ENGINEERING REPORT

For the:

PROPOSED RESIDENTIAL DEVELOPMENT

Located At:
804 Fountain Street
Woodbridge, Connecticut 06525

Prepared On:
August 18, 2025

Revised On:
August 27, 2025

Prepared By:

SOLLI ENGINEERING

501 Main Street
Monroe, Connecticut 06468
T: (203) 880-5455 F: (203) 880-9695

Prepared For:

Fountain Street Associates, LLC

8 Huntington Street, Suite 171
Shelton, CT 06484

Kevin M. Solli, P.E.
Connecticut License No. 25759

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INTRODUCTION

Solli Engineering has prepared this Engineering Report to describe the existing site conditions and proposed site improvements for the Proposed Residential Development to be located at 804 Fountain Street in Woodbridge, Connecticut. This report includes an analysis of the overall sitework, stormwater management, soil erosion and sediment control measures, utility design, and landscape and lighting design. The proposed design has been completed in compliance with all applicable Town of Woodbridge regulations and ordinances as well as all other applicable state and federal requirements and regulations.

PROJECT DESCRIPTION

EXISTING CONDITIONS

The 5.713-acre site is located at 804 Fountain Street within the Residential District A zoning district and is bounded by Fountain Street (Route 243) to the north, Wilbur Cross Parkway (Route 15) to the east, wooded property to the south, and Woodbridge Land Trust to the west. The site is undeveloped, wooded terrain that generally slopes downward from west to east from approximately elevation 362 to 262, respectively. Wetlands are located adjacent to the southern and eastern property lines and were delineated by William Kenny Associates on January 24, 2025 and February 26, 2025. Refer to the Wetland and Watercourse Delineation in Appendix B for more information regarding the existing wetlands.

According to FEMA Flood Insurance Rate Map, Map Number 09009C0428H, the project site is not located within a special flood hazard area subject to inundation by the 1% annual chance flood (100-year flood), also known as the base flood. See Appendix A, Figure 2 – FEMA Flood Map for more information.

According to the map obtained from the Connecticut Department of Energy & Environmental Protection Natural Diversity Data Base Areas, Woodbridge, CT, dated June 2025, no portion of the property is located within an estimated area of state and federal listed species (See Appendix A, Figure 4, Natural Diversity Data Base Map).

PROPOSED CONDITIONS

The project proposes constructing a four-story, 116,407± square-foot residential building with 146 parking spaces and associated paved driveways, sidewalks, utilities, drainage, landscape, and lighting improvements. The building will have a basement for additional parking spaces, refuse area, bike storage, tenant storage, and utility rooms. The proposed development will require new utility infrastructure consisting of electric, telecommunication, water, and sanitary services.

Site Access/Egress

The proposed development will utilize an unsignalized, full-movement driveway allowing access to and from Fountain Street (Route 243). Traffic signage and painted markings are proposed throughout the site to improve traffic flow and vehicular safety. During construction, trucks and construction vehicles will enter the site via an anti-tracking pad assessable from the site driveway entrance. For more information regarding fire and refuse truck turning movements, please refer to the Civil Plan Set (Sheet TT-1) for more information.

Parking, Loading & Operations

The proposed development will feature 55 ground floor and 91 surface parking spaces for a total of 146 spaces. The parking spaces have been designed in accordance with the Town of Woodbridge Zoning Regulations and have been located to provide efficient and adequate access to the building's entrance. The parking spaces will be primarily utilized by residents of the proposed residential building. The ADA accessible parking spaces have been designed in accordance with the US Access Board Accessibility Standards, and the spaces are proposed to be 8' wide with an 8' wide loading aisle as well as a 10' wide with a 5' wide loading aisle for vans. Provisions for 16 EV charging stations have been provided.

The project proposes one (1) concrete dumpster pad within a fenced enclosure located in the northeast corner of the parking area, and one (1) refuse room located on the ground floor of the building.

Stormwater

The proposed development will result in an increase of 1.63± acres of impervious coverage compared to existing conditions. To attenuate the peak flows produced by the increase in impervious area, the project has been designed with underground infiltration systems featuring a 120 double stacked Retain-It galleries (UG-1) beneath the eastern parking area, and six (6) 5' Retain-It galleries (UG-2) located beneath the drive entrance. The stormwater collection system is comprised of HDPE and RCP drainage pipes with associated catch basins, manholes, water quality units, outlet control structures, and trench drains. Stormwater quality is enhanced using underground infiltration systems, catch basins with four-foot sumps, and two (2) hydrodynamic separators to remove coarser sediments, oils, and other floatables from the stormwater prior to discharge into the stormwater management systems. Pervious pavers are proposed in the parking lot and along the emergency vehicle road to further promote infiltration and reduce impervious coverage. Refer to the *Stormwater Management* section of this report for more details regarding the proposed stormwater management system.

Earthwork Analysis

Due to the sloping nature of the site and shallow depth to bedrock, the development of the site will result in a net export of materials off the property. Although the ultimate receiver of this material has not been identified, we anticipate that a local development site in need of fill will be the recipient. The bedrock and sandy/gravelly nature of the native soil makes it desirable as clean fill for development sites.

A summary of the earthwork analysis can be found in Table 1 below:

Table 1: Earthwork Analysis

	Cut (CY)[1]	Fill (CY)	Total Export (CY)[2]
Proposed Condition	74,200	8,000	66,200

1. Includes rock cut. Rock cut values will be based on future soil testing data and should be considered approximate.
2. The above referenced numbers are considered approximate and may vary dependent on swelling and shrinkage conditions within the soil.

Under the proposed application, the project requires an export of approximately 66,200 cubic yards of cut material from the site. It is anticipated that 24-ton tri-axle trucks will be utilized to transport the export material. Using a conversation rate of 1.4 tons per cubic yard, approximately 1,970 truckloads will be exported from the property over an anticipated 6-month period. Truck traffic is anticipated to occur between the hours of 8:00am and 5:00pm, Monday through Friday with 15 truck trips generated per day. The expected heavy vehicle operations will occur

within the confines of normal operating conditions of developing a parcel per Section 3.1N of the Town of Woodbridge Zoning Regulations.

STORMWATER MANAGEMENT

The stormwater management plan was designed to be in compliance with the Town of Woodbridge Zoning Regulations, Section 5.5, effective date January 1, 2025, and the 2024 Connecticut Stormwater Quality Manual, while taking prevailing site conditions and practical considerations into account.

Methodology

Stormwater runoff analysis, for both existing and proposed conditions, was performed using the software package HydroCAD. This software uses a computer implementation of the SCS – TR-55 methodology to compute volumes and rates of runoff. The watershed area, rainfall depths and intensity, curve number and time of concentration are factors that influence the computed results.

Rainfall depths for this property were used for calculating the volumes and rates of runoff for this particular project. The depths were taken from the NOAA Atlas 14 documents (Latitude: 41.3314°, Longitude: -72.9883°) and are listed in Table 2 below.

Table 2: Rainfall Data

Return Period	24-hr Rainfall Depth (in)
1-year	2.96
2-year	3.60
10-year	5.53
25-year	6.73
50-year	7.62
100-year	8.59

HydroCAD automatically computes the rainfall intensity from its own IDF curves when the rainfall intensity data is provided. Table 2 shows the data that was used to generate the IDF curves. This information was taken from NOAA Atlas 14 documents (Latitude: 41.3314°, Longitude: -72.9883°) and is listed in Table 3 below.

Table 3: IDF Table

Intermediate Intensity Values (in/hr)				
Return Period	**5-Minute**	**15-Minute**	**30-Minute**	**60-Minute**
1-yr	4.26	2.37	1.64	1.04
2-yr	5.11	2.84	1.96	1.25
10-yr	7.66	4.25	2.94	1.88
25-yr	9.24	5.14	3.55	2.26
50-yr	10.40	5.80	4.01	2.56
100-yr	11.70	6.50	4.49	2.86

SCS Method uses the runoff curve number (CN) method to estimate runoff from storm rainfall. The major factors that determine CN are the watershed's soil and cover conditions, cover type, treatment, and hydrologic condition. The higher percentage of impervious cover within a watershed will result in a higher curve number. A composite

curve number was calculated for each analyzed watershed. Refer to Appendix C for the calculations used in determining the existing and proposed curve numbers for the individual drainage areas.

The time of concentration is the time it takes for runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. The time of concentration is calculated by adding the travel times of sheet flow, shallow concentrated flow and open channel flow, or some combination of these depending on the watershed and its features. Refer to Appendix C for the calculations used in determining the existing and proposed time of concentrations for the individual drainage areas.

EXISTING HYDROLOGY

The site is sloped from west to east, with elevations ranging from approximately 362 feet at the western property edge to approximately 262 feet at the northeast property corner. According to the NRCS Soil Survey Geographic database for the State of Connecticut, the vast majority of the project site is comprised of Hollis-Chatfield-Rock outcrop complex soil with a hydrologic soil group rating of B. The remaining portion located along the eastern property line is comprised of Ridgebury, Leicester, and Whiteman Soils, extremely stony, with a hydrologic soil group rating of D. A breakdown of all soil types located within the property limits, as well as the Soil Survey Map for the site can be found in Appendix A, Figure 3.

The stormwater analysis of existing conditions is based upon a survey of the property entitled “Existing Conditions Map” prepared by John Paul Garcia & Associates Engineers & Surveoyrs, dated 03/05/2024. Off-site topography is based on data obtained from CT ECO. Based on existing drainage patterns, a 5.98-acre area was analyzed and divided into three (3) overall contributing drainage areas, which are labeled Existing Drainage Area 1 (EDA-1), Existing Drainage Area 2 (EDA-2), and Existing Drainage Area 3 (EDA-3). EDA-1 drains off-site to the eastern wetlands, EDA-2 drains west off-site to the adjacent parcel, and EDA-3 drains off-site to the State’s Right-of-Way, Fountain Street (Route 243).

EDA-1 has a contributing area of approximately 5.28 acres. This area encompasses a majority of the property consisting of woods in good condition. Runoff from EDA-1 travels downslope towards the east and discharges to the existing wetlands adjacent to Wilbur Cross Parkway, identified as Off-Site Wetlands.

EDA-2 has a contributing area of approximately 0.38 acres and is comprised of woods in good condition. Runoff from EDA-2 travels west towards the adjacent parcel, identified as Off-Site West.

EDA-3 has a contributing area of approximately 0.32 acres. This area is comprised of woods in good condition and is assumed to flow to existing catch basins located within the State’s Right-of-Way, Fountain Street (Route 243).

Characteristics of these drainage areas are summarized in Table 4. A map depicting existing drainage areas and their characteristics, entitled “Existing Drainage Area Map (EDA-1)”, can be found in Appendix C.

Table 4: Existing Drainage Area Characteristics

Drainage Area	Area (Acres)	Curve Number (CN)	Time of Concentration (Minutes)
EDA-1	5.28	56	10.4
EDA-2	0.38	55	10.3
EDA-3	0.32	55	6.8

Existing peak flows for all analyzed storm events are summarized in Table 5. Calculations for the existing hydrology can be found in Appendix C.

Table 5: Existing Peak Flows

Drainage Area	Peak Flow (cfs)					
	1-yr	2-yr	10-yr	25-yr	50-yr	100-yr
EDA-1	0.3	1.2	6.2	10.2	13.4	17.1
EDA-2	0.0	0.1	0.4	0.7	0.9	1.2
EDA-3	0.0	0.1	0.4	0.7	0.9	1.2

PROPOSED HYDROLOGY & HYDRAULICS

The proposed development conditions within the 5.98 acres analyzed consist of drainage areas that are of similar patterns to existing contributing areas. The 5.98-acre area was divided into three (3) overall contributing drainage areas, which are labeled Proposed Drainage Area 1 (PDA-1), Proposed Drainage Area 2 (PDA-2), and Proposed Drainage Area 3 (PDA-3). PDA-1 is further divided into three sub-drainage areas, labeled as Proposed Drainage Area 1A (PDA-1A), Proposed Drainage Area 1B (PDA-1B), and Proposed Drainage Area 1C (PDA-1C). The approximate location and delineation of these drainage areas can be seen on Sheet PDA-1, Proposed Drainage Area Map, found in Appendix C.

PDA-1A has a total contributing area of approximately 2.88 acres and encompasses woods in good condition, the proposed building, parking lot, and a portion of the site drive. Runoff from PDA-1A travels to proposed catch basins within the parking lot and discharges into the underground infiltration system before outletting to a riprap apron adjacent to the proposed retaining wall and eventually to the existing wetlands to the east. Pervious pavers were modeled as impervious coverage for conservative purposes.

PDA-1B has a contributing area of approximately 0.50 acres. This area is comprised of a portion of the site drive and landscape area east of the parking lot. Runoff from PDA-1B travels to proposed catch basins located in the driveway adjacent to the property line and discharges to an underground infiltration system before outletting to a riprap apron.

PDA-1C has a contributing area of approximately 2.16 acres. This area is comprised of wooded area along the southern portion of the property, and open space located along the bottom of the site drive retaining wall. Runoff flows over wooded area or open space before outletting to the existing offsite wetlands.

PDA-2 has a contributing area of approximately 0.33 acres and is comprised of woods in good condition. Runoff from EDA-2 travels west towards the adjacent parcel, identified as Off-Site West.

PDA-3 has a contributing area of approximately 0.11 acres. This area is comprised of landscape area between the property line and drive to the parking garage. Runoff is assumed to flow to existing catch basins located within the State's Right-of-Way, Fountain Street (Route 243).

Characteristics of these drainage areas are summarized in Table 6. The approximate location and delineation of these drainage areas can be depicted on Sheet PDA-1, Proposed Drainage Area Map (PDA-1), found in Appendix C.

Table 6: Proposed Drainage Area Characteristics

Drainage Area	Area (Acres)	Curve Number (CN)	Time of Concentration (Minutes)
PDA-1A	2.88	81	6.5
PDA-1B	0.50	71	6.0
PDA-1C	2.16	57	10.2
PDA-2	0.33	55	10.3
PDA-3	0.11	61	6.0

Proposed peak flows and volumes for all analyzed storms are summarized in Table 7. Calculations for the proposed hydrology can be found in Appendix C.

Table 7: Proposed Peak Flows

Drainage Area	Peak Flow (cfs)					
	1-yr	2-yr	10-yr	25-yr	50-yr	100-yr
PDA-1A*	0.0	0.0	0.1	0.1	0.7	2.1
PDA-1B*	0.0	0.0	0.6	1.8	2.3	3.3
PDA-1C	0.2	0.6	2.8	4.4	5.8	7.4
PDA-1 Total	0.2	0.6	3.1	6.3	8.1	10.1
PDA-2	0.0	0.1	0.4	0.6	0.8	1.0
PDA-3	0.0	0.1	0.2	0.3	0.4	0.5

*Peak flows value shown are representative of flow out of the underground stormwater systems.

A proposed stormwater conveyance system consisting of a series of pipes, manholes, water quality units, outlet control structures, trench drains, and catch basins will collect the majority of runoff from the proposed impervious areas. These areas include the proposed roof, parking lot, and majority of the site driveway. The catch basins will include hooded outlets and four-foot sumps to provide additional stormwater treatment. The stormwater conveyance system is routed through hydrodynamic separators before flowing into the underground infiltration systems. Stormwater discharge from the underground infiltration systems will be directed to a riprap apron located east of the proposed retaining wall, before ultimately discharging to the eastern wetlands.

The underground infiltration system in the parking lot consists of 120 underground, double stacked, 5' Retain-It galleries with the top of galleries and bottom of stone at elevations 294.5 and 281.5, respectively. Stormwater flows from the proposed roof and catch basins in the parking lot to hydrodynamic separators before entering the Retain-It galleries (UG-1) to provide water quality treatment to the maximum extent possible.

The underground infiltration system at the site driveway entrance consists of six (6) underground, 5' Retain-It galleries with the top of galleries and bottom of stone at elevations 275.0 and 268.33, respectively. Stormwater flows from a portion of the site driveway and adjacent landscape area to catch basins before entering the Retain-It galleries to provide water quality treatment to the maximum extent possible.

The underground infiltration systems will treat, attenuate, and allow infiltration of the stormwater runoff associated with the project. The systems have been designed to attenuate peak flows for the 1-, 2-, 10-, 25-, 50-, and 100-year storm events. As required by the development standards of the 2024 Connecticut Stormwater Quality Manual, Standard 2 states *"that the peak flow rate of the 2-year storm event is to be reduced in proposed conditions to 50% of the existing conditions flow rate."*

STORM SEWER ANALYSIS

The stormwater flows for the proposed development will be conveyed through a series of pipe networks and drainage structures. All areas which drain to inlets or pipes, including roof leaders, flared end sections, and catch basins were considered for analysis. The Hydraflow Storm Sewers software was used for the analysis and the 24-hour, 25-year storm event was analyzed. The time of concentration to all inlets with impervious cover was assumed to be a minimum of 6 minutes. The results of the analyses, including demonstrating no surcharge from the drainage structures, can be found in Appendix D.

STORMWATER CONCLUSION

The proposed development results in an increase in impervious area of approximately 1.63± acres when compared to existing conditions. To manage the increase in runoff associated with the increase in impervious area, the project features two underground infiltration systems with 1.046 acre-feet (45,563± CF) of storage capacity. Through the implementation of these two stormwater management systems, peak discharge from the site will be reduced for the 1-, 2-, 10-, 25-, 50- and 100-year storm events compared to the existing conditions (See Table 8 below).

Table 8: Peak Flow Comparison Table

Drainage Area	Storm Event Peak Flows (cfs)					
	1-yr	2-yr	10-yr	25-yr	50-yr	100-yr
EDA-1	0.3	1.2	6.2	10.2	13.4	17.1
PDA-1	0.2	0.6	3.1	6.3	8.1	10.1
Δ	**-0.1**	**-0.6**	**-3.1**	**-3.9**	**-5.3**	**-7.0**
EDA-2	0.0	0.1	0.4	0.7	0.9	1.2
PDA-2	0.0	0.1	0.4	0.6	0.8	1.0
Δ	**0.0**	**0.0**	**0.0**	**-0.1**	**-0.1**	**-0.2**
EDA-3	0.0	0.1	0.4	0.7	0.9	1.2
PDA-3	0.0	0.1	0.2	0.3	0.4	0.5
Δ	**0.0**	**0.0**	**-0.2**	**-0.4**	**-0.5**	**-0.7**

Through the implementation of underground infiltration systems, sumped catch basins, and hydrodynamic separators, the proposed stormwater management system meets or exceeds applicable stormwater quality requirements.

SOIL EROSION AND SEDIMENT CONTROL

The proposed plans for soil erosion and sediment control prepared for this project have been developed in accordance with the Town of Woodbridge Zoning Regulations, Section 5.5, effective date January 1, 2025, as well as the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Energy and Environmental Protection.

The soil erosion and sediment control measures that will be proposed as part of this project include geotextile silt fences with haybale backing, construction entrance, diversion swales, temporary sediment traps, dust control measures, and inlet protection for existing and proposed drainage features. The soil erosion and sediment control measure on site will be implemented in three (3) phases. Phase I measures are associated with clearing and grubbing, and construction of the driveway retaining wall. Phase II measures are associated with rough grading, construction of the rock cut wall and building foundation, stormwater drainage, and sanitary line. Phase III measures are associated with fine grading, building construction, hardscape, and utilities on site. For more information pertaining to the soil erosion and sediment control plans implemented as part of this project, refer to the Soil Erosion & Sediment Control Plans (Sheets 2.31-2.33) and Sediment Erosion & Sediment Control Notes & Details (Sheet 2.41).

SITE UTILITIES

WATER

An existing 8” water main is located in front of the project site within Fountain Street (Route 243). Water service for the residential building is proposed via a 6” DIP fire line which runs from the water main located within Fountain Street, beneath the landscaped area and garage driveway before entering along the northern façade of the proposed building. A 2” domestic line will tee off the 6” fire line to a water meter pit before running parallel to the 6” fire line and tying into the northern façade of the proposed building. Underground water storage tanks are proposed to provide additional water supply for fire suppression. Final configuration of domestic and fire service will be coordinated with the Regional Water Authority.

SEWER

The sanitary sewer line will exit the proposed building at the northern façade and pass through two (2) manholes before connecting into the existing sanitary sewer line via a doghouse manhole within Fountain Street. Four (4) catch basins are located within the underground parking area and will direct surface water to an oil water separator before tying into the proposed sanitary line. Final configuration of sanitary sewer will be coordinated with the Greater New Haven Water Pollution Control Authority.

TELEPHONE, ELECTRIC & CABLE

Existing telephone and electrical services are located overhead on Fountain Street. Proposed telecommunication and electrical service will be pulled from an existing utility pole located west of the driveway entrance.

Telecommunication conduits will be installed underground and tie into the northern façade of the building. Electrical conduits will be installed underground to a pad mounted transformer in the landscaped area adjacent to the northeast building corner. Secondary electrical service will run from said transformer to an electric room at the northeast building corner.

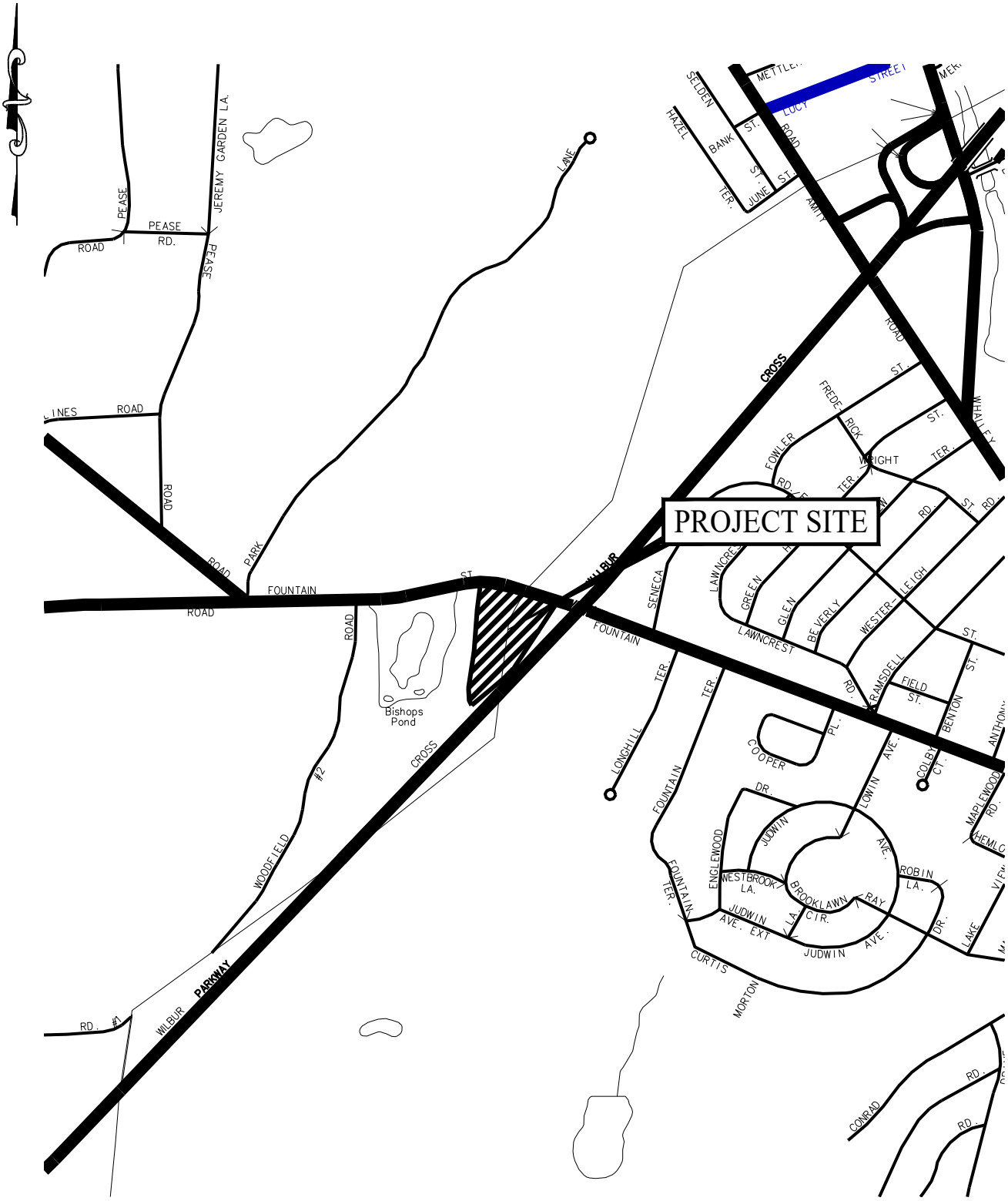
LANDSCAPE & LIGHTING

A comprehensive landscape plan has been provided. The building foundation is softened and accented with ornamental grasses, evergreens, and deciduous shrub beds. In the parking area, each landscape island contains a tree and a mix of evergreen shrubs, deciduous shrubs, and groundcovers. A perimeter planting is proposed around the entirety of the parking area to screen parking from the road and is comprised of native deciduous trees such as Cercis canadensis and Carpinus caroliniana every 30 feet on center with large native shrubs such as Cornus alba and Cornus sericea. Seed mixes are utilized throughout the property to maximize green space and minimize environmental impact. Oak trees and an expanse of showy wildflower is proposed at the entrance drive of the site, while an erosion control restoration mix is proposed to the North, along Fountain Street, to naturalize and minimize erosion. A conservation wildlife mix is proposed around the Eastern, Western, and Southern perimeter of the site, which will naturalize. Lawn areas are proposed where maintenance is necessary for the safety of residents. The existing wooded area is to be preserved to the maximum extent possible, as the proposed tree line follows the limit of disturbance. For more information regarding the proposed landscaping, please refer to the Landscape Plan (Sheet 2.61).

The proposed site lighting plan consists of three pole-mounted fixtures positioned along the entry drive, with an additional four fixtures illuminating the central portion of the site. One pole light is located at the southern end of the building to provide coverage for the emergency access area, while another is placed along the northern drive aisle, which is also the entrance of the underground parking garage. The parking garage interior will be illuminated by ceiling-mounted fixtures. The building's front façade will be lit with a series of decorative wall-mounted sconce fixtures, while five additional sconces will provide lighting for the rear patio area. All proposed fixtures are LED, dark-sky complaint. The lighting design has been developed to achieve appropriate light levels for safe site use, while minimizing off-site glare and light spill to adjacent properties. Additional details and photometric information are provided on the Lighting Plan (Sheet 2.71).

APPENDIX A
FIGURES

Site Location Map (Figure 1)
FEMA Flood Map (Figure 2)
Soil Survey Map (Figure 3)
Natural Diversity Database Map (Figure 4)
Public Watershed Supply Map (Figure 5)
USGS Map (Figure 6)



NOTE: BASE MAP INFORMATION TAKEN FROM CT TRU MAP NUMBERS 92 & 167.

1,000 0 500 1,000

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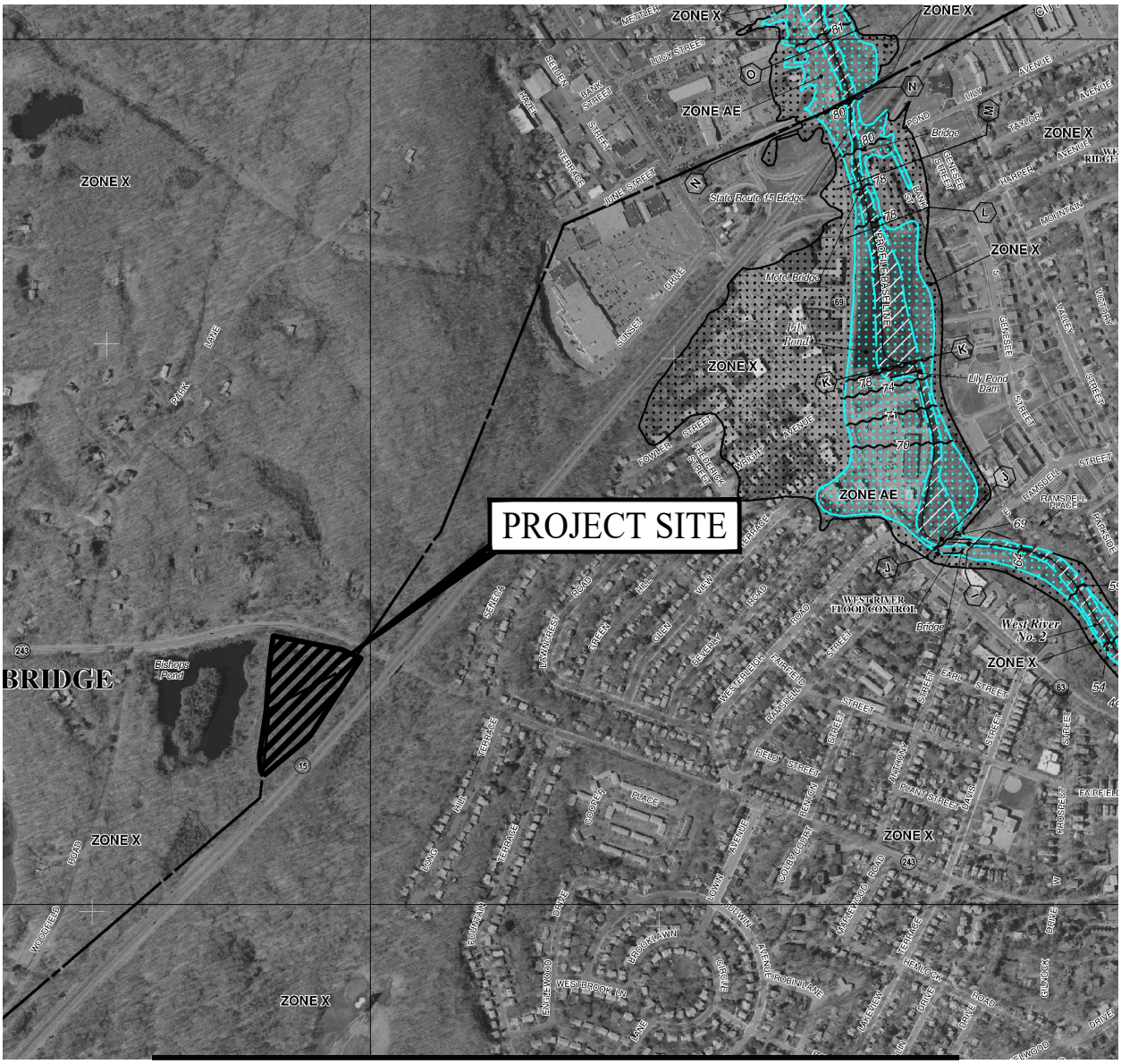
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

SITE LOCATION MAP

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 1,000'
Figure:	1



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

NOTE: BASE MAP INFORMATION TAKEN FROM FEMA FLOOD MAP 09009C0428H DATED DECEMBER 17, 2010

1,000 0 500 1,000

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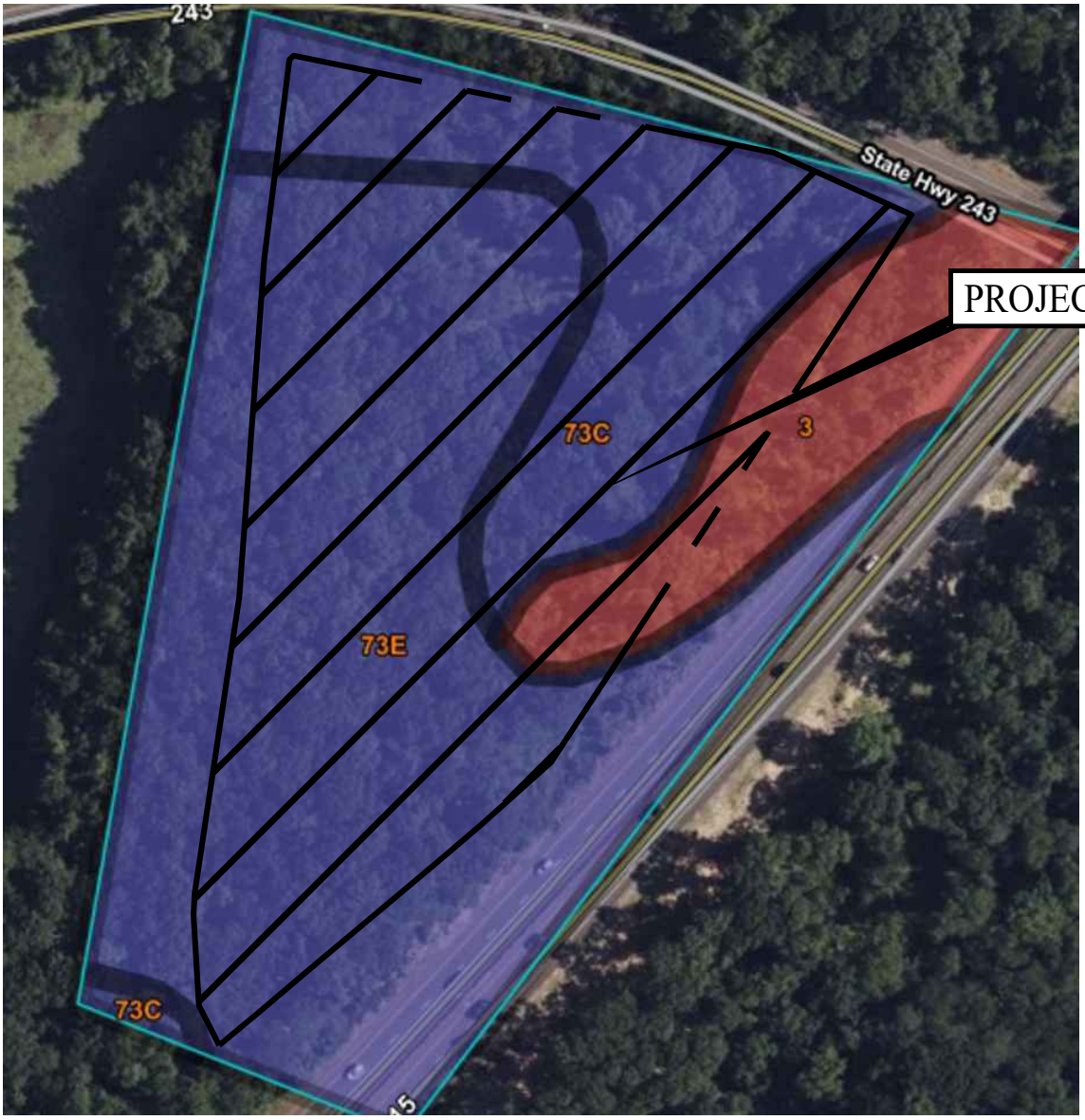
FEMA FLOOD MAP

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 1,000'
Figure:	2



Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	1.5	14.5%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	2.3	23.2%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	B	6.3	62.4%
Totals for Area of Interest			10.0	100.0%

NOTE: BASE MAP INFORMATION TAKEN FROM USGS WEB SOIL SURVEY DATA

150 0 75 150

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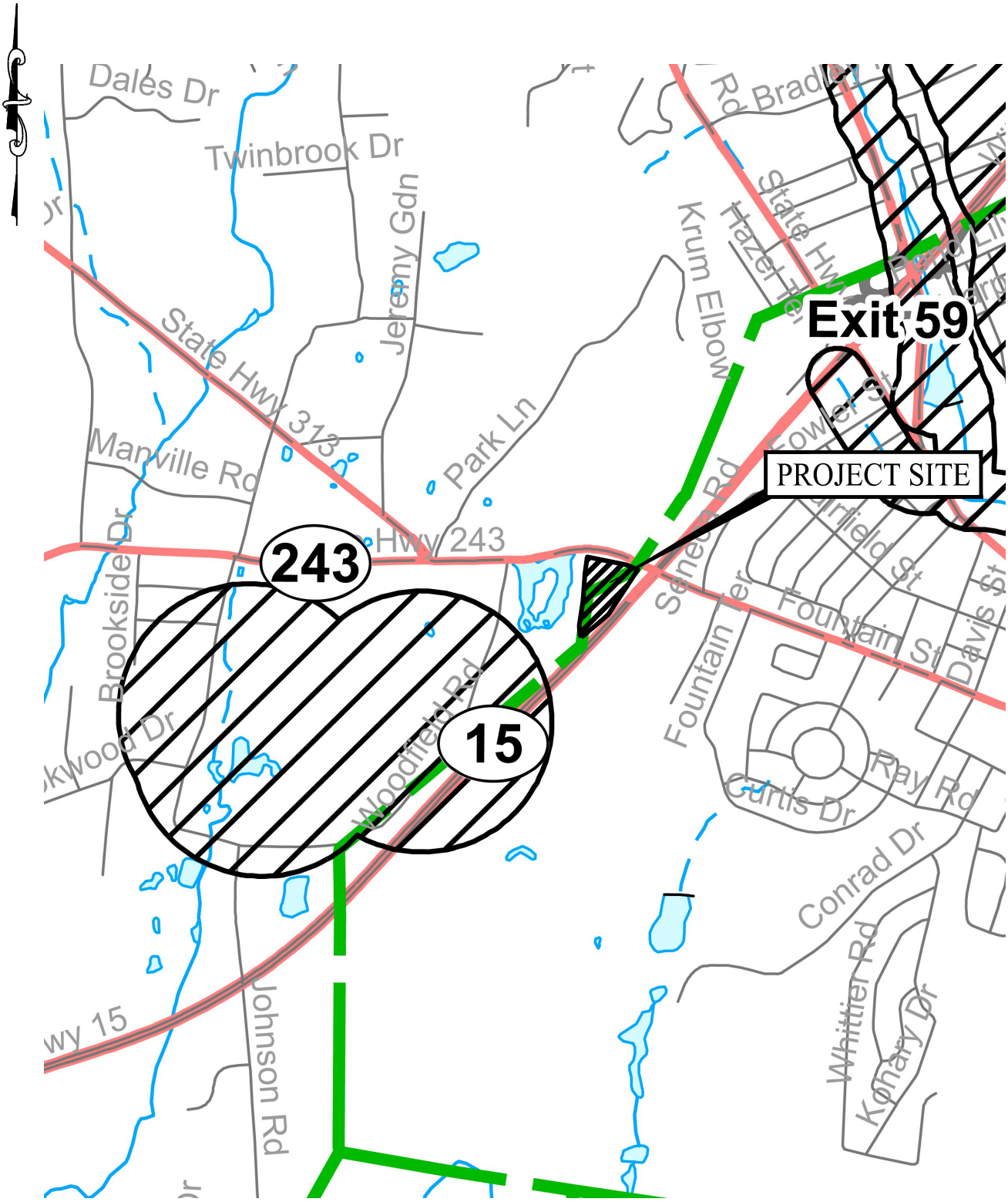
SOIL SURVEY MAP

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 150'
Figure:	3



NOTE: BASE MAP INFORMATION TAKEN FROM NATURAL DIVERSITY DATA BASE AREA (WOODBRIDGE, CONNECTICUT, JUNE 2025)

1,500 0 750 1,500

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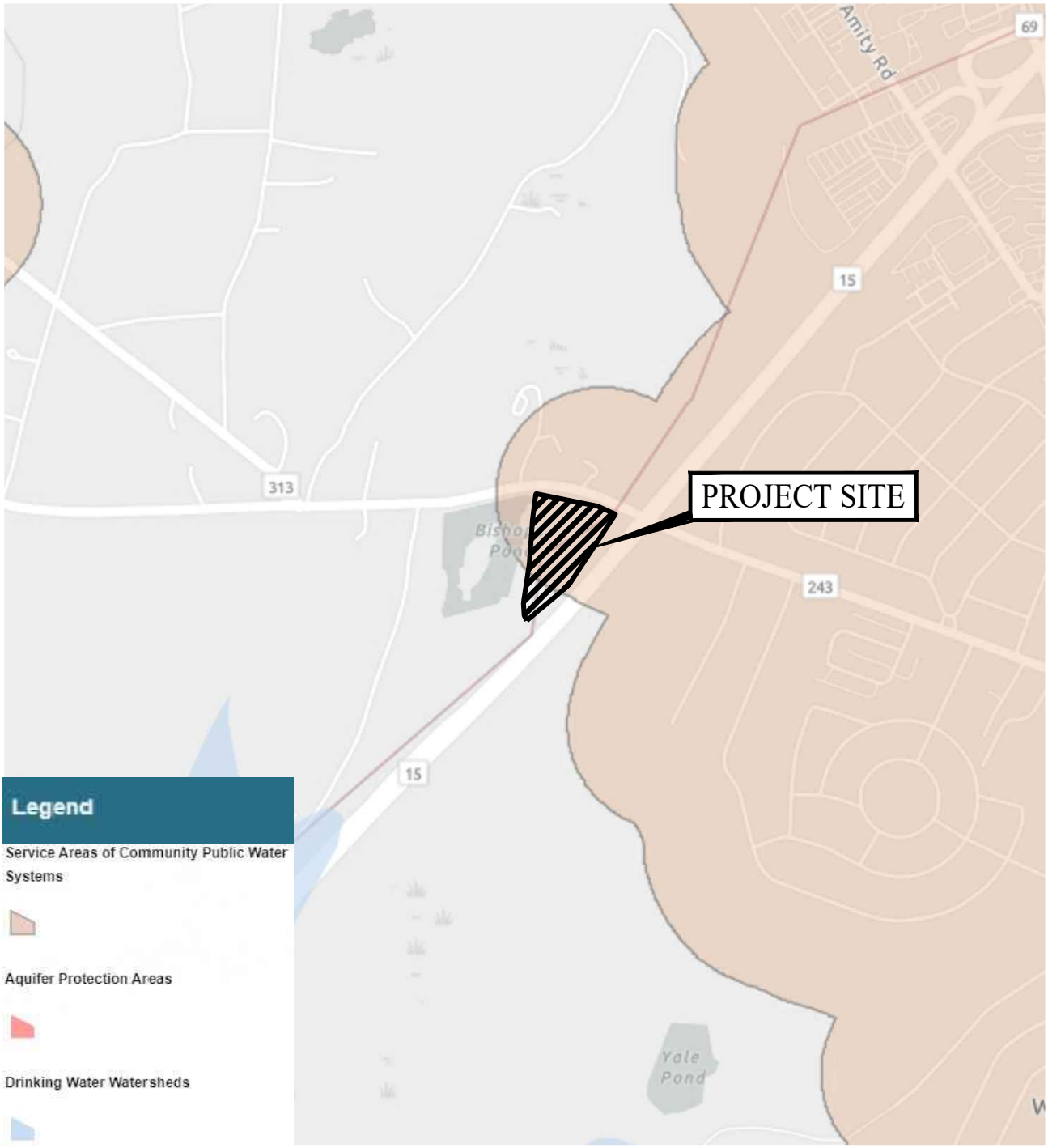
NATURAL DIVERSITY DATABASE MAP

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 1,500'
Figure:	4



NOTE: BASE MAP INFORMATION TAKEN FROM CT.GOV DRINKING WATER SECTION GIS MAP VIEWER

1,000 0 500 1,000

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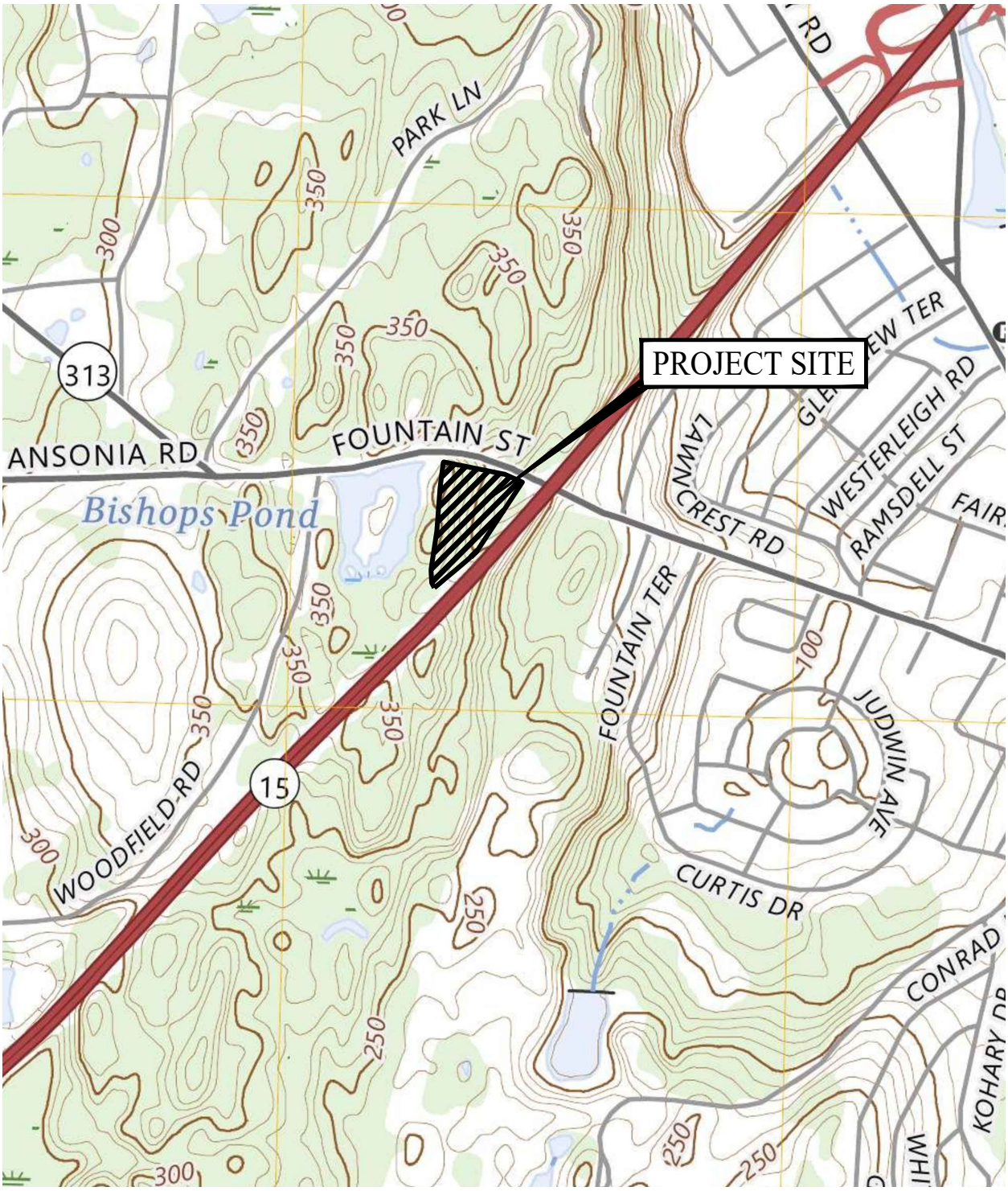
PUBLIC SUPPLY WATERSHED MAP

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 1,000'
Figure:	5



NOTE: BASE MAP INFORMATION TAKEN FROM UNITED STATES GEOLOGICAL SURVEY MAP DATED 2024

1,000 0 500 1,000

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USGS MAP

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 1,000'
Figure:	6

APPENDIX B
WETLANDS REPORT

Wetland and Watercourse Delineation

WILLIAM KENNY ASSOCIATES
LANDSCAPE ARCHITECTURE ▪ ECOLOGICAL SERVICES

February 26, 2025

Mr. Sean Melisi, P.E.
Bridge Street Partners, LLC
8 Huntington Street
Suite 171
Shelton, CT 06484

Re: Wetland and Watercourse Delineation
804 Fountain Street & Wilbur Cross Parkway Right-of-Way, Woodbridge, Connecticut

Dear Mr. Melisi:

As requested, we visited the referenced properties and land within the adjacent CT DOT Wilbur Cross Parkway right-of-way to determine the presence or absence of wetlands and/or watercourses, to demarcate (flag) the boundaries of wetlands and watercourses identified, and to identify onsite soil types. This letter includes the methods and results of our investigation, which we completed January 24, 2025 and February 26, 2025. In summary, two inland wetland and watercourse systems were identified and delineated within the right-of-way. The first system, which is located in the western portion of the limit of investigation, is an intermittent watercourse that extends and flows from a culvert at the northernmost extent of the system and flows a short distance to another culvert which is located in the southeast. The majority of the system, however, extends and flows from south to north and combines with the first segment before exiting the property via a culvert, beneath the Wilbur Cross Parkway. The second system, which is located immediately south of 804 Fountain Street, is a woodland wetland. An apparent watercourse, Bishops Pond, is located west of the property.

Regulatory Definitions

The Inland Wetlands and Watercourses Act (Connecticut General Statutes §22a-38) defines inland wetlands as "land, including submerged land...which consists of any soil types designated as poorly drained, very poorly drained, alluvial, and floodplain." Watercourses are defined in the act as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." The Act defines Intermittent Watercourses as having a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

1899 Bronson Road
Fairfield CT 06824
203 366 0588
www.wkassociates.net

Methodology

A second order soil survey in accordance with the principles and practices noted in the USDA publication *Soil Survey Manual* (1993) was completed at the subject site. The classification system of the National Cooperative Soil Survey was used in this investigation. Soil map units identified at the project site generally correspond to those included in the *Soil Survey of the State of Connecticut* (USDA 2005).

Wetland determinations were completed based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils. Soil types were identified by observation of soil morphology (soil texture, color, structure, etc.). To observe the morphology of the property's soils, test pits and/or borings (maximum depth of two feet) were completed at the site.

Intermittent watercourse determinations were made based on the presence of a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

Off-site wetland and watercourse determinations were based on observations made from the project site and public right-of-ways of offsite topography, vegetation and hydrological conditions and on a review of the *Soil Survey of the State of Connecticut* (USDA 2005) and Town wetland maps. Based on these observations, conclusions were made regarding the approximate location of off-site wetlands and watercourses.

Unless noted otherwise, onsite wetland boundaries were demarcated (flagged) with pink surveyor's tape (hung from vegetation) or small flags (on wire stakes) labeled "William Kenny Associates" that are generally spaced a maximum of every 50 feet. Complete boundaries are located along the lines that connect these sequentially numbered flags. The wetland boundaries are subject to change until adopted by local, state, or federal regulatory agencies.

Results

The approximate 8.0-acre project property includes 804 Fountain Street in Woodbridge, Connecticut and the adjacent CT DOT Wilbur Cross Parkway right-of-way. Fountain Street borders the northern boundary of the property and Wilbur Cross Parkway borders the eastern boundary. Property improvements include an abandoned and dilapidated single-family residence. Vegetative cover at the property is a broadleaved deciduous woodland.

Two inland wetland and watercourse systems were identified and delineated. The first system, which is located in the western portion of the limit of investigation, is an intermittent watercourse that extends and flows from a culvert at the northernmost extent of the system and flows a short distance to another culvert which is located in the southeast. The majority of the system, however, extends and flows from south to north and combines with the first segment before exiting the property via a culvert, beneath the Wilbur Cross Parkway. The second system, which is located immediately south of 804 Fountain Street, is a woodland wetland. An apparent watercourse, Bishops Pond, is located west of the property. Wetland soils are primarily poorly drained fine and formed from glacial till deposits or are forming from human altered deposits. The approximate locations of the systems are

shown on the attached map. The boundaries of the systems were marked at the site with flags numbered 1 to 61 and 70 to 80.

Five soil map units were identified on the property (two wetland and three upland). Each map unit represents a specific area on the landscape and consists of one or more soils for which the unit is named. Other soils (inclusions that are generally too small to be delineated separately) may account for 10 to 15 percent of each map unit. The mapped units are identified in the following table by name and symbol and typical characteristics (parent material, drainage class, high water table, depth to bedrock, and slope). These characteristics are generally the primary characteristics to be considered in land use planning and management. A description of each characteristic and their land use implications follows the table. A complete description of each soil map unit can be found in the *Soil Survey of the State of Connecticut* (USDA 2005), and at *https://soilseries.sc.egov.usda.gov/osdname.aspx.* On the days of the review, there was no soil frost and less than one inch of snow cover. The upland soil was moist and the wetland soil was wet to inundated. The sky was clear and air temperatures were ranged from 40's º F to 50's º F.

Map Unit		Parent Material	Slope (%)	Drainage Class	High Water Table			Depth To Bedrock (in)
Sym.	Name				Depth (ft)	Kind	Mos.	
	Upland Soil							
50	Sutton fine sandy loam	Loose Glacial Till	3-8	Moderately Well Drained	1.5-3.5	Apparent	Nov-Apr	>60
73	Charlton	Loose Glacial Till	0-50	Well Drained	>6.0	--	--	>60
	Chatfield Fine sandy loam	Loose Glacial Till	0-70	Well Drained	>6.0	--	--	20-40
75	Hollis-	Loose Glacial Till	0-5	Well Drained	>6.0	--	--	<20
	Chatfield Rock Outcrop	Loose Glacial Till	3-15	Well Drained	>6.0	--	--	20-40
	Wetland Soil							
1	Aquents	Excavated or Filled Soil (>2 feet)	0-3	Poorly Drained	0.0-1.5	Apparent	Nov-May	>60
3	Ridgebury	Compact Glacial Till	0-8	Poorly Drained	0.0-1.5	Perched	Nov-May	>60
	Leicester	Loose glacial Till	0-3	Poorly Drained	0.0-1.5	Apparent	Nov-May	>60
	Whitman extremely stony fine sandy loam	Compact Glacial Till	0-3	Very Poorly Drained	0.0-1.5	Perched	Sep-Jun	>60

Parent material is the unconsolidated organic and mineral material in which soil forms. Soil inherits characteristics, such as mineralogy and texture, from its parent material. Glacial till is unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice. Glacial outwash consists of gravel, sand, and silt, which are commonly stratified and deposited by glacial melt water. Alluvium is material such as sand, silt, or clay, deposited on land by streams. Organic deposits consist of decomposed plant and animal parts.

A soil's texture affects the ease of digging, filling, and compacting and the permeability of a soil. Generally sand and gravel soils, such as outwash soils, have higher permeability rates than most glacial till soils. Soil permeability affects the cost to design and construct subsurface sanitary disposal facilities and, if too slow or too fast, may preclude their use. Outwash soils are generally excellent sources of natural aggregates (sand and gravel) suitable for commercial use, such as construction sub base material. Organic layers in soils can cause movement of structural footings. Compacted glacial till layers make excavating more difficult and may preclude the use of subsurface sanitary disposal systems or increase their design and construction costs if fill material is required.

Generally, soils with steeper slopes increase construction costs, increase the potential for erosion and sedimentation impacts, and reduce the feasibility of locating subsurface sanitary disposal facilities.

Drainage class refers to the frequency and duration of periods of soil saturation or partial saturation during soil formation. Seven classes of natural drainage classes exist. They range from excessively drained, where water is removed from the soil very rapidly, to very poorly drained, where water is removed so slowly that free water remains at or near the soil surface during most of the growing season. Soil drainage affects the type and growth of plants found in an area. When landscaping or gardening, drainage class information can be used to assure that proposed plants are adapted to existing drainage conditions or that necessary alterations to drainage conditions (irrigation or drainage systems) are provided to assure plant survival.

High water table is the highest level of a saturated zone in the soil in most years. The water table can affect the timing of excavations; the ease of excavating, constructing, and grading; and the supporting capacity of the soil. Shallow water tables may preclude the use of subsurface sanitary disposal systems or increase design and construction costs if fill material is required.

The depth to bedrock refers to the depth to fixed rock. Bedrock depth affects the ease and cost of construction, such as digging, filling, compacting, and planting. Shallow depth bedrock may preclude the use of subsurface sanitary disposal systems or increase design and construction costs if fill material is required.

Conclusions

Today, we investigated the properties at 804 Fountain Street in Woodbridge, Connecticut and adjacent CT DOT Wilbur Cross Parkway right-of-way and identified and delineated two inland wetland and watercourse systems. Thank you for the opportunity to assist you. If you should have any questions or comments, please do not hesitate to contact us.

Sincerely,

William L. Kenny, PWS, PLA
Soil Scientist

Enclosure

Ref. No. 5132

WILLIAM KENNY ASSOCIATES
LANDSCAPE ARCHITECTURE ▪ ECOLOGICAL SERVICES
1899 Bronson Road Fairfield CT 06824
203 366 0588 www.wkassociates.net

SOIL LEGEND

UPLAND
50 *SUTTON FINE SANDY LOAM*
73 *CHARLTON-CHATFIELD COMPLEX*
75 *HOLLIS-CHATFIELD-ROCK OUTCROP COMPLEX*

WETLAND
1 *AQUENTS*
3 *RIDGEBURY, LEICESTER AND WHITMAN SOILS*

NOTES:
- *INFORMATION SHOWN ON THIS DRAWING, INCLUDING THE WETLAND BOUNDARY, IS APPROXIMATE. THE BOUNDARY IS NOT A SURVEYED REPRESENTATION OF WHAT WAS FIELD MARKED (FLAGGED).*
- *WETLAND AND SOIL INFORMATION PROVIDED BY WILLIAM KENNY ASSOC. OTHER INFORMATION TAKEN FROM A A CT ENVIRONMENTAL CONDITIONS ONLINE MAP.*
- ***50, 73, 75, 1*** *AND* ***3*** *ARE SOIL MAPPING UNIT SYMBOLS. SEE WETLAND DELINEATION REPORT FOR THE SOIL MAP UNIT NAMES AND ADDITIONAL RELATED INFORMATION.*

I CERTIFY THAT THIS WETLAND MAP SUBSTANTIALLY REPRESENTS THE SOILS AND WETLANDS MAPPED IN THE FIELD

WILLIAM L. KENNY, SOIL SCIENTIST

WETLAND & WATERCOURSE MAP

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

SCALE: NOT TO SCALE
DATE: FEBRUARY 26, 2025

Ref. No. 5132

NORTH

APPENDIX C
DRAINAGE CALCULATIONS

Hydrology Calculations (1-,2-,10-,25-,50-,100-year storm events)
NOAA Atlas Precipitation Data
Test Pit Logs
Existing Drainage Area Map (EDA-1)
Proposed Drainage Area Map (PDA-1)
HydroCAD Report – Existing Conditions
HydroCAD Report – Proposed Conditions
Water Quality Volume Calculations
Best Management Practices (Water Quality Volume)
Water Quality Volume Calculations

NOAA Atlas 14, Volume 10, Version 3
Location name: Woodbridge, Connecticut, USA*
Latitude: 41.3314°, Longitude: -72.9883°
Elevation: 312 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.355** (0.280-0.446)	**0.426** (0.335-0.535)	**0.542** (0.425-0.683)	**0.638** (0.497-0.809)	**0.770** (0.580-1.02)	**0.870** (0.641-1.18)	**0.975** (0.696-1.37)	**1.09** (0.737-1.57)	**1.26** (0.818-1.88)	**1.40** (0.884-2.13)
10-min	**0.503** (0.396-0.631)	**0.603** (0.475-0.758)	**0.767** (0.601-0.967)	**0.903** (0.703-1.14)	**1.09** (0.822-1.45)	**1.23** (0.909-1.67)	**1.38** (0.986-1.94)	**1.55** (1.04-2.23)	**1.78** (1.16-2.66)	**1.98** (1.25-3.02)
15-min	**0.592** (0.466-0.743)	**0.710** (0.559-0.892)	**0.903** (0.708-1.14)	**1.06** (0.829-1.35)	**1.28** (0.967-1.70)	**1.45** (1.07-1.97)	**1.62** (1.16-2.29)	**1.82** (1.23-2.62)	**2.10** (1.36-3.13)	**2.33** (1.47-3.55)
30-min	**0.818** (0.644-1.03)	**0.981** (0.772-1.23)	**1.25** (0.979-1.57)	**1.47** (1.14-1.86)	**1.77** (1.34-2.35)	**2.00** (1.48-2.72)	**2.24** (1.60-3.16)	**2.51** (1.70-3.62)	**2.90** (1.88-4.33)	**3.22** (2.04-4.90)
60-min	**1.04** (0.823-1.31)	**1.25** (0.985-1.57)	**1.59** (1.25-2.01)	**1.88** (1.46-2.38)	**2.26** (1.71-3.00)	**2.56** (1.88-3.47)	**2.86** (2.05-4.03)	**3.21** (2.17-4.62)	**3.70** (2.40-5.52)	**4.10** (2.60-6.26)
2-hr	**1.36** (1.08-1.69)	**1.62** (1.28-2.02)	**2.05** (1.62-2.56)	**2.40** (1.88-3.02)	**2.89** (2.19-3.81)	**3.26** (2.42-4.39)	**3.64** (2.62-5.11)	**4.09** (2.77-5.85)	**4.73** (3.08-7.02)	**5.26** (3.34-7.97)
3-hr	**1.57** (1.25-1.95)	**1.87** (1.49-2.33)	**2.36** (1.87-2.95)	**2.77** (2.18-3.48)	**3.34** (2.54-4.38)	**3.76** (2.80-5.05)	**4.20** (3.03-5.87)	**4.71** (3.20-6.72)	**5.47** (3.57-8.08)	**6.10** (3.88-9.20)
6-hr	**2.00** (1.61-2.47)	**2.39** (1.91-2.95)	**3.02** (2.41-3.75)	**3.55** (2.81-4.42)	**4.27** (3.27-5.58)	**4.81** (3.60-6.43)	**5.38** (3.91-7.49)	**6.05** (4.13-8.58)	**7.04** (4.61-10.3)	**7.87** (5.02-11.8)
12-hr	**2.50** (2.02-3.07)	**3.01** (2.42-3.69)	**3.83** (3.07-4.71)	**4.51** (3.59-5.58)	**5.45** (4.20-7.07)	**6.15** (4.63-8.17)	**6.90** (5.04-9.54)	**7.77** (5.32-10.9)	**9.07** (5.96-13.2)	**10.2** (6.50-15.1)
24-hr	**2.96** (2.40-3.60)	**3.60** (2.92-4.39)	**4.66** (3.76-5.70)	**5.53** (4.44-6.80)	**6.73** (5.22-8.70)	**7.62** (5.78-10.1)	**8.59** (6.33-11.9)	**9.75** (6.70-13.6)	**11.5** (7.58-16.7)	**13.0** (8.35-19.2)
2-day	**3.33** (2.72-4.03)	**4.13** (3.37-5.00)	**5.43** (4.41-6.60)	**6.51** (5.26-7.95)	**8.00** (6.25-10.3)	**9.09** (6.96-12.0)	**10.3** (7.66-14.2)	**11.8** (8.13-16.4)	**14.1** (9.34-20.4)	**16.2** (10.4-23.8)
3-day	**3.62** (2.96-4.35)	**4.49** (3.68-5.42)	**5.93** (4.84-7.17)	**7.12** (5.77-8.66)	**8.76** (6.86-11.2)	**9.96** (7.65-13.1)	**11.3** (8.43-15.6)	**12.9** (8.94-17.9)	**15.6** (10.3-22.3)	**17.9** (11.5-26.1)
4-day	**3.88** (3.19-4.66)	**4.81** (3.95-5.78)	**6.33** (5.18-7.63)	**7.59** (6.16-9.20)	**9.32** (7.32-11.9)	**10.6** (8.15-13.9)	**12.0** (8.98-16.5)	**13.7** (9.51-19.0)	**16.5** (10.9-23.6)	**18.9** (12.2-27.6)
7-day	**4.63** (3.83-5.53)	**5.64** (4.66-6.74)	**7.30** (6.00-8.75)	**8.67** (7.08-10.5)	**10.6** (8.32-13.4)	**12.0** (9.22-15.5)	**13.5** (10.1-18.3)	**15.3** (10.6-21.0)	**18.2** (12.1-25.8)	**20.6** (13.4-29.9)
10-day	**5.36** (4.45-6.38)	**6.42** (5.32-7.65)	**8.15** (6.73-9.74)	**9.59** (7.86-11.5)	**11.6** (9.14-14.6)	**13.0** (10.1-16.8)	**14.6** (10.9-19.7)	**16.5** (11.5-22.6)	**19.3** (12.9-27.4)	**21.8** (14.1-31.4)
20-day	**7.57** (6.32-8.94)	**8.72** (7.27-10.3)	**10.6** (8.80-12.6)	**12.2** (10.0-14.5)	**14.3** (11.4-17.8)	**15.9** (12.3-20.3)	**17.6** (13.1-23.3)	**19.5** (13.7-26.5)	**22.2** (14.9-31.2)	**24.4** (15.9-35.0)
30-day	**9.40** (7.88-11.1)	**10.6** (8.87-12.5)	**12.6** (10.5-14.9)	**14.2** (11.8-16.9)	**16.4** (13.1-20.3)	**18.2** (14.1-22.9)	**19.9** (14.8-26.0)	**21.8** (15.3-29.3)	**24.3** (16.3-34.0)	**26.3** (17.2-37.6)
45-day	**11.7** (9.81-13.7)	**12.9** (10.9-15.1)	**15.0** (12.5-17.6)	**16.6** (13.8-19.7)	**19.0** (15.1-23.3)	**20.8** (16.1-26.0)	**22.6** (16.8-29.2)	**24.4** (17.2-32.7)	**26.7** (18.0-37.2)	**28.5** (18.6-40.5)
60-day	**13.5** (11.4-15.8)	**14.8** (12.5-17.3)	**16.9** (14.2-19.9)	**18.6** (15.5-22.0)	**21.0** (16.8-25.7)	**22.9** (17.8-28.5)	**24.7** (18.4-31.7)	**26.4** (18.7-35.3)	**28.6** (19.3-39.6)	**30.1** (19.7-42.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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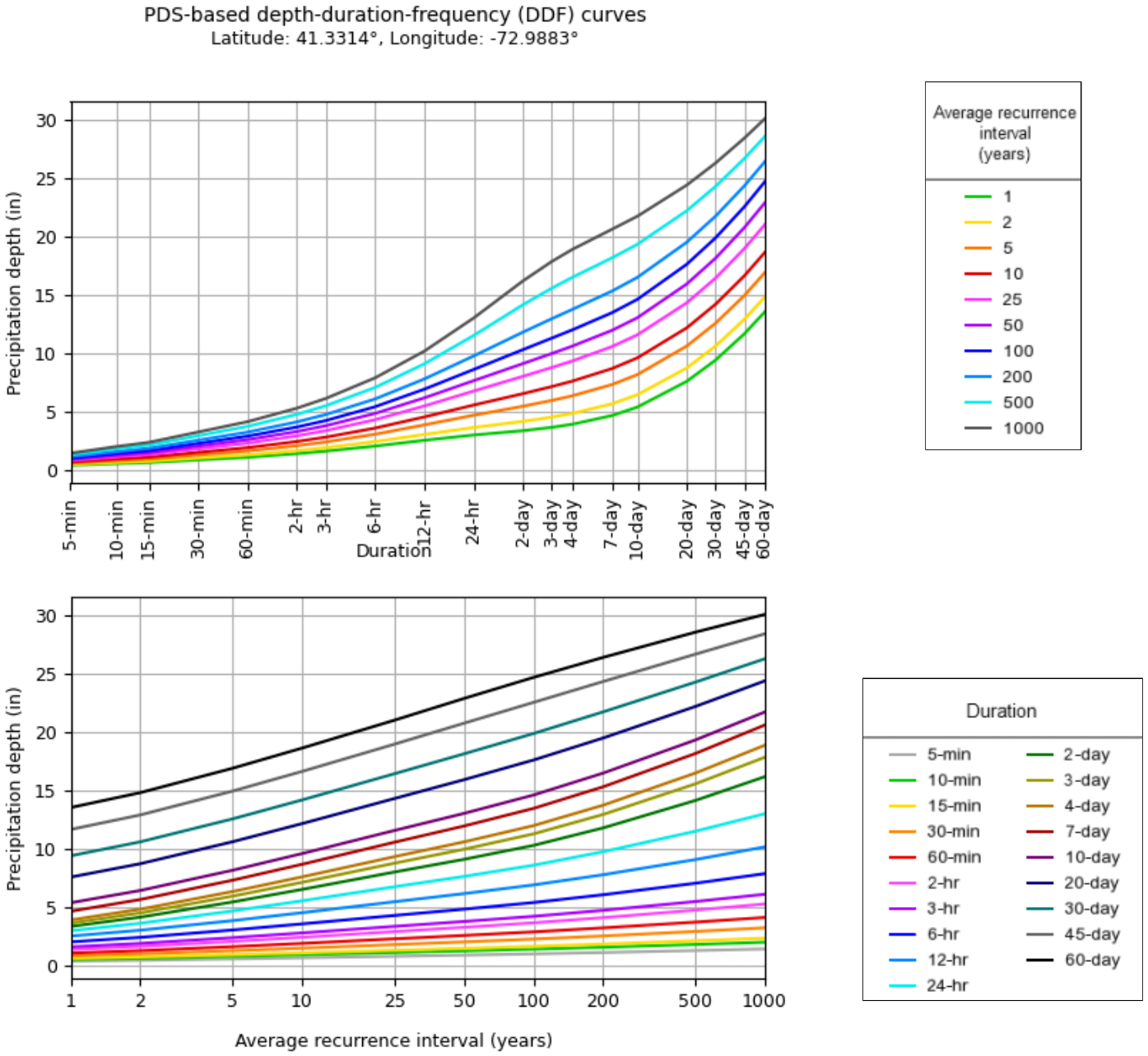
PF graphical



NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Tue Jul 1 13:39:42 2025

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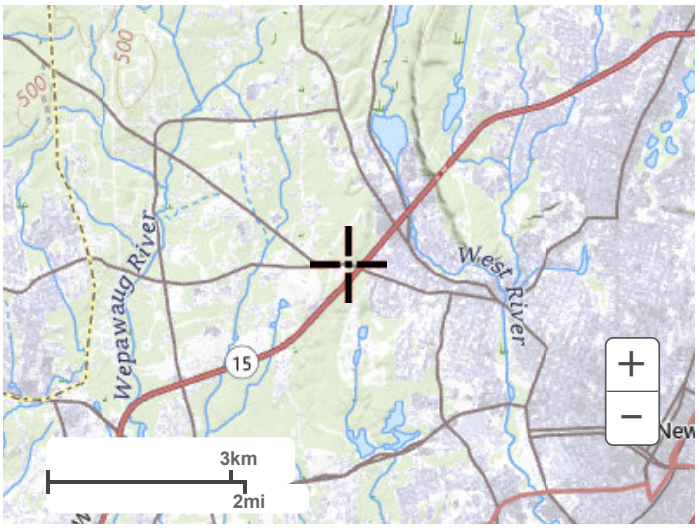
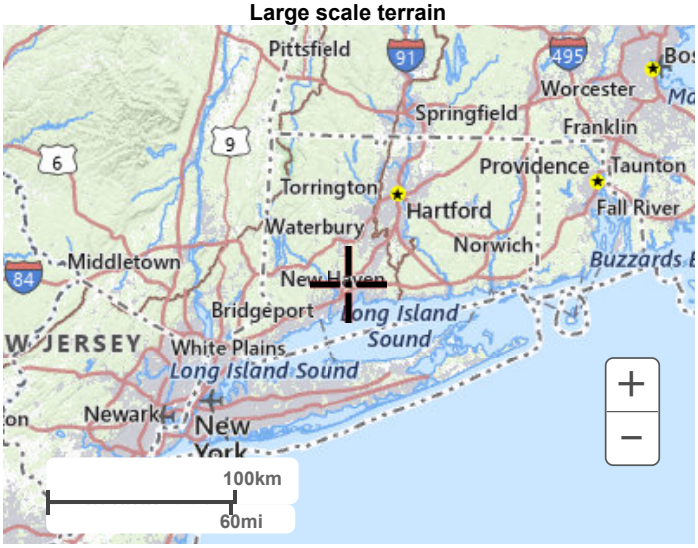
Maps & aerials

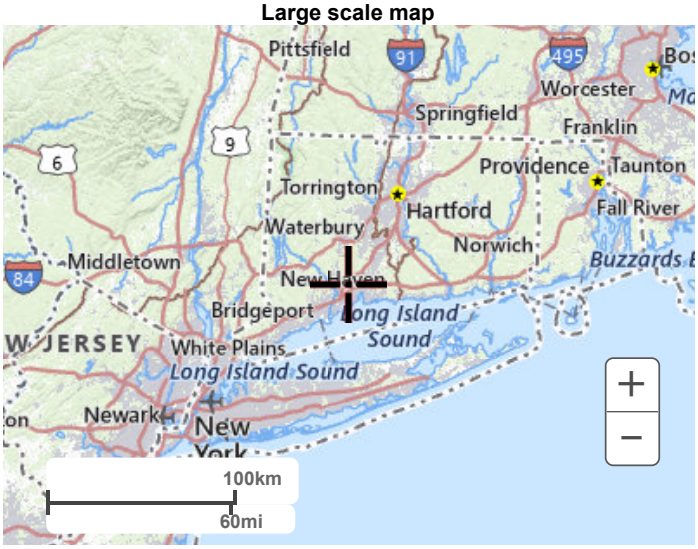
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 10, Version 3
Location name: Woodbridge, Connecticut, USA*
Latitude: 41.3314°, Longitude: -72.9883°
Elevation: 312 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.26** (3.36-5.35)	**5.11** (4.02-6.42)	**6.50** (5.10-8.20)	**7.66** (5.96-9.71)	**9.24** (6.96-12.3)	**10.4** (7.69-14.1)	**11.7** (8.35-16.5)	**13.1** (8.84-18.9)	**15.1** (9.82-22.6)	**16.8** (10.6-25.5)
10-min	**3.02** (2.38-3.79)	**3.62** (2.85-4.55)	**4.60** (3.61-5.80)	**5.42** (4.22-6.87)	**6.55** (4.93-8.68)	**7.40** (5.45-10.0)	**8.29** (5.92-11.7)	**9.28** (6.27-13.4)	**10.7** (6.95-16.0)	**11.9** (7.51-18.1)
15-min	**2.37** (1.86-2.97)	**2.84** (2.24-3.57)	**3.61** (2.83-4.56)	**4.25** (3.32-5.40)	**5.14** (3.87-6.81)	**5.80** (4.28-7.86)	**6.50** (4.64-9.14)	**7.28** (4.92-10.5)	**8.40** (5.45-12.5)	**9.31** (5.89-14.2)
30-min	**1.64** (1.29-2.05)	**1.96** (1.54-2.47)	**2.50** (1.96-3.15)	**2.94** (2.29-3.73)	**3.55** (2.67-4.71)	**4.01** (2.95-5.43)	**4.49** (3.21-6.32)	**5.03** (3.40-7.24)	**5.80** (3.76-8.66)	**6.43** (4.07-9.80)
60-min	**1.04** (0.823-1.31)	**1.25** (0.985-1.57)	**1.59** (1.25-2.01)	**1.88** (1.46-2.38)	**2.26** (1.71-3.00)	**2.56** (1.88-3.47)	**2.86** (2.05-4.03)	**3.21** (2.17-4.62)	**3.70** (2.40-5.52)	**4.10** (2.60-6.26)
2-hr	**0.678** (0.538-0.846)	**0.809** (0.641-1.01)	**1.02** (0.807-1.28)	**1.20** (0.941-1.51)	**1.44** (1.10-1.90)	**1.63** (1.21-2.20)	**1.82** (1.31-2.55)	**2.04** (1.38-2.92)	**2.36** (1.54-3.51)	**2.63** (1.67-3.98)
3-hr	**0.523** (0.416-0.650)	**0.623** (0.495-0.775)	**0.787** (0.623-0.982)	**0.923** (0.726-1.16)	**1.11** (0.844-1.46)	**1.25** (0.931-1.68)	**1.40** (1.01-1.96)	**1.57** (1.07-2.24)	**1.82** (1.19-2.69)	**2.03** (1.29-3.06)
6-hr	**0.334** (0.268-0.413)	**0.399** (0.319-0.493)	**0.505** (0.402-0.625)	**0.592** (0.469-0.738)	**0.713** (0.545-0.931)	**0.803** (0.601-1.07)	**0.899** (0.653-1.25)	**1.01** (0.689-1.43)	**1.18** (0.769-1.72)	**1.31** (0.838-1.97)
12-hr	**0.207** (0.167-0.254)	**0.249** (0.200-0.306)	**0.317** (0.254-0.391)	**0.374** (0.298-0.463)	**0.452** (0.348-0.587)	**0.510** (0.384-0.678)	**0.572** (0.418-0.791)	**0.645** (0.441-0.908)	**0.752** (0.494-1.10)	**0.843** (0.539-1.26)
24-hr	**0.123** (0.100-0.150)	**0.150** (0.121-0.183)	**0.194** (0.156-0.237)	**0.230** (0.184-0.283)	**0.280** (0.217-0.362)	**0.317** (0.241-0.420)	**0.357** (0.263-0.494)	**0.406** (0.279-0.568)	**0.479** (0.315-0.694)	**0.542** (0.347-0.801)
2-day	**0.069** (0.056-0.083)	**0.085** (0.070-0.104)	**0.113** (0.091-0.137)	**0.135** (0.109-0.165)	**0.166** (0.130-0.214)	**0.189** (0.144-0.250)	**0.214** (0.159-0.296)	**0.245** (0.169-0.341)	**0.294** (0.194-0.424)	**0.337** (0.217-0.495)
3-day	**0.050** (0.041-0.060)	**0.062** (0.051-0.075)	**0.082** (0.067-0.099)	**0.098** (0.080-0.120)	**0.121** (0.095-0.156)	**0.138** (0.106-0.182)	**0.156** (0.117-0.216)	**0.179** (0.124-0.249)	**0.216** (0.143-0.310)	**0.248** (0.160-0.362)
4-day	**0.040** (0.033-0.048)	**0.050** (0.041-0.060)	**0.065** (0.053-0.079)	**0.079** (0.064-0.095)	**0.097** (0.076-0.124)	**0.110** (0.084-0.144)	**0.124** (0.093-0.171)	**0.143** (0.099-0.197)	**0.171** (0.113-0.245)	**0.196** (0.127-0.287)
7-day	**0.027** (0.022-0.032)	**0.033** (0.027-0.040)	**0.043** (0.035-0.052)	**0.051** (0.042-0.062)	**0.062** (0.049-0.079)	**0.071** (0.054-0.092)	**0.080** (0.060-0.108)	**0.091** (0.063-0.125)	**0.108** (0.071-0.153)	**0.122** (0.079-0.178)
10-day	**0.022** (0.018-0.026)	**0.026** (0.022-0.031)	**0.033** (0.028-0.040)	**0.039** (0.032-0.048)	**0.048** (0.038-0.060)	**0.054** (0.041-0.070)	**0.060** (0.045-0.081)	**0.068** (0.047-0.093)	**0.080** (0.053-0.114)	**0.090** (0.058-0.130)
20-day	**0.015** (0.013-0.018)	**0.018** (0.015-0.021)	**0.022** (0.018-0.026)	**0.025** (0.020-0.030)	**0.029** (0.023-0.037)	**0.033** (0.025-0.042)	**0.036** (0.027-0.048)	**0.040** (0.028-0.055)	**0.046** (0.030-0.065)	**0.050** (0.033-0.073)
30-day	**0.013** (0.010-0.015)	**0.014** (0.012-0.017)	**0.017** (0.014-0.020)	**0.019** (0.016-0.023)	**0.022** (0.018-0.028)	**0.025** (0.019-0.031)	**0.027** (0.020-0.036)	**0.030** (0.021-0.040)	**0.033** (0.022-0.047)	**0.036** (0.023-0.052)
45-day	**0.010** (0.009-0.012)	**0.011** (0.010-0.014)	**0.013** (0.011-0.016)	**0.015** (0.012-0.018)	**0.017** (0.014-0.021)	**0.019** (0.014-0.024)	**0.020** (0.015-0.027)	**0.022** (0.015-0.030)	**0.024** (0.016-0.034)	**0.026** (0.017-0.037)
60-day	**0.009** (0.007-0.010)	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.017)	**0.015** (0.012-0.019)	**0.017** (0.012-0.022)	**0.018** (0.013-0.024)	**0.019** (0.013-0.027)	**0.020** (0.013-0.029)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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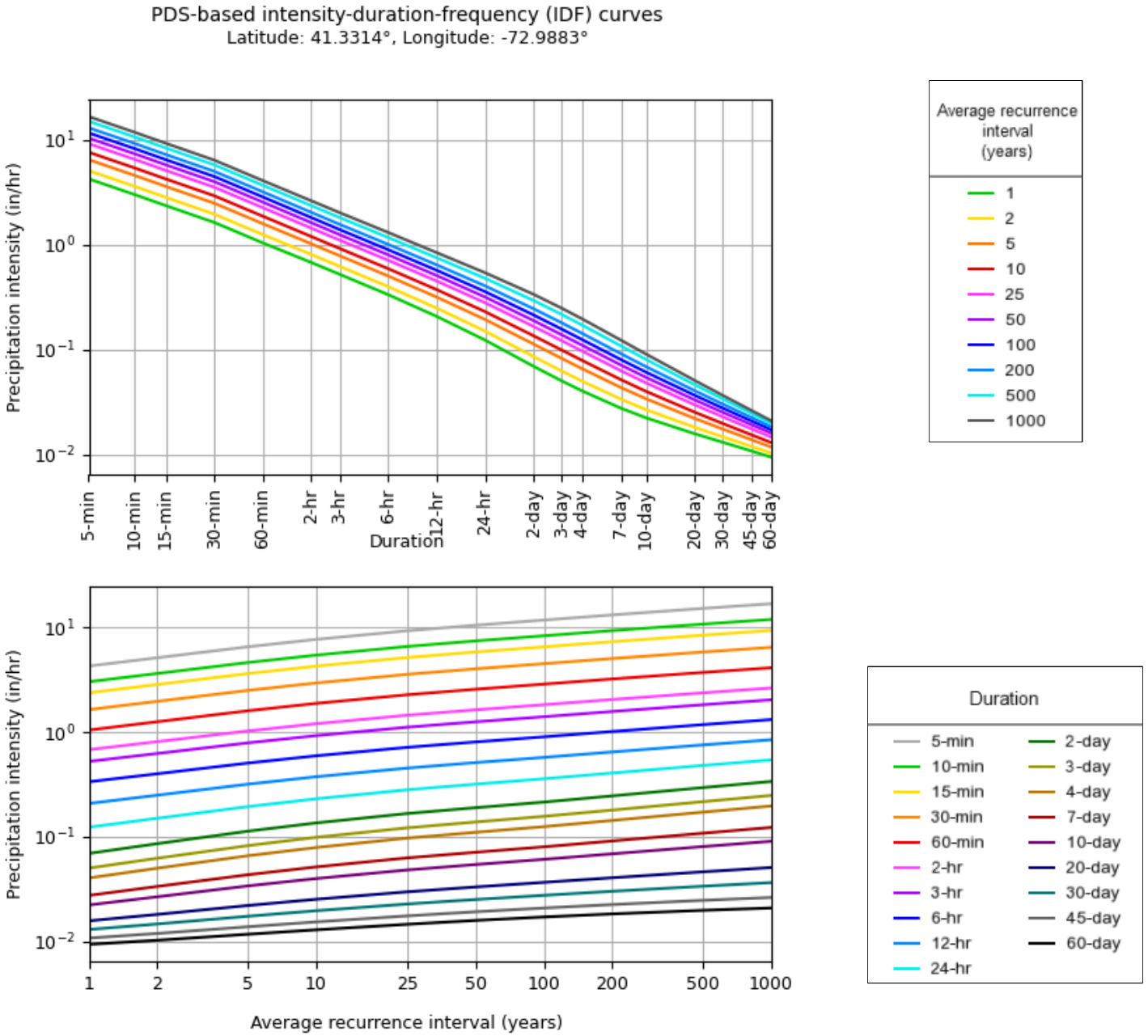
PF graphical



NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Tue Jul 1 13:40:32 2025

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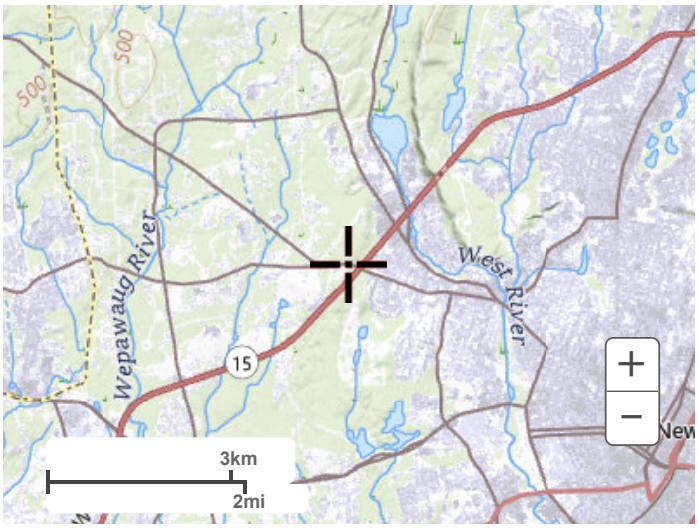
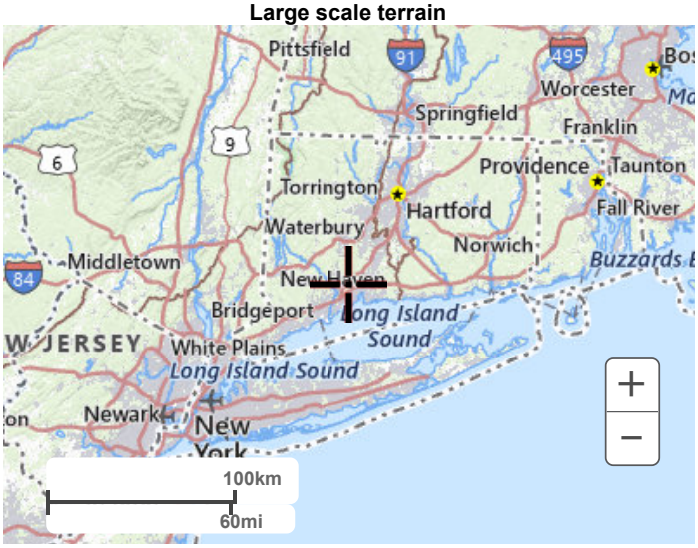
Maps & aerials

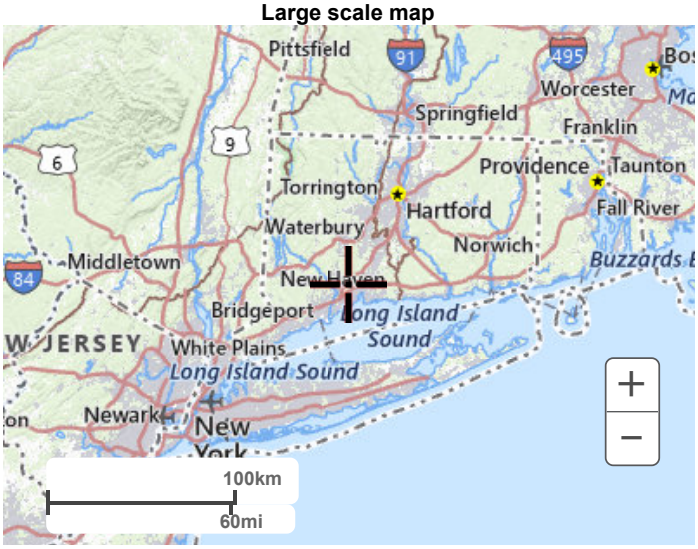
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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TEST PIT LOG

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T: (203) 880-5455 F: (203) 880-9695

PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-1
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±295.0'
Datum: N/A
Date: 07/22/2025
Time Start: 9:50 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**SUBSOIL**	Brown, fine to coarse SAND, some fine to coarse Gravel, some Silt, trace Roots, with Cobbles.	E		
3			M		1
4			D		2
5		Bottom of Exploration at ±4.0'			
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±3.0'.
2. Bucket refusal at ±4.0'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

12.0'
8.0'
N

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-2
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±338.0'
Datum: N/A
Date: 07/21/2025
Time Start: 12:50 PM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2		Brown, fine to coarse SAND, some fine to coarse Gravel, some Silt, trace Roots, with Cobbles.	E	2A, 1B	
3	**SUBSOIL**		M	1C	
4			M		1
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt.	D		2
6		Bottom of Exploration at ±4.5'			
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±4.0'.
2. Bucket refusal at ±4.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-3
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

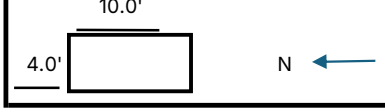
Ground Elev: ±338.0'
Datum: N/A
Date: 07/21/2025
Time Start: 12:45 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**SUBSOIL**	Brown, fine to coarse SAND, some fine to coarse Gravel, some Silt, trace Roots, with Cobbles.	M	2A	
3			M	1B	1
4			D		2
5		Bottom of Exploration ±3.5'			
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±3.0'.
2. Bucket refusal at ±3.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-4
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±337.5'
Datum: N/A
Date: 07/21/2025
Time Start: 12:35 PM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**SUBSOIL**	Brown, fine to coarse SAND, some fine to coarse Gravel, some Silt, trace Roots, with Cobbles.	M	1A, 1B	
3			M		1
4		Bottom of Exploration ±3.5'	D		2
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±3.0'.
2. Bucket refusal at ±3.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

10.0'
6.5'
N

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-5
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±342.0'
Datum: N/A
Date: 07/21/2025
Time Start: 10:25 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**SUBSOIL**	Brown, fine to coarse SAND, some fine to coarse Gravel, some Silt, trace Roots, with Cobbles.	M	1A	
3			M	1A, 1B	
4			D		1 2
5		Bottom of Exploration ±4.0'			
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±3.5'.
2. Bucket refusal at ±4.0'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

10.0'
5.5'
N

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-6
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±351.0'
Datum: N/A
Date: 07/21/2025
Time Start: 10:45 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E	1A, 1B	
2	**SUBSOIL**	Brown, fine to coarse SAND, some fine to coarse Gravel, some Silt, trace Roots.	M	1C	
3			D		1 2
4		Bottom of Exploration ±3.0'			
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±2.5'.
2. Bucket refusal at ±3.0'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

9.0'
5.0'

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-7
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

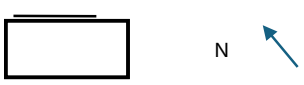
Ground Elev: ±322.0'
Datum: N/A
Date: 07/21/2025
Time Start: 11:00 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**SUBSOIL**	Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Roots, with Cobbles.	M	1B, 2C	
3			M		
4			M	1A, 1B	
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace Roots, with Cobbles.	M		1
6			D		2
7		Bottom of Exploration ±6.0'			
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±5.0'.
2. Bucket refusal at ±6.0'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-8
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

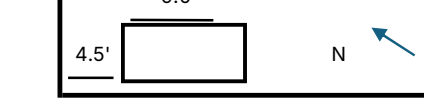
Ground Elev: ±320.0'
Datum: N/A
Date: 07/21/2025
Time Start: 11:20 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.		E	
2	**SUBSOIL**	Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Roots, with Cobbles.	1A	E	
3			1A,1B	E	
4			2A	M	
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt,	2A, 2B	M	
6			1C	M	
7				M	1
8				D	2
9		Bottom of Exploration ±8.0'			
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±7.0'.
2. Bucket refusal at ±8.0'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

Solli
MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-9
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

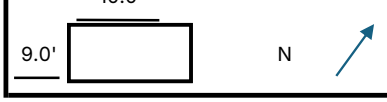
Ground Elev: ±314.0'
Datum: N/A
Date: 07/21/2025
Time Start: 9:50 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**FILL**	Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Roots, with Cobbles.	E		
3			E	1B	
4		Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, with Cobbles.	M	1B	
5			M	1B	
6			M	2B	
7	**SAND**		M		1
8			M		
9			M		
10			M		
11			D		
12		Bottom of Exploration ±11.0'			
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±6.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-10
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±291.5'
Datum: N/A
Date: 07/22/2025
Time Start: 9:20 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.		E	
2		Gray, fine to coarse SAND, little fine to coarse Gravel, trace Roots, trace Silt.		E	
3	**FILL**	Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Grave, with Cobbles.		E	
4				E	
5				E	1
6	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, with Cobbles.	1A	E	
7				M	
8				M	
9				M	
10				M	
11				M	
12		Bottom of Exploration ±11.0'			
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±4.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

10.0'
8.0'
N

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-11
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

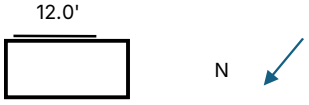
Ground Elev: ±312.0'
Datum: N/A
Date: 07/21/2025
Time Start: 12:10 PM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.			
2	**SUBSOIL**	Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Roots, with Cobbles.			
3					
4					
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace Roots.	2A		1
6					2
7		Bottom of Exploration ±6.5'			
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±6.0'.
2. Bucket refusal at ±6.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-12
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

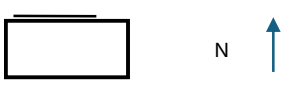
Ground Elev: ±322.0'
Datum: N/A
Date: 07/22/2025
Time Start: 8:45 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**FILL**	Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Debris (e.g., bricks), with Cobbles.	M		
3			D		1,2
4		Bottom of Exploration ±2.5'			
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±2.5'.
2. Bucket refusal at ±2.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-13
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±311.0'
Datum: N/A
Date: 07/22/2025
Time Start: 8:35 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**FILL**	Gray, fine to coarse SAND, little Silt, little fine to coarse Gravel, trace Roots, trace Debris (e.g., brick).	E		
3			M		
4		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Debris (e.g., Concrete), with Cobbles.	M	1A	1
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt.	D		2
6		Bottom of Exploration ±4.5'			
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±3.5'.
2. Bucket refusal at ±4.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-14
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±312.0'
Datum: N/A
Date: 07/22/2025
Time Start: 7:55 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**FILL**	Gray, fine to coarse SAND, little Silt, little fine to coarse Gravel, trace Roots.	E	1A	
3			E		
4		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Debris (e.g., bricks), with Cobbles.	E		
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt,	M	1A	
6			M	2A	1
7			M	1B	
8			M	2A	
9		Bottom of Exploration ±8.0'			
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±6.0'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

12.0'
6.0'
N

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-15
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

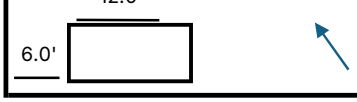
Ground Elev: ±289.0'
Datum: N/A
Date: 07/21/2025
Time Start: 1:25 PM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**FILL**	Gray, fine to coarse SAND, little Silt, little fine to coarse Gravel, trace Roots.	E		
3			E		
4		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, trace Debris (e.g., bricks), with Cobbles.	E		
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt,	M		
6			M	1A	1
7			M	1A	
8			M		
9			M		
10			M		
11			M		
12		Bottom of Exploration ±10.5'			
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±5.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-16
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

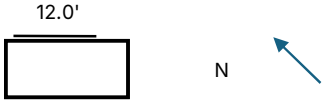
Ground Elev: ±290.0'
Datum: N/A
Date: 07/21/2025
Time Start: 8:40 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**FILL**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Roots, trace Silt.	E		
3		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, with Cobbles.	M	2A	
4	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace Roots, with Cobbles.	M	2A	
5			M	2A, 2B	1
6			M		
7			M		
8			M		
9			M		
10 ▼			M		2
11			D		
12		Bottom of Exploration ±11.0'			
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±4.5'.
2. Water encountered at ±10.0'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-17
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

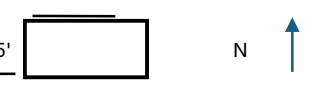
Ground Elev: ±276.0'
Datum: N/A
Date: 07/21/2025
Time Start: 8:15 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2	**FILL**	Gray, fine to coarse SAND, little Silt, little fine to coarse Gravel, trace Roots.	E		1
3			M	1C	
4		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, with Cobbles.	M	1B, 1C	
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace Roots, with Cobbles.	M		
6			D		2
7		Bottom of Exploration ±5.5'			
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±2.0'.
2. Bucket refusal at ±5.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-18
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

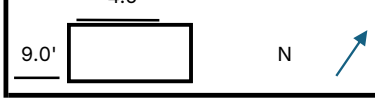
Ground Elev: ±278.0'
Datum: N/A
Date: 07/21/2025
Time Start: 7:50 AM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.			
2		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, with Cobbles.		1A	
3	**SUBSOIL**				
4				1A	
5		Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt.			1
6				1B	
7	**SAND**				
8					
9					
10	▼				2
11		Bottom of Exploration ±9.5'			
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±4.5'.
2. Water encountered at ±9.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

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PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-19
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

Ground Elev: ±284.0'
Datum: N/A
Date: 07/21/2025
Time Start: 1:50 PM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel.		1A	
2			E		
				1A	
3	**FILL**		M		
				1A	1
4			M		
5	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace Roots.	D		2
6		Bottom of Exploration ±4.5'			
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±3.0'.
2. Bucket refusal at ±4.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation

9.0'
5.0'
N

BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

TEST PIT LOG

Solli
MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
T: (203) 880-5455 F: (203) 880-9695

PROJECT
Proposed Multifamily Development
804 Fountain Street
Woodbridge, Connecticut

Test Pit No: TP-20
Sheet: 1 of 1
Project #25111001
Checked By: J. Kidd

Solli Representative: A. Tedesco
Exc. Contractor: David M. Koch Landscaping, LLC
Exc. Operator: D. Koch
Weather: Sunny 70's

Make: Caterpillar
Model: 304E2
Capacity: 0.5 cy
Reach: ±10.0'

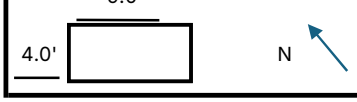
Ground Elev: ±272.0'
Datum: N/A
Date: 07/22/2025
Time Start: 2:05 PM

Depth Below Grade (ft)	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Notes
1	**TOPSOIL**	Dark brown, SILT, trace fine to coarse Sand, trace Roots.	E		
2		Gray, fine to coarse SAND, little Silt, little fine to coarse Gravel, trace Roots.	E	1C	
3	**FILL**		E	1A	
4		Reddish brown, fine to coarse SAND, some Silt, little fine to coarse Gravel.	E	1C	
5			E	1A	
6	**SAND**	Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace Roots, with Cobbles.	M		1
7	▼		M		2
8			M		
9		Bottom of Exploration ±8.0'			
10					
11					
12					
13					
14					
15					
16					

Notes:
1. Roots encountered up to ±5.0'.
2. Water encountered at ±6.5'.

Water Symbols
▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

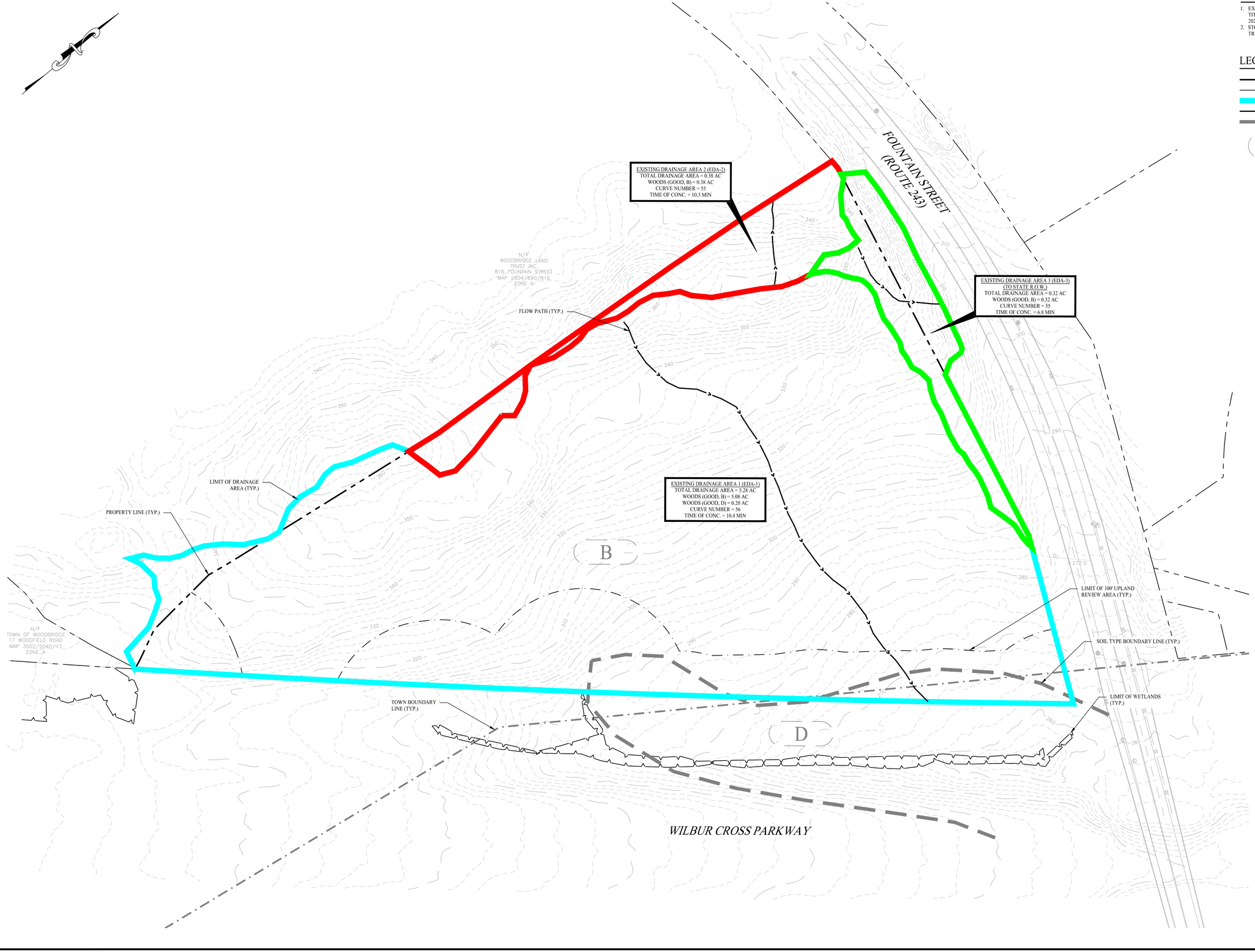
EXCAVATION EFFORT
E = Easy
M = Moderate
D = Difficult

GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON A PLAN TITLED "EXISTING CONDITIONS MAP", SCALE 1"=40', DATED MARCH 5, 2024, PERFORMED BY JOHN PAUL GARCIA AND ASSOCIATES.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH
- SOIL TYPE BOUNDARY
- B — HYDROLOGIC SOIL GROUP



Rev. #:	Date	Description

Graphic Scale: 40 0 40 80

SOLLI ENGINEERING
MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	MJD
Checked By:	PAR
Approved By:	KMS
Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 40'

STATE OF CONNECTICUT — KEVIN M. SOLLI — 25759 — LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED RESIDENTIAL DEVELOPMENT

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Sheet Title: EXISTING DRAINAGE AREA MAP

Sheet #: EDA-1

GENERAL NOTES

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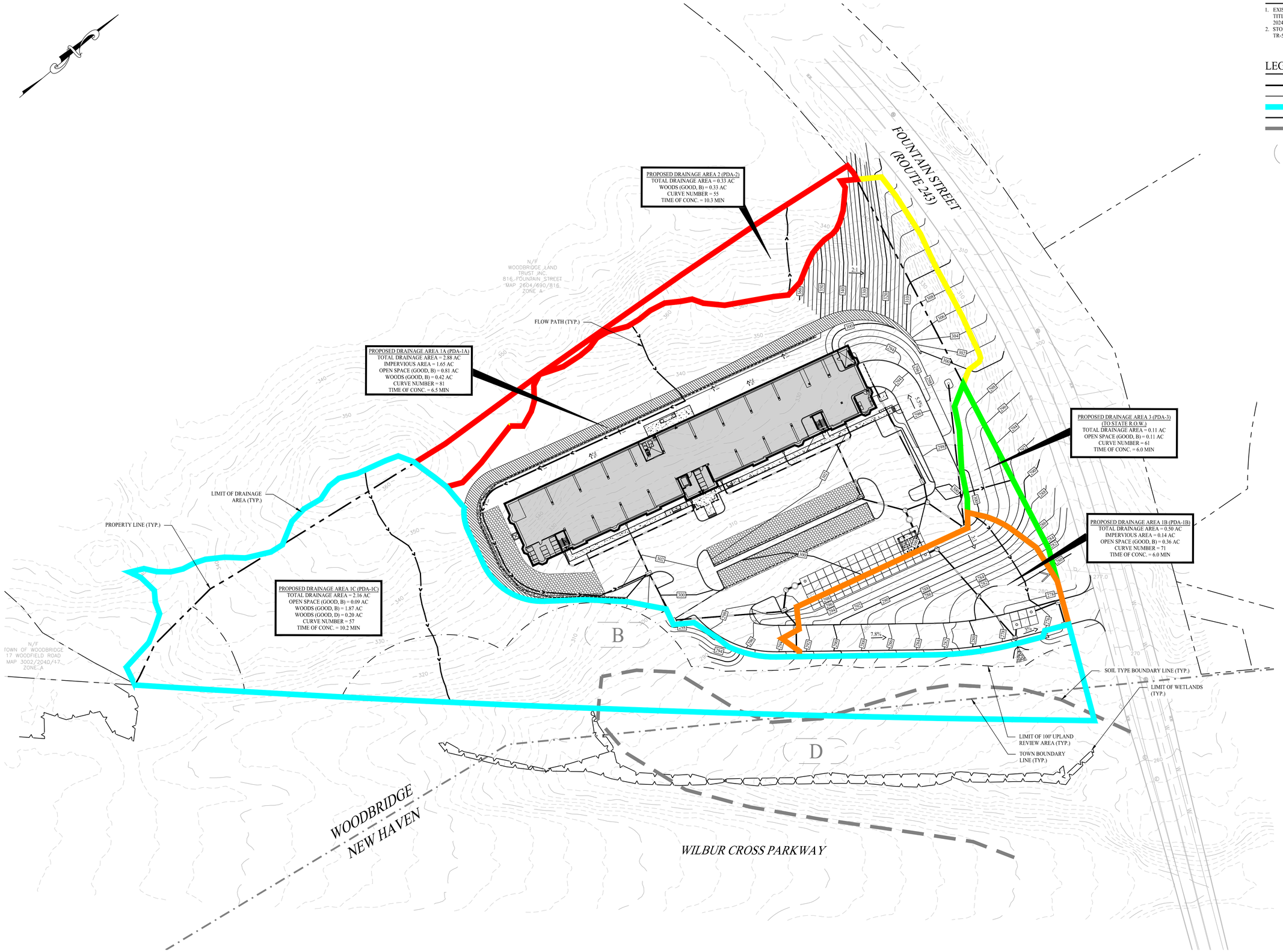
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH
- SOIL TYPE BOUNDARY
- B — HYDROLOGIC SOIL GROUP



Rev. #:	Date	Description

Graphic Scale: 40 0 40 80

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STATE OF CONNECTICUT — KEVIN M. SOLLI — 25759 — LICENSED PROFESSIONAL ENGINEER

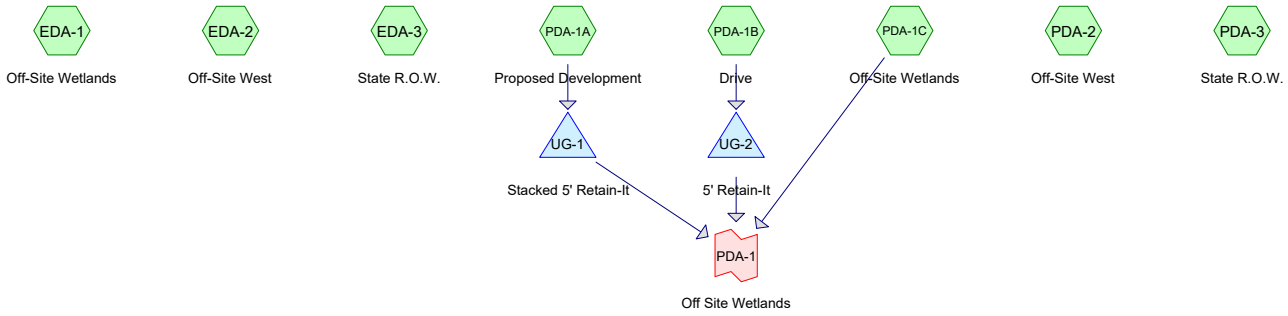
Kevin Solli, P.E.
CT 25759

Project:

PROPOSED RESIDENTIAL DEVELOPMENT

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Sheet Title:	Sheet #:
PROPOSED DRAINAGE AREA MAP	PDA-1



Subcat Reach Pond Link

Routing Diagram for 25111001 - HydroCAD
Prepared by Solli Engineering, Printed 8/26/2025

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EDA-1: Off-Site Wetlands Runoff Area=5.280 ac 0.00% Impervious Runoff Depth=0.21"
Flow Length=479' Tc=10.4 min CN=56 Runoff=0.3 cfs 0.092 af

Subcatchment EDA-2: Off-Site West Runoff Area=0.384 ac 0.00% Impervious Runoff Depth=0.18"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.0 cfs 0.006 af

Subcatchment EDA-3: State R.O.W. Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=0.18"
Flow Length=100' Slope=0.3200 '/' Tc=6.8 min CN=55 Runoff=0.0 cfs 0.005 af

Subcatchment PDA-1A: Proposed Runoff Area=2.880 ac 57.29% Impervious Runoff Depth=1.28"
Flow Length=288' Tc=6.5 min CN=81 Runoff=4.3 cfs 0.308 af

Subcatchment PDA-1B: Drive Runoff Area=0.500 ac 28.00% Impervious Runoff Depth=0.74"
Tc=6.0 min CN=71 Runoff=0.4 cfs 0.031 af

Subcatchment PDA-1C: Off-Site Wetlands Runoff Area=2.160 ac 0.00% Impervious Runoff Depth=0.23"
Flow Length=235' Tc=10.2 min CN=57 Runoff=0.2 cfs 0.042 af

Subcatchment PDA-2: Off-Site West Runoff Area=0.330 ac 0.00% Impervious Runoff Depth=0.18"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.0 cfs 0.005 af

Subcatchment PDA-3: State R.O.W. Runoff Area=0.114 ac 0.00% Impervious Runoff Depth=0.35"
Tc=6.0 min CN=61 Runoff=0.0 cfs 0.003 af

Pond UG-1: Stacked 5' Retain-It Peak Elev=284.18' Storage=0.184 af Inflow=4.3 cfs 0.308 af
Discarded=0.2 cfs 0.308 af Primary=0.0 cfs 0.000 af Outflow=0.2 cfs 0.308 af

Pond UG-2: 5' Retain-It Peak Elev=271.65' Storage=0.021 af Inflow=0.4 cfs 0.031 af
Discarded=0.0 cfs 0.031 af Primary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.031 af

Link PDA-1: Off Site Wetlands Inflow=0.2 cfs 0.042 af
Primary=0.2 cfs 0.042 af

Summary for Subcatchment EDA-1: Off-Site Wetlands

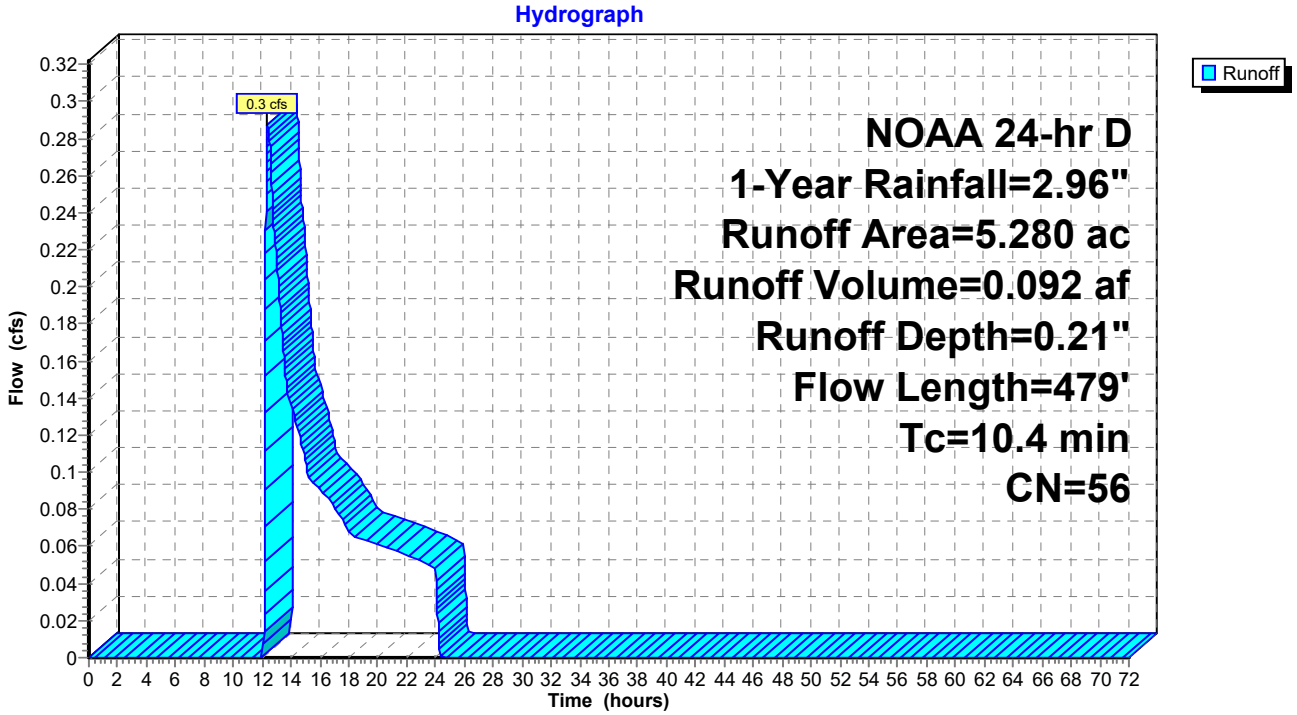
Runoff = 0.3 cfs @ 12.38 hrs, Volume= 0.092 af, Depth= 0.21"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
5.080	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
5.280	56	Weighted Average
5.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.2570	0.22		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
2.6	345	0.1913	2.19		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	34	0.1176	1.71		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
10.4	479	Total			

Subcatchment EDA-1: Off-Site Wetlands



Summary for Subcatchment EDA-2: Off-Site West

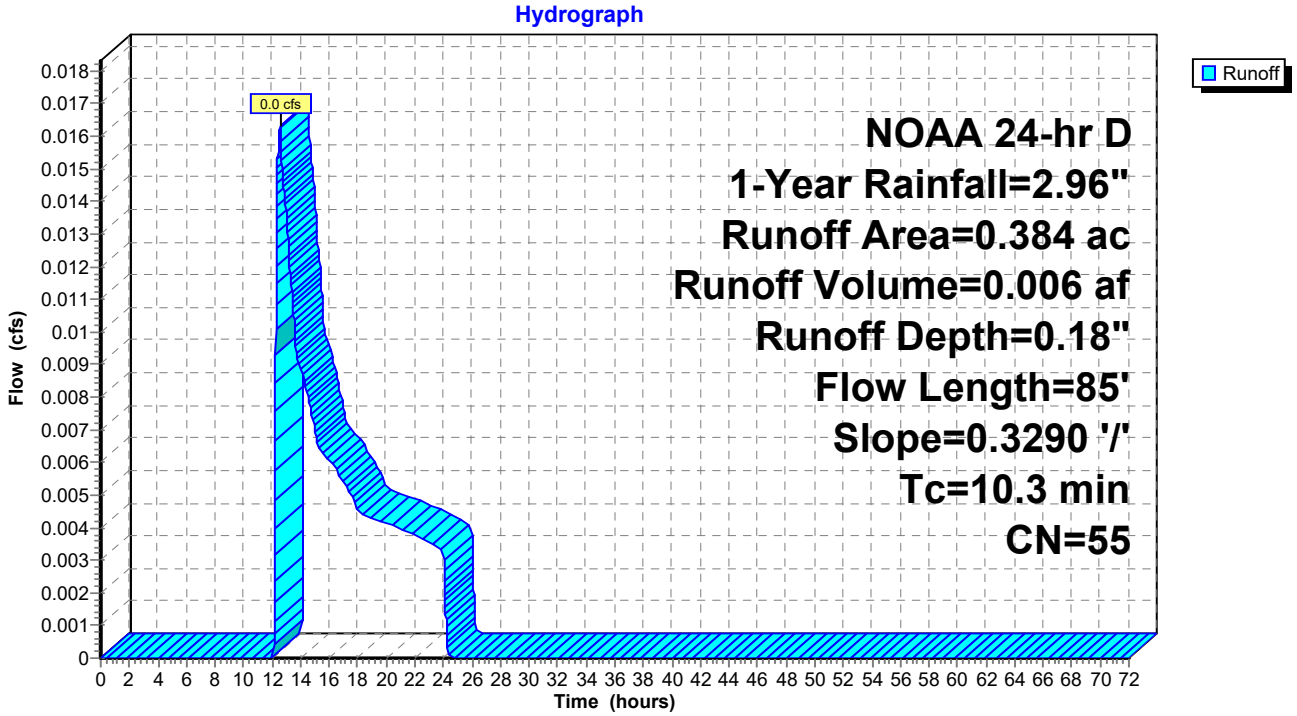
Runoff = 0.0 cfs @ 12.57 hrs, Volume= 0.006 af, Depth= 0.18"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
0.384	55	Woods, Good, HSG B
0.384		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment EDA-2: Off-Site West



Summary for Subcatchment EDA-3: State R.O.W.

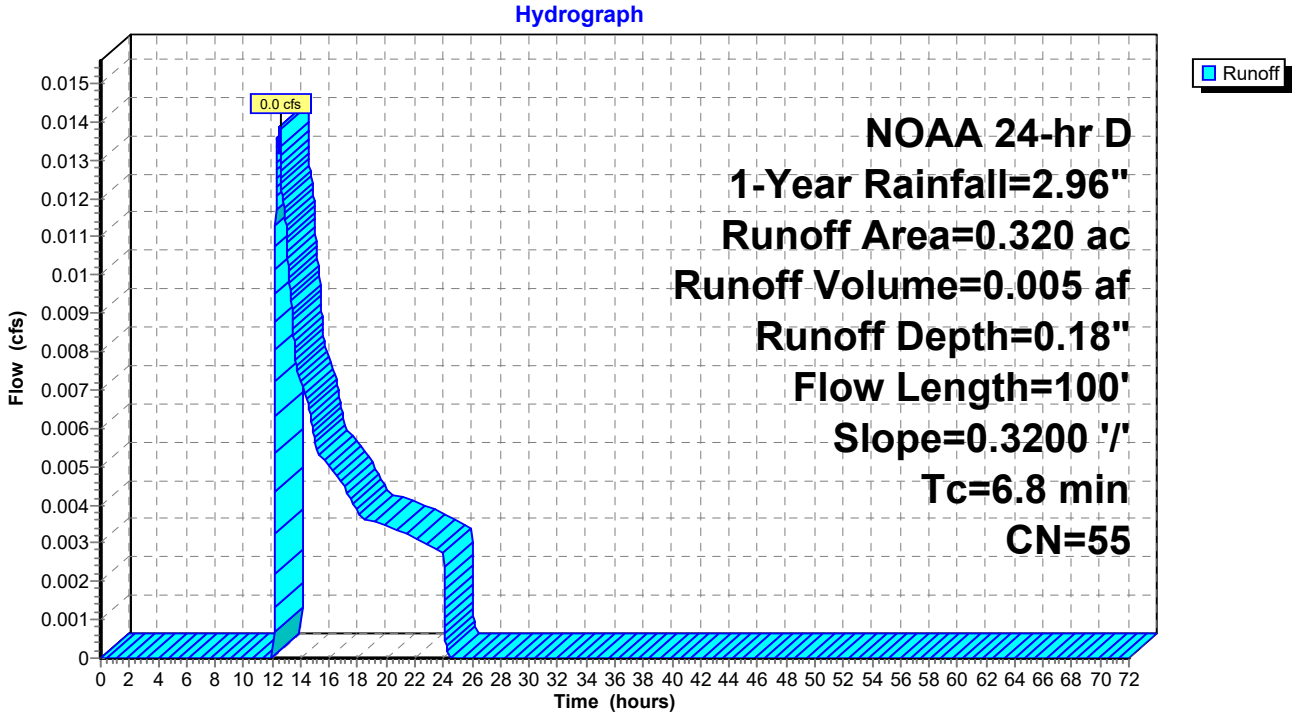
Runoff = 0.0 cfs @ 12.54 hrs, Volume= 0.005 af, Depth= 0.18"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
0.320	55	Woods, Good, HSG B
0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3200	0.24		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"

Subcatchment EDA-3: State R.O.W.



Summary for Subcatchment PDA-1A: Proposed Development

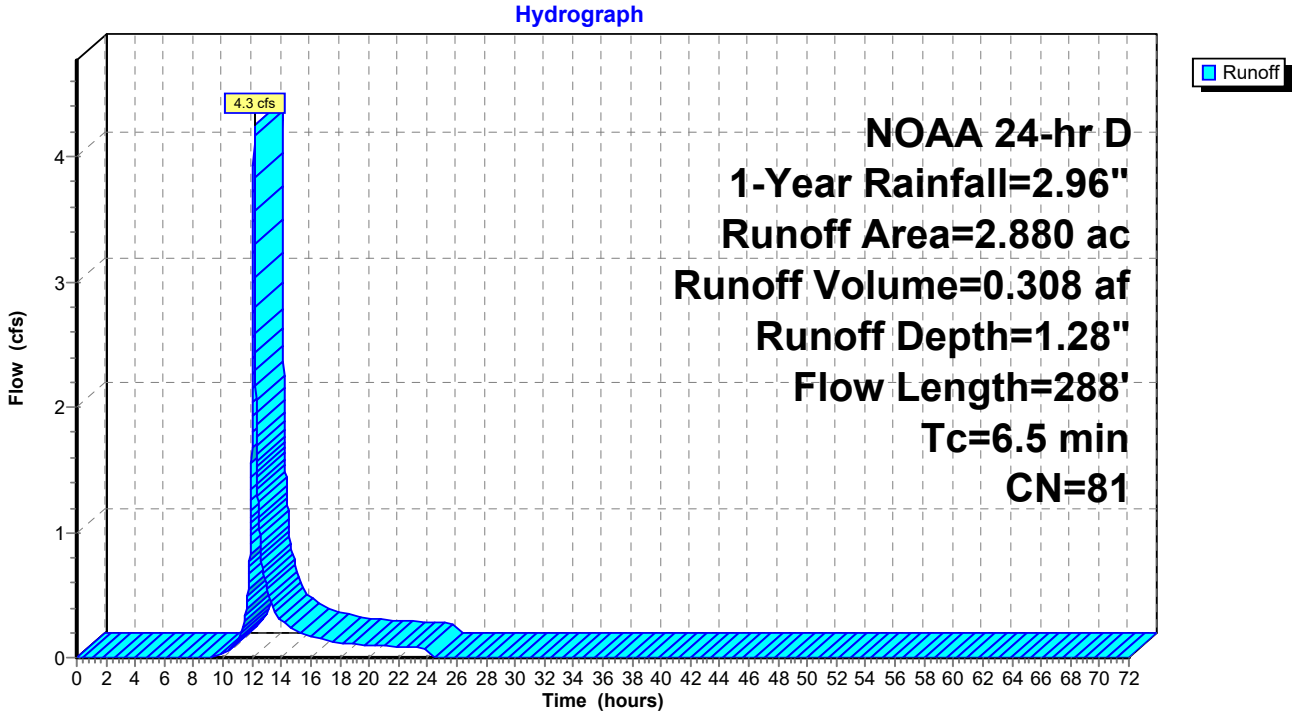
Runoff = 4.3 cfs @ 12.14 hrs, Volume= 0.308 af, Depth= 1.28"
Routed to Pond UG-1 : Stacked 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
1.650	98	Paved parking, HSG C
0.810	61	>75% Grass cover, Good, HSG B
0.420	55	Woods, Good, HSG B
2.880	81	Weighted Average
1.230		42.71% Pervious Area
1.650		57.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	74	0.3108	0.23		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
0.8	162	0.0308	3.56		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	52	0.1650	2.84		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
6.5	288	Total			

Subcatchment PDA-1A: Proposed Development



Summary for Subcatchment PDA-1B: Drive

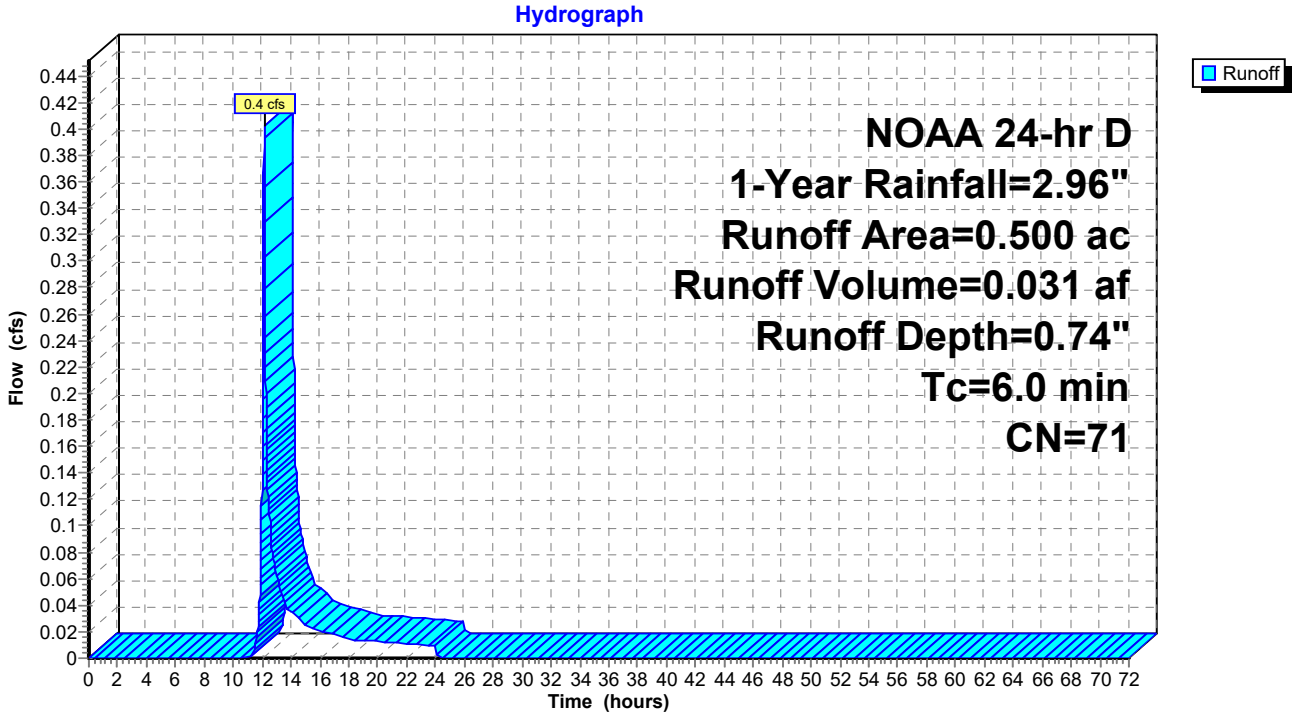
Runoff = 0.4 cfs @ 12.14 hrs, Volume= 0.031 af, Depth= 0.74"
Routed to Pond UG-2 : 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.360	61	>75% Grass cover, Good, HSG B
0.500	71	Weighted Average
0.360		72.00% Pervious Area
0.140		28.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-1B: Drive



Summary for Subcatchment PDA-1C: Off-Site Wetlands

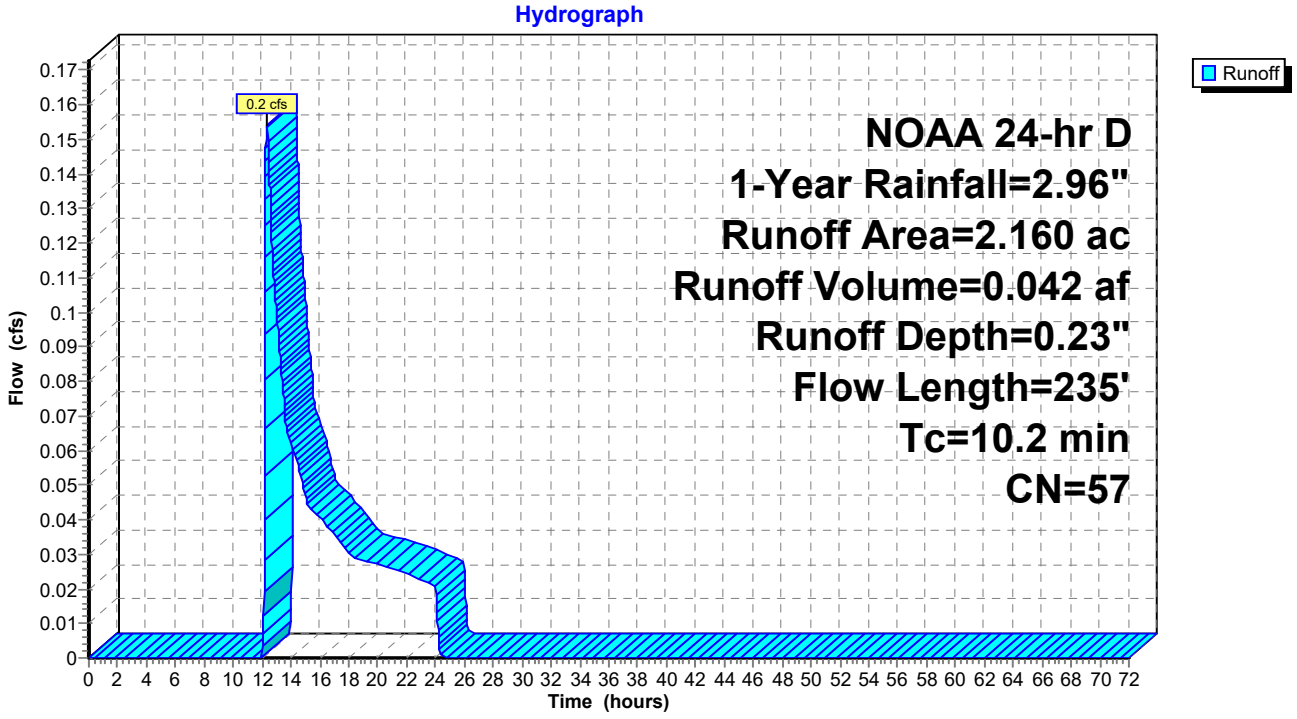
Runoff = 0.2 cfs @ 12.32 hrs, Volume= 0.042 af, Depth= 0.23"
Routed to Link PDA-1 : Off Site Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
0.090	61	>75% Grass cover, Good, HSG B
1.870	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
2.160	57	Weighted Average
2.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	65	0.1690	0.17		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
3.1	35	0.2860	0.19		**Sheet Flow, B-C** Woods: Light underbrush n= 0.400 P2= 3.44"
0.9	135	0.2670	2.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.2	235	Total			

Subcatchment PDA-1C: Off-Site Wetlands



Summary for Subcatchment PDA-2: Off-Site West

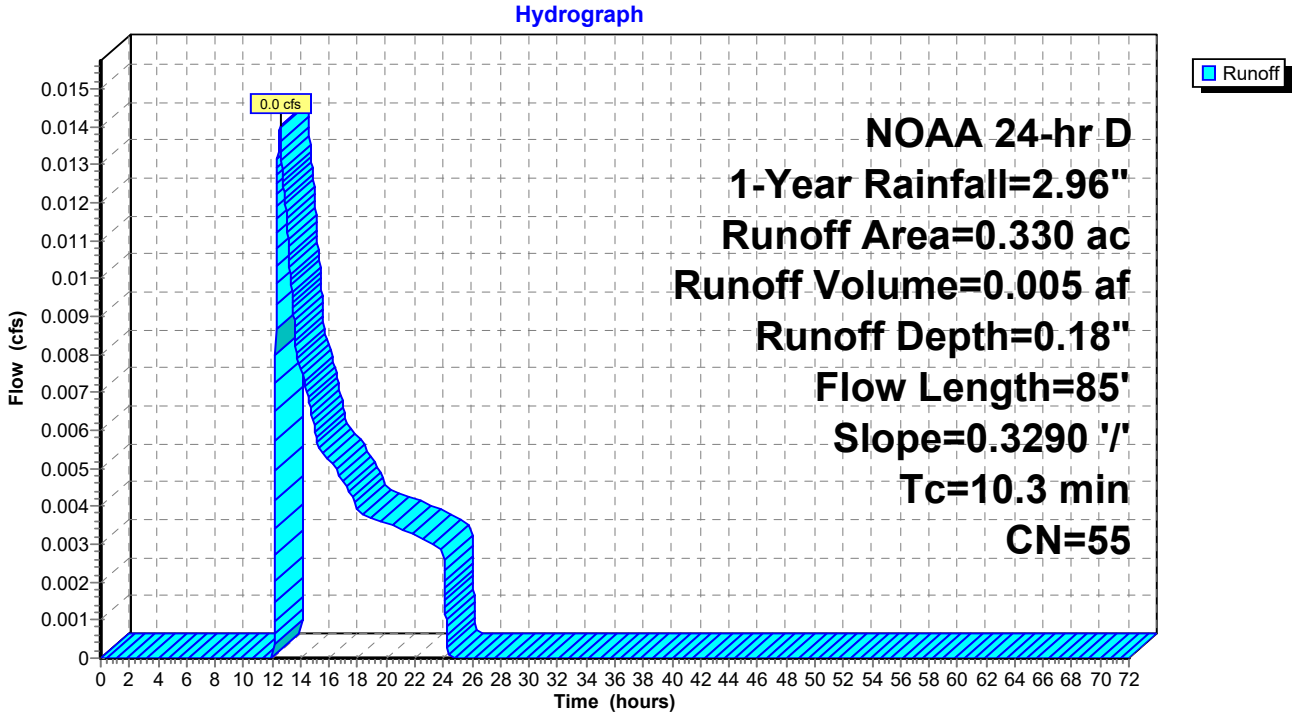
Runoff = 0.0 cfs @ 12.57 hrs, Volume= 0.005 af, Depth= 0.18"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
0.330	55	Woods, Good, HSG B
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment PDA-2: Off-Site West



Summary for Subcatchment PDA-3: State R.O.W.

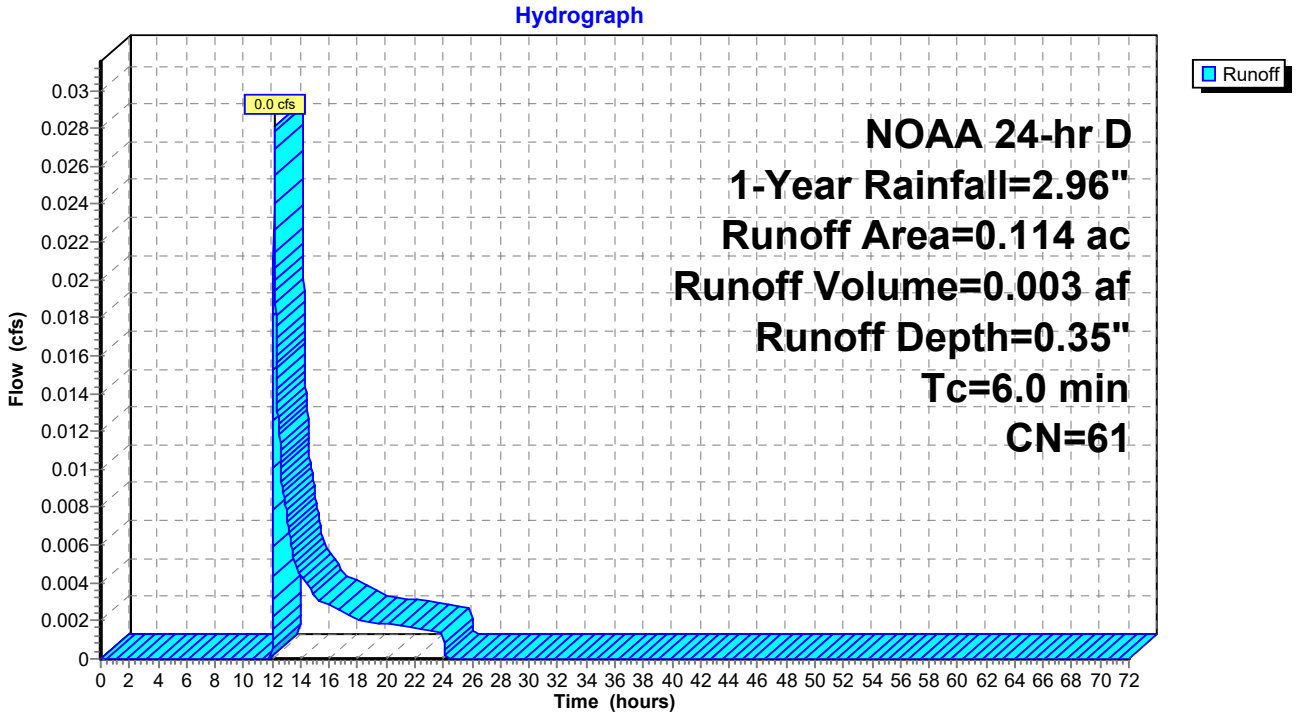
Runoff = 0.0 cfs @ 12.15 hrs, Volume= 0.003 af, Depth= 0.35"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 1-Year Rainfall=2.96"

Area (ac)	CN	Description
0.114	61	>75% Grass cover, Good, HSG B
0.114		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-3: State R.O.W.



Summary for Pond UG-1: Stacked 5' Retain-It

Inflow Area = 2.880 ac, 57.29% Impervious, Inflow Depth = 1.28" for 1-Year event
Inflow = 4.3 cfs @ 12.14 hrs, Volume= 0.308 af
Outflow = 0.2 cfs @ 16.65 hrs, Volume= 0.308 af, Atten= 96%, Lag= 270.5 min
Discarded = 0.2 cfs @ 16.65 hrs, Volume= 0.308 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 284.18' @ 16.65 hrs Surf.Area= 0.176 ac Storage= 0.184 af

Plug-Flow detention time= 635.2 min calculated for 0.308 af (100% of inflow)
Center-of-Mass det. time= 635.3 min (1,490.6 - 855.2)

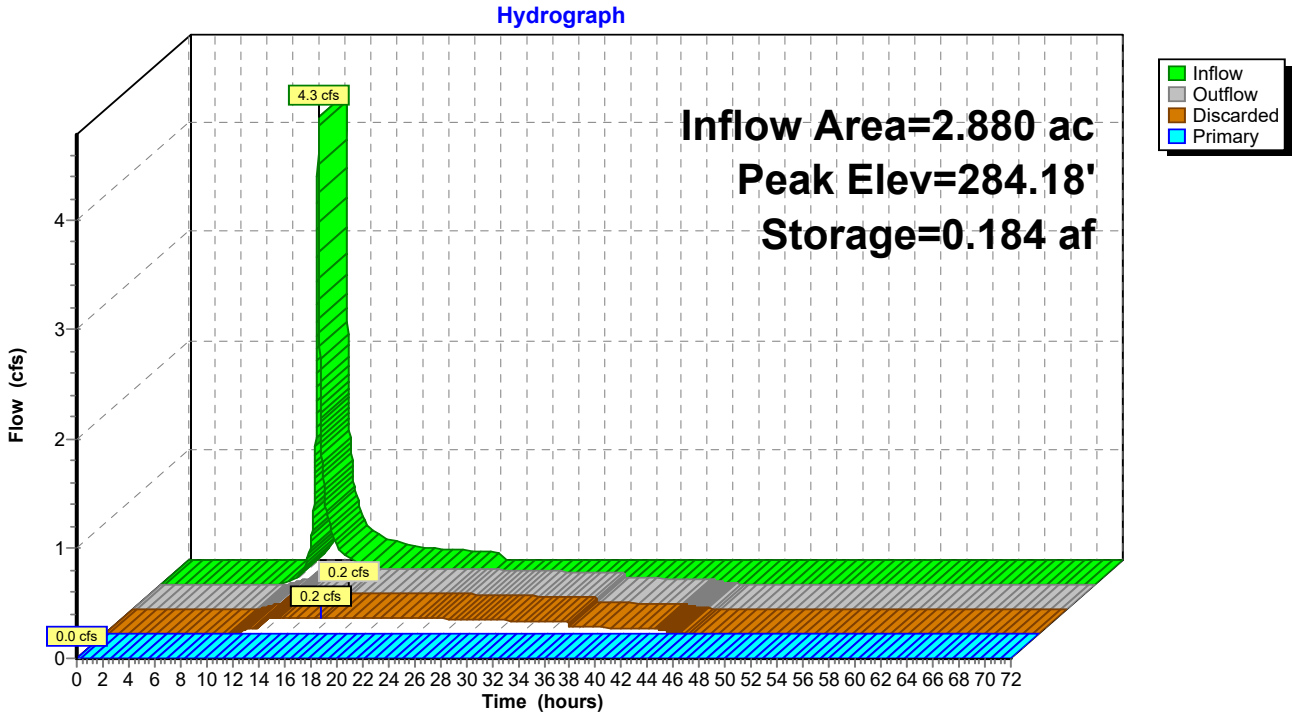
Volume	Invert	Avail.Storage	Storage Description
#1	282.50'	0.999 af	**32.00'W x 120.00'L x 11.33'H Stacked Retain-It 5'**
#2	281.50'	0.035 af	**32.00'W x 120.00'L x 1.00'H Stone Base** 0.088 af Overall x 40.0% Voids
		1.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	282.50'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 282.50' / 278.00' S= 0.1125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	284.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	290.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.50'	**4.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#5	Discarded	281.50'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 278.50'

Discarded OutFlow Max=0.2 cfs @ 16.65 hrs HW=284.18' (Free Discharge)
└─**5=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=281.50' (Free Discharge)
└─**1=Culvert** (Controls 0.0 cfs)
  ├─**2=Orifice/Grate** (Controls 0.0 cfs)
  ├─**3=Orifice/Grate** (Controls 0.0 cfs)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond UG-1: Stacked 5' Retain-It



Stage-Discharge for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
281.50	0.0	0.0	0.0
281.70	0.0	0.0	0.0
281.90	0.1	0.1	0.0
282.10	0.1	0.1	0.0
282.30	0.1	0.1	0.0
282.50	0.1	0.1	0.0
282.70	0.1	0.1	0.0
282.90	0.1	0.1	0.0
283.10	0.1	0.1	0.0
283.30	0.1	0.1	0.0
283.50	0.1	0.1	0.0
283.70	0.1	0.1	0.0
283.90	0.1	0.1	0.0
284.10	0.1	0.1	0.0
284.30	0.2	0.2	0.0
284.50	0.2	0.2	0.0
284.70	0.2	0.2	0.0
284.90	0.2	0.2	0.0
285.10	0.2	0.2	0.0
285.30	0.2	0.2	0.0
285.50	0.2	0.2	0.0
285.70	0.2	0.2	0.0
285.90	0.2	0.2	0.0
286.10	0.2	0.2	0.0
286.30	0.2	0.2	0.0
286.50	0.2	0.2	0.0
286.70	0.3	0.2	0.0
286.90	0.3	0.2	0.0
287.10	0.3	0.2	0.0
287.30	0.3	0.2	0.0
287.50	0.3	0.2	0.0
287.70	0.3	0.2	0.0
287.90	0.3	0.3	0.0
288.10	0.3	0.3	0.0
288.30	0.3	0.3	0.1
288.50	0.3	0.3	0.1
288.70	0.3	0.3	0.1
288.90	0.3	0.3	0.1
289.10	0.3	0.3	0.1
289.30	0.3	0.3	0.1
289.50	0.4	0.3	0.1
289.70	0.4	0.3	0.1
289.90	0.4	0.3	0.1
290.10	0.4	0.3	0.1
290.30	0.4	0.3	0.1
290.50	0.4	0.3	0.1
290.70	0.5	0.3	0.2
290.90	0.8	0.3	0.4
291.10	1.0	0.3	0.6
291.30	1.1	0.3	0.8
291.50	1.2	0.3	0.9
291.70	2.3	0.4	2.0
291.90	4.3	0.4	3.9
292.10	7.0	0.4	6.6
292.30	10.5	0.4	10.1
292.50	12.0	0.4	11.7
292.70	12.2	0.4	11.8
292.90	12.3	0.4	11.9
293.10	12.4	0.4	12.0
293.30	12.5	0.4	12.1
293.50	12.7	0.4	12.3
293.70	**12.8**	**0.4**	**12.4**

Stage-Area-Storage for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Surface (acres)	Storage (acre-feet)
281.50	0.088	0.000
281.70	0.088	0.007
281.90	0.088	0.014
282.10	0.088	0.021
282.30	0.088	0.028
282.50	**0.176**	0.035
282.70	0.176	0.053
282.90	0.176	0.071
283.10	0.176	0.088
283.30	0.176	0.106
283.50	0.176	0.123
283.70	0.176	0.141
283.90	0.176	0.159
284.10	0.176	0.176
284.30	0.176	0.194
284.50	0.176	0.212
284.70	0.176	0.229
284.90	0.176	0.247
285.10	0.176	0.264
285.30	0.176	0.282
285.50	0.176	0.300
285.70	0.176	0.317
285.90	0.176	0.335
286.10	0.176	0.353
286.30	0.176	0.370
286.50	0.176	0.388
286.70	0.176	0.406
286.90	0.176	0.423
287.10	0.176	0.441
287.30	0.176	0.458
287.50	0.176	0.476
287.70	0.176	0.494
287.90	0.176	0.511
288.10	0.176	0.529
288.30	0.176	0.547
288.50	0.176	0.564
288.70	0.176	0.582
288.90	0.176	0.599
289.10	0.176	0.617
289.30	0.176	0.635
289.50	0.176	0.652
289.70	0.176	0.670
289.90	0.176	0.688
290.10	0.176	0.705
290.30	0.176	0.723
290.50	0.176	0.740
290.70	0.176	0.758
290.90	0.176	0.776
291.10	0.176	0.793
291.30	0.176	0.811
291.50	0.176	0.829
291.70	0.176	0.846
291.90	0.176	0.864
292.10	0.176	0.882
292.30	0.176	0.899
292.50	0.176	0.917
292.70	0.176	0.934
292.90	0.176	0.952
293.10	0.176	0.970
293.30	0.176	0.987
293.50	0.176	1.005
293.70	0.176	**1.023**

Summary for Pond UG-2: 5' Retain-It

Inflow Area = 0.500 ac, 28.00% Impervious, Inflow Depth = 0.74" for 1-Year event
Inflow = 0.4 cfs @ 12.14 hrs, Volume= 0.031 af
Outflow = 0.0 cfs @ 23.18 hrs, Volume= 0.031 af, Atten= 98%, Lag= 662.6 min
Discarded = 0.0 cfs @ 23.18 hrs, Volume= 0.031 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 271.65' @ 23.18 hrs Surf.Area= 0.009 ac Storage= 0.021 af

Plug-Flow detention time= 1,065.6 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 1,065.6 min (1,958.2 - 892.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	268.33'	0.004 af	**16.00'W x 24.00'L x 6.67'H Field A** 0.059 af Overall - 0.050 af Embedded = 0.009 af x 40.0% Voids
#2A	269.33'	0.038 af	**retain_it retain_it 5.0'** x 6 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 2 Rows adjusted for 103.9 cf perimeter wall
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.10'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.10' / 273.10' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	268.33'	**0.520 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 265.50'

Discarded OutFlow Max=0.0 cfs @ 23.18 hrs HW=271.65' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=268.33' (Free Discharge)
↑—**1=Culvert** (Controls 0.0 cfs)

Pond UG-2: 5' Retain-It - Chamber Wizard Field A

Chamber Model = retain_it retain_it 5.0' (retain-it®)
Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf
Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf
2 Rows adjusted for 103.9 cf perimeter wall

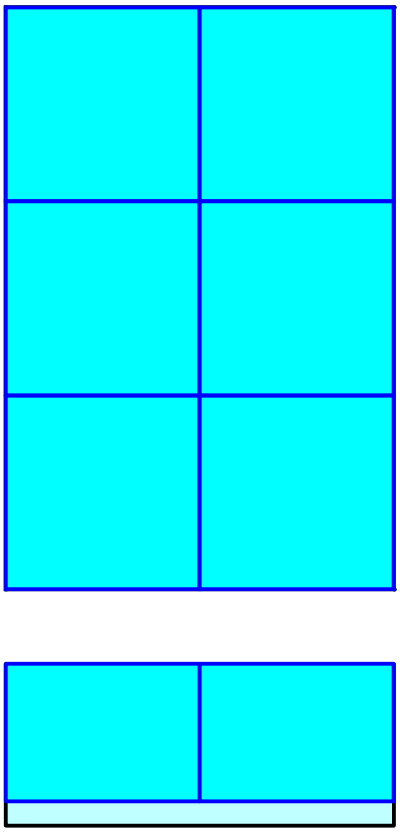
3 Chambers/Row x 8.00' Long = 24.00' Row Length
2 Rows x 96.0" Wide = 16.00' Base Width
12.0" Stone Base + 68.0" Chamber Height = 6.67' Field Height

10.4 cf Sidewall x 3 x 2 + 10.4 cf Endwall x 2 x 2 = 103.9 cf Perimeter Wall
6 Chambers x 291.3 cf - 103.9 cf Perimeter wall = 1,643.8 cf Chamber Storage
6 Chambers x 362.7 cf = 2,176.0 cf Displacement

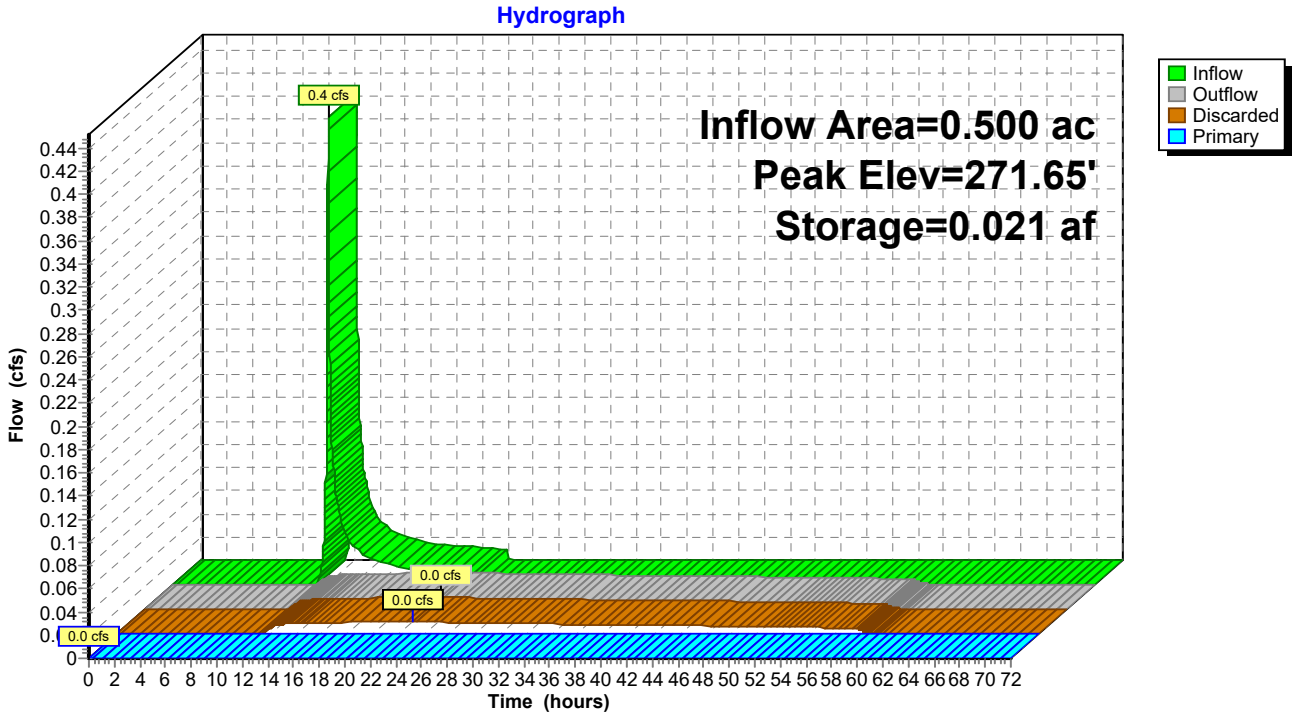
2,560.0 cf Field - 2,176.0 cf Chambers = 384.0 cf Stone x 40.0% Voids = 153.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,797.4 cf = 0.041 af
Overall Storage Efficiency = 70.2%
Overall System Size = 24.00' x 16.00' x 6.67'

6 Chambers
94.8 cy Field
14.2 cy Stone



Pond UG-2: 5' Retain-It



Stage-Discharge for Pond UG-2: 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
268.33	0.0	0.0	0.0
268.43	0.0	0.0	0.0
268.53	0.0	0.0	0.0
268.63	0.0	0.0	0.0
268.73	0.0	0.0	0.0
268.83	0.0	0.0	0.0
268.93	0.0	0.0	0.0
269.03	0.0	0.0	0.0
269.13	0.0	0.0	0.0
269.23	0.0	0.0	0.0
269.33	0.0	0.0	0.0
269.43	0.0	0.0	0.0
269.53	0.0	0.0	0.0
269.63	0.0	0.0	0.0
269.73	0.0	0.0	0.0
269.83	0.0	0.0	0.0
269.93	0.0	0.0	0.0
270.03	0.0	0.0	0.0
270.13	0.0	0.0	0.0
270.23	0.0	0.0	0.0
270.33	0.0	0.0	0.0
270.43	0.0	0.0	0.0
270.53	0.0	0.0	0.0
270.63	0.0	0.0	0.0
270.73	0.0	0.0	0.0
270.83	0.0	0.0	0.0
270.93	0.0	0.0	0.0
271.03	0.0	0.0	0.0
271.13	0.0	0.0	0.0
271.23	0.0	0.0	0.0
271.33	0.0	0.0	0.0
271.43	0.0	0.0	0.0
271.53	0.0	0.0	0.0
271.63	0.0	0.0	0.0
271.73	0.0	0.0	0.0
271.83	0.0	0.0	0.0
271.93	0.0	0.0	0.0
272.03	0.0	0.0	0.0
272.13	0.0	0.0	0.0
272.23	0.0	0.0	0.0
272.33	0.0	0.0	0.0
272.43	0.0	0.0	0.0
272.53	0.0	0.0	0.0
272.63	0.0	0.0	0.0
272.73	0.0	0.0	0.0
272.83	0.0	0.0	0.0
272.93	0.0	0.0	0.0
273.03	0.0	0.0	0.0
273.13	0.0	0.0	0.0
273.23	0.0	0.0	0.0
273.33	0.1	0.0	0.1
273.43	0.3	0.0	0.3
273.53	0.4	0.0	0.4
273.63	0.7	0.0	0.6
273.73	0.9	0.0	0.9
273.83	1.2	0.0	1.2
273.93	1.5	0.0	1.5
274.03	1.8	0.0	1.8
274.13	2.1	0.0	2.1
274.23	2.4	0.0	2.4
274.33	2.6	0.0	2.6
274.43	2.8	0.0	2.8
274.53	3.2	0.0	3.2
274.63	3.5	0.0	3.5
274.73	3.9	0.0	3.9
274.83	4.2	0.0	4.1
274.93	**4.4**	**0.0**	**4.4**

Stage-Area-Storage for Pond UG-2: 5' Retain-It

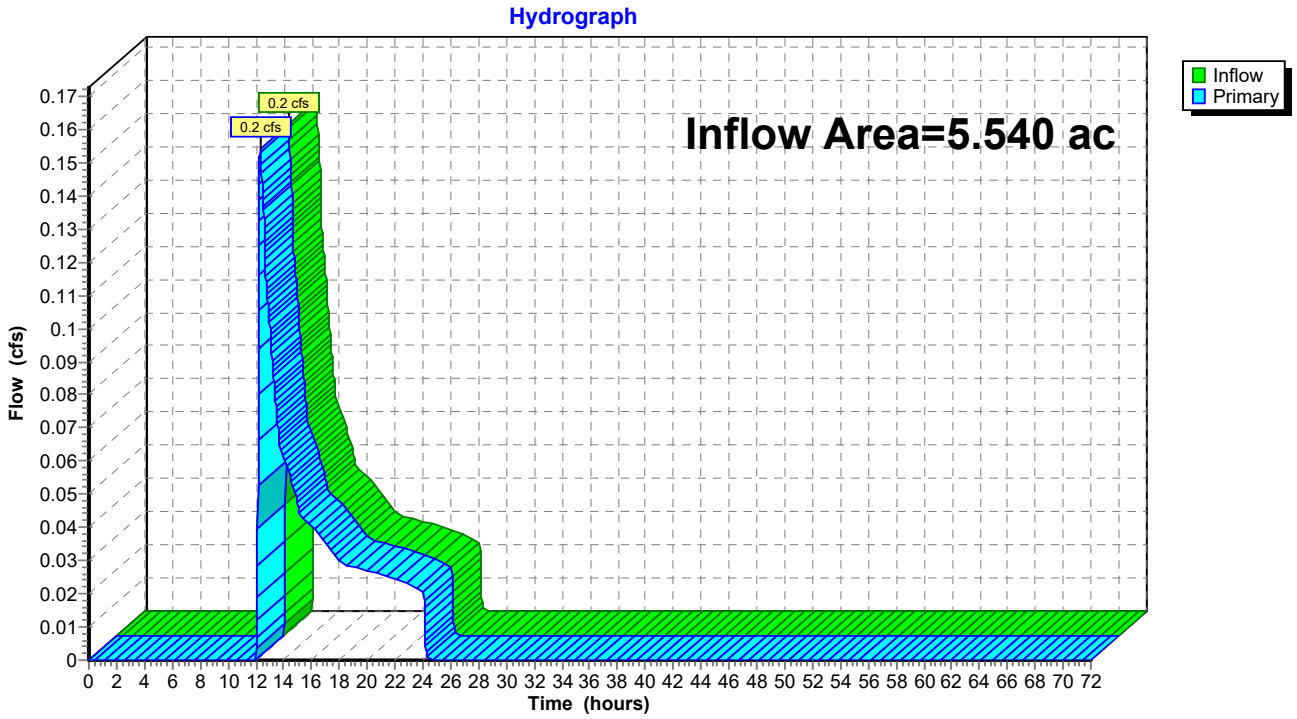
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
268.33	**0.009**	0.000
268.43	0.009	0.000
268.53	0.009	0.001
268.63	0.009	0.001
268.73	0.009	0.001
268.83	0.009	0.002
268.93	0.009	0.002
269.03	0.009	0.002
269.13	0.009	0.003
269.23	0.009	0.003
269.33	0.009	0.004
269.43	0.009	0.004
269.53	0.009	0.005
269.63	0.009	0.006
269.73	0.009	0.007
269.83	0.009	0.007
269.93	0.009	0.008
270.03	0.009	0.009
270.13	0.009	0.010
270.23	0.009	0.010
270.33	0.009	0.011
270.43	0.009	0.012
270.53	0.009	0.013
270.63	0.009	0.013
270.73	0.009	0.014
270.83	0.009	0.015
270.93	0.009	0.016
271.03	0.009	0.016
271.13	0.009	0.017
271.23	0.009	0.018
271.33	0.009	0.019
271.43	0.009	0.019
271.53	0.009	0.020
271.63	0.009	0.021
271.73	0.009	0.022
271.83	0.009	0.022
271.93	0.009	0.023
272.03	0.009	0.024
272.13	0.009	0.025
272.23	0.009	0.025
272.33	0.009	0.026
272.43	0.009	0.027
272.53	0.009	0.028
272.63	0.009	0.028
272.73	0.009	0.029
272.83	0.009	0.030
272.93	0.009	0.031
273.03	0.009	0.031
273.13	0.009	0.032
273.23	0.009	0.033
273.33	0.009	0.034
273.43	0.009	0.034
273.53	0.009	0.035
273.63	0.009	0.036
273.73	0.009	0.037
273.83	0.009	0.037
273.93	0.009	0.038
274.03	0.009	0.039
274.13	0.009	0.040
274.23	0.009	0.041
274.33	0.009	0.041
274.43	0.009	0.041
274.53	0.009	0.041
274.63	0.009	0.041
274.73	0.009	0.041
274.83	0.009	0.041
274.93	0.009	**0.041**

Summary for Link PDA-1: Off Site Wetlands

Inflow Area = 5.540 ac, 32.31% Impervious, Inflow Depth = 0.09" for 1-Year event
Inflow = 0.2 cfs @ 12.32 hrs, Volume= 0.042 af
Primary = 0.2 cfs @ 12.32 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link PDA-1: Off Site Wetlands



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EDA-1: Off-Site Wetlands Runoff Area=5.280 ac 0.00% Impervious Runoff Depth=0.42"
Flow Length=479' Tc=10.4 min CN=56 Runoff=1.2 cfs 0.183 af

Subcatchment EDA-2: Off-Site West Runoff Area=0.384 ac 0.00% Impervious Runoff Depth=0.38"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.1 cfs 0.012 af

Subcatchment EDA-3: State R.O.W. Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=0.38"
Flow Length=100' Slope=0.3200 '/' Tc=6.8 min CN=55 Runoff=0.1 cfs 0.010 af

Subcatchment PDA-1A: Proposed Runoff Area=2.880 ac 57.29% Impervious Runoff Depth=1.79"
Flow Length=288' Tc=6.5 min CN=81 Runoff=6.0 cfs 0.430 af

Subcatchment PDA-1B: Drive Runoff Area=0.500 ac 28.00% Impervious Runoff Depth=1.13"
Tc=6.0 min CN=71 Runoff=0.6 cfs 0.047 af

Subcatchment PDA-1C: Off-Site Wetlands Runoff Area=2.160 ac 0.00% Impervious Runoff Depth=0.45"
Flow Length=235' Tc=10.2 min CN=57 Runoff=0.6 cfs 0.082 af

Subcatchment PDA-2: Off-Site West Runoff Area=0.330 ac 0.00% Impervious Runoff Depth=0.38"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.1 cfs 0.010 af

Subcatchment PDA-3: State R.O.W. Runoff Area=0.114 ac 0.00% Impervious Runoff Depth=0.62"
Tc=6.0 min CN=61 Runoff=0.1 cfs 0.006 af

Pond UG-1: Stacked 5' Retain-It Peak Elev=285.14' Storage=0.268 af Inflow=6.0 cfs 0.430 af
Discarded=0.2 cfs 0.413 af Primary=0.0 cfs 0.017 af Outflow=0.2 cfs 0.430 af

Pond UG-2: 5' Retain-It Peak Elev=273.16' Storage=0.032 af Inflow=0.6 cfs 0.047 af
Discarded=0.0 cfs 0.044 af Primary=0.0 cfs 0.002 af Outflow=0.0 cfs 0.047 af

Link PDA-1: Off Site Wetlands Inflow=0.6 cfs 0.101 af
Primary=0.6 cfs 0.101 af

Summary for Subcatchment EDA-1: Off-Site Wetlands

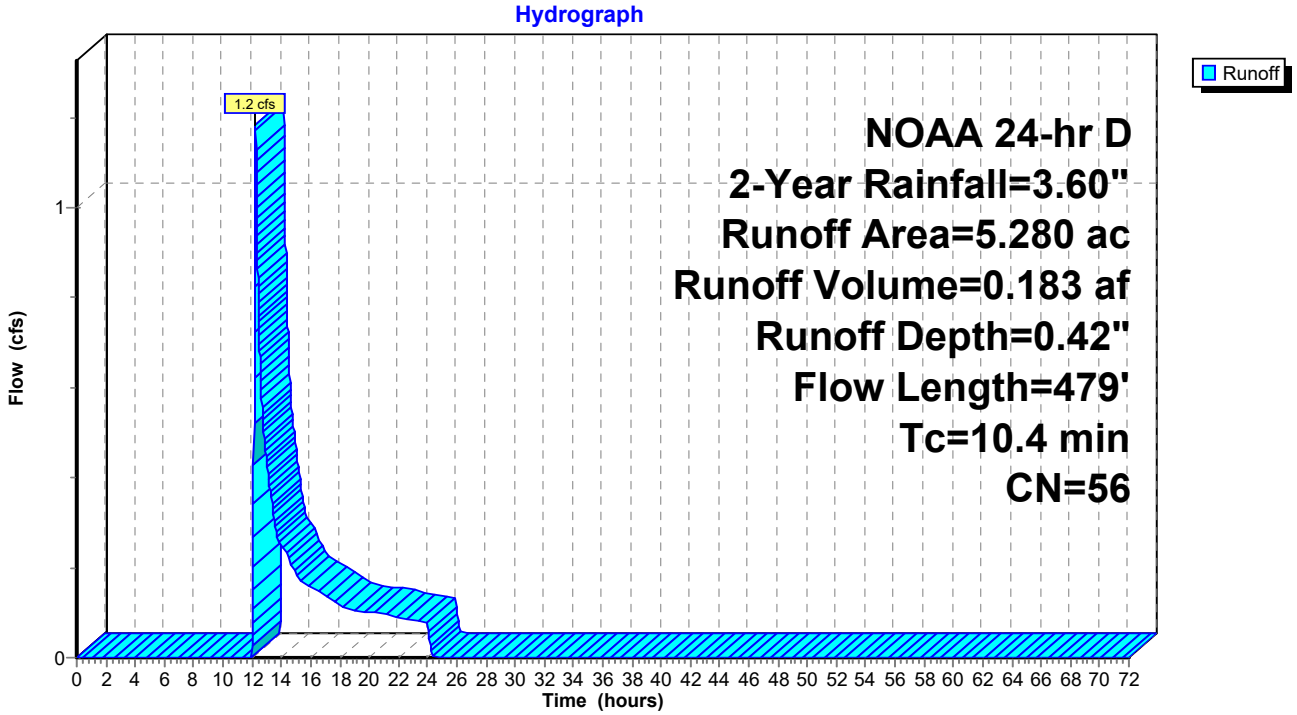
Runoff = 1.2 cfs @ 12.22 hrs, Volume= 0.183 af, Depth= 0.42"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
5.080	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
5.280	56	Weighted Average
5.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.2570	0.22		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
2.6	345	0.1913	2.19		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	34	0.1176	1.71		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
10.4	479	Total			

Subcatchment EDA-1: Off-Site Wetlands



Summary for Subcatchment EDA-2: Off-Site West

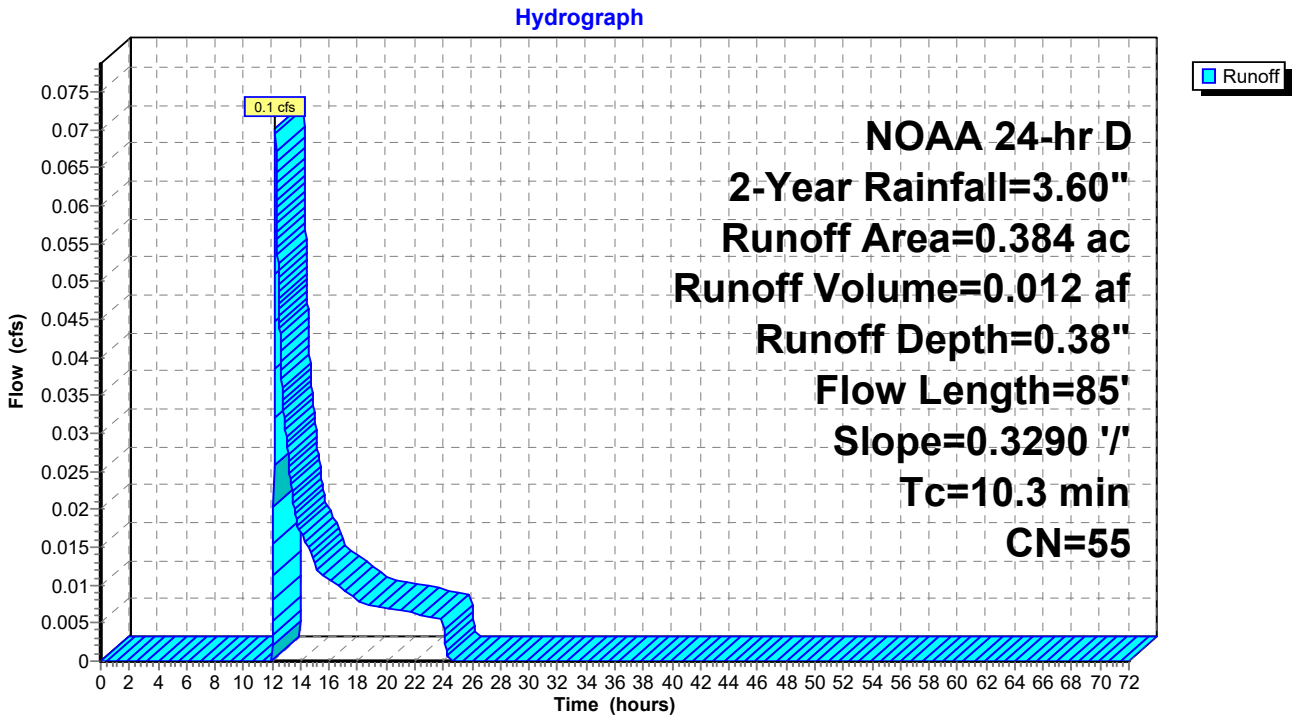
Runoff = 0.1 cfs @ 12.23 hrs, Volume= 0.012 af, Depth= 0.38"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.384	55	Woods, Good, HSG B
0.384		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment EDA-2: Off-Site West



Summary for Subcatchment EDA-3: State R.O.W.

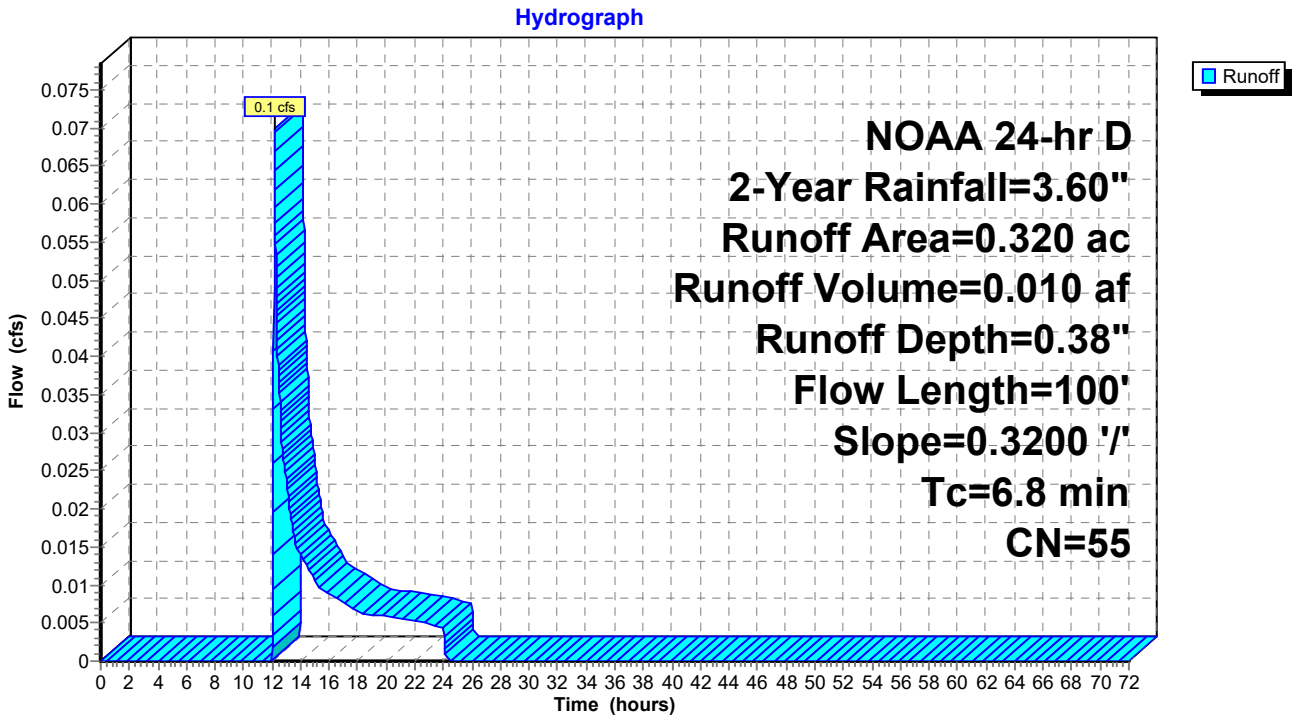
Runoff = 0.1 cfs @ 12.17 hrs, Volume= 0.010 af, Depth= 0.38"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.320	55	Woods, Good, HSG B
0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3200	0.24		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"

Subcatchment EDA-3: State R.O.W.



Summary for Subcatchment PDA-1A: Proposed Development

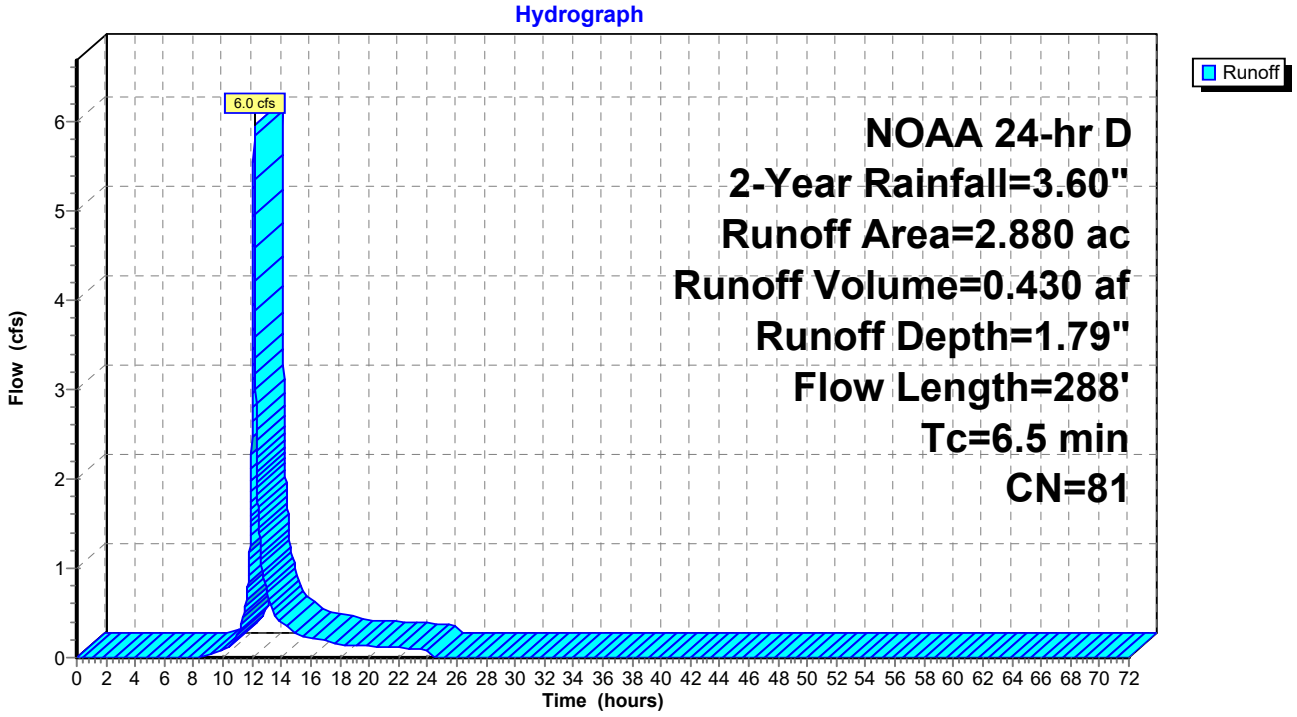
Runoff = 6.0 cfs @ 12.14 hrs, Volume= 0.430 af, Depth= 1.79"
Routed to Pond UG-1 : Stacked 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
1.650	98	Paved parking, HSG C
0.810	61	>75% Grass cover, Good, HSG B
0.420	55	Woods, Good, HSG B
2.880	81	Weighted Average
1.230		42.71% Pervious Area
1.650		57.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	74	0.3108	0.23		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
0.8	162	0.0308	3.56		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	52	0.1650	2.84		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
6.5	288	Total			

Subcatchment PDA-1A: Proposed Development



Summary for Subcatchment PDA-1B: Drive

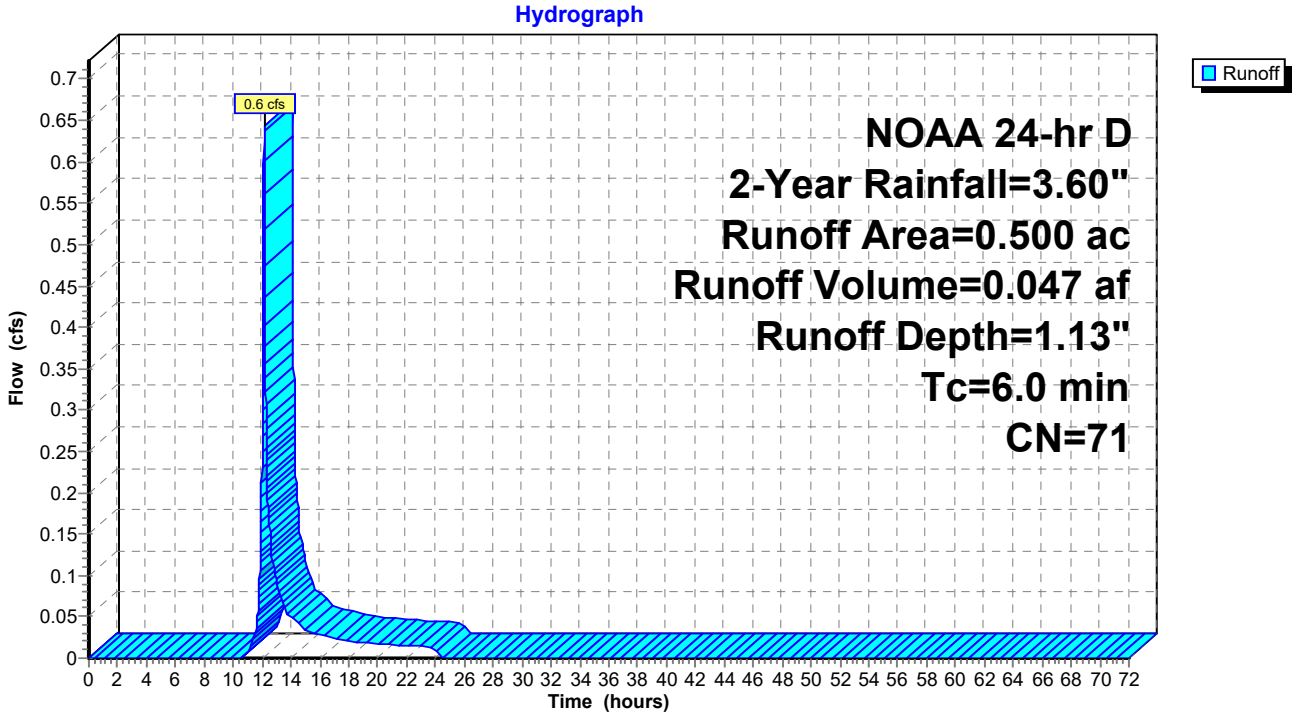
Runoff = 0.6 cfs @ 12.14 hrs, Volume= 0.047 af, Depth= 1.13"
Routed to Pond UG-2 : 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.360	61	>75% Grass cover, Good, HSG B
0.500	71	Weighted Average
0.360		72.00% Pervious Area
0.140		28.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-1B: Drive



Summary for Subcatchment PDA-1C: Off-Site Wetlands

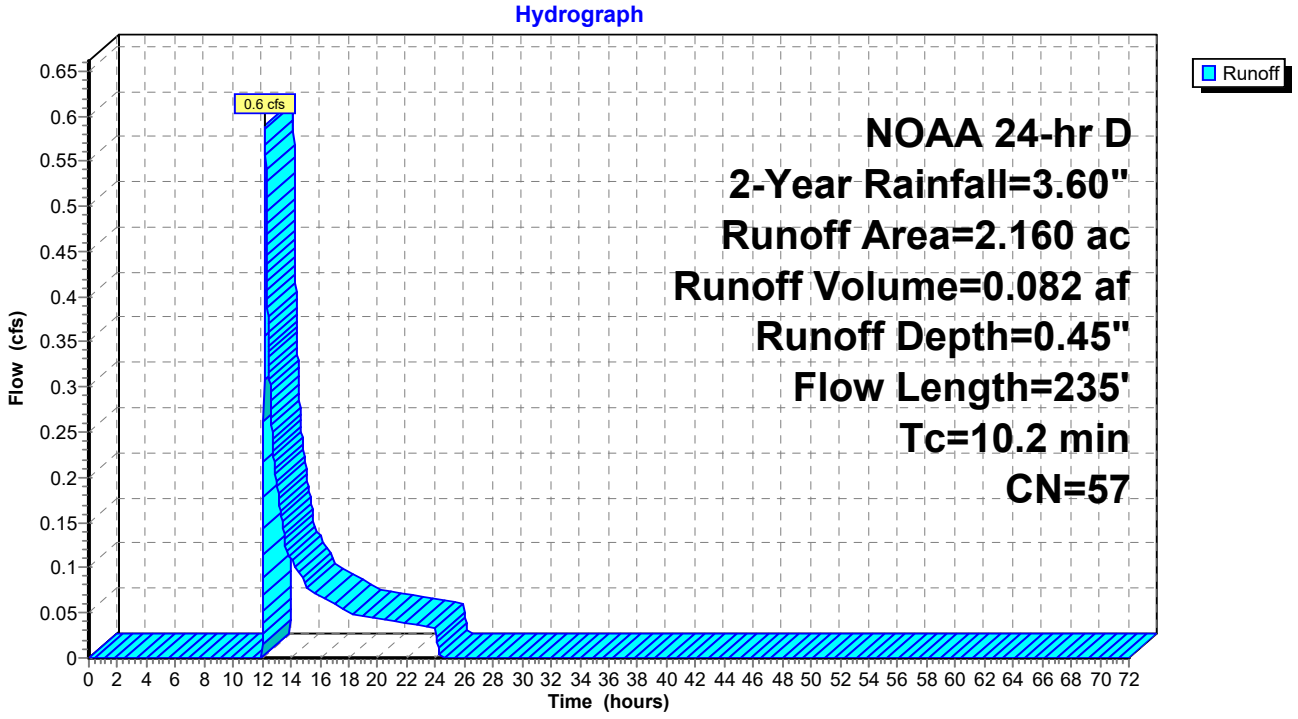
Runoff = 0.6 cfs @ 12.21 hrs, Volume= 0.082 af, Depth= 0.45"
Routed to Link PDA-1 : Off Site Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.090	61	>75% Grass cover, Good, HSG B
1.870	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
2.160	57	Weighted Average
2.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	65	0.1690	0.17		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
3.1	35	0.2860	0.19		**Sheet Flow, B-C** Woods: Light underbrush n= 0.400 P2= 3.44"
0.9	135	0.2670	2.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.2	235	Total			

Subcatchment PDA-1C: Off-Site Wetlands



Summary for Subcatchment PDA-2: Off-Site West

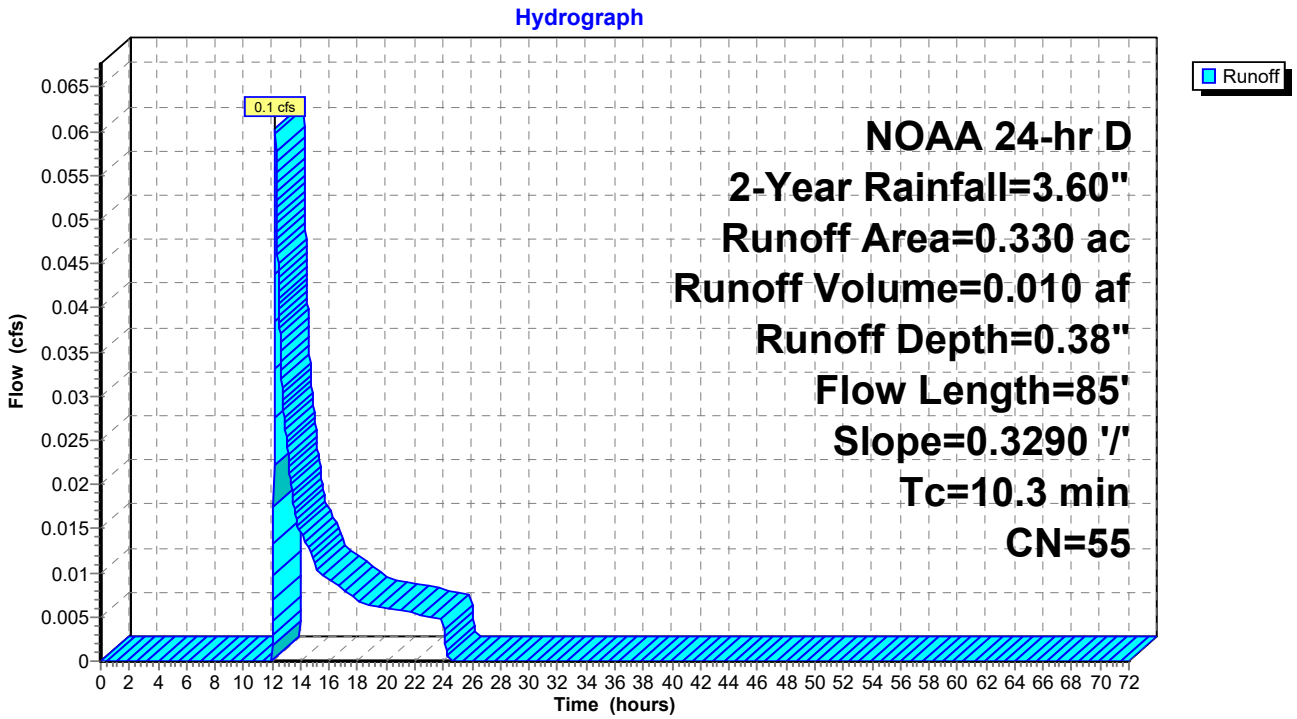
Runoff = 0.1 cfs @ 12.23 hrs, Volume= 0.010 af, Depth= 0.38"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.330	55	Woods, Good, HSG B
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment PDA-2: Off-Site West



Summary for Subcatchment PDA-3: State R.O.W.

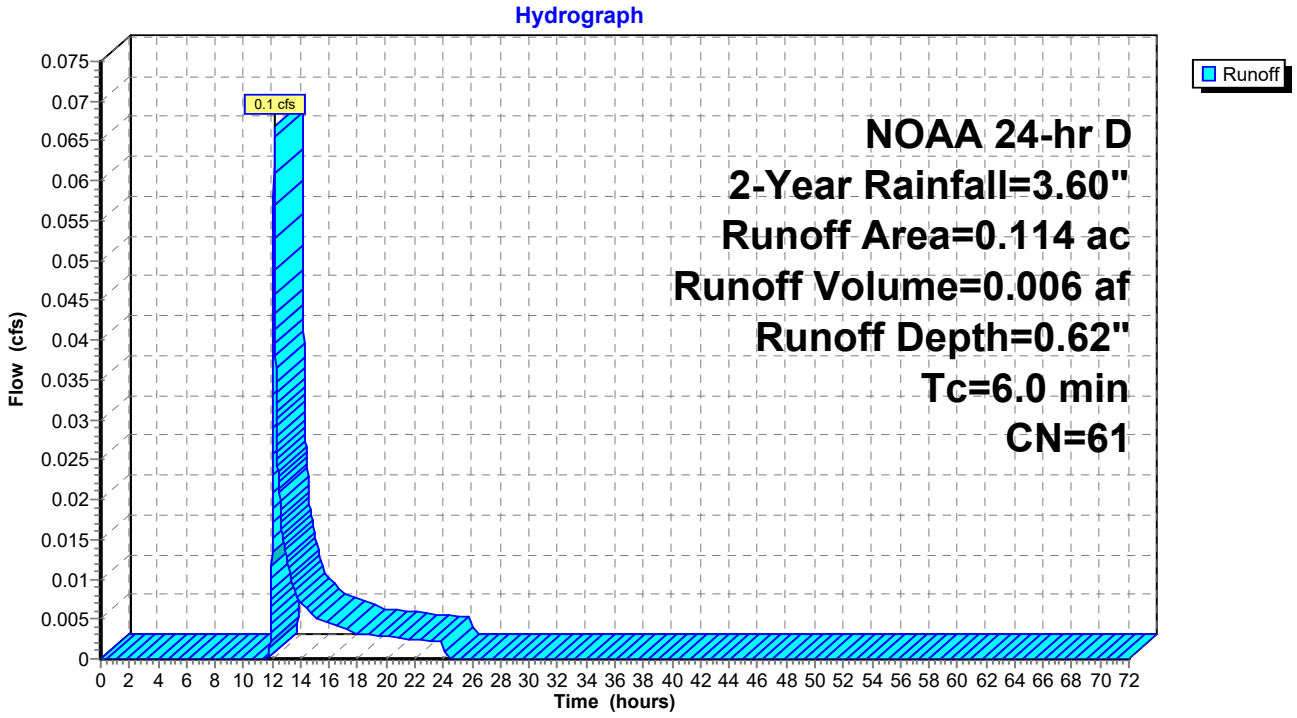
Runoff = 0.1 cfs @ 12.14 hrs, Volume= 0.006 af, Depth= 0.62"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.114	61	>75% Grass cover, Good, HSG B
0.114		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-3: State R.O.W.



Summary for Pond UG-1: Stacked 5' Retain-It

Inflow Area = 2.880 ac, 57.29% Impervious, Inflow Depth = 1.79" for 2-Year event
Inflow = 6.0 cfs @ 12.14 hrs, Volume= 0.430 af
Outflow = 0.2 cfs @ 16.70 hrs, Volume= 0.430 af, Atten= 97%, Lag= 273.4 min
Discarded = 0.2 cfs @ 16.70 hrs, Volume= 0.413 af
Primary = 0.0 cfs @ 16.70 hrs, Volume= 0.017 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 285.14' @ 16.70 hrs Surf.Area= 0.176 ac Storage= 0.268 af

Plug-Flow detention time= 752.6 min calculated for 0.430 af (100% of inflow)
Center-of-Mass det. time= 752.8 min (1,597.3 - 844.5)

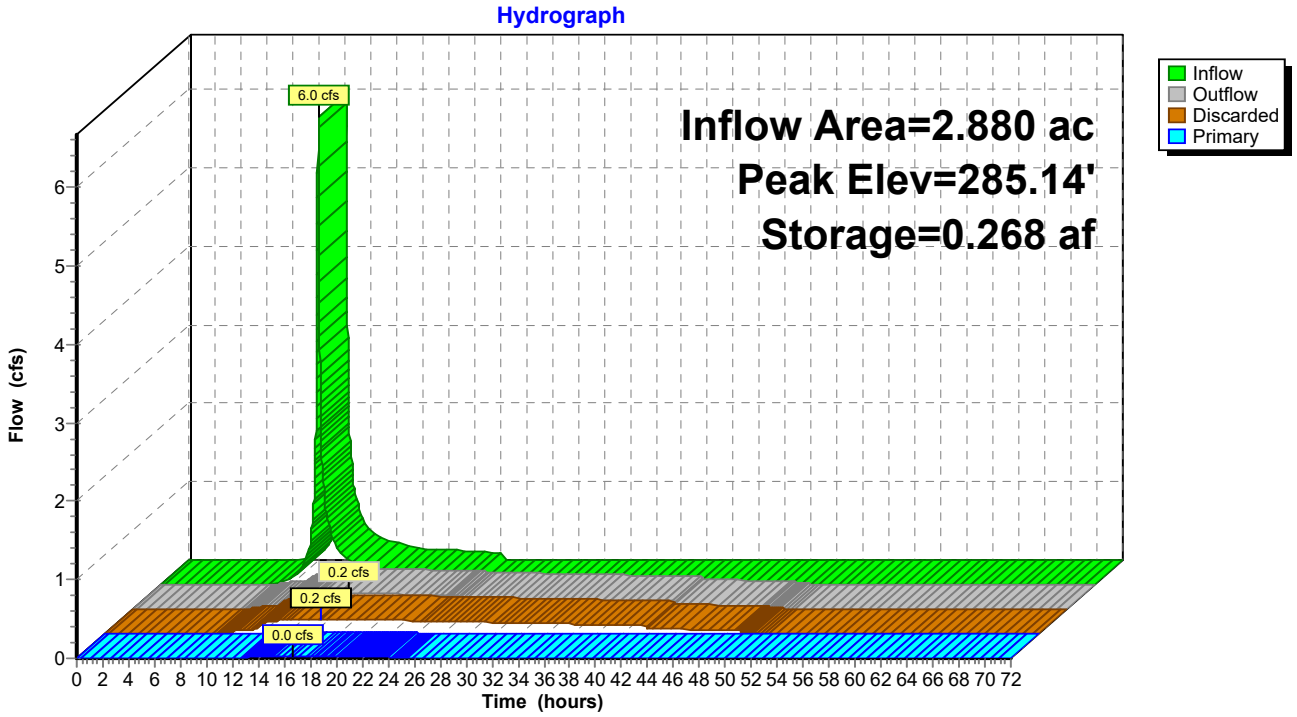
Volume	Invert	Avail.Storage	Storage Description
#1	282.50'	0.999 af	**32.00'W x 120.00'L x 11.33'H Stacked Retain-It 5'**
#2	281.50'	0.035 af	**32.00'W x 120.00'L x 1.00'H Stone Base** 0.088 af Overall x 40.0% Voids
		1.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	282.50'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 282.50' / 278.00' S= 0.1125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	284.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	290.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.50'	**4.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#5	Discarded	281.50'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 278.50'

Discarded OutFlow Max=0.2 cfs @ 16.70 hrs HW=285.14' (Free Discharge)
└─**5=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 16.70 hrs HW=285.14' (Free Discharge)
└─**1=Culvert** (Passes 0.0 cfs of 5.5 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 3.72 fps)
  ├─**3=Orifice/Grate** (Controls 0.0 cfs)
  └─**4=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Pond UG-1: Stacked 5' Retain-It



Stage-Discharge for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
281.50	0.0	0.0	0.0
281.70	0.0	0.0	0.0
281.90	0.1	0.1	0.0
282.10	0.1	0.1	0.0
282.30	0.1	0.1	0.0
282.50	0.1	0.1	0.0
282.70	0.1	0.1	0.0
282.90	0.1	0.1	0.0
283.10	0.1	0.1	0.0
283.30	0.1	0.1	0.0
283.50	0.1	0.1	0.0
283.70	0.1	0.1	0.0
283.90	0.1	0.1	0.0
284.10	0.1	0.1	0.0
284.30	0.2	0.2	0.0
284.50	0.2	0.2	0.0
284.70	0.2	0.2	0.0
284.90	0.2	0.2	0.0
285.10	0.2	0.2	0.0
285.30	0.2	0.2	0.0
285.50	0.2	0.2	0.0
285.70	0.2	0.2	0.0
285.90	0.2	0.2	0.0
286.10	0.2	0.2	0.0
286.30	0.2	0.2	0.0
286.50	0.2	0.2	0.0
286.70	0.3	0.2	0.0
286.90	0.3	0.2	0.0
287.10	0.3	0.2	0.0
287.30	0.3	0.2	0.0
287.50	0.3	0.2	0.0
287.70	0.3	0.2	0.0
287.90	0.3	0.3	0.0
288.10	0.3	0.3	0.0
288.30	0.3	0.3	0.1
288.50	0.3	0.3	0.1
288.70	0.3	0.3	0.1
288.90	0.3	0.3	0.1
289.10	0.3	0.3	0.1
289.30	0.3	0.3	0.1
289.50	0.4	0.3	0.1
289.70	0.4	0.3	0.1
289.90	0.4	0.3	0.1
290.10	0.4	0.3	0.1
290.30	0.4	0.3	0.1
290.50	0.4	0.3	0.1
290.70	0.5	0.3	0.2
290.90	0.8	0.3	0.4
291.10	1.0	0.3	0.6
291.30	1.1	0.3	0.8
291.50	1.2	0.3	0.9
291.70	2.3	0.4	2.0
291.90	4.3	0.4	3.9
292.10	7.0	0.4	6.6
292.30	10.5	0.4	10.1
292.50	12.0	0.4	11.7
292.70	12.2	0.4	11.8
292.90	12.3	0.4	11.9
293.10	12.4	0.4	12.0
293.30	12.5	0.4	12.1
293.50	12.7	0.4	12.3
293.70	**12.8**	**0.4**	**12.4**

Stage-Area-Storage for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Surface (acres)	Storage (acre-feet)
281.50	0.088	0.000
281.70	0.088	0.007
281.90	0.088	0.014
282.10	0.088	0.021
282.30	0.088	0.028
282.50	**0.176**	0.035
282.70	0.176	0.053
282.90	0.176	0.071
283.10	0.176	0.088
283.30	0.176	0.106
283.50	0.176	0.123
283.70	0.176	0.141
283.90	0.176	0.159
284.10	0.176	0.176
284.30	0.176	0.194
284.50	0.176	0.212
284.70	0.176	0.229
284.90	0.176	0.247
285.10	0.176	0.264
285.30	0.176	0.282
285.50	0.176	0.300
285.70	0.176	0.317
285.90	0.176	0.335
286.10	0.176	0.353
286.30	0.176	0.370
286.50	0.176	0.388
286.70	0.176	0.406
286.90	0.176	0.423
287.10	0.176	0.441
287.30	0.176	0.458
287.50	0.176	0.476
287.70	0.176	0.494
287.90	0.176	0.511
288.10	0.176	0.529
288.30	0.176	0.547
288.50	0.176	0.564
288.70	0.176	0.582
288.90	0.176	0.599
289.10	0.176	0.617
289.30	0.176	0.635
289.50	0.176	0.652
289.70	0.176	0.670
289.90	0.176	0.688
290.10	0.176	0.705
290.30	0.176	0.723
290.50	0.176	0.740
290.70	0.176	0.758
290.90	0.176	0.776
291.10	0.176	0.793
291.30	0.176	0.811
291.50	0.176	0.829
291.70	0.176	0.846
291.90	0.176	0.864
292.10	0.176	0.882
292.30	0.176	0.899
292.50	0.176	0.917
292.70	0.176	0.934
292.90	0.176	0.952
293.10	0.176	0.970
293.30	0.176	0.987
293.50	0.176	1.005
293.70	0.176	**1.023**

Summary for Pond UG-2: 5' Retain-It

Inflow Area = 0.500 ac, 28.00% Impervious, Inflow Depth = 1.13" for 2-Year event
Inflow = 0.6 cfs @ 12.14 hrs, Volume= 0.047 af
Outflow = 0.0 cfs @ 18.00 hrs, Volume= 0.047 af, Atten= 97%, Lag= 351.9 min
Discarded = 0.0 cfs @ 18.00 hrs, Volume= 0.044 af
Primary = 0.0 cfs @ 18.00 hrs, Volume= 0.002 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 273.16' @ 18.00 hrs Surf.Area= 0.009 ac Storage= 0.032 af

Plug-Flow detention time= 1,274.6 min calculated for 0.047 af (100% of inflow)
Center-of-Mass det. time= 1,274.5 min (2,151.9 - 877.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	268.33'	0.004 af	**16.00'W x 24.00'L x 6.67'H Field A** 0.059 af Overall - 0.050 af Embedded = 0.009 af x 40.0% Voids
#2A	269.33'	0.038 af	**retain_it retain_it 5.0'** x 6 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 2 Rows adjusted for 103.9 cf perimeter wall
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.10'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.10' / 273.10' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	268.33'	**0.520 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 265.50'

Discarded OutFlow Max=0.0 cfs @ 18.00 hrs HW=273.16' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 18.00 hrs HW=273.16' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.0 cfs @ 0.43 fps)

Pond UG-2: 5' Retain-It - Chamber Wizard Field A

Chamber Model = retain_it retain_it 5.0' (retain-it®)
Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf
Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf
2 Rows adjusted for 103.9 cf perimeter wall

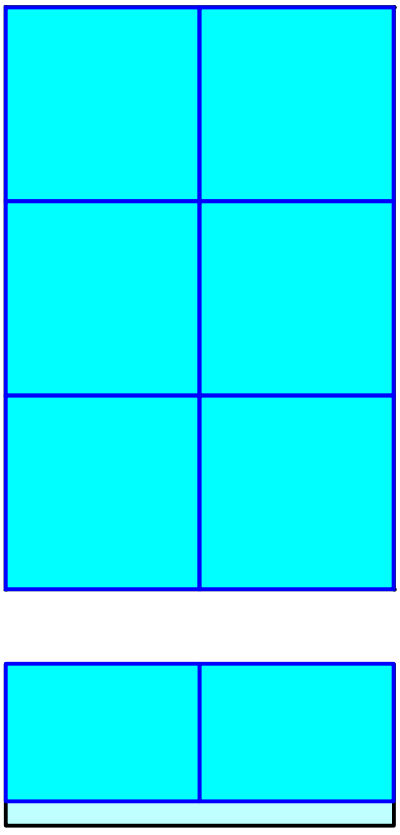
3 Chambers/Row x 8.00' Long = 24.00' Row Length
2 Rows x 96.0" Wide = 16.00' Base Width
12.0" Stone Base + 68.0" Chamber Height = 6.67' Field Height

10.4 cf Sidewall x 3 x 2 + 10.4 cf Endwall x 2 x 2 = 103.9 cf Perimeter Wall
6 Chambers x 291.3 cf - 103.9 cf Perimeter wall = 1,643.8 cf Chamber Storage
6 Chambers x 362.7 cf = 2,176.0 cf Displacement

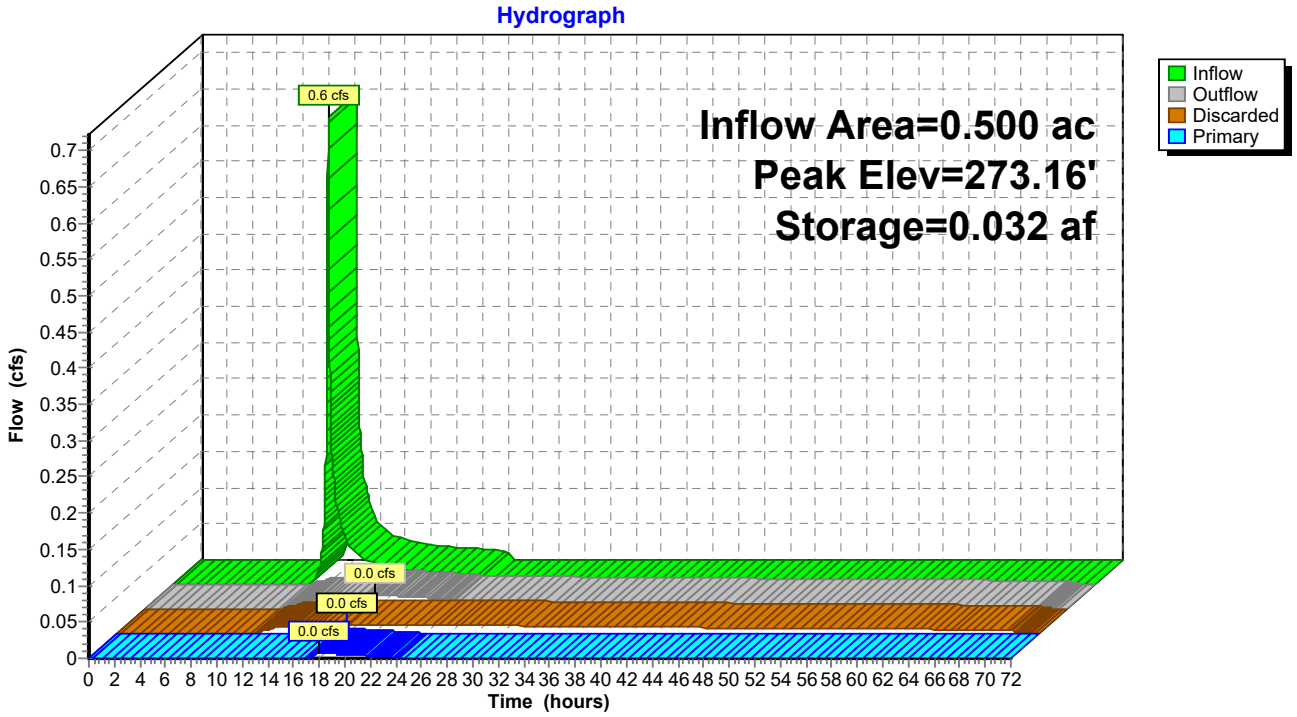
2,560.0 cf Field - 2,176.0 cf Chambers = 384.0 cf Stone x 40.0% Voids = 153.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,797.4 cf = 0.041 af
Overall Storage Efficiency = 70.2%
Overall System Size = 24.00' x 16.00' x 6.67'

6 Chambers
94.8 cy Field
14.2 cy Stone



Pond UG-2: 5' Retain-It



Stage-Discharge for Pond UG-2: 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
268.33	0.0	0.0	0.0
268.43	0.0	0.0	0.0
268.53	0.0	0.0	0.0
268.63	0.0	0.0	0.0
268.73	0.0	0.0	0.0
268.83	0.0	0.0	0.0
268.93	0.0	0.0	0.0
269.03	0.0	0.0	0.0
269.13	0.0	0.0	0.0
269.23	0.0	0.0	0.0
269.33	0.0	0.0	0.0
269.43	0.0	0.0	0.0
269.53	0.0	0.0	0.0
269.63	0.0	0.0	0.0
269.73	0.0	0.0	0.0
269.83	0.0	0.0	0.0
269.93	0.0	0.0	0.0
270.03	0.0	0.0	0.0
270.13	0.0	0.0	0.0
270.23	0.0	0.0	0.0
270.33	0.0	0.0	0.0
270.43	0.0	0.0	0.0
270.53	0.0	0.0	0.0
270.63	0.0	0.0	0.0
270.73	0.0	0.0	0.0
270.83	0.0	0.0	0.0
270.93	0.0	0.0	0.0
271.03	0.0	0.0	0.0
271.13	0.0	0.0	0.0
271.23	0.0	0.0	0.0
271.33	0.0	0.0	0.0
271.43	0.0	0.0	0.0
271.53	0.0	0.0	0.0
271.63	0.0	0.0	0.0
271.73	0.0	0.0	0.0
271.83	0.0	0.0	0.0
271.93	0.0	0.0	0.0
272.03	0.0	0.0	0.0
272.13	0.0	0.0	0.0
272.23	0.0	0.0	0.0
272.33	0.0	0.0	0.0
272.43	0.0	0.0	0.0
272.53	0.0	0.0	0.0
272.63	0.0	0.0	0.0
272.73	0.0	0.0	0.0
272.83	0.0	0.0	0.0
272.93	0.0	0.0	0.0
273.03	0.0	0.0	0.0
273.13	0.0	0.0	0.0
273.23	0.0	0.0	0.0
273.33	0.1	0.0	0.1
273.43	0.3	0.0	0.3
273.53	0.4	0.0	0.4
273.63	0.7	0.0	0.6
273.73	0.9	0.0	0.9
273.83	1.2	0.0	1.2
273.93	1.5	0.0	1.5
274.03	1.8	0.0	1.8
274.13	2.1	0.0	2.1
274.23	2.4	0.0	2.4
274.33	2.6	0.0	2.6
274.43	2.8	0.0	2.8
274.53	3.2	0.0	3.2
274.63	3.5	0.0	3.5
274.73	3.9	0.0	3.9
274.83	4.2	0.0	4.1
274.93	**4.4**	**0.0**	**4.4**

Stage-Area-Storage for Pond UG-2: 5' Retain-It

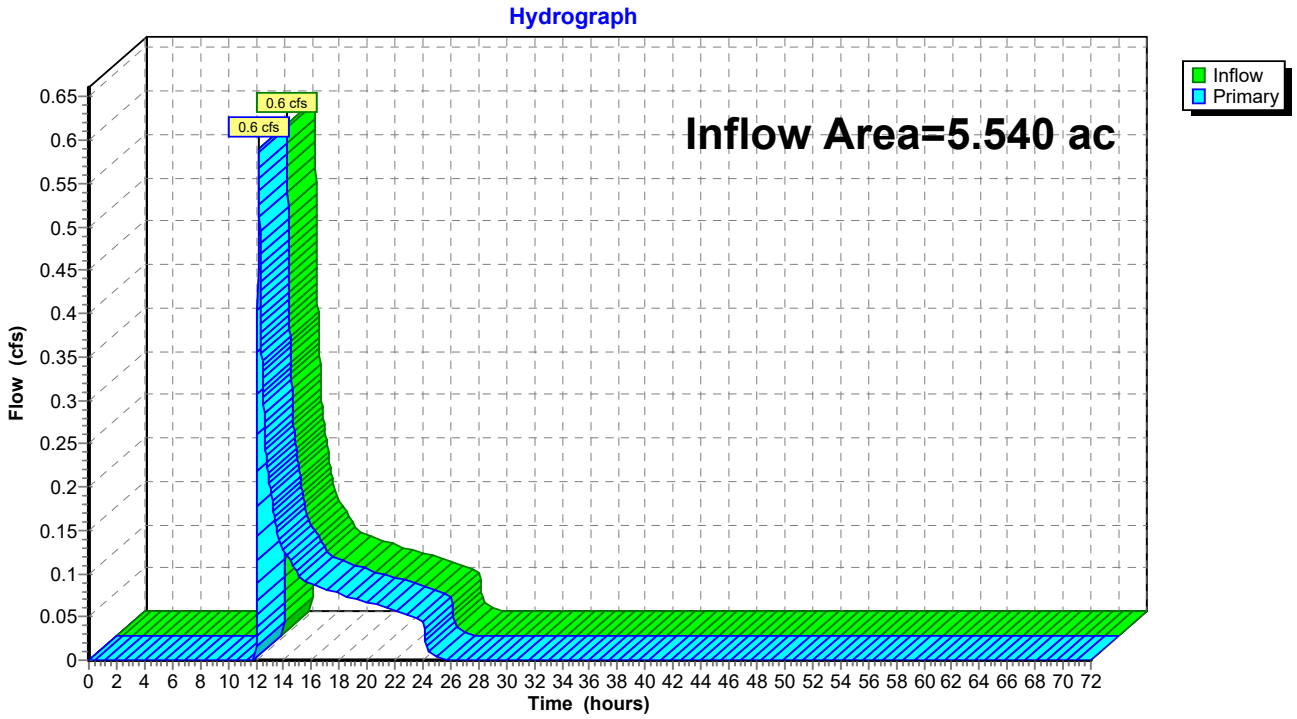
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
268.33	**0.009**	0.000
268.43	0.009	0.000
268.53	0.009	0.001
268.63	0.009	0.001
268.73	0.009	0.001
268.83	0.009	0.002
268.93	0.009	0.002
269.03	0.009	0.002
269.13	0.009	0.003
269.23	0.009	0.003
269.33	0.009	0.004
269.43	0.009	0.004
269.53	0.009	0.005
269.63	0.009	0.006
269.73	0.009	0.007
269.83	0.009	0.007
269.93	0.009	0.008
270.03	0.009	0.009
270.13	0.009	0.010
270.23	0.009	0.010
270.33	0.009	0.011
270.43	0.009	0.012
270.53	0.009	0.013
270.63	0.009	0.013
270.73	0.009	0.014
270.83	0.009	0.015
270.93	0.009	0.016
271.03	0.009	0.016
271.13	0.009	0.017
271.23	0.009	0.018
271.33	0.009	0.019
271.43	0.009	0.019
271.53	0.009	0.020
271.63	0.009	0.021
271.73	0.009	0.022
271.83	0.009	0.022
271.93	0.009	0.023
272.03	0.009	0.024
272.13	0.009	0.025
272.23	0.009	0.025
272.33	0.009	0.026
272.43	0.009	0.027
272.53	0.009	0.028
272.63	0.009	0.028
272.73	0.009	0.029
272.83	0.009	0.030
272.93	0.009	0.031
273.03	0.009	0.031
273.13	0.009	0.032
273.23	0.009	0.033
273.33	0.009	0.034
273.43	0.009	0.034
273.53	0.009	0.035
273.63	0.009	0.036
273.73	0.009	0.037
273.83	0.009	0.037
273.93	0.009	0.038
274.03	0.009	0.039
274.13	0.009	0.040
274.23	0.009	0.041
274.33	0.009	0.041
274.43	0.009	0.041
274.53	0.009	0.041
274.63	0.009	0.041
274.73	0.009	0.041
274.83	0.009	0.041
274.93	0.009	**0.041**

Summary for Link PDA-1: Off Site Wetlands

Inflow Area = 5.540 ac, 32.31% Impervious, Inflow Depth = 0.22" for 2-Year event
Inflow = 0.6 cfs @ 12.21 hrs, Volume= 0.101 af
Primary = 0.6 cfs @ 12.21 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link PDA-1: Off Site Wetlands



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EDA-1: Off-Site Wetlands Runoff Area=5.280 ac 0.00% Impervious Runoff Depth=1.33"
Flow Length=479' Tc=10.4 min CN=56 Runoff=6.2 cfs 0.584 af

Subcatchment EDA-2: Off-Site West Runoff Area=0.384 ac 0.00% Impervious Runoff Depth=1.26"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.4 cfs 0.040 af

Subcatchment EDA-3: State R.O.W. Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=1.26"
Flow Length=100' Slope=0.3200 '/' Tc=6.8 min CN=55 Runoff=0.4 cfs 0.033 af

Subcatchment PDA-1A: Proposed Runoff Area=2.880 ac 57.29% Impervious Runoff Depth=3.46"
Flow Length=288' Tc=6.5 min CN=81 Runoff=11.4 cfs 0.830 af

Subcatchment PDA-1B: Drive Runoff Area=0.500 ac 28.00% Impervious Runoff Depth=2.52"
Tc=6.0 min CN=71 Runoff=1.5 cfs 0.105 af

Subcatchment PDA-1C: Off-Site Wetlands Runoff Area=2.160 ac 0.00% Impervious Runoff Depth=1.40"
Flow Length=235' Tc=10.2 min CN=57 Runoff=2.8 cfs 0.252 af

Subcatchment PDA-2: Off-Site West Runoff Area=0.330 ac 0.00% Impervious Runoff Depth=1.26"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.4 cfs 0.035 af

Subcatchment PDA-3: State R.O.W. Runoff Area=0.114 ac 0.00% Impervious Runoff Depth=1.70"
Tc=6.0 min CN=61 Runoff=0.2 cfs 0.016 af

Pond UG-1: Stacked 5' Retain-It Peak Elev=288.39' Storage=0.555 af Inflow=11.4 cfs 0.830 af
Discarded=0.3 cfs 0.744 af Primary=0.1 cfs 0.086 af Outflow=0.3 cfs 0.830 af

Pond UG-2: 5' Retain-It Peak Elev=273.63' Storage=0.036 af Inflow=1.5 cfs 0.105 af
Discarded=0.0 cfs 0.046 af Primary=0.6 cfs 0.059 af Outflow=0.7 cfs 0.105 af

Link PDA-1: Off Site Wetlands Inflow=3.1 cfs 0.396 af
Primary=3.1 cfs 0.396 af

Summary for Subcatchment EDA-1: Off-Site Wetlands

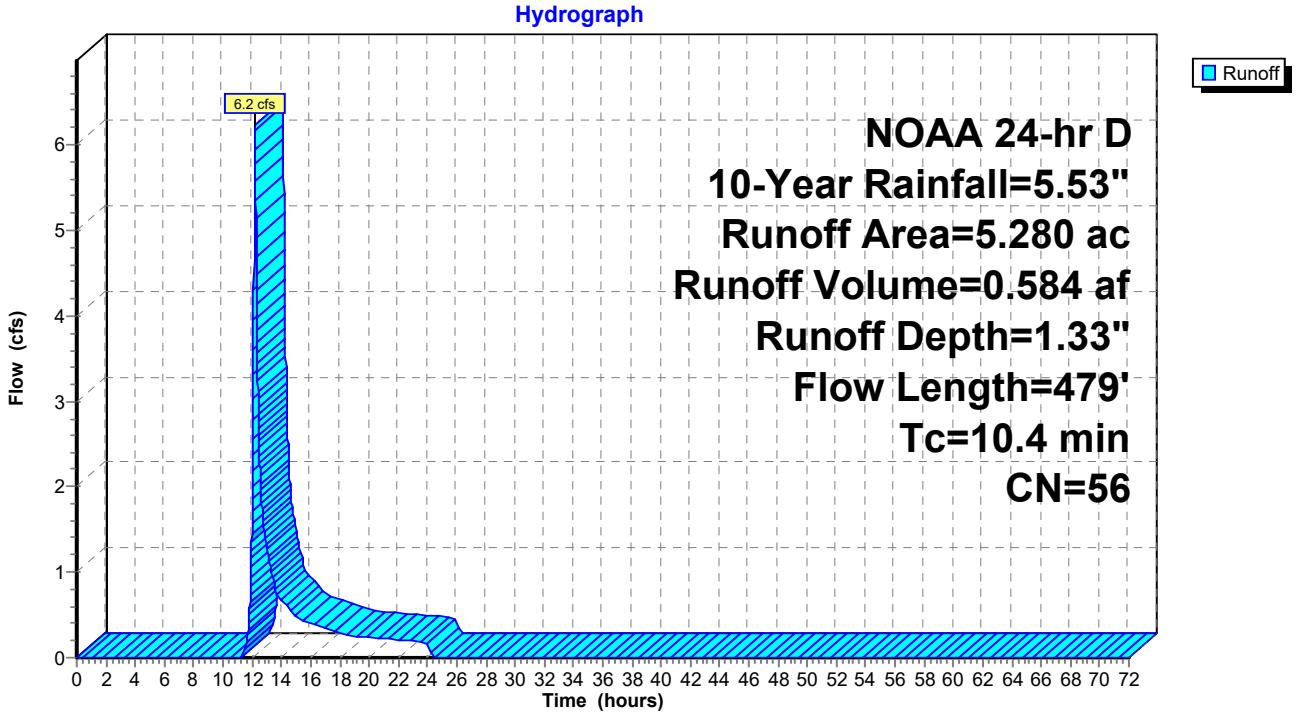
Runoff = 6.2 cfs @ 12.19 hrs, Volume= 0.584 af, Depth= 1.33"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
5.080	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
5.280	56	Weighted Average
5.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.2570	0.22		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
2.6	345	0.1913	2.19		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	34	0.1176	1.71		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
10.4	479	Total			

Subcatchment EDA-1: Off-Site Wetlands



Summary for Subcatchment EDA-2: Off-Site West

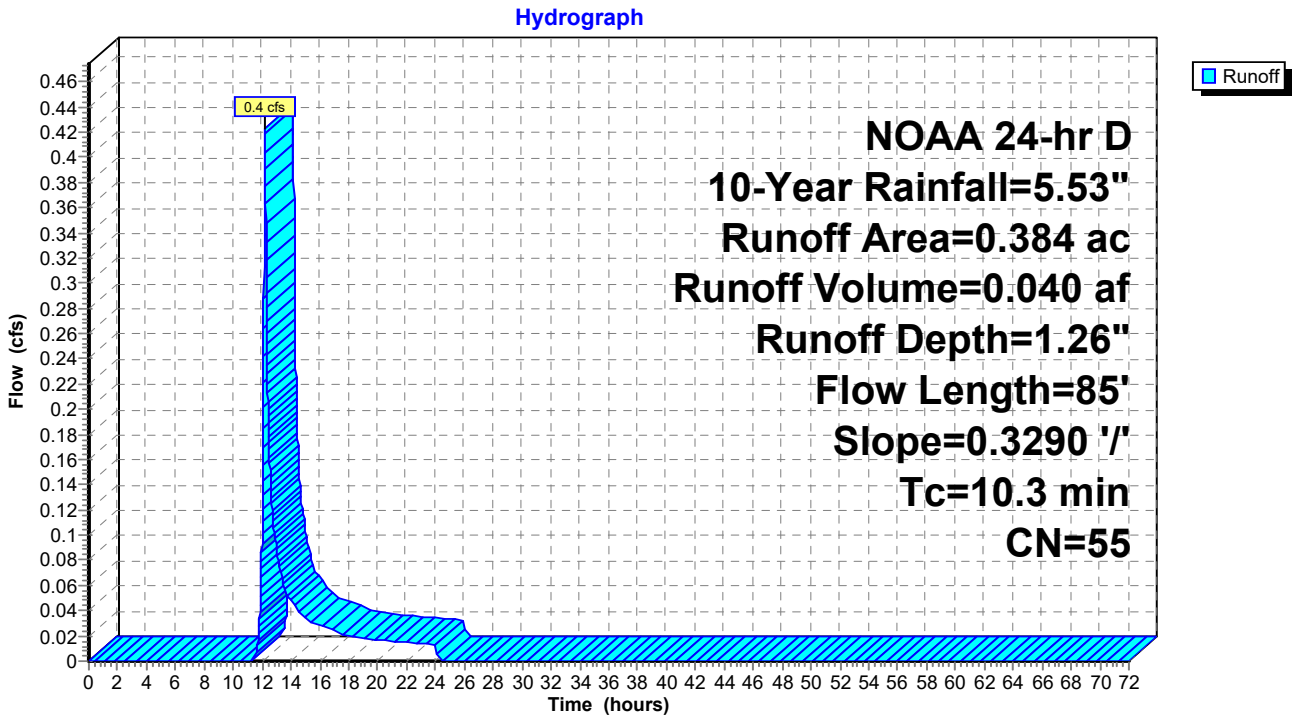
Runoff = 0.4 cfs @ 12.19 hrs, Volume= 0.040 af, Depth= 1.26"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
0.384	55	Woods, Good, HSG B
0.384		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment EDA-2: Off-Site West



Summary for Subcatchment EDA-3: State R.O.W.

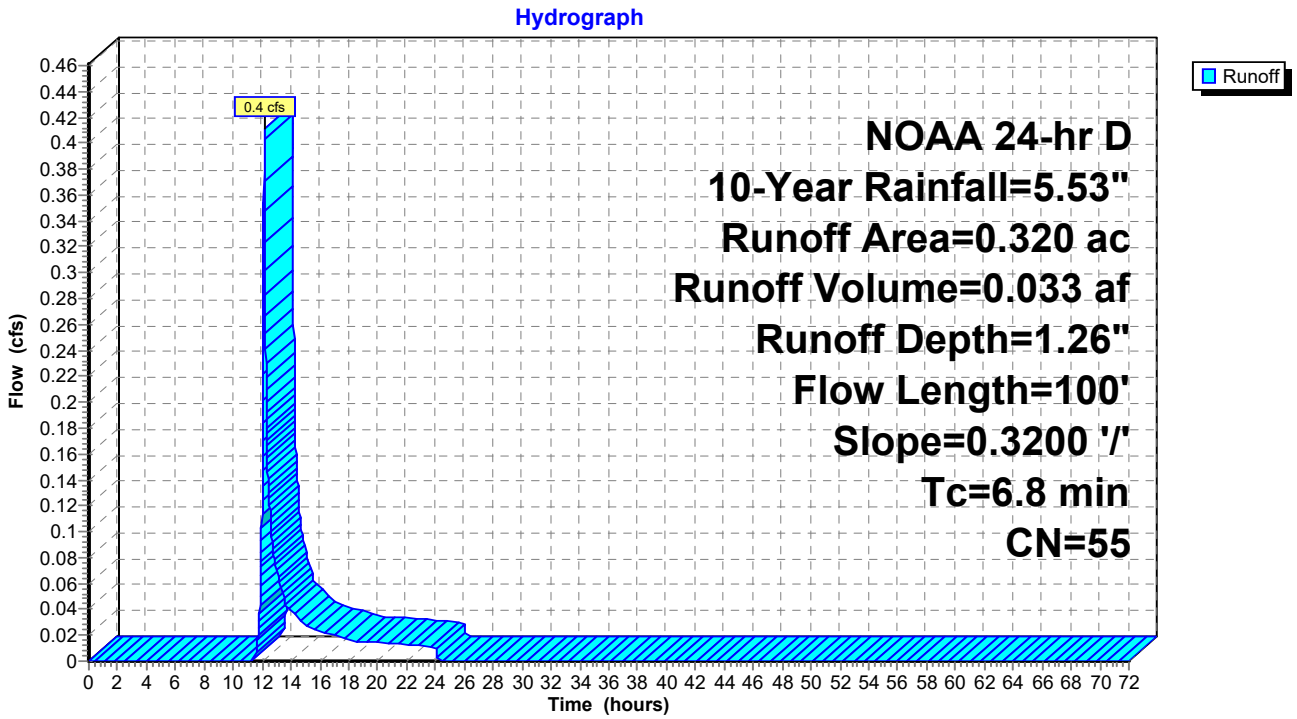
Runoff = 0.4 cfs @ 12.15 hrs, Volume= 0.033 af, Depth= 1.26"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
0.320	55	Woods, Good, HSG B
0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3200	0.24		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"

Subcatchment EDA-3: State R.O.W.



Summary for Subcatchment PDA-1A: Proposed Development

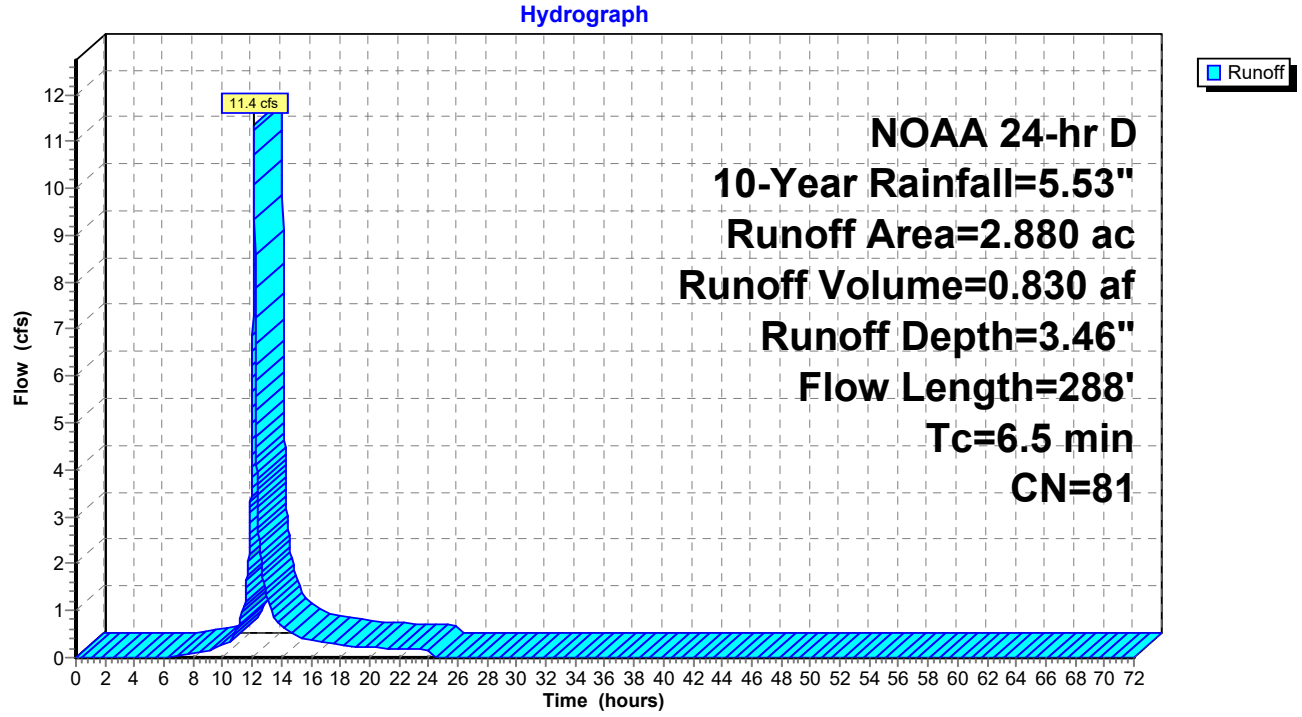
Runoff = 11.4 cfs @ 12.14 hrs, Volume= 0.830 af, Depth= 3.46"
Routed to Pond UG-1 : Stacked 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
1.650	98	Paved parking, HSG C
0.810	61	>75% Grass cover, Good, HSG B
0.420	55	Woods, Good, HSG B
2.880	81	Weighted Average
1.230		42.71% Pervious Area
1.650		57.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	74	0.3108	0.23		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
0.8	162	0.0308	3.56		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	52	0.1650	2.84		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
6.5	288	Total			

Subcatchment PDA-1A: Proposed Development



Summary for Subcatchment PDA-1B: Drive

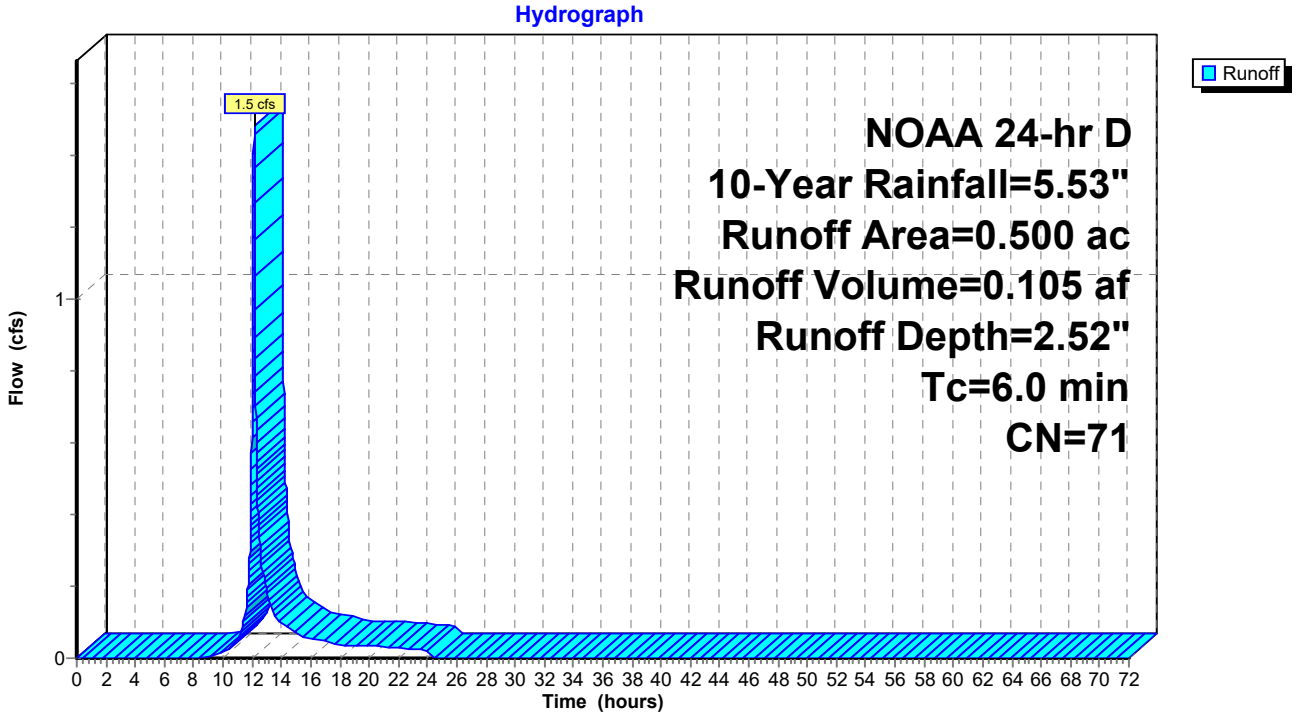
Runoff = 1.5 cfs @ 12.13 hrs, Volume= 0.105 af, Depth= 2.52"
Routed to Pond UG-2 : 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.360	61	>75% Grass cover, Good, HSG B
0.500	71	Weighted Average
0.360		72.00% Pervious Area
0.140		28.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-1B: Drive



Summary for Subcatchment PDA-1C: Off-Site Wetlands

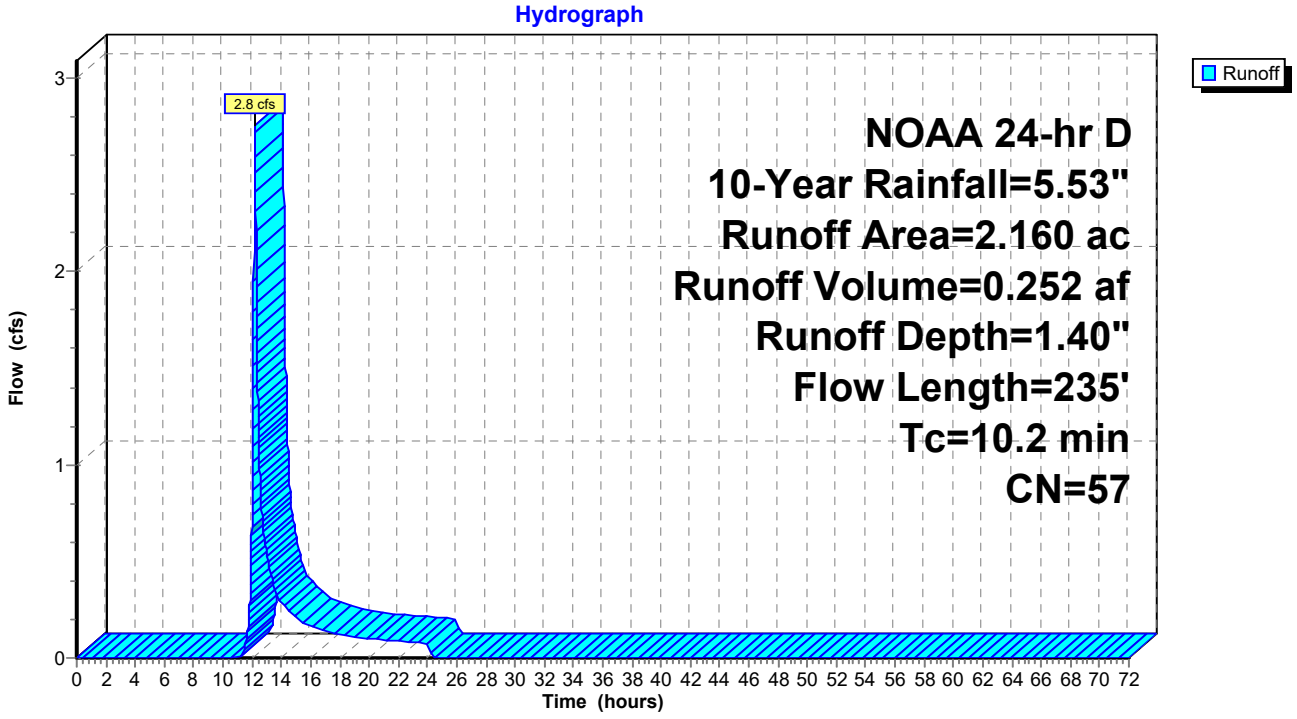
Runoff = 2.8 cfs @ 12.19 hrs, Volume= 0.252 af, Depth= 1.40"
Routed to Link PDA-1 : Off Site Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
0.090	61	>75% Grass cover, Good, HSG B
1.870	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
2.160	57	Weighted Average
2.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	65	0.1690	0.17		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
3.1	35	0.2860	0.19		**Sheet Flow, B-C** Woods: Light underbrush n= 0.400 P2= 3.44"
0.9	135	0.2670	2.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.2	235	Total			

Subcatchment PDA-1C: Off-Site Wetlands



Summary for Subcatchment PDA-2: Off-Site West

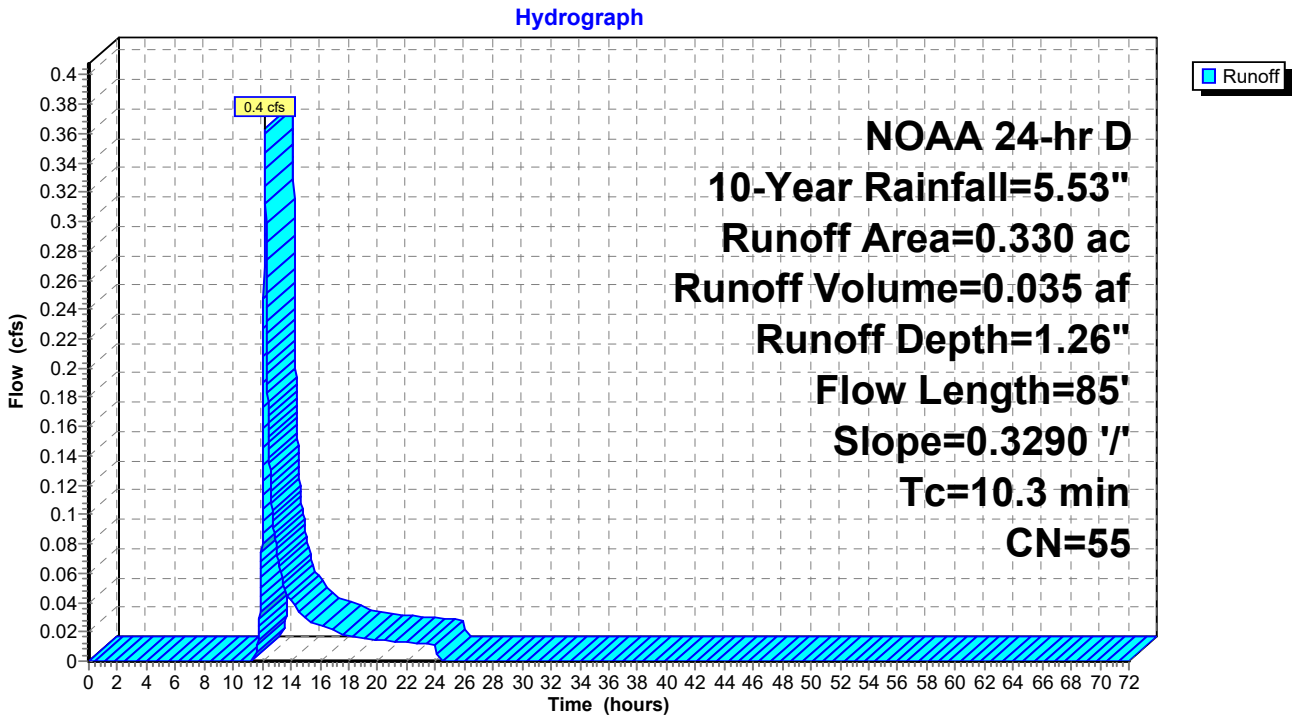
Runoff = 0.4 cfs @ 12.19 hrs, Volume= 0.035 af, Depth= 1.26"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
0.330	55	Woods, Good, HSG B
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment PDA-2: Off-Site West



Summary for Subcatchment PDA-3: State R.O.W.

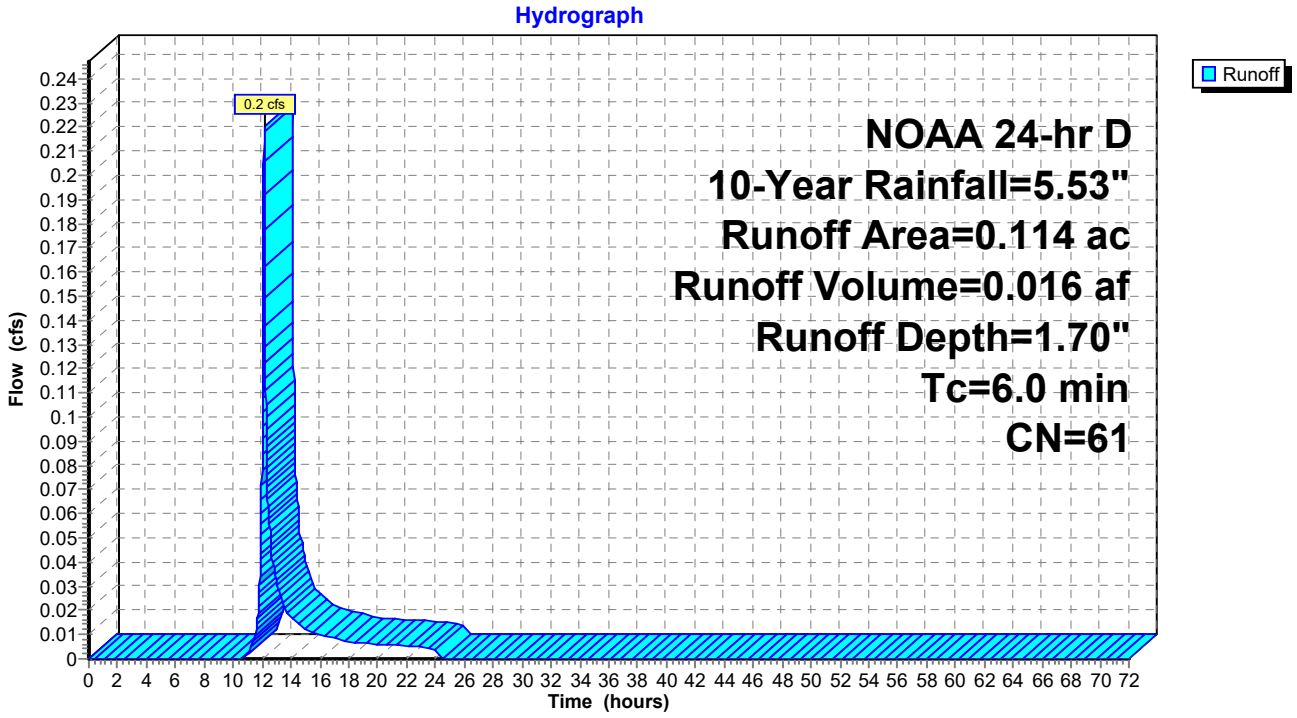
Runoff = 0.2 cfs @ 12.14 hrs, Volume= 0.016 af, Depth= 1.70"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.53"

Area (ac)	CN	Description
0.114	61	>75% Grass cover, Good, HSG B
0.114		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-3: State R.O.W.



Summary for Pond UG-1: Stacked 5' Retain-It

Inflow Area = 2.880 ac, 57.29% Impervious, Inflow Depth = 3.46" for 10-Year event
Inflow = 11.4 cfs @ 12.14 hrs, Volume= 0.830 af
Outflow = 0.3 cfs @ 17.09 hrs, Volume= 0.830 af, Atten= 97%, Lag= 297.0 min
Discarded = 0.3 cfs @ 17.09 hrs, Volume= 0.744 af
Primary = 0.1 cfs @ 17.09 hrs, Volume= 0.086 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 288.39' @ 17.09 hrs Surf.Area= 0.176 ac Storage= 0.555 af

Plug-Flow detention time= 993.5 min calculated for 0.830 af (100% of inflow)
Center-of-Mass det. time= 993.5 min (1,817.1 - 823.6)

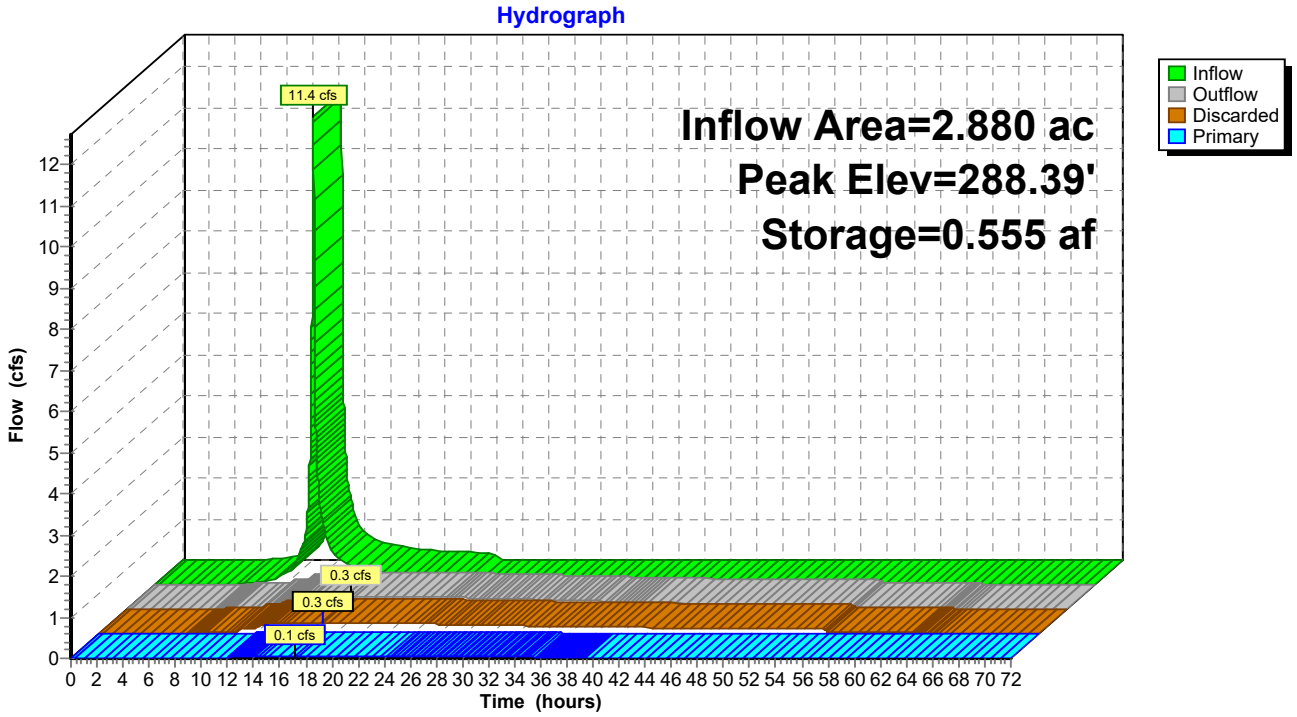
Volume	Invert	Avail.Storage	Storage Description
#1	282.50'	0.999 af	**32.00'W x 120.00'L x 11.33'H Stacked Retain-It 5'**
#2	281.50'	0.035 af	**32.00'W x 120.00'L x 1.00'H Stone Base** 0.088 af Overall x 40.0% Voids
		1.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	282.50'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 282.50' / 278.00' S= 0.1125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	284.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	290.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.50'	**4.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#5	Discarded	281.50'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 278.50'

Discarded OutFlow Max=0.3 cfs @ 17.09 hrs HW=288.39' (Free Discharge)
└─**5=Exfiltration** (Controls 0.3 cfs)

Primary OutFlow Max=0.1 cfs @ 17.09 hrs HW=288.39' (Free Discharge)
└─**1=Culvert** (Passes 0.1 cfs of 8.8 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 9.45 fps)
  ├─**3=Orifice/Grate** (Controls 0.0 cfs)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond UG-1: Stacked 5' Retain-It



Stage-Discharge for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
281.50	0.0	0.0	0.0
281.70	0.0	0.0	0.0
281.90	0.1	0.1	0.0
282.10	0.1	0.1	0.0
282.30	0.1	0.1	0.0
282.50	0.1	0.1	0.0
282.70	0.1	0.1	0.0
282.90	0.1	0.1	0.0
283.10	0.1	0.1	0.0
283.30	0.1	0.1	0.0
283.50	0.1	0.1	0.0
283.70	0.1	0.1	0.0
283.90	0.1	0.1	0.0
284.10	0.1	0.1	0.0
284.30	0.2	0.2	0.0
284.50	0.2	0.2	0.0
284.70	0.2	0.2	0.0
284.90	0.2	0.2	0.0
285.10	0.2	0.2	0.0
285.30	0.2	0.2	0.0
285.50	0.2	0.2	0.0
285.70	0.2	0.2	0.0
285.90	0.2	0.2	0.0
286.10	0.2	0.2	0.0
286.30	0.2	0.2	0.0
286.50	0.2	0.2	0.0
286.70	0.3	0.2	0.0
286.90	0.3	0.2	0.0
287.10	0.3	0.2	0.0
287.30	0.3	0.2	0.0
287.50	0.3	0.2	0.0
287.70	0.3	0.2	0.0
287.90	0.3	0.3	0.0
288.10	0.3	0.3	0.0
288.30	0.3	0.3	0.1
288.50	0.3	0.3	0.1
288.70	0.3	0.3	0.1
288.90	0.3	0.3	0.1
289.10	0.3	0.3	0.1
289.30	0.3	0.3	0.1
289.50	0.4	0.3	0.1
289.70	0.4	0.3	0.1
289.90	0.4	0.3	0.1
290.10	0.4	0.3	0.1
290.30	0.4	0.3	0.1
290.50	0.4	0.3	0.1
290.70	0.5	0.3	0.2
290.90	0.8	0.3	0.4
291.10	1.0	0.3	0.6
291.30	1.1	0.3	0.8
291.50	1.2	0.3	0.9
291.70	2.3	0.4	2.0
291.90	4.3	0.4	3.9
292.10	7.0	0.4	6.6
292.30	10.5	0.4	10.1
292.50	12.0	0.4	11.7
292.70	12.2	0.4	11.8
292.90	12.3	0.4	11.9
293.10	12.4	0.4	12.0
293.30	12.5	0.4	12.1
293.50	12.7	0.4	12.3
293.70	**12.8**	**0.4**	**12.4**

Stage-Area-Storage for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Surface (acres)	Storage (acre-feet)
281.50	0.088	0.000
281.70	0.088	0.007
281.90	0.088	0.014
282.10	0.088	0.021
282.30	0.088	0.028
282.50	**0.176**	0.035
282.70	0.176	0.053
282.90	0.176	0.071
283.10	0.176	0.088
283.30	0.176	0.106
283.50	0.176	0.123
283.70	0.176	0.141
283.90	0.176	0.159
284.10	0.176	0.176
284.30	0.176	0.194
284.50	0.176	0.212
284.70	0.176	0.229
284.90	0.176	0.247
285.10	0.176	0.264
285.30	0.176	0.282
285.50	0.176	0.300
285.70	0.176	0.317
285.90	0.176	0.335
286.10	0.176	0.353
286.30	0.176	0.370
286.50	0.176	0.388
286.70	0.176	0.406
286.90	0.176	0.423
287.10	0.176	0.441
287.30	0.176	0.458
287.50	0.176	0.476
287.70	0.176	0.494
287.90	0.176	0.511
288.10	0.176	0.529
288.30	0.176	0.547
288.50	0.176	0.564
288.70	0.176	0.582
288.90	0.176	0.599
289.10	0.176	0.617
289.30	0.176	0.635
289.50	0.176	0.652
289.70	0.176	0.670
289.90	0.176	0.688
290.10	0.176	0.705
290.30	0.176	0.723
290.50	0.176	0.740
290.70	0.176	0.758
290.90	0.176	0.776
291.10	0.176	0.793
291.30	0.176	0.811
291.50	0.176	0.829
291.70	0.176	0.846
291.90	0.176	0.864
292.10	0.176	0.882
292.30	0.176	0.899
292.50	0.176	0.917
292.70	0.176	0.934
292.90	0.176	0.952
293.10	0.176	0.970
293.30	0.176	0.987
293.50	0.176	1.005
293.70	0.176	**1.023**

Summary for Pond UG-2: 5' Retain-It

Inflow Area = 0.500 ac, 28.00% Impervious, Inflow Depth = 2.52" for 10-Year event
Inflow = 1.5 cfs @ 12.13 hrs, Volume= 0.105 af
Outflow = 0.7 cfs @ 12.26 hrs, Volume= 0.105 af, Atten= 56%, Lag= 7.8 min
Discarded = 0.0 cfs @ 12.26 hrs, Volume= 0.046 af
Primary = 0.6 cfs @ 12.26 hrs, Volume= 0.059 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 273.63' @ 12.26 hrs Surf.Area= 0.009 ac Storage= 0.036 af

Plug-Flow detention time= 599.2 min calculated for 0.105 af (100% of inflow)
Center-of-Mass det. time= 599.5 min (1,450.3 - 850.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	268.33'	0.004 af	**16.00'W x 24.00'L x 6.67'H Field A** 0.059 af Overall - 0.050 af Embedded = 0.009 af x 40.0% Voids
#2A	269.33'	0.038 af	**retain_it retain_it 5.0'** x 6 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 2 Rows adjusted for 103.9 cf perimeter wall
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.10'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.10' / 273.10' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	268.33'	**0.520 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 265.50'

Discarded OutFlow Max=0.0 cfs @ 12.26 hrs HW=273.63' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.0 cfs)

Primary OutFlow Max=0.6 cfs @ 12.26 hrs HW=273.63' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.6 cfs @ 2.21 fps)

Pond UG-2: 5' Retain-It - Chamber Wizard Field A

Chamber Model = retain_it retain_it 5.0' (retain-it®)
Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf
Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf
2 Rows adjusted for 103.9 cf perimeter wall

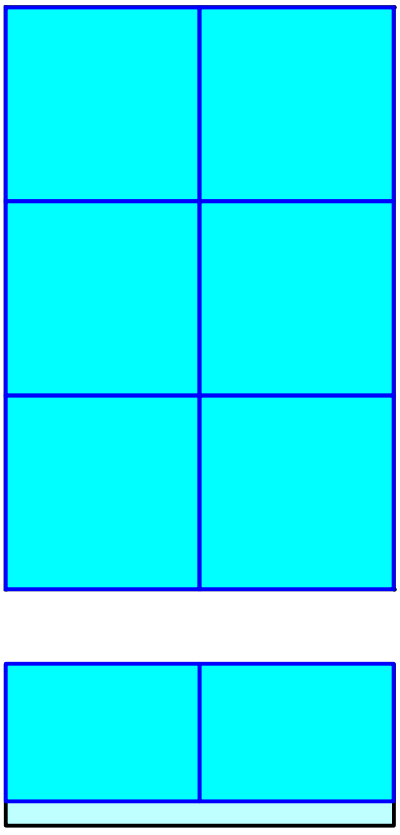
3 Chambers/Row x 8.00' Long = 24.00' Row Length
2 Rows x 96.0" Wide = 16.00' Base Width
12.0" Stone Base + 68.0" Chamber Height = 6.67' Field Height

10.4 cf Sidewall x 3 x 2 + 10.4 cf Endwall x 2 x 2 = 103.9 cf Perimeter Wall
6 Chambers x 291.3 cf - 103.9 cf Perimeter wall = 1,643.8 cf Chamber Storage
6 Chambers x 362.7 cf = 2,176.0 cf Displacement

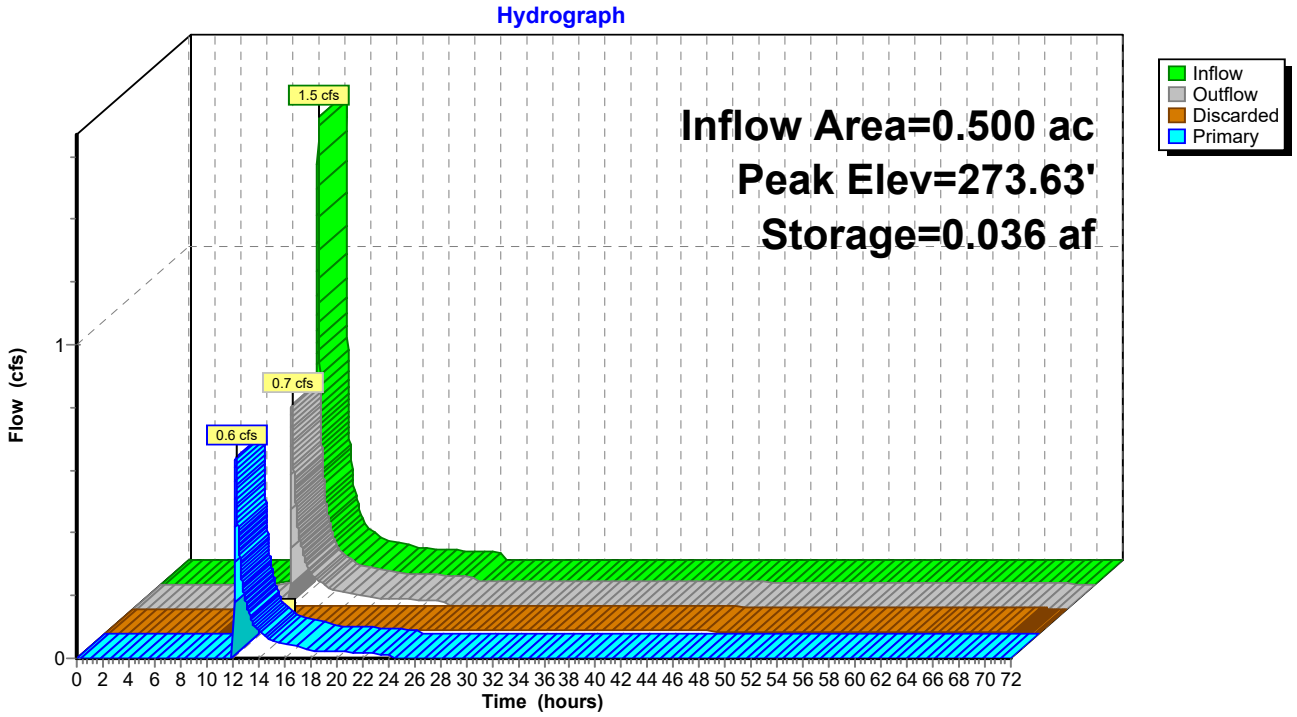
2,560.0 cf Field - 2,176.0 cf Chambers = 384.0 cf Stone x 40.0% Voids = 153.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,797.4 cf = 0.041 af
Overall Storage Efficiency = 70.2%
Overall System Size = 24.00' x 16.00' x 6.67'

6 Chambers
94.8 cy Field
14.2 cy Stone



Pond UG-2: 5' Retain-It



Stage-Discharge for Pond UG-2: 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
268.33	0.0	0.0	0.0
268.43	0.0	0.0	0.0
268.53	0.0	0.0	0.0
268.63	0.0	0.0	0.0
268.73	0.0	0.0	0.0
268.83	0.0	0.0	0.0
268.93	0.0	0.0	0.0
269.03	0.0	0.0	0.0
269.13	0.0	0.0	0.0
269.23	0.0	0.0	0.0
269.33	0.0	0.0	0.0
269.43	0.0	0.0	0.0
269.53	0.0	0.0	0.0
269.63	0.0	0.0	0.0
269.73	0.0	0.0	0.0
269.83	0.0	0.0	0.0
269.93	0.0	0.0	0.0
270.03	0.0	0.0	0.0
270.13	0.0	0.0	0.0
270.23	0.0	0.0	0.0
270.33	0.0	0.0	0.0
270.43	0.0	0.0	0.0
270.53	0.0	0.0	0.0
270.63	0.0	0.0	0.0
270.73	0.0	0.0	0.0
270.83	0.0	0.0	0.0
270.93	0.0	0.0	0.0
271.03	0.0	0.0	0.0
271.13	0.0	0.0	0.0
271.23	0.0	0.0	0.0
271.33	0.0	0.0	0.0
271.43	0.0	0.0	0.0
271.53	0.0	0.0	0.0
271.63	0.0	0.0	0.0
271.73	0.0	0.0	0.0
271.83	0.0	0.0	0.0
271.93	0.0	0.0	0.0
272.03	0.0	0.0	0.0
272.13	0.0	0.0	0.0
272.23	0.0	0.0	0.0
272.33	0.0	0.0	0.0
272.43	0.0	0.0	0.0
272.53	0.0	0.0	0.0
272.63	0.0	0.0	0.0
272.73	0.0	0.0	0.0
272.83	0.0	0.0	0.0
272.93	0.0	0.0	0.0
273.03	0.0	0.0	0.0
273.13	0.0	0.0	0.0
273.23	0.0	0.0	0.0
273.33	0.1	0.0	0.1
273.43	0.3	0.0	0.3
273.53	0.4	0.0	0.4
273.63	0.7	0.0	0.6
273.73	0.9	0.0	0.9
273.83	1.2	0.0	1.2
273.93	1.5	0.0	1.5
274.03	1.8	0.0	1.8
274.13	2.1	0.0	2.1
274.23	2.4	0.0	2.4
274.33	2.6	0.0	2.6
274.43	2.8	0.0	2.8
274.53	3.2	0.0	3.2
274.63	3.5	0.0	3.5
274.73	3.9	0.0	3.9
274.83	4.2	0.0	4.1
274.93	**4.4**	**0.0**	**4.4**

Stage-Area-Storage for Pond UG-2: 5' Retain-It

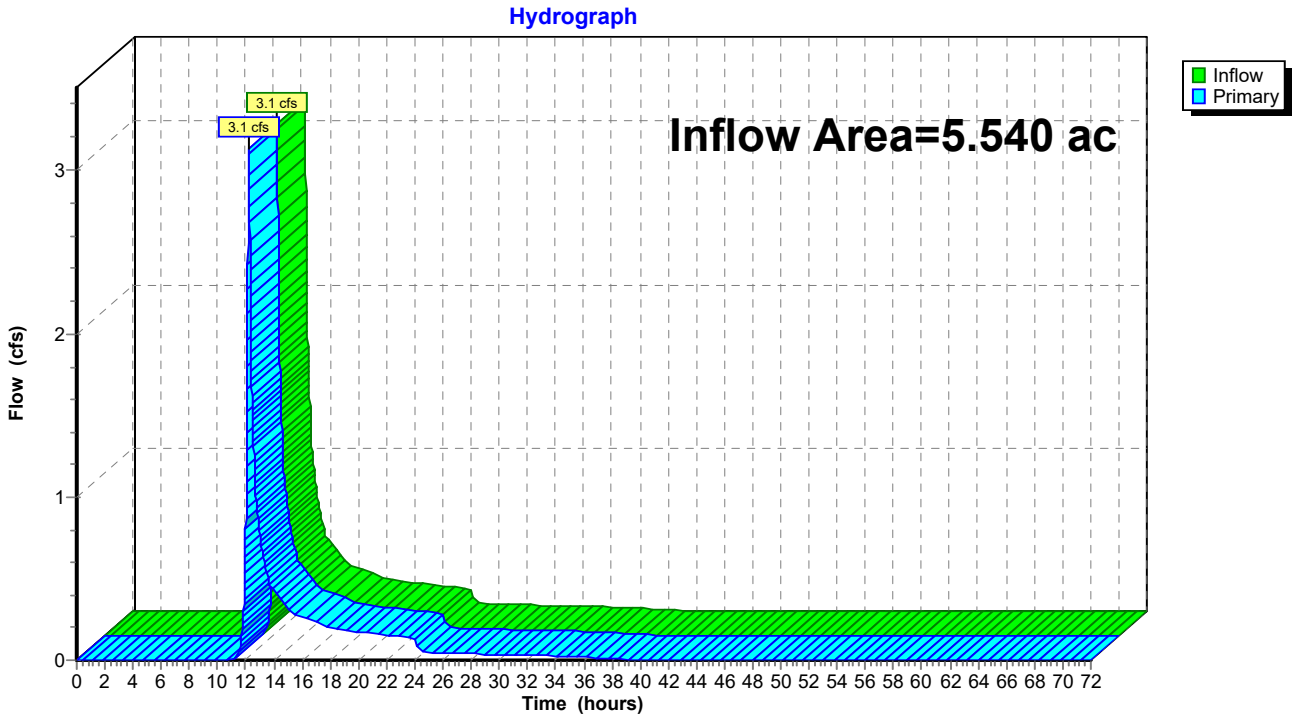
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
268.33	**0.009**	0.000
268.43	0.009	0.000
268.53	0.009	0.001
268.63	0.009	0.001
268.73	0.009	0.001
268.83	0.009	0.002
268.93	0.009	0.002
269.03	0.009	0.002
269.13	0.009	0.003
269.23	0.009	0.003
269.33	0.009	0.004
269.43	0.009	0.004
269.53	0.009	0.005
269.63	0.009	0.006
269.73	0.009	0.007
269.83	0.009	0.007
269.93	0.009	0.008
270.03	0.009	0.009
270.13	0.009	0.010
270.23	0.009	0.010
270.33	0.009	0.011
270.43	0.009	0.012
270.53	0.009	0.013
270.63	0.009	0.013
270.73	0.009	0.014
270.83	0.009	0.015
270.93	0.009	0.016
271.03	0.009	0.016
271.13	0.009	0.017
271.23	0.009	0.018
271.33	0.009	0.019
271.43	0.009	0.019
271.53	0.009	0.020
271.63	0.009	0.021
271.73	0.009	0.022
271.83	0.009	0.022
271.93	0.009	0.023
272.03	0.009	0.024
272.13	0.009	0.025
272.23	0.009	0.025
272.33	0.009	0.026
272.43	0.009	0.027
272.53	0.009	0.028
272.63	0.009	0.028
272.73	0.009	0.029
272.83	0.009	0.030
272.93	0.009	0.031
273.03	0.009	0.031
273.13	0.009	0.032
273.23	0.009	0.033
273.33	0.009	0.034
273.43	0.009	0.034
273.53	0.009	0.035
273.63	0.009	0.036
273.73	0.009	0.037
273.83	0.009	0.037
273.93	0.009	0.038
274.03	0.009	0.039
274.13	0.009	0.040
274.23	0.009	0.041
274.33	0.009	0.041
274.43	0.009	0.041
274.53	0.009	0.041
274.63	0.009	0.041
274.73	0.009	0.041
274.83	0.009	0.041
274.93	0.009	**0.041**

Summary for Link PDA-1: Off Site Wetlands

Inflow Area = 5.540 ac, 32.31% Impervious, Inflow Depth = 0.86" for 10-Year event
Inflow = 3.1 cfs @ 12.22 hrs, Volume= 0.396 af
Primary = 3.1 cfs @ 12.22 hrs, Volume= 0.396 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link PDA-1: Off Site Wetlands



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EDA-1: Off-Site Wetlands Runoff Area=5.280 ac 0.00% Impervious Runoff Depth=2.04"
Flow Length=479' Tc=10.4 min CN=56 Runoff=10.2 cfs 0.900 af

Subcatchment EDA-2: Off-Site West Runoff Area=0.384 ac 0.00% Impervious Runoff Depth=1.95"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.7 cfs 0.063 af

Subcatchment EDA-3: State R.O.W. Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=1.95"
Flow Length=100' Slope=0.3200 '/' Tc=6.8 min CN=55 Runoff=0.7 cfs 0.052 af

Subcatchment PDA-1A: Proposed Runoff Area=2.880 ac 57.29% Impervious Runoff Depth=4.55"
Flow Length=288' Tc=6.5 min CN=81 Runoff=14.8 cfs 1.093 af

Subcatchment PDA-1B: Drive Runoff Area=0.500 ac 28.00% Impervious Runoff Depth=3.50"
Tc=6.0 min CN=71 Runoff=2.1 cfs 0.146 af

Subcatchment PDA-1C: Off-Site Wetlands Runoff Area=2.160 ac 0.00% Impervious Runoff Depth=2.14"
Flow Length=235' Tc=10.2 min CN=57 Runoff=4.4 cfs 0.384 af

Subcatchment PDA-2: Off-Site West Runoff Area=0.330 ac 0.00% Impervious Runoff Depth=1.95"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.6 cfs 0.054 af

Subcatchment PDA-3: State R.O.W. Runoff Area=0.114 ac 0.00% Impervious Runoff Depth=2.51"
Tc=6.0 min CN=61 Runoff=0.3 cfs 0.024 af

Pond UG-1: Stacked 5' Retain-It Peak Elev=290.57' Storage=0.746 af Inflow=14.8 cfs 1.093 af
Discarded=0.3 cfs 0.960 af Primary=0.1 cfs 0.132 af Outflow=0.4 cfs 1.093 af

Pond UG-2: 5' Retain-It Peak Elev=274.05' Storage=0.039 af Inflow=2.1 cfs 0.146 af
Discarded=0.0 cfs 0.047 af Primary=1.8 cfs 0.099 af Outflow=1.8 cfs 0.146 af

Link PDA-1: Off Site Wetlands Inflow=6.3 cfs 0.615 af
Primary=6.3 cfs 0.615 af

Summary for Subcatchment EDA-1: Off-Site Wetlands

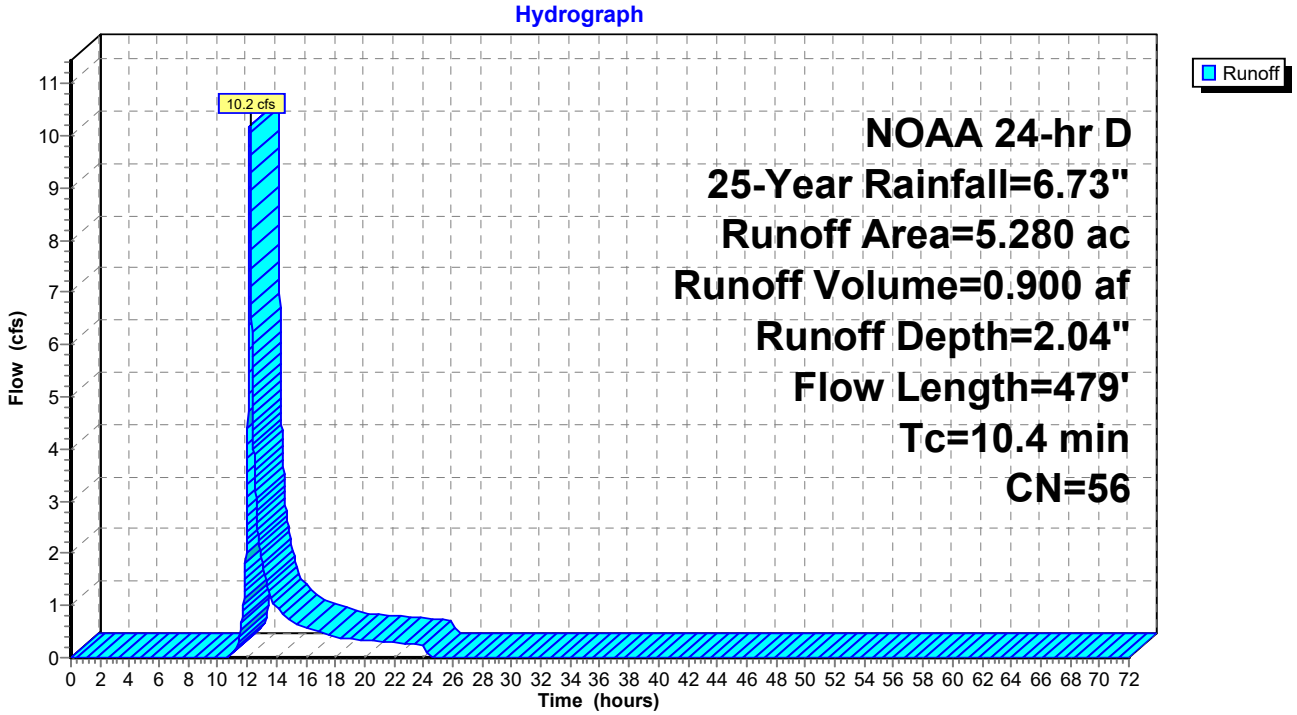
Runoff = 10.2 cfs @ 12.19 hrs, Volume= 0.900 af, Depth= 2.04"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
5.080	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
5.280	56	Weighted Average
5.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.2570	0.22		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
2.6	345	0.1913	2.19		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	34	0.1176	1.71		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
10.4	479	Total			

Subcatchment EDA-1: Off-Site Wetlands



Summary for Subcatchment EDA-2: Off-Site West

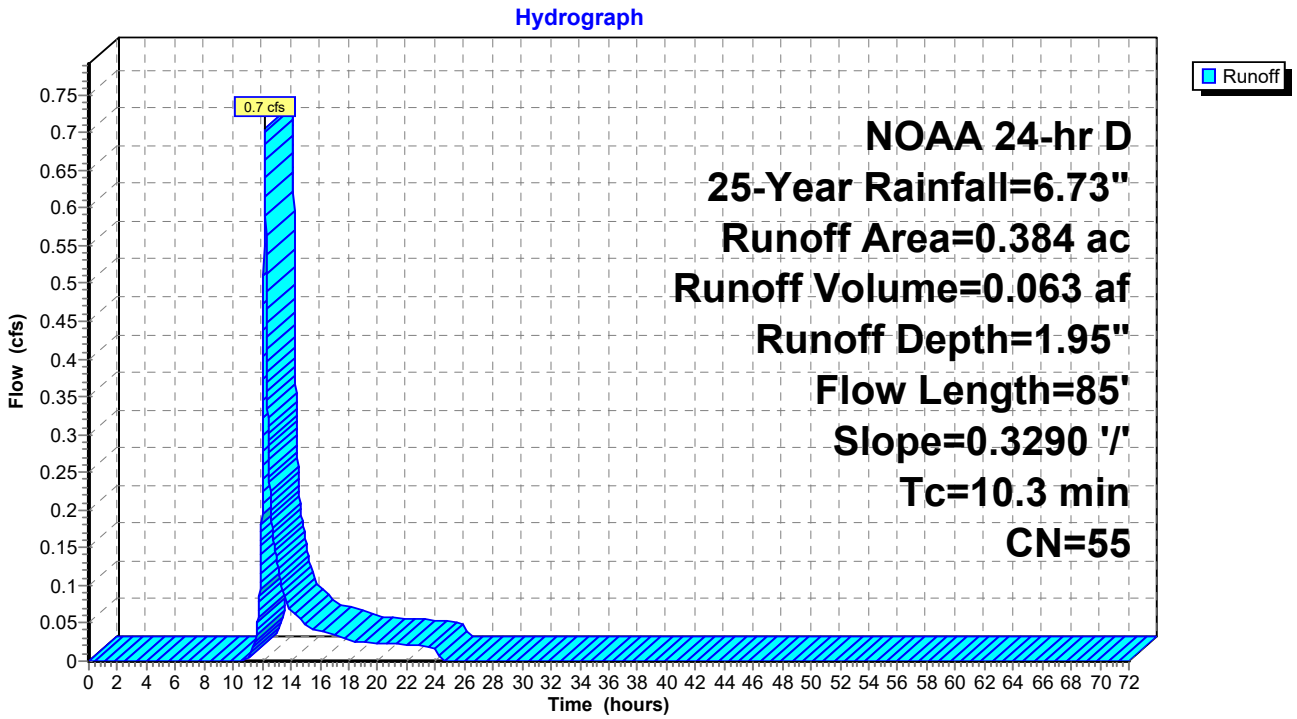
Runoff = 0.7 cfs @ 12.19 hrs, Volume= 0.063 af, Depth= 1.95"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
0.384	55	Woods, Good, HSG B
0.384		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment EDA-2: Off-Site West



Summary for Subcatchment EDA-3: State R.O.W.

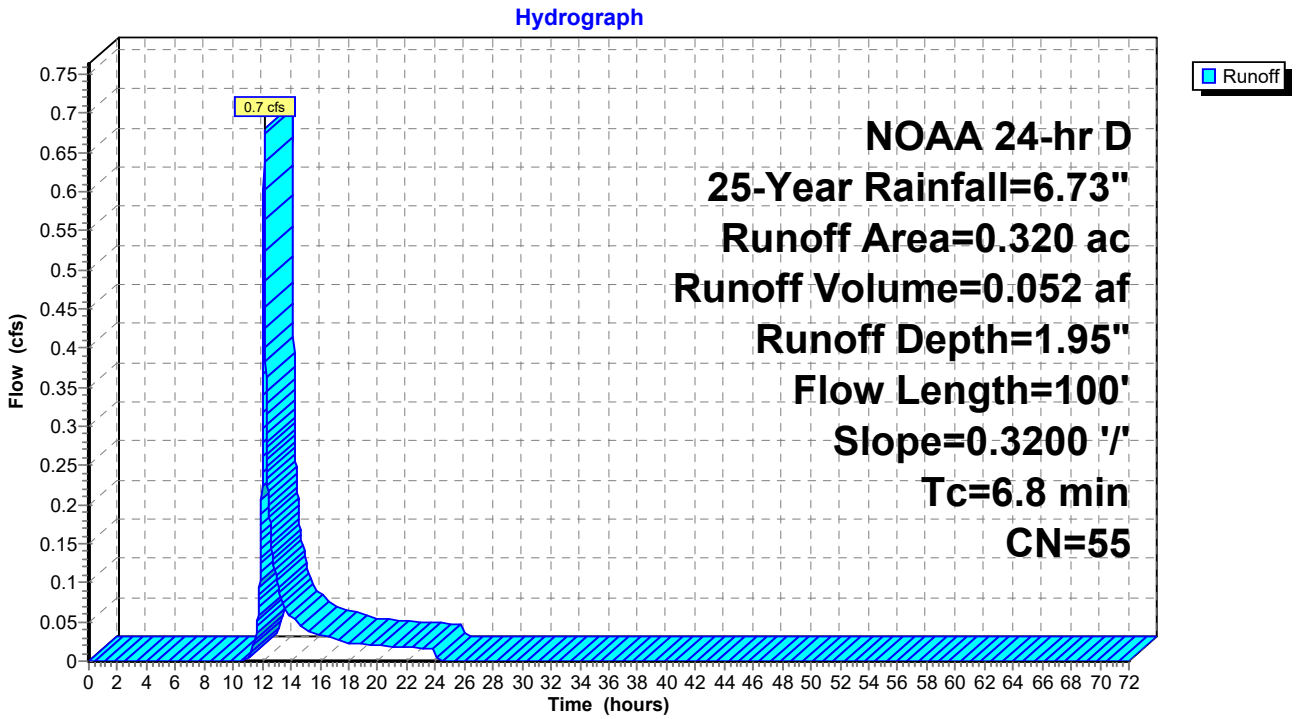
Runoff = 0.7 cfs @ 12.15 hrs, Volume= 0.052 af, Depth= 1.95"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
0.320	55	Woods, Good, HSG B
0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3200	0.24		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"

Subcatchment EDA-3: State R.O.W.



Summary for Subcatchment PDA-1A: Proposed Development

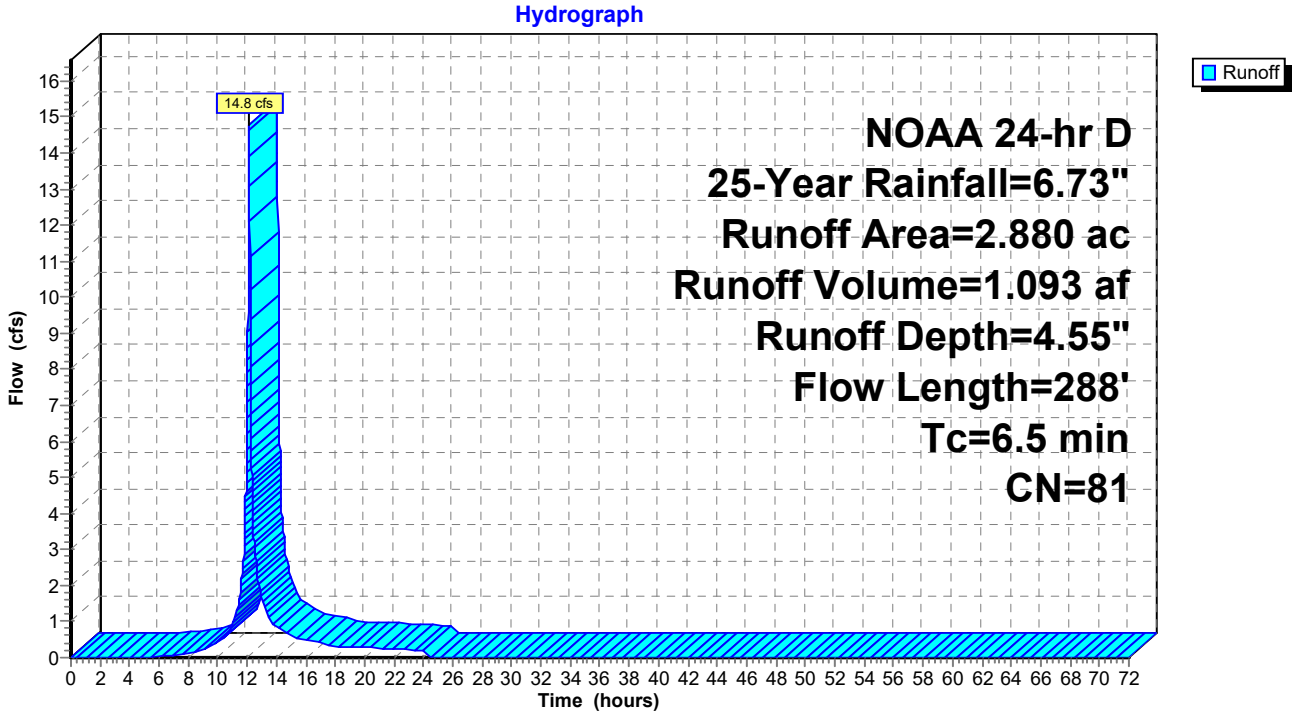
Runoff = 14.8 cfs @ 12.14 hrs, Volume= 1.093 af, Depth= 4.55"
Routed to Pond UG-1 : Stacked 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
1.650	98	Paved parking, HSG C
0.810	61	>75% Grass cover, Good, HSG B
0.420	55	Woods, Good, HSG B
2.880	81	Weighted Average
1.230		42.71% Pervious Area
1.650		57.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	74	0.3108	0.23		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
0.8	162	0.0308	3.56		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	52	0.1650	2.84		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
6.5	288	Total			

Subcatchment PDA-1A: Proposed Development



Summary for Subcatchment PDA-1B: Drive

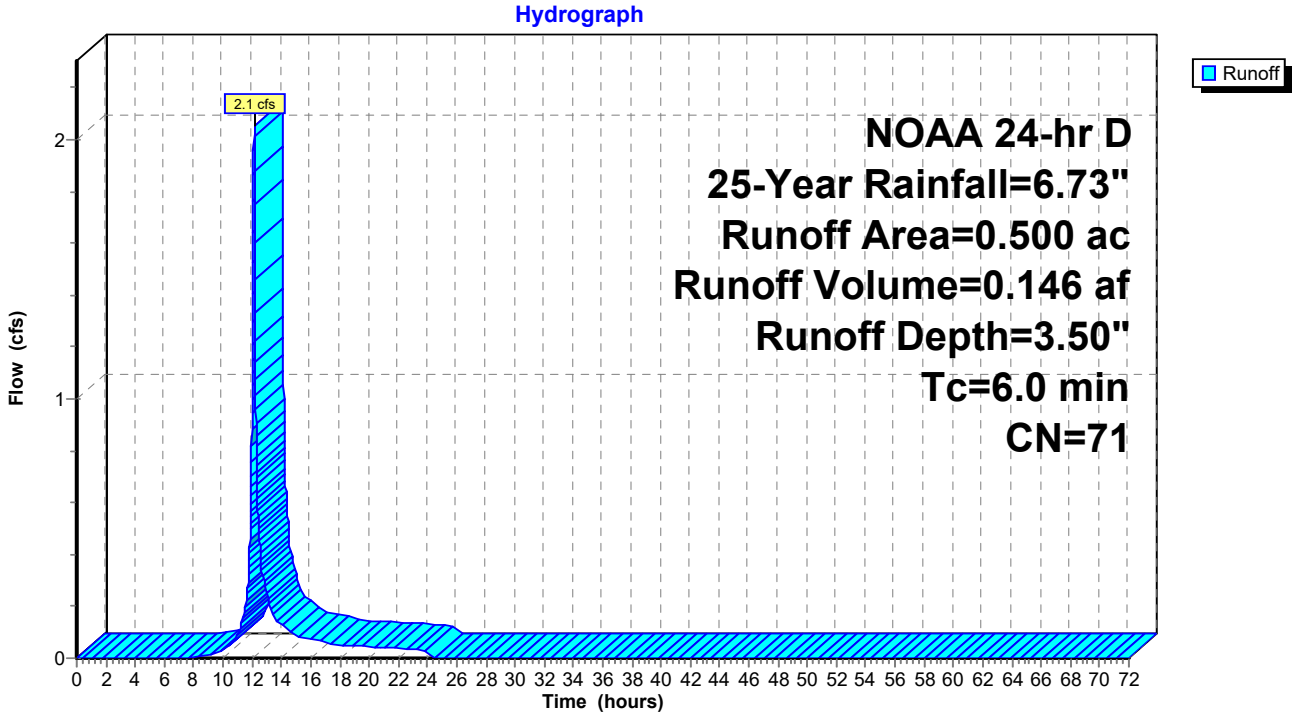
Runoff = 2.1 cfs @ 12.13 hrs, Volume= 0.146 af, Depth= 3.50"
Routed to Pond UG-2 : 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.360	61	>75% Grass cover, Good, HSG B
0.500	71	Weighted Average
0.360		72.00% Pervious Area
0.140		28.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-1B: Drive



Summary for Subcatchment PDA-1C: Off-Site Wetlands

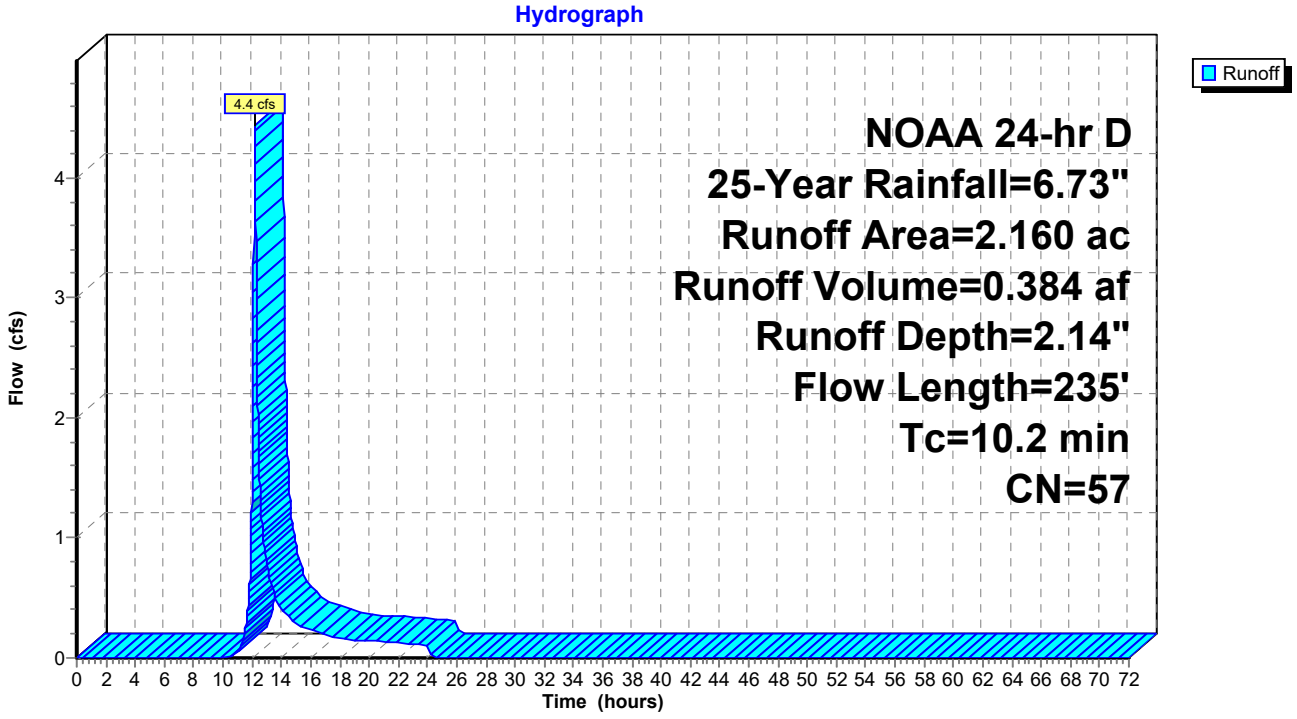
Runoff = 4.4 cfs @ 12.18 hrs, Volume= 0.384 af, Depth= 2.14"
Routed to Link PDA-1 : Off Site Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
0.090	61	>75% Grass cover, Good, HSG B
1.870	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
2.160	57	Weighted Average
2.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	65	0.1690	0.17		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
3.1	35	0.2860	0.19		**Sheet Flow, B-C** Woods: Light underbrush n= 0.400 P2= 3.44"
0.9	135	0.2670	2.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.2	235	Total			

Subcatchment PDA-1C: Off-Site Wetlands



Summary for Subcatchment PDA-2: Off-Site West

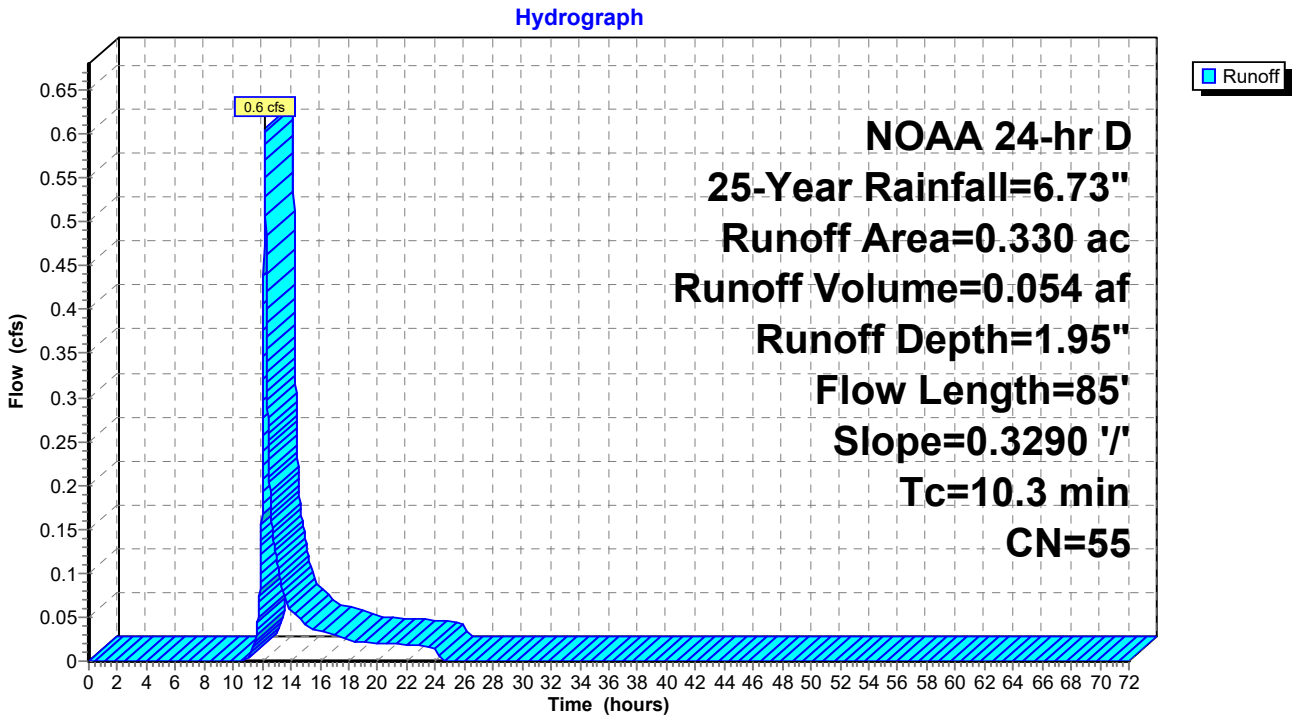
Runoff = 0.6 cfs @ 12.19 hrs, Volume= 0.054 af, Depth= 1.95"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
0.330	55	Woods, Good, HSG B
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment PDA-2: Off-Site West



Summary for Subcatchment PDA-3: State R.O.W.

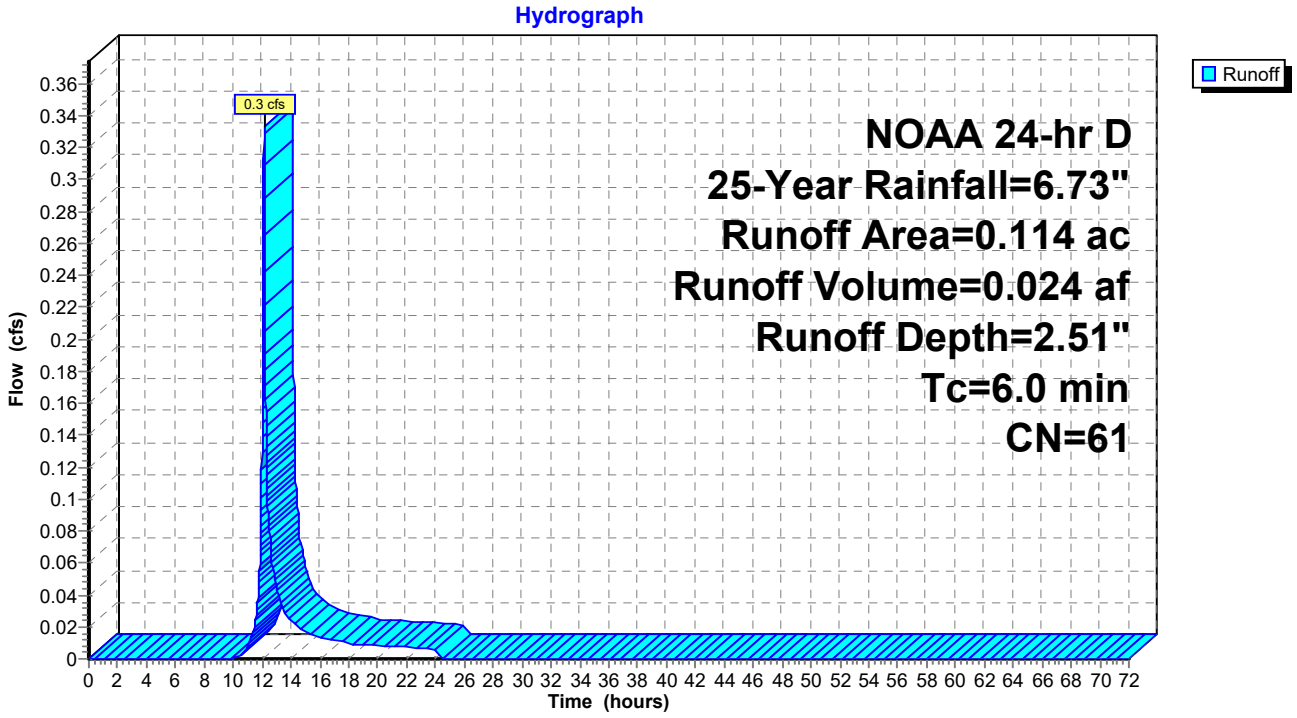
Runoff = 0.3 cfs @ 12.14 hrs, Volume= 0.024 af, Depth= 2.51"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.73"

Area (ac)	CN	Description
0.114	61	>75% Grass cover, Good, HSG B
0.114		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-3: State R.O.W.



Summary for Pond UG-1: Stacked 5' Retain-It

Inflow Area = 2.880 ac, 57.29% Impervious, Inflow Depth = 4.55" for 25-Year event
Inflow = 14.8 cfs @ 12.14 hrs, Volume= 1.093 af
Outflow = 0.4 cfs @ 16.90 hrs, Volume= 1.093 af, Atten= 97%, Lag= 286.1 min
Discarded = 0.3 cfs @ 16.90 hrs, Volume= 0.960 af
Primary = 0.1 cfs @ 16.90 hrs, Volume= 0.132 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 290.57' @ 16.90 hrs Surf.Area= 0.176 ac Storage= 0.746 af

Plug-Flow detention time= 1,097.5 min calculated for 1.093 af (100% of inflow)
Center-of-Mass det. time= 1,097.3 min (1,912.2 - 814.9)

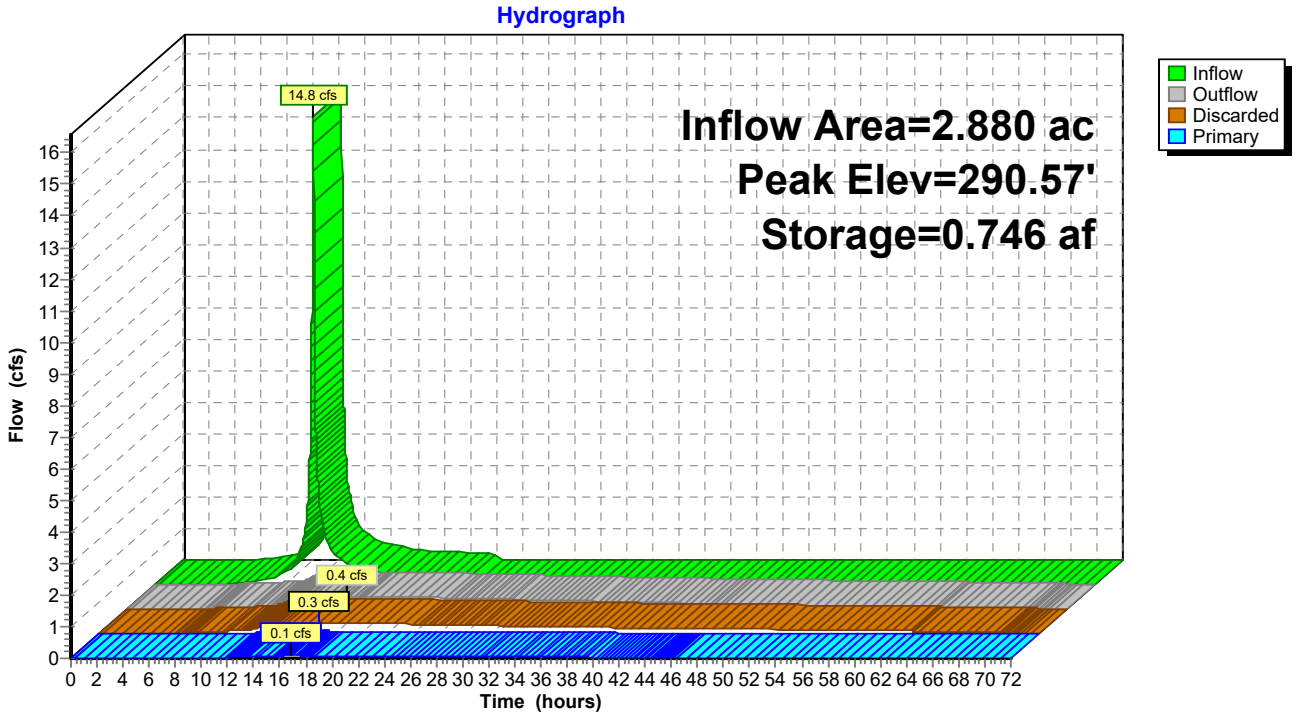
Volume	Invert	Avail.Storage	Storage Description
#1	282.50'	0.999 af	**32.00'W x 120.00'L x 11.33'H Stacked Retain-It 5'**
#2	281.50'	0.035 af	**32.00'W x 120.00'L x 1.00'H Stone Base** 0.088 af Overall x 40.0% Voids
		1.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	282.50'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 282.50' / 278.00' S= 0.1125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	284.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	290.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.50'	**4.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#5	Discarded	281.50'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 278.50'

Discarded OutFlow Max=0.3 cfs @ 16.90 hrs HW=290.57' (Free Discharge)
└─**5=Exfiltration** (Controls 0.3 cfs)

Primary OutFlow Max=0.1 cfs @ 16.90 hrs HW=290.57' (Free Discharge)
└─**1=Culvert** (Passes 0.1 cfs of 10.4 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 11.82 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 0.89 fps)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond UG-1: Stacked 5' Retain-It



Stage-Discharge for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
281.50	0.0	0.0	0.0
281.70	0.0	0.0	0.0
281.90	0.1	0.1	0.0
282.10	0.1	0.1	0.0
282.30	0.1	0.1	0.0
282.50	0.1	0.1	0.0
282.70	0.1	0.1	0.0
282.90	0.1	0.1	0.0
283.10	0.1	0.1	0.0
283.30	0.1	0.1	0.0
283.50	0.1	0.1	0.0
283.70	0.1	0.1	0.0
283.90	0.1	0.1	0.0
284.10	0.1	0.1	0.0
284.30	0.2	0.2	0.0
284.50	0.2	0.2	0.0
284.70	0.2	0.2	0.0
284.90	0.2	0.2	0.0
285.10	0.2	0.2	0.0
285.30	0.2	0.2	0.0
285.50	0.2	0.2	0.0
285.70	0.2	0.2	0.0
285.90	0.2	0.2	0.0
286.10	0.2	0.2	0.0
286.30	0.2	0.2	0.0
286.50	0.2	0.2	0.0
286.70	0.3	0.2	0.0
286.90	0.3	0.2	0.0
287.10	0.3	0.2	0.0
287.30	0.3	0.2	0.0
287.50	0.3	0.2	0.0
287.70	0.3	0.2	0.0
287.90	0.3	0.3	0.0
288.10	0.3	0.3	0.0
288.30	0.3	0.3	0.1
288.50	0.3	0.3	0.1
288.70	0.3	0.3	0.1
288.90	0.3	0.3	0.1
289.10	0.3	0.3	0.1
289.30	0.3	0.3	0.1
289.50	0.4	0.3	0.1
289.70	0.4	0.3	0.1
289.90	0.4	0.3	0.1
290.10	0.4	0.3	0.1
290.30	0.4	0.3	0.1
290.50	0.4	0.3	0.1
290.70	0.5	0.3	0.2
290.90	0.8	0.3	0.4
291.10	1.0	0.3	0.6
291.30	1.1	0.3	0.8
291.50	1.2	0.3	0.9
291.70	2.3	0.4	2.0
291.90	4.3	0.4	3.9
292.10	7.0	0.4	6.6
292.30	10.5	0.4	10.1
292.50	12.0	0.4	11.7
292.70	12.2	0.4	11.8
292.90	12.3	0.4	11.9
293.10	12.4	0.4	12.0
293.30	12.5	0.4	12.1
293.50	12.7	0.4	12.3
293.70	**12.8**	**0.4**	**12.4**

Stage-Area-Storage for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Surface (acres)	Storage (acre-feet)
281.50	0.088	0.000
281.70	0.088	0.007
281.90	0.088	0.014
282.10	0.088	0.021
282.30	0.088	0.028
282.50	**0.176**	0.035
282.70	0.176	0.053
282.90	0.176	0.071
283.10	0.176	0.088
283.30	0.176	0.106
283.50	0.176	0.123
283.70	0.176	0.141
283.90	0.176	0.159
284.10	0.176	0.176
284.30	0.176	0.194
284.50	0.176	0.212
284.70	0.176	0.229
284.90	0.176	0.247
285.10	0.176	0.264
285.30	0.176	0.282
285.50	0.176	0.300
285.70	0.176	0.317
285.90	0.176	0.335
286.10	0.176	0.353
286.30	0.176	0.370
286.50	0.176	0.388
286.70	0.176	0.406
286.90	0.176	0.423
287.10	0.176	0.441
287.30	0.176	0.458
287.50	0.176	0.476
287.70	0.176	0.494
287.90	0.176	0.511
288.10	0.176	0.529
288.30	0.176	0.547
288.50	0.176	0.564
288.70	0.176	0.582
288.90	0.176	0.599
289.10	0.176	0.617
289.30	0.176	0.635
289.50	0.176	0.652
289.70	0.176	0.670
289.90	0.176	0.688
290.10	0.176	0.705
290.30	0.176	0.723
290.50	0.176	0.740
290.70	0.176	0.758
290.90	0.176	0.776
291.10	0.176	0.793
291.30	0.176	0.811
291.50	0.176	0.829
291.70	0.176	0.846
291.90	0.176	0.864
292.10	0.176	0.882
292.30	0.176	0.899
292.50	0.176	0.917
292.70	0.176	0.934
292.90	0.176	0.952
293.10	0.176	0.970
293.30	0.176	0.987
293.50	0.176	1.005
293.70	0.176	**1.023**

Summary for Pond UG-2: 5' Retain-It

Inflow Area = 0.500 ac, 28.00% Impervious, Inflow Depth = 3.50" for 25-Year event
Inflow = 2.1 cfs @ 12.13 hrs, Volume= 0.146 af
Outflow = 1.8 cfs @ 12.16 hrs, Volume= 0.146 af, Atten= 11%, Lag= 1.9 min
Discarded = 0.0 cfs @ 12.16 hrs, Volume= 0.047 af
Primary = 1.8 cfs @ 12.16 hrs, Volume= 0.099 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 274.05' @ 12.16 hrs Surf.Area= 0.009 ac Storage= 0.039 af

Plug-Flow detention time= 439.1 min calculated for 0.146 af (100% of inflow)
Center-of-Mass det. time= 439.0 min (1,279.5 - 840.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	268.33'	0.004 af	**16.00'W x 24.00'L x 6.67'H Field A** 0.059 af Overall - 0.050 af Embedded = 0.009 af x 40.0% Voids
#2A	269.33'	0.038 af	**retain_it retain_it 5.0'** x 6 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 2 Rows adjusted for 103.9 cf perimeter wall
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.10'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.10' / 273.10' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	268.33'	**0.520 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 265.50'

Discarded OutFlow Max=0.0 cfs @ 12.16 hrs HW=274.05' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.0 cfs)

Primary OutFlow Max=1.8 cfs @ 12.16 hrs HW=274.05' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.8 cfs @ 3.04 fps)

Pond UG-2: 5' Retain-It - Chamber Wizard Field A

Chamber Model = retain_it retain_it 5.0' (retain-it®)
Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf
Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf
2 Rows adjusted for 103.9 cf perimeter wall

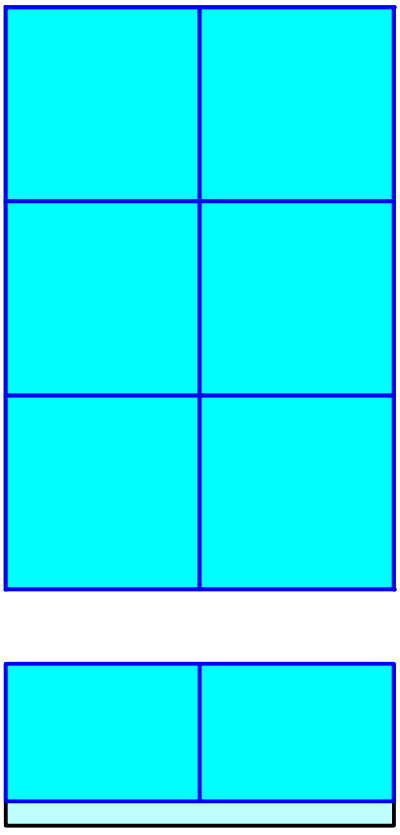
3 Chambers/Row x 8.00' Long = 24.00' Row Length
2 Rows x 96.0" Wide = 16.00' Base Width
12.0" Stone Base + 68.0" Chamber Height = 6.67' Field Height

10.4 cf Sidewall x 3 x 2 + 10.4 cf Endwall x 2 x 2 = 103.9 cf Perimeter Wall
6 Chambers x 291.3 cf - 103.9 cf Perimeter wall = 1,643.8 cf Chamber Storage
6 Chambers x 362.7 cf = 2,176.0 cf Displacement

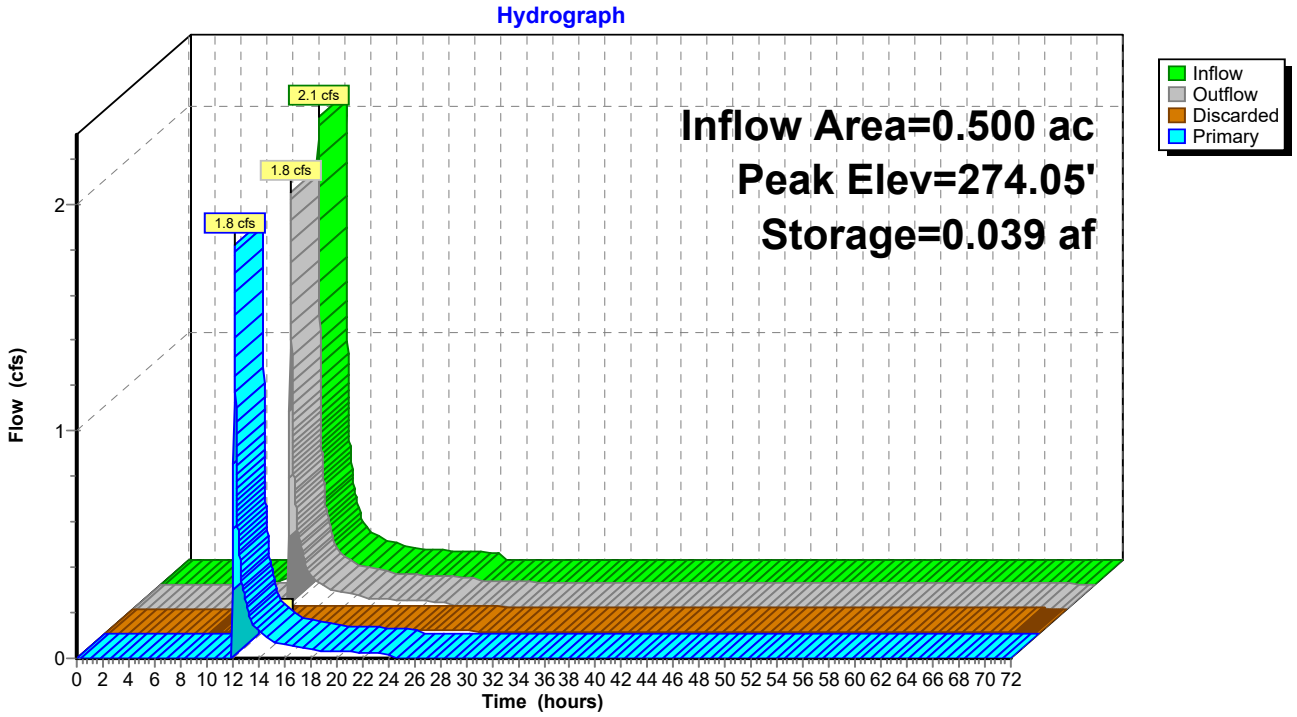
2,560.0 cf Field - 2,176.0 cf Chambers = 384.0 cf Stone x 40.0% Voids = 153.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,797.4 cf = 0.041 af
Overall Storage Efficiency = 70.2%
Overall System Size = 24.00' x 16.00' x 6.67'

6 Chambers
94.8 cy Field
14.2 cy Stone



Pond UG-2: 5' Retain-It



Stage-Discharge for Pond UG-2: 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
268.33	0.0	0.0	0.0
268.43	0.0	0.0	0.0
268.53	0.0	0.0	0.0
268.63	0.0	0.0	0.0
268.73	0.0	0.0	0.0
268.83	0.0	0.0	0.0
268.93	0.0	0.0	0.0
269.03	0.0	0.0	0.0
269.13	0.0	0.0	0.0
269.23	0.0	0.0	0.0
269.33	0.0	0.0	0.0
269.43	0.0	0.0	0.0
269.53	0.0	0.0	0.0
269.63	0.0	0.0	0.0
269.73	0.0	0.0	0.0
269.83	0.0	0.0	0.0
269.93	0.0	0.0	0.0
270.03	0.0	0.0	0.0
270.13	0.0	0.0	0.0
270.23	0.0	0.0	0.0
270.33	0.0	0.0	0.0
270.43	0.0	0.0	0.0
270.53	0.0	0.0	0.0
270.63	0.0	0.0	0.0
270.73	0.0	0.0	0.0
270.83	0.0	0.0	0.0
270.93	0.0	0.0	0.0
271.03	0.0	0.0	0.0
271.13	0.0	0.0	0.0
271.23	0.0	0.0	0.0
271.33	0.0	0.0	0.0
271.43	0.0	0.0	0.0
271.53	0.0	0.0	0.0
271.63	0.0	0.0	0.0
271.73	0.0	0.0	0.0
271.83	0.0	0.0	0.0
271.93	0.0	0.0	0.0
272.03	0.0	0.0	0.0
272.13	0.0	0.0	0.0
272.23	0.0	0.0	0.0
272.33	0.0	0.0	0.0
272.43	0.0	0.0	0.0
272.53	0.0	0.0	0.0
272.63	0.0	0.0	0.0
272.73	0.0	0.0	0.0
272.83	0.0	0.0	0.0
272.93	0.0	0.0	0.0
273.03	0.0	0.0	0.0
273.13	0.0	0.0	0.0
273.23	0.0	0.0	0.0
273.33	0.1	0.0	0.1
273.43	0.3	0.0	0.3
273.53	0.4	0.0	0.4
273.63	0.7	0.0	0.6
273.73	0.9	0.0	0.9
273.83	1.2	0.0	1.2
273.93	1.5	0.0	1.5
274.03	1.8	0.0	1.8
274.13	2.1	0.0	2.1
274.23	2.4	0.0	2.4
274.33	2.6	0.0	2.6
274.43	2.8	0.0	2.8
274.53	3.2	0.0	3.2
274.63	3.5	0.0	3.5
274.73	3.9	0.0	3.9
274.83	4.2	0.0	4.1
274.93	**4.4**	**0.0**	**4.4**

Stage-Area-Storage for Pond UG-2: 5' Retain-It

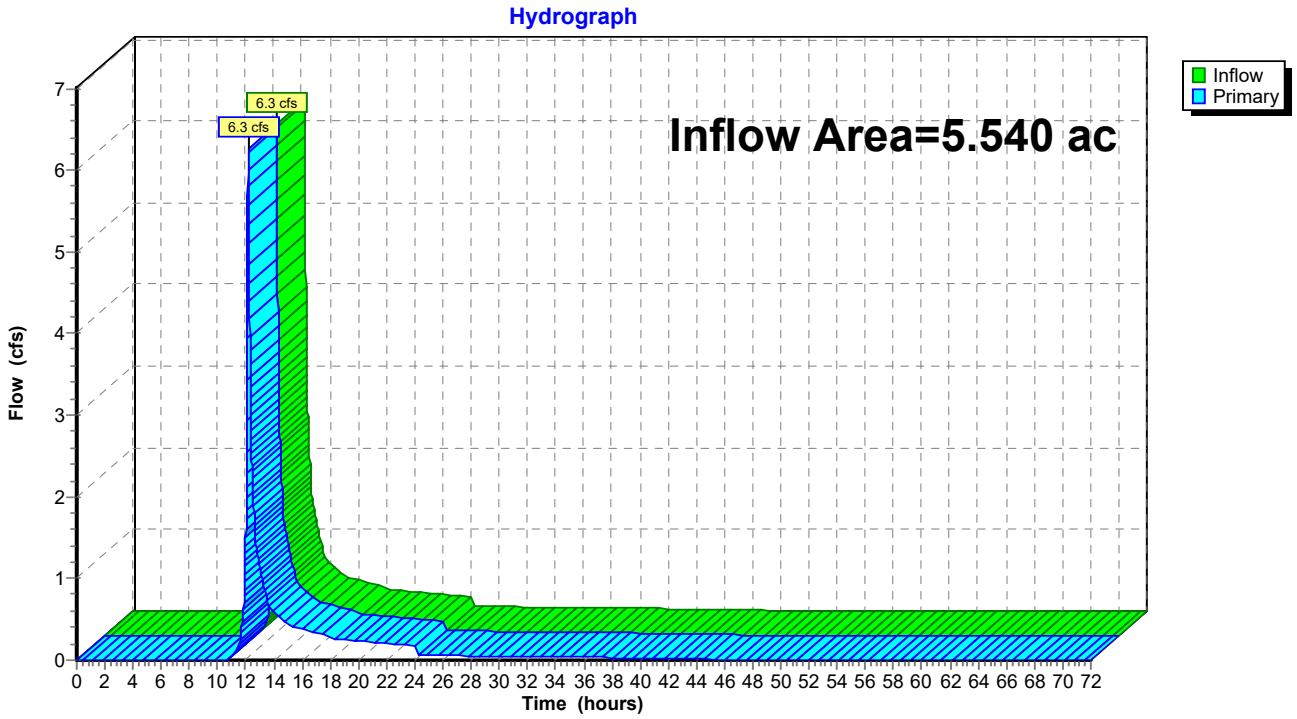
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
268.33	**0.009**	0.000
268.43	0.009	0.000
268.53	0.009	0.001
268.63	0.009	0.001
268.73	0.009	0.001
268.83	0.009	0.002
268.93	0.009	0.002
269.03	0.009	0.002
269.13	0.009	0.003
269.23	0.009	0.003
269.33	0.009	0.004
269.43	0.009	0.004
269.53	0.009	0.005
269.63	0.009	0.006
269.73	0.009	0.007
269.83	0.009	0.007
269.93	0.009	0.008
270.03	0.009	0.009
270.13	0.009	0.010
270.23	0.009	0.010
270.33	0.009	0.011
270.43	0.009	0.012
270.53	0.009	0.013
270.63	0.009	0.013
270.73	0.009	0.014
270.83	0.009	0.015
270.93	0.009	0.016
271.03	0.009	0.016
271.13	0.009	0.017
271.23	0.009	0.018
271.33	0.009	0.019
271.43	0.009	0.019
271.53	0.009	0.020
271.63	0.009	0.021
271.73	0.009	0.022
271.83	0.009	0.022
271.93	0.009	0.023
272.03	0.009	0.024
272.13	0.009	0.025
272.23	0.009	0.025
272.33	0.009	0.026
272.43	0.009	0.027
272.53	0.009	0.028
272.63	0.009	0.028
272.73	0.009	0.029
272.83	0.009	0.030
272.93	0.009	0.031
273.03	0.009	0.031
273.13	0.009	0.032
273.23	0.009	0.033
273.33	0.009	0.034
273.43	0.009	0.034
273.53	0.009	0.035
273.63	0.009	0.036
273.73	0.009	0.037
273.83	0.009	0.037
273.93	0.009	0.038
274.03	0.009	0.039
274.13	0.009	0.040
274.23	0.009	0.041
274.33	0.009	0.041
274.43	0.009	0.041
274.53	0.009	0.041
274.63	0.009	0.041
274.73	0.009	0.041
274.83	0.009	0.041
274.93	0.009	**0.041**

Summary for Link PDA-1: Off Site Wetlands

Inflow Area = 5.540 ac, 32.31% Impervious, Inflow Depth = 1.33" for 25-Year event
Inflow = 6.3 cfs @ 12.18 hrs, Volume= 0.615 af
Primary = 6.3 cfs @ 12.18 hrs, Volume= 0.615 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link PDA-1: Off Site Wetlands



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EDA-1: Off-Site Wetlands Runoff Area=5.280 ac 0.00% Impervious Runoff Depth=2.63"
Flow Length=479' Tc=10.4 min CN=56 Runoff=13.4 cfs 1.158 af

Subcatchment EDA-2: Off-Site West Runoff Area=0.384 ac 0.00% Impervious Runoff Depth=2.53"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.9 cfs 0.081 af

Subcatchment EDA-3: State R.O.W. Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=2.53"
Flow Length=100' Slope=0.3200 '/' Tc=6.8 min CN=55 Runoff=0.9 cfs 0.067 af

Subcatchment PDA-1A: Proposed Runoff Area=2.880 ac 57.29% Impervious Runoff Depth=5.38"
Flow Length=288' Tc=6.5 min CN=81 Runoff=17.4 cfs 1.292 af

Subcatchment PDA-1B: Drive Runoff Area=0.500 ac 28.00% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=71 Runoff=2.5 cfs 0.177 af

Subcatchment PDA-1C: Off-Site Wetlands Runoff Area=2.160 ac 0.00% Impervious Runoff Depth=2.74"
Flow Length=235' Tc=10.2 min CN=57 Runoff=5.8 cfs 0.492 af

Subcatchment PDA-2: Off-Site West Runoff Area=0.330 ac 0.00% Impervious Runoff Depth=2.53"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=0.8 cfs 0.070 af

Subcatchment PDA-3: State R.O.W. Runoff Area=0.114 ac 0.00% Impervious Runoff Depth=3.16"
Tc=6.0 min CN=61 Runoff=0.4 cfs 0.030 af

Pond UG-1: Stacked 5' Retain-It Peak Elev=291.16' Storage=0.799 af Inflow=17.4 cfs 1.292 af
Discarded=0.3 cfs 0.997 af Primary=0.7 cfs 0.294 af Outflow=1.0 cfs 1.292 af

Pond UG-2: 5' Retain-It Peak Elev=274.22' Storage=0.040 af Inflow=2.5 cfs 0.177 af
Discarded=0.0 cfs 0.047 af Primary=2.3 cfs 0.130 af Outflow=2.3 cfs 0.177 af

Link PDA-1: Off Site Wetlands Inflow=8.1 cfs 0.916 af
Primary=8.1 cfs 0.916 af

Summary for Subcatchment EDA-1: Off-Site Wetlands

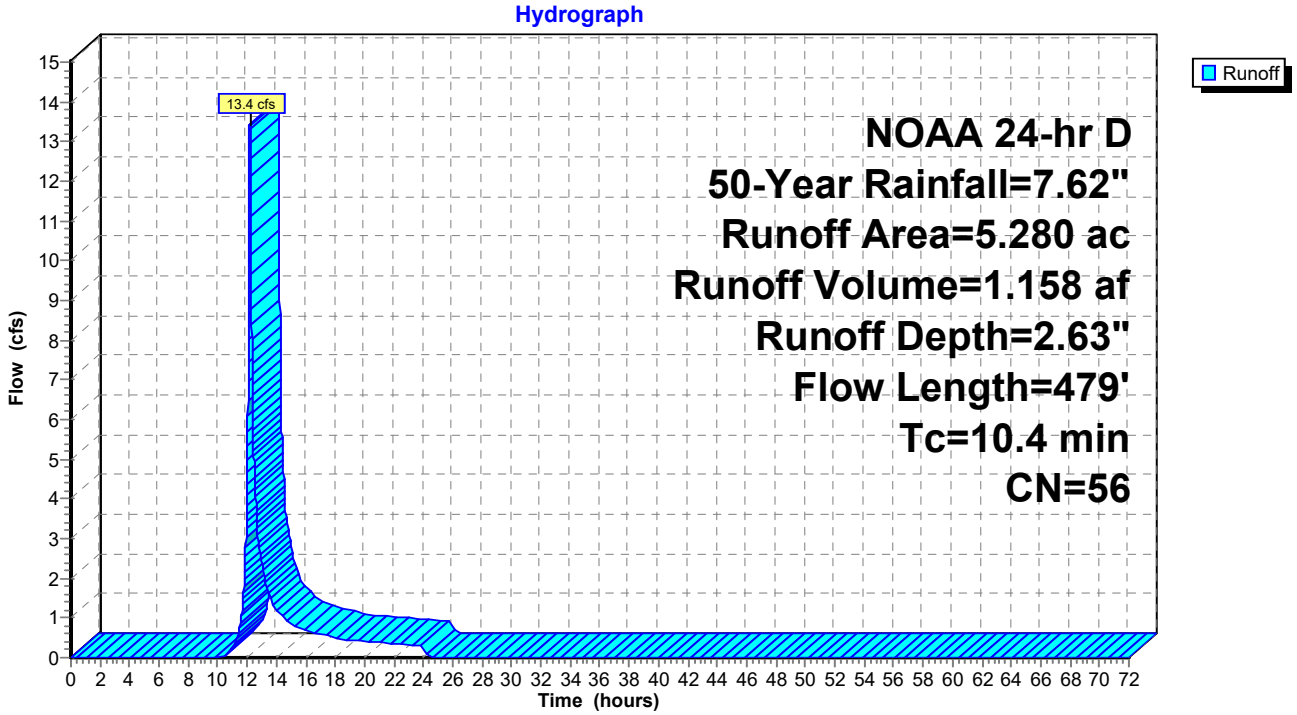
Runoff = 13.4 cfs @ 12.19 hrs, Volume= 1.158 af, Depth= 2.63"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
5.080	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
5.280	56	Weighted Average
5.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.2570	0.22		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
2.6	345	0.1913	2.19		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	34	0.1176	1.71		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
10.4	479	Total			

Subcatchment EDA-1: Off-Site Wetlands



Summary for Subcatchment EDA-2: Off-Site West

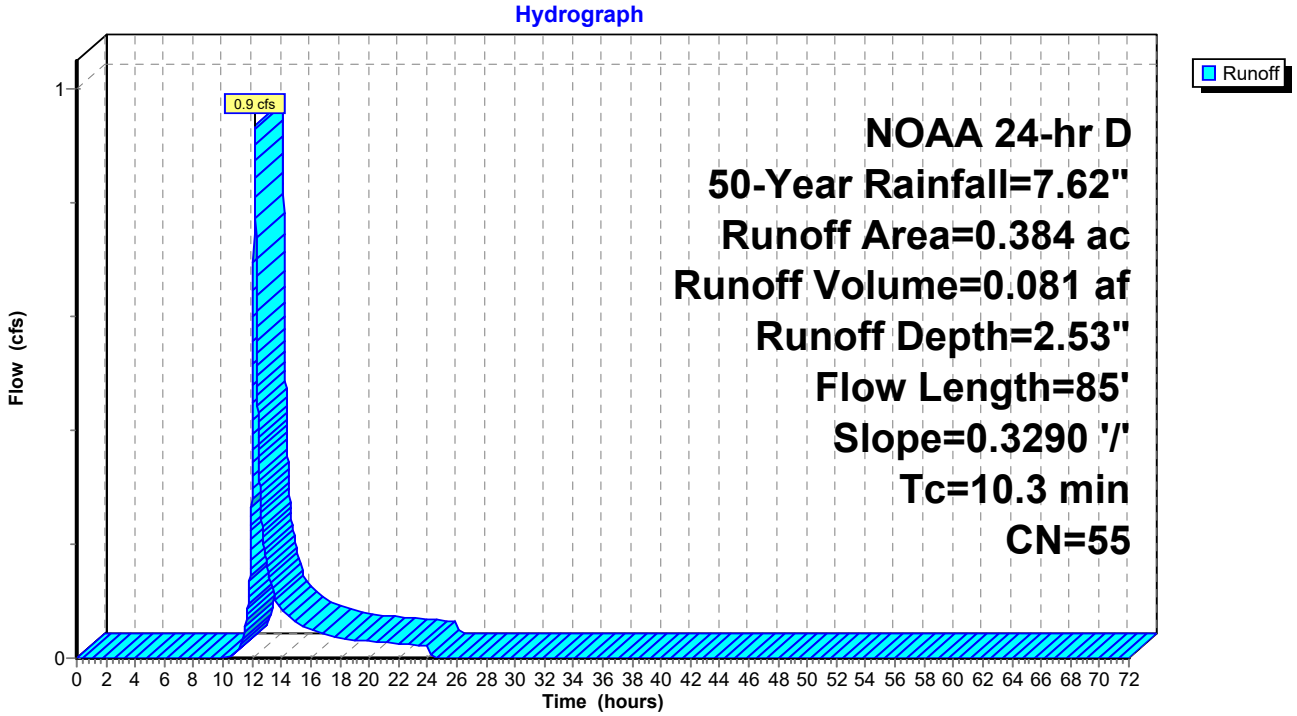
Runoff = 0.9 cfs @ 12.18 hrs, Volume= 0.081 af, Depth= 2.53"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
0.384	55	Woods, Good, HSG B
0.384		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment EDA-2: Off-Site West



Summary for Subcatchment EDA-3: State R.O.W.

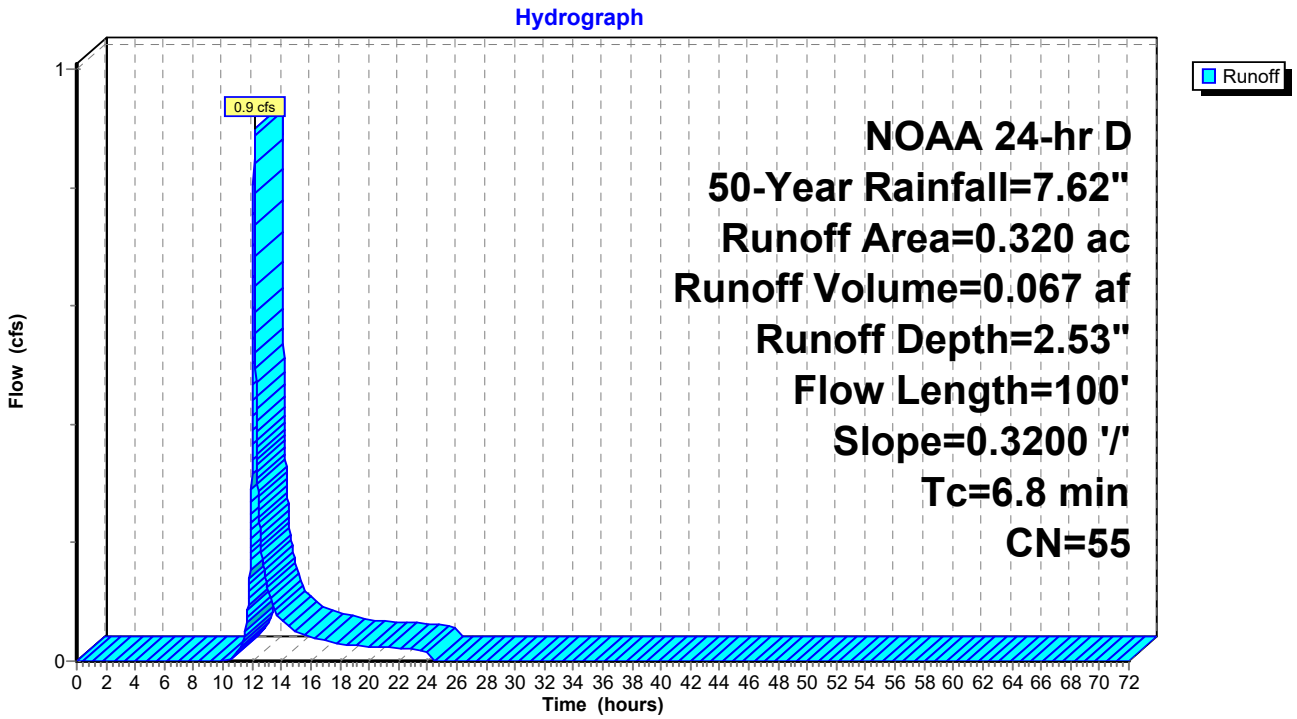
Runoff = 0.9 cfs @ 12.14 hrs, Volume= 0.067 af, Depth= 2.53"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
0.320	55	Woods, Good, HSG B
0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3200	0.24		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"

Subcatchment EDA-3: State R.O.W.



Summary for Subcatchment PDA-1A: Proposed Development

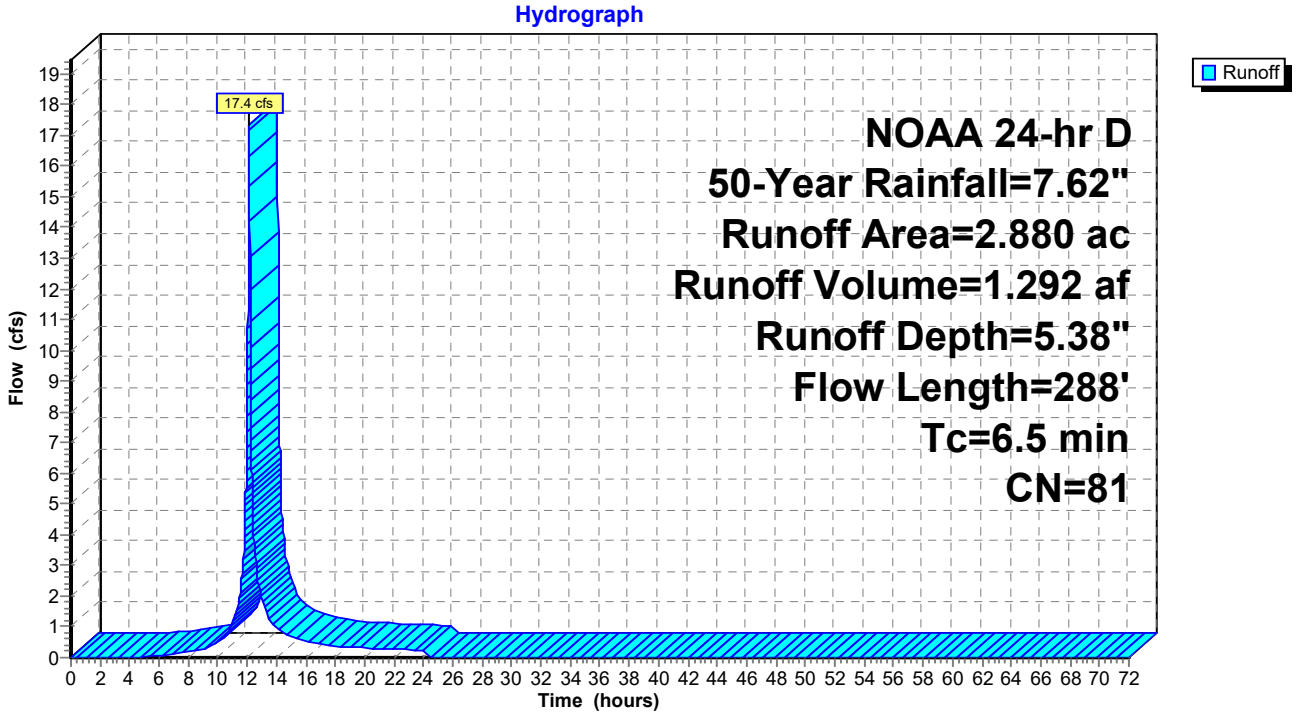
Runoff = 17.4 cfs @ 12.14 hrs, Volume= 1.292 af, Depth= 5.38"
Routed to Pond UG-1 : Stacked 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
1.650	98	Paved parking, HSG C
0.810	61	>75% Grass cover, Good, HSG B
0.420	55	Woods, Good, HSG B
2.880	81	Weighted Average
1.230		42.71% Pervious Area
1.650		57.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	74	0.3108	0.23		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
0.8	162	0.0308	3.56		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	52	0.1650	2.84		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
6.5	288	Total			

Subcatchment PDA-1A: Proposed Development



Summary for Subcatchment PDA-1B: Drive

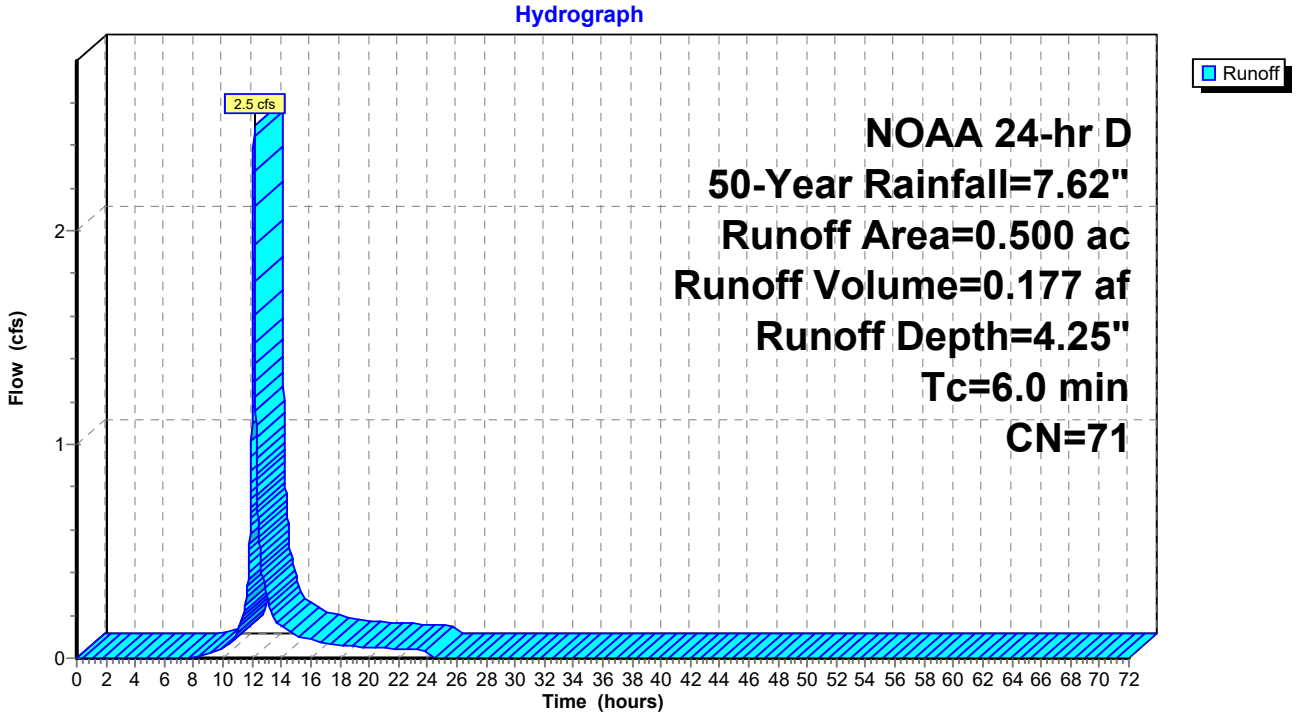
Runoff = 2.5 cfs @ 12.13 hrs, Volume= 0.177 af, Depth= 4.25"
Routed to Pond UG-2 : 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.360	61	>75% Grass cover, Good, HSG B
0.500	71	Weighted Average
0.360		72.00% Pervious Area
0.140		28.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-1B: Drive



Summary for Subcatchment PDA-1C: Off-Site Wetlands

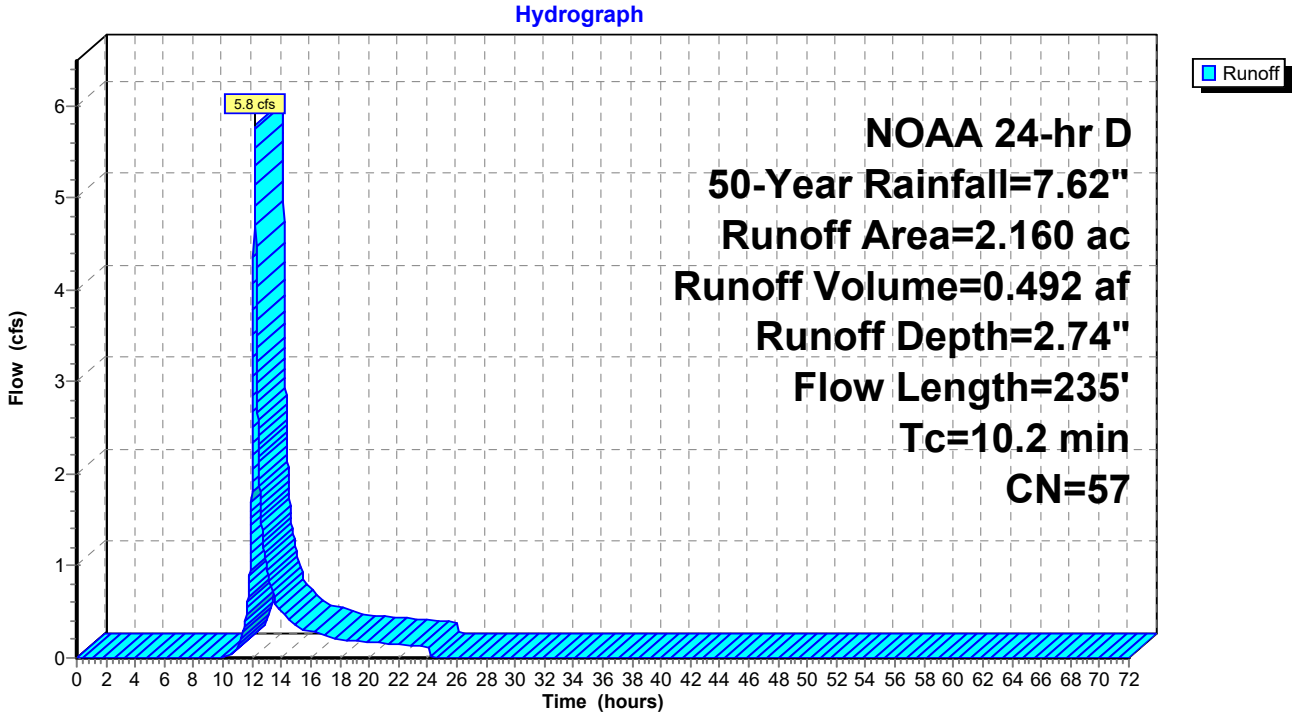
Runoff = 5.8 cfs @ 12.18 hrs, Volume= 0.492 af, Depth= 2.74"
Routed to Link PDA-1 : Off Site Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
0.090	61	>75% Grass cover, Good, HSG B
1.870	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
2.160	57	Weighted Average
2.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	65	0.1690	0.17		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
3.1	35	0.2860	0.19		**Sheet Flow, B-C** Woods: Light underbrush n= 0.400 P2= 3.44"
0.9	135	0.2670	2.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.2	235	Total			

Subcatchment PDA-1C: Off-Site Wetlands



Summary for Subcatchment PDA-2: Off-Site West

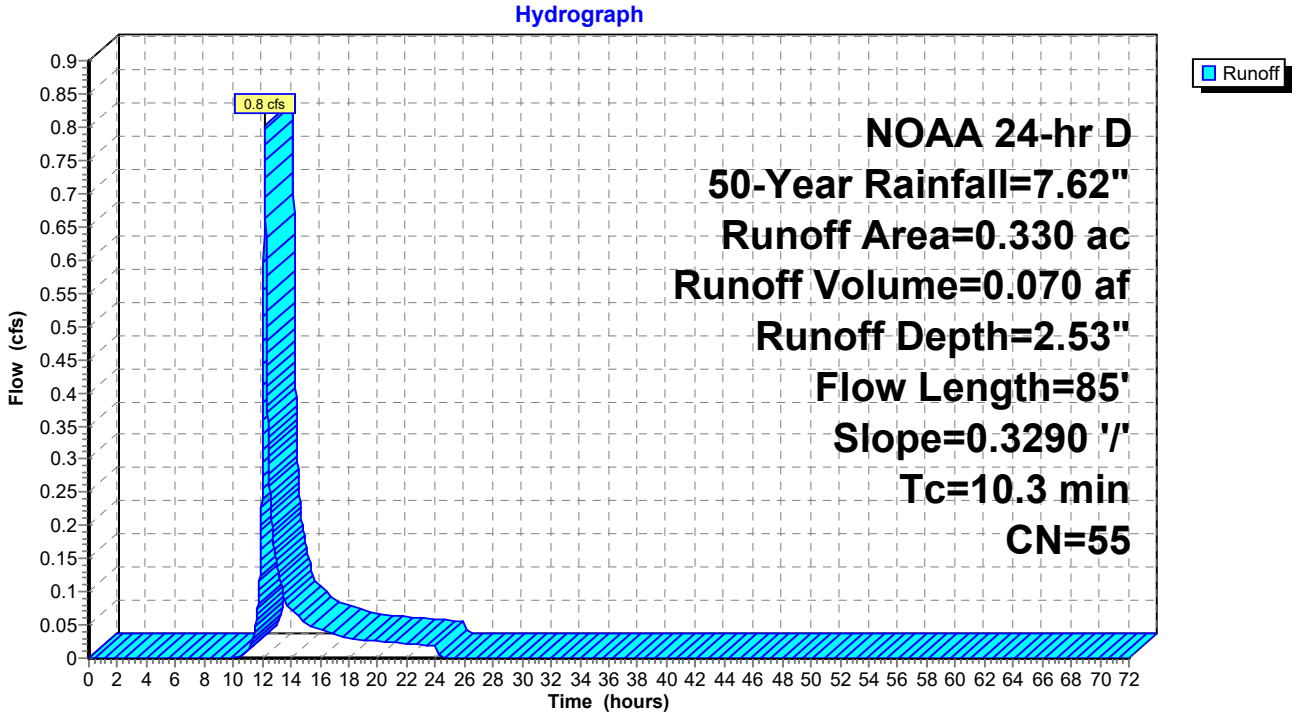
Runoff = 0.8 cfs @ 12.18 hrs, Volume= 0.070 af, Depth= 2.53"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
0.330	55	Woods, Good, HSG B
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment PDA-2: Off-Site West



Summary for Subcatchment PDA-3: State R.O.W.

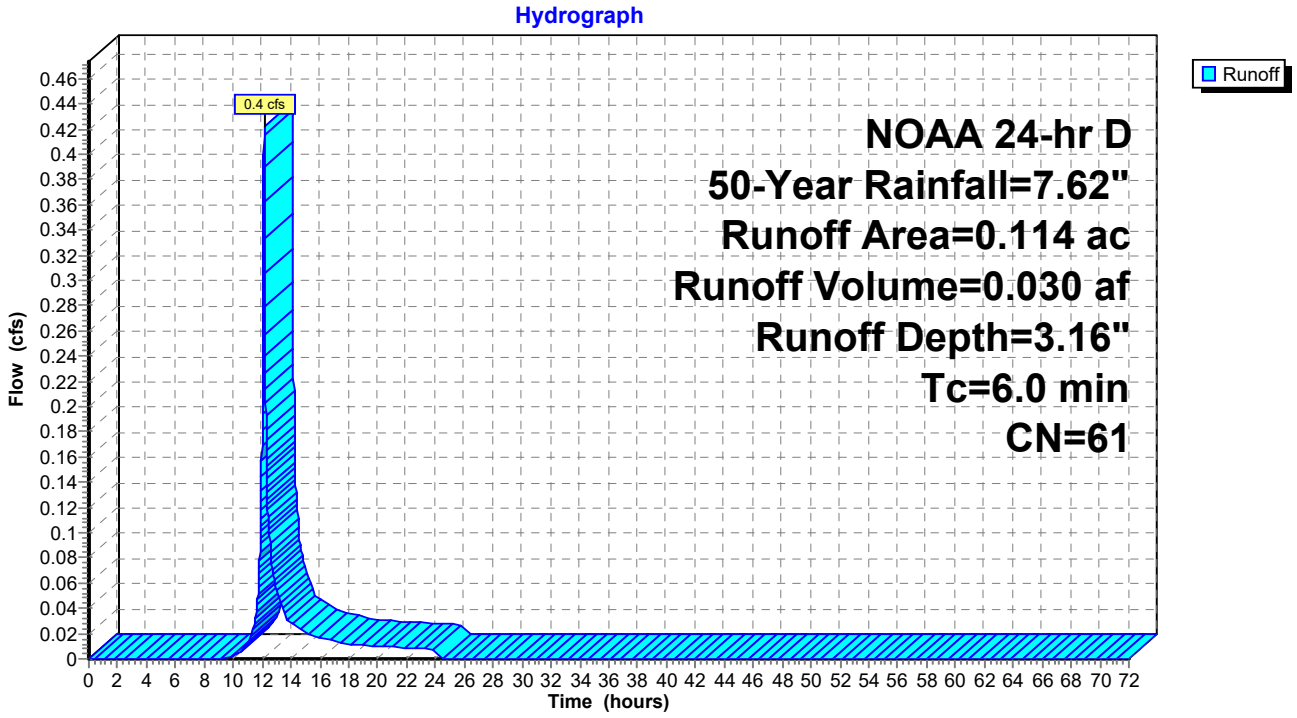
Runoff = 0.4 cfs @ 12.13 hrs, Volume= 0.030 af, Depth= 3.16"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-Year Rainfall=7.62"

Area (ac)	CN	Description
0.114	61	>75% Grass cover, Good, HSG B
0.114		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-3: State R.O.W.



Summary for Pond UG-1: Stacked 5' Retain-It

Inflow Area = 2.880 ac, 57.29% Impervious, Inflow Depth = 5.38" for 50-Year event
Inflow = 17.4 cfs @ 12.14 hrs, Volume= 1.292 af
Outflow = 1.0 cfs @ 13.93 hrs, Volume= 1.292 af, Atten= 94%, Lag= 107.8 min
Discarded = 0.3 cfs @ 13.93 hrs, Volume= 0.997 af
Primary = 0.7 cfs @ 13.93 hrs, Volume= 0.294 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 291.16' @ 13.93 hrs Surf.Area= 0.176 ac Storage= 0.799 af

Plug-Flow detention time= 977.4 min calculated for 1.291 af (100% of inflow)
Center-of-Mass det. time= 977.3 min (1,787.0 - 809.6)

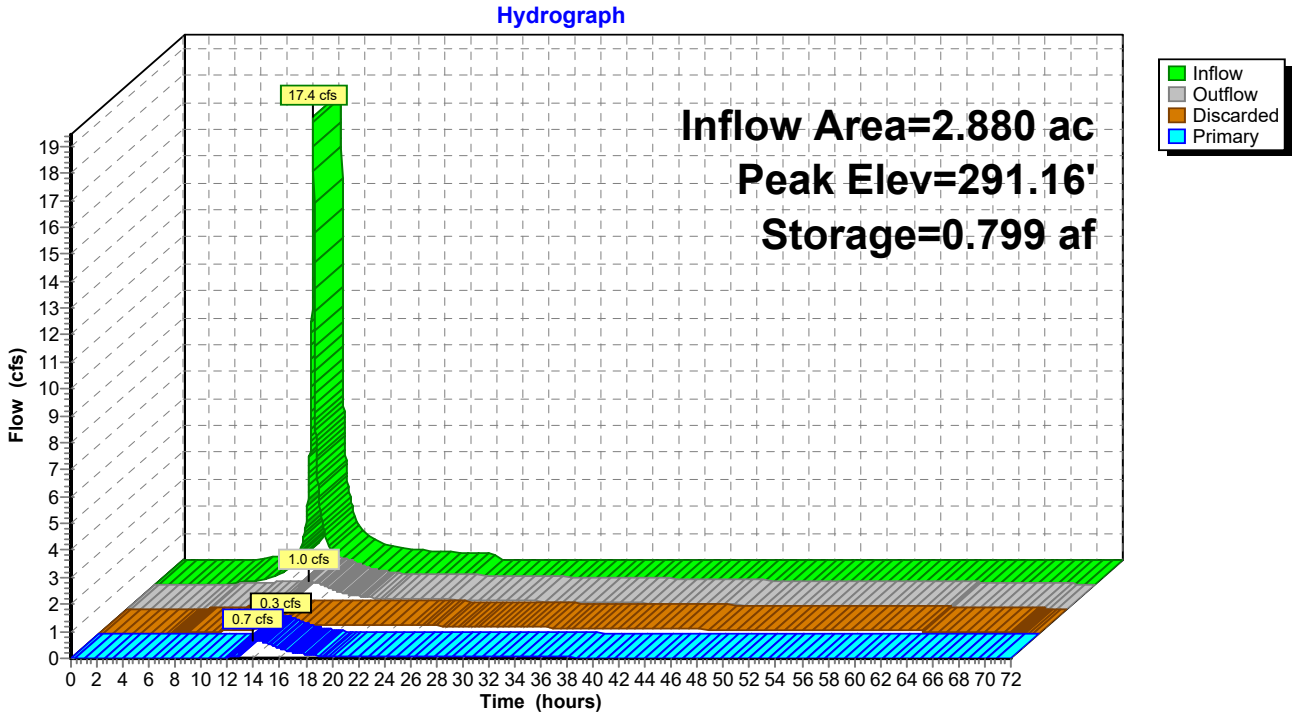
Volume	Invert	Avail.Storage	Storage Description
#1	282.50'	0.999 af	**32.00'W x 120.00'L x 11.33'H Stacked Retain-It 5'**
#2	281.50'	0.035 af	**32.00'W x 120.00'L x 1.00'H Stone Base** 0.088 af Overall x 40.0% Voids
		1.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	282.50'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 282.50' / 278.00' S= 0.1125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	284.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	290.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.50'	**4.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#5	Discarded	281.50'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 278.50'

Discarded OutFlow Max=0.3 cfs @ 13.93 hrs HW=291.16' (Free Discharge)
└─**5=Exfiltration** (Controls 0.3 cfs)

Primary OutFlow Max=0.7 cfs @ 13.93 hrs HW=291.16' (Free Discharge)
└─**1=Culvert** (Passes 0.7 cfs of 10.8 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 12.39 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.6 cfs @ 3.10 fps)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond UG-1: Stacked 5' Retain-It



Stage-Discharge for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
281.50	0.0	0.0	0.0
281.70	0.0	0.0	0.0
281.90	0.1	0.1	0.0
282.10	0.1	0.1	0.0
282.30	0.1	0.1	0.0
282.50	0.1	0.1	0.0
282.70	0.1	0.1	0.0
282.90	0.1	0.1	0.0
283.10	0.1	0.1	0.0
283.30	0.1	0.1	0.0
283.50	0.1	0.1	0.0
283.70	0.1	0.1	0.0
283.90	0.1	0.1	0.0
284.10	0.1	0.1	0.0
284.30	0.2	0.2	0.0
284.50	0.2	0.2	0.0
284.70	0.2	0.2	0.0
284.90	0.2	0.2	0.0
285.10	0.2	0.2	0.0
285.30	0.2	0.2	0.0
285.50	0.2	0.2	0.0
285.70	0.2	0.2	0.0
285.90	0.2	0.2	0.0
286.10	0.2	0.2	0.0
286.30	0.2	0.2	0.0
286.50	0.2	0.2	0.0
286.70	0.3	0.2	0.0
286.90	0.3	0.2	0.0
287.10	0.3	0.2	0.0
287.30	0.3	0.2	0.0
287.50	0.3	0.2	0.0
287.70	0.3	0.2	0.0
287.90	0.3	0.3	0.0
288.10	0.3	0.3	0.0
288.30	0.3	0.3	0.1
288.50	0.3	0.3	0.1
288.70	0.3	0.3	0.1
288.90	0.3	0.3	0.1
289.10	0.3	0.3	0.1
289.30	0.3	0.3	0.1
289.50	0.4	0.3	0.1
289.70	0.4	0.3	0.1
289.90	0.4	0.3	0.1
290.10	0.4	0.3	0.1
290.30	0.4	0.3	0.1
290.50	0.4	0.3	0.1
290.70	0.5	0.3	0.2
290.90	0.8	0.3	0.4
291.10	1.0	0.3	0.6
291.30	1.1	0.3	0.8
291.50	1.2	0.3	0.9
291.70	2.3	0.4	2.0
291.90	4.3	0.4	3.9
292.10	7.0	0.4	6.6
292.30	10.5	0.4	10.1
292.50	12.0	0.4	11.7
292.70	12.2	0.4	11.8
292.90	12.3	0.4	11.9
293.10	12.4	0.4	12.0
293.30	12.5	0.4	12.1
293.50	12.7	0.4	12.3
293.70	**12.8**	**0.4**	**12.4**

Stage-Area-Storage for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Surface (acres)	Storage (acre-feet)
281.50	0.088	0.000
281.70	0.088	0.007
281.90	0.088	0.014
282.10	0.088	0.021
282.30	0.088	0.028
282.50	**0.176**	0.035
282.70	0.176	0.053
282.90	0.176	0.071
283.10	0.176	0.088
283.30	0.176	0.106
283.50	0.176	0.123
283.70	0.176	0.141
283.90	0.176	0.159
284.10	0.176	0.176
284.30	0.176	0.194
284.50	0.176	0.212
284.70	0.176	0.229
284.90	0.176	0.247
285.10	0.176	0.264
285.30	0.176	0.282
285.50	0.176	0.300
285.70	0.176	0.317
285.90	0.176	0.335
286.10	0.176	0.353
286.30	0.176	0.370
286.50	0.176	0.388
286.70	0.176	0.406
286.90	0.176	0.423
287.10	0.176	0.441
287.30	0.176	0.458
287.50	0.176	0.476
287.70	0.176	0.494
287.90	0.176	0.511
288.10	0.176	0.529
288.30	0.176	0.547
288.50	0.176	0.564
288.70	0.176	0.582
288.90	0.176	0.599
289.10	0.176	0.617
289.30	0.176	0.635
289.50	0.176	0.652
289.70	0.176	0.670
289.90	0.176	0.688
290.10	0.176	0.705
290.30	0.176	0.723
290.50	0.176	0.740
290.70	0.176	0.758
290.90	0.176	0.776
291.10	0.176	0.793
291.30	0.176	0.811
291.50	0.176	0.829
291.70	0.176	0.846
291.90	0.176	0.864
292.10	0.176	0.882
292.30	0.176	0.899
292.50	0.176	0.917
292.70	0.176	0.934
292.90	0.176	0.952
293.10	0.176	0.970
293.30	0.176	0.987
293.50	0.176	1.005
293.70	0.176	**1.023**

Summary for Pond UG-2: 5' Retain-It

Inflow Area = 0.500 ac, 28.00% Impervious, Inflow Depth = 4.25" for 50-Year event
Inflow = 2.5 cfs @ 12.13 hrs, Volume= 0.177 af
Outflow = 2.3 cfs @ 12.16 hrs, Volume= 0.177 af, Atten= 6%, Lag= 1.4 min
Discarded = 0.0 cfs @ 12.16 hrs, Volume= 0.047 af
Primary = 2.3 cfs @ 12.16 hrs, Volume= 0.130 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 274.22' @ 12.16 hrs Surf.Area= 0.009 ac Storage= 0.040 af

Plug-Flow detention time= 365.1 min calculated for 0.177 af (100% of inflow)
Center-of-Mass det. time= 365.0 min (1,199.2 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	268.33'	0.004 af	**16.00'W x 24.00'L x 6.67'H Field A** 0.059 af Overall - 0.050 af Embedded = 0.009 af x 40.0% Voids
#2A	269.33'	0.038 af	**retain_it retain_it 5.0'** x 6 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 2 Rows adjusted for 103.9 cf perimeter wall
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.10'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.10' / 273.10' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	268.33'	**0.520 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 265.50'

Discarded OutFlow Max=0.0 cfs @ 12.16 hrs HW=274.22' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.0 cfs)

Primary OutFlow Max=2.3 cfs @ 12.16 hrs HW=274.22' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 2.3 cfs @ 3.30 fps)

Pond UG-2: 5' Retain-It - Chamber Wizard Field A

Chamber Model = retain_it retain_it 5.0' (retain-it®)
Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf
Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf
2 Rows adjusted for 103.9 cf perimeter wall

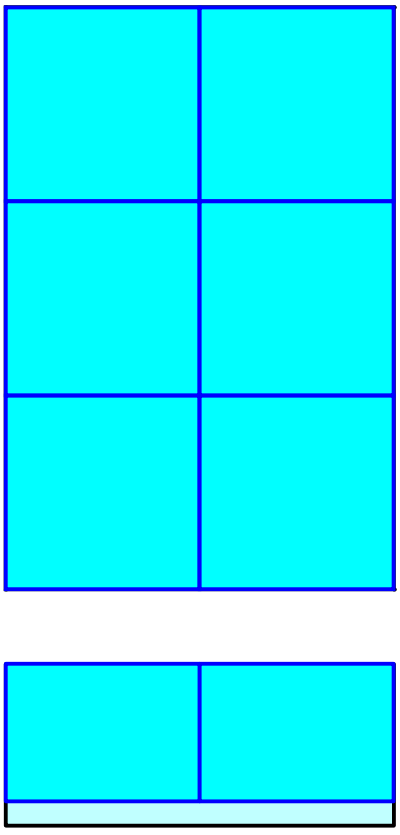
3 Chambers/Row x 8.00' Long = 24.00' Row Length
2 Rows x 96.0" Wide = 16.00' Base Width
12.0" Stone Base + 68.0" Chamber Height = 6.67' Field Height

10.4 cf Sidewall x 3 x 2 + 10.4 cf Endwall x 2 x 2 = 103.9 cf Perimeter Wall
6 Chambers x 291.3 cf - 103.9 cf Perimeter wall = 1,643.8 cf Chamber Storage
6 Chambers x 362.7 cf = 2,176.0 cf Displacement

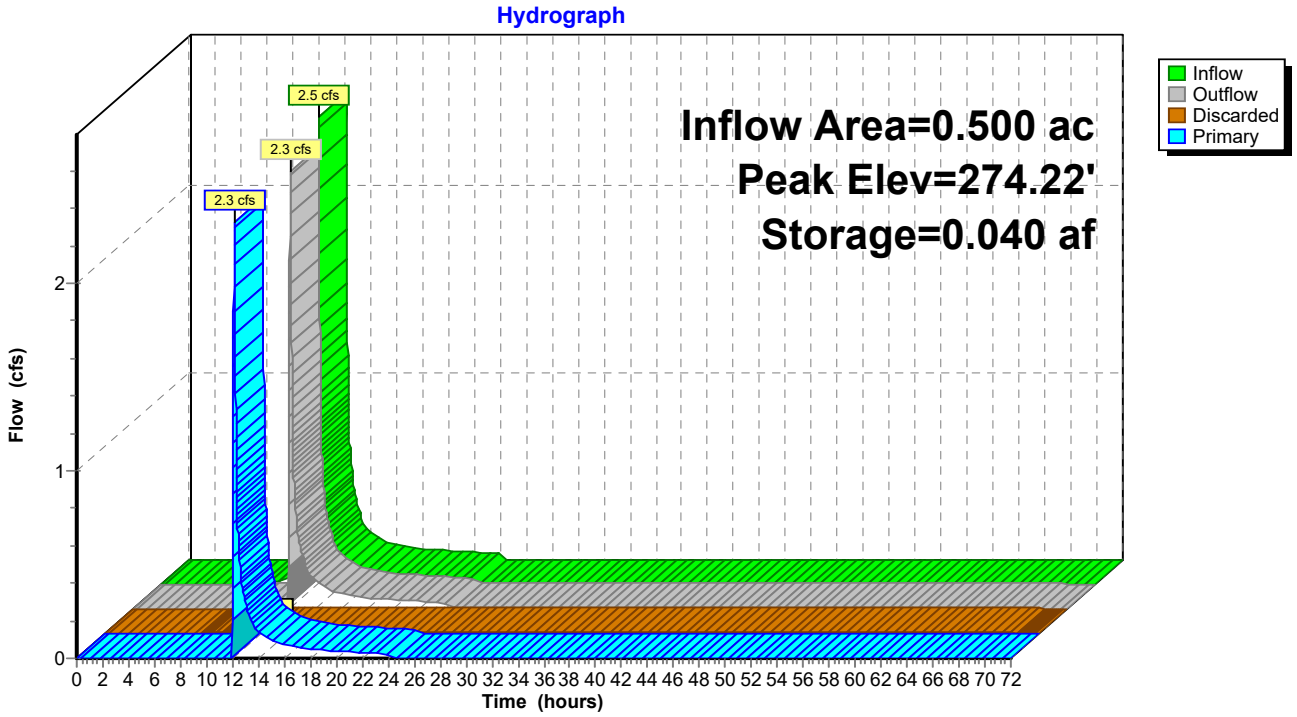
2,560.0 cf Field - 2,176.0 cf Chambers = 384.0 cf Stone x 40.0% Voids = 153.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,797.4 cf = 0.041 af
Overall Storage Efficiency = 70.2%
Overall System Size = 24.00' x 16.00' x 6.67'

6 Chambers
94.8 cy Field
14.2 cy Stone



Pond UG-2: 5' Retain-It



Stage-Discharge for Pond UG-2: 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
268.33	0.0	0.0	0.0
268.43	0.0	0.0	0.0
268.53	0.0	0.0	0.0
268.63	0.0	0.0	0.0
268.73	0.0	0.0	0.0
268.83	0.0	0.0	0.0
268.93	0.0	0.0	0.0
269.03	0.0	0.0	0.0
269.13	0.0	0.0	0.0
269.23	0.0	0.0	0.0
269.33	0.0	0.0	0.0
269.43	0.0	0.0	0.0
269.53	0.0	0.0	0.0
269.63	0.0	0.0	0.0
269.73	0.0	0.0	0.0
269.83	0.0	0.0	0.0
269.93	0.0	0.0	0.0
270.03	0.0	0.0	0.0
270.13	0.0	0.0	0.0
270.23	0.0	0.0	0.0
270.33	0.0	0.0	0.0
270.43	0.0	0.0	0.0
270.53	0.0	0.0	0.0
270.63	0.0	0.0	0.0
270.73	0.0	0.0	0.0
270.83	0.0	0.0	0.0
270.93	0.0	0.0	0.0
271.03	0.0	0.0	0.0
271.13	0.0	0.0	0.0
271.23	0.0	0.0	0.0
271.33	0.0	0.0	0.0
271.43	0.0	0.0	0.0
271.53	0.0	0.0	0.0
271.63	0.0	0.0	0.0
271.73	0.0	0.0	0.0
271.83	0.0	0.0	0.0
271.93	0.0	0.0	0.0
272.03	0.0	0.0	0.0
272.13	0.0	0.0	0.0
272.23	0.0	0.0	0.0
272.33	0.0	0.0	0.0
272.43	0.0	0.0	0.0
272.53	0.0	0.0	0.0
272.63	0.0	0.0	0.0
272.73	0.0	0.0	0.0
272.83	0.0	0.0	0.0
272.93	0.0	0.0	0.0
273.03	0.0	0.0	0.0
273.13	0.0	0.0	0.0
273.23	0.0	0.0	0.0
273.33	0.1	0.0	0.1
273.43	0.3	0.0	0.3
273.53	0.4	0.0	0.4
273.63	0.7	0.0	0.6
273.73	0.9	0.0	0.9
273.83	1.2	0.0	1.2
273.93	1.5	0.0	1.5
274.03	1.8	0.0	1.8
274.13	2.1	0.0	2.1
274.23	2.4	0.0	2.4
274.33	2.6	0.0	2.6
274.43	2.8	0.0	2.8
274.53	3.2	0.0	3.2
274.63	3.5	0.0	3.5
274.73	3.9	0.0	3.9
274.83	4.2	0.0	4.1
274.93	**4.4**	**0.0**	**4.4**

Stage-Area-Storage for Pond UG-2: 5' Retain-It

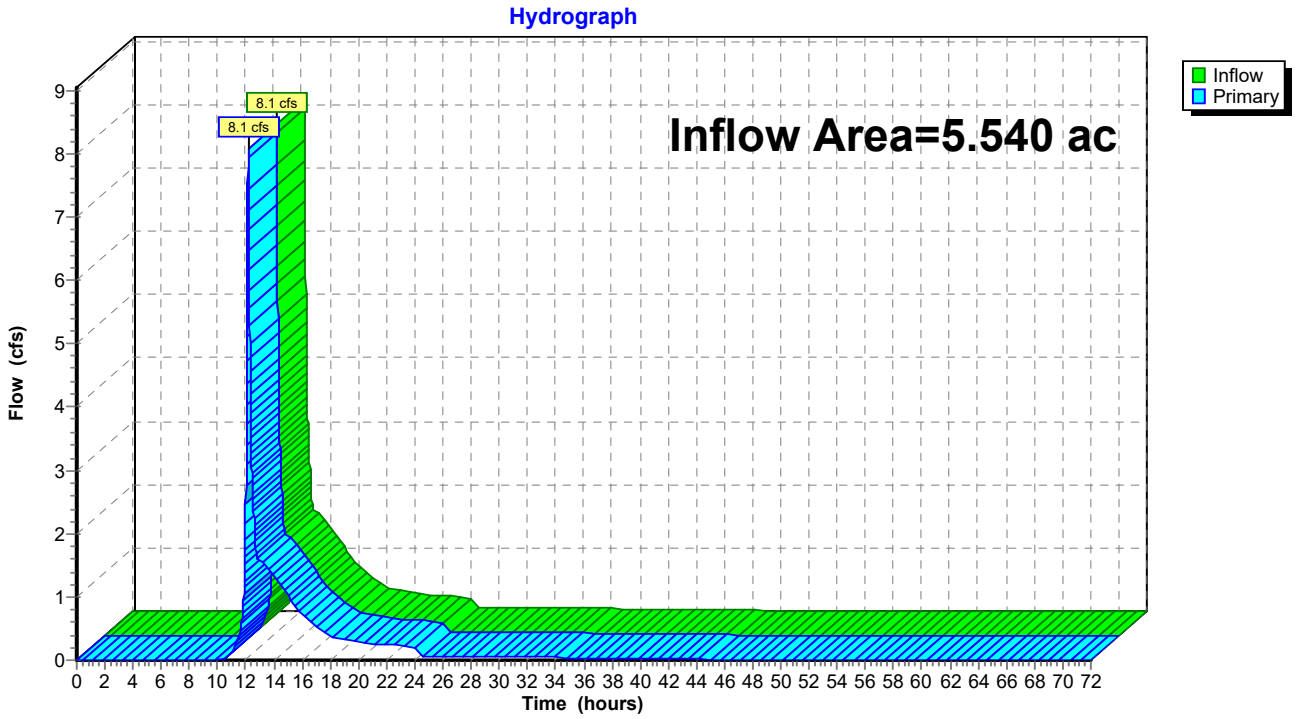
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
268.33	**0.009**	0.000
268.43	0.009	0.000
268.53	0.009	0.001
268.63	0.009	0.001
268.73	0.009	0.001
268.83	0.009	0.002
268.93	0.009	0.002
269.03	0.009	0.002
269.13	0.009	0.003
269.23	0.009	0.003
269.33	0.009	0.004
269.43	0.009	0.004
269.53	0.009	0.005
269.63	0.009	0.006
269.73	0.009	0.007
269.83	0.009	0.007
269.93	0.009	0.008
270.03	0.009	0.009
270.13	0.009	0.010
270.23	0.009	0.010
270.33	0.009	0.011
270.43	0.009	0.012
270.53	0.009	0.013
270.63	0.009	0.013
270.73	0.009	0.014
270.83	0.009	0.015
270.93	0.009	0.016
271.03	0.009	0.016
271.13	0.009	0.017
271.23	0.009	0.018
271.33	0.009	0.019
271.43	0.009	0.019
271.53	0.009	0.020
271.63	0.009	0.021
271.73	0.009	0.022
271.83	0.009	0.022
271.93	0.009	0.023
272.03	0.009	0.024
272.13	0.009	0.025
272.23	0.009	0.025
272.33	0.009	0.026
272.43	0.009	0.027
272.53	0.009	0.028
272.63	0.009	0.028
272.73	0.009	0.029
272.83	0.009	0.030
272.93	0.009	0.031
273.03	0.009	0.031
273.13	0.009	0.032
273.23	0.009	0.033
273.33	0.009	0.034
273.43	0.009	0.034
273.53	0.009	0.035
273.63	0.009	0.036
273.73	0.009	0.037
273.83	0.009	0.037
273.93	0.009	0.038
274.03	0.009	0.039
274.13	0.009	0.040
274.23	0.009	0.041
274.33	0.009	0.041
274.43	0.009	0.041
274.53	0.009	0.041
274.63	0.009	0.041
274.73	0.009	0.041
274.83	0.009	0.041
274.93	0.009	**0.041**

Summary for Link PDA-1: Off Site Wetlands

Inflow Area = 5.540 ac, 32.31% Impervious, Inflow Depth = 1.98" for 50-Year event
Inflow = 8.1 cfs @ 12.17 hrs, Volume= 0.916 af
Primary = 8.1 cfs @ 12.17 hrs, Volume= 0.916 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link PDA-1: Off Site Wetlands



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment EDA-1: Off-Site Wetlands Runoff Area=5.280 ac 0.00% Impervious Runoff Depth=3.31"
Flow Length=479' Tc=10.4 min CN=56 Runoff=17.1 cfs 1.457 af

Subcatchment EDA-2: Off-Site West Runoff Area=0.384 ac 0.00% Impervious Runoff Depth=3.19"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=1.2 cfs 0.102 af

Subcatchment EDA-3: State R.O.W. Runoff Area=0.320 ac 0.00% Impervious Runoff Depth=3.19"
Flow Length=100' Slope=0.3200 '/' Tc=6.8 min CN=55 Runoff=1.2 cfs 0.085 af

Subcatchment PDA-1A: Proposed Runoff Area=2.880 ac 57.29% Impervious Runoff Depth=6.30"
Flow Length=288' Tc=6.5 min CN=81 Runoff=20.1 cfs 1.512 af

Subcatchment PDA-1B: Drive Runoff Area=0.500 ac 28.00% Impervious Runoff Depth=5.10"
Tc=6.0 min CN=71 Runoff=3.0 cfs 0.212 af

Subcatchment PDA-1C: Off-Site Wetlands Runoff Area=2.160 ac 0.00% Impervious Runoff Depth=3.43"
Flow Length=235' Tc=10.2 min CN=57 Runoff=7.4 cfs 0.617 af

Subcatchment PDA-2: Off-Site West Runoff Area=0.330 ac 0.00% Impervious Runoff Depth=3.19"
Flow Length=85' Slope=0.3290 '/' Tc=10.3 min CN=55 Runoff=1.0 cfs 0.088 af

Subcatchment PDA-3: State R.O.W. Runoff Area=0.114 ac 0.00% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=61 Runoff=0.5 cfs 0.037 af

Pond UG-1: Stacked 5' Retain-It Peak Elev=291.71' Storage=0.847 af Inflow=20.1 cfs 1.512 af
Discarded=0.4 cfs 1.025 af Primary=2.1 cfs 0.487 af Outflow=2.4 cfs 1.511 af

Pond UG-2: 5' Retain-It Peak Elev=274.55' Storage=0.041 af Inflow=3.0 cfs 0.212 af
Discarded=0.0 cfs 0.048 af Primary=3.3 cfs 0.164 af Outflow=3.3 cfs 0.212 af

Link PDA-1: Off Site Wetlands Inflow=10.1 cfs 1.268 af
Primary=10.1 cfs 1.268 af

Summary for Subcatchment EDA-1: Off-Site Wetlands

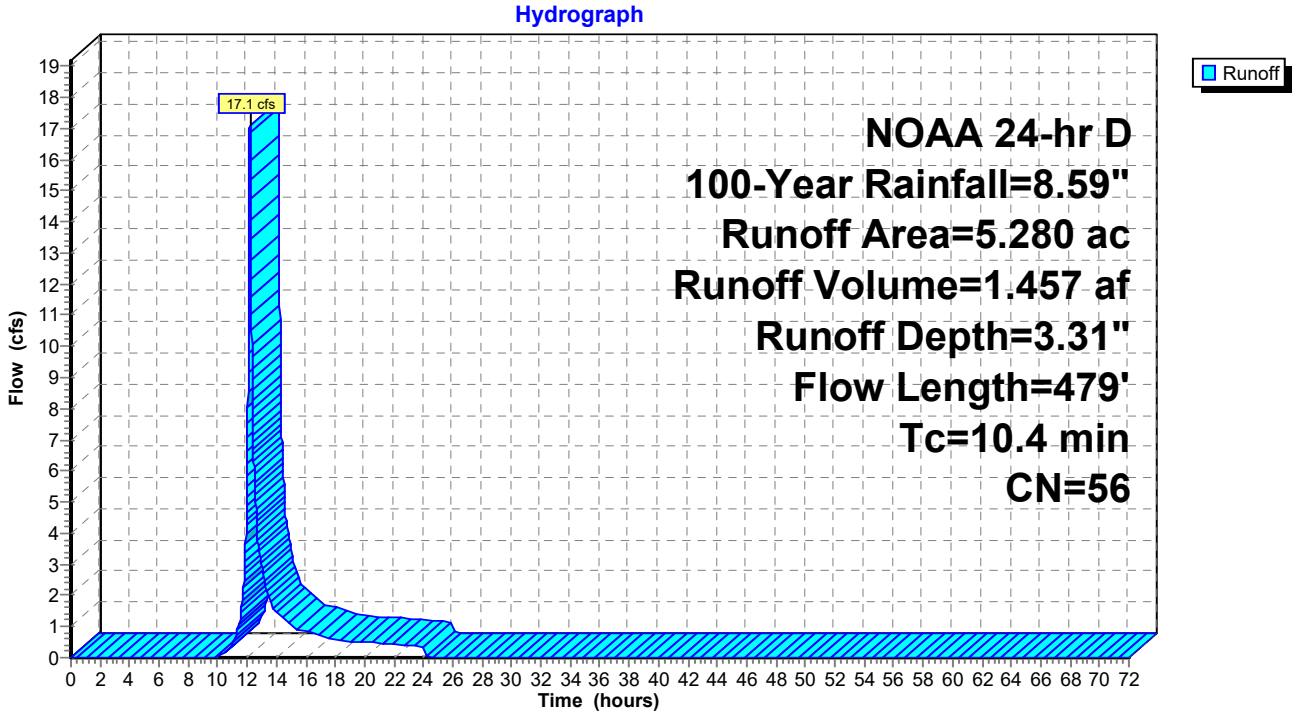
Runoff = 17.1 cfs @ 12.18 hrs, Volume= 1.457 af, Depth= 3.31"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
5.080	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
5.280	56	Weighted Average
5.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.2570	0.22		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
2.6	345	0.1913	2.19		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	34	0.1176	1.71		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
10.4	479	Total			

Subcatchment EDA-1: Off-Site Wetlands



Summary for Subcatchment EDA-2: Off-Site West

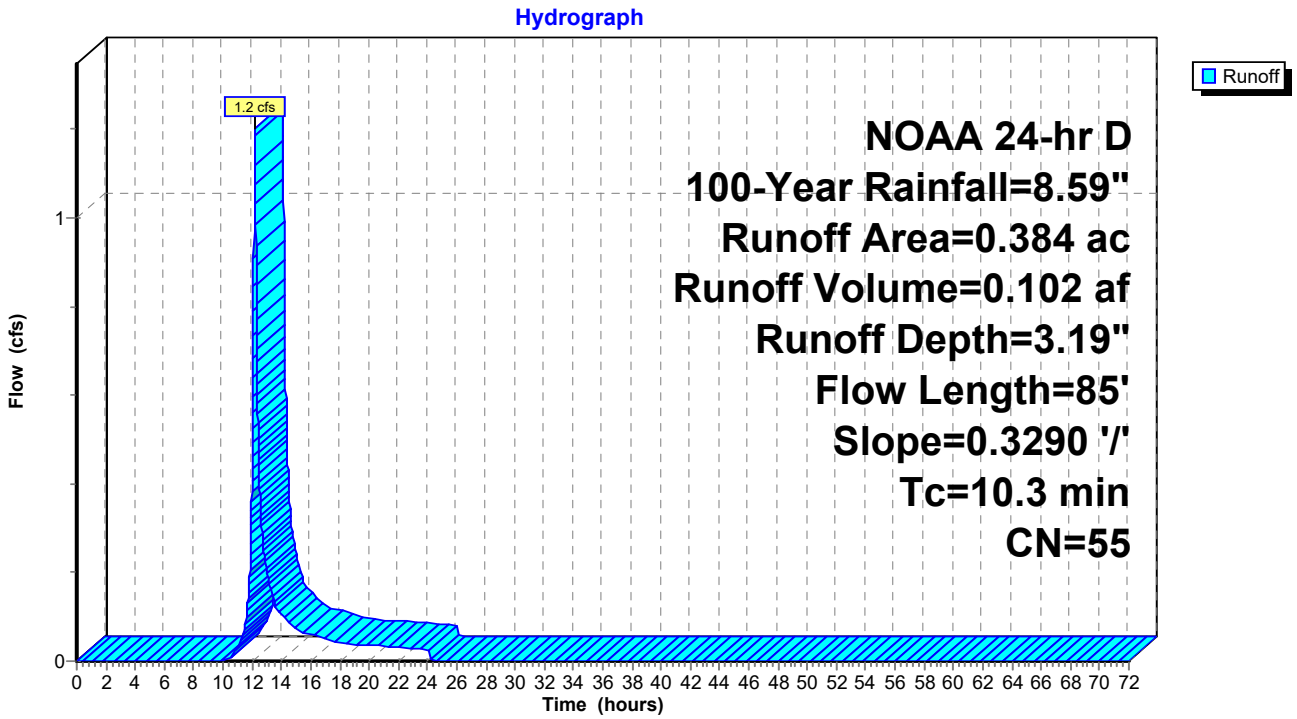
Runoff = 1.2 cfs @ 12.18 hrs, Volume= 0.102 af, Depth= 3.19"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
0.384	55	Woods, Good, HSG B
0.384		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment EDA-2: Off-Site West



Summary for Subcatchment EDA-3: State R.O.W.

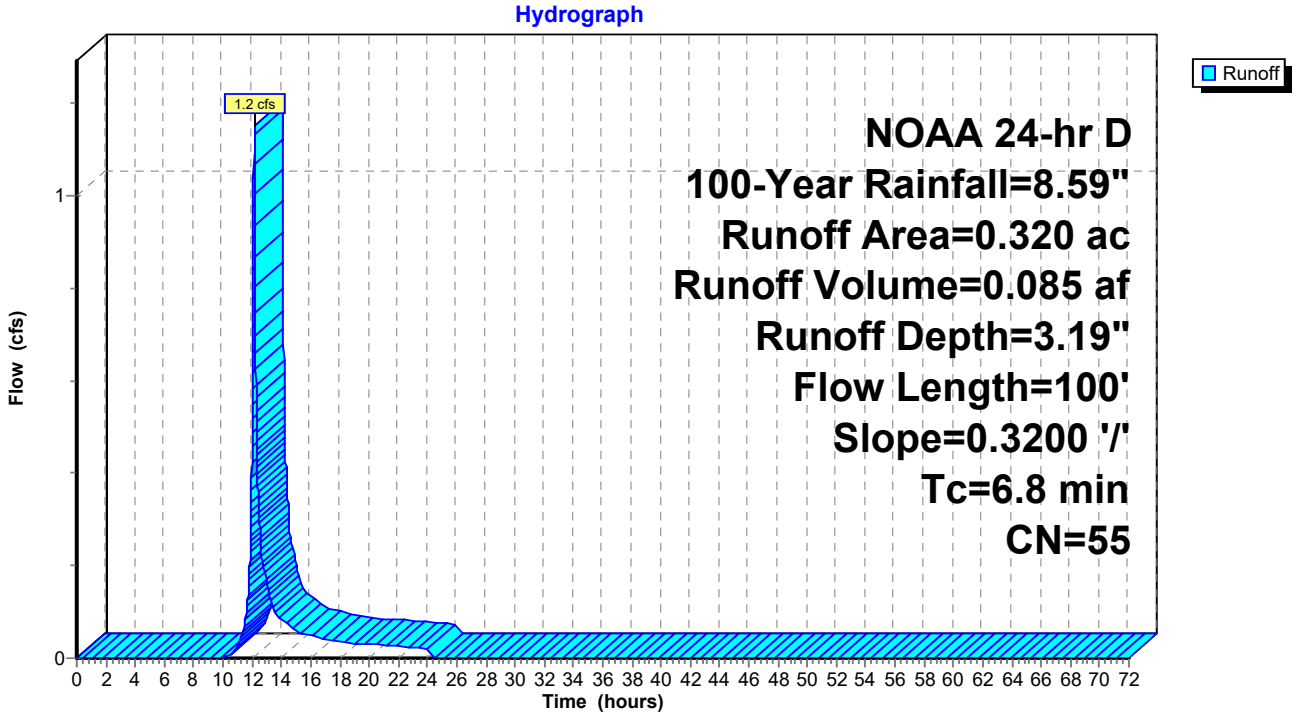
Runoff = 1.2 cfs @ 12.14 hrs, Volume= 0.085 af, Depth= 3.19"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
0.320	55	Woods, Good, HSG B
0.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3200	0.24		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"

Subcatchment EDA-3: State R.O.W.



Summary for Subcatchment PDA-1A: Proposed Development

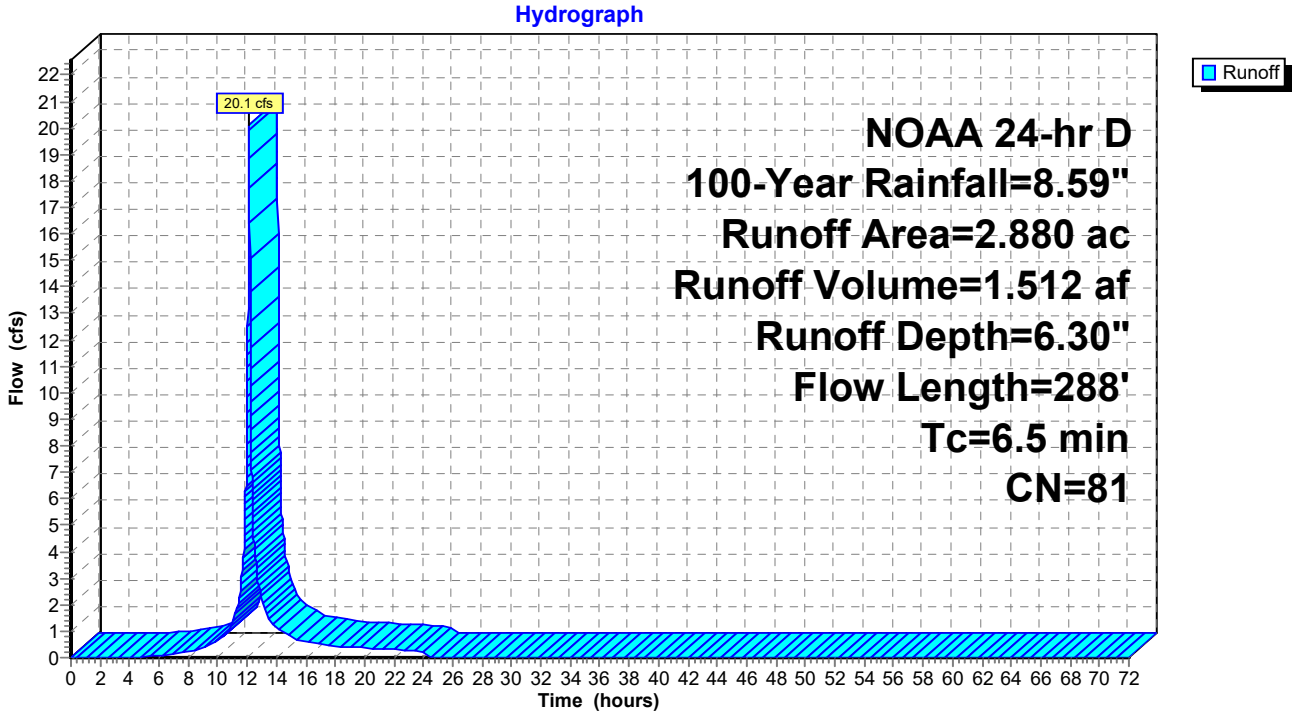
Runoff = 20.1 cfs @ 12.14 hrs, Volume= 1.512 af, Depth= 6.30"
Routed to Pond UG-1 : Stacked 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
1.650	98	Paved parking, HSG C
0.810	61	>75% Grass cover, Good, HSG B
0.420	55	Woods, Good, HSG B
2.880	81	Weighted Average
1.230		42.71% Pervious Area
1.650		57.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	74	0.3108	0.23		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
0.8	162	0.0308	3.56		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	52	0.1650	2.84		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
6.5	288	Total			

Subcatchment PDA-1A: Proposed Development



Summary for Subcatchment PDA-1B: Drive

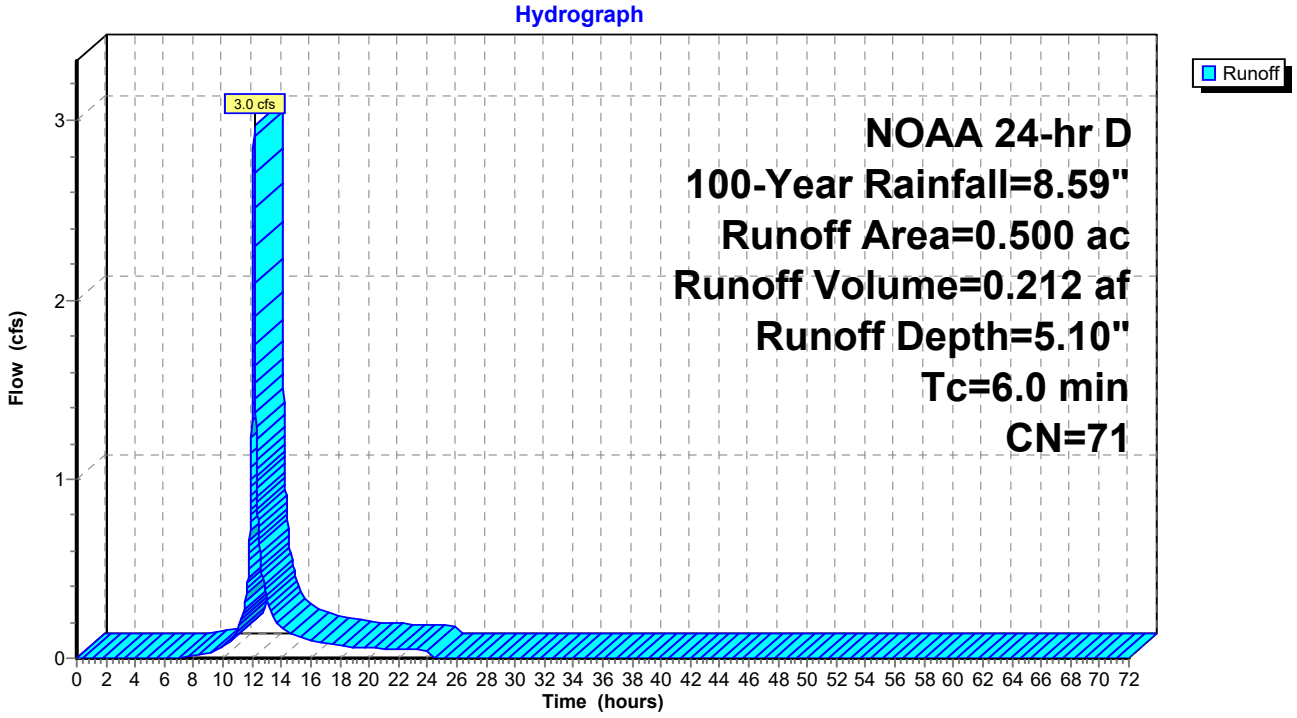
Runoff = 3.0 cfs @ 12.13 hrs, Volume= 0.212 af, Depth= 5.10"
Routed to Pond UG-2 : 5' Retain-It

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.360	61	>75% Grass cover, Good, HSG B
0.500	71	Weighted Average
0.360		72.00% Pervious Area
0.140		28.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-1B: Drive



Summary for Subcatchment PDA-1C: Off-Site Wetlands

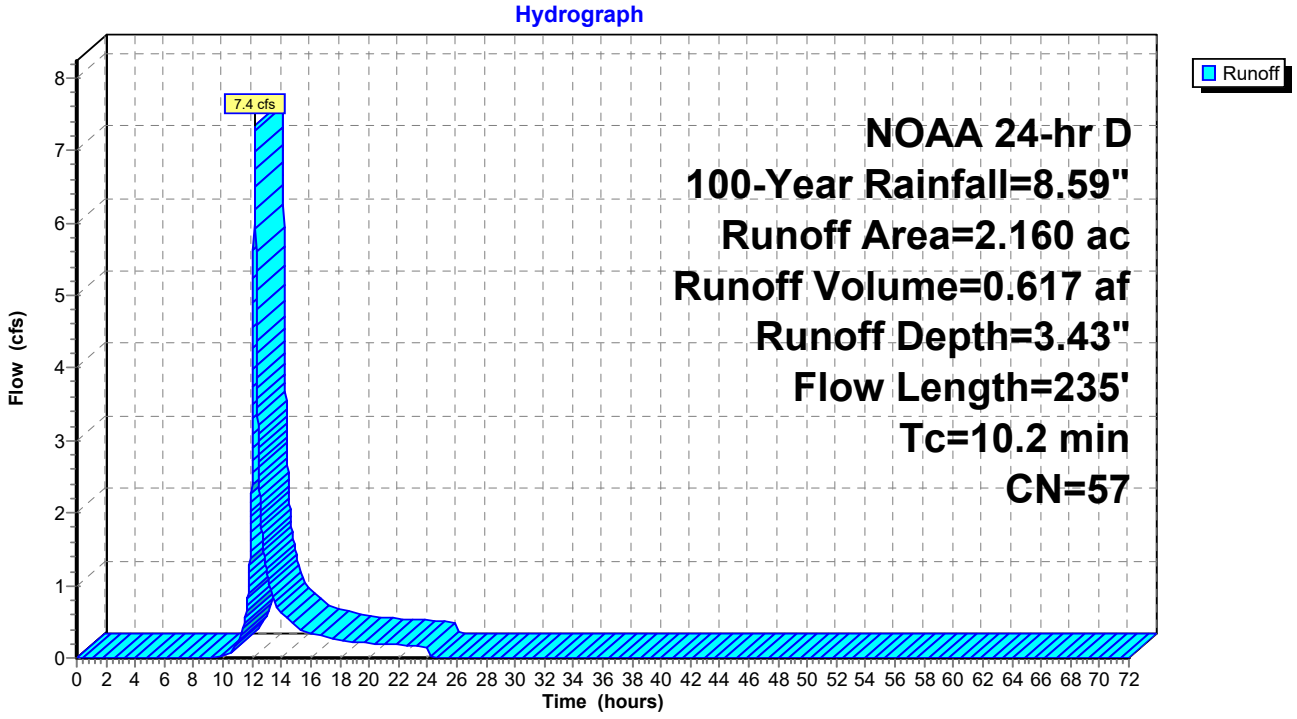
Runoff = 7.4 cfs @ 12.18 hrs, Volume= 0.617 af, Depth= 3.43"
Routed to Link PDA-1 : Off Site Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
0.090	61	>75% Grass cover, Good, HSG B
1.870	55	Woods, Good, HSG B
0.200	77	Woods, Good, HSG D
2.160	57	Weighted Average
2.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	65	0.1690	0.17		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.44"
3.1	35	0.2860	0.19		**Sheet Flow, B-C** Woods: Light underbrush n= 0.400 P2= 3.44"
0.9	135	0.2670	2.58		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.2	235	Total			

Subcatchment PDA-1C: Off-Site Wetlands



Summary for Subcatchment PDA-2: Off-Site West

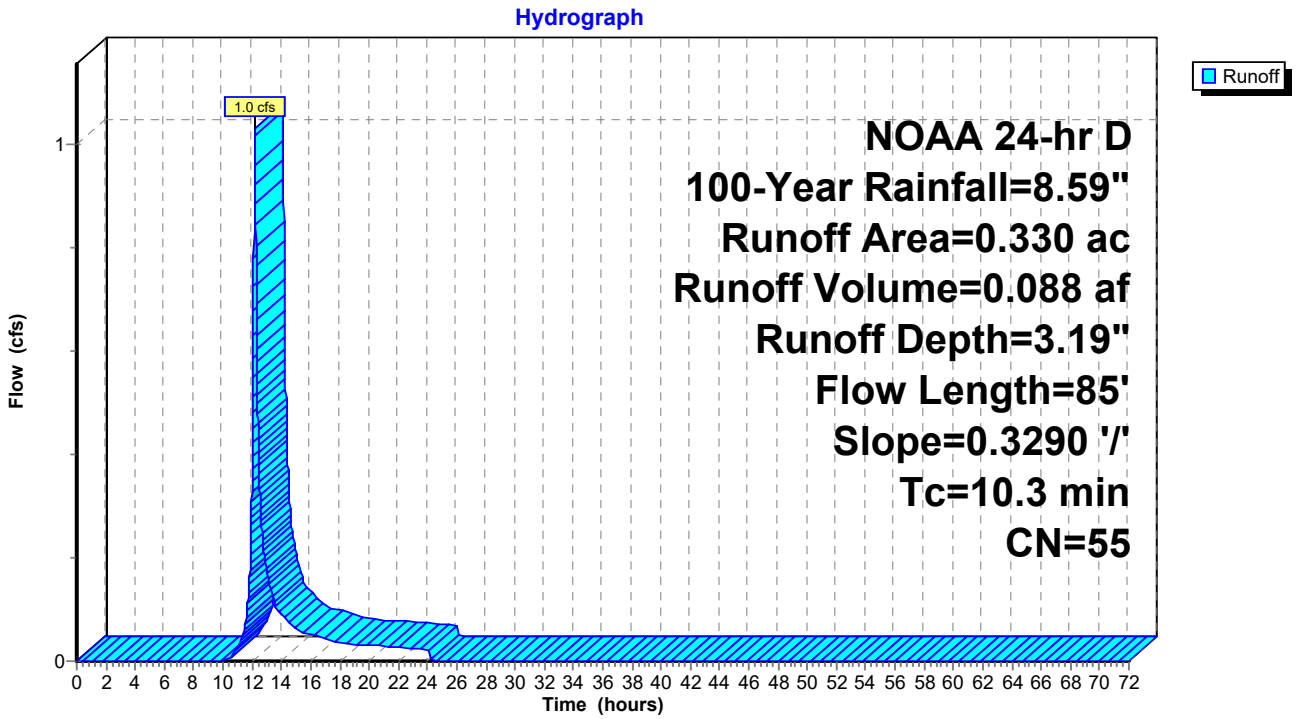
Runoff = 1.0 cfs @ 12.18 hrs, Volume= 0.088 af, Depth= 3.19"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
0.330	55	Woods, Good, HSG B
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	85	0.3290	0.14		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.44"

Subcatchment PDA-2: Off-Site West



Summary for Subcatchment PDA-3: State R.O.W.

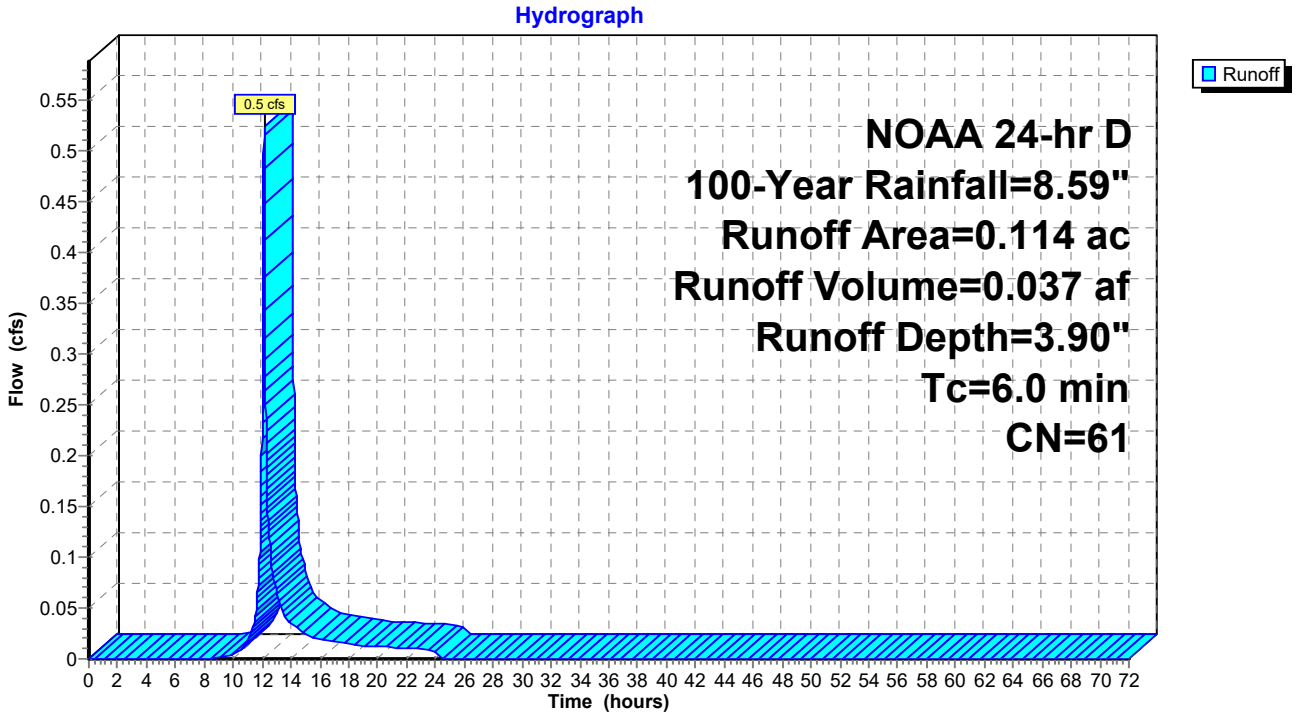
Runoff = 0.5 cfs @ 12.13 hrs, Volume= 0.037 af, Depth= 3.90"
Routed to nonexistent node O

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.59"

Area (ac)	CN	Description
0.114	61	>75% Grass cover, Good, HSG B
0.114		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PDA-3: State R.O.W.



Summary for Pond UG-1: Stacked 5' Retain-It

Inflow Area = 2.880 ac, 57.29% Impervious, Inflow Depth = 6.30" for 100-Year event
Inflow = 20.1 cfs @ 12.14 hrs, Volume= 1.512 af
Outflow = 2.4 cfs @ 12.93 hrs, Volume= 1.511 af, Atten= 88%, Lag= 47.6 min
Discarded = 0.4 cfs @ 12.93 hrs, Volume= 1.025 af
Primary = 2.1 cfs @ 12.93 hrs, Volume= 0.487 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 291.71' @ 12.93 hrs Surf.Area= 0.176 ac Storage= 0.847 af

Plug-Flow detention time= 864.4 min calculated for 1.511 af (100% of inflow)
Center-of-Mass det. time= 864.3 min (1,669.0 - 804.7)

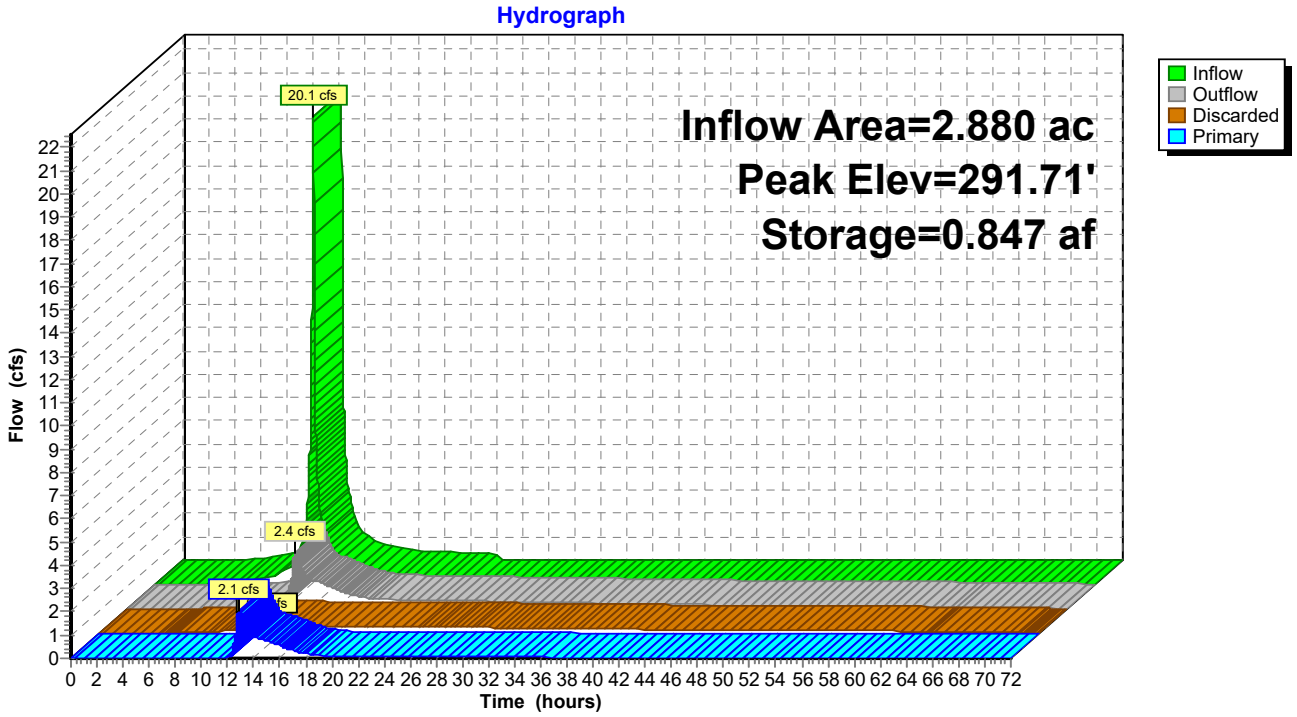
Volume	Invert	Avail.Storage	Storage Description
#1	282.50'	0.999 af	**32.00'W x 120.00'L x 11.33'H Stacked Retain-It 5'**
#2	281.50'	0.035 af	**32.00'W x 120.00'L x 1.00'H Stone Base** 0.088 af Overall x 40.0% Voids
		1.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	282.50'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 282.50' / 278.00' S= 0.1125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	284.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	290.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.50'	**4.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#5	Discarded	281.50'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 278.50'

Discarded OutFlow Max=0.4 cfs @ 12.93 hrs HW=291.71' (Free Discharge)
└─**5=Exfiltration** (Controls 0.4 cfs)

Primary OutFlow Max=2.0 cfs @ 12.93 hrs HW=291.71' (Free Discharge)
└─**1=Culvert** (Passes 2.0 cfs of 11.2 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 12.89 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.9 cfs @ 4.71 fps)
  └─**4=Broad-Crested Rectangular Weir** (Weir Controls 1.1 cfs @ 1.26 fps)

Pond UG-1: Stacked 5' Retain-It



Stage-Discharge for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
281.50	0.0	0.0	0.0
281.70	0.0	0.0	0.0
281.90	0.1	0.1	0.0
282.10	0.1	0.1	0.0
282.30	0.1	0.1	0.0
282.50	0.1	0.1	0.0
282.70	0.1	0.1	0.0
282.90	0.1	0.1	0.0
283.10	0.1	0.1	0.0
283.30	0.1	0.1	0.0
283.50	0.1	0.1	0.0
283.70	0.1	0.1	0.0
283.90	0.1	0.1	0.0
284.10	0.1	0.1	0.0
284.30	0.2	0.2	0.0
284.50	0.2	0.2	0.0
284.70	0.2	0.2	0.0
284.90	0.2	0.2	0.0
285.10	0.2	0.2	0.0
285.30	0.2	0.2	0.0
285.50	0.2	0.2	0.0
285.70	0.2	0.2	0.0
285.90	0.2	0.2	0.0
286.10	0.2	0.2	0.0
286.30	0.2	0.2	0.0
286.50	0.2	0.2	0.0
286.70	0.3	0.2	0.0
286.90	0.3	0.2	0.0
287.10	0.3	0.2	0.0
287.30	0.3	0.2	0.0
287.50	0.3	0.2	0.0
287.70	0.3	0.2	0.0
287.90	0.3	0.3	0.0
288.10	0.3	0.3	0.0
288.30	0.3	0.3	0.1
288.50	0.3	0.3	0.1
288.70	0.3	0.3	0.1
288.90	0.3	0.3	0.1
289.10	0.3	0.3	0.1
289.30	0.3	0.3	0.1
289.50	0.4	0.3	0.1
289.70	0.4	0.3	0.1
289.90	0.4	0.3	0.1
290.10	0.4	0.3	0.1
290.30	0.4	0.3	0.1
290.50	0.4	0.3	0.1
290.70	0.5	0.3	0.2
290.90	0.8	0.3	0.4
291.10	1.0	0.3	0.6
291.30	1.1	0.3	0.8
291.50	1.2	0.3	0.9
291.70	2.3	0.4	2.0
291.90	4.3	0.4	3.9
292.10	7.0	0.4	6.6
292.30	10.5	0.4	10.1
292.50	12.0	0.4	11.7
292.70	12.2	0.4	11.8
292.90	12.3	0.4	11.9
293.10	12.4	0.4	12.0
293.30	12.5	0.4	12.1
293.50	12.7	0.4	12.3
293.70	**12.8**	**0.4**	**12.4**

Stage-Area-Storage for Pond UG-1: Stacked 5' Retain-It

Elevation (feet)	Surface (acres)	Storage (acre-feet)
281.50	0.088	0.000
281.70	0.088	0.007
281.90	0.088	0.014
282.10	0.088	0.021
282.30	0.088	0.028
282.50	**0.176**	0.035
282.70	0.176	0.053
282.90	0.176	0.071
283.10	0.176	0.088
283.30	0.176	0.106
283.50	0.176	0.123
283.70	0.176	0.141
283.90	0.176	0.159
284.10	0.176	0.176
284.30	0.176	0.194
284.50	0.176	0.212
284.70	0.176	0.229
284.90	0.176	0.247
285.10	0.176	0.264
285.30	0.176	0.282
285.50	0.176	0.300
285.70	0.176	0.317
285.90	0.176	0.335
286.10	0.176	0.353
286.30	0.176	0.370
286.50	0.176	0.388
286.70	0.176	0.406
286.90	0.176	0.423
287.10	0.176	0.441
287.30	0.176	0.458
287.50	0.176	0.476
287.70	0.176	0.494
287.90	0.176	0.511
288.10	0.176	0.529
288.30	0.176	0.547
288.50	0.176	0.564
288.70	0.176	0.582
288.90	0.176	0.599
289.10	0.176	0.617
289.30	0.176	0.635
289.50	0.176	0.652
289.70	0.176	0.670
289.90	0.176	0.688
290.10	0.176	0.705
290.30	0.176	0.723
290.50	0.176	0.740
290.70	0.176	0.758
290.90	0.176	0.776
291.10	0.176	0.793
291.30	0.176	0.811
291.50	0.176	0.829
291.70	0.176	0.846
291.90	0.176	0.864
292.10	0.176	0.882
292.30	0.176	0.899
292.50	0.176	0.917
292.70	0.176	0.934
292.90	0.176	0.952
293.10	0.176	0.970
293.30	0.176	0.987
293.50	0.176	1.005
293.70	0.176	**1.023**

Summary for Pond UG-2: 5' Retain-It

Inflow Area = 0.500 ac, 28.00% Impervious, Inflow Depth = 5.10" for 100-Year event
Inflow = 3.0 cfs @ 12.13 hrs, Volume= 0.212 af
Outflow = 3.3 cfs @ 12.14 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.5 min
Discarded = 0.0 cfs @ 12.14 hrs, Volume= 0.048 af
Primary = 3.3 cfs @ 12.14 hrs, Volume= 0.164 af
Routed to Link PDA-1 : Off Site Wetlands

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 274.55' @ 12.14 hrs Surf.Area= 0.009 ac Storage= 0.041 af

Plug-Flow detention time= 307.9 min calculated for 0.212 af (100% of inflow)
Center-of-Mass det. time= 308.2 min (1,136.6 - 828.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	268.33'	0.004 af	**16.00'W x 24.00'L x 6.67'H Field A** 0.059 af Overall - 0.050 af Embedded = 0.009 af x 40.0% Voids
#2A	269.33'	0.038 af	**retain_it retain_it 5.0'** x 6 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 2 Rows adjusted for 103.9 cf perimeter wall
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.10'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 273.10' / 273.10' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	268.33'	**0.520 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 265.50'

Discarded OutFlow Max=0.0 cfs @ 12.14 hrs HW=274.55' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.0 cfs)

Primary OutFlow Max=3.3 cfs @ 12.14 hrs HW=274.55' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 3.3 cfs @ 4.14 fps)

Pond UG-2: 5' Retain-It - Chamber Wizard Field A

Chamber Model = retain_it retain_it 5.0' (retain-it®)
Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf
Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf
2 Rows adjusted for 103.9 cf perimeter wall

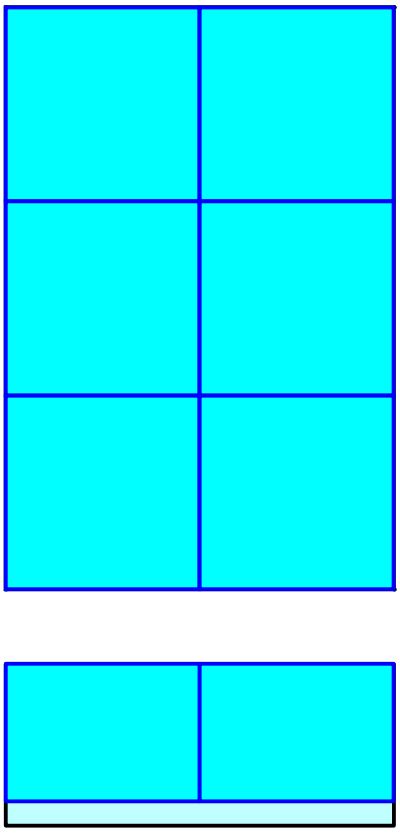
3 Chambers/Row x 8.00' Long = 24.00' Row Length
2 Rows x 96.0" Wide = 16.00' Base Width
12.0" Stone Base + 68.0" Chamber Height = 6.67' Field Height

10.4 cf Sidewall x 3 x 2 + 10.4 cf Endwall x 2 x 2 = 103.9 cf Perimeter Wall
6 Chambers x 291.3 cf - 103.9 cf Perimeter wall = 1,643.8 cf Chamber Storage
6 Chambers x 362.7 cf = 2,176.0 cf Displacement

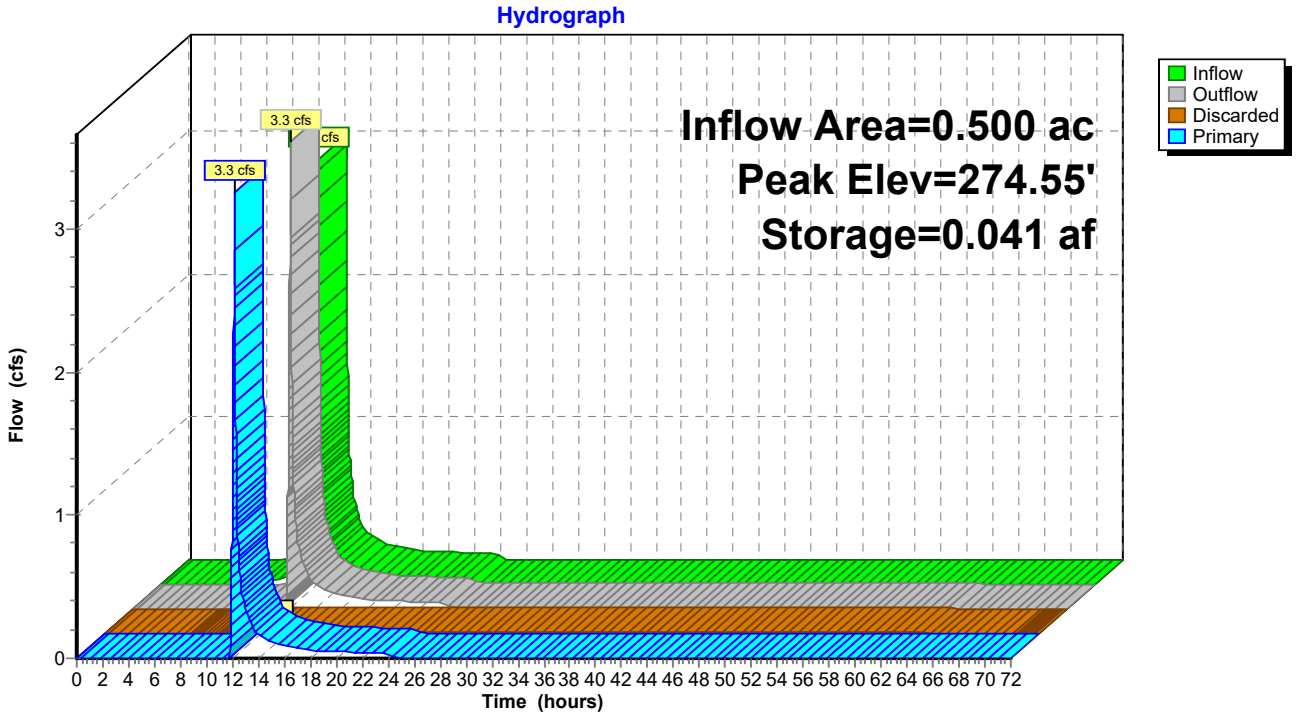
2,560.0 cf Field - 2,176.0 cf Chambers = 384.0 cf Stone x 40.0% Voids = 153.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,797.4 cf = 0.041 af
Overall Storage Efficiency = 70.2%
Overall System Size = 24.00' x 16.00' x 6.67'

6 Chambers
94.8 cy Field
14.2 cy Stone



Pond UG-2: 5' Retain-It



Stage-Discharge for Pond UG-2: 5' Retain-It

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
268.33	0.0	0.0	0.0
268.43	0.0	0.0	0.0
268.53	0.0	0.0	0.0
268.63	0.0	0.0	0.0
268.73	0.0	0.0	0.0
268.83	0.0	0.0	0.0
268.93	0.0	0.0	0.0
269.03	0.0	0.0	0.0
269.13	0.0	0.0	0.0
269.23	0.0	0.0	0.0
269.33	0.0	0.0	0.0
269.43	0.0	0.0	0.0
269.53	0.0	0.0	0.0
269.63	0.0	0.0	0.0
269.73	0.0	0.0	0.0
269.83	0.0	0.0	0.0
269.93	0.0	0.0	0.0
270.03	0.0	0.0	0.0
270.13	0.0	0.0	0.0
270.23	0.0	0.0	0.0
270.33	0.0	0.0	0.0
270.43	0.0	0.0	0.0
270.53	0.0	0.0	0.0
270.63	0.0	0.0	0.0
270.73	0.0	0.0	0.0
270.83	0.0	0.0	0.0
270.93	0.0	0.0	0.0
271.03	0.0	0.0	0.0
271.13	0.0	0.0	0.0
271.23	0.0	0.0	0.0
271.33	0.0	0.0	0.0
271.43	0.0	0.0	0.0
271.53	0.0	0.0	0.0
271.63	0.0	0.0	0.0
271.73	0.0	0.0	0.0
271.83	0.0	0.0	0.0
271.93	0.0	0.0	0.0
272.03	0.0	0.0	0.0
272.13	0.0	0.0	0.0
272.23	0.0	0.0	0.0
272.33	0.0	0.0	0.0
272.43	0.0	0.0	0.0
272.53	0.0	0.0	0.0
272.63	0.0	0.0	0.0
272.73	0.0	0.0	0.0
272.83	0.0	0.0	0.0
272.93	0.0	0.0	0.0
273.03	0.0	0.0	0.0
273.13	0.0	0.0	0.0
273.23	0.0	0.0	0.0
273.33	0.1	0.0	0.1
273.43	0.3	0.0	0.3
273.53	0.4	0.0	0.4
273.63	0.7	0.0	0.6
273.73	0.9	0.0	0.9
273.83	1.2	0.0	1.2
273.93	1.5	0.0	1.5
274.03	1.8	0.0	1.8
274.13	2.1	0.0	2.1
274.23	2.4	0.0	2.4
274.33	2.6	0.0	2.6
274.43	2.8	0.0	2.8
274.53	3.2	0.0	3.2
274.63	3.5	0.0	3.5
274.73	3.9	0.0	3.9
274.83	4.2	0.0	4.1
274.93	**4.4**	**0.0**	**4.4**

Stage-Area-Storage for Pond UG-2: 5' Retain-It

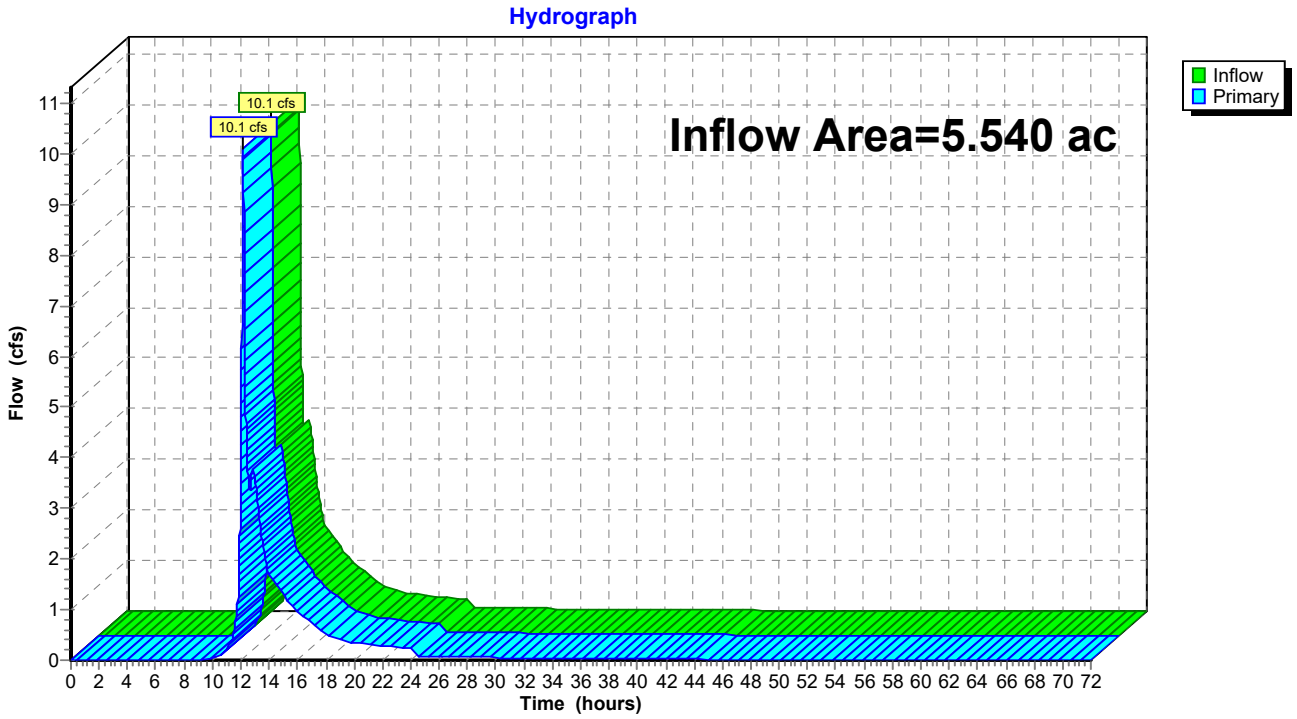
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
268.33	**0.009**	0.000
268.43	0.009	0.000
268.53	0.009	0.001
268.63	0.009	0.001
268.73	0.009	0.001
268.83	0.009	0.002
268.93	0.009	0.002
269.03	0.009	0.002
269.13	0.009	0.003
269.23	0.009	0.003
269.33	0.009	0.004
269.43	0.009	0.004
269.53	0.009	0.005
269.63	0.009	0.006
269.73	0.009	0.007
269.83	0.009	0.007
269.93	0.009	0.008
270.03	0.009	0.009
270.13	0.009	0.010
270.23	0.009	0.010
270.33	0.009	0.011
270.43	0.009	0.012
270.53	0.009	0.013
270.63	0.009	0.013
270.73	0.009	0.014
270.83	0.009	0.015
270.93	0.009	0.016
271.03	0.009	0.016
271.13	0.009	0.017
271.23	0.009	0.018
271.33	0.009	0.019
271.43	0.009	0.019
271.53	0.009	0.020
271.63	0.009	0.021
271.73	0.009	0.022
271.83	0.009	0.022
271.93	0.009	0.023
272.03	0.009	0.024
272.13	0.009	0.025
272.23	0.009	0.025
272.33	0.009	0.026
272.43	0.009	0.027
272.53	0.009	0.028
272.63	0.009	0.028
272.73	0.009	0.029
272.83	0.009	0.030
272.93	0.009	0.031
273.03	0.009	0.031
273.13	0.009	0.032
273.23	0.009	0.033
273.33	0.009	0.034
273.43	0.009	0.034
273.53	0.009	0.035
273.63	0.009	0.036
273.73	0.009	0.037
273.83	0.009	0.037
273.93	0.009	0.038
274.03	0.009	0.039
274.13	0.009	0.040
274.23	0.009	0.041
274.33	0.009	0.041
274.43	0.009	0.041
274.53	0.009	0.041
274.63	0.009	0.041
274.73	0.009	0.041
274.83	0.009	0.041
274.93	0.009	**0.041**

Summary for Link PDA-1: Off Site Wetlands

Inflow Area = 5.540 ac, 32.31% Impervious, Inflow Depth = 2.75" for 100-Year event
Inflow = 10.1 cfs @ 12.16 hrs, Volume= 1.268 af
Primary = 10.1 cfs @ 12.16 hrs, Volume= 1.268 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link PDA-1: Off Site Wetlands



WATER QUALITY VOLUME (WQV) COMPUTATIONS

Project: Proposed Residential Development
Location: 804 Fountain Street, Woodbridge, CT
Date:

Water Quality Volume Calculations:

$$WQV = \frac{(1.3")(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{A_{IMP}}{A_{TOT}} \times 100$$

Where:
I = percent impervious cover
A_{IMP} = area of impervious cover
A_{TOT} = total area of watershed

Watershed Description:	Overall PDA - Proposed Impervious			
Area of impervious coverage, A_{IMP}	1.79	Acres		
Total area of watershed, A_{TOT}	5.98	Acres		
Percent impverious cover, I	29.93	%		
Volumentric runoff coefficient, R	0.32			
Water Quality Volume, WQV	0.207	ac-ft	9,013	cf

WATER QUALITY VOLUME (WQV) COMPUTATIONS

Project: Proposed Residential Development
Location: 804 Fountain Street, Woodbridge, CT
Date: 08/18/25

Water Quality Volume Calculations:

$$WQV = \frac{(1.3")(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{A_{IMP}}{A_{TOT}} \times 100$$

Where:
I = percent impervious cover
A_{IMP} = area of impervious cover
A_{TOT} = total area of watershed

Watershed Description:	HYD-1		
Area of impervious coverage, A_{IMP}	0.74	Acres	
Total area of watershed, A_{TOT}	1.55	Acres	
Percent impverious cover, I	47.74	%	
Volumentric runoff coefficient, R	0.48		
Water Quality Volume, WQV	0.081	ac-ft	3,509 cf

Water Quality Flow Calculations:

WQf = (qu)(A)(Q)
WQf = Peak Discharge for water quality event (cfs)
qu = unit peak discharge (cfs/mi^2 /in)
A = drainage area (square miles)
Q = runoff volume (WQv/A) (watershed inches)

$CN = 1000 /[10 + 5*P +10*Q - 10*(Q^2 +1.25*Q*P)^{1/2}]$

Appendix D of the 2024 Connecticut Stormwater Quality Manual

P=	1.3	inches
Q=	0.624	inches
WQv =	0.081	acre-ft
Total Drainage Area =	1.55	acre
CN =	90.00	

Ia = 200/CN -2

Ia =	0.222	

Compute Ia/P

P=	1.3	inches
Ia / P =	0.17	

Tc= 6 min
0.100 hr

Exhibit 4-III

Tc=	0.100
Ia / P =	0.17
q_u =	625

WQf = (qu)(A)(Q)

qu =	625	csm/in
A =	0.002	mi^2 (acre/640)
Q =	0.624	inches
WQf =	0.94	cfs

WATER QUALITY VOLUME (WQV) COMPUTATIONS

Project: Proposed Residential Development
Location: 804 Fountain Street, Woodbridge, CT
Date: 08/18/25

Water Quality Volume Calculations:

$$WQV = \frac{(1.3")(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{A_{IMP}}{A_{TOT}} \times 100$$

Where:
I = percent impervious cover
A_{IMP} = area of impervious cover
A_{TOT} = total area of watershed

Watershed Description:	HYD-3		
Area of impervious coverage, A_{IMP}	0.79	Acres	
Total area of watershed, A_{TOT}	1.32	Acres	
Percent impverious cover, I	59.85	%	
Volumentric runoff coefficient, R	0.59		
Water Quality Volume, WQV	0.084	ac-ft	3,667 cf

Water Quality Flow Calculations:

WQf = (qu)(A)(Q)
WQf = Peak Discharge for water quality event (cfs)
qu = unit peak discharge (cfs/mi^2 /in)
A = drainage area (square miles)
Q = runoff volume (WQv/A) (watershed inches)

$CN = 1000 /[10 + 5*P +10*Q - 10*(Q^2 +1.25*Q*P)^{1/2}]$

Appendix D of the 2024 Connecticut Stormwater Quality Manual

P=	1.3	inches
Q=	0.765	inches
WQv =	0.084	acre-ft
Total Drainage Area =	1.32	acre
CN =	90.00	

Ia = 200/CN -2

Ia =	0.222	

Compute Ia/P

P=	1.3	inches
Ia / P =	0.17	

Tc= 6 min
0.100 hr

Exhibit 4-III

Tc=	0.100
Ia / P =	0.17
q_u =	625

WQf = (qu)(A)(Q)

qu =	625	csm/in
A =	0.002	mi^2 (acre/640)
Q =	0.765	inches
WQf =	0.99	cfs

APPENDIX D
STORM DRAINAGE SYSTEM CALCULATIONS

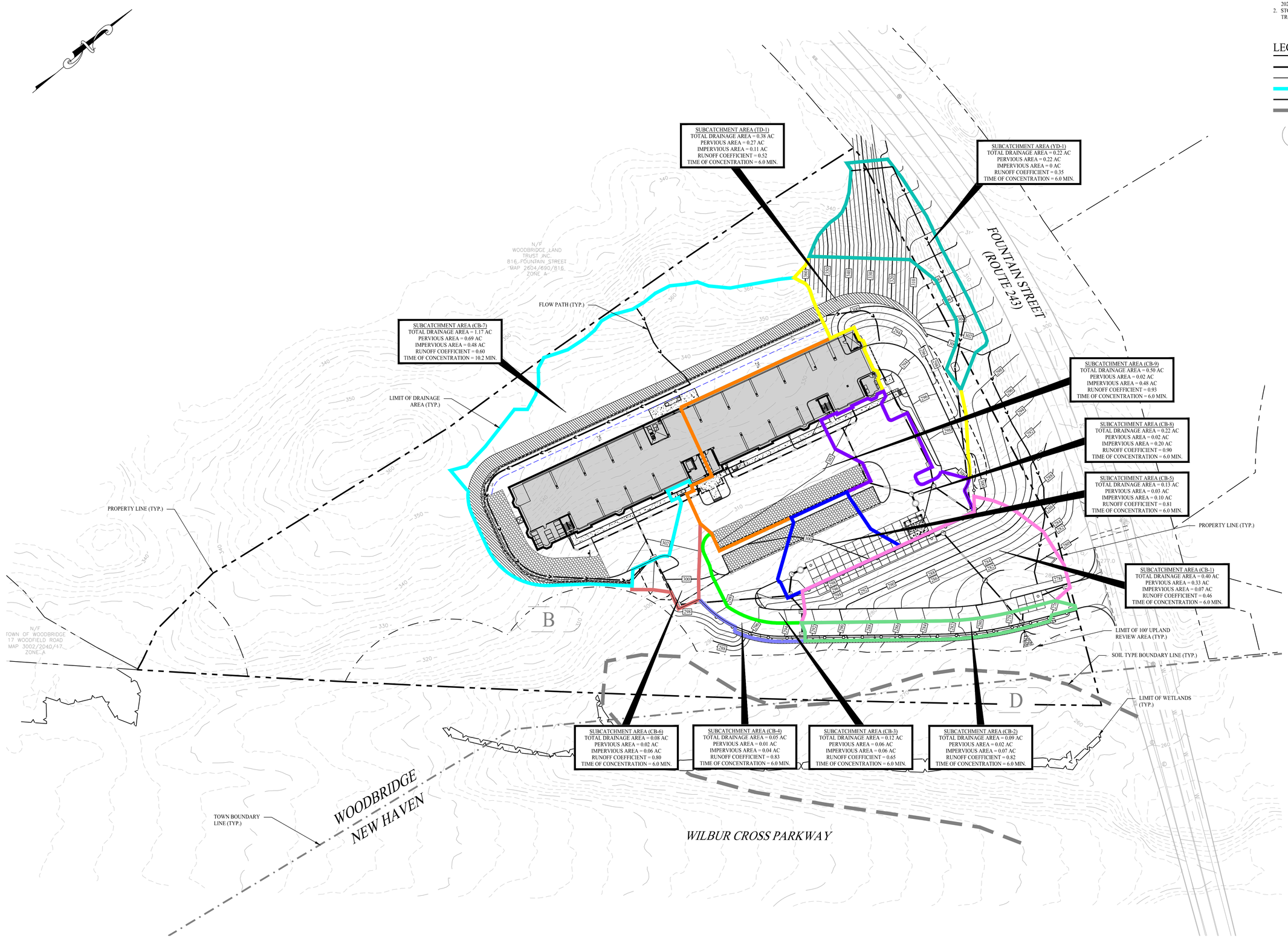
Subcatchment Drainage Area Map (DA-CB)
Hydraflow Storm Sewer Schematic
Hydraflow Storm Sewer Tabular Reports
Hydraflow Storm Sewer Profile
Runoff Coefficient Calculations
Hydrodynamic Separator Information

GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON A PLAN TITLED "EXISTING CONDITIONS MAP", SCALE 1"=40', DATED MARCH 5, 2024, PERFORMED BY JOHN PAUL GARCIA AND ASSOCIATES.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH
- SOIL TYPE BOUNDARY
- B — HYDROLOGIC SOIL GROUP



Rev. #:	Date	Description

Graphic Scale: 40 0 40 80

SOLLI ENGINEERING
MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	MJD
Checked By:	PAR
Approved By:	KMS
Project #:	25111001
Plan Date:	08/18/25
Scale:	1" = 40'

STATE OF CONNECTICUT — KEVIN M. SOLLI — 25759 — LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

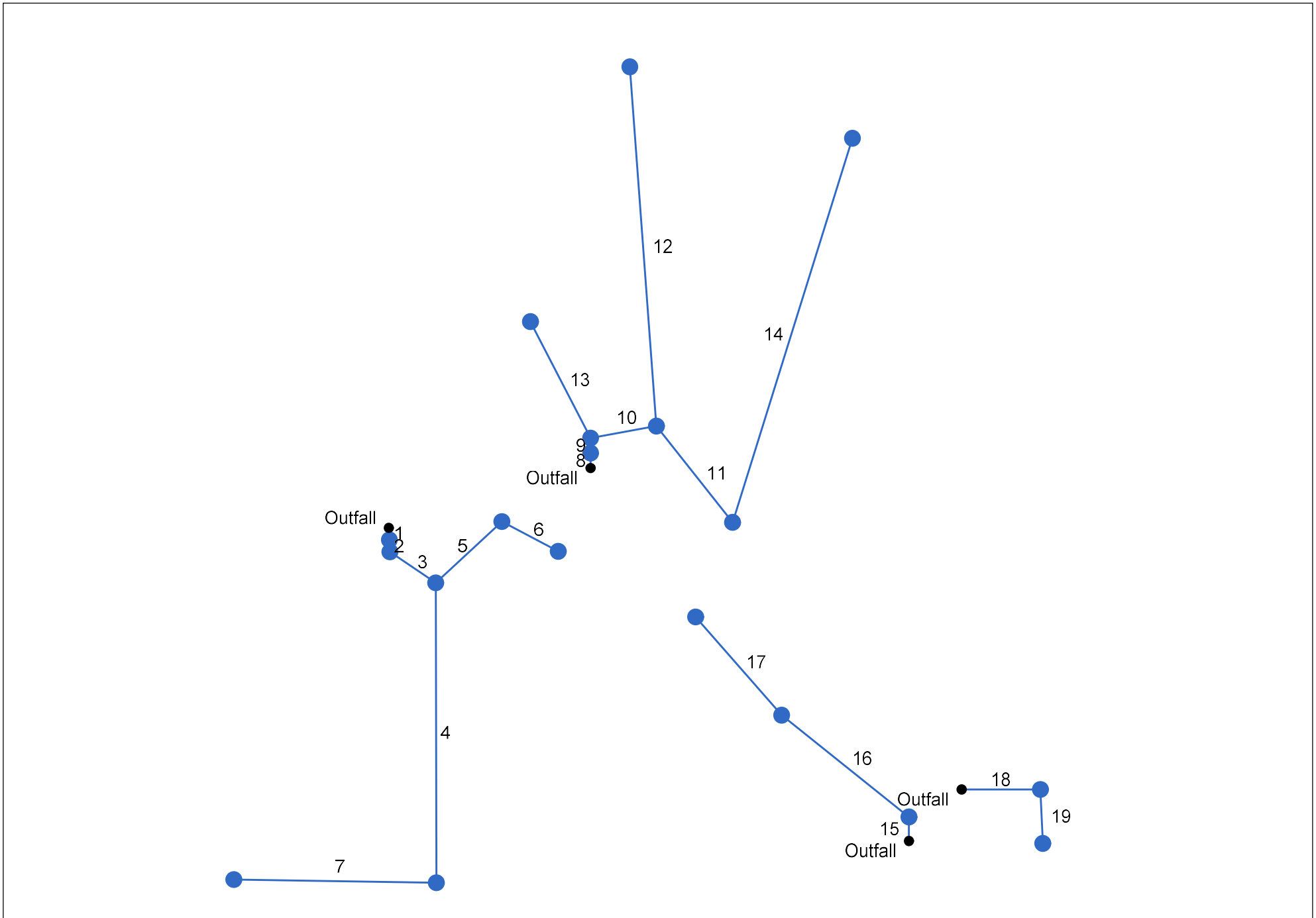
Project:

PROPOSED RESIDENTIAL DEVELOPMENT

804 FOUNTAIN STREET
WOODBRIDGE, CONNECTICUT

Sheet Title:	Sheet #:
DRAINAGE AREA CATCH BASIN MAP	DACB

804 Fountain Street



Project File: 804 Fountain Street - Stormsewers.stm	Number of lines: 19	Date: 8/16/2025

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	HYD-3	13.72	18	Cir	4.000	289.00	289.20	5.000	290.26	290.57	0.15	290.57	End	Manhole
2	DMH-3	6.43	18	Cir	4.000	289.20	289.30	2.499	290.57	290.28	n/a	290.28	1	Manhole
3	CB-5	6.45	15	Cir	16.000	289.30	289.50	1.250	290.28	290.52	n/a	290.52	2	Combination
4	CB-6	5.05	12	Cir	100.000	294.50	296.20	1.700	295.50*	297.51*	n/a	298.47	3	Combination
5	CB-3	0.98	12	Cir	27.000	289.50	289.80	1.111	290.52	290.53	n/a	290.59	3	Combination
6	CB-4	0.36	12	Cir	18.000	289.80	290.00	1.111	290.59	290.25	n/a	290.25	5	Combination
7	CB-7	4.66	12	Cir	54.000	296.20	296.70	0.926	298.47*	299.40*	n/a	299.95	4	Combination
8	HYD-1	13.34	18	Cir	5.000	287.80	287.90	2.000	290.25*	290.33*	n/a	290.46	End	Manhole
9	DMH-2	6.64	18	Cir	5.000	287.90	288.00	2.000	290.46*	290.48*	n/a	290.70	8	Manhole
10	DMH-1	3.37	18	Cir	18.000	288.50	288.70	1.111	290.70*	290.72*	n/a	290.77	9	Manhole
11	CB-8	1.99	12	Cir	38.000	294.10	294.50	1.053	294.63	295.10	n/a	295.10	10	Combination
12	TD	1.69	12	Cir	120.000	289.20	290.45	1.042	290.77	291.08	n/a	291.24	10	DropGrate
13	CB-9	3.98	12	Cir	42.000	295.90	298.00	5.000	296.40	298.85	n/a	298.85	9	Combination
14	YD-2	0.66	12	Cir	132.000	294.50	295.80	0.985	295.10	296.14	n/a	296.14	11	DropGrate
15	DMH-6	1.90	12	Cir	8.000	269.00	269.10	1.250	270.39*	270.41*	n/a	270.48	End	Manhole
16	DMH-5	0.10	12	Cir	48.000	273.00	276.00	6.250	273.07	276.13	n/a	276.13	15	Manhole
17	OCS-1	0.10	12	Cir	40.000	278.00	281.00	7.500	278.07	281.13	n/a	281.13	16	Manhole
18	CB-1	0.62	12	Cir	21.000	273.10	273.30	0.952	274.01	273.63	n/a	273.63	End	Combination
19	CB-2	0.63	12	Cir	18.000	273.30	273.50	1.111	273.63	273.83	n/a	273.83	18	Combination

804 Fountain Street | Number of lines: 19 | Run Date: 8/16/2025

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown).

Storm Sewer Tabulation

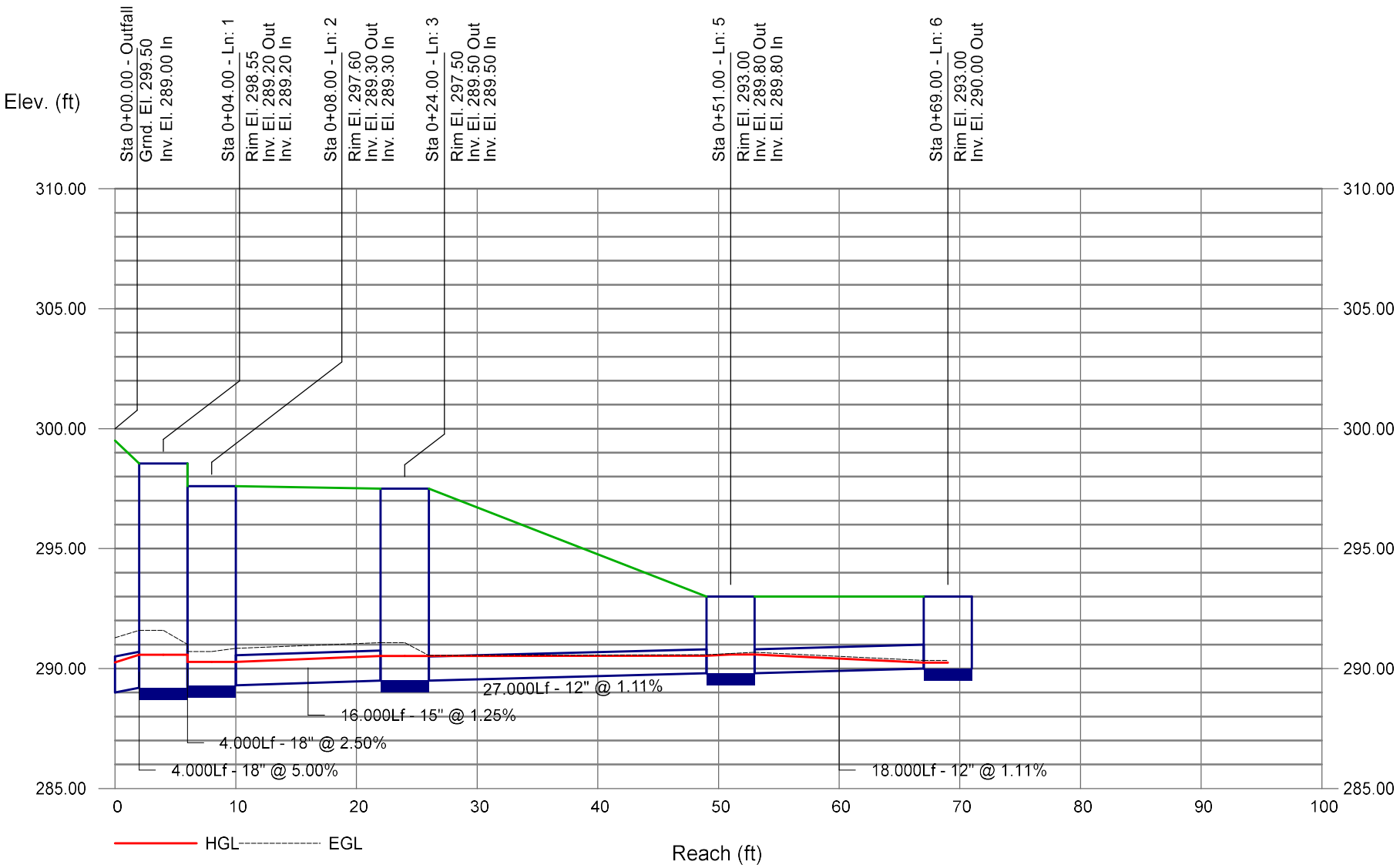
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	4.000	0.00	1.55	0.00	0.00	0.99	0.0	10.7	6.5	13.72	23.48	8.38	18	5.00	289.00	289.20	290.26	290.57	299.50	298.55	HYD-3
2	1	4.000	0.00	1.55	0.00	0.00	0.99	0.0	10.7	6.5	6.43	16.60	4.53	18	2.50	289.20	289.30	290.57	290.28	298.55	297.60	DMH-3
3	2	16.000	0.13	1.55	0.81	0.11	0.99	6.0	10.6	6.5	6.45	0.00	6.12	15	1.25	289.30	289.50	290.28	290.52	297.60	297.50	CB-5
4	3	100.000	0.08	1.25	0.80	0.06	0.77	6.0	10.4	6.6	5.05	0.00	6.43	12	1.70	294.50	296.20	295.50	297.51	297.50	299.50	CB-6
5	3	27.000	0.12	0.17	0.65	0.08	0.12	6.0	6.7	8.2	0.98	0.00	1.42	12	1.11	289.50	289.80	290.52	290.53	297.50	293.00	CB-3
6	5	18.000	0.05	0.05	0.83	0.04	0.04	6.0	6.0	8.6	0.36	0.00	1.45	12	1.11	289.80	290.00	290.59	290.25	293.00	293.00	CB-4
7	4	54.000	1.17	1.17	0.60	0.70	0.70	10.2	10.2	6.6	4.66	0.00	5.94	12	0.93	296.20	296.70	298.47	299.40	299.50	301.50	CB-7
8	End	5.000	0.00	1.32	0.00	0.00	0.94	0.0	9.0	7.1	13.34	0.00	7.55	18	2.00	287.80	287.90	290.25	290.33	0.00	300.10	HYD-1
9	8	5.000	0.00	1.32	0.00	0.00	0.94	0.0	9.0	7.1	6.64	0.00	3.76	18	2.00	287.90	288.00	290.46	290.48	300.10	300.60	DMH-2
10	9	18.000	0.00	0.82	0.00	0.00	0.47	0.0	8.8	7.1	3.37	0.00	1.91	18	1.11	288.50	288.70	290.70	290.72	300.60	300.20	DMH-1
11	10	38.000	0.22	0.44	0.90	0.20	0.28	6.0	8.6	7.2	1.99	0.00	4.39	12	1.05	294.10	294.50	294.63	295.10	300.20	299.50	CB-8
12	10	120.000	0.38	0.38	0.52	0.20	0.20	6.0	6.0	8.6	1.69	0.00	2.70	12	1.04	289.20	290.45	290.77	291.08	300.20	293.45	TD
13	9	42.000	0.50	0.50	0.93	0.47	0.47	6.0	6.0	8.6	3.98	0.00	7.88	12	5.00	295.90	298.00	296.40	298.85	300.60	301.00	CB-9
14	11	132.000	0.22	0.22	0.35	0.08	0.08	6.0	6.0	8.6	0.66	0.00	2.08	12	0.98	294.50	295.80	295.10	296.14	299.50	298.80	YD-2
15	End	8.000	0.00	0.00	0.00	0.00	0.00	0.0	11.5	0.0	1.90	0.00	2.42	12	1.25	269.00	269.10	270.39	270.41	0.00	277.50	DMH-6
16	15	48.000	0.00	0.00	0.00	0.00	0.00	0.0	5.2	0.0	0.10	0.00	2.73	12	6.25	273.00	276.00	273.07	276.13	277.50	280.00	DMH-5
17	16	40.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.10	0.00	2.85	12	7.50	278.00	281.00	278.07	281.13	280.00	296.50	OCS-1
18	End	21.000	0.00	0.09	0.00	0.00	0.07	0.0	6.4	8.3	0.62	0.00	1.79	12	0.95	273.10	273.30	274.01	273.63	0.00	275.50	CB-1
19	18	18.000	0.09	0.09	0.82	0.07	0.07	6.0	6.0	8.6	0.63	0.00	2.81	12	1.11	273.30	273.50	273.63	273.83	275.50	275.50	CB-2

804 Fountain Street | Number of lines: 19 | Run Date: 8/16/2025

NOTES:Intensity = 43.35 / (Inlet time + 3.80) ^ 0.71; Return period =Yrs. 25 ; c = cir e = ellip b = box

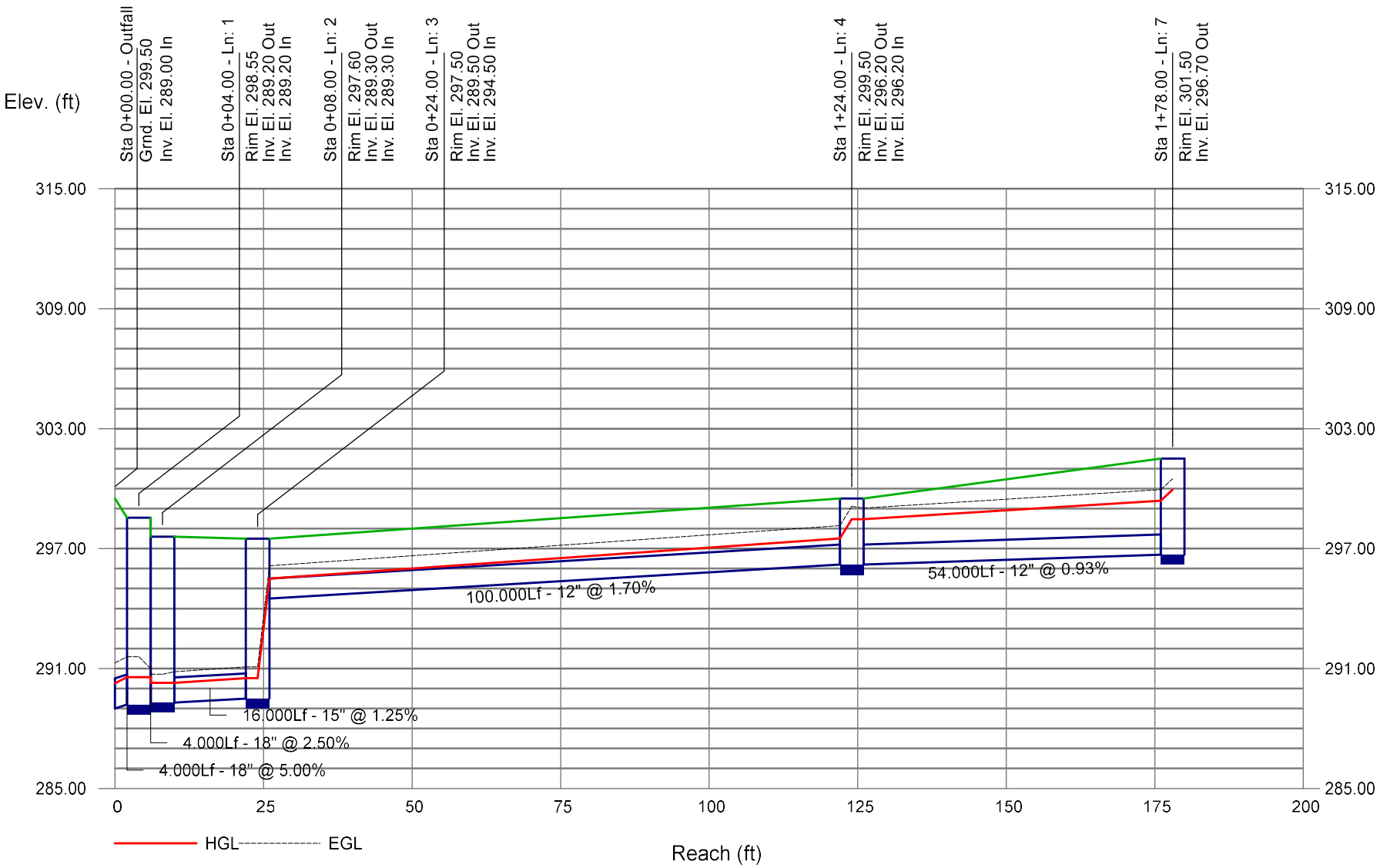
Storm Sewer Profile

Proj. file: 804 Fountain Street - Stormsewers.stm



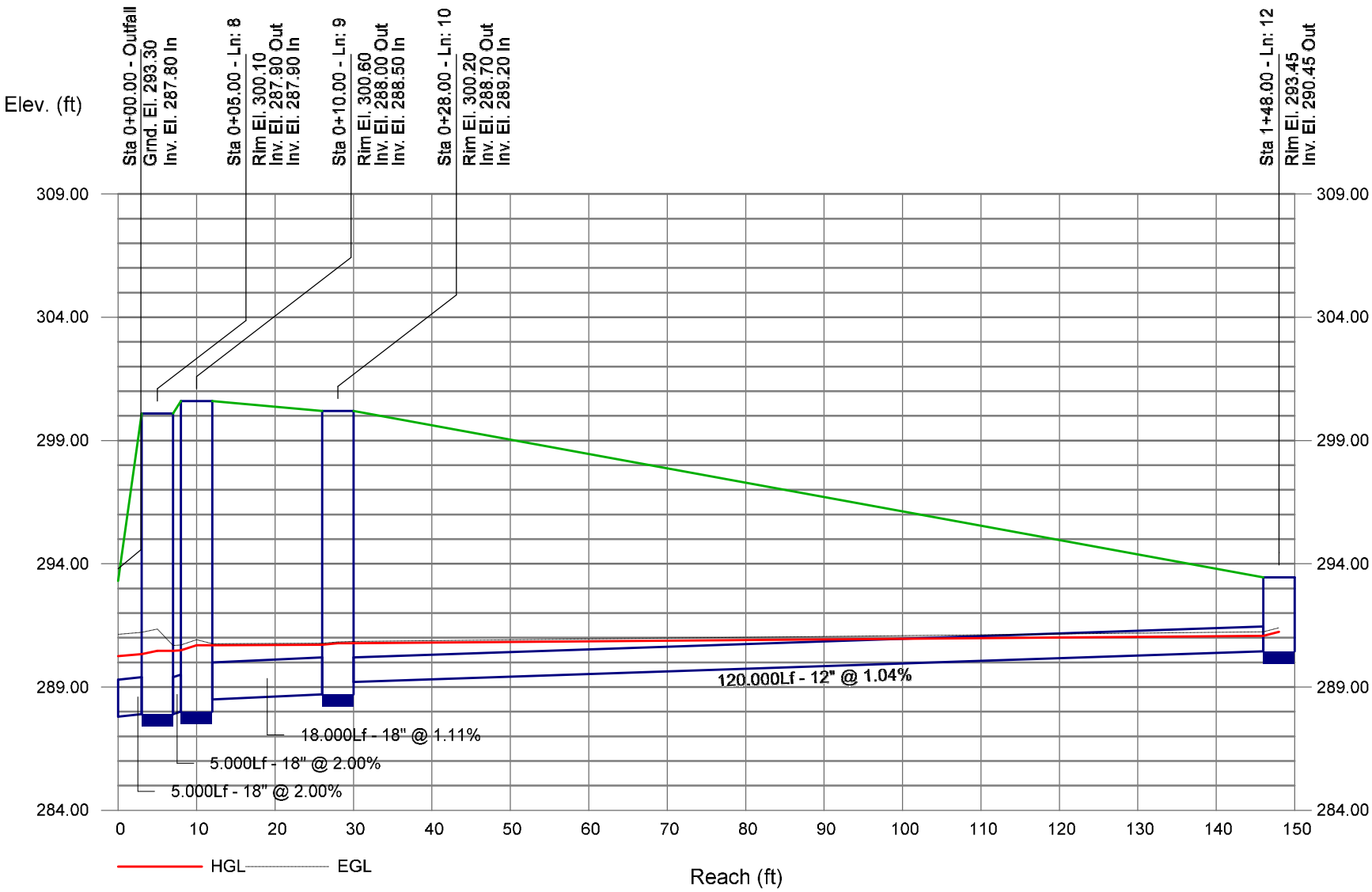
Storm Sewer Profile

Proj. file: 804 Fountain Street - Stormsewers.stm



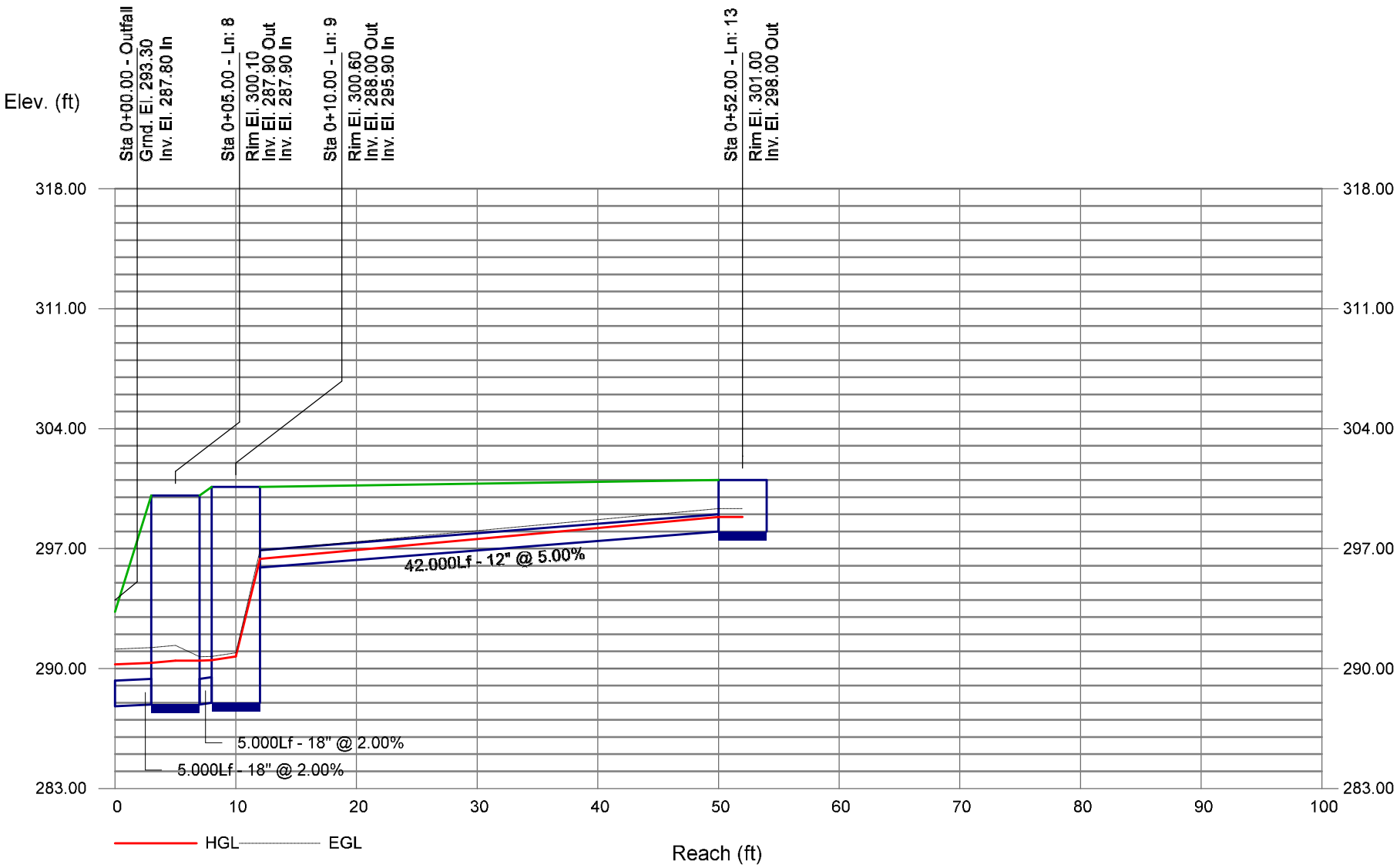
Storm Sewer Profile

Proj. file: 804 Fountain Street - Stormsewers.stm



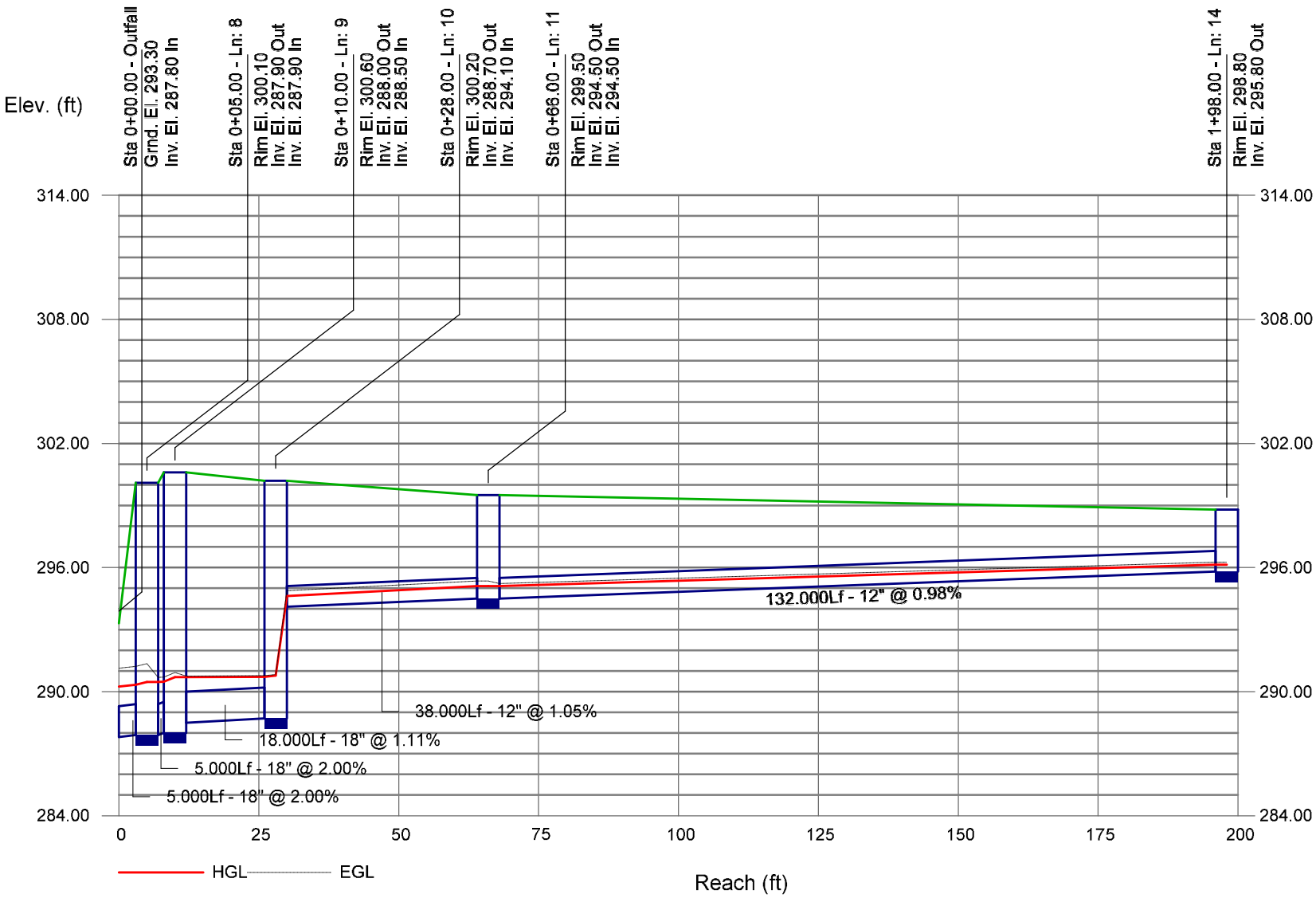
Storm Sewer Profile

Proj. file: 804 Fountain Street - Stormsewers.stm



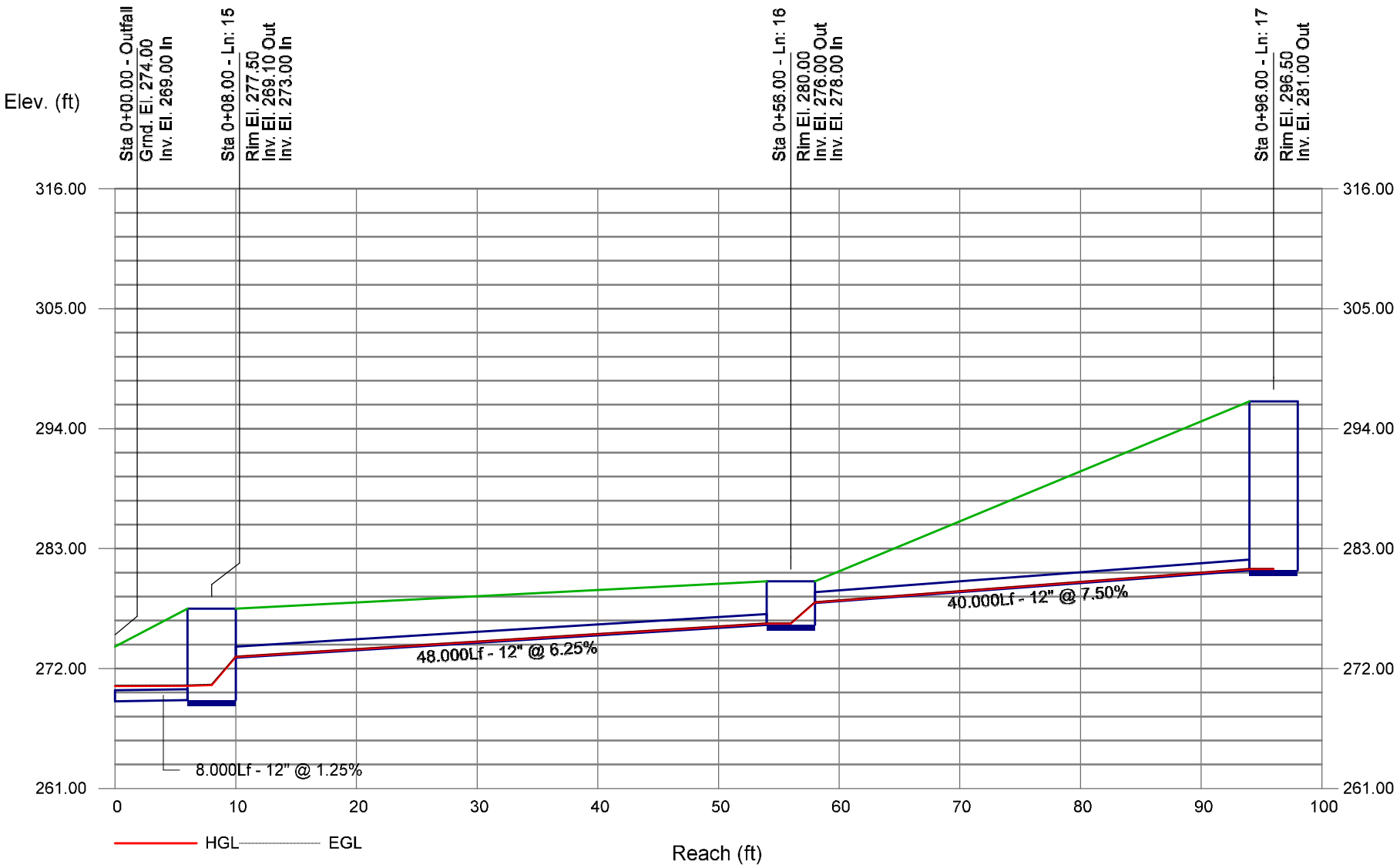
Storm Sewer Profile

Proj. file: 804 Fountain Street - Stormsewers.stm



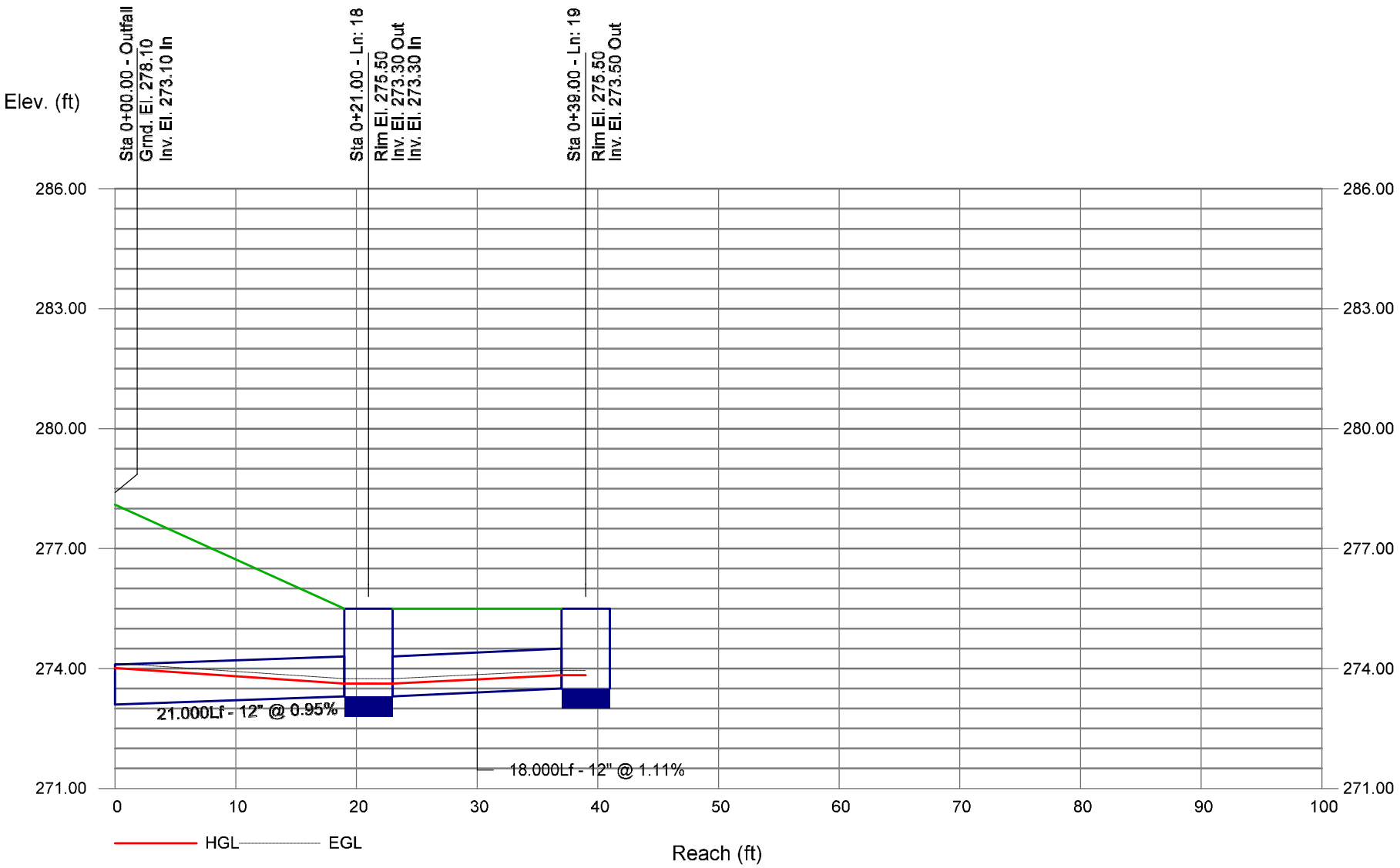
Storm Sewer Profile

Proj. file: 804 Fountain Street - Stormsewers.stm



Storm Sewer Profile

Proj. file: 804 Fountain Street - Stormsewers.stm



Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-1**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.07**	**0.07**
	Pervious	**0.35**			**0.33**	**0.12**
1 Use only one C source per line				Totals =	**0.40**	**0.18**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.18}{0.40} =$ 0.46 Use C = **0.46**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-2**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.07**	**0.07**
	Pervious	**0.35**			**0.02**	**0.01**
1 Use only one C source per line				Totals =	**0.09**	**0.07**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.07}{0.09} =$ 0.82 Use C = **0.82**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-3**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.06**	**0.06**
	Pervious	**0.35**			**0.06**	**0.02**
1 Use only one C source per line				Totals =	**0.12**	**0.08**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.08}{0.12} =$ 0.65 Use C = **0.65**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-4**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.04**	**0.04**
	Pervious	**0.35**			**0.01**	**0.00**
1 Use only one C source per line				Totals =	**0.05**	**0.04**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.04}{0.05} =$ 0.83 Use C = **0.83**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-5**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.10**	**0.10**
	Pervious	**0.35**			**0.03**	**0.01**
1 Use only one C source per line				Totals =	**0.13**	**0.11**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.11}{0.13} =$ 0.81 Use C = **0.81**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-6**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.06**	**0.06**
	Pervious	**0.35**			**0.02**	**0.01**
1 Use only one C source per line				Totals =	**0.08**	**0.06**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.06}{0.08} =$ 0.80 Use C = **0.80**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-7**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.48**	**0.46**
	Pervious	**0.35**			**0.69**	**0.24**
1 Use only one C source per line				Totals =	**1.17**	**0.70**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.70}{1.17} =$ 0.60 Use C = **0.60**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-8**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.20**	**0.19**
	Pervious	**0.35**			**0.02**	**0.01**
1 Use only one C source per line				Totals =	**0.22**	**0.20**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.20}{0.22} =$ 0.90 Use C = **0.90**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **CB-9**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.48**	**0.46**
	Pervious	**0.35**			**0.02**	**0.01**
1 Use only one C source per line				Totals =	**0.50**	**0.46**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.46}{0.50} =$ 0.93 Use C = **0.93**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **Trench Drain (TD-1)**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.11**	**0.10**
	Pervious	**0.35**			**0.27**	**0.09**
1 Use only one C source per line				Totals =	**0.38**	**0.20**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.20}{0.38} =$ 0.52 Use C = **0.52**

Project **Proposed Residential Development** By **MJD** Date **08/18/25**

Location **804 Fountain Street, Woodbridge, CT** Checked **PAR** Date **08/18/25**

Bold one: **Developed** Undeveloped **YD-1**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
	Impervious	**0.95**			**0.00**	**0.00**
	Pervious	**0.35**			**0.23**	**0.08**
1 Use only one C source per line				Totals =	**0.23**	**0.08**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.08}{0.23} =$ 0.35 Use C = **0.35**

FIRST DEFENSE® HIGH CAPACITY DESIGN SUMMARY

PROJECT INFORMATION

Reference	HYD-1
Site	Fountain Street
Designer	Victoria Ramirez
Date	8/18/2025 1:00 PM

DESIGN INPUTS

Regulatory Agency	80% TSS (110 um)
Water Quality Flow Rate (cfs)	0.94

DESIGN OUTPUTS

Product	3-ft DIAMETER FIRST DEFENSE HIGH CAPACITY
Unit Reference	FD-3HC

* Approved for use in 80% TSS (110 um)

UNIT WEIGHTS AND DIMENSIONS

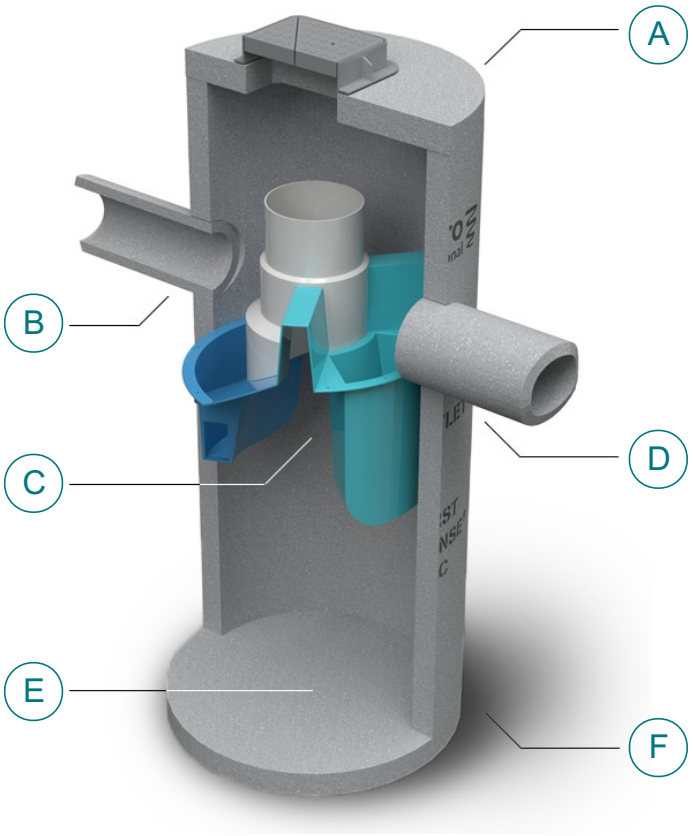
(A) Unit Size (ft)	3.00
(B) Inlet Pipe Size (in)	18
(D) Outlet Pipe Size (in)	18
(F) Unit Depth (ft)	15.91
Inlet Invert Elevation (ft)	287.90
Outlet Invert Elevation (ft)	287.90

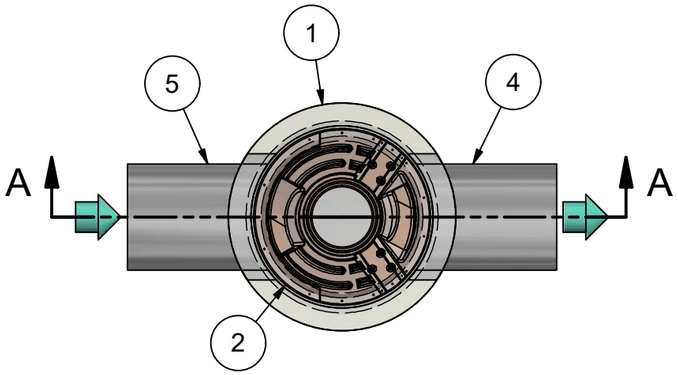
PERFORMANCE AND HYDRAULICS

Max. Treatment Flow Rate (cfs)	1.06
Hydraulic Capacity Flow Rate (cfs)	6.7
Typical Operating Headloss (in)	0
Maximum Headloss (in)	0

STORAGE

(C) Oil Storage Capacity (gal)	125
(E) Min.Sediment Storage Capacity (yd³)	0.4





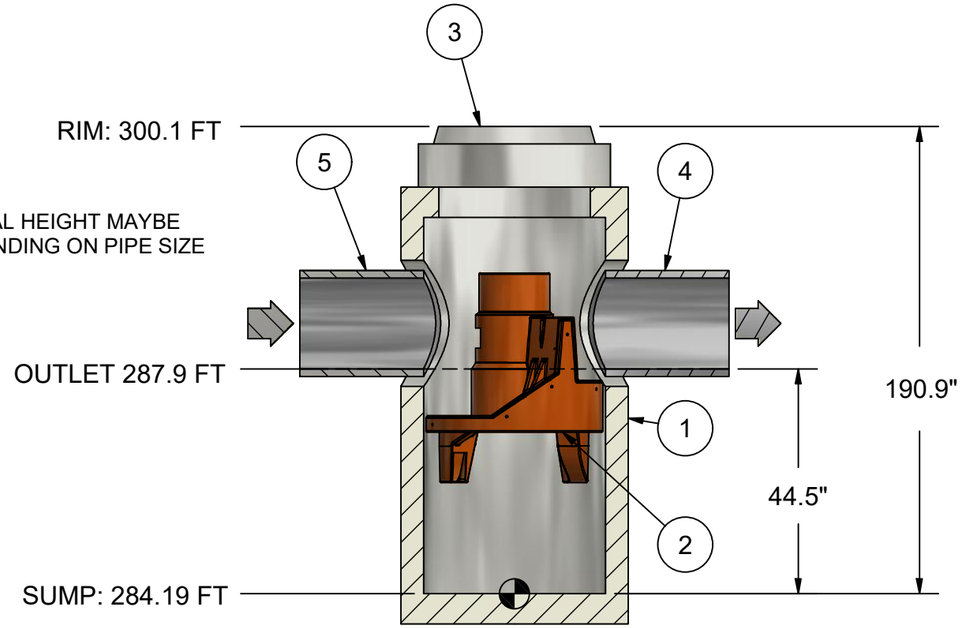
PLAN VIEW

Stormwater Quality Unit
Hydro International
207-756-6200
www.hydrointernational.biz

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS AS REQUIRED

NOTE: ADDITIONAL HEIGHT MAYBE REQUIRED DEPENDING ON PIPE SIZE



SECTION A-A

PRODUCT SPECIFICATION:

1. PEAK HYDRAULIC FLOW: 6.7 cfs
2. MIN SEDIMENT STORAGE CAPACITY: 0.4 yd3
3. OIL STORAGE CAPACITY: 125 gal
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 18 in. (450 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.

GENERAL NOTES:
1.General Arrangement drawings only. Contact Hydro International for site specific drawings.
2.Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.)
3.Peak flow rate and minimum height limited by available cover and pipe diameter.

PARTS LIST		
ITEM	DESCRIPTION	SIZE (in)
1	I.D. PRECAST MANHOLE	36
2	INTERNAL COMPONENTS (PRE-INSTALLED)	
3	FRAME AND COVER (ROUND)	30
4	OUTLET PIPE (BY OTHERS)	18
5	INLET PIPE (BY OTHERS)	18

PROJECTION

IF IN DOUBT ASK

COMMENTS:

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

DATE:	SCALE:
8/18/2025	NTS

DRAWN BY:	CHECKED BY:	APPROVED BY
ER		

Title

3 FT FIRST DEFENSE® HIGH CAPACITY

Site:

Fountain Street

Structure No:

HYD-1

Hydro International
A CRH COMPANY
hydro-int.com

HYDRO INTERNATIONAL

WEIGHT:	MATERIAL:
N/A	

REFERENCE NUMBER:

DRAWING NO.:

SHEET SIZE:	SHEET:	Rev:
B	1 OF 1	-

victoria@sollillc.com

FIRST DEFENSE® HIGH CAPACITY DESIGN SUMMARY

PROJECT INFORMATION

Reference	HYD-3
Site	Fountain Street
Designer	Victoria Ramirez
Date	8/18/2025 1:01 PM

DESIGN INPUTS

Regulatory Agency	80% TSS (110 um)
Water Quality Flow Rate (cfs)	0.99

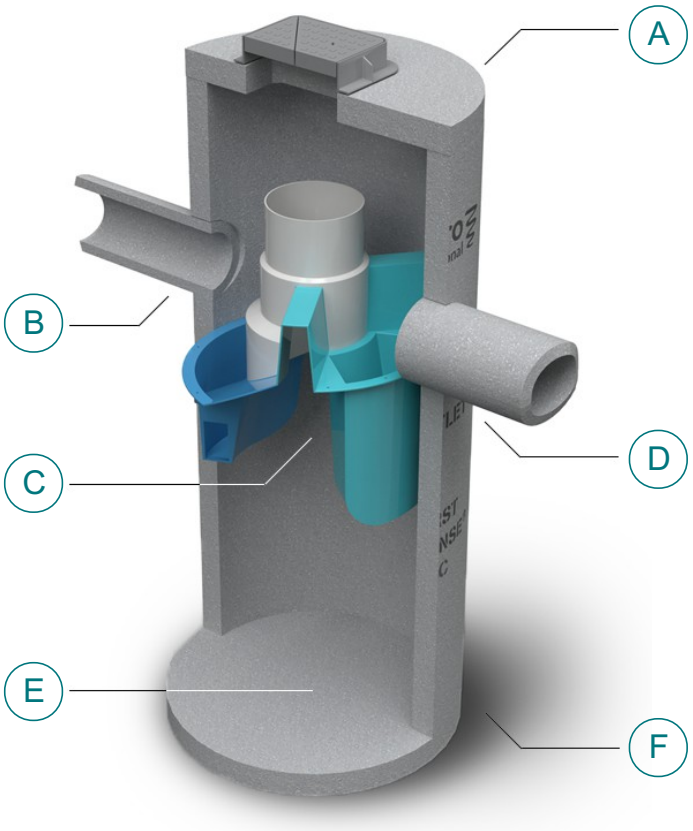
DESIGN OUTPUTS

Product	3-ft DIAMETER FIRST DEFENSE HIGH CAPACITY
Unit Reference	FD-3HC

* Approved for use in 80% TSS (110 um)

UNIT WEIGHTS AND DIMENSIONS

(A) Unit Size (ft)	3.00
(B) Inlet Pipe Size (in)	18
(D) Outlet Pipe Size (in)	18
(F) Unit Depth (ft)	13.01
Inlet Invert Elevation (ft)	289.20
Outlet Invert Elevation (ft)	289.20

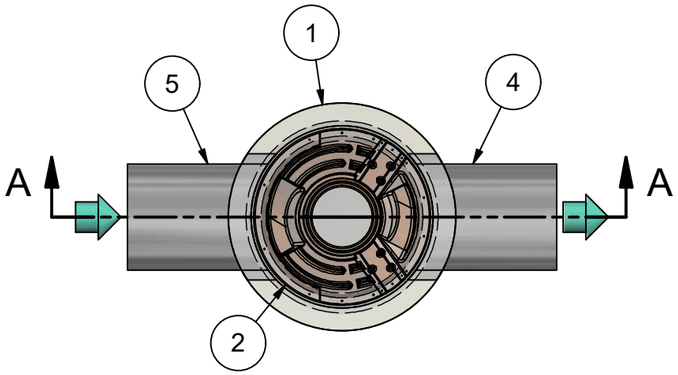


PERFORMANCE AND HYDRAULICS

Max. Treatment Flow Rate (cfs)	1.06
Hydraulic Capacity Flow Rate (cfs)	7.3
Typical Operating Headloss (in)	0
Maximum Headloss (in)	0

STORAGE

(C) Oil Storage Capacity (gal)	125
(E) Min.Sediment Storage Capacity (yd^3)	0.4



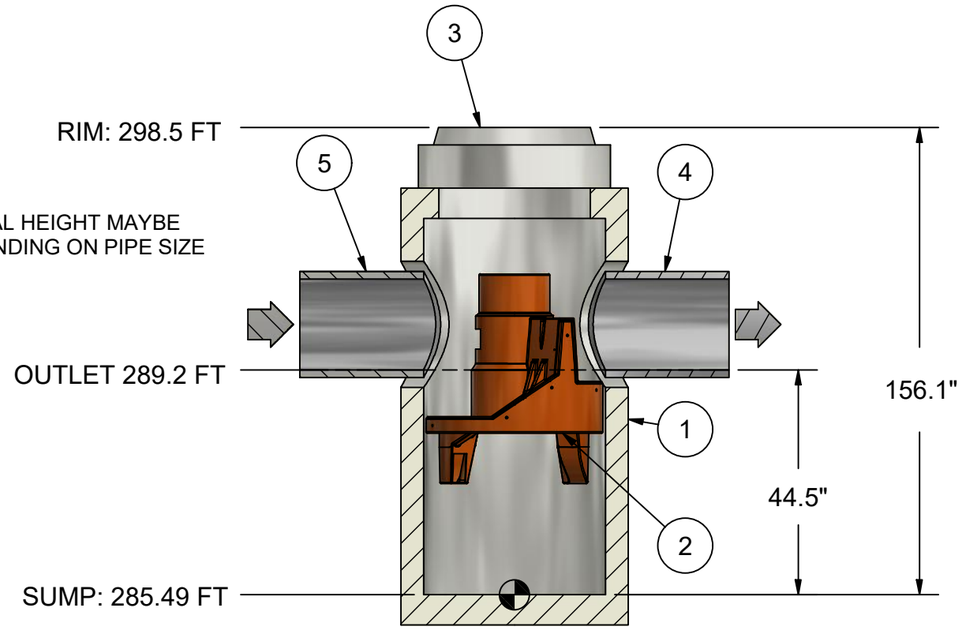
PLAN VIEW

Stormwater Quality Unit
Hydro International
207-756-6200
www.hydrointernational.biz

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS AS REQUIRED

NOTE: ADDITIONAL HEIGHT MAYBE REQUIRED DEPENDING ON PIPE SIZE



SECTION A-A

PRODUCT SPECIFICATION:

1. PEAK HYDRAULIC FLOW: 7.3 cfs
2. MIN SEDIMENT STORAGE CAPACITY: 0.4 yd3
3. OIL STORAGE CAPACITY: 125 gal
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 18 in. (450 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.

GENERAL NOTES:
1.General Arrangement drawings only. Contact Hydro International for site specific drawings.
2.Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.)
3.Peak flow rate and minimum height limited by available cover and pipe diameter.

PARTS LIST		
ITEM	DESCRIPTION	SIZE (in)
1	I.D. PRECAST MANHOLE	36
2	INTERNAL COMPONENTS (PRE-INSTALLED)	
3	FRAME AND COVER (ROUND)	30
4	OUTLET PIPE (BY OTHERS)	18
5	INLET PIPE (BY OTHERS)	18

PROJECTION

IF IN DOUBT ASK

COMMENTS:

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

DATE:	SCALE:
8/18/2025	NTS

DRAWN BY:	CHECKED BY:	APPROVED BY
ER		

Title
3 FT FIRST DEFENSE® HIGH CAPACITY

Site:
Fountain Street

Structure No:
HYD-3

Hydro International
A CRH COMPANY
hydro-int.com
HYDRO INTERNATIONAL

WEIGHT:	MATERIAL:
N/A	

REFERENCE NUMBER:

DRAWING NO.:

SHEET SIZE:	SHEET:	Rev:
B	1 OF 1	-

victoria@sollillc.com

APPENDIX E
LONG-TERM OPERATION & MAINTENANCE

Long-Term Operations & Maintenance Manual

LONG-TERM OPERATIONS & MAINTENANCE MANUAL

For the Proposed:

Proposed Residential Development

Located At:
804 Fountain Street
Woodbridge, Connecticut 06525

Prepared On:
August 18, 2025

Prepared By:

SOLLI ENGINEERING

501 Main Street
Monroe, Connecticut 06468
T: (203) 880-5455 F: (203) 880-9695

Prepared For:

Fountain Street Associates, LLC

8 Huntington Street, Suite 171
Shelton, Connecticut 06484

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INTRODUCTION

Solli Engineering (Solli) has prepared this Stormwater Management System Operations and Maintenance (O&M) Plan in accordance with Chapter 4, Standard 4: Post Construction Operation and Maintenance of the Connecticut Stormwater Quality Manual. The Long-Term Operations and Maintenance (O&M) Manual, filed with the Town of Woodbridge, shall be implemented at the Proposed Residential Development at 804 Fountain Street in Woodbridge, Connecticut, to ensure that the stormwater management functions as designed. The owner possesses the primary responsibility for overseeing and implementing the O&M plan and assigning a Property Manager who will be responsible for the proper operation and maintenance of the stormwater structures and best management practices. In case of transfer of property ownership, future property owners shall be notified of the presence of the stormwater management system and the requirements for proper implementation of the O&M plan. Included in the manual is the O&M plan identifying key components of the stormwater system as well as a log for tracking inspections and maintenance.

The stormwater management system protects and enhances the stormwater runoff water quality through the removal of sediment and pollutants, and source control significantly reduces the amount of pollutants entering the system. Preventive maintenance of the system will include a comprehensive source reduction program of regular vacuuming and litter removal, prohibitions on the use of pesticides and maintenance of designated waste and recycling.

RESPONSIBILITY

The purpose of the Long-Term Operations and Maintenance (O&M) plan is to ensure inspection of the system, removal of accumulated sediments, oils, and debris and implementation of corrective action and record keeping activities. The below O&M activities associated with the site will be performed by a Contract Operator for the scope of maintenance. The Contract Operator will be a professional engineer or other technical professional with expertise and experience with stormwater management facilities operation and maintenance.

The ongoing responsibility is the Owner, its successors, and assigns. Adequate maintenance is defined in this document as good working condition.

Contact information is provided:

Responsibility for Inspection and Maintenance

Contact:	Angelo Melisi / Fountain Street Associates, LLC
Number:	(203) 556-0638
Address:	8 Huntington Street, Suite 171
City, State:	Shelton, CT 06484

DOCUMENTATION

An inspection and maintenance record log and schedule will be kept by the Owner or Property Manager summarizing inspections, maintenance, repairs and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. Inspection & Maintenance Logs will be kept on file at the on-site Property Management office.

MAINTENANCE PROGRAM

The Owner, Property Manager, and maintenance staff will conduct the Operation and Maintenance program set forth in this document. The Owner or Property Manager will ensure that inspections and record keeping are timely and accurate, and that cleaning and maintenance are performed in accordance with the recommended frequency for each stormwater component. Inspection & Maintenance Log Forms shall include the date and the amount of the last significant storm event in excess of 1 inch of rain in a 24-hour period, physical conditions of the structures, depth of sediment in structures, evidence of overtopping or debris blockage, and maintenance required of each structure. The following areas, facilities and measures will be inspected by the Owner or Property Manager and maintained as specified below. Identified deficiencies will be corrected. Accumulated sediments and debris will be properly handled and disposed of off-site, in accordance with local, state, and federal guidelines and regulations.

SUBSURFACE INFILTRATION SYSTEM

Subsurface infiltration systems are used widely for controlling the quantity of stormwater runoff as well as the quality where space is limited. Subsurface infiltration systems' performance varies by manufacturer and system design. The stormwater management system for this development proposes a subsurface infiltration system incorporating concrete Retain-It galleries (or approved equal) with stone. According to the Owners Maintenance Manual provided by Retain-It, the infiltration chambers are "self sufficient and operate without requiring any outside assistance, except for periodic inspection to verify optimal performance and maintenance for removal of collected pollutants." The chambers should be inspected periodically with a greater number of inspections to take place during the system start up (just after installation). To successfully maintain the design parameters the following will be required for upkeep:

Periodically:

- The inspector shall visually inspect the system to help identify issues of concern. The inspector should look for signs of slow flows, backed up water, visible oil, trash and debris or an excessive amount of sediment in the storage area.
- During periodic inspections the inspector should visibly inspect the outlet control structure for issues of concern.
- If sediment is observed to be causing issues of concern, a vacuum truck should be used to suck the accumulated sediments, oils and greases and trash and debris from the system.
- Sediments, trash and debris shall be removed and disposed of in an approved manner.
- Any indications of hazardous material, determined by visual inspection, testing, smell or abnormality, should be reported and handled per appropriate regulations.

If any irregularities in the structure's performance are observed the engineer of record shall be notified. Any indications of hazardous material, determined by visual inspection, testing, smell or abnormality, should be reported and handled per appropriate regulations. Any additional maintenance required per the manufacturer's specifications shall also be completed.

For more information regarding the Retain-It Owners Maintenance Manual visit:
https://retain-it.com/wp-content/uploads/2025/04/retain-it-sms-owners-maintenance-guide.pdf

HYDRODYNAMIC SEPARATOR UNIT

Hydrodynamic separators protect the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the separator. The units will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the structures will no longer be able to store removed sediment and oil.

The stormwater management system proposes to incorporate Contech water quality units. According to the Contech Guide Operation, Design, Performance and Maintenance, inspections shall take place at regular intervals to ensure optimum performance. At a minimum, inspections shall be performed twice a year (Ex.: spring & fall) however more frequent inspections may be required depending on several things one being severity of winter (excessive sanding/salting). The frequency of cleanout is determined in the field after installation. During the first year of operation, the unit should be inspected regularly and then after, every six months (twice a year) to determine the rate of sediment and floatables accumulation. A simple probe can be used to determine the level of accumulated solids stored in the sump. This information should be recorded in the inspection logs. On the log it is important to note the date, location of structure (or identification), estimated volume of floatables, and depth of sediment. Securely replace the top of the structure and take down any safety equipment. Then notify the engineer of record for any irregularities in the structure's performance if any. The systems should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. Sediment and debris removal can be done manually or with approved sumpvac (or equal).

For more information regarding the CDS Guide Operation, Design, Performance and Maintenance visit:
https://www.conteches.com/Portals/0/Documents/Design%20Guides/CDSDesign%20Guide.pdf?ver=2018-05-16-083621-907

DEEP SUMP CATCH BASIN

Deep sump catch basins are underground concrete structures which are designed to retain removed trash, debris, and coarse sediment from stormwater runoff and serve as temporary spill containment devices for floatables such as oil and greases prior to discharge into a storm sewer pipe. The functions of a deep sump catch basin include:

- A grate and/or vertical notch found in the curbing that allow stormwater to enter the structure while filtering out larger objects such as trash and leaves.
- A four-foot (minimum) sump below the invert of the storm sewer pipe provides an area for detention time which allows sands and other sediments to settle out of the runoff prior discharge.

At a minimum, deep sump catch basins and drain manholes shall be inspected quarterly (four times per year). Ideally, inspections should be conducted in the fall, at the end of the leaf-drop, in the spring following

snowmelt and following heavy rain falls, defined as a storm event exceeding 1-inch of rain fall within a twenty-four-hour period to verify that inlet openings are not clogged by debris. Each structure should be cleaned whenever the depth of sediment deposits is greater than or equal to one half the depth of the sump from the bottom of the structure to the bottom of the lowest pipe invert. Structures shall be inspected for a buildup of sediments, oils, debris, cracks, breaks, or deformations. Any function of the catch basin and drain manhole that is not in working order will be replaced with similar materials, as per detail, to prevent the storm sewer system from failing.

If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming, absorbent materials, or other method and disposed in conformance with applicable state and federal regulations.

The catch basins shall be cleaned by means of handheld shovels, scallop shovel and/or vacuum truck. Vacuum truck may be required instead of shovels to avoid damage to structure. The grate opening shall be clear of any foreign or lodged object. If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming absorbent materials or other methods and salts used in the winter will be removed from the catch basin sumps in the early spring. Leaves, pine needles and branches brought down by autumn winds, rain, and cold weather will be removed from the catch basin sumps in the late fall. Collected sediment, debris and hydrocarbons will be properly disposed of per local, state, and federal requirements.

OUTLET PROTECTION

Outlet protection is typically provided at stormwater discharge conduits from structural best management practices to reduce the velocity of concentrated stormwater flows to prevent scour and minimize the potential for downstream erosion. Outlet protection is also provided where conduits discharge runoff into an in-ground stormwater management practice (e.g. pond or swale) to prevent scour where flow enters the BMP. Standard engineering practices allow for many different types of outlet protection which provide energy dissipation. Riprap pads serve as on-site outlet protection measures. Inspect the outlet protection annually for damage and deterioration and repair damage immediately. Remove any trash and reset riprap as needed.

STORM DRAINAGE PIPING

- All storm drainage piping shall be completely flushed of debris and accumulated sediment at the completion of construction.
- Connection points at structures shall be inspected and repaired on an annual basis.
- Unless system performance indicates degradation of piping, comprehensive video inspection of storm drainage piping shall occur once every ten years.

INVASIVE SPECIES MITIGATION

During annual inspection of the stormwater basin, the inspector should be cognizant of vegetation growing within the basin. If unordinary species, or species not specified on the landscape plan are identified, the civil engineer of record and the wetlands scientist shall be notified immediately. Unordinary species could be invasive species and if so, should be removed and disposed of in an appropriate manner under the direction of a wetland's scientist or botanist.

SCOUR HOLE OUTLET PROTECTION

Inspect at least once annually for accumulation of sediment and debris and for signs of erosion within approach channel, scour hole channel or down-slope of the scour hole. Remove debris whenever observed during inspection. Remove sediment when accumulation exceeds 25% of scour hole depth. Mow as required by landscaping design. At a minimum, mow annually to control woody vegetation within the spreader. Snow should not be stored within or down-slope of the scour hole. Repair any erosion and re-grade or replace stone berm material, as warranted by inspection. Reconstruct the scour hole if down-slope channelization indicates that the spreader is not level or that discharge has become concentrated, and corrections cannot be made through minor re-grading.

RIPRAP APRON OUTLET PROTECTION

Inspect at least once annually for accumulation of sediment and debris and for signs of erosion within approach channel, riprap apron or down-slope of the apron. Remove debris whenever observed during inspection. Remove sediment when accumulation exceeds 25% of riprap depth. Snow should not be stored within or down-slope of the riprap apron. Repair any erosion and re-grade or replace riprap material, as warranted by inspection. Reconstruct the riprap apron if down-slope channelization indicates that the apron is not level or that discharge has become concentrated, and corrections cannot be made through minor re-grading.

SNOW & ICE MANAGEMENT

Snow accumulations removed from roadway, driveway and parking areas should be placed in areas where sand and other debris will remain after snowmelt for later removal. Excess snow should be removed from the site and properly disposed of in an approved snow disposal facility. Care must be exercised not to deposit snow in the following areas: on top of storm drain catch basins; in storm drainage swales; in natural depressions; in the stormwater basin; and where sand and debris can get into the watercourse.

PESTICIDES, HERBICIDES AND FERTILIZERS

Pesticides and herbicides shall be used sparingly. Fertilizers should be restricted to the use of organic fertilizers only. Exterior storage of fertilizers, herbicides, pesticides or other toxic or hazardous materials should be prohibited.

TRASH REMOVAL

Once a month the owner of the site or a designated property manager should walk the site and remove any debris or trash that is seen. The site walk shall include the surface detention basin. All trash and debris are to be collected and disposed of in an approved manner.

EMERGENCY SPILL CONTAINMENT

The Owner, along with the on-site Property Manager, is responsible for educating staff and informing tenants on the environmental benefits associated with the use of pavement at the site. Staff must be trained, and tenants informed via the community website as to the proper spill prevention control and response procedures should a spill occur on the pavement surface. Proper spill control products, such as a granular dry absorbent, must be kept on-site at the property management office in a clean, dry chemical and corrosion resistant container.

A spill of greater than 10 gallons of oil or a spill of any quantity that has reached a surface water, into a sewer, storm drain, ditch, or culvert leading to a surface water, is immediately reported to one or more municipal, state, or federal authority. In the event of a hazardous waste spill on-site, the following protocol should be followed.

- If it is safe to do so, maintenance staff or tenants detecting an oil spill should immediately stop the release and use available materials to prevent the spread of oil.
- If there is a potentially flammable, toxic, or explosive condition, evacuate the vicinity of the spill.
- If it's believed that a reportable or dangerous condition exists, immediately call your local Fire Department to notify them of the release.
- If it is believed that a reportable condition exists, immediately call CT DEEP to notify them of the release.
- Call the CT DEEP Emergency Spill Reporting toll free statewide number, (860) 424-3338. Be prepared to provide the following information to the CT DEEP and the Fire Department:
    - Identity of the caller
    - Contact phone number Location of the spill
    - Type of product spilled
    - Approximate quantity or product spilled Extent of actual and/or potential water pollution
    - Date and time of spill
    - Cause of spill
    - Contact a Licensed Site Professional (LSP) to assist in further handling of the material(s) and CT DEEP.

STREET MAINTENANCE

Street maintenance is a non-structural source control performed by mechanical means to limit sediment and particulates from impervious surfaces as an effort to control or limit the sediment migration to other stormwater BMP's during storm events. There are three typical types of sweeping methods, including mechanical, regenerative air and vacuum filter. Mechanical sweepers are the most common and use brooms or brushes to scour the pavement. Regenerative air sweepers blow air onto the impervious surface causing sediment and other fine particles to be blown from the surface so they can be vacuumed. Vacuum filter sweepers are available in wet and dry types. Dry types use brooms to agitate the sediment prior to vacuuming. Wet types work in a similar fashion but use water to suppress dust during the collection activity. Because of street maintenance, sediment and other fine particulates are limited on the impervious surfaces and be further controlled from entering other BMP's. They also allow for the removal and prevention of accumulation of sediment along parking or road edges.

This should be done periodically during dry weather to remove excess sediments to reduce the amount of sediments that the drainage system shall have to remove from runoff. Sweeping should mostly be conducted between the months of March and November, with special attention to sweeping during the wetter (earlier) months. Salt used for de-icing should be limited as much as possible as this will reduce the need for the removal and treatment. However, sand containing the minimum amount of calcium chloride (or approved equal) needed for handling may be applied as part of the routine winter maintenance activities

DISPOSAL OF DEBRIS AND SEDIMENT

All debris and sediment removed from the stormwater structures shall be disposed of legally. There shall be no dumping of silt or debris into or in proximity to any inland or tidal wetlands.

	Title:	Inpsection #:
	Location:	Project #:
		Field Date:

INSPECTION & MAINTENANCE LOG

Name(s) & Title(s) of Individual(s) performing inspection: _____

Week of Inspection: _____

Type of Inspection:

☐ Monthly ☐ Quarterly ☐ Biannually ☐ Annually ☐ Emergency

Weather (during inspection)

☐ Clear ☐ Cloudy ☐ Rain ☐ Snow ☐ Sunny ☐ Windy ☐ Fog

Other:

Time of Inspection:		**Temp. during inspection:**	°F
Start Time:	**a.m.** **End Time:** **a.m.**	**Precip. since last inspection:**	"

Site Specific BMP's

#	BMP	Maintenance Required		Corrective Action Needed & Notes
1		☐ Yes	☐ No	
2		☐ Yes	☐ No	
3		☐ Yes	☐ No	
4		☐ Yes	☐ No	
5		☐ Yes	☐ No	
6		☐ Yes	☐ No	
7		☐ Yes	☐ No	
8		☐ Yes	☐ No	
9		☐ Yes	☐ No	
10		☐ Yes	☐ No	

Overall Site Maintenance Concerns

BMP/Activity	Maintenance Required		Corrective Action Needed & Notes
Are discharge points & receiving waters free of any sediment deposits?	☐ Yes	☐ No	
Are storm drain inlets properly working?	☐ Yes	☐ No	
Is trash/litter from site areas collected & placed in covered dumpsters?	☐ Yes	☐ No	
What is the level of sediment within infiltration basin?	☐ Yes	☐ No	
What is the level of sediment within the hydrodynamic separators?	☐ Yes	☐ No	
What is the levels of oil/grit/trash within the infiltration basin or hydrodynamic separators?	☐ Yes	☐ No	
(Other)	☐ Yes	☐ No	

Inspector(s) Signature(s): _____