13.053	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.053	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.053	0
3.039	10
2.995	20
2.917	30
2.795	40
2.618	50
2.367	60
2.019	70
1.546	80
1.097	90

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Basin #6
Iteration (b2) - Adjusted minimum permeability rate (x and y switched)

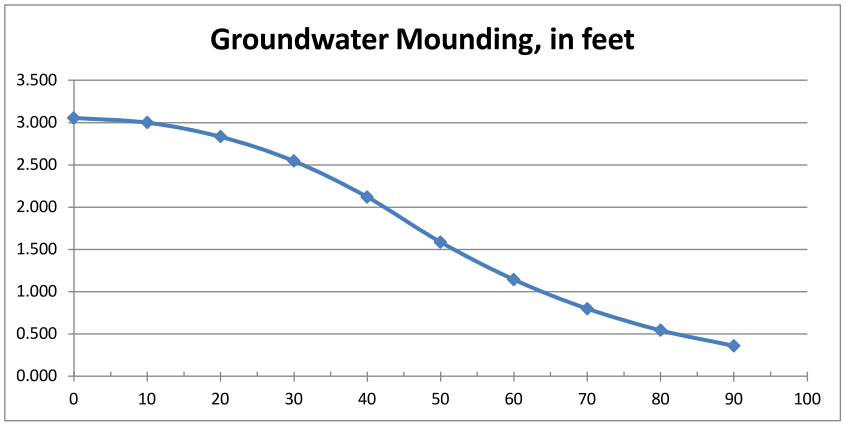
Input Values

0.10	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
3.22	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
43.750	x	1/2 length of basin (x direction, in feet)
78.500	y	1/2 width of basin (y direction, in feet)
71.92	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

13.053	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.053	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.053	0
2.999	10
2.832	20
2.544	30
2.118	40
1.585	50
1.140	60
0.797	70
0.542	80
0.358	90

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Basin #7
Iteration (a) - Minimum permeability rate

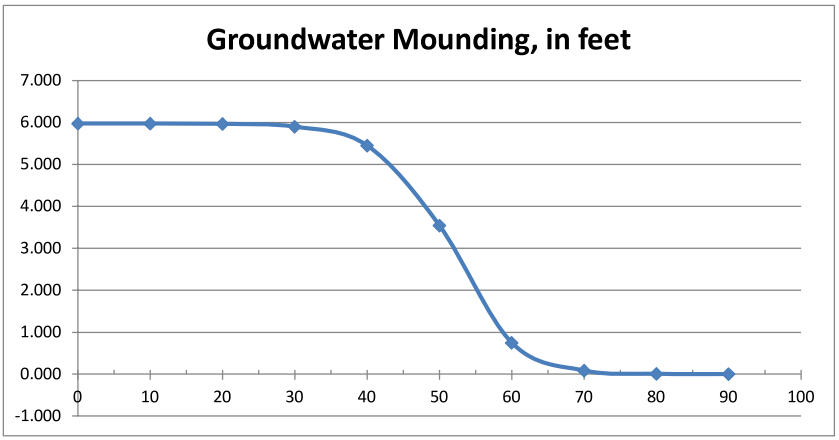
Input Values

3.97	R	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
3.97	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
51.500	x	1/2 length of basin (x direction, in feet)
36.750	y	1/2 width of basin (y direction, in feet)
2.71	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

15.974	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
5.974	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
5.974	0
5.974	10
5.968	20
5.900	30
5.453	40
3.544	50
0.748	60
0.085	70
0.007	80
0.002	90

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Basin #7
Iteration (b1) - Adjusted minimum permeability rate

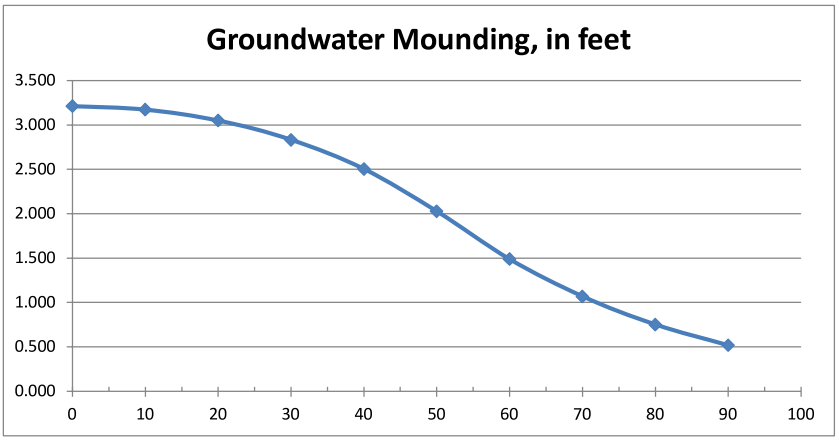
Input Values

0.15	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
3.97	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
51.500	x	1/2 length of basin (x direction, in feet)
36.750	y	1/2 width of basin (y direction, in feet)
70.46	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

13.213	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.213	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.213	0
3.173	10
3.050	20
2.834	30
2.503	40
2.028	50
1.489	60
1.068	70
0.751	80
0.518	90

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Basin #7
Iteration (b2) - Adjusted minimum permeability rate (x and y switched)

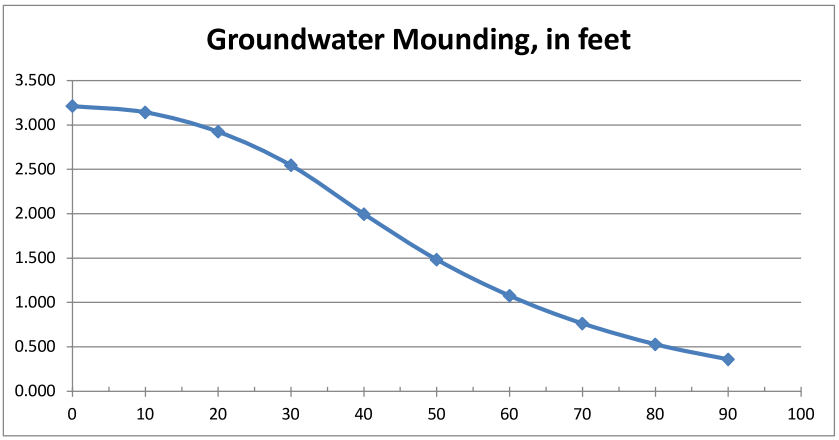
Input Values

0.15	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
3.97	Kh	Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
36.750	x	1/2 length of basin (x direction, in feet)
51.500	y	1/2 width of basin (y direction, in feet)
70.46	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

13.213	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.213	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.213	0
3.142	10
2.925	20
2.545	30
1.996	40
1.483	50
1.076	60
0.763	70
0.528	80
0.358	90

Re-Calculate Now



Disclaimer

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Basin #8
Iteration (a1) - Minimum permeability rate

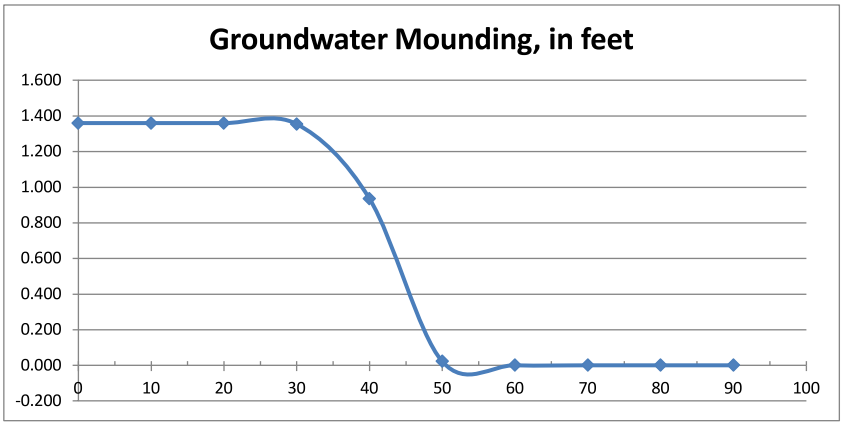
Input Values

3.19	R	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
3.19	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
41.500	x	1/2 length of basin (x direction, in feet)
25.000	y	1/2 width of basin (y direction, in feet)
0.77	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.359	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.359	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.359	0
1.359	10
1.359	20
1.354	30
0.935	40
0.023	50
0.000	60
0.000	70
0.000	80
0.000	90

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Basin #8
Iteration (a2) - Minimum permeability rate
(x and y switched)

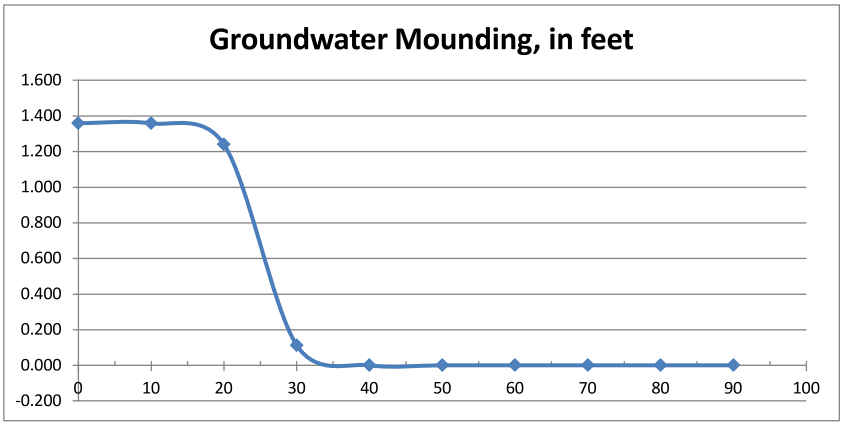
Input Values

3.19	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
3.19	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the coastal plain; Kh=R outside the coastal plain
25.000	x	1/2 length of basin (x direction, in feet)
41.500	y	1/2 width of basin (y direction, in feet)
0.77	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.359	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.359	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.359	0
1.358	10
1.240	20
0.113	30
0.001	40
0.000	50
0.000	60
0.000	70
0.000	80
0.000	90

Re-Calculate Now

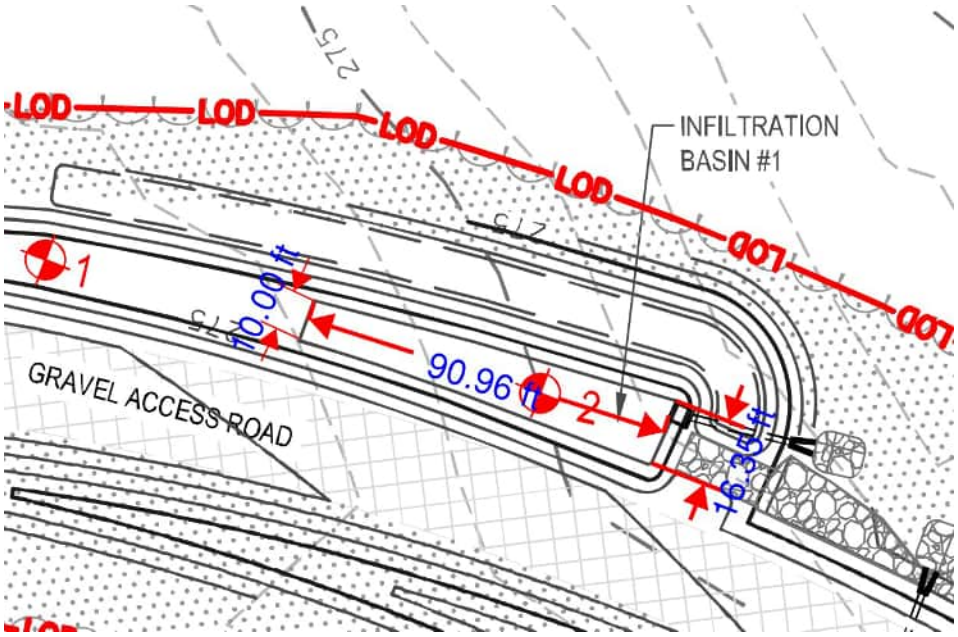


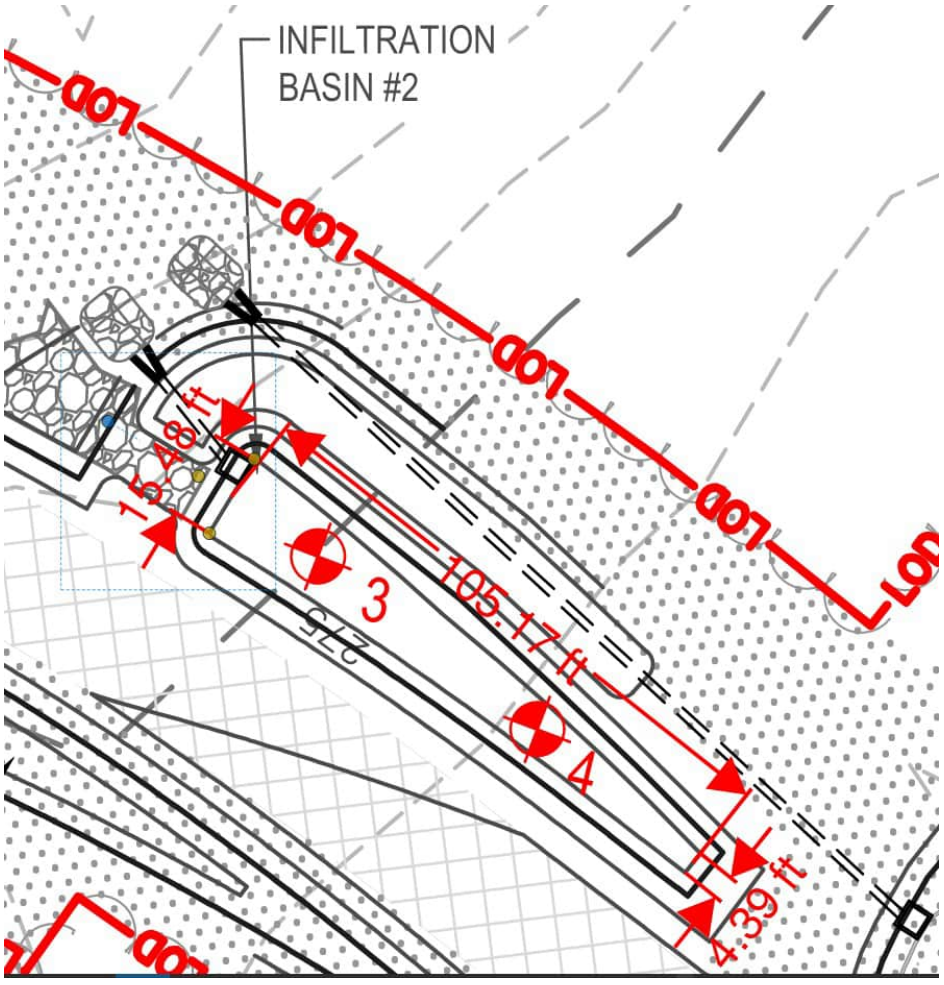
Disclaimer

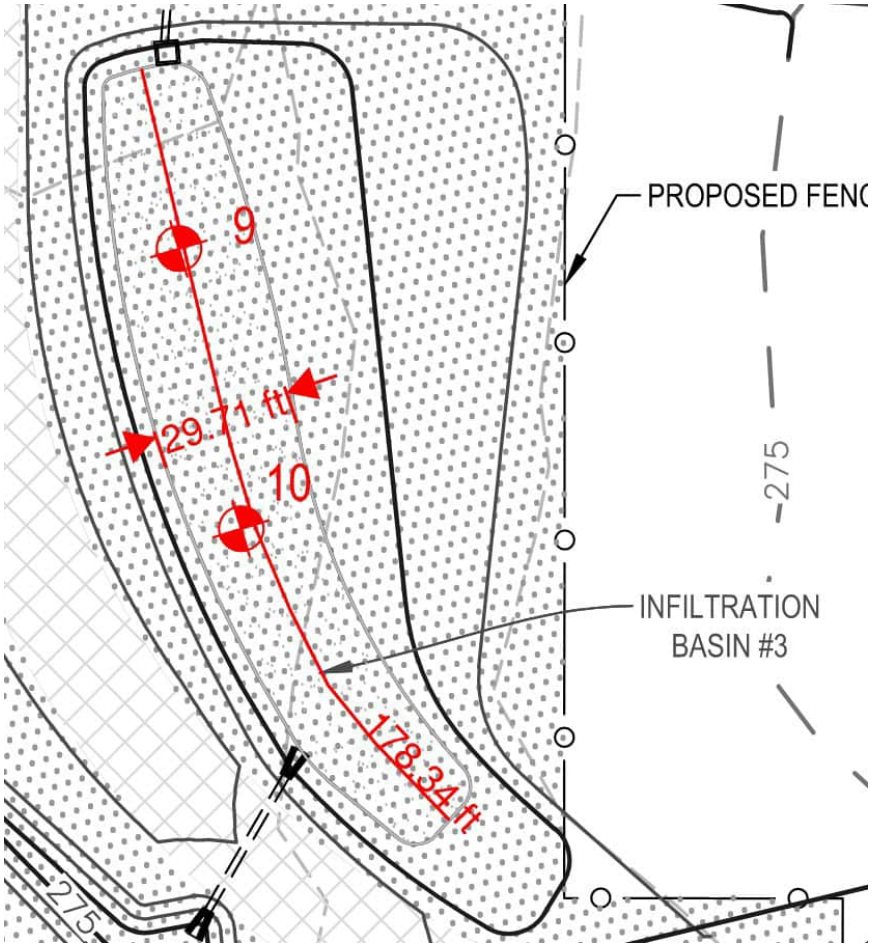
This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

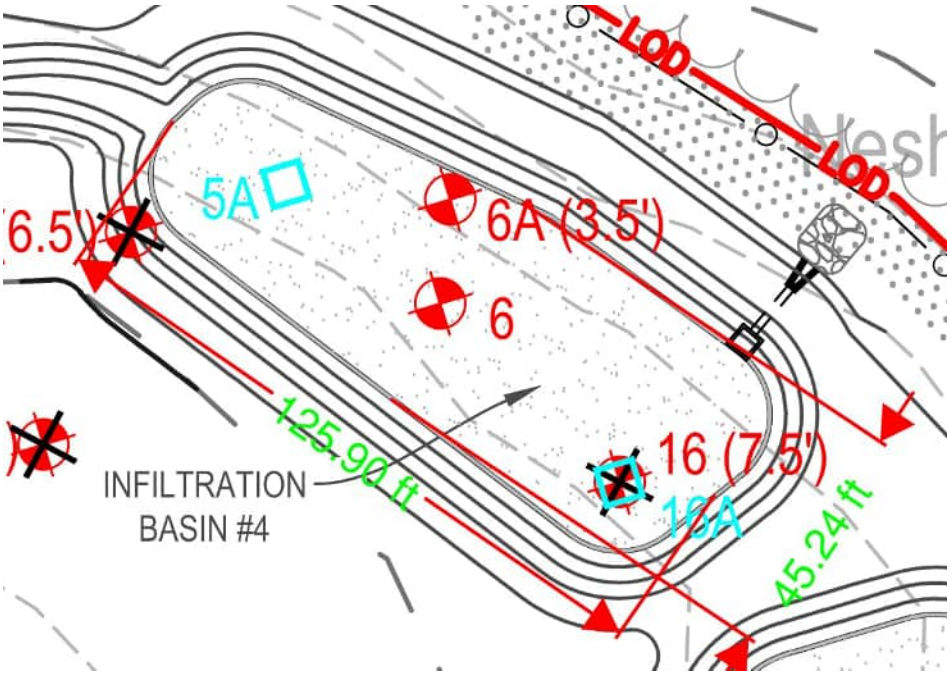
AECOM

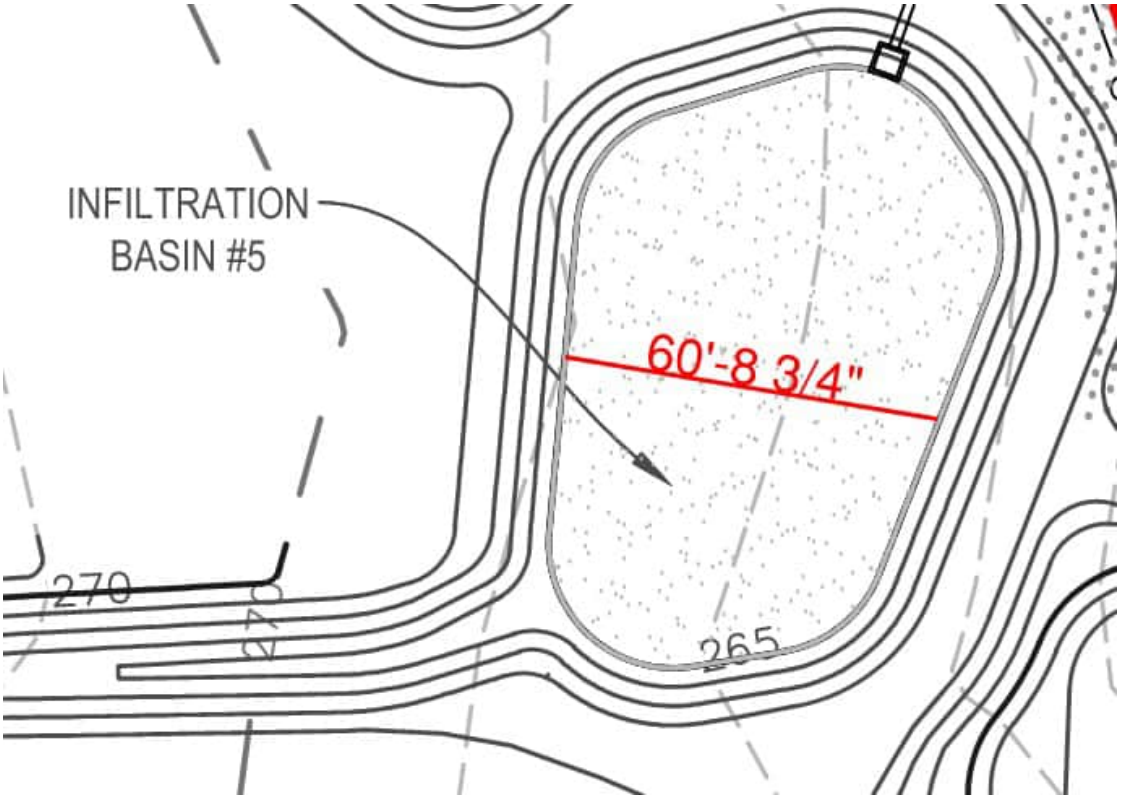
Attachment A – Basin Dimension

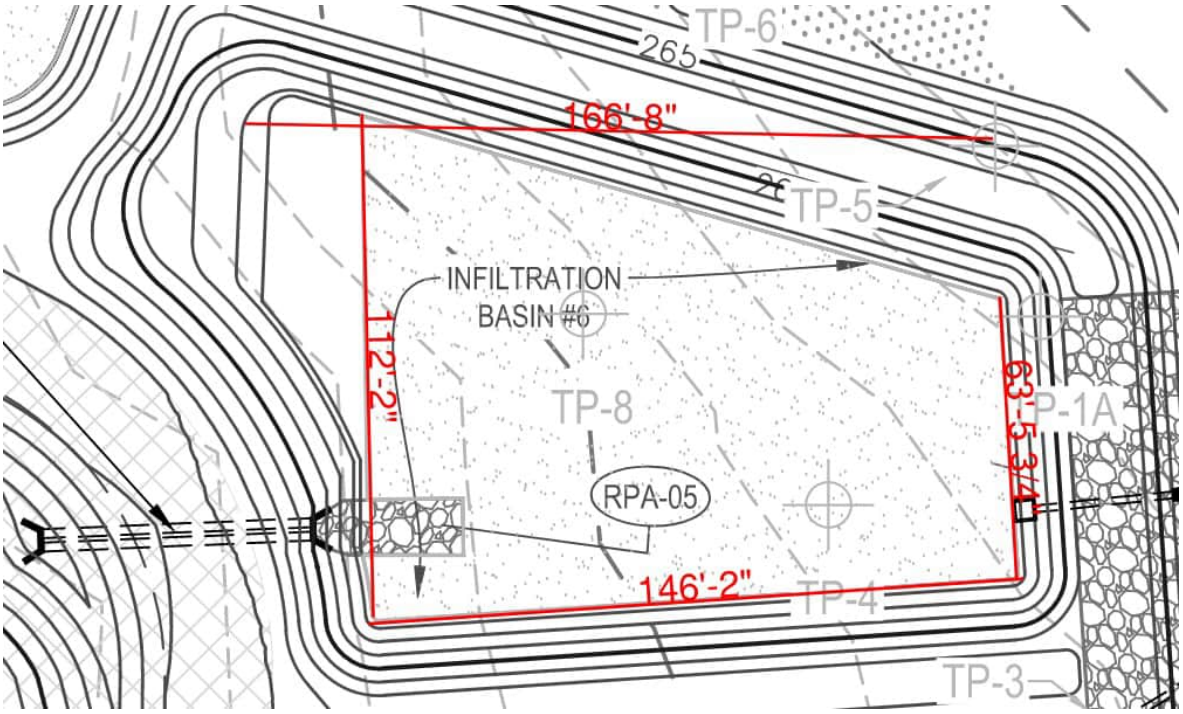

LOD
INFILTRATION
BASIN #1
GRAVEL ACCESS ROAD
1
2
10.00 ft
90.96 ft
16.35 ft

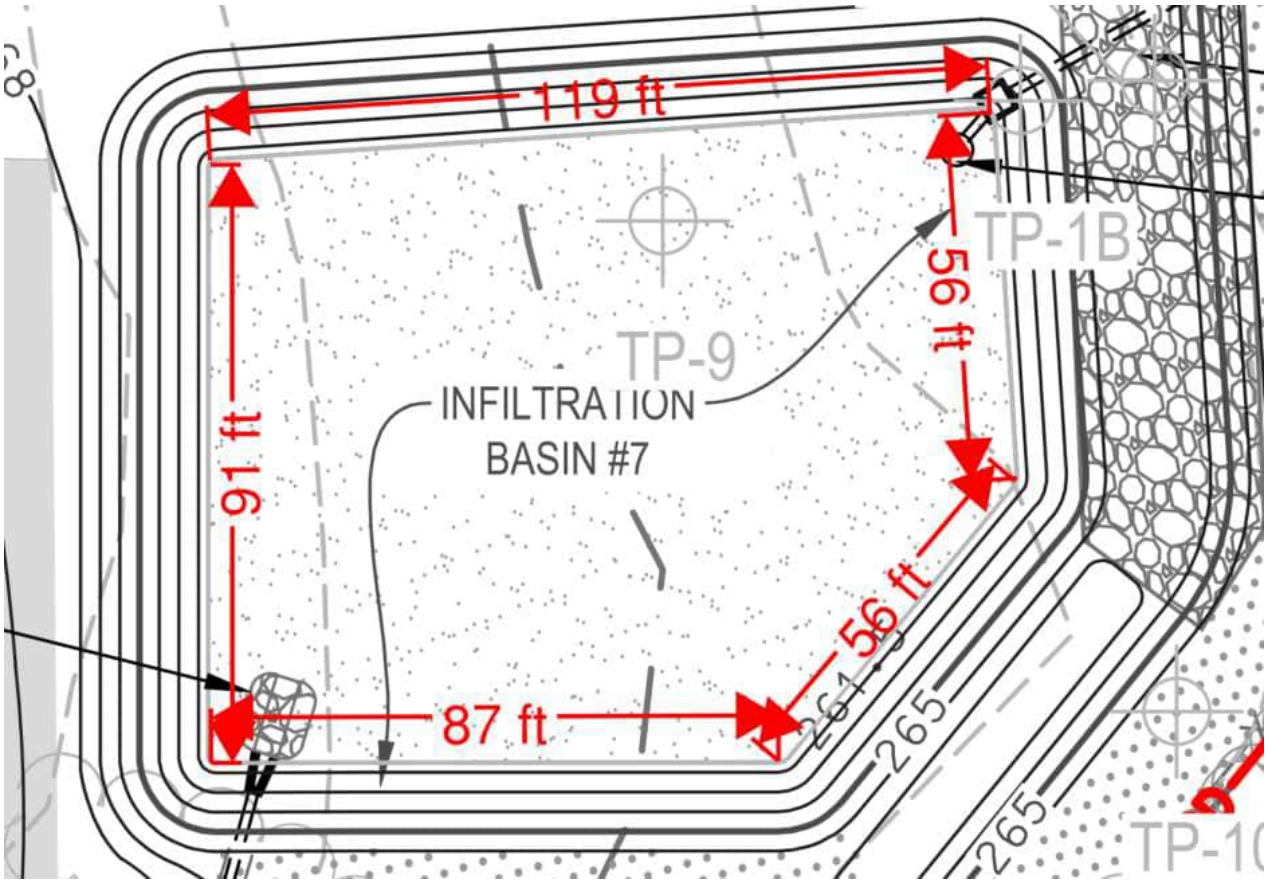

LOD
INFILTRATION
BASIN #2
1
3
4
4.89 ft
105.17 ft
4.39 ft

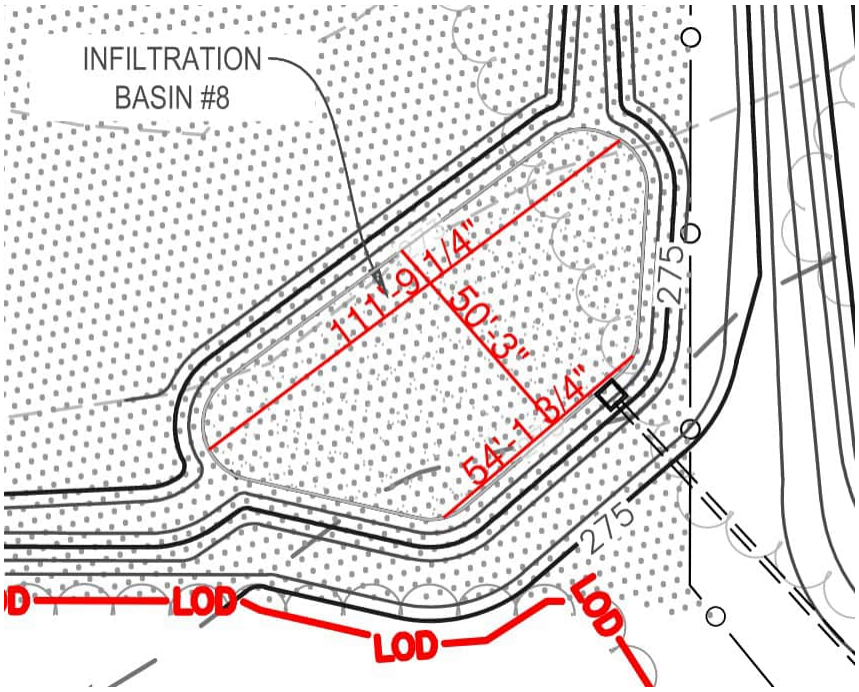

PROPOSED FENC
9
29.71 ft
10
178.34 ft
INFILTRATION
BASIN #3
275


LOD
LOD
5A
6A (3.5')
6
125.90 ft
INFILTRATION
BASIN #4
16 (7.5')
16A
45.24 ft


INFILTRATION
BASIN #5
60'-8 3/4"
270
265

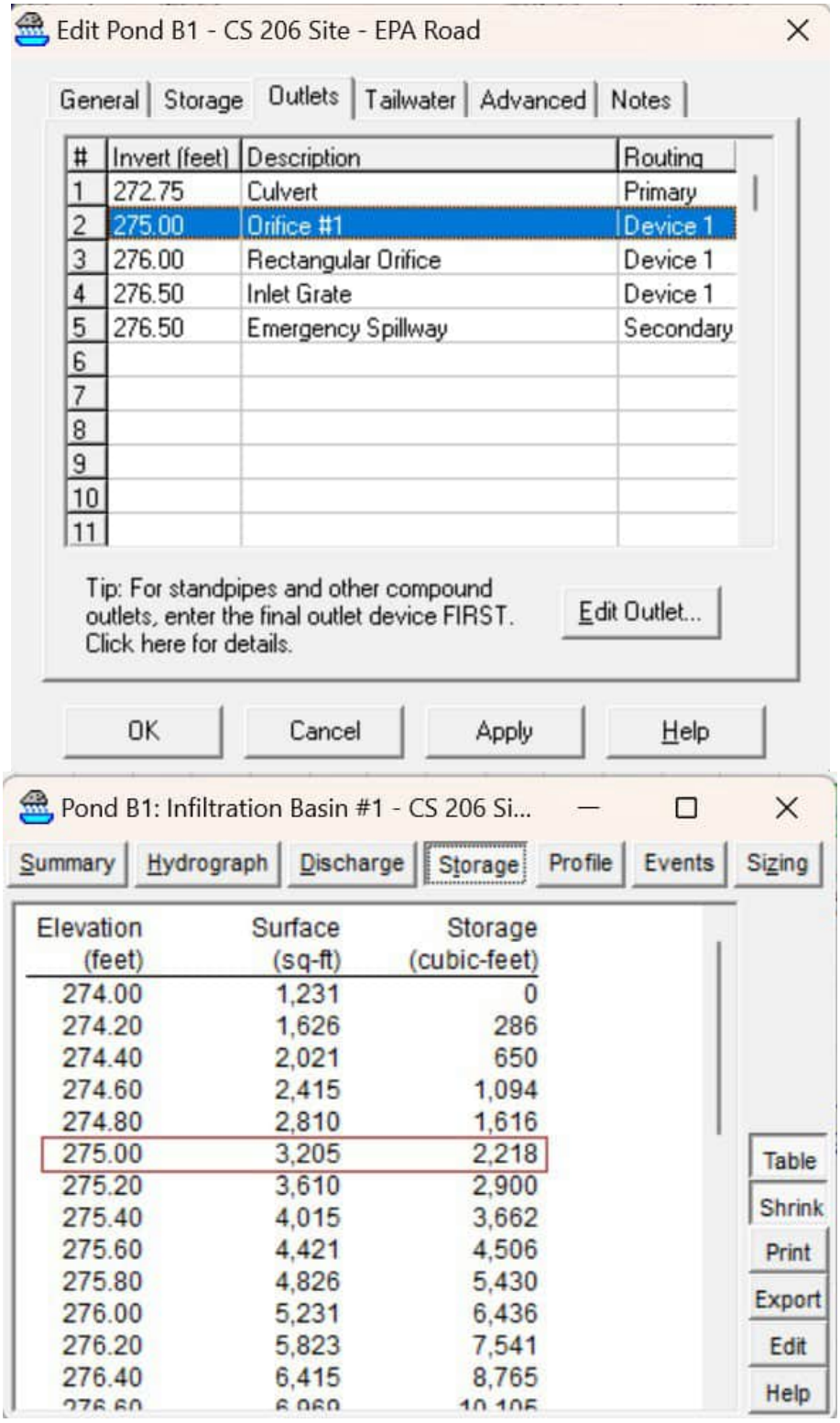

TP-6
265
166'-8"
TP-5
INFILTRATION
BASIN #6
112'-2"
TP-8
RPA-05
63'-5 3/4"
P-1A
146'-2"
TP-4
TP-3

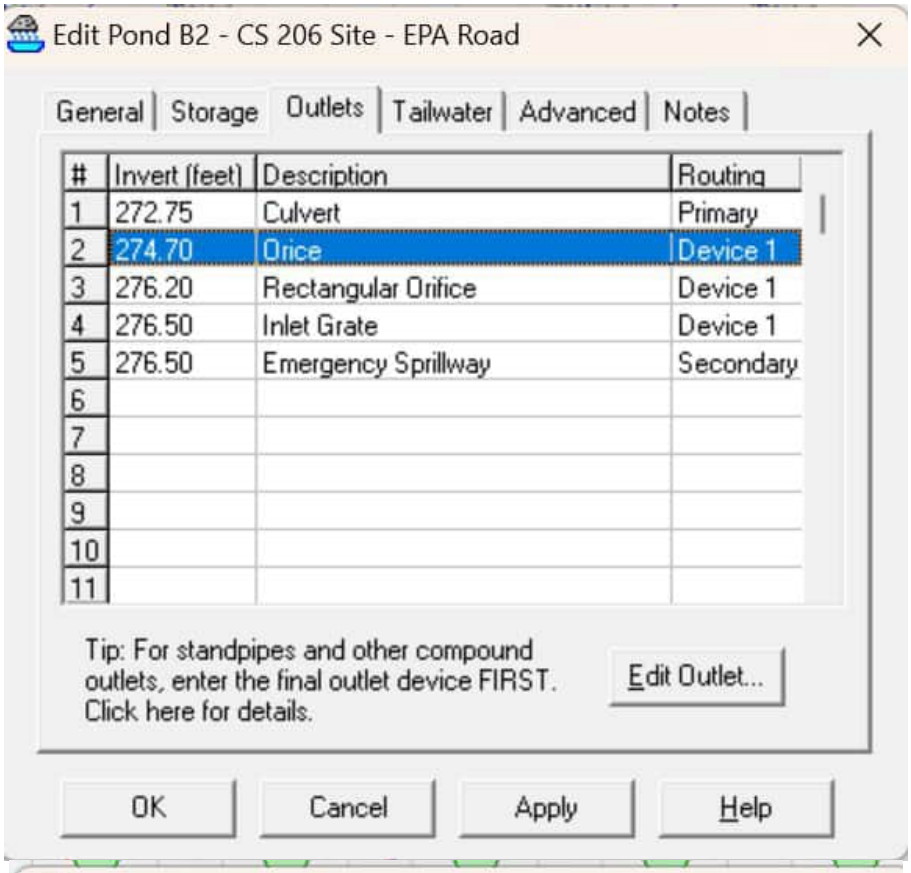

119 ft
91 ft
56 ft
56 ft
87 ft
TP-1B
TP-9
INFILTRATION
BASIN #7
265
265

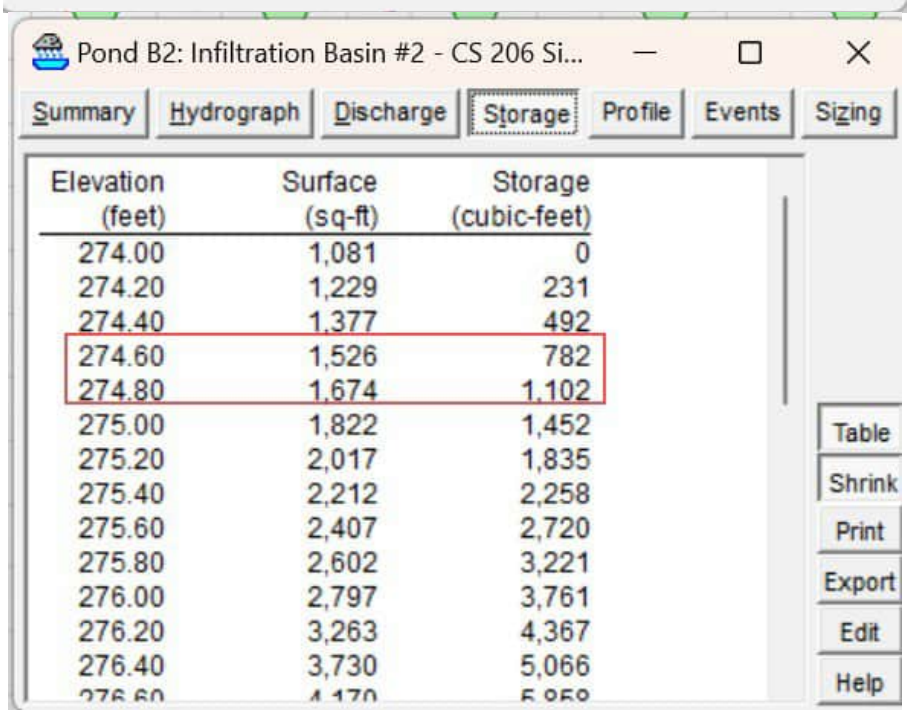

INFILTRATION
BASIN #8
111'-9 1/4"
50'-3"
54'-1 3/4"
275
275
LOD
LOD
LOD

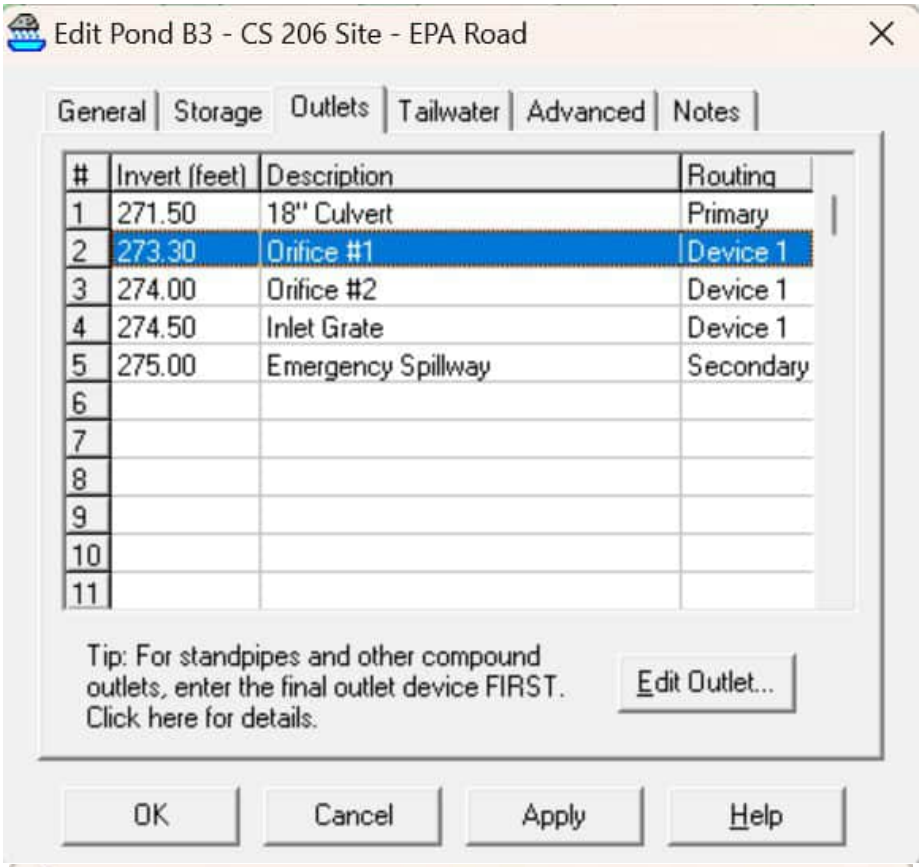
AECOM

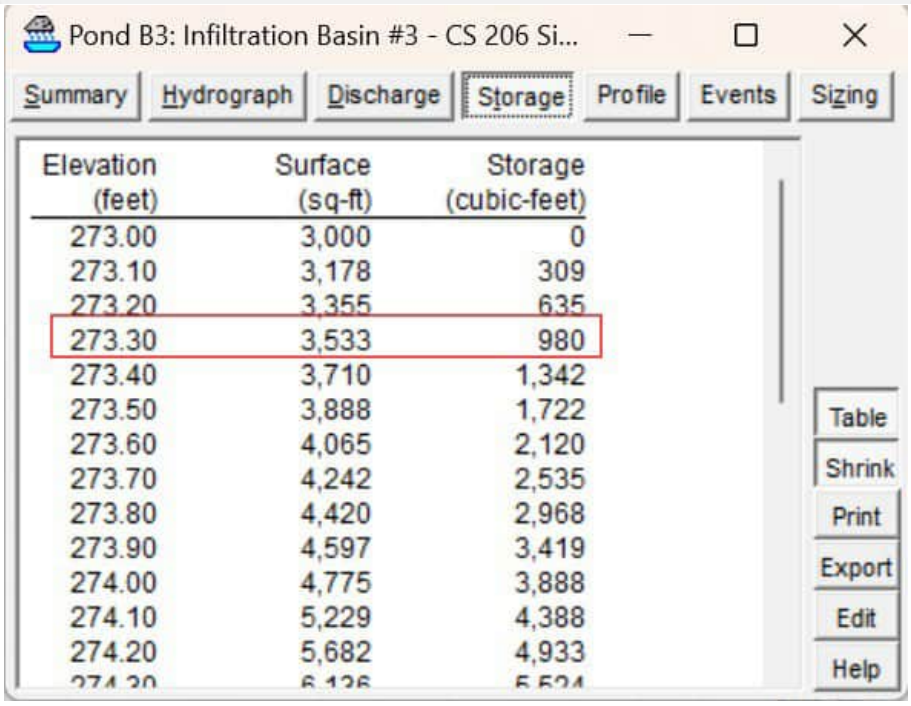
Attachment B – Determination of Volume to Be Infiltrated

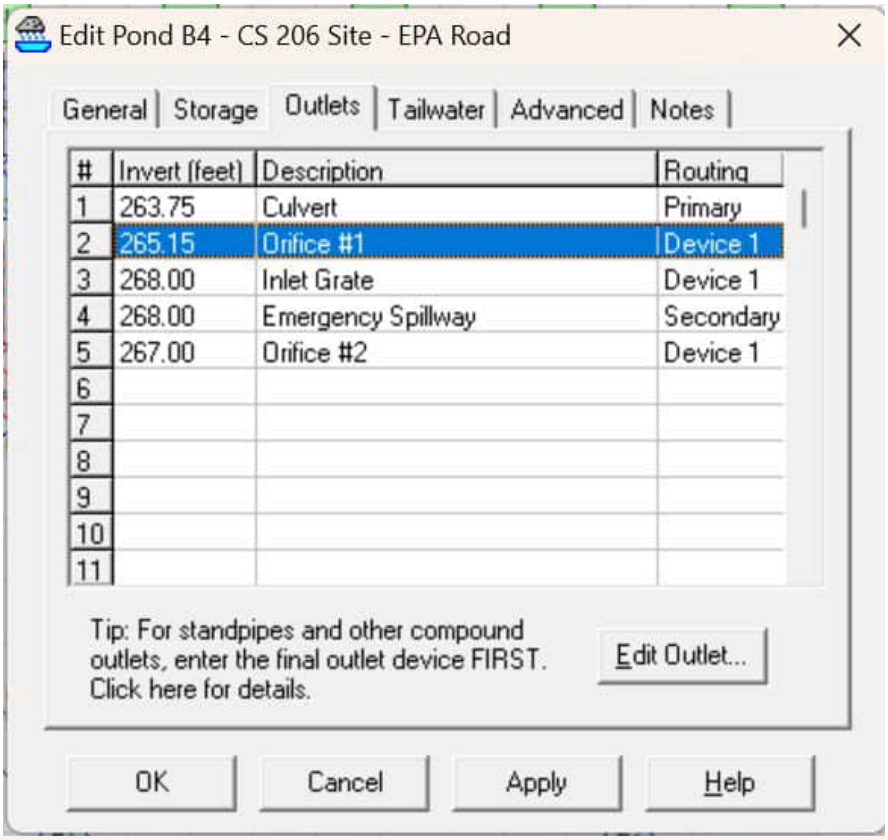

Edit Pond B1 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 272.75 | Culvert | Primary
2 | 275.00 | Orifice #1 | Device 1
3 | 276.00 | Rectangular Orifice | Device 1
4 | 276.50 | Inlet Grate | Device 1
5 | 276.50 | Emergency Spillway | Secondary
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help
Pond B1: Infiltration Basin #1 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet)
274.00 | 1,231 | 0
274.20 | 1,626 | 286
274.40 | 2,021 | 650
274.60 | 2,415 | 1,094
274.80 | 2,810 | 1,616
275.00 | 3,205 | 2,218
275.20 | 3,610 | 2,900
275.40 | 4,015 | 3,662
275.60 | 4,421 | 4,506
275.80 | 4,826 | 5,430
276.00 | 5,231 | 6,436
276.20 | 5,823 | 7,541
276.40 | 6,415 | 8,765
Table
Shrink
Print
Export
Edit
Help

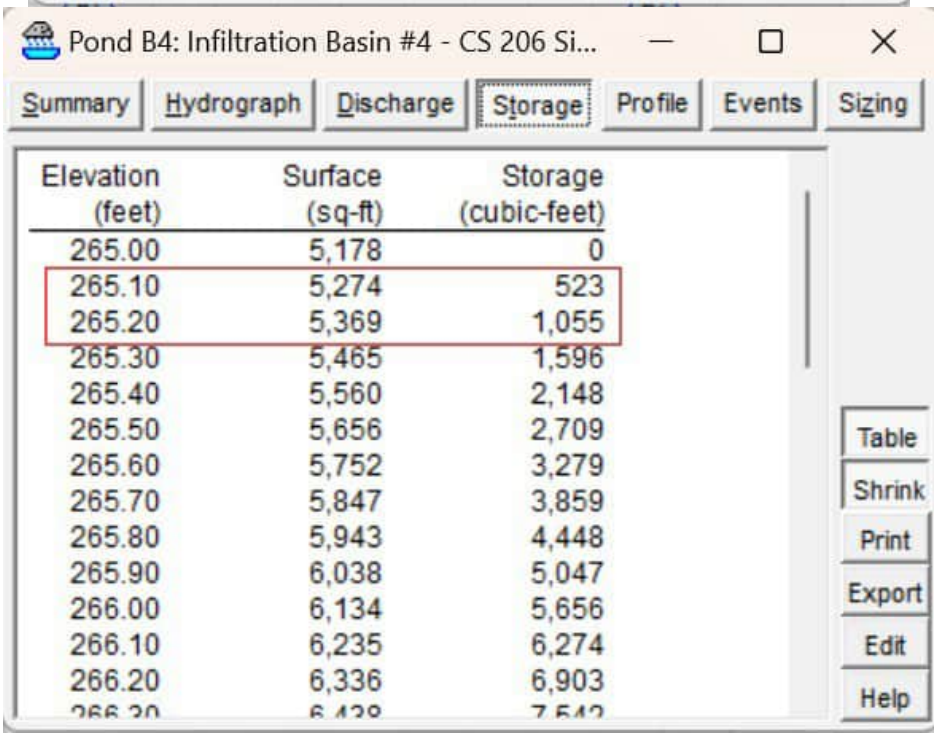

Edit Pond B2 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 272.75 | Culvert | Primary
2 | 274.70 | Orice | Device 1
3 | 276.20 | Rectangular Orifice | Device 1
4 | 276.50 | Inlet Grate | Device 1
5 | 276.50 | Emergency Sprillway | Secondary
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help

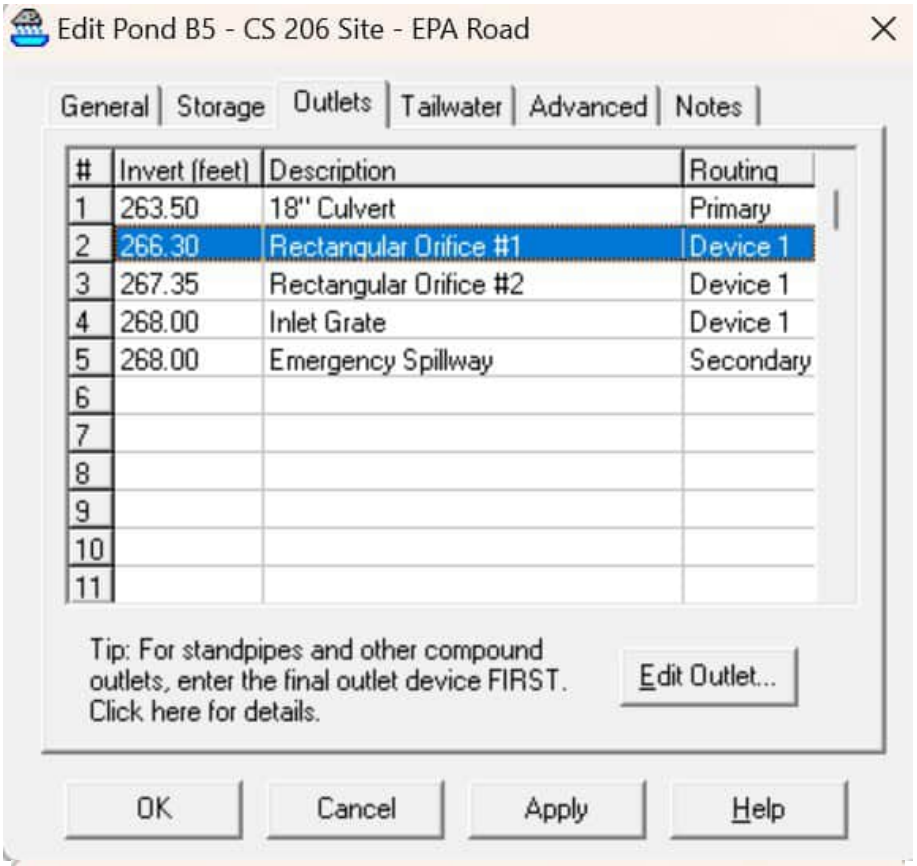

Pond B2: Infiltration Basin #2 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet)
274.00 | 1,081 | 0
274.20 | 1,229 | 231
274.40 | 1,377 | 492
274.60 | 1,526 | 782
274.80 | 1,674 | 1,102
275.00 | 1,822 | 1,452
275.20 | 2,017 | 1,835
275.40 | 2,212 | 2,258
275.60 | 2,407 | 2,720
275.80 | 2,602 | 3,221
276.00 | 2,797 | 3,761
276.20 | 3,263 | 4,367
276.40 | 3,730 | 5,066
Table
Shrink
Print
Export
Edit
Help

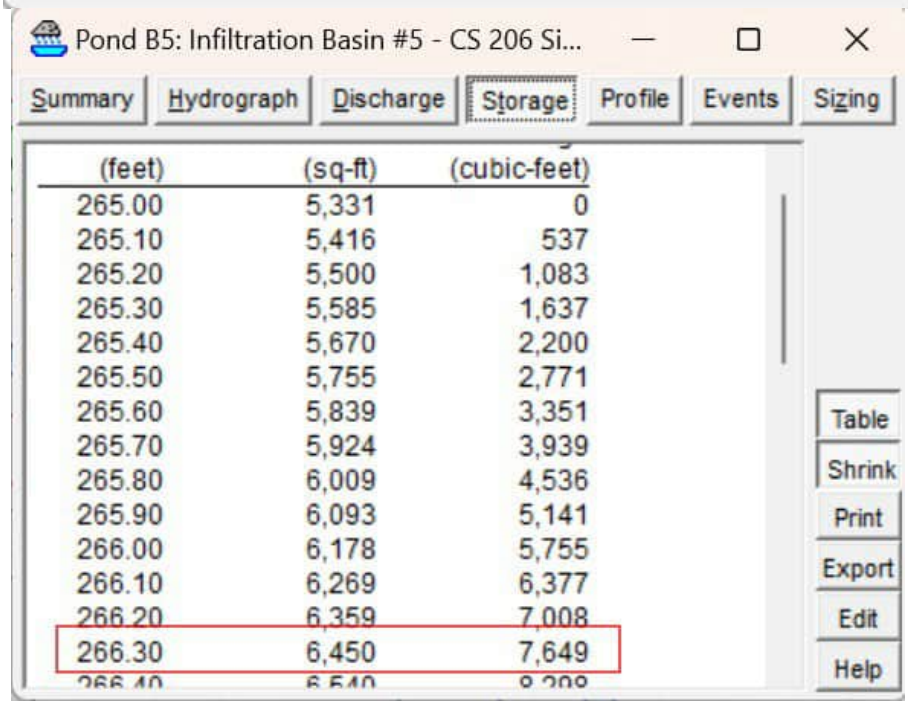

Edit Pond B3 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 271.50 | 18" Culvert | Primary
2 | 273.30 | Orifice #1 | Device 1
3 | 274.00 | Orifice #2 | Device 1
4 | 274.50 | Inlet Grate | Device 1
5 | 275.00 | Emergency Spillway | Secondary
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help

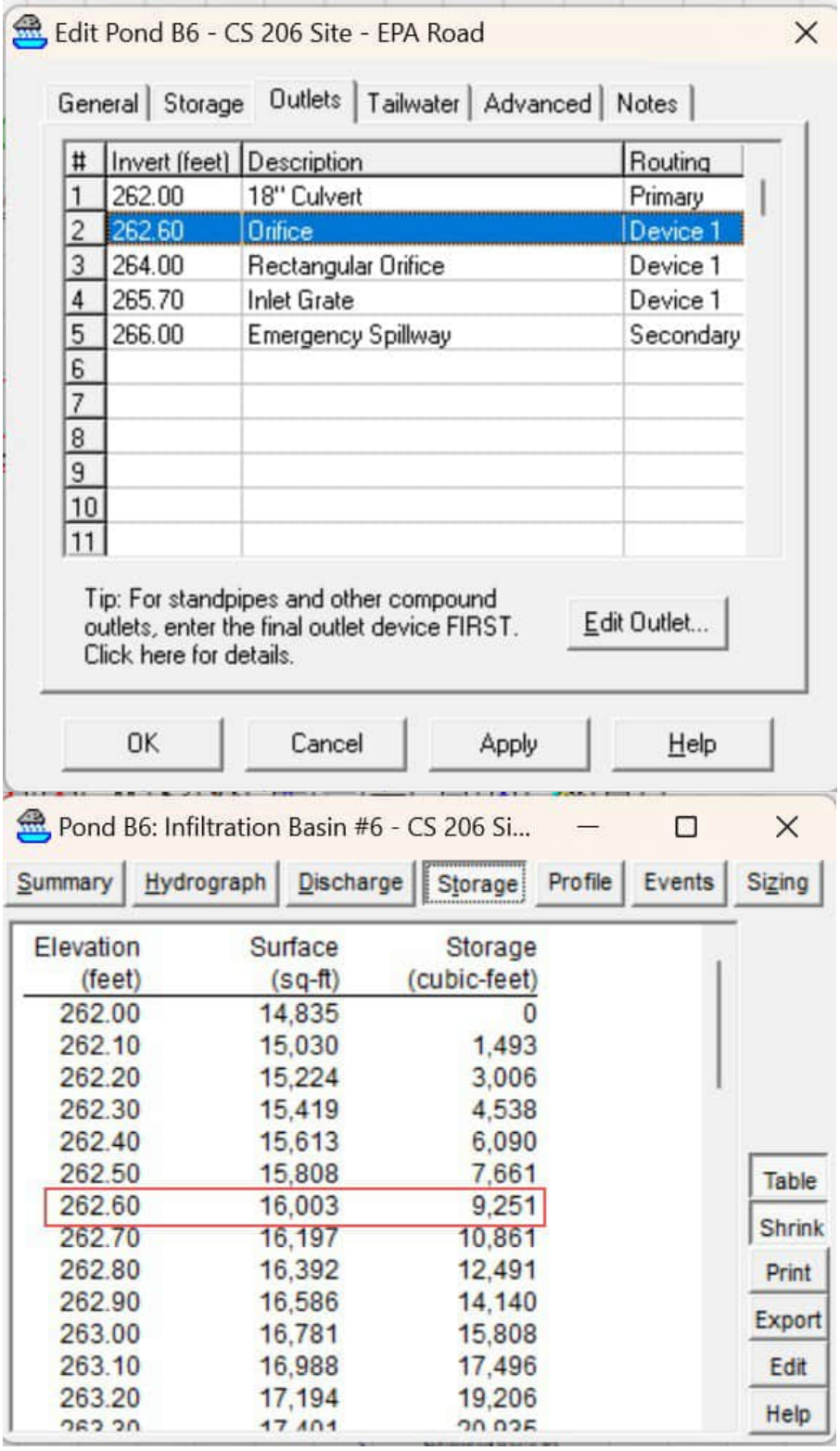

Pond B3: Infiltration Basin #3 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet)
273.00 | 3,000 | 0
273.10 | 3,178 | 309
273.20 | 3,355 | 635
273.30 | 3,533 | 980
273.40 | 3,710 | 1,342
273.50 | 3,888 | 1,722
273.60 | 4,065 | 2,120
273.70 | 4,242 | 2,535
273.80 | 4,420 | 2,968
273.90 | 4,597 | 3,419
274.00 | 4,775 | 3,888
274.10 | 5,229 | 4,388
274.20 | 5,682 | 4,933
Table
Shrink
Print
Export
Edit
Help

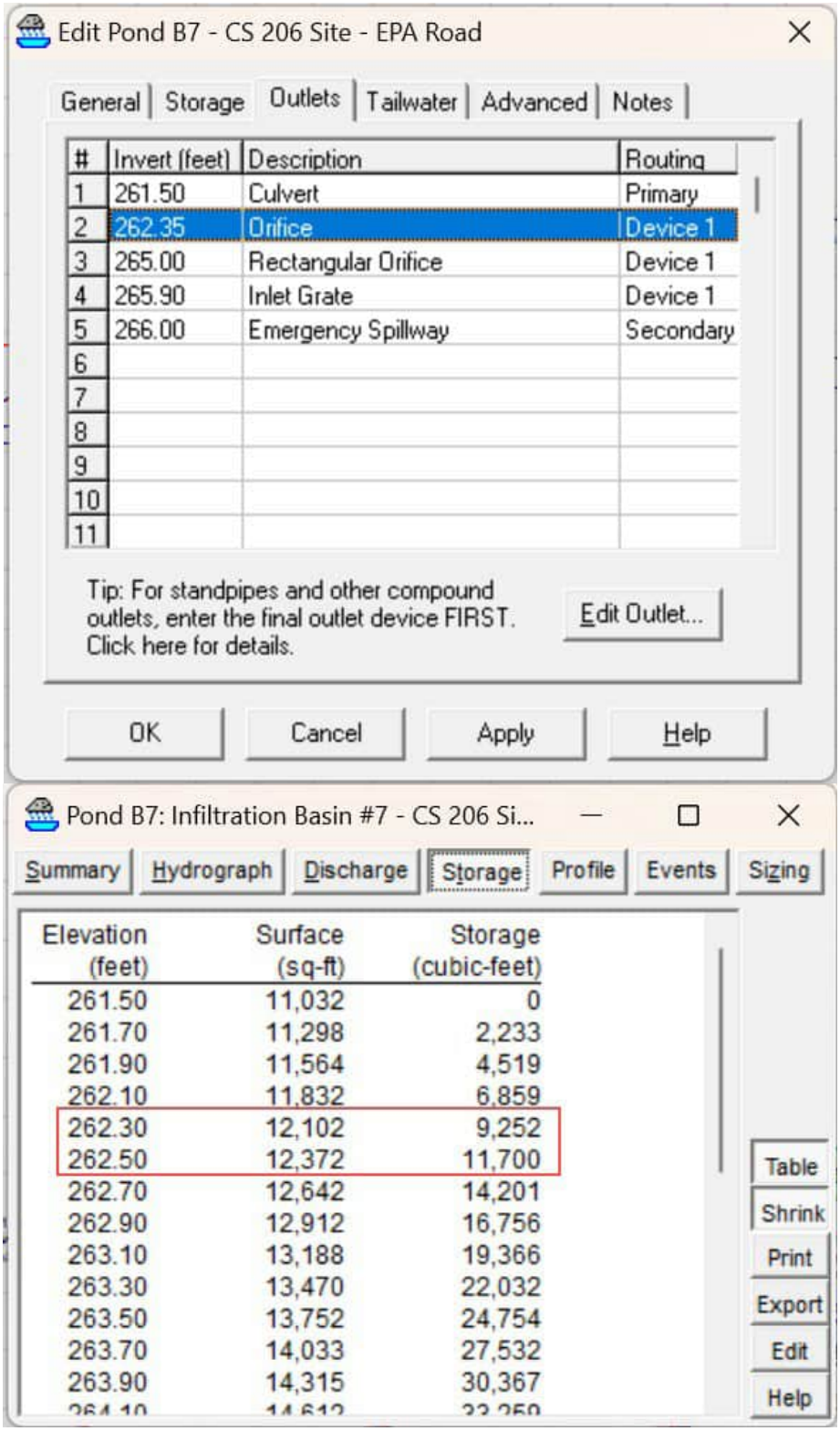

Edit Pond B4 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 263.75 | Culvert | Primary
2 | 265.15 | Orifice #1 | Device 1
3 | 268.00 | Inlet Grate | Device 1
4 | 268.00 | Emergency Spillway | Secondary
5 | 267.00 | Orifice #2 | Device 1
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help


Pond B4: Infiltration Basin #4 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet)
265.00 | 5,178 | 0
265.10 | 5,274 | 523
265.20 | 5,369 | 1,055
265.30 | 5,465 | 1,596
265.40 | 5,560 | 2,148
265.50 | 5,656 | 2,709
265.60 | 5,752 | 3,279
265.70 | 5,847 | 3,859
265.80 | 5,943 | 4,448
265.90 | 6,038 | 5,047
266.00 | 6,134 | 5,656
266.10 | 6,235 | 6,274
266.20 | 6,336 | 6,903
Table
Shrink
Print
Export
Edit
Help

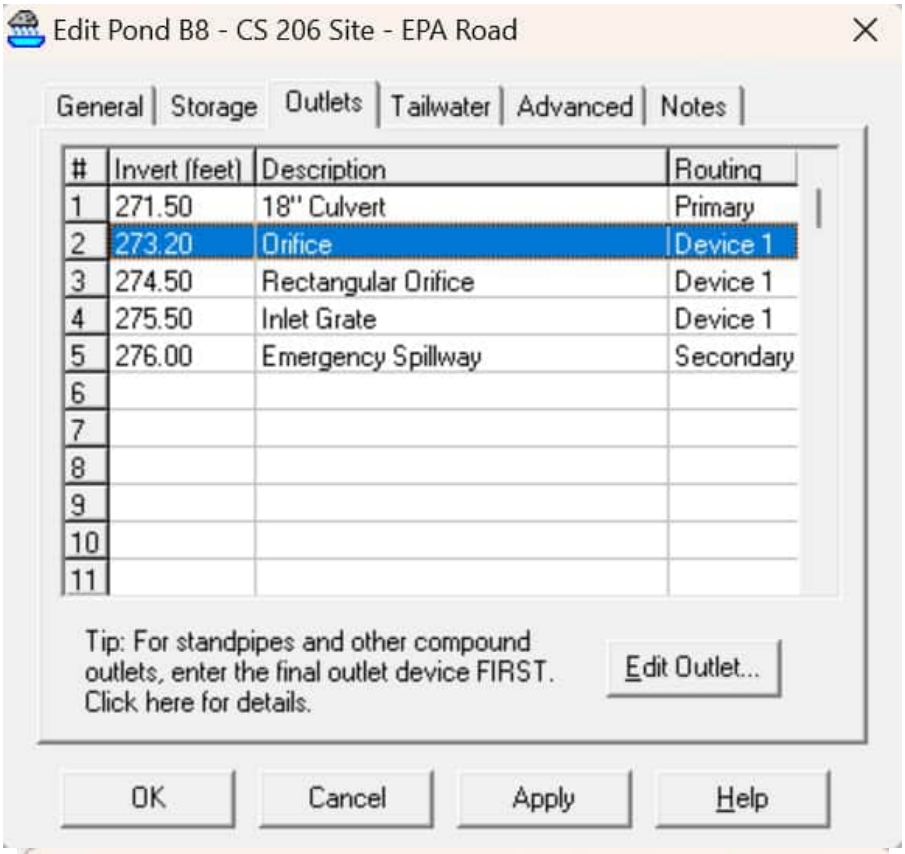

Edit Pond B5 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 263.50 | 18" Culvert | Primary
2 | 266.30 | Rectangular Orifice #1 | Device 1
3 | 267.35 | Rectangular Orifice #2 | Device 1
4 | 268.00 | Inlet Grate | Device 1
5 | 268.00 | Emergency Spillway | Secondary
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help

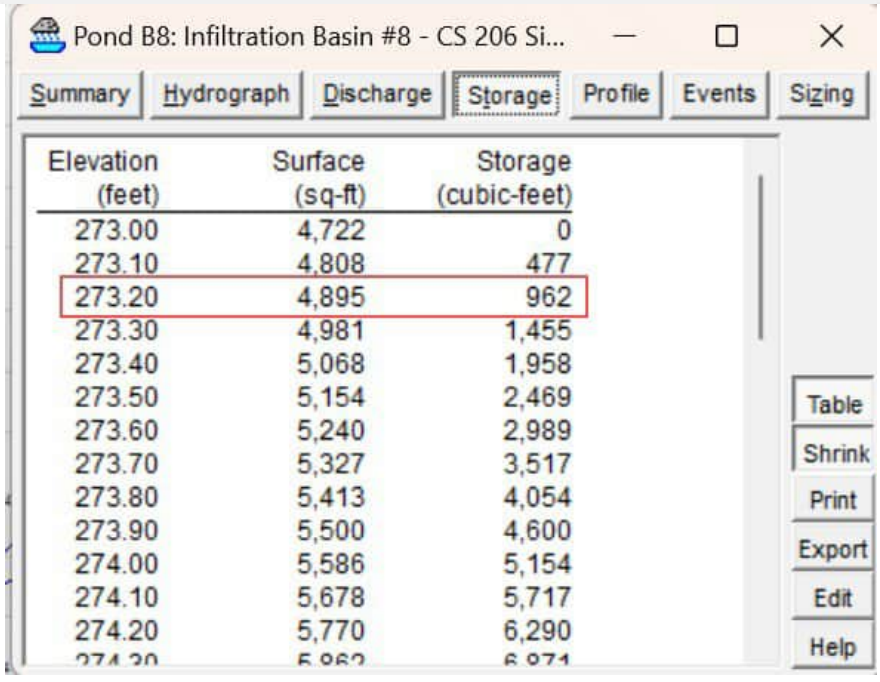

Pond B5: Infiltration Basin #5 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
(feet) | (sq-ft) | (cubic-feet)
265.00 | 5,331 | 0
265.10 | 5,416 | 537
265.20 | 5,500 | 1,083
265.30 | 5,585 | 1,637
265.40 | 5,670 | 2,200
265.50 | 5,755 | 2,771
265.60 | 5,839 | 3,351
265.70 | 5,924 | 3,939
265.80 | 6,009 | 4,536
265.90 | 6,093 | 5,141
266.00 | 6,178 | 5,755
266.10 | 6,269 | 6,377
266.20 | 6,359 | 7,008
266.30 | 6,450 | 7,649
Table
Shrink
Print
Export
Edit
Help


Edit Pond B6 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 262.00 | 18" Culvert | Primary
2 | 262.60 | Orifice | Device 1
3 | 264.00 | Rectangular Orifice | Device 1
4 | 265.70 | Inlet Grate | Device 1
5 | 266.00 | Emergency Spillway | Secondary
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help
Pond B6: Infiltration Basin #6 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet)
262.00 | 14,835 | 0
262.10 | 15,030 | 1,493
262.20 | 15,224 | 3,006
262.30 | 15,419 | 4,538
262.40 | 15,613 | 6,090
262.50 | 15,808 | 7,661
262.60 | 16,003 | 9,251
262.70 | 16,197 | 10,861
262.80 | 16,392 | 12,491
262.90 | 16,586 | 14,140
263.00 | 16,781 | 15,808
263.10 | 16,988 | 17,496
263.20 | 17,194 | 19,206
Table
Shrink
Print
Export
Edit
Help


Edit Pond B7 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 261.50 | Culvert | Primary
2 | 262.35 | Orifice | Device 1
3 | 265.00 | Rectangular Orifice | Device 1
4 | 265.90 | Inlet Grate | Device 1
5 | 266.00 | Emergency Spillway | Secondary
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help
Pond B7: Infiltration Basin #7 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet)
261.50 | 11,032 | 0
261.70 | 11,298 | 2,233
261.90 | 11,564 | 4,519
262.10 | 11,832 | 6,859
262.30 | 12,102 | 9,252
262.50 | 12,372 | 11,700
262.70 | 12,642 | 14,201
262.90 | 12,912 | 16,756
263.10 | 13,188 | 19,366
263.30 | 13,470 | 22,032
263.50 | 13,752 | 24,754
263.70 | 14,033 | 27,532
263.90 | 14,315 | 30,367
Table
Shrink
Print
Export
Edit
Help

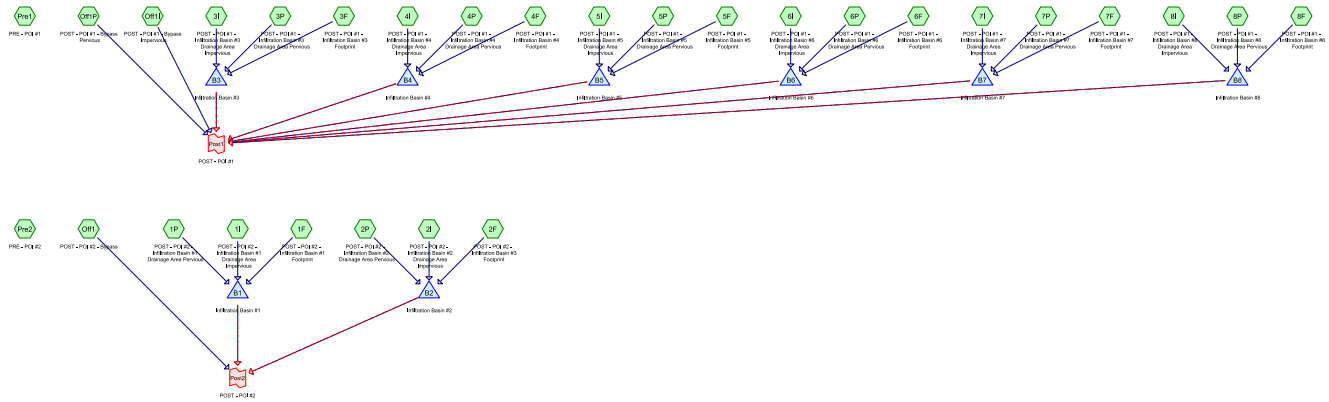
AECOM


Edit Pond B8 - CS 206 Site - EPA Road
General
Storage
Outlets
Tailwater
Advanced
Notes
| Invert (feet) | Description | Routing
1 | 271.50 | 18" Culvert | Primary
2 | 273.20 | Orifice | Device 1
3 | 274.50 | Rectangular Orifice | Device 1
4 | 275.50 | Inlet Grate | Device 1
5 | 276.00 | Emergency Spillway | Secondary
6
7
8
9
10
11
Tip: For standpipes and other compound outlets, enter the final outlet device FIRST. Click here for details.
Edit Outlet...
OK
Cancel
Apply
Help


Pond B8: Infiltration Basin #8 - CS 206 Si...
Summary
Hydrograph
Discharge
Storage
Profile
Events
Sizing
Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet)
273.00 | 4,722 | 0
273.10 | 4,808 | 477
273.20 | 4,895 | 962
273.30 | 4,981 | 1,455
273.40 | 5,068 | 1,958
273.50 | 5,154 | 2,469
273.60 | 5,240 | 2,989
273.70 | 5,327 | 3,517
273.80 | 5,413 | 4,054
273.90 | 5,500 | 4,600
274.00 | 5,586 | 5,154
274.10 | 5,678 | 5,717
274.20 | 5,770 | 6,290
Table
Shrink
Print
Export
Edit
Help

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Attachment C – HydroCAD Routing Summary for WQDS



Subcat Reach Pond Link

Routing Diagram for 10312025 - CS 206 Site - EPA Road

Prepared by AECOM, Printed 10/31/2025

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	WQ-1.25"	NJ DEP 2-hr		Default	2.00	1	1.25	2

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond B1: Infiltration Basin #1 Peak Elev=274.92' Storage=1,968 cf Inflow=1.38 cfs 0.045 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B2: Infiltration Basin #2 Peak Elev=274.63' Storage=830 cf Inflow=0.65 cfs 0.019 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B3: Infiltration Basin #3 Peak Elev=273.25' Storage=804 cf Inflow=0.63 cfs 0.018 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B4: Infiltration Basin #4 Peak Elev=265.14' Storage=710 cf Inflow=0.55 cfs 0.016 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B5: Infiltration Basin #5 Peak Elev=266.30' Storage=7,621 cf Inflow=4.38 cfs 0.175 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B6: Infiltration Basin #6 Peak Elev=262.61' Storage=9,336 cf Inflow=7.28 cfs 0.214 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B7: Infiltration Basin #7 Peak Elev=262.31' Storage=9,355 cf Inflow=7.29 cfs 0.215 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B8: Infiltration Basin #8 Peak Elev=273.14' Storage=646 cf Inflow=0.50 cfs 0.015 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Summary for Pond B1: Infiltration Basin #1

Inflow Area = 0.894 ac, 58.61% Impervious, Inflow Depth = 0.61" for WQ-1.25" event
Inflow = 1.38 cfs @ 1.13 hrs, Volume= 0.045 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.92' @ 2.57 hrs Surf.Area= 3,047 sf Storage= 1,968 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	21,349 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

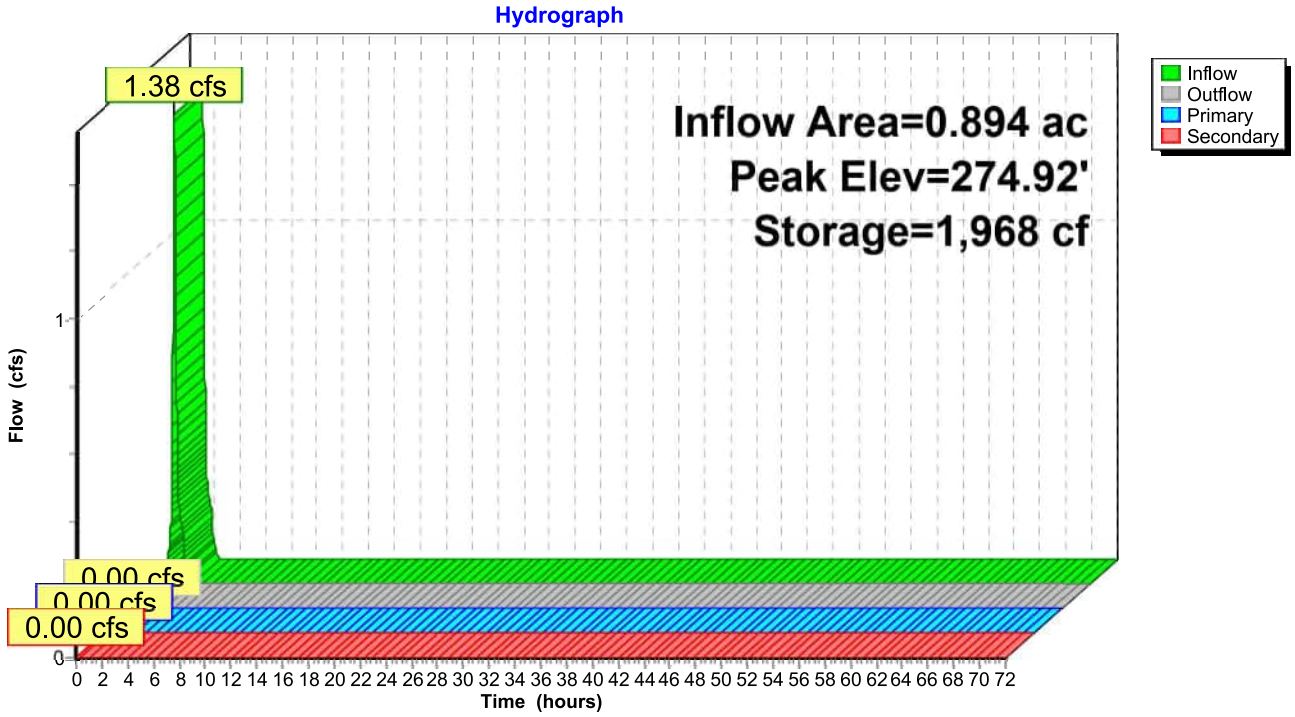
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,231	0	0
275.00	3,205	2,218	2,218
276.00	5,231	4,218	6,436
276.50	6,711	2,986	9,422
277.00	8,000	3,678	13,099
278.00	8,500	8,250	21,349

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 272.20' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	275.00'	**3.0" Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.00'	**3.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.00 cfs of 4.66 cfs potential flow)
├**2=Orifice #1** (Controls 0.00 cfs)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B1: Infiltration Basin #1



Summary for Pond B2: Infiltration Basin #2

Inflow Area = 0.304 ac, 72.70% Impervious, Inflow Depth = 0.75" for WQ-1.25" event
Inflow = 0.65 cfs @ 1.11 hrs, Volume= 0.019 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post2 : POST - POI #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 274.63' @ 2.34 hrs Surf.Area= 1,549 sf Storage= 830 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	12,942 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

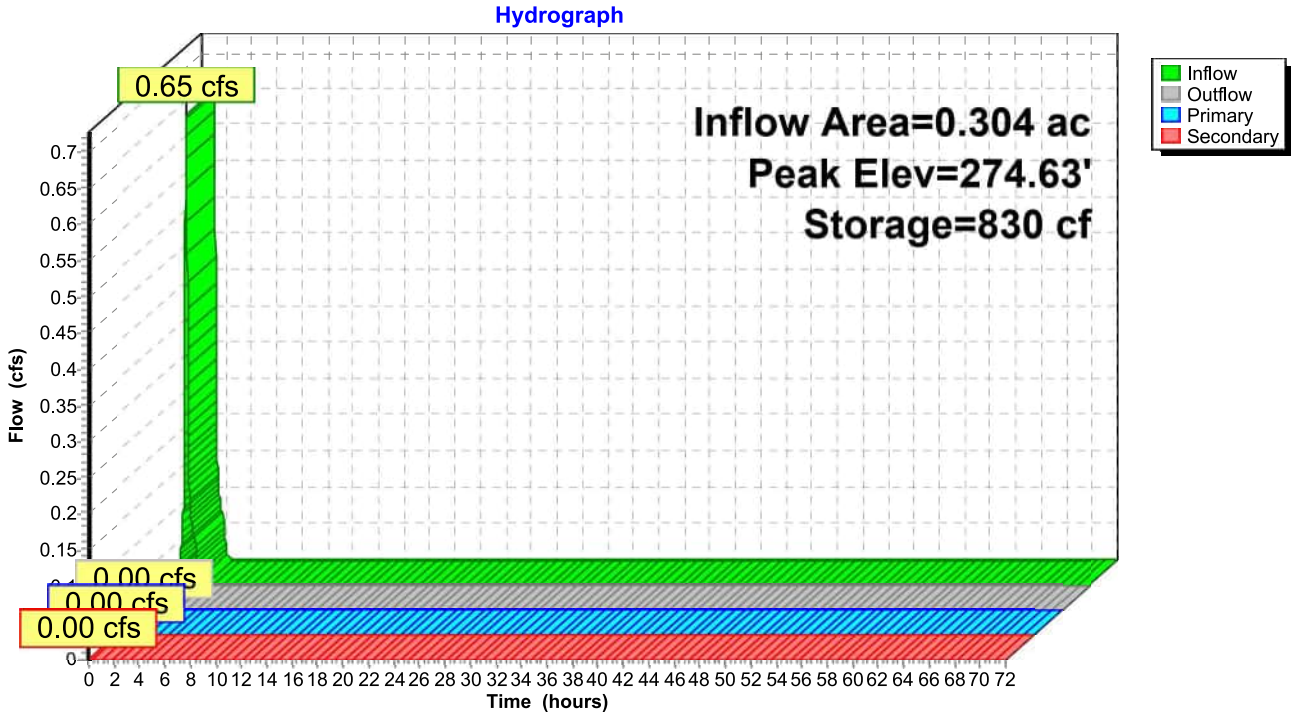
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	1,081	0	0
275.00	1,822	1,452	1,452
276.00	2,797	2,310	3,761
276.50	3,963	1,690	5,451
277.00	5,000	2,241	7,692
278.00	5,500	5,250	12,942

Device	Routing	Invert	Outlet Devices
#1	Primary	272.75'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.75' / 272.25' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	274.70'	**2.0" W x 2.0" H Vert. Orice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	276.20'	**0.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	277.00'	**48.0" W x 48.0" H Vert. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	276.50'	**10.0' long x 10.0' breadth Emergency Sprillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.00 cfs of 4.60 cfs potential flow)
  - **2=Orice** (Controls 0.00 cfs)
  - **3=Rectangular Orifice** (Controls 0.00 cfs)
  - **4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' TW=0.00' (Dynamic Tailwater)
- **5=Emergency Sprillway** (Controls 0.00 cfs)

Pond B2: Infiltration Basin #2



Summary for Pond B3: Infiltration Basin #3

Inflow Area = 1.190 ac, 17.98% Impervious, Inflow Depth = 0.19" for WQ-1.25" event
Inflow = 0.63 cfs @ 1.11 hrs, Volume= 0.018 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.25' @ 2.34 hrs Surf.Area= 3,443 sf Storage= 804 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	70,586 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

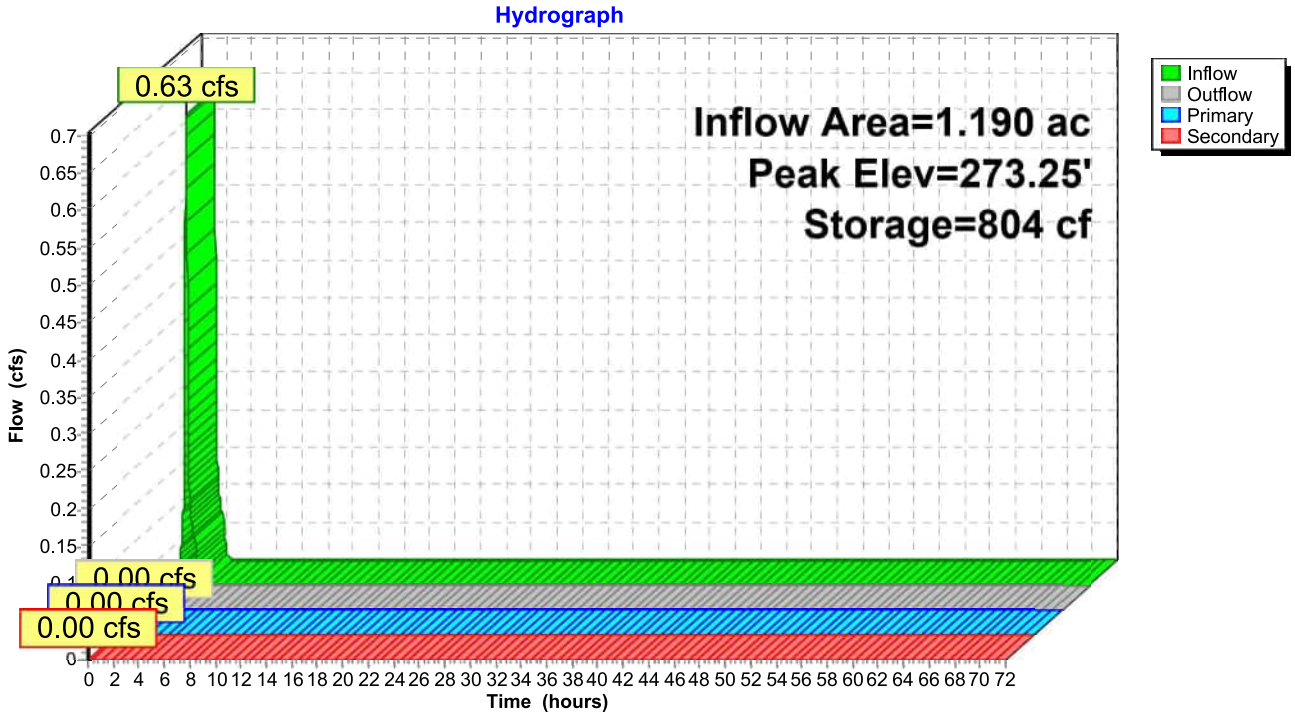
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	3,000	0	0
274.00	4,775	3,888	3,888
275.00	9,311	7,043	10,931
276.00	110,000	59,656	70,586

Device	Routing	Invert	Outlet Devices
#1	Primary	271.50'	**18.0" Round 18" Culvert** L= 200.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.50' / 271.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.30'	**28.0" W x 3.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**1.5' long Orifice #2** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	274.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	275.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.00 cfs of 5.12 cfs potential flow)
├**2=Orifice #1** (Controls 0.00 cfs)
├**3=Orifice #2** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B3: Infiltration Basin #3



Summary for Pond B4: Infiltration Basin #4

Inflow Area = 2.402 ac, 7.87% Impervious, Inflow Depth = 0.08" for WQ-1.25" event
Inflow = 0.55 cfs @ 1.11 hrs, Volume= 0.016 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 265.14' @ 2.34 hrs Surf.Area= 5,307 sf Storage= 710 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	29,083 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

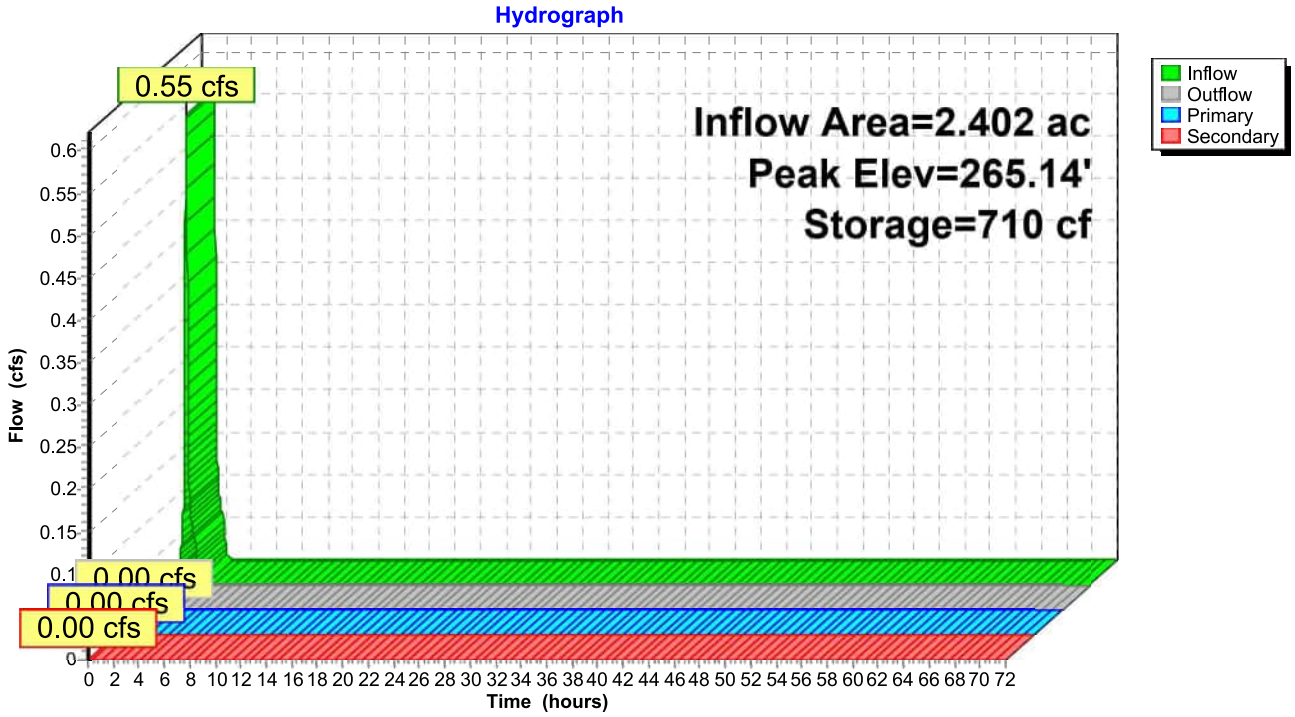
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,178	0	0
266.00	6,134	5,656	5,656
267.00	7,146	6,640	12,296
268.00	8,214	7,680	19,976
269.00	10,000	9,107	29,083

Device	Routing	Invert	Outlet Devices
#1	Primary	263.75'	**15.0" Round Culvert** L= 44.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.75' / 262.25' S= 0.0341 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf
#2	Device 1	265.15'	**6.0" W x 4.0" H Vert. Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	268.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#5	Device 1	267.00'	**24.0" W x 4.0" H Vert. Orifice #2** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 4.67 cfs potential flow)
  ├─**2=Orifice #1** (Controls 0.00 cfs)
  ├─**3=Inlet Grate** (Controls 0.00 cfs)
  └─**5=Orifice #2** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Spillway** (Controls 0.00 cfs)

Pond B4: Infiltration Basin #4



Summary for Pond B5: Infiltration Basin #5

Inflow Area = 2.463 ac, 82.30% Impervious, Inflow Depth = 0.85" for WQ-1.25" event
Inflow = 4.38 cfs @ 1.20 hrs, Volume= 0.175 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 266.30' @ 2.84 hrs Surf.Area= 6,446 sf Storage= 7,621 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	265.00'	28,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

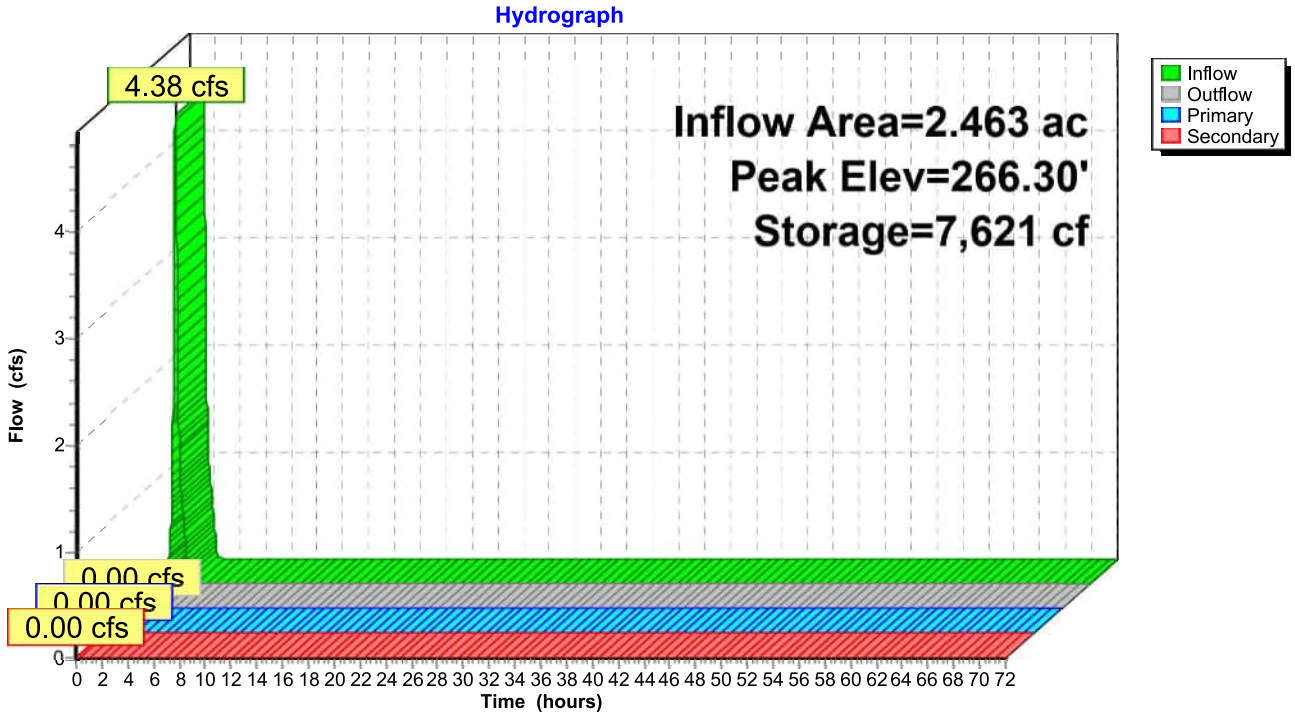
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
265.00	5,331	0	0
266.00	6,178	5,755	5,755
267.00	7,083	6,631	12,385
268.00	8,044	7,564	19,949
269.00	10,000	9,022	28,971

Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	**18.0" Round 18" Culvert** L= 44.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 263.50' / 262.00' S= 0.0341 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	266.30'	**6.0" W x 3.0" H Vert. Rectangular Orifice #1** C= 0.600 Limited to weir flow at low heads
#3	Device 1	267.35'	**3.0' long Rectangular Orifice #2** 2 End Contraction(s) 1.0' Crest Height
#4	Device 1	268.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	268.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.00 cfs of 7.37 cfs potential flow)
├**2=Rectangular Orifice #1** (Controls 0.00 cfs)
├**3=Rectangular Orifice #2** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B5: Infiltration Basin #5



Summary for Pond B6: Infiltration Basin #6

Inflow Area = 2.486 ac,100.00% Impervious, Inflow Depth = 1.03" for WQ-1.25" event
Inflow = 7.28 cfs @ 1.11 hrs, Volume= 0.214 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 262.61' @ 2.34 hrs Surf.Area= 16,013 sf Storage= 9,336 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	101,879 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

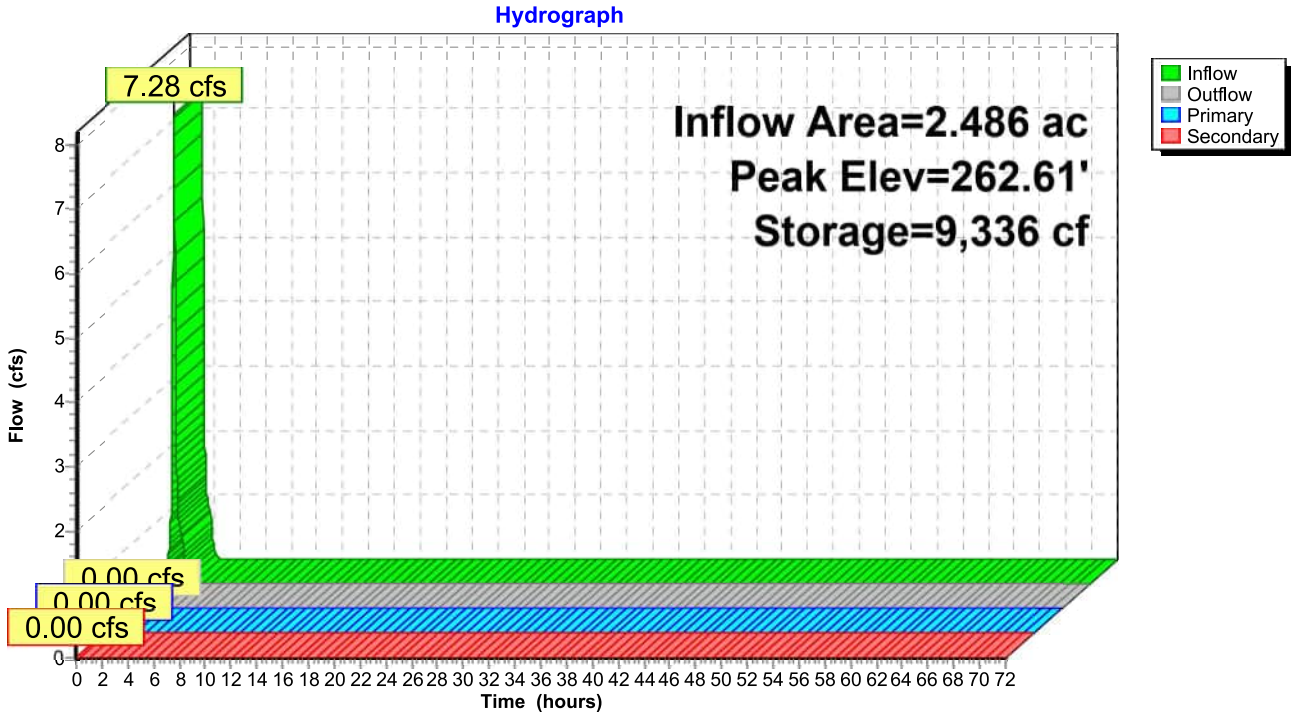
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	14,835	0	0
263.00	16,781	15,808	15,808
264.00	18,847	17,814	33,622
265.00	20,833	19,840	53,462
266.00	23,000	21,917	75,379
267.00	30,000	26,500	101,879

Device	Routing	Invert	Outlet Devices
#1	Primary	262.00'	**18.0" Round 18" Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 262.00' / 261.80' S= 0.0040 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.65'	**3.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	264.00'	**0.8' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	266.00'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Controls 0.00 cfs)
  ├**2=Orifice** (Controls 0.00 cfs)
  ├**3=Rectangular Orifice** (Controls 0.00 cfs)
  └**4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B6: Infiltration Basin #6



Summary for Pond B7: Infiltration Basin #7

Inflow Area = 2.491 ac,100.00% Impervious, Inflow Depth = 1.03" for WQ-1.25" event
Inflow = 7.29 cfs @ 1.11 hrs, Volume= 0.215 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 262.31' @ 2.34 hrs Surf.Area= 12,113 sf Storage= 9,355 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	261.50'	82,666 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

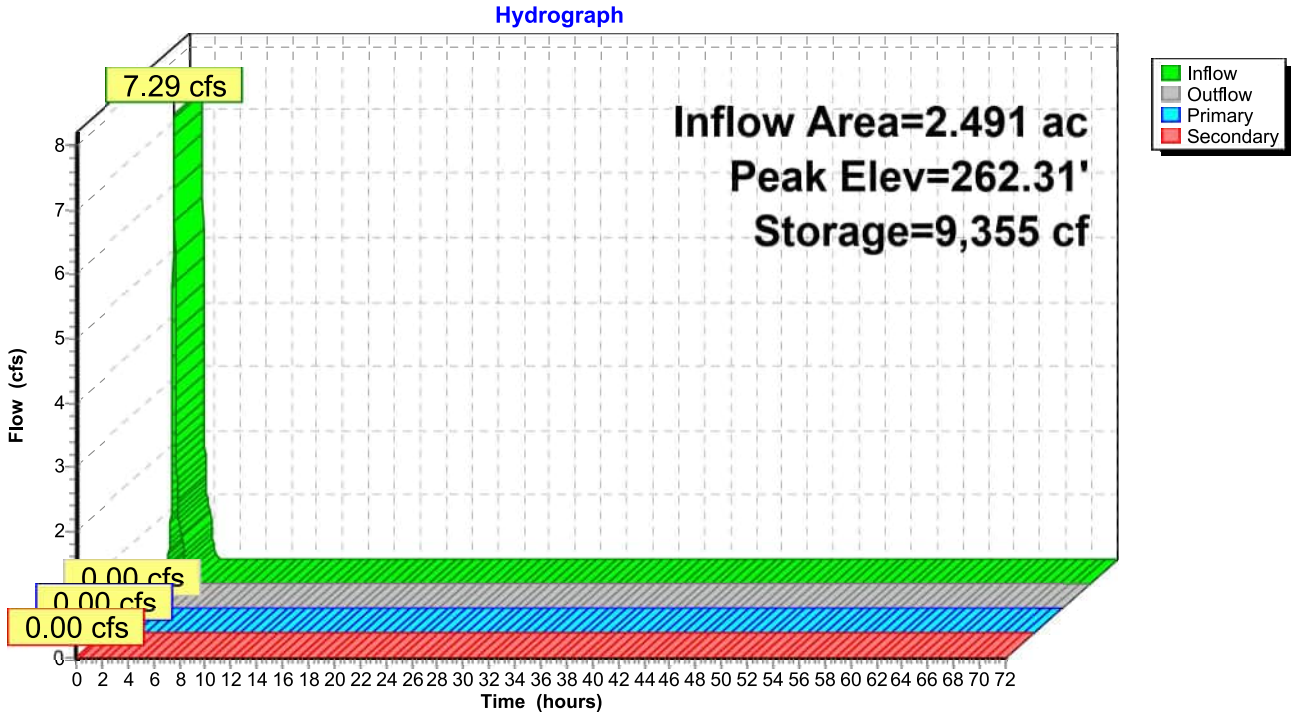
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.50	11,032	0	0
262.00	11,697	5,682	5,682
263.00	13,047	12,372	18,054
264.00	14,456	13,752	31,806
265.00	16,015	15,236	47,041
266.00	17,617	16,816	63,857
267.00	20,000	18,809	82,666

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 261.50' / 261.30' S= 0.0040 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	262.35'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	265.00'	**1.0' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	265.90'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	266.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Orifice** (Controls 0.00 cfs)
  - **3=Rectangular Orifice** (Controls 0.00 cfs)
  - **4=Inlet Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=261.50' TW=0.00' (Dynamic Tailwater)
- **5=Emergency Spillway** (Controls 0.00 cfs)

Pond B7: Infiltration Basin #7



Summary for Pond B8: Infiltration Basin #8

Inflow Area = 2.314 ac, 7.43% Impervious, Inflow Depth = 0.08" for WQ-1.25" event
Inflow = 0.50 cfs @ 1.11 hrs, Volume= 0.015 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Post1 : POST - POI #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 273.14' @ 2.34 hrs Surf.Area= 4,839 sf Storage= 646 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	26,438 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

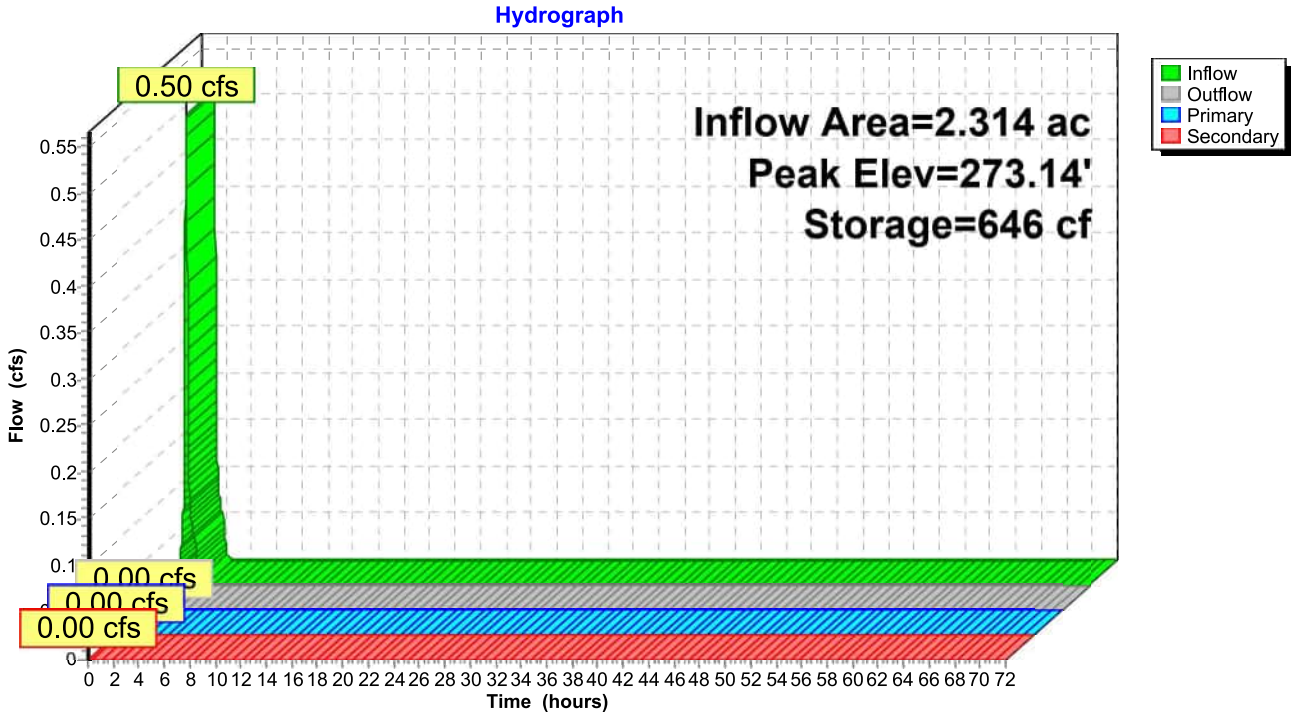
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	4,722	0	0
274.00	5,586	5,154	5,154
275.00	6,507	6,047	11,201
276.00	7,484	6,996	18,196
277.00	9,000	8,242	26,438

Device	Routing	Invert	Outlet Devices
#1	Primary	271.50'	**18.0" Round 18" Culvert** L= 325.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.50' / 271.00' S= 0.0015 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	273.20'	**8.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.50'	**1.5' long Rectangular Orifice** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	275.50'	**48.0" x 48.0" Horiz. Inlet Grate** C= 0.600
#5	Secondary	276.00'	**100.0' long x 16.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

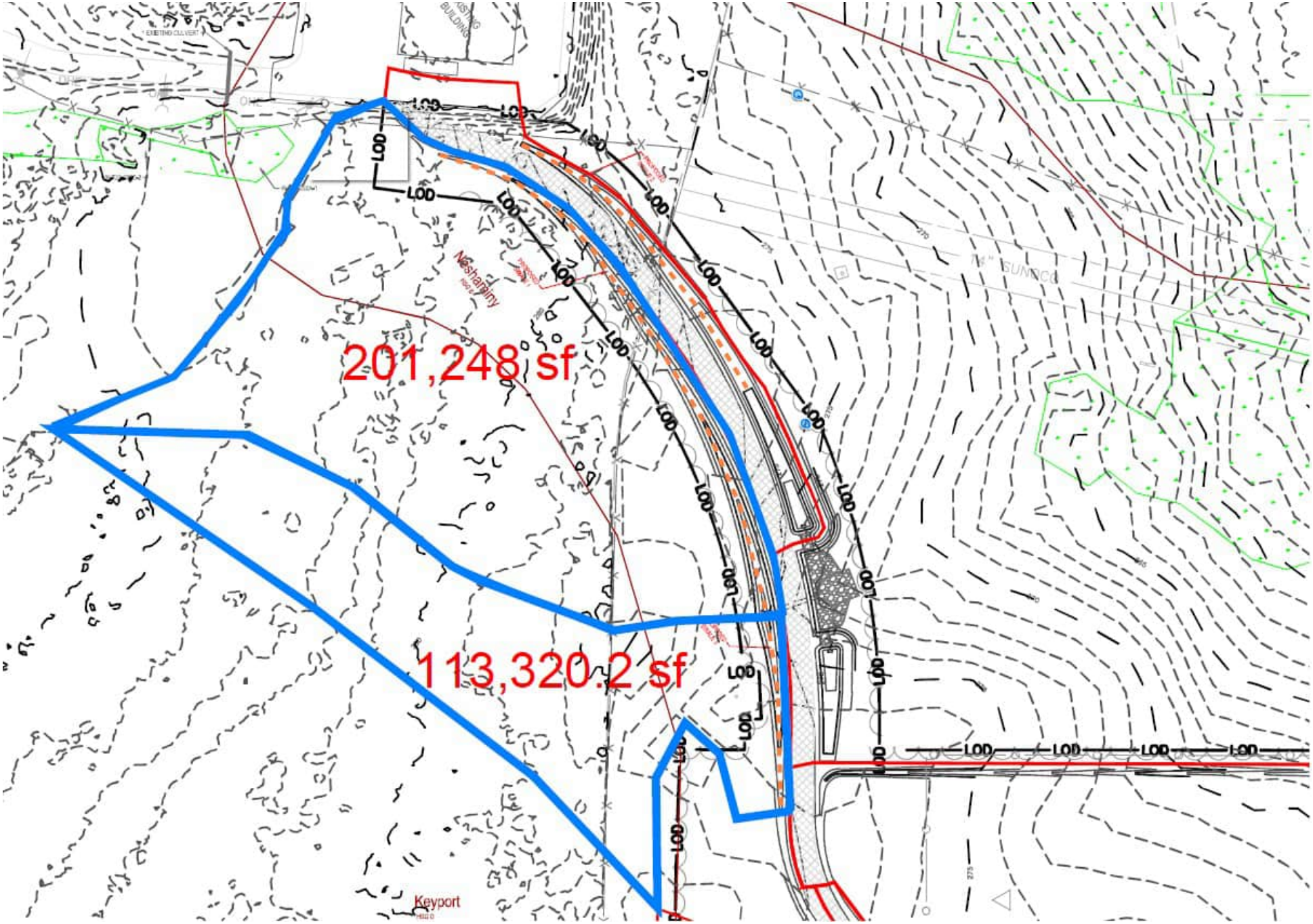
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**1=18" Culvert** (Passes 0.00 cfs of 4.31 cfs potential flow)
├**2=Orifice** (Controls 0.00 cfs)
├**3=Rectangular Orifice** (Controls 0.00 cfs)
└**4=Inlet Grate** (Controls 0.00 cfs)

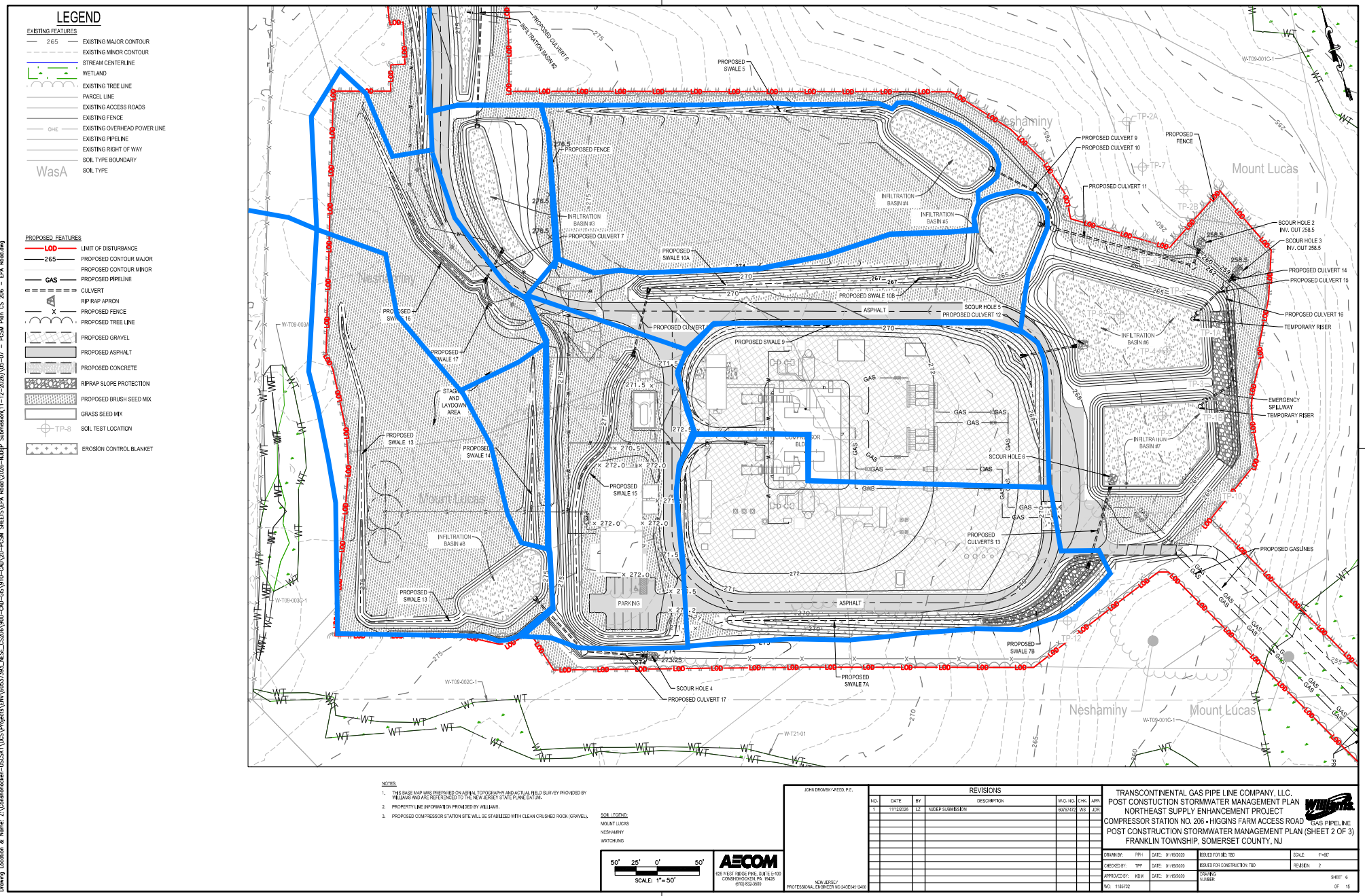
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=0.00' (Dynamic Tailwater)
└**5=Emergency Spillway** (Controls 0.00 cfs)

Pond B8: Infiltration Basin #8



APPENDIX D.7
SWALE DESIGN


201,248 sf
113,320.2 sf
LOD
Keyport



NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
WATCHUNG

50' 25' 0' 50'
SCALE: 1" = 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
NEW JERSEY
PROFESSIONAL ENGINEER NO.24GE04612400

REVISIONS							
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2025	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 2 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

WILLIAMS GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDW	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 6 OF 15
W.O. 1185732			

Drawn By & Date/Time: evo.luceitz Nov 10, 2026 - 11:21am
Drawing Location & Name: Z:\Conshohocken-CSCK\Projects\ENV\60637393_NESE_CS206\900-CAD-GIS\910-CAD\30-PCSM SHEETS\EPA Road\2026-NJDEP Submission\(11-12-2026)\05-07 - PCSM Plan CS 206 - EPA Road.dwg

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment Swale 1: Swale 1 Runoff Area=4.620 ac 0.87% Impervious Runoff Depth>0.97"
Tc=40.0 min CN=55 Runoff=2.18 cfs 0.373 af

Subcatchment Swale 10: Swale 10 Runoff Area=50,171 sf 0.00% Impervious Runoff Depth>2.90"
Tc=6.0 min CN=80 Runoff=4.24 cfs 0.278 af

Subcatchment Swale 13: Swale 13 Runoff Area=1.813 ac 0.00% Impervious Runoff Depth>1.16"
Flow Length=460' Slope=0.0100 '/' Tc=33.1 min CN=58 Runoff=1.21 cfs 0.175 af

Subcatchment Swale 14: Swale 14 Runoff Area=0.330 ac 7.88% Impervious Runoff Depth>3.16"
Flow Length=287' Slope=0.0100 '/' Tc=29.0 min CN=83 Runoff=0.74 cfs 0.087 af

Subcatchment Swale 15: Swale 15 Runoff Area=1.144 ac 0.00% Impervious Runoff Depth>1.17"
Tc=6.0 min CN=58 Runoff=1.58 cfs 0.112 af

Subcatchment Swale 16: Swale 16 Runoff Area=0.860 ac 0.00% Impervious Runoff Depth>1.17"
Tc=6.0 min CN=58 Runoff=1.19 cfs 0.084 af

Subcatchment Swale 17: Swale 17 Runoff Area=0.154 ac 0.00% Impervious Runoff Depth>0.59"
Tc=6.0 min CN=48 Runoff=0.07 cfs 0.008 af

Subcatchment Swale 2: Swale 2 Runoff Area=0.910 ac 10.99% Impervious Runoff Depth>1.88"
Tc=11.0 min CN=68 Runoff=1.83 cfs 0.143 af

Subcatchment Swale 3: Swale 3 Runoff Area=2.601 ac 0.00% Impervious Runoff Depth>0.91"
Tc=46.0 min CN=54 Runoff=1.04 cfs 0.196 af

Subcatchment Swale 5: Swale 5 Runoff Area=2.094 ac 0.00% Impervious Runoff Depth>2.70"
Flow Length=535' Slope=0.0150 '/' Tc=29.3 min CN=78 Runoff=3.99 cfs 0.471 af

Subcatchment Swale 7: Swale 7 Runoff Area=0.622 ac 12.70% Impervious Runoff Depth>2.99"
Tc=6.0 min CN=81 Runoff=2.36 cfs 0.155 af

Subcatchment Swale 8: Swale 8 Runoff Area=112,804 sf 13.46% Impervious Runoff Depth>4.09"
Tc=6.0 min CN=92 Runoff=12.54 cfs 0.884 af

Subcatchment Swale 9: Swale 9 Runoff Area=40,527 sf 0.00% Impervious Runoff Depth>3.98"
Flow Length=562' Slope=0.0100 '/' Tc=15.0 min CN=91 Runoff=3.39 cfs 0.309 af

Total Runoff Area = 19.820 ac Runoff Volume = 3.274 af Average Runoff Depth = 1.98"
97.00% Pervious = 19.226 ac 3.00% Impervious = 0.594 ac

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 1	SWALE 1	SWALE 1
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	4.62	4.62	4.62
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	2.18	2.18	2.18
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	2.19	2.19	2.19
PROTECTIVE LINING[2]		SC250	VEGETATED-SC250	VEGETATED-SC250
n (MANNING'S COEFFICIENT)[2]		0.040	**0.107**	**0.077**
V_a (ALLOWABLE VELOCITY)	(FPS)	9.5	15.0	15.0
V (CALCULATED AT FLOW DEPTH d)	(FPS)	1.8	**0.9**	**1.1**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	2.5	8.0	8.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	4.0	4.0	4.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	4.0	4.0	4.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	18.0	18.0	18.0
d (CALCULATED FLOW DEPTH)	(FT)	0.36	0.58	0.49
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	4.8	6.6	5.9
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	1.22	2.50	1.96
R - HYDRAULIC RADIUS		0.25	**0.37**	**0.32**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.44	**0.32**	**0.36**
S (BED SLOPE)[3]	(FT/FT)	0.015	0.015	0.015
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.64	1.42	1.51
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 2	SWALE 2	SWALE 2
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	0.91	0.91	0.91
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	1.83	1.83	1.83
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	1.84	1.84	1.84
PROTECTIVE LINING[2]		SC250	VEGETATED-SC250	VEGETATED-SC250
n (MANNING'S COEFFICIENT)[2]		0.040	**0.120**	**0.083**
V_a (ALLOWABLE VELOCITY)	(FPS)	9.5	15.0	15.0
V (CALCULATED AT FLOW DEPTH d)	(FPS)	1.7	**0.8**	**1.0**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	2.5	8.0	8.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	4.0	4.0	4.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	4.0	4.0	4.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	4.0	4.0	4.0
D (TOTAL DEPTH)	(FT)	1.0	1.0	1.0
CHANNEL TOP WIDTH @ D	(FT)	12.0	12.0	12.0
d (CALCULATED FLOW DEPTH)	(FT)	0.22	0.41	0.33
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	5.8	7.3	6.6
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	1.08	2.29	1.76
R - HYDRAULIC RADIUS		0.18	**0.31**	**0.26**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.32	**0.25**	**0.27**
S (BED SLOPE)[3]	(FT/FT)	0.02	0.02	0.02
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	0.78	0.59	0.67
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 3	SWALE 3	SWALE 3
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	2.60	2.60	2.60
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	1.04	1.04	1.04
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	1.05	1.05	1.05
PROTECTIVE LINING[2]		VEGETATED-NO LINING	VEGETATED-NO LINING	VEGETATED-NO LINING
n (MANNING'S COEFFICIENT)[2]		0.025	**0.150**	**0.113**
V_a (ALLOWABLE VELOCITY)	(FPS)	2.0	2.0	2.0
V (CALCULATED AT FLOW DEPTH d)	(FPS)	1.8	**0.5**	**0.6**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	4.0	4.0	4.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	4.0	4.0	4.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	18.0	18.0	18.0
d (CALCULATED FLOW DEPTH)	(FT)	0.21	0.53	0.46
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	3.7	6.2	5.7
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	0.60	2.17	1.76
R - HYDRAULIC RADIUS		0.16	**0.34**	**0.30**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.28	**0.17**	**0.18**
S (BED SLOPE)[3]	(FT/FT)	0.01	0.01	0.01
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.79	1.47	1.54
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 5	SWALE 5	SWALE 5
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	2.09	2.09	2.09
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	4.46	4.46	4.46
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	4.47	4.47	4.47
PROTECTIVE LINING[2]		SC250	VEGETATED-SC250	VEGETATED-SC250
n (MANNING'S COEFFICIENT)[2]		0.040	**0.078**	**0.061**
V_a (ALLOWABLE VELOCITY)	(FPS)	9.5	15.0	15.0
V (CALCULATED AT FLOW DEPTH d)	(FPS)	2.6	**1.6**	**1.9**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	2.5	8.0	8.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	14.0	14.0	14.0
d (CALCULATED FLOW DEPTH)	(FT)	0.50	0.70	0.62
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	5.0	6.2	5.7
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	1.75	2.85	2.38
R - HYDRAULIC RADIUS		0.34	**0.44**	**0.40**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.87	**0.70**	**0.76**
S (BED SLOPE)[3]	(FT/FT)	0.02	0.02	0.02
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.50	1.30	1.38
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 7A	SWALE 7A	SWALE 7A
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	0.62	0.62	0.62
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	2.36	2.36	2.36
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	2.37	2.37	2.37
PROTECTIVE LINING[2]		VEGETATED-NO LINING	VEGETATED-NO LINING	VEGETATED-NO LINING
n (MANNING'S COEFFICIENT)[2]		0.025	**0.113**	**0.089**
V_a (ALLOWABLE VELOCITY)	(FPS)	2.0	2.0	2.0
V (CALCULATED AT FLOW DEPTH d)	(FPS)	1.8	**0.6**	**0.7**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	4.0	4.0	4.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	16.0	16.0	16.0
d (CALCULATED FLOW DEPTH)	(FT)	0.39	0.82	0.74
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	4.8	7.8	7.2
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	1.33	4.03	3.38
R - HYDRAULIC RADIUS		0.27	**0.50**	**0.46**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.49	**0.30**	**0.32**
S (BED SLOPE)[3]	(FT/FT)	0.005	0.005	0.005
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.61	1.18	1.26
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 7B	SWALE 7B
TEMPORARY OR PERMANENT	(T OR P)	T	P
DESIGN STORM		10 YR	10 YR
ACRES	(AC)	0.62	0.62
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	2.36	2.36
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	29.26	29.26
PROTECTIVE LINING[2]		R-3	R-3
n (MANNING'S COEFFICIENT)[2]		0.031	0.031
V_a (ALLOWABLE VELOCITY)	(FPS)	6.5	6.5
V (CALCULATED AT FLOW DEPTH d)	(FPS)	2.8	2.8
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	4.0	4.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	4.0	4
Z_2 - CHANNEL SIDE SLOPES	(H:V)	4.0	4
D (TOTAL DEPTH)	(FT)	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	20.0	20.0
d (CALCULATED FLOW DEPTH)	(FT)	1.19	1.19
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	13.6	13.6
BOTTOM WIDTH:FLOW DEPTH RATIO	(12:1 MAX)	3.35	3.35
d_{50} STONE SIZE	(IN)	3	3
A (CROSS-SECTIONAL AREA)	(SQ. FT)	10.48	10.48
R - HYDRAULIC RADIUS		0.76	0.76
S (BED SLOPE)[3]	(FT/FT)	0.005	0.005
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30
PROVIDED FREEBOARD	(FT)	0.81	0.81
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 8	SWALE 8
TEMPORARY OR PERMANENT	(T OR P)	T	P
DESIGN STORM		10 YR	10 YR
ACRES	(AC)	2.59	2.59
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	12.54	12.54
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	17.51	17.51
PROTECTIVE LINING[2]		R-3	R-3
n (MANNING'S COEFFICIENT)[2]		0.031	0.031
V_a (ALLOWABLE VELOCITY)	(FPS)	6.5	6.5
V (CALCULATED AT FLOW DEPTH d)	(FPS)	3.1	3.1
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	0.0	0.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	5	5
Z_2 - CHANNEL SIDE SLOPES	(H:V)	5	5
D (TOTAL DEPTH)	(FT)	2.5	2.5
CHANNEL TOP WIDTH @ D	(FT)	25.0	25.0
d (CALCULATED FLOW DEPTH)	(FT)	1.06	1.06
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	10.7	10.7
BOTTOM WIDTH:FLOW DEPTH RATIO	(12:1 MAX)	0.05	0.05
d_{50} STONE SIZE	(IN)	3	3
A (CROSS-SECTIONAL AREA)	(SQ. FT)	5.68	5.68
R - HYDRAULIC RADIUS		0.52	0.52
S (BED SLOPE)[3]	(FT/FT)	0.01	0.01
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.44	1.44
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

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LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 9	SWALE 9
TEMPORARY OR PERMANENT	(T OR P)	T	P
DESIGN STORM		10 YR	10 YR
ACRES	(AC)	0.93	0.93
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	3.39	3.39
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	3.64	3.64
PROTECTIVE LINING[2]		R-3	R-3
n (MANNING'S COEFFICIENT)[2]		0.031	0.031
V_a (ALLOWABLE VELOCITY)	(FPS)	6.5	6.5
V (CALCULATED AT FLOW DEPTH d)	(FPS)	2.1	2.1
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	0.0	0.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	5	5
Z_2 - CHANNEL SIDE SLOPES	(H:V)	5	5
D (TOTAL DEPTH)	(FT)	2.5	2.5
CHANNEL TOP WIDTH @ D	(FT)	25.0	25.0
d (CALCULATED FLOW DEPTH)	(FT)	0.59	0.59
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	5.9	5.9
BOTTOM WIDTH:FLOW DEPTH RATIO	(12:1 MAX)	0.08	0.08
d_{50} STONE SIZE	(IN)	3	3
A (CROSS-SECTIONAL AREA)	(SQ. FT)	1.75	1.75
R - HYDRAULIC RADIUS		0.29	0.29
S (BED SLOPE)[3]	(FT/FT)	0.01	0.01
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.91	1.91
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 10A	SWALE 10A	SWALE 10A
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	1.15	1.15	1.15
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	4.24	4.24	4.24
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	4.25	4.25	4.25
PROTECTIVE LINING[2]		SC250	VEGETATED-SC250	VEGETATED-SC250
n (MANNING'S COEFFICIENT)[2]		0.039	**0.085**	**0.065**
V_a (ALLOWABLE VELOCITY)	(FPS)	9.5	15.0	15.0
V (CALCULATED AT FLOW DEPTH d)	(FPS)	2.0	**1.1**	**1.4**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	2.5	8.0	8.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	14.0	14.0	14.0
d (CALCULATED FLOW DEPTH)	(FT)	0.57	0.83	0.74
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	5.4	7.0	6.4
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	2.11	3.75	3.10
R - HYDRAULIC RADIUS		0.38	**0.52**	**0.47**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.76	**0.58**	**0.64**
S (BED SLOPE)[3]	(FT/FT)	0.01	0.01	0.01
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.43	1.17	1.26
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 10B	SWALE 10B
TEMPORARY OR PERMANENT	(T OR P)	T	P
DESIGN STORM		10 YR	10 YR
ACRES	(AC)	1.15	1.15
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	4.24	4.24
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	4.70	4.70
PROTECTIVE LINING[2]		R-3	R-3
n (MANNING'S COEFFICIENT)[2]		0.031	0.031
V_a (ALLOWABLE VELOCITY)	(FPS)	6.5	6.5
V (CALCULATED AT FLOW DEPTH d)	(FPS)	2.4	2.4
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3	3
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3	3
D (TOTAL DEPTH)	(FT)	3.0	3.0
CHANNEL TOP WIDTH @ D	(FT)	20.0	20.0
d (CALCULATED FLOW DEPTH)	(FT)	0.54	0.54
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	5.2	5.2
BOTTOM WIDTH:FLOW DEPTH RATIO	(12:1 MAX)	3.71	3.71
d_{50} STONE SIZE	(IN)	3	3
A (CROSS-SECTIONAL AREA)	(SQ. FT)	1.95	1.95
R - HYDRAULIC RADIUS		0.36	0.36
S (BED SLOPE)[3]	(FT/FT)	0.01	0.01
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30
PROVIDED FREEBOARD	(FT)	2.46	2.46
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 12/23/2025
CHECKED BY: AV DATE: 1/6/2026

CHANNEL OR CHANNEL SECTION		SWALE 13	SWALE 13	SWALE 13
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	1.86	1.86	1.86
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	1.37	1.37	1.37
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	1.38	1.38	1.38
PROTECTIVE LINING[2]		SC250	VEGETATED-SC250	VEGETATED-SC250
n (MANNING'S COEFFICIENT)[2]		0.040	**0.114**	**0.080**
V_a (ALLOWABLE VELOCITY)	(FPS)	9.5	15.0	15.0
V (CALCULATED AT FLOW DEPTH d)	(FPS)	1.8	**0.9**	**1.1**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	2.5	8.0	8.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	14.0	14.0	14.0
d (CALCULATED FLOW DEPTH)	(FT)	0.27	0.47	0.39
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	3.6	4.8	4.3
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	0.76	1.59	1.23
R - HYDRAULIC RADIUS		0.20	**0.32**	**0.28**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.37	**0.28**	**0.31**
S (BED SLOPE)[3]	(FT/FT)	0.02	0.02	0.02
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.73	1.53	1.61
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.3 ft
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ
CHECKED BY: AV

CHANNEL OR CHANNEL SECTION		SWALE 14	SWALE 14	SWALE 14
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	0.33	0.33	0.33
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	0.84	0.84	0.84
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	0.85	0.85	0.85
PROTECTIVE LINING[2]		SC250	VEGETATED-SC250	VEGETATED-SC250
n (MANNING'S COEFFICIENT)[2]		0.040	**0.142**	**0.092**
V_a (ALLOWABLE VELOCITY)	(FPS)	9.5	15.0	15.0
V (CALCULATED AT FLOW DEPTH d)[3]	(FPS)	1.5	**0.6**	**0.8**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	2.5	8.0	8.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	14.0	14.0	14.0
d (CALCULATED FLOW DEPTH)	(FT)	0.21	0.42	0.34
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	3.3	4.5	4.0
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	0.56	1.38	1.01
R - HYDRAULIC RADIUS		0.17	**0.30**	**0.25**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.25	**0.18**	**0.21**
S (BED SLOPE)[4]	(FT/FT)	0.018	0.018	0.018
MINIMUM REQUIRED FREEBOARD[5]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.79	1.58	1.66
DESIGN METHOD FOR PROTECTIVE LINING[6] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Less than 2 fps, use grass lined swale
4. Slopes may not be averaged.
5. Minimum Freeboard is 0.3 ft
6. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ
CHECKED BY: AV

CHANNEL OR CHANNEL SECTION		SWALE 15	SWALE 15	SWALE 15
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	1.14	1.14	1.14
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	1.58	1.58	1.58
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	1.59	1.59	1.59
PROTECTIVE LINING[2]		VEGETATED-NO LINING	VEGETATED-NO LINING	VEGETATED-NO LINING
n (MANNING'S COEFFICIENT)[2]		0.025	**0.121**	**0.094**
V_a (ALLOWABLE VELOCITY)	(FPS)	2.0	2.0	2.0
V (CALCULATED AT FLOW DEPTH d)[3]	(FPS)	1.9	**0.6**	**0.7**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
D (TOTAL DEPTH)	(FT)	1.0	1.0	1.0
CHANNEL TOP WIDTH @ D	(FT)	8.0	8.0	8.0
d (CALCULATED FLOW DEPTH)	(FT)	0.30	0.67	0.59
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	3.8	6.0	5.5
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	0.86	2.67	2.22
R - HYDRAULIC RADIUS		0.22	**0.43**	**0.39**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.41	**0.26**	**0.28**
S (BED SLOPE)[4]	(FT/FT)	0.007	0.007	0.007
MINIMUM REQUIRED FREEBOARD[5]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	0.70	0.33	0.41
DESIGN METHOD FOR PROTECTIVE LINING[6] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Less than 2 fps, use grass lined swale
4. Slopes may not be averaged.
5. Minimum Freeboard is 0.3 ft
6. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ
CHECKED BY: AV

CHANNEL OR CHANNEL SECTION		SWALE 16	SWALE 16	SWALE 16
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	0.86	0.86	0.86
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	1.19	1.19	1.19
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	1.20	1.20	1.20
PROTECTIVE LINING[2]		VEGETATED-NO LINING	VEGETATED-NO LINING	VEGETATED-NO LINING
n (MANNING'S COEFFICIENT)[2]		0.025	**0.129**	**0.100**
V_a (ALLOWABLE VELOCITY)	(FPS)	2.0	2.0	2.0
V (CALCULATED AT FLOW DEPTH d)[3]	(FPS)	1.9	**0.6**	**0.7**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	14.0	14.0	14.0
d (CALCULATED FLOW DEPTH)	(FT)	0.23	0.55	0.48
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	3.4	5.3	4.9
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	0.62	2.00	1.65
R - HYDRAULIC RADIUS		0.18	**0.37**	**0.33**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.35	**0.22**	**0.24**
S (BED SLOPE)[4]	(FT/FT)	0.010	0.010	0.010
MINIMUM REQUIRED FREEBOARD[5]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.77	1.45	1.52
DESIGN METHOD FOR PROTECTIVE LINING[6] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Less than 2 fps, use grass lined swale
4. Slopes may not be averaged.
5. Minimum Freeboard is 0.3 ft
6. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

Channel Design

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ
CHECKED BY: AV

CHANNEL OR CHANNEL SECTION		SWALE 17	SWALE 17	SWALE 17
TEMPORARY OR PERMANENT	(T OR P)	T	P - RET. D	P - RET. E
DESIGN STORM		10 YR	10 YR	10 YR
ACRES	(AC)	0.15	0.15	0.15
MULTIPLIER	(1.6, 2.25. or 2.75)[1]	N/A	N/A	N/A
Q_r (REQUIRED CAPACITY)	(CFS)	0.07	0.07	0.07
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	0.08	0.08	0.08
PROTECTIVE LINING[2]		VEGETATED-NO LINING	VEGETATED-NO LINING	VEGETATED-NO LINING
n (MANNING'S COEFFICIENT)[2]		0.025	**0.610**	**0.396**
V_a (ALLOWABLE VELOCITY)	(FPS)	2.0	2.0	2.0
V (CALCULATED AT FLOW DEPTH d)[3]	(FPS)	1.0	**0.1**	**0.2**
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.0	1.0	1.0
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	N/A	N/A	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.0	2.0	2.0
Z_1 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
Z_2 - CHANNEL SIDE SLOPES	(H:V)	3.0	3.0	3.0
D (TOTAL DEPTH)	(FT)	2.0	2.0	2.0
CHANNEL TOP WIDTH @ D	(FT)	14.0	14.0	14.0
d (CALCULATED FLOW DEPTH)	(FT)	0.04	0.24	0.18
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	2.2	3.4	3.1
d_{50} STONE SIZE	(IN)	N/A	N/A	N/A
A (CROSS-SECTIONAL AREA)	(SQ. FT)	0.08	0.64	0.47
R - HYDRAULIC RADIUS		0.04	**0.18**	**0.15**
VR - PRODUCT OF VELOCITY AND HYDRAULIC RADIUS		0.04	**0.02**	**0.03**
S (BED SLOPE)[4]	(FT/FT)	0.026	0.026	0.026
MINIMUM REQUIRED FREEBOARD[5]	(FT)	0.30	0.30	0.30
PROVIDED FREEBOARD	(FT)	1.96	1.76	1.82
DESIGN METHOD FOR PROTECTIVE LINING[6] PERMISSABLE VELOCITY(V) OR SHEAR STRESS (S)		V	V	V

1. N/A
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Less than 2 fps, use grass lined swale
4. Slopes may not be averaged.
5. Minimum Freeboard is 0.3 ft
6. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

ROLLMAX™
ROLLED EROSION CONTROL

Specification Sheet – VMax® SC250® Turf Reinforcement Mat

DESCRIPTION

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 70% straw and 30% coconut fiber matrix incorporated into permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting. All mats shall be manufactured with a colored thread stitched along both outer edges as an overlap guide for adjacent mats.

The SC250 shall meet Type 5A, 5B, and 5C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.18

Material Content		
Matrix	70% Straw Fiber	0.35 lb/sq yd (0.19 kg/sm)
	30% Coconut Fiber	0.15 lbs/sq yd (0.08 kg/sm)
Netting	Top and Bottom, UV-Stabilized Polypropylene	5 lb/1000 sq ft (2.44 kg/100 sm)
	Middle, Corrugated UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
Thread	Polypropylene, UV Stable	

Standard Roll Sizes	
Width	6.5 ft (2.0 m)
Length	55.5 ft (16.9 m)
Weight ± 10%	34 lbs (15.42 kg)
Area	40 sq yd (33.4 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.62 in. (15.75 mm)
Resiliency	ASTM 6524	95.2%
Density	ASTM D792	0.891 g/cm^3
Mass/Unit Area	ASTM 6566	16.13 oz/sy (548 g/sm)
UV Stability	ASTM D4355/ 1000 HR	100%
Porosity	ECTC Guidelines	99%
Stiffness	ASTM D1388	222.65 oz-in.
Light Penetration	ASTM D6567	4.1%
Tensile Strength – MD	ASTM D6818	709 lbs/ft (10.51 kN/m)
Elongation – MD	ASTM D6818	23.9%
Tensile Strength – TD	ASTM D6818	712 lbs/ft (10.56 kN/m)
Elongation – TD	ASTM D6818	36.9%
Biomass Improvement	ASTM D7322	441%

Design Permissible Shear Stress		
	Short Duration	**Long Duration**
Phase 1: Unvegetated	3.0 psf (144 Pa)	2.5 psf (120 Pa)
Phase 2: Partially Veg.	8.0 psf (383 Pa)	8.0 psf (383 Pa)
Phase 3: Fully Veg.	10.0 psf (480 Pa)	8.0 psf (383 Pa)
Unvegetated Velocity	9.5 fps (2.9 m/s)	
Vegetated Velocity	15 fps (4.6 m/s)	

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2.1	≥ 2:1
≤ 20 ft (6 m)	0.0010	0.0209	0.0507
20-50 ft	0.0081	0.0266	0.0574
≥ 50 ft (15.2 m)	0.0455	0.0555	0.081

Roughness Coefficients – Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.040
0.50 – 2.0 ft	0.040-0.012
≥ 2.0 ft (0.60 m)	0.011

Tensar®

NORTH AMERICAN GREEN®

Tensar International Corporation
2500 Northwinds Parkway
Suite 500
Alpharetta, GA 30009
800-TENSAR-1
tensarcorp.com

Tensar International Corporation warrants that at the time of delivery the product furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby executed. If the product does not meet specifications on this page and Tensar is notified prior to installation, Tensar will replace the product at no cost to the customer. **This product specification supersedes all prior specifications for the product described above and is not applicable to any products shipped prior to January 1, 2012.**

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APPENDIX D.8
CULVERT DESIGN

CULVERT SUMMARY - CIRCULAR CULVERTS

PROJECT NAME: Northeast Supply Expansion CS 206
LOCATION: Franklin Township, Somerset County, NJ
PREPARED BY: LZ DATE: 2/18/2026
CHECKED BY: WS DATE: 2/18/2026

CULVERT NO.	LENGTH (FT)	INV. IN. (ELEV)	INV. OUT. (ELEV)	PIPE SLOPE (%)	MATERIAL	PIPE DIA. D_O (IN.)	FLOW DEPTH d (IN.)	A (FT^2)	WETTED PERIMETER P (FT)	HYDRAULIC RADIUS R (FT)	V (FPS)	Q CAPACITY @ FLOW DEPTH d (CFS)	Q REQUIRED (25-YR) (CFS)
CULVERT 1	59	273.00	271.75	2.1	RCP	18	7.71	0.723	2.141	0.338	8	5.85	5.84
CULVERT 2	67	272.75	271.75	1.5	RCP	15	3.06	0.179	1.171	0.153	4	0.72	0.71
CULVERT 3	46	272.00	271.75	0.5	RCP	18	5.23	0.427	1.708	0.250	3	1.43	1.42
CULVERT 4	2	271.75	271.50	12.5	RCP	18	5.66	0.476	1.786	0.266	17	7.98	7.97
CULVERT 5	9	272.75	272.00	8.3	RCP	15	0.93	0.031	0.628	0.050	4	0.14	0.13
CULVERT 6	146	272.50	272.00	0.3	RCP	18	5.61	0.470	1.777	0.265	3	1.30	1.29
CULVERT 7	34	273.65	273.00	1.9	RCP	18	4.67	0.364	1.604	0.227	6	2.15	2.14
CULVERT 8	72	274.00	268.00	8.3	RCP	18	3.58	0.249	1.386	0.180	11	2.63	2.62
CULVERT 9	97	263.75	263.00	0.8	RCP	15	3.26	0.197	1.213	0.162	3	0.59	0.58

CULVERT SUMMARY - CIRCULAR CULVERTS

PROJECT NAME Northeast Supply Expansion CS 206
LOCATION: Franklin Township, Somerset County, NJ
PREPARED BY: LZ DATE: 2/18/2026
CHECKED BY: WS DATE: 2/18/2026

CULVERT NO.	LENGTH (FT)	INV. IN. (ELEV)	INV. OUT. (ELEV)	PIPE SLOPE (%)	MATERIAL	PIPE DIA. D_O (IN.)	FLOW DEPTH d (IN.)	A (FT^2)	WETTED PERIMETER P (FT)	HYDRAULIC RADIUS R (FT)	V (FPS)	Q CAPACITY @ FLOW DEPTH d (CFS)	Q REQUIRED (25-YR) (CFS)
CULVERT 10	11	263.50	263.00	4.5	RCP	18	7.72	0.724	2.142	0.338	12	8.59	8.58
CULVERT 11	175	263.00	258.50	2.6	RCP	18	9.45	0.940	2.432	0.387	10	9.17	9.16
CULVERT 12	57	266.00	262.00	7.0	RCP	18	11.27	1.164	2.739	0.425	17	19.99	19.98
CULVERT 13	64	265.00	261.50	5.5	RCP	18	4.34	0.328	1.540	0.213	10	3.14	3.13
CULVERT 14	5	258.75	258.50	5.0	RCP	18	2.86	0.181	1.230	0.147	7	1.29	1.28
CULVERT 15	41	262.00	258.75	7.9	RCP	18	1.91	0.100	0.995	0.101	7	0.70	0.69
CULVERT 16	143	261.50	258.75	1.9	RCP	18	2.49	0.148	1.143	0.129	4	0.60	0.59
CULVERT 17	144	273.75	273.50	0.2	RCP	18	13.35	1.405	3.113	0.451	3	3.95	3.94

APPENDIX D.9
CONDUIT OUTLET PROTECTION

SCOUR HOLE CALCULATIONS

NJ Standards for SESC, Ch. 12, January 2014 Job Name: CS 206

Structure: Scour Hole 1

Q =	**7.97 c.f.s.**	W_o=	**1.50 Ft.**
D_o=	**1.50 Ft.**	q=Q/W_o=	**5.31 c.f.s.**
TW=	**0.30 Ft.**		

(For areas where Tw cannot be computed, use Tw = 0.2D_o)

d_{50} Stone size formula **When Y = 1/2 D_o**

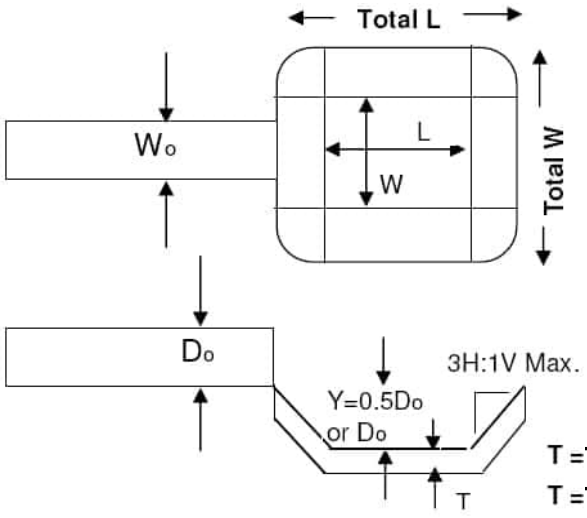
$$d_{50} = \frac{0.0125 * q^{1.33}}{TW} =$$ **0.38 Ft.** **=** **5 " Stone Calculated**

6 " Stone Used for Construction

0.75 ' = Y

NJ Standards require d_{50}=3" min, NJDOT requires d_{50}=6" min

Y = Depth of scour hole below culvert invert



L = 3 D_o = 4.50 '

W = 2 W_o = 3.00 '

If Y = 1/2D_o

Total L = 9.00 , Total W = 7.50

T =T = d_{50} Stone size x 2 if filter fabric is used

T =T = d_{50} Stone size x 3 if *no* filter fabric is used

Structure Scour Hole 1 Design Summary

Select Scour Hole Design	**Total L =**	**9 '**	**L =**	**4.5 '**
	Total W =	**7.5 '**	**W =**	**3 '**
	Depth of scour hole (Y) =			**0.75 '**
Y = 1/2 Do Use Filter Fabric	**d_{50} stone size =**			**6 "**
	Thickness of riprap (T) =			**12 "**
	Volume of riprap (V) =			**2.5 CY**

Notes:

SCOUR HOLE CALCULATIONS

NJ Standards for SESC, Ch. 12, January 2014 Job Name: CS 206

Structure: Scour Hole 2

Q =	**9.16 c.f.s.**	W_o=	**1.50 Ft.**
D_o=	**1.50 Ft.**	q=Q/W_o=	**6.11 c.f.s.**
TW=	**0.30 Ft.**		

(For areas where Tw cannot be computed, use Tw = 0.2D_o)

d_{50} Stone size formula **When Y = 1/2 D_o**

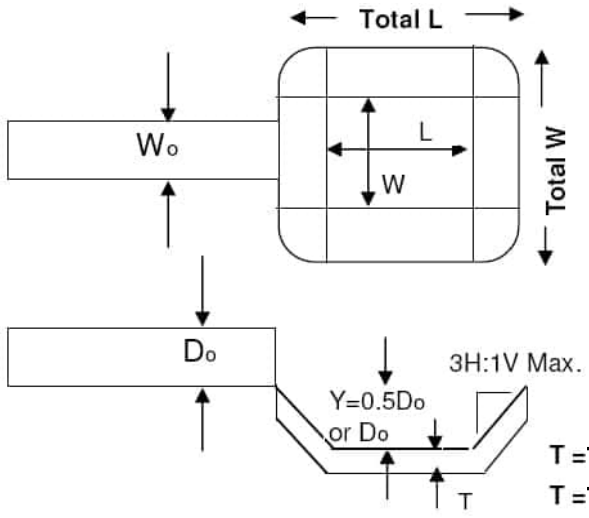
$$d_{50} = \frac{0.0125 * q^{1.33}}{TW} = 0.46 \text{ Ft.} = 6 \text{ " Stone Calculated}$$

6 " Stone Used for Construction

0.75 ' = Y

NJ Standards require d_{50}=3" min, NJDOT requires d_{50}=6" min

Y = Depth of scour hole below culvert invert



L = 3 D_o = 4.50 '

W = 2 W_o = 3.00 '

If Y = 1/2D_o

Total L = 9.00 , Total W = 7.50

T =T = d_{50} Stone size x 2 if filter fabric is used

T =T = d_{50} Stone size x 3 if *no* filter fabric is used

Structure Scour Hole 2 Design Summary

Select Scour Hole Design	**Total L =**	**9 '**	**L =**	**4.5 '**
	Total W =	**7.5 '**	**W =**	**3 '**
	Depth of scour hole (Y) =			**0.75 '**
Y = 1/2 Do Use Filter Fabric	**d_{50} stone size =**			**6 "**
	Thickness of riprap (T) =			**12 "**
	Volume of riprap (V) =			**2.5 CY**

Notes:

SCOUR HOLE CALCULATIONS

NJ Standards for SESC, Ch. 12, January 2014 Job Name: CS 206

Structure: Scour Hole 3

Q =	**1.28 c.f.s.**	W_o=	**1.50 Ft.**
D_o=	**1.50 Ft.**	q=Q/W_o=	**0.85 c.f.s.**
TW=	**0.30 Ft.**		

(For areas where Tw cannot be computed, use Tw = 0.2D_o)

d_{50} Stone size formula **When Y = 1/2 D_o**

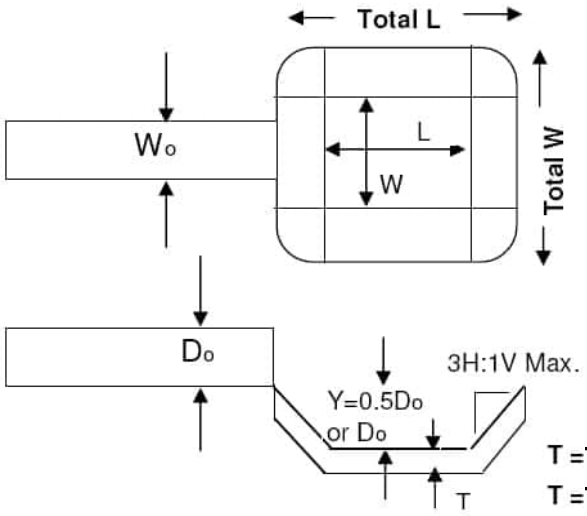
$$d_{50} = \frac{0.0125 * q^{1.33}}{TW} = 0.03 \text{ Ft.} = 1 \text{ " Stone Calculated}$$

6 " Stone Used for Construction

0.75 ' = Y

NJ Standards require d_{50}=3" min, NJDOT requires d_{50}=6" min

Y = Depth of scour hole below culvert invert



L = 3 D_o = 4.50 '

W = 2 W_o = 3.00 '

If Y = 1/2D_o

Total L = 9.00 , Total W = 7.50

T =T = d_{50} Stone size x 2 if filter fabric is used

T =T = d_{50} Stone size x 3 if *no* filter fabric is used

Structure Scour Hole 3 Design Summary

Select Scour Hole Design	**Total L =**	**9 '**	**L = 4.5 '**
	Total W =	**7.5 '**	**W = 3 '**
	Depth of scour hole (Y) =		**0.75 '**
Y = 1/2 Do Use Filter Fabric	**d_{50} stone size =**		**6 "**
	Thickness of riprap (T) =		**12 "**
	Volume of riprap (V) =		**2.5 CY**

Notes:

SCOUR HOLE CALCULATIONS

NJ Standards for SESC, Ch. 12, January 2014 Job Name: CS 206

Structure: Scour Hole 4

Q =	**3.94**	**c.f.s.**	W_o=	**1.50**	**Ft.**
D_o=	**1.50**	**Ft.**	q=Q/W_o=	**2.63**	**c.f.s.**
TW=	**0.30**	**Ft.**			

(For areas where Tw cannot be computed, use Tw = 0.2D_o)

d_{50} Stone size formula **When Y = 1/2 D_o**

$$d_{50} = \frac{0.0125 * q^{1.33}}{TW} = \mathbf{0.15}\ \mathbf{Ft.}$$

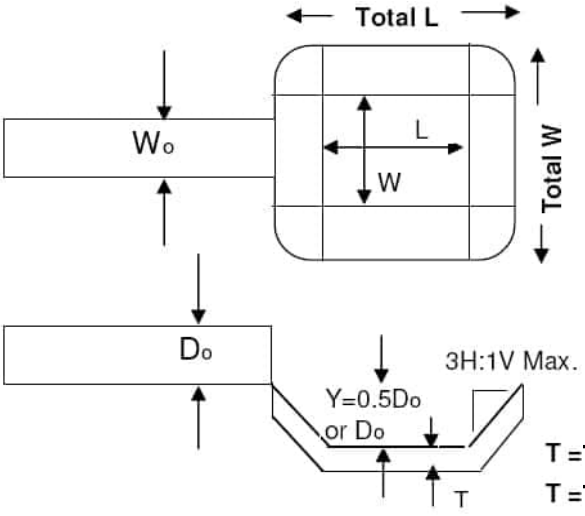
= **2** **" Stone Calculated**

6 **" Stone Used for Construction**

0.75 ' = Y

NJ Standards require d_{50}=3" min, NJDOT requires d_{50}=6" min

Y = Depth of scour hole below culvert invert



L = 3 D_o = 4.50 '

W = 2 W_o = 3.00 '

If Y = 1/2D_o

Total L = 9.00 , Total W = 7.50

T =T = d_{50} Stone size x 2 if filter fabric is used

T =T = d_{50} Stone size x 3 if *no* filter fabric is used

Structure Scour Hole 4 Design Summary

Select Scour Hole Design	**Total L =**	**9 '**	**L =**	**4.5 '**
	Total W =	**7.5 '**	**W =**	**3 '**
	Depth of scour hole (Y) =			**0.75 '**
Y = 1/2 Do Use Filter Fabric	**d_{50} stone size =**			**6 "**
	Thickness of riprap (T) =			**12 "**
	Volume of riprap (V) =			**2.5 CY**

Notes:

SCOUR HOLE CALCULATIONS

NJ Standards for SESC, Ch. 12, January 2014 Job Name: CS 206

Structure: Scour Hole 5

Q =	**19.98 c.f.s.**	W_o=	**1.50 Ft.**
D_o=	**1.50 Ft.**	q=Q/W_o=	**13.32 c.f.s.**
TW=	**0.30 Ft.**		

(For areas where Tw cannot be computed, use Tw = 0.2D_o)

d_{50} Stone size formula **When Y = 1/2 D_o**

$$d_{50} = \frac{0.0125 * q^{1.33}}{TW} = 1.30 \text{ Ft.}$$

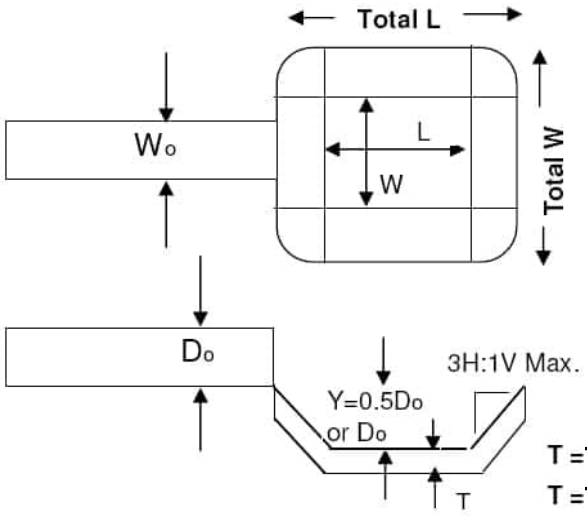
= 16 " Stone Calculated

18 " Stone Used for Construction

0.75 ' = Y

NJ Standards require d_{50}=3" min, NJDOT requires d_{50}=6" min

Y = Depth of scour hole below culvert invert



L = 3 D_o = 4.50 '

W = 2 W_o = 3.00 '

If Y = 1/2D_o

Total L = 9.00 , Total W = 7.50

T =T = d_{50} Stone size x 2 if filter fabric is used

T =T = d_{50} Stone size x 3 if *no* filter fabric is used

Structure Scour Hole 5 Design Summary

Select Scour Hole Design	**Total L =**	**9 '**	**L = 4.5 '**
	Total W =	**7.5 '**	**W = 3 '**
	Depth of scour hole (Y) =		**0.75 '**
Y = 1/2 Do Use Filter Fabric	**d_{50} stone size =**		**18 "**
	Thickness of riprap (T) =		**36 "**
	Volume of riprap (V) =		**7.5 CY**

Notes:

SCOUR HOLE CALCULATIONS

NJ Standards for SESC, Ch. 12, January 2014 Job Name: CS 206

Structure: Scour Hole 6

Q =	**3.13 c.f.s.**	W_o=	**1.50 Ft.**
D_o=	**1.50 Ft.**	q=Q/W_o=	**2.09 c.f.s.**
TW=	**0.30 Ft.**		

(For areas where Tw cannot be computed, use Tw = 0.2D_o)

d_{50} Stone size formula **When Y = 1/2 D_o**

$$d_{50} = \frac{0.0125 * q^{1.33}}{TW} =$$ **0.11 Ft. =**

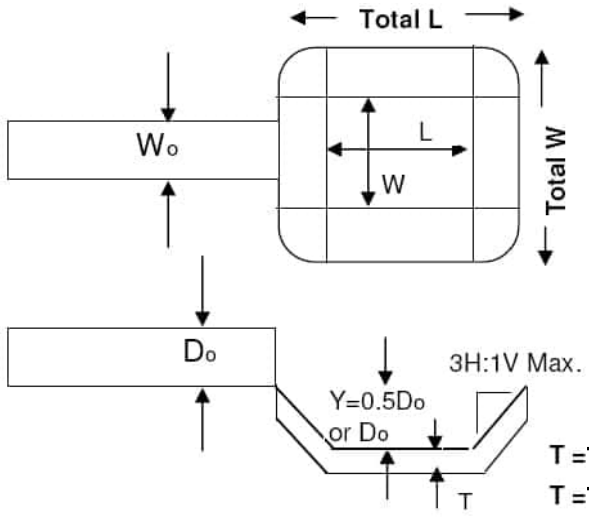
2 " Stone Calculated

6 " Stone Used for Construction

0.75 ' = Y

NJ Standards require d_{50}=3" min, NJDOT requires d_{50}=6" min

Y = Depth of scour hole below culvert invert



L = 3 D_o = 4.50 '

W = 2 W_o = 3.00 '

If Y = 1/2D_o

Total L = 9.00 , Total W = 7.50

T =T = d_{50} Stone size x 2 if filter fabric is used

T =T = d_{50} Stone size x 3 if *no* filter fabric is used

Structure Scour Hole 6 Design Summary

Select Scour Hole Design	**Total L =**	**9 '**	**L =**	**4.5 '**
	Total W =	**7.5 '**	**W =**	**3 '**
	Depth of scour hole (Y) =			**0.75 '**
Y = 1/2 Do Use Filter Fabric	**d_{50} stone size =**			**6 "**
	Thickness of riprap (T) =			**12 "**
	Volume of riprap (V) =			**2.5 CY**

Notes:

APPENDIX D.10
RIPRAP SLOPE PROTECTION

Completed by: LZ Date: 11/19/2025

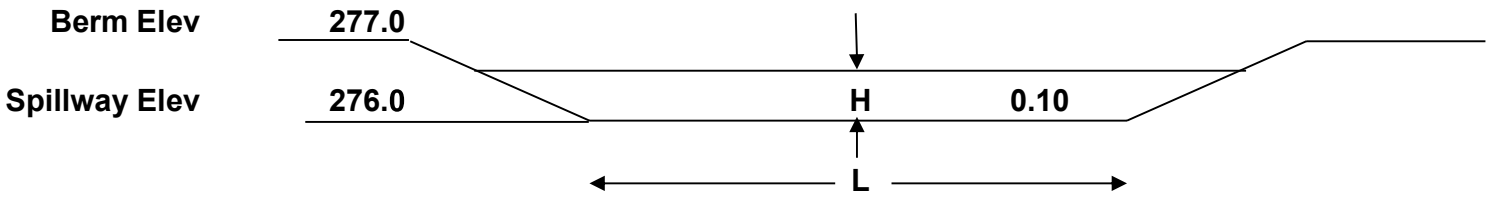
Emergency Spillway Capacity

Infiltration Basin #1

Future 100-Yr Q_D = 0.79 cfs

$Q = C\ L\ H^{3/2}$

C =	2.60	(Broad Crested Weir Coefficient)
L=	10 ft	(Spillway Width)
H=	0.10 ft	(Head i.e. Depth of Flow)
Q_{CAP}=	**0.82 cfs**	
Freeboard	**0.90** ft	



RIPRAPSLOPE PROTECTION
MINIMUM D_{50} STONE SIZE CALCULATION
Infiltration Basin #1

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 11/19/2025
CHECKED BY: AV DATE: 11/19/2025

LOCATION	BED SLOPE S (FT./FT.)	TOTAL DISCHARGE (CFS)	BOTTOM WIDTH (FT)	UNIT DISCHARGE q (CFS/FT)	MIN. D_{50} (IN.)	Prop. Riprap (R-_ / D50 = _ (in))
Emergency Spillway	0.02	0.79	10.0	0.08	0.44	R-4 / 6 in

Completed by: LZ Date: 11/19/2025

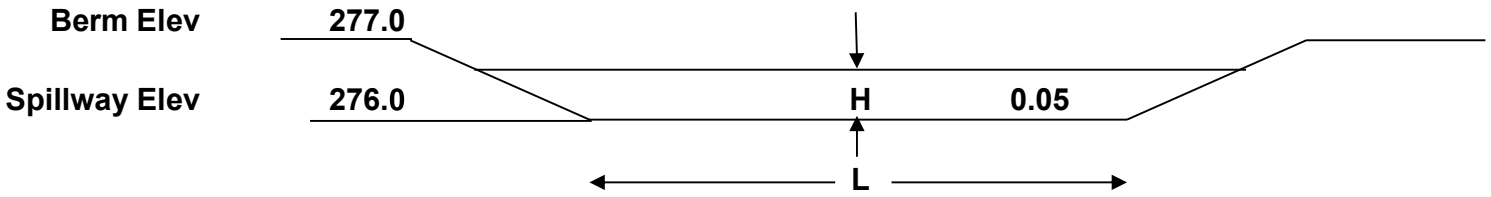
Emergency Spillway Capacity

Infiltration Basin #2

Future 100-Yr Q_D = 0.30 cfs

$Q = C L H^{3/2}$

C =	2.60	(Broad Crested Weir Coefficient)
L=	10 ft	(Spillway Width)
H=	0.05 ft	(Head i.e. Depth of Flow)
Q_{CAP}=	**0.29 cfs**	
Freeboard	**0.95** ft	



RIPRAPSLOPE PROTECTION
MINIMUM D_{50} STONE SIZE CALCULATION
Infiltration Basin #2

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 11/19/2025
CHECKED BY: AV DATE: 11/19/2025

LOCATION	BED SLOPE S (FT./FT.)	TOTAL DISCHARGE (CFS)	BOTTOM WIDTH (FT)	UNIT DISCHARGE q (CFS/FT)	MIN. D_{50} (IN.)	Prop. Riprap (R-_ / D50 = _ (in))
Emergency Spillway	0.02	0.30	10.0	0.03	0.26	R-4 / 6 in

Completed by: LZ Date: 11/19/2025

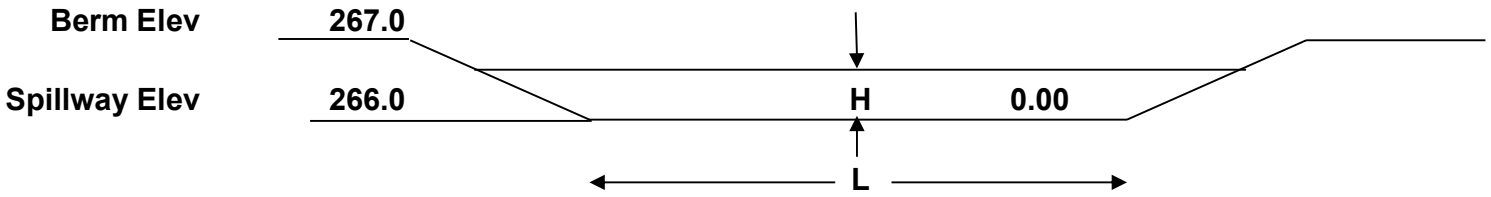
Emergency Spillway Capacity

Infiltration Basin #6&7

Future 100-Yr Q_D = 0.00 cfs

$Q = C L H^{3/2}$

C =	2.60	(Broad Crested Weir Coefficient)
L=	180 ft	(Spillway Width)
H=	0.00 ft	(Head i.e. Depth of Flow)
Q_{CAP}=	**0.00 cfs**	
Freeboard	**1.00** ft	



RIPRAPSLOPE PROTECTION
MINIMUM D_{50} STONE SIZE CALCULATION
Infiltration Basin #6&7

PROJECT NAME: **Northeast Supply Expansion - Compressor Station 206**
LOCATION: **Franklin Township, Somerset County**
PREPARED BY: LZ DATE: 11/19/2025
CHECKED BY: AV DATE: 11/19/2025

LOCATION	BED SLOPE S (FT./FT.)	TOTAL DISCHARGE (CFS)	BOTTOM WIDTH (FT)	UNIT DISCHARGE q (CFS/FT)	MIN. D_{50} (IN.)	Prop. Riprap (R-_ / D50 = _ (in))
Emergency Spillway	0.25	0.00	80.0	0.00	0.00	R-4 / 6 in

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSM)
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206
HIGGINS FARM ACCESS ROAD
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY

OWNER / APPLICANT

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
(TRANSCO)
P.O. BOX 1396
2800 POST OAK BLVD.
HOUSTON, TX 77056

CONTACT: JOSEPH DEAN
PERMIT AGENT
(281) 433-8046

PLAN PREPARER

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428

CONTACT: JOHN DROMSKY-REED, P.E.
PROJECT ENGINEER
(973) 883-8677

PROJECT DESCRIPTION

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO) IS PROPOSING TO CONSTRUCT ITS COMPRESSOR STATION (CS 206) IN FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY. THE PROJECT WILL INVOLVE THE CONSTRUCTION OF SMALL BUILDINGS, ASPHALT ACCESS ROAD AND PARKING AREAS, EQUIPMENT PADS, AND THE INSTALLATION OF TWO GAS PIPELINES (A SUCTION LINE AND A GAS DISCHARGE LINE) TO CONNECT THE PROPOSED COMPRESSOR STATION TO THE EXISTING NATURAL GAS TRANSMISSION LINE.

THESE DRAWINGS SHOW THE SITE GRADING AND POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES PLANNED IN CONJUNCTION WITH CS206, IN ACCORDANCE WITH N.J.A.C 7:8 (STORMWATER MANAGEMENT) SUBCHAPTER 5,

THIS EXPANSION PROJECT IS REGULATED BY THE U.S. DEPARTMENT OF ENERGY, FEDERAL ENERGY REGULATORY COMMISSION (FERC). IN ADDITION TO STATE AND LOCAL REQUIREMENTS, THIS EROSION AND SEDIMENT CONTROL PLAN INCLUDES MITIGATION MEASURES FOR PIPELINE CONSTRUCTION SPECIFIED BY FERC IN ITS PLAN AND PROCEDURES DOCUMENTS, UPLAND EROSION CONTROL, REVEGETATION AND MAINTENANCE PLAN, MAY 2013 AND WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES, MAY 2013.

ANTICIPATED CONSTRUCTION & RESTORATION SCHEDULE

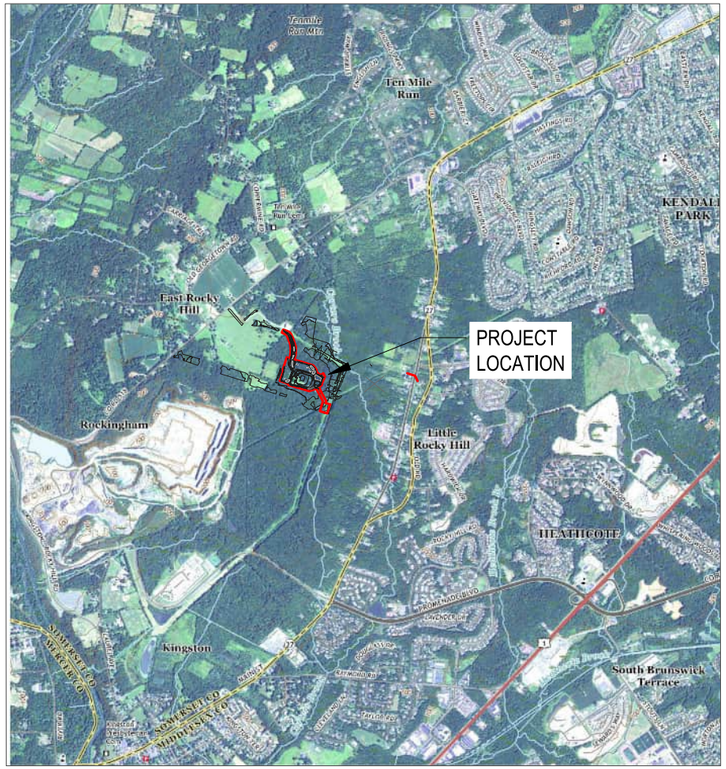
	START	END
CONSTRUCTION	Q1 2027	Q1 2028
RESTORATION	Q2 2028	Q4 2028

SHEET INDEX

DESCRIPTION	SHEET NUMBER
COVER SHEET	1
EXISTING CONDITIONS AND SOILS MAP (SHEET 1 OF 3)	2
EXISTING CONDITIONS AND SOILS MAP (SHEET 2 OF 3)	3
EXISTING CONDITIONS AND SOILS MAP (SHEET 3 OF 3)	4
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 1 OF 3)	5
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 2 OF 3)	6
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 3 OF 3)	7
SOIL TESTING PLAN (SHEET 1 OF 3)	8
SOIL TESTING PLAN (SHEET 2 OF 3)	9
SOIL TESTING PLAN (SHEET 3 OF 3)	10
DETAILS (SHEET 1 OF 4)	11
DETAILS (SHEET 2 OF 4)	12
DETAILS (SHEET 3 OF 4)	13
DETAILS (SHEET 4 OF 4)	14
INFILTRATION BASIN PROFILE PLAN (TYPICAL, BASIN 7 SHOWN)	15

BMP INDEX

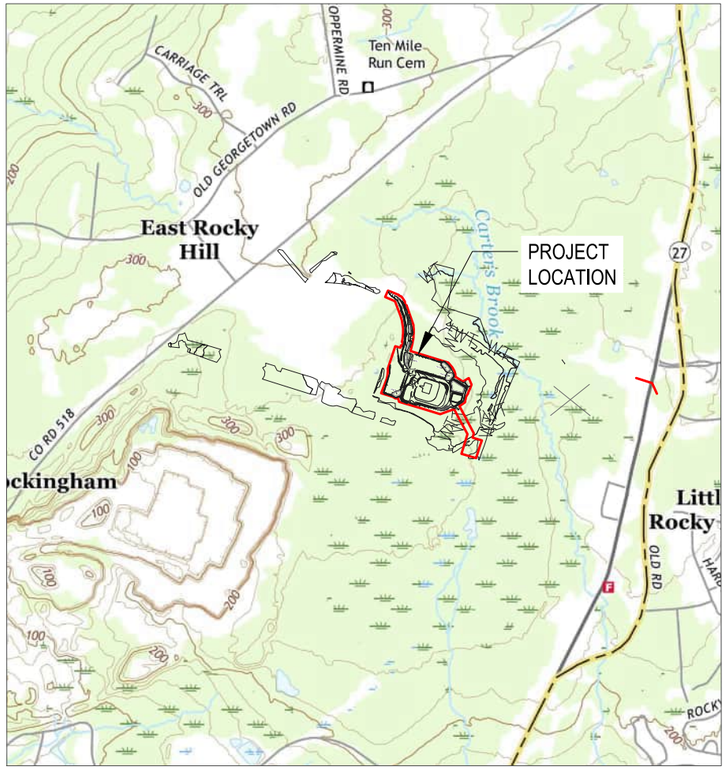
DESCRIPTION	SHEET NUMBER
INFILTRATION BASIN	11
CONCRETE OUTLET-STRUCTURE (INFILTRATION BASIN #3)	11
BRUSH SEEDING	11
TRASH RACK	11
REINFORCED CONCRETE END SECTION	13
CULVERT FOR NON-STREAM CROSSING	13
PRECAST MANHOLE DETAIL	13
CONCRETE ANTI-SEEP COLLAR	13
PIPE BEDDING	14
VEGETATED CHANNEL	14
RIPRAP CHANNEL	14
RIPRAP SLOPE PROTECTION	14
ASPHALT ACCESS ROAD	14
PREFORMED SCOUR HOLE	14



USGS AERIAL MAP

SCALE: 1 INCH=2000 FEET
0 2000 4000

MAP SOURCE
MONMOUTH JUNCTION, NJ QUADRANGLE
U.S. GEOLOGICAL SURVEY, 2016



USGS TOPOGRAPHIC MAP

SCALE: 1 INCH=1000 FEET
0 1000 2000

MAP SOURCE
MONMOUTH JUNCTION, NJ QUADRANGLE
U.S. GEOLOGICAL SURVEY, 2016



STATE OF NEW JERSEY

SEQUENCE OF CONSTRUCTION

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED SE&SC PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST SEVEN (7) DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE SE&SC PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.
3. MAKE NOTIFICATIONS ACCORDING TO PERMIT REQUIREMENTS.
4. HOLD PRE-CONSTRUCTION MEETING WITH ENVIRONMENTAL INSPECTOR.
5. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND OTHER TEMPORARY PERIMETER EROSION CONTROL MEASURES (I.E. SEDIMENT BARRIER) AS INDICATED ON THE SE&SC PLANS AND DETAILS PRIOR TO EARTH DISTURBING ACTIVITIES.
6. CONSTRUCT THE SEDIMENT BASIN, INCLUDING OUTLET STRUCTURE, OUTLET PROTECTION AND EMERGENCY SPILLWAY AS INDICATED ON THE SE&SC PLANS AND DETAILS. CARE SHOULD BE TAKEN TO AVOID COMPACTION OF THE BASIN BOTTOM. REFER TO THE 'BASIN COMPACTION NOTES'. DO NOT INSTALL THE SAND MEDIA IN THE BASIN BOTTOM AT THIS TIME.
7. REMOVE TOPSOIL FROM VEGETATED AREAS TO BE DISTURBED DURING EXCAVATION AND STOCKPILE IN STOCKPILE AREA.
8. COMPLETE WORK ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF COMPRESSOR STATION, ACCESS ROAD, LOOP ROAD, VALVES AND PIPING, VEGETATED SWALES ETC.
9. PRIOR TO TOPSOIL REPLACEMENT, ALL DISTURBED AND COMPACTED SUBGRADE AREAS SHALL BE DEEP SCARIFIED/TILLED TO A MINIMUM DEPTH OF 6 INCHES, UNLESS OTHERWISE APPROVED, IN ACCORDANCE WITH THE SOIL COMPACTION MITIGATION NOTES AND THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
10. RETURN TOPSOIL TO DESIGNATED AREAS
11. COMPLETE FINAL STABILIZATION INCLUDING SOIL TREATMENT, SEEDBED PREPARATION, SEED APPLICATION AND MULCHING.
12. AFTER FINAL STABILIZATION IS COMPLETED BY REVEGETATION AND OTHER PERMANENT STABILIZATION MEASURES, AS APPLICABLE, CONSTRUCT INFILTRATION BASINS, CLEAN OUT THE SEDIMENT BASIN AND CONVERT TO AN INFILTRATION BASIN BY INSTALLING SAND MEDIA IN THE BASIN BOTTOM.
13. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROLS AND CLEAN UP PROJECT SITE.
14. SUBMIT A COMPLETED NOTICE OF TERMINATION TO THE CONSERVATION DISTRICT.

MAINTENANCE

ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE SEDIMENT BARRIER SHALL BE CHECKED REGULARLY FOR UNDERMINING, AND DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION IS HALF WAY TO THE TOP OF THE BARRIER.
THE SEEDED AREAS SHALL BE CHECKED TO ENSURE THAT THE DEVELOPMENT OF A GOOD VEGETATIVE STAND AND GROWTH CONTINUES. THE AREAS SHALL BE FERTILIZED AND RESEEDED AS NEEDED.

DISTURBED AREA

AREA DESCRIPTION	ACREAGE
COMPRESSOR STATION 206	20.4 ACRES

REFERENCES

1. EXISTING FEATURE INFORMATION (TOPOGRAPHY, PROPERTY LINES, UTILITIES, ETC.) BASED ON FIELD SURVEY PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO)
2. STREAM AND WETLAND INFORMATION SHOWN BASED ON FIELD DELINEATION PERFORMED BY ECOLOGY & ENVIRONMENT AND PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO).
3. PROPOSED SITE LAYOUT INFORMATION (ROADWAY, COMPRESSOR STATION FACILITIES, GRADING, ETC.) PROVIDED BY HUNT GUILLOT & ASSOCIATES (HGA).

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY — No. 24GE04512400 — PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
COVER SHEET
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: N.T.S.
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 1 OF 15
WO: 1185732			

Drawn By & Date/Time: eva.tucewicz Nov 10, 2026 - 12:58pm
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission(11-12-2026)\01 - PCSM Cover CS 206 - EPA Road.dwg

Keyport

Neshaminy

EXISTING ACCESS ROAD

EXISTING ACCESS ROAD

EXISTING CULVERT

EXISTING BUILDING

EXISTING CULVERT

W-T23-001A-1

W-T23-002A-4

W-T23-002A-1

W-T23-002C-1

W-T23-002C-2

W-T23-002A-1

W-T23-002A-3

W-T23-002E-1

W-T23-003A-1

W-T23-002A-1

Neshaminy

LOD

WT

OHE

LS

LEGEND

EXISTING FEATURES

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA SOIL TYPE

PROPOSED FEATURES

- LOD LIMIT OF DISTURBANCE

NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:

MuA	MOUNT LUCAS SILT LOAMS
NehB	NESHAMINY SILT LOAMS
WasA	WATCHUNG SILT LOAM

50' 25' 0' 50'

SCALE: 1"= 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.

STATE OF NEW JERSEY — JOHN T. DROMSKY-REED — No. 24GE04512400 — LICENSED PROFESSIONAL ENGINEER

John Dromsky-Reed

NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EXISTING CONDITIONS AND SOILS MAP (1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 2 OF 15
W.O: 1185732			

Drawn By & Date/Time: eva.lucewicz Nov. 10, 2026 – 11:16am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission(11-12-2026)\02-04 – PCSM_Existing Plan CS 206 – EPA Road.dwg

LEGEND

EXISTING FEATURES

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE



NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:

MuA	MOUNT LUCAS SILT LOAMS
NehB	NESHAMINY SILT LOAMS
WasA	WATCHUNG SILT LOAM

50' 25' 0' 50'
SCALE: 1"= 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY — JOHN T. DROMSKY-REED — No. 24GE04512400 — LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

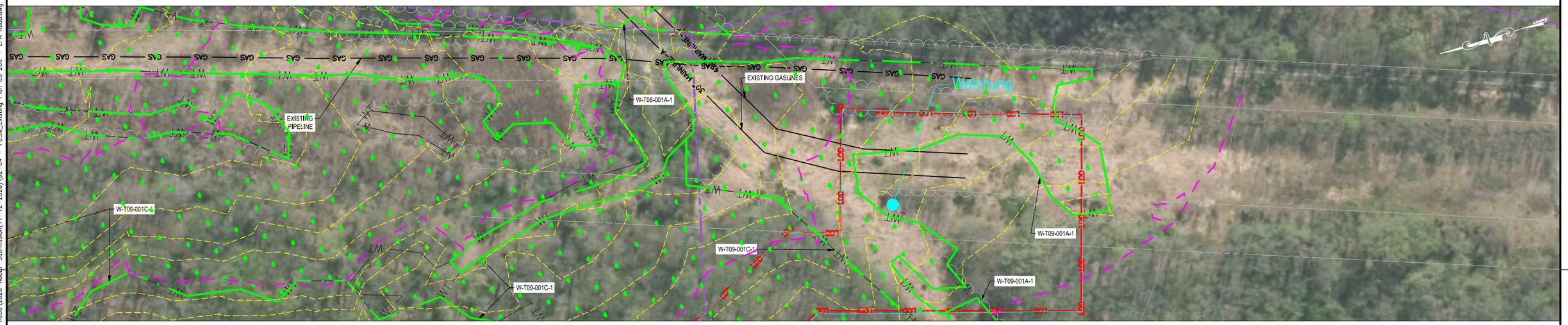
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EXISTING CONDITIONS AND SOILS MAP (2 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 3 OF 15
W.O: 1185732			

Drawn By & Date/Time: eva.lucewicz Nov 10, 2026 - 11:17am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission(11-12-2026)\02-04 - PCSM_Existing Plan CS 206 - EPA Road.dwg



LEGEND

EXISTING FEATURES

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE

NOTES:

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2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:

MuA	MOUNT LUCAS SILT LOAMS
NehB	NESHAMINY SILT LOAMS
WasA	WATCHUNG SILT LOAM

50' 25' 0' 50'
SCALE: 1"= 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY — JOHN T. DROMSKY-REED — No. 24GE04512400 — LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

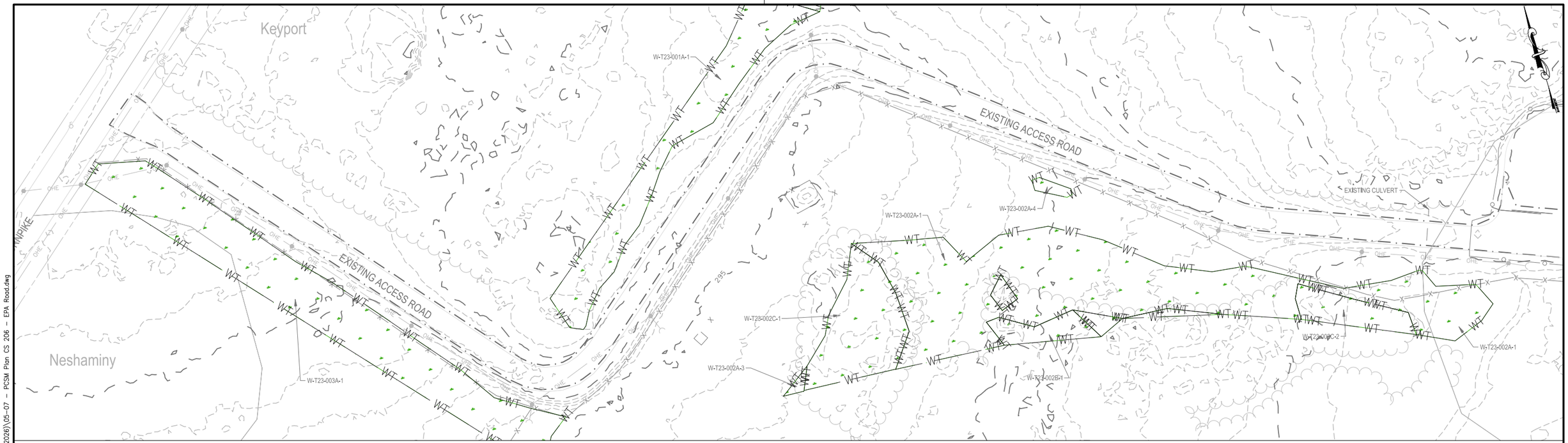
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

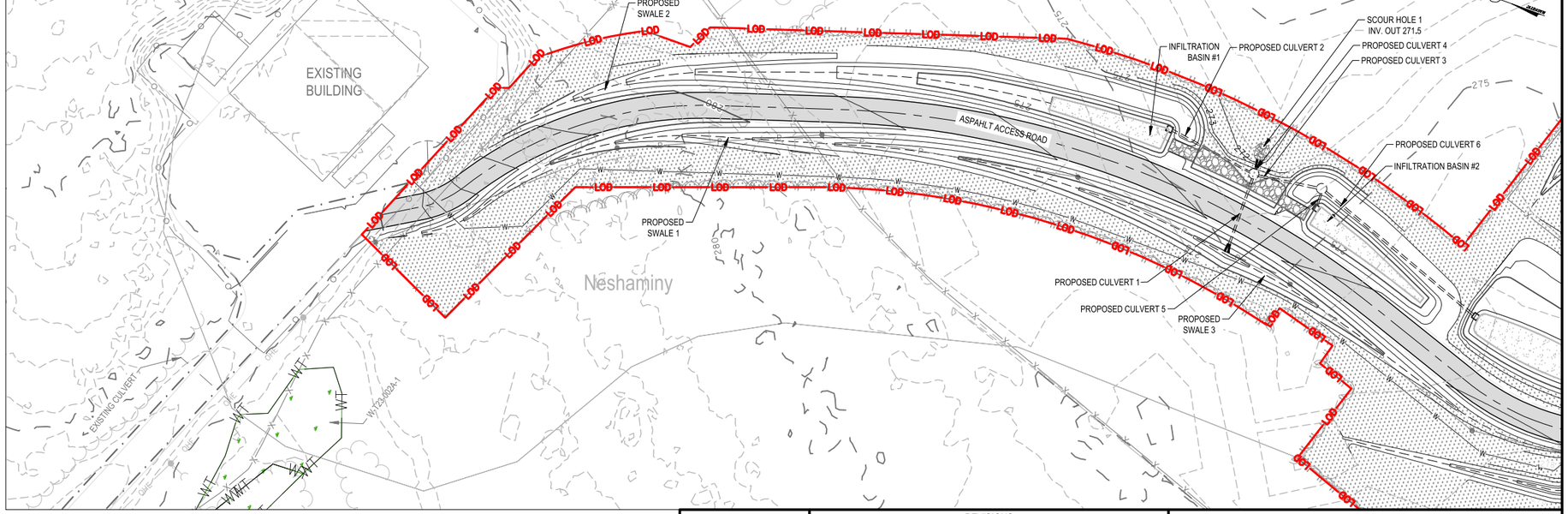
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EXISTING CONDITIONS AND SOILS MAP (3 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 4 OF 15
W.O: 1185732			

Drawn By & Date/Time: eva.lucewicz Nov 10, 2026 - 11:17am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission(11-12-2026)\02-04 - PCSM_Existing Plan CS 206 - EPA Road.dwg





LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- GAS — PROPOSED PIPELINE
- CULVERT
- RIP RAP APRON
- X — PROPOSED FENCE
- PROPOSED TREE LINE
- PROPOSED GRAVEL
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- RIPRAP SLOPE PROTECTION
- PROPOSED BRUSH SEED MIX
- GRASS SEED MIX
- TP-8 — SOIL TEST LOCATION
- EROSION CONTROL BLANKET

SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
WATCHUNG

NOTES:
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POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 5 OF 15
W.O: 1185732			

Drawn By & Date/Time: eva.tucewicz Nov 10, 2026 - 11:19am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission(11-12-2026)\05-07 - PCSM Plan CS 206 - EPA Road.dwg

LEGEND

EXISTING FEATURES

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- WETLAND
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PROPOSED FEATURES

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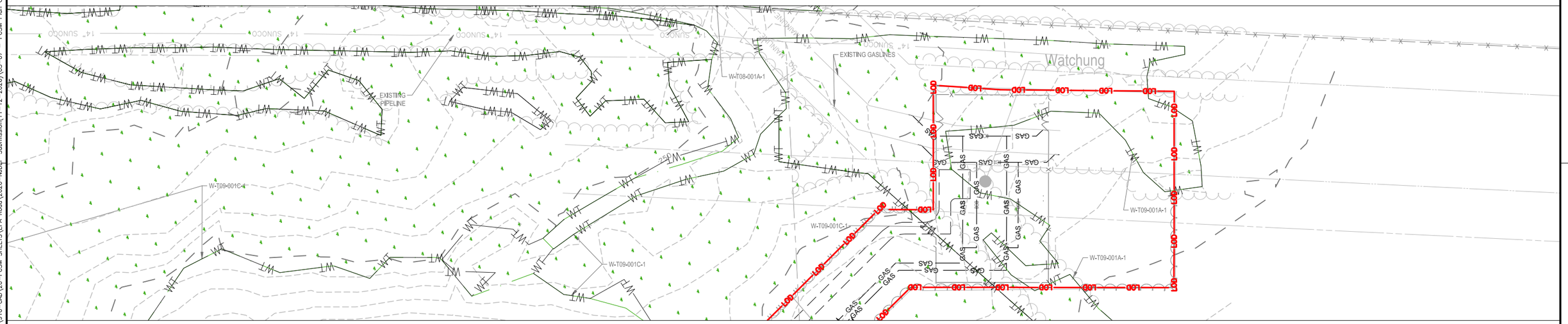
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
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NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 2 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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W.O: 1185732			

Drawn By & Date/Time: eva.luciewicz Nov 10, 2026 - 11:21am
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LEGEND

EXISTING FEATURES

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- EXISTING MINOR CONTOUR
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- SOIL TYPE BOUNDARY
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PROPOSED FEATURES

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REVISIONS

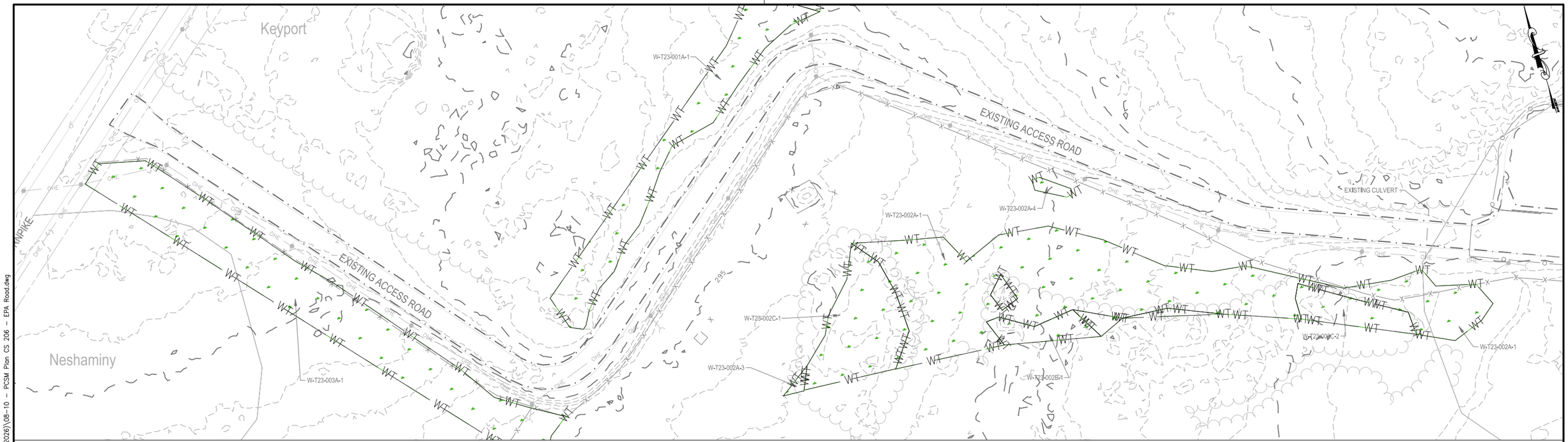
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POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (SHEET 3 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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CHECKED BY:	TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION:	2
APPROVED BY:	KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET	7 OF 15
W.O:	1185732				

Drawn By & Date/Time: eva.tucewicz Nov 10, 2026 - 11:21am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission\(11-12-2026)\05-07 - PCSM Plan CS 206 - EPA Road.dwg



Soil Profile Pit Location				
	Longitude	Latitude	Reference Depth (ft)	Depth (ft) for Soil Profile
1	W74° 35' 55.58495715"	N40° 24' 17.91664901"	3,0	10,0
2	W74° 35' 55.41873728"	N40° 24' 16.68927585"	2,0	9,0
3	W74° 35' 55.62775245"	N40° 24' 14.91593417"	2,0	9,0
4	W74° 35' 55.81898016"	N40° 24' 14.44523376"	3,0	10,0
5	W74° 35' 49.97421223"	N40° 24' 12.18448956"	6,5	13,5
6	W74° 35' 49.29367755"	N40° 24' 11.88483356"	5,5	12,5
6A	W74° 35' 49.1958"	N40° 24' 12.06767"	4,0	11,0
7	W74° 35' 48.64236079"	N40° 24' 10.92435040"	7,5	14,5
8	W74° 35' 48.50576556"	N40° 24' 10.49080179"	6,5	13,5
9	W74° 35' 56.04682262"	N40° 24' 13.29870750"	5,0	12,0
10	W74° 35' 56.10818134"	N40° 24' 12.69032142"	5,0	12,0
11	W74° 35' 57.51043732"	N40° 24' 08.88787656"	3,5	10,5
12	W74° 35' 57.51748939"	N40° 24' 08.38995253"	2,5	9,5
13	W74° 35' 47.70990417"	N40° 24' 08.96612783"	5,0	12,0
14	W74° 35' 47.02535237"	N40° 24' 07.63824188"	4,0	11,0
15	W74° 35' 47.72203890"	N40° 24' 07.43493694"	5,0	12,0
16	W74° 35' 48.99786917"	N40° 24' 11.46244198"	7,5	14,5
17	W74° 35' 58.41186836"	N40° 24' 08.61426455"	3,0	10,0
18	W74° 35' 57.5196"	N40° 24' 07.89966"	1,5	8,5
19	W74° 35' 50.8338"	N40° 24' 12.11492"	6,5	13,5
20	W74° 35' 50.3334"	N40° 24' 11.84795"	6,5	13,5
21	W74° 35' 50.1792"	N40° 24' 11.11086"	7,0	14,0
22	W74° 35' 50.2368"	N40° 24' 10.62347"	7,0	14,0
23	W74° 35' 53.0376"	N40° 24' 13.18919"	6,0	13,0
24	W74° 35' 52.2378"	N40° 24' 13.00542"	4,0	11,0
25	W74° 35' 52.443"	N40° 24' 11.14582"	6,0	13,0
26	W74° 35' 51.4098"	N40° 24' 10.90167"	5,0	12,0
27	W74° 35' 57.876"	N40° 24' 08.27570"	5,0	12,0
28	W74° 35' 57.159"	N40° 24' 08.50421"	5,0	12,0

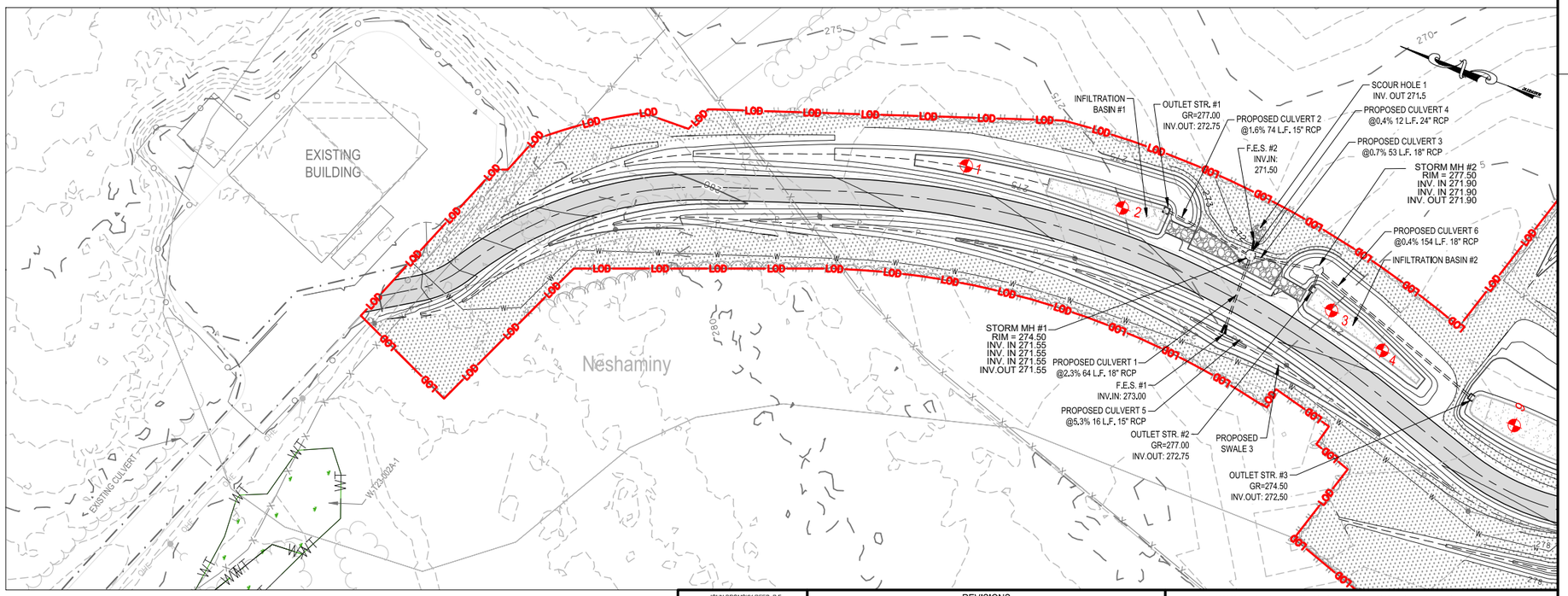
LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
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- SOIL TYPE BOUNDARY
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PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR
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- TP-8 — SOIL TEST LOCATION
- 20 (6') — TEST PIT LOCATION
- 20 (6') — TEST PIT FAILED/ABANDONED
- 5A — BASIN FLOODING TEST LOCATION



SOIL LEGEND:
MOUNT LUCAS
NESHAMINY
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NOTES:

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POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
SOIL TESTING PLAN (SHEET 1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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WO: 1185732			

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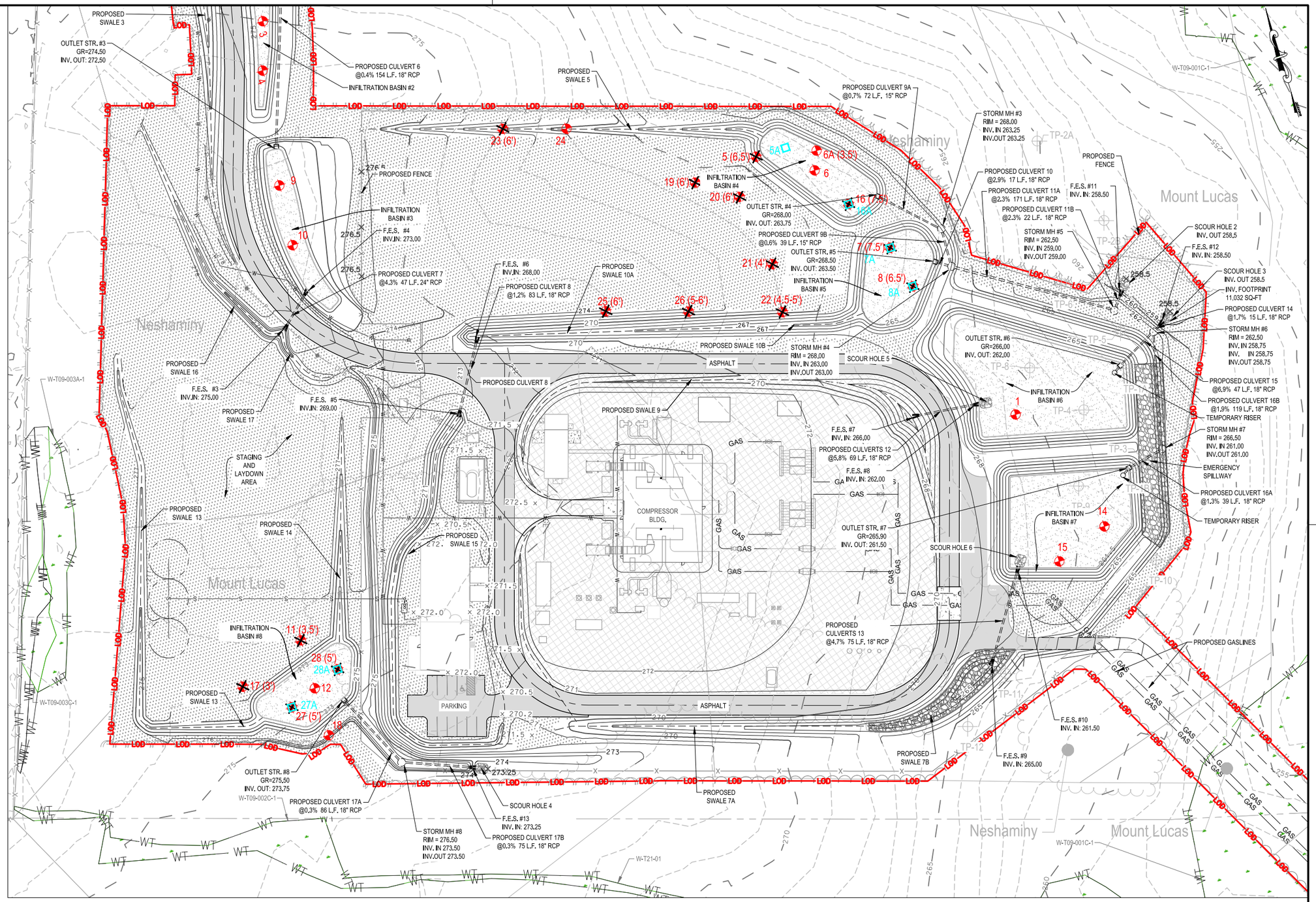
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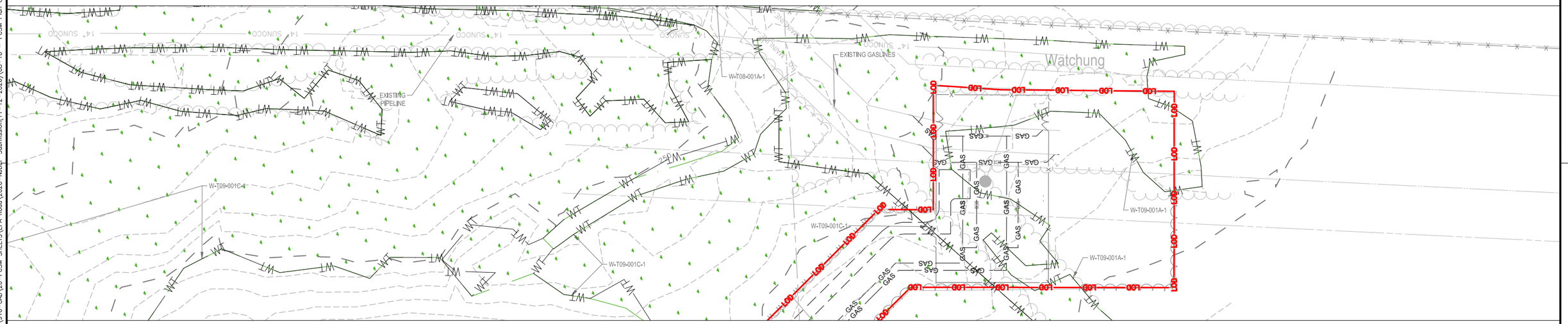
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FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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APPROVED BY:	KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET	9 OF 15
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MOUNT LUCAS
NESHAMINY
WATCHUNG

50' 25' 0' 50'
SCALE: 1"= 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY — JOHN L. DROMSKY-REED — No. 24GE04512400 — LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

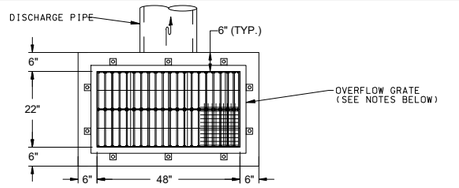
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
SOIL TESTING PLAN (SHEET 3 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

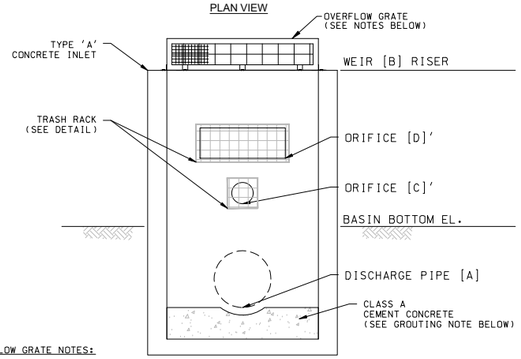
Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 10 OF 15
W.O.: 1185732			

Drawn By & Date/Time: eva.tucewicz Nov 10, 2026 - 11:24am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission\(11-12-2026\)08-10 - PCSM Plan CS 206 - EPA Road.dwg



PLAN VIEW



OVERFLOW GRATE NOTES:

AN OVERFLOW GRATE IS DESIGNED TO PREVENT OBSTRUCTION OF THE STRUCTURE. THE GRATE MUST COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. THE OVERFLOW GRATE MUST BE SECURED TO THE OUTLET STRUCTURE BUT REMOVABLE FOR EMERGENCIES AND MAINTENANCE;
2. THE OVERFLOW GRATE SPACING MUST BE NO GREATER THAN 2 INCHES ACROSS THE SMALLEST DIMENSION; AND
3. THE OVERFLOW GRATE MUST BE CONSTRUCTED OF RIGID, DURABLE, AND CORROSION RESISTANT MATERIAL AND DESIGNED TO WITHSTAND A PERPENDICULAR LIVE LOADING OF 300 LBS/SF.

GROUTING NOTE:

THE SPACE BELOW THE INVERT OF THE DISCHARGE PIPE MUST BE FILLED WITH MATERIAL, SUCH AS CONCRETE, A MIXTURE OF SAND AND CEMENT, OR SIMILAR GROUTING MATERIAL, SUCH THAT WATER WILL NOT POND IN THE OUTLET STRUCTURE. THIS MATERIAL MUST BE SLOPED TOWARDS THE DISCHARGE PIPE TO FACILITATE DRAINAGE.

BASIN NO.	BASIN BOTTOM	CULVERT [A] OUTFALL		WEIR [B] RISER	ORIFICE [C]		ORIFICE [D]	
	ELEV.	SIZE/ MATERIAL	INV. ELEV.	ELEV.	SIZE	INV. ELEV.	SIZE	INV. ELEV.
INFILTRATION BASIN #1	274.00	15" RCP	272.75	277.00	2" H 2" W	275.00	0.5' H 3.0' W	276.00
INFILTRATION BASIN #2	274.00	15" RCP	272.75	277.00	2" H 2" W	274.70	0.5' H 0.5' W	276.20
INFILTRATION BASIN #3	273.00	18" RCP	272.50	274.50	3" H 28"W	273.30	0.5' H 1.5' W	274.00
INFILTRATION BASIN #4	265.00	15" RCP	263.75	268.00	4" H 6" W	265.15	0.33' H 2.0' W	267.00
INFILTRATION BASIN #5	265.00	18" RCP	263.50	268.50	3" H 6" W	266.30	1.0' H 3.0' W	267.35
INFILTRATION BASIN #6	262.00	18" RCP	262.00	266.00	3"	262.65	0.5' H 0.8' W	264.00
INFILTRATION BASIN #7	261.50	18" RCP	261.50	265.90	4"	262.35	0.5' H 1.0' W	265.00
INFILTRATION BASIN #8	273.00	18" RCP	273.75	275.50	3" H 8" W	273.20	0.5' H 1.5' W	274.50

NOTE:
OPENINGS ARE CONSTRUCTED SIDE BY SIDE WHEN OVERLAPPED IN THE VERTICAL DIRECTION.

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

(COS) CONCRETE OUTLET STRUCTURE

GAS PIPELINE

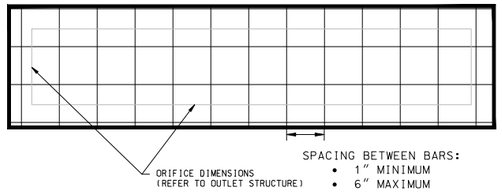
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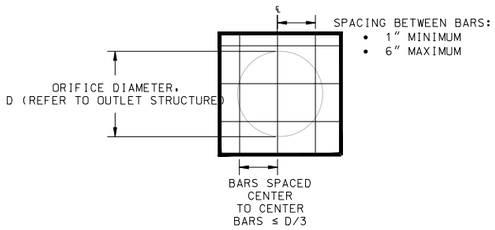
1. THE SAND MUST MEET ALL THE SPECIFICATIONS FOR CLEAN, MEDIUM-AGGREGATE CONCRETE SAND IN ACCORDANCE WITH AASHTO M-6 OR ASTM C-33, AS CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY
2. THE MAXIMUM PERCENTAGE OF FILES IN 15%
3. THE MINIMUM TESTED INFILTRATION RATE IS 20 INCHES/HOUR
4. THE USE OF TOPSOIL AND VEGETATION IS PROHIBITED
5. FILTER FABRIC (NON-WOVEN, 8 OZ/SY) IS REQUIRED ALONG THE SIDES OF THE INFILTRATION BASIN TO PREVENT THE MIGRATION OF FINE PARTICLES FROM THE SURROUNDING SOIL; FILTER FABRIC MAY NOT BE USED ALONG THE BOTTOM OF THE BASIN BECAUSE IT MAY RESULT IN A LOSS OF PERMEABILITY
6. SAND MEDIA MUST BE PLACED IN LIFTS NOT TO EXCEED 6 INCHES
7. PROCEDURE:
   - 7.1. EXCAVATE TO REQUIRED MINIMUM THICKNESS OF SAND MEDIA. SCARIFY AND DE-COMPACT THE EXPOSED SUBGRADE IN ACCORDANCE WITH THE 'BASIN COMPACTION NOTES', TO A DEPTH OF 6" - 12"
   - 7.2. REMOVE ROCKS LARGER THAN 3 INCHES
   - 7.3. PREPARE AND PLACE THE SAND MEDIA PER NOTES 1-6 ABOVE.

SAND MEDIA

NO.	DATE	BY	REVISION DESCRIPTION			

SAND MEDIA





NOTES:

FOR SYSTEMS DESIGNED WITH AN OUTLET STRUCTURE, TRASH RACKS MUST BE INSTALLED AT THE INTAKE TO THE OUTLET STRUCTURE. THEY MUST MEET THE FOLLOWING CRITERIA:

1. PARALLEL BARS WITH 1-INCH SPACING BETWEEN THE BARS UP TO THE ELEVATION OF THE WATER QUALITY DESIGN STORM;
2. PARALLEL BARS HIGHER THAN THE ELEVATION OF THE WATER QUALITY DESIGN STORM MUST BE SPACED NO GREATER THAN ONE-THIRD THE WIDTH OF THE DIAMETER OF THE ORIFICE, WITH MINIMUM SPACING BETWEEN BARS OF 1-INCH AND A MAXIMUM SPACING BETWEEN BARS OF SIX INCHES;
3. THE TRASH RACK MUST BE DESIGNED SO AS NOT TO ADVERSELY AFFECT THE HYDRAULIC PERFORMANCE OF THE OUTLET PIPE OR STRUCTURE;
4. CONSTRUCTED OF RIGID, DURABLE AND CORROSION-RESISTANT MATERIAL; AND
5. DESIGNED TO WITHSTAND PERPENDICULAR LIVE LOADING OF 300 LBS/SF.

TRASH RACK (TR)

NEW JERSEY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

(TR) TRASH RACK

GAS PIPELINE

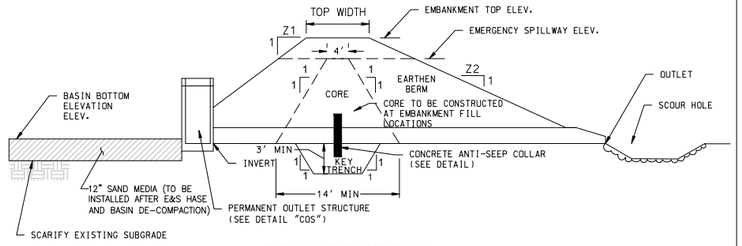
SOMERSET-UNIOIN SOIL CONSERVATION DISTRICT BASIN COMPACTION NOTES:

1. INSPECT SITE. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RE-TILLED AND FIRMED IN ACCORDANCE WITH ABOVE.
2. THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS WILL HELP INSURE A GOOD BOND BETWEEN THE TOPSOIL AND SUBSOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
3. SOIL COMPACTION RESULTING FROM LAND GRADING ACTIVITIES CAN IMPACT THE INFILTRATION RATE OF THE SOIL. RESTORATION OF COMPACTED SOILS THROUGH DEEP TILLAGE (6" TO 12") MAY BE REQUIRED IN PLANNED PERVIOUS AREAS TO ENHANCE THE INFILTRATION RATE OF THE DISTURBED SOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
4. TO PREVENT COMPACTION OF THE SUBSOIL WHICH WILL REDUCE ITS INFILTRATION CAPACITY, BASINS SHOULD BE EXCAVATED WITH LIGHT EARTH MOVING EQUIPMENT (LOW GROUND PRESSURE), PREFERABLY WITH TRACKS OR OVER-SIZED TIRES RATHER THAN THE NORMAL RUBBER TIRES. ONCE THE FINAL CONSTRUCTION PHASE IS REACHED, THE FLOOR OF THE BASIN SHALL BE SCARIFIED AND DE-COMPACTED DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND SMOOTHED OVER WITH A LEVELING DRAG OR EQUIVALENT GRADING EQUIPMENT
5. FOR BASINS, ANNUAL TILLING OPERATIONS MAINTAIN INFILTRATION CAPACITY. DEEP TILLING CAN BE USED TO BREAKUP CLOGGED SURFACE LAYERS FOLLOWED BY RE-GRADING AND LEVELING. SAND OR ORGANIC MATTER CAN BE TILLED INTO THE BASIN FLOOR TO PROMOTE A RESTORED INFILTRATION CAPACITY. SEDIMENT REMOVAL PROCEDURES SHOULD NOT BE UNDERTAKEN UNTIL THE BASIN IS THOROUGHLY DRY. THE TOP LAYER SHOULD BE REMOVED BY LIGHT EQUIPMENT TO PREVENT COMPACTION. THE REMAINING SOIL CAN BE RE-TILLED.

BASIN COMPACTION NOTES

NO.	DATE	BY	REVISION DESCRIPTION			

BASIN COMPACTION NOTES



EMBANKMENT SECTION

NOTES:

1. CONTRACTOR SHALL EXCAVATE THE BASIN FROM OUTSIDE THE LIMITS OF THE BASIN. IF CONTRACTOR NEEDS TO ENTER THE BASIN FOOTPRINT, CONTRACTOR SHALL ONLY USE LOW CONTACT PRESSURE EQUIPMENT TO GRADE THE BASIN TO MINIMIZE COMPACTING THE SOILS.

BASIN NO.	EMBANKMENT			CULVERT			
	Z1	Z2	TOP ELEV. (FEET)	INVERT ELEV. (FEET)	OUTLET ELEV. (FEET)	DIAMETER (INCH)	MATERIAL
INFILTRATION BASIN #1	3	3	277.50	272.75	271.55	15	RCP
INFILTRATION BASIN #2	3	3	277.50	272.75	271.90	15	RCP
INFILTRATION BASIN #3	3	N/A	276.00	272.50	271.90	18	RCP
INFILTRATION BASIN #4	3	N/A	268.00	263.75	263.25	15	RCP
INFILTRATION BASIN #5	3	N/A	268.00	263.50	263.00	18	RCP
INFILTRATION BASIN #6	3	3	267.00	262	258.75	18	RCP
INFILTRATION BASIN #7	3	3	267.00	261.50	261.00	18	RCP
INFILTRATION BASIN #8	3	N/A	276.00	273.75	273.50	18	RCP

NEW JERSEY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

(IB) INFILTRATION BASIN

GAS PIPELINE

BRUSH SEEDING MIX FOR WETLAND AREAS (ERNSET SEED FACW MEADOW MIX)	
COMMON NAME	SCIENTIFIC NAME
FOX SEDGE	CAREX VULPINOIDEA
HOP SEDGE	CAREX LUPULINA
BLUNT BROOM SEDGE	CAREX SCOPARIA
BLADDER (STAR) SEDGE	CAREX INTUMESCENS
VIRGINIA WILDRYE	ELYMUS VIRGINICUS
OXEYE SUNFLOWER	HELIOPSIS HELIANTHOIDES
NARROWLEAF BLUE EYED GRASS	SISYRINCHIUM ANGUSTIFOLIA
SEEDBOX	LUDWIGIA ALTERNIFOLIA
RATTLESNAKE GRASS	GLYCERIA CANADENSIS
GREAT BLUE LOBELIA	LOBELIA SIPHILITICA
WATER PLANTAIN	ALISMA SUBCORDATUM
SWAMP MILKWEED	ASCLEPIAS INCARNATA
BONESET	EUPATORIUM PERFOLIATUM
LURID SEDGE	CAREX LURIDA
SOFT RUSH	JUNCUS EFFUSUS
SENSITIVE FERN	ONOCLEA SENSIBILIS
GREEN BULRUSH	SCIRPUS ATROVIRENS
WOOLGRASS	SCIRPUS CYPERINUS
SPOTTED JOE-PYE WEED	EUPATORIUM MACULATUM
BLUE VERVAIN	VERBANA HASTATA
DITCH STONECROP	PENTHORUM SEDOIDES
MONKEY FLOWER	MIMULUS RINGENS
NEW ENGLAND ASTER	ASTER NOVAE-ANGLIAE
FLAT-TOP WHITE ASTER	ASTER UMBELLATUS
SLENDER MOUNTAINMINT	PYCNANTHEMUM TENUIFOLIUM

* SEED APPLICATION RATES SHOULD FOLLOW THE MANUFACTURER'S RECOMMENDATION FOR THE INDIVIDUAL SEED MIX.

BRUSH SEEDING MIX FOR TRANSITION AND UPLAND AREAS (ERNSET SEED CUSTOM NATIVE UPLAND WILDLIFE FORAGE AND COVER MIX)	
COMMON NAME	SCIENTIFIC NAME
VIRGINIA WILD RYE	ELYMUS VIRGINICUS
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM
SWITCHGRASS	PANICUM VIRGATUM
INDIANGRASS	SORGHASTRUM NUTANS
EASTERN GAMMA GRASS	TRIPSACUM DACTYLOIDES
FOWL BLUEGRASS	POA PALUSTRIS
BIG BLUESTEM	ANDROPOGON GERARDII
BLACK EYED SUSAN	RUDBECKIA HIRTA
SHOWY TICK-TREFOIL	DESMODIUM CANADENSE
OX EYE SUNFLOWER	HELIOPSIS HELIANTHOIDES

* SEED APPLICATION RATES SHOULD FOLLOW THE MANUFACTURER'S RECOMMENDATION FOR THE INDIVIDUAL SEED MIX.

BRUSH SEEDING

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625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
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JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY
No. 24GE04512400
LICENSED
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John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

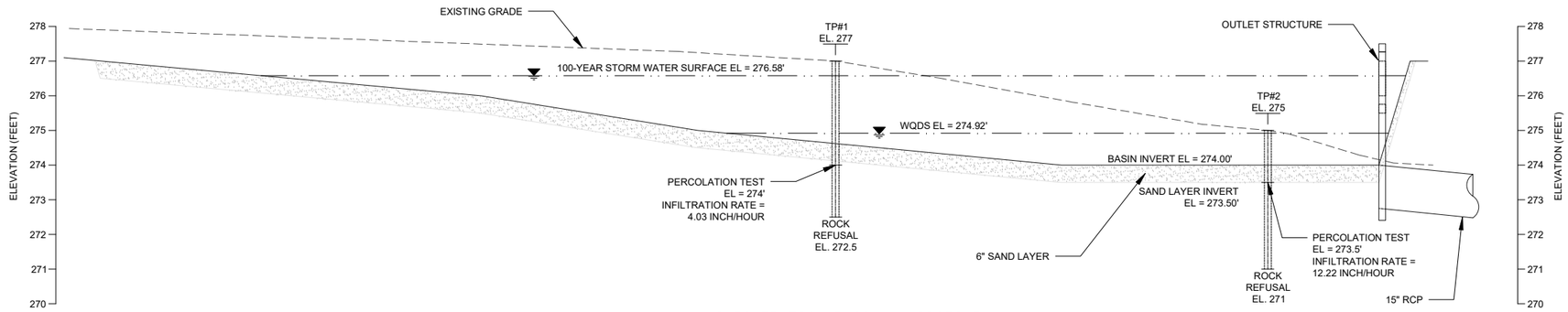
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
DETAILS (SHEET 1 OF 4)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: N.T.S.
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 11 OF 15
W/O: 1185732			

Drawn By & Date/Time: eva.lucewicz Nov 10, 2026 - 11:32am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\20-PCSM SHEETS\EPA Road\2026-NJDEP Submission\11-12-2026\11-14 - PCSM Detail Sheets - EPA Road.dwg



INFILTRATION BASIN #1 PROFILE

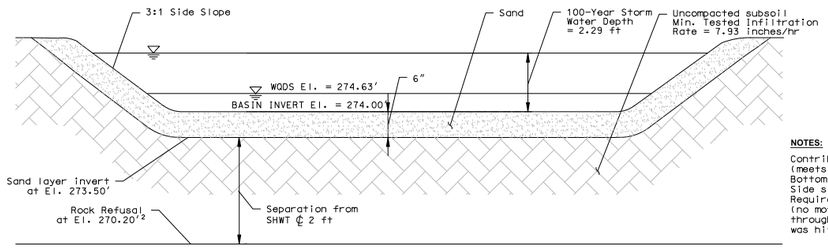
PERMANENT STORMWATER CONTROL MEASURE

0 10 20 40
HORIZONTAL SCALE (FEET)

0 1 2 4
VERTICAL SCALE (FEET)

NOTES:

Contributing drainage area: 0.89 acres
(meets ≤2.5 acre limit).
Bottom area: 1,231 sf.
Side slopes: 3H:1V (max).
Percolation tests were conducted at the level of infiltration, and infiltration rates meets requirements. Soil profiles were excavated until refusal hit. Refusal depth was used as the apparent maximum groundwater level as no mottling or groundwater was encountered throughout soil profiles.



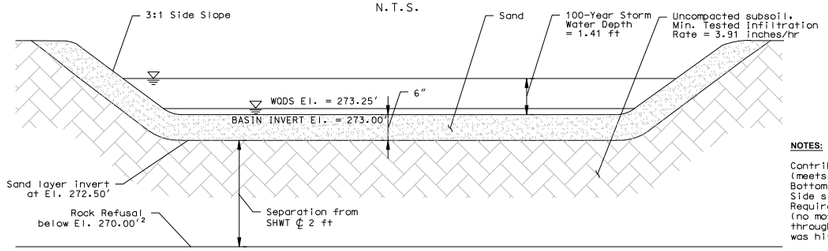
INFILTRATION BASIN #2 PROFILE

PERMANENT STORMWATER CONTROL MEASURE

N.T.S.

NOTES:

Contributing drainage area: 0.30 acres
(meets ≤2.5 acre limit).
Bottom area: 1,081 sf.
Side slopes: 3H:1V (max).
Required 2-ft separation to SHWT achieved (no mottling or groundwater was observed throughout soil profiles until refusal was hit).



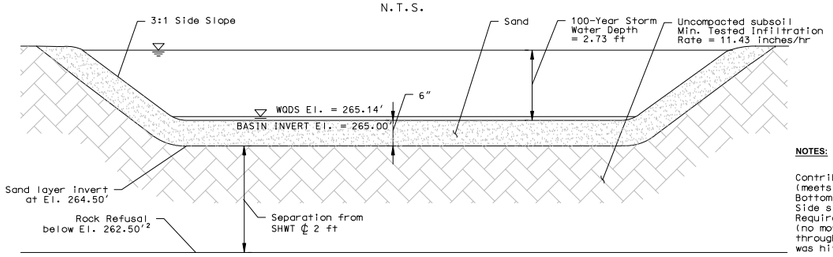
INFILTRATION BASIN #3 PROFILE

PERMANENT STORMWATER CONTROL MEASURE

N.T.S.

NOTES:

Contributing drainage area: 1.2 acres
(meets ≤2.5 acre limit).
Bottom area: 3,000 sf.
Side slopes: 3H:1V (max).
Required 2-ft separation to SHWT achieved (no mottling or groundwater was observed throughout soil profiles until refusal was hit).



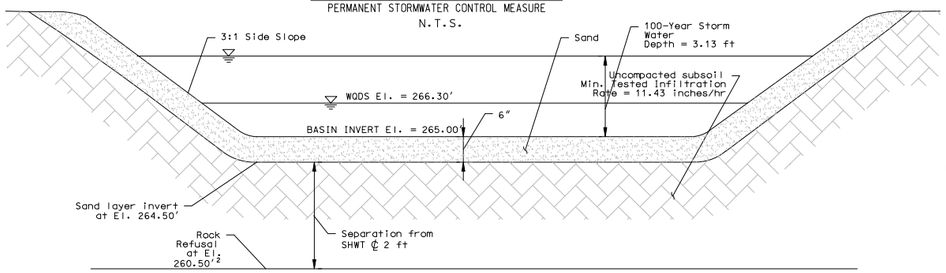
INFILTRATION BASIN #4 PROFILE

PERMANENT STORMWATER CONTROL MEASURE

N.T.S.

NOTES:

Contributing drainage area: 2.4 acres
(meets ≤2.5 acre limit).
Bottom area: 5,171 sf.
Side slopes: 3H:1V (max).
Required 2-ft separation to SHWT achieved (no mottling or groundwater was observed throughout soil profiles until refusal was hit).



INFILTRATION BASIN #5 PROFILE

PERMANENT STORMWATER CONTROL MEASURE

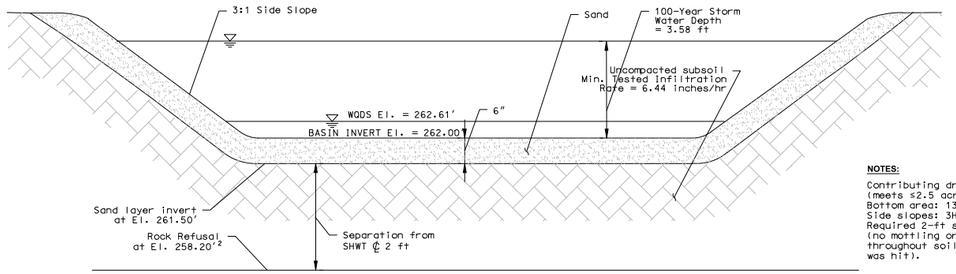
N.T.S.

NOTES:

Contributing drainage area: 2.5 acres
(meets ≤2.5 acre limit).
Bottom area: 5,331 sf.
Side slopes: 3H:1V (max).
Required 2-ft separation to SHWT achieved (no mottling or groundwater was observed throughout soil profiles until refusal was hit).

NOTES:

1. These basins have been designed in accordance with NJ Stormwater BMP Manual, Chapter 9.8.
2. Bedrock was hit, but no signs of groundwater was observed throughout the soil profile. Therefore, Seasonal High Water Table was determined by the rock refusal elevation.



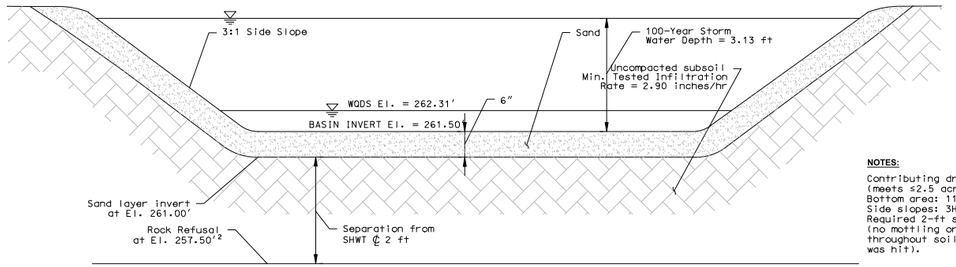
INFILTRATION BASIN #6 PROFILE

PERMANENT STORMWATER CONTROL MEASURE

N.T.S.

NOTES:

Contributing drainage area: 2.5 acres
(meets ≤2.5 acre limit).
Bottom area: 13,882 sf.
Side slopes: 3H:1V (max).
Required 2-ft separation to SHWT achieved (no mottling or groundwater was observed throughout soil profiles until refusal was hit).



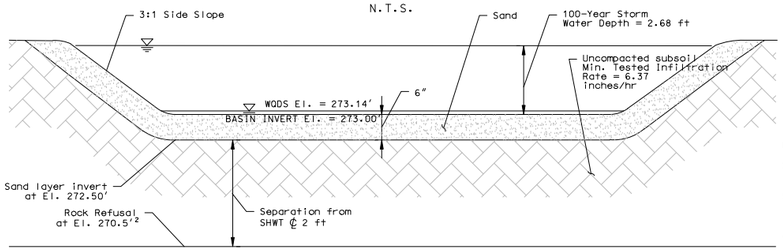
INFILTRATION BASIN #7 PROFILE

PERMANENT STORMWATER CONTROL MEASURE

N.T.S.

NOTES:

Contributing drainage area: 2.5 acres
(meets ≤2.5 acre limit).
Bottom area: 11,032 sf.
Side slopes: 3H:1V (max).
Required 2-ft separation to SHWT achieved (no mottling or groundwater was observed throughout soil profiles until refusal was hit).



INFILTRATION BASIN #8 PROFILE

PERMANENT STORMWATER CONTROL MEASURE

N.T.S.

NOTES:

Contributing drainage area: 2.3 acres
(meets ≤2.5 acre limit).
Bottom area: 4,772 sf.
Side slopes: 3H:1V (max).
Required 2-ft separation to SHWT achieved (no mottling or groundwater was observed throughout soil profiles until refusal was hit).

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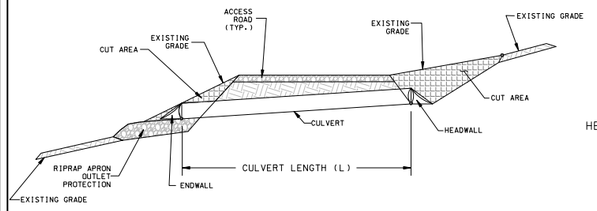
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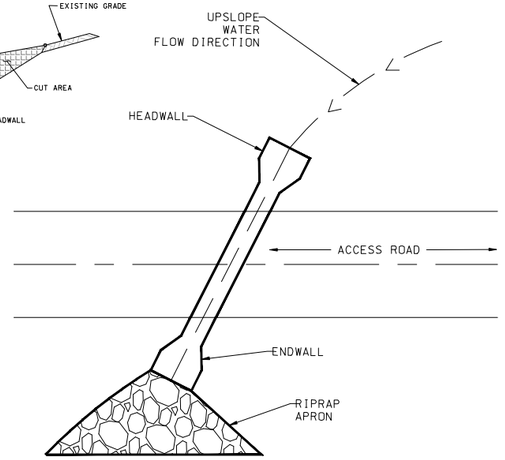
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CROSS SECTION

NOTES:

1. CUT AND FILL SLOPES SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF ROADWAY GRADING. THESE AREAS SHALL BE BLANKETED WHEREVER THEY ARE LOCATED WITHIN 50 FEET OF A SURFACE WATER OR WITHIN 100 FEET OF A SURFACE WATER WHERE A SUITABLE VEGETATIVE FILTER STRIP DOES NOT EXIST. STEEP SLOPES AT 3H:1V OR STEEPER SHALL BE PROTECTED AGAINST EROSION WITH EROSION CONTROL BLANKET SUITABLE FOR THE ESTABLISHMENT OF VEGETATION.
2. A DURABLE TOP DRESSING SHALL BE PROVIDED FOR SOILS HAVING LOW STRENGTH.
3. UPSLOPE CUT AREA SHALL BE LINED WITH EROSION CONTROL BLANKET.
4. ROADWAY SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED ROADWAYS, DITCHES, OR CROSS DRAINS SHALL BE REPAIRED IMMEDIATELY.
5. BOX CULVERTS SHALL BE EMBEDDED 12 INCHES.



PLAN VIEW

NOTES:

1. TEMPORARY STORMWATER BYPASS BENEATH ACCESS ROAD WILL BE INSTALLED PRIOR TO EARTH DISTURBANCE AT ASSOCIATED GRAVEL WORK AREA, AS APPLICABLE.
2. STORMWATER RUNOFF FROM UPSLOPE BYPASS AREAS WILL BE DIRECTED BENEATH ACCESS ROAD AND WILL DISCHARGE OVER A RIPRAP APRON.

CULVERT NO.	LENGTH (FT)	INV. IN. (ELEV)	INV. OUT. (ELEV)	PIPE SLOPE (%)	MATERIAL
CULVERT 1	59	273.00	271.75	2.1	RCP
CULVERT 2	67	272.75	271.75	1.5	RCP
CULVERT 3	46	272.00	271.75	0.5	RCP
CULVERT 4	2	271.75	271.50	12.5	RCP
CULVERT 5	9	272.75	272.00	8.3	RCP
CULVERT 6	146	272.50	272.00	0.3	RCP
CULVERT 7	34	273.65	273.00	1.9	RCP
CULVERT 8	72	274.00	268.00	8.3	RCP
CULVERT 9	57	263.75	263.00	0.8	RCP
CULVERT 10	11	263.50	263.00	4.5	RCP
CULVERT 11	175	263.00	258.50	2.6	RCP
CULVERT 12	57	266.00	262.00	7.0	RCP
CULVERT 13	64	265.00	261.50	5.5	RCP
CULVERT 14	5	258.75	258.50	5.0	RCP
CULVERT 15	41	262.00	258.75	7.9	RCP
CULVERT 16	143	261.50	258.75	1.9	RCP
CULVERT 17	144	273.75	273.50	0.2	RCP

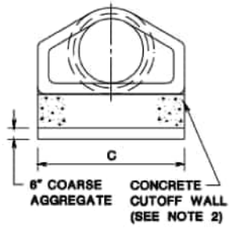
NEW JERSEY

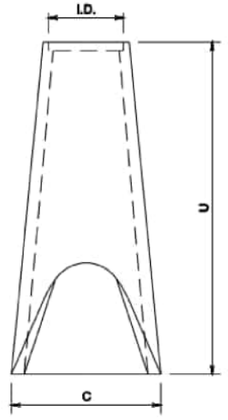
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

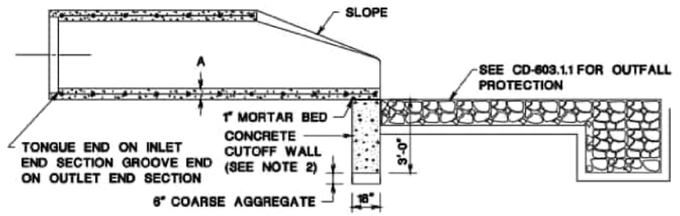
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

ACCESS ROAD CULVERT
FOR NON-STREAM CROSSINGS

Williams GAS PIPELINE





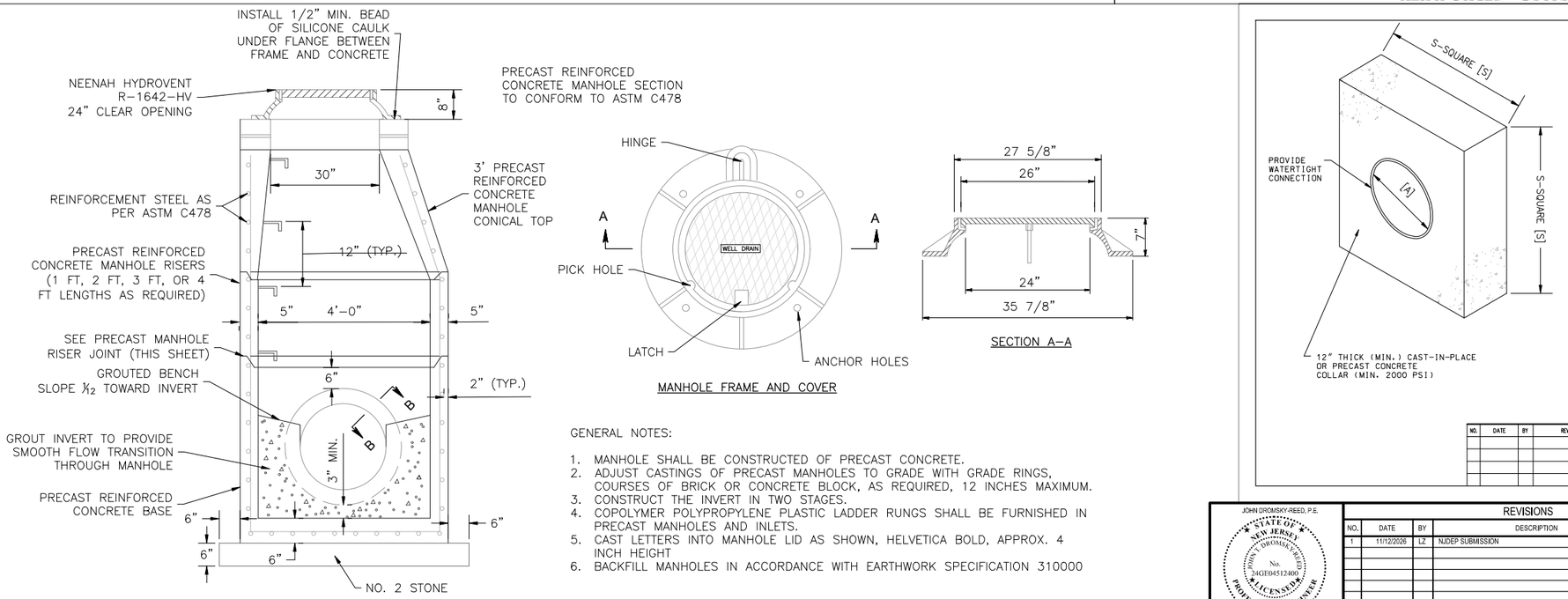


DIMENSIONS (INCHES)												
I.D.	12	15	18	21	24	27	30	36	42	48	54	60
A	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	5½	6
U	72	72	72	72	72	72	72	96	96	96	96	96
C	28	34.5	41	47.5	54	60.5	67	80	87	94	101	108

NOTES:

1. **MINOR VARIATIONS TO THE ABOVE DIMENSIONS ARE ACCEPTABLE WITH THE EXCEPTION OF THE INSIDE DIAMETER DIMENSION.**
2. **A 1 INCH THICK MORTAR BED AND A 6 INCH DEEP LAYER OF COARSE AGGREGATE ARE REQUIRED WHEN A PRECAST CONCRETE CUTOFF WALL IS USED.**
3. **THE WIDTH OF THE CONCRETE CUTOFF WALL TO BE EQUAL TO THE MAXIMUM WIDTH OF THE END SECTION AS INDICATED ON THE DETAIL BY DIMENSION "C". HOWEVER, IF THE ACTUAL MAXIMUM WIDTH EXCEEDS THE CHART VALUE OF "C", THE WIDTH OF THE CONCRETE CUTOFF WALL TO BE EQUAL TO THE ACTUAL MAXIMUM WIDTH OF THE END SECTION.**

REINFORCED CONCRETE END SECTION



PRECAST MANHOLE DETAIL
NOT TO SCALE

GENERAL NOTES:

1. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE.
2. ADJUST CASTINGS OF PRECAST MANHOLES TO GRADE WITH GRADE RINGS, COURSES OF BRICK OR CONCRETE BLOCK, AS REQUIRED, 12 INCHES MAXIMUM.
3. CONSTRUCT THE INVERT IN TWO STAGES.
4. COPOLYMER POLYPROPYLENE PLASTIC LADDER RUNGS SHALL BE FURNISHED IN PRECAST MANHOLES AND INLETS.
5. CAST LETTERS INTO MANHOLE LID AS SHOWN, HELVETICA BOLD, APPROX. 4 INCH HEIGHT
6. BACKFILL MANHOLES IN ACCORDANCE WITH EARTHWORK SPECIFICATION 310000

BASIN NO.	PIPE DIAMETER (IN) [A]	S (IN) [S]	NO. OF COLLARS	DISTANCE RISER TO 1ST COLLAR (FT)
~~INFIL. BASIN~~	18	64	1	20

NOTES:

1. ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
2. COLLARS SHALL NOT BE INSTALLED CLOSER THAN 2 FEET TO A PIPE JOINT.

NEW JERSEY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

CONCRETE ANTI-SEEP COLLAR

Williams GAS PIPELINE

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY
No. 24GE04512400
PROFESSIONAL ENGINEER
LICENSED
John Dromsky-Reed
NEW JERSEY PROFESSIONAL ENGINEER NO 24GE04512400

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625 WEST RIDGE PIKE, SUITE E-100
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(610) 832-3500

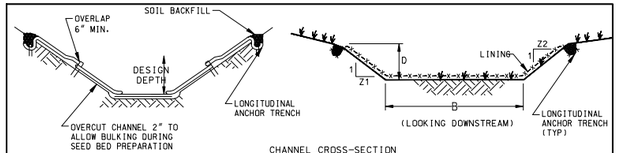
REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
DETAILS (SHEET 3 OF 4)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

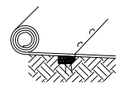
Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE:		
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2		
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER	SHEET 13 OF 15		
WO: 1185732					

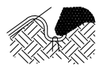
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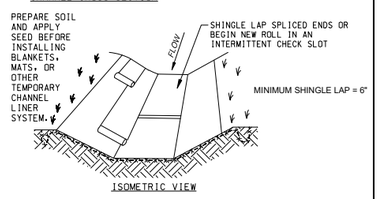
CHANNEL CROSS-SECTION



INTERMITTENT CHECK SLOT



LONGITUDINAL ANCHOR TRENCH



ISOMETRIC VIEW

CHANNEL	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING[1]
1	2	2.0	18	4	4	SC250
2	4	1.0	12	4	4	SC250
3	2	2.0	18	4	4	NONE
5	2	2.0	14	3	3	SC250
7A	2	2.0	16	3	4	NONE
10A	2	2.0	14	3	3	SC250
13	2	2.0	14	3	3	SC250
14	2	2.0	14	3	3	SC250
15	2	1.0	8	3	3	NONE
16	2	2.0	14	3	3	NONE
17	2	2.0	14	3	3	NONE

NOTES:

1. SEE MANUFACTURER'S INSTALLATION DETAIL FOR STAPLE PATTERNS, AND VEGETATION STABILIZATION SPECIFICATIONS FOR SOIL AMENDMENTS, SEED MIXTURES, AND MULCHING INFORMATION.
2. ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.
3. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
4. NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.
5. NORTH AMERICAN GREEN (NAG) SC-250 EROSION CONTROL MATTING (OR EQUIVALENT) SHALL BE USED CHANNEL LINING.

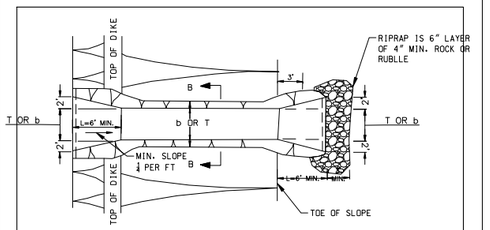
NEW JERSEY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

VC VEGETATED CHANNEL

GAS PIPELINE



SECTION B-B

NOTES:

1. LINING SHALL BE RIPRAP.
2. SOME TYPE OF ENERGY DISSIPATOR, SUCH AS THE ONE SHOWN ABOVE, MUST BE USED TO PREVENT EROSION AT THE OUTLET.

RIPRAP SLOPE PROTECTION	BOTTOM WIDTH b (FT)	HEIGHT H (FT)	DEPTH d (FT)	LINING
1	25	2.0	0.75	R-3

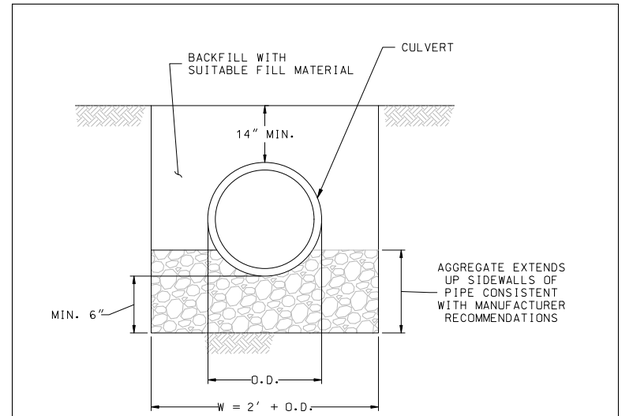
NEW JERSEY

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

RIPRAP SLOPE PROTECTION

GAS PIPELINE



NEW JERSEY

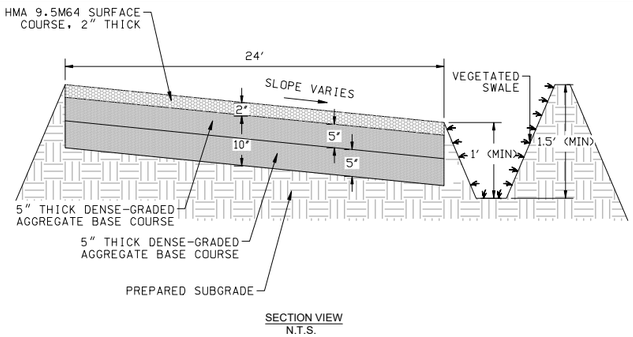
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

PIPE BEDDING

GAS PIPELINE

PREFORMED SCOUR HOLE



SECTION VIEW
N.T.S.

NOTES:

1. ONCE SUBGRADE HAS BEEN PREPARED, PROOF ROLL AND COMPACT SUBGRADE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
2. INSTALL DENSE GRADED AGGREGATE BASE COURSE, 10 INCHES THICK, COMPACTED IN TWO 5 INCH LIFTS.
3. INSTALL HMA 19M64 BASE COURSE, 4 INCHES THICK.
4. INSTALL HMA 12.5M64 INTERMEDIATE COURSE, 1 INCH THICK.
5. INSTALL HMA 9.5M64 SURFACE COURSE, 1 INCH THICK.
6. REFER TO PLANS FOR ACCESS ROAD ELEVATIONS AND SLOPE REQUIREMENTS. SLOPE VARIES, SEE PLAN.
7. MAINTAIN POSITIVE DRAINAGE FROM THE ACCESS ROAD TO THE APPROVED DRAINAGE FEATURES.

NEW JERSEY

DATE	BY	REVISION DESCRIPTION

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

ASPHALT ACCESS ROAD

GAS PIPELINE

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY
JOHN T. DROMSKY-REED
No. 24GE04512400
LICENSED
PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO.24GE04512400

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
DETAILS (SHEET 4 OF 4)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE:
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 14 OF 15
W/O: 1185732			

Drawn By & Date/Time: eva.tucewicz Nov 10, 2026 - 11:40am
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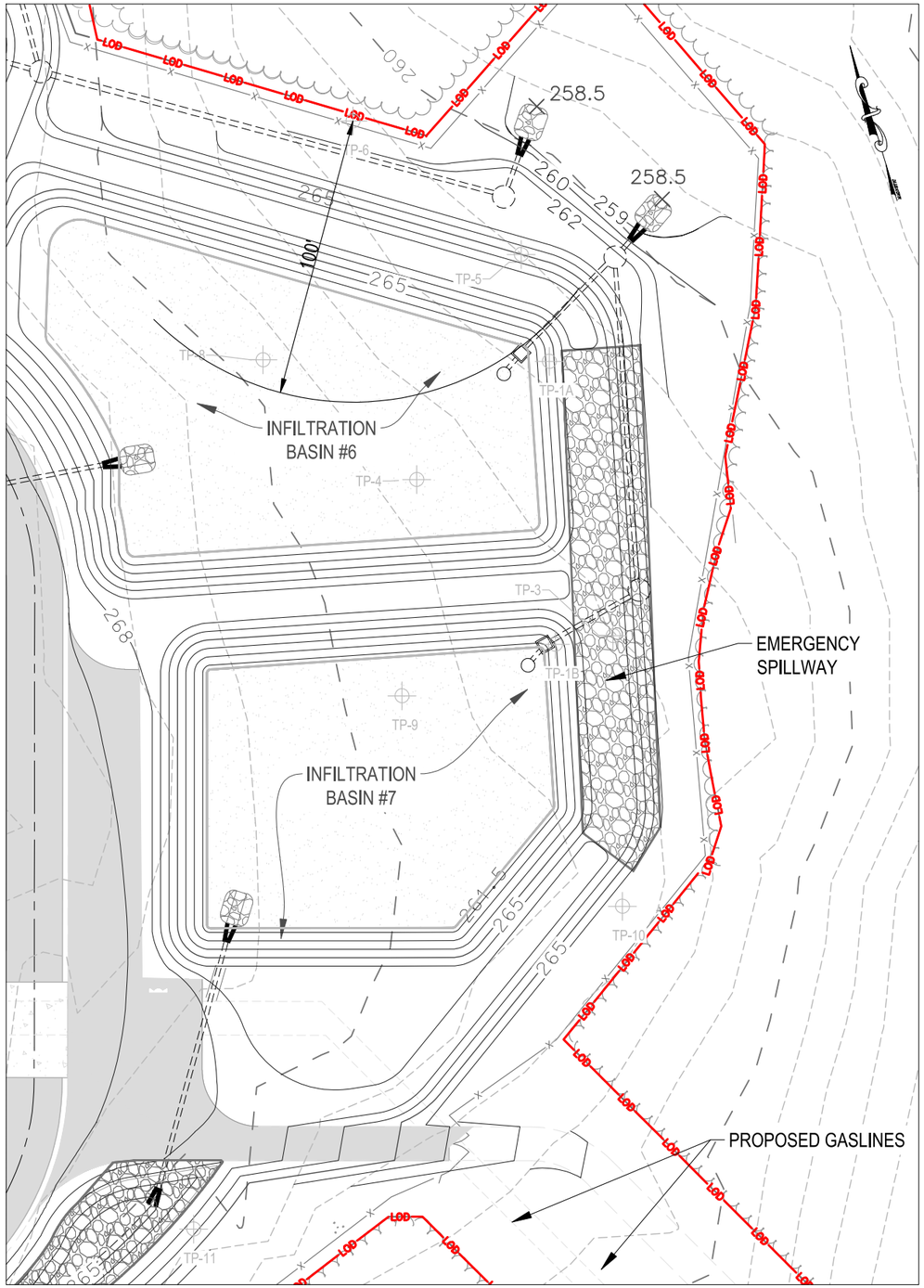
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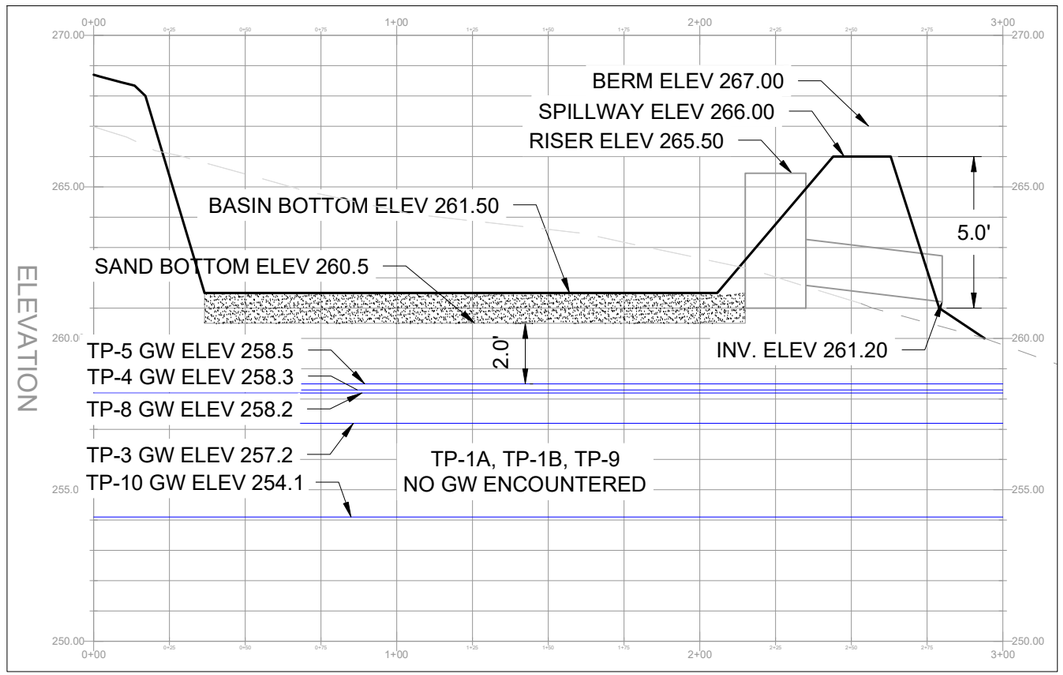
EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- GAS — PROPOSED PIPELINE
- CULVERT
- RIP RAP APRON
- X — PROPOSED FENCE
- PROPOSED TREE LINE
- PROPOSED GRAVEL
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- RIPRAP SLOPE PROTECTION
- TP-8 SOIL TEST LOCATION





Soil Test Summary

Location I.D.	Test Type [1,2]	Existing Grade Elevation (ft)	Test Pit/Bore Bottom Depth (ft)	Test Pit/Bore Bottom Elevation (ft)	Bedrock Depth (ft)	Bedrock Elevation (ft)	Groundwater Depth (ft)	Groundwater Elevation (ft)
TP-1A	TP w/IT	261.7	6.0	255.7	N/E [3]		N/E [3]	
TP-1B	TP w/IT	263.3	8.0	255.3	N/E [3]		N/E [3]	
TP-3	B w/MW	263.0	15.0	248.0	N/E [3]		5.8	257.2
TP-4	B w/MW	263.6	15.0	248.6	N/E [3]		5.3	258.3
TP-5	B w/MW	261.0	15.0	246.0	15.0	246.0	2.5	258.5
TP-8	TP w/IT	264.5	6.5	258.0	6.5	258.0	6.3	258.2
TP-9	TP w/IT	264.5	7.0	257.5	7.0	257.5	N/E [3]	
TP-10	TP w/IT	263.6	9.5	254.1	9.5	254.1	9.5	254.1

1. TP w/IT = Test Pit with Infiltration Testing
2. B w/MW = Boring with Monitoring Well
3. N/E = Not encountered
4. N/A = Not Applicable for Borings with Monitoring Wells

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JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY — JOHN DROMSKY-REED — No. 24GE04512400 — LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	11/12/2026	LZ	NJDEP SUBMISSION	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
POST CONSTUCTION STORMWATER MANAGEMENT PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
INFILTRATION BASIN PROFILE PLAN (TYPICAL, BASIN 7 SHOWN)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=25'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 2
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 15 OF 15
WO: 1185732			

Drawn By & Date/Time: eva.lucewicz Nov 10, 2026 - 11:41am
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SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206
HIGGINS FARM ACCESS ROAD
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY

OWNER / APPLICANT

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
(TRANSCO)
P.O. BOX 1396
2800 POST OAK BLVD.
HOUSTON, TX 77056

CONTACT: JOSEPH DEAN
PERMIT AGENT
(281) 433-8046

PLAN PREPARER

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428

CONTACT: JOHN DROMSKY-REED, P.E.
PROJECT ENGINEER
(973) 883-8677

PROJECT DESCRIPTION

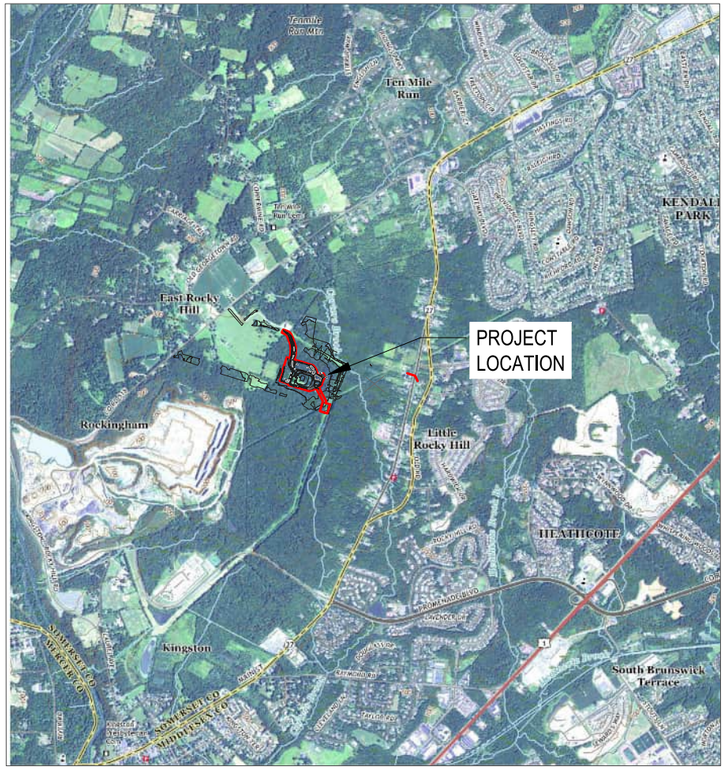
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO) IS PROPOSING TO CONSTRUCT ITS COMPRESSOR STATION (CS 206) IN FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY. THE PROJECT WILL INVOLVE THE CONSTRUCTION OF SMALL BUILDINGS, GRAVEL ACCESS ROAD AND PARKING AREAS, EQUIPMENT PADS, AND THE INSTALLATION OF TWO GAS PIPELINES (A SUCTION LINE AND A GAS DISCHARGE LINE) TO CONNECT THE PROPOSED COMPRESSOR STATION TO THE EXISTING NATURAL GAS TRANSMISSION LINE.

THESE DRAWINGS SHOW THE SITE GRADING AND POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES PLANNED IN CONJUNCTION WITH CS206, IN ACCORDANCE WITH N.J.A.C 7:8 (STORMWATER MANAGEMENT) SUBCHAPTER 5,

THIS EXPANSION PROJECT IS REGULATED BY THE U.S. DEPARTMENT OF ENERGY, FEDERAL ENERGY REGULATORY COMMISSION (FERC), IN ADDITION TO STATE AND LOCAL REQUIREMENTS, THIS EROSION AND SEDIMENT CONTROL PLAN INCLUDES MITIGATION MEASURES FOR PIPELINE CONSTRUCTION SPECIFIED BY FERC IN ITS PLAN AND PROCEDURES DOCUMENTS, UPLAND EROSION CONTROL REVEGETATION AND MAINTENANCE PLAN, MAY 2013 AND WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES, MAY 2013.

ANTICIPATED CONSTRUCTION & RESTORATION SCHEDULE

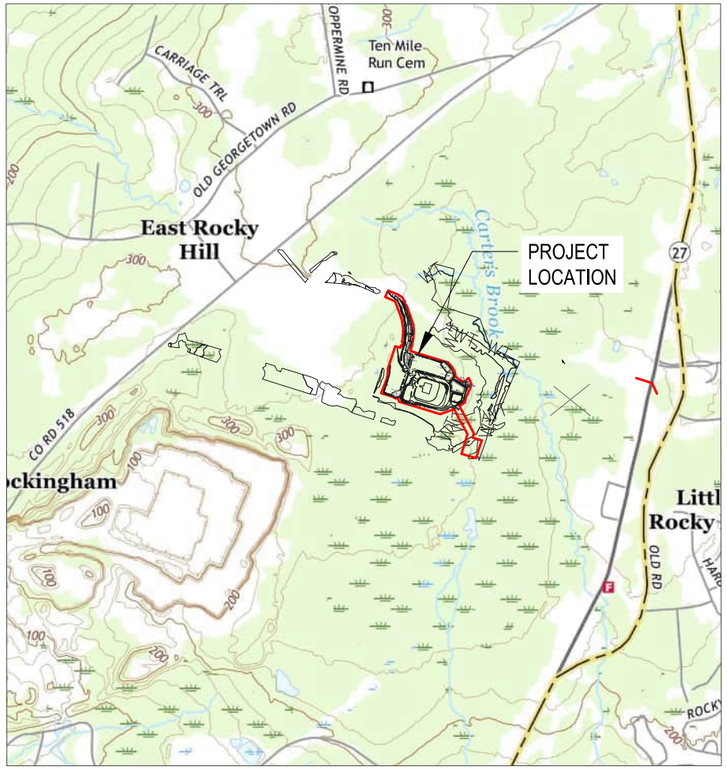
	START	END
CONSTRUCTION	Q4 2025	Q4 2026
RESTORATION	Q1 2027	Q3 2027



USGS AERIAL MAP

SCALE: 1 INCH=2000 FEET
0 2000 4000

MAP SOURCE
MONMOUTH JUNCTION, NJ QUADRANGLE
U.S. GEOLOGICAL SURVEY, 2016



USGS TOPOGRAPHIC MAP

SCALE: 1 INCH=1000 FEET
0 1000 2000

MAP SOURCE
MONMOUTH JUNCTION, NJ QUADRANGLE
U.S. GEOLOGICAL SURVEY, 2016

SHEET INDEX

DESCRIPTION	SHEET NUMBER
COVER SHEET	1
EXISTING CONDITIONS AND SOILS MAP (SHEET 1 OF 3)	2
EXISTING CONDITIONS AND SOILS MAP (SHEET 2 OF 3)	3
EXISTING CONDITIONS AND SOILS MAP (SHEET 3 OF 3)	4
EROSION CONTROL PLAN (SHEET 1 OF 3)	5
EROSION CONTROL PLAN (SHEET 2 OF 3)	6
EROSION CONTROL PLAN (SHEET 3 OF 3)	7
MITIGATION PLAN (SHEET 1 OF 3)	8
MITIGATION PLAN (SHEET 2 OF 3)	9
MITIGATION PLAN (SHEET 3 OF 3)	10
EROSION CONTROL NOTES	11
EROSION CONTROL DETAILS (SHEET 1 OF 5)	12
EROSION CONTROL DETAILS (SHEET 2 OF 5)	13
EROSION CONTROL DETAILS (SHEET 3 OF 5)	14
EROSION CONTROL DETAILS (SHEET 4 OF 5)	15
EROSION CONTROL DETAILS (SHEET 5 OF 5)	16

BMP INDEX

DESCRIPTION	SHEET NUMBER
TEMPORARY STOCKPILE DETAIL	12
CONSTRUCTION ENTRANCE	12
SEDIMENT BARRIER	12
SUPER SILT FENCE	12
SAFETY FENCE	12
FILTER BAG	13
WETLAND EQUIPMENT CROSSING	13
EROSION CONTROL BLANKET	13
SEDIMENT BASIN	14
CONCRETE OUTLET STRUCTURE	14
TRASH RACK	14
BASIN COMPACTION NOTES	14
SEDIMENT BASIN BAFFLE	14
SEDIMENT BASIN TEMPORARY RISER	14
TRASH RACK AND ANTI-VORTEX DEVICE	14
TYPE DW ENDWALL	15
CULVERT FOR NON-STREAM CROSSING	15
RIPRAP APRON	15
CONCRETE ANTI-SEEP COLLAR	15
VEGETATED CHANNEL	16
RIPRAP CHANNEL	16
RIPRAP SLOPE PROTECTION	16
CULVERT FOR STREAM CROSSING	16
REINFORCED GRAVEL ACCESS ROAD	16



STATE OF NEW JERSEY

REFERENCES

1. EXISTING FEATURE INFORMATION (TOPOGRAPHY, PROPERTY LINES, UTILITIES, ETC.) BASED ON FIELD SURVEY PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO)
2. STREAM AND WETLAND INFORMATION SHOWN BASED ON FIELD DELINEATION PERFORMED BY ECOLOGY & ENVIRONMENT AND PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO).
3. PROPOSED SITE LAYOUT INFORMATION (ROADWAY, COMPRESSOR STATION FACILITIES, GRADING, ETC.) PROVIDED BY HUNT GUILLOT & ASSOCIATES (HGA).

SEQUENCE OF CONSTRUCTION

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED SE&SC PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST SEVEN (7) DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE SE&SC PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.
3. MAKE NOTIFICATIONS ACCORDING TO PERMIT REQUIREMENTS.
4. HOLD PRE-CONSTRUCTION MEETING WITH ENVIRONMENTAL INSPECTOR.
5. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND OTHER TEMPORARY PERIMETER EROSION CONTROL MEASURES (I.E. SEDIMENT BARRIER) AS INDICATED ON THE SE&SC PLANS AND DETAILS PRIOR TO EARTH DISTURBING ACTIVITIES.
6. CONSTRUCT THE SEDIMENT BASIN, INCLUDING OUTLET STRUCTURE, OUTLET PROTECTION AND EMERGENCY SPILLWAY AS INDICATED ON THE SE&SC PLANS AND DETAILS. CARE SHOULD BE TAKEN TO AVOID COMPACTION OF THE BASIN BOTTOM. REFER TO THE 'BASIN COMPACTION NOTES'. DO NOT INSTALL THE SAND MEDIA IN THE BASIN BOTTOM AT THIS TIME.
7. REMOVE TOPSOIL FROM VEGETATED AREAS TO BE DISTURBED DURING EXCAVATION AND STOCKPILE IN STOCKPILE AREA.
8. COMPLETE WORK ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF COMPRESSOR STATION, ACCESS ROAD, LOOP ROAD, VALVES AND PIPING, VEGETATED SWALES ETC.
9. PRIOR TO TOPSOIL REPLACEMENT, ALL DISTURBED AND COMPACTED SUBGRADE AREAS SHALL BE DEEP SCARIFIED/TILLED TO A MINIMUM DEPTH OF 6 INCHES, UNLESS OTHERWISE APPROVED, IN ACCORDANCE WITH THE SOIL COMPACTION MITIGATION NOTES AND THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
10. RETURN TOPSOIL TO DESIGNATED AREAS.
11. COMPLETE FINAL STABILIZATION INCLUDING SOIL TREATMENT, SEEDBED PREPARATION, SEED APPLICATION AND MULCHING.
12. AFTER FINAL STABILIZATION IS COMPLETED BY REVEGETATION AND OTHER PERMANENT STABILIZATION MEASURES, AS APPLICABLE, CONSTRUCT SEDIMENT BASINS #6 AND #7, CLEAN OUT THE SEDIMENT BASIN AND CONVERT TO AN INFILTRATION BASIN BY INSTALLING SAND MEDIA IN THE BASIN BOTTOM.
13. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROLS AND CLEAN UP PROJECT SITE.
14. SUBMIT A COMPLETED NOTICE OF TERMINATION TO THE CONSERVATION DISTRICT.

MAINTENANCE

ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE SEDIMENT BARRIER SHALL BE CHECKED REGULARLY FOR UNDERMINING, AND DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION IS HALF WAY TO THE TOP OF THE BARRIER.
THE SEEDED AREAS SHALL BE CHECKED TO ENSURE THAT THE DEVELOPMENT OF A GOOD VEGETATIVE STAND AND GROWTH CONTINUES. THE AREAS SHALL BE FERTILIZED AND RESEEDED AS NEEDED.

DISTURBED AREA

AREA DESCRIPTION	ACREAGE
COMPRESSOR STATION 206	20.4 ACRES

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY — No. 24GE0451240 — LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE0451240

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	06/15/17	GMS	SUBMITTED TO SOMERSET-UNION SCD	1185732	PPH	KDM
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7	06/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60757472	AV	JDR
8	11/20/2025	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
9, 10, 11	01/06, 02/18, 03/17, 2026	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
12	10/13/2026	ET	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	WS	JDR

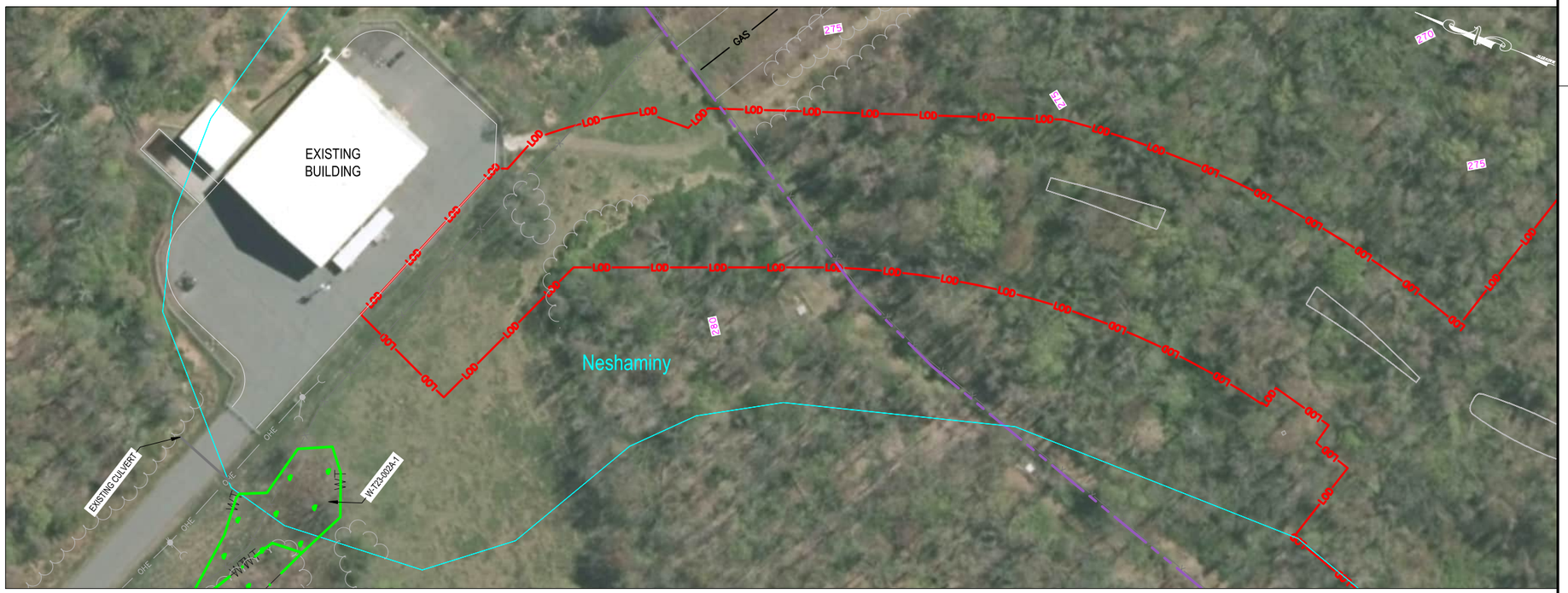
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SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
COVER SHEET
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 1 OF 16
WO: 1185732			

Drawn By & Date/Time: eva.tucewicz Oct 13, 2026 - 9:52am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\01 - E&S Cover CS 206 - EPA Road.dwg





LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- PARCEL LINE
- EXISTING ACCESS ROADS
- X — EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR

NOTES:

1. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
2. PROPERTY LINE INFORMATION PROVIDED BY WILLIAMS.
3. PROPOSED COMPRESSOR STATION SITE WILL BE STABILIZED WITH CLEAN CRUSHED ROCK (GRAVEL).

SOIL LEGEND:

MuA	MOUNT LUCAS SILT LOAMS
NehB	NESHAMINY SILT LOAMS
WasA	WATCHUNG SILT LOAM

50' 25' 0' 50'
SCALE: 1" = 50'

AECOM
625 WEST RIDGE PIKE, SUITE E-100
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SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EXISTING CONDITIONS AND SOILS MAP (1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

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W.O: 1185732			

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EXISTING FEATURES

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- PARCEL LINE
- EXISTING ACCESS ROADS
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- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR



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John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

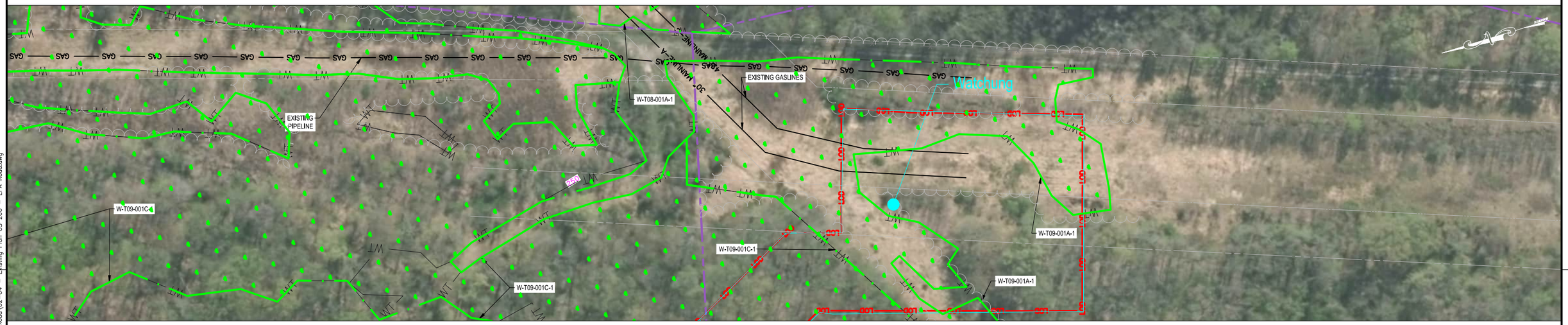
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EXISTING CONDITIONS AND SOILS MAP (2 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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LEGEND

EXISTING FEATURES

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- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- PARCEL LINE
- EXISTING ACCESS ROADS
- X — EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR

NOTES:

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50' 25' 0' 50'
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
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NORTHEAST SUPPLY ENHANCEMENT PROJECT
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EXISTING CONDITIONS AND SOILS MAP (3 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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Keyport

Neshaminy

EXISTING ACCESS ROAD

EXISTING ACCESS ROAD

EXISTING CULVERT

W-T23-001A-1

W-T23-002A-1

W-T23-002A-4

W-T23-002C-1

W-T23-002A-3

W-T23-002B-1

W-T23-002C-2

W-T23-002A-1

W-T23-003A-1

PROPOSED SWALE 2

SB-01

EXISTING BUILDING

ASPHALT ACCESS ROAD

INFILTRATION BASIN #1

PROPOSED CULVERT 2

SCOUR HOLE 1
INV. OUT 271.5

PROPOSED CULVERT 4

PROPOSED CULVERT 3

SB-02

PROPOSED CULVERT 6

INFILTRATION BASIN #2

SB-03

STABILIZED CONSTRUCTION ACCESS

PROPOSED SWALE 1

PROPOSED CULVERT 1

PROPOSED CULVERT 5

PROPOSED SWALE 3

EXISTING CULVERT

W-T23-002A-1

LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED PIPELINE
- CULVERT
- CONDUIT OUTLET PROTECTION
- PROPOSED FENCE
- PROPOSED TREE LINE
- EROSION CONTROL BLANKET
- PROPOSED GRAVEL
- PROPOSED CONCRETE
- SEDIMENT BARRIER (SILT FENCE)
- SB-14 — SEDIMENT BARRIER (SUPER SILT FENCE)
- SAF — TEMPORARY SAFETY FENCE
- STABILIZED CONSTRUCTION ACCESS
- TEMPORARY STOCKPILE
- RIPRAP SLOPE PROTECTION

NOTES:

1. SEDIMENT BARRIERS AND SEDIMENT BASINS #1 AND #2
2. THIS BASE MAP WAS PREPARED ON AERIAL TOPOGRAPHY AND ACTUAL FIELD SURVEY PROVIDED BY WILLIAMS AND ARE REFERENCED TO THE NEW JERSEY STATE PLANE DATUM.
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9, 10, 11	01/06, 02/18, 03/17, 2026	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
12	10/13/2026	ET	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EROSION CONTROL PLAN (1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 1
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 5 OF 16
WO: 1185732			

Drawn By & Date/Time: eva.tucewicz Oct 13, 2026 - 10:08am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\05-07 - E&S Plan CS 206 - EPA Road.dwg

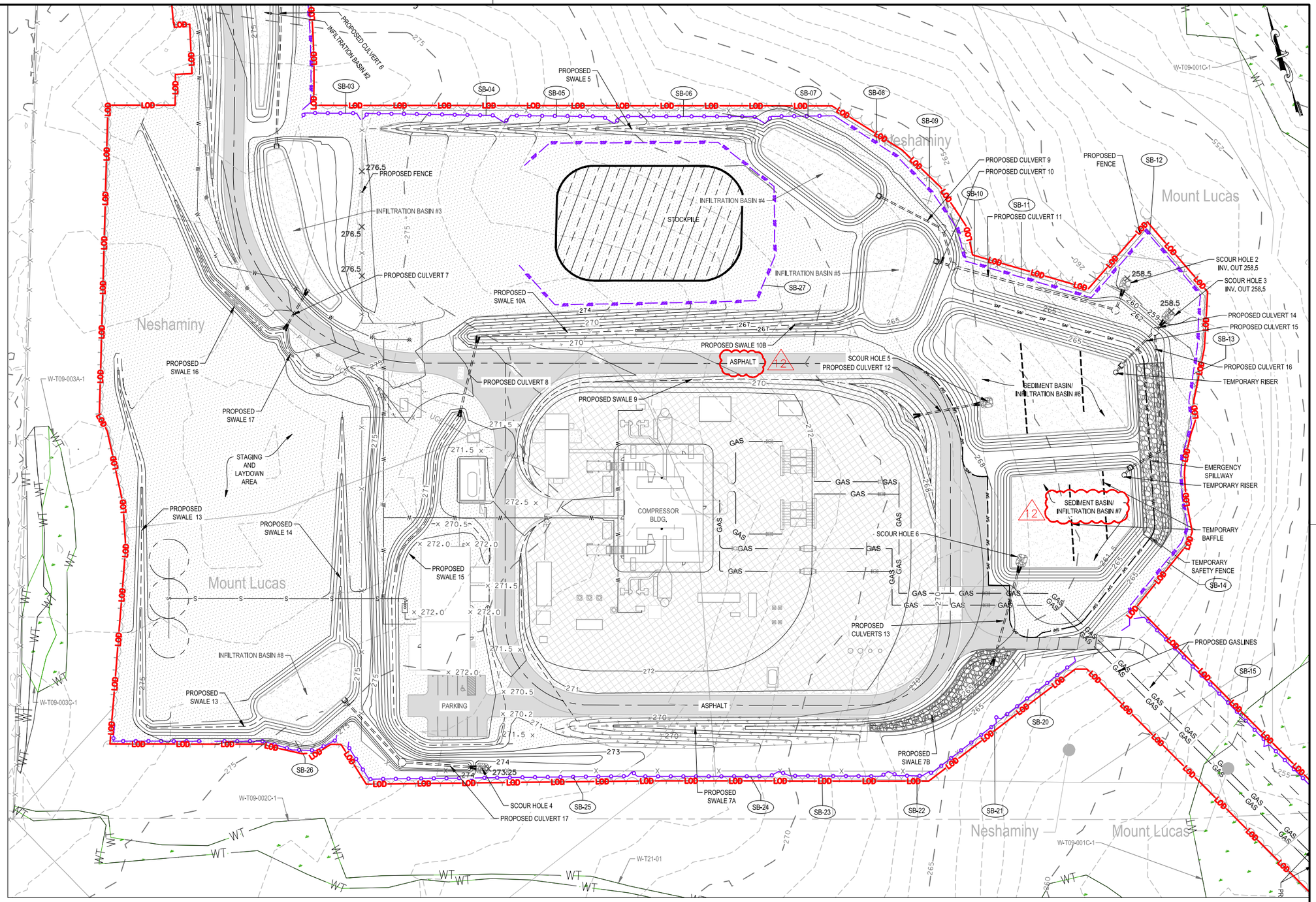
LEGEND

EXISTING FEATURES

- 265 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- OHE — EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA — SOIL TYPE

PROPOSED FEATURES

- LOD — LIMIT OF DISTURBANCE
- 265 — PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED PIPELINE
- CULVERT
- CONDUIT OUTLET PROTECTION
- PROPOSED FENCE
- PROPOSED TREE LINE
- EROSION CONTROL BLANKET
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- PROPOSED CONCRETE
- SB-14 — SEDIMENT BARRIER (SILT FENCE)
- SEDIMENT BARRIER (SUPER SILT FENCE)
- SAF — TEMPORARY SAFETY FENCE
- STABILIZED CONSTRUCTION ACCESS
- TEMPORARY STOCKPILE
- RIPRAP SLOPE PROTECTION



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SOIL LEGEND:

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NehB	NESHAMINY SILT LOAMS
WasA	WATCHUNG SILT LOAM

50' 25' 0' 50'
SCALE: 1"=50'

AECOM
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JOHN DROMSKY-REED, P.E.
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John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

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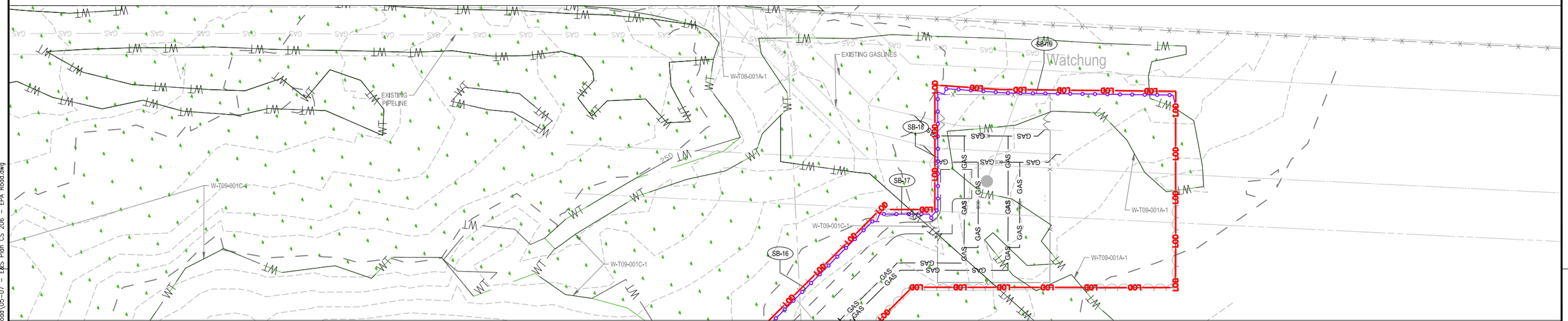
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SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EROSION CONTROL PLAN (2 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

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APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 6 OF 16
W.O.: 1185732			

Drawn By & Date/Time: eva.lucewicz Oct 13, 2026 - 10:11am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\05-07 - E&S Plan CS 206 - EPA Road.dwg



LEGEND

EXISTING FEATURES

- EXISTING MAJOR CONTOUR (265)
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE (X)
- EXISTING OVERHEAD POWER LINE (OHE)
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- SOIL TYPE (WasA)

PROPOSED FEATURES

- LIMIT OF DISTURBANCE (LOD)
- PROPOSED CONTOUR MAJOR (265)
- PROPOSED CONTOUR MINOR
- PROPOSED PIPELINE
- CULVERT
- CONDUIT OUTLET PROTECTION
- PROPOSED FENCE (X)
- PROPOSED TREE LINE
- EROSION CONTROL BLANKET
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- SEDIMENT BARRIER (SILT FENCE)
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- TEMPORARY SAFETY FENCE (SAF)
- STABILIZED CONSTRUCTION ACCESS
- TEMPORARY STOCKPILE
- RIPRAP SLOPE PROTECTION

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John Dromsky-Reed
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PROFESSIONAL ENGINEER NO 24GE0451240

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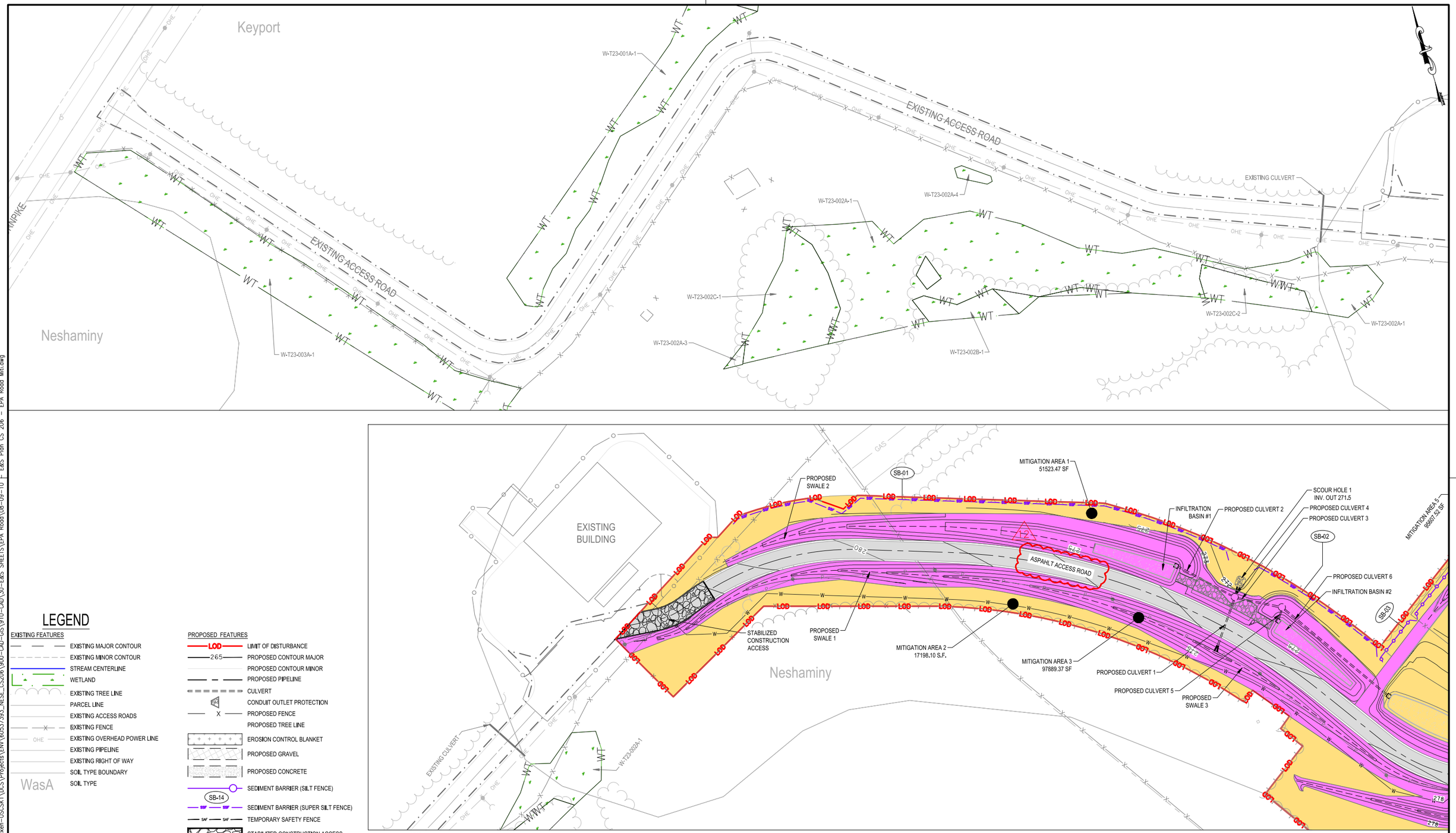
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EROSION CONTROL PLAN (3 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY:	PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE:	1"=50'
CHECKED BY:	TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION:	1
APPROVED BY:	KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET	7 OF 16
WO:	1185732				

Drawn By & Date/Time: eva.tucewicz Oct 13, 2026 - 10:15am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\05-07 - E&S Plan CS 206 - EPA Road.dwg



LEGEND

EXISTING FEATURES

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
- EXISTING TREE LINE
- PARCEL LINE
- EXISTING ACCESS ROADS
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA SOIL TYPE

PROPOSED FEATURES

- LOD LIMIT OF DISTURBANCE
- 265 PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED PIPELINE
- CULVERT
- CONDUIT OUTLET PROTECTION
- X PROPOSED FENCE
- PROPOSED TREE LINE
- EROSION CONTROL BLANKET
- PROPOSED GRAVEL
- PROPOSED CONCRETE
- SEDIMENT BARRIER (SILT FENCE)
- SB-14 SEDIMENT BARRIER (SUPER SILT FENCE)
- SAF TEMPORARY SAFETY FENCE
- STABILIZED CONSTRUCTION ACCESS
- TEMPORARY STOCKPILE
- RIPRAP SLOPE PROTECTION
- SOIL COMPACTION MITIGATION AND PERMANENT REVEGETATION
- SLOPE/SWALE PERMANENT VEGETATIVE STABILIZATION

NOTES:

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PROFESSIONAL ENGINEER NO 24GE0451240

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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
MITIGATION PLAN (1 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 1
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 8 OF 16
W.O: 1185732			

Drawn By & Date/Time: eva.tucewicz Oct 13, 2026 - 10:16am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\08-09-10 - E&S Plan CS 206 - EPA Road Mit.dwg

LEGEND

EXISTING FEATURES

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM CENTERLINE
- WETLAND
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- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- EXISTING PIPELINE
- EXISTING RIGHT OF WAY
- SOIL TYPE BOUNDARY
- WasA SOIL TYPE

PROPOSED FEATURES

- LOD LIMIT OF DISTURBANCE
- 265 PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED PIPELINE
- CULVERT
- CONDUIT OUTLET PROTECTION
- PROPOSED FENCE
- PROPOSED TREE LINE
- EROSION CONTROL BLANKET
- PROPOSED GRAVEL
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- SB-14 SEDIMENT BARRIER (SILT FENCE)
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MITIGATION TABLE		
	AREA S.F.	AREA ACERS
MITIGATION AREA 1	51523,47	1,1828
MITIGATION AREA 2	17198,10	0,3948
MITIGATION AREA 3	97889,37	2,2472
MITIGATION AREA 4	27275,53	0,6262
MITIGATION AREA 5	95607,52	2,1948
MITIGATION AREA 6	15209,98	0,3492
MITIGATION AREA 7	121986,36	2,8004
MITIGATION AREA 8	83745,39	1,9225
TOTAL	510435,72	11,72

SOIL COMPACTION MITIGATION:

1. PROCEDURES SHALL BE USED TO MITIGATE EXCESSIVE SOIL COMPACTION PRIOR TO PLACEMENT OF TOPSOIL AND ESTABLISHMENT OF PERMANENT VEGETATIVE COVER. RESTORATION OF COMPACTED SOILS SHALL BE THROUGH DEEP SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.) OR IN THE ALTERNATIVE, ANOTHER METHOD AS SPECIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER.
2. THE PROPOSED GRAVEL SURFACE (E.G., ACCESS ROAD, PARKING LOT, COMPRESSOR STATION) ARE EXEMPT FROM THE SOIL COMPACTION MITIGATION REQUIREMENTS AS SUCH AREAS FALL UNDER THE EXEMPTION CATEGORY OF "WHERE SOILS OR GRAVEL SURFACES WILL BE REQUIRED TO SUPPORT POST-CONSTRUCTION VEHICULAR TRAFFIC LOADS SUCH AS ROADS, PARKING LOTS AND DRIVEWAYS (INCLUDING GRAVEL SURFACES), BICYCLE PATHS OR PEDESTRIAN WALKWAYS (SIDEWALKS ETC)'.
3. THE PROPOSED BASINS REQUIRES SCARIFICATION/TILLAGE AT A LATER STAGE, THEREFORE, THEY ARE EXEMPT FROM THE SOIL COMPACTION MITIGATION REQUIREMENTS "IF/WHEN SUBSOIL COMPACTION REMEDIATION (SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) OR SIMILAR) IS PROPOSED AS PART OF THE SEQUENCE OF CONSTRUCTION."
4. THE REST OF THE SITE (SHADED AREAS) REQUIRES SOIL COMPACTION MITIGATION.

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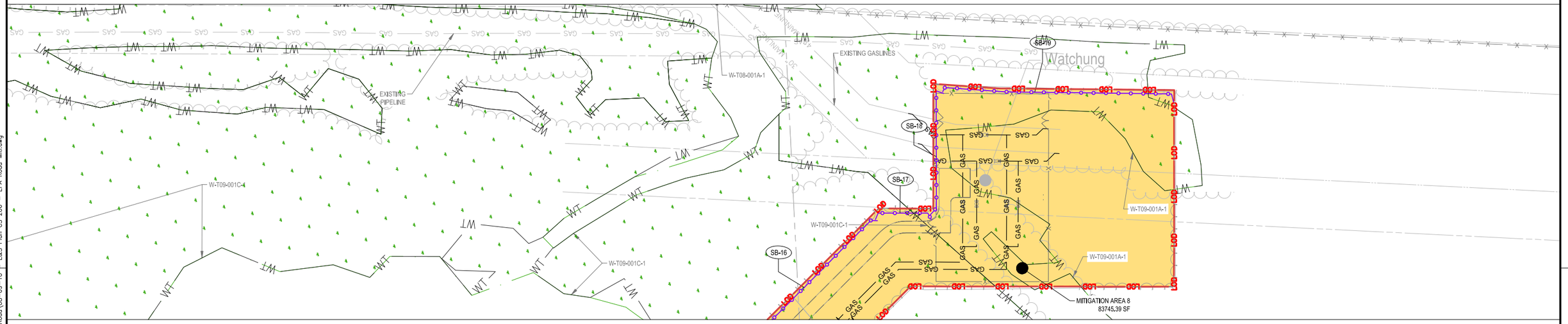
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3	02/09/18	GMS	REVISED SUBMISSION TO SOMERSET UNION SCD	1185732	PPH	KDM
4	06/05/18	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
5	06/24/19	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
6	01/15/20	PPH	NJDEP SUBMISSION	1185732	GMS	KDM
7	08/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60757472	AV	JDR
8	11/20/2025	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
9, 10, 11	01/06, 02/18, 03/17, 2026	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
12	10/13/2026	ET	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
MITIGATION PLAN (3 OF 3)
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

Williams GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE: 1"=50'
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 1
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 10 OF 16
W.O: 1185732			

Drawn By & Date/Time: eva.lucewicz Oct 13, 2026 - 10:18am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\08-09-10 - E&S Plan CS 206 - EPA Road Mit.dwg

1. SOIL EROSION AND SEDIMENT CONTROL SPECIFICATIONS

1.1 SCOPE OF WORK

CONTRACTOR SHALL FURNISH ALL SUPERVISION, LABOR, MATERIALS, AND EQUIPMENT TO CONTROL EROSION OF THE SOIL DISTURBED BY CONSTRUCTION ACTIVITIES AS INDICATED ON THE COMPANY'S DRAWINGS AND AS SPECIFIED HEREIN. IF A VARIANCE FROM THESE DOCUMENTS IS DESIRED, CONTRACTOR SHALL SUBMIT PROPOSED SUBSTITUTIONS TO COMPANY'S AUTHORIZED REPRESENTATIVE FOR REVIEW AND APPROVAL. WORK INCLUDES, BUT IS NOT LIMITED TO, THE INSTALLATION, MAINTENANCE, AND REMOVAL OF TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES, INSTALLATION OF PERMANENT SOIL EROSION AND SEDIMENT CONTROL MEASURES, AND PLOWING OR SCARIFYING TO ATTAIN THE INDICATED SOIL CONDITIONS.

1.2 GENERAL

ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL FOR THE STATE OF NEW JERSEY.

1.3 EXECUTION

A. GENERAL:

WORK SHALL PROCEED EXPEDITIOUSLY, MINIMIZING THE DURATION AND AREAL EXTENT OF EXPOSURE TO EROSIVE FORCES. WORK SHALL BE SCHEDULED TO FOLLOW THE SEQUENCE DESCRIBED HEREIN. THE SEQUENCE OF CONSTRUCTION SHALL INCLUDE, AT A MINIMUM:

INSTALLATION OF TEMPORARY EROSION AND SEDIMENT CONTROLS

CLEARING AND ROUGH GRADING

SCARIFICATION / SOIL DECOMPACTION OF DISTURBED AREAS

TOPSOIL REPLACEMENT

PERMANENT STABILIZATION AND VEGETATION

B. PLACEMENT OF TEMPORARY EROSION CONTROL MEASURES:

TEMPORARY CONTROL MEASURES TO CONTROL SOIL EROSION AND SEDIMENTATION, SUCH AS GRAVELED CONSTRUCTION ENTRANCES, SEDIMENT BARRIERS AND DIVERSION TERRACES SHALL BE INSTALLED PRIOR TO ALL EARTH MOVING ACTIVITIES.

C. CLEARING:
THE MINIMUM AREA NECESSARY FOR CONSTRUCTION SHALL BE CLEARED OF TREES, BRUSH, AND OTHER VEGETATION, IF APPLICABLE. ADJACENT VEGETATION, AND WATER RESOURCES, SHALL BE PROTECTED FROM DAMAGE.

ALL DISTURBED AREAS SHALL DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED. IN THE STATION YARD AREA THAT WILL BE DISTURBED BY CONSTRUCTION AND IS COVERED WITH CRUSHED STONE (CHAT), CONTRACTOR SHALL REMOVE THE EXISTING STONE COVER PRIOR TO THE START OF ALL WORK IN THAT AREA. THIS EXISTING STONE SHALL BE SEGREGATED, AS IS PRACTICAL, AND STOCKPILED TO BE RETURNED FOR EROSION AND SEDIMENT CONTROL AFTER CONSTRUCTION IS COMPLETED.

D. ROUGH GRADING:

ROUGH GRADING SHALL BE AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN. ROUGH GRADING SHALL BE PERFORMED TO ACHIEVE THE PROPER LEVELS, ELEVATIONS AND SLOPES REQUIRED TO ACCOMPLISH THE WORK AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN.

FOR DEEP SOILS THAT WERE PREVIOUSLY IN FLOOD PLAINS AND STREAM TERRACES, 12 INCHES OF TOPSOIL SHALL BE SEGREGATED. IN ALL OTHER AREAS A MINIMUM OF 8 INCHES OF TOPSOIL SHALL BE SEGREGATED.

DURING THE CONSTRUCTION OF THE PROJECT, TOPSOIL STOCKPILES, IF APPLICABLE, SHALL BE STABILIZED AND PROTECTED WITH SEDIMENT CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE. STONES GREATER THAN 4 INCHES IN ANY DIMENSION SHALL BE REMOVED FROM THE SEGREGATED TOPSOIL.

E. EXCAVATION:

TRENCH EXCAVATION, IF REQUIRED, SHALL NOT BE LIMITED TO LENGTH OF PIPE PLACED AND BACKFILLED THE SAME DAY, AS LONG AS SOIL EROSION CONTROL MEASURES ARE INSTALLED AS INDICATED ON COMPANY'S DRAWINGS AND AS SPECIFIED HEREIN. CONTRACTOR SHALL OBTAIN APPROVAL FROM COMPANY'S AUTHORIZED REPRESENTATIVE PRIOR TO IMPORTING SOILS FOR BACKFILL OR COVER.

F. SOIL COMPACTION MITIGATION

PROCEDURES SHALL BE USED TO MITIGATE EXCESSIVE SOIL COMPACTION AS A REQUIRED STEP IN THE SEQUENCE OF CONSTRUCTION, PRIOR TO PLACEMENT OF TOPSOIL AND ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.

RESTORATION OF COMPACTED SOILS SHALL BE THROUGH DEEP SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.) OR, IN THE ALTERNATIVE, ANOTHER METHOD AS SPECIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER.

G. FINAL GRADING AND CLEAN-UP:

FINAL CLEAN-UP AND PERMANENT EROSION CONTROL MEASURES SHALL BE COMPLETED WITHIN 10 DAYS AFTER CONSTRUCTION IS COMPLETED, UNLESS COMPANY'S AUTHORIZED REPRESENTATIVE DETERMINES AN EXTENSION OF TIME IS NECESSARY DUE TO WEATHER AND SOIL CONDITIONS.

AREAS COMPACTED AFTER TOPSOIL REPLACEMENT SHALL BE LOOSENED BY ADDITIONAL TILLING.

CONTRACTOR SHALL REMOVE DEBRIS AND WOODY MATERIAL FROM THE CONSTRUCTION SITE AND SHALL FINAL GRADE TO LEAVE THE SOIL IN THE PROPER CONDITION FOR REVEGETATION AND OTHER PERMANENT STABILIZATION MEASURES, AS APPLICABLE.

CONTRACTOR SHALL RESTORE THE REMOVED STONE IN THE CONSTRUCTION AREA TO THE LEVEL THAT PROVIDES FOR PROPER DRAINAGE, AND SHALL REPLENISH THE STONE LOST BY RELOCATING TO, AND RETURNING FROM, THE STOCKPILE.

CONTRACTOR SHALL CONSTRUCT PERMANENT DIVERSION TERRACES TO DIVERT SURFACE RUNOFF TO A STABILIZED OUTLET AS INDICATED IN COMPANY DRAWINGS, IF APPLICABLE.

IF DISTURBED, TURF, ORNAMENTAL SHRUBS, AND OTHER LANDSCAPING SHALL BE RESTORED BY THE CONTRACTOR AS INDICATED ON THE COMPANY'S DRAWINGS.

CONTRACTOR SHALL RESTORE PUBLIC AND PRIVATE ROADWAY CROSSINGS AND ACCESS POINTS TO SAFE AND ACCEPTABLE CONDITIONS RELATIVE TO PRE-CONSTRUCTION STATUS.

H. STABILIZATION:

DIVERSION TECHNIQUES AND SEDIMENT BARRIERS SHALL BE INSTALLED WHERE SHOWN IN COMPANY DRAWINGS TO CONTROL SEDIMENT MOVEMENT PRIOR TO AND DURING ALL EARTH MOVING ACTIVITIES.

PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND NATURAL DRAINAGE PATTERNS RESTORED WHEN PERMANENT VEGETATION COVERS 70 PERCENT OF EACH SQUARE YARD OF DISTURBED AREA.

AREAS DISTURBED BY REMOVAL OF EROSION CONTROL MEASURES SHALL BE STABILIZED ACCORDING TO THE REVEGETATION SPECIFICATIONS.

I. MAINTENANCE:

DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF EROSION CONTROL MEASURES. AFTER CONSTRUCTION, MAINTENANCE OF EROSION CONTROL MEASURES WILL BE THE COMPANY'S RESPONSIBILITY. PERIODIC OBSERVATIONS WILL BE PERFORMED BY COMPANY MAINTENANCE PERSONNEL TO IDENTIFY AREAS OF EXCESSIVE EROSION, AND ALL REQUIRED CORRECTIVE ACTIONS WILL BE IMPLEMENTED IN ACCORDANCE WITH THIS PLAN.

2. REVEGETATION SPECIFICATIONS

2.1 SCOPE OF WORK
CONTRACTOR SHALL FURNISH ALL SUPERVISION, LABOR, MATERIALS, AND EQUIPMENT FOR DISKING, HARROWING, AND SCARIFYING THE TOPSOIL, ADDING LIME AND FERTILIZER, PLACING SEED, PLACING MULCH AND MULCH BINDERS, PLANTING SHRUBS, AND SPRIGGING INDIGENOUS PLANTS AS INDICATED ON COMPANY DRAWINGS AND AS SPECIFIED HEREIN.

2.2 GENERAL
VEGETATION SHALL BE USED AS A TEMPORARY AND PERMANENT EROSION CONTROL MEASURE.

A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE LOCAL SOIL CONSERVATION DISTRICT ADMINISTRATOR OR HIS DESIGNATED AGENT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

2.3 EXECUTION

A. TILLAGE:

CONTRACTOR SHALL THOROUGHLY LOOSEN THE SURFACE OF THE ENTIRE DISTURBED AREA TO A DEPTH OF AT LEAST 6 TO 12 INCHES BY HARROWING, OR BY OTHER APPROVED METHODS UNTIL THE TILLAGE IS SATISFACTORY. TILL OR SCARIFY AREAS WHEN THE SURFACE IS GLAZED OR CRUSTED.

B. SEEDING:

CONTRACTOR SHALL SEED THE PROJECT AREA UPLANDS DURING THE SPECIFIED TIMEFRAME WITH THE FOLLOWING SEED MIX TO ESTABLISH A PERMANENT VEGETATIVE COVER:

TURF TYPE TALL FESCUE (BLEND OF 3 CULTIVARS): PLANTED AT A RATE OF 150 LBS/ACRE BETWEEN MARCH 1 AND NOVEMBER 15.

CONVENTIAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDED,a OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPERATION TO A DEPTH OF ¼ TO ½ INCH BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE ¼ INCH DEEPER ON COARSE TEXTURED SOIL.

SEED AREAS ARE TO BE REVEGETATED WITHIN 6 WORKING DAYS OF FINAL GRADING.

PURCHASE SEED IN ACCORDANCE WITH THE PURE LIVE SEED (PLS) SPECIFICATIONS FOR SEED MIXES.

SEED SHALL BE USED WITHIN 12 MONTHS OF TESTING.

WHERE CRITICAL AREAS ARE LEFT EXPOSED BY CONSTRUCTION DELAYS OF MORE THAN THRITY (30) DAYS OR WHERE UNFAVORABLE CONDITIONS PRECLUDE PERMANENT SEEDING, A TEMPORARY GROUND COVER OF QUICK GERMINATING GRASSES SHALL BE ESTABLISHED UTILIZING THE FOLLOWING SEED MIXTURE:

PERENNIAL RYEGRASS: PLANTED AT A RATE OF 40 LBS/ACRE BETWEEN MARCH 1 AND OCTOBER 1.

ALL SOIL DISTURBANCE OCCURRING OUTSIDE OF THE RECOMMENDED PERMANENT SEEDING SEASON, OR ANY BARE SOIL LEFT UNSTABILIZED BY VEGETATION, SHALL BE MULCHED. ALL SEEDING SHALL BE DONE WITHIN THE REOCMMENDED DATES. IF SEEDING CANNOT BE DONE WITHIN THE RECOMMENDED SEEDING DATES, TEMPORARY EROSION CONTROL SHALL BE USED AND SEEDING OF PERMANENT COVER SHALL BE DONE AT THE BEGINNING OF THE NEXT SEEDING SEASON.

C: SOIL SUPPLEMENTS:

PRIOR TO TILLAGE SOIL SUPPLEMENTS SHALL BE APPLIED UNIFORMLY TO THE AREAS SEEDED.

ON AREAS WITH TOPSIL, BLEND THE INITIAL SOIL SUPPLEMENTS INTO THE SOIL TO A DEPTH OF 4 INCHES BY RAKING, DISKING, HARROWING, OR BY ANOTHER APPROVED METHOD. THE BLENDING OF SUPPLEMENTS INTO THE SOIL MAY BE PERFORMED DURING THE TILLAGE OPERATIONS.

SUPPLEMENTS SHALL BE APPLIED AT THE FOLLOWING RATES:

GROUND LIMESTONE: 2 TONS/ACRE (90 LBS/1,000 SQUARE FEET)

FERTILIZER: 500 LBS/ACRE (11 LBS/1,000 SQUARE FEET) OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN

D. MULCHING

MULCHING IS REQUIRED ON ALL SEEDING.

MULCH SHALL BE UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY APPLIED AT THE RATE OF 1.5 TO 2 TONS PER ACRE, EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER THE RATE OF APPLICATION IS 3 TONS PER ACRE.

ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. ANCHORING SHALL BE DONE BY ONE OF THE FOLLOWING METHODS ACCORDING TO THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY:

1. PEG AND TWINE
2. MULCH NETTINGS
3. CRIMPER
4. LIQUID MULCH-BINDERS

MULCH MUST BE DISTRIBUTED EVENLY WITH 85% OF THE SOIL SURFACE COVERED BY THE MULCH.

EROSION AND SEDIMENT CONTROL NOTES

3. APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS STABILIZED.
4. THE CONTRACTOR SHALL PERFORM ALL WORK, FURNISH ALL MATERIALS AND INSTALL ALL MEASURES REQUIRED TO REASONABLY CONTROL SOIL EROSION RESULTING FROM CONSTRUCTION OPERATIONS AND PREVENT EXCESSIVE FLOW OF SEDIMENT FROM THE CONSTRUCTION SITE.
6. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO PROVIDE CONFIRMATION OF LIME, FERTILIZER AND SEED APPLICATION AND RATES OF APPLICATION AT THE REQUEST OF THE CAMDEN COUNTY SOIL CONSERVATION DISTRICT.
8. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORMWATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
9. ALL SEDIMENTATION STRUCTURES WILL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
10. A CRUSHED STONE, TIRE CLEANING PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ACCESS EXISTS. THE STABILIZED PAD WILL BE INSTALLED ACCORDING TO THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS.
14. ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED, AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
18. OFFSITE SEDIMENT DISTURBANCE MAY REQUIRE ADDITIONAL CONTROL MEASURES TO BE DETERMINED BY THE EROSION CONTROL INSPECTOR.
19. A COPY OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN MUST BE MAINTAINED ON THE PROJECT SITE DURING CONSTRUCTION.
22. IMMEDIATELY AFTER THE COMPLETION OF STRIPPING AND STOCKPILING OF TOPSOIL, THE STOCKPILE MUST BE STABILIZED ACCORDING TO THE STANDARD FOR TEMPORARY VEGETATIVE COVER. STABILIZE TOPSOIL PILE WITH STRAW MULCH FOR PROTECTION IF THE SEASON DOES NOT PERMIT THE APPLICATION AND ESTABLISHMENT OF TEMPORARY SEEDING. ALL SOIL STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY (50) FEET OF A FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY AND THE BASE MUST BE PROTECTED WITH A SEDIMENT BARRIER.
23. METHODS FOR THE MANAGEMENT OF HIGH ACID PRODUCING SOILS SHALL BE IN ACCORDANCE WITH THE STANDARDS. HIGH ACID PRODUCING SOILS ARE THOSE FOUND TO CONTAIN IRON SULFIDES OR HAVE A pH OF 4 OR LESS.
25. TEMPORARY AND PERMANENT SEEDING MEASURES MUST BE APPLIED ACCORDING TO THE NEW JERSEY STANDARDS, AND MULCHED WITH SALT HAY OR EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS (I.E. PEG AND TWINE, MULCH NETTING OR LIQUID MULCH BINDER).
26. MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1 UNLESS OTHERWISE APPROVED BY THE DISTRICT.
27. DUST IS TO BE CONTROLLED BY AN APPROVED METHOD ACCORDING TO THE NEW JERSEY STANDARDS AND MAY INCLUDE WATERING WITH A SOLUTION OF CALCIUM CHLORIDE AND WATER.
28. ADJOINING PROPERTIES SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS ON THE PROPOSED SITE.
29. USE STAGED CONSTRUCTION METHODS TO MINIMIZE EXPOSED SURFACES, WHERE APPLICABLE.
30. ALL VEGETATIVE MATERIAL SHALL BE SELECTED IN ACCORDANCE WITH AMERICAN STANDARDS FOR NURSERY STOCK OF THE AMERICAN ASSOCIATION OF THE NURSERYMEN AND IN ACCORDANCE WITH THE NEW JERSEY STANDARDS.
31. NATURAL VEGETATION AND SPECIES SHALL BE RETAINED WHERE SPECIFIED ON THE LANDSCAPE PLAN.
32. THE SOIL EROSION INSPECTOR MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED, AS DIRECTED BY THE DISTRICT INSPECTOR.

F. VEGETATIVE STABILIZATION - GENERAL SEEDING

TABLE A - PERMANENT REVEGETATION

SPECIES	APPLICATION RATES (LBS/AC)	APPLICATION DATES
TURF TYPE TALL FESCUE (BLEND OF 3 CULTIVARS - EXCEPT FOR AREAS OF PROPOSED BRUSH SEEDING, SEE NOTE 3.)	200	MARCH 1 - AUGUST 14
FERTILIZER/SOIL SUPPLEMENT:		
AGRICULTURAL GRADE LIMESTONE	IN ACCORDANCE WITH SOIL TEST RESULTS	PRIOR TO SEEDING
FERTILIZER	500 (11 LBS/1000 SQ. FT.) OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES	PRIOR TO SEEDING

TABLE B - TEMPORARY REVEGETATION

SPECIES	APPLICATION RATES (LBS/AC)	APPLICATION DATES
PERENNIAL RYEGRASS	100	MARCH 1 - OCTOBER 1
WINTER CEREAL RYE	112	AUGUST 1 - NOVEMBER 15
FERTILIZER/SOIL SUPPLEMENT:		
AGRICULTURAL GRADE LIMESTONE	IN ACCORDANCE WITH SOIL TEST RESULTS	PRIOR TO SEEDING
FERTILIZER	500 (11 LBS/1,000 SQ. FT.) OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS SOIL TEST INDICATES OTHERWISE	PRIOR TO SEEDING

NOTES:
1. NO HAY OR STRAW MULCH SHALL BE PLACED ON WATERBODY BANKS. AT A MINIMUM, ALL WATERBODY BANKS SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. IN ADDITION, ONLY STRAW MULCH (AND NOT HAY MULCH) SHALL BE USED IN AREAS ADJACENT TO WETLANDS.
2. IF A TEMPORARY SEED MIX IS UTILIZED PRIOR TO A PERMANENT SEED MIX, A PERMANENT SEED MIX SHALL BE APPLIED THE FOLLOWING GROWING SEASON.
3. REFER TO THE "POST CONSTRUCTION STORMWATER MANAGEMENT PLAN DRAWINGS" FOR SPECIFICATIONS AND AREAS WHERE "BRUSH SEEDING" SHALL TAKE PLACE

SOMERSET-UNION SOIL CONSERVATION DISTRICT SOIL EROSION AND SEDIMENT CONTROL NOTES

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.

2. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO NJ STATE STANDARDS.

3. PERMANENT VEGETATION SHALL BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.

4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION LAST REVISED JANUARY 2014.

5. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS, IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.

6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E.: STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE NJ STATE STANDARDS.

7. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E.: SLOPES GREATER THAN 3:1).

8. TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 50'X30'X6'PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.

9. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.

10. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5
INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.

11. IN THAT NJSA 4:24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES, ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS, WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.

12. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.

13. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT NJ STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.

14. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.

15. MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONALS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.

16. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.

17. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.

18. HYDRO SEEDING IS A TWO- STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY, GOOD SEED TO SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE. UPON COMPLETION OF SEEDING OPERATION, HYDRO-MULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE NJ STANDARDS.

SEDIMENT BASIN NOTES:

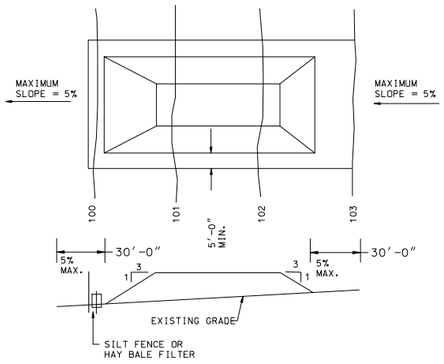
1. SEDIMENT BASINS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
2. SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
3. SOILS ACCEPTABLE FOR EMBANKMENT CONSTRUCTION SHALL BE LIMITED TO GC, GM, SC, SM, CL OR ML AS DESCRIBED IN ASTMD-2487 (UNIFIED SOILS CLASSIFICATION). EMBANKMENT CORE SOILS SHALL CONTAIN NO LESS THAN 35% PASSING THE NO. 200 SIEVE SIZE.
4. ANY SPRINGS ENCOUNTERED IN THE FOUNDATION AREA OF A BASIN EMBANKMENT SHOULD BE DRAINED TO THE OUTSIDE/DOWNSTREAM TOE OF THE EMBANKMENT WITH A DRAIN SECTION TWO FEET BY TWO FEET IN DIMENSION CONSISTING OF PENNDOT TYPE A SAND, COMPACTED BY HAND TAMPER. NO GEOTEXTILES ARE TO BE USED AROUND THE SAND. THE LAST THREE FEET OF THIS DRAIN AT THE OUTSIDE/DOWNSTREAM SLOPE SHOULD BE CONSTRUCTED WITH AASHTO #8 MATERIAL. OTHER METHODS OF DRAINING SPRING DISCHARGES MAY BE ACCEPTABLE ON A CASE-BY-CASE BASIS.
5. AS EMBANKMENTS AND OTHER DISTURBED AREAS IN AND AROUND THE BASIN SHOULD BE STABILIZED IMMEDIATELY UPON COMPLETION OF THE BASIN. TREES MAY NOT BE PLANTED ON ANY BASIN EMBANKMENT, BECAUSE THE ROOT SYSTEMS MAY COMPROMISE THE INTEGRITY OF THE BERM OVER TIME.
6. ALL EXPOSED EMBANKMENT SLOPES SHOULD BE LIMED, FERTILIZED, SEEDED AND MULCHED. EMBANKMENTS SHOULD BE MAINTAINED WITH A GRASSY VEGETATIVE COVER, FREE OF BRUSH AND TREES.
7. A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.
8. INSPECT ALL SEDIMENT BASINS ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. CHECK BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL BE REPLACED IMMEDIATELY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO AN INFILTRATION FACILITY.
9. THE FOUNDATION OF THE EMBANKMENT SHOULD BE STRIPPED AND GRUBBED TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS.
10. ALL BASIN EMBANKMENTS SHOULD BE COMPACTED BY SHEEPSFOOT OR PAD ROLLER. THE LOOSE LIFT THICKNESS SHOULD BE 9 INCHES OR LESS, DEPENDING ON ROLLER SIZE, AND THE MAXIMUM PARTICLE SIZE IS 6 INCHES OR LESS — 2/3 LIFT THICKNESS. FIVE PASSES OF THE COMPACTION EQUIPMENT OVER THE ENTIRE SURFACE OF EACH LIFT IS REQUIRED. EMBANKMENT COMPACTION TO VISIBLE NON-MOVEMENT IS ALSO REQUIRED. UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.

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JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY — JOHN DROMSKY-REED — No. 24GE04512400 — LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	06/15/17	GMS	SUBMITTED TO SOMERSET-UNION SCD	1185732	PPH	KDM
1	08/11/17	GMS	REVISED NJDEP AND SCD SUBMISSION	1185732	PPH	KDM
2	01/05/18	GMS	REVISED WORKSPACE	1185732	PPH	KDM
3	02/09/18	GMS	REVISED SUBMISSION TO SOMERSET UNION SCD	1185732	PPH	KDM
4	06/05/18	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
5	06/24/19	PPH	SUBMIT



NOTES:

1. PLACE STOCKPILES AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
2. ALL SIDE SLOPES SHALL BE 3 TO 1 OR FLATTER.
3. ONCE SHAPED, TEMPORARY STOCKPILE SHALL RECIEVE A VEGETATIVE COVER IN ACCORDANCE WITH TEMPORARY VEGETATIVE COVER STANDARDS SHOWN HEREON.
4. SILT FENCE OR HAY BALE FILTER SHALL BE INSTALLED AS DETAILED HEREON.

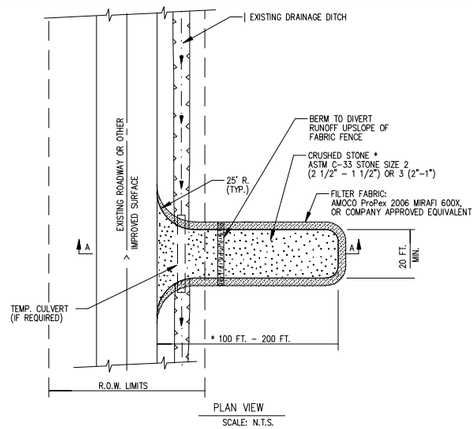
TEMPORARY STOCKPILE DETAIL

N.T.S.

NEW JERSEY

NO.	DATE	REVISION DESCRIPTION	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
TEMPORARY STOCKPILE DETAIL



NOTES:

1. STABILIZED ENTRANCE SHALL BE INSTALLED WHERE EQUIPMENT ENTERS AND EXITS CONSTRUCTION SITES ONTO PAVED ROADWAY OR OTHER IMPROVED SURFACE.
2. LOCATE ALL ROADWAY CROSSINGS AND ENTRANCES TO ENSURE SAFE AND ACCESSIBLE CONDITIONS THROUGHOUT THE CONSTRUCTION PHASE.
3. THE ENTRANCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION IN A CONDITION WHICH WILL MINIMIZE TRACKING OF SEDIMENT ONTO A PUBLIC ROADWAY.
4. ALL SEDIMENT TRACKED ONTO PAVEMENT SHALL BE REMOVED IMMEDIATELY BY SWEEPING OR SCRAPING.
5. TOP SOIL SHALL BE REMOVED TO A MINIMUM DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF GEOTEXTILE FABRIC AND STONE.
6. WHERE DRAINAGE DITCH EXISTS, CONTRACTOR SHALL PROVIDE A FLUME PIPE.
7. THE CONSTRUCTION ENTRANCE SHALL BE REMOVED AND AREA RESTORED AS PART OF FINAL GRADING AND CLEAN UP. REMOVAL IS NOT CONTINGENT UPON ESTABLISHMENT OF PERMANENT VEGETATION.
8. GRADE 0% TO 2% LENGTH EQUALS 100 FEET. GRADE 2% TO 5% LENGTH EQUALS 200 FEET FOR GRADE GREATER THAN 5% THE ENTIRE SURFACE SHALL BE STABILIZED WITH FABC (FINE AGGRATE BASE CONCRETE), BASE COARSE AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

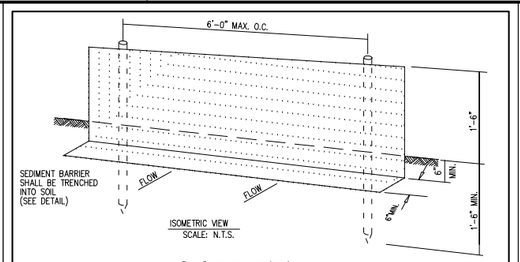
CONSTRUCTION ENTRANCE

TEMPORARY EROSION CONTROL MEASURE
TO BE INSTALLED IN AREAS WHERE SOILS ARE FINE (SILT & CLAY)

NEW JERSEY

NO.	DATE	REVISION DESCRIPTION	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
CONSTRUCTION ENTRANCE



NOTES:

1. SEDIMENT BARRIER SHALL BE INSTALLED TO FILTER SEDIMENT FROM SURFACE RUNOFF.
2. INSTALLATIONS SHALL BE PERIODICALLY CHECKED, THE SEDIMENT SHALL BE REMOVED WHEN IT REACHES ONE-THIRD THE HEIGHT OF THE SEDIMENT BARRIER.
3. SEDIMENT BARRIER SHALL BE LEFT IN PLACE UNTIL PERMANENT VEGETATIVE COVER IS ESTABLISHED.
4. SEDIMENT BARRIER SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT IT REDUCES THE EFFECTIVENESS OF THE SEDIMENT BARRIER.
5. AREA DISTURBED AS A RESULT OF REMOVING THE SEDIMENT BARRIER SHALL BE RESTABILIZED BY BACKFILLING, COMPACTING, AND SEEDING IN ACCORDANCE WITH THE REVEGETATION PLAN.
6. SEDIMENT BARRIER SHALL BE PLACED TO FOLLOW (RUN PARALLEL TO) THE CONTOURS.
7. ON UP SLOPE INSTALLATIONS, BOTH ENDS OF THE SEDIMENT BARRIER SHALL BE TURNED AND EXTENDED UP SLOPE.
8. SEDIMENT BARRIER SHALL BE CONSTRUCTED OF AMOCO CEF-2019 FABRIC OR A SIMILAR COMPANY APPROVED FABRIC WITH A TENSILE STRENGTH OF 50 LB./LINEAR INCH AT 20% (MAX.) ELONGATION.

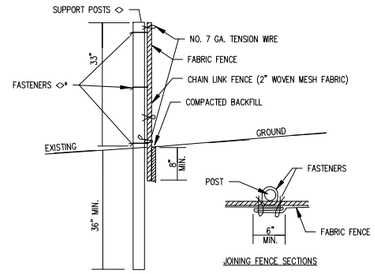
SEDIMENT BARRIER (STANDARD SILT FENCE)

TEMPORARY EROSION CONTROL MEASURE

NEW JERSEY

NO.	DATE	REVISION DESCRIPTION	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
SEDIMENT BARRIER (STANDARD SILT FENCE)



* POSTS SPACED @ 10' MAX. USE 2 1/2" DIA. GALVANIZED OR ALUMINUM POSTS.
** CHAIN LINK TO POST FASTENERS SPACED @ 14" MAX. USE NO. 6 GA. ALUMINUM WIRE OR NO. 9 GALVANIZED STEEL PRE-FORMED CLIPS. CHAIN LINK TO TENSION WIRE FASTENERS SPACED @ 60" MAX. USE NO. 10 GA. GALVANIZED STEEL WIRE. FABRIC TO CHAIN FASTENERS SPACED @ 24" MAX. C TO C.

NOTES:

1. NO. 7 GAUGE TENSION WIRE SHALL BE INSTALLED HORIZONTALLY AT TOP AND BOTTOM OF CHAIN LINK FENCE.
2. SUPER SILT FENCE FENCE MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO MAIN BARRIER ALIGNMENT.
3. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
4. REINFORCED SILT FENCE SHALL BE LEFT IN PLACE UNTIL PERMANENT VEGETATIVE COVER IS ESTABLISHED.
5. AREA DISTURBED AS A RESULT OF REMOVING THE REINFORCED SEDIMENT BARRIER SHALL BE RESTABILIZED BY SEEDING IN ACCORDANCE WITH THE REVEGETATION PLAN.

TABLE 2
MAXIMUM SLOPE LENGTHS FOR SUPER SILT FENCE

SLOPE - PERCENT	MAXIMUM SLOPE LENGTH (FT)
2 (OR LESS)	1,000
5	500
10	300
20	200
30	100
40	75
50	50

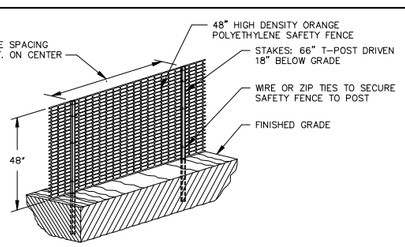
SEDIMENT BARRIER (SUPER SILT FENCE)

TEMPORARY EROSION CONTROL MEASURE

NEW JERSEY

NO.	DATE	REVISION DESCRIPTION	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
SEDIMENT BARRIER (SUPER SILT FENCE)



ISOMETRIC VIEW
SCALE: N.T.S.

NOTES:

1. ALL SENSITIVE AREAS SHALL BE PROTECTED AS PER PLAN.
2. ALL TREES IN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNED FOR REMOVAL SHALL BE PRESERVED AND PROTECTED WITH HIGH VISIBILITY FENCE AS PER PLAN.
3. WHEN PRACTICABLE, INSTALL HIGH VISIBILITY 3 FEET OUTSIDE OF THE DRIP LINE OF THE TREE.
4. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE POST.
5. THE FENCE MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

SAFETY FENCE (SAF)

PERMANENT EROSION CONTROL MEASURE

NEW JERSEY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
SAF SAFETY FENCE
GAS PIPELINE

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NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

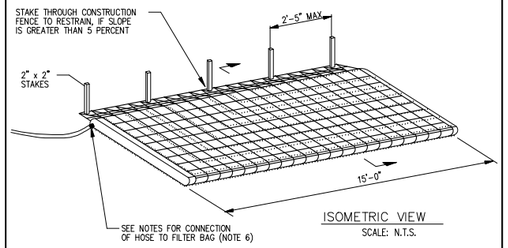
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
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5	06/24/19	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
6	01/15/20	PPH	NJDEP SUBMISSION	1185732	GMS	KDM
7	08/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60757472	AV	JDR
8	11/20/2025	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
9, 10, 11	01/06, 02/18, 03/17, 2026	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
12	10/13/2026	ET	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EROSION CONTROL DETAILS
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

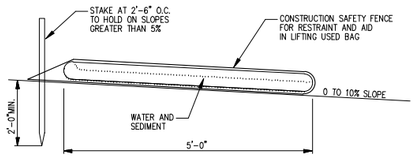
GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE:
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 1
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 12 OF 16
W.O: 1185732			

Drawn By & Date/Time: eva.lucewicz Oct 13, 2026 - 9:48am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\11-16 - E&S Notes-Detail Sheets - EPA Road.dwg



ISOMETRIC VIEW
SCALE: N.T.S.



SECTION
SCALE: N.T.S.

NOTES:

1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
2. THE FILTER BAG MUST BE STAKED IN PLACE IF THE FILTER BAG IS PLACED ON A SLOPE GREATER THAN 5 PERCENT.
3. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
4. CONTRACTOR SHALL PROPERLY REMOVE AND PROPERLY DISPOSE OF USED FILTER BAGS IMMEDIATELY UPON COMPLETION OF DEWATERING OPERATIONS. UNDER NO CIRCUMSTANCES SHALL USED FILTER BAGS BE LEFT IN PLACE FOR A PERIOD OF TIME GREATER THAN 48 HOURS AFTER DEWATERING OPERATIONS ARE COMPLETE.
5. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA WITHIN THE CONSTRUCTION CORRIDOR AND THE AREA SHALL BE STABILIZED AND REVEGETATED.
6. TO ATTACH HOSE, CUT OPEN CORNER OF FILTER BAG, GATHER UP MATERIAL AND CLAMP TO A SHORT SECTION OF STEEL PIPE. CLAMP HOSE TO OTHER END OF PIPE. BOTH CONNECTIONS SHALL BE WATERTIGHT.
7. CONTRACTOR SHALL ONLY INSTALL ONE DEWATERING HOSE PER FILTER BAG.

FILTER BAG

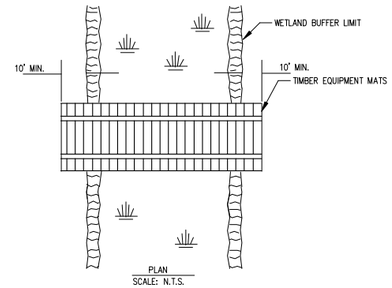
TEMPORARY EROSION CONTROL MEASURE

NEW JERSEY

NO.	DATE	REVISION DESCRIPTION	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

FILTER BAG



NOTES:

1. PERIODICALLY CHECK INSTALLATION AND REMOVE BUILD-UP OF SEDIMENT OR DEBRIS.
2. MATERIALS PLACED IN WETLANDS SHALL BE COMPLETELY REMOVED DURING FINAL CLEAN-UP. REMOVAL OF THIS STRUCTURE IS NOT CONTINGENT UPON ESTABLISHMENT OF PERMANENT VEGETATION.
3. IF A WATERBODY IS LOCATED WITHIN A WETLAND SYSTEM, EXTEND TIMBER EQUIPMENT MATS TO THE BRIDGE EQUIPMENT CROSSING (BEC) USED TO CROSS THE WATERBODY IN ORDER TO ALLOW FOR CONTINUOUS TIMBER EQUIPMENT MAT COVERAGE THROUGH THE WETLAND AND WATERBODY AREA.
4. USE ADDITIONAL TIMBER MAT LAYERS TO RAISE CROSSING ABOVE GRADE WHERE POOR SOIL CONDITIONS EXIST.
5. TIMBER EQUIPMENT MATS SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE OF THE WETLAND BOUNDARIES.
6. INSTALL EARTHEN RAMP APPROACHES TO TIMBER EQUIPMENT MATS. EARTHEN RAMPS TO BE CONSTRUCTED OF UPLAND MATERIAL, TOP SOIL SHALL NOT BE USED TO CONSTRUCT EARTHEN RAMPS.

WETLAND EQUIPMENT CROSSING

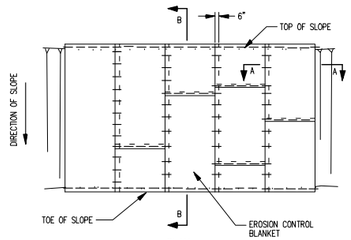
TEMPORARY EROSION CONTROL MEASURE

NEW JERSEY

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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

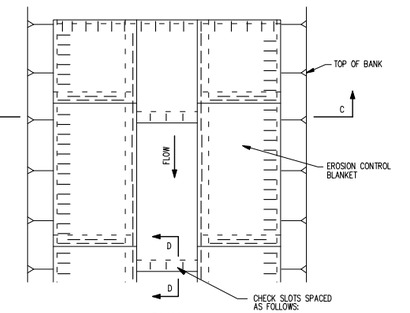
WETLAND EQUIPMENT CROSSING



PLAN
SCALE: N.T.S.

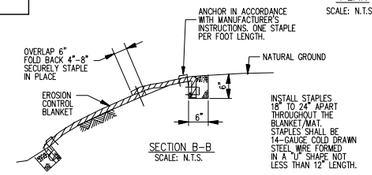
MATERIAL
NORTH AMERICAN GREEN S150

* OR APPROVED EQUIVALENT



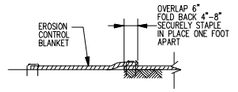
PLAN
SCALE: N.T.S.

SLOPE	SPACING
0-3%	50'
> 3%	25'

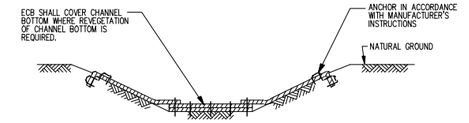


SECTION B-B
SCALE: N.T.S.

EMBANKMENT INSTALLATION

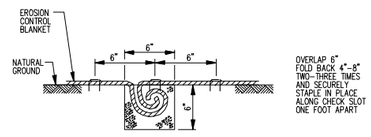


SECTION A-A
SCALE: N.T.S.

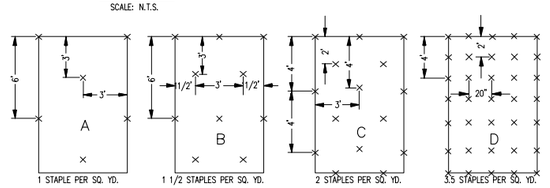


SECTION C-C
SCALE: N.T.S.

CHANNEL INSTALLATION

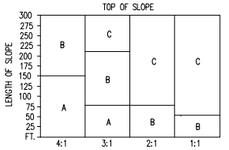


SECTION D-D
SCALE: N.T.S.



FLOW	STAPLE PATTERN TYPE
LOW VELOCITY	C
MED. TO HIGH VELOCITY	D

CHANNEL INSTALLATION -
STAPLE PATTERN TABLE
(SEE STAPLE PATTERN GUIDE)



EMBANKMENT INSTALLATION -
STAPLE PATTERN TABLE
(SEE STAPLE PATTERN GUIDE)

STAPLE PATTERN GUIDE

NOTES:

1. EROSION CONTROL BLANKETS SHALL EXTEND COMPLETELY ACROSS DISTURBED AREA TO PROTECT ERODIBLE SURFACES. THE SOIL SHALL BE PROPERLY PREPARED, SEEDED AND MULCHED PRIOR TO INSTALLATION.
2. INSTALL EROSION CONTROL BLANKETS ON FRESHLY GRADED EMBANKMENTS ON SLOPES IN EXCESS OF 3:1 (H:V) TO SUPPORT VEGETATION.
3. INSTALL BLANKETS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. BLANKET SHALL BE LOOSELY INSTALLED AND TAMPED OR ROLLED IN PLACE AFTER INSTALLATION. STAPLES SHALL BE DRIVEN FLUSH WITH THE GROUND.

EROSION CONTROL BLANKET

PERMANENT EROSION CONTROL MEASURE

NEW JERSEY

NO.	DATE	REVISION DESCRIPTION	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

EROSION CONTROL BLANKET
PERMANENT EROSION CONTROL MEASURE

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(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY
No. 24GE04512400
LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

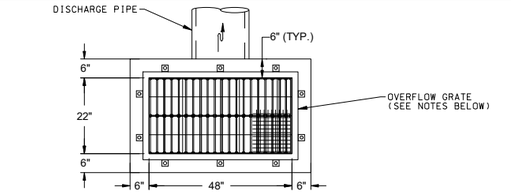
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4	06/05/18	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
5	06/24/19	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
6	01/15/20	PPH	NJDEP SUBMISSION	1185732	GMS	KDM
7	06/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60757472	AV	JDR
8	11/20/2025	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
9, 10, 11	01/06, 02/18, 03/17, 2026	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
12	10/13/2026	ET	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EROSION CONTROL DETAILS
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

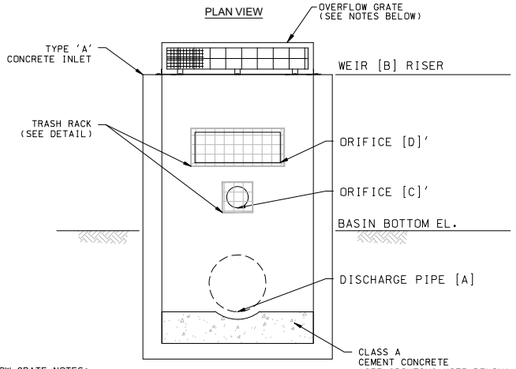
Williams GAS PIPELINE

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CHECKED BY:	TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION:	1
APPROVED BY:	KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET	13
WO:	1185732			OF	16

Drawn By & Date/Time: eva.tucewicz Oct 13, 2026 - 9:48am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\11-16 - E&S Notes-Detail Sheets - EPA Road.dwg



PLAN VIEW



OVERFLOW GRATE NOTES:

AN OVERFLOW GRATE IS DESIGNED TO PREVENT OBSTRUCTION OF THE STRUCTURE. THE GRATE MUST COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. THE OVERFLOW GRATE MUST BE SECURED TO THE OUTLET STRUCTURE BUT REMOVABLE FOR EMERGENCIES AND MAINTENANCE;
2. THE OVERFLOW GRATE SPACING MUST BE NO GREATER THAN 2 INCHES ACROSS THE SMALLEST DIMENSION; AND
3. THE OVERFLOW GRATE MUST BE CONSTRUCTED OF RIGID, DURABLE, AND CORROSION RESISTANT MATERIAL AND DESIGNED TO WITHSTAND A PERPENDICULAR LIVE LOADING OF 300 LBS/SF.

GROUTING NOTE:

THE SPACE BELOW THE INVERT OF THE DISCHARGE PIPE MUST BE FILLED WITH MATERIAL, SUCH AS CONCRETE, A MIXTURE OF SAND AND CEMENT, OR SIMILAR GROUTING MATERIAL, SUCH THAT WATER WILL NOT POND IN THE OUTLET STRUCTURE. THIS MATERIAL MUST BE SLOPED TOWARDS THE DISCHARGE PIPE TO FACILITATE DRAINAGE.

BASIN NO.	BASIN BOTTOM	CULVERT [A] OUTFALL		WEIR [B] RISER	ORIFICE [C]		ORIFICE [D]	
	ELEV.	SIZE/ MATERIAL	INV. ELEV.	ELEV.	SIZE	INV. ELEV.	SIZE	INV. ELEV.
SEDIMENT BASIN # 6	262.00	18" RCP	262.00	266.0	3"	262.65	0.5' H 0.8' W	264.00
SEDIMENT BASIN # 7	261.50	18" RCP	261.50	265.9	4"	262.35	0.5' H 1.0' W	265.00

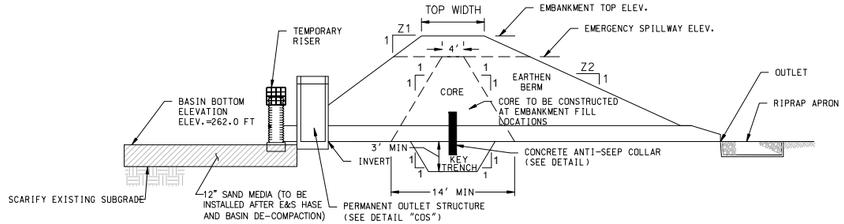
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NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

COS CONCRETE OUTLET STRUCTURE

GAS PIPELINE



SEDIMENT BASIN NO.	EMBANKMENT				CULVERT			
	Z1	Z2	TOP ELEV. (FEET)	TOP WIDTH (FEET)	INVERT ELEV. (FEET)	OUTLET ELEV. (FEET)	DIA (INCH)	MATERIAL
6	3	3	267.00	10	262.00	258.75	18	RCP
7	3	3	267.50	10	261.50	258.75	18	RCP

NOTES:

1. CONTRACTOR SHALL EXCAVATE THE BASIN FROM OUTSIDE THE LIMITS OF THE BASIN. IF CONTRACTOR NEEDS TO ENTER THE BASIN FOOTPRINT, CONTRACTOR SHALL ONLY USE LOW CONTACT PRESSURE EQUIPMENT TO GRADE THE BASIN TO MINIMIZE COMPACTING THE SOILS.

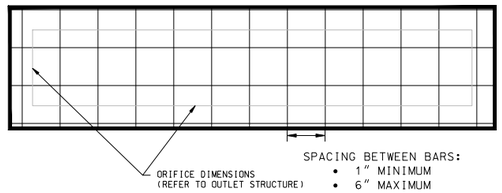
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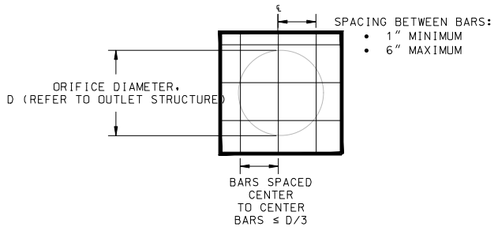
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TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

SEDIMENT BASIN

GAS PIPELINE

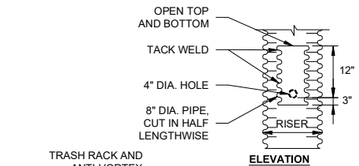




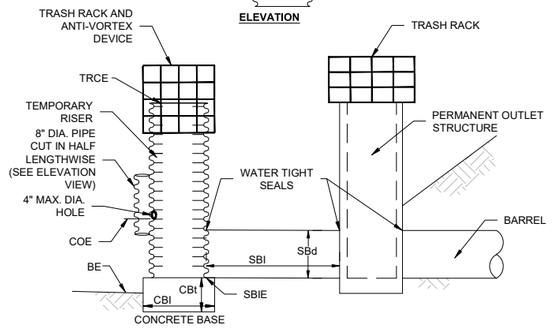
NOTES:

FOR SYSTEMS DESIGNED WITH AN OUTLET STRUCTURE, TRASH RACKS MUST BE INSTALLED AT THE INTAKE TO THE OUTLET STRUCTURE. THEY MUST MEET THE FOLLOWING CRITERIA:

1. PARALLEL BARS WITH 1-INCH SPACING BETWEEN THE BARS UP TO THE ELEVATION OF THE WATER QUALITY DESIGN STORM;
2. PARALLEL BARS HIGHER THAN THE ELEVATION OF THE WATER QUALITY DESIGN STORM MUST BE SPACED NO GREATER THAN ONE-THIRD THE WIDTH OF THE DIAMETER OF THE ORIFICE, WITH MINIMUM SPACING BETWEEN BARS OF 1-INCH AND A MAXIMUM SPACING BETWEEN BARS OF SIX INCHES;
3. THE TRASH RACK MUST BE DESIGNED SO AS NOT TO ADVERSELY AFFECT THE HYDRAULIC PERFORMANCE OF THE OUTLET PIPE OR STRUCTURE;
4. CONSTRUCTED OF RIGID, DURABLE AND CORROSION-RESISTANT MATERIAL; AND
5. DESIGNED TO WITHSTAND PERPENDICULAR LIVE LOADING OF 300 LBS/SF.



ELEVATION



SEDIMENT BASIN NO.	BASIN BOTTOM ELEVATION BE	TEMPORARY RISER			PERFORATION		CONCRETE BASE	
		DIA TRd (IN)	CREST ELEV TRCE (FT)	MATERIAL	BOTTOM OF HOLE COE (FT)	HOLE DIA. (IN)	LENGTH AND WIDTH CBI (IN)	THICK CBt (IN)
6	262.00	18	265.00	CMP	263.00	4	48	12
7	261.50	18	264.50	CMP	262.50	4	48	12

SEDIMENT BASIN NO.	TEMPORARY STUB			
	DIA SBd (IN)	INVERT ELEV SBIE (FT)	MATERIAL	LENGTH SBI (FT)
6	18	261.75	CMP	5
7	18	261.25	CMP	5

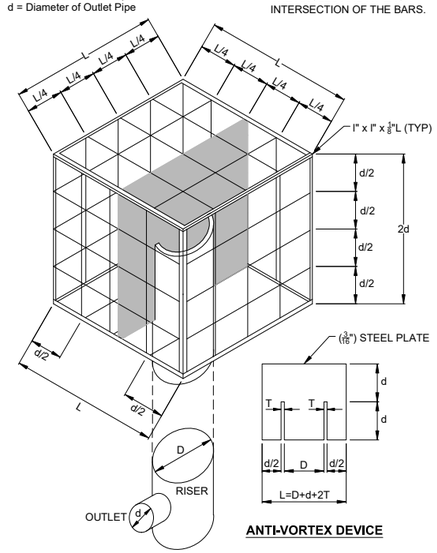
NOTES:

1. A MINIMUM 2 #8 REBAR SHALL BE PLACED AT RIGHT ANGLES AND PROJECTING THROUGH SIDES OF RISER TO ANCHOR IT TO CONCRETE BASE. REBAR SHALL PROJECT A MINIMUM OF ¾ RISER DIAMETER BEYOND OUTSIDE OF RISER.
2. CONCRETE BASE SHALL BE POURED IN SUCH A MANNER TO INSURE THAT CONCRETE FILLS BOTTOM OF RISER TO INVERT OF THE OUTLET PIPE TO PREVENT RISER FROM BREAKING AWAY FROM THE BASE. MINIMUM BASE WIDTH EQUALS 2 TIMES RISER DIAMETER.

SEDIMENT BASIN TEMPORARY RISER
N.T.S.

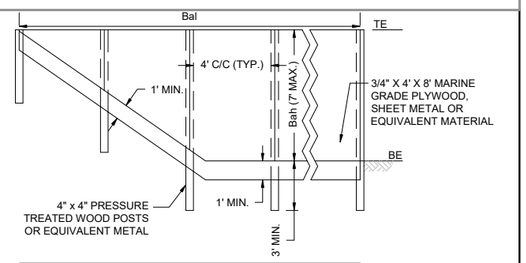
T = Thickness of Riser Pipe
D = Diameter of Riser Pipe
d = Diameter of Outlet Pipe

#4 BARS (TYP.) WELDED TO THE ANGLES AND AT EACH INTERSECTION OF THE BARS.



ANTI-VORTEX DEVICE

TRASH RACK AND ANTI-VORTEX DEVICE
N.T.S.

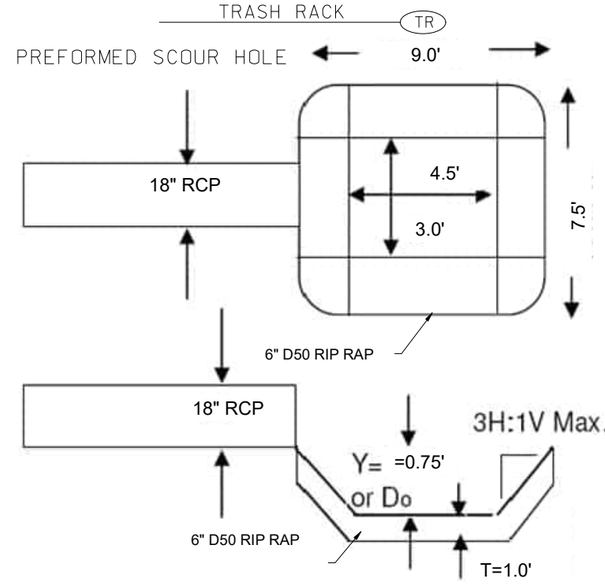


BAFFLE		TOP	BOTTOM
LENGTH Bal (FT)	HEIGHT Bah (FT)	TOP ELEV TE (FT)	BOTTOM ELEV BE (FT)
210	4.0	266.0	262.00
140	4.0	266.0	262.00

NOTES:

1. SUBSTITUTION OF MATERIALS NOT SPECIFIED IN THIS DETAIL SHALL BE APPROVED BY NJDEP OR THE LOCAL CONSERVATION DISTRICT BEFORE INSTALLATION.
2. DAMAGED OR WARPED BAFFLES SHALL BE REPLACED WITHIN 7 DAYS OF INSPECTION.
3. REFER TO PLAN SHEET FOR BAFFLE CONFIGURATIONS.

SEDIMENT BASIN BAFFLE
N.T.S.



AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY
No. 24GE04512400
LICENSED PROFESSIONAL ENGINEER
John Dromsky-Reed
NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

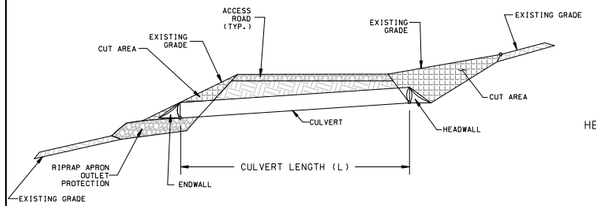
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NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	06/15/17	GMS	SUBMITTED TO SOMERSET-UNION SCD	1185732	PPH	KDM
1	08/11/17	GMS	REVISED NJDEP AND SCD SUBMISSION	1185732	PPH	KDM
2	01/05/18	GMS	REVISED WORKSPACE	1185732	PPH	KDM
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SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EROSION CONTROL DETAILS
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

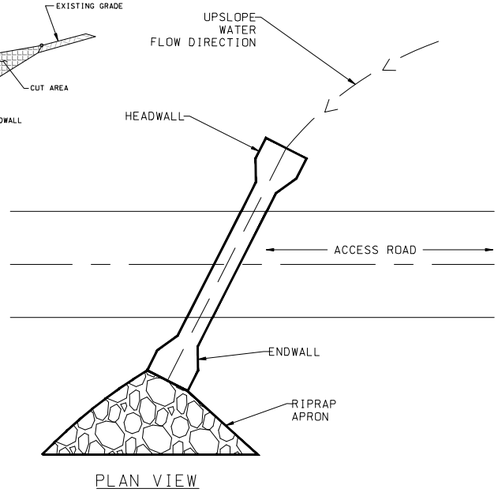
GAS PIPELINE

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CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 1
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 14 OF 16
W.O.: 1185732			

Drawn By & Date/Time: eva.lucewicz Oct 13, 2026 - 9:47am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\11-16 - E&S Notes-Detail Sheets - EPA Road.dwg



CROSS SECTION



PLAN VIEW

NOTES:

1. CUT AND FILL SLOPES SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF ROADWAY GRADING. THESE AREAS SHALL BE BLANKETED WHEREVER THEY ARE LOCATED WITHIN 50 FEET OF A SURFACE WATER OR WITHIN 100 FEET OF A SURFACE WATER WHERE A SUITABLE VEGETATIVE FILTER STRIP DOES NOT EXIST. STEEP SLOPES AT 3H:1V OR STEEPER SHALL BE PROTECTED AGAINST EROSION WITH EROSION CONTROL BLANKET SUITABLE FOR THE ESTABLISHMENT OF VEGETATION.
2. A DURABLE TOP DRESSING SHALL BE PROVIDED FOR SOILS HAVING LOW STRENGTH.
3. UPSLOPE CUT AREA SHALL BE LINED WITH EROSION CONTROL BLANKET.
4. ROADWAY SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED ROADWAYS, DITCHES, OR CROSS DRAINS SHALL BE REPAIRED IMMEDIATELY.
5. BOX CULVERTS SHALL BE EMBEDDED 12 INCHES.

NOTES:

1. TEMPORARY STORMWATER BYPASS BENEATH ACCESS ROAD WILL BE INSTALLED PRIOR TO EARTH DISTURBANCE AT ASSOCIATED GRAVEL WORK AREA, AS APPLICABLE.
2. STORMWATER RUNOFF FROM UPSLOPE BYPASS AREAS WILL BE DIRECTED BENEATH ACCESS ROAD AND WILL DISCHARGE OVER A RIPRAP APRON.

NEW JERSEY

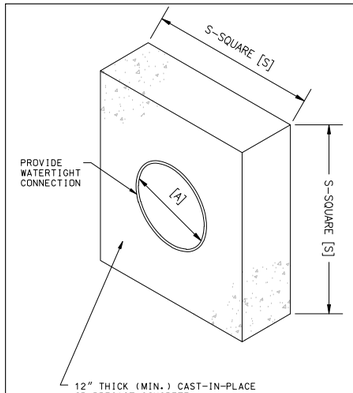
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

ACCESS ROAD CULVERT
FOR NON-STREAM CROSSINGS

GAS PIPELINE

CULVERT NO.	LENGTH (FT)	INV. IN. (ELEV)	INV. OUT. (ELEV)	PIPE SLOPE (%)	MATERIAL
CULVERT 1	59	273.00	271.75	2.1	RCP
CULVERT 2	67	272.75	271.75	1.5	RCP
CULVERT 3	46	272.00	271.75	0.5	RCP
CULVERT 4	2	271.75	271.50	12.5	RCP
CULVERT 5	9	272.75	272.00	8.3	RCP
CULVERT 6	146	272.50	272.00	0.3	RCP
CULVERT 7	34	273.65	273.00	1.9	RCP
CULVERT 8	72	274.00	268.00	8.3	RCP
CULVERT 9	97	263.75	263.00	0.8	RCP
CULVERT 10	11	263.50	263.00	4.5	RCP
CULVERT 11	175	263.00	258.50	2.6	RCP
CULVERT 12	57	266.00	262.00	7.0	RCP
CULVERT 13	64	265.00	261.50	5.5	RCP
CULVERT 14	5	258.75	258.50	5.0	RCP
CULVERT 15	41	262.00	258.75	7.9	RCP
CULVERT 16	143	261.50	258.75	1.9	RCP
CULVERT 17	144	273.75	273.50	0.2	RCP



BASIN NO.	PIPE DIAMETER (IN) [A]	S (IN) [S]	NO. OF COLLARS	DISTANCE RISER TO 1ST COLLAR (FT)
~~INFIL. BASIN~~	18	64	1	20

NOTES:

1. ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
2. COLLARS SHALL NOT BE INSTALLED CLOSER THAN 2 FEET TO A PIPE JOINT.

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TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

CONCRETE ANTI-SEEP COLLAR

GAS PIPELINE

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY
No. 24GE04512400
PROFESSIONAL ENGINEER
John Dromsky-Reed
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REVISIONS

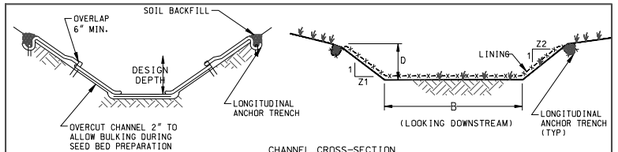
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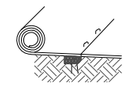
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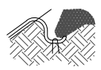
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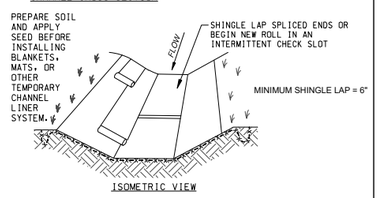
CHANNEL CROSS-SECTION



INTERMITTENT CHECK SLOT



LONGITUDINAL ANCHOR TRENCH



ISOMETRIC VIEW

CHANNEL	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING¹
1	2	2	18	4	4	SC250
2	4	1	12	4	4	SC250
3	2	2	18	4	4	NONE
5	2	2	14	3	3	SC250
7A	2	2	16	3	4	NONE
10A	2	2	14	3	3	SC250
13	2	2	14	3	3	SC250
14	2	2	14	3	3	SC250
15	2	1	8	3	3	NONE
16	2	2	14	3	3	NONE
17	2	2	14	3	3	NONE

NOTES:

1. SEE MANUFACTURER'S INSTALLATION DETAIL FOR STAPLE PATTERNS, AND VEGETATION STABILIZATION SPECIFICATIONS FOR SOIL AMENDMENTS, SEED MIXTURES, AND MULCHING INFORMATION.
2. ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.
3. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
4. NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.
5. NORTH AMERICAN GREEN (NAG) SC-250 EROSION CONTROL MATTING (OR EQUIVALENT) SHALL BE USED CHANNEL LINING.

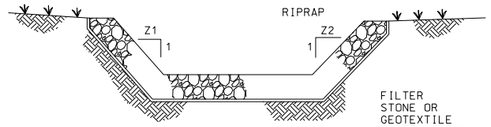
NEW JERSEY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

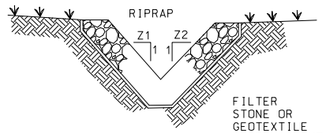
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

VC VEGETATED CHANNEL

GAS PIPELINE



(LOOKING DOWNSTREAM)
TRAPEZOIDAL CHANNEL CROSS-SECTION



(LOOKING DOWNSTREAM)
TRIANGULAR CHANNEL CROSS-SECTION

NOTES:

FILTER STONE UNDERLAYMENT FOR BED SLOPES ≤ 0.10 FT/FT (10 %) SHALL BE USED.

CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.

DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

THE MINIMUM ROCK THICKNESS (†) SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

CHANNEL	SHAPE (TRAPEZOIDAL OR TRIANGULAR)	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING	THICKNESS † (IN)
7B	TRAPEZOIDAL	4	2.0	20	4	4	R-3	6
8	TRIANGULAR	0	2.5	25	5	5	R-3	6
9	TRIANGULAR	0	2.5	25	5	5	R-3	6
10B	TRAPEZOIDAL	2	3.0	20	3	3	R-3	6

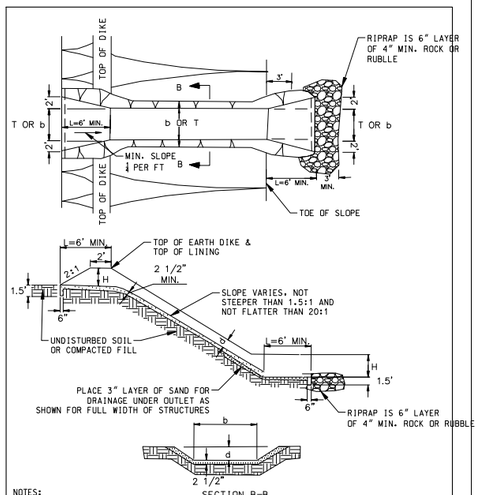
NEW JERSEY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

RIPRAP CHANNEL

GAS PIPELINE



SECTION B-B

NOTES:

1. LINING SHALL BE RIPRAP.
2. SOME TYPE OF ENERGY DISSIPATOR, SUCH AS THE ONE SHOWN ABOVE, MUST BE USED TO PREVENT EROSION AT THE OUTLET.

RIPRAP SLOPE PROTECTION	BOTTOM WIDTH b (FT)	HEIGHT H (FT)	DEPTH d (FT)	LINING
1	25	2.0	0.75	R-3

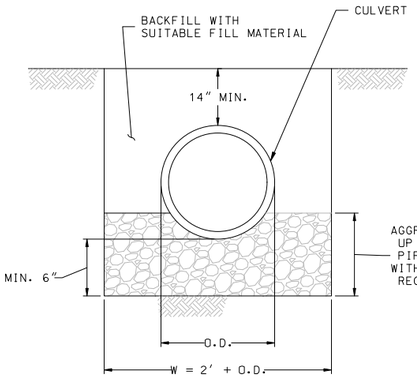
NEW JERSEY

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

RIPRAP SLOPE PROTECTION

GAS PIPELINE



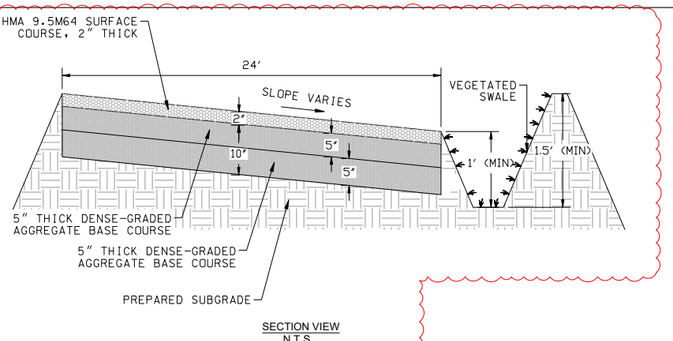
NEW JERSEY

DATE	BY	REVISION DESCRIPTION			

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

PIPE BEDDING

GAS PIPELINE



SECTION VIEW
N.T.S.

NOTES:

1. ONCE SUBGRADE HAS BEEN PREPARED, PROOF ROLL AND COMPACT SUBGRADE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
2. INSTALL DENSE GRADED AGGREGATE BASE COURSE, 10 INCHES THICK, COMPACTED IN TWO 5 INCH LIFTS.
3. INSTALL HMA 19M64 BASE COURSE, 4 INCHES THICK.
4. INSTALL HMA 12.5M64 INTERMEDIATE COURSE, 1 INCH THICK.
5. INSTALL HMA 9.5M64 SURFACE COURSE, 1 INCH THICK.
6. REFER TO PLANS FOR ACCESS ROAD ELEVATIONS AND SLOPE REQUIREMENTS. SLOPE VARIES, SEE PLAN.
7. MAINTAIN POSITIVE DRAINAGE FROM THE ACCESS ROAD TO THE APPROVED DRAINAGE FEATURES.

12

NEW JERSEY

DATE	BY	REVISION DESCRIPTION			

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL

REINFORCED GRAVEL ACCESS ROAD

GAS PIPELINE

AECOM
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19428
(610) 832-3500

JOHN DROMSKY-REED, P.E.
STATE OF NEW JERSEY
JOHN T. DROMSKY-REED
No. 24GE04512400
LICENSED PROFESSIONAL ENGINEER

John Dromsky-Reed

NEW JERSEY
PROFESSIONAL ENGINEER NO 24GE04512400

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	06/15/17	GMS	SUBMITTED TO SOMERSET-UNION SCD	1185732	PPH	KDM
1	08/11/17	GMS	REVISED NJDEP AND SCD SUBMISSION	1185732	PPH	KDM
2	01/05/18	GMS	REVISED WORKSPACE	1185732	PPH	KDM
3	02/09/18	GMS	REVISED SUBMISSION TO SOMERSET UNION SCD	1185732	PPH	KDM
4	06/05/18	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
5	06/24/19	PPH	SUBMITTED TO NJDEP	1185732	TPF	KDM
6	01/15/20	PPH	NJDEP SUBMISSION	1185732	GMS	KDM
7	08/16/2025	OGM	NJDEP SUBMISSION (REVISED)	60757472	AV	JDR
8	11/20/2025	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
9, 10, 11	01/06, 02/18, 03/17, 2026	LZ	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	AV	JDR
12	10/13/2026	ET	REVISED SUBMISSION TO SOMERSET UNION SCD	60757472	WS	JDR

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
SOIL EROSION AND SEDIMENT CONTROL PLAN
NORTHEAST SUPPLY ENHANCEMENT PROJECT
COMPRESSOR STATION NO. 206 - HIGGINS FARM ACCESS ROAD
EROSION CONTROL DETAILS
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NJ

GAS PIPELINE

DRAWN BY: PPH	DATE: 01/15/2020	ISSUED FOR BID: TBD	SCALE:
CHECKED BY: TPF	DATE: 01/15/2020	ISSUED FOR CONSTRUCTION: TBD	REVISION: 1
APPROVED BY: KDM	DATE: 01/15/2020	DRAWING NUMBER:	SHEET 16 OF 16
W.O: 1185732			

Drawn By & Date/Time: eva.lucewicz Oct 13, 2026 - 9:46am
Drawing Location & Name: Z:\Conshohocken-USCSK1\DCS\Projects\ENV\60537393_NESE_CS206\900-CAD-GIS\910-CAD\30-E&S SHEETS\EPA Road\11-16 - E&S Notes-Detail Sheets - EPA Road.dwg