STORMWATER ANALYSIS

#130 Pittsfield Road
Lenox, MA

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SECTION 1.0

PROJECT NARRATIVE

Site Photographs for Locus:

1.1 PROJECT DESCRIPTION

The overall project site encompasses approximately 10.3 acres of land located on the east side of Pittsfield-Lenox Rd. (Route 7), opposite the intersection of West Dugway Road. The property contains approximately 446 feet of frontage; is bounded by Route 7 to the west, the "Berkshire Design Center" to the north, and undeveloped land to the east and south. The property previously contained a 120-room hotel, complete with parking areas, a 96 seat restaurant, outdoor swimming pool, and public function areas. The original buildings were constructed circa 1964. There is also a 2-bedroom caretaker's home located on the southerly-most side of the property (see plans). The home is accessed from a separate driveway located approximately 400 feet south of the main driveway to the hotel.

The topography of the site is relatively flat in and around the hotel and parking areas. This main portion of the property is situated approximately 15 feet higher in elevation than Rt. 7. To the east of the hotel the land rises sharply (approximately 25 feet) to a small plateau where the tennis and shuffleboard courts are located. This represents the height of land. There are no wetlands located on the property, as confirmed by the Lenox Conservation Commission.

Portions of the property are underlain by shallow bedrock, particularly to the east (as evidenced by numerous ledge outcrops). The soils along the westerly and southerly most portions of the site are generally classified as silty loam, with a relatively high water table (36" in depth). This was confirmed by test pits conducted in December, 2015. These are illustrated on the project plans that accompany this application.

The site is presently serviced by all normal utilities (sewer, water, electricity, etc.). Drainage from the site flows generally from east to west toward Rt. 7 through underground piping and discharges to the existing drainage system in Rt. 7. The existing underground utilities have been compiled from field survey and/ or record drawings where possible and are illustrated on the accompanying plans.

1.2 PRE-DEVELOPMENT DRAINAGE CONDITIONS

The site currently contains the hotel building, paved parking areas and driveways, lawn area and undisturbed forested areas. A large portion of the site is covered by imperious surfaces. The NRCS Soil Survey indicates that there are Urban land and Amenia Silt Loam soils. On-site soil testing has verified the NRCS soils, and these test pit results can be seen herein. The hydrologic soil groups are listed below:

Report — Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Berkshire County, Massachusetts			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
108E—Farmington-Rock outcrop complex, 15 to 35 percent slopes			
Farmington	60	High	D
Rock outcrop	35	—	—
500C—Amenia silt loam, 8 to 15 percent slopes			
Amenia	85	High	C
602—Urban land			
Urban land	100	—	—
904E—Lyman-Tunbridge association, 15 to 60 percent slopes, extremely stony			
Lyman, extremely stony	45	—	D
Tunbridge, extremely stony	40	—	C
909C—Tunbridge-Lyman association, rolling, extremely stony			
Tunbridge	50	Low	B
Lyman	35	Low	D

Currently stormwater on the site is collected and discharged to multiple locations, which all outlet to the Mass DOT drainage system.

1.3 POST-DEVELOPMENT DRAINAGE CONDITIONS

The proposed project includes the demolition of all existing buildings & pavement, & construction of new buildings, parking, and driveways. The rear tennis court will be demolished. The new site plan will be like the existing configuration.

The stormwater design for the development will mimic existing drainage outfall patterns. The site stormwater will be collected and treated on-site. The system will mitigate the 2, 10, 25 and 100-year storm events, provide treatment of TSS, & provide ground water infiltration. These will result in improvements over existing conditions.

1.4 APPLICABLE REGULATIONS

The project was reviewed for applicability under three separate documents including:

1. **The Wetlands Protection Act**-Correspondence with the Mass DEP indicates that simply adding runoff to an existing drainage system is not subject to jurisdiction unless and until the additional runoff alters a resource area;
2. **The Town of Lenox Zoning by-Law**- Section 5.4 of the Zoning By-law pertains to all projects, regardless of other regulations. Thus, this project has been designed to meet these standards **but also complies with the Mass. Stormwater Management Policy in all respects.**

1.5 ENVIRONMENTALLY SENSITIVE SITE DESIGN

Per the Massachusetts Stormwater Handbook, and as detailed in the Massachusetts Stormwater Report Checklist, the applicant has considered environmentally sensitive site design and low impact development techniques for the project.

Environmentally Sensitive Project Approach

The existing site was evaluated to determine the existing line of activity (or development envelope). This includes all hardscape features, as well as mowed turf lawns. Some naturally vegetated areas are located along the periphery of the site. Most of the work areas are limited to those areas previously altered by human activity. Since the site is developed and lacks any stormwater manamgnet the typical site evaluation establishing context and saving feature is not applicable.

However, Landscaping is an important component of environmentally sensitive site design. Ecological landscaping strategies seek to minimize the amount of lawn area and enhance the property with native, drought-resistant species; as a result, property owners use less water,

pesticides, and fertilizers.[1] This approach has been incorporated not the site design.

No disturbance to any Wetland Resource Areas

The project avoids impacts to wetland resource areas since none exist onsite. No wetlands will be disturbed as part of this project. The project site is a redevelopment project and is not jurisdictional under the Wetland Protection Act.

Fit into the Development of the Terrain

The proposed development mimics the existing site conditions. The new impervious areas are generally in the same location as what currently exists. Much of the site will match the grade of the existing site. A majority of the southern portion of the site is beyond the current limits of the existing hotel and parking. This area will be mitigated with respect to Stormwater.

Reproduce Pre-Development Hydrological Conditions

The project has been designed in accordance with the Stormwater Management Standards to meet or reduce the pre-development run-off produced with the site. Outlined below depicts how the project reduces run-off for the 2-year, 10-year, 25-year and 100-year storm events.

Preserve and use Natural drainage Systems

The existing site is captured in a series of drainage structures and underground piping and flows west toward Route 7.

The proposed development uses this same concept following existing topography. However, more sheet flow across parking lots and driveway are proposed, and stormwater will be routed through proprietary stormwater treatment manholes and extended detention basins that will treat run-off.

[1] See More Than Just a Yard Ecological Landscape Tools for Massachusetts Homeowners. See http://www.mass.gov/envir/mwrc/pdf/More_Than_Just_Yard.pdf.

1.6 STORMWATER MANAGEMENT STANDARDS

This Stormwater Report has been prepared in accordance with the Stormwater Management Standards[2]. This report will document compliance with all ten (10) standards outline in the Stormwater Management Handbook and depict compliance with the proposed project and said standards.

The report is prepared under the direction of the Professional Engineer as well as the project plans. The required computations for each of the standards can be seen below:

Standard #1 – Computations to show that discharges do not cause scour or erosion.

Each point source discharge must comply with this standard. Velocities were evaluated during the 25-year storm event to show that erosion will not occur during this storm event.

At each location, the runoff will be treated for total suspended solids (TSS) prior to discharge (refer to Standard #4). Furthermore, each discharge point was evaluated for potential erosion. The surface treatment to prevent erosion (grass or rip-rap) was sized from the following tables:

TABLE 7a
Maximum Permissible Velocities for Channels Lined with Vegetation

Cover	Slope Range Percent	Erosion resistant Soil[1]	Easily Eroded Soil [2]
Kentucky Bluegrass Tall Fescue	<5 5-10 >10	7 [3] 6 [3] 5	5 4 3
Grass Mixture Reed Canarygrass	<5 5-10	5 4	4 3
Serecea Lespedeza Weeping Lovegrass Redtop Red Fescue	<5	3.5	2.5
Annuals Temporary cover only Sudangrass	<5	3.5	2.5

TABLE 9
Riprap Gradation, Filter Blanket Requirements, Maximum Velocities

NSA No.	Graded Rock Size (in)			Filter Blanket Requirements**		V_{max} (ft/sec
	Max.	d_{50}*	Min.	Size NSA No.	Placement Thickness	
R-1	1.5	.75	No. 8	FS-1	N/A	2.5
R-2	3	1.5	1	FS-1	N/A	4.5
R-3	6	3	2	FS-1	3	6.5
R-4	12	6	3	FS-2	4	9.0
R-5	18	9	5	FS-2	6	11.5
R-6	24	12	7	FS-3	8	13.0
R-7	30	15	12	FS-3	10	14.5

Source: http://www.filtrexx.com/downloads/Penn_DEP_Erosion_and_Sediment_Control_Manual.pdf

The outlet velocities at each discharge point were determined by HydroCAD under the 25-year storm event. The outlet velocities, along with the specified rip-rap sizes (Table 9 above), are as follows:

[2] Redevelopment standards: to the maximum extent practicable is considered compliance

Watershed 1S shallow flow: Velocity: 1.3 feet per second. This outlet is currently lawn area that flows downgradient to an existing drainage structure along Route 7. This area will be routed over a Rip Rap lined swale. The sizing is governed by the outlet design from detention basin 7P.

Watershed 2S pipe outlet: Velocity: 4.5 feet per second. This outlet is inside the forebay of Basin North "7P". The pipe outlet will have a flared end and will require a R-3 graded rock size.

Link 4L is along Route 7. Velocity: 4.5 feet per second. This outlet is at the northernmost property corner along Route 7. The swale will be lined with graded rock size R-4.

Watershed 6S pipe outlet: Velocity: 7.03 feet per second. This outlet is inside the forebay of Basin Central "8P". The pipe outlet will have a flared end and will require an R-4 graded rock size.

Watershed 4S pipe outlet: Velocity: 5.9 feet per second. This outlet is inside the forebay of Basin South "9P". The pipe outlet will have a flared end and will require an R-4 graded rock size.

Standard #2 – Peak Rate Attenuation

The enclosed HydroCAD calculations show that peak storms, 2-year, 10-year and 25-year storms are mitigated. This requires that post development flow are at or less than pre-development flows. This standard also requires that no off-site flooding impacts will occur during the 100-year storm event. The peaks flows to the multiple design points can be seen below:

Design Points

DESCRIPTION	LOCATION
DP-1	Northern portion of Site
DP-2	Central Portion of Site
DP-3	Southern Portion of the Site

Existing Flows (Pre-Development)

DESCRIPTION	2-YR PEAK FLOW (cfs)	10-YR PEAK FLOW (cfs)	25-YR PEAK FLOW (cfs)	100-YR PEAK FLOW (cfs)
DP-1	4.76	9.11	12.63	19.88
DP-2	5.98	10.62	14.27	21.64
DP-3	0.87	1.98	2.92	4.96

Proposed Flows (Post-Development)

DESCRIPTION	2-YR PEAK FLOW (cfs)	10-YR PEAK FLOW (cfs)	25-YR PEAK FLOW (cfs)	100-YR PEAK FLOW (cfs)
DP-1	2.86	7.44	8.09	17.09
DP-2	2.56	3.77	6.33	20.48
DP-3	0.45	0.97	1.40	2.32

As seen in the tables above, the 2-year, 10-year 25-year and 100-year storms have been mitigated in accordance with the standards.

Standard #3 – Stormwater Recharge

Method of Recharge used: Static

NRCS Soil Survey of site: As seen on the project plans, the soils at the site are comprised Farmington Rock Outcrop soils, which have a hydraulic soil group type of "B" soils. Full-depth soil test pits were completed [3]where physically possible as a part of this application. These pits revealed that the on-site soils are generally in character with the soils found in the Soil Survey maps. The locations of these test pits are located on the project plans and the test pit information can be seen herein.

Minimum Infiltration Rate: **It has been determined from the soil conditions found on site that the Rawl's Infiltration Rate for Stormwater is 0.52 inches/hour.**

Soil Evaluation

Soil tests pits were performed to determine the soil conditions, presence of ledge and seasonal high groundwater. The test pit results can be seen on attached project plans. Since the property consists of "urban land" soil types, the adjacent soil polygons were utilized as a guide. Test pit excavations reveal soils similar to the adjacent soil units and were classified as soil type B consistent with same.

Required Recharge Volume

As noted in the stormwater handbook, the required recharge volume is equal to the target depth factor multiplied by the total impervious area on site.

Watershed	Proposed Impervious area (sf)	Existing Impervious Area (sf)
1S	125	59,700
2S	88,328	92,900
3S	70,199	200
4S	34,800	
5S	3,317	
6S	5,427	
	202,196 sf	152,800 sf

Rv for "B" Soils = 49,396 sf x 0.35 inches = 1,440 cubic feet required for new construction.

Sizing

There are three (3) possible methods to sizing infiltration units; static, simple dynamic and dynamic field method.

This analysis proposes the static method for infiltration sizing. This method assumes that there is no exfiltration until the entire recharge devise is filled to the elevation associated with the require recharge volume. Therefore, the amount of required recharge volume 1440 cubic feet.

[3] In areas where underground utilities were assumed not to be present (based on available plans)

Two infiltration areas are proposed for this project.

1. Infiltration trenches proposed include 825 lf. Recharge is considered in the upper 12" due to shallow groundwater thus the recharge volume is 1.5 ft wide by 1 ft deep times the void ration of 40%= 495 cf
2. The Central area is in the plaza area. The plaza will have pervious pavers with an infiltration bed of stone below. The volume of the infiltration bed is 2750 sf * 0.4 cf /sf = 1100 cf.

Together, the project site provides 1,495 cubic feet of volume, this equates to a storage volume equal to **100+%** of the required volume for new construction. Since this project is a redevelopment project, it is meeting this requirement to the maximum extent practicable. Full compliance is not available due to the existing urban land soil conditions at the site that includes shallow groundwater observed at 3 feet below the ground surface. This is exacerbated by onsite bedrock and the necessity to maintain 24" of separation form the infiltration BMP and the groundwater elevation

Drawdown within 72 hours

A requirement of the standards is that any infiltration unit proposed must be able to completely drain within 72 hours. This is determined, in the static method, by using the same Rawls Rate used to size the system, the bottom area of the system. This will determine approximately how long it will take to drawdown the system. The formula for drawdown is as follows:

Time = required volume / Rawls rate * bottom area of system. Rawls rate = 0.52

Infiltration Trench = 1440 / (.52/12 * 825 s.f.) = 40 hours **OK**

Infiltration Bed (Patio) = 1440 / (0.52/12 * 2750 s.f.) = 12 hours **OK**

Mounding Analysis

Mounding analysis is not required since the groundwater recharge BMPs are not utilized to attenuate peak discharge from any storms.

Standard #4 Water Quality

Water Quality Volume:

The site is located not located within a water quality district. Thus, the water quality depth is 1/2" times the total impervious area.

V = (water quality depth / 12 inches/foot) * (impervious area in square feet) = volume in cubic ft
V = (0.5 / 12) * 202,196 square feet = 8,424 cubic feet.

The system includes two extended detention basins. The forebay volumes are as follows:

Basin North= 1075 cf

Basin Central/South= 1570 cf

The Stormceptor treatment unit can also provide water quality volume treatment when sized properly, based upon the flow rate in accordance with the *"Massachusetts Department of Environmental Protection Wetlands Program, Standard Methods to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practices"*. Based upon the TR-20 calculation for the First 1/2-inch runoff WQV.

The sub areas are divided among the, North and Central/South areas. Calculate the water quality volume discharge rate that will require treatment in each:

Solution:

The water quality volume is the volume of runoff from 0.5 inches of rain. The equation to calculate the water quality volume is shown below.

Q 0.5=qu * Area * WQ_V 1-acre = 0.0015624 mi^2

The project has a peak flow rate greater than 0.99 cfs. Information enclosed regarding the Stormceptor depicts a Stormceptor System model STC 450i achieves the water quality objective for a stormwater quality flow rate of up to 0.99 cfs. Since the flow rate from the first ½" of rain is more than 0.99 cfs the water quality volume treatment alone is inadequate and must be supplemented with forebays. A summary of the WQV provided and compliance with the standard is outlined below:

Water -shed	Impervious area	acres	Flow rate for SC	Convert flow to area for SC	Remaining area (Ac)	Remaining WQV cf	Forebay volume (cf)	unused WQV	Remarks
1S	125	0.00	0	0.00	0.00	*5.2*	0	0	untreated side yard
2S	88,328	2.03	0.99	1.56	0.47	851.2	1075	223.8	WQV exceeded
3S	70,199	1.61	0.775	1.21	0.40	721.0	724	3.0	WQV exceeded
4S	34,800	0.80	0.215	0.34	0.46	838.6	845	6.4	WQV met
5S	3,317	0.08			0.08	*138.2*			Untreated front lawn area
6S	5,427	0.12	0	0.00	0.12	*226.1*			Front entrance driveway

Water quality Volume is provided for both new and existing developed areas throughout the site except for the southerly lawn and roadside sidewalk, Northerly side yard and lawn area including the Detention basin outlet swale and the driveway entrance which is at a lower elevation and cannot be captured onsite. This is typical in redevelopment project s to have small areas that cannot be treated but is considered *De Minimis* based upon the small areas not included in the treatment train. This is consistent with the MDEP policy (Volume 3, Chapter 1, page 35)

TSS Removal:

The Stormceptor System in conjunction with the forebays, provides the required WQV. The proposed drainage system has been designed to exceed the recommended 80% TSS removal goal with the implementation of the following Stormwater Chain as outlined in the following TSS removal worksheets for each sub-area:

TSS removal is calculated for the North and Central subareas as follows:

TSS Removal Calculation Worksheet

B	C	D	E	F
BMP	TSS Removal Rate1	Starting TSS Load	Amount Removed (C*D)	Remaining Load (D-E)
Stormceptor Unit	0.77	1.00	0.73-0.75	0.23
Extended Detention Basin	0.50	0.23	0.11	0.12
		Total TSS Removal =	87-88%	

The TSS removal for the project site is between 87-88% the 80% TSS removal criteria

Standard #5 Land Uses with Higher Potential Pollutant Loads

This does not apply to this project.

The project could trigger a LUHPPL by creating over 1,000 vehicle trips per day. As seen in the attached Traffic Impact Study, the project proposes 456 vehicle trips per day.

Standard #6 Critical Areas

Critical areas include Outstanding Resource Waters as designated in 314 CMR 4.00, Special Resource Waters as designated in 314 CMR 4.00, recharge areas for public water supplies as defined in 310 CMR 22.02 (Zone Is, Zone IIs and Interim Wellhead Protection Areas for groundwater sources and Zone As for surface water sources), bathing beaches as defined in 105 CMR 445.000, cold-water fisheries as defined in 310 CMR 10.04 and 314 CMR 9.02, and shellfish growing areas as defined in 310 CMR 10.04 and 314 CMR 9.02.

No critical areas are located within a one-half mile of the subject site. Yukon Brook is located over 3000 feet to the north by northeast of the site. This standard is met.

Standard #7 Redevelopment

The project site is a redevelopment site. A majority of the site is currently developed and has been since the 1960s. This includes the building, pavement, sidewalks and lawn areas.

The project design followed the guidance outlined in Volume 2, Chapter 3 – Checklist for Redevelopment Projects as outlined in the Stormwater Management Handbook. This guidance describes what a redevelopment project is and how project are required to comply with the standards, either fully or to the maximum extent practicable.

MassDEP recognizes that site constraints often make it difficult to comply with all the Standards at a redevelopment site. These constraints include:

> **Soils**: The presence of bedrock or clay can limit the effectiveness of infiltration or detention
> **BMPs:** Often soils at redevelopment sites have been compacted by buildings and heavy traffic, impairing their ability to infiltrate stormwater into the ground.

Significant portion of the site is underlain by shallow bedrock and high-water table with the only feasible area available for recharge being the interior patio and upland uncontaminated by-pass water. A shallow groundwater recharge system is proposed under the patio and in the shallow underdrains proposed onsite. Otherwise, no areas exist that can support additional infiltration. Please refer to standard #3 above.

Standard #8 Construction Period Controls

Proposed area of disturbance overall site: 10.08 ± acres of which 37.1% is impervious. A comprehensive Erosion Control Plan has been prepared and is included with this application. Furthermore, a Stormwater Pollution Prevention Plan (SWPPP) is required to be prepared for sites that will disturb more than one (1) acre of land. A SWPPP will be filed prior to construction.

Standard #9 Operation and Maintenance Plan

Please see the enclosed Operation and Maintenance plan for the proposed stormwater system at 130 Pittsfield-Lenox Road, LLC.

Standard #10 Illicit Discharges to Drainage System

Please see the enclosed Illicit Discharge Statement and accompanying plan to show that no discharges other than Stormwater will be directed into BMP's. Also, if any illicit discharges are found, they will be remedied immediately.

SECTION 2.0

Operation and Maintenance Plan

SECTION 3.0

Drainage Calculations

3.1 EXISTING DRAINAGE CALCULATIONS AND WATERSHED PLAN

3.2 POST CONDITIONS DRAINAGE CALCULATIONS AND WATERSHED PLAN

SECTION 4.0

Illicit Discharge Statement

SECTION 5.0

Soils Information

SECTION 6.0

CDS Treatment BMP information

SECTION 2.0

Operation and Maintenance Plan

Operation and Maintenance Plan

of

The Stormwater System

For

Lenox Manor
Hotel and Village

Located at
#130 Pittsfield-Lenox Rd.
Lenox, Massachusetts

September, 2021

Background

Once rain reaches the ground, what happens next depends largely on land cover type. Rain falling in a forest is slowed, filtered, and absorbed as it makes its way into the ground or to the nearest stream, river, or reservoir. In contrast, hard, impervious surfaces such as roof tops and roads send stormwater rushing to the nearest ditch, culvert, storm drain, and stream. This stormwater picks up pollutants, such as heavy metals, gas, oil, nutrients, and sediment along the way. Uncontrolled stormwater erodes stream banks, causes flooding, and carries nutrients and sediment downstream. An excess of nutrients contributes to the expansion of oxygen-depleted "dead zones" in local waterways. The solution to improve the quality and reduce the quantity of stormwater runoff before it enters natural waterways are referred to as Best Management Practices, or BMPs. **BMPs** range from structural facilities, such as ponds, bio-retention areas, and underground vaults, to non-structural practices, such as street sweeping and educational efforts.

Routine maintenance will keep a **BMPs** functioning properly and will pay off in the long run by preventing unnecessary repairs. Also, preventing pollutants from reaching the **BMP** will result in lower maintenance costs and cleaner water.

Common Routine Maintenance Needs for Most BMPs

- Regular Inspections
- Vegetation Management
- Mowing
- Pest and Weed control
- Removing Sediment Build-Up
- Stabilize Eroded Areas or Bare Spots
- Unwanted Vegetation
- Embankment and Outlet Stabilization
- Debris and Litter Control
- Mechanical Components Maintenance
- Insect Control
- Access Maintenance
- Overall Pond Maintenance
- Regular Inspections

Each of the above is briefly described below:

Vegetation Management

Most **BMPs** rely on vegetation to filter sediment from stormwater. Vegetation also serves to prevent erosion of the banks and stabilize the bottom of the facility. While turf grass is the most common groundcover, many **BMPs** are designed with woody vegetation and wetland plants to increase pollutant removal.

Mowing.
Most grass is hardiest if it is maintained as an upland meadow. Therefore, grass within BMPs (drainage channels) should not be mowed no shorter than six to eight inches. Grass should be cut at least twice during the growing seasons and once during the summer.

Pest and Weed Control
To reduce the amount of pollutants reaching the **BMP**, avoid using any fertilization and/or pesticides.

Removing Sediment Build-Up.
Since the vegetation surrounding the **BMP** is designed to trap sediment, it is likely to become laden with sediment. When this happens, the sediment should be removed prior to it rendering the **BMPs** ineffective.

Stabilize Eroded Areas or Bare Spots.
Bare spots should be vigorously raked, backfilled if needed, covered with top soil, and seeded. This is particularly import during the initial construction period.

Unwanted Vegetation.
Some vegetation is destructive to a **BMP**. Keeping dams and bottom areas free of deep-rooted vegetation is critical as roots may destabilize the structure. Consistent mowing and monitoring will control any unwanted vegetation.

Embankment and Outlet Stabilization
A stable embankment is important to ensure that erosion does not contribute to water quality problems and that embankments are not breached resulting in downstream flooding. Maintaining a healthy vegetative cover and preventing the growth of deep-rooted (woody) vegetation on embankment areas is an important component to stabilization. Animal burrows will also deteriorate the structural integrity of an embankment. Muskrats and groundhogs in particular will burrow tunnels up to six inches in diameter. Efforts should be made to control excessive animal burrowing and existing burrows should be filled as soon as possible. Outlet structures are particularly prone to undercutting and erosion. Unchecked, a small problem can easily result in the need to replace the entire structure. A professional engineer should be consulted if sink holes, cracking, wet areas around the outlet pipe, displacement, or rusting of the pipe is observed.

Debris and Litter Control
Regular removal of debris and litter can be expected to help in the following areas: reduce the chance of clogging outlet structures and trash racks; prevent damage to vegetated structures; reduce mosquito breeding habitats; maintain facility appearance; and, reduce conditions for excessive algae growth. Special attention should be given to the removal of floating debris which can clog inlets, outlets, and low-flow orifices.

Mechanical Components Maintenance
Some **BMPs** have mechanical components that need periodic attention - valves, sluice gates, pumps, **anti-vortex devices**, fence gates, locks, and access hatches should be functional at all times.

Insect Control
A healthy ecosystem actually promotes biological controls of mosquitoes. However, mosquito and other insect breeding grounds can be created by standing water. Though perceived as a significant nuisance, mosquitoes are not as big a problem as is often thought, and there are ways to address the issue.

The best technique is to ensure that stagnant pools of water do not develop. For **BMPs** that have a permanent pool of water, this means the prompt removal of floatable debris.

The development of a mosquito problem, particularly in dry ponds, infiltration trenches, and rain gardens, is usually an early indication that there is a maintenance problem, such as clogging. In such cases, the infiltration capacity of the **BMP** needs to be increased or sediment needs to be removed.

Access Maintenance
Most **BMPs** are designed so that heavy equipment can safely and easily reach the facility for non-routine maintenance. Routine maintenance of access areas is particularly important since one never knows when emergency access will be needed. Maintenance includes removal of woody vegetation, upkeep of gravel areas, fences, and locks.

Overall Pond Maintenance
An often overlooked aspect of maintenance, especially for wet ponds, is the need to ensure a healthy aquatic ecosystem. A healthy ecosystem should require little maintenance. An indicator of an unhealthy system is excessive algal growth or the proliferation of a single species of plant in the permanent pool of a wet pond. This may be caused by excess nutrients from fertilization practices (of a landscape company or surrounding neighbors), or by excess sediment. Steps should be taken to reduce excess nutrients at their source and to encourage the growth of native aquatic and semi-aquatic vegetation in and around the permanent pool.

Goals of this document

- **Section 1: Identify Facility Characteristics and Maintenance Needs**
- **Section 2: Outline Routine Inspections**
- **Section 3 Define Maintenance Tasks, for each BMP**
- **Section 4 Establish a Record Keeping Procedure**

SECTION #1

Identify Facility Characteristics and Maintenance Needs

Understand how the facility works and its specific maintenance needs. The system owner and the Best Management Practices (BMPs) included in the system are outlined below:

Stormwater Management System Operator: <u>130 Pittsfield-Lenox Rd., LLC</u>

- The owner of the property will be responsible for the operation and maintenance of the system. The maintenance will be performed by a combination of hired staff and an appropriate contractor.

- Future property owners will be made aware of this Operation & Maintenance Plan by way of deed transfer (and condition of the final permit). The Condition attached to the deed will indicate that there is a long-term plan that must be followed in perpetuity.

- The following documentation describes the maintenance required for each stormwater best management practice (BMP). The BMPS are as follows:

    - Catch Basins
    - Stormceptor Treatment Unit
    - Infiltration Trench/Beds

- The project plans have been attached, which shows the locations of the BMPs that must be maintained.

Note that all waste should be disposed in accordance with applicable local, state, and federal guidelines and regulations.

SECTION #2

Perform Routine Inspections

The frequency of required inspections is dependant upon the **BMP** and is outlined below. Inspections and maintenance of the stormwater system is the responsibility of the property owner and/or operator. BMPs will be visually inspected in accordance with the following chart

BMPs	Inspection Frequency	What to Look For							
		Erosion	Tree growth	Vegetation	Slope integrity	Trash Debris	Sediment accumulation	Outlet	Remarks
1. Catch Basin	Monthy (yr #1 then annually)					✔	✔	✔	Inspect outlet hood and inlet grate. Remove sediment once it reaches a depth of 1'-0"
2. Stormceptor	Monthly (yr #1) & regular basis thereafter					✔	✔	✔	Remove sediment with vacuum truck
3. Infiltration Trench/Bed	Semi-Annual					✔	✔	✔	

SECTION #3

Define Maintenance Tasks, for each BMP

Defining maintenance tasks and who will undertake these tasks – along with establishing a regular inspection program - is the core of a successful stormwater management facility maintenance program. Each BMP is outlined as follows:

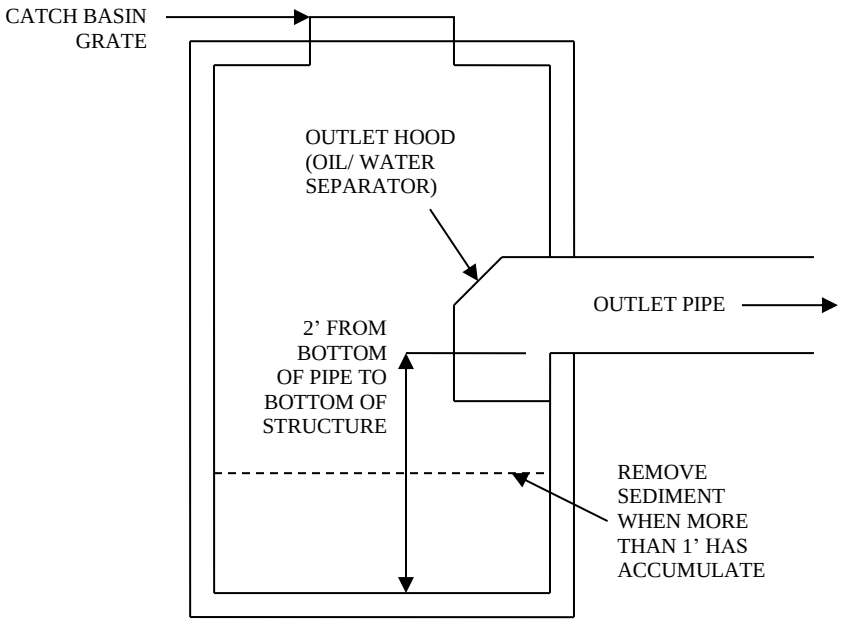
- Section 3.1-Catch Basin
- Section 3.2-Stormceptor
- Section 3.3-Infiltration Trench/Bed
- Section 3.4- Tree Box Filter

Section 3.1-Catch Basins

- Inspect monthly for sediment (and debris) accumulation and integrity of structure(s). The outlet hood should be inspected to ensure that it is still attached properly.

- Cleaned a minimum of two times per year_or if sediment accumulation is greater than 50% within sump.

- The sump in the catch basin is two feet deep; therefore if there is less than one feet of capacity beneath the pipe the accumulated sediment should be removed. The availability capacity of the sump can be checked by using a measuring tape and measuring from the catch basin grate as a reference point. The distance between the bottom of the pipe and the accumulated sediment should be at least one feet, but it is difficult to measure this distance because of the outlet hood. A conservative approach is to measure the distance from the bottom of the hood to the accumulated sediment, which if this distance is less than 1 foot then the sediment should be removed.



- The sediment should be removed by means of a vacuum pump or clamshell bucket. The vacuum pump should be used at least once per year, as it is generally more effective than a clamshell bucket.

- All waste from catch basins should be treated as solid waste and disposed in accordance with applicable local, state, and federal guidelines and regulations.

- Clean snow and ice from c.b. inlet during winter.

Section 3.2 – Stormceptor

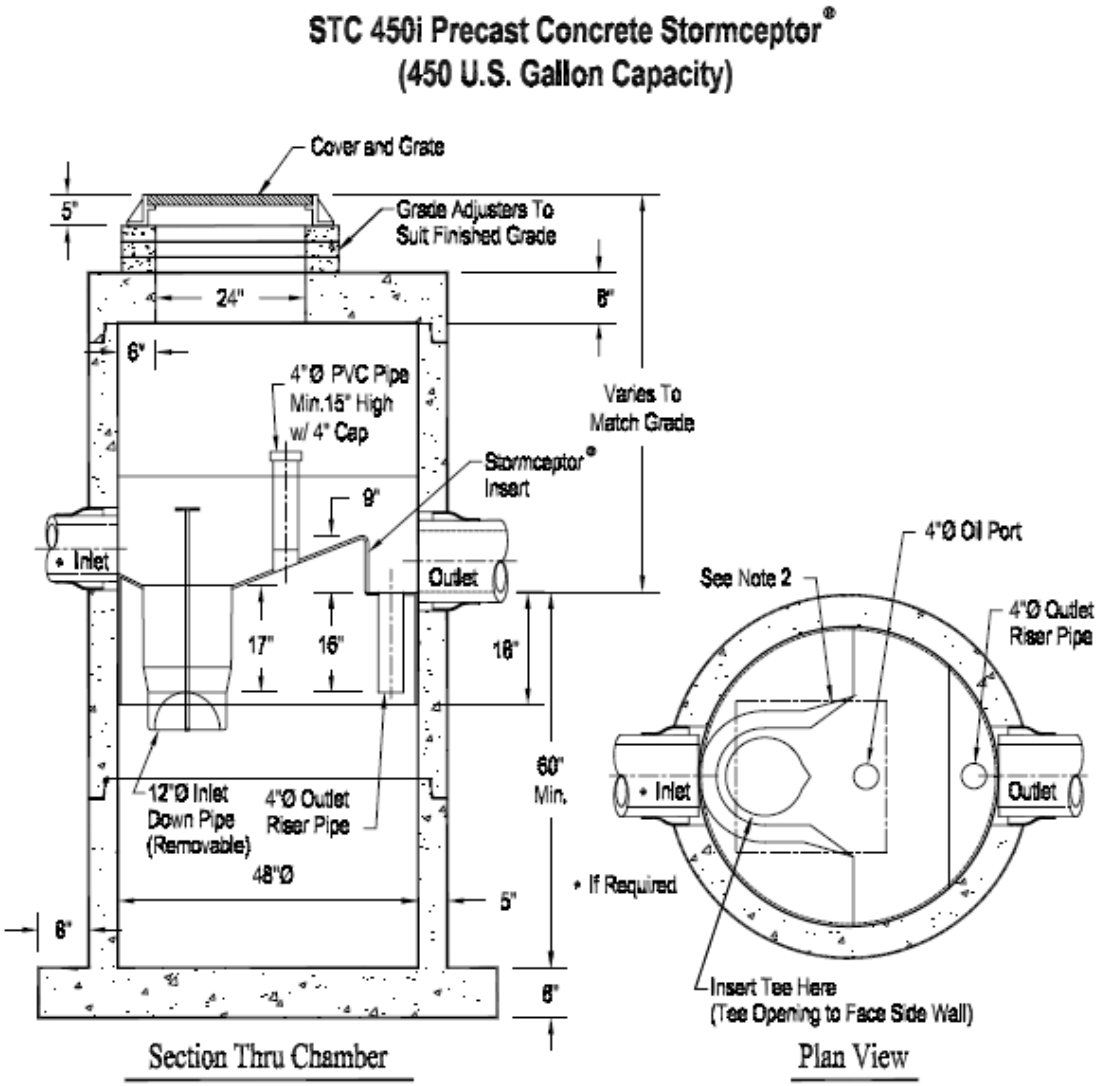
The effectiveness of the stormceptor units depends upon regular maintenance. Regular maintenance includes scheduled inspections and sediment removal. See attached plan and section of stormceptor unit.

- Inspect stormceptor units regularly for sediment (and debris) accumulation and integrity of structure(s).

- The units should be cleaned four times per year or if sediment accumulation is greater than 15% within sump. This occurs when there is approximately 12" of sediment in the STC 2400 Model.

- The sediment should be removed by means of a vacuum pump. Oil is removed through the 6" diameter inspection/oil port, while the sediment is removed from the 24" diameter drop outlet pipe.

- The removed waste shall be handled properly and disposed of in accordance with all local, state, and federal guidelines and regulations.



Section 3.3 – Infiltration Trench/Bed

Underground Infiltration Chambers with Isolator Row and Manifold

- The underground infiltration chambers utilize an isolator row and manifold to distribute stormwater.
- There are inspection ports located above the rows to inspect for sediment.
- The isolator row and manifold should initially be inspected immediately after completion of the site's construction.
- The isolator row and manifold should be inspected <u>bi-annually</u> for sediment (and debris) accumulation and integrity of structure(s).

- The Isolator Row should be cleaned if an average depth of 3" or more has accumulated inside the chambers. It should be cleaned a minimum of once a year. A JetVac process with a culvert cleaning nozzle should be used to clean the sediment from inside the Isolator Row.

- All waste should be disposed in accordance with applicable local, state, and federal guidelines and regulations.

SECTION #4

Establish a Record Keeping Procedure

Establishing a record keeping procedure will help to define chronic maintenance problems and aid in future budget preparation. A periodic examination of maintenance practices will assist in identifying persistent problems early.

Attached is a sample Stormwater Inspection Form.

Stormwater Inspection Form

(to be filled out for each drainage area)

Project:_____

Inspector Name:_____ Weather:_____

Date: _____ Time: _____

Drainage Area

1. Catch Basins (inspect annually):
(each structure to be individually inspected)

Is sediment depth greater than 1'-0"?	Yes	No
Is structural integrity sound?	Yes	No
Is outlet hood attached?	Yes	No
Is inlet grate clogged?	Yes	No

Action Required: _____

_____

_____

_____

*Attach additional pages as necessary.

2. Stormceptor (inspect annually):

Time since last inspection: _____ days

Depth of sediment – less than 12-inches Yes No Depth:_____

Structural Integrity: Good Poor

Action Required:_____

_____

_____

*Attach additional pages as necessary.

3. Infiltration Trench/Bed (use isolator row for inspection):

Depth of sediment: _____ inches (over 14-inches, removal required)

Distance from top of sediment to outlet (12-inch minimum): Yes No

Action Required:_____

_____

_____

*Attach additional pages as necessary.

Statement of Compliance

Based on the above observations, this report can serve as confirmation that the stormwater system is being maintained and operated in general conformance with the approved plans and the discharge permit referenced above, and that the stormwater system is in good operating condition.

_____ _____
Signature Date

_____
Print or Type Name

Record Keeping:

A copy of this Inspection Form and any supporting documents, including but not limited to, photographs, vendor receipts, notes or other records, must be kept on file at the premises for a minimum of three (3) years.

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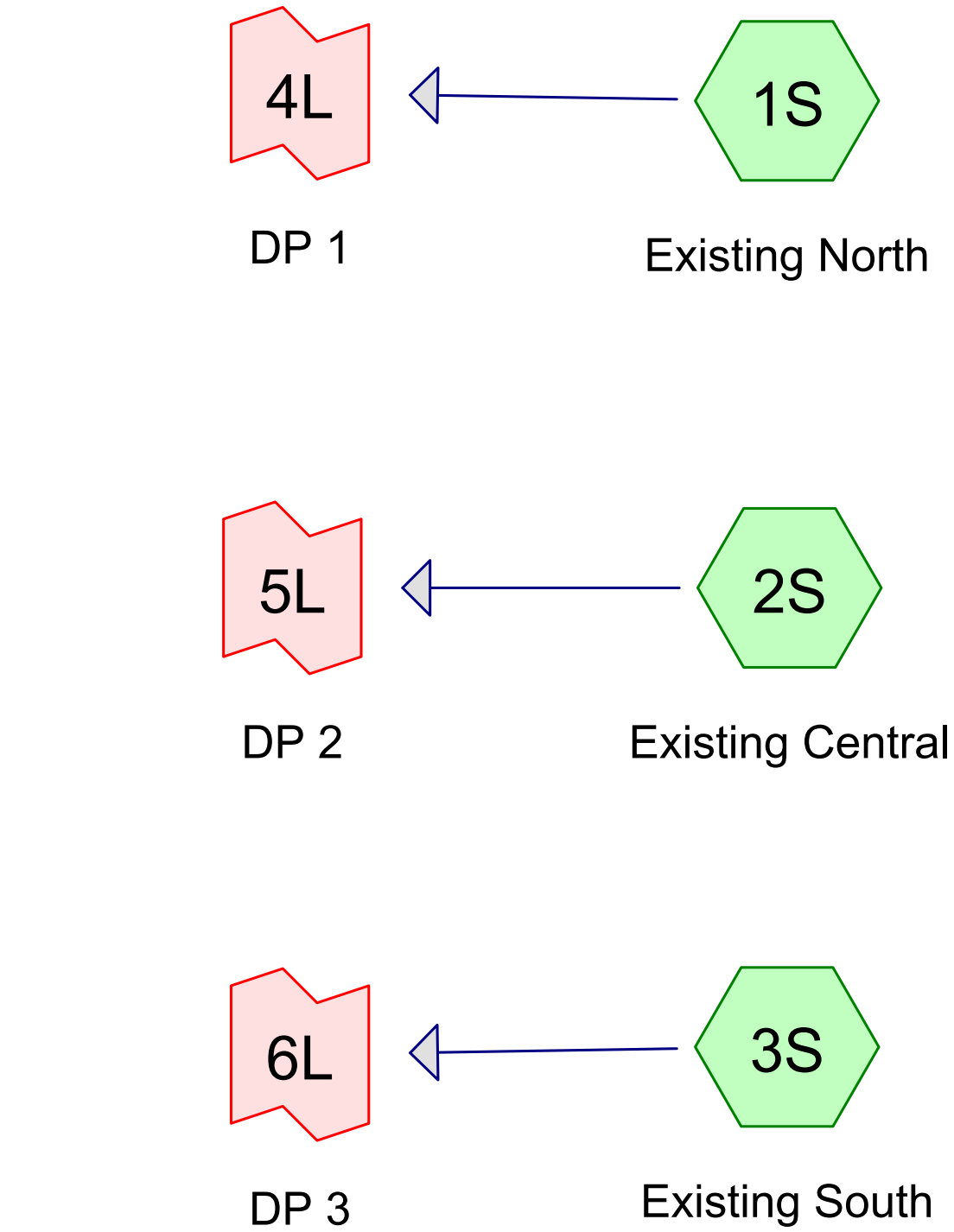
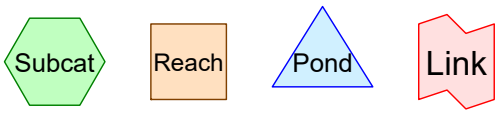
SECTION 3.0

Drainage Calculations

3.1 EXISTING DRAINAGE CALCULATIONS AND WATERSHED PLAN

3.2 POST CONDITIONS DRAINAGE CALCULATIONS AND WATERSHED PLAN





Routing Diagram for 150079 Exist - C Soil
Prepared by SK Design Group, Inc, Printed 3/21/2022
HydroCAD® 10.00-20 s/n 01869 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Existing North

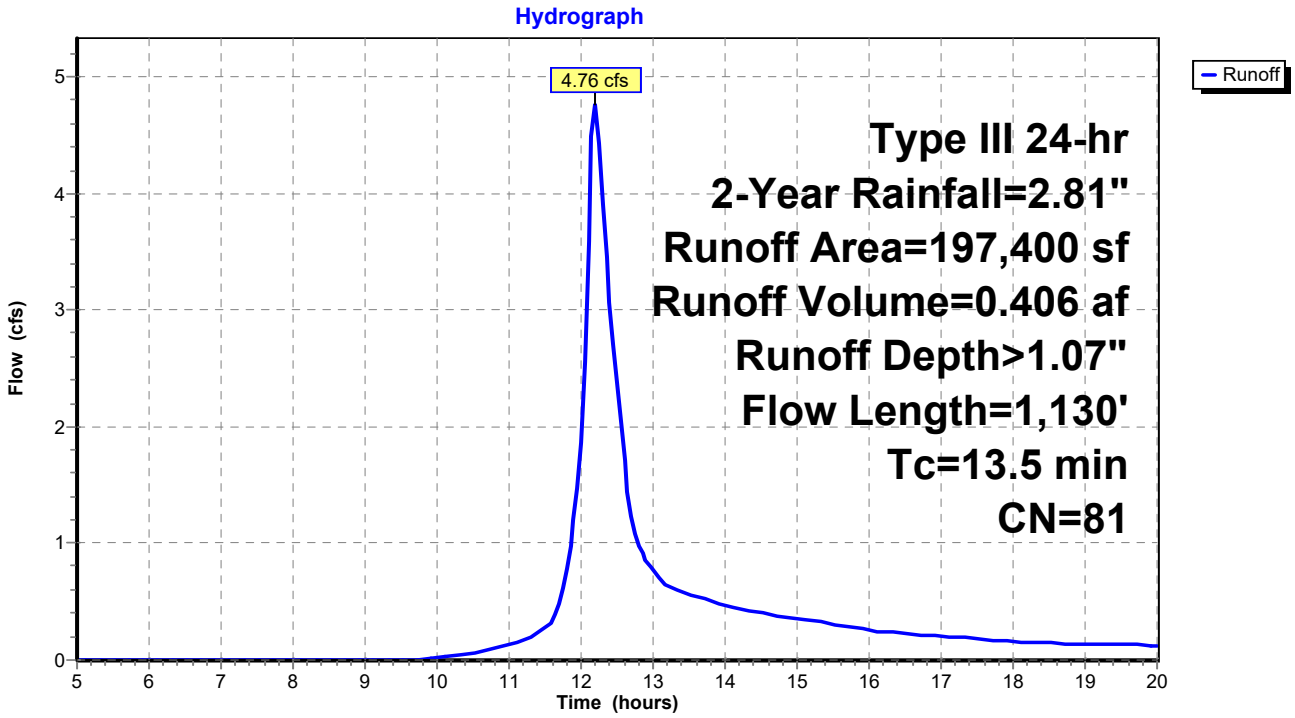
Runoff = 4.76 cfs @ 12.20 hrs, Volume= 0.406 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	300	98	Building
*	59,400	98	Pavement and Concrete
	71,900	74	>75% Grass cover, Good, HSG C
	65,800	73	Woods, Fair, HSG C
	197,400	81	Weighted Average
	137,700		69.76% Pervious Area
	59,700		30.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	25	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.4	25	0.0500	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 2.80"
2.0	430	0.0600	3.67		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
3.6	530	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.3	120	0.1700	6.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
13.5	1,130	Total			

Subcatchment 1S: Existing North



Hydrograph for Subcatchment 1S: Existing North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.41	0.00	0.00
9.25	0.44	0.00	0.00
9.50	0.47	0.00	0.00
9.75	0.50	0.00	0.00
10.00	0.53	0.00	0.02
10.25	0.57	0.00	0.04
10.50	0.61	0.01	0.06
10.75	0.65	0.01	0.09
11.00	0.70	0.02	0.13
11.25	0.76	0.03	0.18
11.50	0.84	0.05	0.28
11.75	1.00	0.10	0.61
12.00	1.40	0.27	**1.86**
12.25	1.81	0.49	**4.44**
12.50	1.97	0.59	2.37
12.75	2.05	0.64	1.08
13.00	2.11	0.67	0.77
13.25	2.16	0.71	0.62
13.50	2.20	0.74	0.56
13.75	2.24	0.76	0.52
14.00	2.28	0.79	0.47
14.25	2.31	0.81	0.43
14.50	2.34	0.83	0.40
14.75	2.37	0.85	0.38
15.00	2.40	0.87	0.36
15.25	2.43	0.89	0.33
15.50	2.45	0.91	0.31
15.75	2.47	0.92	0.28
16.00	2.49	0.94	0.26
16.25	2.51	0.95	0.24
16.50	2.52	0.96	0.23
16.75	2.54	0.97	0.21
17.00	2.56	0.98	0.20
17.25	2.57	0.99	0.19
17.50	2.58	1.00	0.18
17.75	2.60	1.01	0.17
18.00	2.61	1.02	0.16
18.25	2.62	1.03	0.15
18.50	2.63	1.04	0.15
18.75	2.64	1.04	0.14
19.00	2.65	1.05	0.14
19.25	2.66	1.06	0.14
19.50	2.67	1.07	0.13
19.75	2.68	1.07	0.13
20.00	**2.69**	**1.08**	0.13

Summary for Subcatchment 2S: Existing Central

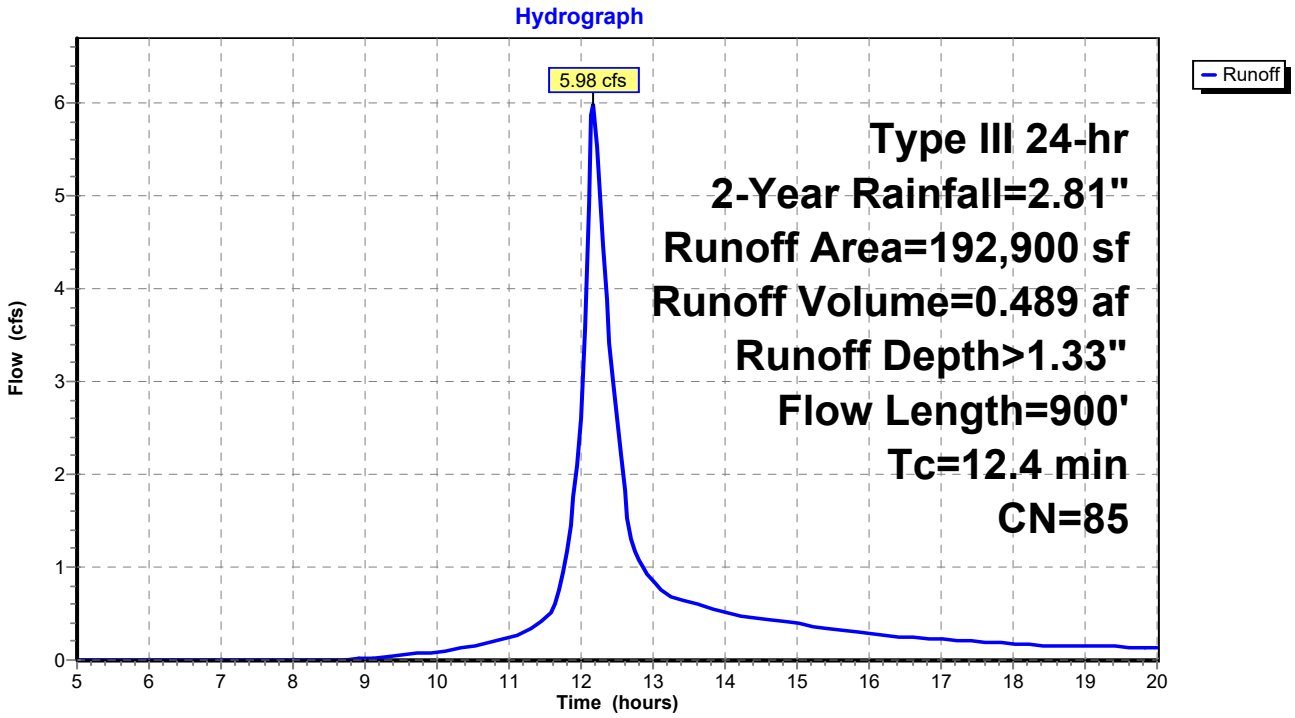
Runoff = 5.98 cfs @ 12.17 hrs, Volume= 0.489 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	42,900	98	Building
*	50,000	98	Pavement and Concrete
	72,900	74	>75% Grass cover, Good, HSG C
	27,100	73	Woods, Fair, HSG C
	192,900	85	Weighted Average
	100,000		51.84% Pervious Area
	92,900		48.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.6	40	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.2	80	0.2400	7.35		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	250	0.0060	2.85	18.29	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	200	0.0350	6.88	44.17	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	280	0.0500	8.79	6.90	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
12.4	900	Total			

Subcatchment 2S: Existing Central



Hydrograph for Subcatchment 2S: Existing Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.01
9.00	0.41	0.00	0.02
9.25	0.44	0.00	0.03
9.50	0.47	0.01	0.05
9.75	0.50	0.01	0.07
10.00	0.53	0.02	0.09
10.25	0.57	0.02	0.12
10.50	0.61	0.03	0.15
10.75	0.65	0.04	0.19
11.00	0.70	0.06	0.24
11.25	0.76	0.08	0.31
11.50	0.84	0.10	0.45
11.75	1.00	0.17	0.94
12.00	1.40	0.39	**2.60**
12.25	1.81	0.66	**5.19**
12.50	1.97	0.78	2.60
12.75	2.05	0.83	1.16
13.00	2.11	0.87	0.85
13.25	2.16	0.91	0.68
13.50	2.20	0.95	0.62
13.75	2.24	0.98	0.57
14.00	2.28	1.01	0.52
14.25	2.31	1.03	0.47
14.50	2.34	1.06	0.44
14.75	2.37	1.08	0.42
15.00	2.40	1.10	0.39
15.25	2.43	1.12	0.36
15.50	2.45	1.14	0.34
15.75	2.47	1.15	0.31
16.00	2.49	1.17	0.28
16.25	2.51	1.18	0.26
16.50	2.52	1.20	0.24
16.75	2.54	1.21	0.23
17.00	2.56	1.22	0.22
17.25	2.57	1.23	0.21
17.50	2.58	1.25	0.20
17.75	2.60	1.26	0.18
18.00	2.61	1.26	0.17
18.25	2.62	1.27	0.16
18.50	2.63	1.28	0.16
18.75	2.64	1.29	0.15
19.00	2.65	1.30	0.15
19.25	2.66	1.31	0.15
19.50	2.67	1.32	0.14
19.75	2.68	1.32	0.14
20.00	**2.69**	**1.33**	0.14

Summary for Subcatchment 3S: Existing South

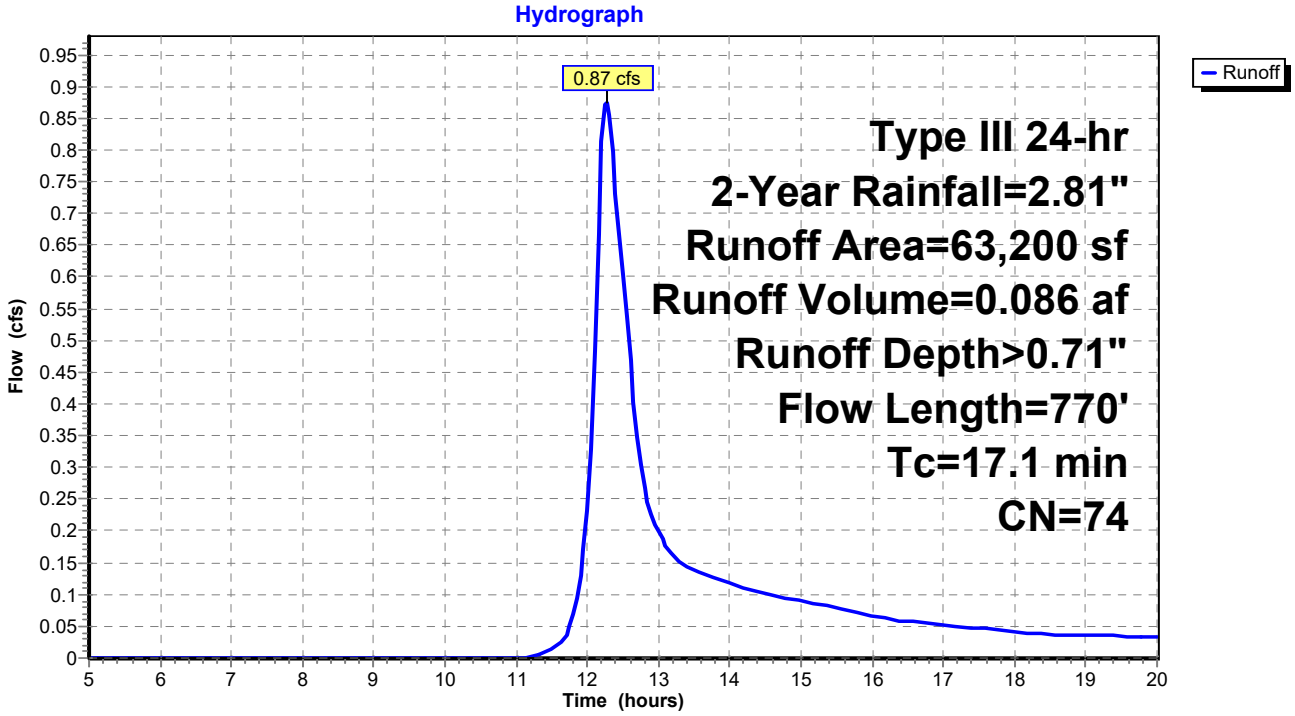
Runoff = 0.87 cfs @ 12.26 hrs, Volume= 0.086 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	200	98	Building
*	0	98	Pavement and Concrete
	31,600	74	>75% Grass cover, Good, HSG C
	31,400	73	Woods, Fair, HSG C
	63,200	74	Weighted Average
	63,000		99.68% Pervious Area
	200		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Grass** Woods: Light underbrush n= 0.400 P2= 2.80"
1.0	70	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	150	0.0450	3.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
5.2	380	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.0	120	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
17.1	770	Total			

Subcatchment 3S: Existing South



Hydrograph for Subcatchment 3S: Existing South

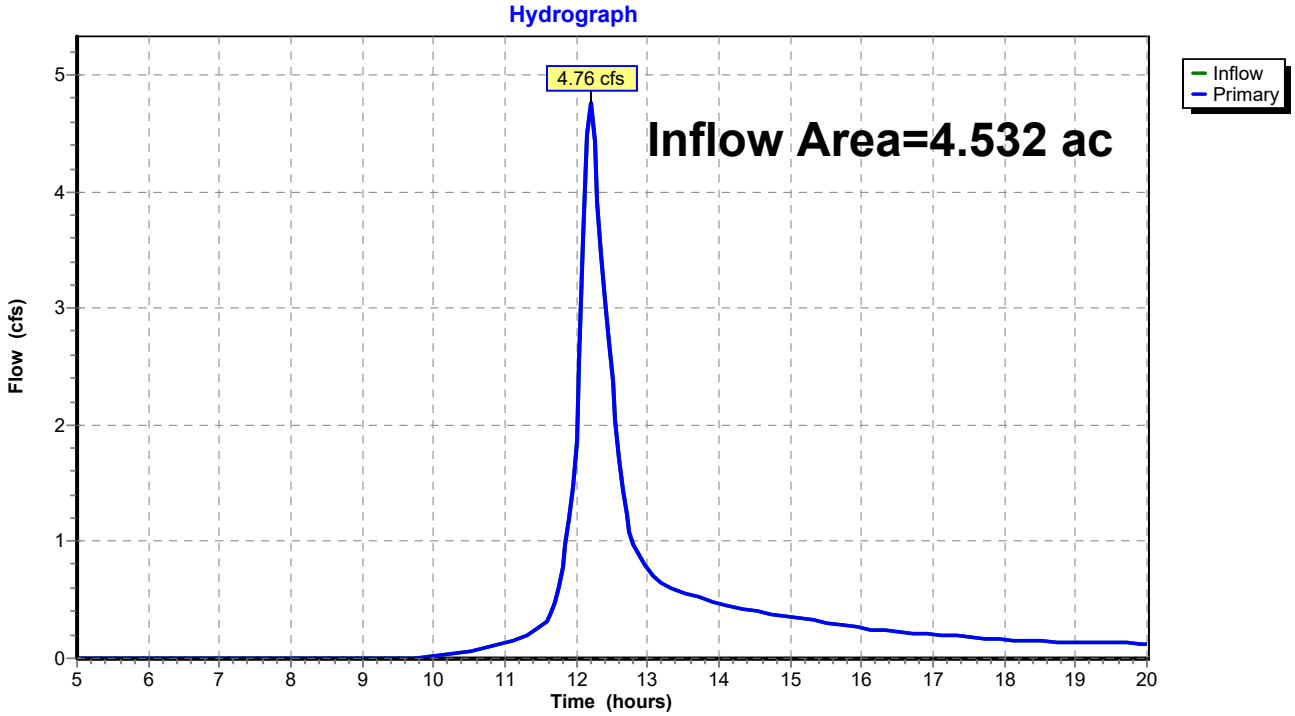
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.41	0.00	0.00
9.25	0.44	0.00	0.00
9.50	0.47	0.00	0.00
9.75	0.50	0.00	0.00
10.00	0.53	0.00	0.00
10.25	0.57	0.00	0.00
10.50	0.61	0.00	0.00
10.75	0.65	0.00	0.00
11.00	0.70	0.00	0.00
11.25	0.76	0.00	0.00
11.50	0.84	0.00	0.01
11.75	1.00	0.02	0.05
12.00	1.40	0.12	0.23
12.25	1.81	0.27	**0.87**
12.50	1.97	0.34	0.60
12.75	2.05	0.37	0.30
13.00	2.11	0.40	0.20
13.25	2.16	0.43	0.16
13.50	2.20	0.45	0.14
13.75	2.24	0.47	0.13
14.00	2.28	0.49	0.12
14.25	2.31	0.51	0.11
14.50	2.34	0.52	0.10
14.75	2.37	0.54	0.10
15.00	2.40	0.55	0.09
15.25	2.43	0.57	0.08
15.50	2.45	0.58	0.08
15.75	2.47	0.59	0.07
16.00	2.49	0.60	0.07
16.25	2.51	0.61	0.06
16.50	2.52	0.62	0.06
16.75	2.54	0.63	0.05
17.00	2.56	0.64	0.05
17.25	2.57	0.65	0.05
17.50	2.58	0.66	0.05
17.75	2.60	0.66	0.04
18.00	2.61	0.67	0.04
18.25	2.62	0.68	0.04
18.50	2.63	0.68	0.04
18.75	2.64	0.69	0.04
19.00	2.65	0.69	0.04
19.25	2.66	0.70	0.03
19.50	2.67	0.71	0.03
19.75	2.68	0.71	0.03
20.00	**2.69**	**0.72**	0.03

Summary for Link 4L: DP 1

Inflow Area = 4.532 ac, 30.24% Impervious, Inflow Depth > 1.07" for 2-Year event
Inflow = 4.76 cfs @ 12.20 hrs, Volume= 0.406 af
Primary = 4.76 cfs @ 12.20 hrs, Volume= 0.406 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

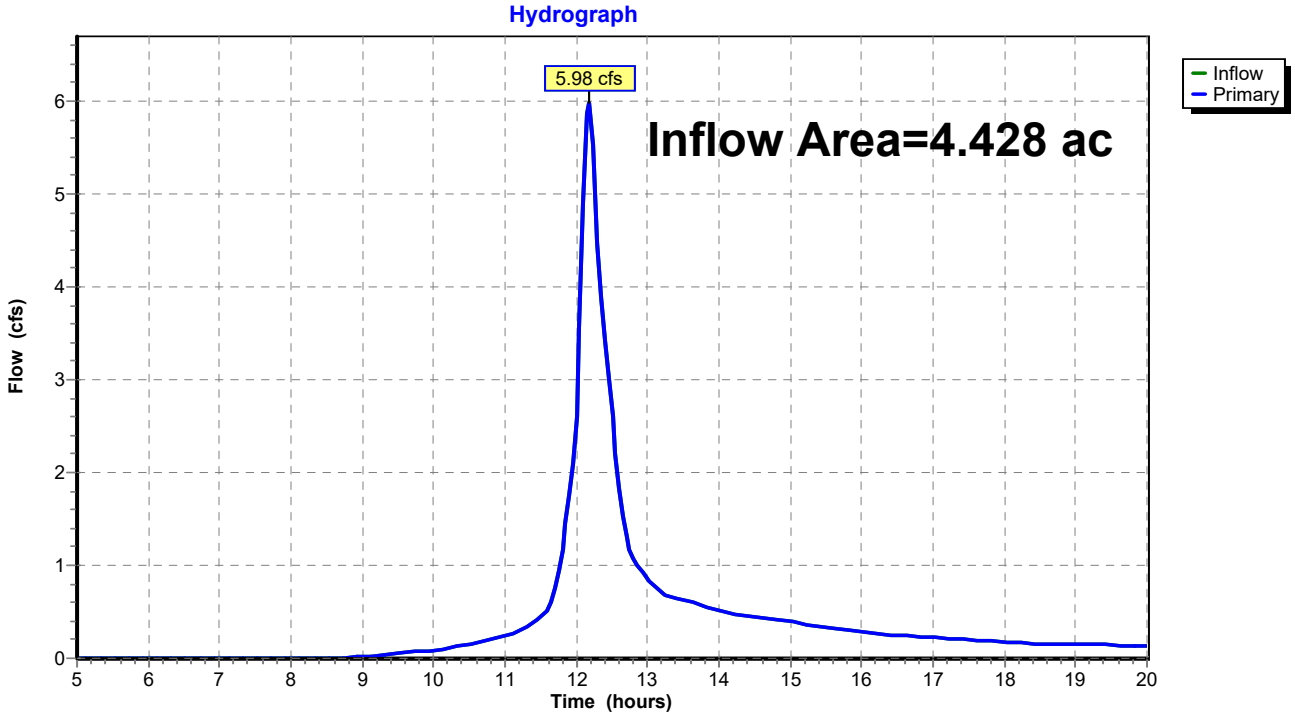
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.16	0.00	0.16
5.25	0.00	0.00	0.00	18.25	0.15	0.00	0.15
5.50	0.00	0.00	0.00	18.50	0.15	0.00	0.15
5.75	0.00	0.00	0.00	18.75	0.14	0.00	0.14
6.00	0.00	0.00	0.00	19.00	0.14	0.00	0.14
6.25	0.00	0.00	0.00	19.25	0.14	0.00	0.14
6.50	0.00	0.00	0.00	19.50	0.13	0.00	0.13
6.75	0.00	0.00	0.00	19.75	0.13	0.00	0.13
7.00	0.00	0.00	0.00	20.00	0.13	0.00	0.13
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.02	0.00	0.02				
10.25	0.04	0.00	0.04				
10.50	0.06	0.00	0.06				
10.75	0.09	0.00	0.09				
11.00	0.13	0.00	0.13				
11.25	0.18	0.00	0.18				
11.50	0.28	0.00	0.28				
11.75	0.61	0.00	0.61				
12.00	**1.86**	0.00	**1.86**				
12.25	**4.44**	0.00	**4.44**				
12.50	2.37	0.00	2.37				
12.75	1.08	0.00	1.08				
13.00	0.77	0.00	0.77				
13.25	0.62	0.00	0.62				
13.50	0.56	0.00	0.56				
13.75	0.52	0.00	0.52				
14.00	0.47	0.00	0.47				
14.25	0.43	0.00	0.43				
14.50	0.40	0.00	0.40				
14.75	0.38	0.00	0.38				
15.00	0.36	0.00	0.36				
15.25	0.33	0.00	0.33				
15.50	0.31	0.00	0.31				
15.75	0.28	0.00	0.28				
16.00	0.26	0.00	0.26				
16.25	0.24	0.00	0.24				
16.50	0.23	0.00	0.23				
16.75	0.21	0.00	0.21				
17.00	0.20	0.00	0.20				
17.25	0.19	0.00	0.19				
17.50	0.18	0.00	0.18				
17.75	0.17	0.00	0.17				

Summary for Link 5L: DP 2

Inflow Area = 4.428 ac, 48.16% Impervious, Inflow Depth > 1.33" for 2-Year event
Inflow = 5.98 cfs @ 12.17 hrs, Volume= 0.489 af
Primary = 5.98 cfs @ 12.17 hrs, Volume= 0.489 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

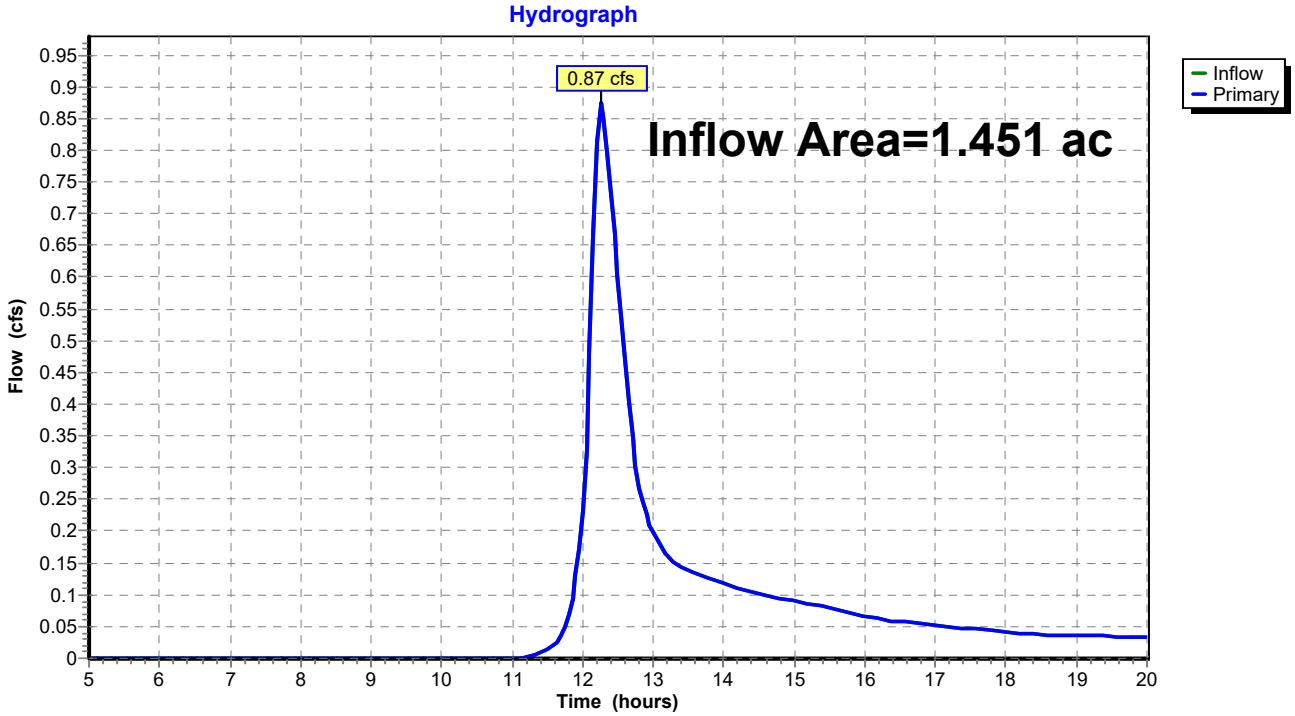
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.17	0.00	0.17
5.25	0.00	0.00	0.00	18.25	0.16	0.00	0.16
5.50	0.00	0.00	0.00	18.50	0.16	0.00	0.16
5.75	0.00	0.00	0.00	18.75	0.15	0.00	0.15
6.00	0.00	0.00	0.00	19.00	0.15	0.00	0.15
6.25	0.00	0.00	0.00	19.25	0.15	0.00	0.15
6.50	0.00	0.00	0.00	19.50	0.14	0.00	0.14
6.75	0.00	0.00	0.00	19.75	0.14	0.00	0.14
7.00	0.00	0.00	0.00	20.00	0.14	0.00	0.14
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.01	0.00	0.01				
9.00	0.02	0.00	0.02				
9.25	0.03	0.00	0.03				
9.50	0.05	0.00	0.05				
9.75	0.07	0.00	0.07				
10.00	0.09	0.00	0.09				
10.25	0.12	0.00	0.12				
10.50	0.15	0.00	0.15				
10.75	0.19	0.00	0.19				
11.00	0.24	0.00	0.24				
11.25	0.31	0.00	0.31				
11.50	0.45	0.00	0.45				
11.75	0.94	0.00	0.94				
12.00	**2.60**	0.00	**2.60**				
12.25	**5.19**	0.00	**5.19**				
12.50	2.60	0.00	2.60				
12.75	1.16	0.00	1.16				
13.00	0.85	0.00	0.85				
13.25	0.68	0.00	0.68				
13.50	0.62	0.00	0.62				
13.75	0.57	0.00	0.57				
14.00	0.52	0.00	0.52				
14.25	0.47	0.00	0.47				
14.50	0.44	0.00	0.44				
14.75	0.42	0.00	0.42				
15.00	0.39	0.00	0.39				
15.25	0.36	0.00	0.36				
15.50	0.34	0.00	0.34				
15.75	0.31	0.00	0.31				
16.00	0.28	0.00	0.28				
16.25	0.26	0.00	0.26				
16.50	0.24	0.00	0.24				
16.75	0.23	0.00	0.23				
17.00	0.22	0.00	0.22				
17.25	0.21	0.00	0.21				
17.50	0.20	0.00	0.20				
17.75	0.18	0.00	0.18				

Summary for Link 6L: DP 3

Inflow Area = 1.451 ac, 0.32% Impervious, Inflow Depth > 0.71" for 2-Year event
Inflow = 0.87 cfs @ 12.26 hrs, Volume= 0.086 af
Primary = 0.87 cfs @ 12.26 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.04	0.00	0.04
5.25	0.00	0.00	0.00	18.25	0.04	0.00	0.04
5.50	0.00	0.00	0.00	18.50	0.04	0.00	0.04
5.75	0.00	0.00	0.00	18.75	0.04	0.00	0.04
6.00	0.00	0.00	0.00	19.00	0.04	0.00	0.04
6.25	0.00	0.00	0.00	19.25	0.03	0.00	0.03
6.50	0.00	0.00	0.00	19.50	0.03	0.00	0.03
6.75	0.00	0.00	0.00	19.75	0.03	0.00	0.03
7.00	0.00	0.00	0.00	20.00	0.03	0.00	0.03
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.01	0.00	0.01				
11.75	0.05	0.00	0.05				
12.00	0.23	0.00	0.23				
12.25	**0.87**	0.00	**0.87**				
12.50	0.60	0.00	0.60				
12.75	0.30	0.00	0.30				
13.00	0.20	0.00	0.20				
13.25	0.16	0.00	0.16				
13.50	0.14	0.00	0.14				
13.75	0.13	0.00	0.13				
14.00	0.12	0.00	0.12				
14.25	0.11	0.00	0.11				
14.50	0.10	0.00	0.10				
14.75	0.10	0.00	0.10				
15.00	0.09	0.00	0.09				
15.25	0.08	0.00	0.08				
15.50	0.08	0.00	0.08				
15.75	0.07	0.00	0.07				
16.00	0.07	0.00	0.07				
16.25	0.06	0.00	0.06				
16.50	0.06	0.00	0.06				
16.75	0.05	0.00	0.05				
17.00	0.05	0.00	0.05				
17.25	0.05	0.00	0.05				
17.50	0.05	0.00	0.05				
17.75	0.04	0.00	0.04				

Summary for Subcatchment 1S: Existing North

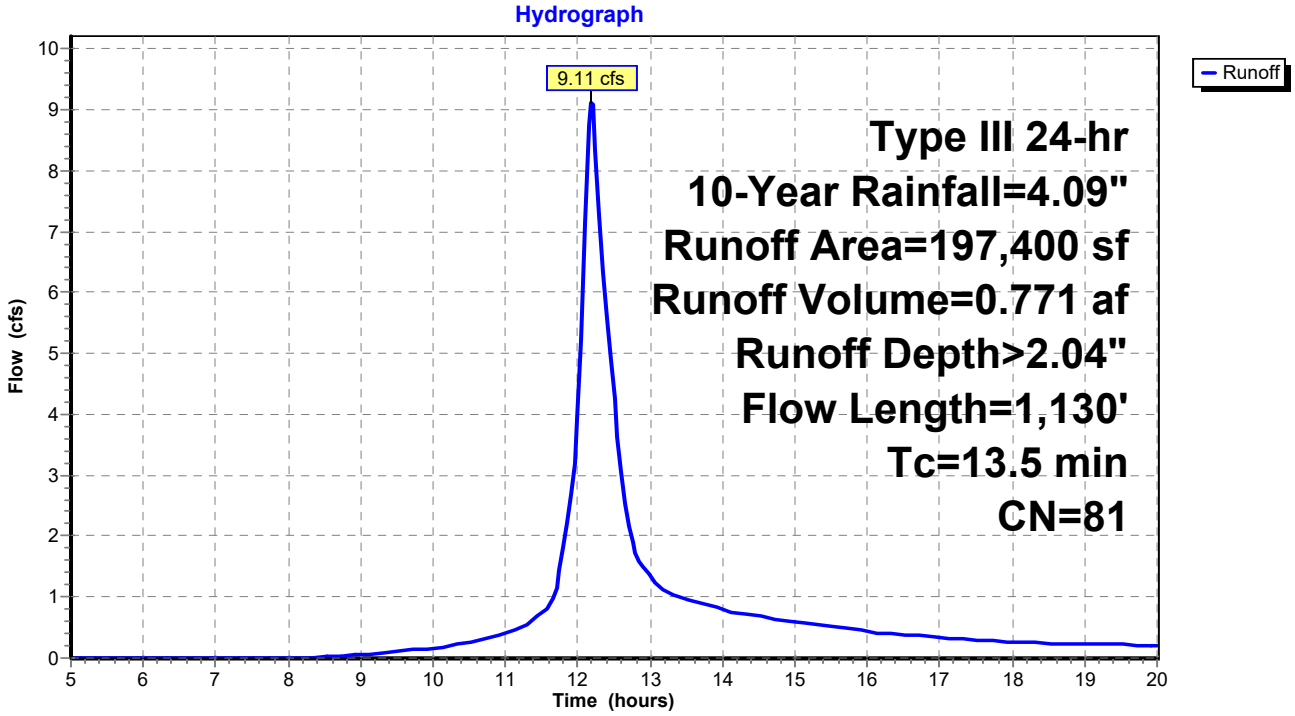
Runoff = 9.11 cfs @ 12.19 hrs, Volume= 0.771 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	300	98	Building
*	59,400	98	Pavement and Concrete
	71,900	74	>75% Grass cover, Good, HSG C
	65,800	73	Woods, Fair, HSG C
	197,400	81	Weighted Average
	137,700		69.76% Pervious Area
	59,700		30.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	25	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.4	25	0.0500	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 2.80"
2.0	430	0.0600	3.67		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
3.6	530	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.3	120	0.1700	6.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
13.5	1,130	Total			

Subcatchment 1S: Existing North



Hydrograph for Subcatchment 1S: Existing North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.23	0.00	0.00
5.25	0.25	0.00	0.00
5.50	0.26	0.00	0.00
5.75	0.28	0.00	0.00
6.00	0.29	0.00	0.00
6.25	0.31	0.00	0.00
6.50	0.33	0.00	0.00
6.75	0.35	0.00	0.00
7.00	0.37	0.00	0.00
7.25	0.39	0.00	0.00
7.50	0.42	0.00	0.00
7.75	0.44	0.00	0.00
8.00	0.47	0.00	0.00
8.25	0.49	0.00	0.00
8.50	0.53	0.00	0.01
8.75	0.56	0.00	0.03
9.00	0.60	0.01	0.05
9.25	0.64	0.01	0.07
9.50	0.68	0.02	0.10
9.75	0.72	0.03	0.13
10.00	0.77	0.03	0.17
10.25	0.83	0.05	0.21
10.50	0.89	0.06	0.26
10.75	0.95	0.08	0.33
11.00	1.02	0.11	0.40
11.25	1.11	0.14	0.52
11.50	1.22	0.18	0.73
11.75	1.45	0.29	1.45
12.00	2.04	0.63	**3.93**
12.25	2.64	1.04	**8.35**
12.50	2.87	1.22	4.25
12.75	2.98	1.30	1.90
13.00	3.07	1.37	1.34
13.25	3.14	1.42	1.07
13.50	3.20	1.47	0.97
13.75	3.26	1.52	0.88
14.00	3.32	1.56	0.80
14.25	3.37	1.60	0.73
14.50	3.41	1.64	0.68
14.75	3.45	1.67	0.64
15.00	3.49	1.70	0.60
15.25	3.53	1.73	0.56
15.50	3.56	1.76	0.52
15.75	3.60	1.79	0.48
16.00	3.62	1.81	0.43
16.25	3.65	1.83	0.40
16.50	3.67	1.85	0.38
16.75	3.70	1.87	0.36
17.00	3.72	1.89	0.34
17.25	3.74	1.91	0.32
17.50	3.76	1.92	0.30
17.75	3.78	1.94	0.28
18.00	3.80	1.95	0.26
18.25	3.81	1.96	0.25
18.50	3.83	1.98	0.24
18.75	3.84	1.99	0.24
19.00	3.86	2.00	0.23
19.25	3.87	2.01	0.22
19.50	3.89	2.03	0.22
19.75	3.90	2.04	0.21
20.00	**3.91**	**2.05**	0.21

Summary for Subcatchment 2S: Existing Central

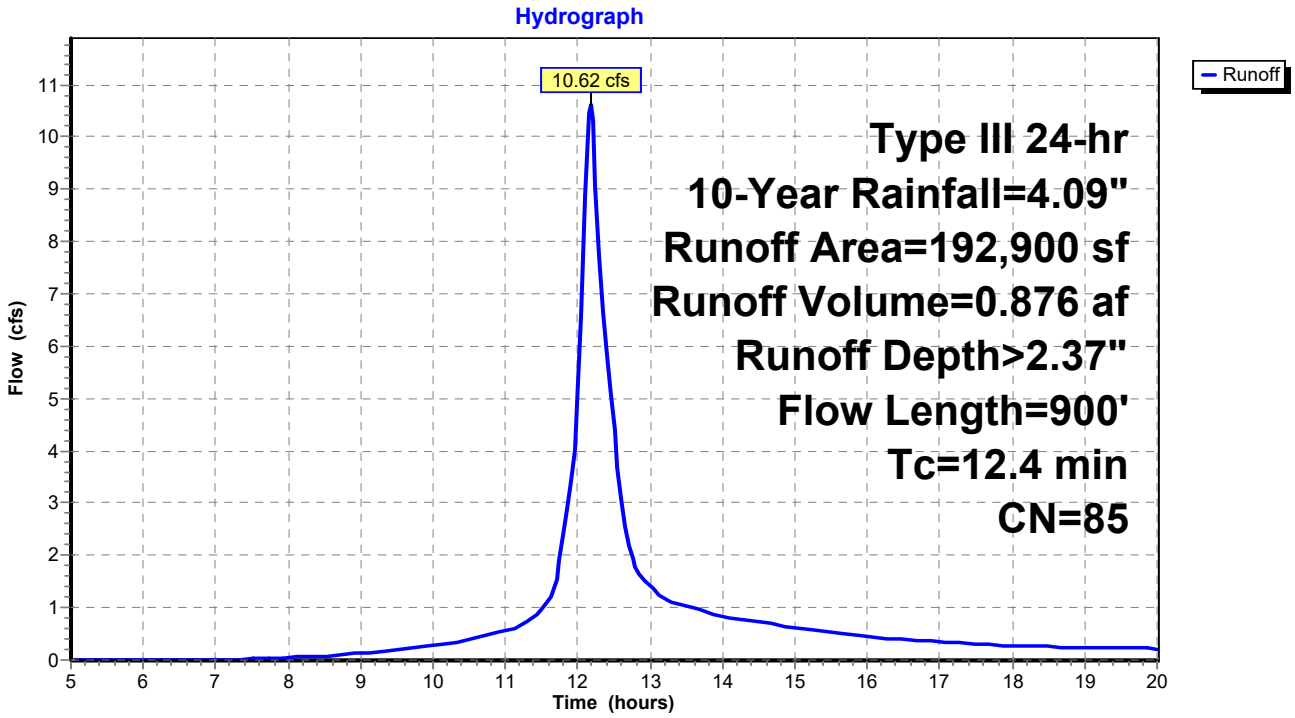
Runoff = 10.62 cfs @ 12.17 hrs, Volume= 0.876 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	42,900	98	Building
*	50,000	98	Pavement and Concrete
	72,900	74	>75% Grass cover, Good, HSG C
	27,100	73	Woods, Fair, HSG C
	192,900	85	Weighted Average
	100,000		51.84% Pervious Area
	92,900		48.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.6	40	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.2	80	0.2400	7.35		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	250	0.0060	2.85	18.29	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	200	0.0350	6.88	44.17	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	280	0.0500	8.79	6.90	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
12.4	900	Total			

Subcatchment 2S: Existing Central



Hydrograph for Subcatchment 2S: Existing Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.23	0.00	0.00	18.00	3.80	2.28	0.27
5.25	0.25	0.00	0.00	18.25	3.81	2.29	0.26
5.50	0.26	0.00	0.00	18.50	3.83	2.30	0.25
5.75	0.28	0.00	0.00	18.75	3.84	2.32	0.25
6.00	0.29	0.00	0.00	19.00	3.86	2.33	0.24
6.25	0.31	0.00	0.00	19.25	3.87	2.34	0.23
6.50	0.33	0.00	0.00	19.50	3.89	2.36	0.23
6.75	0.35	0.00	0.00	19.75	3.90	2.37	0.22
7.00	0.37	0.00	0.00	20.00	**3.91**	**2.38**	0.22
7.25	0.39	0.00	0.01				
7.50	0.42	0.00	0.02				
7.75	0.44	0.00	0.03				
8.00	0.47	0.01	0.04				
8.25	0.49	0.01	0.06				
8.50	0.53	0.02	0.08				
8.75	0.56	0.02	0.10				
9.00	0.60	0.03	0.13				
9.25	0.64	0.04	0.16				
9.50	0.68	0.05	0.20				
9.75	0.72	0.06	0.24				
10.00	0.77	0.08	0.28				
10.25	0.83	0.10	0.33				
10.50	0.89	0.12	0.40				
10.75	0.95	0.15	0.48				
11.00	1.02	0.18	0.56				
11.25	1.11	0.23	0.70				
11.50	1.22	0.29	0.96				
11.75	1.45	0.42	1.92				
12.00	2.04	0.83	**4.92**				
12.25	2.64	1.29	**9.07**				
12.50	2.87	1.48	4.37				
12.75	2.98	1.57	1.93				
13.00	3.07	1.65	1.40				
13.25	3.14	1.71	1.12				
13.50	3.20	1.76	1.02				
13.75	3.26	1.81	0.93				
14.00	3.32	1.86	0.84				
14.25	3.37	1.90	0.76				
14.50	3.41	1.94	0.72				
14.75	3.45	1.98	0.67				
15.00	3.49	2.01	0.63				
15.25	3.53	2.04	0.59				
15.50	3.56	2.07	0.54				
15.75	3.60	2.10	0.50				
16.00	3.62	2.12	0.45				
16.25	3.65	2.15	0.41				
16.50	3.67	2.17	0.39				
16.75	3.70	2.19	0.37				
17.00	3.72	2.21	0.35				
17.25	3.74	2.23	0.33				
17.50	3.76	2.24	0.31				
17.75	3.78	2.26	0.29				

Summary for Subcatchment 3S: Existing South

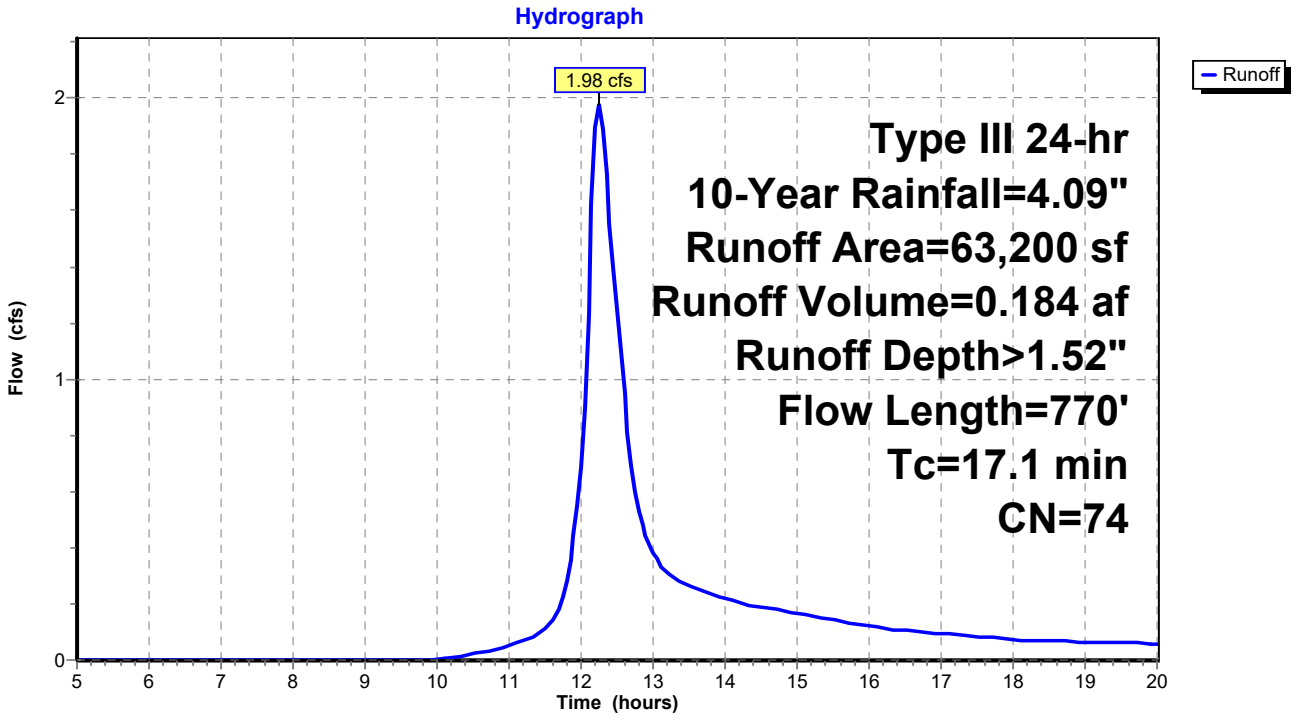
Runoff = 1.98 cfs @ 12.25 hrs, Volume= 0.184 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	200	98	Building
*	0	98	Pavement and Concrete
	31,600	74	>75% Grass cover, Good, HSG C
	31,400	73	Woods, Fair, HSG C
	63,200	74	Weighted Average
	63,000		99.68% Pervious Area
	200		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Grass** Woods: Light underbrush n= 0.400 P2= 2.80"
1.0	70	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	150	0.0450	3.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
5.2	380	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.0	120	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
17.1	770	Total			

Subcatchment 3S: Existing South



Hydrograph for Subcatchment 3S: Existing South

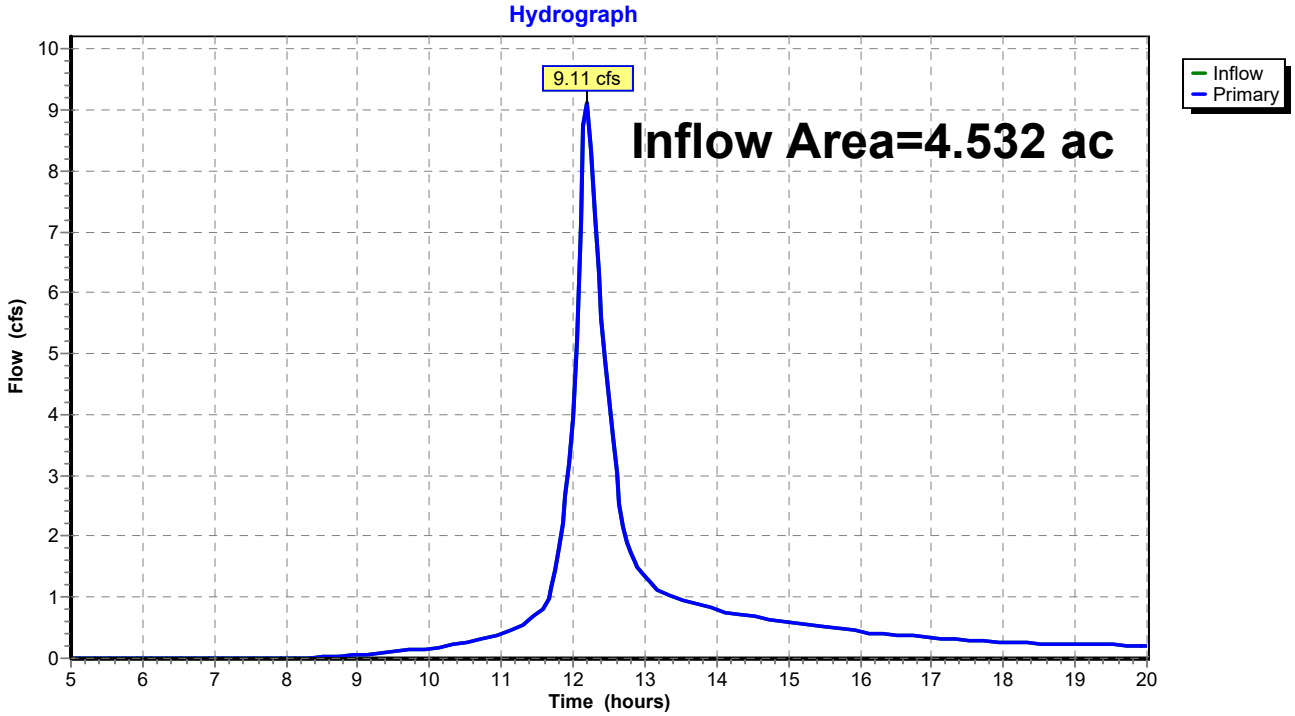
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.23	0.00	0.00	18.00	3.80	1.45	0.07
5.25	0.25	0.00	0.00	18.25	3.81	1.46	0.07
5.50	0.26	0.00	0.00	18.50	3.83	1.47	0.07
5.75	0.28	0.00	0.00	18.75	3.84	1.48	0.07
6.00	0.29	0.00	0.00	19.00	3.86	1.49	0.06
6.25	0.31	0.00	0.00	19.25	3.87	1.50	0.06
6.50	0.33	0.00	0.00	19.50	3.89	1.51	0.06
6.75	0.35	0.00	0.00	19.75	3.90	1.52	0.06
7.00	0.37	0.00	0.00	20.00	**3.91**	**1.53**	0.06
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.49	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.72	0.00	0.00				
10.00	0.77	0.00	0.00				
10.25	0.83	0.00	0.01				
10.50	0.89	0.01	0.02				
10.75	0.95	0.02	0.03				
11.00	1.02	0.03	0.05				
11.25	1.11	0.04	0.07				
11.50	1.22	0.07	0.11				
11.75	1.45	0.13	0.22				
12.00	2.04	0.37	0.68				
12.25	2.64	0.69	**1.98**				
12.50	2.87	0.83	1.25				
12.75	2.98	0.90	0.60				
13.00	3.07	0.95	0.38				
13.25	3.14	1.00	0.30				
13.50	3.20	1.04	0.26				
13.75	3.26	1.08	0.24				
14.00	3.32	1.12	0.22				
14.25	3.37	1.15	0.20				
14.50	3.41	1.18	0.19				
14.75	3.45	1.21	0.18				
15.00	3.49	1.24	0.17				
15.25	3.53	1.26	0.16				
15.50	3.56	1.28	0.14				
15.75	3.60	1.31	0.13				
16.00	3.62	1.33	0.12				
16.25	3.65	1.34	0.11				
16.50	3.67	1.36	0.10				
16.75	3.70	1.38	0.10				
17.00	3.72	1.39	0.09				
17.25	3.74	1.41	0.09				
17.50	3.76	1.42	0.08				
17.75	3.78	1.44	0.08				

Summary for Link 4L: DP 1

Inflow Area = 4.532 ac, 30.24% Impervious, Inflow Depth > 2.04" for 10-Year event
Inflow = 9.11 cfs @ 12.19 hrs, Volume= 0.771 af
Primary = 9.11 cfs @ 12.19 hrs, Volume= 0.771 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

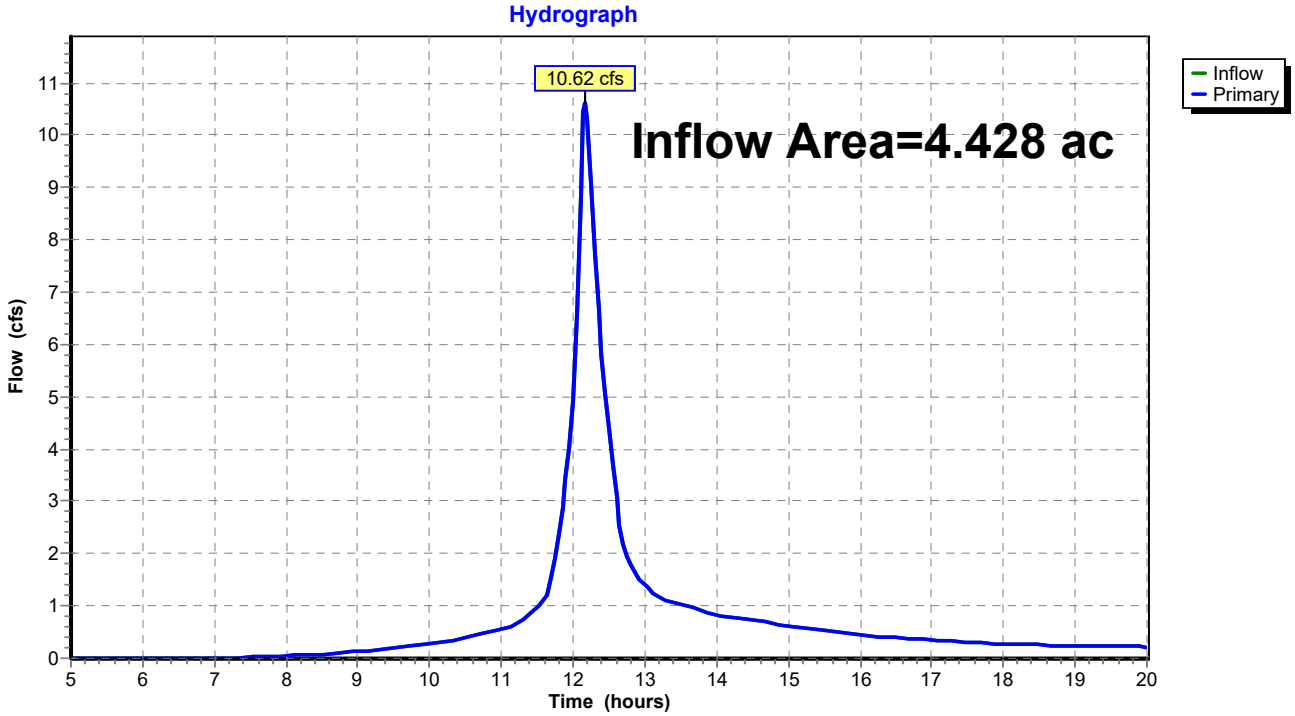
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.26	0.00	0.26
5.25	0.00	0.00	0.00	18.25	0.25	0.00	0.25
5.50	0.00	0.00	0.00	18.50	0.24	0.00	0.24
5.75	0.00	0.00	0.00	18.75	0.24	0.00	0.24
6.00	0.00	0.00	0.00	19.00	0.23	0.00	0.23
6.25	0.00	0.00	0.00	19.25	0.22	0.00	0.22
6.50	0.00	0.00	0.00	19.50	0.22	0.00	0.22
6.75	0.00	0.00	0.00	19.75	0.21	0.00	0.21
7.00	0.00	0.00	0.00	20.00	0.21	0.00	0.21
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.01	0.00	0.01				
8.75	0.03	0.00	0.03				
9.00	0.05	0.00	0.05				
9.25	0.07	0.00	0.07				
9.50	0.10	0.00	0.10				
9.75	0.13	0.00	0.13				
10.00	0.17	0.00	0.17				
10.25	0.21	0.00	0.21				
10.50	0.26	0.00	0.26				
10.75	0.33	0.00	0.33				
11.00	0.40	0.00	0.40				
11.25	0.52	0.00	0.52				
11.50	0.73	0.00	0.73				
11.75	1.45	0.00	1.45				
12.00	**3.93**	0.00	**3.93**				
12.25	**8.35**	0.00	**8.35**				
12.50	4.25	0.00	4.25				
12.75	1.90	0.00	1.90				
13.00	1.34	0.00	1.34				
13.25	1.07	0.00	1.07				
13.50	0.97	0.00	0.97				
13.75	0.88	0.00	0.88				
14.00	0.80	0.00	0.80				
14.25	0.73	0.00	0.73				
14.50	0.68	0.00	0.68				
14.75	0.64	0.00	0.64				
15.00	0.60	0.00	0.60				
15.25	0.56	0.00	0.56				
15.50	0.52	0.00	0.52				
15.75	0.48	0.00	0.48				
16.00	0.43	0.00	0.43				
16.25	0.40	0.00	0.40				
16.50	0.38	0.00	0.38				
16.75	0.36	0.00	0.36				
17.00	0.34	0.00	0.34				
17.25	0.32	0.00	0.32				
17.50	0.30	0.00	0.30				
17.75	0.28	0.00	0.28				

Summary for Link 5L: DP 2

Inflow Area = 4.428 ac, 48.16% Impervious, Inflow Depth > 2.37" for 10-Year event
Inflow = 10.62 cfs @ 12.17 hrs, Volume= 0.876 af
Primary = 10.62 cfs @ 12.17 hrs, Volume= 0.876 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

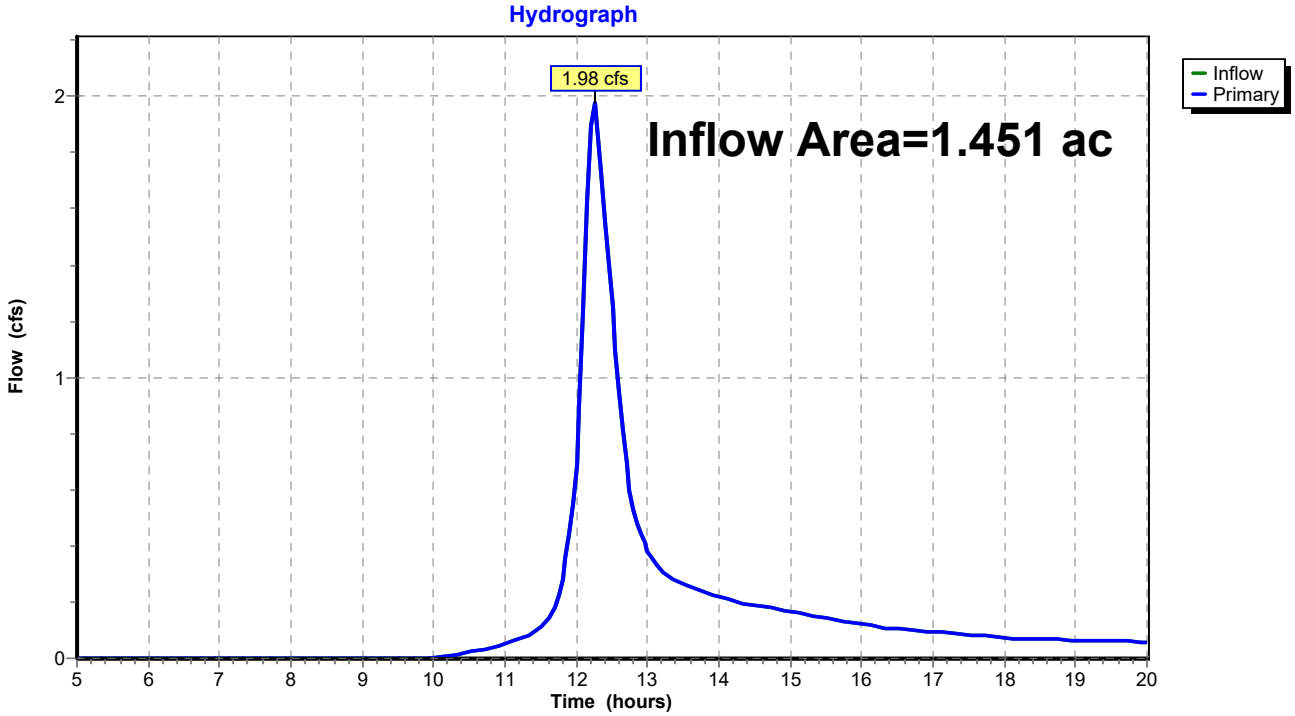
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.27	0.00	0.27
5.25	0.00	0.00	0.00	18.25	0.26	0.00	0.26
5.50	0.00	0.00	0.00	18.50	0.25	0.00	0.25
5.75	0.00	0.00	0.00	18.75	0.25	0.00	0.25
6.00	0.00	0.00	0.00	19.00	0.24	0.00	0.24
6.25	0.00	0.00	0.00	19.25	0.23	0.00	0.23
6.50	0.00	0.00	0.00	19.50	0.23	0.00	0.23
6.75	0.00	0.00	0.00	19.75	0.22	0.00	0.22
7.00	0.00	0.00	0.00	20.00	0.22	0.00	0.22
7.25	0.01	0.00	0.01				
7.50	0.02	0.00	0.02				
7.75	0.03	0.00	0.03				
8.00	0.04	0.00	0.04				
8.25	0.06	0.00	0.06				
8.50	0.08	0.00	0.08				
8.75	0.10	0.00	0.10				
9.00	0.13	0.00	0.13				
9.25	0.16	0.00	0.16				
9.50	0.20	0.00	0.20				
9.75	0.24	0.00	0.24				
10.00	0.28	0.00	0.28				
10.25	0.33	0.00	0.33				
10.50	0.40	0.00	0.40				
10.75	0.48	0.00	0.48				
11.00	0.56	0.00	0.56				
11.25	0.70	0.00	0.70				
11.50	0.96	0.00	0.96				
11.75	1.92	0.00	1.92				
12.00	**4.92**	0.00	**4.92**				
12.25	**9.07**	0.00	**9.07**				
12.50	4.37	0.00	4.37				
12.75	1.93	0.00	1.93				
13.00	1.40	0.00	1.40				
13.25	1.12	0.00	1.12				
13.50	1.02	0.00	1.02				
13.75	0.93	0.00	0.93				
14.00	0.84	0.00	0.84				
14.25	0.76	0.00	0.76				
14.50	0.72	0.00	0.72				
14.75	0.67	0.00	0.67				
15.00	0.63	0.00	0.63				
15.25	0.59	0.00	0.59				
15.50	0.54	0.00	0.54				
15.75	0.50	0.00	0.50				
16.00	0.45	0.00	0.45				
16.25	0.41	0.00	0.41				
16.50	0.39	0.00	0.39				
16.75	0.37	0.00	0.37				
17.00	0.35	0.00	0.35				
17.25	0.33	0.00	0.33				
17.50	0.31	0.00	0.31				
17.75	0.29	0.00	0.29				

Summary for Link 6L: DP 3

Inflow Area = 1.451 ac, 0.32% Impervious, Inflow Depth > 1.52" for 10-Year event
Inflow = 1.98 cfs @ 12.25 hrs, Volume= 0.184 af
Primary = 1.98 cfs @ 12.25 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.07	0.00	0.07
5.25	0.00	0.00	0.00	18.25	0.07	0.00	0.07
5.50	0.00	0.00	0.00	18.50	0.07	0.00	0.07
5.75	0.00	0.00	0.00	18.75	0.07	0.00	0.07
6.00	0.00	0.00	0.00	19.00	0.06	0.00	0.06
6.25	0.00	0.00	0.00	19.25	0.06	0.00	0.06
6.50	0.00	0.00	0.00	19.50	0.06	0.00	0.06
6.75	0.00	0.00	0.00	19.75	0.06	0.00	0.06
7.00	0.00	0.00	0.00	20.00	0.06	0.00	0.06
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.01	0.00	0.01				
10.50	0.02	0.00	0.02				
10.75	0.03	0.00	0.03				
11.00	0.05	0.00	0.05				
11.25	0.07	0.00	0.07				
11.50	0.11	0.00	0.11				
11.75	0.22	0.00	0.22				
12.00	0.68	0.00	0.68				
12.25	**1.98**	0.00	**1.98**				
12.50	1.25	0.00	1.25				
12.75	0.60	0.00	0.60				
13.00	0.38	0.00	0.38				
13.25	0.30	0.00	0.30				
13.50	0.26	0.00	0.26				
13.75	0.24	0.00	0.24				
14.00	0.22	0.00	0.22				
14.25	0.20	0.00	0.20				
14.50	0.19	0.00	0.19				
14.75	0.18	0.00	0.18				
15.00	0.17	0.00	0.17				
15.25	0.16	0.00	0.16				
15.50	0.14	0.00	0.14				
15.75	0.13	0.00	0.13				
16.00	0.12	0.00	0.12				
16.25	0.11	0.00	0.11				
16.50	0.10	0.00	0.10				
16.75	0.10	0.00	0.10				
17.00	0.09	0.00	0.09				
17.25	0.09	0.00	0.09				
17.50	0.08	0.00	0.08				
17.75	0.08	0.00	0.08				

Summary for Subcatchment 1S: Existing North

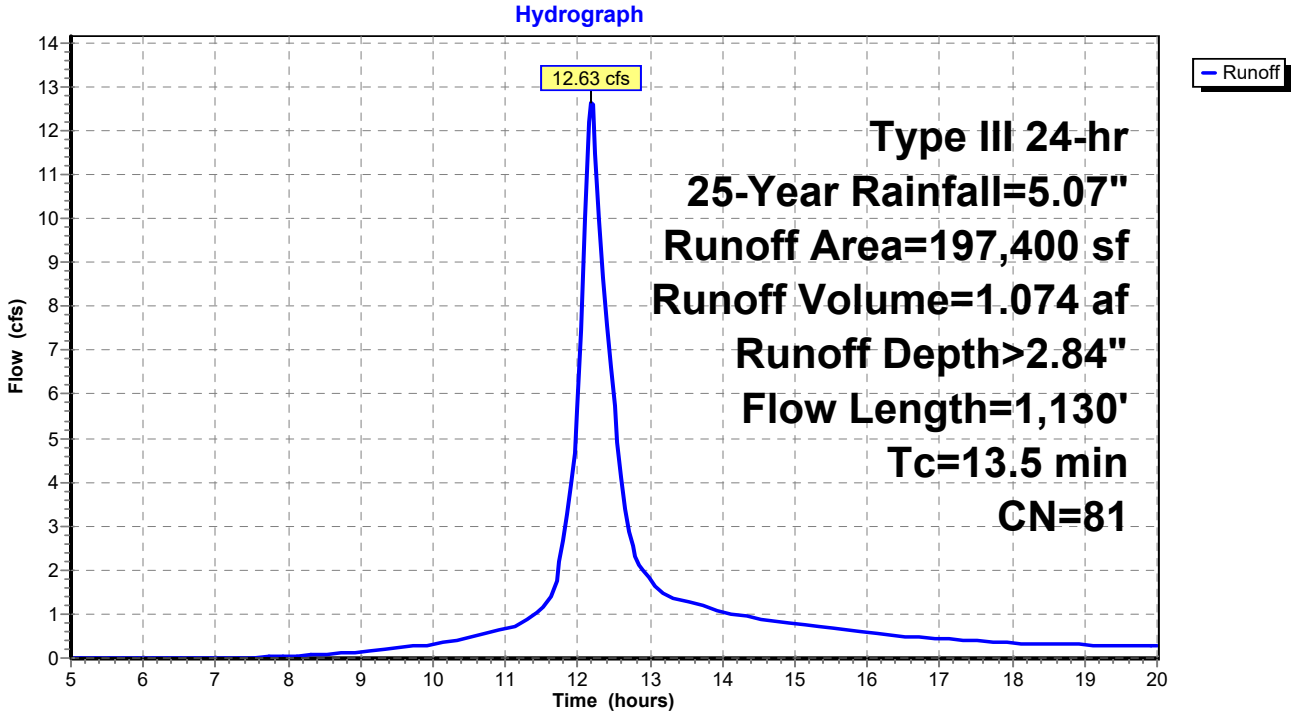
Runoff = 12.63 cfs @ 12.19 hrs, Volume= 1.074 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	300	98	Building
*	59,400	98	Pavement and Concrete
	71,900	74	>75% Grass cover, Good, HSG C
	65,800	73	Woods, Fair, HSG C
	197,400	81	Weighted Average
	137,700		69.76% Pervious Area
	59,700		30.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	25	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.4	25	0.0500	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 2.80"
2.0	430	0.0600	3.67		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
3.6	530	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.3	120	0.1700	6.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
13.5	1,130	Total			

Subcatchment 1S: Existing North



Hydrograph for Subcatchment 1S: Existing North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.34	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.01
7.75	0.55	0.00	0.02
8.00	0.58	0.00	0.04
8.25	0.61	0.01	0.06
8.50	0.65	0.01	0.08
8.75	0.69	0.02	0.11
9.00	0.74	0.03	0.14
9.25	0.79	0.04	0.18
9.50	0.84	0.05	0.22
9.75	0.90	0.07	0.26
10.00	0.96	0.08	0.31
10.25	1.02	0.11	0.37
10.50	1.10	0.13	0.46
10.75	1.18	0.16	0.55
11.00	1.27	0.20	0.66
11.25	1.37	0.25	0.82
11.50	1.51	0.32	1.13
11.75	1.80	0.48	2.17
12.00	2.53	0.97	**5.66**
12.25	3.27	1.52	**11.49**
12.50	3.56	1.76	5.73
12.75	3.70	1.87	2.53
13.00	3.80	1.96	1.78
13.25	3.89	2.03	1.42
13.50	3.97	2.10	1.28
13.75	4.05	2.16	1.17
14.00	4.11	2.22	1.06
14.25	4.17	2.27	0.96
14.50	4.23	2.32	0.90
14.75	4.28	2.36	0.85
15.00	4.33	2.40	0.79
15.25	4.38	2.44	0.74
15.50	4.42	2.48	0.68
15.75	4.46	2.51	0.62
16.00	4.49	2.54	0.57
16.25	4.52	2.57	0.52
16.50	4.55	2.60	0.49
16.75	4.58	2.62	0.47
17.00	4.61	2.64	0.44
17.25	4.64	2.67	0.42
17.50	4.66	2.69	0.39
17.75	4.68	2.71	0.37
18.00	4.70	2.73	0.34
18.25	4.73	2.74	0.32
18.50	4.74	2.76	0.32
18.75	4.76	2.78	0.31
19.00	4.78	2.79	0.30
19.25	4.80	2.81	0.29
19.50	4.82	2.83	0.29
19.75	4.84	2.84	0.28
20.00	**4.85**	**2.85**	0.27

Summary for Subcatchment 2S: Existing Central

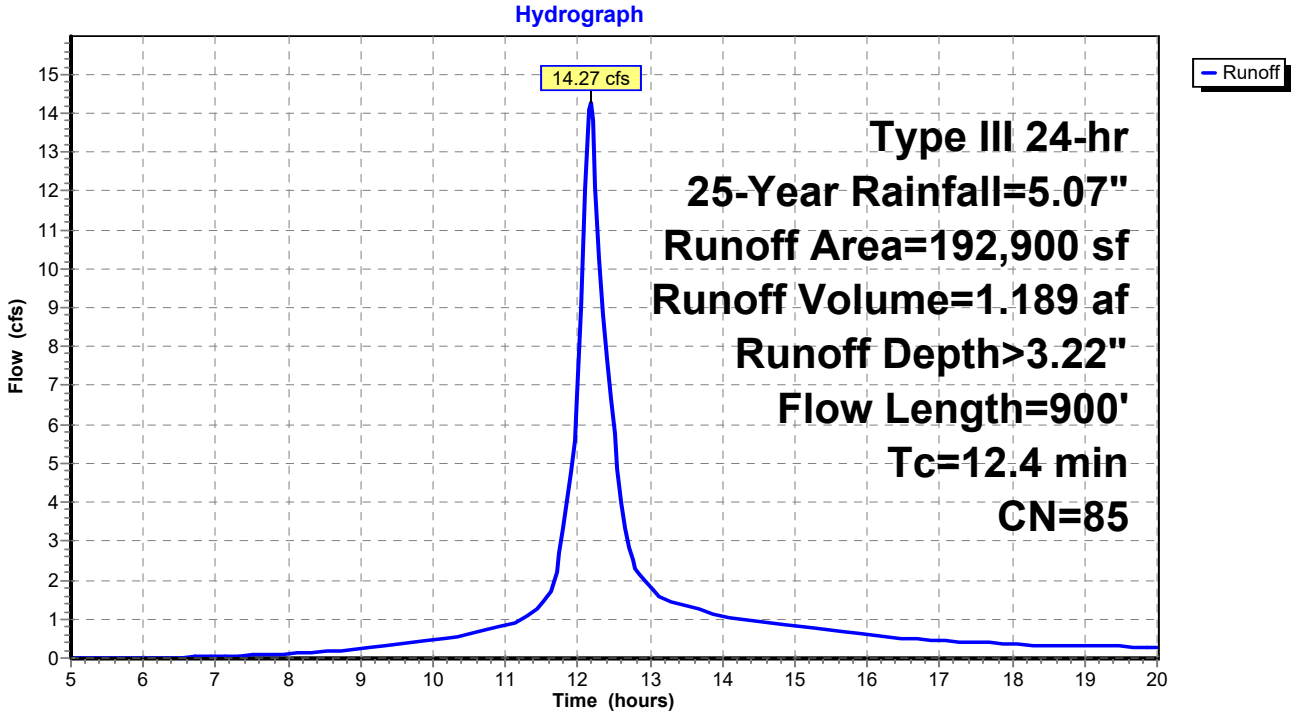
Runoff = 14.27 cfs @ 12.17 hrs, Volume= 1.189 af, Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	42,900	98	Building
*	50,000	98	Pavement and Concrete
	72,900	74	>75% Grass cover, Good, HSG C
	27,100	73	Woods, Fair, HSG C
	192,900	85	Weighted Average
	100,000		51.84% Pervious Area
	92,900		48.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.6	40	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.2	80	0.2400	7.35		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	250	0.0060	2.85	18.29	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	200	0.0350	6.88	44.17	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	280	0.0500	8.79	6.90	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
12.4	900	Total			

Subcatchment 2S: Existing Central



Hydrograph for Subcatchment 2S: Existing Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.29	0.00	0.00	18.00	4.70	3.10	0.35
5.25	0.31	0.00	0.00	18.25	4.73	3.11	0.33
5.50	0.33	0.00	0.00	18.50	4.74	3.13	0.32
5.75	0.34	0.00	0.00	18.75	4.76	3.15	0.32
6.00	0.37	0.00	0.00	19.00	4.78	3.17	0.31
6.25	0.39	0.00	0.01	19.25	4.80	3.18	0.30
6.50	0.41	0.00	0.02	19.50	4.82	3.20	0.29
6.75	0.43	0.00	0.03	19.75	4.84	3.22	0.28
7.00	0.46	0.01	0.04	20.00	**4.85**	**3.23**	0.28
7.25	0.49	0.01	0.06				
7.50	0.52	0.01	0.07				
7.75	0.55	0.02	0.09				
8.00	0.58	0.03	0.11				
8.25	0.61	0.03	0.13				
8.50	0.65	0.04	0.17				
8.75	0.69	0.06	0.20				
9.00	0.74	0.07	0.24				
9.25	0.79	0.09	0.29				
9.50	0.84	0.11	0.34				
9.75	0.90	0.13	0.39				
10.00	0.96	0.15	0.45				
10.25	1.02	0.18	0.52				
10.50	1.10	0.22	0.62				
10.75	1.18	0.26	0.72				
11.00	1.27	0.31	0.84				
11.25	1.37	0.37	1.03				
11.50	1.51	0.46	1.40				
11.75	1.80	0.65	2.72				
12.00	2.53	1.21	**6.79**				
12.25	3.27	1.82	**12.09**				
12.50	3.56	2.07	5.74				
12.75	3.70	2.19	2.52				
13.00	3.80	2.28	1.82				
13.25	3.89	2.36	1.46				
13.50	3.97	2.43	1.32				
13.75	4.05	2.50	1.21				
14.00	4.11	2.56	1.09				
14.25	4.17	2.61	0.99				
14.50	4.23	2.66	0.93				
14.75	4.28	2.71	0.87				
15.00	4.33	2.76	0.81				
15.25	4.38	2.80	0.76				
15.50	4.42	2.84	0.70				
15.75	4.46	2.87	0.64				
16.00	4.49	2.90	0.58				
16.25	4.52	2.93	0.53				
16.50	4.55	2.96	0.50				
16.75	4.58	2.99	0.48				
17.00	4.61	3.01	0.45				
17.25	4.64	3.03	0.43				
17.50	4.66	3.06	0.40				
17.75	4.68	3.08	0.38				

Summary for Subcatchment 3S: Existing South

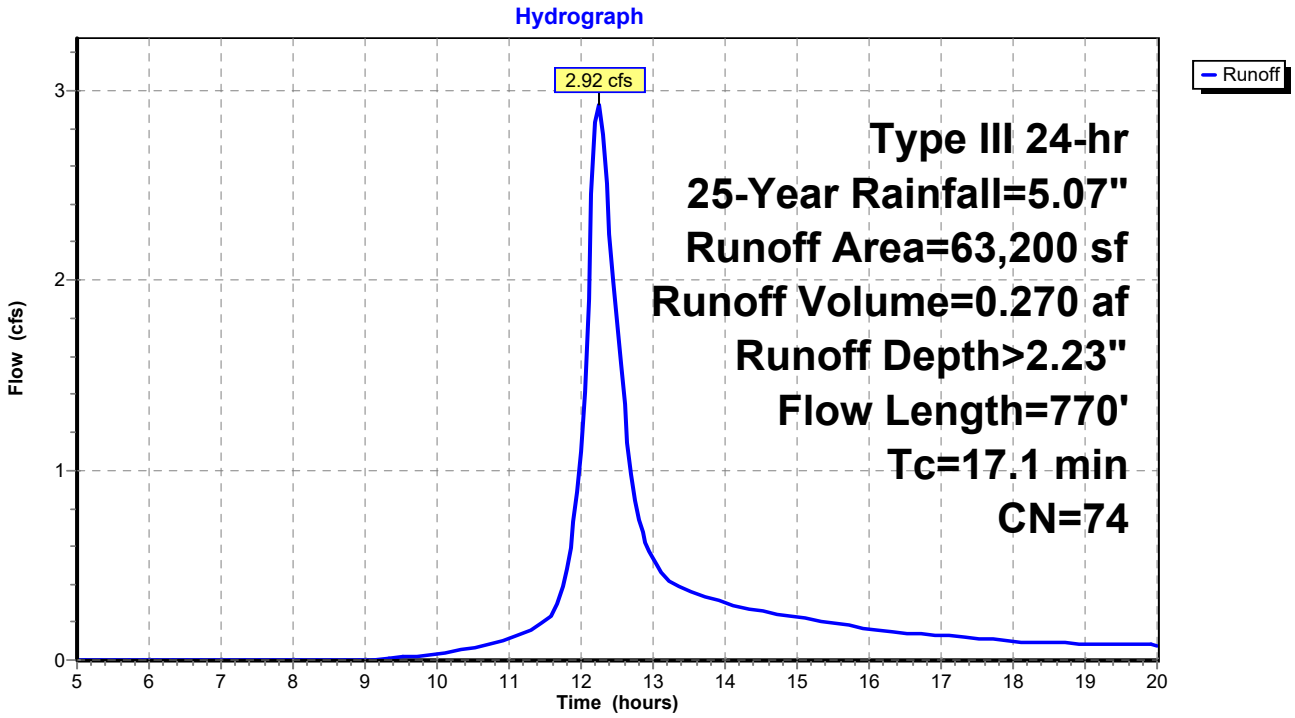
Runoff = 2.92 cfs @ 12.24 hrs, Volume= 0.270 af, Depth> 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	200	98	Building
*	0	98	Pavement and Concrete
	31,600	74	>75% Grass cover, Good, HSG C
	31,400	73	Woods, Fair, HSG C
	63,200	74	Weighted Average
	63,000		99.68% Pervious Area
	200		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Grass** Woods: Light underbrush n= 0.400 P2= 2.80"
1.0	70	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	150	0.0450	3.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
5.2	380	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.0	120	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
17.1	770	Total			

Subcatchment 3S: Existing South



Hydrograph for Subcatchment 3S: Existing South

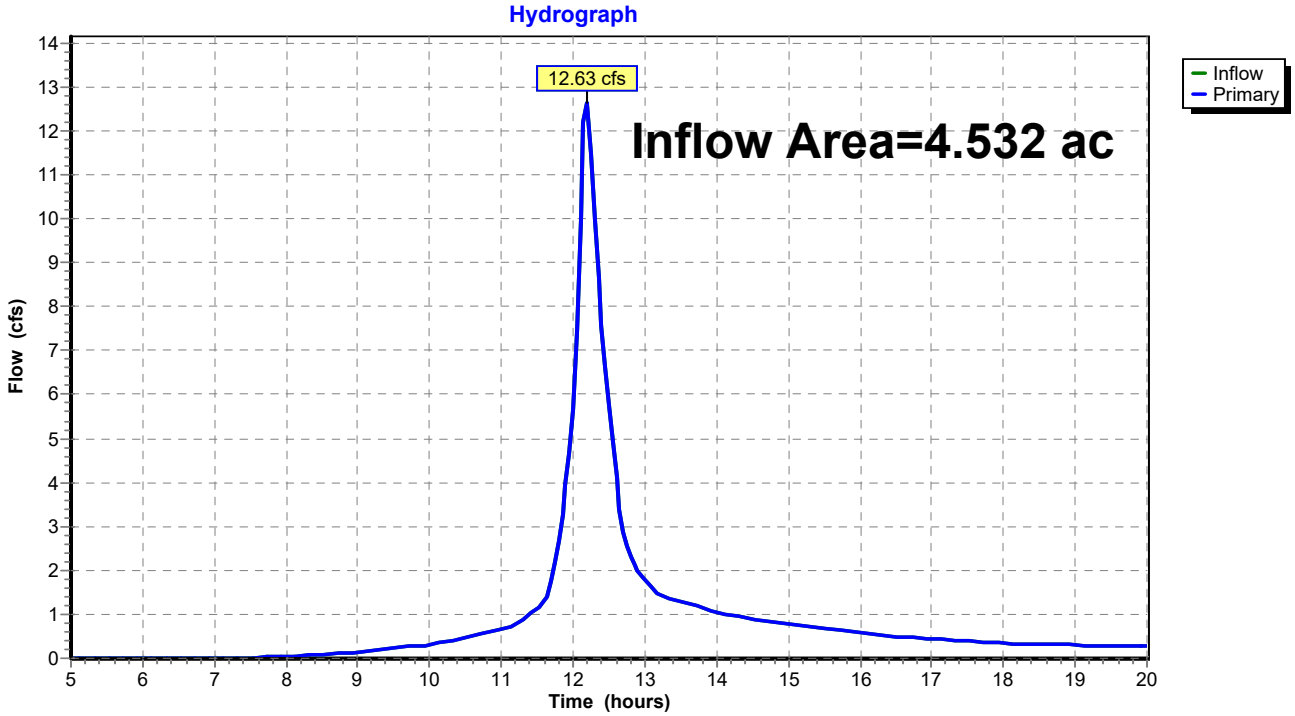
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.29	0.00	0.00	18.00	4.70	2.13	0.10
5.25	0.31	0.00	0.00	18.25	4.73	2.15	0.09
5.50	0.33	0.00	0.00	18.50	4.74	2.16	0.09
5.75	0.34	0.00	0.00	18.75	4.76	2.18	0.09
6.00	0.37	0.00	0.00	19.00	4.78	2.19	0.09
6.25	0.39	0.00	0.00	19.25	4.80	2.21	0.08
6.50	0.41	0.00	0.00	19.50	4.82	2.22	0.08
6.75	0.43	0.00	0.00	19.75	4.84	2.23	0.08
7.00	0.46	0.00	0.00	20.00	**4.85**	**2.25**	0.08
7.25	0.49	0.00	0.00				
7.50	0.52	0.00	0.00				
7.75	0.55	0.00	0.00				
8.00	0.58	0.00	0.00				
8.25	0.61	0.00	0.00				
8.50	0.65	0.00	0.00				
8.75	0.69	0.00	0.00				
9.00	0.74	0.00	0.00				
9.25	0.79	0.00	0.01				
9.50	0.84	0.01	0.01				
9.75	0.90	0.01	0.02				
10.00	0.96	0.02	0.03				
10.25	1.02	0.03	0.05				
10.50	1.10	0.04	0.06				
10.75	1.18	0.06	0.09				
11.00	1.27	0.08	0.11				
11.25	1.37	0.11	0.14				
11.50	1.51	0.15	0.21				
11.75	1.80	0.26	0.38				
12.00	2.53	0.63	1.09				
12.25	3.27	1.08	**2.92**				
12.50	3.56	1.28	1.78				
12.75	3.70	1.38	0.84				
13.00	3.80	1.45	0.53				
13.25	3.89	1.52	0.41				
13.50	3.97	1.58	0.36				
13.75	4.05	1.63	0.33				
14.00	4.11	1.68	0.30				
14.25	4.17	1.72	0.27				
14.50	4.23	1.77	0.26				
14.75	4.28	1.81	0.24				
15.00	4.33	1.84	0.23				
15.25	4.38	1.88	0.21				
15.50	4.42	1.91	0.20				
15.75	4.46	1.94	0.18				
16.00	4.49	1.97	0.17				
16.25	4.52	1.99	0.15				
16.50	4.55	2.01	0.14				
16.75	4.58	2.04	0.14				
17.00	4.61	2.06	0.13				
17.25	4.64	2.08	0.12				
17.50	4.66	2.10	0.11				
17.75	4.68	2.11	0.11				

Summary for Link 4L: DP 1

Inflow Area = 4.532 ac, 30.24% Impervious, Inflow Depth > 2.84" for 25-Year event
Inflow = 12.63 cfs @ 12.19 hrs, Volume= 1.074 af
Primary = 12.63 cfs @ 12.19 hrs, Volume= 1.074 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

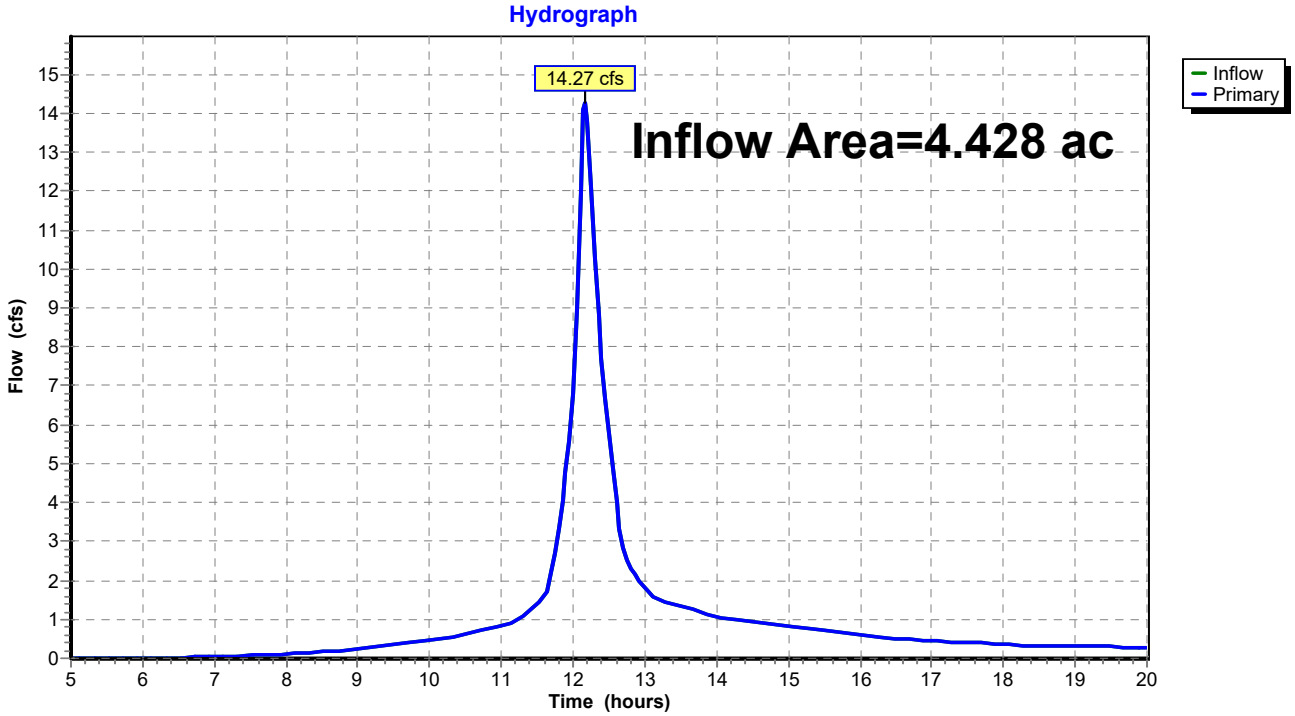
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.34	0.00	0.34
5.25	0.00	0.00	0.00	18.25	0.32	0.00	0.32
5.50	0.00	0.00	0.00	18.50	0.32	0.00	0.32
5.75	0.00	0.00	0.00	18.75	0.31	0.00	0.31
6.00	0.00	0.00	0.00	19.00	0.30	0.00	0.30
6.25	0.00	0.00	0.00	19.25	0.29	0.00	0.29
6.50	0.00	0.00	0.00	19.50	0.29	0.00	0.29
6.75	0.00	0.00	0.00	19.75	0.28	0.00	0.28
7.00	0.00	0.00	0.00	20.00	0.27	0.00	0.27
7.25	0.00	0.00	0.00				
7.50	0.01	0.00	0.01				
7.75	0.02	0.00	0.02				
8.00	0.04	0.00	0.04				
8.25	0.06	0.00	0.06				
8.50	0.08	0.00	0.08				
8.75	0.11	0.00	0.11				
9.00	0.14	0.00	0.14				
9.25	0.18	0.00	0.18				
9.50	0.22	0.00	0.22				
9.75	0.26	0.00	0.26				
10.00	0.31	0.00	0.31				
10.25	0.37	0.00	0.37				
10.50	0.46	0.00	0.46				
10.75	0.55	0.00	0.55				
11.00	0.66	0.00	0.66				
11.25	0.82	0.00	0.82				
11.50	1.13	0.00	1.13				
11.75	2.17	0.00	2.17				
12.00	**5.66**	0.00	**5.66**				
12.25	**11.49**	0.00	**11.49**				
12.50	5.73	0.00	5.73				
12.75	2.53	0.00	2.53				
13.00	1.78	0.00	1.78				
13.25	1.42	0.00	1.42				
13.50	1.28	0.00	1.28				
13.75	1.17	0.00	1.17				
14.00	1.06	0.00	1.06				
14.25	0.96	0.00	0.96				
14.50	0.90	0.00	0.90				
14.75	0.85	0.00	0.85				
15.00	0.79	0.00	0.79				
15.25	0.74	0.00	0.74				
15.50	0.68	0.00	0.68				
15.75	0.62	0.00	0.62				
16.00	0.57	0.00	0.57				
16.25	0.52	0.00	0.52				
16.50	0.49	0.00	0.49				
16.75	0.47	0.00	0.47				
17.00	0.44	0.00	0.44				
17.25	0.42	0.00	0.42				
17.50	0.39	0.00	0.39				
17.75	0.37	0.00	0.37				

Summary for Link 5L: DP 2

Inflow Area = 4.428 ac, 48.16% Impervious, Inflow Depth > 3.22" for 25-Year event
Inflow = 14.27 cfs @ 12.17 hrs, Volume= 1.189 af
Primary = 14.27 cfs @ 12.17 hrs, Volume= 1.189 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

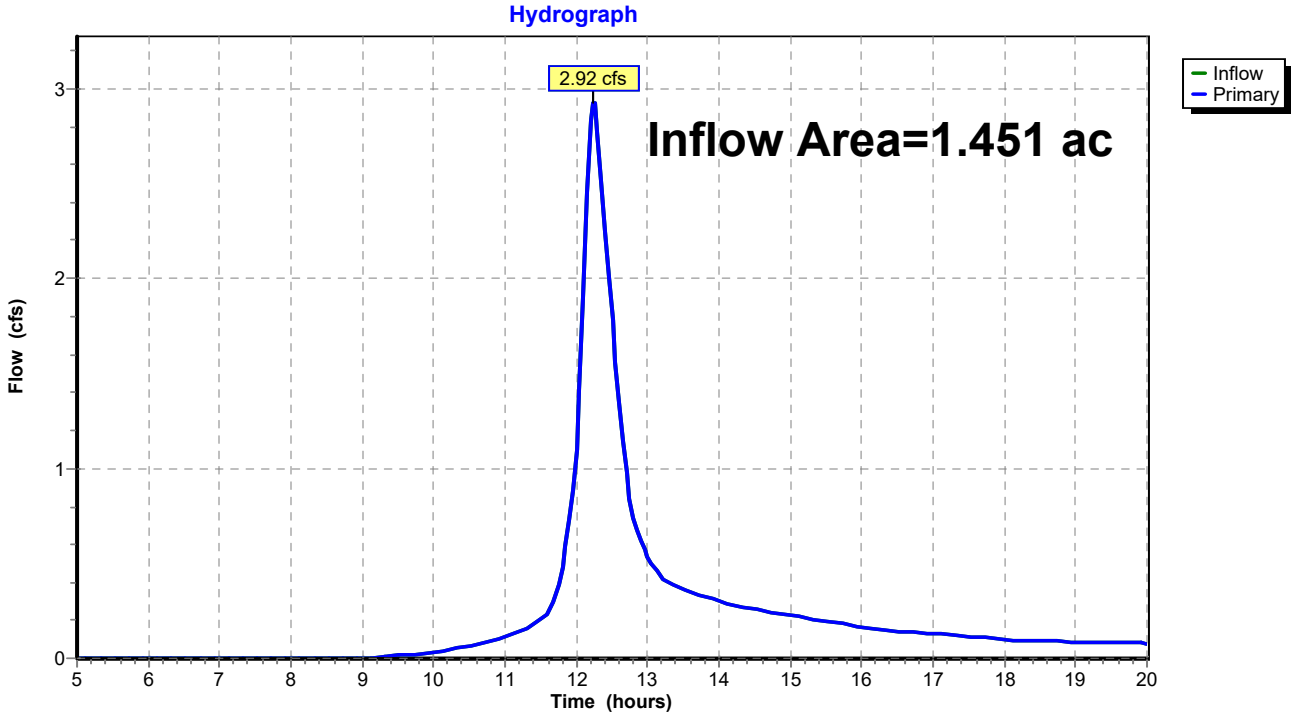
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.35	0.00	0.35
5.25	0.00	0.00	0.00	18.25	0.33	0.00	0.33
5.50	0.00	0.00	0.00	18.50	0.32	0.00	0.32
5.75	0.00	0.00	0.00	18.75	0.32	0.00	0.32
6.00	0.00	0.00	0.00	19.00	0.31	0.00	0.31
6.25	0.01	0.00	0.01	19.25	0.30	0.00	0.30
6.50	0.02	0.00	0.02	19.50	0.29	0.00	0.29
6.75	0.03	0.00	0.03	19.75	0.28	0.00	0.28
7.00	0.04	0.00	0.04	20.00	0.28	0.00	0.28
7.25	0.06	0.00	0.06				
7.50	0.07	0.00	0.07				
7.75	0.09	0.00	0.09				
8.00	0.11	0.00	0.11				
8.25	0.13	0.00	0.13				
8.50	0.17	0.00	0.17				
8.75	0.20	0.00	0.20				
9.00	0.24	0.00	0.24				
9.25	0.29	0.00	0.29				
9.50	0.34	0.00	0.34				
9.75	0.39	0.00	0.39				
10.00	0.45	0.00	0.45				
10.25	0.52	0.00	0.52				
10.50	0.62	0.00	0.62				
10.75	0.72	0.00	0.72				
11.00	0.84	0.00	0.84				
11.25	1.03	0.00	1.03				
11.50	1.40	0.00	1.40				
11.75	2.72	0.00	2.72				
12.00	**6.79**	0.00	**6.79**				
12.25	**12.09**	0.00	**12.09**				
12.50	5.74	0.00	5.74				
12.75	2.52	0.00	2.52				
13.00	1.82	0.00	1.82				
13.25	1.46	0.00	1.46				
13.50	1.32	0.00	1.32				
13.75	1.21	0.00	1.21				
14.00	1.09	0.00	1.09				
14.25	0.99	0.00	0.99				
14.50	0.93	0.00	0.93				
14.75	0.87	0.00	0.87				
15.00	0.81	0.00	0.81				
15.25	0.76	0.00	0.76				
15.50	0.70	0.00	0.70				
15.75	0.64	0.00	0.64				
16.00	0.58	0.00	0.58				
16.25	0.53	0.00	0.53				
16.50	0.50	0.00	0.50				
16.75	0.48	0.00	0.48				
17.00	0.45	0.00	0.45				
17.25	0.43	0.00	0.43				
17.50	0.40	0.00	0.40				
17.75	0.38	0.00	0.38				

Summary for Link 6L: DP 3

Inflow Area = 1.451 ac, 0.32% Impervious, Inflow Depth > 2.23" for 25-Year event
Inflow = 2.92 cfs @ 12.24 hrs, Volume= 0.270 af
Primary = 2.92 cfs @ 12.24 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.10	0.00	0.10
5.25	0.00	0.00	0.00	18.25	0.09	0.00	0.09
5.50	0.00	0.00	0.00	18.50	0.09	0.00	0.09
5.75	0.00	0.00	0.00	18.75	0.09	0.00	0.09
6.00	0.00	0.00	0.00	19.00	0.09	0.00	0.09
6.25	0.00	0.00	0.00	19.25	0.08	0.00	0.08
6.50	0.00	0.00	0.00	19.50	0.08	0.00	0.08
6.75	0.00	0.00	0.00	19.75	0.08	0.00	0.08
7.00	0.00	0.00	0.00	20.00	0.08	0.00	0.08
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.02	0.00	0.02				
10.00	0.03	0.00	0.03				
10.25	0.05	0.00	0.05				
10.50	0.06	0.00	0.06				
10.75	0.09	0.00	0.09				
11.00	0.11	0.00	0.11				
11.25	0.14	0.00	0.14				
11.50	0.21	0.00	0.21				
11.75	0.38	0.00	0.38				
12.00	1.09	0.00	1.09				
12.25	**2.92**	0.00	**2.92**				
12.50	1.78	0.00	1.78				
12.75	0.84	0.00	0.84				
13.00	0.53	0.00	0.53				
13.25	0.41	0.00	0.41				
13.50	0.36	0.00	0.36				
13.75	0.33	0.00	0.33				
14.00	0.30	0.00	0.30				
14.25	0.27	0.00	0.27				
14.50	0.26	0.00	0.26				
14.75	0.24	0.00	0.24				
15.00	0.23	0.00	0.23				
15.25	0.21	0.00	0.21				
15.50	0.20	0.00	0.20				
15.75	0.18	0.00	0.18				
16.00	0.17	0.00	0.17				
16.25	0.15	0.00	0.15				
16.50	0.14	0.00	0.14				
16.75	0.14	0.00	0.14				
17.00	0.13	0.00	0.13				
17.25	0.12	0.00	0.12				
17.50	0.11	0.00	0.11				
17.75	0.11	0.00	0.11				

Summary for Subcatchment 1S: Existing North

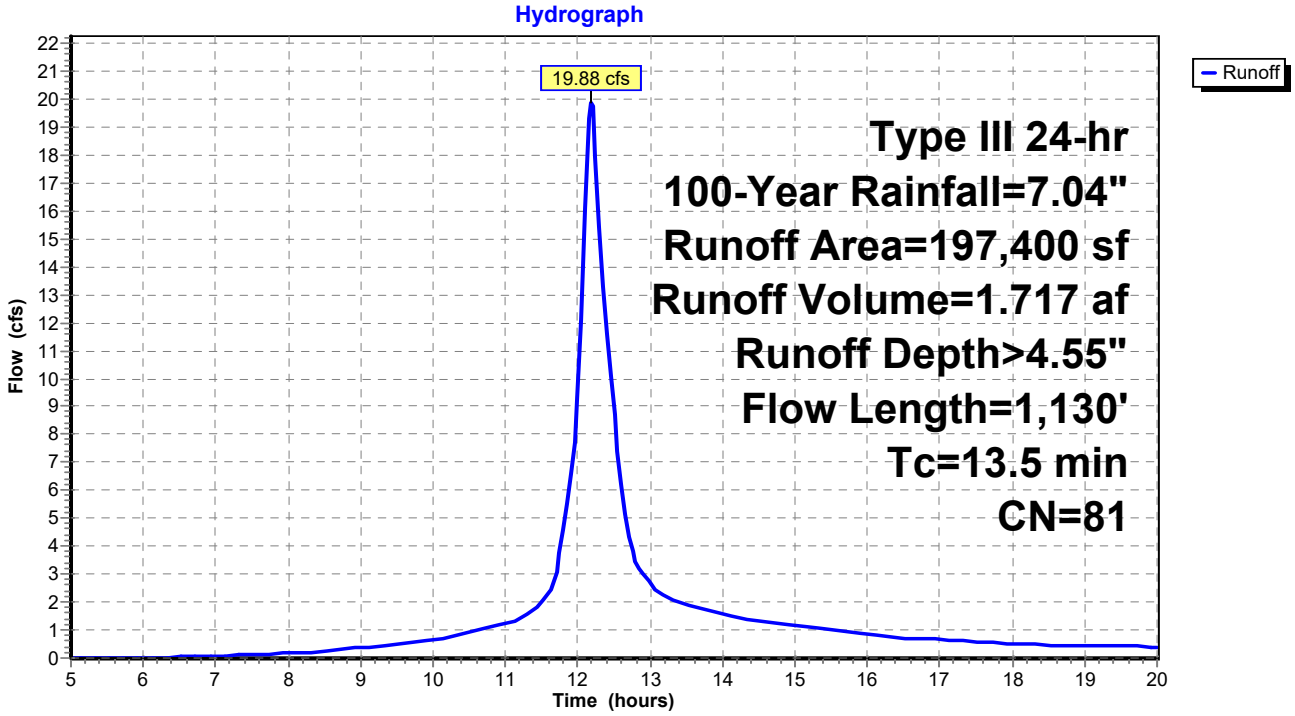
Runoff = 19.88 cfs @ 12.19 hrs, Volume= 1.717 af, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	300	98	Building
*	59,400	98	Pavement and Concrete
	71,900	74	>75% Grass cover, Good, HSG C
	65,800	73	Woods, Fair, HSG C
	197,400	81	Weighted Average
	137,700		69.76% Pervious Area
	59,700		30.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	25	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.4	25	0.0500	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 2.80"
2.0	430	0.0600	3.67		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
3.6	530	0.0150	2.49		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.3	120	0.1700	6.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
13.5	1,130	Total			

Subcatchment 1S: Existing North



Hydrograph for Subcatchment 1S: Existing North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.40	0.00	0.00
5.25	0.43	0.00	0.00
5.50	0.45	0.00	0.00
5.75	0.48	0.00	0.00
6.00	0.51	0.00	0.01
6.25	0.54	0.00	0.02
6.50	0.57	0.00	0.03
6.75	0.60	0.01	0.05
7.00	0.64	0.01	0.07
7.25	0.68	0.02	0.09
7.50	0.72	0.02	0.12
7.75	0.76	0.03	0.14
8.00	0.80	0.04	0.17
8.25	0.85	0.05	0.20
8.50	0.90	0.07	0.25
8.75	0.96	0.09	0.30
9.00	1.03	0.11	0.36
9.25	1.09	0.13	0.43
9.50	1.17	0.16	0.50
9.75	1.25	0.19	0.58
10.00	1.33	0.23	0.66
10.25	1.42	0.28	0.76
10.50	1.52	0.33	0.90
10.75	1.64	0.39	1.06
11.00	1.76	0.46	1.22
11.25	1.91	0.55	1.49
11.50	2.10	0.67	2.00
11.75	2.50	0.94	3.74
12.00	3.52	1.72	**9.30**
12.25	4.54	2.58	**17.92**
12.50	4.94	2.93	8.72
12.75	5.13	3.10	3.82
13.00	5.28	3.23	2.66
13.25	5.40	3.34	2.12
13.50	5.52	3.45	1.91
13.75	5.62	3.54	1.74
14.00	5.71	3.62	1.57
14.25	5.79	3.70	1.42
14.50	5.87	3.77	1.33
14.75	5.95	3.83	1.25
15.00	6.01	3.90	1.17
15.25	6.08	3.95	1.09
15.50	6.14	4.01	1.00
15.75	6.19	4.06	0.92
16.00	6.24	4.10	0.84
16.25	6.28	4.14	0.77
16.50	6.32	4.18	0.72
16.75	6.36	4.22	0.69
17.00	6.40	4.25	0.65
17.25	6.44	4.29	0.62
17.50	6.47	4.32	0.58
17.75	6.50	4.35	0.54
18.00	6.53	4.37	0.51
18.25	6.56	4.40	0.48
18.50	6.59	4.42	0.46
18.75	6.61	4.45	0.45
19.00	6.64	4.47	0.44
19.25	6.67	4.49	0.43
19.50	6.69	4.52	0.42
19.75	6.71	4.54	0.41
20.00	**6.74**	**4.56**	0.40

Summary for Subcatchment 2S: Existing Central

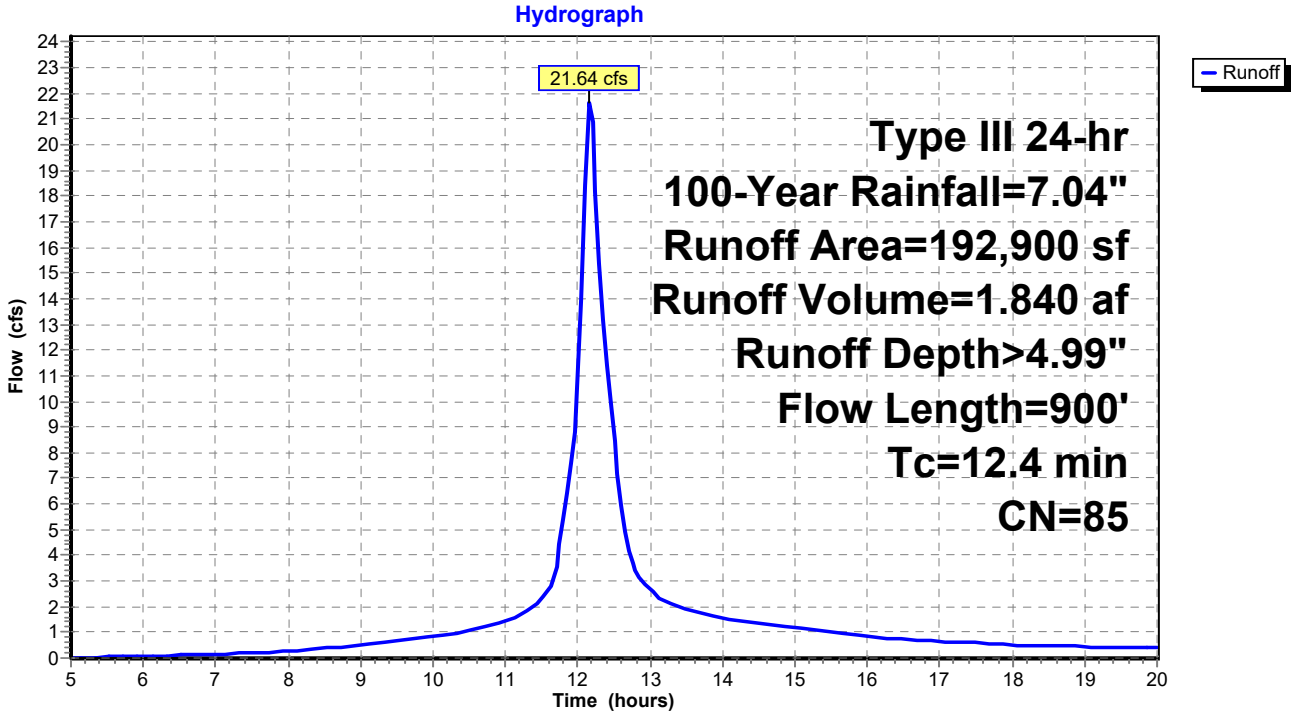
Runoff = 21.64 cfs @ 12.17 hrs, Volume= 1.840 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	42,900	98	Building
*	50,000	98	Pavement and Concrete
	72,900	74	>75% Grass cover, Good, HSG C
	27,100	73	Woods, Fair, HSG C
	192,900	85	Weighted Average
	100,000		51.84% Pervious Area
	92,900		48.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.6	40	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.2	80	0.2400	7.35		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	250	0.0060	2.85	18.29	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	200	0.0350	6.88	44.17	**Trap/Vee/Rect Channel Flow, Curb** Bot.W=0.10' D=0.50' Z= 1.0 & 50.0 '/' Top.W=25.60' n= 0.016 Asphalt, rough
0.5	280	0.0500	8.79	6.90	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
12.4	900	Total			

Subcatchment 2S: Existing Central



Hydrograph for Subcatchment 2S: Existing Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.40	0.00	0.01
5.25	0.43	0.00	0.03
5.50	0.45	0.01	0.04
5.75	0.48	0.01	0.05
6.00	0.51	0.01	0.07
6.25	0.54	0.02	0.08
6.50	0.57	0.02	0.10
6.75	0.60	0.03	0.12
7.00	0.64	0.04	0.15
7.25	0.68	0.05	0.18
7.50	0.72	0.06	0.21
7.75	0.76	0.08	0.24
8.00	0.80	0.09	0.27
8.25	0.85	0.11	0.31
8.50	0.90	0.13	0.37
8.75	0.96	0.16	0.43
9.00	1.03	0.19	0.50
9.25	1.09	0.22	0.58
9.50	1.17	0.26	0.66
9.75	1.25	0.30	0.74
10.00	1.33	0.35	0.83
10.25	1.42	0.40	0.94
10.50	1.52	0.47	1.10
10.75	1.64	0.54	1.27
11.00	1.76	0.62	1.44
11.25	1.91	0.73	1.74
11.50	2.10	0.87	2.31
11.75	2.50	1.18	4.40
12.00	3.52	2.03	**10.61**
12.25	4.54	2.94	**18.17**
12.50	4.94	3.31	8.48
12.75	5.13	3.49	3.69
13.00	5.28	3.63	2.66
13.25	5.40	3.74	2.13
13.50	5.52	3.85	1.93
13.75	5.62	3.94	1.75
14.00	5.71	4.03	1.58
14.25	5.79	4.11	1.43
14.50	5.87	4.18	1.34
14.75	5.95	4.25	1.26
15.00	6.01	4.32	1.18
15.25	6.08	4.38	1.09
15.50	6.14	4.43	1.01
15.75	6.19	4.48	0.92
16.00	6.24	4.53	0.84
16.25	6.28	4.57	0.77
16.50	6.32	4.61	0.73
16.75	6.36	4.65	0.69
17.00	6.40	4.68	0.65
17.25	6.44	4.72	0.62
17.50	6.47	4.75	0.58
17.75	6.50	4.78	0.54
18.00	6.53	4.81	0.51
18.25	6.56	4.83	0.48
18.50	6.59	4.86	0.46
18.75	6.61	4.88	0.45
19.00	6.64	4.91	0.44
19.25	6.67	4.93	0.43
19.50	6.69	4.96	0.42
19.75	6.71	4.98	0.41
20.00	**6.74**	**5.00**	0.40

Summary for Subcatchment 3S: Existing South

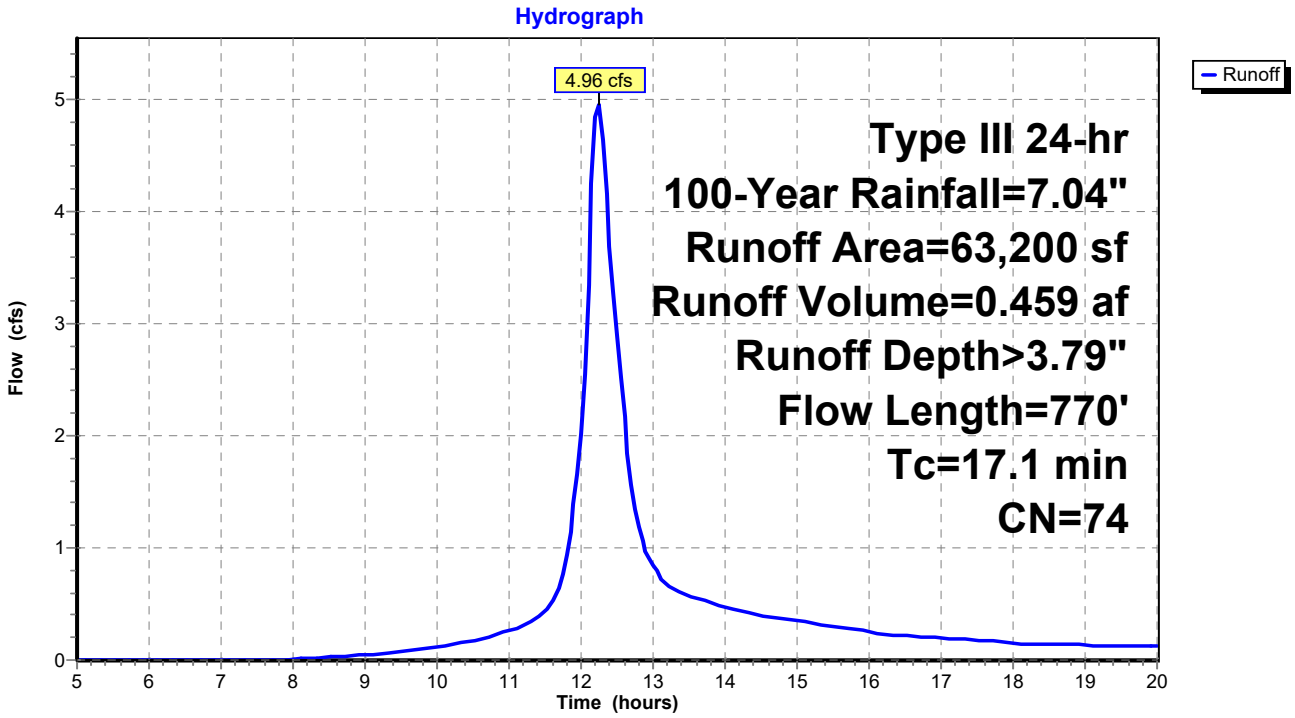
Runoff = 4.96 cfs @ 12.24 hrs, Volume= 0.459 af, Depth> 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	200	98	Building
*	0	98	Pavement and Concrete
	31,600	74	>75% Grass cover, Good, HSG C
	31,400	73	Woods, Fair, HSG C
	63,200	74	Weighted Average
	63,000		99.68% Pervious Area
	200		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Grass** Woods: Light underbrush n= 0.400 P2= 2.80"
1.0	70	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	150	0.0450	3.18		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
5.2	380	0.0600	1.22		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.0	120	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
17.1	770	Total			

Subcatchment 3S: Existing South



Hydrograph for Subcatchment 3S: Existing South

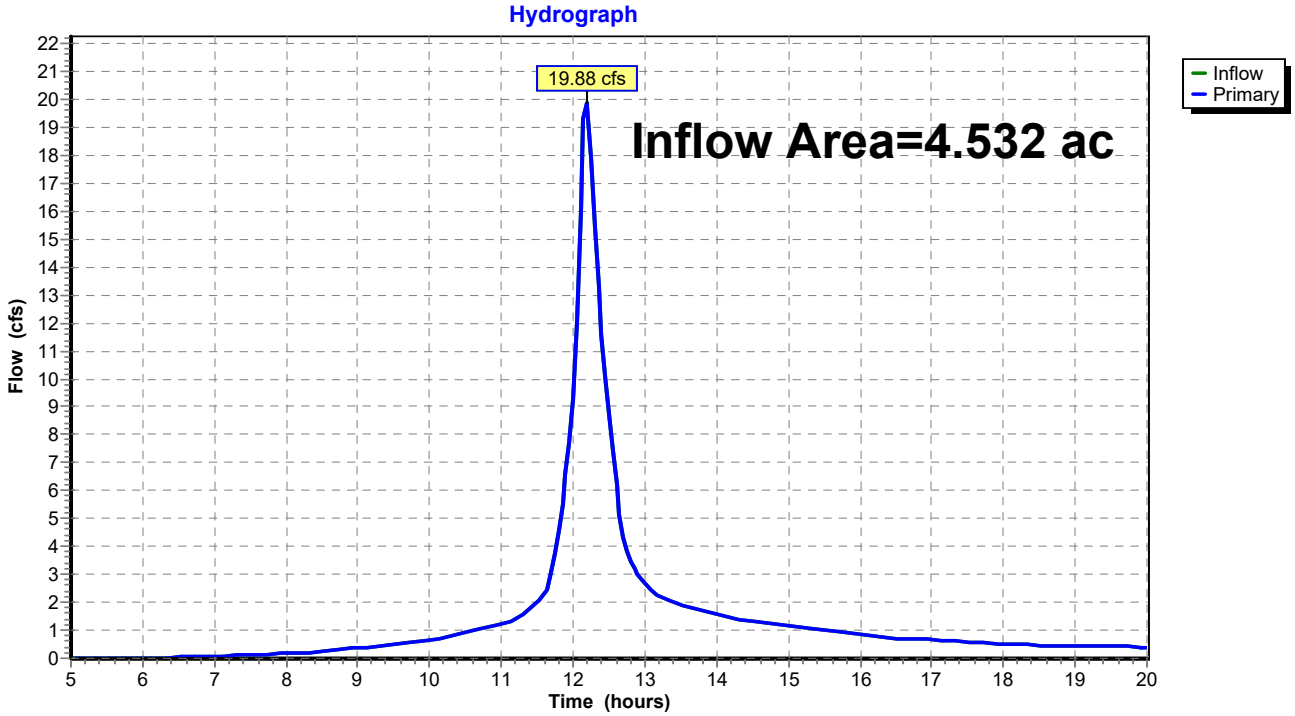
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.40	0.00	0.00
5.25	0.43	0.00	0.00
5.50	0.45	0.00	0.00
5.75	0.48	0.00	0.00
6.00	0.51	0.00	0.00
6.25	0.54	0.00	0.00
6.50	0.57	0.00	0.00
6.75	0.60	0.00	0.00
7.00	0.64	0.00	0.00
7.25	0.68	0.00	0.00
7.50	0.72	0.00	0.00
7.75	0.76	0.00	0.00
8.00	0.80	0.00	0.01
8.25	0.85	0.01	0.01
8.50	0.90	0.01	0.02
8.75	0.96	0.02	0.03
9.00	1.03	0.03	0.05
9.25	1.09	0.04	0.06
9.50	1.17	0.05	0.08
9.75	1.25	0.07	0.10
10.00	1.33	0.10	0.12
10.25	1.42	0.12	0.14
10.50	1.52	0.16	0.17
10.75	1.64	0.20	0.21
11.00	1.76	0.24	0.26
11.25	1.91	0.31	0.32
11.50	2.10	0.40	0.44
11.75	2.50	0.61	0.76
12.00	3.52	1.25	2.01
12.25	4.54	2.00	**4.94**
12.50	4.94	2.32	2.89
12.75	5.13	2.47	1.34
13.00	5.28	2.59	0.84
13.25	5.40	2.69	0.65
13.50	5.52	2.78	0.57
13.75	5.62	2.87	0.52
14.00	5.71	2.94	0.47
14.25	5.79	3.01	0.43
14.50	5.87	3.08	0.40
14.75	5.95	3.14	0.37
15.00	6.01	3.20	0.35
15.25	6.08	3.25	0.33
15.50	6.14	3.30	0.30
15.75	6.19	3.34	0.28
16.00	6.24	3.39	0.25
16.25	6.28	3.42	0.23
16.50	6.32	3.46	0.22
16.75	6.36	3.49	0.21
17.00	6.40	3.53	0.20
17.25	6.44	3.56	0.19
17.50	6.47	3.59	0.17
17.75	6.50	3.61	0.16
18.00	6.53	3.64	0.15
18.25	6.56	3.66	0.14
18.50	6.59	3.69	0.14
18.75	6.61	3.71	0.14
19.00	6.64	3.73	0.13
19.25	6.67	3.75	0.13
19.50	6.69	3.77	0.13
19.75	6.71	3.79	0.12
20.00	**6.74**	**3.81**	0.12

Summary for Link 4L: DP 1

Inflow Area = 4.532 ac, 30.24% Impervious, Inflow Depth > 4.55" for 100-Year event
Inflow = 19.88 cfs @ 12.19 hrs, Volume= 1.717 af
Primary = 19.88 cfs @ 12.19 hrs, Volume= 1.717 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

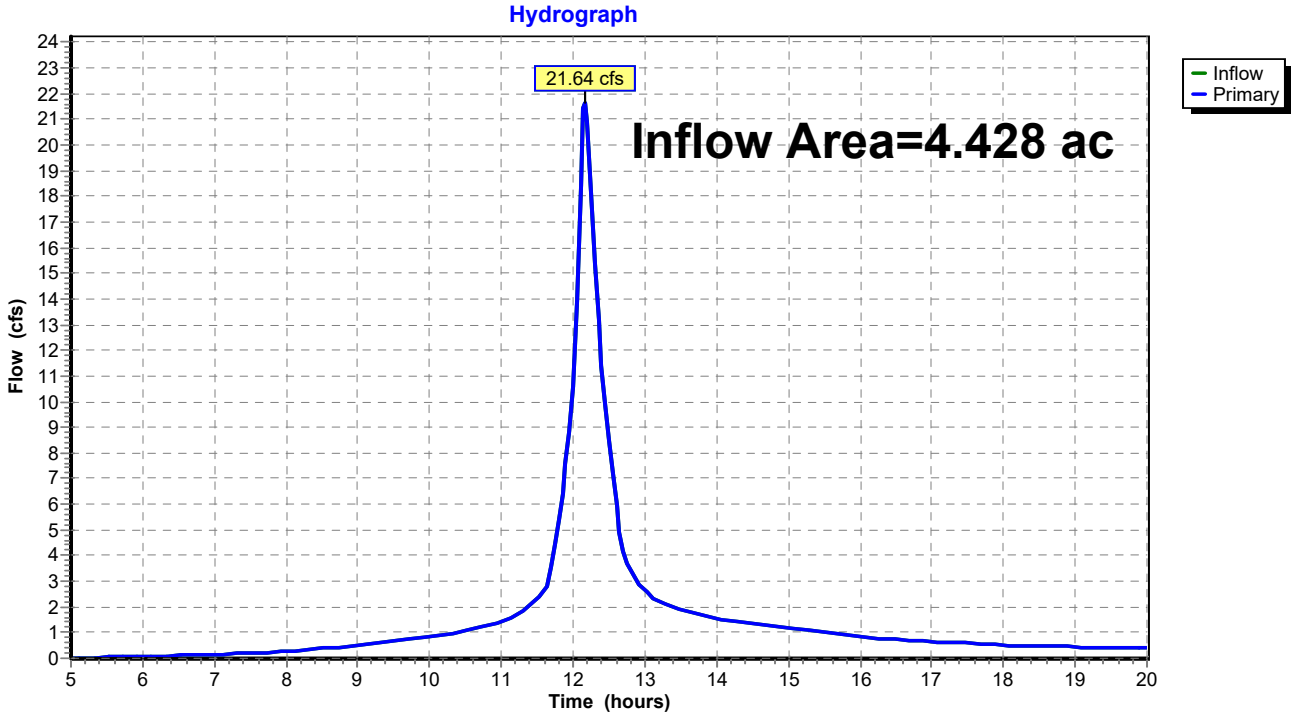
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.51	0.00	0.51
5.25	0.00	0.00	0.00	18.25	0.48	0.00	0.48
5.50	0.00	0.00	0.00	18.50	0.46	0.00	0.46
5.75	0.00	0.00	0.00	18.75	0.45	0.00	0.45
6.00	0.01	0.00	0.01	19.00	0.44	0.00	0.44
6.25	0.02	0.00	0.02	19.25	0.43	0.00	0.43
6.50	0.03	0.00	0.03	19.50	0.42	0.00	0.42
6.75	0.05	0.00	0.05	19.75	0.41	0.00	0.41
7.00	0.07	0.00	0.07	20.00	0.40	0.00	0.40
7.25	0.09	0.00	0.09				
7.50	0.12	0.00	0.12				
7.75	0.14	0.00	0.14				
8.00	0.17	0.00	0.17				
8.25	0.20	0.00	0.20				
8.50	0.25	0.00	0.25				
8.75	0.30	0.00	0.30				
9.00	0.36	0.00	0.36				
9.25	0.43	0.00	0.43				
9.50	0.50	0.00	0.50				
9.75	0.58	0.00	0.58				
10.00	0.66	0.00	0.66				
10.25	0.76	0.00	0.76				
10.50	0.90	0.00	0.90				
10.75	1.06	0.00	1.06				
11.00	1.22	0.00	1.22				
11.25	1.49	0.00	1.49				
11.50	2.00	0.00	2.00				
11.75	3.74	0.00	3.74				
12.00	**9.30**	0.00	**9.30**				
12.25	**17.92**	0.00	**17.92**				
12.50	8.72	0.00	8.72				
12.75	3.82	0.00	3.82				
13.00	2.66	0.00	2.66				
13.25	2.12	0.00	2.12				
13.50	1.91	0.00	1.91				
13.75	1.74	0.00	1.74				
14.00	1.57	0.00	1.57				
14.25	1.42	0.00	1.42				
14.50	1.33	0.00	1.33				
14.75	1.25	0.00	1.25				
15.00	1.17	0.00	1.17				
15.25	1.09	0.00	1.09				
15.50	1.00	0.00	1.00				
15.75	0.92	0.00	0.92				
16.00	0.84	0.00	0.84				
16.25	0.77	0.00	0.77				
16.50	0.72	0.00	0.72				
16.75	0.69	0.00	0.69				
17.00	0.65	0.00	0.65				
17.25	0.62	0.00	0.62				
17.50	0.58	0.00	0.58				
17.75	0.54	0.00	0.54				

Summary for Link 5L: DP 2

Inflow Area = 4.428 ac, 48.16% Impervious, Inflow Depth > 4.99" for 100-Year event
Inflow = 21.64 cfs @ 12.17 hrs, Volume= 1.840 af
Primary = 21.64 cfs @ 12.17 hrs, Volume= 1.840 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

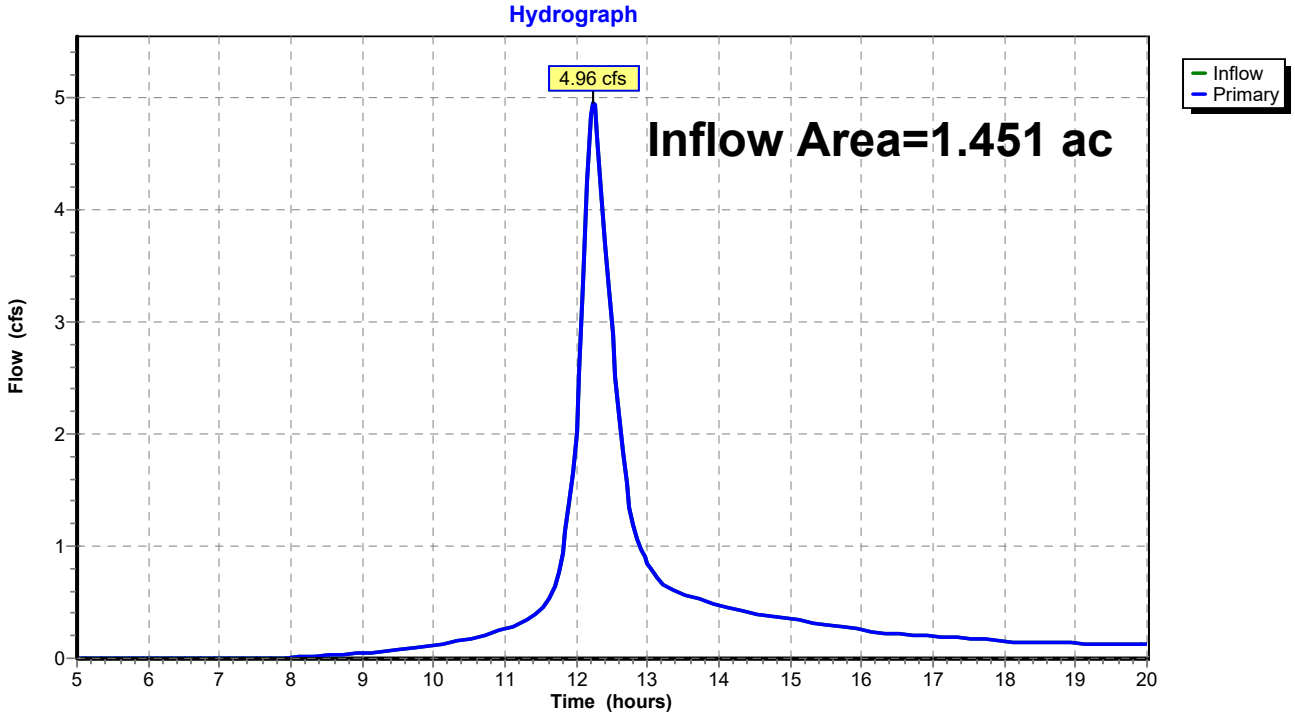
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.01	**0.00**	0.01	18.00	0.51	0.00	0.51
5.25	0.03	0.00	0.03	18.25	0.48	0.00	0.48
5.50	0.04	0.00	0.04	18.50	0.46	0.00	0.46
5.75	0.05	0.00	0.05	18.75	0.45	0.00	0.45
6.00	0.07	0.00	0.07	19.00	0.44	0.00	0.44
6.25	0.08	0.00	0.08	19.25	0.43	0.00	0.43
6.50	0.10	0.00	0.10	19.50	0.42	0.00	0.42
6.75	0.12	0.00	0.12	19.75	0.41	0.00	0.41
7.00	0.15	0.00	0.15	20.00	0.40	0.00	0.40
7.25	0.18	0.00	0.18				
7.50	0.21	0.00	0.21				
7.75	0.24	0.00	0.24				
8.00	0.27	0.00	0.27				
8.25	0.31	0.00	0.31				
8.50	0.37	0.00	0.37				
8.75	0.43	0.00	0.43				
9.00	0.50	0.00	0.50				
9.25	0.58	0.00	0.58				
9.50	0.66	0.00	0.66				
9.75	0.74	0.00	0.74				
10.00	0.83	0.00	0.83				
10.25	0.94	0.00	0.94				
10.50	1.10	0.00	1.10				
10.75	1.27	0.00	1.27				
11.00	1.44	0.00	1.44				
11.25	1.74	0.00	1.74				
11.50	2.31	0.00	2.31				
11.75	4.40	0.00	4.40				
12.00	**10.61**	0.00	**10.61**				
12.25	**18.17**	0.00	**18.17**				
12.50	8.48	0.00	8.48				
12.75	3.69	0.00	3.69				
13.00	2.66	0.00	2.66				
13.25	2.13	0.00	2.13				
13.50	1.93	0.00	1.93				
13.75	1.75	0.00	1.75				
14.00	1.58	0.00	1.58				
14.25	1.43	0.00	1.43				
14.50	1.34	0.00	1.34				
14.75	1.26	0.00	1.26				
15.00	1.18	0.00	1.18				
15.25	1.09	0.00	1.09				
15.50	1.01	0.00	1.01				
15.75	0.92	0.00	0.92				
16.00	0.84	0.00	0.84				
16.25	0.77	0.00	0.77				
16.50	0.73	0.00	0.73				
16.75	0.69	0.00	0.69				
17.00	0.65	0.00	0.65				
17.25	0.62	0.00	0.62				
17.50	0.58	0.00	0.58				
17.75	0.54	0.00	0.54				

Summary for Link 6L: DP 3

Inflow Area = 1.451 ac, 0.32% Impervious, Inflow Depth > 3.79" for 100-Year event
Inflow = 4.96 cfs @ 12.24 hrs, Volume= 0.459 af
Primary = 4.96 cfs @ 12.24 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min

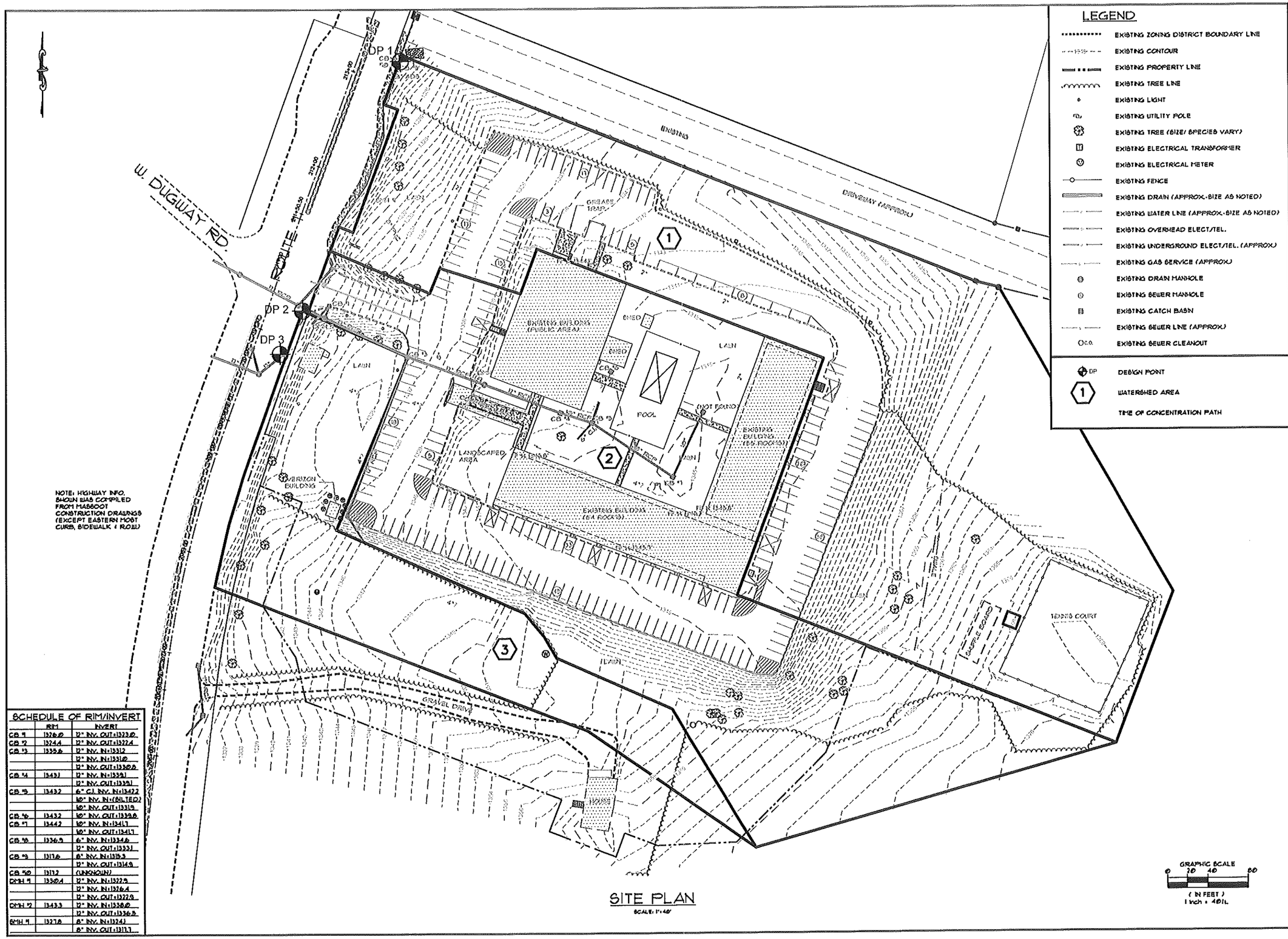
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.00	0.15	0.00	0.15
5.25	0.00	0.00	0.00	18.25	0.14	0.00	0.14
5.50	0.00	0.00	0.00	18.50	0.14	0.00	0.14
5.75	0.00	0.00	0.00	18.75	0.14	0.00	0.14
6.00	0.00	0.00	0.00	19.00	0.13	0.00	0.13
6.25	0.00	0.00	0.00	19.25	0.13	0.00	0.13
6.50	0.00	0.00	0.00	19.50	0.13	0.00	0.13
6.75	0.00	0.00	0.00	19.75	0.12	0.00	0.12
7.00	0.00	0.00	0.00	20.00	0.12	0.00	0.12
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.01	0.00	0.01				
8.25	0.01	0.00	0.01				
8.50	0.02	0.00	0.02				
8.75	0.03	0.00	0.03				
9.00	0.05	0.00	0.05				
9.25	0.06	0.00	0.06				
9.50	0.08	0.00	0.08				
9.75	0.10	0.00	0.10				
10.00	0.12	0.00	0.12				
10.25	0.14	0.00	0.14				
10.50	0.17	0.00	0.17				
10.75	0.21	0.00	0.21				
11.00	0.26	0.00	0.26				
11.25	0.32	0.00	0.32				
11.50	0.44	0.00	0.44				
11.75	0.76	0.00	0.76				
12.00	2.01	0.00	2.01				
12.25	**4.94**	0.00	**4.94**				
12.50	2.89	0.00	2.89				
12.75	1.34	0.00	1.34				
13.00	0.84	0.00	0.84				
13.25	0.65	0.00	0.65				
13.50	0.57	0.00	0.57				
13.75	0.52	0.00	0.52				
14.00	0.47	0.00	0.47				
14.25	0.43	0.00	0.43				
14.50	0.40	0.00	0.40				
14.75	0.37	0.00	0.37				
15.00	0.35	0.00	0.35				
15.25	0.33	0.00	0.33				
15.50	0.30	0.00	0.30				
15.75	0.28	0.00	0.28				
16.00	0.25	0.00	0.25				
16.25	0.23	0.00	0.23				
16.50	0.22	0.00	0.22				
16.75	0.21	0.00	0.21				
17.00	0.20	0.00	0.20				
17.25	0.19	0.00	0.19				
17.50	0.17	0.00	0.17				
17.75	0.16	0.00	0.16				



NOTE: HIGHWAY INFO. SHOWN WAS COMPILED FROM MASSDOT CONSTRUCTION DRAWINGS (EXCEPT EASTERN MOST CURB, SIDEWALK & ROW)

SCHEDULE OF RIM/INVERT

	RIM	INVERT
CB #1	1326.0	12" INV. OUT=1323.0
CB #2	1324.4	12" INV. OUT=1322.4
CB #3	1335.6	12" INV. IN=1331.2
		12" INV. IN=1331.0
		12" INV. OUT=1330.0
CB #4	1343.1	12" INV. IN=1339.1
		12" INV. OUT=1339.1
CB #5	1343.2	6" C.I. INV. IN=1342.2
		10" INV. IN=(BLTED)
		10" INV. OUT=1339.5
CB #6	1343.2	10" INV. OUT=1339.8
CB #7	1344.2	10" INV. IN=1341.7
		10" INV. OUT=1341.7
CB #8	1336.9	6" INV. IN=1334.6
		12" INV. OUT=1333.1
CB #9	1317.6	8" INV. IN=1315.5
		12" INV. OUT=1314.9
CB #10	1317.2	(UNKNOWN)
DMH #1	1330.4	12" INV. IN=1327.5
		12" INV. IN=1326.4
		12" INV. OUT=1327.0
DMH #2	1343.3	12" INV. IN=1338.0
		12" INV. OUT=1336.5
DMH #3	1327.8	8" INV. IN=1324.1
		8" INV. OUT=1317.7

SITE PLAN

SCALE: 1"=40'

LEGEND

- EXISTING ZONING DISTRICT BOUNDARY LINE
- EXISTING CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TREE LINE
- EXISTING LIGHT
- EXISTING UTILITY POLE
- EXISTING TREE (SIZE/ SPECIES VARY)
- EXISTING ELECTRICAL TRANSFORMER
- EXISTING ELECTRICAL METER
- EXISTING FENCE
- EXISTING DRAIN (APPROX.-SIZE AS NOTED)
- EXISTING WATER LINE (APPROX.-SIZE AS NOTED)
- EXISTING OVERHEAD ELECT/TEL.
- EXISTING UNDERGROUND ELECT/TEL. (APPROX)
- EXISTING GAS SERVICE (APPROX)
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING CATCH BASIN
- EXISTING SEWER LINE (APPROX)
- EXISTING SEWER CLEANOUT
- DP — DESIGN POINT
- 1 — WATERSHED AREA
- TIME OF CONCENTRATION PATH

PLAN TO ACCOMPANY PERMIT APPLICATIONS
PREPARED FOR
130 PITTSFIELD-LENOX ROAD, LLC
LOCATED AT:
#130 PITTSFIELD-LENOX ROAD
LENOX, MASSACHUSETTS

Design Group, Inc.
Civil Engineers * Surveyors * Consultants
1 FEDERAL STREET * PITTSFIELD, MASSACHUSETTS 01201 * 413-443-9637

PLAN DESCRIPTION: EXISTING WATERSHED PLAN

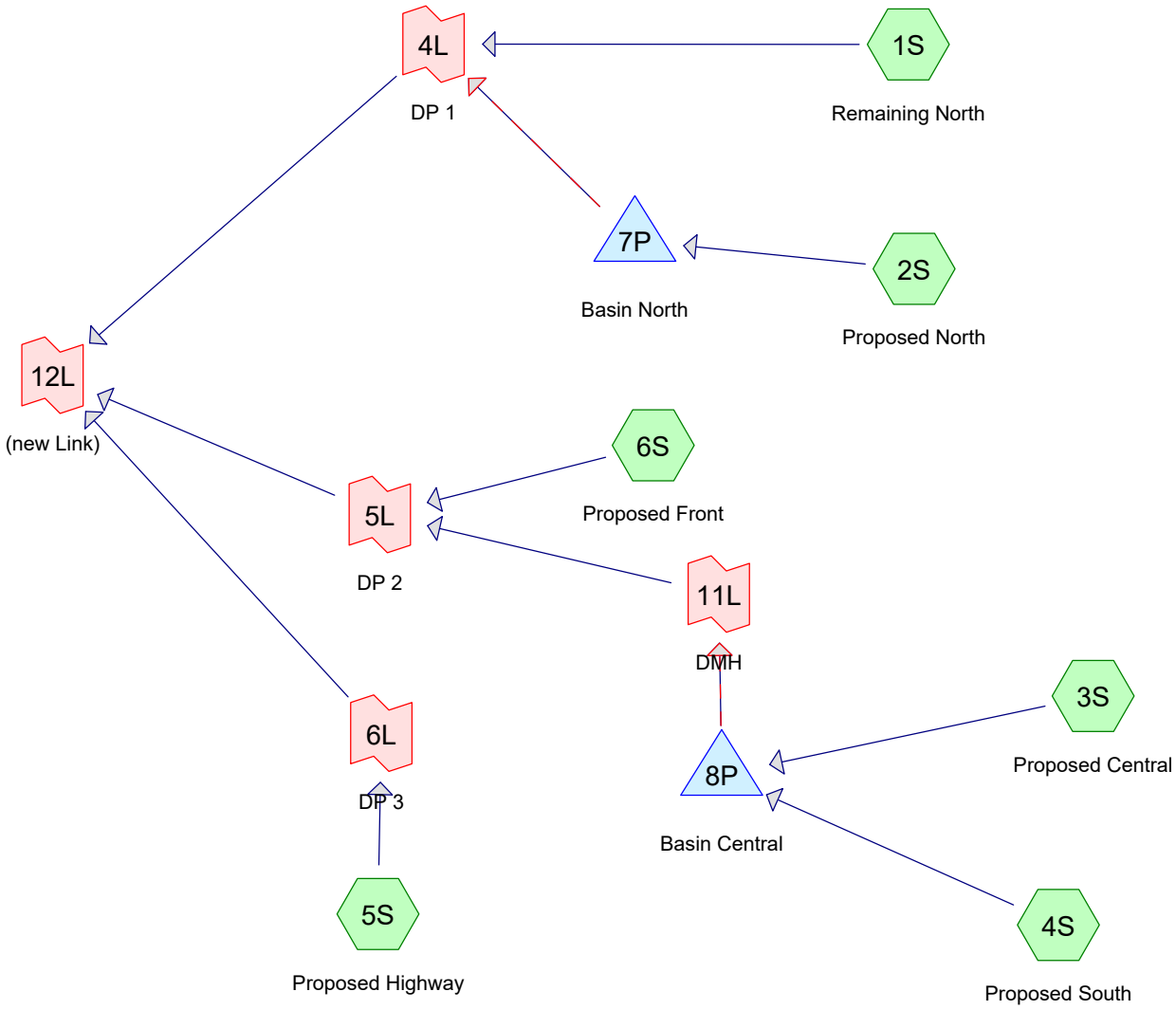
DG DESIGN GROUP PROJECT #: 150079

JAMES M. SCALISE II
DG DESIGN GROUP PRINCIPAL
LICENSE #30863
PROFESSIONAL OF RECORD
PHONE: 413-443-9637

REVISION

DRAWN BY: AMS	CHECKED BY: JMS II
ORIG. DATE: ??????????, 2015	SHEET NO. 1 of 2
ISSUED FOR: PERMIT	
SCALE: As Noted	

G:\DG DESIGN GROUP\2015\150079 Mankos-Rt 7 (Inv Economology), Lenox-New Hotel\Drawings\Special Permit\150079-SP.dwg
Plotted On: Wednesday, March 30, 2016 - 10:36am
User Name: mpowlin



Subcat Reach Pond Link

Routing Diagram for 150079 Prop NEW - C Soil
Prepared by SK Design Group, Inc, Printed 3/22/2022
HydroCAD® 10.00-20 s/n 01869 © 2017 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Remaining North

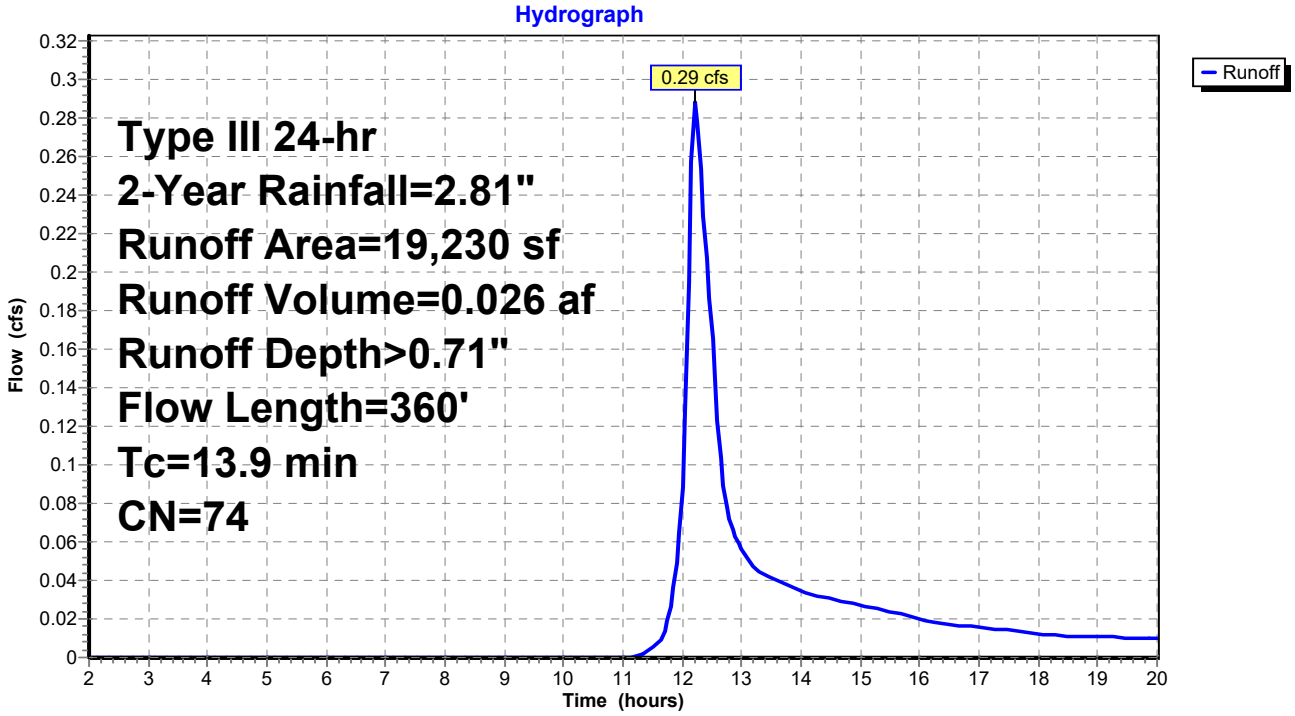
Runoff = 0.29 cfs @ 12.21 hrs, Volume= 0.026 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	0	98	Building
*	125	98	Pavement and Concrete
	12,705	74	>75% Grass cover, Good, HSG C
	6,400	73	Woods, Fair, HSG C
	19,230	74	Weighted Average
	19,105		99.35% Pervious Area
	125		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0400	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
3.9	310	0.0700	1.32		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
13.9	360	Total			

Subcatchment 1S: Remaining North



Hydrograph for Subcatchment 1S: Remaining North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.06	0.00	0.00
2.25	0.06	0.00	0.00
2.50	0.07	0.00	0.00
2.75	0.08	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.09	0.00	0.00
3.50	0.10	0.00	0.00
3.75	0.11	0.00	0.00
4.00	0.12	0.00	0.00
4.25	0.13	0.00	0.00
4.50	0.14	0.00	0.00
4.75	0.15	0.00	0.00
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.41	0.00	0.00
9.25	0.44	0.00	0.00
9.50	0.47	0.00	0.00
9.75	0.50	0.00	0.00
10.00	0.53	0.00	0.00
10.25	0.57	0.00	0.00
10.50	0.61	0.00	0.00
10.75	0.65	0.00	0.00
11.00	0.70	0.00	0.00
11.25	0.76	0.00	0.00
11.50	0.84	0.00	0.00
11.75	1.00	0.02	0.02
12.00	1.40	0.12	**0.09**
12.25	1.81	0.27	**0.28**
12.50	1.97	0.34	0.17
12.75	2.05	0.37	0.08
13.00	2.11	0.40	0.06
13.25	2.16	0.43	0.05
13.50	2.20	0.45	0.04
13.75	2.24	0.47	0.04
14.00	2.28	0.49	0.04
14.25	2.31	0.51	0.03
14.50	2.34	0.52	0.03
14.75	2.37	0.54	0.03
15.00	2.40	0.55	0.03
15.25	2.43	0.57	0.03
15.50	2.45	0.58	0.02
15.75	2.47	0.59	0.02
16.00	2.49	0.60	0.02
16.25	2.51	0.61	0.02
16.50	2.52	0.62	0.02
16.75	2.54	0.63	0.02
17.00	2.56	0.64	0.02
17.25	2.57	0.65	0.01
17.50	2.58	0.66	0.01
17.75	2.60	0.66	0.01
18.00	2.61	0.67	0.01
18.25	2.62	0.68	0.01
18.50	2.63	0.68	0.01
18.75	2.64	0.69	0.01
19.00	2.65	0.69	0.01
19.25	2.66	0.70	0.01
19.50	2.67	0.71	0.01
19.75	2.68	0.71	0.01
20.00	**2.69**	**0.72**	0.01

Summary for Subcatchment 2S: Proposed North

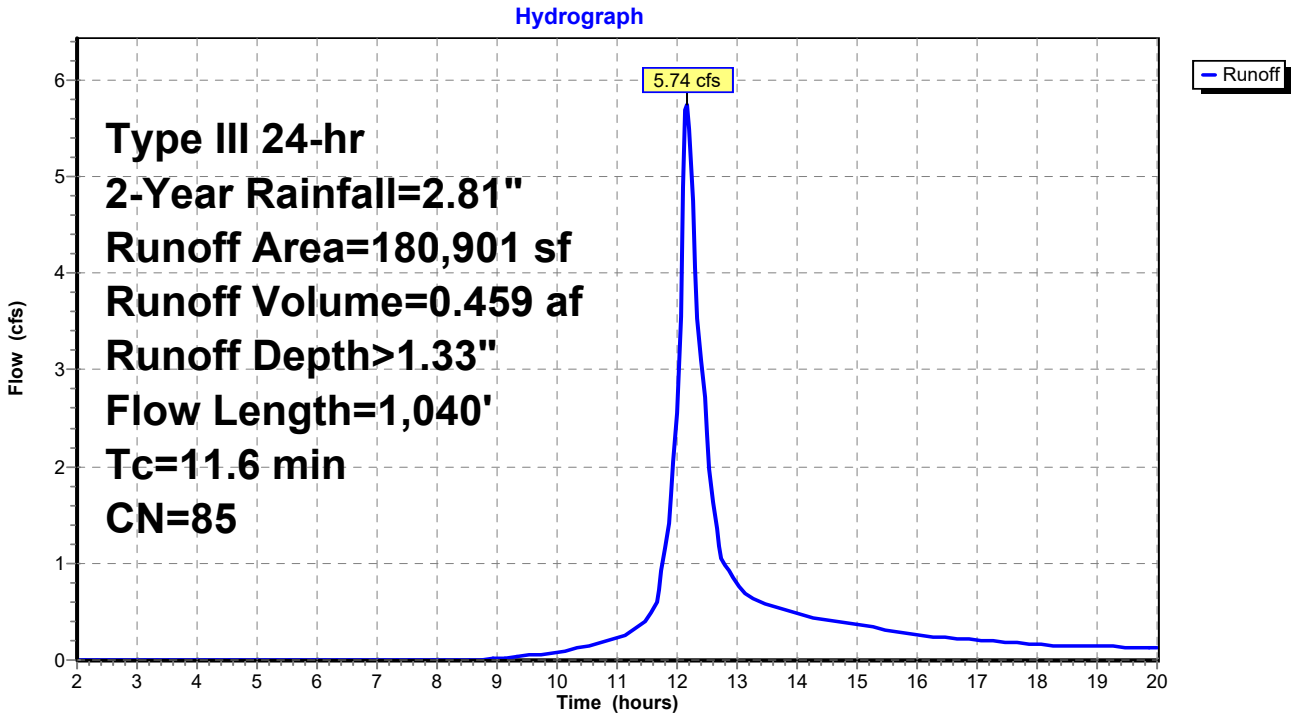
Runoff = 5.74 cfs @ 12.16 hrs, Volume= 0.459 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	28,702	98	Building
*	59,626	98	Pavement and Concrete
	49,289	74	>75% Grass cover, Good, HSG C
	43,284	73	Woods, Fair, HSG C
	180,901	85	Weighted Average
	92,573		51.17% Pervious Area
	88,328		48.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	20	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.9	20	0.0500	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 2.80"
0.9	100	0.0150	1.84		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.6	180	0.1200	5.20		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
2.5	680	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
11.6	1,040	Total			

Subcatchment 2S: Proposed North



Hydrograph for Subcatchment 2S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.06	0.00	0.00
2.25	0.06	0.00	0.00
2.50	0.07	0.00	0.00
2.75	0.08	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.09	0.00	0.00
3.50	0.10	0.00	0.00
3.75	0.11	0.00	0.00
4.00	0.12	0.00	0.00
4.25	0.13	0.00	0.00
4.50	0.14	0.00	0.00
4.75	0.15	0.00	0.00
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.01
9.00	0.41	0.00	0.02
9.25	0.44	0.00	0.03
9.50	0.47	0.01	0.05
9.75	0.50	0.01	0.07
10.00	0.53	0.02	0.09
10.25	0.57	0.02	0.11
10.50	0.61	0.03	0.14
10.75	0.65	0.04	0.18
11.00	0.70	0.06	0.23
11.25	0.76	0.08	0.30
11.50	0.84	0.10	0.43
11.75	1.00	0.17	0.92
12.00	1.40	0.39	**2.56**
12.25	1.81	0.66	**4.75**
12.50	1.97	0.78	2.34
12.75	2.05	0.83	1.05
13.00	2.11	0.87	0.78
13.25	2.16	0.91	0.64
13.50	2.20	0.95	0.58
13.75	2.24	0.98	0.53
14.00	2.28	1.01	0.48
14.25	2.31	1.03	0.44
14.50	2.34	1.06	0.41
14.75	2.37	1.08	0.39
15.00	2.40	1.10	0.36
15.25	2.43	1.12	0.34
15.50	2.45	1.14	0.31
15.75	2.47	1.15	0.29
16.00	2.49	1.17	0.26
16.25	2.51	1.18	0.24
16.50	2.52	1.20	0.23
16.75	2.54	1.21	0.22
17.00	2.56	1.22	0.21
17.25	2.57	1.23	0.19
17.50	2.58	1.25	0.18
17.75	2.60	1.26	0.17
18.00	2.61	1.26	0.16
18.25	2.62	1.27	0.15
18.50	2.63	1.28	0.15
18.75	2.64	1.29	0.14
19.00	2.65	1.30	0.14
19.25	2.66	1.31	0.14
19.50	2.67	1.32	0.13
19.75	2.68	1.32	0.13
20.00	**2.69**	**1.33**	0.13

Summary for Subcatchment 3S: Proposed Central

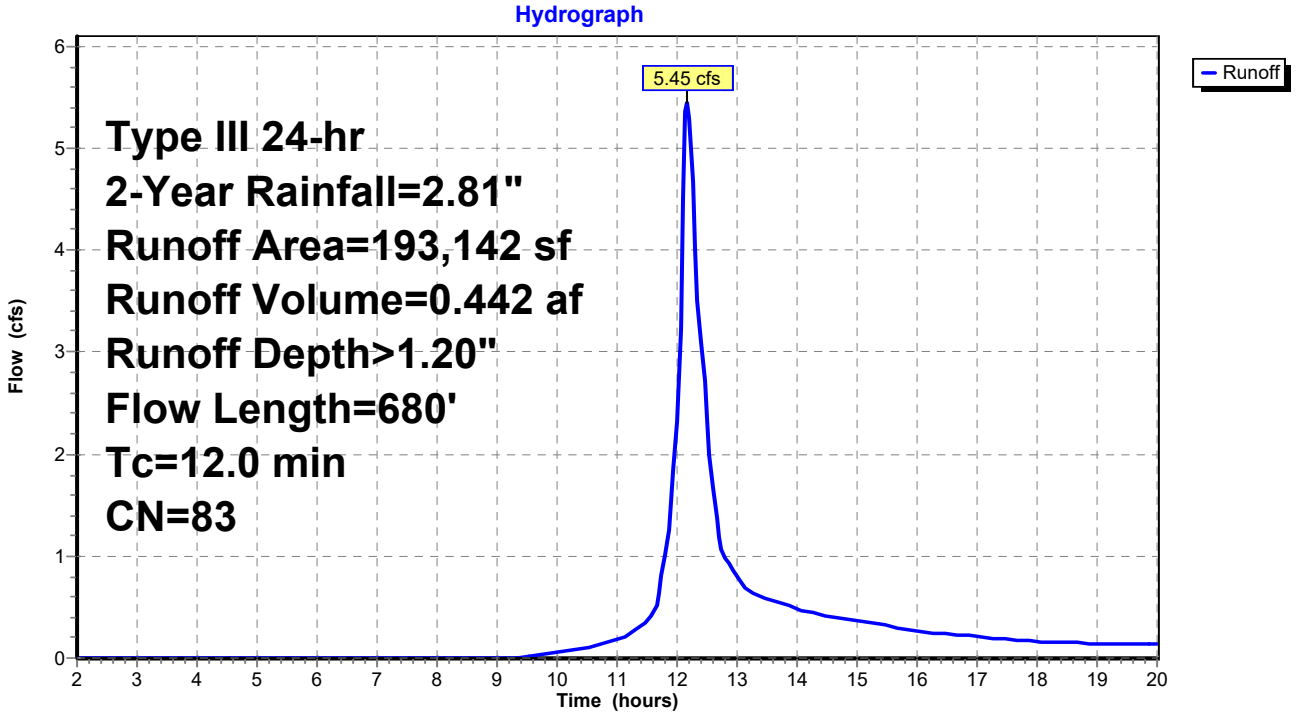
Runoff = 5.45 cfs @ 12.17 hrs, Volume= 0.442 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	22,490	98	Building
*	47,709	98	Pavement and Concrete
	122,943	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	193,142	83	Weighted Average
	122,943		63.65% Pervious Area
	70,199		36.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.4	30	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.1	50	0.3300	8.62		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	70	0.1000	6.42		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.4	380	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
12.0	680	Total			

Subcatchment 3S: Proposed Central



Hydrograph for Subcatchment 3S: Proposed Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.06	0.00	0.00
2.25	0.06	0.00	0.00
2.50	0.07	0.00	0.00
2.75	0.08	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.09	0.00	0.00
3.50	0.10	0.00	0.00
3.75	0.11	0.00	0.00
4.00	0.12	0.00	0.00
4.25	0.13	0.00	0.00
4.50	0.14	0.00	0.00
4.75	0.15	0.00	0.00
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.41	0.00	0.00
9.25	0.44	0.00	0.00
9.50	0.47	0.00	0.02
9.75	0.50	0.00	0.03
10.00	0.53	0.01	0.05
10.25	0.57	0.01	0.07
10.50	0.61	0.02	0.10
10.75	0.65	0.03	0.14
11.00	0.70	0.04	0.18
11.25	0.76	0.05	0.25
11.50	0.84	0.07	0.36
11.75	1.00	0.13	0.80
12.00	1.40	0.33	**2.32**
12.25	1.81	0.57	**4.67**
12.50	1.97	0.68	2.36
12.75	2.05	0.73	1.07
13.00	2.11	0.77	0.79
13.25	2.16	0.80	0.64
13.50	2.20	0.84	0.58
13.75	2.24	0.87	0.54
14.00	2.28	0.89	0.49
14.25	2.31	0.92	0.44
14.50	2.34	0.94	0.42
14.75	2.37	0.96	0.39
15.00	2.40	0.98	0.37
15.25	2.43	1.00	0.34
15.50	2.45	1.02	0.32
15.75	2.47	1.03	0.29
16.00	2.49	1.05	0.27
16.25	2.51	1.06	0.24
16.50	2.52	1.07	0.23
16.75	2.54	1.09	0.22
17.00	2.56	1.10	0.21
17.25	2.57	1.11	0.20
17.50	2.58	1.12	0.19
17.75	2.60	1.13	0.17
18.00	2.61	1.14	0.16
18.25	2.62	1.15	0.15
18.50	2.63	1.15	0.15
18.75	2.64	1.16	0.15
19.00	2.65	1.17	0.14
19.25	2.66	1.18	0.14
19.50	2.67	1.19	0.14
19.75	2.68	1.19	0.13
20.00	**2.69**	**1.20**	0.13

Summary for Subcatchment 4S: Proposed South

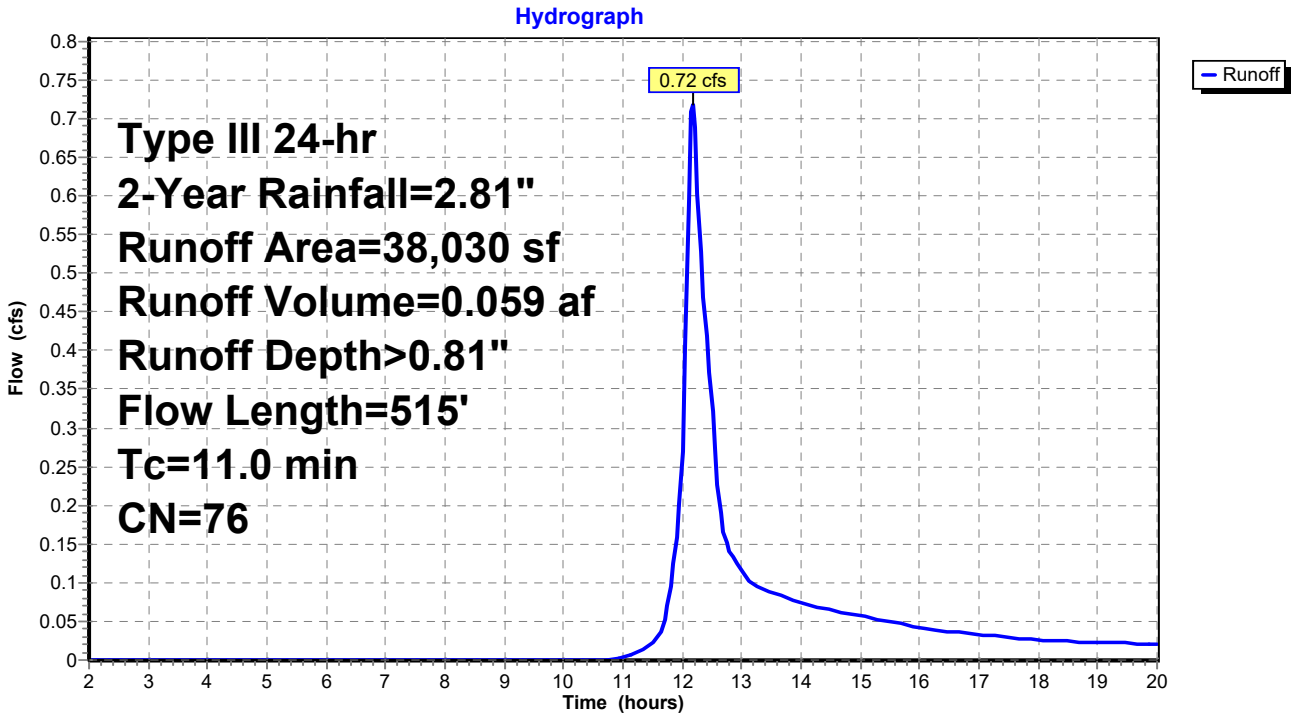
Runoff = 0.72 cfs @ 12.17 hrs, Volume= 0.059 af, Depth> 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	3,100	98	Building
*	217	98	Pavement and Concrete
	34,713	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	38,030	76	Weighted Average
	34,713		91.28% Pervious Area
	3,317		8.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.1	15	0.1000	4.74		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.0	350	0.0400	5.90	12.38	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.10' D=1.00' Z= 2.0 '/' Top.W=4.10' n= 0.030 Earth, grassed & winding
11.0	515	Total			

Subcatchment 4S: Proposed South



Hydrograph for Subcatchment 4S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.06	0.00	0.00
2.25	0.06	0.00	0.00
2.50	0.07	0.00	0.00
2.75	0.08	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.09	0.00	0.00
3.50	0.10	0.00	0.00
3.75	0.11	0.00	0.00
4.00	0.12	0.00	0.00
4.25	0.13	0.00	0.00
4.50	0.14	0.00	0.00
4.75	0.15	0.00	0.00
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.41	0.00	0.00
9.25	0.44	0.00	0.00
9.50	0.47	0.00	0.00
9.75	0.50	0.00	0.00
10.00	0.53	0.00	0.00
10.25	0.57	0.00	0.00
10.50	0.61	0.00	0.00
10.75	0.65	0.00	0.00
11.00	0.70	0.00	0.00
11.25	0.76	0.01	0.01
11.50	0.84	0.01	0.02
11.75	1.00	0.04	0.07
12.00	1.40	0.15	**0.27**
12.25	1.81	0.32	**0.60**
12.50	1.97	0.40	0.32
12.75	2.05	0.44	0.15
13.00	2.11	0.47	0.12
13.25	2.16	0.50	0.10
13.50	2.20	0.52	0.09
13.75	2.24	0.54	0.08
14.00	2.28	0.56	0.07
14.25	2.31	0.58	0.07
14.50	2.34	0.60	0.06
14.75	2.37	0.62	0.06
15.00	2.40	0.64	0.06
15.25	2.43	0.65	0.05
15.50	2.45	0.66	0.05
15.75	2.47	0.68	0.05
16.00	2.49	0.69	0.04
16.25	2.51	0.70	0.04
16.50	2.52	0.71	0.04
16.75	2.54	0.72	0.03
17.00	2.56	0.73	0.03
17.25	2.57	0.74	0.03
17.50	2.58	0.75	0.03
17.75	2.60	0.75	0.03
18.00	2.61	0.76	0.03
18.25	2.62	0.77	0.02
18.50	2.63	0.77	0.02
18.75	2.64	0.78	0.02
19.00	2.65	0.79	0.02
19.25	2.66	0.79	0.02
19.50	2.67	0.80	0.02
19.75	2.68	0.81	0.02
20.00	**2.69**	**0.81**	0.02

Summary for Subcatchment 5S: Proposed Highway

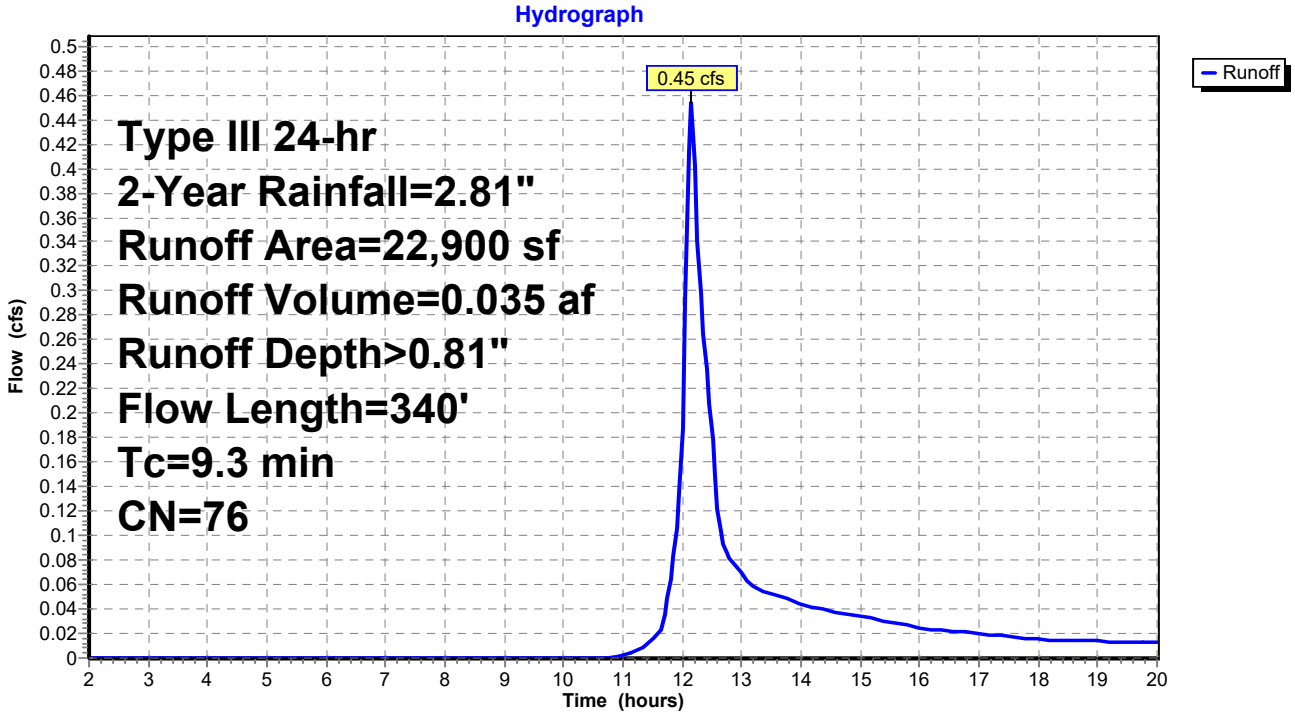
Runoff = 0.45 cfs @ 12.15 hrs, Volume= 0.035 af, Depth> 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	0	98	Building
*	1,900	98	Pavement and Concrete
	15,700	74	>75% Grass cover, Good, HSG C
	5,300	73	Woods, Fair, HSG C
	22,900	76	Weighted Average
	21,000		91.70% Pervious Area
	1,900		8.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	40	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.0	20	0.5000	10.61		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	1.50		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	260	0.0200	2.87		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
9.3	340	Total			

Subcatchment 5S: Proposed Highway



Hydrograph for Subcatchment 5S: Proposed Highway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.06	0.00	0.00
2.25	0.06	0.00	0.00
2.50	0.07	0.00	0.00
2.75	0.08	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.09	0.00	0.00
3.50	0.10	0.00	0.00
3.75	0.11	0.00	0.00
4.00	0.12	0.00	0.00
4.25	0.13	0.00	0.00
4.50	0.14	0.00	0.00
4.75	0.15	0.00	0.00
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.00	0.00
8.00	0.32	0.00	0.00
8.25	0.34	0.00	0.00
8.50	0.36	0.00	0.00
8.75	0.38	0.00	0.00
9.00	0.41	0.00	0.00
9.25	0.44	0.00	0.00
9.50	0.47	0.00	0.00
9.75	0.50	0.00	0.00
10.00	0.53	0.00	0.00
10.25	0.57	0.00	0.00
10.50	0.61	0.00	0.00
10.75	0.65	0.00	0.00
11.00	0.70	0.00	0.00
11.25	0.76	0.01	0.01
11.50	0.84	0.01	0.02
11.75	1.00	0.04	0.05
12.00	1.40	0.15	**0.19**
12.25	1.81	0.32	**0.34**
12.50	1.97	0.40	0.18
12.75	2.05	0.44	0.09
13.00	2.11	0.47	0.07
13.25	2.16	0.50	0.06
13.50	2.20	0.52	0.05
13.75	2.24	0.54	0.05
14.00	2.28	0.56	0.04
14.25	2.31	0.58	0.04
14.50	2.34	0.60	0.04
14.75	2.37	0.62	0.04
15.00	2.40	0.64	0.03
15.25	2.43	0.65	0.03
15.50	2.45	0.66	0.03
15.75	2.47	0.68	0.03
16.00	2.49	0.69	0.02
16.25	2.51	0.70	0.02
16.50	2.52	0.71	0.02
16.75	2.54	0.72	0.02
17.00	2.56	0.73	0.02
17.25	2.57	0.74	0.02
17.50	2.58	0.75	0.02
17.75	2.60	0.75	0.02
18.00	2.61	0.76	0.02
18.25	2.62	0.77	0.01
18.50	2.63	0.77	0.01
18.75	2.64	0.78	0.01
19.00	2.65	0.79	0.01
19.25	2.66	0.79	0.01
19.50	2.67	0.80	0.01
19.75	2.68	0.81	0.01
20.00	**2.69**	**0.81**	0.01

Summary for Subcatchment 6S: Proposed Front

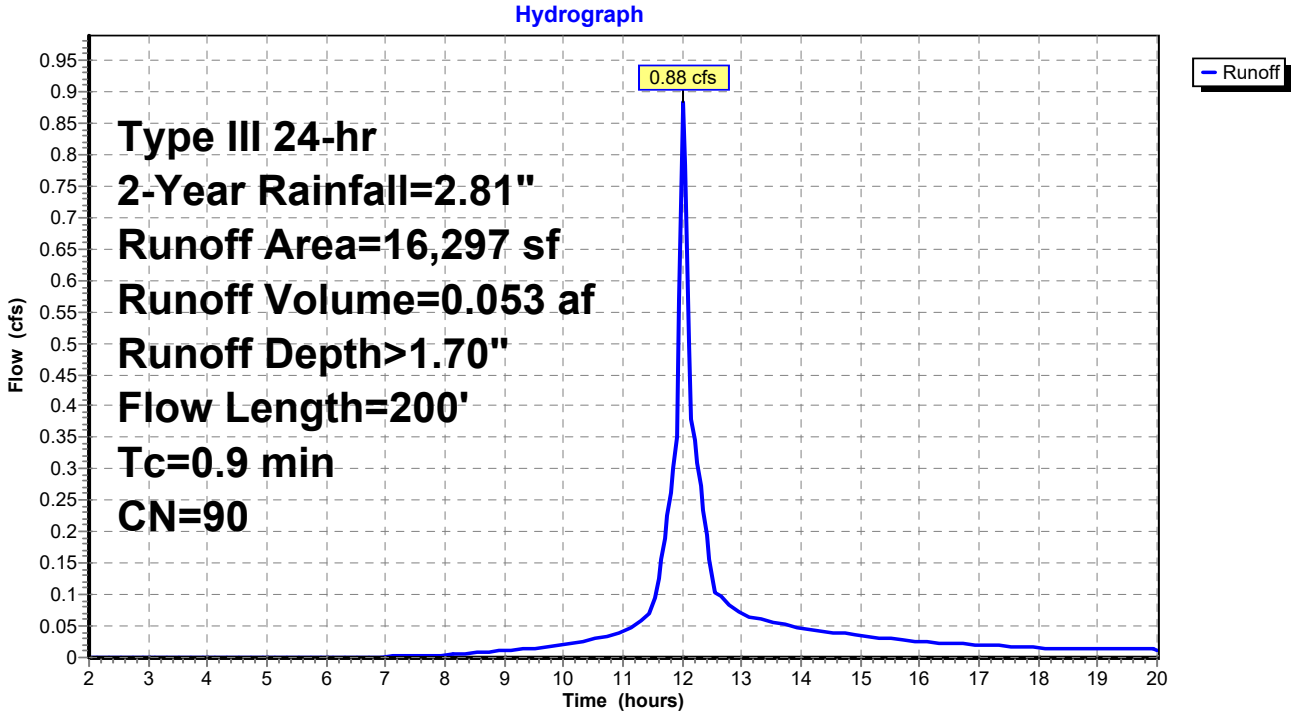
Runoff = 0.88 cfs @ 12.01 hrs, Volume= 0.053 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	431	98	Building
*	10,439	98	Pavement and Concrete
	5,427	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	16,297	90	Weighted Average
	5,427		33.30% Pervious Area
	10,870		66.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0700	1.85		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.80"
0.4	150	0.1200	7.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.9	200	Total			

Subcatchment 6S: Proposed Front



Hydrograph for Subcatchment 6S: Proposed Front

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.06	0.00	0.00
2.25	0.06	0.00	0.00
2.50	0.07	0.00	0.00
2.75	0.08	0.00	0.00
3.00	0.09	0.00	0.00
3.25	0.09	0.00	0.00
3.50	0.10	0.00	0.00
3.75	0.11	0.00	0.00
4.00	0.12	0.00	0.00
4.25	0.13	0.00	0.00
4.50	0.14	0.00	0.00
4.75	0.15	0.00	0.00
5.00	0.16	0.00	0.00
5.25	0.17	0.00	0.00
5.50	0.18	0.00	0.00
5.75	0.19	0.00	0.00
6.00	0.20	0.00	0.00
6.25	0.21	0.00	0.00
6.50	0.23	0.00	0.00
6.75	0.24	0.00	0.00
7.00	0.25	0.00	0.00
7.25	0.27	0.00	0.00
7.50	0.29	0.00	0.00
7.75	0.30	0.01	0.00
8.00	0.32	0.01	0.00
8.25	0.34	0.01	0.01
8.50	0.36	0.02	0.01
8.75	0.38	0.02	0.01
9.00	0.41	0.03	0.01
9.25	0.44	0.03	0.01
9.50	0.47	0.04	0.01
9.75	0.50	0.05	0.02
10.00	0.53	0.07	0.02
10.25	0.57	0.08	0.02
10.50	0.61	0.10	0.03
10.75	0.65	0.12	0.03
11.00	0.70	0.14	0.04
11.25	0.76	0.18	0.05
11.50	0.84	0.22	0.07
11.75	1.00	0.32	0.22
12.00	1.40	0.61	**0.87**
12.25	1.81	0.94	0.31
12.50	1.97	1.07	0.12
12.75	2.05	1.14	0.09
13.00	2.11	1.19	0.07
13.25	2.16	1.23	0.06
13.50	2.20	1.27	0.06
13.75	2.24	1.30	0.05
14.00	2.28	1.34	0.05
14.25	2.31	1.36	0.04
14.50	2.34	1.39	0.04
14.75	2.37	1.42	0.04
15.00	2.40	1.44	0.04
15.25	2.43	1.46	0.03
15.50	2.45	1.49	0.03
15.75	2.47	1.50	0.03
16.00	2.49	1.52	0.02
16.25	2.51	1.54	0.02
16.50	2.52	1.55	0.02
16.75	2.54	1.57	0.02
17.00	2.56	1.58	0.02
17.25	2.57	1.59	0.02
17.50	2.58	1.61	0.02
17.75	2.60	1.62	0.02
18.00	2.61	1.63	0.02
18.25	2.62	1.64	0.01
18.50	2.63	1.65	0.01
18.75	2.64	1.66	0.01
19.00	2.65	1.67	0.01
19.25	2.66	1.68	0.01
19.50	2.67	1.68	0.01
19.75	2.68	1.69	0.01
20.00	**2.69**	**1.70**	0.01

Summary for Pond 7P: Basin North

Inflow Area = 4.153 ac, 48.83% Impervious, Inflow Depth > 1.33" for 2-Year event
Inflow = 5.74 cfs @ 12.16 hrs, Volume= 0.459 af
Outflow = 2.67 cfs @ 12.46 hrs, Volume= 0.407 af, Atten= 53%, Lag= 17.6 min
Primary = 2.67 cfs @ 12.46 hrs, Volume= 0.407 af
Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,334.23' @ 12.46 hrs Surf.Area= 3,763 sf Storage= 7,450 cf

Plug-Flow detention time= 105.6 min calculated for 0.405 af (88% of inflow)
Center-of-Mass det. time= 70.6 min (870.3 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	23,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

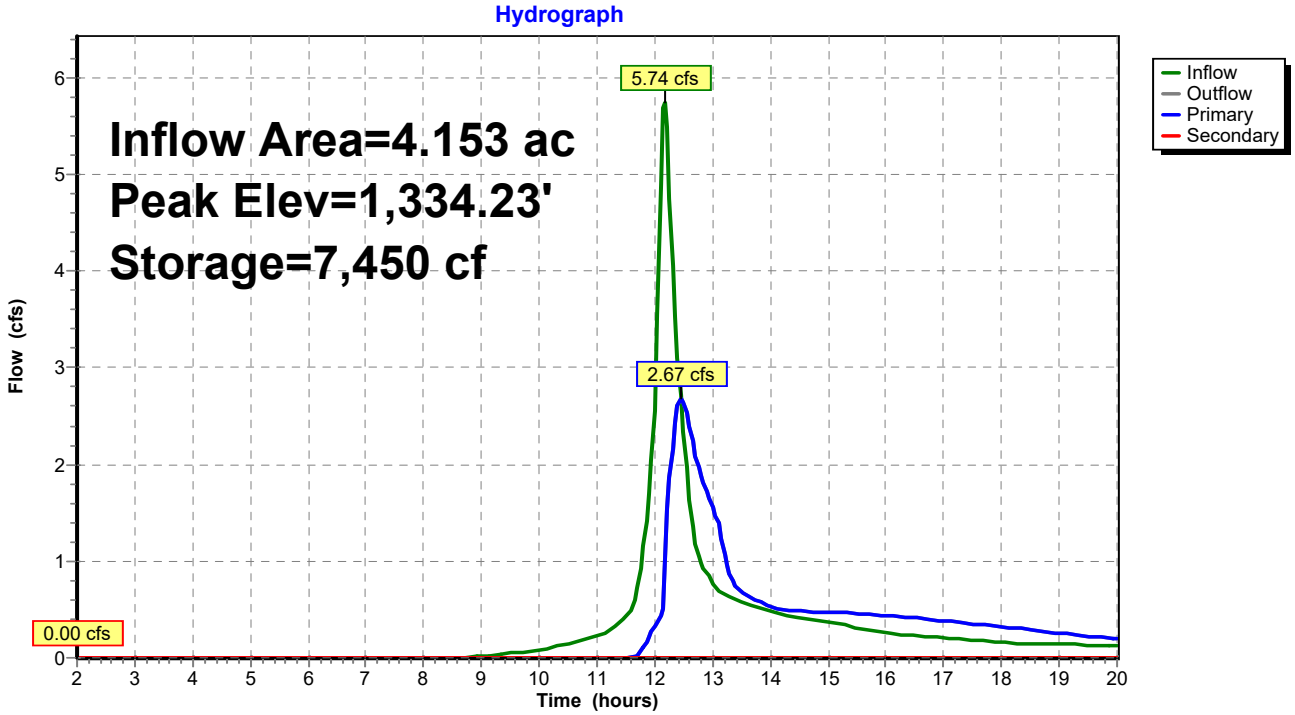
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	1,225	0	0
1,332.00	1,840	1,533	1,533
1,333.00	2,530	2,185	3,718
1,334.00	3,300	2,915	6,633
1,334.10	3,500	340	6,972
1,335.00	5,300	3,960	10,933
1,336.00	6,400	5,850	16,783
1,337.00	7,530	6,965	23,748

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Vert. Orifice** C= 0.600
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,335.90'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,334.00'	**12.0" Round Secondary Outlet Culvert X 0.00** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,334.00' / 1,330.00' S= 0.1333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#6	Secondary	1,335.60'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Device 1	1,334.00'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=2.67 cfs @ 12.46 hrs HW=1,334.23' (Free Discharge)
- **1=Primary Outlet Culvert** (Passes 2.67 cfs of 6.49 cfs potential flow)
  - **2=Orifice** (Orifice Controls 0.60 cfs @ 6.92 fps)
  - **3=Orifice** (Orifice Controls 1.62 cfs @ 4.11 fps)
  - **4=Grate** (Controls 0.00 cfs)
  - **7=Orifice/Grate** (Orifice Controls 0.45 cfs @ 1.63 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=1,331.00' (Free Discharge)
- **5=Secondary Outlet Culvert** (Controls 0.00 cfs)
- **6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: Basin North



Hydrograph for Pond 7P: Basin North

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	**0.00**
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.00	0	1,331.00	0.00	0.00	0.00
5.50	0.00	0	1,331.00	0.00	0.00	0.00
6.00	0.00	0	1,331.00	0.00	0.00	0.00
6.50	0.00	0	1,331.00	0.00	0.00	0.00
7.00	0.00	0	1,331.00	0.00	0.00	0.00
7.50	0.00	0	1,331.00	0.00	0.00	0.00
8.00	0.00	0	1,331.00	0.00	0.00	0.00
8.50	0.00	0	1,331.00	0.00	0.00	0.00
9.00	0.02	13	1,331.01	0.00	0.00	0.00
9.50	0.05	70	1,331.06	0.00	0.00	0.00
10.00	0.09	188	1,331.15	0.00	0.00	0.00
10.50	0.14	388	1,331.29	0.00	0.00	0.00
11.00	0.23	717	1,331.52	0.00	0.00	0.00
11.50	0.43	1,271	1,331.85	0.00	0.00	0.00
12.00	**2.56**	**3,078**	**1,332.74**	**0.32**	**0.32**	0.00
12.50	**2.34**	**7,425**	**1,334.22**	**2.64**	**2.64**	0.00
13.00	0.78	5,971	1,333.79	1.56	1.56	0.00
13.50	0.58	5,279	1,333.57	0.69	0.69	0.00
14.00	0.48	5,151	1,333.52	0.53	0.53	0.00
14.50	0.41	5,047	1,333.49	0.48	0.48	0.00
15.00	0.36	4,887	1,333.43	0.47	0.47	0.00
15.50	0.31	4,659	1,333.35	0.46	0.46	0.00
16.00	0.26	4,372	1,333.25	0.44	0.44	0.00
16.50	0.23	4,044	1,333.13	0.41	0.41	0.00
17.00	0.21	3,720	1,333.00	0.38	0.38	0.00
17.50	0.18	3,407	1,332.88	0.35	0.35	0.00
18.00	0.16	3,109	1,332.75	0.32	0.32	0.00
18.50	0.15	2,836	1,332.63	0.29	0.29	0.00
19.00	0.14	2,609	1,332.53	0.25	0.25	0.00
19.50	0.13	2,428	1,332.45	0.22	0.22	0.00
20.00	0.13	2,287	1,332.38	0.20	0.20	0.00

Summary for Pond 8P: Basin Central

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 6.17 cfs @ 12.17 hrs, Volume= 0.501 af
Outflow = 2.42 cfs @ 12.53 hrs, Volume= 0.440 af, Atten= 61%, Lag= 21.7 min
Primary = 2.42 cfs @ 12.53 hrs, Volume= 0.440 af
Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,334.38' @ 12.53 hrs Surf.Area= 5,426 sf Storage= 7,893 cf

Plug-Flow detention time= 99.2 min calculated for 0.439 af (88% of inflow)
Center-of-Mass det. time= 62.7 min (870.4 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	26,218 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

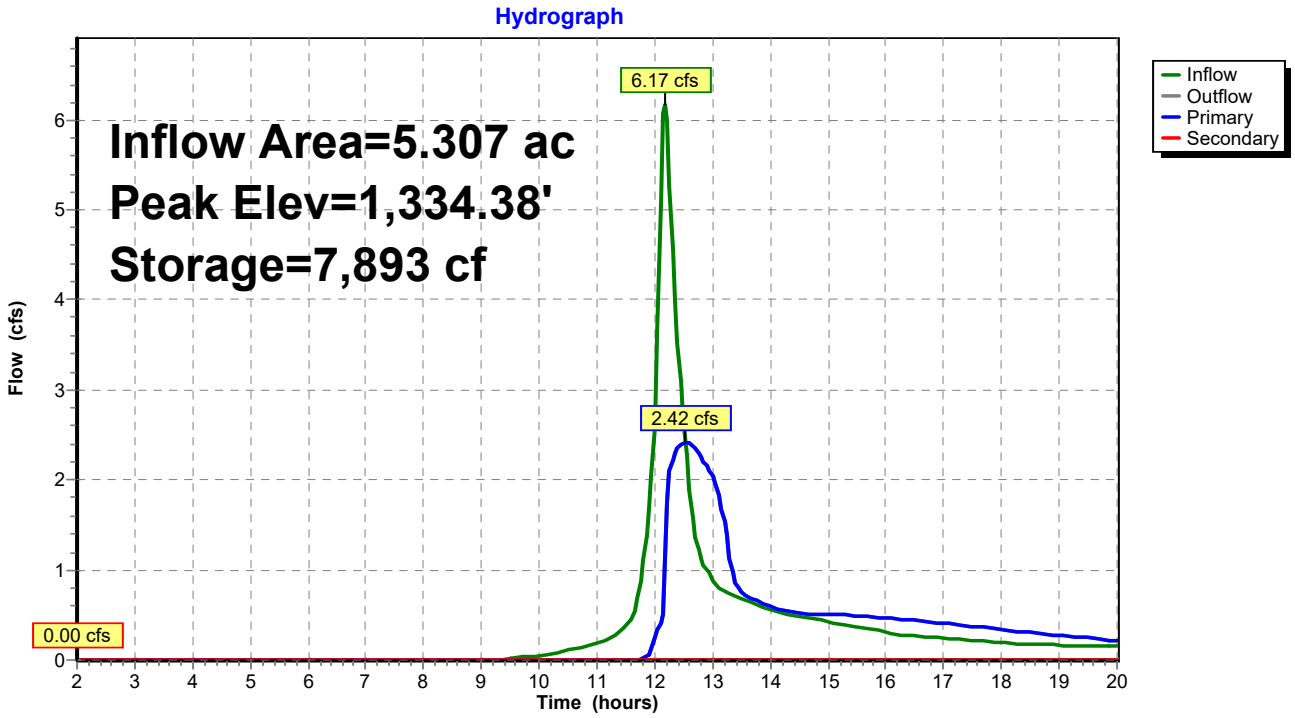
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	2,114	0	0
1,334.00	1,940	6,081	6,081
1,334.10	5,094	352	6,433
1,336.00	7,366	11,837	18,270
1,337.00	8,531	7,949	26,218

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0250 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Horiz. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,336.50'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,336.20'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.42 cfs @ 12.53 hrs HW=1,334.38' (Free Discharge)
└─**1=Primary Outlet Culvert** (Passes 2.42 cfs of 6.59 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.65 cfs @ 7.42 fps)
  ├─**3=Orifice** (Orifice Controls 1.77 cfs @ 4.51 fps)
  └─**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=1,331.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 8P: Basin Central



Hydrograph for Pond 8P: Basin Central

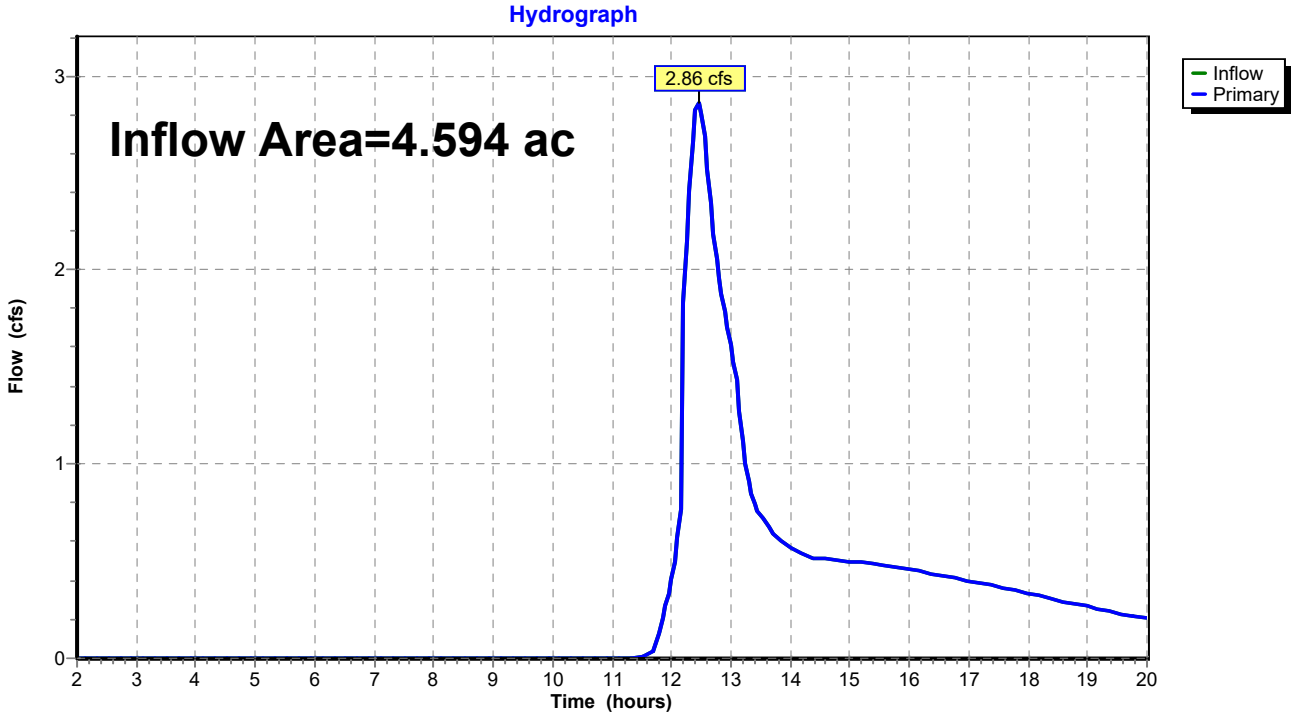
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	**0.00**
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.00	0	1,331.00	0.00	0.00	0.00
5.50	0.00	0	1,331.00	0.00	0.00	0.00
6.00	0.00	0	1,331.00	0.00	0.00	0.00
6.50	0.00	0	1,331.00	0.00	0.00	0.00
7.00	0.00	0	1,331.00	0.00	0.00	0.00
7.50	0.00	0	1,331.00	0.00	0.00	0.00
8.00	0.00	0	1,331.00	0.00	0.00	0.00
8.50	0.00	0	1,331.00	0.00	0.00	0.00
9.00	0.00	0	1,331.00	0.00	0.00	0.00
9.50	0.02	10	1,331.00	0.00	0.00	0.00
10.00	0.05	71	1,331.03	0.00	0.00	0.00
10.50	0.10	207	1,331.10	0.00	0.00	0.00
11.00	0.19	462	1,331.22	0.00	0.00	0.00
11.50	0.39	943	1,331.45	0.00	0.00	0.00
12.00	**2.59**	2,812	1,332.36	0.25	0.25	0.00
12.50	**2.68**	**7,879**	**1,334.37**	**2.42**	**2.42**	0.00
13.00	0.90	**6,336**	**1,334.08**	**2.04**	**2.04**	0.00
13.50	0.67	5,257	1,333.58	0.75	0.75	0.00
14.00	0.56	5,170	1,333.53	0.60	0.60	0.00
14.50	0.48	5,108	1,333.50	0.52	0.52	0.00
15.00	0.43	5,005	1,333.45	0.51	0.51	0.00
15.50	0.37	4,822	1,333.36	0.49	0.49	0.00
16.00	0.31	4,569	1,333.23	0.47	0.47	0.00
16.50	0.27	4,269	1,333.08	0.44	0.44	0.00
17.00	0.24	3,971	1,332.93	0.41	0.41	0.00
17.50	0.22	3,684	1,332.79	0.37	0.37	0.00
18.00	0.19	3,408	1,332.65	0.34	0.34	0.00
18.50	0.17	3,153	1,332.52	0.30	0.30	0.00
19.00	0.17	2,941	1,332.42	0.27	0.27	0.00
19.50	0.16	2,770	1,332.33	0.24	0.24	0.00
20.00	0.15	2,634	1,332.27	0.22	0.22	0.00

Summary for Link 4L: DP 1

Inflow Area = 4.594 ac, 44.20% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 2.86 cfs @ 12.45 hrs, Volume= 0.433 af
Primary = 2.86 cfs @ 12.45 hrs, Volume= 0.433 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

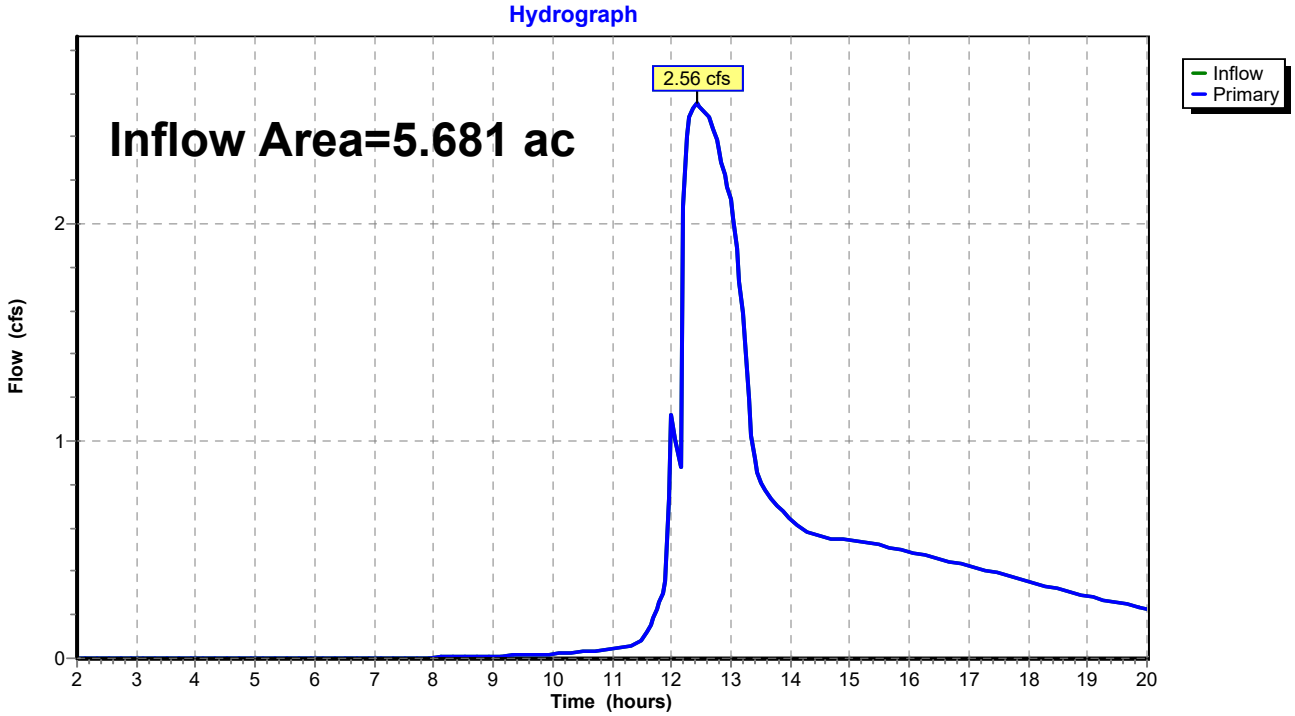
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.50	0.00	0.50
2.25	0.00	0.00	0.00	15.25	0.49	0.00	0.49
2.50	0.00	0.00	0.00	15.50	0.48	0.00	0.48
2.75	0.00	0.00	0.00	15.75	0.47	0.00	0.47
3.00	0.00	0.00	0.00	16.00	0.46	0.00	0.46
3.25	0.00	0.00	0.00	16.25	0.44	0.00	0.44
3.50	0.00	0.00	0.00	16.50	0.43	0.00	0.43
3.75	0.00	0.00	0.00	16.75	0.41	0.00	0.41
4.00	0.00	0.00	0.00	17.00	0.40	0.00	0.40
4.25	0.00	0.00	0.00	17.25	0.38	0.00	0.38
4.50	0.00	0.00	0.00	17.50	0.37	0.00	0.37
4.75	0.00	0.00	0.00	17.75	0.35	0.00	0.35
5.00	0.00	0.00	0.00	18.00	0.33	0.00	0.33
5.25	0.00	0.00	0.00	18.25	0.32	0.00	0.32
5.50	0.00	0.00	0.00	18.50	0.30	0.00	0.30
5.75	0.00	0.00	0.00	18.75	0.28	0.00	0.28
6.00	0.00	0.00	0.00	19.00	0.26	0.00	0.26
6.25	0.00	0.00	0.00	19.25	0.25	0.00	0.25
6.50	0.00	0.00	0.00	19.50	0.23	0.00	0.23
6.75	0.00	0.00	0.00	19.75	0.22	0.00	0.22
7.00	0.00	0.00	0.00	20.00	0.21	0.00	0.21
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.06	0.00	0.06				
12.00	0.41	0.00	0.41				
12.25	**2.15**	0.00	**2.15**				
12.50	**2.81**	0.00	**2.81**				
12.75	2.05	0.00	2.05				
13.00	1.62	0.00	1.62				
13.25	1.00	0.00	1.00				
13.50	0.73	0.00	0.73				
13.75	0.64	0.00	0.64				
14.00	0.57	0.00	0.57				
14.25	0.53	0.00	0.53				
14.50	0.51	0.00	0.51				
14.75	0.51	0.00	0.51				

Summary for Link 5L: DP 2

Inflow Area = 5.681 ac, 34.10% Impervious, Inflow Depth > 1.04" for 2-Year event
Inflow = 2.56 cfs @ 12.42 hrs, Volume= 0.493 af
Primary = 2.56 cfs @ 12.42 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

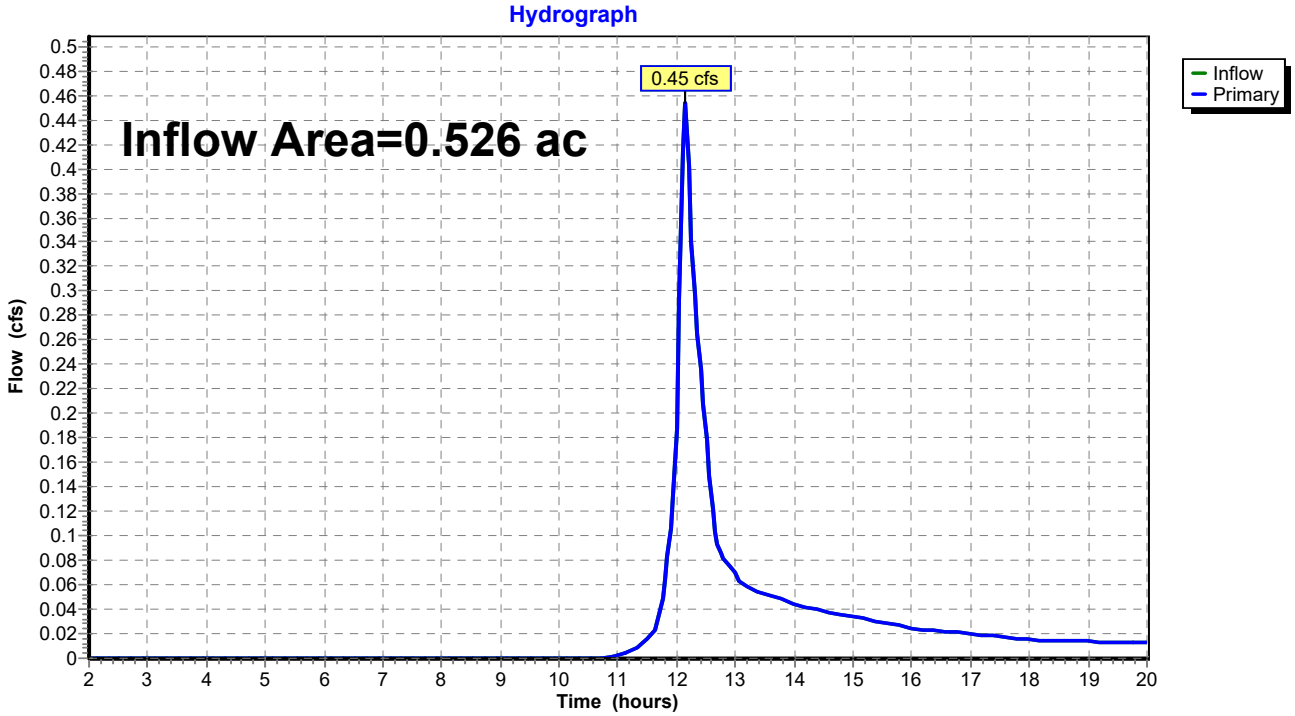
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.54	0.00	0.54
2.25	0.00	0.00	0.00	15.25	0.53	0.00	0.53
2.50	0.00	0.00	0.00	15.50	0.52	0.00	0.52
2.75	0.00	0.00	0.00	15.75	0.51	0.00	0.51
3.00	0.00	0.00	0.00	16.00	0.49	0.00	0.49
3.25	0.00	0.00	0.00	16.25	0.47	0.00	0.47
3.50	0.00	0.00	0.00	16.50	0.46	0.00	0.46
3.75	0.00	0.00	0.00	16.75	0.44	0.00	0.44
4.00	0.00	0.00	0.00	17.00	0.43	0.00	0.43
4.25	0.00	0.00	0.00	17.25	0.41	0.00	0.41
4.50	0.00	0.00	0.00	17.50	0.39	0.00	0.39
4.75	0.00	0.00	0.00	17.75	0.37	0.00	0.37
5.00	0.00	0.00	0.00	18.00	0.35	0.00	0.35
5.25	0.00	0.00	0.00	18.25	0.34	0.00	0.34
5.50	0.00	0.00	0.00	18.50	0.32	0.00	0.32
5.75	0.00	0.00	0.00	18.75	0.30	0.00	0.30
6.00	0.00	0.00	0.00	19.00	0.29	0.00	0.29
6.25	0.00	0.00	0.00	19.25	0.27	0.00	0.27
6.50	0.00	0.00	0.00	19.50	0.26	0.00	0.26
6.75	0.00	0.00	0.00	19.75	0.24	0.00	0.24
7.00	0.00	0.00	0.00	20.00	0.23	0.00	0.23
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
8.75	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.02	0.00	0.02				
10.00	0.02	0.00	0.02				
10.25	0.02	0.00	0.02				
10.50	0.03	0.00	0.03				
10.75	0.03	0.00	0.03				
11.00	0.04	0.00	0.04				
11.25	0.05	0.00	0.05				
11.50	0.07	0.00	0.07				
11.75	0.22	0.00	0.22				
12.00	1.12	0.00	1.12				
12.25	**2.40**	0.00	**2.40**				
12.50	**2.54**	0.00	**2.54**				
12.75	2.39	0.00	2.39				
13.00	2.11	0.00	2.11				
13.25	1.45	0.00	1.45				
13.50	0.81	0.00	0.81				
13.75	0.71	0.00	0.71				
14.00	0.64	0.00	0.64				
14.25	0.59	0.00	0.59				
14.50	0.56	0.00	0.56				
14.75	0.55	0.00	0.55				

Summary for Link 6L: DP 3

Inflow Area = 0.526 ac, 8.30% Impervious, Inflow Depth > 0.81" for 2-Year event
Inflow = 0.45 cfs @ 12.15 hrs, Volume= 0.035 af
Primary = 0.45 cfs @ 12.15 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

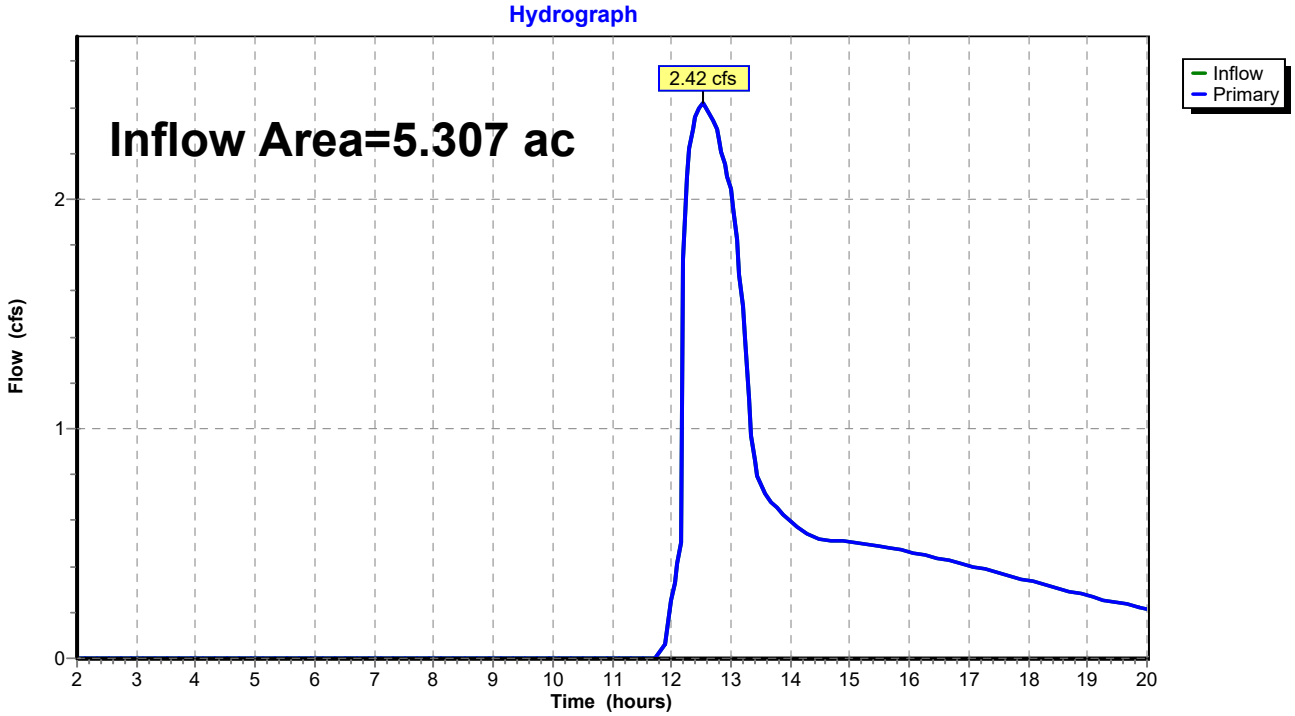
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.03	0.00	0.03
2.25	0.00	0.00	0.00	15.25	0.03	0.00	0.03
2.50	0.00	0.00	0.00	15.50	0.03	0.00	0.03
2.75	0.00	0.00	0.00	15.75	0.03	0.00	0.03
3.00	0.00	0.00	0.00	16.00	0.02	0.00	0.02
3.25	0.00	0.00	0.00	16.25	0.02	0.00	0.02
3.50	0.00	0.00	0.00	16.50	0.02	0.00	0.02
3.75	0.00	0.00	0.00	16.75	0.02	0.00	0.02
4.00	0.00	0.00	0.00	17.00	0.02	0.00	0.02
4.25	0.00	0.00	0.00	17.25	0.02	0.00	0.02
4.50	0.00	0.00	0.00	17.50	0.02	0.00	0.02
4.75	0.00	0.00	0.00	17.75	0.02	0.00	0.02
5.00	0.00	0.00	0.00	18.00	0.02	0.00	0.02
5.25	0.00	0.00	0.00	18.25	0.01	0.00	0.01
5.50	0.00	0.00	0.00	18.50	0.01	0.00	0.01
5.75	0.00	0.00	0.00	18.75	0.01	0.00	0.01
6.00	0.00	0.00	0.00	19.00	0.01	0.00	0.01
6.25	0.00	0.00	0.00	19.25	0.01	0.00	0.01
6.50	0.00	0.00	0.00	19.50	0.01	0.00	0.01
6.75	0.00	0.00	0.00	19.75	0.01	0.00	0.01
7.00	0.00	0.00	0.00	20.00	0.01	0.00	0.01
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.01	0.00	0.01				
11.50	0.02	0.00	0.02				
11.75	0.05	0.00	0.05				
12.00	**0.19**	0.00	**0.19**				
12.25	**0.34**	0.00	**0.34**				
12.50	0.18	0.00	0.18				
12.75	0.09	0.00	0.09				
13.00	0.07	0.00	0.07				
13.25	0.06	0.00	0.06				
13.50	0.05	0.00	0.05				
13.75	0.05	0.00	0.05				
14.00	0.04	0.00	0.04				
14.25	0.04	0.00	0.04				
14.50	0.04	0.00	0.04				
14.75	0.04	0.00	0.04				

Summary for Link 11L: DMH

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 1.00" for 2-Year event
Inflow = 2.42 cfs @ 12.53 hrs, Volume= 0.440 af
Primary = 2.42 cfs @ 12.53 hrs, Volume= 0.440 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 11L: DMH



Hydrograph for Link 11L: DMH

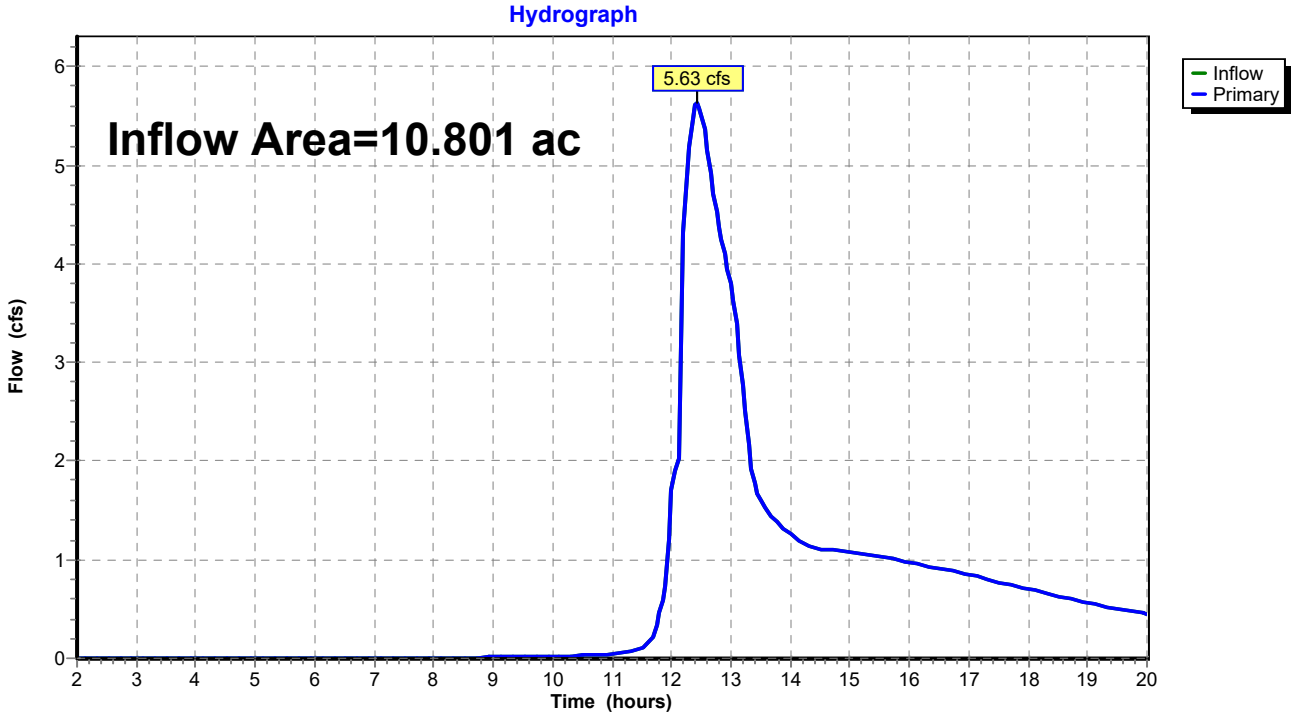
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.51	0.00	0.51
2.25	0.00	0.00	0.00	15.25	0.50	0.00	0.50
2.50	0.00	0.00	0.00	15.50	0.49	0.00	0.49
2.75	0.00	0.00	0.00	15.75	0.48	0.00	0.48
3.00	0.00	0.00	0.00	16.00	0.47	0.00	0.47
3.25	0.00	0.00	0.00	16.25	0.45	0.00	0.45
3.50	0.00	0.00	0.00	16.50	0.44	0.00	0.44
3.75	0.00	0.00	0.00	16.75	0.42	0.00	0.42
4.00	0.00	0.00	0.00	17.00	0.41	0.00	0.41
4.25	0.00	0.00	0.00	17.25	0.39	0.00	0.39
4.50	0.00	0.00	0.00	17.50	0.37	0.00	0.37
4.75	0.00	0.00	0.00	17.75	0.36	0.00	0.36
5.00	0.00	0.00	0.00	18.00	0.34	0.00	0.34
5.25	0.00	0.00	0.00	18.25	0.32	0.00	0.32
5.50	0.00	0.00	0.00	18.50	0.30	0.00	0.30
5.75	0.00	0.00	0.00	18.75	0.29	0.00	0.29
6.00	0.00	0.00	0.00	19.00	0.27	0.00	0.27
6.25	0.00	0.00	0.00	19.25	0.26	0.00	0.26
6.50	0.00	0.00	0.00	19.50	0.24	0.00	0.24
6.75	0.00	0.00	0.00	19.75	0.23	0.00	0.23
7.00	0.00	0.00	0.00	20.00	0.22	0.00	0.22
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	0.25	0.00	0.25				
12.25	2.10	0.00	2.10				
12.50	**2.42**	0.00	**2.42**				
12.75	**2.30**	0.00	**2.30**				
13.00	2.04	0.00	2.04				
13.25	1.39	0.00	1.39				
13.50	0.75	0.00	0.75				
13.75	0.66	0.00	0.66				
14.00	0.60	0.00	0.60				
14.25	0.54	0.00	0.54				
14.50	0.52	0.00	0.52				
14.75	0.51	0.00	0.51				

Summary for Link 12L: (new Link)

Inflow Area = 10.801 ac, 37.14% Impervious, Inflow Depth > 1.07" for 2-Year event
Inflow = 5.63 cfs @ 12.43 hrs, Volume= 0.962 af
Primary = 5.63 cfs @ 12.43 hrs, Volume= 0.962 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 12L: (new Link)



Hydrograph for Link 12L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	1.08	0.00	1.08
2.25	0.00	0.00	0.00	15.25	1.05	0.00	1.05
2.50	0.00	0.00	0.00	15.50	1.03	0.00	1.03
2.75	0.00	0.00	0.00	15.75	1.00	0.00	1.00
3.00	0.00	0.00	0.00	16.00	0.97	0.00	0.97
3.25	0.00	0.00	0.00	16.25	0.94	0.00	0.94
3.50	0.00	0.00	0.00	16.50	0.91	0.00	0.91
3.75	0.00	0.00	0.00	16.75	0.88	0.00	0.88
4.00	0.00	0.00	0.00	17.00	0.84	0.00	0.84
4.25	0.00	0.00	0.00	17.25	0.81	0.00	0.81
4.50	0.00	0.00	0.00	17.50	0.78	0.00	0.78
4.75	0.00	0.00	0.00	17.75	0.74	0.00	0.74
5.00	0.00	0.00	0.00	18.00	0.70	0.00	0.70
5.25	0.00	0.00	0.00	18.25	0.67	0.00	0.67
5.50	0.00	0.00	0.00	18.50	0.63	0.00	0.63
5.75	0.00	0.00	0.00	18.75	0.60	0.00	0.60
6.00	0.00	0.00	0.00	19.00	0.56	0.00	0.56
6.25	0.00	0.00	0.00	19.25	0.53	0.00	0.53
6.50	0.00	0.00	0.00	19.50	0.50	0.00	0.50
6.75	0.00	0.00	0.00	19.75	0.47	0.00	0.47
7.00	0.00	0.00	0.00	20.00	0.45	0.00	0.45
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
8.75	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.02	0.00	0.02				
10.00	0.02	0.00	0.02				
10.25	0.02	0.00	0.02				
10.50	0.03	0.00	0.03				
10.75	0.03	0.00	0.03				
11.00	0.04	0.00	0.04				
11.25	0.06	0.00	0.06				
11.50	0.09	0.00	0.09				
11.75	0.34	0.00	0.34				
12.00	1.71	0.00	1.71				
12.25	**4.89**	0.00	**4.89**				
12.50	**5.52**	0.00	**5.52**				
12.75	4.53	0.00	4.53				
13.00	3.80	0.00	3.80				
13.25	2.51	0.00	2.51				
13.50	1.59	0.00	1.59				
13.75	1.40	0.00	1.40				
14.00	1.26	0.00	1.26				
14.25	1.16	0.00	1.16				
14.50	1.11	0.00	1.11				
14.75	1.09	0.00	1.09				

Summary for Subcatchment 1S: Remaining North

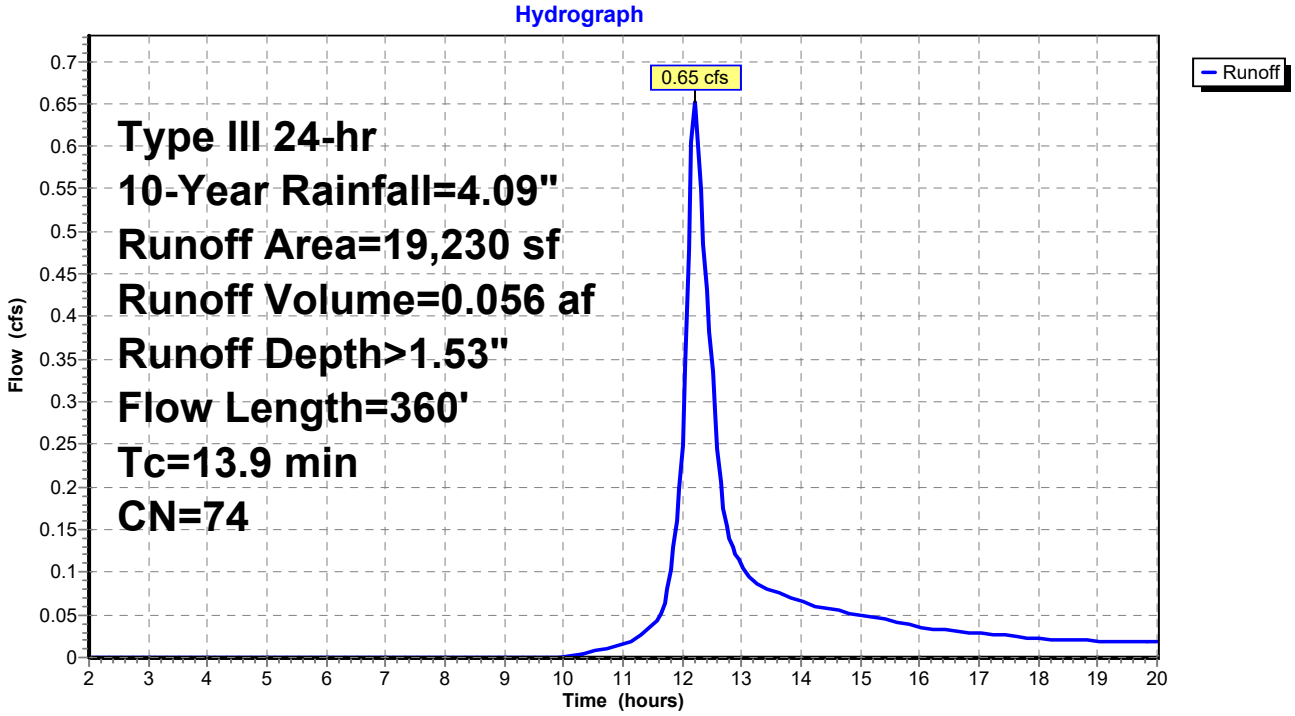
Runoff = 0.65 cfs @ 12.20 hrs, Volume= 0.056 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	0	98	Building
*	125	98	Pavement and Concrete
	12,705	74	>75% Grass cover, Good, HSG C
	6,400	73	Woods, Fair, HSG C
	19,230	74	Weighted Average
	19,105		99.35% Pervious Area
	125		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0400	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
3.9	310	0.0700	1.32		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
13.9	360	Total			

Subcatchment 1S: Remaining North



Hydrograph for Subcatchment 1S: Remaining North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.08	0.00	0.00
2.25	0.09	0.00	0.00
2.50	0.10	0.00	0.00
2.75	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.25	0.14	0.00	0.00
3.50	0.15	0.00	0.00
3.75	0.16	0.00	0.00
4.00	0.18	0.00	0.00
4.25	0.19	0.00	0.00
4.50	0.20	0.00	0.00
4.75	0.22	0.00	0.00
5.00	0.23	0.00	0.00
5.25	0.25	0.00	0.00
5.50	0.26	0.00	0.00
5.75	0.28	0.00	0.00
6.00	0.29	0.00	0.00
6.25	0.31	0.00	0.00
6.50	0.33	0.00	0.00
6.75	0.35	0.00	0.00
7.00	0.37	0.00	0.00
7.25	0.39	0.00	0.00
7.50	0.42	0.00	0.00
7.75	0.44	0.00	0.00
8.00	0.47	0.00	0.00
8.25	0.49	0.00	0.00
8.50	0.53	0.00	0.00
8.75	0.56	0.00	0.00
9.00	0.60	0.00	0.00
9.25	0.64	0.00	0.00
9.50	0.68	0.00	0.00
9.75	0.72	0.00	0.00
10.00	0.77	0.00	0.00
10.25	0.83	0.00	0.00
10.50	0.89	0.01	0.01
10.75	0.95	0.02	0.01
11.00	1.02	0.03	0.02
11.25	1.11	0.04	0.02
11.50	1.22	0.07	0.04
11.75	1.45	0.13	0.08
12.00	2.04	0.37	**0.25**
12.25	2.64	0.69	**0.62**
12.50	2.87	0.83	0.34
12.75	2.98	0.90	0.15
13.00	3.07	0.95	0.11
13.25	3.14	1.00	0.09
13.50	3.20	1.04	0.08
13.75	3.26	1.08	0.07
14.00	3.32	1.12	0.07
14.25	3.37	1.15	0.06
14.50	3.41	1.18	0.06
14.75	3.45	1.21	0.05
15.00	3.49	1.24	0.05
15.25	3.53	1.26	0.05
15.50	3.56	1.28	0.04
15.75	3.60	1.31	0.04
16.00	3.62	1.33	0.04
16.25	3.65	1.34	0.03
16.50	3.67	1.36	0.03
16.75	3.70	1.38	0.03
17.00	3.72	1.39	0.03
17.25	3.74	1.41	0.03
17.50	3.76	1.42	0.03
17.75	3.78	1.44	0.02
18.00	3.80	1.45	0.02
18.25	3.81	1.46	0.02
18.50	3.83	1.47	0.02
18.75	3.84	1.48	0.02
19.00	3.86	1.49	0.02
19.25	3.87	1.50	0.02
19.50	3.89	1.51	0.02
19.75	3.90	1.52	0.02
20.00	**3.91**	**1.53**	0.02

Summary for Subcatchment 2S: Proposed North

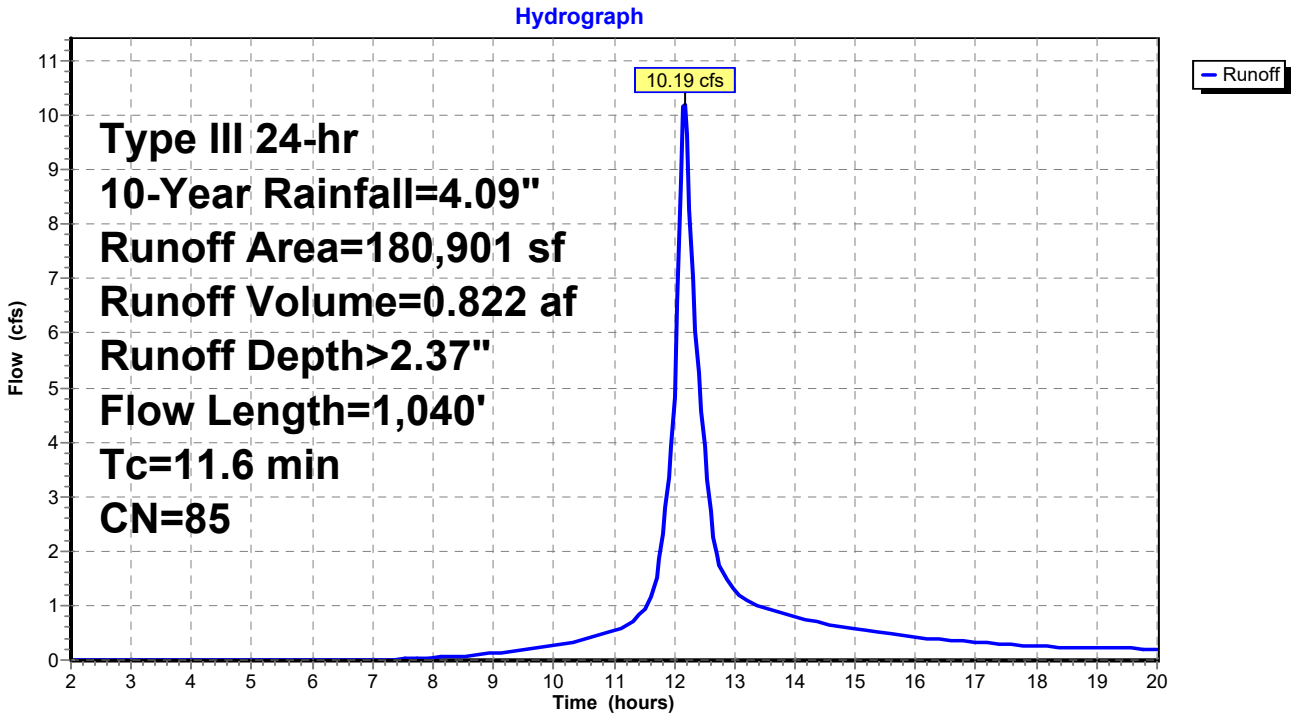
Runoff = 10.19 cfs @ 12.16 hrs, Volume= 0.822 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	28,702	98	Building
*	59,626	98	Pavement and Concrete
	49,289	74	>75% Grass cover, Good, HSG C
	43,284	73	Woods, Fair, HSG C
	180,901	85	Weighted Average
	92,573		51.17% Pervious Area
	88,328		48.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	20	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.9	20	0.0500	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 2.80"
0.9	100	0.0150	1.84		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.6	180	0.1200	5.20		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
2.5	680	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
11.6	1,040	Total			

Subcatchment 2S: Proposed North



Hydrograph for Subcatchment 2S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.08	0.00	0.00
2.25	0.09	0.00	0.00
2.50	0.10	0.00	0.00
2.75	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.25	0.14	0.00	0.00
3.50	0.15	0.00	0.00
3.75	0.16	0.00	0.00
4.00	0.18	0.00	0.00
4.25	0.19	0.00	0.00
4.50	0.20	0.00	0.00
4.75	0.22	0.00	0.00
5.00	0.23	0.00	0.00
5.25	0.25	0.00	0.00
5.50	0.26	0.00	0.00
5.75	0.28	0.00	0.00
6.00	0.29	0.00	0.00
6.25	0.31	0.00	0.00
6.50	0.33	0.00	0.00
6.75	0.35	0.00	0.00
7.00	0.37	0.00	0.00
7.25	0.39	0.00	0.01
7.50	0.42	0.00	0.02
7.75	0.44	0.00	0.03
8.00	0.47	0.01	0.04
8.25	0.49	0.01	0.06
8.50	0.53	0.02	0.08
8.75	0.56	0.02	0.10
9.00	0.60	0.03	0.13
9.25	0.64	0.04	0.16
9.50	0.68	0.05	0.19
9.75	0.72	0.06	0.22
10.00	0.77	0.08	0.26
10.25	0.83	0.10	0.31
10.50	0.89	0.12	0.38
10.75	0.95	0.15	0.45
11.00	1.02	0.18	0.53
11.25	1.11	0.23	0.67
11.50	1.22	0.29	0.92
11.75	1.45	0.42	1.88
12.00	2.04	0.83	**4.82**
12.25	2.64	1.29	**8.27**
12.50	2.87	1.48	3.93
12.75	2.98	1.57	1.75
13.00	3.07	1.65	1.29
13.25	3.14	1.71	1.05
13.50	3.20	1.76	0.95
13.75	3.26	1.81	0.87
14.00	3.32	1.86	0.78
14.25	3.37	1.90	0.71
14.50	3.41	1.94	0.67
14.75	3.45	1.98	0.63
15.00	3.49	2.01	0.59
15.25	3.53	2.04	0.55
15.50	3.56	2.07	0.51
15.75	3.60	2.10	0.46
16.00	3.62	2.12	0.42
16.25	3.65	2.15	0.39
16.50	3.67	2.17	0.37
16.75	3.70	2.19	0.35
17.00	3.72	2.21	0.33
17.25	3.74	2.23	0.31
17.50	3.76	2.24	0.29
17.75	3.78	2.26	0.27
18.00	3.80	2.28	0.26
18.25	3.81	2.29	0.24
18.50	3.83	2.30	0.24
18.75	3.84	2.32	0.23
19.00	3.86	2.33	0.22
19.25	3.87	2.34	0.22
19.50	3.89	2.36	0.21
19.75	3.90	2.37	0.21
20.00	**3.91**	**2.38**	0.20

Summary for Subcatchment 3S: Proposed Central

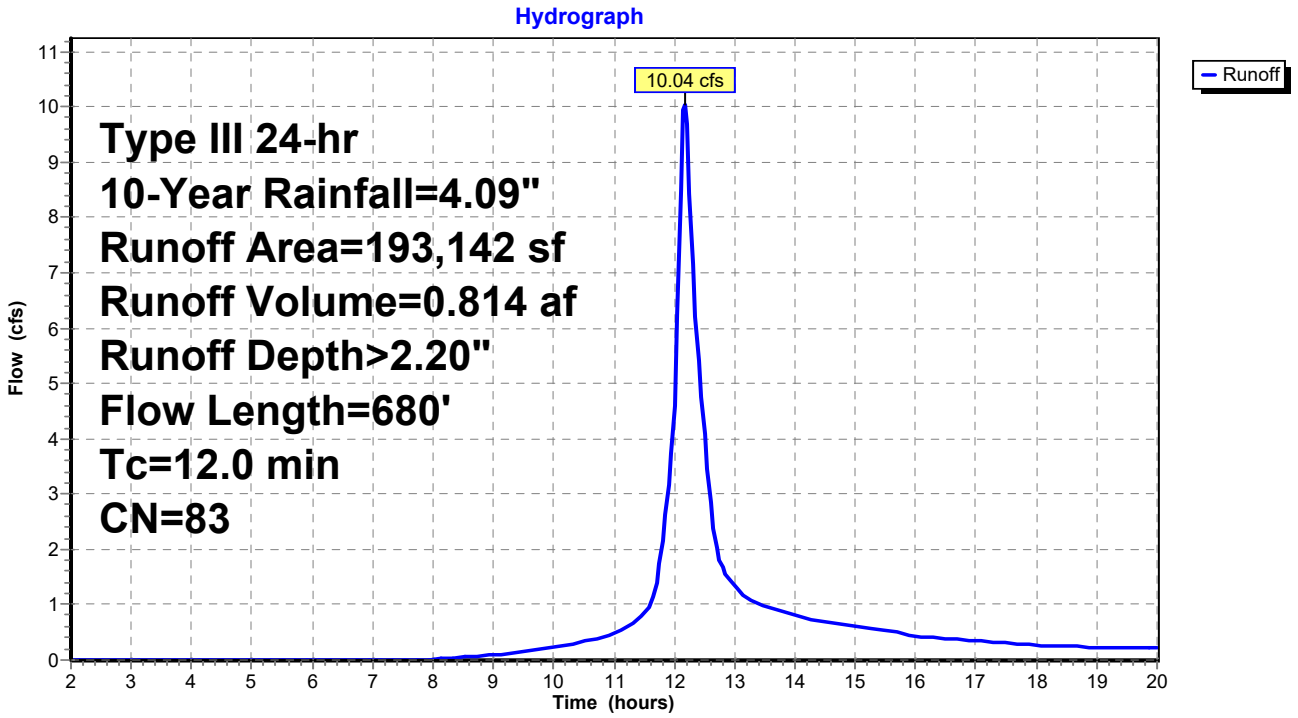
Runoff = 10.04 cfs @ 12.17 hrs, Volume= 0.814 af, Depth> 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	22,490	98	Building
*	47,709	98	Pavement and Concrete
	122,943	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	193,142	83	Weighted Average
	122,943		63.65% Pervious Area
	70,199		36.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.4	30	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.1	50	0.3300	8.62		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	70	0.1000	6.42		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.4	380	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
12.0	680	Total			

Subcatchment 3S: Proposed Central



Hydrograph for Subcatchment 3S: Proposed Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.08	0.00	0.00
2.25	0.09	0.00	0.00
2.50	0.10	0.00	0.00
2.75	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.25	0.14	0.00	0.00
3.50	0.15	0.00	0.00
3.75	0.16	0.00	0.00
4.00	0.18	0.00	0.00
4.25	0.19	0.00	0.00
4.50	0.20	0.00	0.00
4.75	0.22	0.00	0.00
5.00	0.23	0.00	0.00
5.25	0.25	0.00	0.00
5.50	0.26	0.00	0.00
5.75	0.28	0.00	0.00
6.00	0.29	0.00	0.00
6.25	0.31	0.00	0.00
6.50	0.33	0.00	0.00
6.75	0.35	0.00	0.00
7.00	0.37	0.00	0.00
7.25	0.39	0.00	0.00
7.50	0.42	0.00	0.00
7.75	0.44	0.00	0.01
8.00	0.47	0.00	0.02
8.25	0.49	0.00	0.03
8.50	0.53	0.01	0.05
8.75	0.56	0.01	0.07
9.00	0.60	0.02	0.09
9.25	0.64	0.02	0.12
9.50	0.68	0.03	0.15
9.75	0.72	0.04	0.18
10.00	0.77	0.05	0.22
10.25	0.83	0.07	0.27
10.50	0.89	0.09	0.33
10.75	0.95	0.11	0.40
11.00	1.02	0.14	0.48
11.25	1.11	0.18	0.61
11.50	1.22	0.23	0.85
11.75	1.45	0.35	1.75
12.00	2.04	0.73	**4.60**
12.25	2.64	1.16	**8.42**
12.50	2.87	1.34	4.08
12.75	2.98	1.43	1.82
13.00	3.07	1.50	1.33
13.25	3.14	1.56	1.08
13.50	3.20	1.61	0.98
13.75	3.26	1.66	0.89
14.00	3.32	1.71	0.81
14.25	3.37	1.75	0.74
14.50	3.41	1.78	0.69
14.75	3.45	1.82	0.65
15.00	3.49	1.85	0.61
15.25	3.53	1.88	0.57
15.50	3.56	1.91	0.52
15.75	3.60	1.94	0.48
16.00	3.62	1.96	0.44
16.25	3.65	1.99	0.40
16.50	3.67	2.01	0.38
16.75	3.70	2.03	0.36
17.00	3.72	2.04	0.34
17.25	3.74	2.06	0.32
17.50	3.76	2.08	0.30
17.75	3.78	2.10	0.28
18.00	3.80	2.11	0.27
18.25	3.81	2.12	0.25
18.50	3.83	2.14	0.24
18.75	3.84	2.15	0.24
19.00	3.86	2.16	0.23
19.25	3.87	2.18	0.23
19.50	3.89	2.19	0.22
19.75	3.90	2.20	0.22
20.00	**3.91**	**2.21**	0.21

Summary for Subcatchment 4S: Proposed South

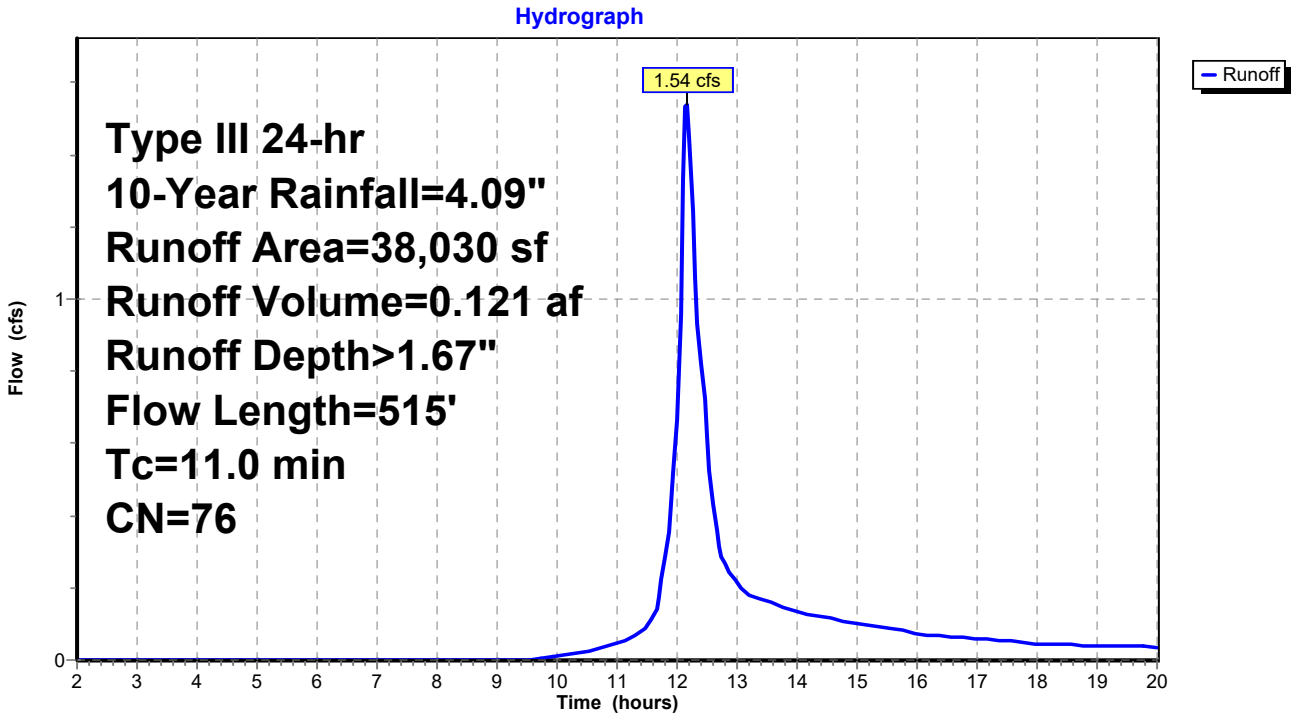
Runoff = 1.54 cfs @ 12.16 hrs, Volume= 0.121 af, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	3,100	98	Building
*	217	98	Pavement and Concrete
	34,713	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	38,030	76	Weighted Average
	34,713		91.28% Pervious Area
	3,317		8.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.1	15	0.1000	4.74		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.0	350	0.0400	5.90	12.38	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.10' D=1.00' Z= 2.0 '/' Top.W=4.10' n= 0.030 Earth, grassed & winding
11.0	515	Total			

Subcatchment 4S: Proposed South



Hydrograph for Subcatchment 4S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.08	0.00	0.00	15.00	3.49	1.36	0.10
2.25	0.09	0.00	0.00	15.25	3.53	1.39	0.10
2.50	0.10	0.00	0.00	15.50	3.56	1.41	0.09
2.75	0.11	0.00	0.00	15.75	3.60	1.44	0.08
3.00	0.13	0.00	0.00	16.00	3.62	1.46	0.07
3.25	0.14	0.00	0.00	16.25	3.65	1.47	0.07
3.50	0.15	0.00	0.00	16.50	3.67	1.49	0.06
3.75	0.16	0.00	0.00	16.75	3.70	1.51	0.06
4.00	0.18	0.00	0.00	17.00	3.72	1.53	0.06
4.25	0.19	0.00	0.00	17.25	3.74	1.54	0.06
4.50	0.20	0.00	0.00	17.50	3.76	1.56	0.05
4.75	0.22	0.00	0.00	17.75	3.78	1.57	0.05
5.00	0.23	0.00	0.00	18.00	3.80	1.58	0.05
5.25	0.25	0.00	0.00	18.25	3.81	1.60	0.04
5.50	0.26	0.00	0.00	18.50	3.83	1.61	0.04
5.75	0.28	0.00	0.00	18.75	3.84	1.62	0.04
6.00	0.29	0.00	0.00	19.00	3.86	1.63	0.04
6.25	0.31	0.00	0.00	19.25	3.87	1.64	0.04
6.50	0.33	0.00	0.00	19.50	3.89	1.65	0.04
6.75	0.35	0.00	0.00	19.75	3.90	1.66	0.04
7.00	0.37	0.00	0.00	20.00	**3.91**	**1.67**	0.04
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.49	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.72	0.00	0.01				
10.00	0.77	0.01	0.01				
10.25	0.83	0.01	0.02				
10.50	0.89	0.02	0.03				
10.75	0.95	0.03	0.03				
11.00	1.02	0.04	0.05				
11.25	1.11	0.06	0.06				
11.50	1.22	0.09	0.10				
11.75	1.45	0.17	0.23				
12.00	2.04	0.44	**0.67**				
12.25	2.64	0.78	**1.24**				
12.50	2.87	0.93	0.62				
12.75	2.98	1.00	0.28				
13.00	3.07	1.06	0.22				
13.25	3.14	1.11	0.18				
13.50	3.20	1.16	0.16				
13.75	3.26	1.20	0.15				
14.00	3.32	1.23	0.13				
14.25	3.37	1.27	0.12				
14.50	3.41	1.30	0.12				
14.75	3.45	1.33	0.11				

Summary for Subcatchment 5S: Proposed Highway

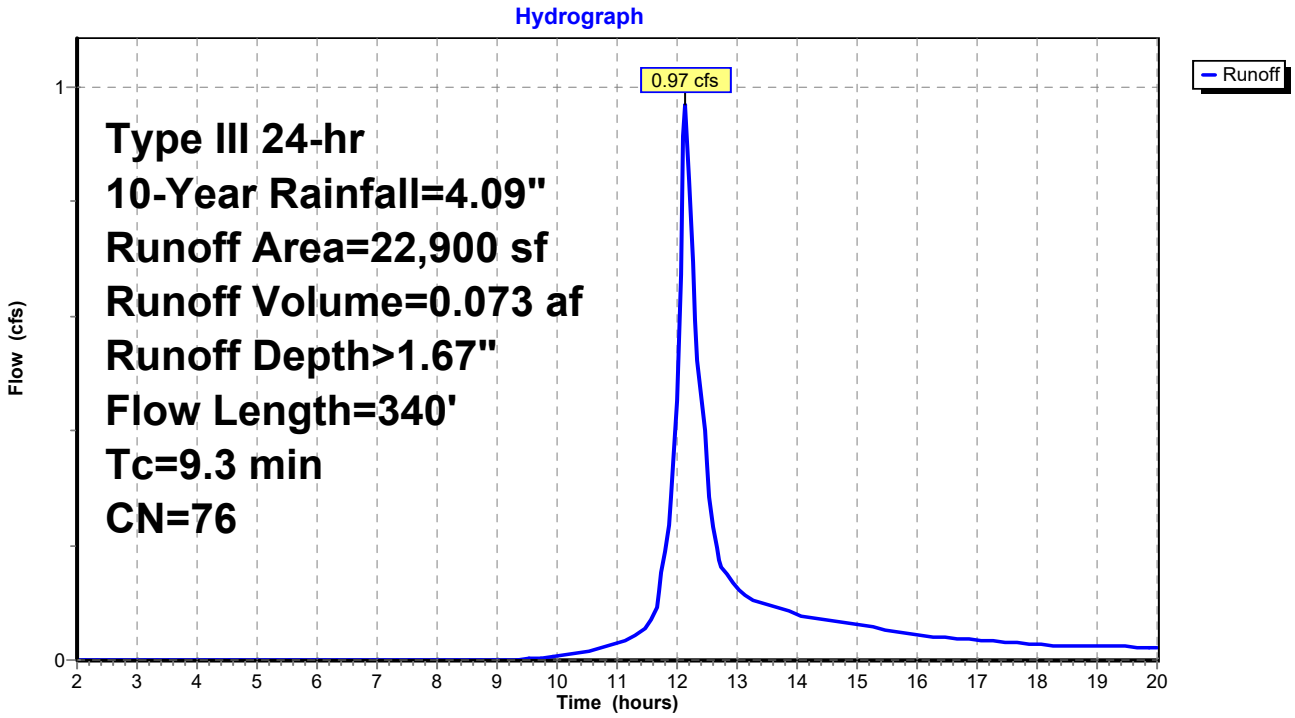
Runoff = 0.97 cfs @ 12.14 hrs, Volume= 0.073 af, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	0	98	Building
*	1,900	98	Pavement and Concrete
	15,700	74	>75% Grass cover, Good, HSG C
	5,300	73	Woods, Fair, HSG C
	22,900	76	Weighted Average
	21,000		91.70% Pervious Area
	1,900		8.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	40	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.0	20	0.5000	10.61		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	1.50		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	260	0.0200	2.87		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
9.3	340	Total			

Subcatchment 5S: Proposed Highway



Hydrograph for Subcatchment 5S: Proposed Highway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.08	0.00	0.00	15.00	3.49	1.36	0.06
2.25	0.09	0.00	0.00	15.25	3.53	1.39	0.06
2.50	0.10	0.00	0.00	15.50	3.56	1.41	0.05
2.75	0.11	0.00	0.00	15.75	3.60	1.44	0.05
3.00	0.13	0.00	0.00	16.00	3.62	1.46	0.04
3.25	0.14	0.00	0.00	16.25	3.65	1.47	0.04
3.50	0.15	0.00	0.00	16.50	3.67	1.49	0.04
3.75	0.16	0.00	0.00	16.75	3.70	1.51	0.04
4.00	0.18	0.00	0.00	17.00	3.72	1.53	0.04
4.25	0.19	0.00	0.00	17.25	3.74	1.54	0.03
4.50	0.20	0.00	0.00	17.50	3.76	1.56	0.03
4.75	0.22	0.00	0.00	17.75	3.78	1.57	0.03
5.00	0.23	0.00	0.00	18.00	3.80	1.58	0.03
5.25	0.25	0.00	0.00	18.25	3.81	1.60	0.03
5.50	0.26	0.00	0.00	18.50	3.83	1.61	0.03
5.75	0.28	0.00	0.00	18.75	3.84	1.62	0.02
6.00	0.29	0.00	0.00	19.00	3.86	1.63	0.02
6.25	0.31	0.00	0.00	19.25	3.87	1.64	0.02
6.50	0.33	0.00	0.00	19.50	3.89	1.65	0.02
6.75	0.35	0.00	0.00	19.75	3.90	1.66	0.02
7.00	0.37	0.00	0.00	20.00	**3.91**	**1.67**	0.02
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.49	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.72	0.00	0.00				
10.00	0.77	0.01	0.01				
10.25	0.83	0.01	0.01				
10.50	0.89	0.02	0.02				
10.75	0.95	0.03	0.02				
11.00	1.02	0.04	0.03				
11.25	1.11	0.06	0.04				
11.50	1.22	0.09	0.06				
11.75	1.45	0.17	0.15				
12.00	2.04	0.44	**0.45**				
12.25	2.64	0.78	**0.69**				
12.50	2.87	0.93	0.34				
12.75	2.98	1.00	0.16				
13.00	3.07	1.06	0.13				
13.25	3.14	1.11	0.11				
13.50	3.20	1.16	0.10				
13.75	3.26	1.20	0.09				
14.00	3.32	1.23	0.08				
14.25	3.37	1.27	0.07				
14.50	3.41	1.30	0.07				
14.75	3.45	1.33	0.07				

Summary for Subcatchment 6S: Proposed Front

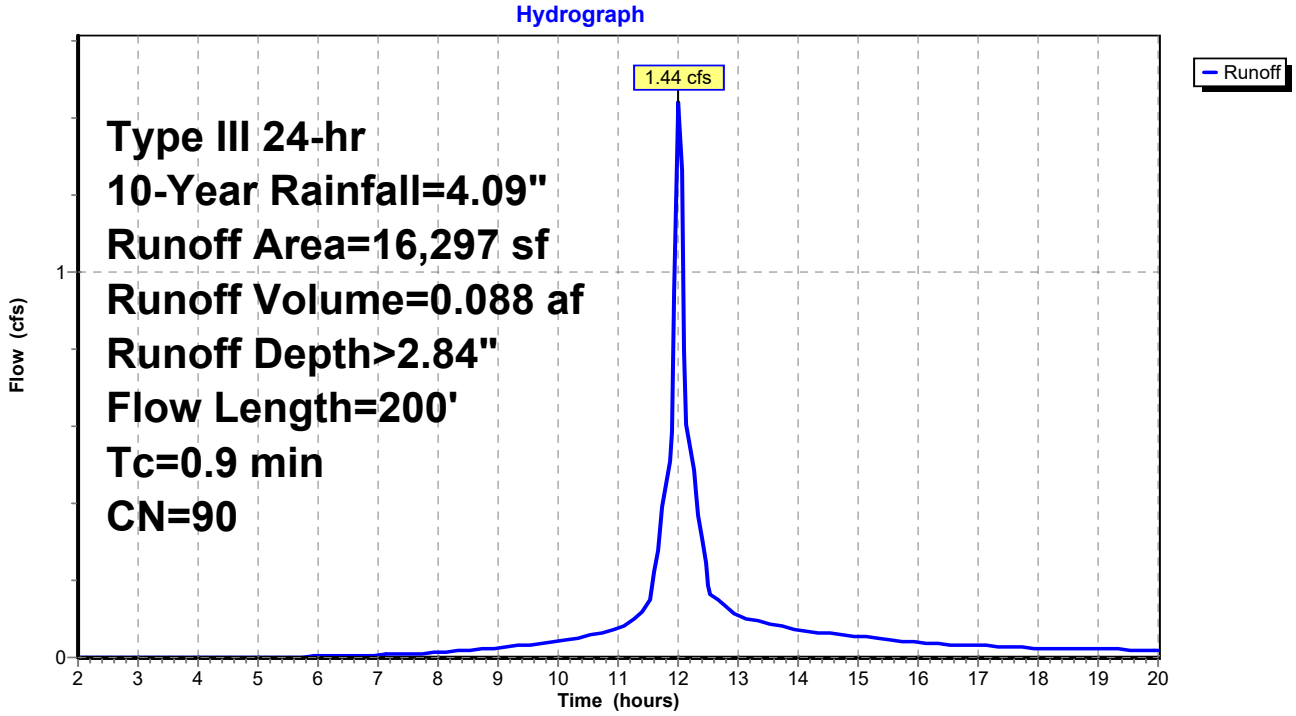
Runoff = 1.44 cfs @ 12.01 hrs, Volume= 0.088 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.09"

	Area (sf)	CN	Description
*	431	98	Building
*	10,439	98	Pavement and Concrete
	5,427	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	16,297	90	Weighted Average
	5,427		33.30% Pervious Area
	10,870		66.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0700	1.85		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.80"
0.4	150	0.1200	7.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.9	200	Total			

Subcatchment 6S: Proposed Front



Hydrograph for Subcatchment 6S: Proposed Front

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.08	0.00	0.00
2.25	0.09	0.00	0.00
2.50	0.10	0.00	0.00
2.75	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.25	0.14	0.00	0.00
3.50	0.15	0.00	0.00
3.75	0.16	0.00	0.00
4.00	0.18	0.00	0.00
4.25	0.19	0.00	0.00
4.50	0.20	0.00	0.00
4.75	0.22	0.00	0.00
5.00	0.23	0.00	0.00
5.25	0.25	0.00	0.00
5.50	0.26	0.00	0.00
5.75	0.28	0.00	0.00
6.00	0.29	0.00	0.00
6.25	0.31	0.01	0.00
6.50	0.33	0.01	0.00
6.75	0.35	0.01	0.01
7.00	0.37	0.02	0.01
7.25	0.39	0.02	0.01
7.50	0.42	0.03	0.01
7.75	0.44	0.04	0.01
8.00	0.47	0.04	0.01
8.25	0.49	0.05	0.02
8.50	0.53	0.06	0.02
8.75	0.56	0.08	0.02
9.00	0.60	0.09	0.03
9.25	0.64	0.11	0.03
9.50	0.68	0.13	0.03
9.75	0.72	0.16	0.04
10.00	0.77	0.18	0.04
10.25	0.83	0.21	0.05
10.50	0.89	0.25	0.06
10.75	0.95	0.29	0.07
11.00	1.02	0.34	0.07
11.25	1.11	0.39	0.10
11.50	1.22	0.47	0.13
11.75	1.45	0.65	0.39
12.00	2.04	1.13	**1.42**
12.25	2.64	1.65	0.49
12.50	2.87	1.87	0.19
12.75	2.98	1.97	0.14
13.00	3.07	2.05	0.11
13.25	3.14	2.11	0.10
13.50	3.20	2.17	0.09
13.75	3.26	2.23	0.08
14.00	3.32	2.28	0.07
14.25	3.37	2.32	0.07
14.50	3.41	2.37	0.06
14.75	3.45	2.41	0.06
15.00	3.49	2.44	0.05
15.25	3.53	2.48	0.05
15.50	3.56	2.51	0.05
15.75	3.60	2.54	0.04
16.00	3.62	2.56	0.04
16.25	3.65	2.59	0.04
16.50	3.67	2.61	0.03
16.75	3.70	2.63	0.03
17.00	3.72	2.65	0.03
17.25	3.74	2.67	0.03
17.50	3.76	2.69	0.03
17.75	3.78	2.71	0.03
18.00	3.80	2.73	0.02
18.25	3.81	2.74	0.02
18.50	3.83	2.76	0.02
18.75	3.84	2.77	0.02
19.00	3.86	2.78	0.02
19.25	3.87	2.80	0.02
19.50	3.89	2.81	0.02
19.75	3.90	2.83	0.02
20.00	**3.91**	**2.84**	0.02

Summary for Pond 7P: Basin North

Inflow Area = 4.153 ac, 48.83% Impervious, Inflow Depth > 2.37" for 10-Year event
Inflow = 10.19 cfs @ 12.16 hrs, Volume= 0.822 af
Outflow = 6.89 cfs @ 12.31 hrs, Volume= 0.750 af, Atten= 32%, Lag= 8.9 min
Primary = 6.89 cfs @ 12.31 hrs, Volume= 0.750 af
Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,334.83' @ 12.31 hrs Surf.Area= 4,969 sf Storage= 10,083 cf

Plug-Flow detention time= 75.9 min calculated for 0.750 af (91% of inflow)
Center-of-Mass det. time= 47.3 min (833.6 - 786.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	23,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

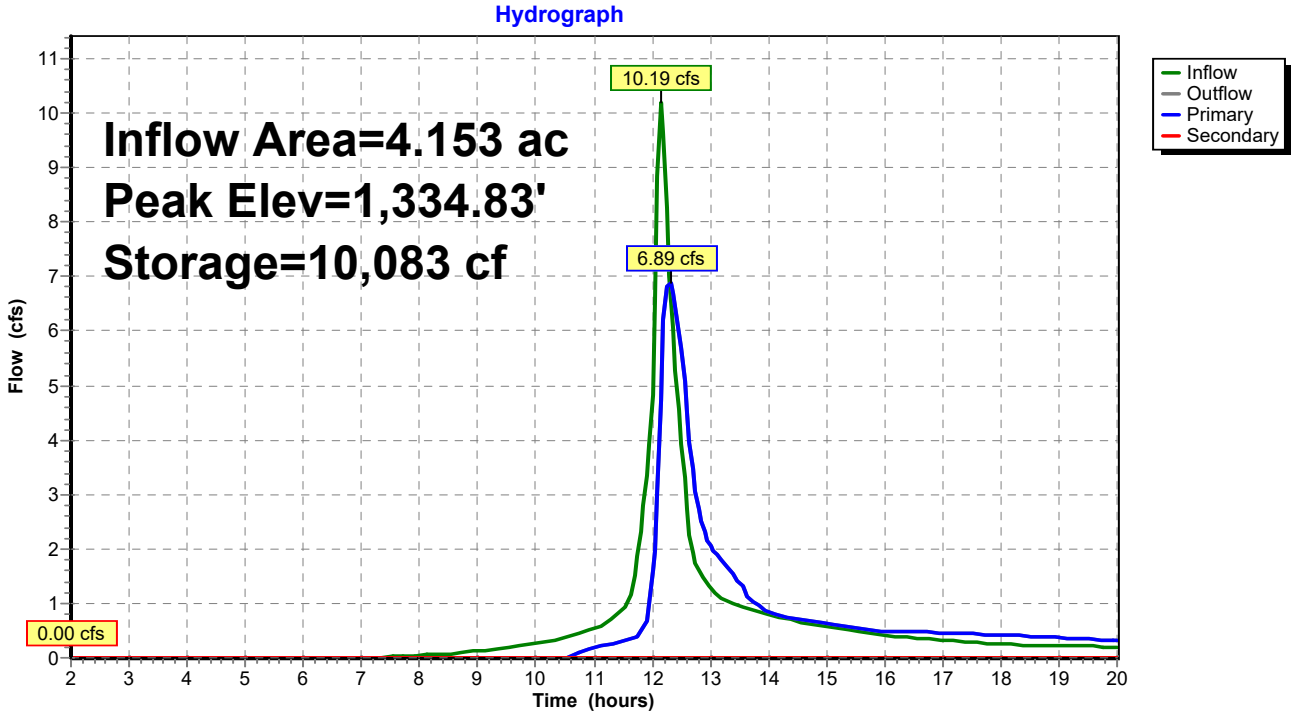
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	1,225	0	0
1,332.00	1,840	1,533	1,533
1,333.00	2,530	2,185	3,718
1,334.00	3,300	2,915	6,633
1,334.10	3,500	340	6,972
1,335.00	5,300	3,960	10,933
1,336.00	6,400	5,850	16,783
1,337.00	7,530	6,965	23,748

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Vert. Orifice** C= 0.600
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,335.90'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,334.00'	**12.0" Round Secondary Outlet Culvert X 0.00** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,334.00' / 1,330.00' S= 0.1333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#6	Secondary	1,335.60'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Device 1	1,334.00'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=6.89 cfs @ 12.31 hrs HW=1,334.83' (Free Discharge)
- **1=Primary Outlet Culvert** (Inlet Controls 6.89 cfs @ 8.78 fps)
  - **2=Orifice** (Passes < 0.69 cfs potential flow)
  - **3=Orifice** (Passes < 2.18 cfs potential flow)
  - **4=Grate** (Controls 0.00 cfs)
  - **7=Orifice/Grate** (Passes < 4.33 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=1,331.00' (Free Discharge)
- **5=Secondary Outlet Culvert** (Controls 0.00 cfs)
- **6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: Basin North



Hydrograph for Pond 7P: Basin North

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	**0.00**
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.00	0	1,331.00	0.00	0.00	0.00
5.50	0.00	0	1,331.00	0.00	0.00	0.00
6.00	0.00	0	1,331.00	0.00	0.00	0.00
6.50	0.00	0	1,331.00	0.00	0.00	0.00
7.00	0.00	0	1,331.00	0.00	0.00	0.00
7.50	0.02	18	1,331.01	0.00	0.00	0.00
8.00	0.04	73	1,331.06	0.00	0.00	0.00
8.50	0.08	178	1,331.14	0.00	0.00	0.00
9.00	0.13	358	1,331.27	0.00	0.00	0.00
9.50	0.19	638	1,331.47	0.00	0.00	0.00
10.00	0.26	1,041	1,331.72	0.00	0.00	0.00
10.50	0.38	1,605	1,332.04	0.01	0.01	0.00
11.00	0.53	2,250	1,332.36	0.19	0.19	0.00
11.50	0.92	3,038	1,332.72	0.31	0.31	0.00
12.00	**4.82**	**6,050**	**1,333.82**	**1.61**	**1.61**	0.00
12.50	**3.93**	**9,216**	**1,334.65**	**5.69**	**5.69**	0.00
13.00	1.29	6,855	1,334.07	2.04	2.04	0.00
13.50	0.95	5,720	1,333.71	1.40	1.40	0.00
14.00	0.78	5,385	1,333.60	0.86	0.86	0.00
14.50	0.67	5,295	1,333.57	0.71	0.71	0.00
15.00	0.59	5,227	1,333.55	0.63	0.63	0.00
15.50	0.51	5,159	1,333.53	0.54	0.54	0.00
16.00	0.42	5,074	1,333.50	0.48	0.48	0.00
16.50	0.37	4,910	1,333.44	0.47	0.47	0.00
17.00	0.33	4,696	1,333.37	0.46	0.46	0.00
17.50	0.29	4,445	1,333.28	0.44	0.44	0.00
18.00	0.26	4,161	1,333.17	0.42	0.42	0.00
18.50	0.24	3,863	1,333.06	0.40	0.40	0.00
19.00	0.22	3,586	1,332.95	0.37	0.37	0.00
19.50	0.21	3,335	1,332.85	0.35	0.35	0.00
20.00	0.20	3,108	1,332.75	0.32	0.32	0.00

Summary for Pond 8P: Basin Central

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 2.12" for 10-Year event
Inflow = 11.57 cfs @ 12.17 hrs, Volume= 0.936 af
Outflow = 3.56 cfs @ 12.58 hrs, Volume= 0.855 af, Atten= 69%, Lag= 24.9 min
Primary = 3.56 cfs @ 12.58 hrs, Volume= 0.855 af
Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,335.62' @ 12.58 hrs Surf.Area= 6,917 sf Storage= 15,587 cf

Plug-Flow detention time= 82.4 min calculated for 0.853 af (91% of inflow)
Center-of-Mass det. time= 54.3 min (848.1 - 793.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	26,218 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

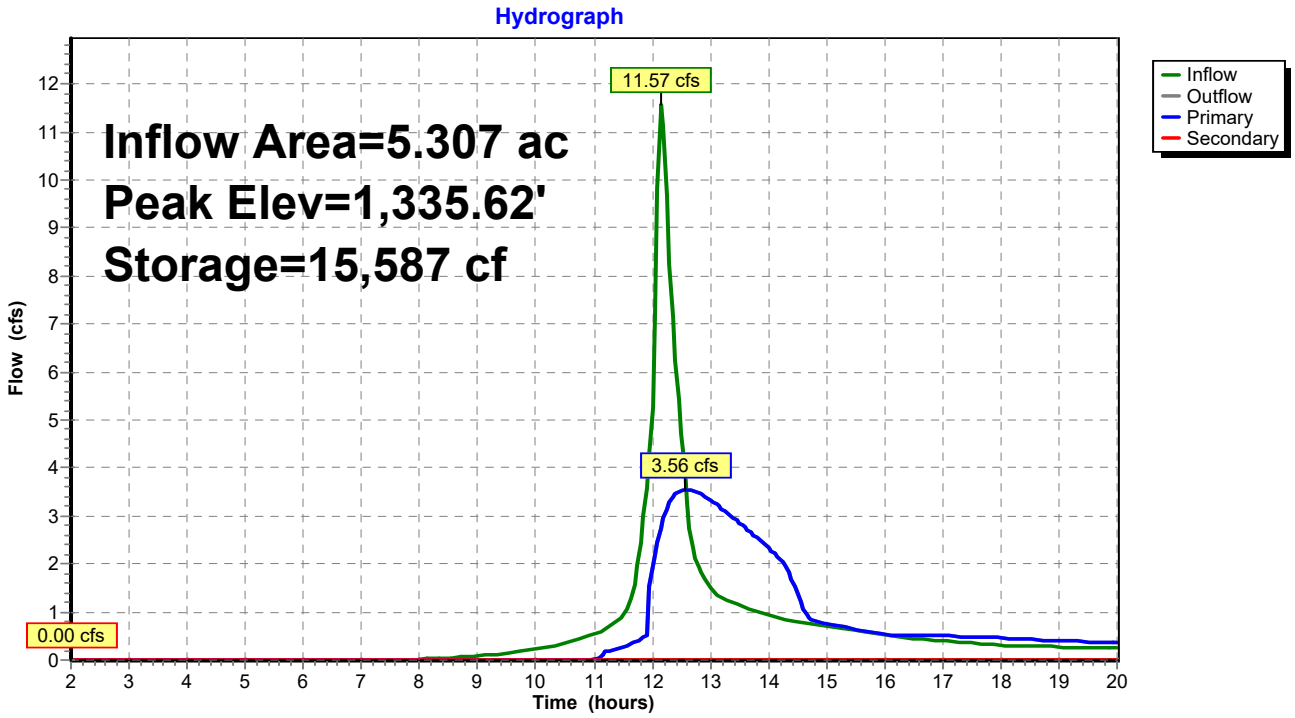
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	2,114	0	0
1,334.00	1,940	6,081	6,081
1,334.10	5,094	352	6,433
1,336.00	7,366	11,837	18,270
1,337.00	8,531	7,949	26,218

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0250 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Horiz. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,336.50'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,336.20'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.55 cfs @ 12.58 hrs HW=1,335.62' (Free Discharge)
└─**1=Primary Outlet Culvert** (Passes 3.55 cfs of 7.39 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.80 cfs @ 9.16 fps)
  ├─**3=Orifice** (Orifice Controls 2.75 cfs @ 7.01 fps)
  └─**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=1,331.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 8P: Basin Central



Hydrograph for Pond 8P: Basin Central

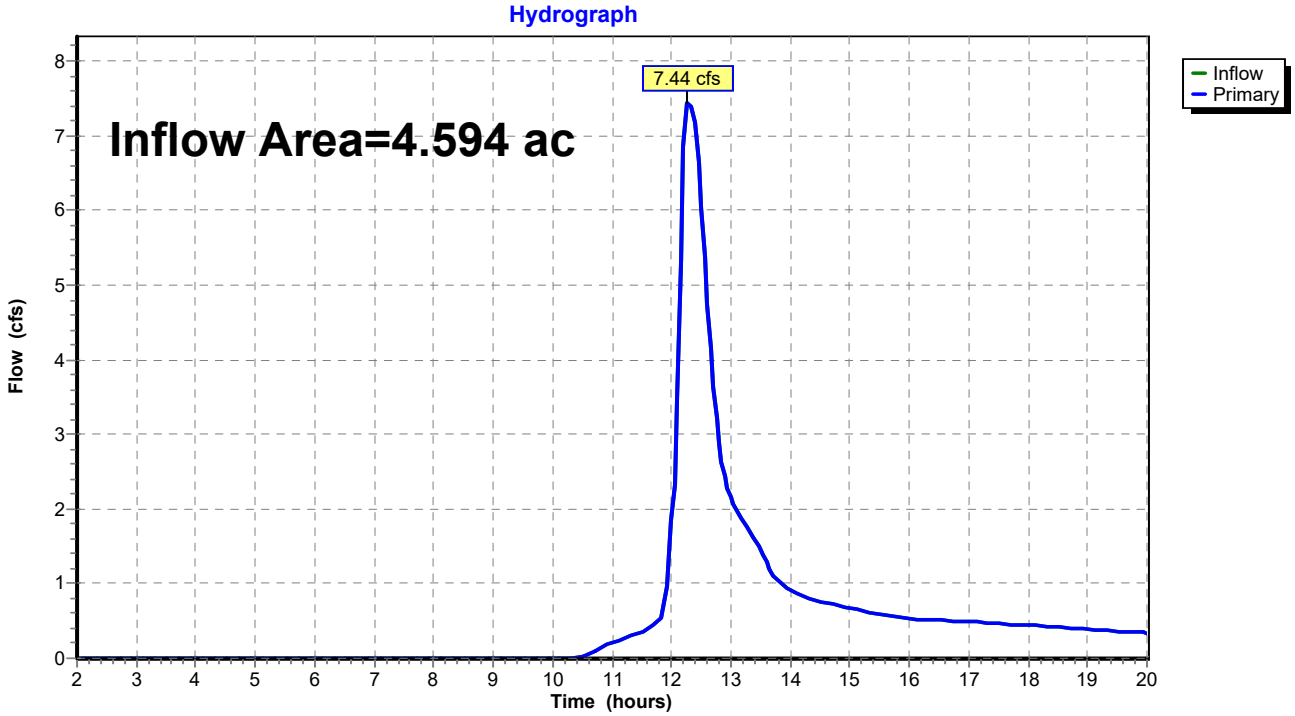
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	**0.00**
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.00	0	1,331.00	0.00	0.00	0.00
5.50	0.00	0	1,331.00	0.00	0.00	0.00
6.00	0.00	0	1,331.00	0.00	0.00	0.00
6.50	0.00	0	1,331.00	0.00	0.00	0.00
7.00	0.00	0	1,331.00	0.00	0.00	0.00
7.50	0.00	0	1,331.00	0.00	0.00	0.00
8.00	0.02	11	1,331.01	0.00	0.00	0.00
8.50	0.05	65	1,331.03	0.00	0.00	0.00
9.00	0.09	186	1,331.09	0.00	0.00	0.00
9.50	0.15	398	1,331.19	0.00	0.00	0.00
10.00	0.23	739	1,331.35	0.00	0.00	0.00
10.50	0.35	1,254	1,331.60	0.00	0.00	0.00
11.00	0.53	2,041	1,331.98	0.00	0.00	0.00
11.50	0.95	3,002	1,332.45	0.28	0.28	0.00
12.00	**5.27**	6,161	1,334.03	1.97	1.97	0.00
12.50	**4.70**	**15,423**	**1,335.60**	**3.54**	**3.54**	0.00
13.00	1.55	**13,601**	**1,335.33**	**3.32**	**3.32**	0.00
13.50	1.14	10,329	1,334.81	2.86	2.86	0.00
14.00	0.94	7,514	1,334.31	2.34	2.34	0.00
14.50	0.81	5,520	1,333.71	1.42	1.42	0.00
15.00	0.71	5,251	1,333.57	0.74	0.74	0.00
15.50	0.61	5,195	1,333.55	0.64	0.64	0.00
16.00	0.51	5,139	1,333.52	0.54	0.54	0.00
16.50	0.44	5,051	1,333.47	0.51	0.51	0.00
17.00	0.40	4,904	1,333.40	0.50	0.50	0.00
17.50	0.36	4,706	1,333.30	0.48	0.48	0.00
18.00	0.31	4,464	1,333.18	0.46	0.46	0.00
18.50	0.29	4,199	1,333.04	0.43	0.43	0.00
19.00	0.27	3,953	1,332.92	0.40	0.40	0.00
19.50	0.26	3,729	1,332.81	0.38	0.38	0.00
20.00	0.25	3,525	1,332.71	0.35	0.35	0.00

Summary for Link 4L: DP 1

Inflow Area = 4.594 ac, 44.20% Impervious, Inflow Depth > 2.11" for 10-Year event
Inflow = 7.44 cfs @ 12.25 hrs, Volume= 0.807 af
Primary = 7.44 cfs @ 12.25 hrs, Volume= 0.807 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

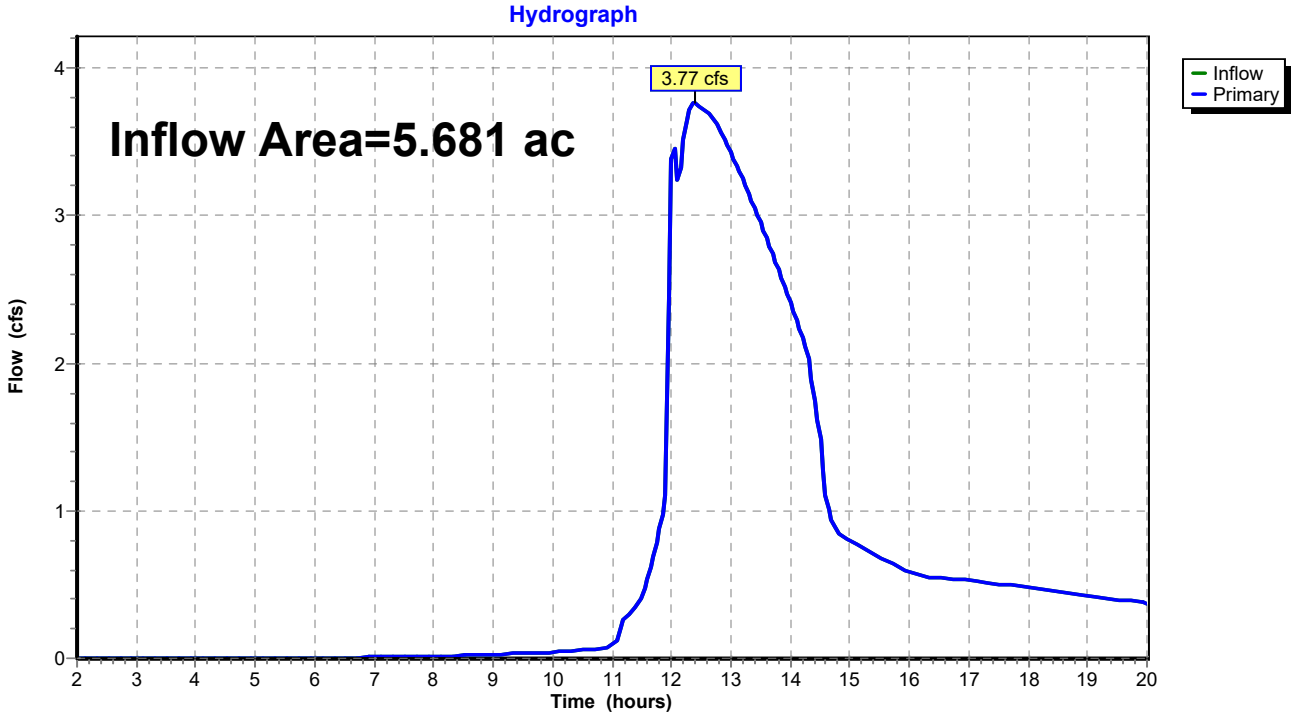
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.68	0.00	0.68
2.25	0.00	0.00	0.00	15.25	0.63	0.00	0.63
2.50	0.00	0.00	0.00	15.50	0.59	0.00	0.59
2.75	0.00	0.00	0.00	15.75	0.55	0.00	0.55
3.00	0.00	0.00	0.00	16.00	0.52	0.00	0.52
3.25	0.00	0.00	0.00	16.25	0.51	0.00	0.51
3.50	0.00	0.00	0.00	16.50	0.51	0.00	0.51
3.75	0.00	0.00	0.00	16.75	0.50	0.00	0.50
4.00	0.00	0.00	0.00	17.00	0.49	0.00	0.49
4.25	0.00	0.00	0.00	17.25	0.48	0.00	0.48
4.50	0.00	0.00	0.00	17.50	0.47	0.00	0.47
4.75	0.00	0.00	0.00	17.75	0.46	0.00	0.46
5.00	0.00	0.00	0.00	18.00	0.44	0.00	0.44
5.25	0.00	0.00	0.00	18.25	0.43	0.00	0.43
5.50	0.00	0.00	0.00	18.50	0.42	0.00	0.42
5.75	0.00	0.00	0.00	18.75	0.40	0.00	0.40
6.00	0.00	0.00	0.00	19.00	0.39	0.00	0.39
6.25	0.00	0.00	0.00	19.25	0.38	0.00	0.38
6.50	0.00	0.00	0.00	19.50	0.36	0.00	0.36
6.75	0.00	0.00	0.00	19.75	0.35	0.00	0.35
7.00	0.00	0.00	0.00	20.00	0.34	0.00	0.34
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.01	0.00	0.01				
10.75	0.10	0.00	0.10				
11.00	0.20	0.00	0.20				
11.25	0.27	0.00	0.27				
11.50	0.35	0.00	0.35				
11.75	0.47	0.00	0.47				
12.00	1.86	0.00	1.86				
12.25	**7.44**	0.00	**7.44**				
12.50	6.02	0.00	6.02				
12.75	3.21	0.00	3.21				
13.00	2.15	0.00	2.15				
13.25	1.79	0.00	1.79				
13.50	1.47	0.00	1.47				
13.75	1.09	0.00	1.09				
14.00	0.92	0.00	0.92				
14.25	0.82	0.00	0.82				
14.50	0.76	0.00	0.76				
14.75	0.72	0.00	0.72				

Summary for Link 5L: DP 2

Inflow Area = 5.681 ac, 34.10% Impervious, Inflow Depth > 1.99" for 10-Year event
Inflow = 3.77 cfs @ 12.40 hrs, Volume= 0.944 af
Primary = 3.77 cfs @ 12.40 hrs, Volume= 0.944 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

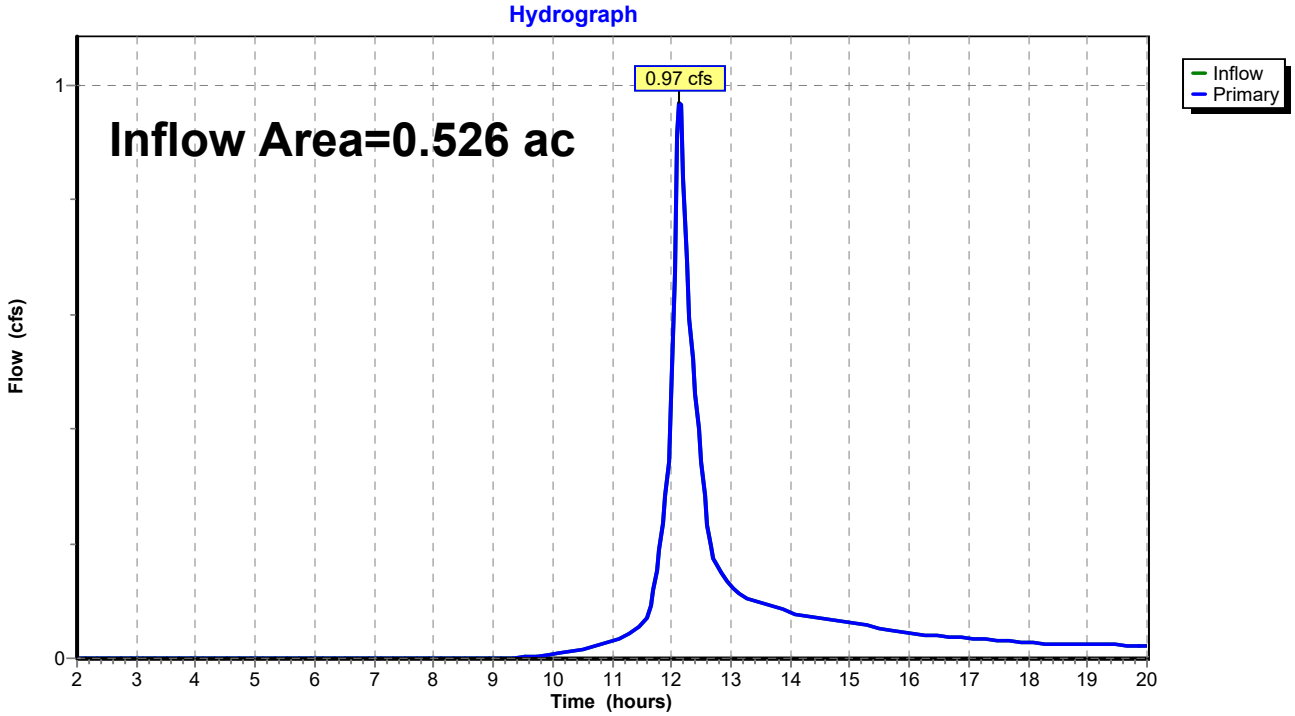
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.80	0.00	0.80
2.25	0.00	0.00	0.00	15.25	0.74	0.00	0.74
2.50	0.00	0.00	0.00	15.50	0.69	0.00	0.69
2.75	0.00	0.00	0.00	15.75	0.63	0.00	0.63
3.00	0.00	0.00	0.00	16.00	0.58	0.00	0.58
3.25	0.00	0.00	0.00	16.25	0.55	0.00	0.55
3.50	0.00	0.00	0.00	16.50	0.54	0.00	0.54
3.75	0.00	0.00	0.00	16.75	0.54	0.00	0.54
4.00	0.00	0.00	0.00	17.00	0.53	0.00	0.53
4.25	0.00	0.00	0.00	17.25	0.52	0.00	0.52
4.50	0.00	0.00	0.00	17.50	0.51	0.00	0.51
4.75	0.00	0.00	0.00	17.75	0.49	0.00	0.49
5.00	0.00	0.00	0.00	18.00	0.48	0.00	0.48
5.25	0.00	0.00	0.00	18.25	0.47	0.00	0.47
5.50	0.00	0.00	0.00	18.50	0.45	0.00	0.45
5.75	0.00	0.00	0.00	18.75	0.44	0.00	0.44
6.00	0.00	0.00	0.00	19.00	0.42	0.00	0.42
6.25	0.00	0.00	0.00	19.25	0.41	0.00	0.41
6.50	0.00	0.00	0.00	19.50	0.40	0.00	0.40
6.75	0.01	0.00	0.01	19.75	0.39	0.00	0.39
7.00	0.01	0.00	0.01	20.00	0.37	0.00	0.37
7.25	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
7.75	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.25	0.02	0.00	0.02				
8.50	0.02	0.00	0.02				
8.75	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.25	0.03	0.00	0.03				
9.50	0.03	0.00	0.03				
9.75	0.04	0.00	0.04				
10.00	0.04	0.00	0.04				
10.25	0.05	0.00	0.05				
10.50	0.06	0.00	0.06				
10.75	0.07	0.00	0.07				
11.00	0.07	0.00	0.07				
11.25	0.29	0.00	0.29				
11.50	0.41	0.00	0.41				
11.75	0.78	0.00	0.78				
12.00	3.39	0.00	3.39				
12.25	**3.64**	0.00	**3.64**				
12.50	**3.72**	0.00	**3.72**				
12.75	3.64	0.00	3.64				
13.00	3.43	0.00	3.43				
13.25	3.20	0.00	3.20				
13.50	2.95	0.00	2.95				
13.75	2.69	0.00	2.69				
14.00	2.41	0.00	2.41				
14.25	2.11	0.00	2.11				
14.50	1.48	0.00	1.48				
14.75	0.89	0.00	0.89				

Summary for Link 6L: DP 3

Inflow Area = 0.526 ac, 8.30% Impervious, Inflow Depth > 1.67" for 10-Year event
Inflow = 0.97 cfs @ 12.14 hrs, Volume= 0.073 af
Primary = 0.97 cfs @ 12.14 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

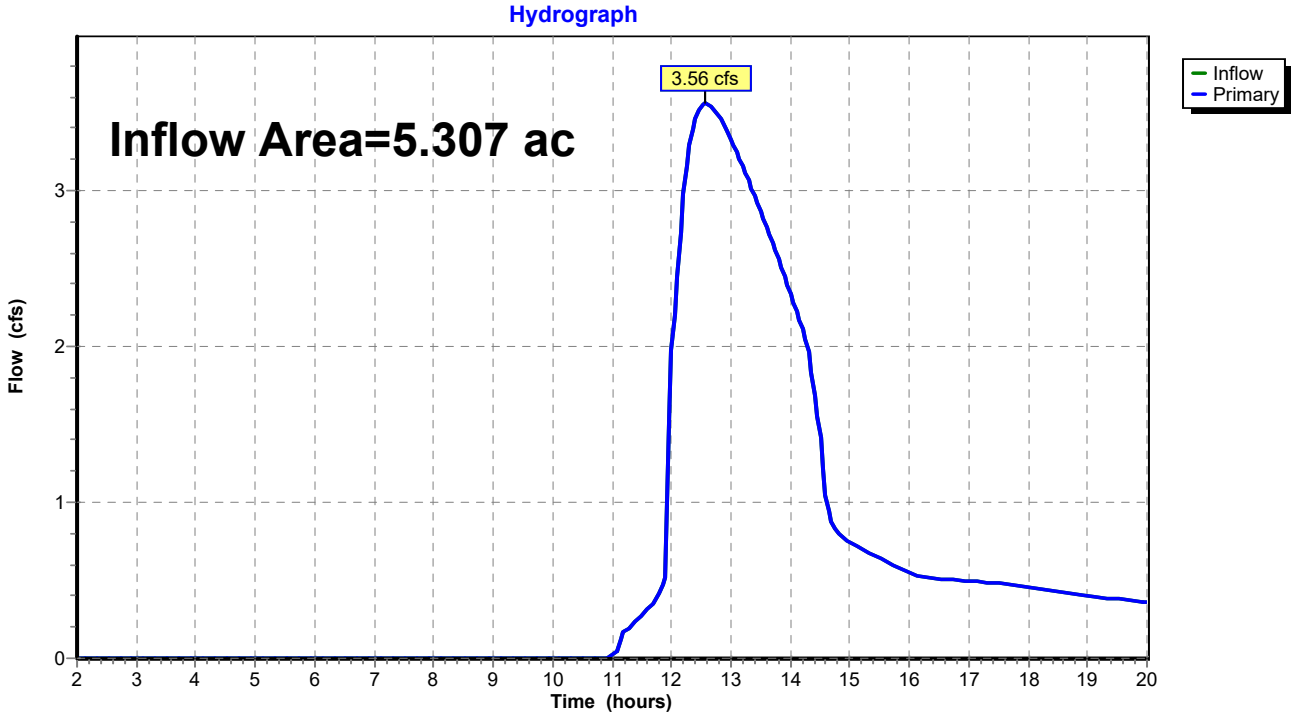
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.06	0.00	0.06
2.25	0.00	0.00	0.00	15.25	0.06	0.00	0.06
2.50	0.00	0.00	0.00	15.50	0.05	0.00	0.05
2.75	0.00	0.00	0.00	15.75	0.05	0.00	0.05
3.00	0.00	0.00	0.00	16.00	0.04	0.00	0.04
3.25	0.00	0.00	0.00	16.25	0.04	0.00	0.04
3.50	0.00	0.00	0.00	16.50	0.04	0.00	0.04
3.75	0.00	0.00	0.00	16.75	0.04	0.00	0.04
4.00	0.00	0.00	0.00	17.00	0.04	0.00	0.04
4.25	0.00	0.00	0.00	17.25	0.03	0.00	0.03
4.50	0.00	0.00	0.00	17.50	0.03	0.00	0.03
4.75	0.00	0.00	0.00	17.75	0.03	0.00	0.03
5.00	0.00	0.00	0.00	18.00	0.03	0.00	0.03
5.25	0.00	0.00	0.00	18.25	0.03	0.00	0.03
5.50	0.00	0.00	0.00	18.50	0.03	0.00	0.03
5.75	0.00	0.00	0.00	18.75	0.02	0.00	0.02
6.00	0.00	0.00	0.00	19.00	0.02	0.00	0.02
6.25	0.00	0.00	0.00	19.25	0.02	0.00	0.02
6.50	0.00	0.00	0.00	19.50	0.02	0.00	0.02
6.75	0.00	0.00	0.00	19.75	0.02	0.00	0.02
7.00	0.00	0.00	0.00	20.00	0.02	0.00	0.02
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.01	0.00	0.01				
10.25	0.01	0.00	0.01				
10.50	0.02	0.00	0.02				
10.75	0.02	0.00	0.02				
11.00	0.03	0.00	0.03				
11.25	0.04	0.00	0.04				
11.50	0.06	0.00	0.06				
11.75	0.15	0.00	0.15				
12.00	**0.45**	0.00	**0.45**				
12.25	**0.69**	0.00	**0.69**				
12.50	0.34	0.00	0.34				
12.75	0.16	0.00	0.16				
13.00	0.13	0.00	0.13				
13.25	0.11	0.00	0.11				
13.50	0.10	0.00	0.10				
13.75	0.09	0.00	0.09				
14.00	0.08	0.00	0.08				
14.25	0.07	0.00	0.07				
14.50	0.07	0.00	0.07				
14.75	0.07	0.00	0.07				

Summary for Link 11L: DMH

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 1.93" for 10-Year event
Inflow = 3.56 cfs @ 12.58 hrs, Volume= 0.855 af
Primary = 3.56 cfs @ 12.58 hrs, Volume= 0.855 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 11L: DMH



Hydrograph for Link 11L: DMH

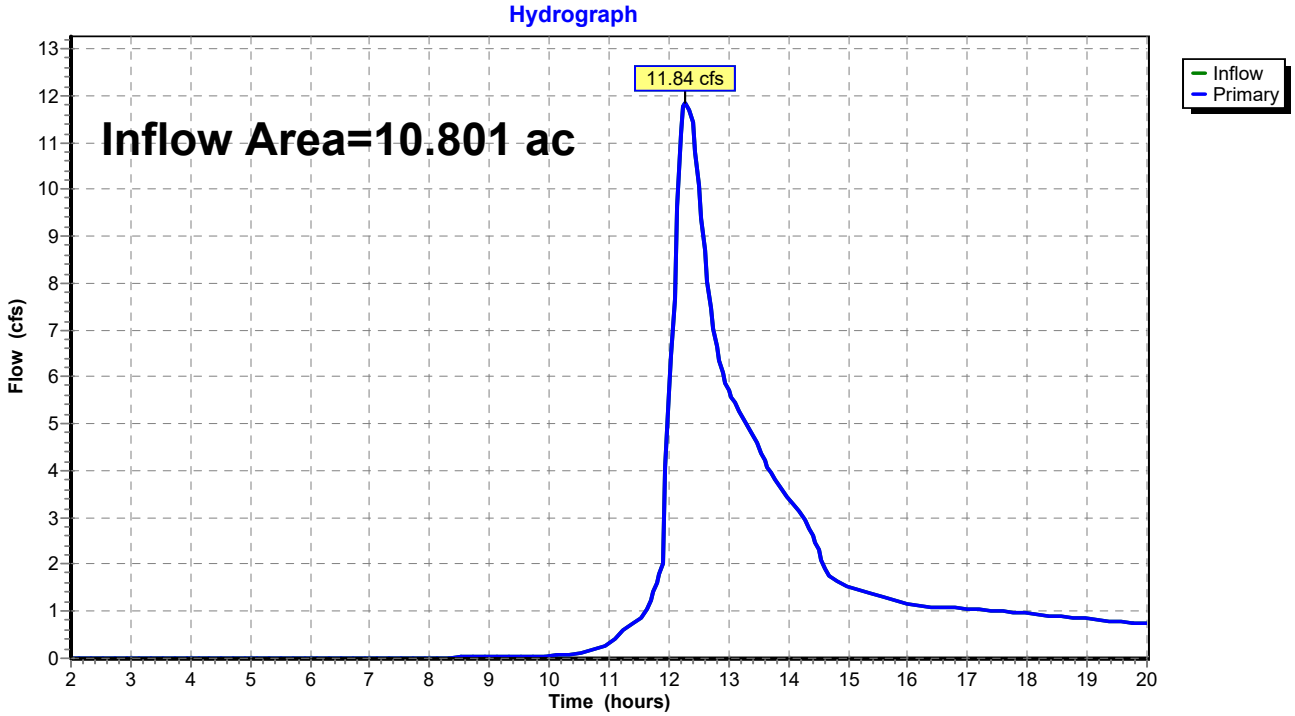
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.74	0.00	0.74
2.25	0.00	0.00	0.00	15.25	0.69	0.00	0.69
2.50	0.00	0.00	0.00	15.50	0.64	0.00	0.64
2.75	0.00	0.00	0.00	15.75	0.59	0.00	0.59
3.00	0.00	0.00	0.00	16.00	0.54	0.00	0.54
3.25	0.00	0.00	0.00	16.25	0.51	0.00	0.51
3.50	0.00	0.00	0.00	16.50	0.51	0.00	0.51
3.75	0.00	0.00	0.00	16.75	0.50	0.00	0.50
4.00	0.00	0.00	0.00	17.00	0.50	0.00	0.50
4.25	0.00	0.00	0.00	17.25	0.49	0.00	0.49
4.50	0.00	0.00	0.00	17.50	0.48	0.00	0.48
4.75	0.00	0.00	0.00	17.75	0.47	0.00	0.47
5.00	0.00	0.00	0.00	18.00	0.46	0.00	0.46
5.25	0.00	0.00	0.00	18.25	0.44	0.00	0.44
5.50	0.00	0.00	0.00	18.50	0.43	0.00	0.43
5.75	0.00	0.00	0.00	18.75	0.42	0.00	0.42
6.00	0.00	0.00	0.00	19.00	0.40	0.00	0.40
6.25	0.00	0.00	0.00	19.25	0.39	0.00	0.39
6.50	0.00	0.00	0.00	19.50	0.38	0.00	0.38
6.75	0.00	0.00	0.00	19.75	0.37	0.00	0.37
7.00	0.00	0.00	0.00	20.00	0.35	0.00	0.35
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.19	0.00	0.19				
11.50	0.28	0.00	0.28				
11.75	0.39	0.00	0.39				
12.00	1.97	0.00	1.97				
12.25	3.16	0.00	3.16				
12.50	**3.54**	0.00	**3.54**				
12.75	**3.50**	0.00	**3.50**				
13.00	3.32	0.00	3.32				
13.25	3.11	0.00	3.11				
13.50	2.86	0.00	2.86				
13.75	2.61	0.00	2.61				
14.00	2.34	0.00	2.34				
14.25	2.05	0.00	2.05				
14.50	1.42	0.00	1.42				
14.75	0.83	0.00	0.83				

Summary for Link 12L: (new Link)

Inflow Area = 10.801 ac, 37.14% Impervious, Inflow Depth > 2.03" for 10-Year event
Inflow = 11.84 cfs @ 12.27 hrs, Volume= 1.823 af
Primary = 11.84 cfs @ 12.27 hrs, Volume= 1.823 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 12L: (new Link)



Hydrograph for Link 12L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	1.53	0.00	1.53
2.25	0.00	0.00	0.00	15.25	1.43	0.00	1.43
2.50	0.00	0.00	0.00	15.50	1.33	0.00	1.33
2.75	0.00	0.00	0.00	15.75	1.23	0.00	1.23
3.00	0.00	0.00	0.00	16.00	1.15	0.00	1.15
3.25	0.00	0.00	0.00	16.25	1.10	0.00	1.10
3.50	0.00	0.00	0.00	16.50	1.09	0.00	1.09
3.75	0.00	0.00	0.00	16.75	1.07	0.00	1.07
4.00	0.00	0.00	0.00	17.00	1.05	0.00	1.05
4.25	0.00	0.00	0.00	17.25	1.03	0.00	1.03
4.50	0.00	0.00	0.00	17.50	1.00	0.00	1.00
4.75	0.00	0.00	0.00	17.75	0.98	0.00	0.98
5.00	0.00	0.00	0.00	18.00	0.95	0.00	0.95
5.25	0.00	0.00	0.00	18.25	0.92	0.00	0.92
5.50	0.00	0.00	0.00	18.50	0.89	0.00	0.89
5.75	0.00	0.00	0.00	18.75	0.87	0.00	0.87
6.00	0.00	0.00	0.00	19.00	0.84	0.00	0.84
6.25	0.00	0.00	0.00	19.25	0.81	0.00	0.81
6.50	0.00	0.00	0.00	19.50	0.79	0.00	0.79
6.75	0.01	0.00	0.01	19.75	0.76	0.00	0.76
7.00	0.01	0.00	0.01	20.00	0.73	0.00	0.73
7.25	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
7.75	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.25	0.02	0.00	0.02				
8.50	0.02	0.00	0.02				
8.75	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.25	0.03	0.00	0.03				
9.50	0.03	0.00	0.03				
9.75	0.04	0.00	0.04				
10.00	0.05	0.00	0.05				
10.25	0.06	0.00	0.06				
10.50	0.09	0.00	0.09				
10.75	0.19	0.00	0.19				
11.00	0.31	0.00	0.31				
11.25	0.60	0.00	0.60				
11.50	0.82	0.00	0.82				
11.75	1.41	0.00	1.41				
12.00	5.70	0.00	5.70				
12.25	**11.78**	0.00	**11.78**				
12.50	10.09	0.00	10.09				
12.75	7.01	0.00	7.01				
13.00	5.71	0.00	5.71				
13.25	5.09	0.00	5.09				
13.50	4.52	0.00	4.52				
13.75	3.86	0.00	3.86				
14.00	3.41	0.00	3.41				
14.25	3.01	0.00	3.01				
14.50	2.32	0.00	2.32				
14.75	1.68	0.00	1.68				

Summary for Subcatchment 1S: Remaining North

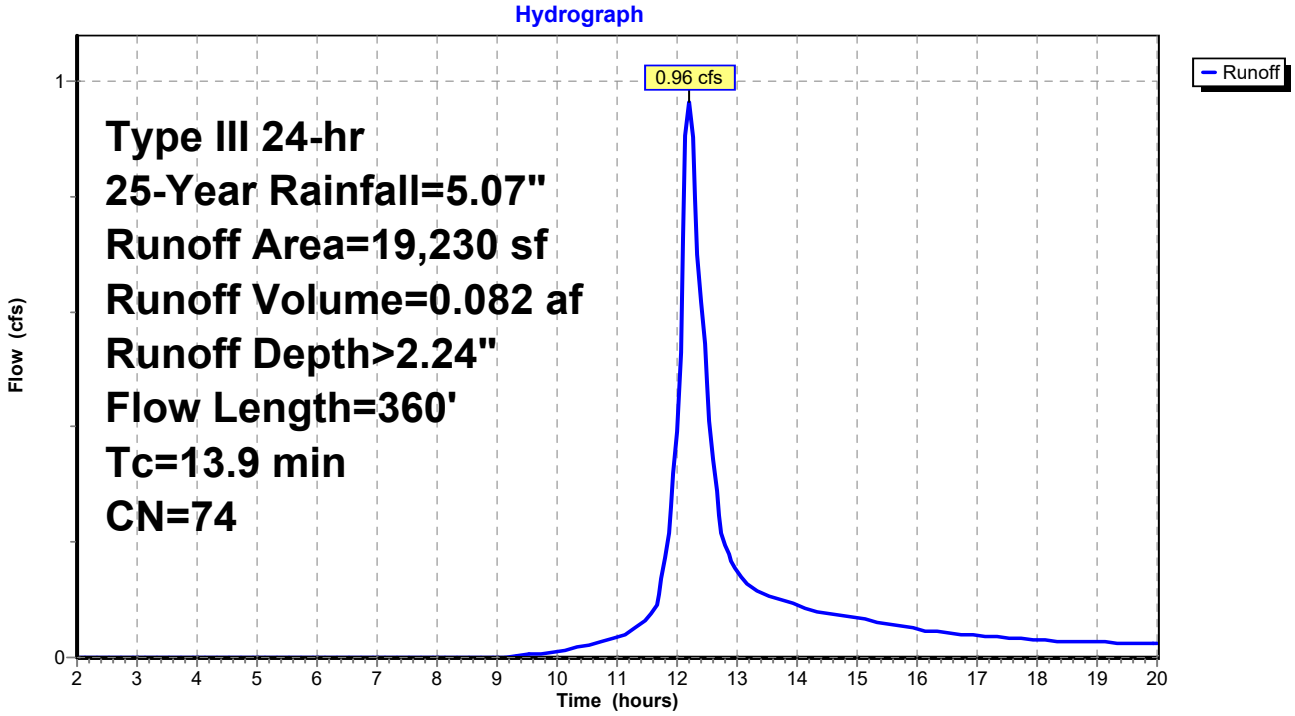
Runoff = 0.96 cfs @ 12.20 hrs, Volume= 0.082 af, Depth> 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	0	98	Building
*	125	98	Pavement and Concrete
	12,705	74	>75% Grass cover, Good, HSG C
	6,400	73	Woods, Fair, HSG C
	19,230	74	Weighted Average
	19,105		99.35% Pervious Area
	125		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0400	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
3.9	310	0.0700	1.32		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
13.9	360	Total			

Subcatchment 1S: Remaining North



Hydrograph for Subcatchment 1S: Remaining North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.23	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.34	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.01	0.00
9.75	0.90	0.01	0.01
10.00	0.96	0.02	0.01
10.25	1.02	0.03	0.02
10.50	1.10	0.04	0.02
10.75	1.18	0.06	0.03
11.00	1.27	0.08	0.04
11.25	1.37	0.11	0.05
11.50	1.51	0.15	0.07
11.75	1.80	0.26	0.14
12.00	2.53	0.63	**0.39**
12.25	3.27	1.08	**0.90**
12.50	3.56	1.28	0.48
12.75	3.70	1.38	0.22
13.00	3.80	1.45	0.15
13.25	3.89	1.52	0.12
13.50	3.97	1.58	0.11
13.75	4.05	1.63	0.10
14.00	4.11	1.68	0.09
14.25	4.17	1.72	0.08
14.50	4.23	1.77	0.08
14.75	4.28	1.81	0.07
15.00	4.33	1.84	0.07
15.25	4.38	1.88	0.06
15.50	4.42	1.91	0.06
15.75	4.46	1.94	0.05
16.00	4.49	1.97	0.05
16.25	4.52	1.99	0.05
16.50	4.55	2.01	0.04
16.75	4.58	2.04	0.04
17.00	4.61	2.06	0.04
17.25	4.64	2.08	0.04
17.50	4.66	2.10	0.03
17.75	4.68	2.11	0.03
18.00	4.70	2.13	0.03
18.25	4.73	2.15	0.03
18.50	4.74	2.16	0.03
18.75	4.76	2.18	0.03
19.00	4.78	2.19	0.03
19.25	4.80	2.21	0.03
19.50	4.82	2.22	0.02
19.75	4.84	2.23	0.02
20.00	**4.85**	**2.25**	0.02

Summary for Subcatchment 2S: Proposed North

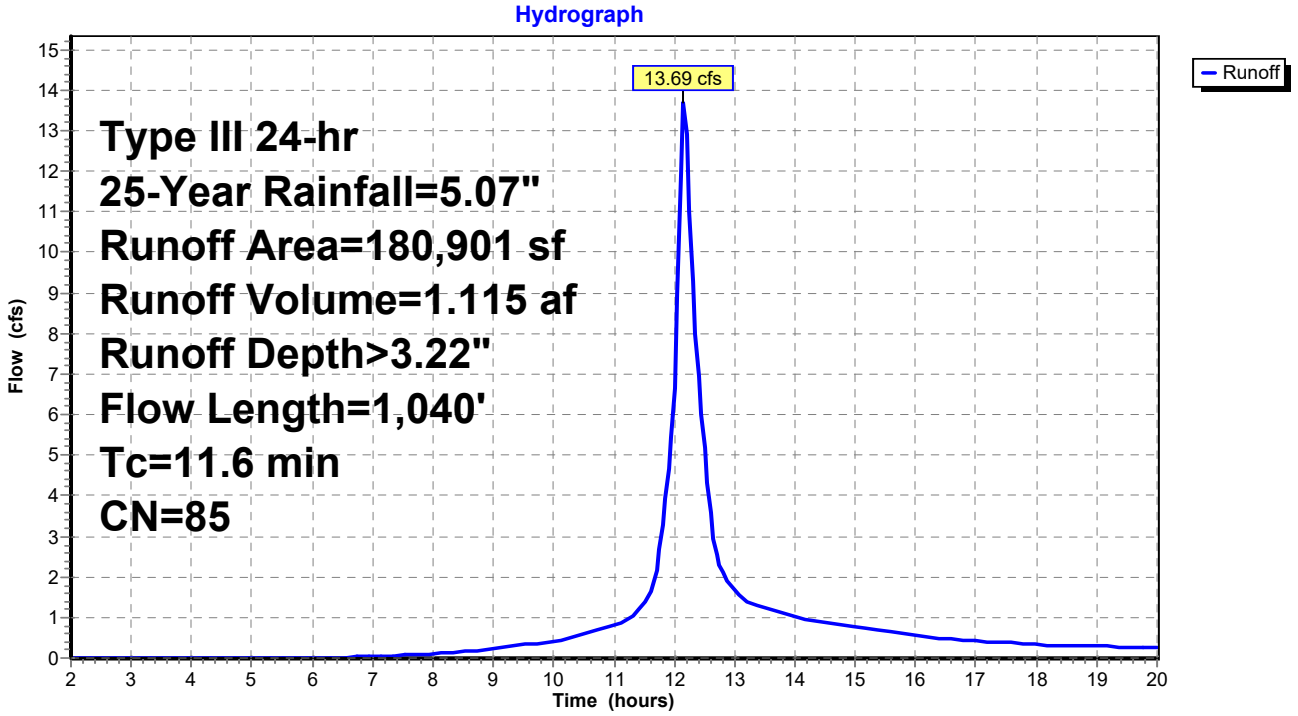
Runoff = 13.69 cfs @ 12.16 hrs, Volume= 1.115 af, Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	28,702	98	Building
*	59,626	98	Pavement and Concrete
	49,289	74	>75% Grass cover, Good, HSG C
	43,284	73	Woods, Fair, HSG C
	180,901	85	Weighted Average
	92,573		51.17% Pervious Area
	88,328		48.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	20	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.9	20	0.0500	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 2.80"
0.9	100	0.0150	1.84		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.6	180	0.1200	5.20		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
2.5	680	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
11.6	1,040	Total			

Subcatchment 2S: Proposed North



Hydrograph for Subcatchment 2S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.23	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.34	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.01
6.50	0.41	0.00	0.02
6.75	0.43	0.00	0.03
7.00	0.46	0.01	0.04
7.25	0.49	0.01	0.05
7.50	0.52	0.01	0.07
7.75	0.55	0.02	0.09
8.00	0.58	0.03	0.10
8.25	0.61	0.03	0.13
8.50	0.65	0.04	0.16
8.75	0.69	0.06	0.19
9.00	0.74	0.07	0.23
9.25	0.79	0.09	0.27
9.50	0.84	0.11	0.32
9.75	0.90	0.13	0.37
10.00	0.96	0.15	0.42
10.25	1.02	0.18	0.49
10.50	1.10	0.22	0.58
10.75	1.18	0.26	0.68
11.00	1.27	0.31	0.79
11.25	1.37	0.37	0.98
11.50	1.51	0.46	1.33
11.75	1.80	0.65	2.67
12.00	2.53	1.21	**6.64**
12.25	3.27	1.82	**11.02**
12.50	3.56	2.07	5.16
12.75	3.70	2.19	2.28
13.00	3.80	2.28	1.68
13.25	3.89	2.36	1.36
13.50	3.97	2.43	1.23
13.75	4.05	2.50	1.12
14.00	4.11	2.56	1.01
14.25	4.17	2.61	0.92
14.50	4.23	2.66	0.87
14.75	4.28	2.71	0.81
15.00	4.33	2.76	0.76
15.25	4.38	2.80	0.71
15.50	4.42	2.84	0.65
15.75	4.46	2.87	0.60
16.00	4.49	2.90	0.54
16.25	4.52	2.93	0.50
16.50	4.55	2.96	0.47
16.75	4.58	2.99	0.45
17.00	4.61	3.01	0.42
17.25	4.64	3.03	0.40
17.50	4.66	3.06	0.38
17.75	4.68	3.08	0.35
18.00	4.70	3.10	0.33
18.25	4.73	3.11	0.31
18.50	4.74	3.13	0.30
18.75	4.76	3.15	0.30
19.00	4.78	3.17	0.29
19.25	4.80	3.18	0.28
19.50	4.82	3.20	0.27
19.75	4.84	3.22	0.27
20.00	**4.85**	**3.23**	0.26

Summary for Subcatchment 3S: Proposed Central

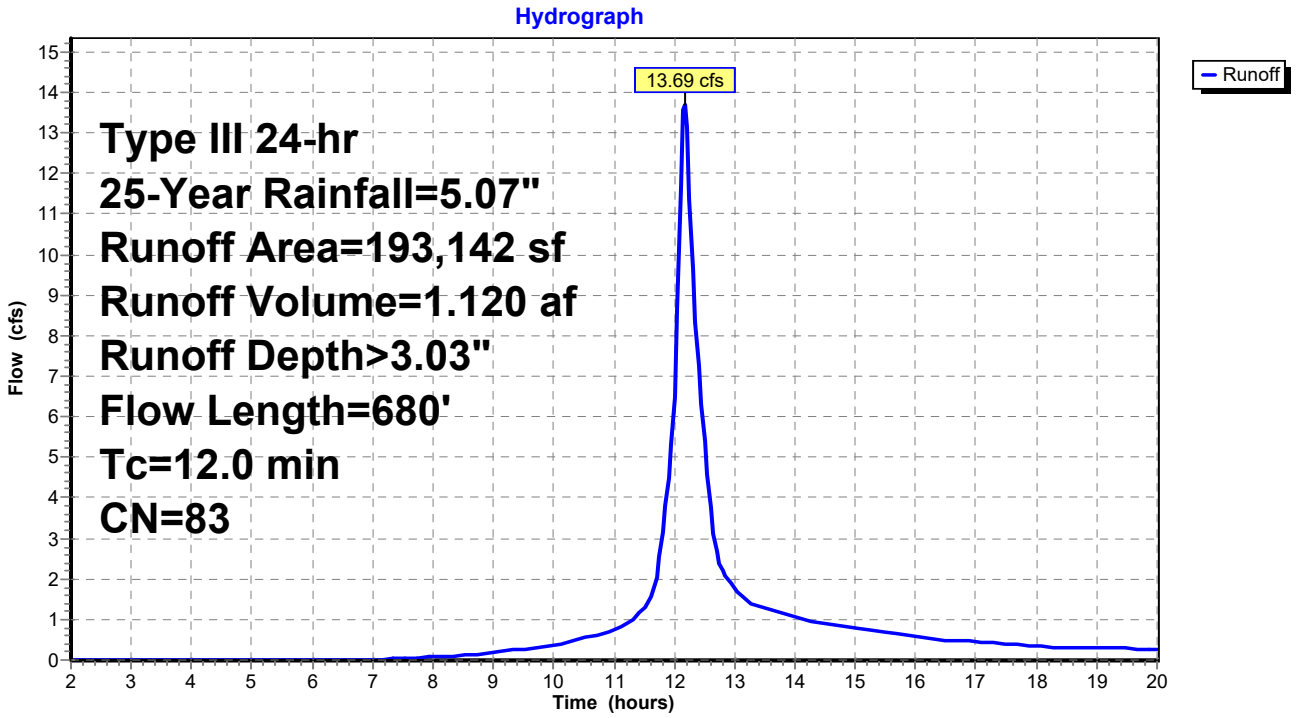
Runoff = 13.69 cfs @ 12.17 hrs, Volume= 1.120 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	22,490	98	Building
*	47,709	98	Pavement and Concrete
	122,943	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	193,142	83	Weighted Average
	122,943		63.65% Pervious Area
	70,199		36.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.4	30	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.1	50	0.3300	8.62		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	70	0.1000	6.42		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.4	380	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
12.0	680	Total			

Subcatchment 3S: Proposed Central



Hydrograph for Subcatchment 3S: Proposed Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.23	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.34	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.01
7.25	0.49	0.00	0.03
7.50	0.52	0.01	0.04
7.75	0.55	0.01	0.06
8.00	0.58	0.01	0.07
8.25	0.61	0.02	0.09
8.50	0.65	0.03	0.12
8.75	0.69	0.03	0.15
9.00	0.74	0.05	0.19
9.25	0.79	0.06	0.23
9.50	0.84	0.08	0.28
9.75	0.90	0.09	0.32
10.00	0.96	0.12	0.38
10.25	1.02	0.14	0.44
10.50	1.10	0.17	0.53
10.75	1.18	0.21	0.64
11.00	1.27	0.25	0.75
11.25	1.37	0.31	0.93
11.50	1.51	0.39	1.27
11.75	1.80	0.56	2.54
12.00	2.53	1.08	**6.47**
12.25	3.27	1.67	**11.38**
12.50	3.56	1.91	5.42
12.75	3.70	2.02	2.39
13.00	3.80	2.12	1.75
13.25	3.89	2.19	1.41
13.50	3.97	2.26	1.28
13.75	4.05	2.33	1.17
14.00	4.11	2.38	1.06
14.25	4.17	2.44	0.96
14.50	4.23	2.49	0.90
14.75	4.28	2.53	0.85
15.00	4.33	2.58	0.79
15.25	4.38	2.62	0.74
15.50	4.42	2.65	0.68
15.75	4.46	2.69	0.62
16.00	4.49	2.72	0.57
16.25	4.52	2.75	0.52
16.50	4.55	2.77	0.49
16.75	4.58	2.80	0.47
17.00	4.61	2.82	0.44
17.25	4.64	2.85	0.42
17.50	4.66	2.87	0.39
17.75	4.68	2.89	0.37
18.00	4.70	2.91	0.34
18.25	4.73	2.93	0.32
18.50	4.74	2.94	0.32
18.75	4.76	2.96	0.31
19.00	4.78	2.98	0.30
19.25	4.80	2.99	0.29
19.50	4.82	3.01	0.29
19.75	4.84	3.03	0.28
20.00	**4.85**	**3.04**	0.27

Summary for Subcatchment 4S: Proposed South

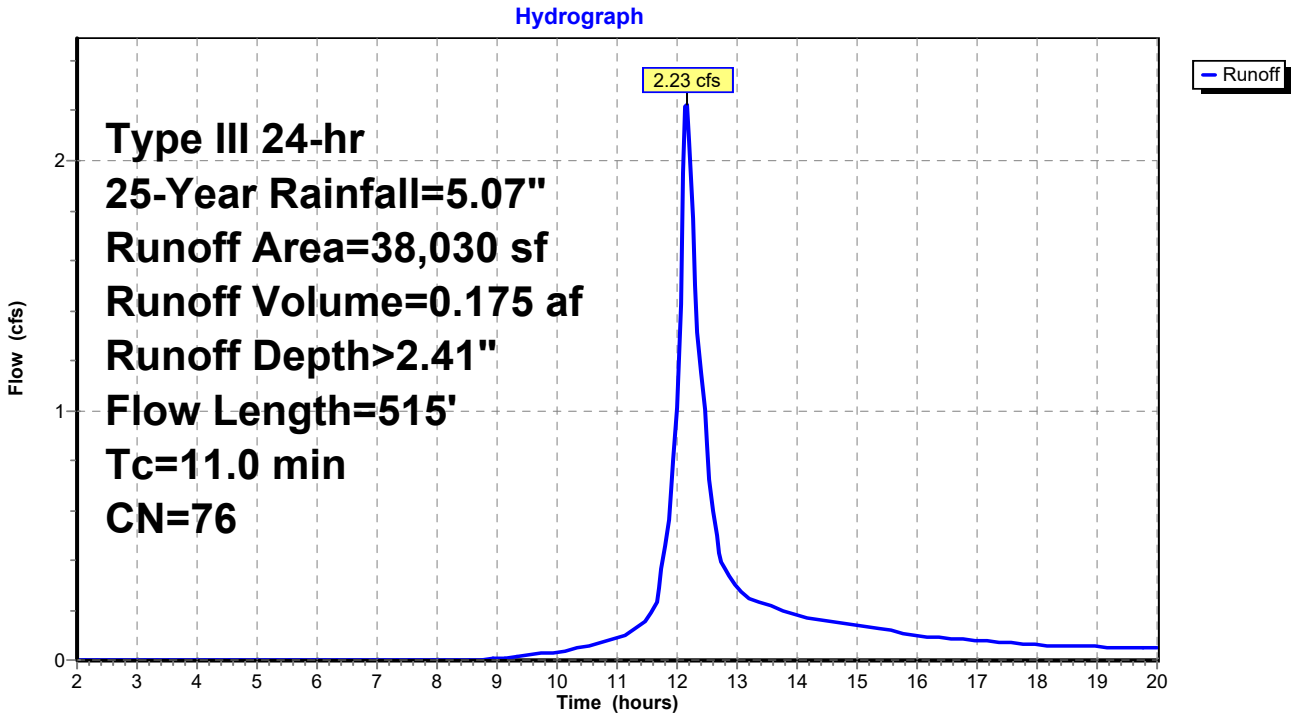
Runoff = 2.23 cfs @ 12.16 hrs, Volume= 0.175 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	3,100	98	Building
*	217	98	Pavement and Concrete
	34,713	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	38,030	76	Weighted Average
	34,713		91.28% Pervious Area
	3,317		8.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.1	15	0.1000	4.74		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.0	350	0.0400	5.90	12.38	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.10' D=1.00' Z= 2.0 '/' Top.W=4.10' n= 0.030 Earth, grassed & winding
11.0	515	Total			

Subcatchment 4S: Proposed South



Hydrograph for Subcatchment 4S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.23	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.34	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.01
9.25	0.79	0.01	0.01
9.50	0.84	0.01	0.02
9.75	0.90	0.02	0.03
10.00	0.96	0.03	0.03
10.25	1.02	0.04	0.04
10.50	1.10	0.06	0.06
10.75	1.18	0.08	0.07
11.00	1.27	0.11	0.09
11.25	1.37	0.14	0.12
11.50	1.51	0.19	0.17
11.75	1.80	0.32	0.37
12.00	2.53	0.72	**1.01**
12.25	3.27	1.20	**1.77**
12.50	3.56	1.41	0.86
12.75	3.70	1.51	0.39
13.00	3.80	1.59	0.30
13.25	3.89	1.66	0.24
13.50	3.97	1.72	0.22
13.75	4.05	1.77	0.20
14.00	4.11	1.82	0.18
14.25	4.17	1.87	0.17
14.50	4.23	1.92	0.16
14.75	4.28	1.96	0.15
15.00	4.33	2.00	0.14
15.25	4.38	2.03	0.13
15.50	4.42	2.07	0.12
15.75	4.46	2.10	0.11
16.00	4.49	2.12	0.10
16.25	4.52	2.15	0.09
16.50	4.55	2.17	0.09
16.75	4.58	2.20	0.08
17.00	4.61	2.22	0.08
17.25	4.64	2.24	0.07
17.50	4.66	2.26	0.07
17.75	4.68	2.28	0.07
18.00	4.70	2.29	0.06
18.25	4.73	2.31	0.06
18.50	4.74	2.33	0.06
18.75	4.76	2.34	0.05
19.00	4.78	2.36	0.05
19.25	4.80	2.37	0.05
19.50	4.82	2.39	0.05
19.75	4.84	2.40	0.05
20.00	**4.85**	**2.41**	0.05

Summary for Subcatchment 5S: Proposed Highway

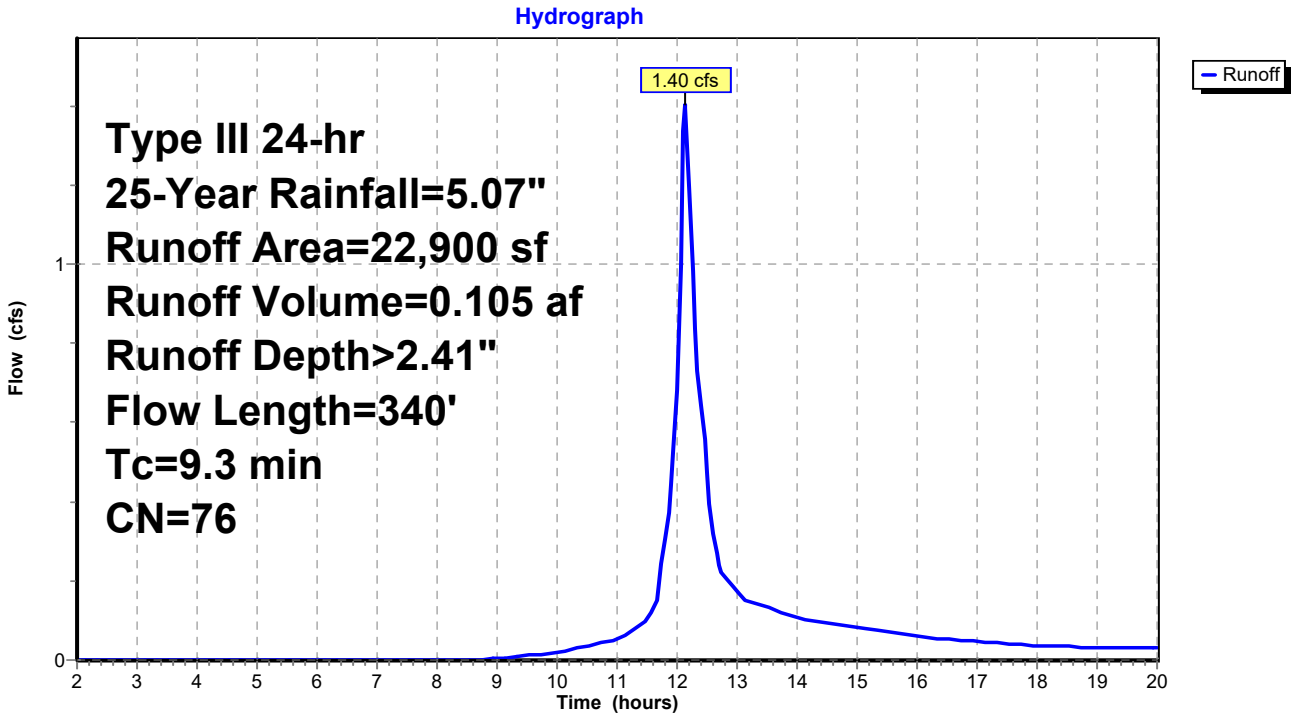
Runoff = 1.40 cfs @ 12.14 hrs, Volume= 0.105 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	0	98	Building
*	1,900	98	Pavement and Concrete
	15,700	74	>75% Grass cover, Good, HSG C
	5,300	73	Woods, Fair, HSG C
	22,900	76	Weighted Average
	21,000		91.70% Pervious Area
	1,900		8.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	40	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.0	20	0.5000	10.61		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	1.50		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	260	0.0200	2.87		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
9.3	340	Total			

Subcatchment 5S: Proposed Highway



Hydrograph for Subcatchment 5S: Proposed Highway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.23	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.34	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.01	0.01
9.50	0.84	0.01	0.01
9.75	0.90	0.02	0.02
10.00	0.96	0.03	0.02
10.25	1.02	0.04	0.03
10.50	1.10	0.06	0.03
10.75	1.18	0.08	0.04
11.00	1.27	0.11	0.05
11.25	1.37	0.14	0.07
11.50	1.51	0.19	0.10
11.75	1.80	0.32	0.24
12.00	2.53	0.72	**0.68**
12.25	3.27	1.20	**0.98**
12.50	3.56	1.41	0.47
12.75	3.70	1.51	0.22
13.00	3.80	1.59	0.17
13.25	3.89	1.66	0.14
13.50	3.97	1.72	0.13
13.75	4.05	1.77	0.12
14.00	4.11	1.82	0.11
14.25	4.17	1.87	0.10
14.50	4.23	1.92	0.09
14.75	4.28	1.96	0.09
15.00	4.33	2.00	0.08
15.25	4.38	2.03	0.08
15.50	4.42	2.07	0.07
15.75	4.46	2.10	0.07
16.00	4.49	2.12	0.06
16.25	4.52	2.15	0.05
16.50	4.55	2.17	0.05
16.75	4.58	2.20	0.05
17.00	4.61	2.22	0.05
17.25	4.64	2.24	0.04
17.50	4.66	2.26	0.04
17.75	4.68	2.28	0.04
18.00	4.70	2.29	0.04
18.25	4.73	2.31	0.03
18.50	4.74	2.33	0.03
18.75	4.76	2.34	0.03
19.00	4.78	2.36	0.03
19.25	4.80	2.37	0.03
19.50	4.82	2.39	0.03
19.75	4.84	2.40	0.03
20.00	**4.85**	**2.41**	0.03

Summary for Subcatchment 6S: Proposed Front

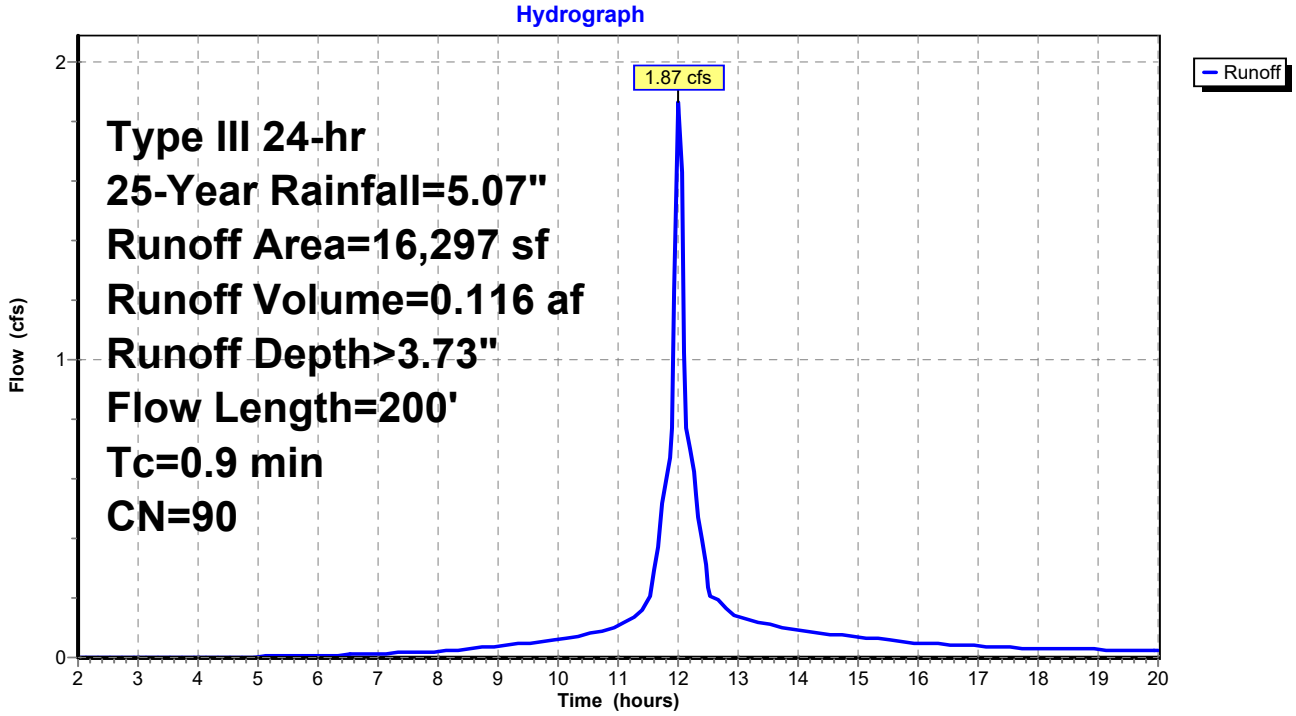
Runoff = 1.87 cfs @ 12.01 hrs, Volume= 0.116 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.07"

	Area (sf)	CN	Description
*	431	98	Building
*	10,439	98	Pavement and Concrete
	5,427	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	16,297	90	Weighted Average
	5,427		33.30% Pervious Area
	10,870		66.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0700	1.85		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.80"
0.4	150	0.1200	7.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.9	200	Total			

Subcatchment 6S: Proposed Front



Hydrograph for Subcatchment 6S: Proposed Front

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.23	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.01	0.00
5.50	0.33	0.01	0.00
5.75	0.34	0.01	0.01
6.00	0.37	0.02	0.01
6.25	0.39	0.02	0.01
6.50	0.41	0.03	0.01
6.75	0.43	0.03	0.01
7.00	0.46	0.04	0.01
7.25	0.49	0.05	0.01
7.50	0.52	0.06	0.02
7.75	0.55	0.07	0.02
8.00	0.58	0.09	0.02
8.25	0.61	0.10	0.02
8.50	0.65	0.12	0.03
8.75	0.69	0.14	0.03
9.00	0.74	0.16	0.04
9.25	0.79	0.19	0.04
9.50	0.84	0.22	0.05
9.75	0.90	0.26	0.05
10.00	0.96	0.29	0.06
10.25	1.02	0.34	0.07
10.50	1.10	0.39	0.08
10.75	1.18	0.44	0.09
11.00	1.27	0.51	0.10
11.25	1.37	0.59	0.14
11.50	1.51	0.69	0.18
11.75	1.80	0.93	0.52
12.00	2.53	1.56	**1.84**
12.25	3.27	2.23	0.62
12.50	3.56	2.50	0.24
12.75	3.70	2.63	0.18
13.00	3.80	2.73	0.13
13.25	3.89	2.82	0.12
13.50	3.97	2.89	0.11
13.75	4.05	2.96	0.10
14.00	4.11	3.03	0.09
14.25	4.17	3.08	0.08
14.50	4.23	3.14	0.08
14.75	4.28	3.19	0.07
15.00	4.33	3.23	0.07
15.25	4.38	3.28	0.06
15.50	4.42	3.32	0.06
15.75	4.46	3.35	0.05
16.00	4.49	3.39	0.05
16.25	4.52	3.42	0.05
16.50	4.55	3.45	0.04
16.75	4.58	3.48	0.04
17.00	4.61	3.50	0.04
17.25	4.64	3.53	0.04
17.50	4.66	3.55	0.03
17.75	4.68	3.57	0.03
18.00	4.70	3.59	0.03
18.25	4.73	3.61	0.03
18.50	4.74	3.63	0.03
18.75	4.76	3.65	0.03
19.00	4.78	3.67	0.03
19.25	4.80	3.68	0.03
19.50	4.82	3.70	0.03
19.75	4.84	3.72	0.02
20.00	**4.85**	**3.73**	0.02

Summary for Pond 7P: Basin North

Inflow Area = 4.153 ac, 48.83% Impervious, Inflow Depth > 3.22" for 25-Year event
Inflow = 13.69 cfs @ 12.16 hrs, Volume= 1.115 af
Outflow = 7.28 cfs @ 12.38 hrs, Volume= 1.030 af, Atten= 47%, Lag= 13.5 min
Primary = 7.28 cfs @ 12.38 hrs, Volume= 1.030 af
Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,335.44' @ 12.38 hrs Surf.Area= 5,784 sf Storage= 13,372 cf

Plug-Flow detention time= 65.4 min calculated for 1.027 af (92% of inflow)
Center-of-Mass det. time= 39.7 min (818.8 - 779.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	23,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

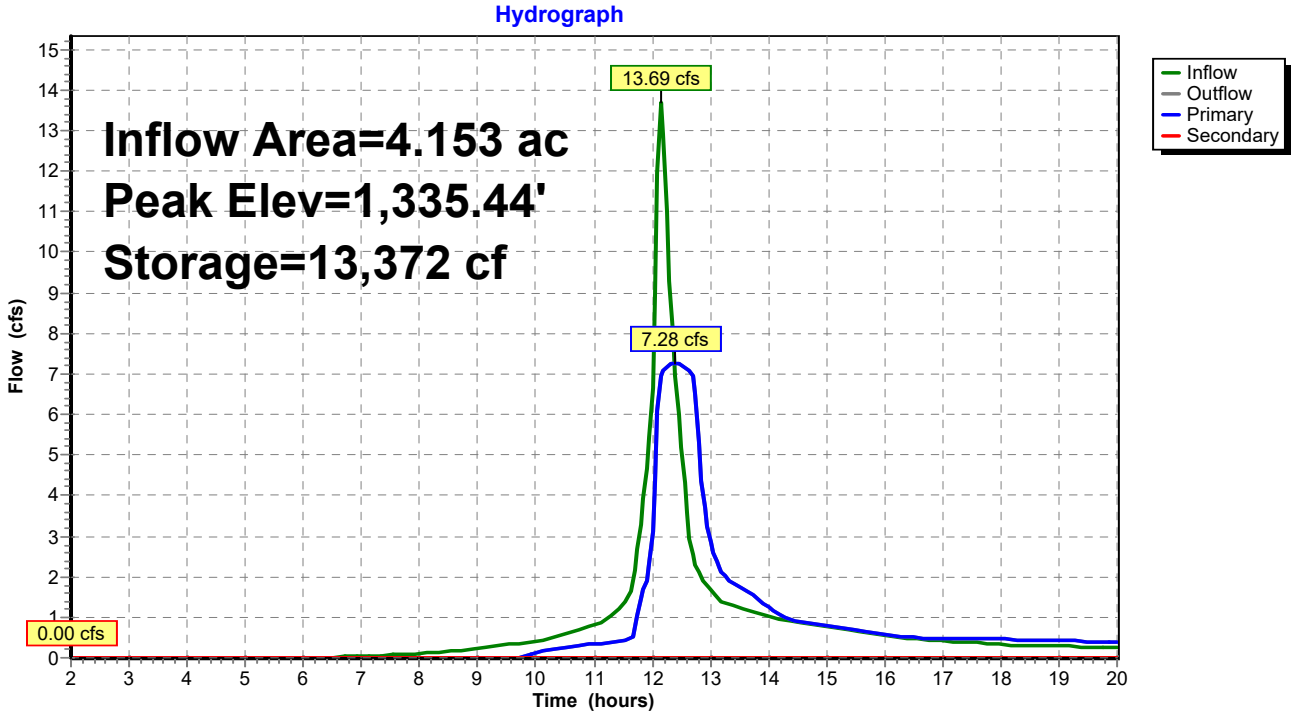
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	1,225	0	0
1,332.00	1,840	1,533	1,533
1,333.00	2,530	2,185	3,718
1,334.00	3,300	2,915	6,633
1,334.10	3,500	340	6,972
1,335.00	5,300	3,960	10,933
1,336.00	6,400	5,850	16,783
1,337.00	7,530	6,965	23,748

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Vert. Orifice** C= 0.600
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,335.90'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,334.00'	**12.0" Round Secondary Outlet Culvert X 0.00** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,334.00' / 1,330.00' S= 0.1333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#6	Secondary	1,335.60'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Device 1	1,334.00'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=7.27 cfs @ 12.38 hrs HW=1,335.44' (Free Discharge)
- **1=Primary Outlet Culvert** (Inlet Controls 7.27 cfs @ 9.26 fps)
  - **2=Orifice** (Passes < 0.76 cfs potential flow)
  - **3=Orifice** (Passes < 2.63 cfs potential flow)
  - **4=Grate** (Controls 0.00 cfs)
  - **7=Orifice/Grate** (Passes < 7.32 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=1,331.00' (Free Discharge)
- **5=Secondary Outlet Culvert** (Controls 0.00 cfs)
- **6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: Basin North



Hydrograph for Pond 7P: Basin North

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	**0.00**
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.00	0	1,331.00	0.00	0.00	0.00
5.50	0.00	0	1,331.00	0.00	0.00	0.00
6.00	0.00	0	1,331.00	0.00	0.00	0.00
6.50	0.02	14	1,331.01	0.00	0.00	0.00
7.00	0.04	63	1,331.05	0.00	0.00	0.00
7.50	0.07	159	1,331.13	0.00	0.00	0.00
8.00	0.10	313	1,331.24	0.00	0.00	0.00
8.50	0.16	543	1,331.40	0.00	0.00	0.00
9.00	0.23	889	1,331.63	0.00	0.00	0.00
9.50	0.32	1,381	1,331.92	0.00	0.00	0.00
10.00	0.42	1,989	1,332.24	0.11	0.11	0.00
10.50	0.58	2,546	1,332.50	0.24	0.24	0.00
11.00	0.79	3,256	1,332.81	0.34	0.34	0.00
11.50	1.33	4,383	1,333.25	0.44	0.44	0.00
12.00	**6.64**	**7,745**	**1,334.31**	**3.10**	**3.10**	0.00
12.50	**5.16**	**12,925**	**1,335.36**	**7.23**	**7.23**	0.00
13.00	1.68	7,590	1,334.27	2.87	2.87	0.00
13.50	1.23	6,296	1,333.90	1.74	1.74	0.00
14.00	1.01	5,602	1,333.68	1.24	1.24	0.00
14.50	0.87	5,417	1,333.61	0.91	0.91	0.00
15.00	0.76	5,350	1,333.59	0.79	0.79	0.00
15.50	0.65	5,284	1,333.57	0.70	0.70	0.00
16.00	0.54	5,198	1,333.54	0.59	0.59	0.00
16.50	0.47	5,122	1,333.51	0.51	0.51	0.00
17.00	0.42	5,043	1,333.49	0.48	0.48	0.00
17.50	0.38	4,903	1,333.44	0.47	0.47	0.00
18.00	0.33	4,696	1,333.37	0.46	0.46	0.00
18.50	0.30	4,445	1,333.28	0.44	0.44	0.00
19.00	0.29	4,197	1,333.18	0.42	0.42	0.00
19.50	0.27	3,957	1,333.09	0.40	0.40	0.00
20.00	0.26	3,726	1,333.00	0.38	0.38	0.00

Summary for Pond 8P: Basin Central

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 2.93" for 25-Year event
Inflow = 15.92 cfs @ 12.16 hrs, Volume= 1.295 af
Outflow = 6.10 cfs @ 12.51 hrs, Volume= 1.200 af, Atten= 62%, Lag= 21.0 min
Primary = 4.09 cfs @ 12.51 hrs, Volume= 1.157 af
Secondary = 2.01 cfs @ 12.51 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,336.39' @ 12.51 hrs Surf.Area= 7,816 sf Storage= 21,200 cf

Plug-Flow detention time= 78.7 min calculated for 1.196 af (92% of inflow)
Center-of-Mass det. time= 53.8 min (840.2 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	26,218 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

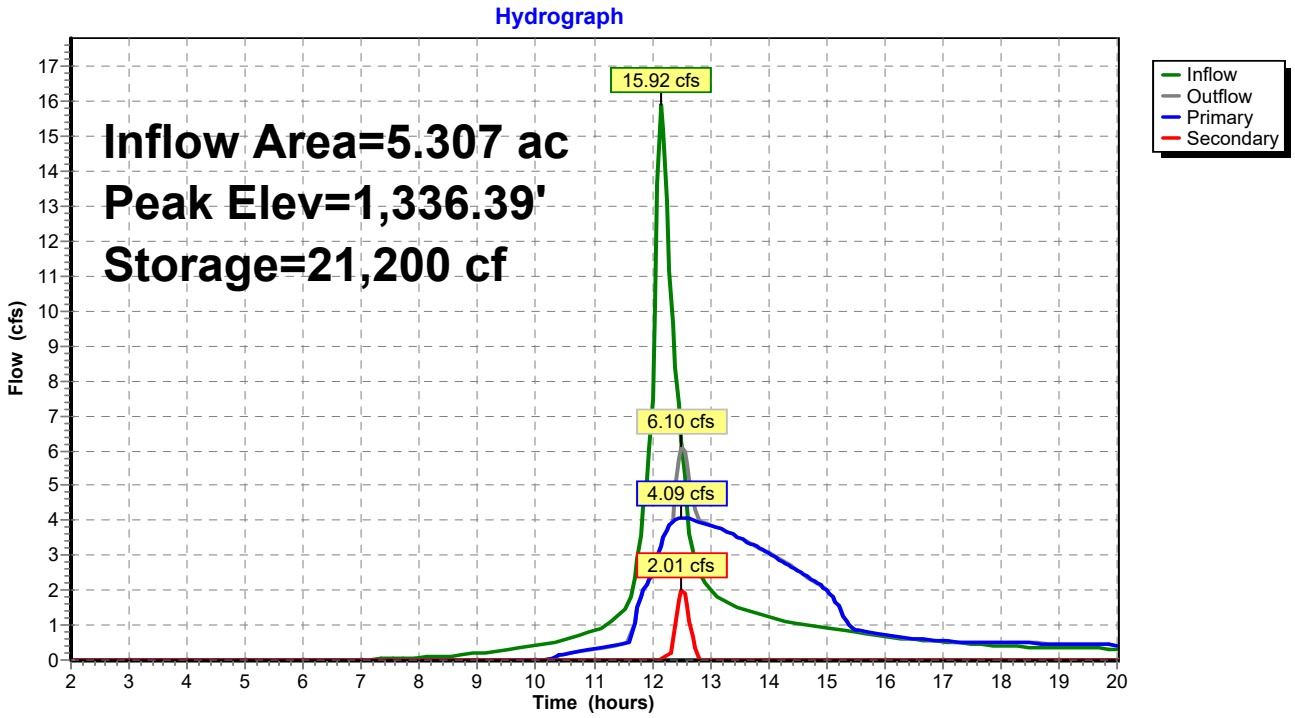
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	2,114	0	0
1,334.00	1,940	6,081	6,081
1,334.10	5,094	352	6,433
1,336.00	7,366	11,837	18,270
1,337.00	8,531	7,949	26,218

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0250 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Horiz. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,336.50'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,336.20'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.09 cfs @ 12.51 hrs HW=1,336.38' (Free Discharge)
└─**1=Primary Outlet Culvert** (Passes 4.09 cfs of 7.83 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.88 cfs @ 10.08 fps)
  ├─**3=Orifice** (Orifice Controls 3.21 cfs @ 8.18 fps)
  └─**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=1.96 cfs @ 12.51 hrs HW=1,336.38' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Weir Controls 1.96 cfs @ 1.07 fps)

Pond 8P: Basin Central



Hydrograph for Pond 8P: Basin Central

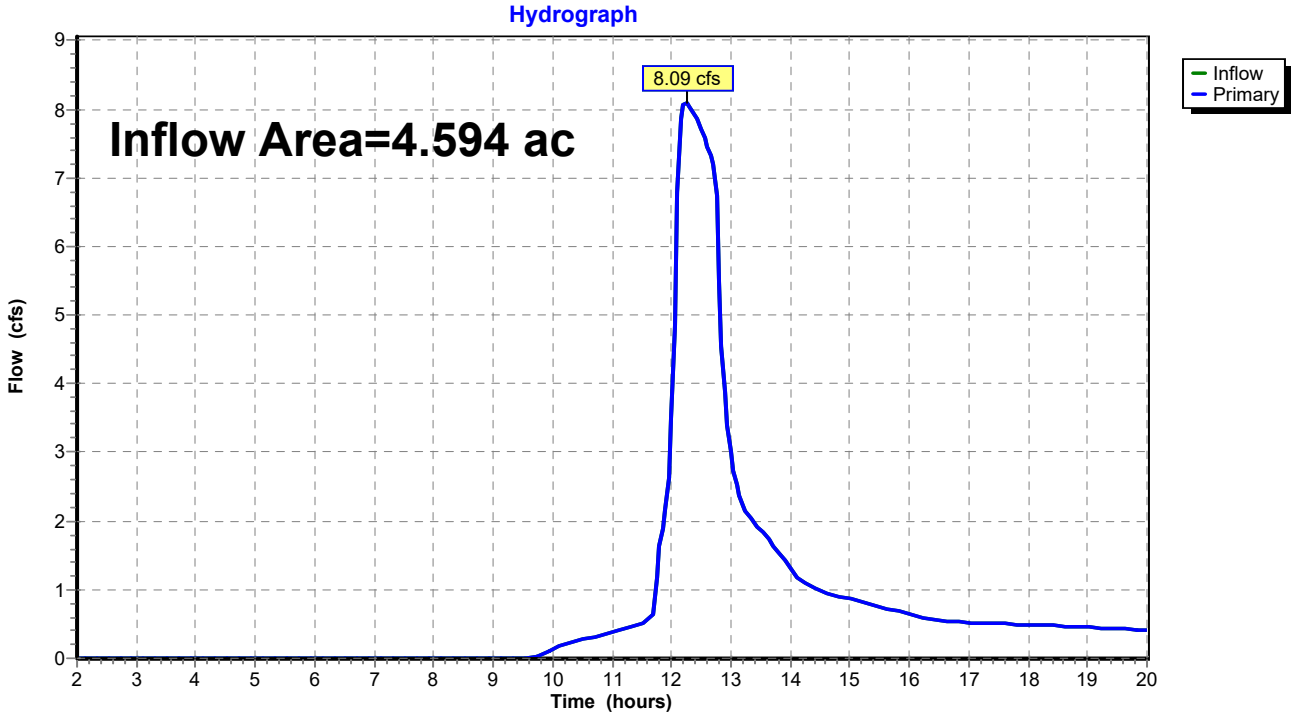
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	0.00
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.00	0	1,331.00	0.00	0.00	0.00
5.50	0.00	0	1,331.00	0.00	0.00	0.00
6.00	0.00	0	1,331.00	0.00	0.00	0.00
6.50	0.00	0	1,331.00	0.00	0.00	0.00
7.00	0.01	8	1,331.00	0.00	0.00	0.00
7.50	0.04	54	1,331.03	0.00	0.00	0.00
8.00	0.07	154	1,331.07	0.00	0.00	0.00
8.50	0.12	324	1,331.15	0.00	0.00	0.00
9.00	0.20	606	1,331.29	0.00	0.00	0.00
9.50	0.29	1,045	1,331.50	0.00	0.00	0.00
10.00	0.41	1,678	1,331.80	0.00	0.00	0.00
10.50	0.59	2,474	1,332.19	0.18	0.18	0.00
11.00	0.83	3,288	1,332.59	0.32	0.32	0.00
11.50	1.43	4,527	1,333.21	0.46	0.46	0.00
12.00	**7.48**	8,158	1,334.43	2.47	2.47	0.00
12.50	**6.29**	**21,192**	**1,336.38**	**6.09**	**4.09**	**2.00**
13.00	2.04	18,700	1,336.06	3.87	3.87	0.00
13.50	1.50	15,103	1,335.55	3.50	3.50	0.00
14.00	1.24	11,651	1,335.02	3.06	3.06	0.00
14.50	1.06	8,618	1,334.51	2.56	2.56	0.00
15.00	0.93	6,270	1,334.06	2.02	2.02	0.00
15.50	0.80	5,304	1,333.60	0.87	0.87	0.00
16.00	0.67	5,230	1,333.56	0.70	0.70	0.00
16.50	0.58	5,173	1,333.54	0.60	0.60	0.00
17.00	0.52	5,138	1,333.52	0.54	0.54	0.00
17.50	0.46	5,080	1,333.49	0.51	0.51	0.00
18.00	0.40	4,948	1,333.42	0.50	0.50	0.00
18.50	0.37	4,753	1,333.32	0.48	0.48	0.00
19.00	0.35	4,553	1,333.22	0.46	0.46	0.00
19.50	0.34	4,357	1,333.12	0.45	0.45	0.00
20.00	0.32	4,163	1,333.03	0.43	0.43	0.00

Summary for Link 4L: DP 1

Inflow Area = 4.594 ac, 44.20% Impervious, Inflow Depth > 2.90" for 25-Year event
Inflow = 8.09 cfs @ 12.25 hrs, Volume= 1.112 af
Primary = 8.09 cfs @ 12.25 hrs, Volume= 1.112 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

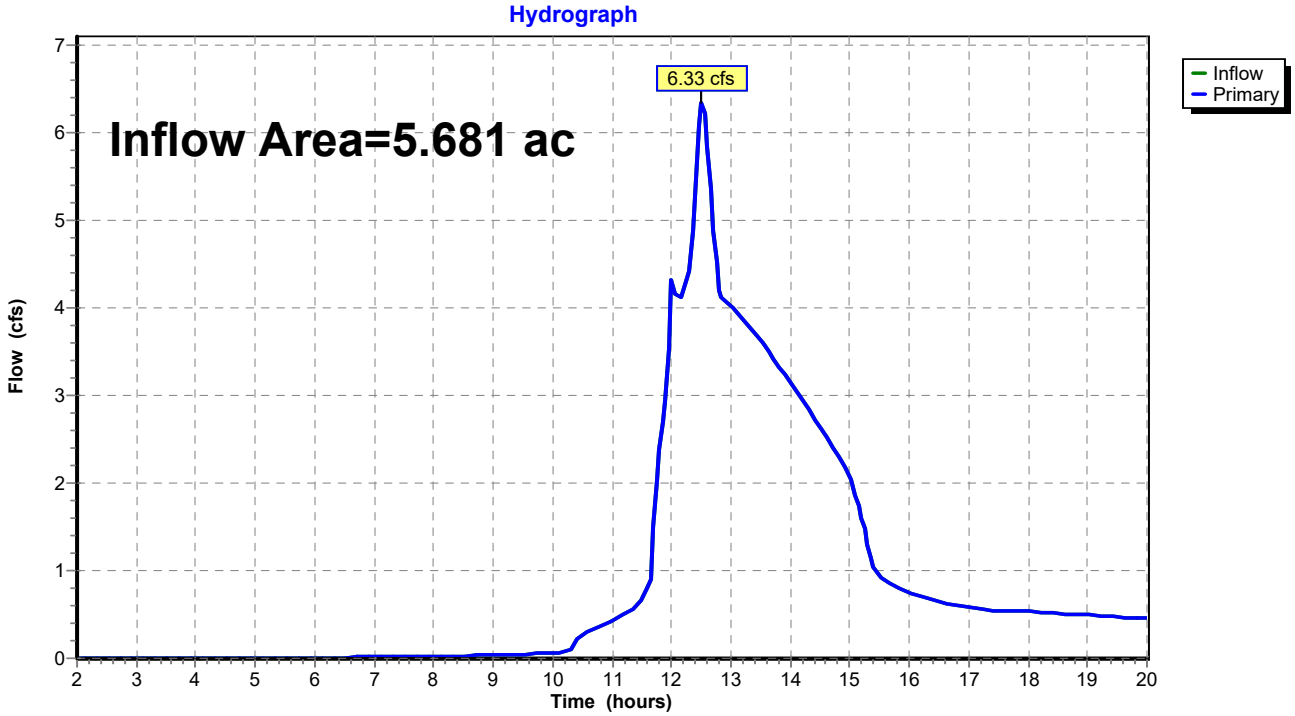
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.86	0.00	0.86
2.25	0.00	0.00	0.00	15.25	0.80	0.00	0.80
2.50	0.00	0.00	0.00	15.50	0.75	0.00	0.75
2.75	0.00	0.00	0.00	15.75	0.70	0.00	0.70
3.00	0.00	0.00	0.00	16.00	0.64	0.00	0.64
3.25	0.00	0.00	0.00	16.25	0.58	0.00	0.58
3.50	0.00	0.00	0.00	16.50	0.55	0.00	0.55
3.75	0.00	0.00	0.00	16.75	0.53	0.00	0.53
4.00	0.00	0.00	0.00	17.00	0.52	0.00	0.52
4.25	0.00	0.00	0.00	17.25	0.52	0.00	0.52
4.50	0.00	0.00	0.00	17.50	0.51	0.00	0.51
4.75	0.00	0.00	0.00	17.75	0.50	0.00	0.50
5.00	0.00	0.00	0.00	18.00	0.49	0.00	0.49
5.25	0.00	0.00	0.00	18.25	0.48	0.00	0.48
5.50	0.00	0.00	0.00	18.50	0.47	0.00	0.47
5.75	0.00	0.00	0.00	18.75	0.46	0.00	0.46
6.00	0.00	0.00	0.00	19.00	0.45	0.00	0.45
6.25	0.00	0.00	0.00	19.25	0.44	0.00	0.44
6.50	0.00	0.00	0.00	19.50	0.43	0.00	0.43
6.75	0.00	0.00	0.00	19.75	0.42	0.00	0.42
7.00	0.00	0.00	0.00	20.00	0.41	0.00	0.41
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.02	0.00	0.02				
10.00	0.12	0.00	0.12				
10.25	0.20	0.00	0.20				
10.50	0.26	0.00	0.26				
10.75	0.32	0.00	0.32				
11.00	0.37	0.00	0.37				
11.25	0.43	0.00	0.43				
11.50	0.51	0.00	0.51				
11.75	1.17	0.00	1.17				
12.00	3.49	0.00	3.49				
12.25	**8.09**	0.00	**8.09**				
12.50	7.70	0.00	7.70				
12.75	6.74	0.00	6.74				
13.00	3.02	0.00	3.02				
13.25	2.13	0.00	2.13				
13.50	1.85	0.00	1.85				
13.75	1.61	0.00	1.61				
14.00	1.33	0.00	1.33				
14.25	1.09	0.00	1.09				
14.50	0.99	0.00	0.99				
14.75	0.92	0.00	0.92				

Summary for Link 5L: DP 2

Inflow Area = 5.681 ac, 34.10% Impervious, Inflow Depth > 2.78" for 25-Year event
Inflow = 6.33 cfs @ 12.51 hrs, Volume= 1.316 af
Primary = 6.33 cfs @ 12.51 hrs, Volume= 1.316 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

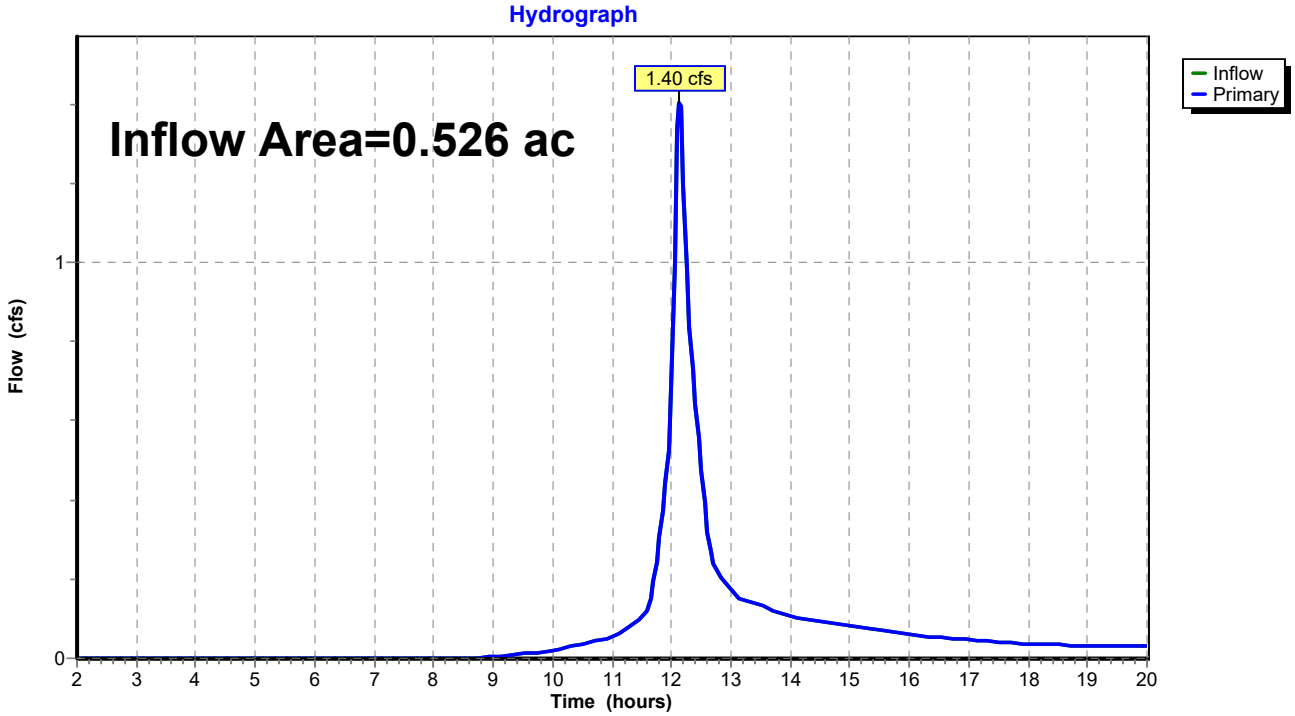
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	2.09	0.00	2.09
2.25	0.00	0.00	0.00	15.25	1.48	0.00	1.48
2.50	0.00	0.00	0.00	15.50	0.93	0.00	0.93
2.75	0.00	0.00	0.00	15.75	0.82	0.00	0.82
3.00	0.00	0.00	0.00	16.00	0.75	0.00	0.75
3.25	0.00	0.00	0.00	16.25	0.69	0.00	0.69
3.50	0.00	0.00	0.00	16.50	0.64	0.00	0.64
3.75	0.00	0.00	0.00	16.75	0.61	0.00	0.61
4.00	0.00	0.00	0.00	17.00	0.58	0.00	0.58
4.25	0.00	0.00	0.00	17.25	0.56	0.00	0.56
4.50	0.00	0.00	0.00	17.50	0.55	0.00	0.55
4.75	0.00	0.00	0.00	17.75	0.54	0.00	0.54
5.00	0.00	0.00	0.00	18.00	0.53	0.00	0.53
5.25	0.00	0.00	0.00	18.25	0.52	0.00	0.52
5.50	0.00	0.00	0.00	18.50	0.51	0.00	0.51
5.75	0.01	0.00	0.01	18.75	0.50	0.00	0.50
6.00	0.01	0.00	0.01	19.00	0.49	0.00	0.49
6.25	0.01	0.00	0.01	19.25	0.48	0.00	0.48
6.50	0.01	0.00	0.01	19.50	0.47	0.00	0.47
6.75	0.01	0.00	0.01	19.75	0.46	0.00	0.46
7.00	0.01	0.00	0.01	20.00	0.45	0.00	0.45
7.25	0.01	0.00	0.01				
7.50	0.02	0.00	0.02				
7.75	0.02	0.00	0.02				
8.00	0.02	0.00	0.02				
8.25	0.02	0.00	0.02				
8.50	0.03	0.00	0.03				
8.75	0.03	0.00	0.03				
9.00	0.04	0.00	0.04				
9.25	0.04	0.00	0.04				
9.50	0.05	0.00	0.05				
9.75	0.05	0.00	0.05				
10.00	0.06	0.00	0.06				
10.25	0.07	0.00	0.07				
10.50	0.26	0.00	0.26				
10.75	0.35	0.00	0.35				
11.00	0.42	0.00	0.42				
11.25	0.52	0.00	0.52				
11.50	0.64	0.00	0.64				
11.75	2.04	0.00	2.04				
12.00	4.32	0.00	4.32				
12.25	4.34	0.00	4.34				
12.50	**6.33**	0.00	**6.33**				
12.75	4.50	0.00	4.50				
13.00	4.00	0.00	4.00				
13.25	3.82	0.00	3.82				
13.50	3.61	0.00	3.61				
13.75	3.39	0.00	3.39				
14.00	3.15	0.00	3.15				
14.25	2.91	0.00	2.91				
14.50	2.64	0.00	2.64				
14.75	2.37	0.00	2.37				

Summary for Link 6L: DP 3

Inflow Area = 0.526 ac, 8.30% Impervious, Inflow Depth > 2.41" for 25-Year event
Inflow = 1.40 cfs @ 12.14 hrs, Volume= 0.105 af
Primary = 1.40 cfs @ 12.14 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

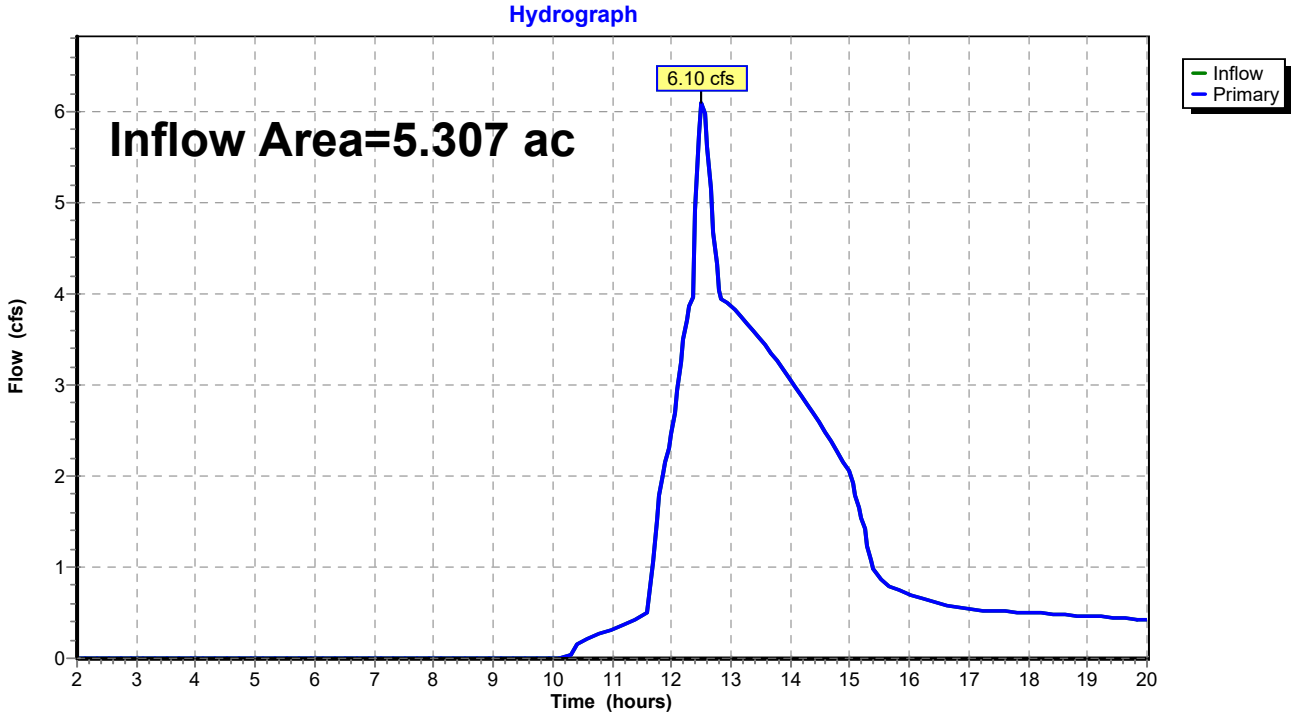
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.08	0.00	0.08
2.25	0.00	0.00	0.00	15.25	0.08	0.00	0.08
2.50	0.00	0.00	0.00	15.50	0.07	0.00	0.07
2.75	0.00	0.00	0.00	15.75	0.07	0.00	0.07
3.00	0.00	0.00	0.00	16.00	0.06	0.00	0.06
3.25	0.00	0.00	0.00	16.25	0.05	0.00	0.05
3.50	0.00	0.00	0.00	16.50	0.05	0.00	0.05
3.75	0.00	0.00	0.00	16.75	0.05	0.00	0.05
4.00	0.00	0.00	0.00	17.00	0.05	0.00	0.05
4.25	0.00	0.00	0.00	17.25	0.04	0.00	0.04
4.50	0.00	0.00	0.00	17.50	0.04	0.00	0.04
4.75	0.00	0.00	0.00	17.75	0.04	0.00	0.04
5.00	0.00	0.00	0.00	18.00	0.04	0.00	0.04
5.25	0.00	0.00	0.00	18.25	0.03	0.00	0.03
5.50	0.00	0.00	0.00	18.50	0.03	0.00	0.03
5.75	0.00	0.00	0.00	18.75	0.03	0.00	0.03
6.00	0.00	0.00	0.00	19.00	0.03	0.00	0.03
6.25	0.00	0.00	0.00	19.25	0.03	0.00	0.03
6.50	0.00	0.00	0.00	19.50	0.03	0.00	0.03
6.75	0.00	0.00	0.00	19.75	0.03	0.00	0.03
7.00	0.00	0.00	0.00	20.00	0.03	0.00	0.03
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.02	0.00	0.02				
10.00	0.02	0.00	0.02				
10.25	0.03	0.00	0.03				
10.50	0.03	0.00	0.03				
10.75	0.04	0.00	0.04				
11.00	0.05	0.00	0.05				
11.25	0.07	0.00	0.07				
11.50	0.10	0.00	0.10				
11.75	0.24	0.00	0.24				
12.00	**0.68**	0.00	**0.68**				
12.25	**0.98**	0.00	**0.98**				
12.50	0.47	0.00	0.47				
12.75	0.22	0.00	0.22				
13.00	0.17	0.00	0.17				
13.25	0.14	0.00	0.14				
13.50	0.13	0.00	0.13				
13.75	0.12	0.00	0.12				
14.00	0.11	0.00	0.11				
14.25	0.10	0.00	0.10				
14.50	0.09	0.00	0.09				
14.75	0.09	0.00	0.09				

Summary for Link 11L: DMH

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 2.71" for 25-Year event
Inflow = 6.10 cfs @ 12.51 hrs, Volume= 1.200 af
Primary = 6.10 cfs @ 12.51 hrs, Volume= 1.200 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 11L: DMH



Hydrograph for Link 11L: DMH

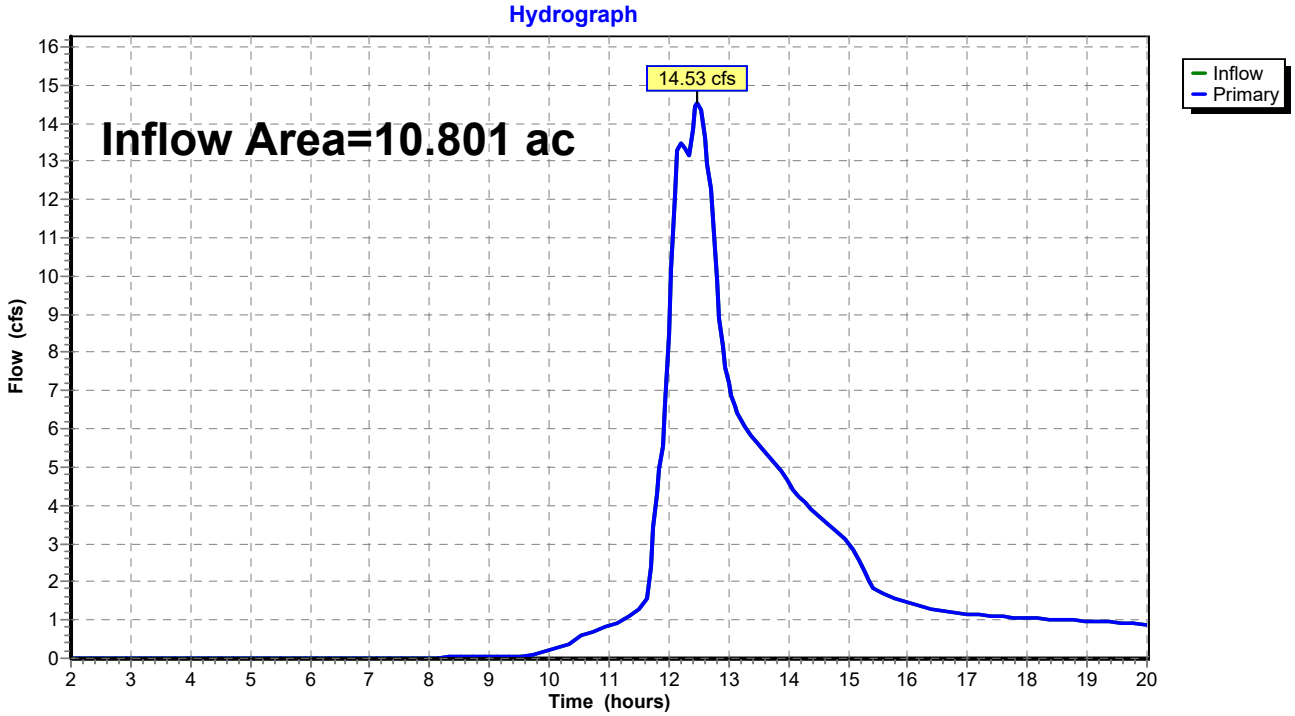
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	2.02	0.00	2.02
2.25	0.00	0.00	0.00	15.25	1.42	0.00	1.42
2.50	0.00	0.00	0.00	15.50	0.87	0.00	0.87
2.75	0.00	0.00	0.00	15.75	0.76	0.00	0.76
3.00	0.00	0.00	0.00	16.00	0.70	0.00	0.70
3.25	0.00	0.00	0.00	16.25	0.64	0.00	0.64
3.50	0.00	0.00	0.00	16.50	0.60	0.00	0.60
3.75	0.00	0.00	0.00	16.75	0.57	0.00	0.57
4.00	0.00	0.00	0.00	17.00	0.54	0.00	0.54
4.25	0.00	0.00	0.00	17.25	0.52	0.00	0.52
4.50	0.00	0.00	0.00	17.50	0.51	0.00	0.51
4.75	0.00	0.00	0.00	17.75	0.51	0.00	0.51
5.00	0.00	0.00	0.00	18.00	0.50	0.00	0.50
5.25	0.00	0.00	0.00	18.25	0.49	0.00	0.49
5.50	0.00	0.00	0.00	18.50	0.48	0.00	0.48
5.75	0.00	0.00	0.00	18.75	0.47	0.00	0.47
6.00	0.00	0.00	0.00	19.00	0.46	0.00	0.46
6.25	0.00	0.00	0.00	19.25	0.45	0.00	0.45
6.50	0.00	0.00	0.00	19.50	0.45	0.00	0.45
6.75	0.00	0.00	0.00	19.75	0.44	0.00	0.44
7.00	0.00	0.00	0.00	20.00	0.43	0.00	0.43
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.18	0.00	0.18				
10.75	0.26	0.00	0.26				
11.00	0.32	0.00	0.32				
11.25	0.39	0.00	0.39				
11.50	0.46	0.00	0.46				
11.75	1.52	0.00	1.52				
12.00	2.47	0.00	2.47				
12.25	3.71	0.00	3.71				
12.50	**6.09**	0.00	**6.09**				
12.75	4.33	0.00	4.33				
13.00	3.87	0.00	3.87				
13.25	3.70	0.00	3.70				
13.50	3.50	0.00	3.50				
13.75	3.29	0.00	3.29				
14.00	3.06	0.00	3.06				
14.25	2.82	0.00	2.82				
14.50	2.56	0.00	2.56				
14.75	2.30	0.00	2.30				

Summary for Link 12L: (new Link)

Inflow Area = 10.801 ac, 37.14% Impervious, Inflow Depth > 2.81" for 25-Year event
Inflow = 14.53 cfs @ 12.48 hrs, Volume= 2.534 af
Primary = 14.53 cfs @ 12.48 hrs, Volume= 2.534 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 12L: (new Link)



Hydrograph for Link 12L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	3.04	0.00	3.04
2.25	0.00	0.00	0.00	15.25	2.36	0.00	2.36
2.50	0.00	0.00	0.00	15.50	1.76	0.00	1.76
2.75	0.00	0.00	0.00	15.75	1.58	0.00	1.58
3.00	0.00	0.00	0.00	16.00	1.45	0.00	1.45
3.25	0.00	0.00	0.00	16.25	1.33	0.00	1.33
3.50	0.00	0.00	0.00	16.50	1.25	0.00	1.25
3.75	0.00	0.00	0.00	16.75	1.19	0.00	1.19
4.00	0.00	0.00	0.00	17.00	1.15	0.00	1.15
4.25	0.00	0.00	0.00	17.25	1.12	0.00	1.12
4.50	0.00	0.00	0.00	17.50	1.10	0.00	1.10
4.75	0.00	0.00	0.00	17.75	1.08	0.00	1.08
5.00	0.00	0.00	0.00	18.00	1.06	0.00	1.06
5.25	0.00	0.00	0.00	18.25	1.04	0.00	1.04
5.50	0.00	0.00	0.00	18.50	1.01	0.00	1.01
5.75	0.01	0.00	0.01	18.75	0.99	0.00	0.99
6.00	0.01	0.00	0.01	19.00	0.97	0.00	0.97
6.25	0.01	0.00	0.01	19.25	0.95	0.00	0.95
6.50	0.01	0.00	0.01	19.50	0.93	0.00	0.93
6.75	0.01	0.00	0.01	19.75	0.91	0.00	0.91
7.00	0.01	0.00	0.01	20.00	0.89	0.00	0.89
7.25	0.01	0.00	0.01				
7.50	0.02	0.00	0.02				
7.75	0.02	0.00	0.02				
8.00	0.02	0.00	0.02				
8.25	0.02	0.00	0.02				
8.50	0.03	0.00	0.03				
8.75	0.04	0.00	0.04				
9.00	0.04	0.00	0.04				
9.25	0.05	0.00	0.05				
9.50	0.06	0.00	0.06				
9.75	0.09	0.00	0.09				
10.00	0.20	0.00	0.20				
10.25	0.30	0.00	0.30				
10.50	0.56	0.00	0.56				
10.75	0.71	0.00	0.71				
11.00	0.85	0.00	0.85				
11.25	1.03	0.00	1.03				
11.50	1.25	0.00	1.25				
11.75	3.45	0.00	3.45				
12.00	8.49	0.00	8.49				
12.25	13.41	0.00	13.41				
12.50	**14.50**	0.00	**14.50**				
12.75	11.47	0.00	11.47				
13.00	7.20	0.00	7.20				
13.25	6.10	0.00	6.10				
13.50	5.60	0.00	5.60				
13.75	5.13	0.00	5.13				
14.00	4.59	0.00	4.59				
14.25	4.10	0.00	4.10				
14.50	3.73	0.00	3.73				
14.75	3.38	0.00	3.38				

Summary for Subcatchment 1S: Remaining North

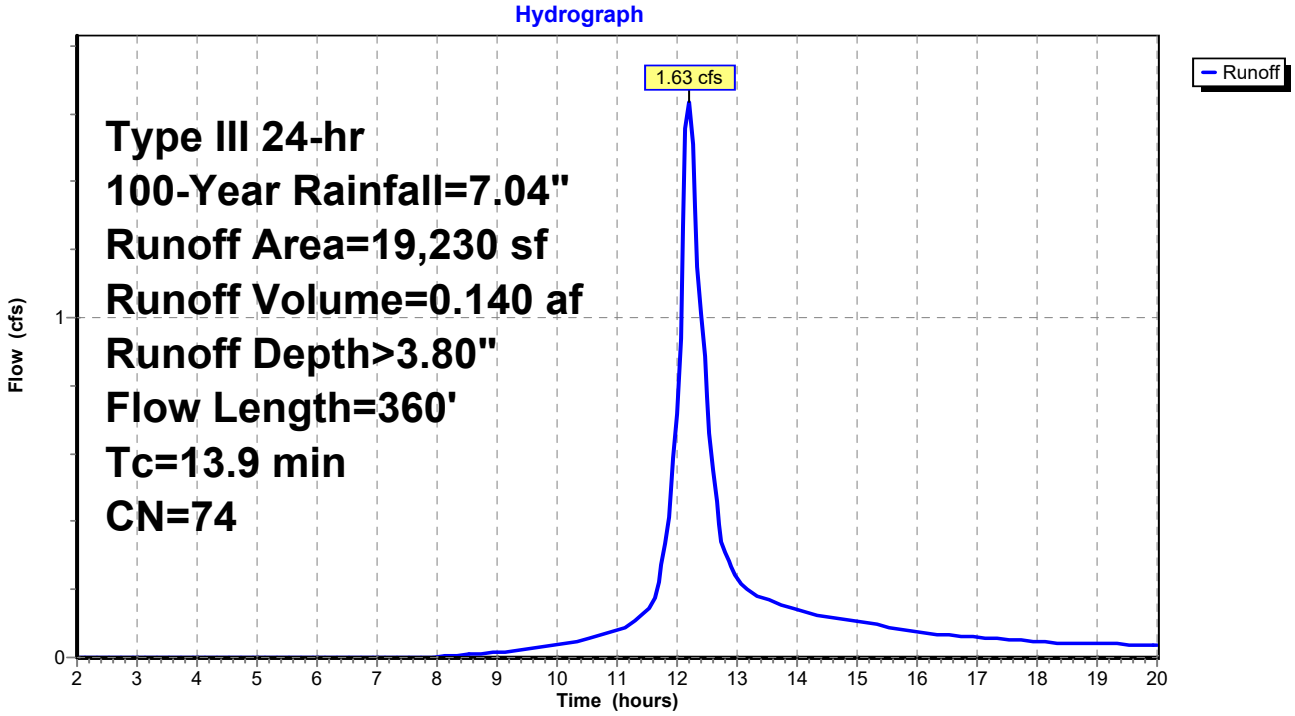
Runoff = 1.63 cfs @ 12.19 hrs, Volume= 0.140 af, Depth> 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	0	98	Building
*	125	98	Pavement and Concrete
	12,705	74	>75% Grass cover, Good, HSG C
	6,400	73	Woods, Fair, HSG C
	19,230	74	Weighted Average
	19,105		99.35% Pervious Area
	125		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0400	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
3.9	310	0.0700	1.32		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
13.9	360	Total			

Subcatchment 1S: Remaining North



Hydrograph for Subcatchment 1S: Remaining North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.18	0.00	0.00
2.75	0.20	0.00	0.00
3.00	0.22	0.00	0.00
3.25	0.24	0.00	0.00
3.50	0.26	0.00	0.00
3.75	0.28	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.33	0.00	0.00
4.50	0.35	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.40	0.00	0.00
5.25	0.43	0.00	0.00
5.50	0.45	0.00	0.00
5.75	0.48	0.00	0.00
6.00	0.51	0.00	0.00
6.25	0.54	0.00	0.00
6.50	0.57	0.00	0.00
6.75	0.60	0.00	0.00
7.00	0.64	0.00	0.00
7.25	0.68	0.00	0.00
7.50	0.72	0.00	0.00
7.75	0.76	0.00	0.00
8.00	0.80	0.00	0.00
8.25	0.85	0.01	0.00
8.50	0.90	0.01	0.01
8.75	0.96	0.02	0.01
9.00	1.03	0.03	0.02
9.25	1.09	0.04	0.02
9.50	1.17	0.05	0.02
9.75	1.25	0.07	0.03
10.00	1.33	0.10	0.04
10.25	1.42	0.12	0.04
10.50	1.52	0.16	0.06
10.75	1.64	0.20	0.07
11.00	1.76	0.24	0.08
11.25	1.91	0.31	0.10
11.50	2.10	0.40	0.14
11.75	2.50	0.61	0.27
12.00	3.52	1.25	**0.71**
12.25	4.54	2.00	**1.51**
12.50	4.94	2.32	0.77
12.75	5.13	2.47	0.34
13.00	5.28	2.59	0.24
13.25	5.40	2.69	0.19
13.50	5.52	2.78	0.17
13.75	5.62	2.87	0.16
14.00	5.71	2.94	0.14
14.25	5.79	3.01	0.13
14.50	5.87	3.08	0.12
14.75	5.95	3.14	0.11
15.00	6.01	3.20	0.11
15.25	6.08	3.25	0.10
15.50	6.14	3.30	0.09
15.75	6.19	3.34	0.08
16.00	6.24	3.39	0.08
16.25	6.28	3.42	0.07
16.50	6.32	3.46	0.07
16.75	6.36	3.49	0.06
17.00	6.40	3.53	0.06
17.25	6.44	3.56	0.06
17.50	6.47	3.59	0.05
17.75	6.50	3.61	0.05
18.00	6.53	3.64	0.05
18.25	6.56	3.66	0.04
18.50	6.59	3.69	0.04
18.75	6.61	3.71	0.04
19.00	6.64	3.73	0.04
19.25	6.67	3.75	0.04
19.50	6.69	3.77	0.04
19.75	6.71	3.79	0.04
20.00	**6.74**	**3.81**	0.04

Summary for Subcatchment 2S: Proposed North

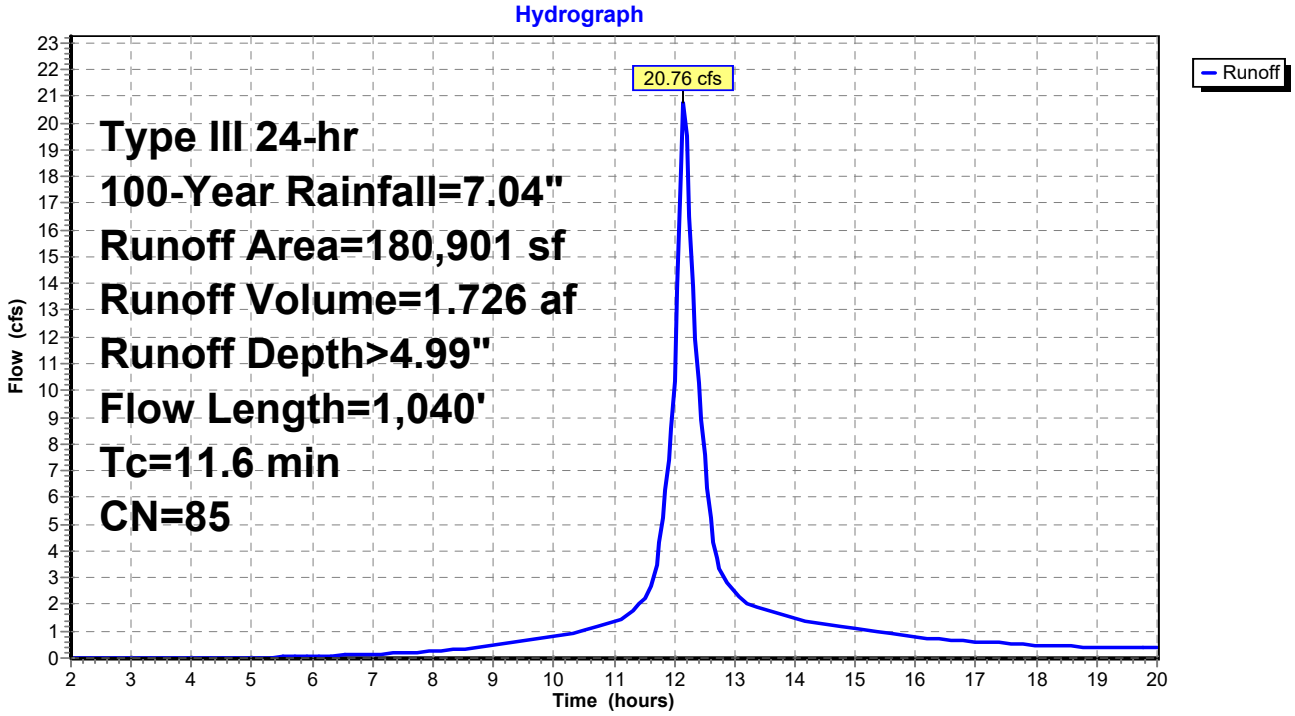
Runoff = 20.76 cfs @ 12.16 hrs, Volume= 1.726 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	28,702	98	Building
*	59,626	98	Pavement and Concrete
	49,289	74	>75% Grass cover, Good, HSG C
	43,284	73	Woods, Fair, HSG C
	180,901	85	Weighted Average
	92,573		51.17% Pervious Area
	88,328		48.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	20	0.0500	0.08		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
2.9	20	0.0500	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 2.80"
0.9	100	0.0150	1.84		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.6	180	0.1200	5.20		**Shallow Concentrated Flow, Lawn** Grassed Waterway Kv= 15.0 fps
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
2.5	680	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
11.6	1,040	Total			

Subcatchment 2S: Proposed North



Hydrograph for Subcatchment 2S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.18	0.00	0.00
2.75	0.20	0.00	0.00
3.00	0.22	0.00	0.00
3.25	0.24	0.00	0.00
3.50	0.26	0.00	0.00
3.75	0.28	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.33	0.00	0.00
4.50	0.35	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.40	0.00	0.01
5.25	0.43	0.00	0.03
5.50	0.45	0.01	0.04
5.75	0.48	0.01	0.05
6.00	0.51	0.01	0.06
6.25	0.54	0.02	0.08
6.50	0.57	0.02	0.10
6.75	0.60	0.03	0.12
7.00	0.64	0.04	0.14
7.25	0.68	0.05	0.17
7.50	0.72	0.06	0.20
7.75	0.76	0.08	0.22
8.00	0.80	0.09	0.26
8.25	0.85	0.11	0.30
8.50	0.90	0.13	0.35
8.75	0.96	0.16	0.41
9.00	1.03	0.19	0.48
9.25	1.09	0.22	0.55
9.50	1.17	0.26	0.62
9.75	1.25	0.30	0.70
10.00	1.33	0.35	0.78
10.25	1.42	0.40	0.89
10.50	1.52	0.47	1.04
10.75	1.64	0.54	1.19
11.00	1.76	0.62	1.36
11.25	1.91	0.73	1.66
11.50	2.10	0.87	2.20
11.75	2.50	1.18	4.31
12.00	3.52	2.03	**10.36**
12.25	4.54	2.94	**16.53**
12.50	4.94	3.31	7.62
12.75	5.13	3.49	3.34
13.00	5.28	3.63	2.46
13.25	5.40	3.74	1.98
13.50	5.52	3.85	1.80
13.75	5.62	3.94	1.64
14.00	5.71	4.03	1.47
14.25	5.79	4.11	1.34
14.50	5.87	4.18	1.26
14.75	5.95	4.25	1.18
15.00	6.01	4.32	1.10
15.25	6.08	4.38	1.02
15.50	6.14	4.43	0.94
15.75	6.19	4.48	0.86
16.00	6.24	4.53	0.78
16.25	6.28	4.57	0.72
16.50	6.32	4.61	0.68
16.75	6.36	4.65	0.65
17.00	6.40	4.68	0.61
17.25	6.44	4.72	0.58
17.50	6.47	4.75	0.54
17.75	6.50	4.78	0.51
18.00	6.53	4.81	0.47
18.25	6.56	4.83	0.45
18.50	6.59	4.86	0.44
18.75	6.61	4.88	0.42
19.00	6.64	4.91	0.41
19.25	6.67	4.93	0.40
19.50	6.69	4.96	0.39
19.75	6.71	4.98	0.38
20.00	**6.74**	**5.00**	0.37

Summary for Subcatchment 3S: Proposed Central

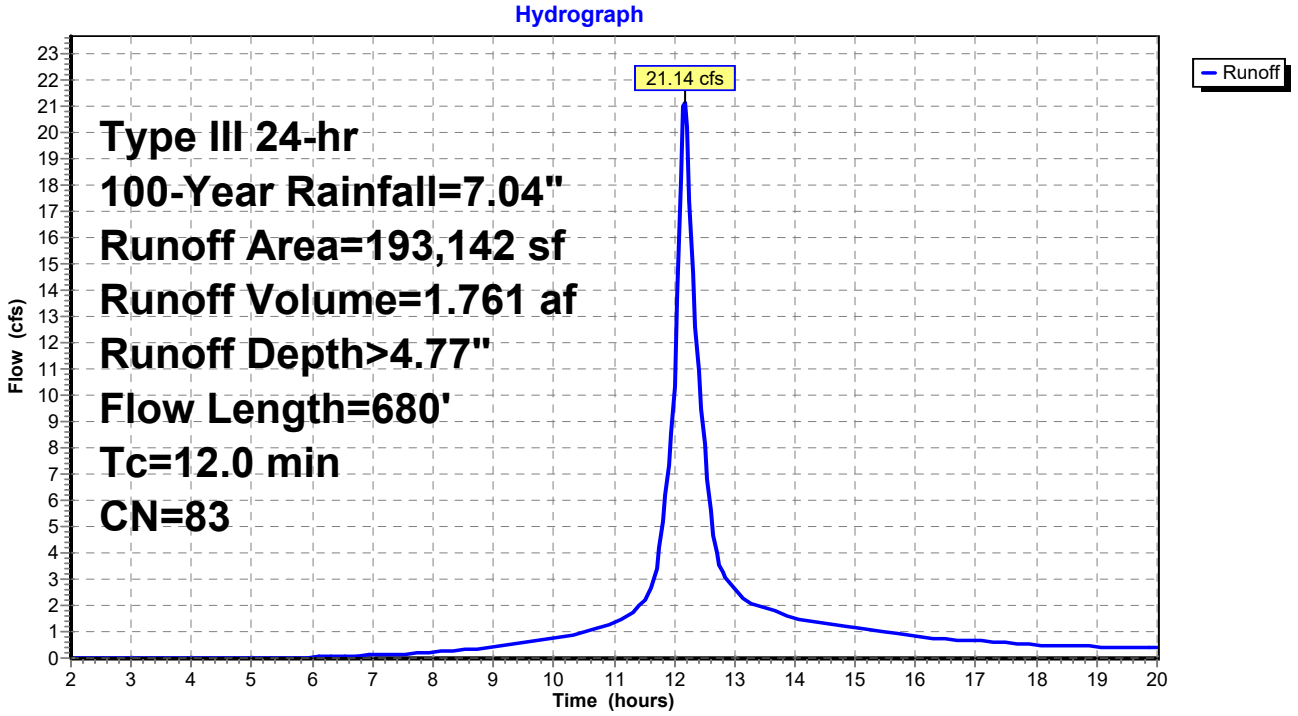
Runoff = 21.14 cfs @ 12.16 hrs, Volume= 1.761 af, Depth> 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	22,490	98	Building
*	47,709	98	Pavement and Concrete
	122,943	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	193,142	83	Weighted Average
	122,943		63.65% Pervious Area
	70,199		36.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.4	30	0.0500	1.12		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.1	50	0.3300	8.62		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	70	0.1000	6.42		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.4	380	0.0100	4.54	3.56	**Pipe Channel, Pipe** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
12.0	680	Total			

Subcatchment 3S: Proposed Central



Hydrograph for Subcatchment 3S: Proposed Central

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.14	0.00	0.00	15.00	6.01	4.10	1.16
2.25	0.16	0.00	0.00	15.25	6.08	4.16	1.07
2.50	0.18	0.00	0.00	15.50	6.14	4.22	0.99
2.75	0.20	0.00	0.00	15.75	6.19	4.27	0.91
3.00	0.22	0.00	0.00	16.00	6.24	4.31	0.83
3.25	0.24	0.00	0.00	16.25	6.28	4.35	0.76
3.50	0.26	0.00	0.00	16.50	6.32	4.39	0.72
3.75	0.28	0.00	0.00	16.75	6.36	4.43	0.68
4.00	0.30	0.00	0.00	17.00	6.40	4.47	0.65
4.25	0.33	0.00	0.00	17.25	6.44	4.50	0.61
4.50	0.35	0.00	0.00	17.50	6.47	4.53	0.57
4.75	0.37	0.00	0.00	17.75	6.50	4.56	0.54
5.00	0.40	0.00	0.00	18.00	6.53	4.59	0.50
5.25	0.43	0.00	0.00	18.25	6.56	4.61	0.47
5.50	0.45	0.00	0.01	18.50	6.59	4.64	0.46
5.75	0.48	0.00	0.02	18.75	6.61	4.67	0.45
6.00	0.51	0.00	0.04	19.00	6.64	4.69	0.44
6.25	0.54	0.01	0.05	19.25	6.67	4.71	0.43
6.50	0.57	0.01	0.07	19.50	6.69	4.74	0.41
6.75	0.60	0.02	0.09	19.75	6.71	4.76	0.40
7.00	0.64	0.02	0.11	20.00	**6.74**	**4.78**	0.39
7.25	0.68	0.03	0.13				
7.50	0.72	0.04	0.16				
7.75	0.76	0.05	0.19				
8.00	0.80	0.06	0.22				
8.25	0.85	0.08	0.26				
8.50	0.90	0.10	0.31				
8.75	0.96	0.12	0.37				
9.00	1.03	0.14	0.43				
9.25	1.09	0.17	0.50				
9.50	1.17	0.21	0.58				
9.75	1.25	0.24	0.66				
10.00	1.33	0.29	0.74				
10.25	1.42	0.33	0.85				
10.50	1.52	0.39	1.00				
10.75	1.64	0.46	1.16				
11.00	1.76	0.54	1.33				
11.25	1.91	0.63	1.62				
11.50	2.10	0.76	2.17				
11.75	2.50	1.06	4.23				
12.00	3.52	1.88	**10.33**				
12.25	4.54	2.76	**17.38**				
12.50	4.94	3.12	8.11				
12.75	5.13	3.29	3.55				
13.00	5.28	3.43	2.59				
13.25	5.40	3.54	2.08				
13.50	5.52	3.64	1.89				
13.75	5.62	3.74	1.72				
14.00	5.71	3.82	1.55				
14.25	5.79	3.90	1.41				
14.50	5.87	3.97	1.32				
14.75	5.95	4.04	1.24				

Summary for Subcatchment 4S: Proposed South

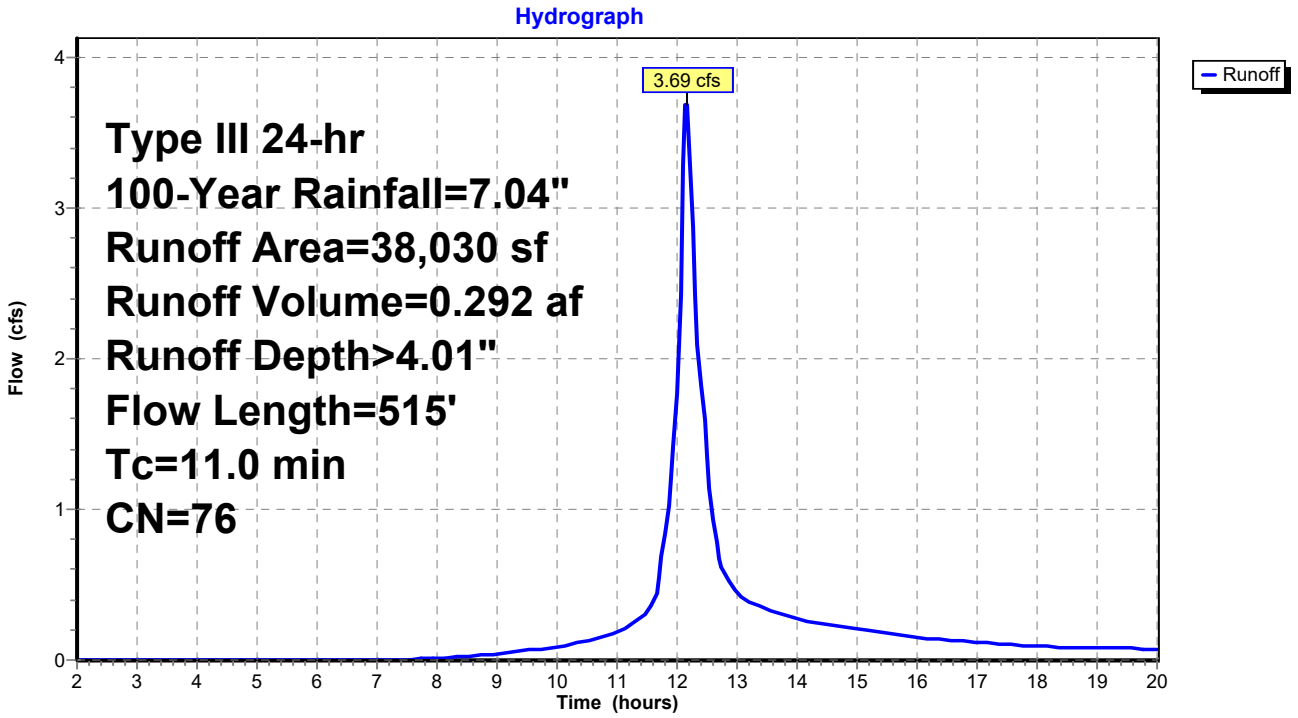
Runoff = 3.69 cfs @ 12.15 hrs, Volume= 0.292 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	3,100	98	Building
*	217	98	Pavement and Concrete
	34,713	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	38,030	76	Weighted Average
	34,713		91.28% Pervious Area
	3,317		8.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.1	15	0.1000	4.74		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.8	100	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.0	350	0.0400	5.90	12.38	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.10' D=1.00' Z= 2.0 '/' Top.W=4.10' n= 0.030 Earth, grassed & winding
11.0	515	Total			

Subcatchment 4S: Proposed South



Hydrograph for Subcatchment 4S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.18	0.00	0.00
2.75	0.20	0.00	0.00
3.00	0.22	0.00	0.00
3.25	0.24	0.00	0.00
3.50	0.26	0.00	0.00
3.75	0.28	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.33	0.00	0.00
4.50	0.35	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.40	0.00	0.00
5.25	0.43	0.00	0.00
5.50	0.45	0.00	0.00
5.75	0.48	0.00	0.00
6.00	0.51	0.00	0.00
6.25	0.54	0.00	0.00
6.50	0.57	0.00	0.00
6.75	0.60	0.00	0.00
7.00	0.64	0.00	0.00
7.25	0.68	0.00	0.00
7.50	0.72	0.00	0.00
7.75	0.76	0.00	0.01
8.00	0.80	0.01	0.01
8.25	0.85	0.01	0.02
8.50	0.90	0.02	0.02
8.75	0.96	0.03	0.03
9.00	1.03	0.04	0.04
9.25	1.09	0.06	0.05
9.50	1.17	0.08	0.06
9.75	1.25	0.10	0.08
10.00	1.33	0.13	0.09
10.25	1.42	0.16	0.11
10.50	1.52	0.20	0.13
10.75	1.64	0.24	0.16
11.00	1.76	0.30	0.19
11.25	1.91	0.37	0.24
11.50	2.10	0.46	0.32
11.75	2.50	0.70	0.68
12.00	3.52	1.38	**1.77**
12.25	4.54	2.16	**2.88**
12.50	4.94	2.49	1.36
12.75	5.13	2.64	0.61
13.00	5.28	2.77	0.46
13.25	5.40	2.87	0.37
13.50	5.52	2.97	0.34
13.75	5.62	3.05	0.31
14.00	5.71	3.13	0.28
14.25	5.79	3.20	0.26
14.50	5.87	3.27	0.24
14.75	5.95	3.33	0.23
15.00	6.01	3.39	0.21
15.25	6.08	3.45	0.20
15.50	6.14	3.50	0.18
15.75	6.19	3.54	0.17
16.00	6.24	3.59	0.15
16.25	6.28	3.62	0.14
16.50	6.32	3.66	0.13
16.75	6.36	3.70	0.12
17.00	6.40	3.73	0.12
17.25	6.44	3.76	0.11
17.50	6.47	3.79	0.11
17.75	6.50	3.82	0.10
18.00	6.53	3.84	0.09
18.25	6.56	3.87	0.09
18.50	6.59	3.89	0.08
18.75	6.61	3.92	0.08
19.00	6.64	3.94	0.08
19.25	6.67	3.96	0.08
19.50	6.69	3.98	0.08
19.75	6.71	4.00	0.07
20.00	**6.74**	**4.02**	0.07

Summary for Subcatchment 5S: Proposed Highway

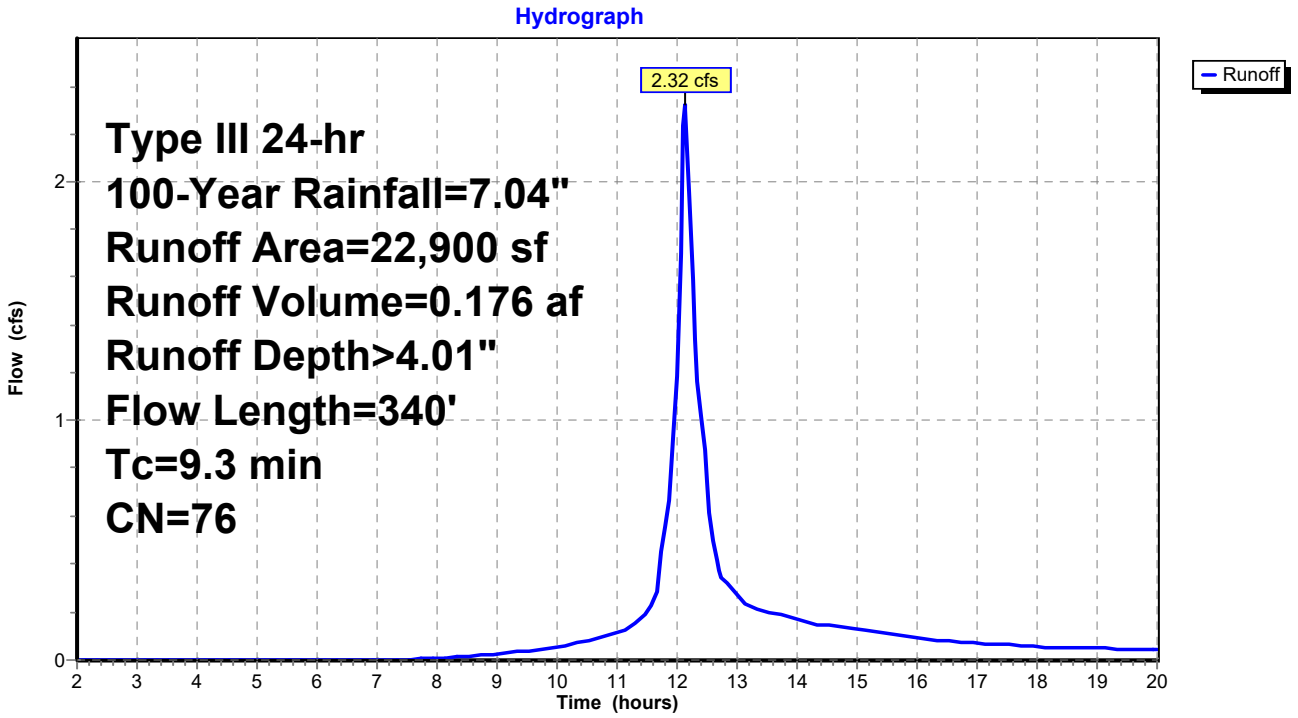
Runoff = 2.32 cfs @ 12.13 hrs, Volume= 0.176 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	0	98	Building
*	1,900	98	Pavement and Concrete
	15,700	74	>75% Grass cover, Good, HSG C
	5,300	73	Woods, Fair, HSG C
	22,900	76	Weighted Average
	21,000		91.70% Pervious Area
	1,900		8.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	40	0.0500	0.09		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 2.80"
0.0	20	0.5000	10.61		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	1.50		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
1.5	260	0.0200	2.87		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
9.3	340	Total			

Subcatchment 5S: Proposed Highway



Hydrograph for Subcatchment 5S: Proposed Highway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.18	0.00	0.00
2.75	0.20	0.00	0.00
3.00	0.22	0.00	0.00
3.25	0.24	0.00	0.00
3.50	0.26	0.00	0.00
3.75	0.28	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.33	0.00	0.00
4.50	0.35	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.40	0.00	0.00
5.25	0.43	0.00	0.00
5.50	0.45	0.00	0.00
5.75	0.48	0.00	0.00
6.00	0.51	0.00	0.00
6.25	0.54	0.00	0.00
6.50	0.57	0.00	0.00
6.75	0.60	0.00	0.00
7.00	0.64	0.00	0.00
7.25	0.68	0.00	0.00
7.50	0.72	0.00	0.00
7.75	0.76	0.00	0.01
8.00	0.80	0.01	0.01
8.25	0.85	0.01	0.01
8.50	0.90	0.02	0.02
8.75	0.96	0.03	0.02
9.00	1.03	0.04	0.03
9.25	1.09	0.06	0.03
9.50	1.17	0.08	0.04
9.75	1.25	0.10	0.05
10.00	1.33	0.13	0.06
10.25	1.42	0.16	0.07
10.50	1.52	0.20	0.08
10.75	1.64	0.24	0.10
11.00	1.76	0.30	0.11
11.25	1.91	0.37	0.15
11.50	2.10	0.46	0.20
11.75	2.50	0.70	0.46
12.00	3.52	1.38	**1.18**
12.25	4.54	2.16	**1.59**
12.50	4.94	2.49	0.75
12.75	5.13	2.64	0.35
13.00	5.28	2.77	0.27
13.25	5.40	2.87	0.22
13.50	5.52	2.97	0.20
13.75	5.62	3.05	0.18
14.00	5.71	3.13	0.17
14.25	5.79	3.20	0.15
14.50	5.87	3.27	0.14
14.75	5.95	3.33	0.13
15.00	6.01	3.39	0.13
15.25	6.08	3.45	0.12
15.50	6.14	3.50	0.11
15.75	6.19	3.54	0.10
16.00	6.24	3.59	0.09
16.25	6.28	3.62	0.08
16.50	6.32	3.66	0.08
16.75	6.36	3.70	0.07
17.00	6.40	3.73	0.07
17.25	6.44	3.76	0.07
17.50	6.47	3.79	0.06
17.75	6.50	3.82	0.06
18.00	6.53	3.84	0.05
18.25	6.56	3.87	0.05
18.50	6.59	3.89	0.05
18.75	6.61	3.92	0.05
19.00	6.64	3.94	0.05
19.25	6.67	3.96	0.05
19.50	6.69	3.98	0.05
19.75	6.71	4.00	0.04
20.00	**6.74**	**4.02**	0.04

Summary for Subcatchment 6S: Proposed Front

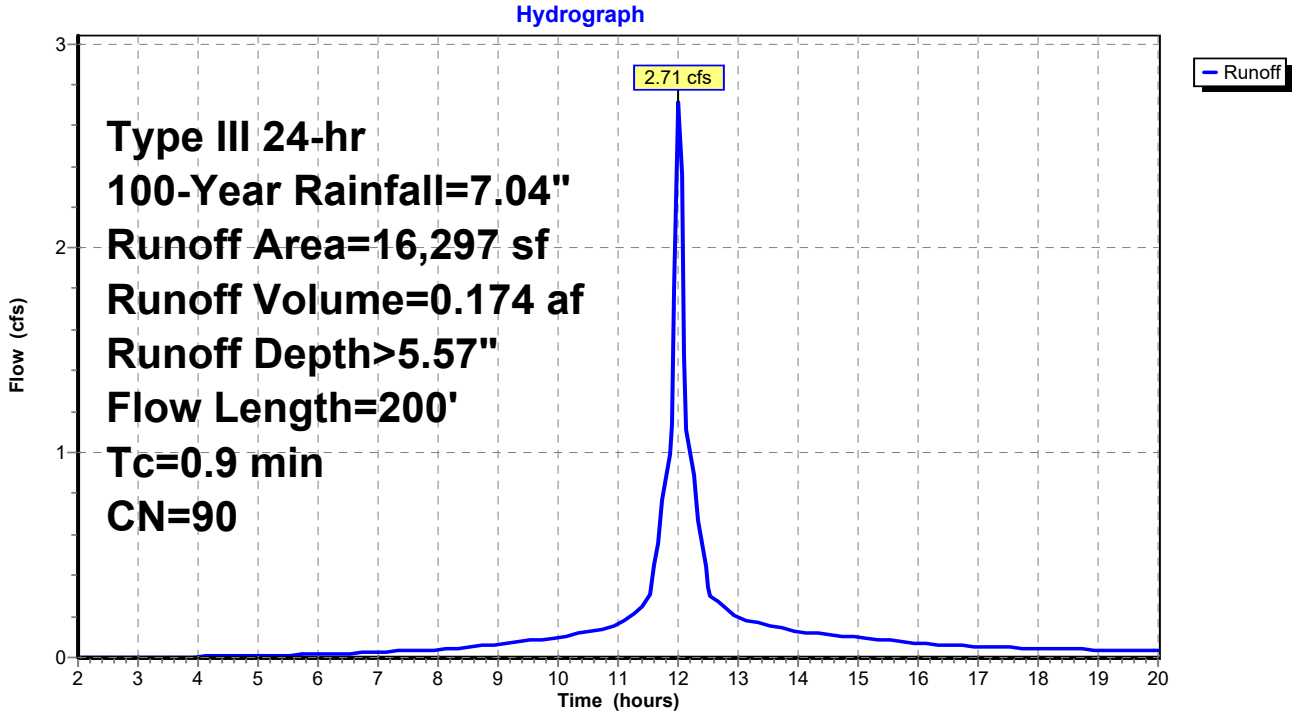
Runoff = 2.71 cfs @ 12.01 hrs, Volume= 0.174 af, Depth> 5.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.04"

	Area (sf)	CN	Description
*	431	98	Building
*	10,439	98	Pavement and Concrete
	5,427	74	>75% Grass cover, Good, HSG C
	0	73	Woods, Fair, HSG C
	16,297	90	Weighted Average
	5,427		33.30% Pervious Area
	10,870		66.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0700	1.85		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 2.80"
0.4	150	0.1200	7.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.9	200	Total			

Subcatchment 6S: Proposed Front



Hydrograph for Subcatchment 6S: Proposed Front

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
2.00	0.14	0.00	0.00	15.00	6.01	4.86	0.10
2.25	0.16	0.00	0.00	15.25	6.08	4.92	0.09
2.50	0.18	0.00	0.00	15.50	6.14	4.98	0.08
2.75	0.20	0.00	0.00	15.75	6.19	5.03	0.08
3.00	0.22	0.00	0.00	16.00	6.24	5.08	0.07
3.25	0.24	0.00	0.00	16.25	6.28	5.12	0.06
3.50	0.26	0.00	0.00	16.50	6.32	5.16	0.06
3.75	0.28	0.00	0.00	16.75	6.36	5.20	0.06
4.00	0.30	0.01	0.00	17.00	6.40	5.24	0.05
4.25	0.33	0.01	0.01	17.25	6.44	5.27	0.05
4.50	0.35	0.01	0.01	17.50	6.47	5.31	0.05
4.75	0.37	0.02	0.01	17.75	6.50	5.34	0.04
5.00	0.40	0.02	0.01	18.00	6.53	5.37	0.04
5.25	0.43	0.03	0.01	18.25	6.56	5.39	0.04
5.50	0.45	0.04	0.01	18.50	6.59	5.42	0.04
5.75	0.48	0.05	0.01	18.75	6.61	5.45	0.04
6.00	0.51	0.06	0.02	19.00	6.64	5.47	0.04
6.25	0.54	0.07	0.02	19.25	6.67	5.50	0.04
6.50	0.57	0.08	0.02	19.50	6.69	5.52	0.04
6.75	0.60	0.10	0.02	19.75	6.71	5.54	0.03
7.00	0.64	0.11	0.03	20.00	**6.74**	**5.57**	0.03
7.25	0.68	0.13	0.03				
7.50	0.72	0.15	0.03				
7.75	0.76	0.17	0.04				
8.00	0.80	0.20	0.04				
8.25	0.85	0.23	0.05				
8.50	0.90	0.26	0.05				
8.75	0.96	0.30	0.06				
9.00	1.03	0.34	0.07				
9.25	1.09	0.38	0.07				
9.50	1.17	0.44	0.08				
9.75	1.25	0.49	0.09				
10.00	1.33	0.55	0.10				
10.25	1.42	0.62	0.11				
10.50	1.52	0.70	0.13				
10.75	1.64	0.79	0.14				
11.00	1.76	0.89	0.16				
11.25	1.91	1.02	0.21				
11.50	2.10	1.18	0.27				
11.75	2.50	1.53	0.77				
12.00	3.52	2.47	**2.68**				
12.25	4.54	3.43	0.89				
12.50	4.94	3.82	0.34				
12.75	5.13	4.00	0.25				
13.00	5.28	4.15	0.19				
13.25	5.40	4.27	0.17				
13.50	5.52	4.38	0.16				
13.75	5.62	4.47	0.14				
14.00	5.71	4.56	0.13				
14.25	5.79	4.64	0.12				
14.50	5.87	4.72	0.11				
14.75	5.95	4.79	0.10				

Summary for Pond 7P: Basin North

Inflow Area = 4.153 ac, 48.83% Impervious, Inflow Depth > 4.99" for 100-Year event
Inflow = 20.76 cfs @ 12.16 hrs, Volume= 1.726 af
Outflow = 15.65 cfs @ 12.27 hrs, Volume= 1.619 af, Atten= 25%, Lag= 7.0 min
Primary = 7.65 cfs @ 12.27 hrs, Volume= 1.458 af
Secondary = 8.01 cfs @ 12.27 hrs, Volume= 0.161 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,336.06' @ 12.27 hrs Surf.Area= 6,465 sf Storage= 17,154 cf

Plug-Flow detention time= 52.5 min calculated for 1.615 af (94% of inflow)
Center-of-Mass det. time= 30.6 min (799.3 - 768.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	23,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

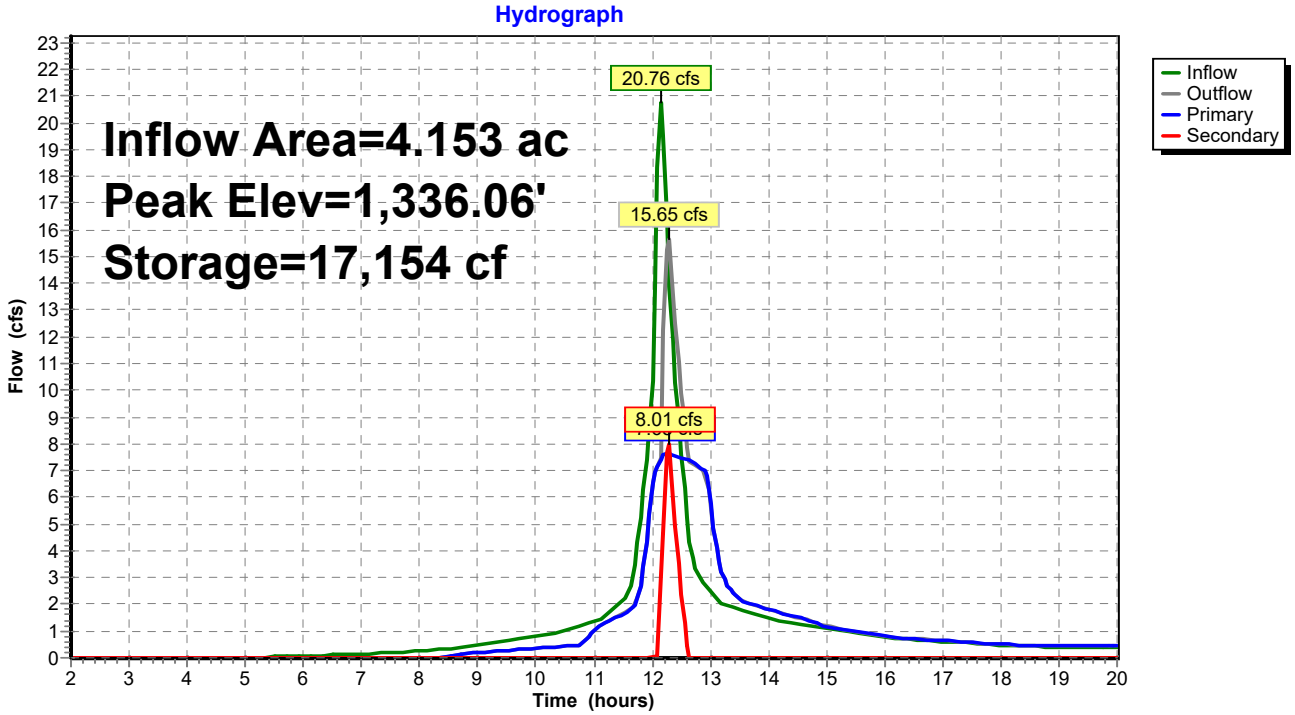
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	1,225	0	0
1,332.00	1,840	1,533	1,533
1,333.00	2,530	2,185	3,718
1,334.00	3,300	2,915	6,633
1,334.10	3,500	340	6,972
1,335.00	5,300	3,960	10,933
1,336.00	6,400	5,850	16,783
1,337.00	7,530	6,965	23,748

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Vert. Orifice** C= 0.600
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,335.90'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,334.00'	**12.0" Round Secondary Outlet Culvert X 0.00** L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,334.00' / 1,330.00' S= 0.1333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#6	Secondary	1,335.60'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Device 1	1,334.00'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=7.64 cfs @ 12.27 hrs HW=1,336.04' (Free Discharge)
- **1=Primary Outlet Culvert** (Inlet Controls 7.64 cfs @ 9.72 fps)
  - **2=Orifice** (Passes < 0.83 cfs potential flow)
  - **3=Orifice** (Passes < 3.02 cfs potential flow)
  - **4=Grate** (Passes < 1.41 cfs potential flow)
  - **7=Orifice/Grate** (Passes < 9.39 cfs potential flow)

Secondary OutFlow Max=7.62 cfs @ 12.27 hrs HW=1,336.04' (Free Discharge)
- **5=Secondary Outlet Culvert** (Controls 0.00 cfs)
- **6=Broad-Crested Rectangular Weir** (Weir Controls 7.62 cfs @ 1.72 fps)

Pond 7P: Basin North



Hydrograph for Pond 7P: Basin North

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	0.00
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.01	7	1,331.01	0.00	0.00	0.00
5.50	0.04	53	1,331.04	0.00	0.00	0.00
6.00	0.06	143	1,331.11	0.00	0.00	0.00
6.50	0.10	285	1,331.22	0.00	0.00	0.00
7.00	0.14	498	1,331.37	0.00	0.00	0.00
7.50	0.20	800	1,331.57	0.00	0.00	0.00
8.00	0.26	1,205	1,331.82	0.00	0.00	0.00
8.50	0.35	1,735	1,332.11	0.03	0.03	0.00
9.00	0.48	2,269	1,332.37	0.19	0.19	0.00
9.50	0.62	2,822	1,332.63	0.29	0.29	0.00
10.00	0.78	3,502	1,332.91	0.36	0.36	0.00
10.50	1.04	4,396	1,333.26	0.44	0.44	0.00
11.00	1.36	5,488	1,333.64	1.04	1.04	0.00
11.50	2.20	6,086	1,333.83	1.63	1.63	0.00
12.00	**10.36**	**9,675**	**1,334.75**	**6.52**	**6.52**	**0.00**
12.50	**7.62**	**15,570**	**1,335.81**	**9.86**	**7.50**	**2.36**
13.00	2.46	9,271	1,334.67	5.79	5.79	0.00
13.50	1.80	7,063	1,334.13	2.22	2.22	0.00
14.00	1.47	6,438	1,333.94	1.81	1.81	0.00
14.50	1.26	5,880	1,333.77	1.51	1.51	0.00
15.00	1.10	5,571	1,333.67	1.18	1.18	0.00
15.50	0.94	5,463	1,333.63	0.99	0.99	0.00
16.00	0.78	5,372	1,333.60	0.83	0.83	0.00
16.50	0.68	5,299	1,333.57	0.71	0.71	0.00
17.00	0.61	5,242	1,333.56	0.64	0.64	0.00
17.50	0.54	5,184	1,333.54	0.57	0.57	0.00
18.00	0.47	5,126	1,333.52	0.51	0.51	0.00
18.50	0.44	5,047	1,333.49	0.48	0.48	0.00
19.00	0.41	4,948	1,333.45	0.48	0.48	0.00
19.50	0.39	4,824	1,333.41	0.47	0.47	0.00
20.00	0.37	4,678	1,333.36	0.46	0.46	0.00

Summary for Pond 8P: Basin Central

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 4.64" for 100-Year event
Inflow = 24.82 cfs @ 12.16 hrs, Volume= 2.053 af
Outflow = 19.64 cfs @ 12.27 hrs, Volume= 1.938 af, Atten= 21%, Lag= 6.7 min
Primary = 8.03 cfs @ 12.27 hrs, Volume= 1.600 af
Secondary = 11.61 cfs @ 12.27 hrs, Volume= 0.337 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,336.77' @ 12.27 hrs Surf.Area= 8,268 sf Storage= 24,320 cf

Plug-Flow detention time= 62.0 min calculated for 1.932 af (94% of inflow)
Center-of-Mass det. time= 42.0 min (817.6 - 775.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,331.00'	26,218 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

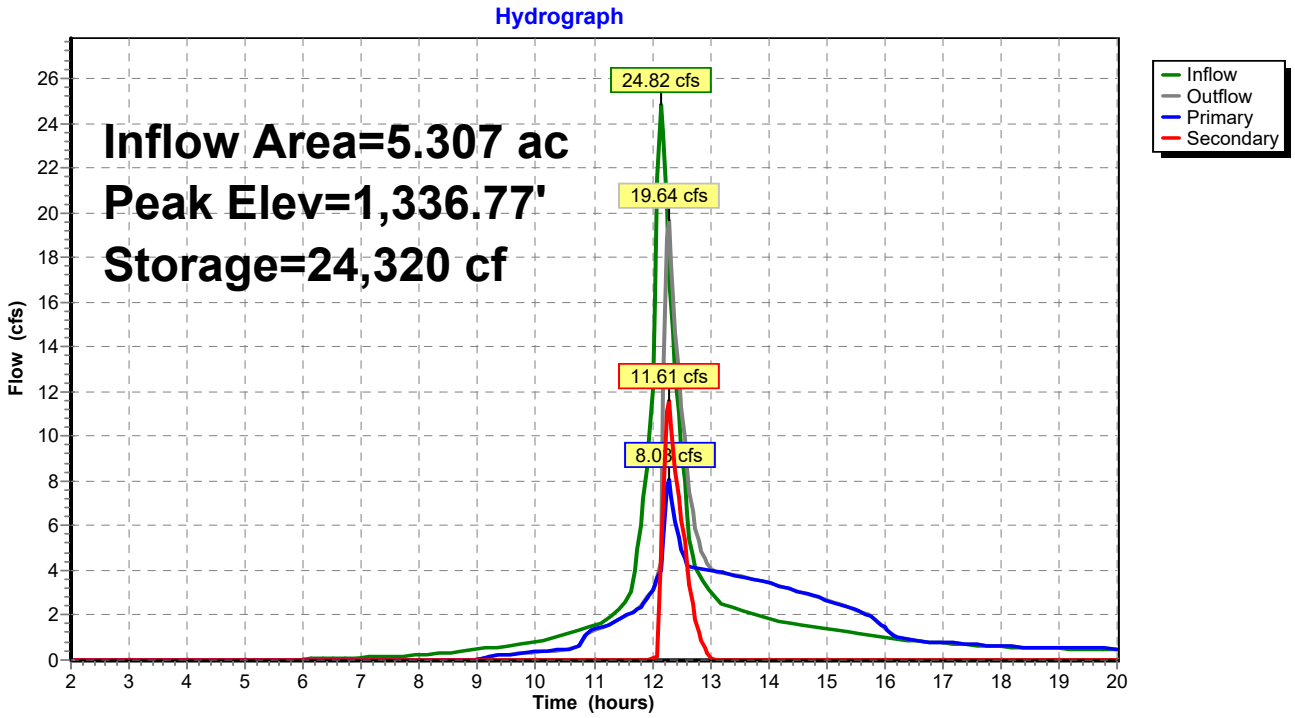
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,331.00	2,114	0	0
1,334.00	1,940	6,081	6,081
1,334.10	5,094	352	6,433
1,336.00	7,366	11,837	18,270
1,337.00	8,531	7,949	26,218

Device	Routing	Invert	Outlet Devices
#1	Primary	1,329.00'	**12.0" Round Primary Outlet Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,329.00' / 1,328.00' S= 0.0250 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	1,332.00'	**4.0" Horiz. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,333.50'	**6.0" Horiz. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,336.50'	**24.0" x 24.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	1,336.20'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=7.72 cfs @ 12.27 hrs HW=1,336.76' (Free Discharge)
└─**1=Primary Outlet Culvert** (Passes 7.72 cfs of 8.04 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.92 cfs @ 10.50 fps)
  ├─**3=Orifice** (Orifice Controls 3.41 cfs @ 8.69 fps)
  └─**4=Grate** (Weir Controls 3.39 cfs @ 1.65 fps)

Secondary OutFlow Max=11.07 cfs @ 12.27 hrs HW=1,336.76' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Weir Controls 11.07 cfs @ 1.99 fps)

Pond 8P: Basin Central



Hydrograph for Pond 8P: Basin Central

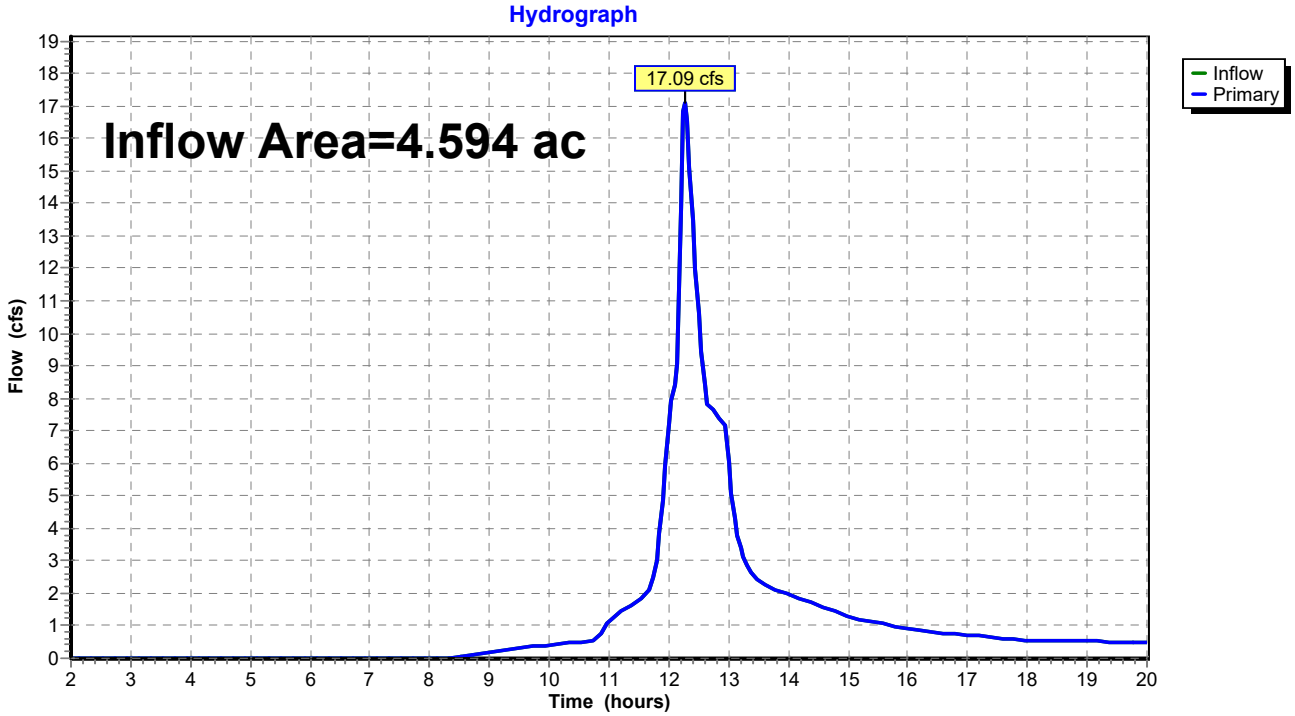
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
2.00	0.00	0	1,331.00	0.00	0.00	0.00
2.50	0.00	0	1,331.00	0.00	0.00	0.00
3.00	0.00	0	1,331.00	0.00	0.00	0.00
3.50	0.00	0	1,331.00	0.00	0.00	0.00
4.00	0.00	0	1,331.00	0.00	0.00	0.00
4.50	0.00	0	1,331.00	0.00	0.00	0.00
5.00	0.00	0	1,331.00	0.00	0.00	0.00
5.50	0.01	5	1,331.00	0.00	0.00	0.00
6.00	0.04	45	1,331.02	0.00	0.00	0.00
6.50	0.07	134	1,331.06	0.00	0.00	0.00
7.00	0.11	290	1,331.14	0.00	0.00	0.00
7.50	0.16	532	1,331.25	0.00	0.00	0.00
8.00	0.23	885	1,331.42	0.00	0.00	0.00
8.50	0.33	1,384	1,331.66	0.00	0.00	0.00
9.00	0.47	2,106	1,332.01	0.00	0.00	0.00
9.50	0.64	2,814	1,332.36	0.25	0.25	0.00
10.00	0.83	3,585	1,332.74	0.36	0.36	0.00
10.50	1.13	4,579	1,333.23	0.47	0.47	0.00
11.00	1.52	5,492	1,333.70	1.38	1.38	0.00
11.50	2.49	6,056	1,333.99	1.91	1.91	0.00
12.00	**12.10**	**12,024**	**1,335.08**	**3.12**	**3.12**	**0.00**
12.50	**9.47**	**22,831**	**1,336.59**	**11.25**	**4.97**	**6.28**
13.00	3.05	19,945	1,336.22	4.08	3.98	0.10
13.50	2.23	17,490	1,335.89	3.75	3.75	0.00
14.00	1.83	14,649	1,335.49	3.45	3.45	0.00
14.50	1.56	11,775	1,335.04	3.08	3.08	0.00
15.00	1.37	9,222	1,334.62	2.68	2.68	0.00
15.50	1.17	7,080	1,334.23	2.24	2.24	0.00
16.00	0.98	5,558	1,333.73	1.46	1.46	0.00
16.50	0.85	5,303	1,333.60	0.87	0.87	0.00
17.00	0.76	5,269	1,333.58	0.78	0.78	0.00
17.50	0.68	5,229	1,333.56	0.70	0.70	0.00
18.00	0.59	5,182	1,333.54	0.62	0.62	0.00
18.50	0.54	5,147	1,333.52	0.55	0.55	0.00
19.00	0.52	5,125	1,333.51	0.53	0.53	0.00
19.50	0.49	5,094	1,333.50	0.51	0.51	0.00
20.00	0.47	5,035	1,333.47	0.51	0.51	0.00

Summary for Link 4L: DP 1

Inflow Area = 4.594 ac, 44.20% Impervious, Inflow Depth > 4.59" for 100-Year event
Inflow = 17.09 cfs @ 12.27 hrs, Volume= 1.759 af
Primary = 17.09 cfs @ 12.27 hrs, Volume= 1.759 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 4L: DP 1



Hydrograph for Link 4L: DP 1

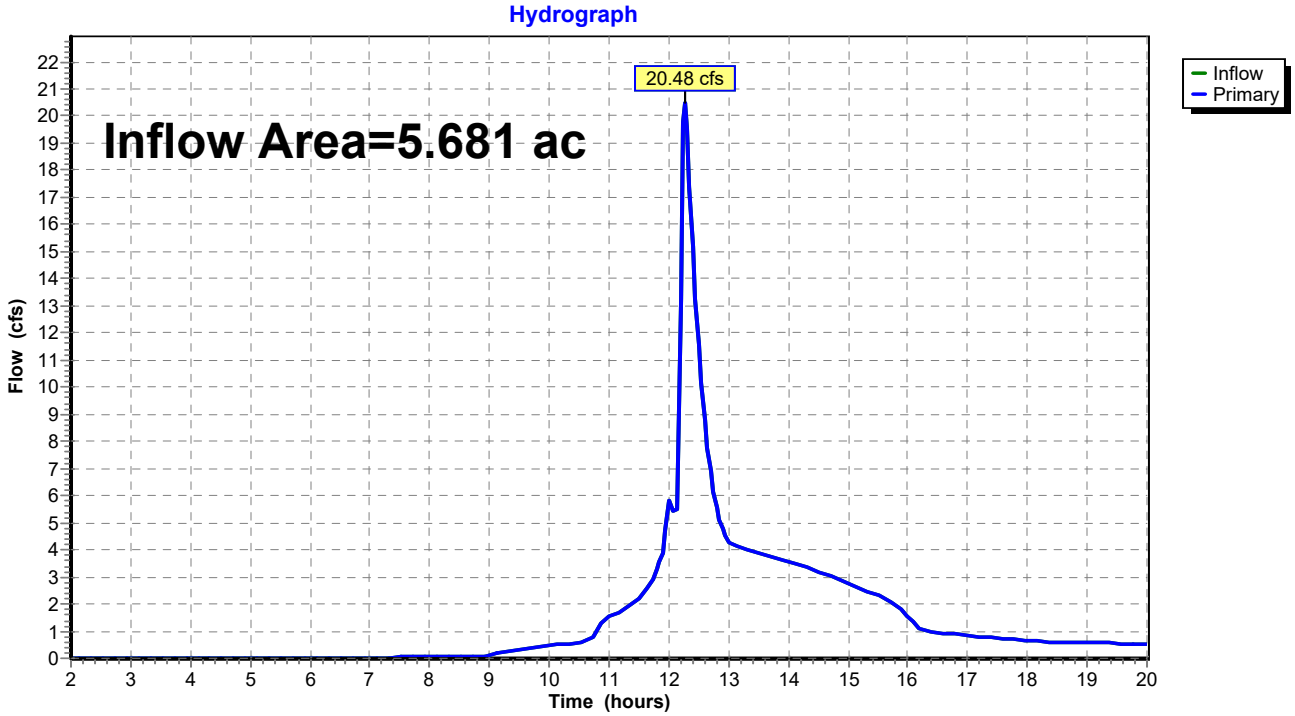
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	1.29	0.00	1.29
2.25	0.00	0.00	0.00	15.25	1.18	0.00	1.18
2.50	0.00	0.00	0.00	15.50	1.08	0.00	1.08
2.75	0.00	0.00	0.00	15.75	1.00	0.00	1.00
3.00	0.00	0.00	0.00	16.00	0.91	0.00	0.91
3.25	0.00	0.00	0.00	16.25	0.83	0.00	0.83
3.50	0.00	0.00	0.00	16.50	0.78	0.00	0.78
3.75	0.00	0.00	0.00	16.75	0.74	0.00	0.74
4.00	0.00	0.00	0.00	17.00	0.70	0.00	0.70
4.25	0.00	0.00	0.00	17.25	0.67	0.00	0.67
4.50	0.00	0.00	0.00	17.50	0.63	0.00	0.63
4.75	0.00	0.00	0.00	17.75	0.59	0.00	0.59
5.00	0.00	0.00	0.00	18.00	0.56	0.00	0.56
5.25	0.00	0.00	0.00	18.25	0.53	0.00	0.53
5.50	0.00	0.00	0.00	18.50	0.53	0.00	0.53
5.75	0.00	0.00	0.00	18.75	0.52	0.00	0.52
6.00	0.00	0.00	0.00	19.00	0.52	0.00	0.52
6.25	0.00	0.00	0.00	19.25	0.51	0.00	0.51
6.50	0.00	0.00	0.00	19.50	0.51	0.00	0.51
6.75	0.00	0.00	0.00	19.75	0.50	0.00	0.50
7.00	0.00	0.00	0.00	20.00	0.50	0.00	0.50
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.04	0.00	0.04				
8.75	0.13	0.00	0.13				
9.00	0.21	0.00	0.21				
9.25	0.26	0.00	0.26				
9.50	0.31	0.00	0.31				
9.75	0.36	0.00	0.36				
10.00	0.40	0.00	0.40				
10.25	0.45	0.00	0.45				
10.50	0.49	0.00	0.49				
10.75	0.55	0.00	0.55				
11.00	1.12	0.00	1.12				
11.25	1.49	0.00	1.49				
11.50	1.77	0.00	1.77				
11.75	2.47	0.00	2.47				
12.00	7.24	0.00	7.24				
12.25	**16.80**	0.00	**16.80**				
12.50	10.63	0.00	10.63				
12.75	7.57	0.00	7.57				
13.00	6.03	0.00	6.03				
13.25	3.10	0.00	3.10				
13.50	2.39	0.00	2.39				
13.75	2.12	0.00	2.12				
14.00	1.95	0.00	1.95				
14.25	1.78	0.00	1.78				
14.50	1.62	0.00	1.62				
14.75	1.48	0.00	1.48				

Summary for Link 5L: DP 2

Inflow Area = 5.681 ac, 34.10% Impervious, Inflow Depth > 4.46" for 100-Year event
Inflow = 20.48 cfs @ 12.27 hrs, Volume= 2.111 af
Primary = 20.48 cfs @ 12.27 hrs, Volume= 2.111 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 5L: DP 2



Hydrograph for Link 5L: DP 2

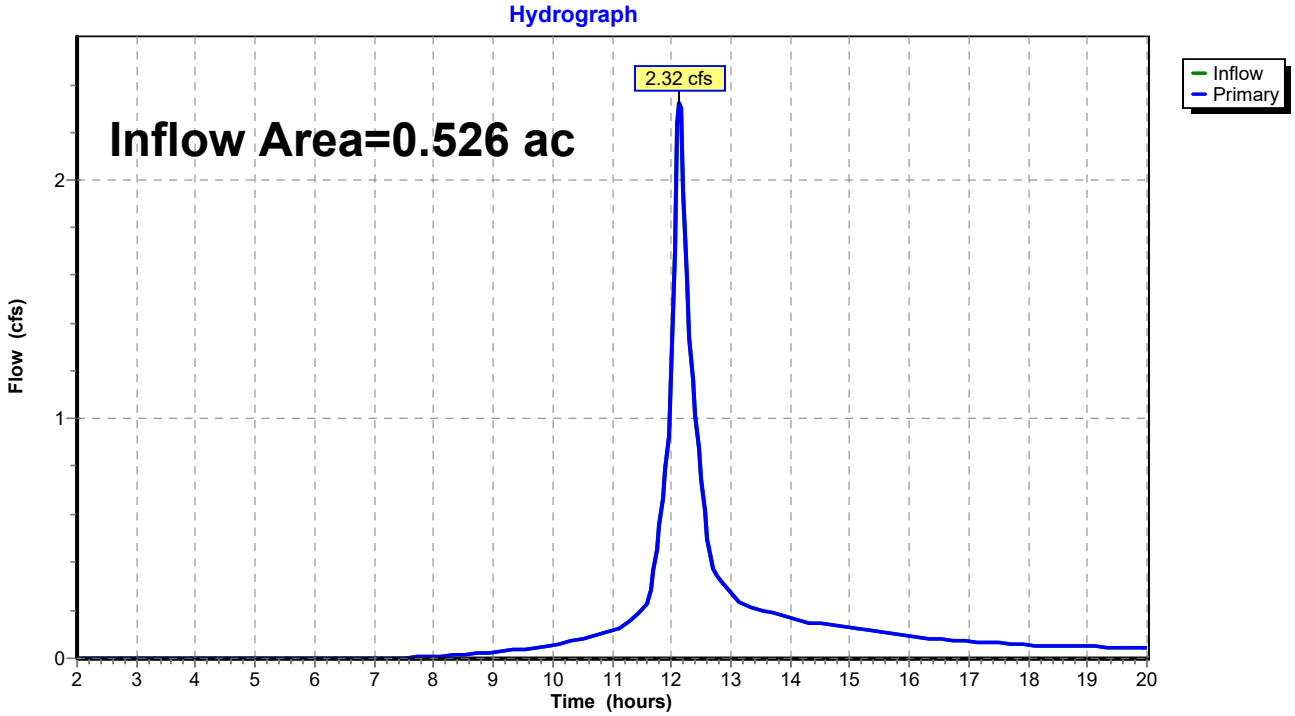
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	2.77	0.00	2.77
2.25	0.00	0.00	0.00	15.25	2.55	0.00	2.55
2.50	0.00	0.00	0.00	15.50	2.32	0.00	2.32
2.75	0.00	0.00	0.00	15.75	2.06	0.00	2.06
3.00	0.00	0.00	0.00	16.00	1.53	0.00	1.53
3.25	0.00	0.00	0.00	16.25	1.04	0.00	1.04
3.50	0.00	0.00	0.00	16.50	0.93	0.00	0.93
3.75	0.00	0.00	0.00	16.75	0.88	0.00	0.88
4.00	0.00	0.00	0.00	17.00	0.84	0.00	0.84
4.25	0.01	0.00	0.01	17.25	0.79	0.00	0.79
4.50	0.01	0.00	0.01	17.50	0.75	0.00	0.75
4.75	0.01	0.00	0.01	17.75	0.71	0.00	0.71
5.00	0.01	0.00	0.01	18.00	0.66	0.00	0.66
5.25	0.01	0.00	0.01	18.25	0.62	0.00	0.62
5.50	0.01	0.00	0.01	18.50	0.59	0.00	0.59
5.75	0.01	0.00	0.01	18.75	0.58	0.00	0.58
6.00	0.02	0.00	0.02	19.00	0.57	0.00	0.57
6.25	0.02	0.00	0.02	19.25	0.56	0.00	0.56
6.50	0.02	0.00	0.02	19.50	0.55	0.00	0.55
6.75	0.02	0.00	0.02	19.75	0.55	0.00	0.55
7.00	0.03	0.00	0.03	20.00	0.54	0.00	0.54
7.25	0.03	0.00	0.03				
7.50	0.03	0.00	0.03				
7.75	0.04	0.00	0.04				
8.00	0.04	0.00	0.04				
8.25	0.05	0.00	0.05				
8.50	0.05	0.00	0.05				
8.75	0.06	0.00	0.06				
9.00	0.07	0.00	0.07				
9.25	0.26	0.00	0.26				
9.50	0.33	0.00	0.33				
9.75	0.40	0.00	0.40				
10.00	0.46	0.00	0.46				
10.25	0.52	0.00	0.52				
10.50	0.59	0.00	0.59				
10.75	0.82	0.00	0.82				
11.00	1.54	0.00	1.54				
11.25	1.78	0.00	1.78				
11.50	2.18	0.00	2.18				
11.75	3.03	0.00	3.03				
12.00	5.80	0.00	5.80				
12.25	**19.76**	0.00	**19.76**				
12.50	11.59	0.00	11.59				
12.75	6.14	0.00	6.14				
13.00	4.27	0.00	4.27				
13.25	4.06	0.00	4.06				
13.50	3.91	0.00	3.91				
13.75	3.75	0.00	3.75				
14.00	3.58	0.00	3.58				
14.25	3.39	0.00	3.39				
14.50	3.19	0.00	3.19				
14.75	2.99	0.00	2.99				

Summary for Link 6L: DP 3

Inflow Area = 0.526 ac, 8.30% Impervious, Inflow Depth > 4.01" for 100-Year event
Inflow = 2.32 cfs @ 12.13 hrs, Volume= 0.176 af
Primary = 2.32 cfs @ 12.13 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 6L: DP 3



Hydrograph for Link 6L: DP 3

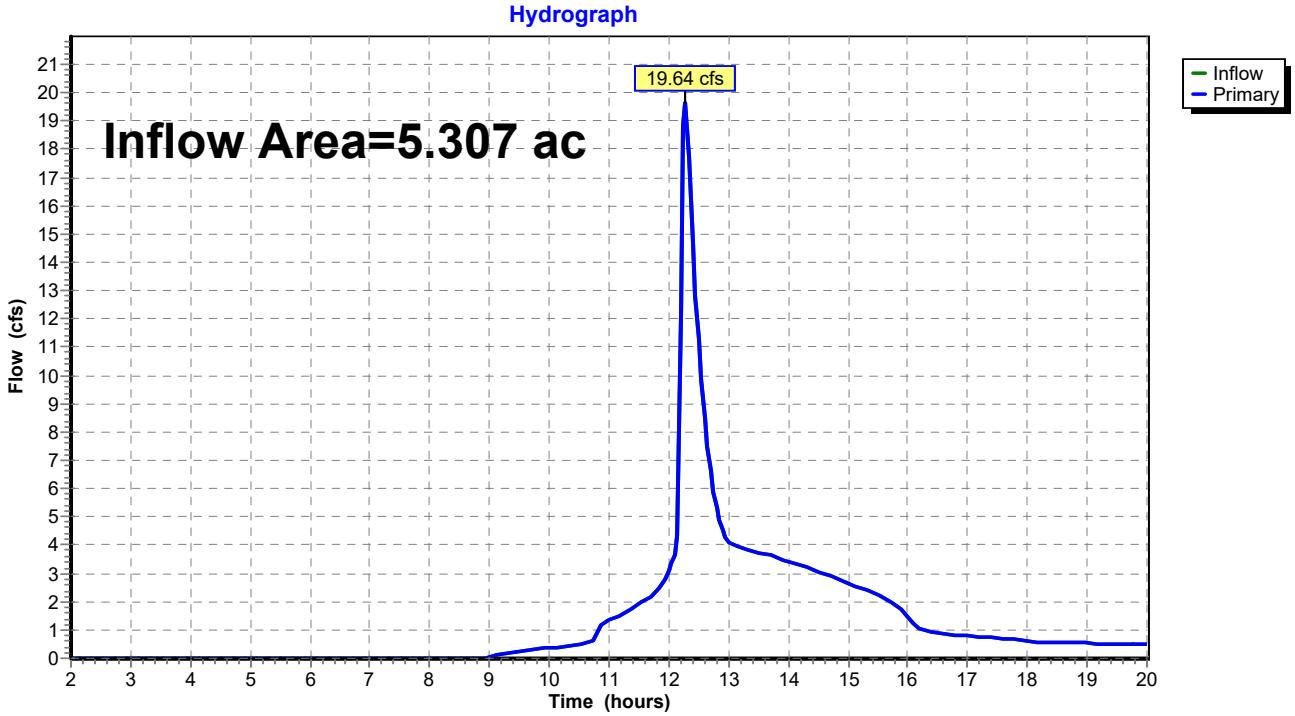
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	0.13	0.00	0.13
2.25	0.00	0.00	0.00	15.25	0.12	0.00	0.12
2.50	0.00	0.00	0.00	15.50	0.11	0.00	0.11
2.75	0.00	0.00	0.00	15.75	0.10	0.00	0.10
3.00	0.00	0.00	0.00	16.00	0.09	0.00	0.09
3.25	0.00	0.00	0.00	16.25	0.08	0.00	0.08
3.50	0.00	0.00	0.00	16.50	0.08	0.00	0.08
3.75	0.00	0.00	0.00	16.75	0.07	0.00	0.07
4.00	0.00	0.00	0.00	17.00	0.07	0.00	0.07
4.25	0.00	0.00	0.00	17.25	0.07	0.00	0.07
4.50	0.00	0.00	0.00	17.50	0.06	0.00	0.06
4.75	0.00	0.00	0.00	17.75	0.06	0.00	0.06
5.00	0.00	0.00	0.00	18.00	0.05	0.00	0.05
5.25	0.00	0.00	0.00	18.25	0.05	0.00	0.05
5.50	0.00	0.00	0.00	18.50	0.05	0.00	0.05
5.75	0.00	0.00	0.00	18.75	0.05	0.00	0.05
6.00	0.00	0.00	0.00	19.00	0.05	0.00	0.05
6.25	0.00	0.00	0.00	19.25	0.05	0.00	0.05
6.50	0.00	0.00	0.00	19.50	0.05	0.00	0.05
6.75	0.00	0.00	0.00	19.75	0.04	0.00	0.04
7.00	0.00	0.00	0.00	20.00	0.04	0.00	0.04
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.25	0.01	0.00	0.01				
8.50	0.02	0.00	0.02				
8.75	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.25	0.03	0.00	0.03				
9.50	0.04	0.00	0.04				
9.75	0.05	0.00	0.05				
10.00	0.06	0.00	0.06				
10.25	0.07	0.00	0.07				
10.50	0.08	0.00	0.08				
10.75	0.10	0.00	0.10				
11.00	0.11	0.00	0.11				
11.25	0.15	0.00	0.15				
11.50	0.20	0.00	0.20				
11.75	0.46	0.00	0.46				
12.00	**1.18**	0.00	**1.18**				
12.25	**1.59**	0.00	**1.59**				
12.50	0.75	0.00	0.75				
12.75	0.35	0.00	0.35				
13.00	0.27	0.00	0.27				
13.25	0.22	0.00	0.22				
13.50	0.20	0.00	0.20				
13.75	0.18	0.00	0.18				
14.00	0.17	0.00	0.17				
14.25	0.15	0.00	0.15				
14.50	0.14	0.00	0.14				
14.75	0.13	0.00	0.13				

Summary for Link 11L: DMH

Inflow Area = 5.307 ac, 31.80% Impervious, Inflow Depth > 4.38" for 100-Year event
Inflow = 19.64 cfs @ 12.27 hrs, Volume= 1.938 af
Primary = 19.64 cfs @ 12.27 hrs, Volume= 1.938 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 11L: DMH



Hydrograph for Link 11L: DMH

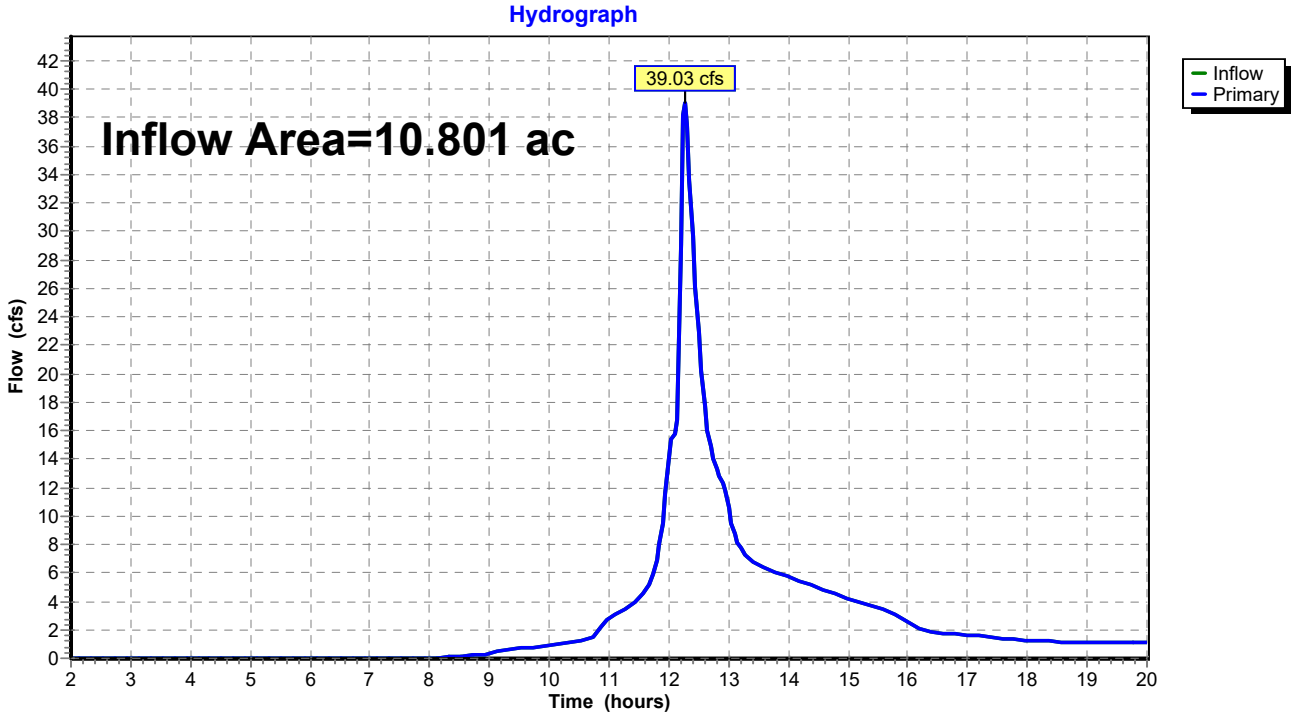
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	2.68	0.00	2.68
2.25	0.00	0.00	0.00	15.25	2.46	0.00	2.46
2.50	0.00	0.00	0.00	15.50	2.24	0.00	2.24
2.75	0.00	0.00	0.00	15.75	1.98	0.00	1.98
3.00	0.00	0.00	0.00	16.00	1.46	0.00	1.46
3.25	0.00	0.00	0.00	16.25	0.97	0.00	0.97
3.50	0.00	0.00	0.00	16.50	0.87	0.00	0.87
3.75	0.00	0.00	0.00	16.75	0.82	0.00	0.82
4.00	0.00	0.00	0.00	17.00	0.78	0.00	0.78
4.25	0.00	0.00	0.00	17.25	0.74	0.00	0.74
4.50	0.00	0.00	0.00	17.50	0.70	0.00	0.70
4.75	0.00	0.00	0.00	17.75	0.66	0.00	0.66
5.00	0.00	0.00	0.00	18.00	0.62	0.00	0.62
5.25	0.00	0.00	0.00	18.25	0.58	0.00	0.58
5.50	0.00	0.00	0.00	18.50	0.55	0.00	0.55
5.75	0.00	0.00	0.00	18.75	0.54	0.00	0.54
6.00	0.00	0.00	0.00	19.00	0.53	0.00	0.53
6.25	0.00	0.00	0.00	19.25	0.52	0.00	0.52
6.50	0.00	0.00	0.00	19.50	0.51	0.00	0.51
6.75	0.00	0.00	0.00	19.75	0.51	0.00	0.51
7.00	0.00	0.00	0.00	20.00	0.51	0.00	0.51
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.18	0.00	0.18				
9.50	0.25	0.00	0.25				
9.75	0.31	0.00	0.31				
10.00	0.36	0.00	0.36				
10.25	0.41	0.00	0.41				
10.50	0.47	0.00	0.47				
10.75	0.68	0.00	0.68				
11.00	1.38	0.00	1.38				
11.25	1.57	0.00	1.57				
11.50	1.91	0.00	1.91				
11.75	2.26	0.00	2.26				
12.00	3.12	0.00	3.12				
12.25	**18.86**	0.00	**18.86**				
12.50	11.25	0.00	11.25				
12.75	5.90	0.00	5.90				
13.00	4.08	0.00	4.08				
13.25	3.88	0.00	3.88				
13.50	3.75	0.00	3.75				
13.75	3.61	0.00	3.61				
14.00	3.45	0.00	3.45				
14.25	3.27	0.00	3.27				
14.50	3.08	0.00	3.08				
14.75	2.88	0.00	2.88				

Summary for Link 12L: (new Link)

Inflow Area = 10.801 ac, 37.14% Impervious, Inflow Depth > 4.49" for 100-Year event
Inflow = 39.03 cfs @ 12.27 hrs, Volume= 4.046 af
Primary = 39.03 cfs @ 12.27 hrs, Volume= 4.046 af, Atten= 0%, Lag= 0.0 min

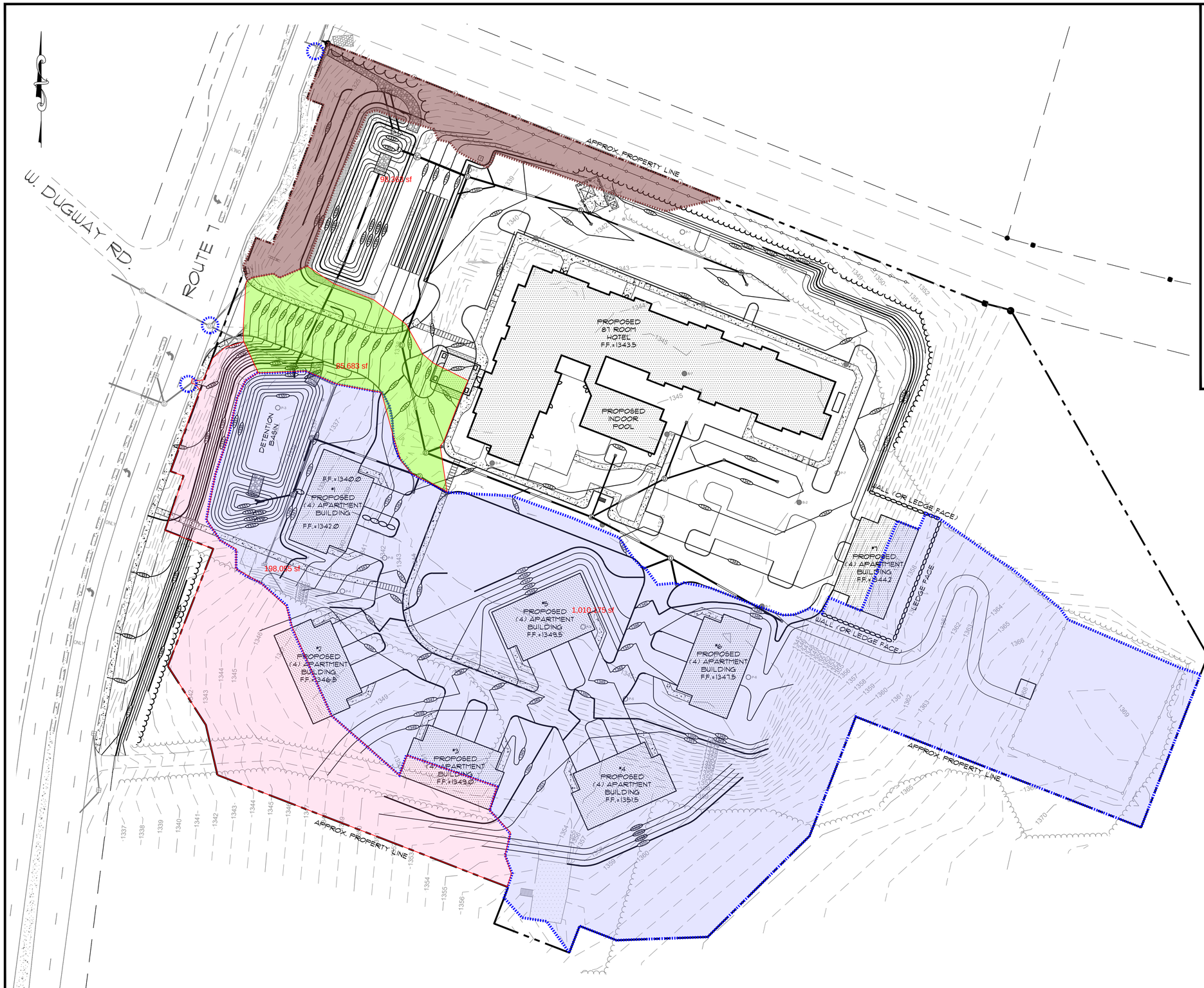
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link 12L: (new Link)



Hydrograph for Link 12L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
2.00	0.00	**0.00**	0.00	15.00	4.19	0.00	4.19
2.25	0.00	0.00	0.00	15.25	3.84	0.00	3.84
2.50	0.00	0.00	0.00	15.50	3.51	0.00	3.51
2.75	0.00	0.00	0.00	15.75	3.15	0.00	3.15
3.00	0.00	0.00	0.00	16.00	2.53	0.00	2.53
3.25	0.00	0.00	0.00	16.25	1.95	0.00	1.95
3.50	0.00	0.00	0.00	16.50	1.79	0.00	1.79
3.75	0.00	0.00	0.00	16.75	1.70	0.00	1.70
4.00	0.00	0.00	0.00	17.00	1.61	0.00	1.61
4.25	0.01	0.00	0.01	17.25	1.53	0.00	1.53
4.50	0.01	0.00	0.01	17.50	1.44	0.00	1.44
4.75	0.01	0.00	0.01	17.75	1.35	0.00	1.35
5.00	0.01	0.00	0.01	18.00	1.27	0.00	1.27
5.25	0.01	0.00	0.01	18.25	1.20	0.00	1.20
5.50	0.01	0.00	0.01	18.50	1.17	0.00	1.17
5.75	0.01	0.00	0.01	18.75	1.15	0.00	1.15
6.00	0.02	0.00	0.02	19.00	1.13	0.00	1.13
6.25	0.02	0.00	0.02	19.25	1.12	0.00	1.12
6.50	0.02	0.00	0.02	19.50	1.10	0.00	1.10
6.75	0.02	0.00	0.02	19.75	1.09	0.00	1.09
7.00	0.03	0.00	0.03	20.00	1.08	0.00	1.08
7.25	0.03	0.00	0.03				
7.50	0.04	0.00	0.04				
7.75	0.04	0.00	0.04				
8.00	0.05	0.00	0.05				
8.25	0.06	0.00	0.06				
8.50	0.10	0.00	0.10				
8.75	0.21	0.00	0.21				
9.00	0.30	0.00	0.30				
9.25	0.55	0.00	0.55				
9.50	0.68	0.00	0.68				
9.75	0.80	0.00	0.80				
10.00	0.91	0.00	0.91				
10.25	1.03	0.00	1.03				
10.50	1.17	0.00	1.17				
10.75	1.47	0.00	1.47				
11.00	2.77	0.00	2.77				
11.25	3.42	0.00	3.42				
11.50	4.16	0.00	4.16				
11.75	5.95	0.00	5.95				
12.00	14.22	0.00	14.22				
12.25	**38.15**	0.00	**38.15**				
12.50	22.96	0.00	22.96				
12.75	14.06	0.00	14.06				
13.00	10.57	0.00	10.57				
13.25	7.38	0.00	7.38				
13.50	6.51	0.00	6.51				
13.75	6.06	0.00	6.06				
14.00	5.70	0.00	5.70				
14.25	5.33	0.00	5.33				
14.50	4.96	0.00	4.96				
14.75	4.61	0.00	4.61				



LEGEND

- EXISTING ZONING DISTRICT BOUNDARY LINE
- 1345 EXISTING CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TREE LINE
- EXISTING LIGHT
- EXISTING UTILITY POLE
- EXISTING TREE (SIZE/ SPECIES VARY)
- EXISTING ELECTRICAL TRANSFORMER
- EXISTING FENCE
- EXISTING DRAIN (APPROX.-SIZE AS NOTED)
- EXISTING WATER LINE (APPROX.-SIZE AS NOTED)
- EXISTING OVERHEAD ELECTRICAL/TEL.
- EXISTING GAS SERVICE (APPROX.)
- PROPOSED CATCHBASIN
- PROPOSED AREA DRAIN
- PROPOSED DRAIN MANHOLE
- PROPOSED STORMCEPTOR (OR EQUIVALENT)
- PROPOSED TREE WELL FILTER
- 1343 X 5 PROPOSED SPOT ELEVATION
- 1345 PROPOSED CONTOUR
- PROPOSED ADS DRAIN (SIZE AS NOTED)
- PROPOSED ADS ROOF DRAIN (SIZE AS NOTED)
- PROPOSED ADS FOOTING DRAIN (SIZE AS NOTED)

TEST BORING LOCATION (APPROX.)	ELEV.	REFUSAL
B-1	1341.9'	3.1'
B-2	1341.8'	3.2'
B-3	1343.0'	2.0'
B-4	(DELETED)	
B-5	1330.6'	13.4'
B-6	1331.7'	13.3'
B-7	1332.1'	12.9'
B-8	1333.6'	10.4'
B-9	1311.3'	29.7'

TEST PROBE LOCATION (APPROX.)	ELEV.	REFUSAL
P-1	<1335.0'	7.8'
P-2	<1329.5'	7.8'
P-3	<1329.5'	7.8'
P-4	<1332.5'	7.8'
P-5	1337.2'	7.8'
P-6	1341.2'	3.8'
P-7	1342.1'	2.9'
P-8	1341.0'	4.0'
P-9	<1334.0'	7.8'

PROGRESS PLAN
8-30-2021

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 INCH = 40 FEET

SITE PLAN

SCALE: 1"=40'

CONSTRUCTION DRAWINGS
PREPARED FOR
BBL LENOX HOTEL GROUP, LLC
LOCATED AT:
#130 PITTSFIELD-LENOX ROAD
LENOX, MASSACHUSETTS

Design Group, Inc.
Civil Engineers • Surveyors • Consultants
2 FEDERICO DRIVE • PITTSFIELD, MASSACHUSETTS 01201 • (413) 443-3537

PLAN DESCRIPTION:
GRADING PLAN

SK DESIGN GROUP PROJECT #:
210025

JAMES M. SCALISE II
SK DESIGN GROUP PRESIDENT
LICENSE #39863
PROFESSIONAL OF RECORD
PHONE: 413-443-3537

REVISION:

DRAWN BY: AMS	CHECKED BY: JMS II
ORIG. DATE: JULY 13, 2021	SHEET NO. 1 OF 1
ISSUED FOR: DESIGN	
SCALE: AS NOTED	

G:\SK DESIGN GROUP\2021\210025 BBL-130 Pitsf Rd, Lenox-Spec Prmt Amendment\Drawings\Special Permit\210025 SP.dwg
Plotted On: Monday, August 30, 2021 - 9:05am
User Name: ascollaro

SECTION 4.0

Illicit Discharge Statement

Illicit Discharge Statement
For
130 Pittsfield Road
Located In
Lenox

April, 2022

This statement, along with the accompanying plan, verifies that the project does not propose any illicit discharges to the stormwater management systems.

As seen on the plan, drainpipes convey stormwater to each of the BMPs and not into any of the sanitary sewer infrastructure.

If it is found that any illicit discharges have been constructed, action will be taken immediately in accordance with state and local regulations to correct the matter.

Name: ___David Martin_____Date: ___April 7, 2022___
BBL Lenox Hotel Group, LLC

Name (Printed) David Martin___

SECTION 5.0

Soils Information

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Berkshire County, Massachusetts

September 30, 2021

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

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

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Berkshire County, Massachusetts
Survey Area Data: Version 15, Jun 9, 2020

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

Date(s) aerial images were photographed: Jul 8, 2019—Sep 17, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
500C	Amenia silt loam, 8 to 15 percent slopes	4.8	22.3%
602	Urban land	10.5	49.1%
904E	Lyman-Tunbridge association, 15 to 60 percent slopes, extremely stony	0.4	1.7%
909C	Tunbridge-Lyman association, 3 to 15 percent slopes, extremely stony	5.7	26.9%
Totals for Area of Interest		**21.3**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Berkshire County, Massachusetts

500C—Amenia silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 98sd
Elevation: 590 to 1,610 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Amenia

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from limestone; friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from limestone; friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 27 inches: silt loam
H3 - 27 to 64 inches: gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Stockbridge

Percent of map unit: 13 percent

Hydric soil rating: No

Kendaia

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

602—Urban land

Map Unit Setting

National map unit symbol: 98wd
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

904E—Lyman-Tunbridge association, 15 to 60 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2ty75
Elevation: 850 to 2,360 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, extremely stony, and similar soils: 45 percent
Tunbridge, extremely stony, and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Extremely Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 60 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Tunbridge, Extremely Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 15 to 60 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Berkshire, extremely stony

Percent of map unit: 9 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wonsqueak

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase, mountaintop, crest, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Peacham, extremely stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pillsbury, extremely stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

909C—Tunbridge-Lyman association, 3 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2trrm
Elevation: 1,080 to 2,390 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, extremely stony, and similar soils: 50 percent
Lyman, extremely stony, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Extremely Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 7.1 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Lyman, Extremely Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Berkshire, extremely stony

Percent of map unit: 8 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, summit, shoulder

Landform position (three-dimensional): Mountainflank, mountainbase, side slope, interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peacham, extremely stony
Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase, base slope, interfluve
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pillsbury, extremely stony
Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

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SECTION 6.0

CDS Treatment BMP information

Hydrodynamic Separation Product Calculator

Magnesun

Northerly watershed

CDS 2015-4

Project Information					
Project Name	130 Pittsfield Road, Lenox MA			**Option #**	A
Country	UNITED_STATES	**State**	Massachusetts	**City**	Lenox

Contact Information			
First Name	James	**Last Name**	Scalise
Company	SK Design Group, Inc	**Phone #**	413-443-3537
Email	jscalise@sk-designgroup.com		

Design Criteria					
Site Designation	Northerly watershed			**Sizing Method**	Net Annual
Screening Required?	No	**Drainage Area (ac)**	4.15	**Peak Flow (cfs)**	10.20
Groundwater Depth (ft)	5 - 10	**Pipe Invert Depth (ft)**	5 - 10	**Bedrock Depth (ft)**	5 - 10
Multiple Inlets?	No	**Grate Inlet Required?**	No	**Pipe Size (in)**	24.00
Required Particle Size Distribution?	No	**90° between two inlets?**	N/A	**180° between inlet and outlet?**	No
Runoff Coefficient	0.80	**Rainfall Station**	112 - Albany Airport, NY	**TC (Min)**	10

Treatment Selection					
Treatment Unit	CDS	**System Model**	2015-4		
Target Removal	50%	**Particle Size Distribution (PSD)**	125	**Predicted Net Annual Removal**	75.57%

Hydrodynamic Separation Product Calculator

Magnesun

Northerly watershed

CDS 2015-4

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD								
Rainfall Intensity[1] (in/hr)	% Rainfall Volume[1]	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0200	12.21%	12.21%	12.21%	0.0664	0.0664	9.49%	99.51%	12.15%
0.0400	11.53%	23.74%	11.53%	0.1328	0.1328	18.97%	97.61%	11.25%
0.0600	11.03%	34.77%	11.03%	0.1992	0.1992	28.46%	95.72%	10.56%
0.0800	8.91%	43.68%	8.91%	0.2656	0.2656	37.94%	93.82%	8.36%
0.1000	8.30%	51.98%	8.30%	0.3320	0.3320	47.43%	91.92%	7.63%
0.1200	7.24%	59.22%	7.24%	0.3984	0.3984	56.91%	90.02%	6.52%
0.1400	4.80%	64.02%	4.80%	0.4648	0.4648	66.40%	88.12%	4.23%
0.1600	5.22%	69.24%	5.22%	0.5312	0.5312	75.89%	86.22%	4.50%
0.1800	3.20%	72.44%	3.20%	0.5976	0.5976	85.37%	84.33%	2.70%
0.2000	3.95%	76.39%	3.95%	0.6640	0.6640	94.86%	82.43%	3.26%
0.2500	5.98%	82.37%	5.04%	0.8300	0.7000	100.00%	68.65%	4.11%
0.3000	3.84%	86.21%	2.70%	0.9960	0.7000	100.00%	57.21%	2.20%
0.3500	3.39%	89.60%	2.04%	1.1620	0.7000	100.00%	49.04%	1.66%
0.4000	1.46%	91.06%	0.77%	1.3280	0.7000	100.00%	42.91%	0.63%
0.4500	1.68%	92.74%	0.79%	1.4940	0.7000	100.00%	38.14%	0.64%
0.5000	1.05%	93.79%	0.44%	1.6600	0.7000	100.00%	34.33%	0.36%
0.7500	4.25%	98.04%	1.19%	2.4900	0.7000	100.00%	22.88%	0.97%
1.0000	1.68%	99.72%	0.35%	3.3200	0.7000	100.00%	17.16%	0.29%
								82.02%
							Removal Efficiency Adjustment[2] =	6.45%
							Predicted % Annual Rainfall Treated =	83.26%
							Predicted Net Annual Load Removal Efficiency =	75.57%

1 - Based on 10 years of rainfall data from NCDC Station 42, Albany WSFO AP, Albany County, NY

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

SECTION (_____)
STORM WATER TREATMENT DEVICE

1.0 GENERAL

1.1 This item shall govern the furnishing and installation of the CDS® by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.

1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.

1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a CDS® device manufactured by:

Contech Engineered Solutions LLC
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

1.4 Related Sections

1.4.1 Section 02240: Dewatering
1.4.2 Section 02260: Excavation Support and Protection
1.4.3 Section 02315: Excavation and Fill
1.4.4 Section 02340: Soil Stabilization

1.5 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.

1.6 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.

1.7 The SWTD manufacturer shall submit to the Engineer of Record a “Manufacturer’s Performance Certification” certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research

1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

2.0 MATERIALS

2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

- 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
- 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
- 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
- 2.1.4 Aggregates shall conform to ASTM C 33;
- 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
- 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
- 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

2.2 Internal Components and appurtenances shall conform to the following:

- 2.2.1 Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
- 2.2.2 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
- 2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
- 2.2.4 Access system(s) conform to the following:
- 2.2.5 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

3.0 PERFORMANCE

3.1 The SWTD shall be sized to either achieve an 80 percent average annual reduction in the total suspended solid load with a particle size distribution having a mean particle size (d_{50}) of 125 microns unless otherwise stated.

3.2 The SWTD shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 millimeters (mm) regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to the device's rated-treatment capacity. The SWTD shall be designed to retain all previously captured pollutants addressed by this

subsection under all flow conditions. The SWTD shall be capable of capturing and retaining total petroleum hydrocarbons. The SWTD shall be capable of achieving a removal efficiency of 92 and 78 percent when the device is operating at 25 and 50 percent of its rated-treatment capacity. These removal efficiencies shall be based on independent third-party research for influent oil concentrations representative of storm water runoff (20 ± 5 mg/L). The SWTD shall be greater than 99 percent effective in controlling dry-weather accidental oil spills.

3.3 The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the SWTD's treatment efficiency as captured pollutants accumulate. The sump chamber shall be separate from the treatment processing portion(s) of the SWTD to minimize the probability of fine particle re-suspension. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.

3.4 The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed in Table 1 of the required unit.

3.5 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

3.6 The SWTD shall have completed field tested following TARP Tier II protocol requirements

4.0 EXECUTION

4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.

4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.

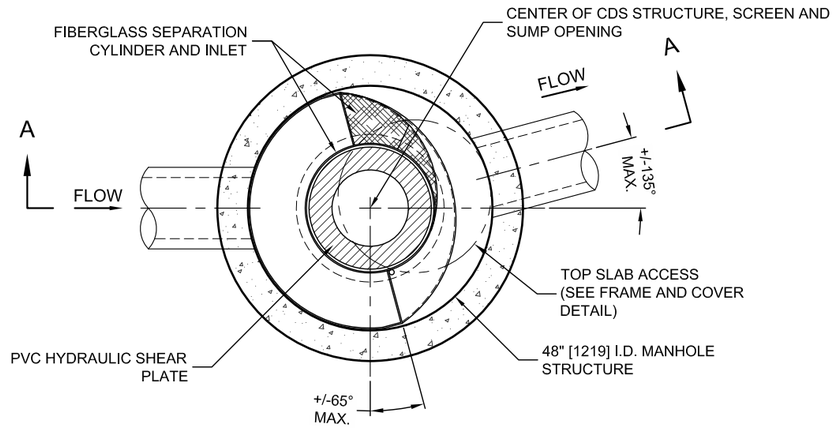
4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

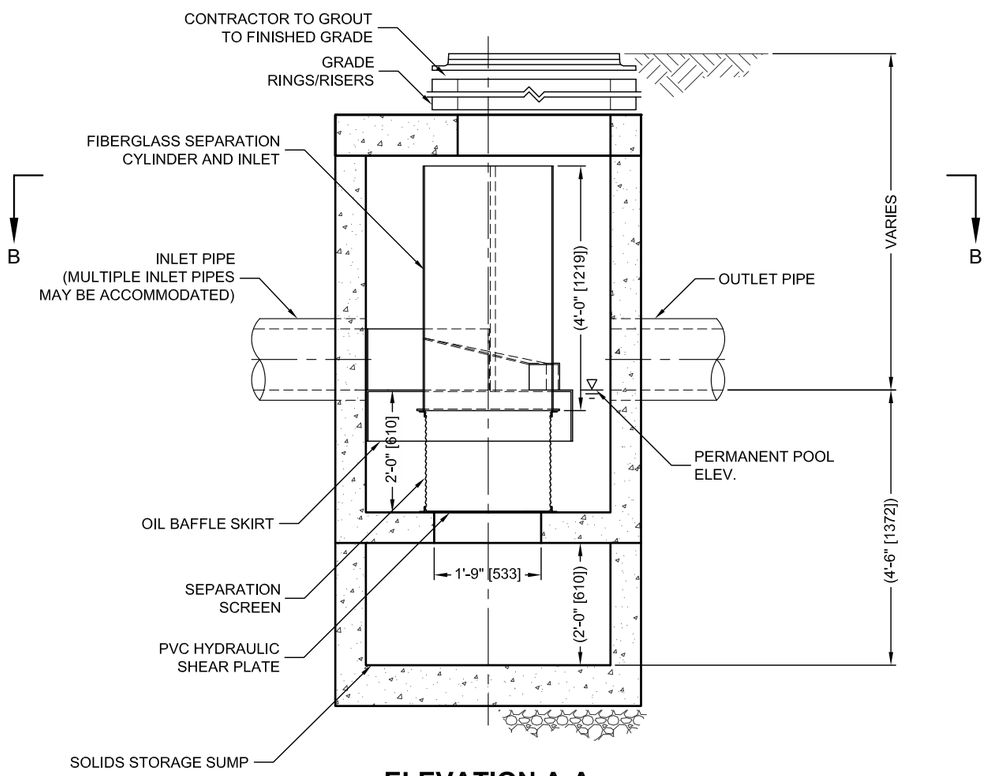
TABLE 1
Storm Water Treatment Device
Storage Capacities

CDS Model	Minimum Sump Storage Capacity (yd^3)/(m^3)	Minimum Oil Storage Capacity (gal)/(L)
CDS2015-4	0.9(0.7)	61(232)
CDS2015-5	1.5(1.1)	83(313)
CDS2020-5	1.5(1.1)	99(376)
CDS2025-5	1.5(1.1)	116(439)
CDS3020-6	2.1 (1.6)	184(696)
CDS3025-6	2.1(1.6)	210(795)
CDS3030-6	2.1 (1.6)	236(895)
CDS3035-6	2.1 (1.6)	263(994)
CDS3535-7	2.9(2.2)	377(1426)
CDS4030-8	5.6(4.3)	426(1612)
CDS4040-8	5.6 (4.3)	520(1970)
CDS4045-8	5.6 (4.3)	568(2149)
CDS5640-10	8.7(6.7)	758(2869)
CDS5653-10	8.7(6.7)	965(3652)
CDS5668-10	8.7(6.7)	1172(4435)
CDS5678-10	8.7(6.7)	1309(4956)
CDS7070-DV	3.6(2.8)	914 (3459)
CDS10060-DV	5.0 (3.8)	792 (2997)
CDS10080-DV	5.0 (3.8)	1057 (4000)
CDS100100-DV	5.0 (3.8)	1320 (4996)

END OF SECTION



PLAN VIEW B-B
N.T.S.



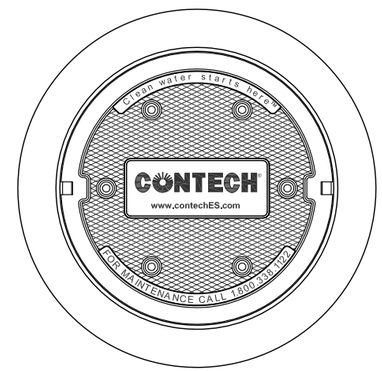
ELEVATION A-A
N.T.S.

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,588; 6,581,782; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
	*	*	

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH®
ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
INLINE CDS
STANDARD DETAIL

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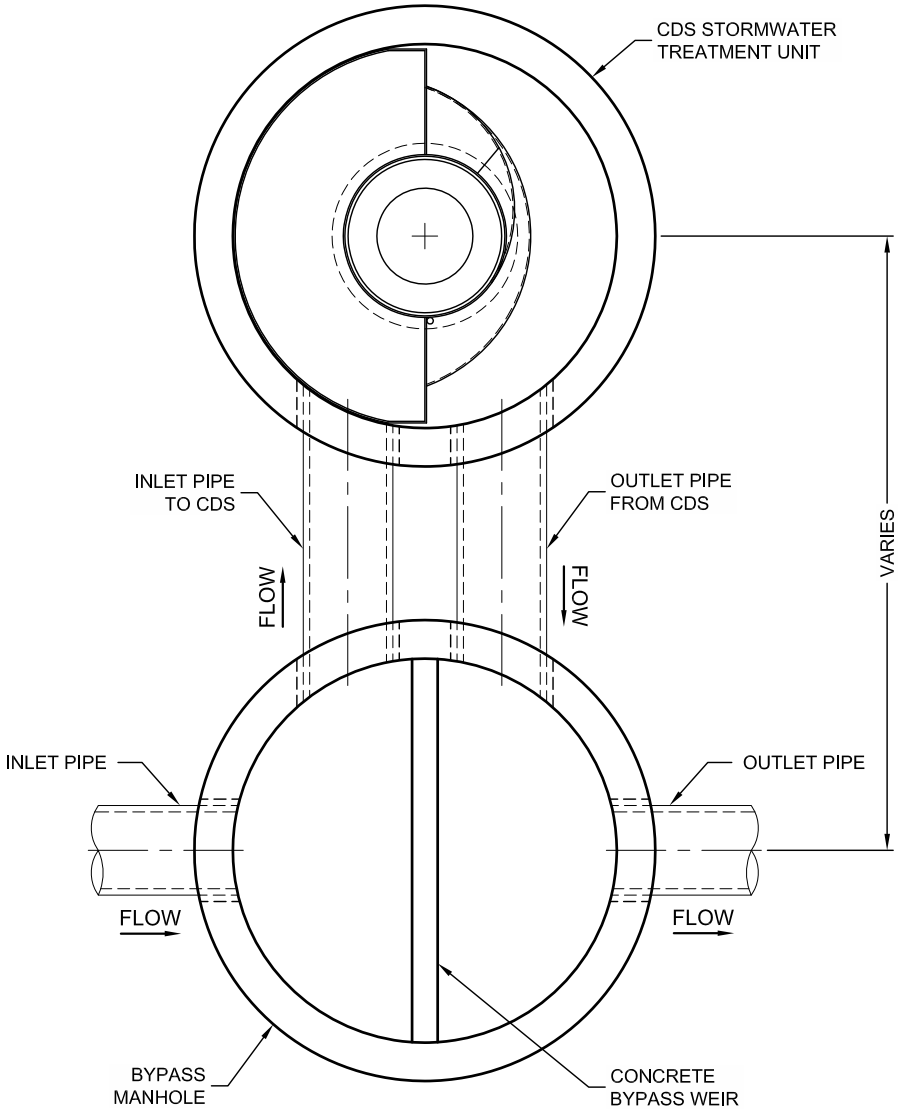

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CONTECH®
ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS STORMWATER TREATMENT SYSTEM
TYPICAL OFFLINE LAYOUT
WITH BYPASS MANHOLE STRUCTURE

DATE:03/12/13	SCALE: NONE	PROJECT No.: N/A	SEQ. No.: N/A	DRAWN: N/A	CHECKED: N/A

I:\STORMWATER\COMMOPS\22 CDS\40 STANDARD DRAWINGS\OFFLINE LAYOUTS DWG\OFFLINE CDS-C LAYOUT BYPASS MANHOLE STRUCTURE.DWG 3/12/2013 3:34 PM

Hydrodynamic Separation Product Calculator

Magnesun

Southerly and Central watershed

CDS 2015-4

Project Information					
Project Name	130 Pittsfield Road, Lenox MA			**Option #**	A
Country	UNITED_STATES	**State**	Massachusetts	**City**	Lenox

Contact Information			
First Name	James	**Last Name**	Scalise
Company	SK Design Group, Inc	**Phone #**	413-443-3537
Email	jscalise@sk-designgroup.com		

Design Criteria					
Site Designation	Southerly and Central watershed			**Sizing Method**	Net Annual
Screening Required?	No	**Drainage Area (ac)**	5.30	**Peak Flow (cfs)**	11.60
Groundwater Depth (ft)	5 - 10	**Pipe Invert Depth (ft)**	5 - 10	**Bedrock Depth (ft)**	5 - 10
Multiple Inlets?	No	**Grate Inlet Required?**	No	**Pipe Size (in)**	24.00
Required Particle Size Distribution?	No	**90° between two inlets?**	N/A	**180° between inlet and outlet?**	No
Runoff Coefficient	0.70	**Rainfall Station**	112 - Albany Airport, NY	**TC (Min)**	10

Treatment Selection					
Treatment Unit	CDS	**System Model**	2015-4		
Target Removal	50%	**Particle Size Distribution (PSD)**	125	**Predicted Net Annual Removal**	73.32%

Hydrodynamic Separation Product Calculator

Magnesun

Southerly and Central watershed

CDS 2015-4

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD								
Rainfall Intensity[1] (in/hr)	% Rainfall Volume[1]	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0200	12.21%	12.21%	12.21%	0.0742	0.0742	10.60%	99.29%	12.12%
0.0400	11.53%	23.74%	11.53%	0.1484	0.1484	21.20%	97.17%	11.20%
0.0600	11.03%	34.77%	11.03%	0.2226	0.2226	31.80%	95.05%	10.48%
0.0800	8.91%	43.68%	8.91%	0.2968	0.2968	42.40%	92.93%	8.28%
0.1000	8.30%	51.98%	8.30%	0.3710	0.3710	53.00%	90.80%	7.54%
0.1200	7.24%	59.22%	7.24%	0.4452	0.4452	63.60%	88.68%	6.42%
0.1400	4.80%	64.02%	4.80%	0.5194	0.5194	74.20%	86.56%	4.15%
0.1600	5.22%	69.24%	5.22%	0.5936	0.5936	84.80%	84.44%	4.41%
0.1800	3.20%	72.44%	3.20%	0.6678	0.6678	95.40%	82.32%	2.63%
0.2000	3.95%	76.39%	3.73%	0.7420	0.7000	100.00%	76.79%	3.03%
0.2500	5.98%	82.37%	4.51%	0.9275	0.7000	100.00%	61.43%	3.67%
0.3000	3.84%	86.21%	2.42%	1.1130	0.7000	100.00%	51.19%	1.97%
0.3500	3.39%	89.60%	1.83%	1.2985	0.7000	100.00%	43.88%	1.49%
0.4000	1.46%	91.06%	0.69%	1.4840	0.7000	100.00%	38.40%	0.56%
0.4500	1.68%	92.74%	0.70%	1.6695	0.7000	100.00%	34.13%	0.57%
0.5000	1.05%	93.79%	0.40%	1.8550	0.7000	100.00%	30.72%	0.32%
0.7500	4.25%	98.04%	1.07%	2.7825	0.7000	100.00%	20.48%	0.87%
1.0000	1.68%	99.72%	0.32%	3.7100	0.7000	100.00%	15.36%	0.26%
								79.97%
							Removal Efficiency Adjustment[2] =	6.65%
							Predicted % Annual Rainfall Treated =	81.46%
							Predicted Net Annual Load Removal Efficiency =	73.32%

1 - Based on 10 years of rainfall data from NCDC Station 42, Albany WSFO AP, Albany County, NY

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

SECTION (_____)
STORM WATER TREATMENT DEVICE

1.0 GENERAL

1.1 This item shall govern the furnishing and installation of the CDS® by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.

1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.

1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a CDS® device manufactured by:

Contech Engineered Solutions LLC
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

1.4 Related Sections

1.4.1 Section 02240: Dewatering
1.4.2 Section 02260: Excavation Support and Protection
1.4.3 Section 02315: Excavation and Fill
1.4.4 Section 02340: Soil Stabilization

1.5 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.

1.6 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.

1.7 The SWTD manufacturer shall submit to the Engineer of Record a “Manufacturer’s Performance Certification” certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research

1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

2.0 MATERIALS

2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

- 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
- 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
- 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
- 2.1.4 Aggregates shall conform to ASTM C 33;
- 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
- 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
- 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

2.2 Internal Components and appurtenances shall conform to the following:

- 2.2.1 Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
- 2.2.2 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
- 2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
- 2.2.4 Access system(s) conform to the following:
- 2.2.5 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

3.0 PERFORMANCE

3.1 The SWTD shall be sized to either achieve an 80 percent average annual reduction in the total suspended solid load with a particle size distribution having a mean particle size (d_{50}) of 125 microns unless otherwise stated.

3.2 The SWTD shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 millimeters (mm) regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to the device's rated-treatment capacity. The SWTD shall be designed to retain all previously captured pollutants addressed by this

subsection under all flow conditions. The SWTD shall be capable of capturing and retaining total petroleum hydrocarbons. The SWTD shall be capable of achieving a removal efficiency of 92 and 78 percent when the device is operating at 25 and 50 percent of its rated-treatment capacity. These removal efficiencies shall be based on independent third-party research for influent oil concentrations representative of storm water runoff (20 ± 5 mg/L). The SWTD shall be greater than 99 percent effective in controlling dry-weather accidental oil spills.

3.3 The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the SWTD's treatment efficiency as captured pollutants accumulate. The sump chamber shall be separate from the treatment processing portion(s) of the SWTD to minimize the probability of fine particle re-suspension. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.

3.4 The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed in Table 1 of the required unit.

3.5 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

3.6 The SWTD shall have completed field tested following TARP Tier II protocol requirements

4.0 EXECUTION

4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.

4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.

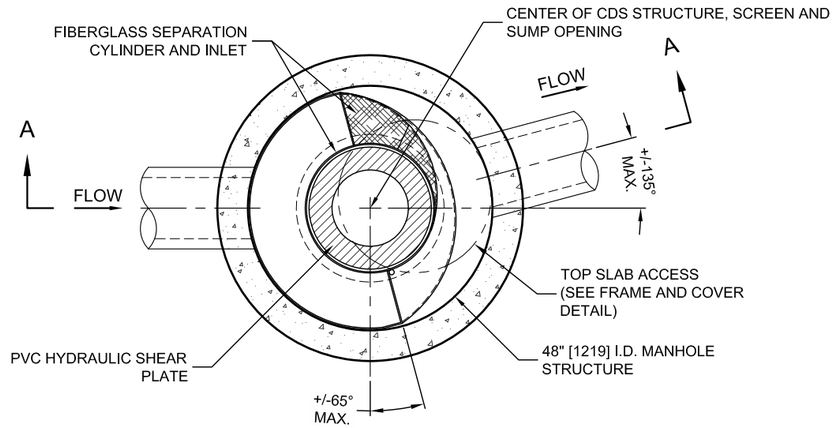
4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

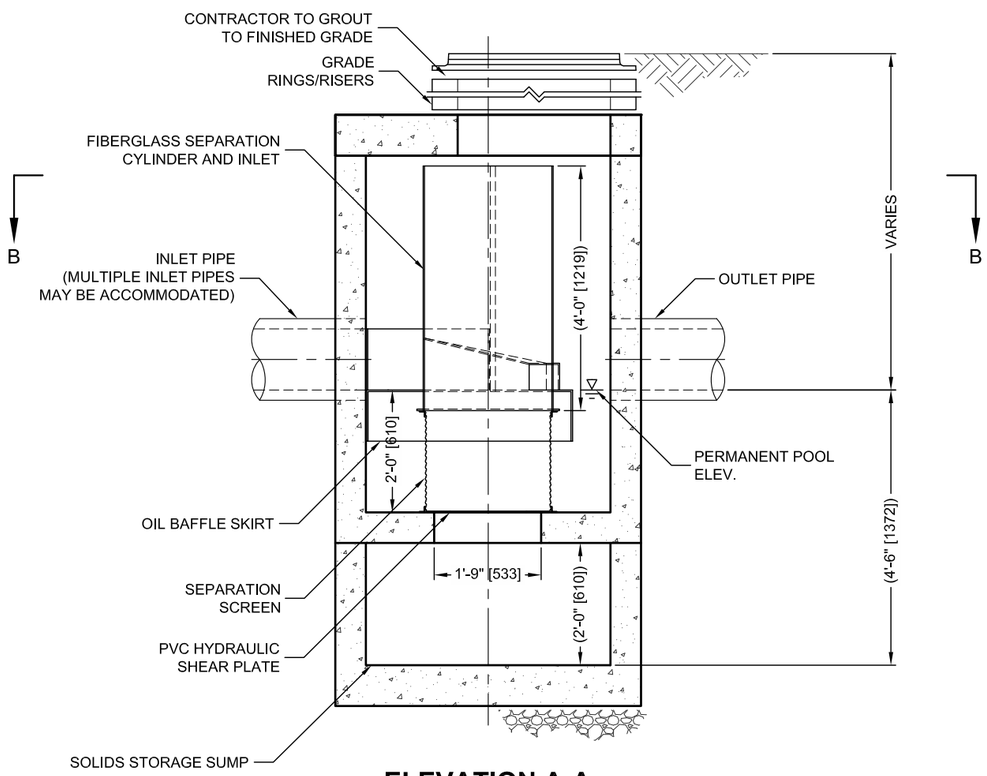
TABLE 1
Storm Water Treatment Device
Storage Capacities

CDS Model	Minimum Sump Storage Capacity (yd^3)/(m^3)	Minimum Oil Storage Capacity (gal)/(L)
CDS2015-4	0.9(0.7)	61(232)
CDS2015-5	1.5(1.1)	83(313)
CDS2020-5	1.5(1.1)	99(376)
CDS2025-5	1.5(1.1)	116(439)
CDS3020-6	2.1 (1.6)	184(696)
CDS3025-6	2.1(1.6)	210(795)
CDS3030-6	2.1 (1.6)	236(895)
CDS3035-6	2.1 (1.6)	263(994)
CDS3535-7	2.9(2.2)	377(1426)
CDS4030-8	5.6(4.3)	426(1612)
CDS4040-8	5.6 (4.3)	520(1970)
CDS4045-8	5.6 (4.3)	568(2149)
CDS5640-10	8.7(6.7)	758(2869)
CDS5653-10	8.7(6.7)	965(3652)
CDS5668-10	8.7(6.7)	1172(4435)
CDS5678-10	8.7(6.7)	1309(4956)
CDS7070-DV	3.6(2.8)	914 (3459)
CDS10060-DV	5.0 (3.8)	792 (2997)
CDS10080-DV	5.0 (3.8)	1057 (4000)
CDS100100-DV	5.0 (3.8)	1320 (4996)

END OF SECTION



PLAN VIEW B-B
N.T.S.



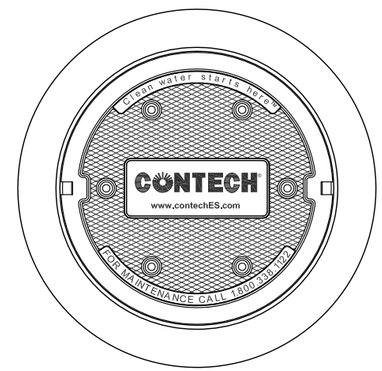
ELEVATION A-A
N.T.S.

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,588; 6,581,782; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
	*	*	

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH®
ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
INLINE CDS
STANDARD DETAIL

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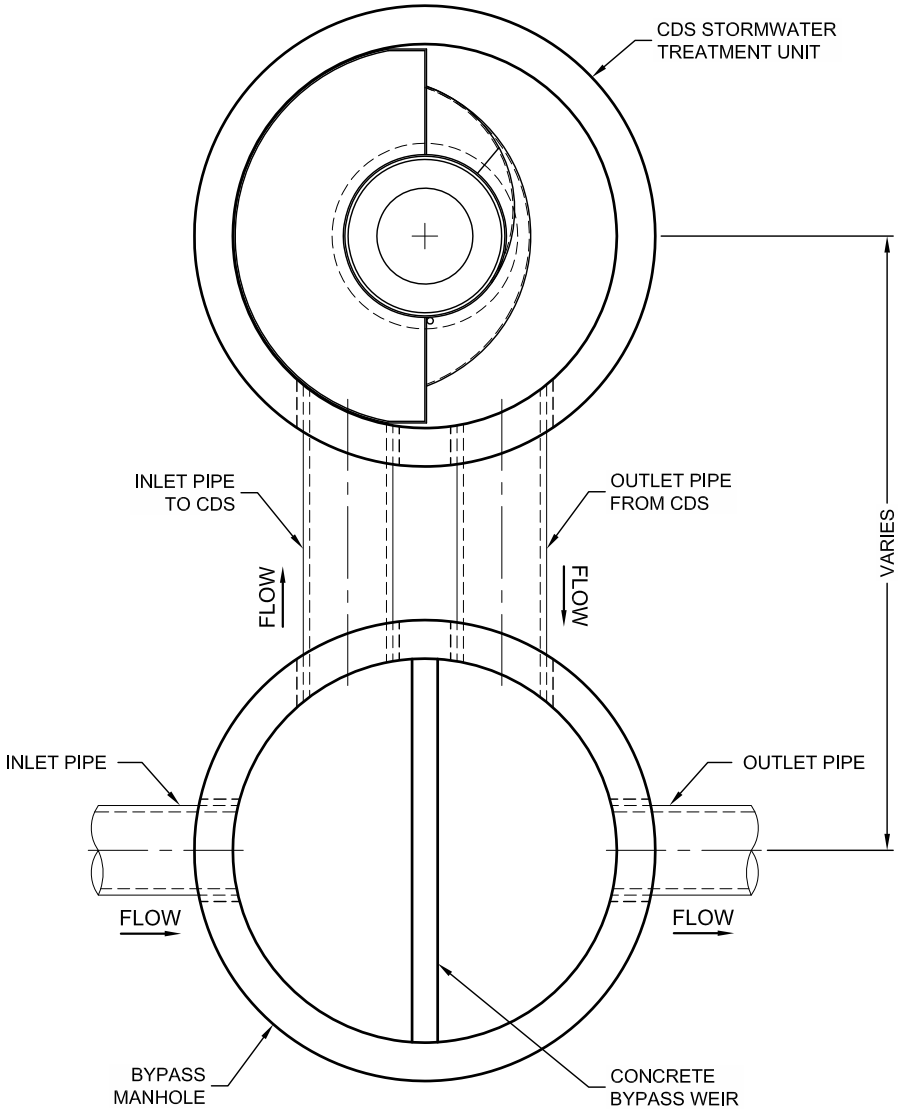

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CDS STORMWATER TREATMENT SYSTEM
TYPICAL OFFLINE LAYOUT
WITH BYPASS MANHOLE STRUCTURE

DATE:03/12/13	SCALE: NONE	PROJECT No.: N/A	SEQ. No.: N/A	DRAWN: N/A	CHECKED: N/A

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